719. St. Georges Bay Reclamation.
1916.

St. Georges Bay Reclamation

St. George's Bay
Reclamation.

Auckland Harbour Board. (1.)

MEMORANDUM.

FROM A. Broadbent

To THE ENGINEER. 21st January 191[illegible]

See Eng. file 116
" Dunedin file No. 3

94591

St. George's Bay Reclamation.

Formation of Main Embankment

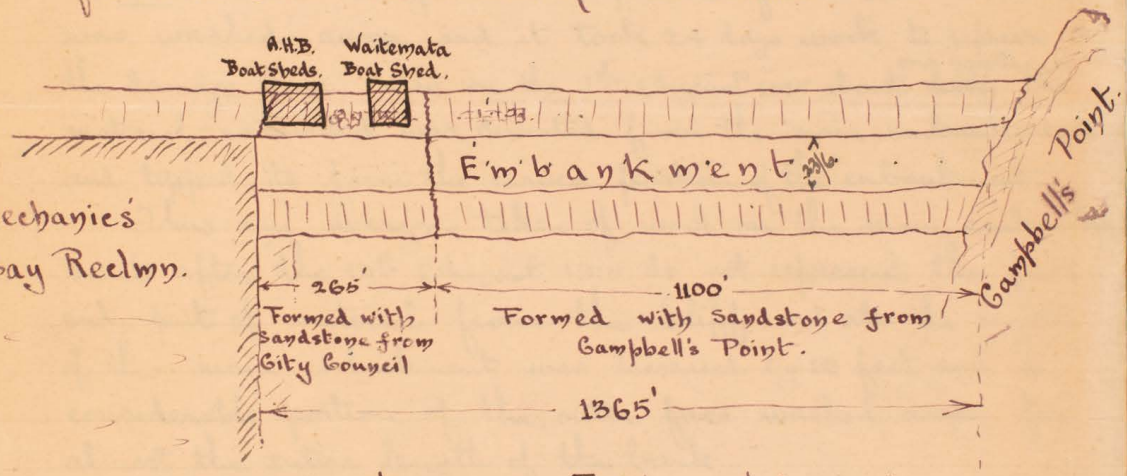
(Exclusive of Bluestone facing)

Note. This embankment is the straight portion of the work only. No allowance for any of the curved deviation of the embankment.

Final Report.

Commenced tipping material from Campbell's Point 17th February 1915.
Finished " " " " " 30th November 1915.

Work was carried on continuously for 238 days, except for short breaks on account of wet weather.



Sketch of Embankment.

Average progress of embankment with material from Campbell's Point 4'-7½" per day.

Average progress of embankment with material from Auckland City Council about 3'-0" per day.

Average amount of material broken down from face and filled into trucks at Campbell's Point per man per diem of 8½ hours = 13.24 cubic yards.

Note. This figure, which is an average over the whole period of the work, is for men filling trucks only; the material first requiring to be blasted.

Auckland Harbour Board.

(1.)

MEMORANDUM.

FROM A Broadbent.

To THE ENGINEER. 21st January 191[illegible]

See Eng. file 116
" Drawing file No. 3

94591

St. George's Bay Reclamation.
Formation of Main Embankment
(Exclusive of Bluestone Facing)

Note. This embankment is the straight portion of the work only. No allowance for any of the Curved Deviation of the embankment.

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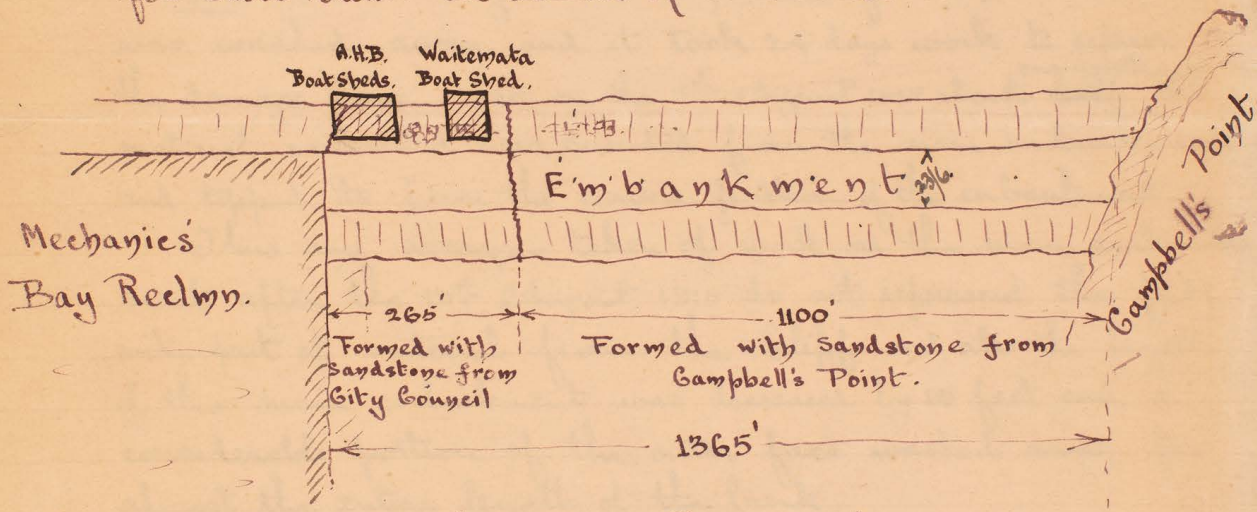

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Auckland Harbour Board.

(1 A.)

MEMORANDUM.

FROM A Broadbent. To THE ENGINEER.

25th January 1916

94591

St. George's Bay Reclam.
Formation of Main Embankment (contd.)

Length of embankment formed with sandstone from Campbell's Point to date 10th August 1915 was 945 feet.

Thus the average length formed per day to that date = 6'-6¾" on the straight portion of the embankment.

Note. On 14th August 1915 a portion of this embankment was washed away, and it took 24 days work to repair the damage done, also on the 5th August 1915 about one quarter of the material excavated was diverted from the main embankment and tipped to form the curved portion of the embankment.

Thus any averages taken of work on the main embankment after the 10th August 1915 do not represent the full out-put of material from the cliffs, and also the length of this main embankment was decreased by 10 feet and a considerable portion of the outer face washed away for almost the entire length of the bank.

If after this wash out of the main embankment occurred all the sandstone excavated had continued to be tipped on this bank the gap could have been closed by about the midde of October 1915.

A Broadbent.

Auckland Harbour Board.

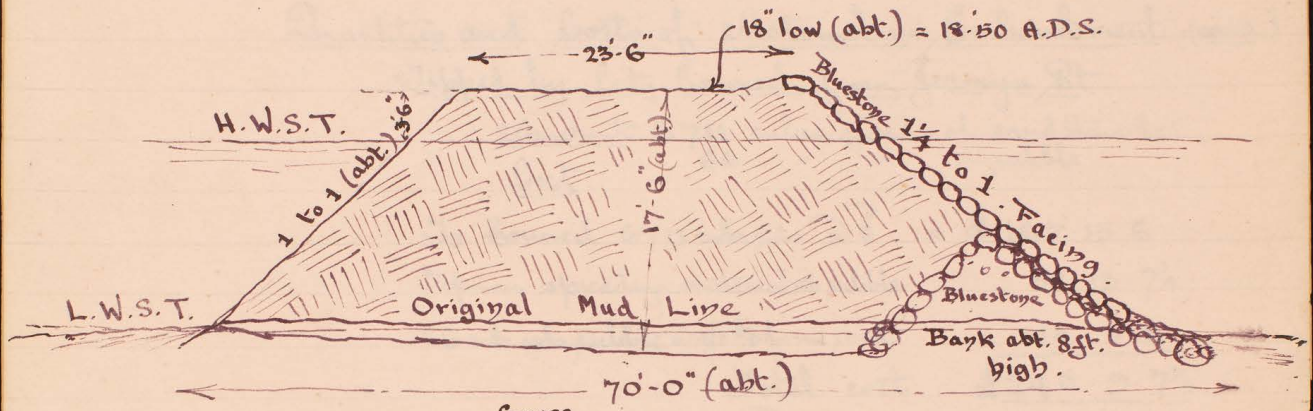
MEMORANDUM.

FROM A. Broadbent To THE ENGINEER.

21st January 1916

94591

St. George's Bay Reclamation.
Formation of Main Embankment (continued)



(Area of Section of Sandstone about 85 sq. yds.)

Gross

Average Cross Section of Embankment.

Scale, about 10ft. = 1 inch.

Width of embankment at top 23'-6", average.
" " " " bottom 70'-0" (about), average.
Height " " 17'-6", average.

Quantities and costs of Material in Embankment.
Excavated from Campbell's Point.

Amount 36,250 cubic yards of sandstone &c.

Cost.

Labour excavating & filling into trucks	£1438.17.0
" & teams trucking to tip-head	404.17.9¼
" spreading at tip head	262.18.10½
Supervising men and lay out of work	197.0.4
Labour at various works, laying rails &c.	87.0.10½
Total cost of labour & teams	£2390.14.10¼
Explosives used, powder, gelignite &c.	212.0.0
Gear, tools, and stores used, say	100.0.0
Interest & depreciation on plant used	41.10.0
Total cost of material from Point	£2744.4.10¼

Black gunpowder abt. 3900 lbs.
Monobel & Victor powder 1270 "
Gelignite 230 "
Total 5400 " of explosives

∴ cost of handling = 1/6.17 per cub. yd.

Auckland Harbour Board.

(3.)

MEMORANDUM.

FROM A.Broadbent. To THE ENGINEER.

21st January 1916

94591

St. George's Bay Reclamation.
Formation of Main Embankement.

Quantities and costs of Material in Embankment. (contd.)

Tipped by City Council from Jermyn St.

Amount 6711 cubic yards of sandstone &c.
66 " " " pubble

Cost.

To Council 6711 cub. yds. @ 6 = £ 167 · 15 · 6
Tipman spreading material & pubble 58 · 13 · 7¾
66 cub. yds. pubble @ 4/3 to form road 14 · 0 · 6
Total cost £240 · 9 · 7¾

∴ cost of handling = 8·52 per cub. yd.

Dumped from Rangitoto Quarries

Amount 2984 cubic yards of bluestone & scoria.

Cost.

2984 cub. yds. @ 2/4, as charged to Railway Dept. = £ 344 · 18 · 8

Tipped by Winstone, Craig & McCallum.

Amount. 289 cub. yds. of bluestone from Winstone
10 " " " " " McCallum
116 " " " bricklats " Winstone
61 " " " " " J.J. Craig.

Cost. Total 476 cub. yds.

To Winstone 289 cub. yds. @ 2/3 5/12 : £ 49 · 19 · 6
" McCallum 10 " " @ 3/3 = 1 · 12 · 6
" Winstone 116 " " @ 1/- = 5 · 16 · 0
" J.J. Craig 61 " " @ 1/- = 3 · 1 · 0
Tipman spreading material 9 · 2 · 7¾
Total cost £69 · 11 · 7¾

Auckland Harbour Board.

(4.)

MEMORANDUM.

FROM A. Broadbent. To THE ENGINEER.

21st January 1916

94591

St. George's Bay Reclamation.
Formation of Main Embankment (continued)

Summary of Quantities & costs of Material in Embankment.

Where from &c.	Amount	Cost
	cubic yards.	
Sandstone from Campbell's Point	36,250	£2744.4.10¼
Sandstone from City Council, at Jermyn St.	6711	226.9.1¾
Rubble for roadway from J. St. Casey	66	14.0.6
Bluestone from Rangitoto Quarries	2984	944.18.8
Bluestone & bricklats, from Winstone, J.J. Craig, and Mc Callum	476	69.11.7¾
Totals.	46,487	£3999.4.9¾

A. Broadbent.

720

Auckland Harbour Board.

MEMORANDUM.

FROM E.A. Broadbent To THE ENGINEER.

20th May 1916

94591

St. George's Bay Reclamation.

