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REPORT NO 6/88

VOLUME I

EL 33/86 TASMANIA

Annual Report on Exploration Completed in
Arthur River - Sandy Cape Area
of Western Tasmania
to 17/4/88

Report Prepared for Bach Holdings Pty. Ltd.

88-2796

MINES
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SYNOPSIS

1. AIM

To examine the Tasmanian west coast between Arthur River and Sandy Cape for economic heavy mineral sand occurrences.

2. REASON

Recent increases in the price of mineral sand commodities, particularly rutile and zircon, has been caused by shortages of supply. Price rises combined with technological advances has given impetus to examination of areas previously considered to be unattractive.

Parts of EL 33/86 have previously been examined, however this work was of a reconnaissance nature and was restricted to hand auger drilling above the water table.

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3. SUMMARY & CONCLUSIONS

- 3.1 Mineral sand exploration within the area encompassed by EL 33/86 was previously undertaken by A.C.I. Ltd. during 1968-89.
- 3.2 Initial work on the current programme was an interpretation of the aerial photography. The following were noted:
- . recent mobile to semi mobile dunes
 - . a beach ridge development at Temma
 - . extensive Sandy Cape Beach deposits
- 3.3 A preliminary field study using hand auger only and collection of surface concentrations gave initial mineralogical results for the heavy mineral suite: rutile 7%, zircon 8-10%, leucoxene 2-4% and monazite 1-2%.
- 3.4 A variety of sand deposits were identified from the preliminary study:
- a vegetated white leached dune sand with very low mineral content; oldest sand formation.
 - a vegetated yellow dune sand with low mineral content.
 - a dune system similar to above but less well vegetated and younger.
 - older sand deposits recently remobilised.
 - strandline deposits, which may contain significant mineral grades.
- 3.5 Check close spaced drilling around the preliminary study hole AR1 showed close agreement in mineral grades between the seven (7) drill holes.
- 3.6 Six (6) traverse lines with holes generally spaced 40m. apart were drilled to test for heavy mineral concentrations. All drilling was by hand auger and cased sludging.

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- 3.7 With the exception of the two Hazard Bay traverses, all results are plotted on cross sections as figures 5 to 8b of this report.
- 3.8 A bulk composite was prepared from the Temma Harbour line 1 drill holes containing +1% heavy mineral. The heavy minerals were concentrated for more detailed examination.
- 3.9 Metallic particles were noted during microscopic examination of the heavy concentrates, but low assays for Au, Pt and Ir were obtained.
- 3.10 While concentrations of heavy mineral were encountered at Temma Harbour, other areas examined in detail to date have failed to yield appreciable concentrations.

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4. RECOMMENDATION

The top priority for further work should be a traverse line of hand auger and case sludged holes on the southern end of Sandy Cape Beach.

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5. INTRODUCTION

A programme of exploration was carried out by Peter H. Stitt & Associates on behalf of Bach Holdings Pty. Ltd. on the west coast of Tasmania between the Arthur River and Sandy Cape.

Exploration was directed at testing the coastal sands for heavy mineral sand deposits, containing economic minerals; particularly rutile, leucoxene, ilmenite (TiO_2 raw materials), zircon and monazite. In addition exploration was to be carried out in order to recognise any other detrital minerals if they occurred in economic quantities.

During the past two years the world market has been dominated by a short fall in supply to meet the demand, particularly for TiO_2 pigment minerals, zircon and rare earth heavy minerals. As a consequence the price for these minerals has risen to historically high levels. Predictions for the future supply and price of titanium and zirconium raw materials is one of buoyancy.

Recent advances in technology and understanding of heavy mineral deposits has caused a re-evaluation of prospective areas. Chief points of advancement are:

- Lower grade deposits are now economic.
- Exploration methods have been developed particularly with regard to quantitative assessment of low grade areas.
- Mineralogical determinations have seen the employment of the scanning electron microscope to identify minerals difficult to optically identify; particularly distinguishing black rutile from other black opaque minerals and identification of rare earth element minerals.
- Mining technology has advanced, for example in dredging and dredge cutters, to lower costs and to make difficult areas now mineable.
- Metallurgical treatment has seen the development of new spirals with higher throughput and suited to lower grade ore. Magnetic separators

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are now capable of more finely tuned separations to upgrade ilmenite and chromite products which have been rejected in the past.

- Overall efficiency of the industry has advanced in order to meet market requirements.

6. TENEMENT INFORMATION

Exploration Licence 33/86 is held by Bach Holdings Pty. Ltd. It covers an area of 157 km² on the west coast of Tasmania between the Arthur River in the north to Sandy Cape in the south. The licence location is shown in Figure 1.

The area comprises:

11 km² private property

19 km² State forest

127 km² Arthur-Pieman Protected Area

The Sundown Point Aboriginal site (1 km²) was excluded from the original application.

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PREVIOUS WORK

Australian Consolidated Industries Ltd. (ACI) undertook a programme to evaluate the potential for economic mineral sand occurrences within the exploration area in 1968-69. ACI operated under EL 16/68 and were primarily interested in base metal and tin occurrences at Balfour, however they recognised the possibility of placer tin and chromite bearing heavy mineral deposits in the extensive coastal sands.

ACI drilled 65 hand auger holes, targeting an older shell free sand which was claimed to be higher in heavy mineral content than the younger shell rich sand. They obtained heavy mineral grades between 0.1 and 2.2% with rutile and zircon comprising 5% of the heavy suite, ilmenite 20 - 45%, leucoxene 5 - 15%, and tourmaline 11 - 37%. It is claimed in the ACI report that the best area is a dune south of Sardine Creek near Nelson Bay:

"The mean heavy mineral content of this dune is 1.11% consisting of 33% andalusite, 27% ilmenite and chromite, 18% zircon and 1.6% rutile, with outlined reserves of about 2 million tons."

The ACI drillholes were too widely spaced, on lines running parallel to the coast and trend of deposition to be of more than reconnaissance value. Additionally recent advances in mineralogical study of heavy detrital minerals, particularly the use of the scanning electron microscope has shown older optical mineralogical studies to be unreliable.

