

5510

Diag. Cht. No. 1282-2.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. 22 Office No. H-5510

LOCALITY

State Texas

General locality Galveston Bay

Locality Morgan Pt. to Red Fish Bar

19 33

CHIEF OF PARTY

Earl O. Heaton

LIBRARY & ARCHIVES

DATE September 14, 1934

B-1870-1 (1)

5510

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

SEP 13 1934

REG. NO. 5510

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. 22

REGISTER NO. 5510

State Texas

General locality Galveston Bay

Locality Morgan Pt. to Red Fish Bar

Scale 1:20,000 Date of survey Mar. to Oct. 19 35

~~Project~~ Project; RP-118

Chief of Party Earl O. Hooton

Surveyed by Lieut. (j.g.) J.S. Morton, Ensign W. C. Russell, G. S. Tinsley, Observer.

Protracted by G. E. McDaniel, Draftsman + A.H.Y.

Soundings penciled by G. W. O'Melveny, Surveyor + A.H.Y.

Soundings in ~~fathoms~~ feet

Plane of reference M.L.W. M.L.W.

Subdivision of wire dragged areas by

Inked by A.H. Yeomans

Verified by AMY

Instructions dated Nov. 5, 1932, 19

Remarks:

Landmarks attached. *x*

DESCRIPTIVE REPORT
TO ACCOMPANY HYDROGRAPHIC SHEET #22
UPPER GALVESTON BAY, CLEAR LAKE, & REDFISH BAR

Date of Instructions:

Instructions for this work were dated Nov. 5, 1932.
(Project: HT-118)

Survey Methods:

Launches were used for the major part of the work on this sheet and the soundings were obtained by using sounding poles graduated in feet, each with a thin plate about 6 inches in diameter on the bottom to prevent them from sinking into soft mud.

At certain points along Redfish Bar and in Clear Creek a lead line was used; it was marked in feet and had an 8# lead with a moulded base 4" in diameter to prevent its sinking into soft mud.

Skiffs powered with outboard motors were used for the usual shoal water work and for development work on Redfish Bar. Sounding poles were used to obtain depths.

Occasional soundings will be found in the sounding volumes for this sheet without a recorded time. These soundings serve as check soundings and were taken wherever a sudden change in depth was noticed. They occur about ten seconds after the previous sounding.

Discrepancies:

The following discrepancies were found and corrected as shown below:

The soundings on red S launch day from 78 to 95 were rejected. These were too shallow and were covered by a later day (30 to 47 blue VV launch day). *29 32.2*

Soundings were rejected 1 to 22 red U launch day. These soundings were too shoal and were covered by later days. *94 54.0*

Soundings 11 to 14 red W launch day were rejected; soundings rejected were replaced by the more accurate work on blue G skiff day, positions 113 to 117. *29 32.2*

Soundings 1 to 8 red NN launch day were rejected. These soundings were too shallow and were replaced by soundings covering the same area on blue VV day. *94 40*

Soundings on the red B launch day from 41 to 47 and 67 to 69 were apparently too shallow. These rejections were replaced by soundings from 68 to 76 and 58 to 60 respectively on the blue CC launch day. *29 32.2*

The lines run on the blue VV launch day from position 1 to 13 proved that the soundings on the red skiff J day from position 50 to 59 were too deep at the outer ends of the lines. *29 32.2* *average agreement within 1/2 feet*

Full description of work

Location of Beacons and Buoys:

The U. S. Engineer Corps is widening the Houston Ship channel at the present time from Redfish Bar Cut Lt. to Beacon 22. All beacons and buoys on the west side of the channel in this area have been moved, or are to be moved shortly. North of Beacon 22 contemplated widening of the channel by the U.S. Engineers Corps makes it inadvisable to show the beacons and buoys on the west side in this area in the position determined on this survey.

Dangers:

Of some danger to small craft are the following:
 A 4" x 4" pile awash at MHW is at Lat. 29° 38.1' N., Long. 94° 53.0' W. Near this point is also a 4" x 12" pile. ✓
 A sunken barge located by the hydrographic party (vol. 17, page 38) is at Lat. 29° 35.7', Long. 94° 58.5'. This barge lies in about 2½ ft. of water and is awash at MLLW *put out at MHW (from rec.)* ✓
 At Lat. 29° 34.5', Long. 94° 45.1' there is a sunken pile awash at MHW. ✓
 A 2" iron pipe bare 6 ft. at MLLW is at Lat. 29° 36.6', Long. 94° 58.9' and another 2" pipe is at Lat. 29° 33.2', Long. 94° 57.9'. ✓
 A 12" pile bare 2 ft. at MLLW is at Lat. 29° 30.3', Long. 94° 49.4'. ✓
 At Lat. 29° 31.4', Long. 94° 50.9' there is a 2" pipe bare 2 ft. at MLLW. *H Signal Work* ✓

It is recommended that all of the above dangers be charted as well as the following shoal spots:

Position		Position	Depth at	Surrounding Depths
Latitude	Longitude	Number	M.L.L.W.	at M.L.L.W.
29 30.2	94 43.8	Bet. 36-37 A' (red)	4 ft.	6½ & 7 ft. ✓
29 30.8	94 46.3	Bet. 66-67 B' (red)	3 "	5 & 5½ ft. ✓
29 38.2	94 51.2	bet. 78-79 MM (red)	3 "	9 ft. ✓
29 38.8	94 51.9	bet. 110-111 MM (red)	6 "	8½ & 9 ft. ✓
29 37.7	94 54.4	bet. 41-42 RR (red)	5½ "	8 & 8½ ft. ✓
29 38.7	94 56.1	bet. 3-4 K (red)	4 "	6 ft. ✓
29 36.7	94 57.4	bet. 3-4 LL (blue)	5 "	7 ft. ✓
29 32.8	94 59.8	bet. 5-6 SS (blue)	6½ "	8 ft. ✓
29 30.9	94 45.0	bet. 16-17 B' (red)	3 "	5½ ft. ✓

