

3905

3906

3906a

3905 3906
3906a

Diag. Cht. No. 1208-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC H-3905
..... H-3906
Field No. Office No. H-3906a

LOCALITY

State MASS.

General locality PLYMOUTH HARBOR

Locality

194 16

CHIEF OF PARTY

J. H. Hawley

LIBRARY & ARCHIVES

DATE FEBRUARY 27, 1917.

Report to accompany Hydg. Sheets 3905 + 3906
of Plymouth Harbor and vicinity

Limits

This Hydg. extends from Rocky Point to Brandt Rock out to the limits of the wire drag work and includes Plymouth Harbor, Duxbury and Kingstons Bays and some soundings up James River and in Duxbury marsh streams also Green River Harbor.

Manner of Sounding

All soundings are in feet, angles usually at two minute intervals except when following small winding channels, where course was continually changing, where angles were taken every minute and plotted later. Fewer positions and more attention to course might have resulted in better lines but preferred the close control. Work was somewhat delayed by character of bay most of which ~~is~~

bare at low tide.

Character of inside waters (Kingston Bay etc) Plymouth Harbor Kingston Bay and Duxbury Bay all together are little better than a covered marsh with winding channels (locally known as guzzles when small) and the dredged channels to the Plymouth Wharves and to the Cordage Wharf ^{There has also been dredging near Dept. York St.} East of a line from Plymouth Beach Pier Head to the Standish Measurement much of the bottom is muddy with occasional small rocks usually less than two feet in diameter but so firmly planted in the mud that they act like the points of large rocks. In Kingston Bay there are two ledges and one big offshore boulder besides fringing boulders near the shore north of the Cordage Wharf. There are also boulders on the beach of the Captain's Hill Peninsula. It may be taken as safe to expect small rocks here and there wherever there is mud bottom. Captain's Flat and the other sand areas and Browns Bank outside seem clear of rocks. Much of Duxbury Bay is long grass which fouls launch propellers when there is 3 feet or more of water under the keel.

The various channels, to Duxbury Bridge, Plymouth Cordage and Duxbury Yacht Club are buoyed with spars. Many of the small guzzles are marked by brush stakes but unless one has studied the channel and brush buoys at low water they are no great help. The currents are strong and at times there are choppy tide rips near Duxbury Light.

Character of Shipping

Plymouth Harbor is used by fishing boats and in summer by pleasure craft also during summer there is a daily steamer to Boston carrying passengers and local freight. Large tramp steamers load or unload at the Cordage wharf.

Dangers, Rocks etc.

The 16 foot spot shown on the chart seems to be an area of small rocks probably about thirty meters in diameter. Found it by dragging a long cotton rope from the launch and dory. About seventy feet of the middle of the rope was weighted by ^{iron} spikes each lashed to the rope in two places.

This readily found the rocky area but it took several trials before it hung up firmly. When it was dragged over the rocks it brought up ruffled kelp and rock mass. At length the line caught firmly on the rocks the dory end of line was brought to launch and both ends made fast. The lines diverged from stern of launch, evidenced light was held caught by rocks in two places about 20° feet apart. Took dory and sounded in light of line and all around it. Got one sounding of 20 feet that reduces to $16\frac{1}{4}$ feet, but could not find it again. There were two or three soundings of 23 ft and the rest were 25 feet. Have no wire drag experience but it seems to me a short drag would have been useful for finding the least depth. Off Saguenay head where there a six foot spot is shown there is a well marked swirl when the tide runs strong on calm days have sounded for it several times but have failed to find it. The weighed line is useless as the whole neighborhood is rocky and it hangs up everywhere. The Rocks off Rocky

Point is known as Outer Tautog Rock

Failed to find the least shown on the chart for High Pine Ledge. Mr. L.A. Josephs an old fishing captain says he has seen the ledge at all tides with heavy seas and never noticed a break.

Bartlett Rock is not noticeably on the large scale chart of Plymouth Harbor. Until studying small scale chart did not know there was a tide rock known there. From Bartlett Rock north to end of the work the inshore water is foul to navigated with caution.