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AERIAL PHOTOGRAPHY INTERPRETATION

Aerial photography used for this interpretation is the most recently available black and white photography from the Tasmanian Department of Lands. Details are:

Scale:	1:42,000
Date:	25/3/85
Run: 8	Nos: 130, 131 and 132
Run: 9	Nos: 127, 128 and 129
Run: 10	Nos: 68, 69 and 70
Run: 11	Nos: 65 and 66
Run: 12	Nos: 2, 3 and 4
Run: 13	Nos: 238, 239 and 240

The interpretation map (Figure 2) shows sufficient geographic features to enable location using the 1:100,000 topographic series. Distortion between photographs has created some problems in preparing these composites and is reflected by variation in the angle and length of some tenement boundaries.

The following points are noteworthy:

- . The coastline is dominated by recent, often mobile to semi-mobile, aeolian sand dunes between rocky headlands. Often the aeolian dunes are transgressive on basement rock, rather than older sand formations.
- . At Temma a small well developed beach ridge feature is preserved with limited stabilised aeolian dunes on the coastal side.
- . Sandy Cape Beach is a large sandy beach with extensive mobile dunes being driven by the dominant westerly winds.
- . Figure 2 shows location and average heavy mineral grade for selected drill holes from the ACl 1968-69 programme. Also shown is the

"2 million ton reserve" at Nelson Bay.

- . Scout drillholes, grade and S.E.M. mineralogy are shown for the preliminary work of the current investigation.

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9. PRELIMINARY FIELD INVESTIGATIONS9.1 Scope of Study

The initial investigation was a hand auger reconnaissance programme of sampling aimed primarily at mineralogical examination of the heavy mineral fractions from various locations along the coast of the E.L. Holes were drilled by hand auger to water table, at the following locations:

Temma Harbour	Hole Designated	ARI
East of Temma	" "	AR4
Rebecca Lagoon	" "	AR5
Arthur River Beach (South)	" "	AR6
East of Road Arthur River Dunes	" "	AR8
Sandy Cape Beach (South)	" "	SC1
Sandy Cape Beach Dunes	" "	SC3 & SC6
Sandy Cape Beach (North)	" "	SC7

The location of each hole is shown in Figure 2. A number of other holes of lesser significance were also drilled. Logs for each hole are included as Appendix 1.

Samples from the eight (8) abovementioned holes were forwarded to Gold Coast Assay Services for heavy mineral separation. Results are recorded in Appendix 3 of this report.

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9.2 Mineralogy

Mineralogical studies of modern beach concentrates were completed for one (1) sample from the north end of Sandy Cape Beach and one (1) sample from the middle of Arthur River Beach. The heavy fraction from each sample was examined by magnetic fractionation with a Frantz magnetic separator prior to microprobe determination of the minerals present. Results are detailed in Appendix 5 and summarised on Figure 2.

Each sample is relatively consistent with respect to the major economic minerals with:

Rutile	7%
Zircon	8 - 10%
Leucoxene	2 - 4%
Monazite	1 - 2%

Examination of the sample AR1 from Temma Harbour showed in addition to the above economic minerals encouraging gold and platinum group values.

9.3 Discussion

This preliminary study was undertaken in order to obtain an indication of the various types of sand deposition and the potential for mineralisation. The following comments can be made:

1. Samples AR4 and SC7 are the oldest sand deposits in the EL. They are white leached medium grained sand, free of shell. This generation of dunes are well covered with low heath vegetation. This generation of dunes contains very low heavy mineral levels, <0.1%.
2. Samples AR8 and SC3 are from the next oldest generation of dunes. They are typically yellow medium grained sand with considerable shell, and of aeolian origin. These dunes are well vegetated, sometimes

with trees but mostly scrub to 6m. height. They contain heavy mineral contents between 0.1 and 0.25%.

3. Samples AR5, AR6 and SC1 are from the next generation of dunes. They are similar to 2 above in sand type, but are lightly vegetated, only with grass. In some places these dunes overlies older strandline beach deposits. Heavy mineral contents are variable, in some areas low but may contain concentrations in favourable locations e.g. hole SC1.
4. SC6 is from a remobilised dune originally either type 2 or 3 above.
5. AR1 is a strandline beach deposit at Temma. This is a geomorphological feature apparent from aerial photography. Sand is medium grained well sorted with increasing grain size and shell at depth. Some concentrations of heavy mineral occur, particularly at or near the water table which is the old beach level. It is anticipated that this type of deposit will occur in other locations but buried by older aeolian dunes.

This initial investigation was carried out using hand auger equipment only. Later investigation at Temma showed some of the best mineral concentrations occur at or near the water table.

10. "AR1" CHECK DRILLING

10.1 Preamble

Initial results obtained from hole AR1 drilled on a strandline system at Temma Harbour showed encouraging heavy mineral contents, which contained gold and platinum group minerals. In order to assist with the evaluation of hole "AR1" a series of stepout holes were drilled, and tested.

10.2 Drilling

Six (6) hand auger and case sludged holes were drilled to basement. This is a slight variation from the first "AR1" hole which was only drilled by hand auger to water table. The holes were drilled 1m. apart as step out holes from AR1, according to the pattern shown in Figure 3.

Parallel to the strandline one hole was drilled to the north and one hole to the south of AR1. Perpendicular to the strandline two holes were drilled to the east and two to the west of AR1.

10.3 Laboratory Testing

Samples derived from the drilling were forwarded to the Tasmanian Department of Mines, Metallurgical Laboratory in Launceston for determination of heavy mineral content.

10.4 Results

Drillhole descriptive logs together with results from laboratory testing are presented in Appendix 3.

Figure 4 is a cross-section E-W and N-S through AR1 showing heavy mineral contents for samples from each drillhole.