7 surface charts, corrected

The area around Redfish Bar continues to be a danger of major importance, but is well marked by semi-permanent day beacons and temporary buoys. The buoys are placed by shell dredges operating in this vicinity. Further reference to this area will be found under paragraph "Comparison with Previous Surveys". ✓

Channels:

Of the five charted channels on this sheet the Houston Ship Channel is most important. This channel extends in a NNW direction from Lat. 29° 30.0', Long. 94° 52.2' to Beacon 22 Lat. 29° 36.4', Long. 94° 57.1' where it continues in a N by W direction to the north edge of this sheet. As noted previously this channel is being redredged and widened by the U. S. Engineer Corps to a new bottom width of 400 ft. No soundings were taken in this channel because it is maintained to the required depth by the U. S. Engineer Corps.

Cedar Bayou channel is maintained for a considerable traffic in oil and shell from Cedar Bayou, a small town about 7 miles from the north of the bayou. This channel is well marked by lighted beacons as well as day beacons. The controlling depth of this channel was 10½ ft. in June 1933. No soundings were taken in this channel because it is maintained to the required depth by the U. S. Army Engineers.

The Seabrook channel is being dredged by the U. S. Engineers at the present time and for that reason no soundings were plotted on the smooth sheet. This channel is well marked by a lighted entrance beacon and by day beacons along both sides of the channel of a semi-permanent nature; it continues as a channel into Clear Creek where dredging is not necessary. Small pleasure and fishing boats comprise the only traffic in this channel. Clear Lake and Clear Creek afford the safest anchorage in upper Galveston.

Bay during hurricanes and are used by nearly all small boats in this vicinity as such. However, pilots of some small boats prefer to run a much longer distance up the Houston Ship Channel into Houston for protection. A ship yard for the repair of small boats is located about one mile from the mouth of Clear Creek.

The channel across Clear Lake is of no navigational importance, although it is marked by day beacons of a semi-permanent nature. It has a minimum depth of about 5 ft. 3 ft. ^{1/2 ft. minimum}

Double Bayou channel is of no importance except some traffic of local produce (rice) to Galveston, which is taken on barges and small boats having about 2 ft. draft. This channel is being dredged at the present time. It is marked by two lighted beacons and numerous marks of temporary nature placed by the U. S. Engineers. The two lighted beacons only should be charted. ^(wrecked Beacon 13428 21' 32.7')

Comparison with Previous Surveys:

This smooth sheet, by comparison with chart #1282, corrected to July 1934, shows the following:

Soundings in Clear Lake now show deeper water than previously charted. This is probably due to the use of a different datum on the chart. ^{-1-1/2 ft}

A 5 ft. sounding was found at Lat. 29° 38.2', Long. 94° 51.8' which should replace the 5 1/2 ft. charted sounding.

At Lat. 29° 37.2', Long. 94° 49.5' a 6 1/2 ft. ^{plotted 6 1/2} sounding was found instead of 6 ft. as shown on the chart. At Lat. 29° 31.4', Long. 94° 47.5' ^{mentioned in previous survey} a 3 1/2 ft. sounding was found which should replace the 4 1/2 ft. sounding shown on the chart. At Lat. 29° 30.3', Long. 94° 49.3' a 1 1/2 ft. sounding was found instead of 1 ft. sounding as charted. The 3 1/2 ft. sounding charted at Lat. 29° 30.1', Long. 94° 50.2' was checked on this survey.

The six ft. curve on the west side of the sheet is found to be considerably closer to shore on this survey than is shown on the previous work. This condition, together with general deepening of the area west of the Houston Ship Channel would indicate that a different datum was used on the chart.

At the Houston Yacht Club, Lat. 29° 37.1', Long. 95° 00.0' the yacht basin has been dredged to a 7 ft. minimum depth. This is not shown on previous charts and a description of the change in shore-line will be found in the report to accompany the report for topographic Sheet "C".

The Houston Yacht Club channel is privately maintained and had a minimum depth of 6 ft. in May 1933. This channel is subject to rapid shoaling and the club has very little money for its maintenance. ^{existing depth now 2 1/2 ft. minimum}

The area east of the Houston Ship Channel and north of Lat. 29° 34' shows deeper water now than the previous chart due, probably, to datum differences. South of Lat. 29° 34' to Redfish Bar the depths on this survey agree with former work.

The six ft. depth curve on the east half of this sheet follows the one on the chart with reasonable accuracy.

The soundings in the vicinity of Redfish Bar show a considerable difference. This difference is due to gradual erosion and dredging operations. All islands on Redfish Bar west of the one shown on the chart at Lat. 29° 31.4', Long. 94° 49.0' have eroded away and should be removed from the chart to be replaced by shoal symbols.

South of Smith Point and eastward considerable development work was done. A number of shoals not previously charted were found in this area.

An island, shown on the chart as the northernmost part of Hanna Reef at Lat. 29° 30.0', Long. 94° 48.5', no longer exists and should be replaced by a shoal symbol. This reef is awash at M.H.W. (V. 25, p. 52)

A comparison of the hydrography on this sheet with the work done in 1931 by Lt. J. A. Bond shows good agreement between the two surveys.

