5989

IMPORTANT
PAGE 24 WAS ADDED
IT IS NOT A PAGE IN THE REPORT
IT SHOWS DETAIL MISSING FROM
FROM THE SCAN OF PAGE 23

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R.S.Patton, *Director*

State: Virginia

DESCRIPTIVE REPORT

~~Topographic~~ *Hydrographic* } *Sheet No.* 46 1/2

LOCALITY

Smith Island Shoal

Chesapeake Bay Entrance

1935

CHIEF OF PARTY

Ray L. Schoppe

U. S. GOVERNMENT PRINTING OFFICE: 1931

Form 537
Ed. Dec. 1930

REG. NO.

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.

Field No. 46 1/2

REGISTER NO. 5989

State Virginia

General locality Chesapeake Bay Entrance

Locality Smith Island Shoal

Scale 1-40,000 Date of survey Sept 25-Oct.15, 1935

Vessel LYDONIA

Chief of Party Ray L. Schoppe

Surveyed by Ray L. Schoppe and E O Heaton

Protracted by W. N. Martin

Soundings penciled by W. N. Martin

Soundings in ~~fathoms~~ feet

Plane of reference M L W

Subdivision of wire dragged areas by

Inked by G.H. Everett

Verified by G.H. Everett

Instructions dated April 27, 1933 and June 8 1935, 19

Remarks: A wire drag sheet covers a part of this area

U. S. GOVERNMENT PRINTING OFFICE

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SHEET # 46 1/2 (LYDONIA 1935)

PROJECT H.T. 142-143

Scale 1-40,000

Instructions, etc:

Hydrography on this sheet was done in accordance with Supplemental Instructions issued to the Commanding Officer of the OCEANOGRAPHER and dated June 8, 1935. The reason for this survey was to prove, or disprove the existance of a 16.6 ft obstruction which was reported in Par. #669 of Notice to Mariners #18 dated May 1, 1935. In connection with this examination a resurvey of Smith Island Shoal was called for. Under date of June 13th, wire drag work was authorized at the location of the reported obstruction, and also at the charted location of an old wreck in Lat. 37°03'.1 Long. 75°45'.8. A separate sheet showing wire drag work is submitted. The requirements of the wire drag examination influenced the location of buoy signals, and buoys were so located as to leave the wire drag areas unobstructed, and at the same time, to furnish control for both sheets.

Scale:

Cape Charles Lighthouse was used, either as a right or left object in practically all fixes on this sheet. This was too distant for use on a scale of 1-20,000. For this reason, a scale of 1-40,000 was decided on, as permitted in the Supplemental Instructions. Some of the soundings are plotted as an overlay of tracing cloth. These should be applied to the sheet when it is inked.

Limits:

An area of approximately 18 sq miles (statute) was laid out on chart 1222. The northern limit is Lat. 37°08'.9 between Longitude 75°39'.8 and Long. 75°44'.6. The southern limit is Lat. 37°04'.9 between Long. 75°45'.0 and Long 75 49'.0.

Survey Methods:

The Dorsey Fathometer was used for depths greater than 5 fathoms. In depths less than 5 fathoms, the fathometer failed to register. When approaching shoal areas, the vessel was slowed down to hand lead sounding speed and hand lead readings were relied on. Simultaneous fathometer readings were recorded whenever flashes were visible. A large number of comparative readings were obtained in this way.