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10.5 Discussion

The following points stand out from this check drilling work:

1. There is negligible difference in surface elevation between any of the seven (7) "AR1" drillholes.
2. Drillhole depths are consistent with slight variations in bottom topography. The presence of small pebbles in the sand near the end of each drillhole indicates that holes may have terminated on cobbles resting on basement.
3. The original AR1 hole although only hand augered to water table, finished close to bottom as determined from later cased sludging; i.e. water table is close to bottom of the sand.
4. Although hole AR1 and the other six holes from the "AR1" series were drilled at different times and tested by different laboratories there is close agreement in heavy mineral contents.
5. This agreement between results indicates that drilling and laboratory testing is reproducing consistent results at an acceptably low error level.

11. MAIN PROGRAMME

11.1 Preamble

Having completed the preliminary investigation recorded in Section 8 of this report it was apparent that economic mineral concentrations, if they were to occur, would be as either:

- . strandline deposits on large beaches mostly buried by aeolian dunes e.g. Arthur River Beach and Sandy Cape Beach.

or

- . concentrations trapped in embayments and worked into aeolian or strandline deposits e.g. Temma and south end of Sandy Cape Beach.

With a heavy mineral suite comprising 20% saleable minerals (rutile 7%, zircon 10%, leucoxene 2% and monazite 1%) a first pass economic assessment is that a +2% heavy mineral content would be required. However for exploration purposes any sands containing +1% heavy minerals would be considered prospective from the viewpoint of further investigation to seek higher grades nearby.

11.2 Survey

Drillholes were located on traverse lines generally orientated east-west and perpendicular to the coastline so as to cross any strandlines which may be present.

All traverse lines were surveyed by tape and compass, with abney level determination of surface topography. The surface topography has been plotted on cross-sections showing drillholes and heavy mineral contents. For the most part holes were spaced 40m. apart, however at Temma Harbour some holes were 20 & 10m. apart and at Hazard Bay holes were spaced 80m. apart on traverse lines.

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Where possible traverse lines were located in topographically low areas to avoid drilling high aeolian sand dunes. The expectation was that significant concentrations of heavy minerals would occur in strandlines underlying aeolian dunes.

The location of traverse lines is shown on both Figures 1 and 2. Traverse lines for the following areas are listed below, with their designation:

Temma Harbour, line 1	TH
Temma Harbour, line 2	TH Line 2
Nelson Bay, line 1	NB
Arthur River Beach, line 1	AR
Hazard Bay, line 1	HB Line 1
Hazard Bay, line 2	HB Line 2

11.3 Drilling

All drilling for the main programme was by hand auger and hand operated cased sludging, using Dormer Engineering equipment. Holes were hand augered to water table using 50 mm. diameter hand auger. When water table was reached 50 mm. casing was inserted into the hole and the hole was advanced by sludging using a whistle top sludger on aluminium extension rods.

Drilling was completed at rock basement, pebbles, thick clay or thick peat layers. Where there was no impediment to drilling, holes were terminated at 10m. depth, since hand drilling below this depth becomes increasingly slow.

Samples from the drilling were bagged for each 1m. drilled. Where samples were obtained by sludging they were weighed in the field to check on weight variation due to sand boiling into the casing.

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11.4 Laboratory Testing

All samples were treated by the Tasmanian department of Mines, Metallurgical Laboratory in Launceston. The test procedure adopted was:

1. Dry sample as received.
2. Screen on a coarse sieve (say 2mm.) to break up agglomerated lumps.
3. Riffle split approximately 100 gm working sample.
4. Re-pack balance of sample.
5. Weigh working sample.
6. Screen on 600 micron sieve (or coarser sieve as directed) and weigh plus 600 micron fraction.
7. Using TBE, separate heavy minerals.
8. Dry and weigh heavy minerals.
9. Calculate heavy minerals as a percentage of the sample weighed in Step 6 above.
10. Package heavies for despatch.

Copies of laboratory assay sheets are included as Appendix 5.

Mineralogical examination of Temma Harbour samples was carried out according to the following procedure:

- . Frantz magnetic separation into 0.4, 0.8, 1.2 amp magnetics and 1.2 amp non-magnetics was achieved using 15° forward slope and 15° side slope.
- . The magnetic fractions were weighed, examined using an optical microscope and percentage of each mineral species determined.

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11.5 Results

With the exception of the Hazard Bay results all other results have been plotted on cross-sections included as figure 5 to 8b of this report. The location of each cross-section can be ascertained from figure 2.

A mineralogical examination of 15 individual drill hole samples from Temma Harbour Line 1 in the area of greatest heavy mineral concentration has shown:

Rutile	4 to 7%
Zircon	5 to 8%
Ilmenite	3 to 5%
Leucoxene	4 to 7% (high TiO_2 almost rutile grade)
Olivine	20 to 30%
Hypersthene	10 to 20%
Tourmaline	10 to 20%
Chromite	5 to 10%
Epidote	3 to 7%
Garnet	5 to 10%
Monazite	0.1 to 1%
Kyanite	1 to 2%

It has been noted that two types of monazite exist:

- . A high yt^rtrium (3 to 5%) with traces of thorium, calcium, lanthanum and cerium.
- . And most commonly a lanthanum and cerium monazite containing no thorium.

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The chromite contains aluminium up to 5% but generally less than 1% with traces of magnesium, silica, calcium and sodium. It would be of metallurgical grade if a sufficiently pure concentrate could be prepared.

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12. TEMMA HARBOUR BULK COMPOSITE TESTING12.1 Preamble

A test programme was implemented with a view to examining the economically recoverable minerals in more detail. In particular it was directed at minerals which may occur in trace quantities and for which the probability of a quantitative assessment would improve with a larger sample being examined.

A bulk composite sample was prepared from Temma Harbour Line 1 samples comprising all the drill holes averaging greater than 1% heavy mineral.

12.2 Preparation of Composite

A composite sample weighing 132.709 kg. was prepared from the Temma Harbour Line 1, representing a width of 140m. across the strandlines between drill holes TH4 to TH18 inclusive (see Fig. 5). The individual drill hole samples and their weights are included in Appendix 7 of this report.

The composite was prepared by riffle splitting the dry residue sand remaining after the initial heavy mineral separation had been completed. One half of the split sample went to make the composite and the remaining half was bagged for later reference.