Formation of Outer or Curved Portion of Embankment only

FINAL REPORT.

Commenced tipping material from Campbell's Point 5th Aug. 1915.

Finished " " " " 27th April 1916.

Work was carried on for 171 days during the above period.

Length of embankment formed approximately 580 feet.

∴ Average progress of embankment per day = 3'-4¾"

Cost of 15,562 cub. yds. of sandstone &c. excavated from Campbell's Point and tipped in embankment.

Labour excavating & filling into trucks	£602 · 9 · 1¾	
" & teams trucking to tip head	152 · 7 · 2¾	
" spreading material at tip head	83 · 11 · 5	
Supervision of men & lay out of work	75 · 5 · 5½	
Labour on various works	3 · 17 · 3½	
Total cost of labour & teams		£917 · 10 · 6½
Explosives used, powder, gelignite &c.		86 · 10 · 0
Gear, tools and stores used say		45 · 5 · 0
Interest and depreciation on plant		23 · 10 · 0
Total cost, Labour & Materials		£1072 · 15 · 6½

(See forward)

Thus the following are the average costs of the material per cub. yd.

Cost of Labour excavating & filling into trucks	=	9·29 per cub. yd.
" " " & teams trucking to tip head	=	2·35 " " "
" " " spreading at tip head	=	1·29 " " "
" " Supervising	=	1·16 " " "
" " various works	=	0·06 " " "
Total cost of labour & teams	=	1/ 2·15 per cub. yd.

Auckland Harbour Board.

MEMORANDUM.

FROM C.A. Broadbent. To THE ENGINEER. 20th May 1916

94591

St. George's Bay Reclamation

Formation of Outer, or Burned Portion of Embankment (contd.)

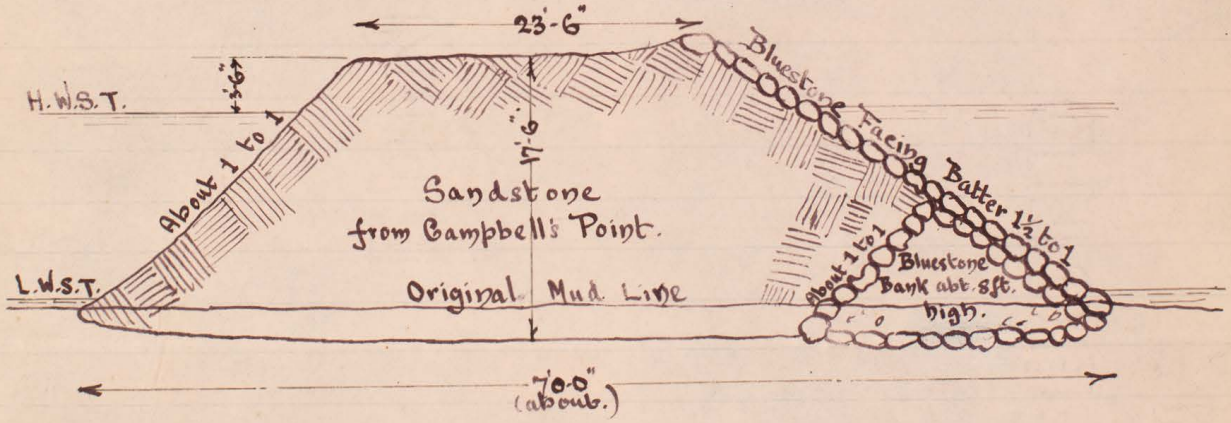
Cost of explosives used	=	1·34 per cub. yd.
" " gear, tools, stores &c.	=	0·70 " " "
Interest & depreciation on plant	=	0·36 " " "
Total cost of materials etc.	=	2·40 per cub. yd.
" " " labour & teams	=	1/2·15 " " "
∴ Total cost of handling material	=	1/4·55 per cub. yd.

Summary

Material in Embankment (Exclusive of Facing)

Sandstone from Campbell's Point	15,562 cub. yds.,	cost	£1072·15·6½
Ashes from Messrs J.J. Craig	232½ "	" 9d "	5·16·3
Bluestone from Rangitoto Quarries	2887 "	" 6/- "	866·2·0
Totals	18,681½ cub. yds.,	cost	£1944·13·9½

Average = 2/1 per cubic yard



Average Cross Section of Embankment.

Scale about 10ft. to 1 inch.

C.A. Broadbent.

Facing is not finished at this date.

Auckland Harbour Board.

MEMORANDUM.

FROM J. A. Broadbent. To THE ENGINEER.

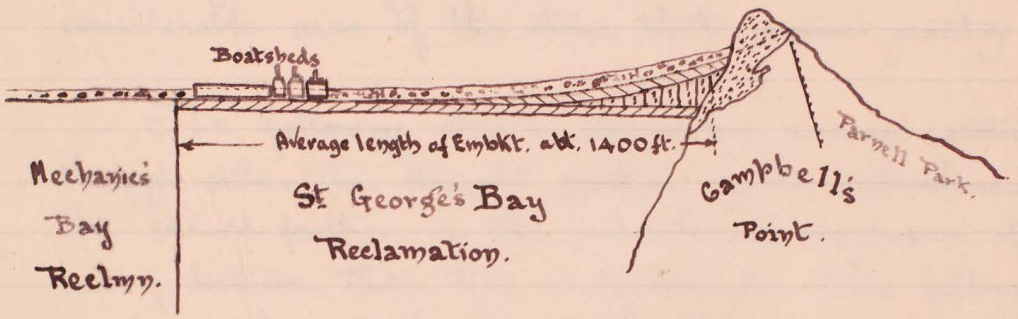
30th October 1916

94591

Embankment at St. George's Bay. Instruction No. 10965.

Sir,

The following sketch shows the retaining embankment.



Sketch showing Embankments at St George's Bay Reclmn.

Scale roughly 400 ft. = 1 inch.

Reference.

Main or Straight portion of Embkt. sectioned thus ////

Outer " Curved " " " " " " \\\\

Area between Outer & Main Embkts. " " ::::

Area of Campbell's Point cut down shown thus ::::

Bluestone Facing shown thus o°o°*

The 'straight portion of the embankment' was commenced on the 17th February 1915, and the tipping of spoil from Campbell's Point for all of the retaining embankment shown in the sketch above was completed on the 2nd May 1916.

The average length of this retaining embankment is about 1400 feet.

Auckland Harbour Board.

MEMORANDUM.

FROM C.A. Broadbent. To THE ENGINEER.

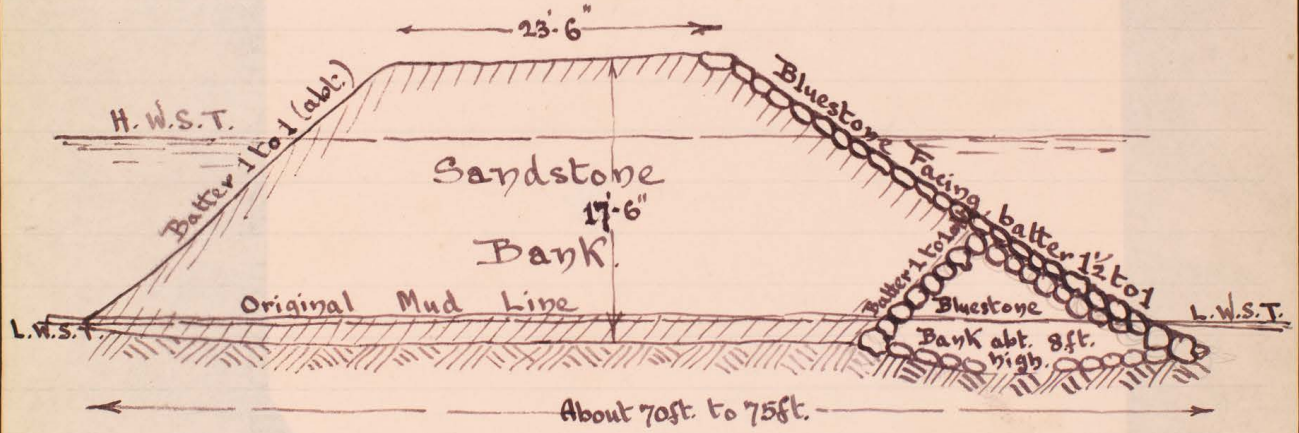
30th October 1916

94591

Embankment at St. George's Bay (contd.)

The work of laying bluestone facing on the embankment was commenced on the 18th May 1915, and is not yet entirely completed as there still remains a considerable area of the stone that requires grouting.

The following sketch shows an average section through either the 'straight' portion of the embankment, or the curved portion of the embankment' exclusive of the filling between these two embankments. This filling consisted mostly of clay off the top of the cliff.



Average Cross Section of Embankment.

Scale about 10ft. = 1 inch.

Average width across top of embankment 23'-6"
" depth of embankment 17'-6"
Batter as shown in sketch.

C.A. Broadbent.

(See over for Qtics)

Material in Embankment, St George Bay Reclamation.

per A Broadbent 2/5/16

Straigis or Main Embankment.

Sandstone ex Campbells Point Cliff	36250	cubyds
" ex Auck City Council	6411	"
Rubble ex Craig	66	"
Bluestone ex Rangitoto	2984	"
Bluestone & Bricklab & Wenstone &c	476	"
	46,487	"

Outer or Curved Embankment.

Sandstone ex Campbells Points Cliff	1556	"
Ashes ex J J Craig	232½	"
Bluestone ex Rangitoto	2884	"
	18,68½	"

Area between Embankments.

Sandstone ex Campbells Pt Cliff	10588	"

Total in Embankment 75,756½ "

720

(See Eng. File 116)
" Drawing file No. 3

August 3/17

The Secretary,

A. H. B.

ST. GEORGE'S BAY RECLAMATION.

The only remaining outstanding items against the above account are:-

	£	s	d	Reference
Those already sent to you amounting to.....	27	- 2	- 3	Letter Book M. 1865
Completion of St. George's Bay Sewer, estimated at..	35	- 0	- 0	See H. Lake report on file 720
Finishing bluestone facing, and grouting same to .. low-water mark. Estimated at ... Picking up loose stones at foot of wall ...ditto...	300	- 0	- 0	See H. Broadbent report on file 720
Repairing bodies of trucks & removing to our yard do	20	- 0	- 0	See H. Broadbent report on file 720

The last three items do not include office charges, nor is anything included for finishing off the triangular area which was the old Campbell's Point. This is at present in a very ugly condition.

It is understood that it does not include the completion of Quay St. Extension, which the City Council has taken over.

ENGINEER TO THE BOARD.

MEMORANDUM.

FROM Hluke, Inspector

To THE ENGINEER.

21 July 1917

94591

Estimate for Completing St Georges Bay Sewer.

In reply to instruction c/ No 11655. I beg to submit an estimate for the completion of St Georges Bay Storm Water Sewer.

	£	s	d
Filling the Gap (9 lin ft) outside Bank @ £2.0.0 per ft	18.	0.	0
Putting concrete top on outflow opening.	9.	0.	0
Make good the intersection of 18" pipe sewer with 5' culvert.	3.	0.	0
Clean out Sewer	5.	0.	0
Total cost.	£35	0.	0

Hluke

MEMORANDUM.

FROM C.A. Broadbent. To THE ENGINEER.

25th July 1917.

94591

St. George's Bay Reclamation
Finishing Bluestone Facing.
(Including area along front of Mechanic's Bay Reclamation)

Instruction No. 11657.

