FE253

Diagram No. 1203-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Field Examination

Field No. MI-5-1-83

Office No. FE-253

LOCALITY

State Maine

General Locality Approaches to Penobscot Bay

Locality Two Bush Channel

1983

CHIEF OF PARTY
CAPT. J.A.Yeager

LIBRARY & ARCHIVES

DATE November 21, 1984

☆U.S. GOV. PRINTING OFFICE: 1980—766-230

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTER NO.

HYDROGRAPHIC TITLE SHEET

FE-253

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. MI-5-1-83

State MAINE

General locality APPROACHES TO PENOBSCOT BAY

Locality TWO BUSH CHANNEL

Scale 1:5000 Date of survey 2 JUNE-9 JUNE 1983

Instructions dated 29 DECEMBER 1983 * Project No. OPR-A166-MI-83

Vessel NOAA SHIP MT MITCHELL S-222

Chief of party J. AUSTIN YEAGER, CAPT, NOAA

Surveyed by SEE REMARKS

Soundings taken by echo sounder, hand lead, ~~pole~~ ECHO SOUNDER AND LEAD LINE & Diver Depth Gage

Graphic record scaled by B.M., U.G., M.S., R.C., B.J., E.M.

Graphic record checked by B.M., U.G., M.S., R.C., B.J., E.M.

Protracted by N/A Automated plot by Xynetics 1201 Plotter (AMC)

Verification by Hydrographic Surveys Branch, Atlantic Marine Center

Soundings in fathoms (feet) at (MLW) MLLW

REMARKS: LT R.L. PARSONS

LT D. RICE

LTJG G. YATES

ENS MCLEAN ENS CREWS STANDARDS CK'D 11-27-84 C. Lay

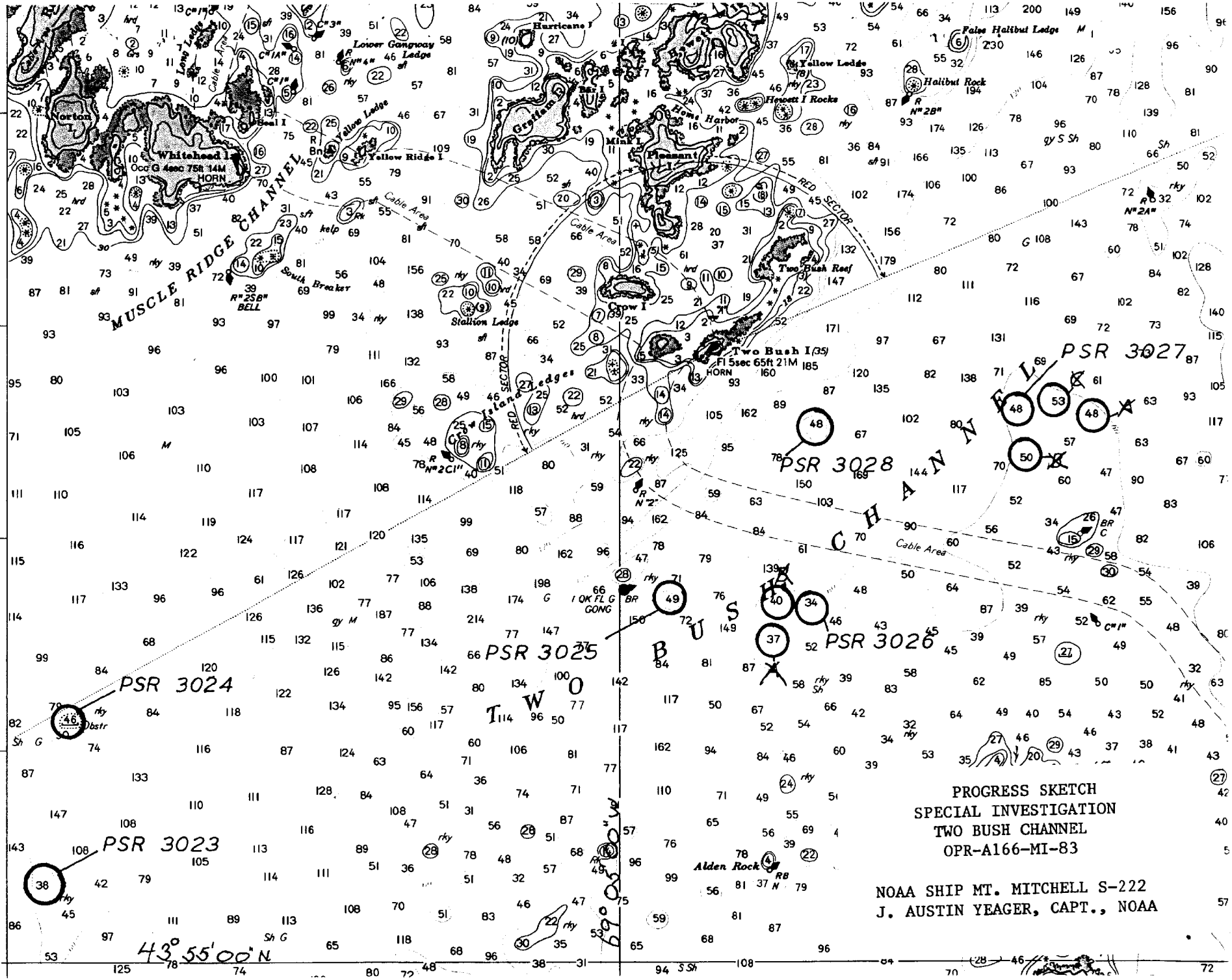
ENS COAKLEY ENS MILLER

ENS PAETH ENS SITES Tides checked 5/10/85 SJV

Sheet checked 5/10/85 SJV

* AMMENDED BY CHANGE NO. 1 (24 MAY, 1983)

☆ U.S. GPO: 1974-0-768-081/1207


MUSCLE RIDGE CHANNEL
TWO BUSH CHANNEL
PSR 3023
PSR 3024
PSR 3025
PSR 3026
PSR 3027
PSR 3028
Whitehead I
Occ G 4sec 75ft 14M HORN
Two Bush I (35)
Fl 5sec 65ft 21M HORN
Two Bush Reef
Alden Rock
Hurricane I
Lower Gangway Ledge
Yellow Ledge
Yellow Ridge I
Stallion Ledge
Island Ledges
Halibut Rock
Hewett I Rocks
False Halibut Ledge
Home Harbor
Pleasant I
Crow I
Griffin I
Norton I
South Breaker
Cable Area
RED SECTOR
43°55'00"N
69°05'00"W
PROGRESS SKETCH
SPECIAL INVESTIGATION
TWO BUSH CHANNEL
OPR-A166-MI-83
NOAA SHIP MT. MITCHELL S-222
J. AUSTIN YEAGER, CAPT., NOAA
(JOINS CHART 13301)

