

Manukau Harbour  
1000 Gen.

T  
 1000

Manukau Harbour Gen.

incl Survey of Harbour Entrance  
 Hydrographic Surveys.

From. Mar. 1983

To: Sept 1983



Memorandum

To: THE CHIEF ENGINEER

Date: 2 September 1983

From: THE HARBOURMASTER

SURVEY OF WEST CHANNEL MANUKAU BAR REQUIRED

The M.V. "Union Nelson" and M.V. "Westport" are at present using the Western Channel on the lead 073° Ninepin Rock - Southern point of Paratutae Island, because of the loss of depth of water in the South Channel.

It is therefore necessary for a survey to be carried out in the west channel, in order to confirm the minimum channel depths and shoal areas in the vicinity.

Would you arrange for the Hydrographer to carry out a survey as soon as practicable.

*Chaplain*

HARBOURMASTER

*Dave 6/9  
HG*

*Copy to :-  
Hydrographer to arrange*

*Mr Bray please arrange.*

*JB  
6/9*

*HG*





**Memorandum**

To: AS PER DISTRIBUTION LIST Date: 28 July 1983

From: THE HYDROGRAPHER

MANUKAU ENTRANCE - REPORT OF SURVEY

A resurvey of the South Channel was carried out in moderate to good sea conditions with less than 1 metre swell commencing at high water on 27 July 1983.

During the past two months the shoal lying across the northern end of the Destruction Gully leads has been regularly monitored by Tug "Manukau". Two attempts to survey the area have been aborted due to sea state.

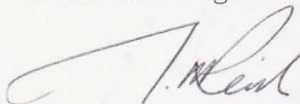
Following a report from the Tugmaster that a channel appeared to exist, running through the Hill Leads with the 300 metre peak in the centre of the saddle, advantage was taken of the recent calm conditions and resultant plan, Amendment No. 4 to H.5/1/45, verifies this observation.

A 3 metre contour has been added which shows a breach through the shoal ridge giving a least depth of 4 metres through the breach 290 m to the west of the Hill Leads.

Least depths on the two leads are as follows:-

Hill Leads	3.5 m	242°	1,550 m	from the Lighthouse
Gully Leads	2.7 m	321°	1,320 m	" " "
and close S.E.	2.5 m	321°	1,250 m	" " "

A 2.8 metre shoal was located in position 277°, 1,300 metres from the Lighthouse 350 metres west of the Hill Leads.



J.H. Reith  
HYDROGRAPHER

JHR:JMH

Enc. Amendment No. 4 to H.5/1/45

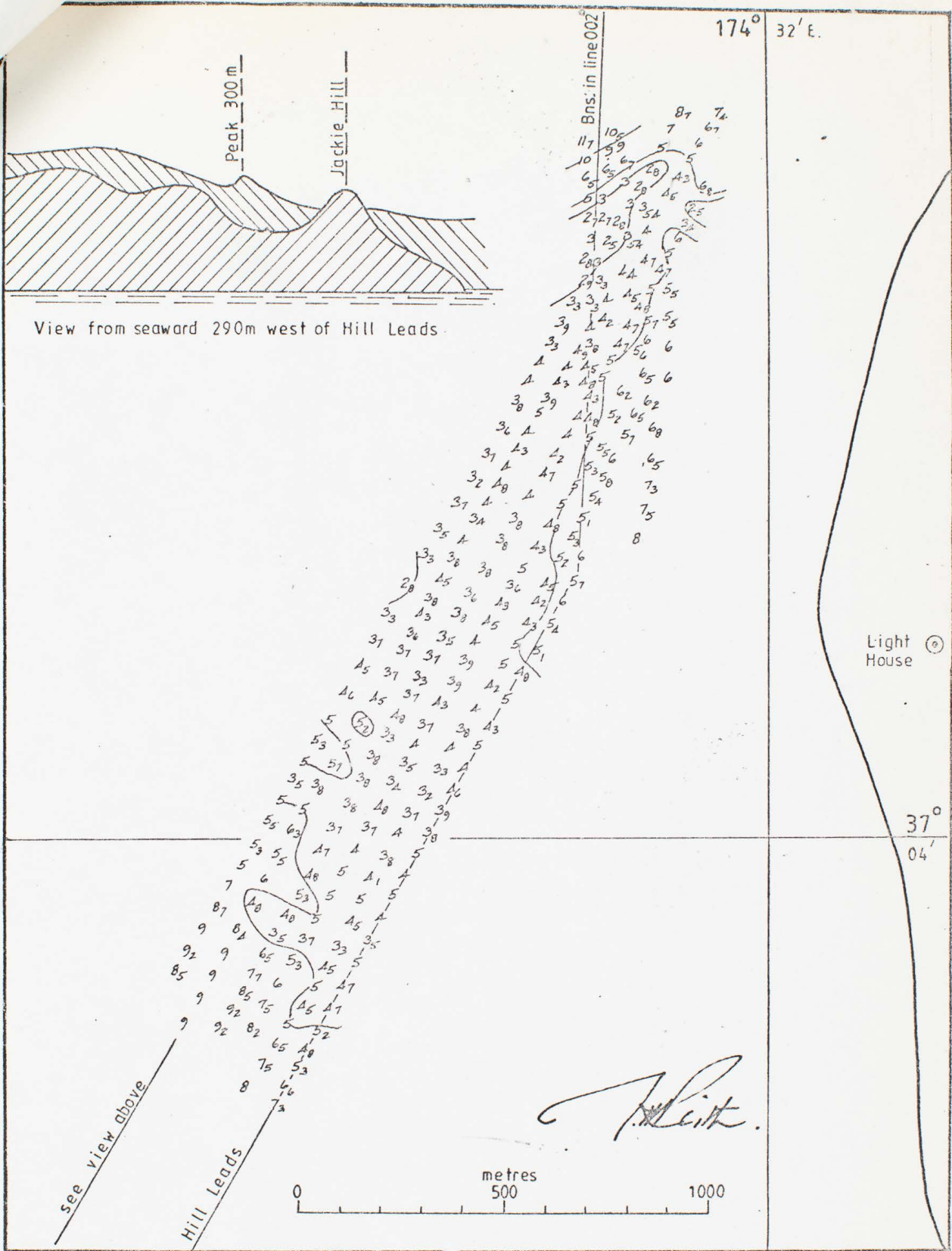
*Chief Engineer to see.*

DISTRIBUTION

Chief Engineer  
Harbourmaster  
Officer-in-Charge, Onehunga  
Operations Manager

*Blel.*

*J.B.*  
28/7/83



MANUKAU HARBOUR ENTRANCE-SOUTH CHANNEL

Surveyed 27 July 1983

Soundings in metres & decimetres below C.D.

DRAWN J.H.R.

DATE 28.7.83

SCALE 1:12,000

DRAWING

H5/1/45

Amendment 4



To: THE CHIEF ENGINEER

Date: 3 June 1983

From: THE HARBOURMASTER

ENTRANCE TO WAIROPA CHANNEL: REPORT OF SURVEY 18 MAY 1983

The report and the work carried out on this survey is of a very high standard and clearly shows the shoaling that is taking place at the entrance to Wairopa Channel.

There is no doubt that the present marked channel will have to be moved to the west at the earliest opportunity and the following chartlet shows the repositioning of five buoys, the requirement of one new starboard hand buoy and a proposed beacon.

In order to programme the work and make the change as safe as possible, I will require the new channel to be marked by four temporary buoys. This will allow time to prepare a new buoy and give mariners the opportunity to navigate the new channel under favourable conditions.

Could you please arrange the following:-

1. Place temporary buoys in positions no.1, no.3, no.3A, no.5 as circled on enclosed chartlet.
2. Make ready an additional starboard hand buoy marked 3A.
3. Inform those responsible for the work that buoys 1, 3, 5, 7 and 2 will be shifted to new positions at a suitable time to be arranged within the next two months.