The only shore objects visible for control were, Hog Island Lighthouse, Cape Charles Lighthouse, Cape Henry Lighthouse and Virginia Beach TANK. Signal PIG would have been useful but it had blown down earlier in the season. In the middle of the working grounds both Hog Island Lighthouse and Virginia Beach TANK were beyond the range of visibility. This necessitated two rows of buoys. One row consisting of TAKE, SLOW, QUICK and RUSH was close to the northern limit of visibility of Virginia Beach TANK and one row consisting of VIM, and UTAH was close to the southern limit of visibility of Hog Island Light. This layout enabled the LYDONIA to locate all buoys without calling on the OCEANOGRAPHER for taut wire measurements. Exceptionally clear weather on Sep't.25th enabled the party to take the sextant angles necessary for these locations. In locating signal RUSH, Virginia Beach TANK was only visible above the horizon when the observer was in the rigging at the masthead. The geographic positions of each buoy was computed by the three point method and each buoy was located on the sheets by its computed position. These buoys were anchored in an area where towboats and barges pass in great numbers. Numerous check angles were taken on the various buoys to determine whether any had been fouled and dragged by these tows. On October 1st, buoy SLOW was found out of position and damaged. It was rebuilt and relocated with a new name, STOP. Other buoys apparently were not displaced.

All buoys were standard single barrel type and were anchored on a short scope of chain to reduce their swinging radius to a minimum. Most of the area was covered with 200 meter lines and remarkably good control was obtained. Cross lines showed good agreement, especially in an area that is as broken and lumpy as this. The crest of Smith Island Shoal is small in area but was fully developed.

It was believed that if the 16.6 ft spot existed, it was probably a piece of wreckage. For that reason the LYDONIA did not venture too close to the reported location until it had been covered with the wire drag. While waiting for weather suitable for operating the drag, a few sounding lines were run along the Coast Pilot Course as described in Section C, Page 34-35. This was slightly outside of the required area but this additional information was obtained when other work could not be done. The area specified in the Supplemental Instructions were entirely covered.

Discrepancies:

In the vicinity of Smith Island Shoal, hard sand ridges and lumps are found. Soft bottom is found between some of the shoals. These shoals are often steep sided and a slight displacement of sounding lines will show discrepancies in depths. All crossings differing by three feet or more have been examined and cross referenced in the record books. All shoal indications in the specified area were developed. Where poor crossings were found, the shoalest sounding was plotted. In no case is there found any doubt as to the least water on shoals.

A few instances not falling under the above, are as follows:

(1) Position 137-E, 33 feet crosses 69-D, 39 feet. Lat. 37°06'.0 Long. 75°45'.1. The sounding of 33 feet appears too shoal but the bottom is very irregular and this lump may exist. It is small in extent and is not a danger. This sounding should be plotted.

33 plotted.

(2) Position 163-E, 28 feet crosses 45-B, 37 feet in Lat. 37°07'.3 Long 75°42'.8. Relative to E day, if this portion of B day was moved north a slight amount, these lines would show satisfactory agreement. This difference is probably due to control, and floating signals are sure to lack the rigid control of fixed objects.

28 " No serious discrepancy.

(3) Positions 36 - 37B, 35 feet crosses 52-53A, 39 feet in Lat. 37°07'.4 Long. 75°41'.9. A slight displacement would bring these two into agreement, same as above.

35 "

(4) Lat 37 07!9 Long 75 41!6, 35-C, 37 ft. crosses 75-A, 40 ft.
" 37 07!9 " 75 41!6, 35-C, 36 ft. crosses167-B, 39 ft.
" 37 08!2 " 75 41!7, 29-C, 35 ft. crosses171-B, 40 ft.

} Shoaler soundings plotted

This portion of C day shows a tendency to be shoaler than cross lines. This may be due to tide or a few shoal stray readings of the fathometer. The bottom is irregular and no reason for these differences can be given. Plot the shoalest readings.

Considering the fact that this work was done in the open sea, it is believed that cross lines and development on this sheet are satisfactory. The slight displacement which may be expected from floating signals, would explain all discrepancies greater than 1 or 2 feet.

Dangers:

Smith Island Shoal is the outermost shoal, off Cape Charles Light. It runs in a N.E. and S.E. direction and on the south end the 5 fathom curve joins shoal water extending shoreward to Cape Charles. This is the only danger on this sheet - since it is the only shoal covered by this sheet. Inshore from this work, will be found shoal water gradually decreasing toward the beach at the south end of Smith Island. The least depth on Smith Island Shoal, 21 feet, (fine gray sand bottom) was found on Positions 51-52E and 149-150-E in Lat. 37°05.6, Long 75°45.4. This shoal breaks heavily in bad weather.

