COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

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RECORDS:

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BEACH SANDS INVESTIGATION AT BURLEIGH AREA.

BY

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Bureau of Mineral Resources, Geology and Geophysics.

Report No. 1949/69 (Geol. Ser. 50).

Plan No. 025-10C-8.

BEACH SANDS INVESTIGATION.

THE NORTH BURLEIGH AREA, BETWEEN NORTH NOBBY AND SOUTH NOBBY.

Plans and sections of the area are included at the back of this report.

INTRODUCTION.

This area forms portion of a coastal sandy belt 1,500 to 2,000 feet wide, which extends from Main Beach, Southport, to South Nobby, North Burleigh; and is about 5 to 15 feet higher than the low-lying, in part swampy coastal plain adjoining it on the west. The Pacific Highway runs close to the western edge of the sandy belt. The known deposits, and probably all of the deposits of heavy minerals between Southport and North Burleigh occur either in the present sea beaches or in the eastern half of the narrow sandy belt.

The deposits of heavy minerals in portions of the sandy belt have been covered in the following Reports :-

Report No. 1948/35.
1948/52 (Geol. Ser. 19).
1948/61 (Geol. Ser. 24).
1949/71 (Geol. Ser. 52).
1949/66 (Geol. Ser. 47).
1949/67 (Geol. Ser. 48).
1949/69 (Geol. Ser. 50).

The area dealt with in this report adjoins on the north the area of Report No. 1949/67 (Geol. Ser. 48), and on the east the area of Report No. 1948/61 (Geol. Ser. 24).

LOCALITY.

The above area is situated approximately six and a half miles south of Southport, adjacent to and to the east of the Pacific Highway. West of the Highway the country rapidly becomes swampy.

FIELD WORK.

Boring and Sampling. Preliminary boring and sampling of the area was carried out in March, 1948, and the area completed in February, 1949. Bores were put down to water level using a post hole auger. When the sand brought up from a bore-hole appeared to contain appreciable quantities of heavy mineral it was sampled by quartering. Details of samples are given in Table A at the end of this report.

LABORATORY WORK.

Samples were dried and their weights and volumes were determined. The samples were then concentrated by means of a laboratory Wilfley Table, and the weights and volumes of the dry concentrates were determined. The percentage composition of a composite sample of the concentrates from each bore line was determined by grain counting. The quantities of heavy minerals in the samples, expressed as weight per cent and as "Lbs/Cu.Yd." (pounds weight of heavy mineral concentrate per cubic yard of sand) are given in Table A at the end of this report. The average percentage composition of the heavy mineral concentrate in the area, obtained from the percentage composition at each bore line, weighted for the quantity of mineral at the line, is given in Table 2.

RESULTS.

Distribution of Heavy Mineral: The plan accompanying this report shows that heavy mineral-bearing sand extends approximately 800 feet inland from the eastern boundary of the area. The deposit is interrupted by long narrow barren strips which appear to be parallel to the beach line. These barren strips have caused the subdivision of the area into blocks. From Table 1 it may be observed that the tonnage and grade is significantly greater to the west than to the east. This is rather an unusual case, as almost invariably the tonnage and grade is greater to the east,i.e. closer to the beach.

Quantities: Two separate estimates have been made (Tables 1 and 2) of the tonnages of heavy minerals, volumes and average thicknesses of mineral-bearing sands and of overburden, average grade of mineral-bearing sands and tonnages of each of the heavy minerals. The figures of Table 1/300 are based on a thickness of mineral-bearing sand in each borehole which has a minimum average grade of 300 lbs. of heavy mineral per cubic yard, while the figures of Table 1/120 are based on a minimum average grade of 120 lbs. per cubic yard. Quantities of overburden have been included with the mineral-bearing sands to obtain a maximum thickness of "working face" and a minimum thickness of overburden while still maintaining the desired grade.

Tonnages Available for Mining. All this area is divided into allotments, which are privately owned. Hence this area can be mined only by agreement with the owners.

D. E. GARDNER
Geologist in Charge.

SOUTHPORT, QUEENSLAND.

BLOCKS 1, 2 and 3. **Minimum Grade 300 lbs/cu.yd.**

TABLE 1. TONNAGES, VOLUMES, AVERAGE THICKNESSES AND AVERAGE GRADES.