*Robert Blair*

HARBOURMASTER

Copy to :-

Mechanical Engineer

Please liaise with H/M, and instruct construction engineer

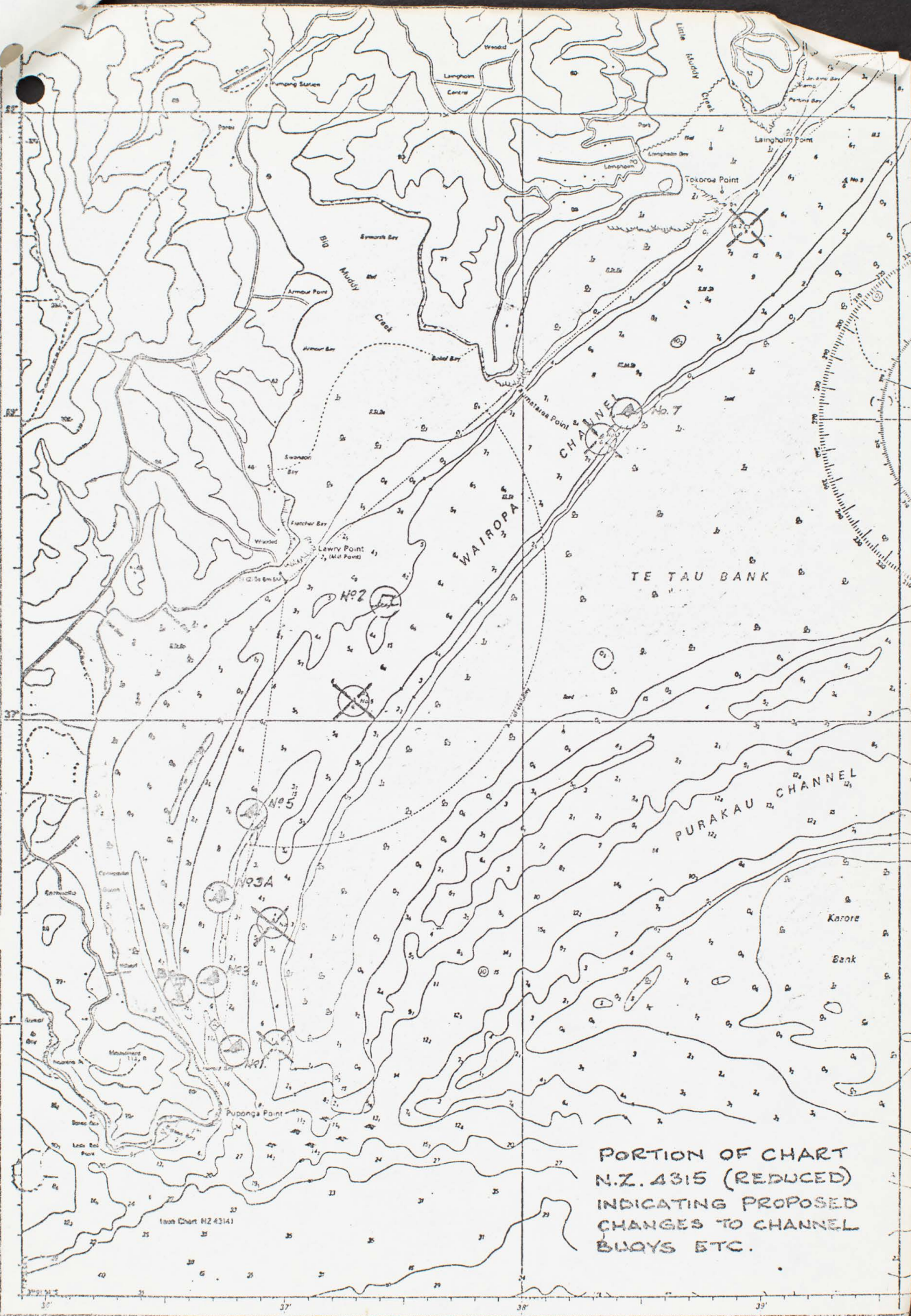
*done 8/6*

*JS 7/6*

*Mr Bray* please discuss the jobs and our ability to do it to the proposed timetable & inform H/M of what will be done.

*AGG*





PORTION OF CHART  
 N.Z. 4315 (REDUCED)  
 INDICATING PROPOSED  
 CHANGES TO CHANNEL  
 BUOYS ETC.



To: AS PER DISTRIBUTION LIST

Date: 25 May 1983

From: THE HYDROGRAPHER

MANUKAU ENTRANCE - REPORT OF SURVEY

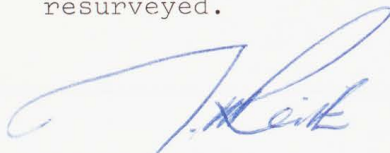
Following recent reports of shoaling in the South Channel a resurvey was carried out at High Water on 25 May 1983.

Sea conditions were poor with a 1.5m swell and deteriorating. Breakers were forming in the survey area during the course of the survey which had to be aborted after one hours work.

Results, shown on Amendment No.3 to H5/1/45, confirm the above reports with a least depth of 2.2m on the Destruction Gully leads in position 321° 1310m from the Lighthouse. This lies on a ridge of sand extending to the NE and SW of the above position with better water found to the west of the leads.

This is the shoalest depth recorded in the south channel for many years and is probably due to the strong southwesterlies of last week during a neap tide. It is hoped that the spring tides this week will assist in improving depths.

As soon as the sea conditions allow the area will be resurveyed.



J.H. Reith  
HYDROGRAPHER

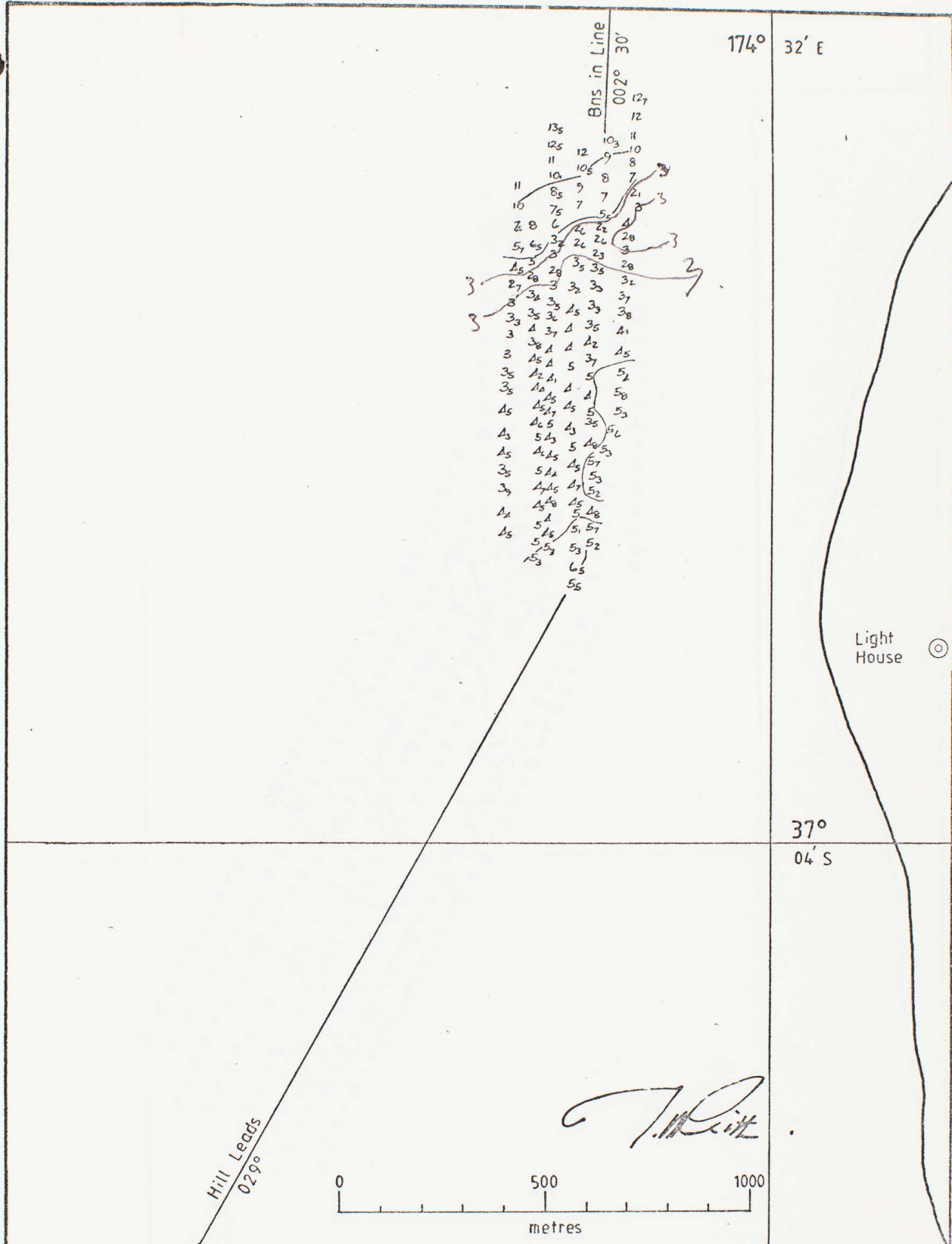
Enc. Amendments Nos. 2 and 3 to H5/1/45

JHR:VLH

DISTRIBUTION LIST:

Chief Engineer  
Harbourmaster  
Officer-in-Charge, Onehunga  
Operations Manager  
Hydrographic File

Dismissed flight from  
N Shore Aerodrome to Chief Engineer to see *blec.*  
Seek quick alternatives,  
if any, to south channel  
by observations of breaking waves  
& relating depth to wave ht. *JR 25/5*  
*blec 25/5/83*



Manukau Harbour Entrance - South Channel

Surveyed 25 May 1983

Soundings in metres & decimetres below C.D.