H-512 (1931)
for details see
rev. this sheet
N.M.N.

Pilings as shown at turnout in the Houston Ship Channel south of Bn. 18 no longer exist and should be removed from the chart. The turnout is not dredged and is not used as such.

Geographic Names:

No new geographic names were assigned.

Statistics for sheet Field No. 22:

Statute miles of sounding lines -----	2,240
Number of soundings -----	55,855
Number of positions -----	9,521

Men in Charge of Hydrography:

Lieut. (j.g.) J.S. Morton, and Ensign W. C. Russell had charge of the major portion of the work on this sheet. G. S. Tinsley, observer, had charge of skiff work on some portions of the sheet.

Note to Verifier in Washington Office:

Because of dredging now being done or contemplated in the following channels it is recommended that the soundings be left uninked in the areas marked as described below:

Houston Ship Channel -- between pencilled dashed lines extending across entire sheet. *Plotted **

Seabrook Channel -- the area inside of dashed pencil lines shown on this sheet. *Plotted **

Double Bayou Channel -- all soundings for an approximate width of 400 m. along the channel from Double Bayou Beacon #2 to the mouth of Double Bayou. *Plotted **

Because of the extraordinary number of soundings and temporary buoys on Redfish Bar it was found advisable for clearness to make two overlays to cover the same area; these overlays accompany the smooth sheet.

At Lat. 29° 31.3', Long. 94° 49.3' a channel with an opening of 7+ about 1/2 mile wide with minimum depth of 8 ft. has been dredged across Redfish Bar in the removal of shell by shell dredges. It is marked on the west side by a white 50 gallon gasoline drum on a 2" iron pipe (Lat. 29° 31', 475 m.; Long. 94° 49', 850 m.). This channel runs in a southwest direction from the above position to a point at about Lat. 29° 30.7', Long. 94° 50.2' where it runs due west to about Long 94° 51.5' as shown by the black dashed line on the accompanying overlay whence it runs southwest and south to the Houston Ship Channel where it is said an opening in the spoil dumps has been left by the Army Engineers.

At the point where the above mentioned channel turns west it narrows down to a width of about 90 m. and goes between two very shoal (1 to 2 1/2 ft.) sections of Redfish Bar. The least depth of this channel between the 1/2 mile opening in Redfish Bar and the Houston Ship Channel is 8 ft. which is found at about Lat. 29° 30.64, Long. 94° 51.67'. This channel is well

* These soundings were inked in the office as they represent conditions existing at time of survey except where conflict resulted with hydrography of later date. N.M.N.

Example of soundings transferred to smooth sheet. N.M.N.

5

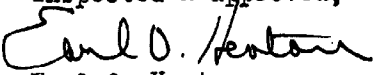
marked by temporary buoys and beacons of a semi-permanent nature. If the Office decides to show this channel on the chart it would be well to chart the following markers:

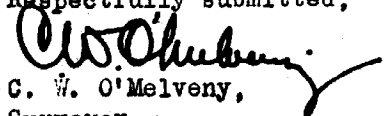
Kind	Position	
	Latitude	Longitude
White 50 gal. gas drum on 2" iron pipe bare 6' at MLLW	29° 31' 47.5m	94° 49' 850 m. ✓
White 50 gal. gas drum on 4" iron pipe, bare 9' at MLLW.	29° 31.02'	94° 49.8' ✓
White drum mkr., bare 8' at MLLW.	29° 30.79'	94° 50.47' ✓
White 50 gal. gas drum on 2" iron pipe, bare 6' at MLLW.	29° 30.77'	94° 50.66' ✓
50 gal. gas drum on 2" iron pipe	29° 30.74'	94° 50.9' ✓
50 gal. gas drum on 2" iron pipe, bare 10' at MLLW - white with black center stripe.	29° 30.76'	94° 51.28' ✓
White, 50 gal. gas drum on 2" iron pipe, bare 6' at MLLW.	29° 30.72'	94° 51.64' ✓ 51.4
White 50 gal. gas drum on 2" iron pipe, bare 9' at MLLW.	29° 30.44'	94° 51.96' ✓

Temporary checks as per table shown. ✓

Other pipes and buoys of a semi-permanent nature mark this bar for the benefit of the shell dredges operating in this area. ✓

At certain places on this smooth sheet there are points marking the locations of shell dredges at work. These are marked as a sort of back-check in case of future work and as an aid in determining on future surveys a difference between dredged area and eroded area. ✓

Inspected & approved,

 Earl O. Heaton,
 Chief of Party, C. & G.S.

Respectfully submitted,

 G. W. O'Melveny,
 Surveyor.

Hydrographic sheet number 22, Project HT-118, and accompanying records have been inspected and are approved.

Earl O. Heaton

Earl O. Heaton,
Chief of Party, C. & G. S.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. **5510**....

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

Number of positions on sheet	9521..
Number of positions checked	..73..
Number of positions revised	..21..
Number of soundings recorded	55,855
Number of soundings revised	..47..
Number of signals erroneously plotted or transferred	...1..

Date:.... **JANUARY 19, 1934**

Cartographer:.... **A.H. YEOMANS**

Protracting + Penciling Soundings by A.H.Y.
~~Verification of protracting~~ by A.H.Y.
~~Verification & taking of notes and checks~~

Verification of taking by A.H.Y.

Review by **H. W. Murray**

39 hrs.