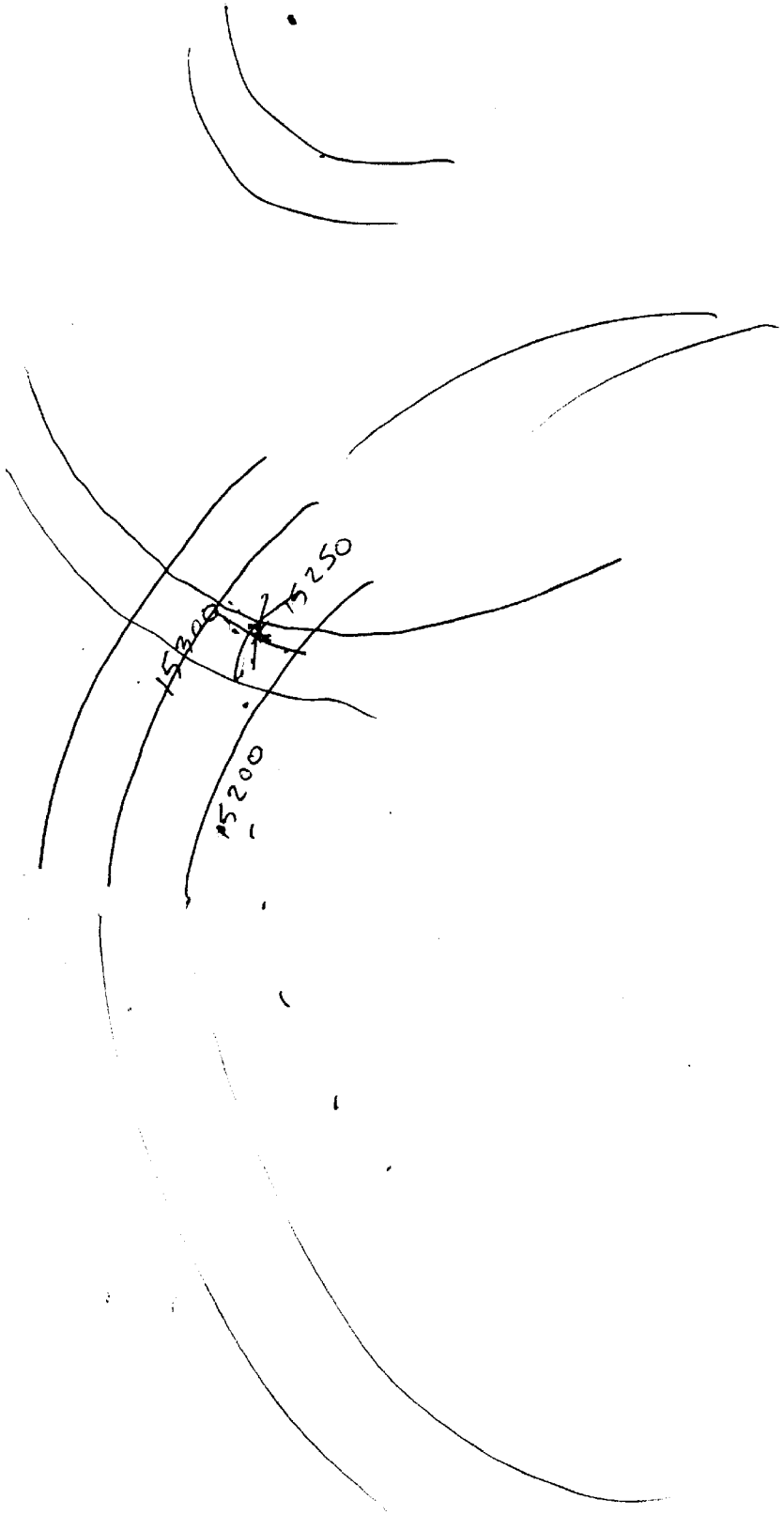

5250
5200

TABLE OF CONTENTS

HYDROGRAPHIC TITLE SHEET

PROGRESS SKETCH

		PAGE
A.	PROJECT	1
B.	AREA SURVEYED	1
C.	SOUNDING VESSEL	2
D.	SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS	2
E.	HYDROGRAPHIC SHEETS	6
F.	CONTROL STATIONS	7
G.	HYDROGRAPHIC POSITION CONTROL	7
H.	SHORELINE	8
I.	CROSSLINES	8
J.	JUNCTIONS	8
K.	COMPARISON WITH PRIOR SURVEYS	9
L.	COMPARISON WITH CHART	17
M.	ADEQUACY OF THE SURVEY	17
N.	AIDS TO NAVIGATION	18
O.	STATISTICS	18
P.	MISCELLANEOUS	20
Q.	RECOMMENDATIONS	20
R.	AUTOMATED DATA PROCESSING	20
S.	REFERENCE TO REPORTS	21

APPENDICES

		PAGE
* A.	HYDROGRAPHIC SHEET PROJECTION AND ELECTRONIC CONTROL	22
	PARAMETERS	23
* B.	FIELD TIDE NOTE	28
* C.	GEOGRAPHIC NAMES LIST	30
* D.	ABSTRACT OF CORRECTIONS TO ECHO SOUNDINGS	31
* E.	ABSTRACT OF CORRECTIONS TO ELECTRONIC POSITION CONTROL	41
F.	LIST OF STATIONS	45
* G.	ABSTRACT OF POSITIONS	47
* H.	BOTTOM SAMPLES (No Bottom Samples were taken on this Survey)	51
I.	LANDMARKS FOR CHARTS	52
J.	APPROVAL SHEET	53

Approved Tide Note
Approved Geographic Names
Hydrographic Survey Statistics
Evaluation Report
Inspection Report
AWOIS items # 3023, 3024, 3025, 3026, 3027, & 3028 smooth sheets.

*=Removed from the Descriptive Report and filed with the survey records.

DESCRIPTIVE REPORT

TO ACCOMPANY

SPECIAL INVESTIGATION, TWO BUSH CHANNEL

PENOBSCOT BAY, MAINE

(OPR-A166-MI-83)

A. PROJECT

This special investigation was conducted in accordance with Project Instructions OPR-A166-MI-83, Penobscot Bay, Maine, dated 29 December 1982, and amended by Change No. 1, dated 24 May 1983. This special investigation was initiated following concerns expressed by the Penobscot Bay Area Pilots, Inc., regarding certain charted depths in Two Bush Channel.

B. AREA SURVEYED

The investigated depths were located in Two Bush Channel, the South West approach to Penobscot Bay, between Longitude 69°09'00" West and 69°01'00" West.

The investigation commenced on 2 June 1983 (J.D. 153) and was completed on 9 June 1983 (J.D. 160). Survey data was collected on the following days:

Calender Dates	Julian Dates
2 June 1983 - 5 June 1983	153-156
8 June 1983 - 9 June 1983	159-160

C. SOUNDING VESSEL

The following sounding vessels were utilized to obtain survey data for this investigation:

VESNO	CALENDER DATES	JULIAN DATES
2223	3-5 June and 8 June 1983	154-156, 159
2224	2 June, 5 June, and 8-9 June 1983	153, 156, 159-160
2226	2 June - 5 June 1983	153 - 155

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS – See also section 4. of the Evaluation Report.

The following sounding equipment was utilized during the investigation:

EQUIPMENT	S/N
VESNO 2223	
Ross Model 5000 Fineline Depth Recorder	1083
Model 4000 Transceiver	1055
Model 6000 Digitizer	1055
Leadline	
VESNO 2224	
Raytheon DSF 6000N Fathometer	A 103N
Klein Side Scan Sonor Towfish	417 M
Klein Side Scan Recorder	249
Leadline	

VESNO 2226

Raytheon DSF 6000N Fathometer A114N

Leadline

All survey records were scanned by trained survey department personnel and checked by the Officer-in-Charge. Peaks and deeps considered significant, that occured between soundings, were inserted via the electronic corrector tape. Digitizing errors were corrected to agree with the graphic record via the electronic corrector tape.

When utilizing the Ross Model 5000 Echo Sounder, phase calibration checks were made at frequent intervals. Necessary adjustments were made and noted in the sounding volume and on the fathogram. Any departure of the trace from the calbriation due to phase difference was corrected during the scanning process. When utilizing the Raytheon DSF 6000N Fathometer, both wide and narrow beam signals were transmitted, however, digitized depths were obtained from the narrow beam only. Sounding junctions with the Ross Model 5000 showed excellent agreement.

When operating in conjunction with the Klein Side Scan Sonar, the unit was tuned and maintained in accordance with Professional Paper No. 24. Appropriate line spacing and optimum height of the fish above the bottom were employed in accordance with the project instructions. A sonor contact log is included with the survey support data.

Velocity correctors were obtained from a Nansen Cast made on 5 June 1983 at Latitude 43°54.4'N, Longitude 69°05.1'W. The cast was taken to a depth of 30 meters and a simultaneous $T_{\lambda}D_{x}C$ cast was taken to verify the validity of the data. Copies of the velocity tables used and their associated curve are included in Appendix D.

Bar checks were obtained prior to and following the collection of each day's sounding data. Bar check and Nansen cast data compared favorably. (The velocity tables were made from the nansen cast data only.)

A TRA correction of 2.1 feet was applied to all sounding data obtained with a hull mounted transducer. A 2.1 foot correction was obtained following the installation of new dual frequency transducers on all MT. MITCHELL's sounding launches. Daily changes in draft for all sounding launches were considered insignificant.

Settlement and squat correctors were obtained during tests conducted in Rockland Harbor, Maine. A copy of the Settlement and Squat report, including graphs and appropriate corrector tables, is included in Appendix D. Those correctors are incorporated in the TC/TI tapes, copies of which are included in Appendix D.

This investigation was conducted using predicted tides based on predictions at Rockland Harbor (Station No. 841-5490). Matinicus Island tide station (Station No. 841-4876), originally scheduled to be in operation during this investigation, was not utilized after being granted a waiver from Requirements Branch.

Smooth tides were requested from the Chief, Tides and Water Levels Branch (N/MOI2) in a letter dated 7 September 1983. A copy of that letter is included in Appendix D. Smooth tides and settlement and squat correctors will be applied on the smooth sheet prepared by the ~~Processing Division~~ Hydrographic Surveys Branch, Atlantic Marine Center (MOA23).

E. HYDROGRAPHIC SHEETS

This survey was plotted on four (4) mylar field sheets by the Hydroplot System aboard MT. MITCHELL as follows:

NO. OF SHEETS	DATA	SKEW	SCALE
1	Mainscheme, Developements D.P.'s	90, 21, 36	1:5k
1	Mainscheme, D.P.'s	41, 21, 54	1:5k
1	Developements, D.P.'s	21, 54, 41	1:5k
1	Side Scan Sonor Coverage	41, 21, 16	1:5k

All soundings on the field sheets are corrected for predicted tides, velocity, instrument error and TRA.