DRAWN R W B

DATE 25.5.83

SCALE 1:12000

DRAWING

H5/1/45

Amendment 3





Manukau Harbour Entrance—South Channel

Surveyed 6 April 1983

Soundings in metres and decimetres below C.D.

DRAWN RWB

DATE 7.4.83

SCALE 1:12000

DRAWING

H5/1/45

Amendment 2

## Memorandum

To: THE CHIEF ENGINEER

Date: 18 May 1983

From: THE HYDROGRAPHER

### ENTRANCE TO WAIROPA CHANNEL

### REPORT OF SURVEY

Appendix 1 indicates the area within which a resurvey of Wairopa channel was carried out during the period 29 April to 16 May 1983.

The survey was plotted and drawn to a scale of 1:5000 and the results are shown on plan H5/41.

The February 1981 survey, originally on 1:10,000 was replotted and reproduced to 1:5000 as plan H5/41B. The 1961 RNZN survey to 1:18000 was enlarged to 1:5000, the soundings converted to metres from fathoms and feet using tables provided by the Hydrographic Office and reproduced as plan H5/41A.

Selected contours from these three surveys are shown on H5/41D to assist in showing the change in bathymetry that has occurred over the past 22 years.

The unstable nature of Te Tau Bank which became manifest some three years ago has resulted in the following three main changes in bottom Topography:-

1. Since 1961 the southern extremity of the Tau Bank has extended 280m to the south.
2. Over the same period the unnamed bank of less than 2m depth to the west of No.3 buoy and referred to in this report as "Middle Bank" has extended in length from 550m to 1,160m and decreased in depth. Since 1981 the northern end of Middle Bank has extended by 150m with decreased depths over its northern part averaging 0.3m
3. In the currently used buoyed channel to the west of No.3 buoy depths have, on average, decreased by 1 metre since 1961, half of this shoaling occurring during the past two years.

Seventeen bottom samples were obtained by dredge, their locations shown on plan H5/41C. The nature of harbour bed material overall is predominantly a very fine black sand with varying traces of silts. Samples at H and N yielded broken shell.

These samples are now held by the Construction Engineer.

... ..

*file*  
*BB*  
*19/5*  
*Bles*  
*Mr Bray to see.*



Conclusions

Echo sounder profiles indicate sand waves in the area surrounding No.3 buoy and all evidence appears to point to a migration of fine sand westward from the Te Tau Bank being deposited on and adding to the size of the Middel Bank. If more of the tidal stream is diverted into the deeper channel to the west of Middle Bank this shoaling can only be expected to accelerate.

Controlling Depths

At present a controlling depth of 3.8m applies in the Manukau Entrance, South channel and 3.3m at No.39 buoy and in the centre of the channel immediately to the west of the wharf, both rock. To the SW and S of No.3 buoy along the route normally used by shipping two soundings of 3.8m establish this as the controlling depth off Cornwallis.

Tidal Heights

These vary considerably from the Manukau Entrance (Paratutai Island) to Onehunga.

The following levels for high waters based on Onehunga tides have been calculated from the data on p.59 of the NZ Tide Tables for Cornwallis (20 minutes earlier) and Paratutai 1. (31 minutes earlier):-

<u>Onehunga</u>	<u>Cornwallis</u>	<u>Paratutai 1</u>
4.50	3.86	3.46
4.40	3.77	3.37
4.30	3.69	3.29
4.20	3.60	3.20
4.10	3.52	3.12
4.00	3.43	3.03
3.90	3.34	2.94
3.80	3.26	2.86
3.70	3.17	2.77
3.60	3.09	2.69
3.50	3.00	2.60
3.40	2.91	2.51
3.30	2.83	2.43
3.20	2.74	2.34
3.10	2.66	2.26
3.00	2.57	2.17
		... ..

The attached graph shows predicted curves for an average H.W. of 3.7m at Onehunga.

The average passage time between each of the above places is one hour so it can be seen that in this instance for an arrival time of 1200 at Onehunga least depths encountered at each of the above places would be:-

1000 South Channel	6.1m
1100 Cornwallis	6.8m
1200 Onehunga	7.0m

The critical controlling depth is therefore still on the Bar.

Realignment of Channel

Although the controlling depth at Cornwallis is still adequate the practice of masters using this channel is to pass close to No.3 and No.1 buoys being aware of the Middle Shoal. This takes vessels very close to the edge of the Tau Bank about 250m south of No.3 and is probably the cause of reported groundings in this locality. At the present time a shift of No.3 buoy 50m to the westward would be beneficial but probably only as a temporary measure. It is therefore suggested that the deeper channel to the west of the Middle Bank should be considered as the new entrance to Wairopā Channel.



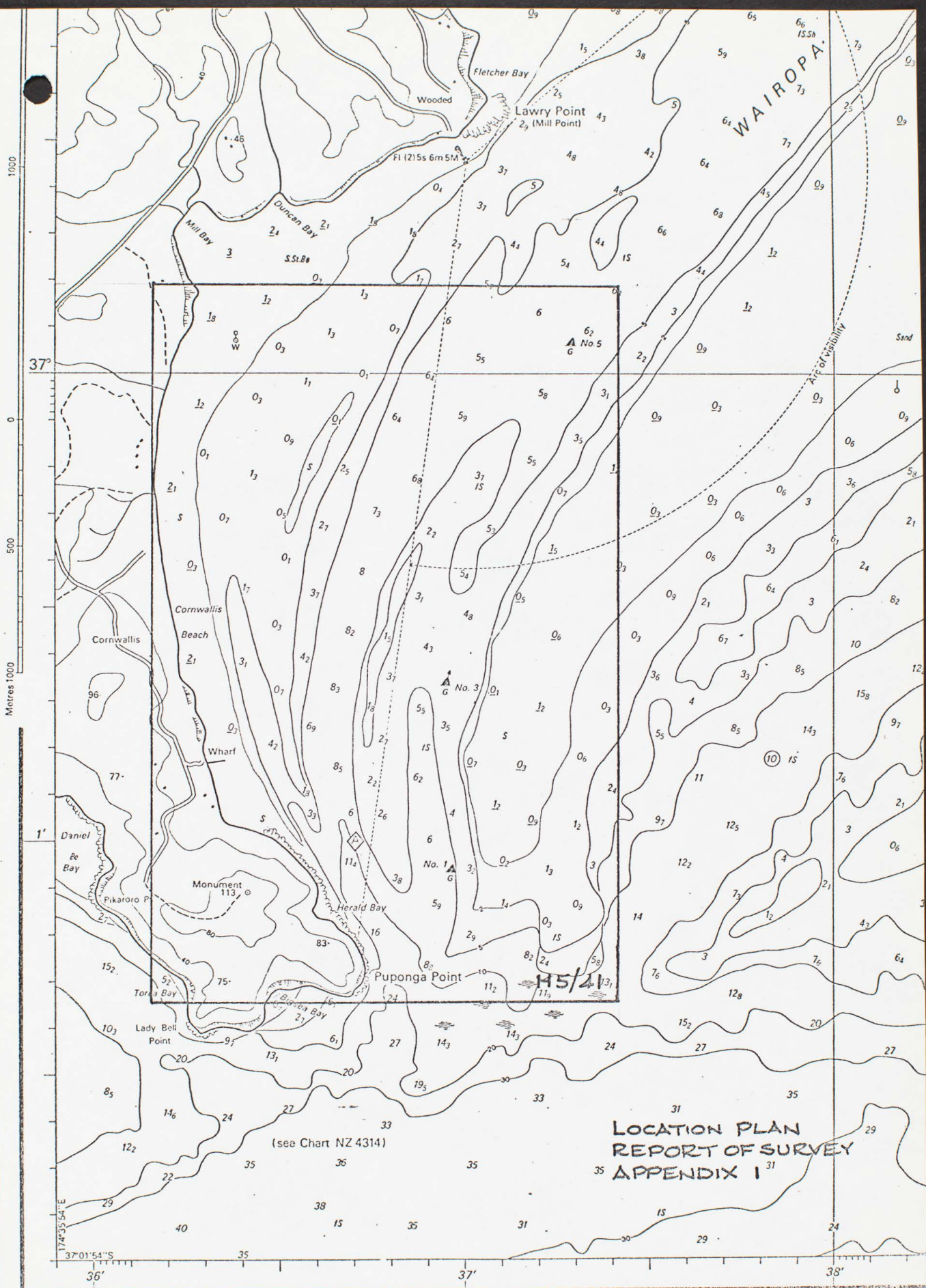
J.H. Reith  
HYDROGRAPHER

Enc. H5/41, A,B,C & D  
Appendix 1 & Tide Graph

JHR:VLH

c.c. Harbourmaster  
Construction Engineer  
Officer-in-Charge Onehunga  
Hydrographer for file