Intended carrying work farther north but Rexhame Windmill is gone, was told where it stood and saw old foundations but it was so housed about could see nothing from it. Found a place on beach where I could see old site and took sextant angles to houses near also took angles from water. The cuts did not check well, fix weak, the locations on sheet as compromises. Angles in angle book Had no plane table so when fix appeared unreliable left off work.

Green River Harbor

This harbor is useful only for small launches. Early in summer it was much used by pleasure boats when it was sounded out. The pleasure boats were gone and the place was noisome from barrels of bait stored along shore. The jetties are made of large loose rocks, are lower at the ~~the~~ outer ends and ^{the outer ends} submerges at high tide. There are no beacons of any kind to mark end of jetties.

Cut River or Canal Creek as it is sometimes called connects Green River Harbor and Duxbury Bay. At high tide it carries about seven feet but part of the way is only six or seven feet wide and the grass fouls propellers; at low tide it bares in places. It is crossed by two bridges the southern one has only three feet of clearance at low tide. By taking advantage of tide and current dories and skiffs pass this way.

Duxbury Marsh has many tide runs used by duck hunters. Back river is used by summer boats. There is a draw

sections in the long bridge from Duxbury to the outer beach but it is kept locked and the chains and hoisting apparatus look rusted out. Duxbury Marsh, as well the smaller marshes in the vicinity, is a mosquito hatchery

While we were in vicinity, a Light house Tender replaced the spars on Bartlett Rock and Howland Ledge. They are both red. Within the last week dredging has been resumed in Plymouth Harbor, but have no authoritative knowledge of the amount of work to be done

While it may not be in order here, it seems to me hardly practicable to charter a launch for sounding without some agreement for reimbursing the owner for damages sustained by while sounding. In Plymouth this work it was next to impossible to keep from grounding occasionally on the flats and three times during this work the launch had to be beached to repair slight damaged incurred while working.

8

But fortunately on account of bad weather and Sundays was delayed very little for repairs. Where as is often the case the owner of chartered boats acts as coxswain it is natural for him to be reluctant to take the risks of even careful soundings, when the possible damage is all his. Still Capt. S.A. Joseph has been very helpful and gone cheerfully over the flats ^{ever} after ~~our~~ finding what a small rock firmly bedded in the mud could do to a launch.

Respectfully Submitted
J.M. Darley
Dist.

Approved:

J.H. Hawley
Chief of Party.

Plymouth Hydrography: Wire Drag Party No.2
 Statistics sheet No.1

O. & B. SURVEY
 L. & A.
 FEB 27 1917

Date 1916	Letter	Volume	Positions	Soundings	Miles, statute	Vessels
July, 24	A	1	18	127	2.0	Launch
" 25	B	1	118	489	13.5	"
" 26	C	1	15	73	2.0	"
" 28	D	1	146	977	25.0	"
" 29	E	1 + 2	123	697	20.0	"
August, 2	F	2	147	908	20.5	"
" 3	G	2 + 3	155	875	24.5	"
" 4	H	3	98	656	12.5	"
" 5	J	3	107	694	13.5	"
" 7	K	4	79	330	8.5	"
" 8	L	4	129	534	10.5	"
" 12	M	4	58	351	1.0	Skiff
" 14	N	4 + 5	73	808	6.5	"
" 15	O	5	76	941	7.5	"
" 16	P	5	47	193	4.5	Launch
" 17	Q	5 + 6	150	912	24.5	"
" 18	R	6	166	750	18.0	"
" 21	S	6 + 7	188	819	23.0	"
" 23	T	7	171	638	11.0	"
" 24	U	7	75	336	9.5	"
" 25	W	8	91	325	8.5	"
" 26	X	8	51	280	7.0	"
" 28	Y	8	71	449	10.5	"
" 29	Z	8 + 9	171	951	21.0	"
" 30	A'	9	134	522	16.0	"
" 31	B'	9	123	540	11.0	"
September, 1	C'	10	125	476	14.0	"
" 5	D'	10	123	614	14.5	"
" 7	E'	10	57	196	7.5	"
" 8	F'	10 + 11	132	885	12.5	"
" 9	G'	11	93	451	11.0	"
" 11	H'	11	56	285	8.5	"
" 14	J'	12	17	106	1.0	"