All field records and the following tapes will be forwarded to the Atlantic Marine Center for verificiation and smooth plotting:

Master Data Tapes (Raw and Edited)

Electronic Corrector Tapes

Parameter Tapes

Signal Tape

Velocity Tapes

TC/TI Tapes

F. CONTROL STATIONS

Both control stations, GREEN ISLAND (1859) and METINIC (1858), are Second Order, Class I positions. Both monumented stations were recovered in good condition and were the only stations used during the course of this investigation. TWO BUSH ISLAND LIGHTHOUSE, 1902 was used as a calibration station and is a third order, class I position. All three stations are published by N.G.S.

A list of the geographic positions is included in Appendix F of this report.

G. HYDROGRAPHIC POSITION CONTROL

Horizontal position control for this investigation was obtained through the use of Del Norte Trisponders in the range/range mode. The following positioning equipment was used during this survey: see section 4. of the Evaluation Report.

VESNO	J.D.	DMU(S/N)	MASTER(S/N)	REMOTES(S/N)
2223	154 - 156, 159	188	159(76)	245(72)
				256(74)
2224	153 - 154, 156	182	1970(72)	245(72)
	159 - 160			256(74)
2226	153 - 155	432	1067(74)	245(72)
				256(74)

Each DMU/Master pair was calibrated with the remote units prior to the commencement of survey operations on 28 May and following the completion of survey operations on 10 June. The units were calibrated over a measured baseline in Rockland Harbor, Maine, in accordance with AMC OP-ORDER No. 79. All baseline calibration data are included with the survey support data.

Daily calibrations were made before and after data acquisition, weather permitting. Calibration was achieved through the use of an H.P. 3810B Electronic Distance Measuring Unit in conjunction with prism boards located aboard the sounding launches. Azimuths and distances from a known position to the launch were determined and correctors were calculated through the use of the H.P. Range/Azimuth Calibration Program (VER 2/22/82).

On J.D. 155, heavy fog prevented the calibration of VESNO 2223 and VESNO 2226. A comparison of correctors from J.D.'s 154 and 156 showed that the correcters had not appreciably changed. Therefore, correctors for J.D. 155 were obtained by averaging the prior and following days correctors.

H. SHORELINE

There was no shoreline within the limits of the survey.

I. CROSSLINES — See the Evaluation Report — Section 4., statement 5.

As the purpose of this special investigation was to resolve PSR (AWOIS) items and all the hydrography was catagorized as developements, crossline comparisons do not apply in this case.

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

As the purpose of this special investigation was to resolve PSR Items, survey junctions do not apply in this case.

K. COMPARISON WITH PRIOR SURVEYS — See the Evaluation Report - sections 4. and 6.

The following prior surveys of the Two Bush Channel area were compared with this survey:

SURVEY	SCALE	DATE
H-8176	1:20,000	1954

A comparison of soundings within the developed areas yeilded a 100% agreement within the guidelines stated in Section 1.1.2, Part B.II.1, of the Hydrographic Manual, with the exception of those specific items mentioned in the following discussion.

The following PSR items were investigated and the results are as follows:

PSR NO	H-8176	SPECIAL INVESTIGATION	POSITION	LOCATION
3023	38'	~~38'~~ 36'	~~6003~~ 6003	43°55'23"N — for discussion see page 10 of this report 69°08'45"W
3024*	46'	~~14'~~ 14' — 6007 ~~50'~~ ok 50' — ~~4040~~ 4040+3 50' — 4026+3 50' — 6004		43°56'07"N — for discussion see page 11 of this report 69°08'34"W
3025	49'	~~52'~~ 51'	~~3004~~ 6019	43°56'42"N — for discussion see page 11 & 12 of this report 69°04'41"W
3026	34' (H-943 of 1866-67)	~~53+~~ 40' — approx 125 meters SW of the charted 34'	~~3069~~ 4137+9	43°56'41"N — for discussion see page 12 of this report 69°03'44"W

3026	37'	39'	3576, 3590, 3568+7	43°56'31"N 69°04'01"W	— for discussion see page 14 of this report.
3026	40'	42' 41'	~~3566+3~~ 3594	43°56'48"N 69°04'00"W	— for discussion see page 14 of this report.
3027	48'	45'	4001	43°57'37"N 69°02'24"W	— for discussion see page 15 of this report.
3027	48'	46'	3503+1	43°57'33"N 69°01'54"W	— for discussion see page 15 of this report.
3027	50'	50'	3245+3	43°57'24"N 69°02'20"W	— for discussion see page 16 of this report.
3027	53'	51' OK 50'	3478+3 3366+5	43°57'38"N 69°02'09"W	— for discussion see page 16 of this report.
3028	48'	48'	6083	43°57'32"N 69°03'43"W	— for discussion see page 16 of this report.

* The origin of this sounding, H-8572WD, was not available for direct comparisions.

PSR NO. 3023

This 38' sounding, charted at Latitude 43°55'22"N, Longitude 69°08'45"W, was developed on J.D. 153 by employing a buoy circle search with a sounding launch. Divers were deployed over the area where the shoalest depth was observed on the fathogram. Divers obtained a leadline depth over the largest boulder in the area, the most obvious feature in the area, and a simultaneous echo sounder depth was obtained for comparison. The leadline depth, reduced for ~~predicted~~ smooth tides, resulted in a least depth of ~~38'~~ 36' (pos. 6003).

It is recommended that the ~~38'~~ 36' Rk sounding ~~presently~~ be charted, ~~remain as such.~~

PSR NO. 3024

This item, identified as a submerged wreck, is presently charted as an obstruction cleared to 46 feet at Latitude 43°56'09"N, Longitude 69°08'33"W. The area was developed on J.D. 154 by employing a buoy circle search with a sounding vessel. Divers were deployed over the area where the shoalest depth was observed on the fathogram. Divers were unable to find an obstruction or a leadline depth which would result in a 46 foot depth. On J.D. 156, a development utilizing a line spacing of 25m was conducted over the charted obstruction out to a radius of 250m. Divers were again deployed and a subsequent search did not yield a submerged wreck. A least depth of 5~~8~~ (pos. 4040) was obtained from the fathogram. A shoaler depth of ~~48'~~ (pos. ~~4005~~) was obtained at Latitude 43°56'0~~8~~"N, Longitude 69°08'~~20~~"W, approximately ~~200~~m S.W. of the 5~~8~~ depth. The least depth of this investigation is a 4~~6~~ Rk (Pos #6007) in Latitude 43°5~~6~~' 7.70", Longitude 69° 8' 34.98"

~~Since the reduced visibility on the days of the dives prevented absolute identification of a wreck, and a side scan search was not performed, it is recommended that the 46' sounding presently charted remain as such.~~ Do not concur — the 46' obstr. is from H-8572 WD and should not be retained on the chart as the 4~~6~~ Rk is the shoalest depth which can be shown at the charting scale. A total of three shoal features were brought forward to the smooth sheet — see section 6. of the Evaluation Report.

PSR NO. 3025

This 49' sounding, charted at Latitude 43°56'42"N, Longitude 69°04'41"W, was developed on J.D. 155 by employing a buoy circle search with a sounding launch. Divers were deployed over the area where the shoalest depth was observed on the fathogram. Divers obtained a leadline depth over a very prominent pinnacle rock and a simultaneous echosounder depth was obtained for comparison. The leadline depth, reduced for ~~predicted~~ tides, resulted in a least depth of 5~~X~~' (pos. ~~6004~~ 6019). The extent of this scare is undetermined

It is recommended that since the pinnacle rock was the only feature in the area, the presently charted 49' sounding be retained in the interest of creating a wider margin of safety. — Concur — The 49' sounding from H-8176 (1954) was brought forward to the smooth sheet.

PSR NO. 3026

This 34' sounding, charted at Latitude 43°56'41"N, Longitude 69°03'44"W, was developed on several occasions by employing a buoy circle search with a sounding launch and then deploying divers over suspected shoal areas. When this method failed to locate any depth in the vicinity of 34', a thorough development utilizing a line spacing of 25 meters was conducted in the area. A depth of ~~53'~~ 48 was obtained in the location where the 34' depth is charted. The shoalest depth in the immediate vicinity is a ~~43'~~ 40 depth (pos. ~~3050~~ 4137+9+6) ~~but~~ This depth is located 125 meters ~~south~~ SE of the charted 34' depth.