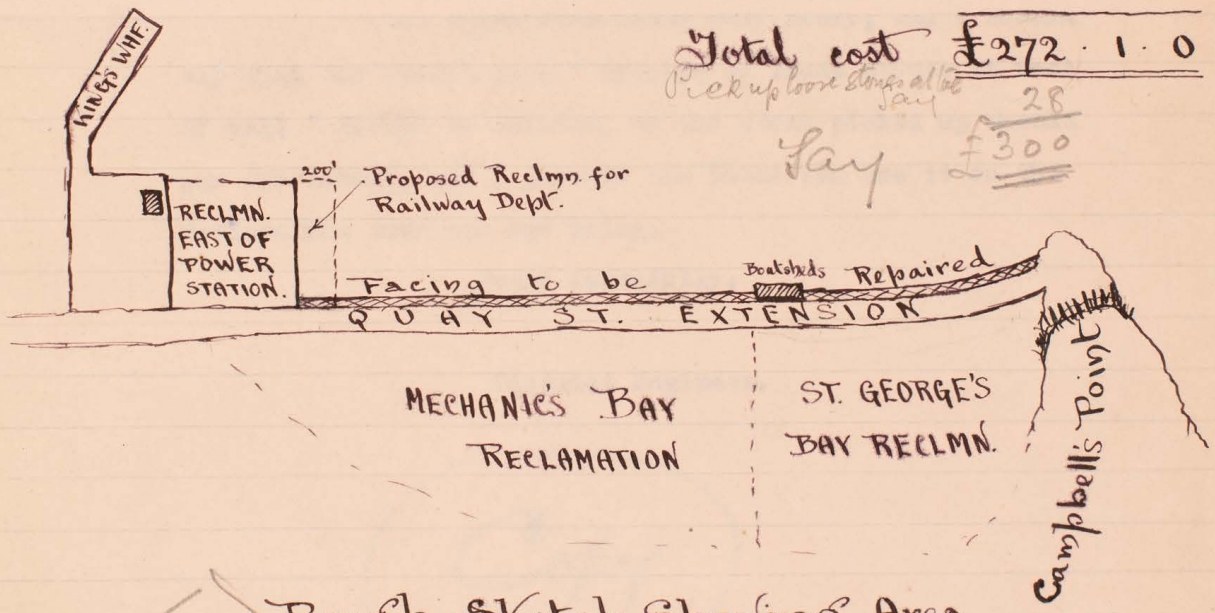
Approx. cost of :-

Labour laying facing say 20 sq. yds. @ 7/6	£ 7	10 0
" straightening up loose stones say 40 yds. @ 5/6	11	0 0
" spanning up crevices in facing 2200 yds. @ 1/4	146	13 0
" grouting facing 2500 sq. yds. @ 5d	52	2 0
Materials, portland cement say 10 tons @ 89/3 less 12½%	39	1 0
" shingle say 45 c. yds. @ 7/-	15	15 0
Total cost	£272	1 0

107 × 24 / 2500 / 125

Pick up loose Stones all over say 28

Say £300



Rough Sketch Showing Area to be Repaired.

C.A. Broadbent.

Total Area, Campbells Point to Reclamation East of Power Stn. 8 y 50 sq yds

What is the area to be done

Same as above, can get on average, per

FROM L.A. Broadbent. To THE ENGINEER. 2nd August 1917.

94892

APPROX Cost of Repairing Bodies of Trucks at St. George's Bay Reclamation.
(16 Trucks)

Approx. Cost

Materials –	450 sup. ft 1st class kauri @ 3d/-	£7. 13. 0
	Bolts &c. say	17. 0
Labour –	Carpenters effecting repairs say	10. 0. 0
		£18. 10. 0

Total Cost say £20. 0. 0

L.A. Broadbent.

The third item seems very heavy, and I should say that the second item " Picking up loose stones at foot of wall " should be deleted, as the stone picked up should pay for labour, and I presume the Board can use it on the reclamation they are now doing.

Yours faithfully,

District Engineer.

Copy

NEW ZEALAND GOVERNMENT RAILWAYS.

District Engineer's Office,

Auckland. 20th August 1917.

No. I2827/284
Your I87/50 of the I4th inst.

The Secretary,

Auckland Harbour Board,

AUCKLAND.

Dear Sir,

I am in receipt of your letter of the I4th inst. advising the estimated cost to complete St. George's Bay Reclamation.

I do not think the Department will pay the £35 for St. George's Bay sewer, as the work done is outside the stone facing.

The third item seems very heavy, and I should say that the second item " Picking up loose stones at foot of wall " should be deleted, as the stone picked up should pay for labour, and I presume the Board can use it on the reclamation they are now doing.

Yours faithfully,

District Engineer.

Copy

August 25/17

The Secretary,

A. H. B.

ST. GEORGE'S BAY RECLAMATION.

Your letter I87/50 of I4th August to District Engineer of Railways.

I did not intend the details of my estimate to be forwarded to Mr McIntosh, to quibble about. I assumed you would take a total, add the office charges and give him an approximate sum.

(I) The portion of sewer referred to is within the Railway Department's boundary, and will have to be paid for by them.

(2) Loose stones at foot of wall.
These will have to be picked up, and are a part of the job. Such as can be used in grouting will be so used; the rest will be of no value to us.

District Railway Engineer's letter returned herewith.

ENGINEER TO THE BOARD.

N/B

New Zealand Government Railways.

DISTRICT ENGINEER'S OFFICE,

Auckland, 11th November, 1918.

Memorandum No. 12827/303

The Engineer,
Auckland Harbour Board,
Auckland.

Sir,

I shall be glad if you can inform me the approximate quantity of material deposited in St. George's Bay for reclamation purposes by the dredges.

I have the honour to be,
Sir,
Your obedient servant,

W. R. B. Bagge
District Engineer.

Reply St George Bay Rec

In reply to your query of 11th Inst re qty of mat deposited in the above rec. I forwarded monthly returns regularly to your office for 21 months the last being dated Nov 8th 1916 reports 1296 Cu yds for the mon of Oct 1916.
The total of all these reports plus 200 yards afterwards deposited privately makes 6 21 173 Cu yds approx deposited in the reclamation.

420

19th. November 16.

The District Railway Engineer,
AUCKLAND.

Dear Sir,

ST. GEORGES BAY RECLAMATION.

In reply to your query of 11th. inst. re approximate quantity of material deposited in the above reclamation, I forwarded monthly returns regularly to your office for 21 months, the last being dated 6th. November 1916, reporting 1296 cub. yds. for the month of October 1916.

The total of all these reports plus 200 yards afterwards deposited privately, makes 621,173 cub. yds. approximately deposited in the reclamation.

Yours truly,

ENGINEER TO THE BOARD.

Sir,

Your obedient servant,

D. J. McIntosh

District Engineer.

The quantity calculated by planimeter from Cross Sections on plan Z/7-7 = abt. 352,300 Cub. Yds filling behind seawall
+ abt. 33,185 " in Sandspit
in round figures say:
352,000 cub. yds. in filling
33,000 in bank
385,000 has taken the
shown

120

N/B **New Zealand Government Railways.**

DISTRICT ENGINEER'S OFFICE,

Auckland, 20th November, 1918.

Memorandum *No.* 12827/305

The Engineer,
Auckland Harbour Board,
Auckland.

Sir,

I am in receipt of your letter of the 19th instant re St. George's Bay Reclamation. If you could give me the approximate quantity of filling in the solid as taken from cross sections it would be much more useful to me. The monthly returns, of course, give the quantity deposited according to the tally kept by the dredges, but this is much in excess of the actual cubic contents of the reclamation.

I have the honour to be,
Sir,
Your obedient servant,

D. T. McIntosh

District Engineer.

The Quantity calculated by planimeter from cross sections on plan Z/7.7 = abt. 352,300 cub. yds filling behind bank & abt. 33,185 " " in sandstone bank. In round figures say: 352,000 cub. yds in filling & 33,000 in bank.
But the Engr has taken the figure 443,000 as shown on plan 7.5.22.
See file 120 & file 116

23rd. November 18.

The District Railway Engineer,
AUCKLAND.

Dear Sir;

ST. GEORGES BAY RECLAMATION.

In reply to yours of 20th. inst. the approximate quantity of filling in the solid in the above reclamation is :-

Inside bank	443,000	cub.yds.
Bank only	53,000	" "
	496,000	" "

Yours truly,

ENGINEER TO THE BOARD

AUCKLAND HARBOUR BOARD. No. 20057

Memorandum.

From 730 INSPECTOR at Dept of Dredging

To THE ENGINEER

June 7 1916

I beg to report that The following Quantity of Material was pumped into St Georges Bay by S. Dredge No 2. from October 18 to Dec 23 Inclusive

155,115 C. yds

Signature J. H. Doran

Auckland Harbour Board.

MEMORANDUM.

FROM Drawing office

To THE ENGINEER.

Jan. 7th 1916.

84592

St. George's Bay Reclamation.

Total quantity of filling required behind bank = abt. 352.000 c.yds.

Material deposited from 18.x.15 to 23.xii.15 = abt. 133.000

Quantity of filling material yet required = abt. 219.000

There are abt. 8,500 c.yds. of dry tipping in S.E. Corner.

133.000 - 8.500 = 124.500 c.yds.

approximate quantity of filling by Suc. Dredger for 2 months

57 | 124500 = 2180 c.yds. per work'g day. = 124.500 c.yds.

St. Geo: Bay reclt 1915.

Verran returns from Oct 18 to Dec 23 as put into reclt by Sue D. 2.2

155 115 C.yds.

Purchases finds 124. 500 " "

Diff. 30, 615

$\therefore \frac{30,615}{155,115} = \frac{1}{5} = 20\%$

This dumping was done while the Sap near to Sue Dredger trenches was still open & a considerable quantity was lost.

AUCKLAND HARBOUR BOARD. No. 20076

Memorandum.

From ~~INSPECTOR~~ at Dept. of Dredging

To THE ENGINEER

Jany 27 1916

S. Dredge "Hori" Coasts. St Georges Bay.

I beg to report that

From Nov. 25th to Decr. 28th Inclusive. S. Dredge Hori pumped approx. 3500 C. Yds

Cost £223.13.11

= 15.33 per Cubic Yd

This includes all Wages, Coal, oils & Stores Repairs & Interest

Signature Jas. Dewar

170

Auckland Harbour Board.

MEMORANDUM.

FROM Drawing Office To THE ENGINEER.

27·III·16 191

84592

St. Georges Bay Reclamation

Quantity remaining to be filled 23·XII·15 = 219139 C. Yds.
do do do 25·III·16 = 71622 do.
do filled during 3 mos ending 25·III·16 = 147517 do.

C. Pinchas

CHECKED
DATE. 27:3:16

Auckland Harbour Board.

MEMORANDUM.

FROM THE ENGINEER. To

191

82493

Copy of Reply to instruction No 10406 to Mr. J.H. Verran.

St Georges Bay Reclamation

Quantity of material pumped into St Georges Bay between Dec. 23/15 and March 25/16.

Total quantity dumped alongside Suction Dredge No 2	134639	c. yds.
Still in hole not yet pumped	13889	"
Suction Dredge No 2	120750	
" " No 1	15000	
Total	135750	c yds.

(signed) J H Verran

March 29. 1916

AUCKLAND HARBOUR BOARD. No. 20215

Memorandum.

720

From .. INSPECTOR at Supt of Dredging

To THE ENGINEER

June 22 1916

Dredge "Rori" St Georges Bay

I beg to report that

The following Quantity of Material was pumped into St Georges Bay from Boat Steps Mechs Bay Boat Sheds &c. Commenced Nov 30. 1915 finished June 6th 1916

Total Quantity pumped 55879 Cubic yds

Costs £1749.14.11

Cost per yd. 7.51

Note This includes all costs in our Dept.

J H Vercoe

Signature

120

Auckland Harbour Board.

MEMORANDUM.

FROM Drawing Office To THE ENGINEER.

28.VI.16 191

94592

St. Georges Bay Reclamation

		C.yds.
Remaining to be filled	25.III.16	= 71622
Filled during 3 Mo. to 26.VI.16		= 77756
over filled to date		6134 C.yds.