LOCATION PLAN  
 REPORT OF SURVEY  
 APPENDIX I

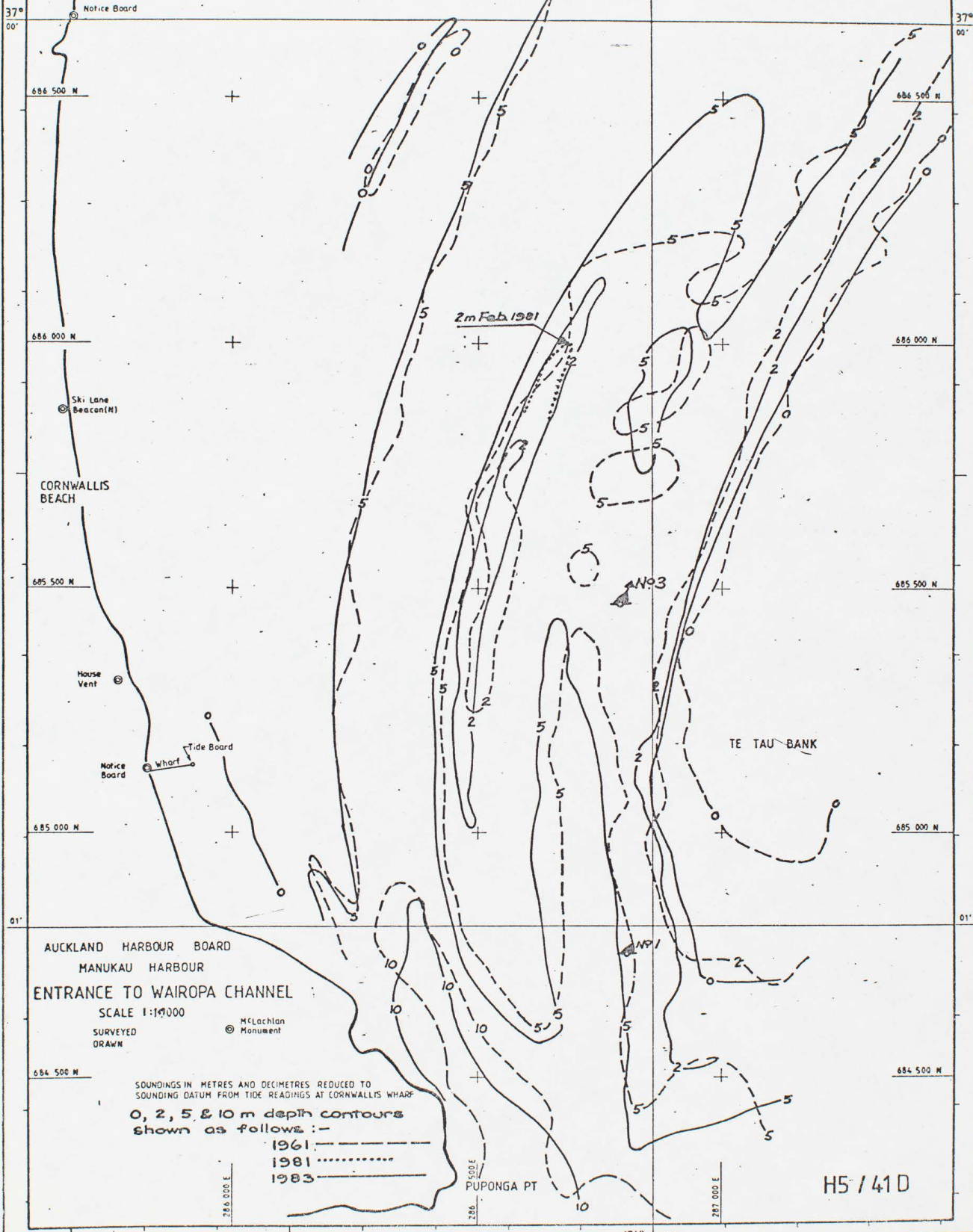
(see Chart NZ 4314)

Small corrections



100 m 0 500 m 1000 m

Nº5



AUCKLAND HARBOUR BOARD  
 MANUKAU HARBOUR  
 ENTRANCE TO WAIROPA CHANNEL  
 SCALE 1:10000  
 SURVEYED  
 DRAWN

McLachlan  
 Monument

SOUNDINGS IN METRES AND DECIMETRES REDUCED TO SOUNDING DATUM FROM TIDE READINGS AT CORNWALLIS WHARF

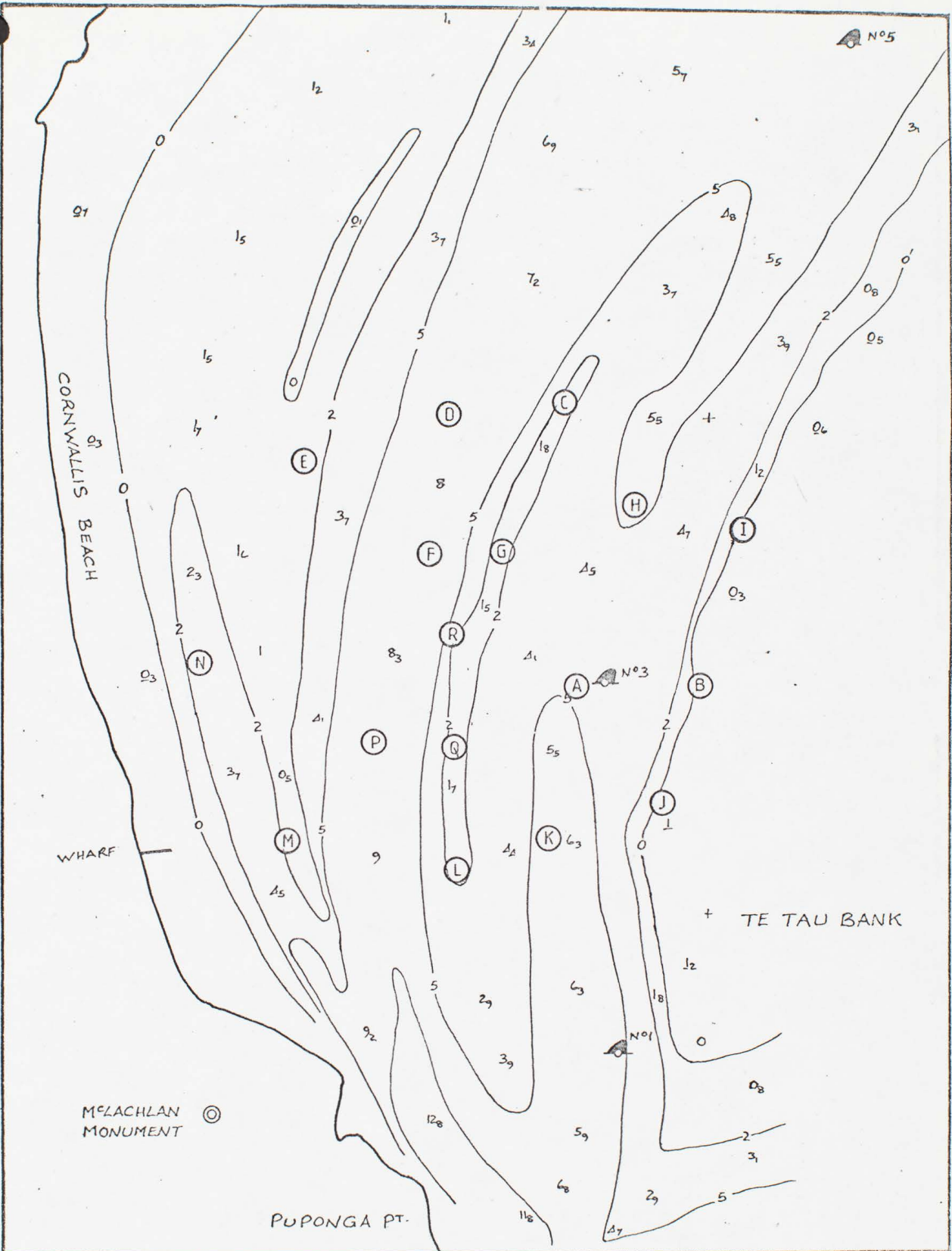
0, 2, 5 & 10 m depth contours  
 shown as follows :-

- 1961 ————
- 1981 - - - - -
- 1983 ————

PUPONGA PT

H5/41D





McLACHLAN ©  
MONUMENT

PUPONGA PT.