Gas and whistle buoy #12-A is located 0.8 mile east of the shoal. There are no ranges or bearings of value, in clearing this shoal. Use the chart as a guide in this locality. This buoy serves as a much used point of departure for vessels entering or leaving Chesapeake Bay. Deep draft vessels must keep outside of this buoy but light draft vessels with local knowledge are often seen inside.

Other shoal spots on this sheet are listed with least water as follows:

Least depth on shoals. (30' or less)

Depth	Lat.37°	Long.75°	Sdg & Pos. No.
23'	05.7	45.1	1 after 61-F
25'	05.3	45.9	1 after 56-F
21'	05.9	48.0	1 before 60-D
21'	05.9	48.4	61-D
29'	06.7	43.8	2 after 144-E
29'	06.6	44.1	1 before 139-E
27'	06.3	44.4	1 after 146-E
27'	06.7	45.7	184-E
28'	07.3	42.8	2 before 163-E
28'	07.0	43.3	1 after 143-E
28'	07.6	45.6	1 before 62-A
28'	07.4	46.0	35-F

Channels:

The deeper water north and west of Smith Island Shoal is of no importance.

Anchorages:

There are no anchorages on this sheet. The LYDONIA dropped anchor anywhere in a suitable depth of water west of the buoy. There is soft bottom and good holding ground in some places but there is no shelter.

Comparisons with previous surveys:

In general, the depths found this year agree with those on sheets H-4193 and H-4928. The crest of the shoal now has 21 feet at M L W, as compared to 23 feet previously. The present sounding of 21 feet corresponds in location to an old 24 foot spot, and the location of the old 23 foot crest now shows 24 feet. It is my belief that in this locality, the currents are such that this much change might be expected after any stormy season. As noted above, this shoal breaks heavily in bad weather.

Wire Drag groundings;

See sheet 10-W for a report on wire drag of this area.

Geographic names:

Old names, as charted, appear to be correct and adequate.

Statistics, etc:

A table of statistics is attached, and tidal data is attached.

Respectfully submitted,

Ray L. Schoppe,
Chief of Party.

Approved
H. A. Ferguson.

STATISTICS FOR SHEET 46 1/2.

Day	Date	Pos.	Soundings H.L.	Soundings F.	Total	Sta Miles	Vol.
A	Sept 26,1935	78	37	395	432	31.2	1
B	Sept 27,1935	174	94	896	990	66.0	1
C	Oct. 1,1935	111	39	577	616	45.1	1 & 2
D	Oct. 3,1935	98	98	441	539	35.5	2
E	Oct. 4,1935	198	258	1022	1280	80.5	2
F	Oct. 10,1935	63	126	277	403	20.8	3
		722			4260	879.1	

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

August 21, 1936.

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis

Plane of Reference
~~Tide Reducers~~ approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 5989

Locality Smith Island Shoal, Virginia Coast

Chief of Party: R. L. Shoppe in 1935
Plane of reference is mean low water reading
1.2 ft. on tide staff at Cobb Island
5.6 ft. below B.M. 1

Height of mean high water above plane of reference is 4.1 ft.

Condition of records satisfactory except as noted below:

Paul A. Whitney
Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE

GEOGRAPHIC NAMES

Survey No. H5989

Name on Survey	A: On Chart No. 1222	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	
Chesapeake Bay Entrance	*		—	—			—			1
Smith I. Shoal	*			—						2
										3
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Names underlined in red approved by C.A.N. on 5/14/36

M 234

	Remarks	Decisions
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M 234		

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H5989

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

Number of positions on sheet	722
Number of positions checked	54
Number of positions revised	0
Number of soundings recorded	4260
Number of soundings revised	0
Number of signals erroneously plotted or transferred	

Date:

Verification by G. H. Everett Time: 20 hrs.

Review by John S. Todd Time: 16 hrs.