The 77,756 C.yds. includes special sandstone filling for temporary 40' Road.
Broadbent gives 8200 yds. as quantity of sandstone tipped here cs
69,556 Dredging Only
C. Cuttriss

W. Verran's figure cs 165,096 See attached

Filling pumped thro' Suction Dredgers, into St George Bay Reclam^{n},
25th March to 26 June 1916 inclusive (Taken from Dredging Dept Fortnightly Reports

		From Napoi	From No 121	From Reclamation 3.	Total.
Dumped in hole alongside Suct Dr No 2 before and including 25 March 1916, Still in hole	to 21 March	3450	3100	918	7468
	22 to 25 March	3018	2799	594	6411
Fortnight ending (from Newspaper)	18 April	9425	10885	2889	23199
	2 May	6445	9952	1242	17639
	16 "	10060	9641	1242	20943
	30 "	5523	11196	999	17728
	13 June	3357	11818	891	16066
11 days to	26 "	5462	8086	1215	14763
Total Cubic yds		46,750	67,477	9990	124217

also Pumped thro' Suct Dr No 1. 40879.

Total Cubic yds 165,096.

AUCKLAND HARBOUR BOARD. Nº 20222

Memorandum.

From .. ~~INSPECTOR~~ at Supt of Dredging

To THE ENGINEER

June 28 1916

Filling St Georges Bay Inst No 10658

I beg to report that The following Quantities of material was deposited in St Georges Bay from March 25 to June 26 1916 Including the last date only

61578	No 121	61578 C yds
40282	Hapai	40282 " "
40879	S Dredge No 1	40879 " "
8478	Pt No 3	8451
13879	In hole at March 25 & pumped since	13889
165096	Total	165079 C yds

3018 } Hapai
3450 }
3110 } 121
2799 } Priestman
918
13241

amended

Signature J.H. Verran

AUCKLAND HARBOUR BOARD. No. 20242

Memorandum.

From .. INSPECTOR at Dept of Dredging

To THE ENGINEER

June 28 1916

Filling into St George's Bay Mat No 10658.

I beg to report that

The following quantity of Material was deposited in St Geo Bay from March 25 to June 26th 1916 Inc. last date only.

No "121"	61548	Cube yds
"Hopai"	40388	" "
Pr. "No 3"	8448	" "
In hole at Mar 25th - pumped by Sc Dg "No 2"	13849	" "
do Dg "No 1"	40849	" "
	165096	

Note this report cancels report No 20242.

Signature J H Gerrard

AUCKLAND HARBOUR BOARD. No. 20297

Memorandum.

From.. ~~INSPECTOR~~ at Dept of Dredging.

To THE ENGINEER

Sept 4 1916

I beg to report that The Total Quantity of Material Deposited in St Georges Bay to Sept 2. 1916 is as follows

519.550 Cubic yards

Less in Hole Approx 20.000

499,550 C yds.

Signature J H Vernau

Total quantity of filling placed on
St George's Bay Reclam Ry Dept
to 18th September 1916
when Dredgers stopped

From Dredgers	520,049	Cubic yds
" Campbells Pt Cliff	83,406	" "
" Auck C.C. Jarman St	6,636	" "
" Various sources (paid for Cartage etc)	1,412	" "
Deposited Privately	7,220	" "
Total	618,723	" "

Filling from Cliff Still being
put in

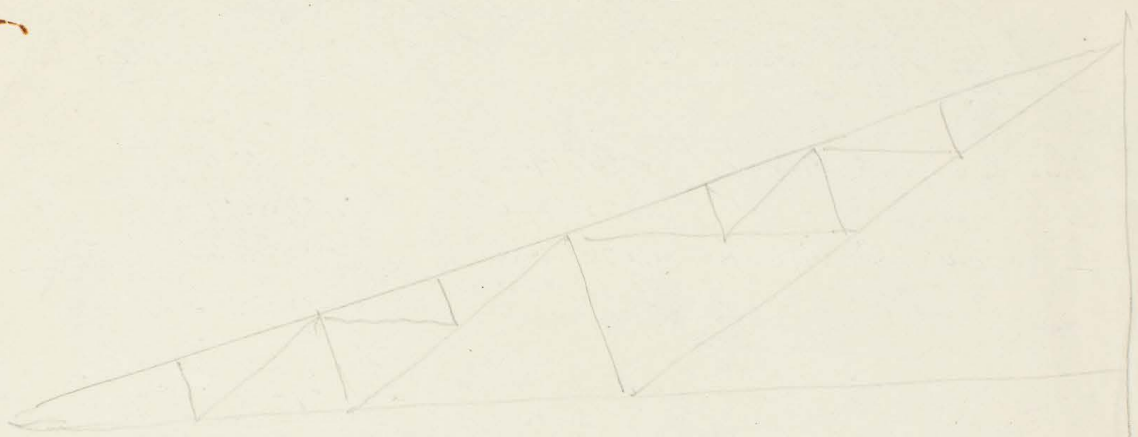
26/9/16

with others

St Geo Bay Filling File 720

Material deposited from Mr Sinclair's reports

	Cu Yds	
From Oct 18th 1915 to Dec 23rd 1915	133,000	
" Dec 23 " to Mar 25 1916	147,517	
" Mar 25th 1916 to June 26 1916	77,756	Incl 5200 Sandstone
June 26 " to Sep 25 "	27,956	
	386,229 C.Yds.	



St. Georges Bay Reclm

Final

Cubic yards deposited

Up to 23 XII 15	133139
Next 3 months 25/III/16	147517
" " 26/VI/16	77756
To 25 IX 16	27956
Total	386368

This does not include Gammels sandstone bank but does include tipping for ~~road~~ temporary 40' road also outside cart tipping.

HK

18,682. c yds [illegible] from [illegible]
46,487
65,169
10,188
75,357
386,368
461,725

120

Sept 28/16

Filling, St. George Bay Reclamation

From Mr Vessan's pink slip on Instruction 10900

Total pumped into Reclamation from date of starting to completion 520,049 Cubic yards; and from Sept. 5th to 18th inclusive, approximately 20,000 yards. This is included in total

AUCKLAND HARBOUR BOARD. No 20349

Memorandum.

From .. ~~INSPECTOR~~ at Supt of Dredging.

To THE ENGINEER

Oct. 27 1916

Inst 10964. B. Dr. No 1

I beg to report that

Towed to St. Georges Bay Nov. 30. 1915
Started pumping Dec 2 1915
Stopped repairs Jan 10. 1916
restarted pumping - 12th 1916
Stopped repairs March 10th
restarted " 13th 1916
completed dredging May 27th
Towed to J. Wall laid up June 6th 1916.
(Slipped cleaned painted & Hull repaired
Oct. 2. came off Oct. 9. 1916)

Note Days on Slip not Included

	days
Holidays	12
Mornings	3
pipe line	15
repairs	7
Days actually Dredging	122
Total.	159

Signature

AUCKLAND HARBOUR BOARD. №. 20347

Memorandum.

From .. ~~INSPECTOR~~ at Supt. of Dredging

To THE ENGINEER

Oct. 27. 1916

Inst. No 10964 S. Dredge "No 2"

I beg to report that
Started St Georges Bay July 1st 1915
Shifted to F. Bay aug. [illegible] 1915
restarted St. Georges Bay Oct. 12. 1915
Stopped for repairs March 16th 1916
(Slipped March 24 to 30th)
restarted April 10th 1916
Stopped July 14th pipe line damaged by Gale
restarted Aug. 9th
Stopped Sept. 19th Repairs
~~Started~~ Freemans Bay Oct 24th 1916

	days
Holidays	13
pipeline	35
repairs	40
moorings	2
actually pumping	209
working days	

Total 299 days.

Finished at St [illegible] Bay [illegible] 18 Sept 1916

Started actually pumping Oct. 18th 1915
Finished Sept 18th 1916

Signature J. H. Vernon

299
127
172

Auckland Harbour Board.

MEMORANDUM.

FROM Drawing Office To THE ENGINEER.

9-XI-16 191

94592

St. Georges Bay Reclamation

	C. yards	
Deposited up to 23-XII-15	133139	
" during next 3 months ending 25-III-16	147517	
" " " " " " 26-VI-16	77756	Overfilled 6134
" " " " " " 25-IX-16	27956	" 27956
Total amount deposited	386368	34090

This does not include Gemmels sandstone bank along Quay St., but does include his tipping for the temporary 40' road, also tipping from outside sources round about Kings drive.

Taken from progress sections Z5 2a. 'Overfilled' means J.K. Kemp
ee filling above the black line shown on section, about 2/9 above HWST
these quantities are measured from the time when pumping started shown by green line & do not include amounts filled in from other points.

Cost of Placing Stone from Rangitoto on Site of Embankment
St George's Bay Reclamation

(Not including laying & facing)

Week Ending	Quarrying	Loading on Scows	Labour on Scows	Labour at Embankment	Towing	Interest & Depreciation	Stores	Compressor Plant	Total	Cubic Yards	Cost per yd on site
May 4	52·16·0	7·1·9	9·18·9	18·13·4	16·1·1	20·2·8	11·3·0	3·11·3	139·7·10	529	5·3¼
" 11.	51·0·3	6·4·9	13·0·0	23·14·3	16·10·9·	26·6·5	12·10·9	3·17·5	153·4·7	579	5-3½
" 18	63·16·0	8·13·10	12·0·10	22·13·7	19·9·0	24·7·7	13·10·11	3·13·1	168·4·10	690	4-10½
" 25	51·9·9	6·11·8	10·0·0	18·3·4	14·15·5	22·12·6	9·5·8	3·1·10	139·0·2	528	5-3
June 1	4·8·0	0·12·4	0·18·10	1·14·4	1·4·0	1·19·2	1·12·3	0·6·1	12·15·0	55	4-7¾
" 8	15·7·4	2·14·2	3·2·5	4·2·2	10·14·0	9·13·2	6·0·6	. . .	51·13·9	171	6-0½
									664·6·2	2552	5-2½

Mr. Broadbent's report for
1st May 1915 on cost of placing
Stone in embankment, St. George's
Bay Reclm. is in file 7/23, being
included in his cost of placing
Stone in Launch Landings
Retaining Wall

Auckland Harbour Board.

~~WESTERN BREAKWATER.~~

STONE FROM RANGITOTO QUARRIES, Week Ending, 11th May *1915*

Quantity of Stone deposited at ~~*Freeman's Bay*~~ St. George's Bay, *on Site of* ~~*Breakwater*~~ embankment, 579 *c. Yards.*

NOTE.

	Rate.	£	s.	d.	Totals.		
Labour at No. 1 Quarry—Drilling, quarrying, etc.		14	4	4			
,, ,, Loading on to scows		1	12	0¼	15	16	4¼ ✓
Labour at No. 2 Quarry—Drilling, quarrying, etc.		36	15	10¾			
,, ,, Loading on to scows		4	12	8¾	41	8	7½ ✓
Labour on Scows—Men loading, unloading, and working scows					13	0	0
Towing Scows—Scows loaded ( )							
,, ,, Scows empty ( )							
,, ,, 1 Scows loaded ( )	40/-	2	0	0	✓		
,, ,, 1 Scows empty ( )	30/-	1	10	0	✓		
,, ,, Bonus to crew of "Te Awhina" on loaded scows ...							
,, ,, 3 Tows by s.s. "Firefloat," 1½ days	£1/1/-	3	0	0	✓		
2 " "Launch Jumbo" 9½ hrs.							
Handling on Breakwater—Labour and supervision, dumping stone ...	8/6	4	0	9	✓	16	10 9 ✓
,, ,, Units of current and stores							
,, ,, 100 % per annum maintenance for repairs to crane							
Priestman Grab No-3 6 days	3/12/7	21	15	6	✓		
labour assisting to handle boxes		1	18	9½		23	14 3½ ✓
Stores, etc., used at Quarries—Oil and waste for Cranes			4	0			
,, ,, Cases of kerosene, = gals.							
,, ,, 1¼ Cases of gelignite with detonators and fuse		4	0	0			
,, ,, 1¼ Tons of coal for cranes and forges, say ...		1	14	0			
,, ,, 7 Tons of water from "Te Awhina" ...	4/-	1	8	0	✓		
,, ,, Timber, bolts, etc., for repairing boxes, say		3	0	0			
One trip by launch A.H.B. at launches at St. George's Bay, 3 hrs.	7/6		17	6	✓		
Rental of quarries			7	3	✓	12	10 9 ✓
Compressor Plant—Labour running plant		1	18	1½			
,, ,, Stores used; coal, oil, etc.		1	19	3		3	17 4½ ✓
Interest and Depreciation—18½ % per annum on compressor plant £1321 6 6		4	0	8	✓		
,, ,, 25 % per annum on 4 scows, 1 punt, and moorings £1400		6	14	7	✓		
,, ,, 100 % per annum maintenance charges on repairing and slipping scows £239		5	11	2	✓		
,, ,, 50 % per annum on jetties, sheds, cranes, boxes, etc. ... £1040 ...		10	0	0	✓	26	6 5 ✓
Total Cost ...						£153	4 6¾ ✓

Therefore Average Cost of handling 579 c. yds. = 5/3½ ✓ s. d. per c. yd.