~~Time~~ } 304 hrs.
~~Time~~

~~Time~~ 13 "

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

H-5510

LANDMARKS FOR CHARTS

Corpus Christi, Texas

September 8, 1934

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

Earl O. Heaton

Earl O. Heaton

Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED		
	LATITUDE		LONGITUDE					DATUM	
	°	'	D.M. METERS	°	'				D.P. METERS
*STACK, white, concrete (△Stack of St. Marys Sem)	29	39	482.8	95	00	904.5	N.A. 1927	Triang.	1282
*TANK, SHORRACKS elevated, black, metal (△Shoreacres W.T.)	29	37	331.7	95	00	1546.3	"	"	"
BUILDING N.E. cor. Houston Yacht Club ("chart outline")	29	37	93.0	95	00	120.8	"	Topo.	"
*TANK, elevated, white, concrete (○Con)	29	35	506.7	94	59	1279.6	"	"	"
TANK, elevated (○High)	29	30	1209.6	94	58	875.6	"	"	"
TANK, elevated at Edwards Pt.	29	29	1321.2	94	54	976.5	"	"	"
*TANK, elevated, steel (△West)	29	33	1062.8	95	04	1053.4	"	Triang.	"
TANK, elevated, steel (○School)	29	33	1826.0	95	04	175.7	#	Topo	"
All objects are visible from the water.									
Copy checked and verified by: <i>C. W. O'Malley</i>									

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive identification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaves and like objects are not sufficiently permanent to chart.

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

H-5510

LANDMARKS FOR CHARTS

Corpus Christi, Texas

September 8, 1934, 193

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

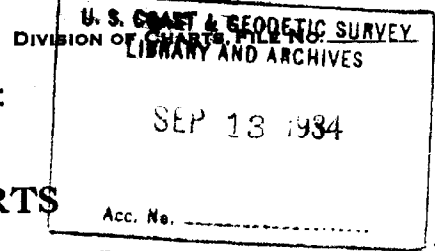
Earl O. Heaton
Earl O. Heaton
Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED
	LATITUDE		LONGITUDE		DATUM		
	° ' "	D.M. METERS	° ' "	D.P. METERS			
*STACK, white, concrete (ΔStack of St. Marys Sem)	29 39	482.8	95 00	904.5	N.A. 1927	Triang.	1282
*TANK, SHOREACRES elevated, black, metal (ΔShoreacres W.T.)	29 37	331.7	95 00	1546.3	"	"	"
BUILDING N.E. cor. Houston Yacht Club ("chart outline")	29 37	95.0	95 00	120.8	"	Topo.	"
*TANK, elevated, white, concrete (○Con)	29 35	506.7	94 59	1272.6	"	"	"
TANK, elevated (○High)	29 30	1209.6	94 58	875.6	"	"	"
TANK, elevated at Edwards Pt.	29 29	1321.2	94 54	976.5	"	"	"
*TANK, elevated, steel (ΔWest)	29 35	1062.8	95 04	1053.4	"	Triang.	"
TANK, elevated, steel (○School)	29 33	1826.0	95 04	175.7	"	Topo	"
All objects are visible from the water.							
Copy checked and verified by:							
<i>W. O. Heaton</i>							

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

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H-5510

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS
AIDS TO NAVIGATION

Carpas Christi, Texas

September 8, 1934, 193

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

Earl O. Heaton
Earl O. Heaton

Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED		
	LATITUDE			LONGITUDE				DATUM	
	°	'	D.M. METERS	°	'				D.P. METERS
BEACON (ΔRedfish Bar Cut Lt.)	29	30	912.1	94	52	851.7	N.A. 1927 Triang.	1282	
BEACON 14 (ΔHouston Ch. Bn. 14)	29	31	1563.9	94	53	914.9	"	"	"
BEACON 15 (ΔHouston Ch. Bn. 16)	29	32	1841.5	94	54	723.2	"	"	"
BEACON 18 (ΔHouston Ch. Bn. 18)	29	34	224.8	94	55	512.1	"	"	"
BEACON 20 (ΔHouston Ch. Bn. 20)	29	35	499.2	94	56	318.4	"	"	"
BEACON 22 (ΔHouston Ch. Bn. 22)	29	36	763.3	94	57	135.6	"	"	"
BEACON 24 (ΔHouston Ch. Bn. 24)	29	37	1416.0	94	57	979.8	"	"	"
BEACON 26 (ΔHouston Ch. Bn. 26)	29	39	249.8	94	58	218.9	"	"	"
BEACON 28 (ΔHouston Ch. Bn. 28)	29	40	654.5	94	58	979.9	"	"	"
BEACON (ΔSeabrook Ch. Bn.)	29	33	140.0	94	59	1603.1	"	"	"
BEACON (ΔHouston Yacht Club F.B. Bn.)	29	37	95.7	95	00	51.3	"	"	"
BEACON (ΔHouston Yacht Club B.R. Bn.)	29	37	26.1	95	00	106.5	"	"	"
BEACON (ΔAsh Point Bn.)	29	40	1233.4	94	56	766.4	"	"	"

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive identification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstuffs and like objects are not sufficiently permanent to chart.