LINES 1407S - 2317S.

BLOCK	AREA	WEIGHT OF HEAVY MINERAL CONCENTRATE.	VOLUME		AVERAGE THICKNESS		AVERAGE GRADE OF MINERAL BEARING SANDS.
			MINERAL-BEARING SANDS	OVER-BURDEN.	MINERAL-BEARING SANDS	OVER-BURDEN	
	SQ.YDS.	TONS.	CUBIC YDS.	CUBIC YDS	FEET	FEET	LBS.OF HEAVY MINERAL CONCENTRATE PER CUB.YD.
BLOCK I	13,192	456.2	3133.05	22747.1	- 8.5"	5' 1.3"	326.2
BLOCK II.	20,046	1012.0	6448.20	71004.2	- 11.6"	10' 7.5"	351.6
BLOCK III	8,786	749.1	5376.20	20110.2	1' 10.0"	6' 10.4"	312.1
TOTAL :-	42,024	2217.3	14957.45	113,861.5	1' 0.8"	8' 1.5"	332.1

BLOCKS 1 and 2. 120 lbs./cu.yd.

TABLE 1. PAGE 1. TONNAGES, VOLUMES, AVERAGE THICKNESSES AND AVERAGE GRADES.

BLOCK	AREA	WEIGHT OF HEAVY MINERAL CONCENTRATE.	VOLUME		AVERAGE THICKNESS		AVERAGE GRADE OF MINERAL BEARING SANDS.
			MINERAL-BEARING SANDS	OVER-BURDEN.	MINERAL-BEARING SANDS	OVER-BURDEN	
	SQ.YDS.	TONS.	CUBIC YDS.	CUBIC YDS	FEET	FEET	LBS. OF HEAVY MINERAL CONCENTRATE PER CUB.YD.
BLOCK I.	22,004	905.78	16239.33	40314.85	2' 2.6"	5' 6"	124.94
BLOCK II.	27,587	1885.71	31330.17	48565.10	3' 4.9"	5' 3.4"	134.82
TOTAL :-	49,591	2791.49	47569.50	88879.95	2' 10.5"	5' 4.5"	131.45

TABLE 3. 2.

TONNAGES OF EACH OF THE HEAVY MINERALS

ESTIMATED FROM PERCENTAGE COMPOSITIONS DETERMINED BY GRAIN COUNTING

AREA BETWEEN BORE LINES.	TONNAGES OF HEAVY MINERAL CONCENTRATES.	PERCENTAGE COMPOSITIONS & TONNAGES OF HEAVY MINERALS.											
		MONAZITE		ZIRCON		RUTILE		ILMENITE		GARNET		OTHER MINERALS	
		%	TONS	%	TONS	%	TONS	%	TONS	%	TONS	%	TONS
AVERAGE COMPOSITION.		0.7		40.2		32.1		25.4		0.8		0.8	
Tonnages :													
Min.Grade 300 lbs./cu.yd.	2218		15.5		892		712		563		17.7		17.7
Min.Grade 120 lbs./cu.yd.	2791		19.5		1122		896		709		22.3		22.3

APPENDIX. TABLE A. QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 14078.

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO. FIELD	SAMPLE NO. LABORATORY	DEPTH FROM	DEPTH TO	QUANTITY OF HEAVY MINERALS LBS.PER CU.YD.	QUANTITY OF HEAVY MINERALS WT.PER CENT	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 300	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 120	OVERBURDE 300	OVERBURDE 120
160W.	S.E. CORNER	1	L6542A	6'8"	6'9"	98.1	3.6				
203W.	OF		NO SAMPLE.								
243W.	BEACH AVENUE.	1	L6542	7'9"	8'9"	316.1	11.45	316.1	316.1	7'9"	6'3"
	EASTERN		Thickness		1'0"	316.1		316.1	316.1		
					2'6"	121.5					
306W.	FENCE	1	L6543	8'0"	8'3"	471.4	17.1	117.9	117.9		
	LINE		L6544	9'0"	9'3"	376.5	13.3	-	94.1		
			Thickness		0'4"	354		117.9		7'11"	7'6"
	IS				1'9"	121.1			212.0		
406W.	ADOPTED		NO SAMPLE.								
506W.	MERIDIAN.	1	L6545	5'6"	5'9"	553.3	19.9	138.3	138.3		
			Thickness		0'5"	329.3		138.3	138.3	5'4"	4'9"
					1'0"	138.3					
606W.		1	L6546	8'6"	9'0"	209.9	7.9	104.9	104.9		
		2	L6547	9'1"	9'3"	1840.5	52.8	306.7	306.7		
			Thickness		1'4"	120.4		411.6		7'11"	5'10"
					3'5"	308.8			411.6		
682W.		1	L6548	8'9"	9'0"	39.6	1.5				
700W.			NO SAMPLE.								
727W.			NO SAMPLE.								
760W.			NO SAMPLE.								