A head grade for the composite was calculated using the heavy mineral content for each interval and the weight of that interval included in the composite. The calculated head grade is 1.5% heavy mineral.

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12.3 Test Programme

The flowsheet for the test programme is shown in Figure 9, along with weights and percentages at critical stages. Samples of various end products have been bagged for mineralogical examination and further study; these samples are described in the table below:

Description	Flowsheet Sample No.
TH 4-18 Bulk, Tails No. 2 Heavies	1
TH 4-18 Bulk, Mids Heavies	2
TH 4-18 Bulk, Table Cons Heavies	3
TH 4-18 Bulk, Magnetism No. 1	4
TH 4-18 Bulk, Magnetism No. 2	5
TH 4-18 Bulk, Magnetism No. 3	6
TH 4-18 Bulk, Magnetism No. 4	7
TH 4-18 Bulk, Non magnetism	8

The philosophy adopted was to take a fairly large concentrate cut from the first pass over the shaking table. On the second pass concentrates from the first pass were re-treated; the concentrate band was much broader and it was possible to separate the denser heavy minerals from the lighter heavies by visual appearance on the table. Thus the final concentrate contained 96.4% heavy mineral while the middlings contained 31.2% heavy mineral.

A sample of the bulk table concentrate (flowsheet No. 3) was fire assayed for Au, Ir and Pt.

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TABLE 1

Results from Laboratory Shaking Table
Concentration of Heavy Minerals

Fraction	Weight Kg	Wt% Distribution	% Heavy Mineral in Fraction
Feed	132.709 kg.	100.00	
+653 um	0.995 kg.	0.75	
Tailings No. 1	125.616 kg.	94.65	
Tailings No. 2	2824 g.	2.13	1.4
Middlings	2303 g.	1.74	31.2
Concentrate	951.5 g.	0.73	96.4
Calculated head grade from recovered heavy mineral			1.28
Calculated head grade sample composite			1.56

TABLE 2

Results from Magnetic Separation of Laboratory
Shaking Table Concentrates

Fraction		Wt. % Distribution
Magnetics 1	Most Susceptible	8.22
Magnetics 2	↓	1.71
Magnetics 3		1.76
Magnetics 4		67.32
Non Magnetics		Least Susceptible
Losses		2.00

TABLE 3

Fire Assay Results

Heavy concentrate	0.73% of feed
Au in concentrate	0.11 g/t
Pt in concentrate	<0.01 g/t (in order of 0.002 g/t)
Ir in concentrate	<0.2 g/t

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12.4 Results

Results for the shaking table concentration of heavy minerals are set out in Table 1, while results for magnetic separation of the shaking table concentrates are set out in Table 2. Fire assay results are given in Table 3.

The final heavy concentrate contained 96.4% heavy minerals while the middlings contained 31.2% heavy minerals. Most of the economic heavy minerals would have reported to the concentrate while the middlings would contain significant quantities of silicate minerals with densities greater than T.B.E. 92.96).

Examination of the "light" mineral fraction from the concentrates showed it to contain mostly shell particles with lesser quantities of quartz.

Magnetic fractions were examined under a stereo microscope using reflected light. Flaky metallic particles were noted in all fractions, with greatest concentration in the No. 3 and No. 4 magnetic fractions. The metallic particles are fine (mostly <50 microns) and irregularly shaped.

Fire assay of the concentrates showed only trace quantities of precious metal, which by themselves would be of no economic significance. It is possible that the metallic particles observed are of a composition other than Au, Pt, Ir; possibly tin.

The eight (8) heavy mineral samples obtained throughout the testwork, and designated 1 to 8 on the flowsheet, were bagged and forwarded to Artur Birkner for mineralogical examination. At the time of writing this report, final results were not available.

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12.5 Discussion

Testing of this composite sample failed to give any appreciable precious metal contents.

The quantity of non-magnetic heavy minerals at 19% is consistent with other samples from the west coast of Tasmania which usually contain in the order of 20 to 25% non-magnetics mostly comprising the saleable minerals rutile, zircon and leucoxene.

13. GENERAL DISCUSSION

The current investigation has shown that the mineralogy of the heavy mineral suite contains a higher level of economic constituents than earlier work did, as the following tabulation shows:

	<u>Previous Work</u>	<u>Current Work</u>
Rutile	0.1 to 2%	4 to 7%
Zircon	5%	5 to 10%
Leucoxene	5 to 15%	2 to 7%
Monazite	-	0.1 to 2%

With the composition obtained from the current work a heavy mineral content of greater than 2% would be required to be of economic significance. It is worth noting that the current investigation has sampled a wider range of geomorphological types and ages of deposition over a greater geographical range, than did the previous work.

Precious metals were noted in some samples containing higher heavy mineral values from Temma Harbour. Detailed investigation of a bulk sample has shown that while present, the quantity is low and of no real economic significance.