A Broadbent. Inspector in Charge. 13th May 1915

19152

Auckland Harbour Board.

~~WESTERN BREAKWATER.~~

STONE FROM RANGITOTO QUARRIES, Week Ending, 18th May 1915

Quantity of Stone deposited at ~~Freeman's~~ St. George's Bay, on Site of ~~Breakwater~~ embankment, 690 c. Yards.

NOTE. Also 55 cubic yards to Retaining Wall, Auckland Dock Reclam.

	Rate.	£	s.	d.	Totals.		
Labour at No. 1 Quarry—Drilling, quarrying, etc.		22	0	0½			
,, ,, Loading on to scows		3	13	11½	25	14	0
Labour at No. 2 Quarry—Drilling, quarrying, etc.		46	17	8			
,, ,, Loading on to scows		5	13	9	52	11	5
Labour on Scows—Men loading, unloading, and working scows					13	0	0
Towing Scows—Scows loaded ( )							
,, ,, Scows empty ( )							
,, ,, Scows loaded ( )							
,, ,, Scows empty ( )							
,, ,, Bonus to crew of "Te Awhina" on loaded scows ...							
,, ,, 6 Tows by s.s. "Firefloat," 3½ days	6/-/-				21	0	0
Handling on Breakwater—Labour and supervision, dumping stone ...							
,, ,, Units of current and stores							
,, ,, 100 % per annum maintenance for repairs to crane							
Foreman Bridge No 3. 6 days Labour assisting to handle boxes	3/12/7	21	15	6			
		2	14	3¼	24	9	9¼
Stores, etc., used at Quarries—Oil and waste for Cranes			5	0			
,, ,, Cases of kerosene, = gals.							
,, ,, 1½ Cases of gelignite with detonators and fuse		4	12	0			
,, ,, 1½ Tons of coal for cranes and forges, say ...		2	2	0			
,, ,, Tuns of water from "Te Awhina" ...							
,, ,, Timber, bolts, etc., for repairing boxes, say		6	0	0			
One trip by launch "A.H.B." to Quarries, 3½ hrs.	7/6	1	6	3			
Rental of Quarries			7	3	14	12	6
Compressor Plant—Labour running plant		2	1	6¾			
,, ,, Stores used; coal, oil, etc.		1	17	4½	3	18	11¼
Interest and Depreciation—18½ % per annum on compressor plant £1132-16-6		4	0	8			
,, ,, 25 % per annum on 4 scows, 1 punt, and moorings £1400		6	14	7			
,, ,, 100 % per annum maintenance charges on repairing and slipping scows £289		5	11	2			
,, ,, 50 % per annum on jetties, sheds, cranes, boxes, etc. £1040		10	0	0	26	6	5
TOTAL COST ...					£181	13	0½

Therefore Average Cost of handling 745 c. yds. = s. 4 d. 10½ per c. yd.

A. Broadbent. INSPECTOR IN CHARGE.

20th May 1915

19152

Auckland Harbour Board.

~~WESTERN BREAKWATER.~~

STONE FROM RANGITOTO QUARRIES, Week Ending, 25th May *1915*

Quantity of Stone deposited at ~~Freeman~~ St. George's *Bay, on Site of* ~~Breakwater~~ embankment, 528 *c. Yards.*

NOTE. Also 185 cu. yds. to Retaining Wall Auckland Dock Reclmn.

	Rate.	£	s.	d.	Totals.		
Labour at No. 1 Quarry—Drilling, quarrying, etc.		69	10	6¾			
,, ,, Loading on to scows		8	17	9½	78	8	4¼
Labour at No. 2 Quarry—Drilling, quarrying, etc.							
,, ,, Loading on to scows							
Labour on Scows—Men loading, unloading, and working scows					13	10	0
Towing Scows—Scows loaded ( )							
,, ,, Scows empty ( )...							
,, ,, Scows loaded ( )							
,, ,, Scows empty ( )...							
,, ,, Bonus to crew of "Te Awhina" on loaded scows ...							
,, ,, 6 Tows by s.s. "Firefloat," 4 days	6/-/-				24	0	0
Handling on Breakwater—Labour and supervision, dumping stone ...							
,, ,, Units of current and stores							
,, ,, 100 % per annum maintenance for repairs to crane							
Priestman Dredge No 3 - 6 days	3/12/7	21	15	6			
Labour assisting to handle boxes		2	15	1¾	24	10	7¾
Stores, etc., used at Quarries—Oil and waste for Cranes			4	0			
,, ,, Cases of kerosene, = gals.							
,, ,, 1¼ Cases of gelignite with detonators and fuse		4	2	0			
,, ,, 1½ Tons of coal for cranes and forges, say ...		2	0	0			
,, £3 bdle ,, Tuns of water from "Te Awhina" ...							
,, ,, Timber, bolts, etc., for repairing boxes, say		4	0	0			
Launch "A.H.B." one trips to Quarries & towing at St. George's Bay 5 hrs.	7/6	1	17	6			
Rental of Quarries			7	3	12	10	9
Compressor Plant—Labour running plant		2	1	6¾			
,, ,, Stores used; coal, oil, etc.		2	1	10½	4	3	5¼
Interest and Depreciation—18½ % per annum on compressor plant £1132-16-6		4	0	8			
,, ,, 25 % per annum on 4 scows, 1 punt, and moorings £1400		6	14	7			
,, ,, 100 % per annum maintenance charges on £289 repairing and slipping scows		5	11	2			
,, ,, 50 % per annum on jetties, sheds, cranes, boxes, etc. £1115-5-0 ...		10	14	6	27	0	11
Total Cost ...					£184	4	1¼

Therefore Average Cost of handling 713 c. yds. = 5/2 (s. d.) per c. yd.

A Broadbent. Inspector in Charge. 27th May 1915

19152

Auckland Harbour Board.

~~WESTERN BREAKWATER.~~

STONE FROM RANGITOTO QUARRIES, Week Ending, 1st June 1915

Quantity of Stone deposited at ~~Freeman's Bay~~ Ak. Docks Reclmn. *on Site of* ~~Breakwater~~ Retaining Wall, 705 *c. Yards.*

NOTE. Also 55 cu. yds. to embankment St. George's Bay Reclmn.

	Rate.	£	s.	d.	Totals.		
Labour at No. 1 Quarry—Drilling, quarrying, etc.		60	15	8¾			
,, ,, Loading on to scows		8	10	9½	69	6	6¼
Labour at No. 2 Quarry—Drilling, quarrying, etc.							
,, ,, Loading on to scows							
Labour on Scows—Men loading, unloading, and working scows					13	0	0
Towing Scows—Scows loaded ( )							
,, ,, Scows empty ( )...							
,, ,, 2 trips ~~Scows~~ loaded (single)	70/-	7	0	0			
,, ,, Scows empty ( )...							
,, ,, Bonus to crew of "Te Awhina" on loaded scows ...							
,, ,, Tows by s.s. "Firefloat," ½ days	6/-/-	3	0	0			
Handling on Breakwater—Labour and supervision, dumping stone ...	8/6	6	11	9	16	11	9
,, ,, Units of current and stores							
,, ,, 100 % per annum maintenance for repairs to crane							
Foreman Bridge 1 @ 3. 6 days	3/12/7	21	15	6			
Labour assisting to handle boxes.		2	1	0¾	23	16	6¾
Stores, etc., used at Quarries—Oil and waste for Cranes			4	6			
,, ,, Cases of kerosene, = gals.							
,, ,, 2½ Cases of gelignite with detonators and fuse		6	17	0			
,, ,, 2½ Tons of coal for cranes and forges, say ...		3	8	0			
,, ,, 6 Tuns of water from "Te Awhina" ...	4/-	1	4	0			
,, ,, Timber, bolts, etc., for repairing boxes, say		8	0	0			
launch "A.H.B" one trip to Quarries & towing at St. Georges Bay 6 hrs.	7/6	2	5	0			
Rental of Quarries			7	3	22	5	9
Compressor Plant—Labour running plant		1	19	8¼			
,, ,, Stores used; coal, oil, etc.		2	3	10½	4	3	6¾
Interest and Depreciation—18½ % per annum on compressor plant £1132-16-6		4	0	8			
,, ,, 25 % per annum on 4 scows, 1 punt, and moorings £1400		6	14	7			
,, ,, 100 % per annum maintenance charges on repairing and slipping scows £289		5	11	2			
,, ,, 50 % per annum on jetties, sheds, cranes, boxes, etc. £1115-5-0 ...		10	14	6	27	0	11
Total Cost ...					£176	5	0¾

Therefore Average Cost of handling 760 c. yds. = s. 4 d. 7¾ per c. yd.

A Broadbent. Inspector in Charge. 2nd June 1915

19152

Auckland Harbour Board.

WESTERN BREAKWATER.

STONE FROM RANGITOTO QUARRIES, Week Ending, 8th June *1915*

Quantity of Stone deposited at ~~Freeman's~~ St. George's *Bay, on Site of* ~~Breakwater~~ embankment, 171 *c. Yards.*

NOTE.

	Rate.	£	s.	d.	Totals.		
Labour at No. 1 Quarry—Drilling, quarrying, etc.		15	7	4			
,, ,, Loading on to scows		2	14	1½	18	1	5½
Labour at No. 2 Quarry—Drilling, quarrying, etc.							
,, ,, Loading on to scows							
Labour on Scows—Men loading, unloading, and working scows					3	2	5½
Towing Scows—Scows loaded ( )							
,, ,, Scows empty ( )							
,, ,, Scows loaded (double)	35/-	3	10	0	✓		
,, ,, Scows empty (double)	25/-	2	10	0	✓		
,, ,, Bonus to crew of "Te Awhina" on loaded scows ...							
,, ,, Tows by s.s. "Firefloat," ½ days	6/-/-	3	0	0	✓		
1 tow by launch "Jumbo" 4 hrs.	5/6	1	14	0	✓	10	14
Handling on Breakwater—Labour and supervision, dumping stone ...							
,, ,, Units of current and stores							
,, ,, 100 % per annum maintenance for repairs to crane							
Foreman Dredger No 2 . 1 day	3/12/7	3	12	7	✓		
labour assisting to unload stone			9	6¾		4	2
Stores, etc., used at Quarries—Oil and waste for Cranes			2	0			
,, ,, Cases of kerosene, = gals.							
,, ,, ¾ Cases of gelignite with detonators and fuse		2	0	0			
,, ,, ½ Tons of coal for cranes and forges, say ...			15	0			
,, ,, Tuns of water from "Te Awhina" ...							
,, ,, Timber, bolts, etc., for repairing boxes, say		1	10	0			
launch "A.H.B." one trips to Quarries & towing at St. George's Bay 3½ hrs.	7/6	1	6	3	✓		
Rental of Quarries			7	3	✓	6	0
Compressor Plant—Labour running plant							
,, ,, Stores used; coal, oil, etc.							
Interest and Depreciation—18½ % per annum on compressor plant £1132:16:6 for 1 day		4	0	8	✓		
,, ,, 25 % per annum on 4 scows, 1 punt, and moorings £1400 for 1 day		1	2	6	✓		
,, ,, 100 % per annum maintenance charges on £289 for 1 day			18	6	✓		
,, ,, repairing and slipping scows							
,, ,, 50 % per annum on jetties, sheds, cranes, boxes, etc. £1115:15:0 for 2 days ...		3	11	6	✓	9	13
Total Cost ...						£ 51	13

Therefore Average Cost of handling 171 c. yds. = 6/0½ s. d. per c. yd. ✓

A Broadbent. Inspector in Charge. 14th June 1915

19152

Auckland Harbour Board.