APPENDIX. TABLE A. QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 1607S.

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO. FIELD	SAMPLE NO. LABORATORY	DEPTH FROM	DEPTH TO	QUANTITY OF HEAVY MINERALS LBS.PER CU.YD.	QUANTITY OF HEAVY MINERALS WT.PER CENT	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 300	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 120	OVERBURDEN 300	OVERBURDEN 120
10W.	S.E. CORNER OF BEACH AVENUE. EASTERN FENCE LINE IS ADOPTED MERIDIAN.	1	L2672	5'0"	6'0"	42.7	1.9				
		2	L2673	15'0"	16'0"	25.0	1.0				
35W.		1	L6529	13'6"	13'10"	163.2	6.1	-	54.4		
			Thickness		5"	130.6		-	54.4		
59W.		1	L2674	2'0"	11'0"	40.7	1.5				
		2	L2675	11'0"	13'0"	363.7	12.8				
			Thickness		2'0"	363.1		726.2		11'0"	5'0"
					8'0"	121.3			970.6		
89W.		1	L6530	10'0"	10'9"	419.2	14.8	314.4	314.4		
		2	L6531	12'0"	12'2"	2415.0	63.6	402.5	402.5		
		3	L6532	12'2"	12'8"	1072.0	34.8	536.0	536.0		
			Thickness		4'0"	313.2		1252.9		8'8"	2'4"
					10'4"	121.2			1252.9		
121W.		1	L2676	10'0"	12'0"	35.8	1.5				
155W.		1	L6533	6'7"	6'9"	188.6	6.8	-	31.4		
			Thickness		-	-		-			
					0'3"	125.8			31.4	-	6'6"
185W.		1	L2677	5'0"	6'0"	134.7	5.1	-	134.7		
		2	L2678	6'0"	6'6"	35.5	1.4	-	-		
			Thickness		1'1"	124.3		-	134.7	-	4'11"

APPENDIX. TABLE A. QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 1607S. (Continued).

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO. FIELD	SAMPLE NO. LABORATORY	DEPTH FROM	DEPTH TO	QUANTITY OF HEAVY MINERALS LBS.PER CU.YD.	QUANTITY OF HEAVY MINERALS WT.PER CENT.	THICKNESS OF SAMPLE (FT.) X. (LBS. PER CU.YD.) 300	THICKNESS OF SAMPLE (FT.) X. (LBS. PER CU.YD.) 120	OVERBURDEN 300	OVERBURDEN 120
225W.	S. E. CORNER	1	L6534	0'0"	9'3"	33.27	1.3				
269W.	OF	1	L2679	7'0"	11'6"	20.8	2.0				
	BEACH AVENUE.	2	L2680	11'6"	12'0"	138.7	5.0	-	69.4		
			Thickness		0'6"	138.8		-	69.4	-	11'6"
	EASTERN		N O S A M P L E.								
309W.	FENCE										
348W.		1	L6535	0'0"	10'9"	29.8	1.2	-			
407W.	LINE	1	L2681	9'3"	9'6"	38.8	1.3	-			
446W.	IS	1	L6536	9'9"	10'3"	1824.0	53.15	912.0	912.0		
	ADOPTED		Thickness		3'0"	304.0		912.0		7'3"	
					7'6"	120.0			912.0		2'9"
	MERIDIAN.										
486W.		1	L6537	4'6"	5'9"	571.5	20.3	714.5	714.5		
		2	L6538	6'0"	6'4"	264.7	9.8	88.2	88.2		
		3	L6539	9'0"	9'2"	247.1	8.8	-	41.2		
			Thickness		1'10"	437.8		802.7		4'6"	
					7'0"	120.5			843.9		2'2"
526W.			N O S A M P L E.								
566W.		1	L2682	10'0"	11'0"	166.8	7.2	-	166.8		
		2	L2683	11'0"	13'0"	333.6	11.7	667.2	667.2		
			Thickness		2'0"	333.6		667.2		11'0"	
					7'0"	119.1			834.0		6'0"

APPENDIX. TABLE A. QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 1607S.