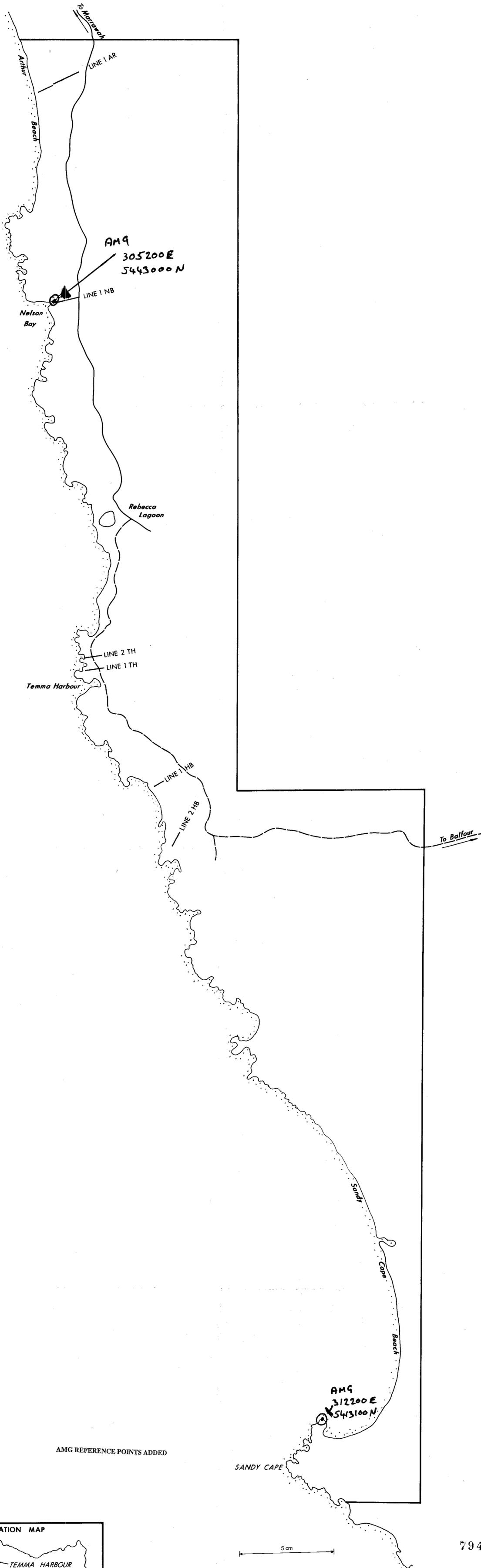
Generally throughout the areas investigated, heavy mineral concentrations were low at less than 0.5%. Concentrations were noted in the embayment at Temma where a beach ridge system is developed. The possible occurrence of mineral concentrations in beach deposits beneath aeolian dunes in other areas has not been substantiated; even though beach deposits were noted in some areas i.e. western end of the Arthur River Traverse.

The concentration in the Temma Harbour strandlines occurs towards the eastern (most inland) part of this small embayment, with the highest grades in the beach facies towards the bottom of the deposit. A typical drill hole in this area intersects aeolian sand at the top, then on-shore beach deposits, off-shore coarse sand and shell deposits and basement. To date the highest grades

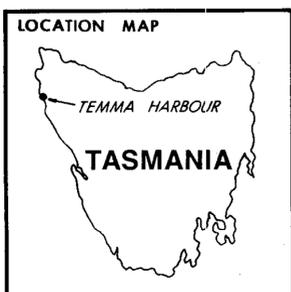
C30

are from line 1, with significantly lower grades on line 2 which was drilled 300m. to the north. Not only were grades lower on line 2, but the width of the mineralised section was less which is likely to be due to deposition effects on approaching the end of a beach. Observations elsewhere along the Tasmanian west coast have shown the heavy mineral concentrations tend to collect on the southern ends of embayments. If Temma is consistent then it is likely that higher grades will occur south of line 1 in the southern corner of the embayment. However to be of economic significance the grades and mineralogy would need to be substantially more attractive than work to date has shown.

Of the exploration targets remaining untested within this exploration licence the most important is the southern end of Sandy Cape Beach. To date one (1) reconnaissance hole has been drilled to water table where improved grades were encountered. Additional work should entail at least one traverse line with hand auger and case sludged holes drilled 40m. apart.



AMG REFERENCE POINTS ADDED



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BACH HOLDINGS		
EL 33/86 TASMANIA		
LOCATION MAP		
88-2796 Vol 1/2		
Author: G.LEE	Date: MARCH'88	Figure: 1

Ilmenite	11.1%
Chromite	7.0%
Monazite	1.6%
Rutile	7.3%
Leucosene	4.4%
Zircon	10.2%
Others	58.4%

ACI 1969 EXAMINATION OUTLINED 2 MILLION TONS OF SAND CONTAINING 1.1% HEAVY MINERAL IN THIS AREA. INSUFFICIENT WORK WAS UNDERTAKEN TO CONSIDER THESE FIGURES PROVEN RESERVE.

Ilmenite	16.0%
Chromite	19.0%
Monazite	2.1%
Rutile	6.7%
Leucosene	2.2%
Zircon	7.8%
Others	46.2%

NOTE :-

ALL DRILLING IN THIS AREA TO DATE HAS BEEN BY HAND AUGER, THUS RESTRICTING EXAMINATION TO SAND ABOVE THE WATER TABLE. INDICATIONS ARE THAT THE BEST MINERAL GRADES OCCUR AT THE LEVEL OF THE OLD BEACHES WHICH ARE NOW MOSTLY BURIED BENEATH AEOLIAN SAND & BELOW PRESENT WATER TABLE. CASED SLUDGING &/OR REVERSE CIRCULATION DRILLING WILL BE REQUIRED IN ORDER TO EXAMINE THESE SANDS

- LEGEND**
- Photo Interpretation, Inland Margin of Sand - Aeolian Dunes
 - Strandline Sand Deposits.
 - Drillhole Location & No.
 - Drillhole Depth
 - % Heavy Mineral
 - Track / Road
 - Approx. Location of ACI Drillhole With Total Depth & Grade.