MEMORANDUM.

FROM E.A. Broadbent. To THE ENGINEER.

5th March 1917

120

94591

Cost of Board's portion of 40 ft. Road.
Length 150 ft.

	£.	s.	d.	Totals. £	s.	d.
Drain, 77 ft. & one leesspit.						
Labour, ordinary, excavating, laying pipes &c.	26	2	10			
" 10% War bonus	2	12	0			
Supervising	1	10	5			
Carting timber &c.		10	3			
Materials, pipes, cement, shingle &c	16	3	0			
				46	18	6
Spawls, for foundation.						
Material, 145 c. yds. spawls @ 4/-	29	0	0			
Labour, ordinary, laying spawls	8	10	6			
" 10% War bonus		16	9			
Supervising		11	6			
Use of gear & tools		3	6			
				39	2	3
Scoria Blinding.						
Material, abt. 65 c. yds. scoria @ say 4/-	13	0	0*			
Labour, ordinary, spreading blinding &c.	5	1	6			
" 10% War bonus		10	0			
Supervision		9	2			
Carting	3	15	0			
Use of gear & tools		2	0			
				22	17	8
Carried Forward				£108	18	5

Forward

* This material was supplied by the Railway Department, and is not included in my report of the cost of the whole road.

Auckland Harbour Board.

2.

MEMORANDUM.

FROM C A Broadbent To THE ENGINEER.

5th March 1917

94591

Cost of Board's portion of 40ft. Road. (contd.)

	£	s.	d.	Totals. £	s.	d.
Brought Forward				108	18	5
Kerbing & Pitchers, 143 lin. ft. @ 3/8 per Kerbing 18/ per Pitchers	23	16	8			
Materials, shingle, cement &c.	8	15	7			
Labour, ordinary, laying &c.	4	0	9			
" War bonus		7	6			
Supervising		9	2			
				23	16	8
				13	13	0
Metal & Spreading.						
Material, 80 c. yds. metal @ 8/5	33	13	4			
Labour, ordinary, spreading	1	15	2			
" War bonus		3	4			
Supervising		3	8			
				35	15	6
Shell Blinding (on Road)						
Labour, ordinary, filling carts & spreading	7	5	2			
" 10% War bonus		14	6			
Supervising		4	9			
Carting shell from Reclamation	3	17	8			
Use of gear & tools		2	0			
				12	4	1
Shell on Footpath						
Labour, ordinary, filling carts & spreading	3	13	6			
" 10% War bonus		7	3			
Supervising		4	6			
Carting from Reclamation	2	5	0			
				6	10	3
Rolling foundation & Metal together.						
Road roller for 1 day	3	3	9	3	3	9
Total Cost				~~£180 5 0~~ £ 204 1 8		

Labour 65. 13. 11
Material 138. 4. 9
£ 204. 1. 8

Letter to Secretary

180 5 0
23 16 8
£ 204 1 8

Auckland Harbour Board.

3.

MEMORANDUM.

FROM C.A. Broadbent. To THE ENGINEER.

5th March 1917

94592

Cost of Board's Portion of 46ft. Road. (contd.)

Note. † There is no cost for trimming this area to formation level as this work was carried out eight or nine months ago, and charged to the Board.

Also this cost does not include kerbing or pitchers, thus if these have already been charged to the Railway Dept. there is a further credit to be added for 143 lin. ft. of kerbing & pitchers at the price charged per lin. ft. (viz. abt. 2/8 for kerbing & 8d for pitchers)

C.A. Broadbent. 23.16.8

(Copy in Cost of Works)

Auckland Harbour Board.

MEMORANDUM.

FROM A Broadbent

To THE ENGINEER.

29th October 1915

94591

Cost of Removing Bluestone Facing from St. George's Bay & Relaying same on New Embankment.

(From commencement of work to 19th Oct. 1915)

not granted

Lifting and transporting to new embankment

Interest & depreciation on Plant in use

1 coal punt 40'x16'x8', value £116
1 small " 30'x11-6"x8' " £25
} £141 @ 15% per ann. for 23 weeks = £9.7.1

Scow "Kauri", value including derrick, boiler & winch say £500 @ 15% per annum for 6 weeks = £8.13.0

Total £18.0.1

Labour &c. lifting & transporting by punts & "Kauri" £171.10.2½
Labour fitting up derrick, boiler &c. on "Kauri" 19.1.7
Gear, tools, stores &c. about 3.0.0
Launch towing punts say 5.0.0
Interest and depreciation on plant 18.0.1
Total cost of lifting &c. £216.11.10½

Area lifted and removed to new embankment 3300 sq. yds.

∴ cost = 1/3¾ per sq. yd.

See final report attached 14/3/16 includes this

Re-Laying on new embankment

Labour laying &c. £243.11.8¼
Gear, tools, stores &c. about 7.0.0
Total cost £250.11.8¼

Area of facing layed 1000 sq. yds.

∴ cost = 5/0⅛ per sq. yd.

∴ Total cost of lifting and laying = 6/3⅜ per sq. yd.

A Broadbent.

720

Auckland Harbour Board.

MEMORANDUM.

FROM A. Broadbent. To THE ENGINEER. 14th March 1916

94591

Cost of Lifting and Transporting Bluestone Facing from old frontage St. George's Bay to New Embankment.
(Stone from frontage of King's Drive and east side of Mechanic's Bay Reclamation)

FINAL REPORT.

Work commenced 3rd May 1915.
" completed 24th February 1916.

Plant in use

1 coal punt 40'x16'x2'	value	£116.0.0
1 punt 30'x12.6"x2'	"	25.0.0
		£141.0.0

Interest & depreciation @ 15% per ann. on £141.0.0 for 6 months = £10.11.6

Scow "Kauri" value say £500 including derrick, boiler and winch for 2 months @ 15% per annum = £12.10.0

£23.1.6

Summary of Costs.

Labour lifting stone & transporting by punts &c.	£209.18.6½
Gear, tools, stores &c. about	6.0.0
Interest and depreciation on plant	23.1.6
Launches towing punts &c. about	7.0.0
Labour &c. fitting up derrick, boiler &c. on "Kauri"	19.1.7
Total cost	£265.1.7½

Area of facing lifted and removed to new embankment
3825 square yards.

∴ cost of shifting facing = s. 1 | d. 4 5/8 per sq. yd.

? Not relaying

A. Broadbent.

Auckland Harbour Board.

MEMORANDUM.

FROM A Broadbent

To THE ENGINEER.

17th March 1916

94591

Cost of Lifting Bluestone Facing.

Sir,

I beg to report, with reference to instruction No 10343 that the causes of the cost of lifting stone at Mechanic's Bay Reclmn. being higher than the cost of the same work at St. George's Bay Reclmn. were as follows:—

(1) There was more expensive plant employed on the Mechanic's Bay Reclmn. chiefly the "Scow Rover" @ £1-0-0 per day, which amounted to £134-0-0 for this work. If this be deducted from the cost of the Mechanic's Bay work, viz. £917-0-0 the cost, taking the area of facing removed as 7180 sq.yds. (actual area) then equals 2/2⅛ per sq.yd.

(2) The stone at Mechanic's Bay was placed on the bank in the position it was required for laying, and the men charged as lifting stone would possibly give some slight assistance in getting it into place on the bank.

On the other hand the St. George's Bay stone was merely dumped in one place outside the line of the embankment, and had to be picked up again and taken to the bank as required; this further transport being charged to the cost of laying.

(3) The stones removed from Mechanic's Bay were larger than those at St. George's Bay and consequently took longer to handle.

Thus while the Mechanic's Bay stone had to be picked up by means of a crane, the St. George's Bay stone was easily rolled aboard the punts by hand.

(4) Some of the stone at Mechanic's Bay had to be conveyed a slightly longer distance than the stone at St. George's Bay.

Auckland Harbour Board.

MEMORANDUM.

FROM L.A. Broadbent. To THE ENGINEER. 17th March 1916

94592

Cost of Lifting Bluestone Facing (contd.)

Also when the cost of the St. George's Bay work was quoted, viz. 1/3¾ per sq. yd. the work was not finished, and the last part of the work including removing coping stones by carts being more costly brings the average up to 1/4⅝ per sq. yd.

Thus the Mechanic's Bay price is only 57% greater than the St. George's Bay price.

L.A. Broadbent.

720

Jno. Lubbe's report on cost of

5-ft Acoular Storm water

Sewer, St. Georges Bay Reclamation

placed in Engrs file 116

Auckland Harbour Board.

MEMORANDUM.

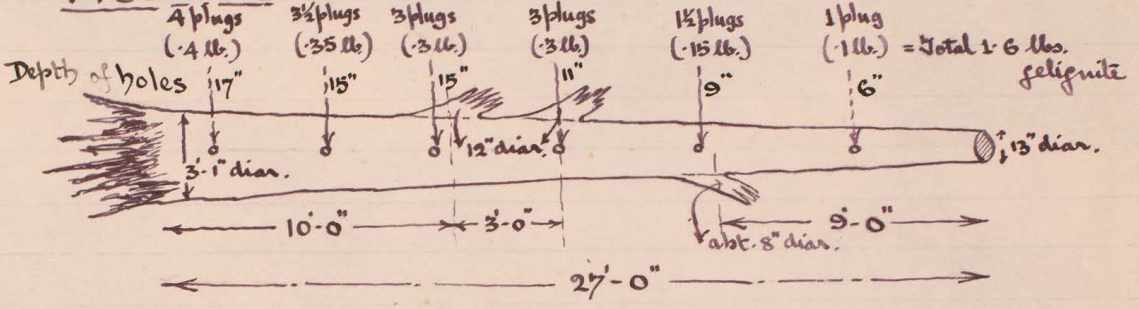
FROM C A Broadbent. To THE ENGINEER.

3rd February 1916

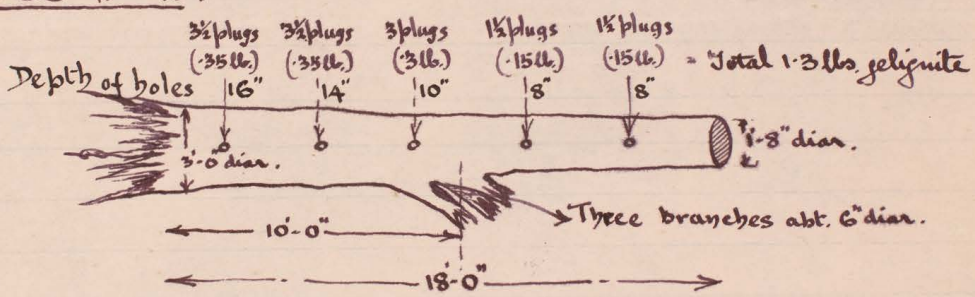
94591

Blasting Macrocapa Trees on Campbell's Point.

Tree No. 1.



Tree No. 2.



Sketch of Trees

Scale roughly 5 ft. to 1 inch.

Tree No. 1 was blown in half down the centre, and tree No. 2 was split into two large pieces and two smaller pieces.

All the charges in each tree were detonated simultaneously by means of an electric battery.

C A Broadbent.

Auckland Harbour Board.

MEMORANDUM.