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

H- 5510

LANDMARKS FOR CHARTS

AIDS TO NAVIGATION

Galveston Christi, Texas

September 8, 1934, 193

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

Earl O. Heston

Earl O. Heston

Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED		
	LATITUDE		LONGITUDE		DATUM				
	°	'	D. M. METERS	°				'	D. P. METERS
BEACON (△Redfish Bar Cut Lt.)	29	30	912.1	94	52	851.7	N.A. 1927	Triang.	1282
BEACON 14 (△Houston Ch. Bn. 14)	29	31	1563.9	94	55	914.9	"	"	"
BEACON 16 (△Houston Ch. Bn. 16)	29	32	1841.3	94	54	723.2	"	"	"
BEACON 18 (△Houston Ch. Bn. 18)	29	34	224.8	94	55	512.1	"	"	"
BEACON 20 (△Houston Ch. Bn. 20)	29	35	499.2	94	56	318.4	"	"	"
BEACON 22 (△Houston Ch. Bn. 22)	29	36	763.3	94	57	135.6	"	"	"
BEACON 24 (△Houston Ch. Bn. 24)	29	37	1416.0	94	57	979.8	"	"	"
BEACON 26 (△Houston Ch. Bn. 26)	29	39	249.8	94	58	218.9	"	"	"
BEACON 28 (△Houston Ch. Bn. 28)	29	40	634.5	94	58	979.9	"	"	"
BEACON (△Seabrook Ch. Bn.)	29	33	140.0	94	59	1603.1	"	"	"
BEACON (△Houston Yacht Club P.R. Bn.)	29	37	95.7	95	00	51.3	"	"	"
BEACON (△Houston Yacht Club B.R. Bn.)	29	37	26.1	95	00	106.5	"	"	"
BEACON (△Ash Point Bn.)	29	40	1233.4	94	56	766.4	"	"	"

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive identification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaves and like objects are not sufficiently permanent to chart.

Hydro. Sheet #22
DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

H-5510

SEP 18 1934

LANDMARKS FOR CHARTS

AIDS TO NAVIGATION

Corpus Christi, Texas

September 8, 1934, 193

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

Earl O. Heston
Earl O. Heston

Chief of Party.

DESCRIPTION	POSITION						METHOD OF DETERMINATION	CHARTS AFFECTED	
	LATITUDE			LONGITUDE					DATUM
	°	'	D.M. METERS	°	'	D.P. METERS			
BEACON 2 (△Double Bayou Bn. #2)	29	30	1161.5	94	42	1662.6	N.A. 1927	Triang.	1882
BEACON 4 (△Double Bayou Bn. #4)	29	30	1891.4	94	42	561.0	"	"	"
BEACON (△Houston Yacht Club Bn.)	29	37	879.6	94	59	1196.2	"	"	"
PIPE (W. 50 gal. drum on 2" pipe)	29	31	475.	94	49	850.	"	Hydro.	"
TRIPOD (Rf. skr. tripod of 3 ear rails)	29	30	745.	94	49	51.	"	"	"
Copy checked and verified by:								<i>C.W. O'Melveny</i>	

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive identification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaves and like objects are not sufficiently permanent to chart.

Hydro. Sheet #22
DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

H-5510

LANDMARKS FOR CHARTS

AIDS TO NAVIGATION

Corpus Christi, Texas

September 9, 1934, 193

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

Earl O. Heaton

Earl O. Heaton

Chief of Party.

DESCRIPTION	POSITION					DATUM	METHOD OF DETERMINATION	CHARTS AFFECTED
	LATITUDE		LONGITUDE					
	°	'	D.M. METERS	°	'			
BEACON 2 (△Double Bayou Bn. #2)	29	36	1151.3	94	42	1552.6	N.A. 1927	Triang. 1202
BEACON 4 (△Double Bayou Bn. #4)	29	38	1891.4	94	42	361.0	"	"
BEACON (△Houston Yacht Club Bn.)	29	37	579.6	94	59	1196.2	"	"
PIPE (Wh. 50 gal. drum on 2" pipe)	29	31	475.	94	49	850.	"	Hydro. "
TRIPOD (Rf. mkr. tripod of 3 ear rails)	29	30	745.	94	49	31.	"	"
Copy checked and verified by: <i>C.W. O'Melveny</i>								
<i>C.W. O'Melveny</i>								

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive identification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaffs and like objects are not sufficiently permanent to chart.

To: Mr. Bacon
From: L. L.S.

2

Survey No. H 5510

GEOGRAPHIC NAMES
TEXAS

Date: September 27, 1934.

Chart No. 1282

Names underlined in red approved Oct. 1, 1934

Diagram No. 1282

*. Approved by the Division of Geographic Names, Department of Interior.

φ. Not Approved by the Division of Geographic Names, Department of Interior.

R. Referred to the Division of Geographic Names, Department of Interior.

Put underlined names, only, on the sheet
H.B.

Status	Name on Survey	Name on Chart	New Names in local use	Names assigned by Field	Location
	<u>Edwards Pt.</u> ✓	Same	----	----	29° 29.9' 94° 54.6'
	-----	San Leon ✓	----	----	29° 28.8' 94° 55.5'
	-----	-----	----	Clifton By The Sea ✓	29° 30.7' 94° 58.5'
ok	-----	Bayview ✓	----	----	29° 30.9' 94° 59.4'
	-----	-----	----	Kemah ✓	29° 32.9' 95° 02.9'
	-----	Seabrook ✓	----	-----	29° 33.6' 95° 02.2'
	<u>Clear Creek</u> ✓	-----	----	----	29° 32.9' 95° 01.1'
	<u>Clear Lake</u> ✓	Same	----	----	29° 33.5' 95° 03.5'
	-----	Tod ✓	----	----	29° 34' 94° 01.1'
	-----	Surf ✓	----	----	29° 35.1' 94° 59.8'
	<u>Red Bluff</u> ✓	Same	----	----	29° 35.1' 94° 59.1'
		Redbluff ?	----	----	29° 36' 95°

Rec

November 1, 1934

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
35 volumes of sounding records for

HYDROGRAPHIC SHEET 5510

Locality Morgan Point to Red Fish Bar, Galveston Bay, Texas

Chief of Party: Earl O. Heaton in 1933
Plane of reference is mean low water reading
2.9 ft. on tide staff at Edwards Pt
11.9 ft. below B.M. 1

2.9 ft. on tide staff at Morgans Pt.
7.1 ft. below B.M.1

2.0 ft. on tide staff at Beacon 3)
2.6 ft. on tide staff at Beacon 12) No bench marks established

3.3 ft. on tide staff at Clear Lake
14.4 ft. below B.M. 1

Height of mean high water above plane of reference is 0.7 ft. at Edwards Pt.
and Clear Lake; and 0.9 ft. at Morgan Pt., Beacon 3 and Beacon 12.