SCALE 1:42 000



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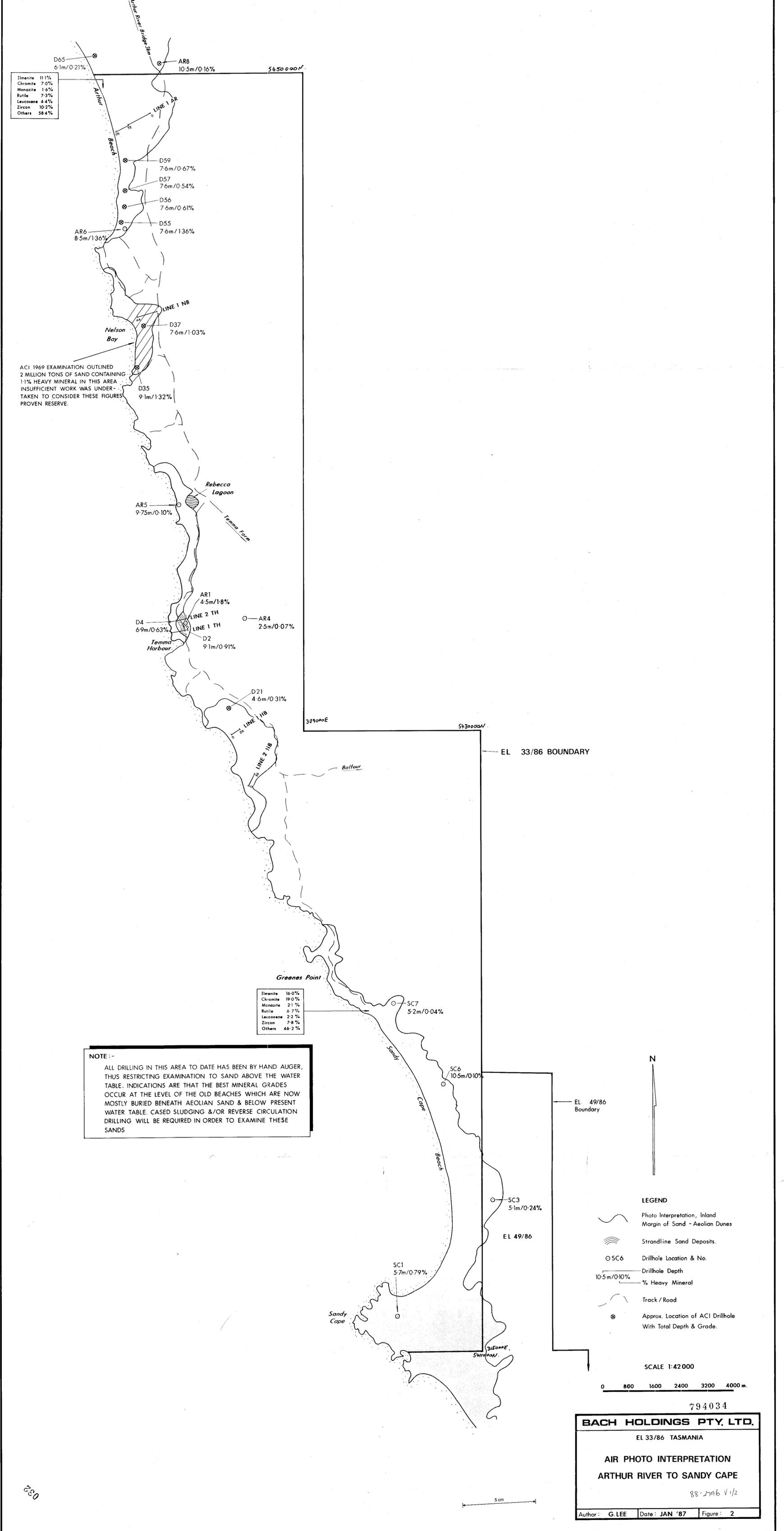
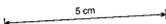
EL 33/86 TASMANIA