TE TAU BANK

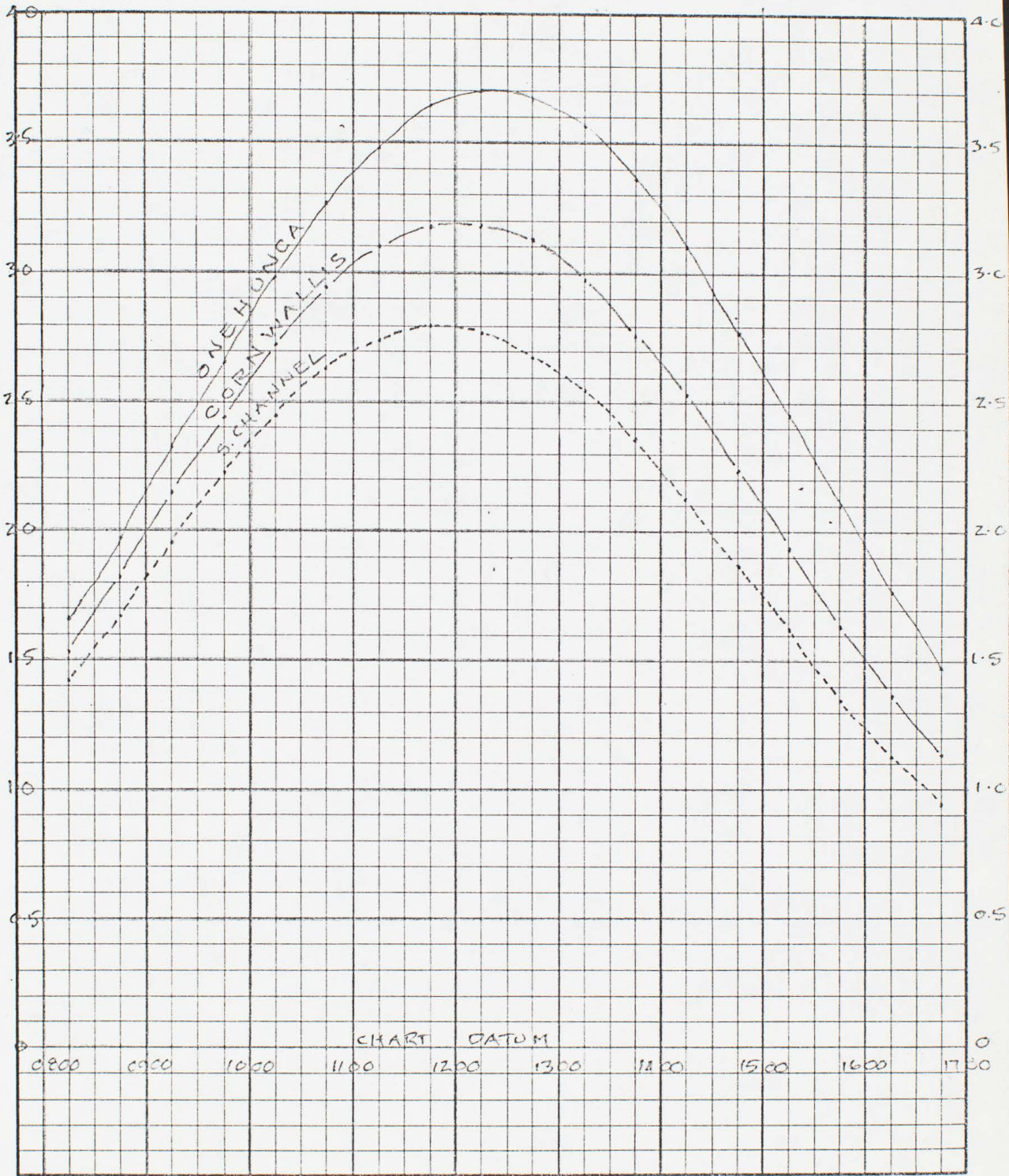


WAIROA CHANNEL ENTRANCE  
BOTTOM SAMPLE LOCATIONS  
3 MAY 1983

DRAWN RWB  
DATE 17.5.83  
SCALE 1:10,000

DRAWING  
H5/A1C





calc's by \_\_\_\_\_  
checked by \_\_\_\_\_

date \_\_\_\_\_  
page \_\_\_\_\_ of \_\_\_\_\_





To: THE CHIEF ENGINEER

Date: 19 April 1983

From: THE HYDROGRAPHER

ENTRANCE TO WAIROPA CHANNEL

Following reports of further shoaling in the vicinity of No.3 buoy a resurvey of this area was undertaken in Tug "Manukau" on 14 and 15 April 1983.


Results of this survey are shown as amendment No.2 to plan H5/34 (January 1981). For comparison purposes the relevant portion of H5/34 and amendment No.1 (September 1982) are appended.

Instability of Te Tau Bank was first detected in July 1980 when it was found that the tail of the bank had extended to the South and Nos. 1 and 3 buoys were moved accordingly. In September 1982 No.3 buoy was moved to the SW to counter a westward movement of the bank.

This latest survey indicates considerable changes in the buoyed channel with shoaling between Te Tau and the middle bank to the westward. This middle bank has become shoaler and extends further to the north and south of its 1981 limits.

A more comprehensive survey is necessary to determine the full extent of these changes. At present it would appear that sand from the Te Tau Bank is being transported across the channel and deposited along the middle bank. Should this trend continue and depths in the navigational channel diminish further some consideration may have to be given to using the deeper channel to the west of the middle bank.

As Tug "Manukau" is ill suited to this task due to lack of manoeverability it is proposed that survey launch "Arahi" be transported to Onehunga for this work. Estimated costs for taking "Arahi" to Onehunga and return to Auckland total approximately \$600.00. As the R.A.P Manukau crossing is expected to be completed during May the clearance survey required for this could be carried out concurrently. To achieve these ends I would suggest "Arahi" be taken across by the first week in May.



J.H. Reith  
HYDROGRAPHER

JHR:VLH

Enc. Portion of plan H5/34, Amendments 1 and 2

c.c. Harbourmaster  
Operations Manager  
Officer-in-Charge Onehunga

*Mr Gray taking Arahi  
to Manukau is agreed for  
the purposes stated. Please  
arrange.*