In an effort to verify this 34' sounding, a thorough side scan sonar investigation was conducted in the area on J.D. 159 and 160. A side scan fish was towed utilizing a line spacing of 50 meters. Adjacent sounding lines were run in reciporcal directions for both North/South and East/West headings in order to achieve 400% coverage. The DSF 6000N Fathometer was run concurrently with all side scan sonar operations (pos. 4094-4136). The side scan sonar search failed to find any bottom feature which would result in a depth in the 30' range. - Concur

ON ORIGINAL DOCUMENT

to

An examination of the H-8176 Descriptive Report shows that the item was developed in 1954 with no resulting 34' depth. The 34' ft. sounding originated with H-943 (1866-67) and was brought forward to H-8176. Therefore H-8176 is presently considered the source of this sounding. It is recommended that this 34' sounding be removed from future charts. — Concur — No evidence that this 34' sounding exists and is considered disproved. This is an adequate investigation to disprove the existence of the 34' sounding - Four other soundings within the common area from H-8176 (1954) were brought forward to the smooth sheet.

PSR NO. 3026X

This 37' sounding, charted at Latitude 43°56'31"N, Longitude 69°04'00"W, was developed by employing a buoy circle search with a sounding launch and then deploying divers over the suspected shoal area. The divers investigation did not result in a noticeable shoal feature and currents in the area precluded obtaining an accurate leadline depth. A subsequent development using a line spacing of 25 meters resulted in a least depth of 39'. (Pos 3590 & 3568+7)

The extent of this search is undetermined.

Since this depth could not be verified with a leadline and the existence of a shoaler depth is possible, it is recommended that the presently charted 37' sounding be retained. - Concur — The 37' sounding was brought foward to the smooth sheet.

PSR NO. 3026X.

This 40' sounding, charted at Latitude 43°56'43"N, Longitude 69°03'58"W, was developed by employing a buoy circle search with a sounding launch and then deploying divers over the suspected shoal areas. The diver's investigation yielded no noticeable shoal feature. A subsequent development using a line spacing of 25 meters resulted in least depth of 42' (pos. ~~3566~~ 3594 +3).

The extent of this search is undetermined.

— no notation of the bottom composition.

Since the existence of a shoaler depth is possible, it is recommended that the presently charted 40' sounding be retained. — Concur — The 40' sounding was brought foward to the smooth sheet.

PSR NO. 3027

This 48' sounding, charted at Latitude 43°57'35"N, Longitude 69°02'25"W, was developed on J.D. 153 by employing a buoy circle search with a sounding launch. Divers were deployed over the area where the shoalest depth was observed on the fathogram. Divers obtained a leadline depth over a prominent pinnacle rock. The leadline depth, reduced for ~~predicted~~ smooth tides, resulted in a least depth of 45' (pos. 4001). A subsequent development of the area utilizing a line spacing of 25 meters resulted in a 48' sounding in the immediate vicinity.

It is recommended that the 45' sounding from this survey supersede the presently charted 48' depth. — Concur.

PSR NO. 3027X

This 48' sounding, charted at Latitude 43°57'34"N, Longitude 69°01'54"W, was developed using a line spacing of 25 meters after a buoy circle search failed to discover a shoal depth on which a diving investigation could be initiated. This develpement resulted in a least depth of 46' (pos. 3503).

It is recommended that the 46' sounding from this survey supersede the persently charted 48' depth. — Concur.

PSR NO. 3027~~8~~

This 50' sounding, charted at Latitude 43°57'23"N, Longitude 69°02'19"W, was developed using a line spacing of 25 meters after a buoy circle search failed to discover a shoal depth on which a diving investigation could be initiated. This developement resulted in a least depth of 50' (pos. 3245^{+3}). also 3230^{+6} & $3235^{+2\&3}$

~~It is recommended that the 50' sounding presently charted remain as such.~~ — Do not concur. — Recommend present survey data be charted.

PSR NO. 3027~~7~~

This 53' sounding, charted at Latitude 43°~~56~~57'37"N, Longitude 69°02'08"W, was developed using a line spacing of 25 meters after a buoy circle search failed to discover a shoal depth on which a diving investigation could be initiated. This developement resulted in a least depth of 5~~3~~0' (pos. ~~3478^{+3}~~ 3366^{+5}).

It is recommended that the 5~~3~~50' sounding from this survey super~~c~~sede the presently charted 53' depth.— Concur

PSR NO. 3028

This 48' sounding, charted at Latitude ~~43~~4°57'32"N, Longitude 69°03'4~~2~~3"W, was developed by employing a buoy circle search with a sounding launch and then deploying divers over the suspected shoal area. The divers reported a gradually sloping bottom which leveled off on a small plateau. Due to strong currents, an accurate leadline depth was not obtainable but an echo sounder depth resulted in a least depth of 48'. (Pos# 6013) It is recommended that the 48' sounding ~~presently~~ be charted. ~~remain as such.~~ The extent of this search is undetermined

L. COMPARISON WITH THE CHART — See the Evaluation Report – section 7.

The following charts were compared with the developed areas:

CHART NO.	EDITION	DATE	SCALE
13302	14th	26 Feb 83	1:80,000
13303	9th	23 Apr 83	1:40,000

A comparison of the soundings obtained during the investigation with the above two charts showed excellent agreement with the exception of those specific items mentioned in Section K of this report.

M. ADEQUACY OF THE SURVEY – See the Evaluation Report.

The results of the item investigation are considered complete and adequate to update those depths mentioned in Section K. The following soundings will not be superceded and should be carried forward from prior surveys:

DEPTH	LATITUDE (N)	LONGITUDE (W)	PSR NO.
~~38'~~	~~43°55'23"~~	~~69°08'45"~~	~~3023~~ superseded by present data
49'	43°56'42"	69°04'41"	3025
37'	43°56'31"	69°04'01"	3026
40'	43°56'43"	69°04'00"	3026
~~50'~~	~~43°57'24"~~	~~69°02'20"~~	~~3027B~~ superseded by present data
~~48'~~	~~43°57'32"~~	~~69°03'43"~~	~~3028~~ superseded by present data
46'	43°56'07"	69°08'34"	3024

See section 6. of the Evaluation Report.

N. AIDS TO NAVIGATION – See section 4. of the Evaluation Report.

The following floating aid to navigation was found to be in its proper location and serving its intended purpose:

NAME: Two Bush Ledge Lighted Gong Buoy

CHARACTERISTIC: I.Qk. Fl. G

POSITION: Latitude 43°56.8' N

Longitude 69°04.9' W

COLOR: Black and Red Horizontal Bands

O. STATISTICS

VESNO 2223

Mainscheme Mileage	0.0 N mi
Developement Mileage	33.3 N mi
Crossline Mileage	0.0 N mi
Miscellaneous Mileage	37.5 N mi
Positions	575

VESNO 2224

Mainscheme Mileage	0.0 N mi
Developement Mileage	3.0 N mi
Crossline Mileage	0.0 N mi
Miscellaneous Mileage	28.5 N mi
Positions	142

VESNO 2226

Mainscheme Mileage	0.0 N mi
Developement Mileage	3.0 N mi
Crossline Mileage	0.0 N mi
Miscellaneous Mileage	45.0 N mi
Positions	4
Bottom Samples	0
Velocity Casts	1
Tide Stations	1
Square Mileage	.8 sq. N mi

P. MISCELLANEOUS

After completion of smooth plotting and verification by the Atlantic Marine Center, it is recommended that copies of the smooth sheets be forwarded to the Penebscot Bay Area Pilots, Inc., in Belfast, Maine.

On 1 September 1983, a LORAN - C verification was conducted by MT. MITCHELL personnel in Penebscot Bay, Maine. Verification data was forwarded to the U.S. Coast Guard in Washington, D.C. via the Atlantic Marine Center.

Q. RECOMMENDATIONS — See the Evaluation Report.

It is recommended that those depths mentioned in Section M of this report be carried forward from prior surveys of the area.

R. AUTOMATED DATA PROCESSING

The following HYDROPLOT programs were used for data acquisition and processing.

PROGRAM NO.	PROGRAM NAME	VERSION
RK 112	Range/Range Real Time Hydroplot	08/04/81
RK 201	Grid, Signal and Lattice Plot	04/18/75
RK 211	Range/Range Non-real Time Plot	02/02/81
RK 300	Utility Computations	10/21/80

PROGRAM NO.	PROGRAM NAME	VERSION
RK 330	Data Reformat and Check	05/04/75
RK 360	Electronic Correcter Abstract	02/02/76
AM 500	Predicted Tide Generator	11/10/72
RK 530	Velocity Corrections Computations	05/10/76
AM 602	Extended Line Oriented Editor	05/20/75

S. REFERENCE TO REPORTS

LORAN - C Verification Report

Horizontal Control Report

Coast Pilot Report

Respectfully submitted for approval,

Roger L. Parsons

LT., NOAA

APPROVAL SHEET

The field work on this Hydrographic Survey was under my daily supervision. The boat sheet and records have been reviewed and approved by me.