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO. FIELD	SAMPLE NO. LABORATORY	DEPTH FROM	DEPTH TO	QUANTITY OF HEAVY MINERALS LBS.PER CU.YD.	QUANTITY OF HEAVY MINERALS WT.PER CENT	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 300	120	OVERBURDEN. 300	120
596W.	S. E. CORNER	1	L6540	8'0"	9'0"	367.3	12.8	367.3	367.3		
	OF	2	L6541	10'0"	10'6"	Trace.					
		Thickness			1'2"	314.4		367.3		7'10"	
	BEACH AVENUE.				3'0"	122.4			367.3		6'0"
626W.	EASTERN	1	L2684	9'0"	9'3"	158.1	5.8	-	39.3		
	FENCE		L2685	9'3"	11'6"	79.5	3.2	-	-		
	LINE	Thickness			0'3"	158.1		-	39.5	-	9'0"
649W.	IS	NO SAMPLE.									
682W.	ADOPTED	1	L2686	2'0"	9'6"	25.6	1.0	192.0	192.0		
		2	L2687	9'6"	10'6"	1476	42.2	1476.0	1476.0		
	MERIDIAN.	3	L2688	10'6"	11'6"	846.5	29.5	846.5	846.5		
		Thickness			8'0"	309.5		2476.1		3'6"	-
					11'6"	218.6			2514.5		
715W.		1	L5900	9'0"	10'0"	1269.0	39.2	1269.0	1269.0		
		Thickness			4'0"	317.2		1269.0			
					10'0"	126.9			1269.0	6'0"	-
745W.		NO SAMPLE.									
782W.		NO SAMPLE.									
982W.		NO SAMPLE.									
1282W.		NO SAMPLE.									

APPENDIX. TABLE A.

QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 1607S.

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO.		DEPTH		QUANTITY OF HEAVY MINERALS		THICKNESS OF SAMPLE (FT.) X (LBS. PER CU.YD.)		OVERBURDEN.	
		FIELD	LABOR-ATORY	FROM	TO	LBS.PER CU.YD.	WT.PER CENT	300	120	300	120
1582W.	S.E. CORNER OF BEACH AVENUE. EAST FENCE LINE IS THE ADOPTED MERIDIAN.			NO SAMPLE.							
1882W.				NO SAMPLE.							
2182W.				NO SAMPLE.							
2482W.				NO SAMPLE.							

APPENDIX. TABLE A. QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 1962S.

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO. FIELD	SAMPLE NO. LABORATORY	DEPTH FROM	DEPTH TO	QUANTITY OF HEAVY MINERALS LBS.PER CU.YD.	QUANTITY OF HEAVY MINERALS WT.PER CENT	THICKNESS OF SAMPLE (FT.) X (LBS. PER CU.YD.) 300	THICKNESS OF SAMPLE (FT.) X (LBS. PER CU.YD.) 120	OVERBURDEN 300	OVERBURDEN 120
Zero.	S.E.CORNER	1	L6549	2'9"	4'0"	262.1	9.6	-	327.6		
			Thickness		2'8"	122.8			327.6		1'4"
33W.	OF	1	L6550	0'0"	13'6"	23.2	0.9				
66W.	BEACH AVENUE.	1	L6551	10'9"	11'6"	1295.0	41.0	971.2	971.2		
	EASTERN		Thickness		3'0"	323.7		971.2		8'6"	
					8'0"	121.4			971.2		3'6"
99W.	FENCE		NO SAMPLE.								
132W.	LINE	1	L6552	0'0"	8'6"	126.5	5.0	-	1087.9		
	IS		Thickness		8'6"	126.5		-	1087.9	-	-
165W.	ADOPTED		NO SAMPLE.								
198W.	MERIDIAN.		NO SAMPLE.								
231W.			NO SAMPLE.								
264W.			NO SAMPLE.								
297W.		1	L6553	7'0"	7'2"	115.9	4.4	-	-		
		2	L6554	10'6"	10'8"	1518.0	43.1	253	253		
			Thickness		0'10"	304.1		253			
					2'1"	121.6			253	9'10"	8'7"
330W.		1	L6555	7'0"	7'4"	214.0	8.1	-	71.3		
		2	L6556	8'0"	8'9"	70.4	2.7	-	-		
			Thickness		0'7"	123		-	71.3	-	6'9"

APPENDIX. TABLE A. QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 1962S.