Condition of records satisfactory except as noted below:

Harriman

Acting Chief, Division of Tides and Currents.

Verification Report
Report on H 5510

Chief of Party E.O. Heaton

Protracted by S.E. McDaniel & A.H.H.

Verified and inked by A.H. Johnson

Surveyed in Mar. to Oct. 1933

Surveyed by J.S. Morton W.C. Russell

G.S. Zinsley

Soundings plotted by C.W. O'Melroy

1. The records conform to the general instructions. ✓
 2. The usual depth curves were completely drawn. ✓
 3. The field plotting ^{portions of the curves} was completed to the extent prescribed in the Hydrographic Manual except in the Houston Ship, Double Bayou, and Seabrook Channels where the soundings were not plotted on the smooth sheet. ✓
 4. The office draftsman did no drafting over that had been done by the field party. ✓
 5. The junction with adjacent sheet H 5394 (1933-34) was made and found to be satisfactory. The other adjoining sheets H 5399 (1933) and H 5511 (1933) were not available at the present time. ✓
 6. The topography was not completely drawn on the smooth sheet. The verifier transferred the topography ^{about 500 of total} from topo sheets T 4613 and T 4614 and piers from T 4860. The pier ^{extended on Hydro. chart} near Trum O (position 634, 524, 339) according to the remarks in the records should be about 200 meters longer than shown on the Topo sheet. There is also a new pier near High O (position 124). ^{shown on Hydro. chart} No shell dredges or buoys for their mooring were plotted. No temporary dredging, atches, diving platforms, or ~~blanks~~ ^{blanks} were plotted. The signal Spar was a buoy removed since the survey. ✓
- In the three channels Seabrook, Houston Ship, and Double Bayou, the verifier plotted and inked the soundings. The spoil dumps long. $94^{\circ}52'$ lat. $29^{\circ}30'$ do not conform to the hydrography, and the soundings falling on land area. ^{Topo except} No air photo work is available on land. The verifier could not locate the pipe ^{log, figures assumed to be 58.9} here 6° M.L.W. lat $29^{\circ}36.6$, long. $94^{\circ}58.9$ referred to ~~the~~ ✓

report.