**AIR PHOTO INTERPRETATION
ARTHUR RIVER TO SANDY CAPE**

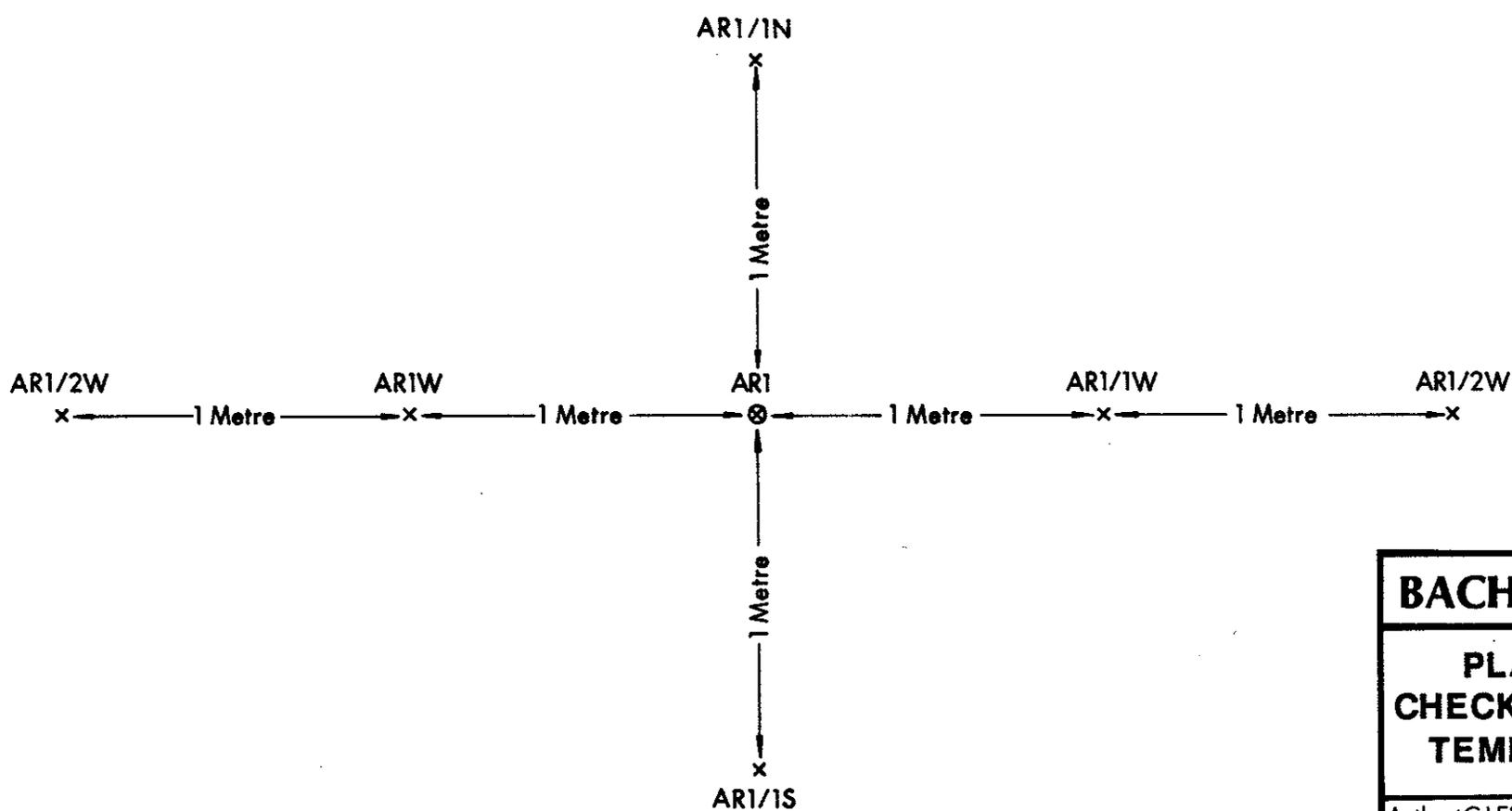
88-2796 V1/2

Author: G. LEE Date: JAN '87 Figure: 2

230



034



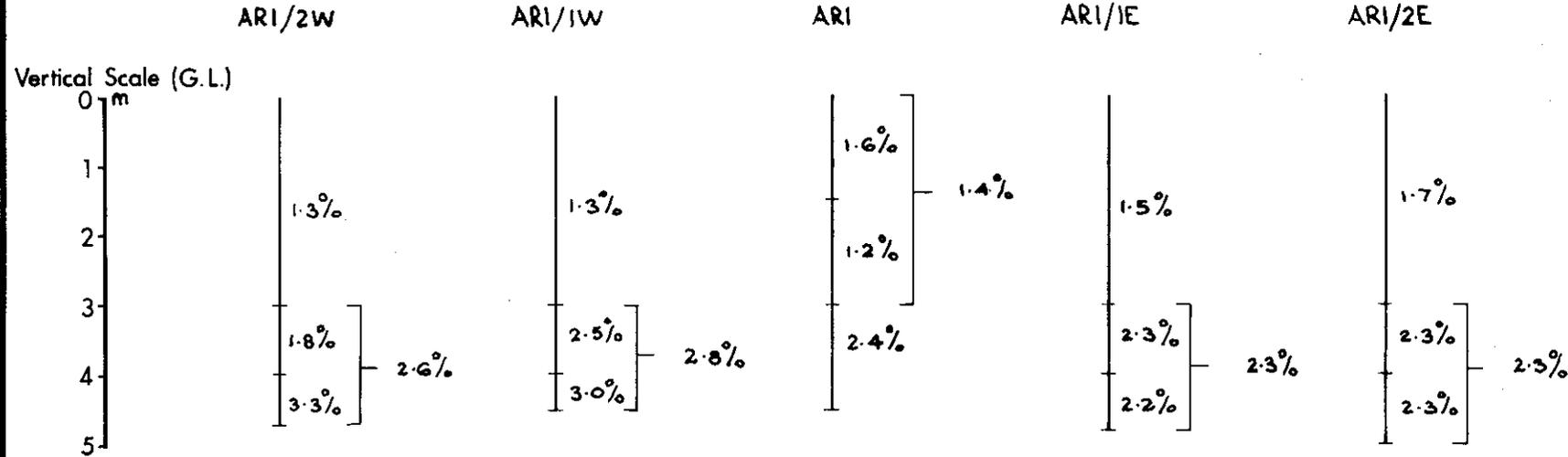
794035

BACH HOLDINGS		
PLAN OF 'AR1'		
CHECK DRILL HOLES		
TEMMA HARBOUR		
Author: G.LEE	Date: Mar. '88	Fig. No. : 3

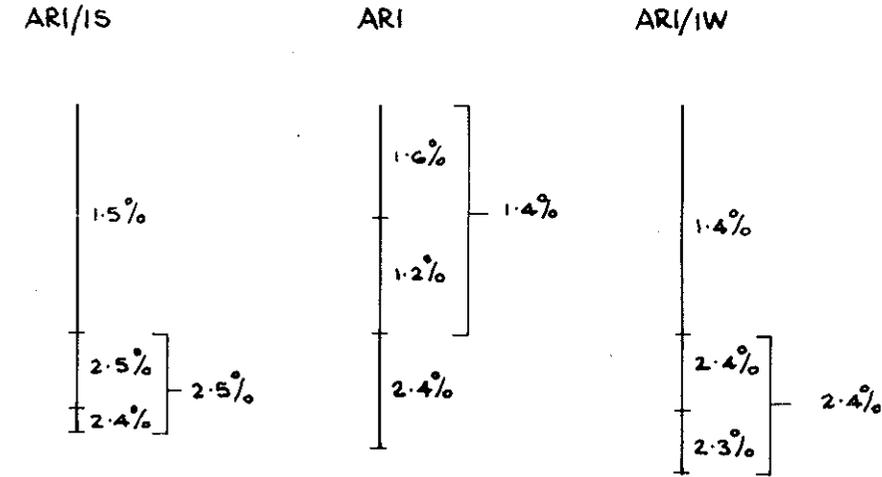
88-2796 Vol 1/2

033

EAST - WEST SECTION



NORTH - SOUTH SECTION



5 cm

HORIZONTAL SCALE

0 1m

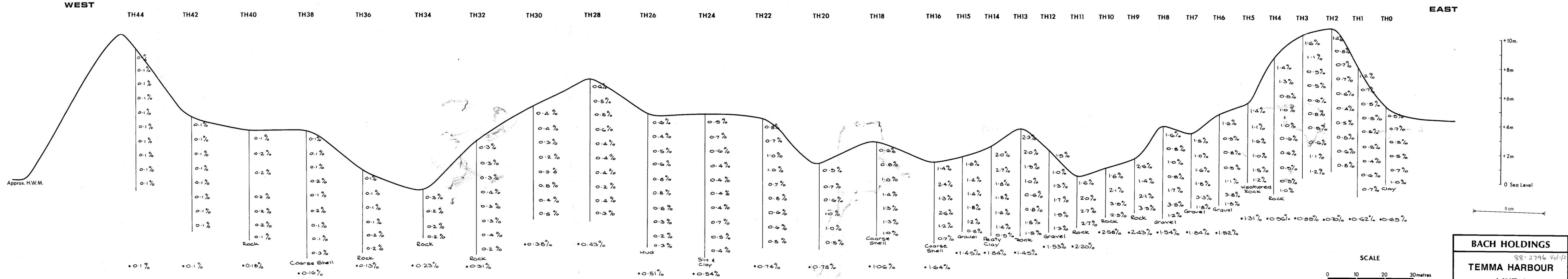
$$\frac{V}{H} = \frac{1}{4}$$

88-2796 Vol 1/2

BACH HOLDINGS

**CHECK DRILLING
'AR1' SITE
TEMMA HARBOUR**

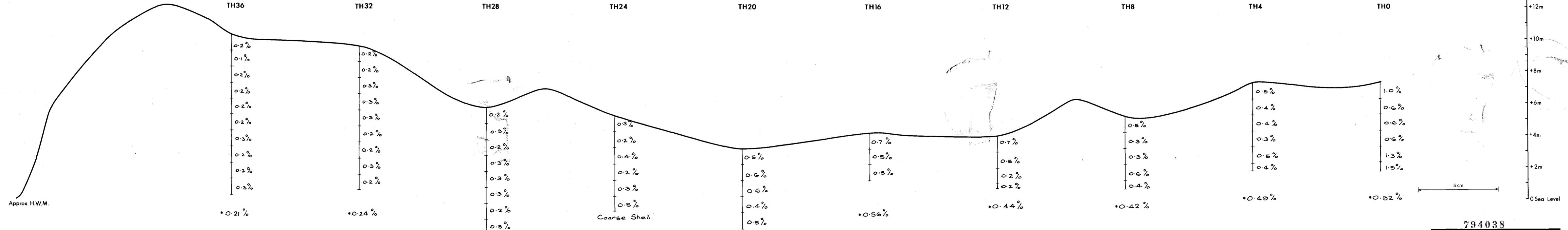
Author: G.LEE | Date: Mar '88 | Fig. No.: 4



036

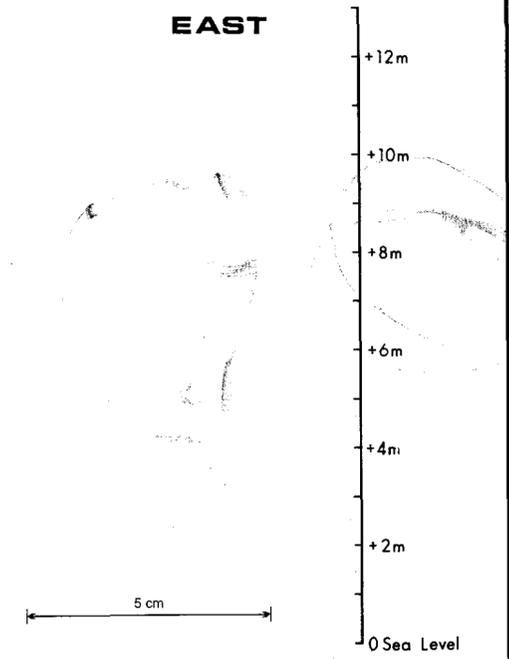
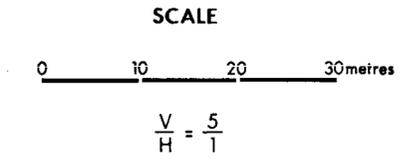
WEST

EAST



Approx. H.W.M.

LEGEND
 *0.2% Average grade for drill hole



794038

BACH HOLDINGS

TEMMA HARBOUR

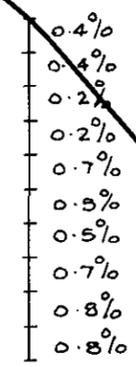
LINE 2

88-2796 Vol 1/2

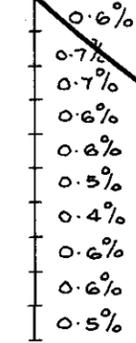
Author: G.LEE Date: MAR'88 Fig.No.: 6

038
WEST

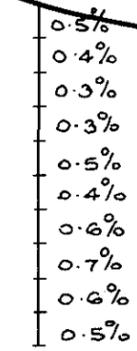