J. Custer Yeager
Commanding Officer

SIGNAL NAMES

100 GREEN ISLAND, 1859
200 METINIC, 1858
300 TWO BUSH ISLAND LIGHTHOUSE, 1902

SIGNAL G.P.'S

100	4	43	54	11002	069	00	30134	250	0013	000000
200	4	43	53	36843	069	07	35592	250	0024	000000
300	4	43	57	50959	069	04	27909	139	0000	000000

APPENDIX I

LANDMARKS FOR CHARTS

(There were no landmarks in this survey area)

See the Evaluation Report.

February 8, 1984

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic

OPR: A166

HYDROGRAPHIC SHEET: FE - 253

Locality: Two Bush Channel, Penobscot Bay, Maine

Time Period: June 6-10, 1983

Tide Station Used: 841-5490, Rockland, Maine

Plane Of Reference (Mean ~~Lower~~ Low Water): 3.95 Ft.

Height Of Mean High Water Above Plane Of Reference: 9.8 Ft.

Remarks: Recommended Zoning:

Apply a x0.93 range ratio to all heights.

James R Hubbard
Chief, Tidal Datum Section

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-253

Name on Survey	A ON CHART NO. 13303	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	
MAINE (Title)	X									1
PENOBSCOT BAY (Title)	X									2
TWO BUSH CHANNEL	X									3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
					Approved:					17
										18
					Charles E. Harrington Jr.					19
					Chief Geographer					20
					SEP 10 1984					21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: FE-253

Number of positions		762
Number of soundings		3152
Number of control stations		3
	TIME-HOURS	DATE COMPLETED
Preprocessing Examination	24	3/15/84
Verification of Field Data	~~131~~ 160	6/3/84
Quality Control Checks	58	
Evaluation and Analysis	~~74~~ 105	9/27/84
Final Inspection	3	9/25/84
TOTAL TIME	~~288~~ 350	
Marine Center Approval		9/28/84

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

NOAA FORM 61-29
(12-71)

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

LETTER TRANSMITTING DATA

REFERENCE NO.
MOA23-19-85

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

☐ ORDINARY MAIL ☐ AIR MAIL
☒ REGISTERED MAIL ☐ EXPRESS
☐ GBL (Give number) _____

TO:

CHIEF, DATA CONTROL SECTION
HYDROGRAPHIC SURVEYS BRANCH, N/CG243
NATIONAL OCEAN SERVICE, NOAA
ROCKVILLE, MD 20852

DATE FORWARDED
2/21/85

NUMBER OF PACKAGES
one tube; one box

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.

FE-253 OPR-166-MI-83 MI-5-1-83
Maine, Approaches to Penobscot Bay, Two Bush Channel

Pkg 1 of 2 (tube)
One Descriptive Report (six smooth sheets)
Three final field sheets
One final field sheet overlay
Five preliminary field sheets
One side scan sonar coverage plot (one rough, one smooth)
Pkg 2 of 2 (box)
Six smooth position overlays in envelope
Ten smooth excess overlays in envelope
One control station description in envelope
One accordian folder containing echogram and field data printout
Three sounding volumes
One side scan sonar contact log
One envelope of data removed from Descriptive Report
Two side scan sonargrams in envelope
Supplemental data: position calibration records in envelope
velocity correction records
Cahier containing: one final control P/O, one final sounding P/O
one final position P/O, L-File (Z-record) P/O
Miscellaneous printouts in envelope; One envelope containing smooth tide printouts

FROM: (Signature) for Maurice B. Hutchison, III
D. B. MACFARLAND, JR., LCDR, CHIEF, HYDRO SURVEYS BR

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

HYDROGRAPHIC SURVEYS BRANCH, N/MOA232
ATLANTIC MARINE CENTER
NOAA – NATIONAL OCEAN SERVICE
439 WEST YORK STREET
NORFOLK, VA 23510

ATTN: THERESA HIGH

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED. ☆U.S. GOVERNMENT PRINTING OFFICE: 1980—765-012/1121

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: FE-253 FIELD NO.: MI-5-1-83

Maine, Approaches to Penobscot Bay, Two Bush Channel

SURVEYED: June 2 through June 9, 1983

SCALE: 1:5,000 PROJECT NO.: OPR-A166-MI-83

SOUNDINGS: DSF 6000N Fathometer
Ross Digital Echo Sounder
Leadline
Diver Depth Gauge

CONTROL: Del Norte
(Range/Range)

Chief of Party.....J. A. Yeager

Surveyed by.....R. L. Parsons
.....D. R. Rice
.....G. R. Yates
.....C. N. McLean
.....B. L. Coakley
.....J. L. Paeth
.....D. I. Crews
.....J. A. Miller
.....W. E. Sites

1. INTRODUCTION

a. No unusual problems were encountered during the verification of this survey.

b. Smooth position overlays and excess sounding overlays have been filed with the survey records.

c. Necessary corrections and notes made by the evaluator to the Descriptive Report are denoted in red ink.

2. CONTROL AND SHORELINE

a. The source of control is adequately discussed in section F. and Appending F of the Descriptive Report. An envelope containing control data is included in the survey records.

b. There is no shoreline within the limits of this field examination.

3. HYDROGRAPHY

a. Soundings at crossings are in good agreement in item investigations where crosslines were run.

b. Depth curves were drawn at the standard intervals. Brown curves were added to better portray the bottom topography.

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

1) On AWOIS item #3024 the use of side scan sonar would have been desirable.

2) Additional development on AWOIS item #3027 would have been desirable.

4. CONDITION OF SURVEY

The smooth sheets and accompanying overlays, hydrographic records, and reports are adequate and conform to the requirements of the Hydrographic Manual with the following exceptions:

a. Some of the field records were not properly annotated with the necessary "stamp" information such as sea and weather conditions, From - To Positions, etc.

b. One control station used in calibration (TWO BUSH ISLAND LIGHTHOUSE, 1902) was not included in the signal list. This station apparently was not recovered (last published recovery was in 1953).

c. The calibration station TWO BUSH ISLAND LIGHTHOUSE, 1902, was not addressed by the hydrographer as a fixed aid to navigation or as a landmark.

d. Floating aid to navigation buoy C "3" is common to the surveyed area of item #3026 but no position was taken on this buoy nor was any mention made by the hydrographer about this buoy.

e. Section N. of the Descriptive Report states that Two Bush Ledge Lighted Gong Buoy was located and it is serving its intended purpose. No positional data could be found in the survey records locating this floating aid to navigation, and this buoy was not plotted on any of the field sheets. See section 4.5.13.2. of the Hydrographic Manual.

f. A Dangers to Navigation Report or a negative report was required. Neither was submitted.

g. Range-Range Del Norte control was used for the entire survey which is marginal for 1:5,000 scale survey accuracy requirements.

h. No original velocity data were submitted with this survey.

i. Dive reports are generally lacking in necessary information.

j. In two instances a depth gage least depth was accepted as it was the shoalest obtained depth and the depth gage was calibrated at a known depth.

k. Numerous soundings required insertion into the digital file during verification.

l. On year days 153, 154, and 155 the sounding volumes and fathograms were not annotated with position numbers. Hydrography on these days had to be edited and inserted into the digital files during verification.

m. The sounding volume indexes are not filled out and the cover information is incomplete and inaccurate.

n. The Descriptive Report jumps from page 12 to 14 without a page 13. There does not appear to be a page of data missing.

o. It is desirable in these types of field examinations to treat each item separately and group and annotate the records for each item. Volumes, abstracts, etc. should be separate for each item investigated.

p. Section K. of the Descriptive Report, Comparison with Prior Surveys, is incomplete and not in compliance with section 6.10.1. of the Project Instructions.

q. No bottom samples were taken during this field examination.

r. No Geographic Names List was compiled by the field.

s. The purpose of running crosslines is to verify and evaluate the accuracy and reliability of surveyed depths and plotted locations. Crosslines should have been run on the developments in this field examination.