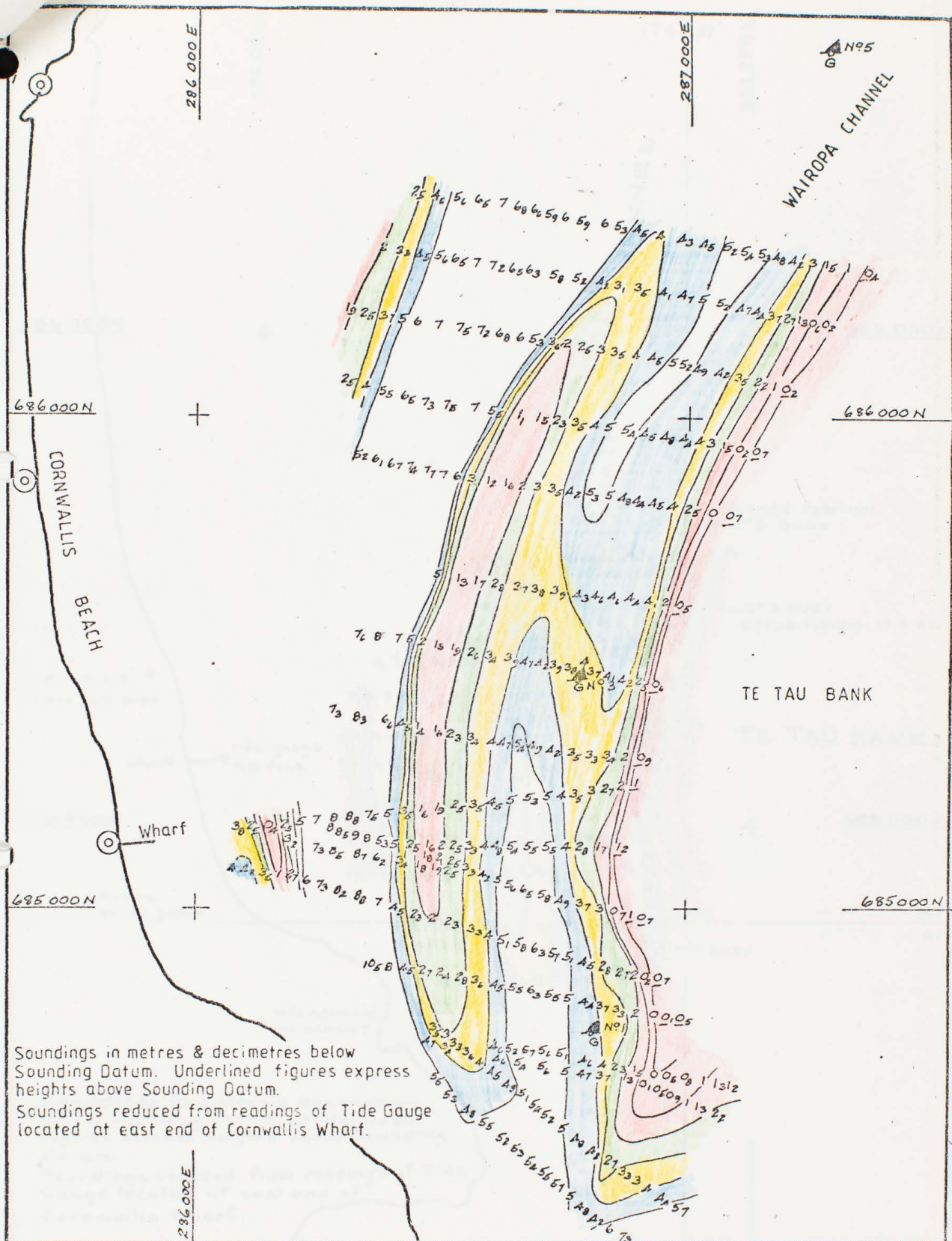
*Copy to Hydrographer.*

*Please arrange*

*JHR 20/4*

*done  
21/4  
AY*





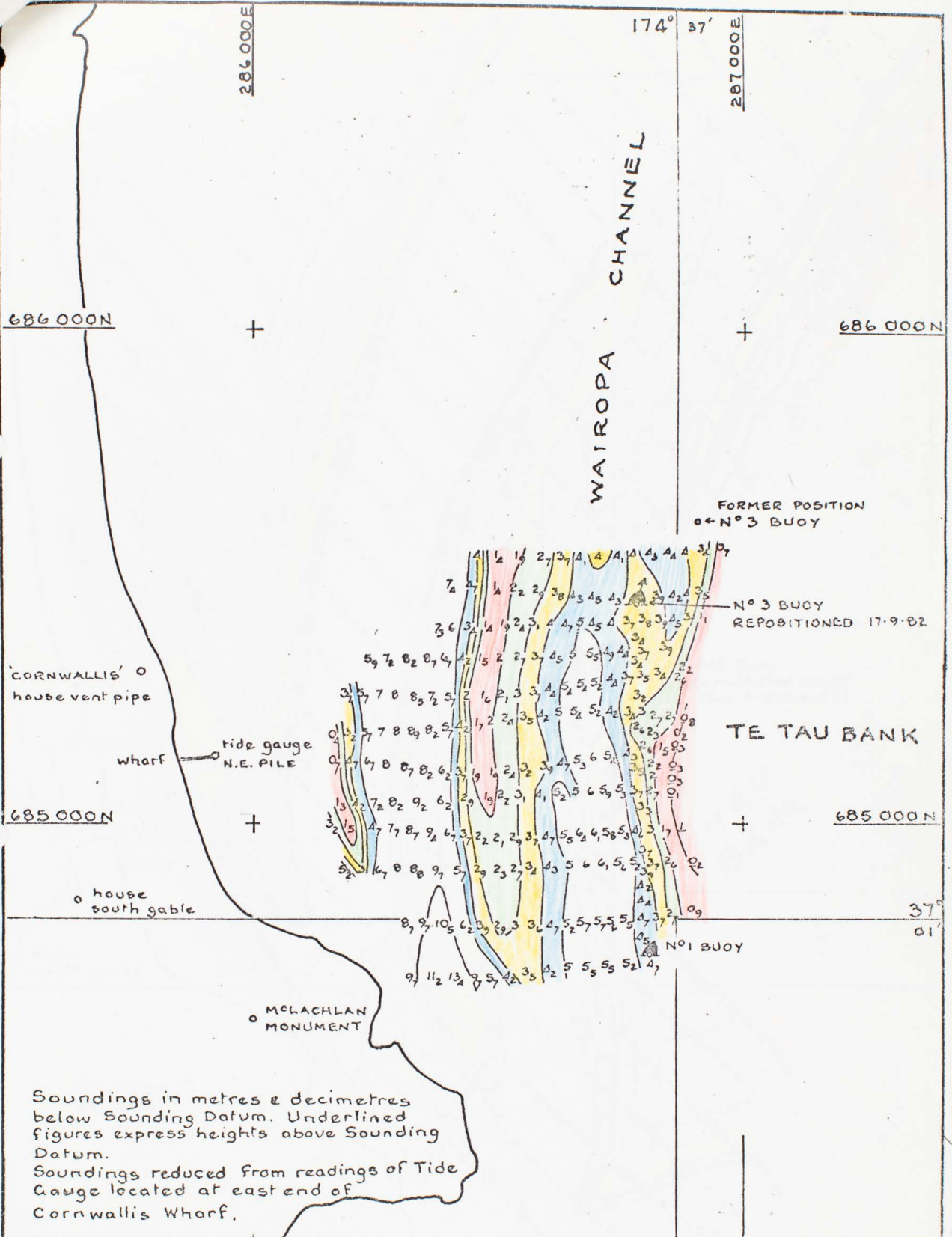
Soundings in metres & decimetres below Sounding Datum. Underlined figures express heights above Sounding Datum. Soundings reduced from readings of Tide Gauge located at east end of Cornwallis Wharf.



MANUKAU HARBOUR  
ENTRANCE TO WAIROPA CHANNEL  
SURVEYED 15-4-83

DRAWN JHR	DRAWING H5/34 Amendment 2
DATE 18-4-83	
SCALE 1:10,000	





MANUKAU HARBOUR  
WAIROPA CHANNEL  
BETWEEN BUOYS 1 AND 3  
SURVEYED 17 SEPT. 1982

DRAWN C.T  
DATE 19-1-83  
SCALE 1:10,000

DRAWING  
H5/34  
Amendment 1



Wallis

4

00 N

00 N

• Cornwallis

Wharf  
Tide Gauge

House (south gable)

MCLachlan Monument

Puponga Pt.