C. & G. SURVEY
L. & A.
FEB 27 1917
Acc. No.

Positions Not Plotted

N Day - - Duxbury Marsh

- 25
- 28
- 29
- 30
- 37
- 41
- 42
- 43

} Depend on topography; shore-line of marsh not transferred to smooth sheet

O Day - - Duxbury Marsh

- 39
- 40
- 42
- 67

} Depend on topography

A' Day - - - Rocky Point

74 - - Depends on signal "Life"; not on smooth sheet and the plane table sheet had been shipped to Washington.

L' Day - - - Rocky Point

132 - - Plots off smooth sheet

File with report H 3906

Supplemental Descriptive Report, Hyd. Sheet 3905

The work done on this sheet, was that indicated on a tracing sent to me from the Office. Weather conditions were unfavorable for a close and accurate development of the most shoal sounding on the shoals of this sheet.

Local report is that there are three rocks that show at extreme low waters on High Pine Ledge. The Sounding lines of 1916 and 1917 probably show the least depths over the area investigated, except for boulders and limited areas of rocky ledges. I do not agree with the conclusion of Mr. Rosenberg that "the 2 foot spot, shown on chart 338 at High Pine Ledge, no longer exists" (See criticism of sheet 3905 attached to descriptive report for that sheet) The two foot spots should be retained and three sunken rocks shown at the 2 foot spot, see Hydrographic sheet 516 surveyed in 1854.

Bartlett's Rock, is reported to show at low water and was sighted during the progress of my work.

Howlands Ledge chart 338 shows a 7 foot spot, probably from the survey of 1854 Hyd Sheet 516. While 19 feet work of 1916 and 15 feet work of 1917 were the shoalest soundings developed, it is suggested that the seven spot be retained on the charts for this locality.

In 1890, the Massachusetts Water Ways Commission dredged an anchorage basin in Green Harbor. This basin had refilled before 1908, see tracing from a survey by this Commission in 1908, submitted by E. B. Latham. In 1917 there was no indication of the existence of such an anchorage. The approach to Green Harbor is generally bare at less than low water. This region frequently changes in position and depth.

The tide reducers, are from the staff at the town of Plymouth, the only data sent to me from the Office.

In this connection see descriptive report Hydrographic sheets 3905 and 3906 submitted in 1916.

E. B. Latham

Chief of Party C & G Survey

File with H 3905-

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E. Latham

Chief of Party C & G Survey

3905

Statistics Supplemental work Hydrographic Sheet 3905

Date	Day	No. Miles	Soundings	Angles
Volume 1				
Nov 6 1917	A	4.5	269	88
12	B	6.0	352	96
14	C	11.0	670	220
Total for volume and sheet				
		21.5	1291	404

E. B. Sacham

Chief of Ports, Ct. Survey

*Plymouth Mass
Nov 16-1917*

Copy of letter and notations.
To be placed with hydrographic sheet No. 3905.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

Washington, D.C., February 26,
1917.

The Superintendent,
Coast and Geodetic Survey,
Washington, D.C.

Sir:

I have the honor to transmit herewith the following data to accompany the hydrographic sheets of Plymouth Harbor and vicinity forwarded from Greenport, N.Y., during November, 1916.

Hydrographic Title Sheet. Hyd. Sheet 3906.

Descriptive report. Hyd. Sheets 3905 and 3906.

Table of Statistics.

Tidal Note

Plotting notes.

Place with descriptive report
of hydrographic sheet No. 3905.

(Signed) G.L.F.

8 Photographs of Plymouth Harbor.

Drawing Section.

As the sheet from Gurnet Point to Brant Rock is but a continuation of the main sheet of Plymouth Harbor, Mr. Dailey prepared one Report and Table of Statistics to cover both sheets.