HYDROGRAPHIC SURVEY NO. H5989

Smooth Sheet yes

Boat Sheet 1

Sounding Records 5 Vols. _____

Descriptive Report yes

Title Sheet yes

List of Signals Buoy locations filed as Vol 4 & 5 H5989

Landmarks for Charts (Form 567) -

Statistics yes

Approved by Chief of Party no

Recoverable Station Cards (Form 524) -

Special Chart for Lighthouse Service (Circular Nov. 30, 1933) -

Remarks _____

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT } No. H 5989
~~PHOTOSTAT OF~~ ~~No. T~~

received APR 16 1936
registered MAY 8 1936
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
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62			
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83			
88			
90			

RETURN TO

82	

C. K. Green May 11-'36

VERIFIERS REPORT ON H-5989

1. The records are complete and conform to the requirements of the General Instructions.

2. The 5-fathom curve is complete within the limits of the survey. The shoalest depth obtained is 21 feet. The deepest is 54 feet.

3. The plotting was very well done. Time and course of lines checked so well that only a few positions were considered necessary to verify.

4. No junctions have been made as there are no recent surveys adjoining this sheet.

5. Remarks

The Gas and whistle buoy was referred to in the D.R. as no. 12A. In vol. 4 pg. 13 it is called buoy no. 12 (see same vol. for location)

In vol. 2 pg. 33 a hydro reference was made of this buoy. The estimated distance was in error by 100 m. However it is noted in the buoy location record that this buoy had considerable scope

The fathometer failed to register in practically all depths below 28 feet. Lead line soundings were plotted for those depths where the fathometer missed. All other soundings are fathometer soundings.

It was noted that the fathometer many times ~~gradually~~ registered 1 foot deeper than the lead line soundings. The average difference would be about ½ foot deeper. The maximum difference was 2 feet deeper.

A definite rule was not followed in the use of the fathometer corrections. A study was made of the cross lines in which some lines had a 0 correction and others of the same depth a -1 correction.

It was found that when a 0 correction was used, several 31 foot depths appeared inside of the 5 fathom curve. In order to eliminate these holes and straighten out the curve a -1 correction was applied to conform to the more general rule which seemed to govern the sheet.

Generally a -1 correction was used on soundings below 7 fathoms and 0 corrections in soundings deeper than 7 fathoms.

Submitted Sept. 19, 1936

H H Everett

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5989 (1935) FIELD NO. 46½

Smith Island Shoal, Chesapeake Bay Entrance, Virginia
Surveyed in 1935 - Scale, 1-40,000
Instructions dated April 27, 1933 and June 8, 1935 (LYDONIA)

Hand Lead and
Dorsey Fathometer Soundings — 3 Point fixes on buoy signals

Chief of Party - Ray L. Schoppe
Surveyed by - Ray L. Schoppe and E. O. Heaton
Protracted by - W. N. Martin
Soundings penciled by - W. N. Martin
Verified and inked by - G. H. Everett

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except that no approval note by the Chief of Party was contained in records.

The Descriptive Report is complete and satisfactorily covers all items of importance except that a statement should have been included regarding the method of correcting Dorsey Fathometer Soundings.

2. Compliance with Instructions for the Project.

The survey satisfies the instructions for the project.

3. Shoreline and Signals.

There is no shoreline within the limits of this sheet. The signals are buoys located by the hydrographic party by cuts to shore signals which are recorded in Vol. 4 of the sounding records.

4. Sounding Line Crossings.

The cross lines in general may be considered to be satisfactory, although a number of differences occur, ranging from 1 to 7 feet in depths of 30 to 40 feet. These are considered to be chiefly due to the uneven bottom together with slight displacements of sounding lines controled by swinging buoy signals. No serious discrepancies result therefrom. (See Descriptive Report, page 3, "Discrepancies").

5. Depth Curves.

Within the limits of the survey the usual depth curves may be satisfactorily drawn.