01307

Submitted by,

A. H. Geomans

Jan. 19, 1934

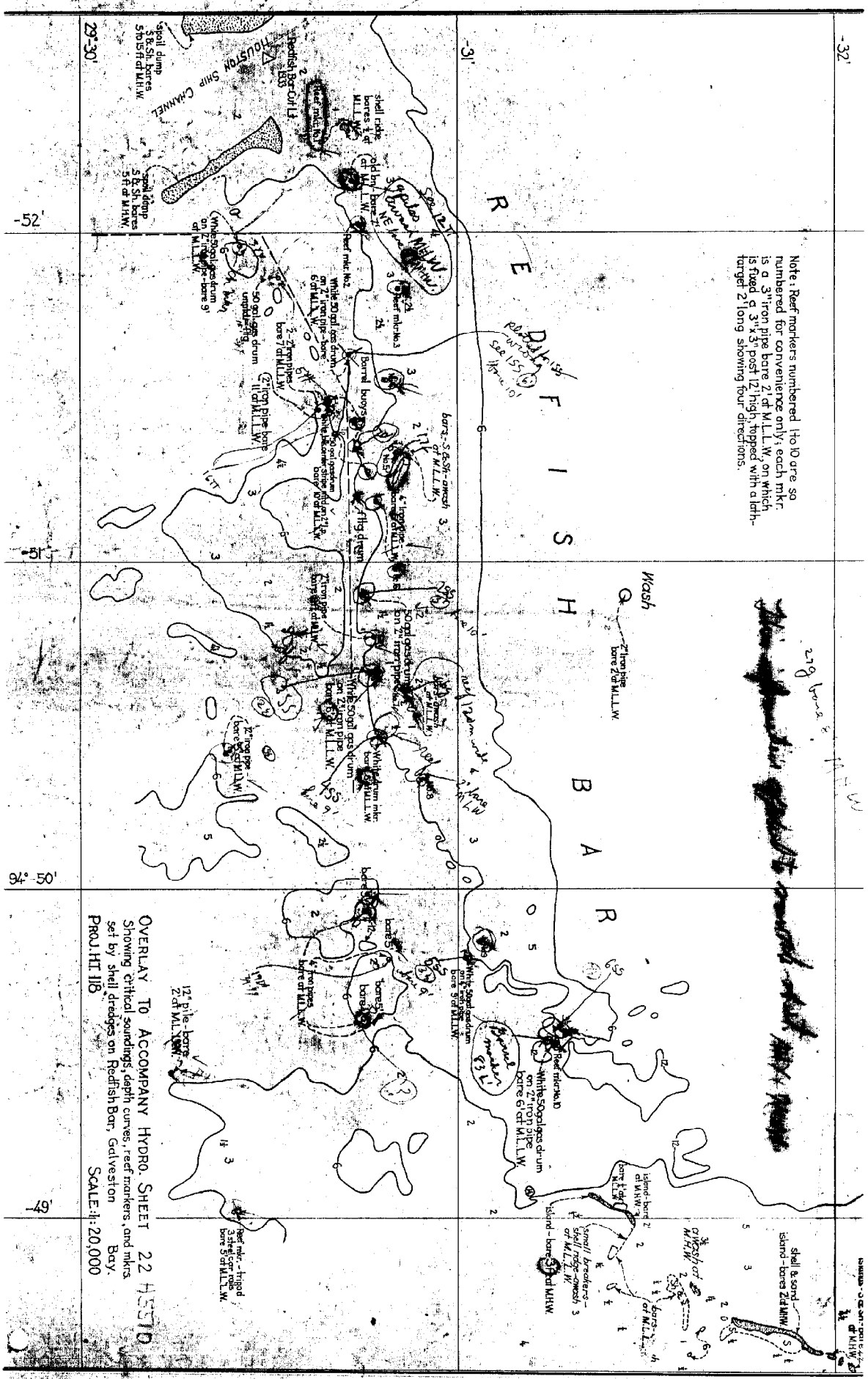
must be present

the verified could not locate the

1934

Note: Reef markers numbered 1 to 10 are so numbered for convenience only; each mkr. is a 3" iron pipe bare 2' of M.L.L.W. on which is fixed a 3" x 3" post 12" high, topped with a 1-ft-4" target 2' long showing four directions.

REEF MARKERS
See 155
See 156



OVERLAY TO ACCOMPANY HYDRO. SHEET 22 45510
Showing critical soundings, depth curves, reef markers, and mkr.
set by shell dredges on Redfish Bar, Galveston Bay,
PROJ. H. 118 SCALE: 1:20,000

Memo.

O'Melveny's comment is that the spoil dump in question should supercede the soundings inasmuch as the hydrography was accomplished "Mar. to Oct. 1933", *whereas*

Excerpts from the topographic report for the same area state under Changes in Coast Line :

"Due to present dredging operations along the Houston Ship Channel changes in spoil dumps have been made. A new spoil dump is shown east of Redfish Bar Cut Lt. The ~~dark~~^{dark} line on the northwest side of the spoil dump west of Redfish Bar Cut Lt. is the probable location of shore line of the spoil dump. Dredging operations were not complete in this area at the time the topography was executed in January 1934." and under Channels :

"The spoil dumps shown at Redfish Bar Cut were surveyed in January 1934 while dredging by the U. S. Engineers was being done."

(The date of survey stated on the title sheet is Feb to July 1933.)
^{to}

O'Melveny states that additional data was to be furnished by the U. S. Engrs. after completion of their project.

C.R.R.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5510 (1933)

Galveston Bay, Morgan Pt. to Red Fish Bar, Texas.

Surveyed in 1933

Instructions dated November 5, 1932 (E.O.Heaton)

Hand Lead and Pole Soundings - 3 Point Control on Shore Signals.

Chief of Party - Earl O. Heaton.

Surveyed by - J. S. Morton, W. C. Russell, G. S. Tinsley.

Protracted by - G. E. McDaniel.

Soundings penciled by - C. W. O'Melveny.

Verified and inked by - A. H. Yeomans.

1. Condition of Records.

The records are neat, legible and conform to the requirements of the Hydrographic Manual with the exception that no chart containing objects for location of Aids to Navigation for use of the Lighthouse Bureau was forwarded to this office.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project. The survey is an excellent example of a well executed, detailed survey of a large area.

3. Sounding Line Crossings.

Sounding line crossings are excellent. Average agreement with the main system of lines is within $\frac{1}{8}$ feet.

4. Depth Curves.

The usual depth curves may be satisfactorily drawn including portions of the zero foot curve.

5. Junctions with Contemporary Surveys.

a. The junction on the southeast with H-5511(1933) is satisfactory.

b. The junction on the northwest with H-5121(1931) is satisfactory, with the exception that a few spots on the present survey vary as much as 2 feet deeper in some areas and 2 feet shoaler in others, the differences being due to changes in bottom since the 1931 survey was made.

c. The junction on the north with H-5399(1933) is satisfactory except that in the vicinity of lat. $29^{\circ}39.5'$, long. $94^{\circ}56.2'$; a few soundings of the present survey which were obtained about a month later vary 1 to $1\frac{1}{2}$ feet shoaler.

d. The junction on the south with H-5394(1933-34) is satisfactory except that in the vicinity of lat. $29^{\circ}30.3'$, long. $94^{\circ}53.2'$; soundings of p'day(red) of H-5394(1933-34) vary about 3 feet shoaler than those of the present survey which were run about $1\frac{1}{2}$ months later. Because this area is known to be subject to sudden changes, soundings of the present survey in this particular vicinity should be used for charting the overlapping area. The overlapping soundings from H-5394(1933-34) have not been transferred to this survey.

6. Comparison with Prior Surveys.

a. H-324(1852).

Soundings of this survey in the vicinity of Red Fish Bar and south-eastward are, in flat areas, 1 to 2 feet shoaler in some areas and deeper in others. In the vicinity of the western half of Red Fish Bar, the bottom has changed considerably and depths on the present survey vary 1 to 9 feet deeper in some spots and 1 to 3 feet shoaler in others. The greater differences are due to erosion and dredging operations.

b. H-414(1853).

Soundings of this survey in the western half of Galveston Bay are in general 1 to 2 feet deeper than those on the present survey. A few spots, however, are practically unchanged in depth.

c. H-425(1854).