5. JUNCTIONS

This field examination does not junction with any other surveys.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic Surveys

H-8176 (1954) 1:20,000

Prior survey H-8176 (1954) is common to all of the present field examination. Comparison of present with prior hydrography reveals depths and bottom structure remains quite similar. The present survey indicates possibly a slight deepening trend in the investigated areas. Five prior soundings were brought forward to the present smooth sheets. These soundings are:

49 ft. in approximate Latitude 43°56'42", Longitude 69°04'40"
40 ft. in approximate Latitude 43°56'43", Longitude 69°04'00"
37 ft. in approximate Latitude 43°56'31", Longitude 69°04'00"
40 ft. in approximate Latitude 43°56'35", Longitude 69°03'46"
41 ft. in approximate Latitude 43°56'38", Longitude 69°03'43"

With the exception of these five soundings brought forward, the present survey is considered adequate to supersede the above prior survey within the common area.

b. Wire Drag Surveys

H-8572 WD (1954-55) 1:20,000
H-3025 WD (1909-13) 1:20,000
H-2969 WD (1908-09) 1:20,000

Prior survey H-8572 WD is common only to the AWOIS item #3024 area of investigation. One conflict exists in that the 45 ft. least depth on a rock was cleared by an effective depth of 46 ft. in one direction only on the prior survey. This discrepancy is not considered significant as clearance is in one direction and the rock may not be a good hangable feature. Two prior hangs and one sounding were brought forward to the present survey smooth sheet. The two hangs and one sounding are:

Hang at 50 ft., actual sounding of 47 ft., cleared by 46 ft. in approximate Latitude 43°56'08", Longitude 69°08'44"
Hang at 57 ft., actual sounding of 51 ft., cleared by 46 ft. in approximate Latitude 43°56'10", Longitude 69°08'35"
Actual sounding of 48 ft., cleared by 46 ft. in approximate Latitude 43°56'06", Longitude 69°08'41"

Prior survey H-3025 WD is common to AWOIS items #3023, 3024, 3026, and 3027 areas of investigation. No prior hangs were common to the present survey. No conflicts exist between present hydrography and prior effective depths.

Prior survey H-2969 WD is common to only a small portion of AWOIS item #3027 area of investigation. No prior hangs were common to the present survey. No conflicts exist between present hydrography and prior effective depths.

7. COMPARISON WITH CHART 13303, 9th Edition, April 23, 1983

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration. Charted hydrography identified as investigation items have been adequately discussed in the Descriptive Report.

The present survey is adequate to supersede the charted hydrography except as noted in this report and in the Descriptive Report.

b. Aids to Navigation

One charted aid to navigation, Two Bush Channel Buoy C "3", was common to the present survey but was not positioned nor addressed by the hydrographer. Two Bush Ledge Lighted Gong Buoy is addressed by the hydrographer but was not positioned during the survey and is not common to the areas of present hydrography. Fixed aid to navigation Two Bush Island Light was used as a calibration station but was not addressed by the hydrographer. All three aids are listed in the U.S. Coast Guard Light List, Volume I, 1983.

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions except as noted in this report.

9. ADDITIONAL FIELD WORK

This is an adequate basic field examination. Additional field work is not recommended.

for Leroy G. Cram

Robert R. Hill, Jr.
Senior Cartographic Technician
Verification of Field Data

Maurice B. Hickson III

Maurice B. Hickson, III
Cartographer
Evaluation and Analysis

Leroy G. Cram

Leroy G. Cram
Supervisory Cartographic Technician
Verification Check

Inspection Report
FE-253

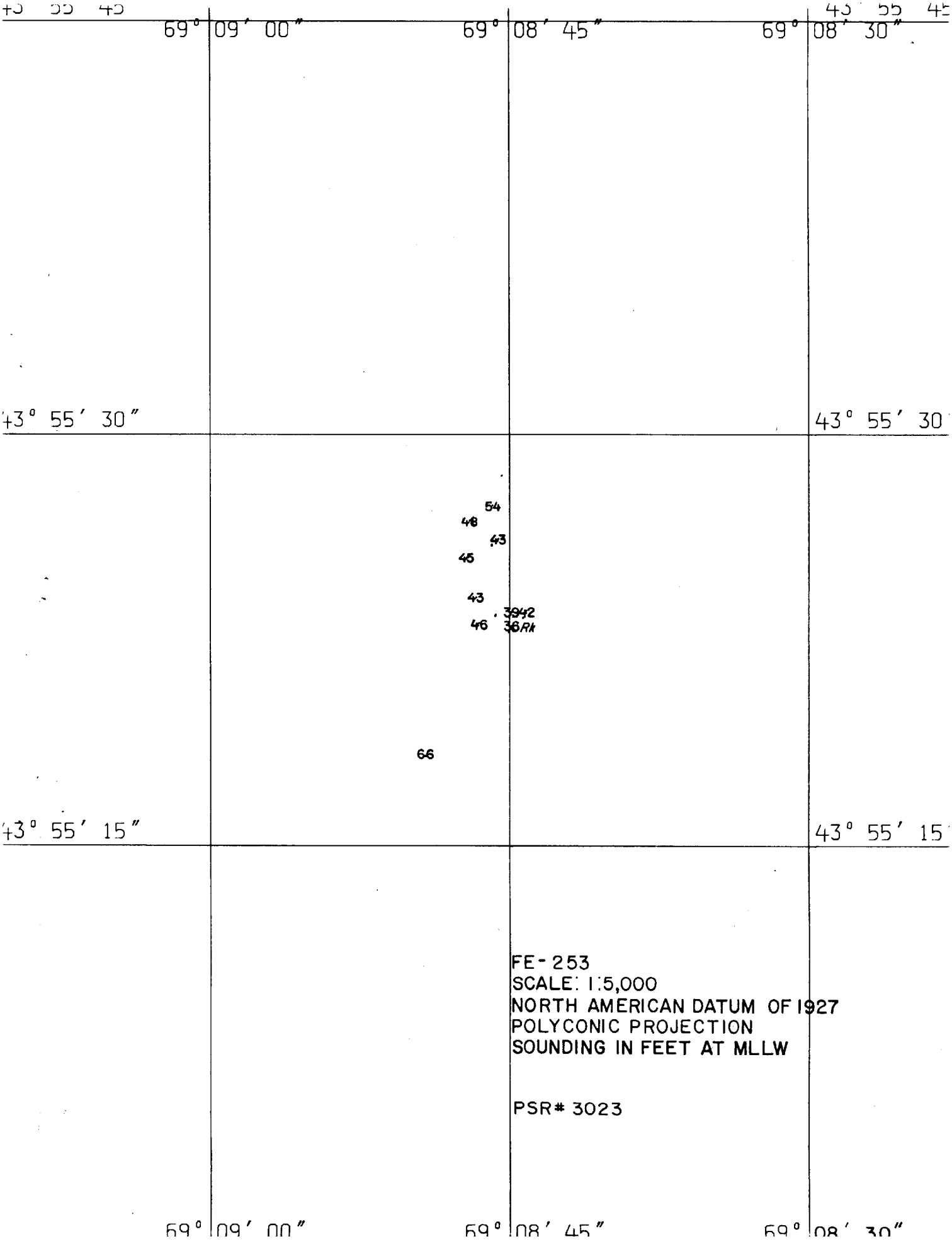
The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet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

Inspected

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

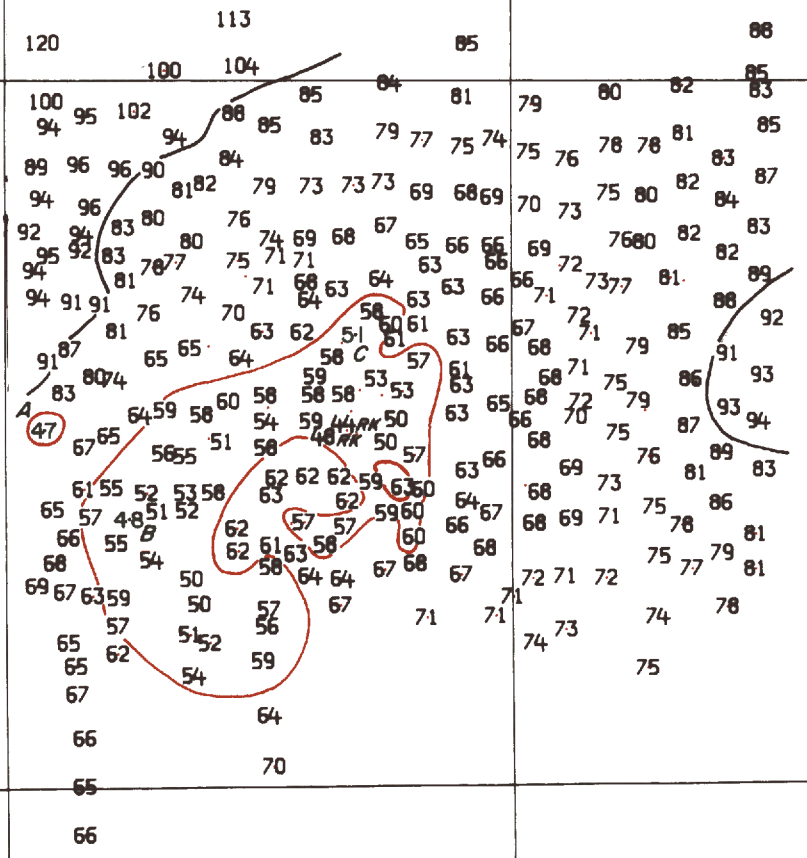
Approved September 27, 1984

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


43° 55' 45"
69° 09' 00"
69° 08' 45"
69° 08' 30"
43° 55' 30"
54
48
43
45
43
3942
46
36Rk
66
43° 55' 15"
FE-253
SCALE: 1:5,000
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
SOUNDING IN FEET AT MLLW
PSR# 3023