6. Junctions with Contemporary Surveys.

Satisfactory junctions are made with H-4194 (1921) on the north and with H-4193 (1921) on the east, West and south. However the

junction soundings have not been shown on the present survey since it is planned to eventually continue these surveys to the shore, thereby superseding the 1921 work. The overlaping portion of these two 1921 surveys is considered under "Prior Surveys" in par. 7 c.

7. Comparison with Prior Surveys.

a. H-364 (1852), H-397 (1853) and H-1873 (1888).

These surveys, the first two of which are on a 1-40,000 scale and the latter on a 1-20,000 scale contain slightly shoaler depths than shown on the present survey. The most important of these are the 17 foot soundings which fall on the present survey in the vicinity of the two 21 foot spots. (Lat. 37° 05.9', Long. 75° 48.0' and Lat. 37° 05.55', Long. 75° 45.35'). In light of the present and intermediate surveys it is considered that the 17 foot spots no longer exist and they have not been carried forward. However the recommendation has been made (see par. 10 of this review) that wire drag surveys be made in the vicinity of the present 21 foot spots in view of the reported 16.6 foot depth.

b. H-3314 (1912)

This survey on a 1-80,000 scale contains but a very few soundings that fall within the limits of the present survey. The agreement is satisfactory.

c. H-3768 (1915), H-4193 (1921), H-4194 (1921), and H-4928 (1929).

These surveys all on a scale of 1-40,000 contain a reasonably close development of a part or all of the area of the present survey. A comparison reveals a good general agreement although there are a few differences of 1 to 2 feet in depth of 25 to 30 feet. In each case however, similar, or even shoaler depths may be found nearby on the present survey. Consequently the above prior surveys give no additional chartable information not contained on the present survey.

d. H-5987 (1935) W. D.

This wire drag survey on a scale of 1-10,000 covers a small portion of the present survey and contains no effective drag depths in conflict with it.

8. Comparison with Chart No. 1222 (New Print dated June 26, 1936)

a. Hydrography.
Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and contain no additional information that needs consideration in this review.

b. Aids to Navigation.

The whistle buoy No. 12 is charted approximately 600 meters southwest by west from the position as shown on the present survey. However in its position as shown it adequately marks the feature intended.

9. Field Plotting.

The field plotting was excellent.

10. Additional Field Work Recommended.

It is recommended that when feasible, wire drag surveys be made of the two 21 foot shoals at Lat. 37° 05.9', Long. 75° 48.0' and Lat. 37° 05.55', Long. 75° 45.35' which fall outside the limits of wire drag survey number H-5987 (1935), which was made to verify the reported 16.6 foot shoal in Lat. 37° 05.5', Long. 75° 46.3'. For details and results see the review of H-5987 W. D. (1935). In this connection it is noted that the surveys of 1852 and 1888 both showed 17 foot spots in the vicinity of the 21 foot shoals, but which were superseded by later surveys.

11. Dorsey Fathometer Correction.

The correction applied to the Dorsey Fathometer soundings by the field party have been accepted by the office. These corrections generally amounted to -1 foot for soundings less than 7 fathoms and zero correction for soundings greater than 7 fathoms. These corrections, however, did not always agree with the difference between the hand lead and fathometer comparisons. The field party submitted no analysis of the corrections adopted nor was any statement regarding same included in the descriptive report. The whole problem of Dorsey Fathometer Correction will be considered after the additional data is accumulated by the various field parties. A standard method of procedure will then be adopted.

12. Superseding Old Surveys.

Within the area covered the present survey supersedes the following surveys for charting purposes.

H-364 (1852)	in part.
H-397 (1853)	" "
H-1873 (1888)	" "
H-3314 (1912)	" "
H-3768 (1915)	" "
H-4193 (1921)	" "
H-4194 (1921)	" "
H-4928 (1929)	entirely.

13. Reviewed by - John G. Ladd, Oct. 10, 1936.

Inspected by - A. L. Shalowitz.

Examined and approved:

H-5989 (1935)-4

C. K. Green,
Chief, Section of Field Records.

L. O. Colbert
Chief, Division of Charts.

Fred. L. Peacock
Chief, Section of Field Work.