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO. FIELD	SAMPLE NO. LABORATORY	DEPTH FROM	DEPTH TO	QUANTITY OF HEAVY MINERALS LBS.PER CU.YD.	QUANTITY OF HEAVY MINERALS WT.PER CENT	THICKNESS OF SAMPLE (FT.) X (LBS. PER CU.YD.) 300	THICKNESS OF SAMPLE (FT.) X (LBS. PER CU.YD.) 120	OVERBURDEN 300	OVERBURDEN 120
363W.	S.E. CORNER		NO SAMPLE.								
396W.	OF		NO SAMPLE.								
429W.	BEACH AVENUE.	1	L6557	7'7"	8'3"	1325.6	41.5	883.73	883.73		
			Thickness		2'11"	302.8		883.73		5'4"	
	EASTERN				7'4"	120.5			883.73		0'11"
461W.	FENCE	1	L6558	6'0"	6'3"	185.8	7.1	-	46		
			Thickness		0'4"	139.5		-	46.45	-	5'11"
	LINE										
495W.			NO SAMPLE.								
528W.	IS	1	L6559	8'6"	8'9"	166.1	6.2	-	41.5		
	ADOPTED	2	L6560	9'7"	10'4"	284.0	10.3	-	213.0		
	MERIDIAN.	3	L6561	12'6"	13'0"	582.4	20.2	291.2	291.2		
			Thickness		0'11"	317.7		291.2		12'1"	
					4'6"	121.3			545.7		8'6"
561W		1	L6562	8'0"	9'9"	186.2	7.1	-	325.7		
		2	L6563	10'6"	11'0"	940.5	30.6	470.2	470.2		
		3	L6564	11'3"	11'7"	263.2	9.5	85.8	85.8		
		4	L6565	12'0"	12'6"	808.6	26.9	404.3	404.3		
			Thickness		3'0"	320.1		960.3			
					10'6"	122.5			1286.0		

APPENDIX. TABLE A. QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 1962S.

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO. FIELD	SAMPLE NO. LABORATORY	DEPTH FROM	DEPTH TO	QUANTITY OF HEAVY MINERALS LBS.PER CU.YD.	QUANTITY OF HEAVY MINERALS WT.PER CENT	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 300	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 120	OVERBURDEN 300	OVERBURDEN 120
594W.	S. E. CORNER	1	L6566	10'6"	10'9"	23.1	0.9	-	-		
	OF	2	L6567	11'3"	11'9"	176.7	6.7	-	88.3		
			Thickness		0'8"	132.4		-	88.3	-	11'1"
	BEACH AVENUE.										
627W.		1	L6568	9'9"	10'0"	210.6	8.1	-	52.6		
	EASTERN		Thickness		0'5"	126.2		-	52.6	-	9'7"
660W.	FENCE	1	L6569	10'2"	10'9"	1023	32.7	593.3	593.3		
			Thickness		1'11"	309.5		593.3			
	LINE				4'9"	139.7			593.3	8'10"	6'0"
693W.	IS	1	L6570	10'9"	11'0"	435.0	15.6	108.7	108.7		
			Thickness		0'4"	326.1		108.7			
	ADOPTED				0'9"	144.9			108.7	10'8"	10'3"
726W.	MERIDIAN.		NO SAMPLE.								
759W.			NO SAMPLE.								

NORTH BURLEIGH.

APPENDIX. TABLE A. QUANTITIES OF HEAVY MINERALS INTERSECTED IN BORES.

LINE 2317.