The projection on 1:5,000 scale covering vicinity of Green Harbor was not used as Mr. Dailey found that it was not large enough for the necessary objects to be plotted, and also that the work could be done as well on the 1:10,000 sheet.

The work was plotted, with the exception of the positions noted, at Greenport. There was no opportunity to enter the soundings before the season closed.

Respectfully,

(Signed) Jean H. Hawley.

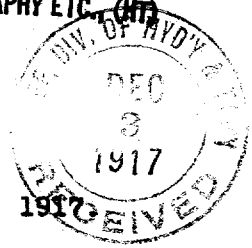
Chief of Party.

ADDRESS
U. S. COAST AND GEODETIC SURVEY
WASHINGTON, D. C.

REFER TO NO. 41-VEC

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

HYDROGRAPHY ETC. (HT)



December 3, 1917

Division of Hydrography & Topography:

Division of Charts:

Tidal reductions are approved in
1 volume of sounding record for

HYDROGRAPHIC SHEET 3905

Approaches to Plymouth Harbor, Mass.
E.B.Latham in 1917

Plane of reference is
Mean low water, reading

3.0 ft. on tide staff at Plymouth.

FIELD RECORDS (H) *20*

CHARTS (1) ✓

LIBRARY

Place with descriptive report
of hydrographic sheet No. 3905

J.P.P.
Drawing Section.

L. P. Shidy

Acting Chief, Section of
Tides and Currents.

VEC
April 30, 1917.

P. 9.
L. S. S.

HYDROGRAPHIC SHEET 3905.

Brant Rock to Gurnet and Green Harbor, Mass., by
Assistant J.H.Hawley in 1916.

TIDES.

	Plymouth	Green Harbor
	Feet.	Feet.
Mean low water, or plane of reference on staff	3.0	1.7
Mean range of tide	9.6	8.8

Positions protracted by Field Party. Soundings plotted and inked by S. L. R.

The records of this survey are not as complete as they should be. Not enough bottoms are given, and the course taken by the launch is recorded only at rare intervals, thereby necessitating considerable checking of the protracting that could have been avoided had every change in course been recorded. Abrupt changes in depth were not Q. K.'d and several rocks were shown near shore both north and south of Δ Wire, on the boat sheet, but no locations for them are given, except occasionally in a very vague way.

This survey is not as complete as conditions warrant. The 12 foot sounding east of Bartlett's Rock (lat. $42^{\circ}04'40''$ - long. $70^{\circ}37'38''$) may be the indication of a decided shoal, which falling as it does, east of the buoy marking Bartlett's Rock, is in the path of a vessel which in a storm or fog might try to hug the shore as closely as possible.

North of this shoal are two shoal areas of 17 and 18 feet which might be indications of dangers to navigation and therefore should have been investigated.

Positions 19 to 39 inclusive, appear very doubtful and were rejected; as the soundings between positions 39 and 49 differed from those of parallel lines by from 2 to 8 feet. and 19 and 29

The positions were carefully protracted and the crossings

as a whole were good.

The changes since the previous survey made in 1854 have been so great that a comparison of the two sheets is practically useless. However, the 2 foot spot shown on chart 338 at High Pine Ledge probably no longer exists, the least water found there by this survey being 6 feet.

S. L. Rosenberg.

Soundings in feet.

Hyd. Sheet No. 3905

Additional Work of 1917, by Asst. E. B. Latham

The supplemental work done on this sheet appears to be very good, the lines are straight, the time intervals uniform and the crossings satisfactory.

This work agrees very well with the work of 1916 and was protracted and plotted on the original hyd. sheet, (Hyd 3905) and the curves corrected to conform with the combined soundings.

The work consists of an examination of High Pine Ledge, the entrance to Green Harbor and the area between Bartlett's Pt. and Howland's Ledge.

The soundings around Howland's Ledge show no indication of the seven foot spot shown on chart #338. It is unfortunate that this spot was missed by the wire drag survey.