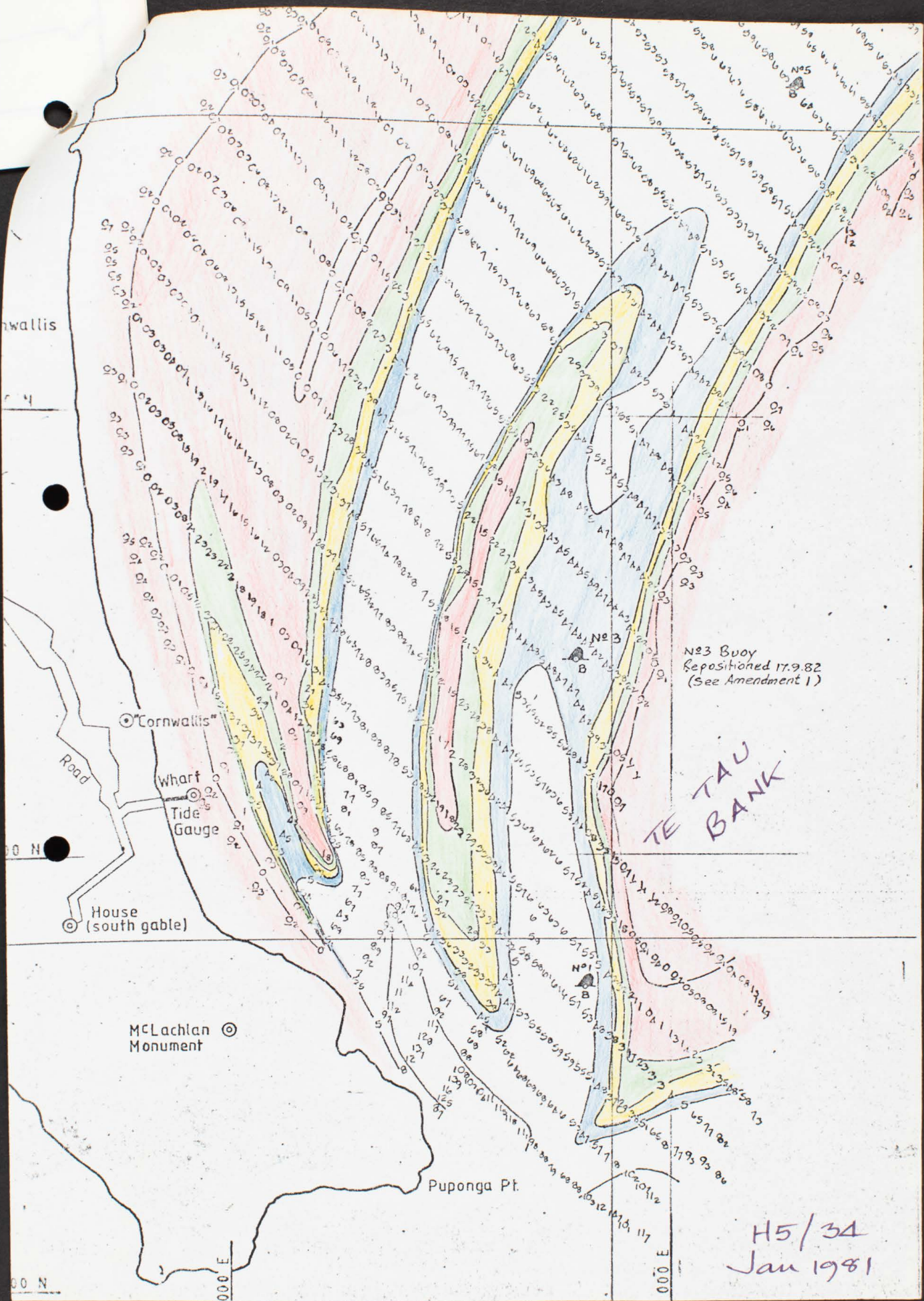
No 3 Buoy  
Repositioned 17.9.82  
(See Amendment 1)

TE TAU BANK

No 3 B

No 1 B

H5/34  
Jan 1981





To: AS PER DISTRIBUTION LIST

Date: 7 April 1983

From: THE HYDROGRAPHER

MANUKAU ENTRANCE - REPORT OF SURVEY

A re-survey of the South Channel was carried out, in excellent sea conditions with no swell, over Low Water on 6 April 1983.

Amendment No.2 to H5/1/45 shows changes in the channel since the last survey, Amendment No.1, of 26 September 1982 as follows:-

The eastern extremity of South Bank now extends across the Destruction Gully leads line to join with the spit off South Head. The shoalest sounding on these leads was 3.8m 317°, 1250m from the lighthouse with a shoaler depth of 3.3m to the N.E. and 3.9m to the S.W.

The shoalest sounding obtained on the Hill Leads was 3.9m 241° 1600m from the lighthouse.

The best approach is now directly along both sets of leads with a controlling depth of 3.8m.



J.H. Reith  
HYDROGRAPHER

JHR:VLH

Enc. Amendments Nos. 1 and 2 to H5/1/45

DISTRIBUTION LIST

Chief Engineer  
Harbourmaster  
Officer-in-Charge Onehunga  
Operations Manager

*Rec*

N-E

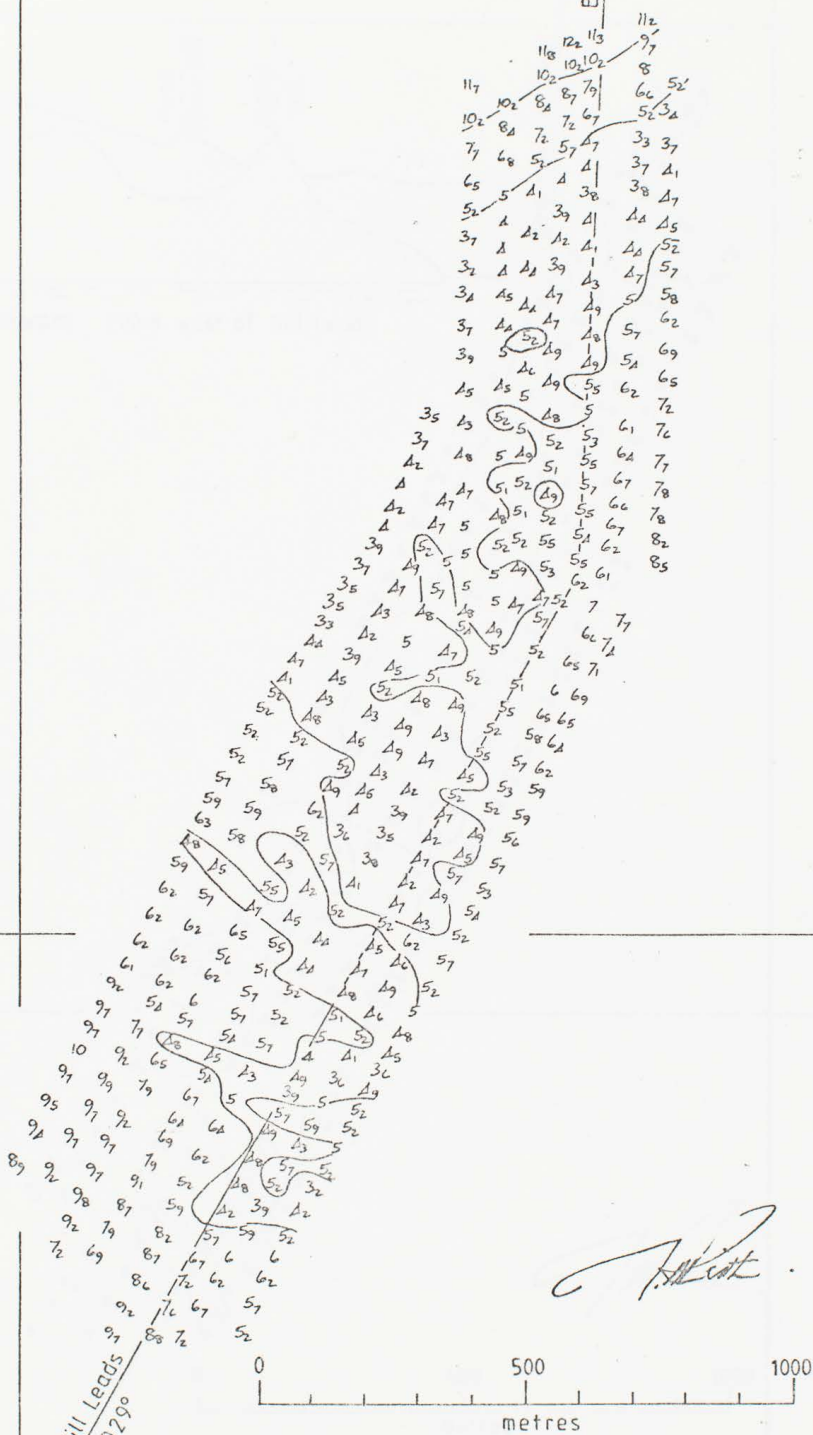
31'

174°

32' E

03'

Bns in Line  
002° 30'



Lighthouse

37°  
04' S

Hill Leads  
0290

metres



Manukau Harbour Entrance-South Channel

Surveyed 6 April 1983

Soundings in metres and decimetres below C. D.