BORE NO. & R.L.	CO-ORDINATES FROM	SAMPLE NO. FIELD	SAMPLE NO. LABORATORY	DEPTH FROM	DEPTH TO	QUANTITY OF HEAVY MINERALS LBS.PER CU.YD.	QUANTITY OF HEAVY MINERALS WT.PER CENT.	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 300	THICKNESS OF SAMPLE (FT.) X (LBS.PER CU.YD.) 120	OVERBURDEN 300	OVERBURDEN 120
55W.	S. E. CORNER	1	L2701	1'6"	5'7"	30.23	0.9				
96W.	OF		NO SAMPLE.								
137W.			ditto.								
273W.	BEACH AVENUE.		ditto.								
360W.		1	L2702	0'0"	5'0"	33.32	1.3				
441W.			NO SAMPLE.								
514W.			ditto.								
607W.		1	L2705	2'0"	9'0"	16.1	0.6				
635W.			NO SAMPLE.								
660W.		1	L2706	7'0"	8'0"	369.8	13.4	369.8	369.8		
		2	L2707	9'3"	10'0"	225.9	7.9	-	169.4		
			Thickness		1'2"	316.0		369.8	439.2	6'10"	6'5"
					3'7"	122.7					
690W.			NO SAMPLE.								
732W.			NO SAMPLE.								
956W.			NO SAMPLE.								
1056W.			ditto.								
1356W.			ditto.								
1656W.			ditto.								

Q25-10C-8

NORTH BURLEIGH

AREA BETWEEN NORTH & SOUTH NOBBIES

AC

LINE 1607S

BORE No	DISTANCE	BORE No	DISTANCE
1	104	13	653
2	354	14	682
3	93	15	723
4	89	16	749
5	121	17	782
6	165	18	883
7	185	19	1282
8	2252	20	1882
9	263	21	1882
10	309	22	2182
11	368	23	2832
12	407		
13	440		
14	486		
15	526		
16	566		
17	596		
18	626		

LINE 1407S

BORE No	DISTANCE
1	160
2	203
3	243
4	306
5	406
6	506
7	600
8	682
9	700
10	727
11	760

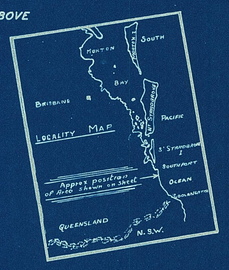
LINE 1962S

BORE No	DISTANCE	BORE No	DISTANCE
1	334	13	429
2	99	14	461
3	99	15	495
4	132	16	526
5	165	17	561
6	198	18	594
7	231	19	627
8	264	20	660
9	297	21	693
10	330	22	726
11	363	23	759
12	396		

LINE 2317S

BORE No	DISTANCE	BORE No	DISTANCE
1	55	13	732
2	96	13	956
3	137	14	1036
4	272	15	1376
5	360	16	1658
6	441	17	1956
7	516	18	2256
8	607	19	2656
9	660	20	2956
10	695	21	3256
11	690	22	3456

DISTANCES REFERED TO IN TABLES ABOVE ARE DISTANCES IN FEET WEST OF EASTERN FENCE LINE



MINED AREAS

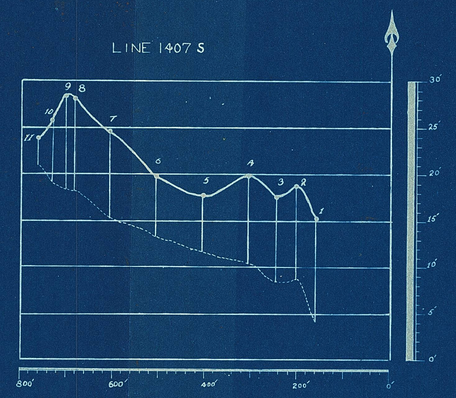
BUILT UP AREAS

SCALE 500 FEET = 1 INCH

0 500 1000 1500

B.M.R. SOUTHPORT. Q
APRIL 1949

LINE 1407S



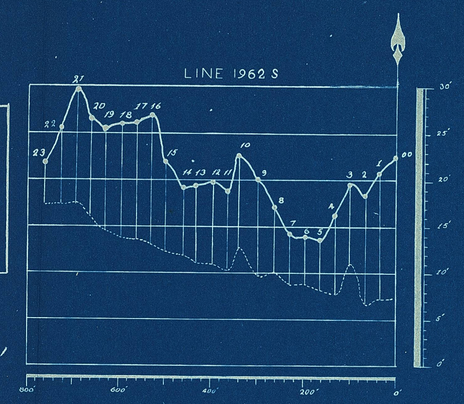
= EASTERN FENCE LINE

= BORE No 9 (SEE TABLE)