Soundings of this survey southeastward of Smith Point vary $\frac{1}{2}$ to 2 feet deeper than those on the present survey.

d. H-470(1855).

Soundings of this survey in the eastern half of Galveston Bay are in general about 1 foot deeper than those of the present survey.

7. Comparison with Charts Nos. 588(Scale 1-10,000) and 1232.

a. Hydrography.

Soundings shown on the above charts within the limits of the present survey and originating with sources other than those discussed in preceding paragraphs of this review are from U. S. Engineers' Blueprint No. 10987(1905). In the main portion of the bay, soundings on the present survey vary $\frac{1}{2}$ to 1 foot deeper. However, in Clear Lake, soundings vary 1 to $1\frac{1}{2}$ feet deeper and in the vicinity of Red Fish Bar considerable change in depth and shoreline have taken place. A number of islands charted here have broken down and become shoals, and differences in depth of as much as 13 feet have occurred with depths on the present survey being, in general, deeper. The changes

are due to gradual erosion and dredging operations. (See D.R., page 3). On the eastern side of Houston Channel considerable shoaling is shown on the present survey and is probably due to dredging deposits. A number of shoals (least depth of $1\frac{1}{2}$ to 6 feet) originating with the Engineer's Survey have been adequately covered on the present survey. Several are unchanged in position, others have shifted by as much as 400m. A few are unchanged in depth, some have deepened $\frac{1}{2}$ to 1 foot and others have shoaled by the same amount. Within the area covered, H-5510(1933) supersedes previous chartings from blueprint No. 10987.

b. Sunken Wreck (lat. 29°35.8', long. 94°58.6') Chart 1282.

This wreck (barge) originates with advance information sent to this office by the present survey party (Chart Letter No. 401, 1933). The charted position should be superseded by that shown on the present sheet.

c. Aids to Navigation.

- (1). Buoys and beacons located on the present survey, in areas other than CEDAR BAYOU CHANNEL are, in general, in practically the same positions as shown on the chart. Several however, have been located in positions varying as much as 300m. from their charted positions but in no case is their value as aids lessened. The excessive differences are in Houston Channel and are due to the fact that the aids have been shifted to make room for dredging operations. As the U. S. Engineers are widening the channel to a width of 400 feet and consequently changing the aids, no attempt was made by the field party to locate all the aids in this vicinity. This is especially true on the western side of the channel. (See. D. R., pages 1 and 2).
- (2). In CEDAR BAYOU CHANNEL, beacons corresponding to 10 and 12 on Chart 588 located on the present survey are in good agreement whereas beacons corresponding to charted Nos. 2, 4, 6, and 8 are in conflict with the charted positions. The latter positions originating with T-4613(1930) and T-4614(1930). The conflict is due primarily to weak control on the present survey. Many of the beacons being located by estimated distances from positions that are almost revolvers. Lighthouse Notices to Mariners No. 14 of 1933 states that Beacons 8, 14 and 16 are missing and will be rebuilt. What is apparently the remains of Beacon No. 8 was located about 150m. WxNW of its charted position and an uncharted beacon was located about midway between the charted Beacon 14 and 16, but it is uncertain whether the latter beacons have been entirely removed or remain as obstructions to navigation. In addition, an obsolete beacon was located about 15m. east of the charted pile in lat. 29°41.2', long. 95°57.7' and the question

arises as to whether this object coincides with the pile or is the remains of Beacon 2 shown to the northwestward. It is very uncertain from the present survey what the exact status of the Aids to Navigation in this channel are. (See additional work).

- (3) The group of 4 pilings shown on Chart No. 1282 at the turnout in lat. 29°34.0', long. 94°55.2' have been removed (see D.R., page 4).

d. Controlling Depths in Channels.

No sounding lines were run in CEDAR BAYOU CHANNEL as this is maintained by the U. S. Army Engineers. Depths on the present survey in Seabrook and Double Bayou channels are in agreement with the charted depths of 3 and 4 feet, respectively as of June, 1933. However, Chart Letter No. 475, (1934) states that the controlling depths are 5 and 7 feet, respectively as of June 30, 1934.

8. Field Plotting.

Field protracting and plotting were very accurate and conform to the requirements of the Hydrographic Manual.

9. Additional Field Work Recommended.

In view of the uncertain character of the aids in CEDAR BAYOU CHANNEL discussed in paragraph 7c(2) of this review the present location of all aids marking this channel as well as the locations of abandoned aids should be determined on a scale not smaller than 1-10,000. U. S. Engineers' have been requested to furnish present position of beacon.

10. Note to Compiler.

The hydrography between the dashed red line and the dredged channel should not be used for charting because the area has been used as a spoil dump for the dredging operations by the U. S. Engineers' subsequent to the completion of the hydrography, thus materially changing the depths as shown on the present survey. This is based on statements in the Descriptive Report (page 4) as well as verbal information from the Chief of Party.

11. Superseding Previous Surveys.

Within the area covered, H-5510(1933) supersedes the following surveys for charting purposes:

H-324 (1852)	In part.
H-414 (1853)	" "
H-425 (1854)	" "
H-470 (1855)	" "

12. Reviewed by - Harold W. Murray, January 29, 1935.

Inspected by - A. L. Shalowitz.

Examined and approved:

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

Frank S. Borden
Chief, Section of Field Work.

L. O. Lobbitz
Chief, Division of Charts.

G. H. Hude
Chief, Division of H & T.

Partially applied to 152-5c page B, Kennam, 5-22-64