As stated in the descriptive report, the weather was unfavorable for finding the least water over the rocky shoals, therefore the shoaler depths, shown on the old surveys, should be retained in these critical places. (As recommended by Capt. Latham)

R. L. Johnston

HYDROGRAPHY ETC., (HT)

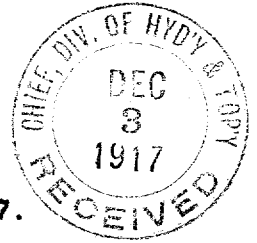
J.S.S.

ADDRESS
U. S. COAST AND GEODETIC SURVEY
WASHINGTON, D. C.

REFER TO NO.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

December 3, 1917.



Division of Hydrography and Topography:

Division of Charts:

FIELD RECORDS (H) *20*
CHARTS (HY) ✓

Tidal reductions are approved in
8 volumes of Sounding records for

HYDROGRAPHIC SHEET 3906

LIBRARY

Place with descriptive report
of hydrographic sheet No. 3906

J.S.S.
Drawing Section.

Plymouth Harbor, Mass.
E.B.Latham in 1917.

Plane of reference is
Mean low water, reading

3.0 ft. on tide staff at Plymouth.

L. P. Shidy

Acting Chief, Section of
Tides and Currents.

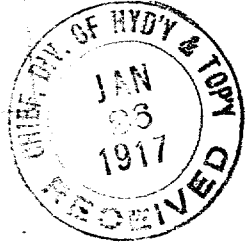
VEC
Jan. 26, 1917.

File with 3906
U. S. & G. SURVEY
L. & A.

HYDROGRAPHIC SHEET 3906.

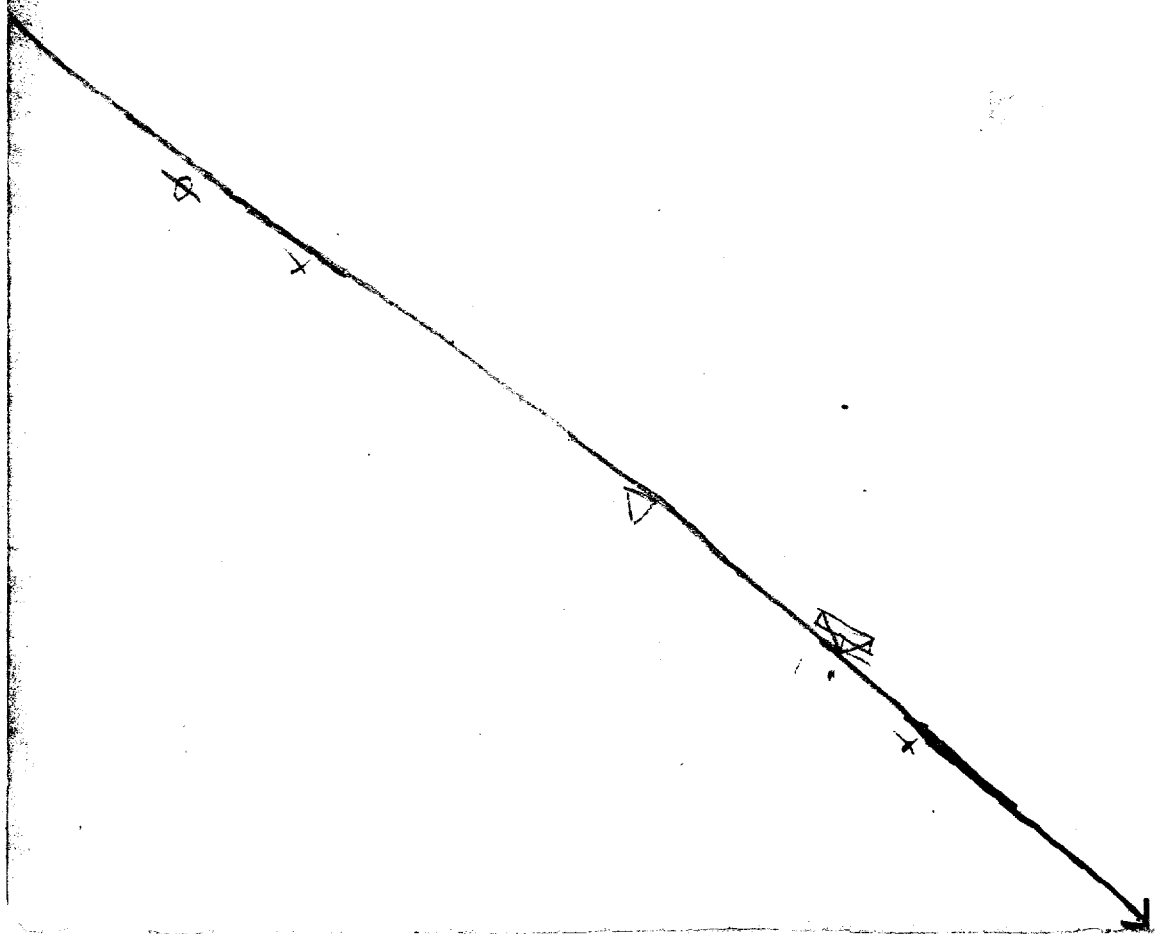
Plymouth Harbor and Vicinity, Massachusetts, by
Assistant Jean H. Hawley in 1916.