69° 08′ 45″ 69° 08′ 30″

43° 56′ 15″ 43° 56′ 15″



43° 56′ 00″ 43° 56′ 00″

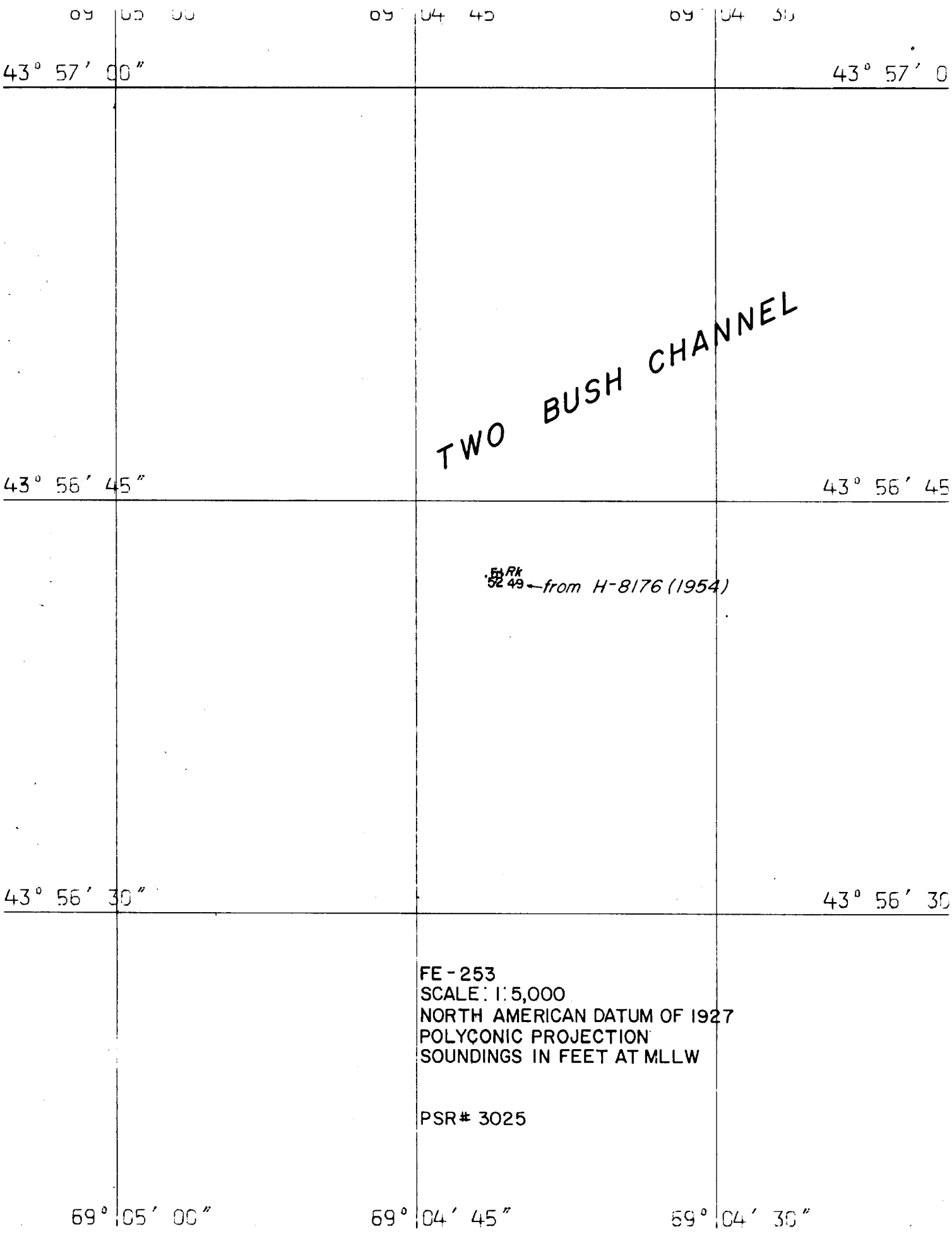
Detached soundings in green from H-8572 WD (1954-55)
A- Hang at 50ft, actual sounding of 47ft, cleared by 46 ft
B- Actual sounding 48 ft, cleared by 46 ft
C- Hang at 57 ft, actual sounding of 51 ft, cleared by 46 ft

43° 56′ 45″ 43° 55′ 45″

FE-253
SCALE: 1:5,000
NORTH AMERICAN DATUM OF 1927
~~POLYCONIC PROJECTION~~
SOUNDING IN FEET AT MLLW

PSR** 3024

69° 08′ 45″ 69° 08′ 30″



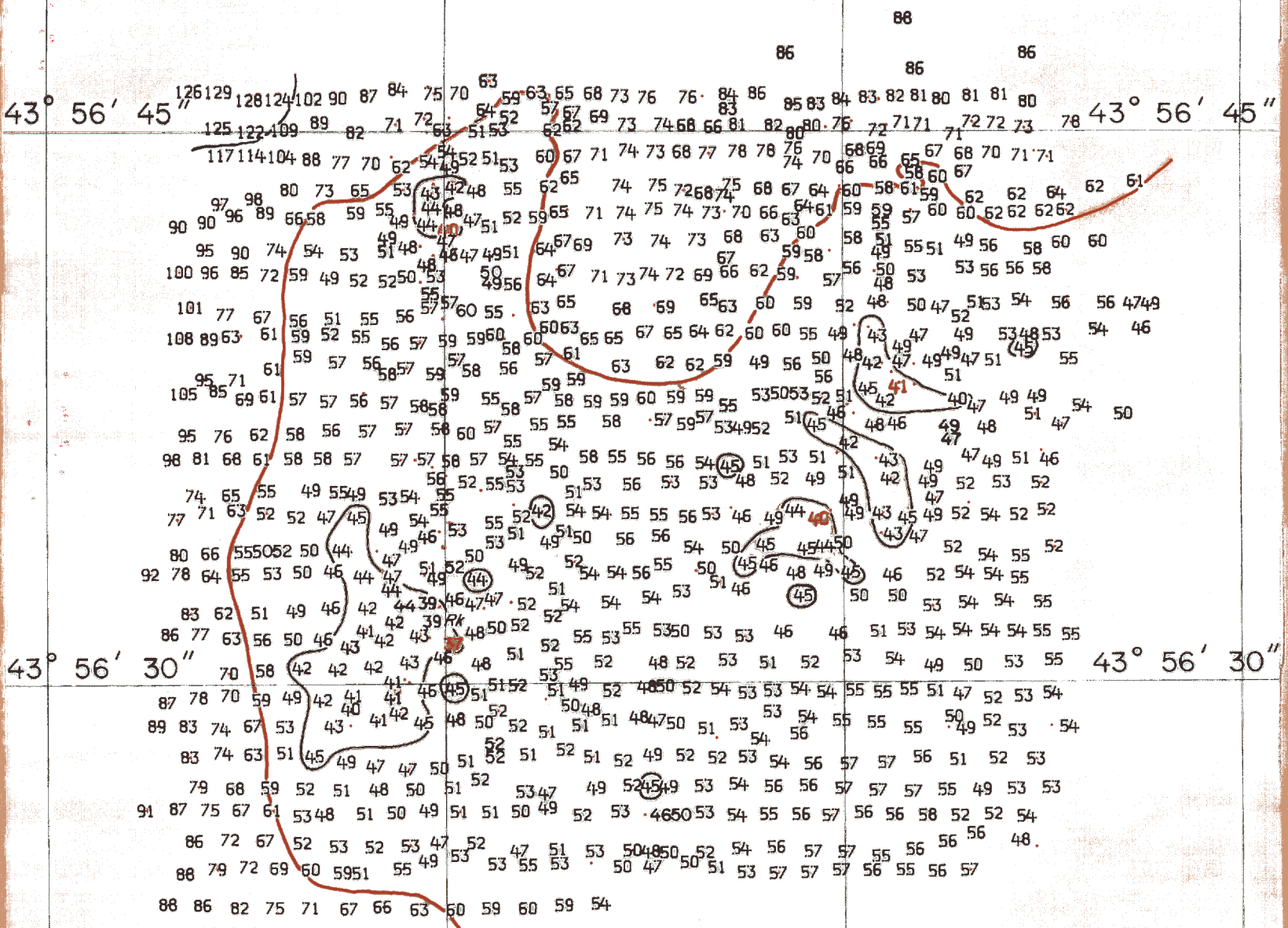
FE - 253
SCALE: 1:5,000
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
SOUNDINGS IN FEET AT MLLW

PSR# 3025

69° 04′ 00″ 69° 03′ 45″

TWO BUSH CHANNEL

Detached soundings in red from H-8176 (1954)