DRAWN R/WB

DATE 7.4.83

SCALE 1:12000

DRAWING

H5/1/45

Amendment 2



31'

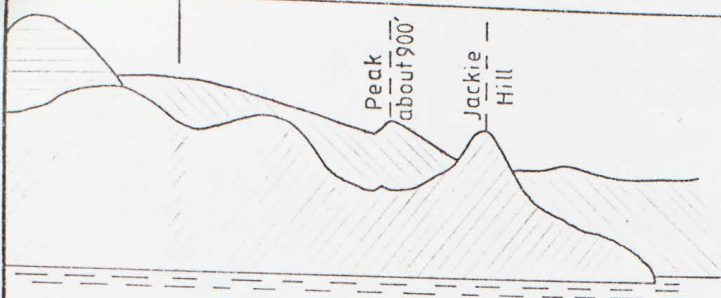
174°

32' E

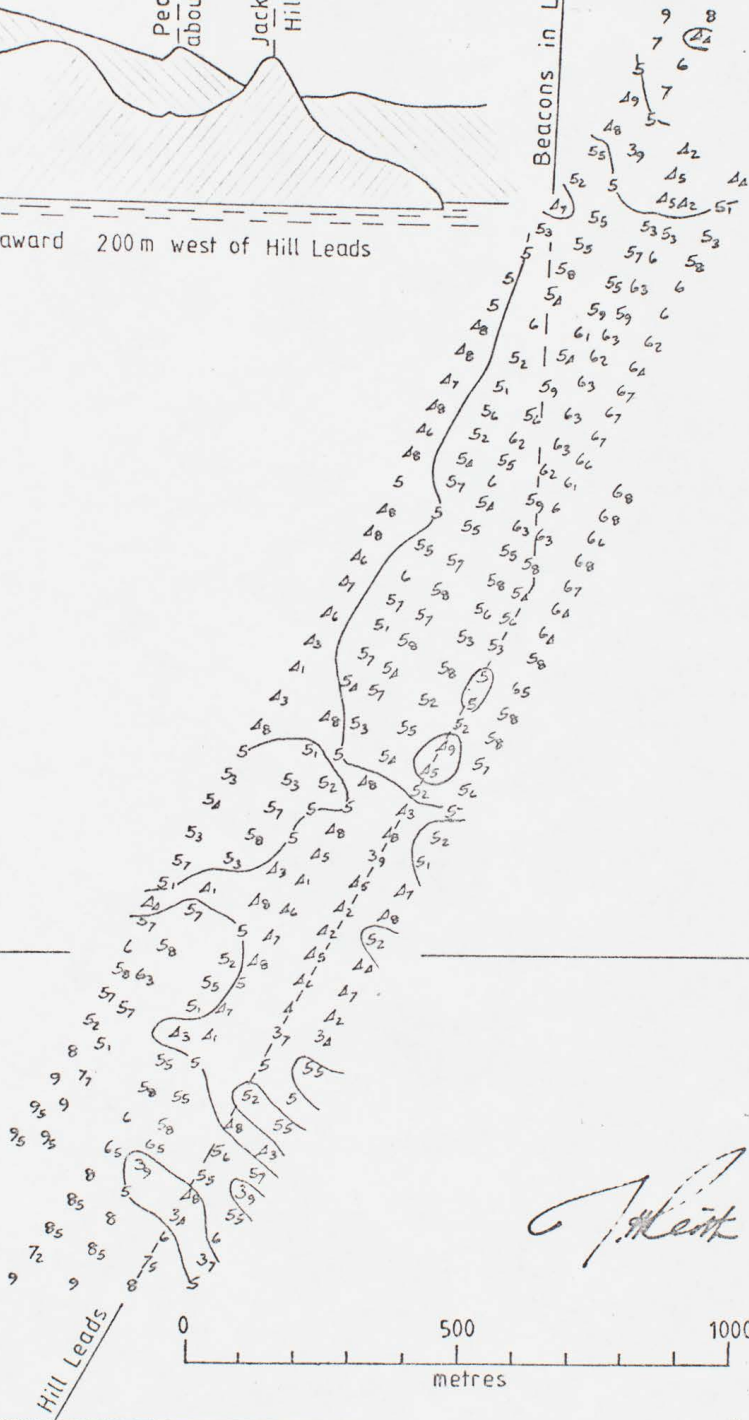
03'

Peak  
about 900  
Jackie Hill

Beacons in Line 002°



View from seaward 200m west of Hill Leads



Light House ©

37°  
04' S



Manukau Harbour Entrance-South Channel  
 Surveyed 23 Sept 1982  
 Soundings in metres and decimetres below C.D.

DRAWN R.W.B.  
 DATE 27.9.82  
 SCALE 1:12,000

DRAWING  
 H5/1/45  
 Amendment 1

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To: THE SENIOR PROPERTY OFFICER

Date: 30 March 1983

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From: THE CHIEF ENGINEER

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ORUA BAY, AWHITU, MANUKAU HARBOUR

ADDITION TO COTTAGE - R. & C.F. ZEILSTRA

The farm cottage at Orua Bay Awhitu, Manukau Harbour was inspected and the extension now under construction was photographed, 3 prints attached.

The building so far completed was to a satisfactory standard and evidence of materials on site indicated that the work was proceeding in a business like fashion. The drawing B.3051, provided by the lessee is correct so far as structural requirements are concerned.

I would therefore confirm that the structural content of the proposed addition is in order and approval be given in terms of the lessee to this extension.

B.R. Le Clerc  
CHIEF ENGINEER TO THE BOARD

GDH:VLH

Enc. 3 prints



# JOB SHEET

DATE	INFORMATION AND INSTRUCTIONS	INITIALS
18.3.83	<p>attached memo of 14.3.83 from Senior Property Officer advises that a lessee at Orua Bay, Awhitu, Manukau Harbour, propose an addition to the farm cottage.</p> <p>Examine submitted drawing B 3051 and comment on the proposed structural additions.</p> <p>Draft reply memo from Chief Engineer to Senior Property Officer.</p> <p>Drawing should be sufficiently detailed that a site visit is not required.</p> <p style="text-align: right; margin-right: 50px;">Dec. Eng. This may not require a visit. Please provide the comments. file.</p>	<p style="font-size: 2em; margin-top: 100px;">pw-g.</p>



LETTER FILE	ISSUED TO	DATE
ESTIMATE	SUPERVISOR MAINTENANCE ENG	18.3.83
DRAWINGS	INDIVIDUAL	
PROGRAMME OF WORKS	COMPLETION REQUIRED BY	
BOARD AUTHORITY 1.	SUB TITLE	
2.	PROPOSED ADDITION TO ZEILSTRA COTTAGE.	
CODING	JOB TITLE	
260	ORUA BAY, AWHITU	18.3.83

# JOB DIARY

Auckland Harbour

DATE	ACTION	INITIALS
25/3/83	Photos taken & attached to draft of memo.	J.E.

J.E.20.



To: CHIEF ENGINEER

Date: 14 March 1983

From: SENIOR PROPERTY OFFICER

PROPOSED ADDITION TO COTTAGE: R. & C.F. ZEILSTRA :  
ORUA BAY, AWHITU

The abovenamed lease an 84 hectare farm property from the Board at Orua Bay near South Head, Manukau Harbour. An addition to a farm cottage is proposed as shown on Plan B3051 and in terms of the lease document, the Board's approval to any structural additions is required.

Would you please provide any comments on the above structural drawing. The work proposed would appear to be straight forward and conventional.

  
G.C. Burgess  
SENIOR PROPERTY OFFICER



Dev. Engr. This may not require  
a visit. Please provide  
the comments.  
fled.

**Memorandum**

To: THE CHIEF ENGINEER

Date: 3 March 1983

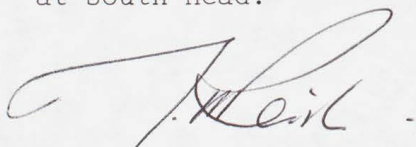
From: THE HYDROGRAPHER

MANUKAU ENTRANCE - SOUTH CHANNEL

Following reports that shoaling had occurred at the northern end of the South Channel an attempt to resurvey this area was made on 2 March but aborted due to unsuitable weather conditions.

Since the last survey on 23 September 1982 continuous westerly winds have prevented soundings being taken until some two weeks ago. Unfortunately during this period of favourable weather the Hydrographic Section was understaffed with personnel either on annual leave or sick.

As the section is likely to be heavily engaged on the ANZCAN cable project over the next two weeks it is requested that, when weather conditions permit, the Tugmaster be instructed to run a line of soundings along the Destruction Gully leads using the Raytheon echo sounder installed and giving a fix mark on the trace at the intersection of the two sets of leads. I have discussed this with Mr Gibson who knows our requirements. If the echo trace is forwarded to me with the time and date of the run I will reduce the sounding using predicted tides and relay the information to the signalman at South Head.



HYDROGRAPHER

JHR:JMH

c.c. Harbourmaster  
O.I.C., Onehunga  
Operations Manager

cc.