Chief, Division of H & T.

48'

46'

44'

42'

37°08'

06'

04'

OVERLAY FOR SMITH ISLAND SHOAL BOAT SHEET
Ship LYDONIA
October 1935

#46½

H5989

48

46

44

75°

42

08'

37°06'

OVERLAY FOR SMOOTH SHEET NO. 46½
SHIP LYDONIA
OCTOBER 1935

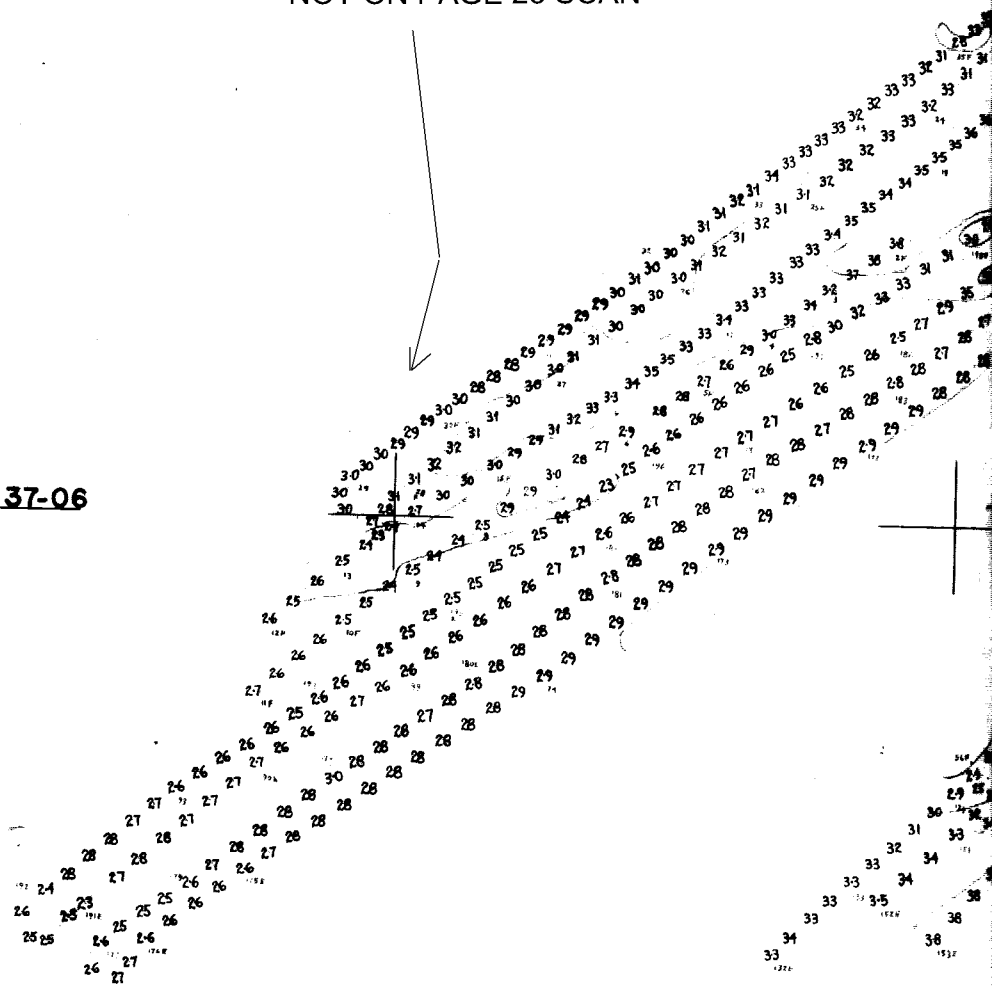
H5989

48

08

ON ORIGINAL DOCUMENT

NOT ON PAGE 23 SCAN



37-06

H5989

04

applied to Chart 1222 — Jul 1937 — L.M.Z.
" " " 1109 — " L.M.Z.
" " " 563 7/19/63 J.H.E.