FROM A Broadbent. To THE ENGINEER. 3rd February 1913

94591

Blasting Macrocarpa Trees on Campbell's Point. (contd.)

Cost.

No. 1 Tree.

	s. d.	s. d.
1 man 3 hours boring holes @ 1/1½ per hr.	3. 4½	
1 " 3/8 hr. charging " @ 1/2½ " "	.5½	
Total cost of labour		3. 10
1.6 lbs. gelignite @ 1/3 per lb.	2. 0	
6 electric detonators @ 1/4/4½ per 100	1. 5½	
Total cost of explosives		3. 5½
Total cost of work		7. 3½

No. 2 Tree.

	s. d.	s. d.
1 man 2¾ hours boring holes @ 1/1½ per hr.	3. 1¼	
1 " 3/8 hour charging " @ 1/2½ " "	.5½	
Total cost of labour		3. 6¾
1.3 lbs. gelignite @ 1/3 per lb.	1. 7½	
5 electric detonators @ 1/4/4½ per 100	1. 2¾	
Total cost of explosives		2. 10¼
Total cost of work		6. 5

Thus total cost of blasting two trees of total length 45 lineal feet is s. d. 13. 8½.

A Broadbent.

Auckland Harbour Board.

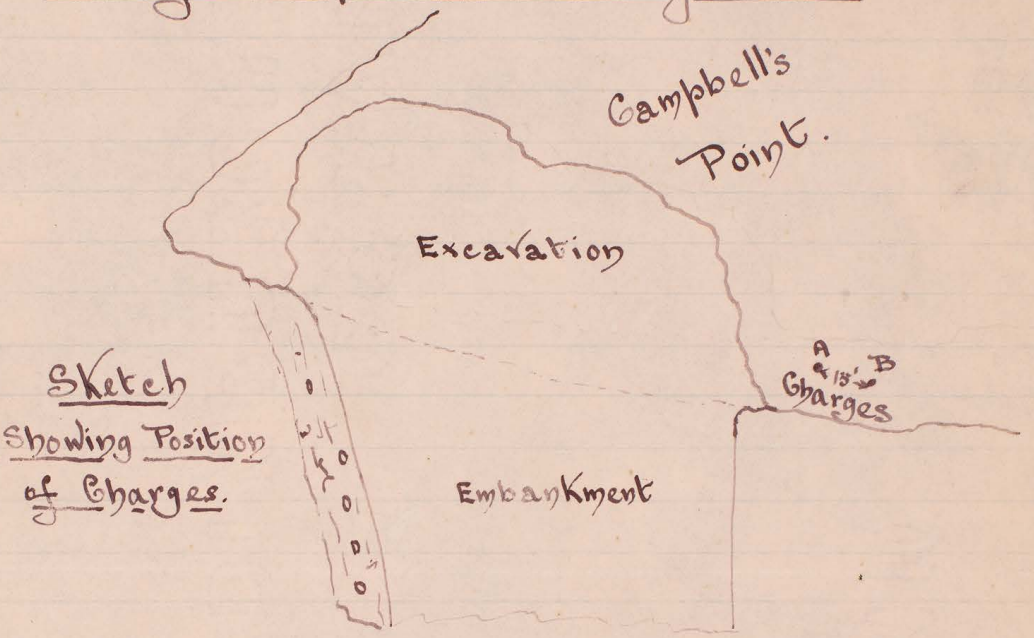
MEMORANDUM.

FROM C.A. Broadbent. To THE ENGINEER.

2nd ~~May~~ June 1916

94591

Blasting at Campbell's Point on 2nd June 1916.



Sketch Showing Position of Charges.

Charge A . 20 ft. depth . 19 ft. burden . 100 lbs. gunpowder } fired
" B 20 ft. " 21 ft. " 125 lbs. " } simultaneously

Cost.

Labour, boring 2 men 7¼ hours		17·6
" charging 2 " 1¼ "		2·11
Total cost of labour		£1·0·5
5 lbs. gelignite (for bulling) @ 1/5		7·1
225 lbs. gunpowder (blasting charge)	{50 lbs. @ 6⅝ / 175 " @ 10½ less 2½%}	8·16·11
Total cost of explosives		£9·4·0

Total cost of preparing charge and explosives used £10·4·5

Quantity of material displaced and loosened 1000 cub. yds. (approx.)

∴ Material displaced per lb. of powder = 4·44 cub. yds.

Cost of labour, boring & charging = ¼ per cub. yd.

" " explosives used = 2¼ " " "

∴ Total cost of blasting = 2½ per cub. yd.

C.A. Broadbent.

AUCKLAND HARBOUR BOARD.

Memorandum.

No 24568

From.. INSPECTOR at Quay St. Extn.

To THE ENGINEER

15th January 1917

Timber used in construction of Drains

I beg to report that the following are particulars of timber used for the above work:—

Issued to S.S. Bay Roc. (Quay St Extension)

From North Wall, 10300 sup. ft. 9"x2½"&9"x4" Kauri @ 12/6 = £64.7.6 ✓ second hand

" Central Wf. 1500 " " 6"x1" Kahikatea @ 9/- = £6.15.0 ✓

11800 = 73/15/0. Journal folio 163. Total Value £75.12.6 ✓

Returned to N. Wall 7000 sup ft. 9"x2½"&9"x4" second hand Kauri @ 7/6 = £28.10.0 ✓

" Central Wf. 1100 sup. ft. 6"x1" Kahikatea @ 6/- = £3.6.0 ✓

Journal folio 163 Value of returned timber = £31.16.0 ✓

Thus cost to be debited to Railway Dept. is £75.12.6 minus £31.16.0 = £43.16.6

Signature A. Broadbent.

23274

Auckland Harbour Board.

MEMORANDUM.

FROM L.A. Broadbent. St. George's Bay Reclmn.

To THE ENGINEER.

1st August 1916

94591

Report showing increased cost of excavating Sandstone due to wet weather.

Average during six months of summer, October 1915 to March 1916 was 1/4 7/8 per cubic yard.

Average cost of excavating, tipping &c. during period material has been put between 40 ft. roadway and Campbell's Point was 1/10½ per cub. yd.

Increase in cost due to 10% War Bonus = 1·4 per cub. yd. (average)
" " " " " extra men having to be placed at tip-head, as there are now seven lines, instead of two lines as when tipping on embkt. = 1·5 " " " "
Total increased cost = 2·9 per cub. yd.,
due to above mentioned reasons.

Thus increase in cost due to adverse weather conditions, rain &c. = 1/10½ - 1/4 7/8 - 2·9 = 2¾ per cub. yd. (nearly)

Also from March 20th to June 20th, 1916 the average cost of deposited material was 1/8¾ per cub. yd.
But during that period considerable extra work was done, removing blacksmith's shop, change shed, taking up disused rails, repairing trucks &c. This extra work increased the cost by 5/8 per cub. yd.

Thus increase in cost of material during this period due to wet weather &c. = 1/8¾ - 1/4 7/8 - 5/8 = 3¼ per cub. yd.

During latter period 20th March to 20th June nearly 20% of the days were wet or showery, thus leaving the ground in a bad condition to work during at least ⅓ of the time.

L.A. Broadbent.

AUCKLAND HARBOUR BOARD

Memorandum.

No 23170

720

From A.

INSPECTOR at St. Heliers Bay Reclam. (Railway Dept.)

To THE ENGINEER

25th July 191[illegible]

I beg to report that Stone from Messrs W. R. Brodes & Co's Quarry at Mt Eden. Mr Jennnell has visited this quarry and finds that the stone would have to be quarried, which would cost at least 2/3 per cub. yd.

Then under favourable conditions the carting of the stone to this reclamation would cost a further 2/2 per cub. yd. thus bringing the total cost of the stone to 5/5 per cub. yd.

Also very great care would have to be taken with the blasting as there are houses in the close vacinity to the quarry.

Hegh

Signature [signature]

23271

July 26th 16.

Messrs W.R.Crookes & Co,
Quarrymen,
Mt. Eden.

Dear Sirs,

STONE.

My quarry foreman has inspected your quarry regarding the offer you made re our having your stone for the getting and carting of it, and I have to say that it would cost us very much more than I can get stone delivered, or we can obtain it from our quarry at Rangitoto, and I must therefore decline the offer which you were kind enough to make.

Yours truly,

ENGINEER TO THE BOARD.

AUCKLAND HARBOUR BOARD. No 20292

Memorandum.

From INSPECTOR at Supt of Dredging

To THE ENGINEER

Aug 31 1916

Inst. No 10830

I beg to report that

(a) 2 Weeks S. Dredge "No 2" (approx 25000 6 yds) = £240/

(B) Pt No 4 lifting pipes off Wall & Recl
Say 6 days @ 4/3/7 = 24/15/6
2 Mud pumps 6 days each carrying pipes &c
@ 18/6 per day = 17/2/-
6 Men 6 days each Breaking up line &c = 18/-/-
Transport drawing piles &c 3 days @ 4/-/- = 12/-/-

£71 12

(C) ~~Say~~ 2 days @ £30

(d) Lorage &c £20

Total £361-15-6

Signature J.H. Derrau

AUCKLAND HARBOUR BOARD

Memorandum.

No 23119

From ..

INSPECTOR at St. George's Bay Reclam.

To THE ENGINEER

6th June 1916

Notice Boards.

I beg to report re. notice boards that those mentioned in instruction No 10577 were erected on the works on the 2nd inst. & that a further 8 notice boards warning people to keep off the mud have been procured & erected all round the Reclam. The board partly covered with water has been raised to above the formation level.

There are now in position 15 notice boards about keeping off the mud, 3 notice boards about explosives being used, danger etc. 3 notice boards - Danger, absolutely no admittance, and 3 boards - No road, cliff dangerous etc.

Signature J A Bradbert.

23271

AUCKLAND HARBOUR BOARD

Memorandum.

No 23103

From INSPECTOR at St George's Bay Reclamn

To THE ENGINEER

25th May 1916

Leak sprung by Scow "Kauri" 24th May:-

I beg to report that it has been found necessary to unload the shingle from the Scow "Kauri" and place it on the west side of the Parnell Wlf. as the Scow sprung a leak sometime early yesterday morning and it was found impossible to get the water down by pumping her.

The men were only able to keep the water at the same level, and it was thus impossible to get inside her to locate the leak.

Mr Gemmell has now finished with the "Kauri" and has sent her to the Slipway.

Signature A Burdekin

23274

AUCKLAND HARBOUR BOARD

Memorandum.

No 23081

From .. INSPECTOR at St. George's Bay, Penrhyn. (Railway Engl.)

To THE ENGINEER

5th May 1916

I beg to report that about 40% of the total number of men engaged on the excavation works at Jamphells Point run a risk of accidents equal to the risk taken by quarrymen.

This 40% consists of the men boring and blasting and those engaged in breaking down material on the face of the cliff, and is a fairly average figure over the whole period that the works have been in progress.

Signature A Broadbent

23274

720

AUCKLAND HARBOUR BOARD

Memorandum.

No 23082

From .. INSPECTOR at

To THE ENGINEER

10th May 1918

Punt load of stone lying near Hobson St. Workshops.

I beg to report that re. instruction No 10497 that the punt load of stone at present laying near the Hobson St. Workshops will be required for completing the stone facing at the Retaining Wall erected across the entrance to the old Auckland Dock.

Signature [illegible]

23271

AUCKLAND HARBOUR BOARD. No. 13743

Memorandum.

From ... INSPECTOR at St Georges Bay Road

9th May 1916

To The Engineer. Auckland Harbour Board.

Sir,

I beg to report that In reply to instruction of 10504. Beg to state that the old Parnell Sewer connects and passes through the new 6' Culvert and will do so till pumping is finished when it will be possible to close the outlet and divert the whole of the flow through the 6' Culvert. at present the water mingle and it is impossible for the sewage to pass through either sewer

Please issue instructions.

Yours truly,

W Hunter

2958

130

AUCKLAND HARBOUR BOARD

Memorandum.