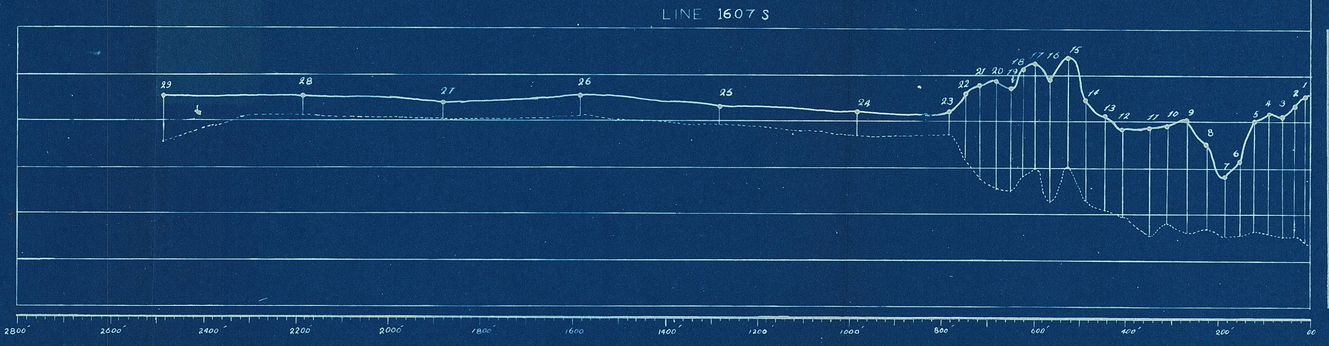
= WATER TABLE

DATUM FOR LEVELS (APPROX)
MEAN LOW WATER

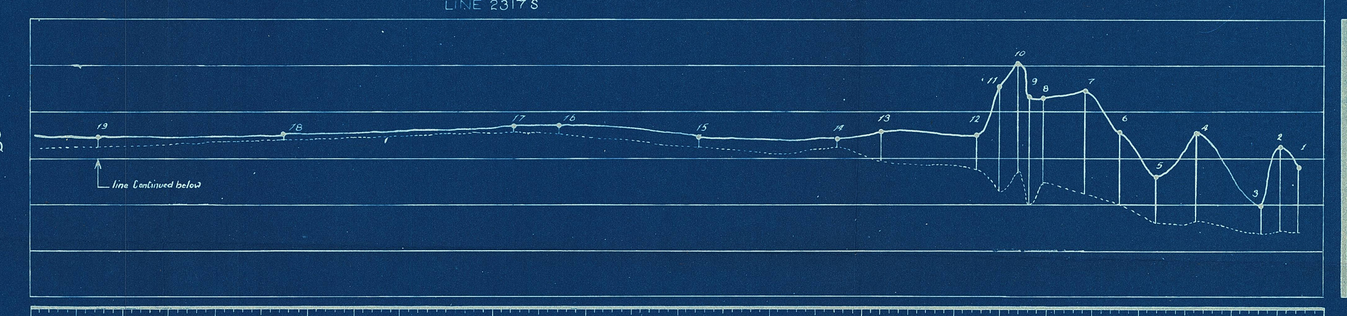
LINE 1962S



LINE 1607S



LINE 2317S

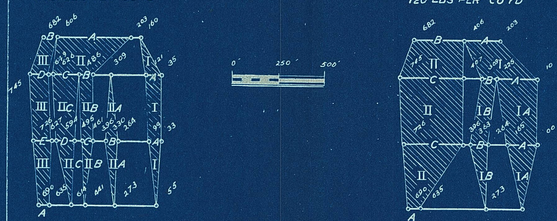


PLAN OF MINERAL BEARING SAND

(BETWEEN LINE 1407S & LINE 2317S)

300 LBS PER CU YD

120 LBS PER CU YD



MINERAL BEARING SAND

LINE 1407S

LINE 1607S

LINE 1962S

LINE 2317S

LINE 2317S CONT.