Acc. No.



TIDES.

	Plymouth ft.	Back River ft.
Mean low water, or plane of reference on staff	3.0	0.9
Mean range of tide	9.6	9.6



Hydrographic Sheet No. 3906.
Plymouth Harbor + vicinity.

The positions for the work on this sheet were protracted by the field party and, in general, have been taken as correct. The plotting of the sounding however developed numerous conditions which would appear errors but as many of these conditions were carefully verified and no errors appearing this portion of the work would appear good and that these apparent errors are due to existing conditions.

While the work of the party indicates the intention to thoroughly and accurately line and sound this locality it would appear that a few additional lines could have been run to advantage and that the open spots which now appear in doubt could have been more accurately developed. This appears more particularly in the low water curv.

The records are generally good but it is noted that but only an occasional change of course is recorded; had "General Instructions" been followed in this particular some of the apparent errors could have been verified. In Jones River the soundings can only be considered approximate as some of the signals used were off the sheet which made it necessary to plot these positions and soundings on the Topographic sheet and transfer one of the signals used was also off the Topographic sheet and two others indefinite.

In Cut River above the bridge and the many slues the party attempted to run the different channels but in many cases missed out which leaves these channels in doubt.

Hyd sheet No. 3906 (2)

A 16 foot sounding was found in the outer channel near where it had appeared on previous Charts and later eliminated as an error.

A combination sheet of this outer channel showing the soundings of this sheet combined with those of sheet No. 3034 of 1909 by Assistant N. C. Hopkins has been made and accompanies this sheet.

John D. Torrey
6/6/17

Verified by S. L. Rosenberg.

Descriptive Report,
Supplemental Work Hydrographic Sheet 3906 a
Plymouth Harbor and Vicinity

The soundings on this supplemental sheet are largely as indicated on a tracing sent to me by the Office.

When the supplemental soundings indicated deeper water or the existence of sloughs not shown on the survey of 1916, additional development was made. It was impracticable to run the lines as indicated by the Office, owing to weather conditions, but it is thought that the areas, indicated are covered.

Discrepancies of as much as three feet from the soundings of 1916 were noted, probably due to faulty tidal reductions. The tidal observations of 1909 at Duxbury Pier Light, should be of interest in this connection.

The old hydrographic sheets of this region, see Hydrographic sheets 422- 516- 1035- 1067- 1339 and 3034, should be used when the adjustment between the work of 1916 and 1917.

The depths and limits of sloughs in the harbor have changed. The rocks shown on the old sheets and minimum depths should be retained, though differing from the results of 1916 and 17.

A tracing of the survey showing the dredged channel to the Duxbury Yacht Club channel, by the Massachusetts Water Ways Commission, is submitted with the records for this sheet.