No. 23084

From.. INSPECTOR at ~~St. George's Bay Reclm.~~ (Railway Dept.)

To THE ENGINEER

10th May 1916

I beg to report that Mr Gemmell requests me to ask you to grant permission for the men on these works to start work after lunch time at 12-40 p.m. instead of 1 p.m. as at present as on account of the days drawing in shots often have to be fired when it is almost dark, also the men on the Suction Dredge pipes are sometimes required to work overtime and have not sufficient light to carry out the work. The men to cease work at 4-40 p.m.

Approved
W.H.
11/5/16
105376

Signature E A Bradbent

23274

AUCKLAND HARBOUR BOARD.

No. 22288

Memorandum.

From .. Monthly Report.
~~INSPECTOR~~ at
Supt of Dredging

To May 1st 1916
~~THE ENGINEER~~
Mr Posey

ST. GEORGE'S BAY RECLAMATION
(RAILWAY DEPT.)

I beg to report that For Month of April. 1916.

Please charge St Geo Bay Reclam. (Ry Dept)
with 100½ punt loads from Pr "No 3"
5424 cubic yds.

& credit: –

Berths Albert Whf	41 punts	3834 c yds	
Barge Water Whf	25½ "	1344 "	
Craig's Whf	4	216	"
	100½	5424	@/6

£140.4.06.

Journal folio 1469

J.H. Verran

Signature

23274

AUCKLAND HARBOUR BOARD.

No. 22324

Memorandum.

From .. Monthly Report. INSPECTOR at Supt of Dredging

To THE ENGINEER Jas Povey

June 1st 1916

ST. GEORGE'S BAY RECLAMATION. (RAILWAY DEPT.)

I beg to report that For month of May 1916.

Please charge St Geo Bay Reclam (Rly Dept)
with 146½ punt loads from Pearlman "No 3"
2511 cubic yds.

Credit :-

Craig's Whf.	4 punts	= 216 c yds	
Hugg's Whf. N.	23½ "	= 1269 "	
" " S	18	= 972 "	
Albert Whf.	1	= 54 "	
		2511 "	

£/6 = £188/6/6

Signature J. H. Pearman

Journal folio 151.

23274

AUCKLAND HARBOUR BOARD.

No. 22358

Memorandum.

Monthly Report
INSPECTOR at Supt of Dredging

To THE ENGINEER
Mr Povey

July 3rd 1916

ST. GEORGE'S BAY RECLAMATION.
(RAILWAY DEPT.)

I beg to report that

Please charge St Geo Bay with
40 punts from Priestman No 3
= 2160 cubic yds.

Details

					£ . s . d
Berths Albert Whf	15 punts	= 810	cubic yds	=	60 . 15 . 0
Hobson Whf	25 "	1350	"		101 . 5 . 0
		2160	" 1/6 cub yd =		£ 162 . 0 . 0

Journal folio 153.

& credit respective berths.

Signature J. H. Vernon

23274

AUCKLAND HARBOUR BOARD.

No. 24057

Memorandum.

Monthly Report

INSPECTOR at Supt of Dredging

To THE ENGINEER

Oct. 2nd 1916

Mr. Powell.

ST. GEORGE'S BAY RECLAMATION. (RAILWAY DEPT.)

I beg to report that Please charge St Geo Bay. Ry Dept. with.

file 720

Have charged Rly Dept with Dressor for Mar.

~~19~~ Punt Loads = ~~1006~~ cyds from Pr No 3. fr Mech Bay. Boat Sheds. △

~~18~~ do 972 @ 1/6 £72.18.0 ~~4~~ · Albert Wf.

~~1,998 6 yds @ 1/6 = £ 149.17.0.~~

9 Credit as usual.

Journal folio 158.

Signature J.H. Vernon

23274

Auckland Harbour Board.

MEMORANDUM.

FROM C.A. Broadbent. To THE ENGINEER.

5th February 1916

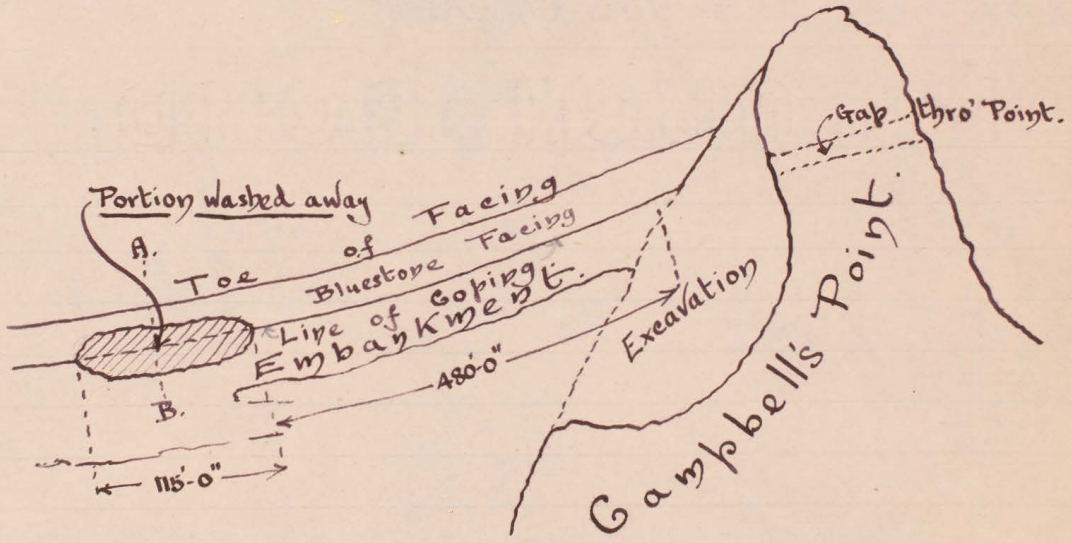
94591

Wash-out on Embankment at St. George's Bay Reclmn.

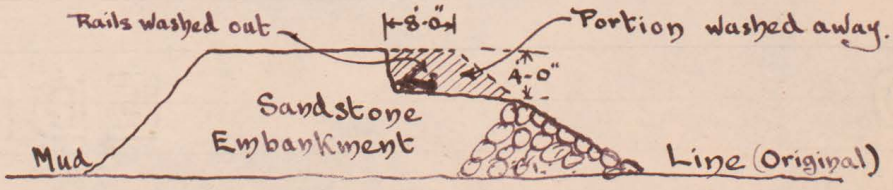
Sir,

I beg to report that during yesterday morning owing to a very heavy sea caused by the strong North-easterly gale a portion of the embankment where the facing has not yet been layed was washed away.

The following sketches show the position and extent of the damage done.



Sketch showing portion of Embankment washed away.



Section on A.B.

C.A. Broadbent.

Auckland Harbour Board.

MEMORANDUM.

FROM A.Broadbent. To THE ENGINEER.

26th January 1916

94591

Sandstone Filling to Allotments Nos 9, 10, 11 & 12 at St. George's Bay Reclamation.

(Filling from Messrs Brevatt's job at South-west corner of Campbell's Point)

Commenced tipping on Allotments 14th December 1915.
Finished tipping 17th January 1916.

Amount tipped 1404 cubic yards.

Cost.

Teams of drays carting material	£39.11.9
Spreading material on allotments, labour	7.8.9
Total cost	£47.0.6

∴ cost per cub. yds. of carting = 6.77d
" " " " spreading = 1.26d
∴ Total cost of handling = 8.03d per cub. yd.

Note. There was also 634 cubic yards. from the same source tipped in the Railway Departments Reclamation area, for which the cost was as follows:-

Cartage of material	£13.13.2 Chd to Rly Dept
Spreading material	3.12.0 do
Total cost	£17.5.2

Commenced tipping 8th Dec. 1915.
Finished " 14th Dec. 1915.

A.Broadbent.

Auckland Harbour Board.

MEMORANDUM.

FROM E A Broadbent

To THE ENGINEER.

19th August 1915

94591

Cost of Excavating from Campbell's Point and Tipping in Site of Embankment at St. George's Bay Reclamation.

(Working with Shoots)

For 21st July 1915.

This report gives a very fair example of average costs of working when three shoots were in opperation at the face for delivering the material into the trucks.

Cost of all labour & teams

2 men engaged in blasting opperations	£1. 3. 1¼
18 " breaking material down into shoots to fill trucks	8. 13. 5
5 drivers and 5 horses trucking material	4. 6. 5¼
4 men attending to tipping of trucks	1. 18. 11¼
1 man laying rails	9. 6¾
1 blacksmith sharpening tools	10. 7½
Supervision of work	1. 3. 4
Night watchman	8. 8
∴ Total cost of labour & teams	£18. 14. 1½

Cost of Materials &c.

Explosives about	£2. 5. 0
Gear, tools and stores say	17. 6
Interest and depreciation on plant	5. 4
Total cost of materials	3. 7. 10
∴ Total cost of shifting material	£22. 1. 11½

Amount of sandstone excavated and trucked a distance of about 900 feet, 352 cubic yards.

Amount of material broken down shoots (by 18 men actually engaged on that work) per man per diem of 8½ hours = 19½ cubic yards.

Auckland Harbour Board.

MEMORANDUM.

FROM J.A. Broadbent. To THE ENGINEER. 19th August 1915

94591

Cost of Excavation at Campbell's Point (contd.)

Labour and Teams.

∴ Cost of blasting (labour)	=	0.79	per cubic yard
" " breaking down into trucks	=	5.91	" " "
" " transporting by trucks	=	2.95	" " "
" " tipping trucks	=	1.33	" " "
∴ Cost of labour without any extras	=	10.98	" " "
Added cost for men laying rails	=	.32	" " "
" " " sharpening tools	=	.36	" " "
" " " Supervising	=	.80	" " "
" " " Night watchman	=	.29	" " "
∴ Total cost of labour & teams	=	1.0.75	" " "

Materials &c.

∴ Cost of explosives	=	1.53	per cubic yard
" " gear, tools & stores	=	.60	" " "
" " interest & depreciation	=	.19	" " "
∴ Total cost of materials &c.	=	2.32	" " "

∴ Total cost of excavating material and tipping in site of embankment = 1.3.07 per cubic yard.

J.A. Broadbent.

Auckland Harbour Board.

MEMORANDUM.

FROM A Broadbent

To THE ENGINEER.

1st April 1915

94597

£720

Cost of Excavation from Campbell's Point and Tipping in site of Embankment at Reclamation St. George's Bay.

For 31st March 1915

Cost of all labour & teams only

2	men engaged in blasting operations &c.	£1. 3. 1¾
14	" breaking up sandstone & filling trucks	7. 6. 5
3	" attending to tipping of trucks	1. 10. 6¼
1	man and horse pulling trucks	17. 0
2	men laying out crossing	19. 10
1	blacksmith sharpening tools	10. 7½
	Supervising work	1. 3. 4
	Total cost for day	£13. 10. 10½

Amount of material excavated and tipped 210 cu. yds.

Distance trucked 190 feet.

∴ cost of blasting	=	1⅜	per cu. yd.
" " filling trucks	=	8⅜	" " "
" " transporting trucks	=	1	" " "
" " tipping "	=	1⅝	" " "
∴ Actual cost of handling	=	1. 0⅜	" " "

Additional costs

cost of laying out crossings	=	1⅛	per cu. yd.
" - smith sharpening tools	=	⅝	" " "
" - supervising	=	1⅜	" " "
∴ Total additional costs		3⅛	" " "

Auckland Harbour Board.

MEMORANDUM.

FROM A. Broadbent. To THE ENGINEER.

1st April 1915

94592

Sandstone from Campbell's Point (contd.)

∴ Total cost of labour handling material = 1/3½ per cu. yd.

Amount broken and filled into trucks per man per diem of 8½ hours = 15 cubic yards.

Note. These costs do not include any allowance for explosives, gear or ~~tool~~ stores used, or interest and depreciation on plant.

A. Broadbent.