43° 56′ 45″ 43° 56′ 45″

43° 56′ 30″ 43° 56′ 30″

FE-253
SCALE 1:5,000
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
SOUNDING IN FEET AT MLLW

43° 56′ 15″ PSR** 3026 43° 56′ 15″

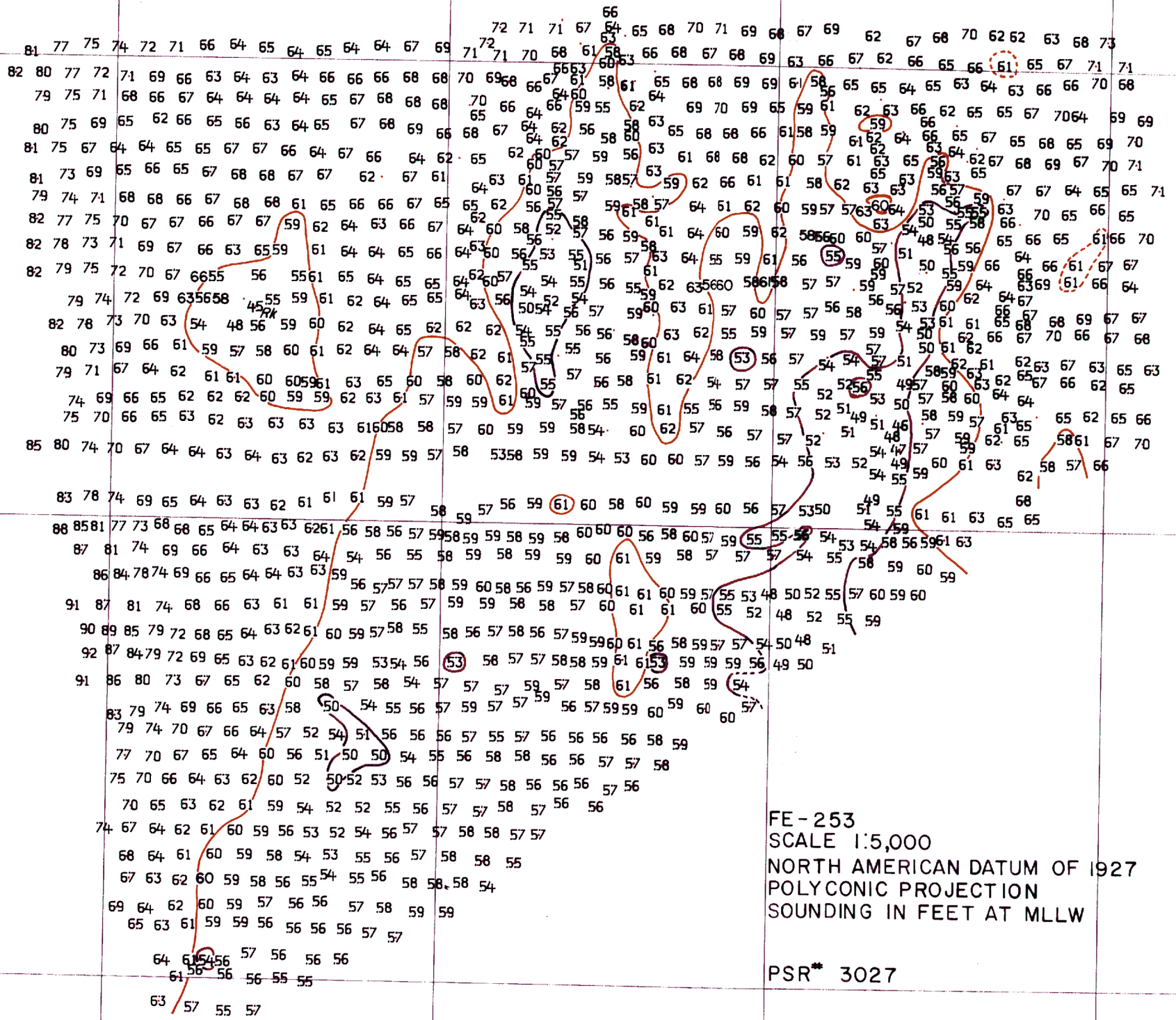
69° 02′ 45″ 69° 02′ 30″ 69° 02′ 15″ 69° 02′ 00″ 69° 01′ 45″

TWO BUSH CHANNEL

43° 57′ 45″

43° 57′ 30″

43° 57′ 15″



FE-253
SCALE 1:5,000
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
SOUNDING IN FEET AT MLLW

PSR** 3027

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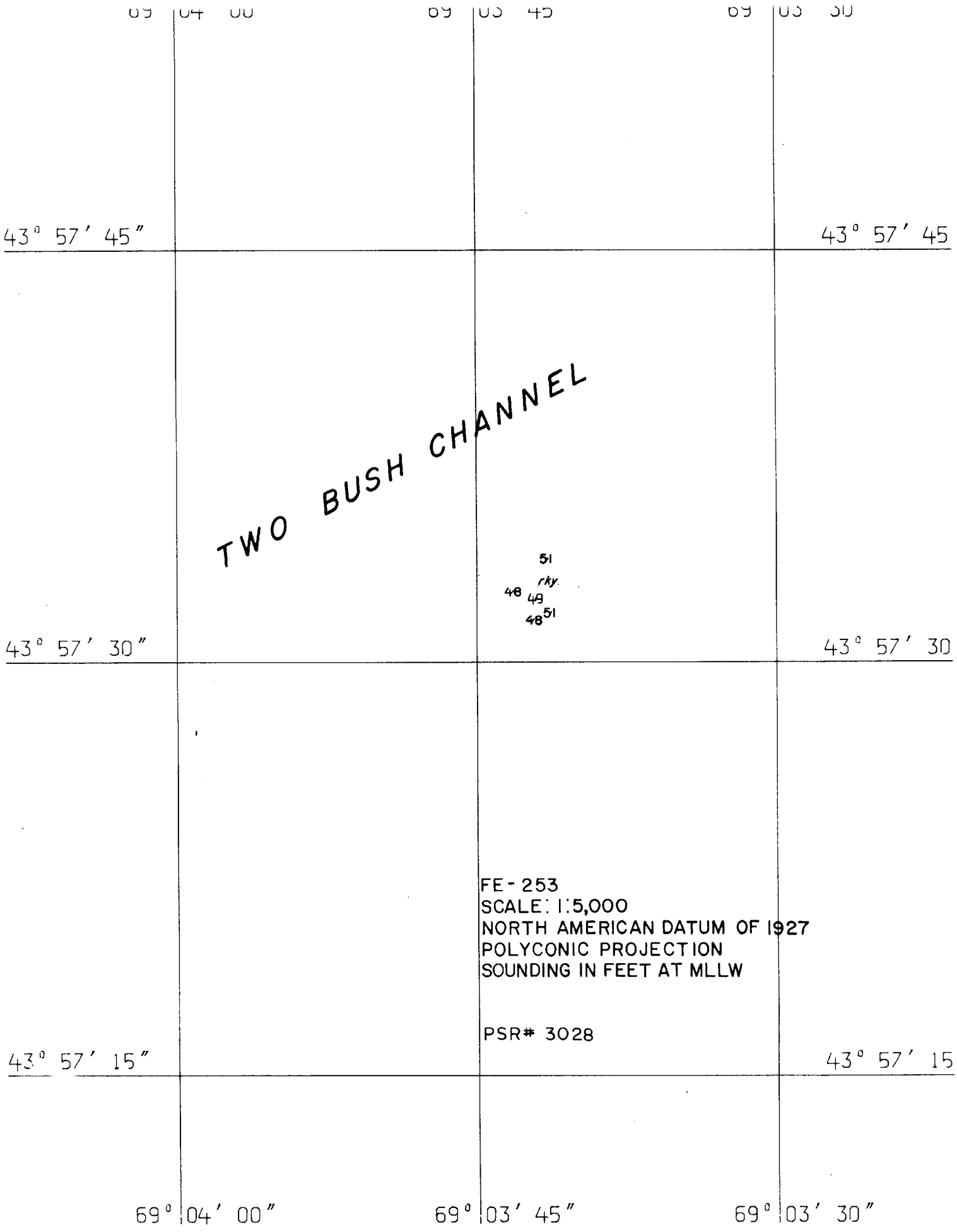
69° 04' 00"
69° 03' 45"
69° 03' 30"
43° 57' 45"
43° 57' 30"
43° 57' 15"
TWO BUSH CHANNEL
51
rky.
48 49
48 51
FE-253
SCALE: 1:5,000
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
SOUNDING IN FEET AT MLLW
PSR# 3028

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-253

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
13303	8-12-85	D.C. Harpine	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 16
13301	8-12-85	D.C. Harpine	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 21
13302	8-12-85	D.C. Harpine	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 31
13260	9-10-85	L. STANWARD	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.
			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