There is a project to do additional dredging off the northern water front of the town of Plymouth, this should be shown on the new chart if it is available, from the Water Ways Commission of the State of Massachusetts, when the chart is issued.

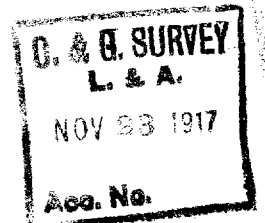
E. S. Atham

Chief of Party C. S. G. Survey

Washington Nov 30th 1917

3906 ^a

Statistics Supplemental Work Hyd. Sheet 3906 ^a



Volume	Date	Day	Miles	Soundings	Angles
Volume 1	Oct 15	A	2.0	163	60
	16	B	13.0	921	202
	17	C	10.5	679	140
		Totals			
		Total	25.5	1763	402
Volume 2	17	C	1.0	93	22
	19	D	8.9	642	148
	20	E	6.6	671	142
	22	F	5.0	394	106
		Total	21.5	1800	418
Volume 3	22	F	6.2	571	122
	23	G	8.2	571	124
	25	H	7.0	688	176
		Total	21.4	1830	422
Volume 4	25	H	2.2	171	44
	26	I	16.8	1309	272
	27	J	5.0	483	90
		Total	24.0	1963	406
Volume 5	27	J	8.0	590	134
	29	K	3.0	201	40
	31	L	9.0	1085	196
		Total	20.0	1876	370
Volume 6	31	L	2.5	193	36
Nov 1	1	M	10.0	903	196
	2	N	8.0	694	152
		Total	20.5	1790	384
Volume 7	Nov 2	N	4.5	332	67
	6	O	4.1	339	102
	9	P	12.2	718	208
	10	Q	5.8	359	84
		Total	26.6	1748	461
Volume 8	Nov 15	Q	2.2	133	38
		R	3.2	149	50
		Total	5.4	282	88
Total for sheet			164.9	13052	2951

E. S. Atham

Chief of Party C & G Survey

Plymouth Mass Nov 16-1917

Hyd. Sheet No. 3906 a

(Additional Work of 1917, by Asst E. B. Latham)

This additional work was done partly to supplement the work of 1916, partly to be used to control the work of 1916 and also to either disprove or verify certain suspicious soundings in the former work.

This work was done under most unfavorable weather conditions, using inexperienced men hired on the ground, but the lines are straight and the time interval between positions is unusually uniform. The soundings cross very well with about a dozen exceptions, probably due to an occasional poor left angle, the nature of the ground and other causes.

The additional work was protracted, plotted and inked on tracing cloth by the field party, but this was before the final tidal reduction was made and many of the soundings were one foot off, the figures were not legible and no attempt had been made to straighten out the poor crossings.

It was the original intention to plot the supplemental work directly on the original hydrographic sheet (Hyd 3906), on which the work of 1916 had already been plotted and inked. This was realized to be impractical, for the sheet would be in no condition to do further work upon after erasing the curves. Also it would have been impossible to have adjusted the work of 1916, which was already plotted and inked to conform with the later work. Therefore it was decided to use a combination tracing.

A new tracing was made and the positions as protracted by the field party were traced. This protracting was accepted after about ten per cent of the positions had been tested and found correct. On these lines the soundings were entirely replotted and spaced.

The tracing was then laid over the original hyd. sheet (Hyd. 3906) and a careful comparison made. In such places where there was a marked difference between the survey of 1916 and the work of 1917, all the information at hand was considered, but the later work was followed. (By direction of Chief of H. & T. Div. and the Chief Draftsman.) Also all doubtful soundings in the work of 1916, apparently disproved by the supplemental work, were left off.

The soundings on this work are shown in black. The soundings from the survey of 1916 by J. M. Dailey (Hyd. 3906) are shown in red. The soundings shown in green, in the approaches to Plymouth Harb., are from the survey of 1909 by H. C. Hodgkins. (Hyd. 3034.)

The curves were drawn from the combined soundings.

R. L. Johnston