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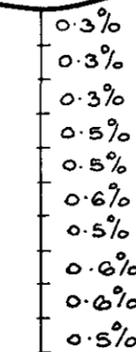
NB40



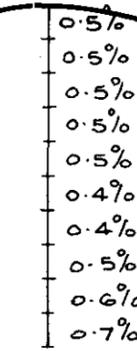
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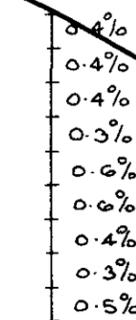
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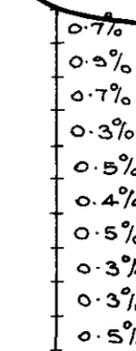
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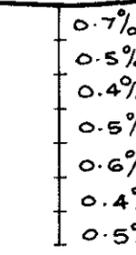
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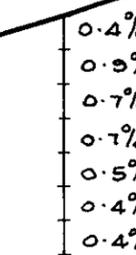
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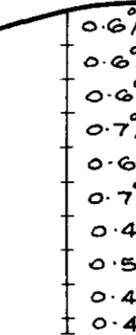
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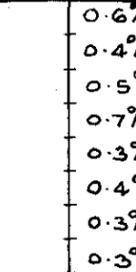
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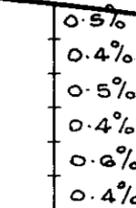
NB8



NB4



NB0



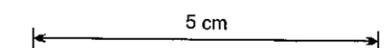
EAST

SCALE



$$\frac{V}{H} = \frac{5}{1}$$

794039



*0.52%

*0.58%

*0.48%

*0.47%

*0.5%

*0.4%

*0.5%

*0.5%

*0.6%

*0.6%

*0.44%

Fine Slime
*0.46%

Rock

Pebbles

LEGEND

*0.2% Average grade for drill hole

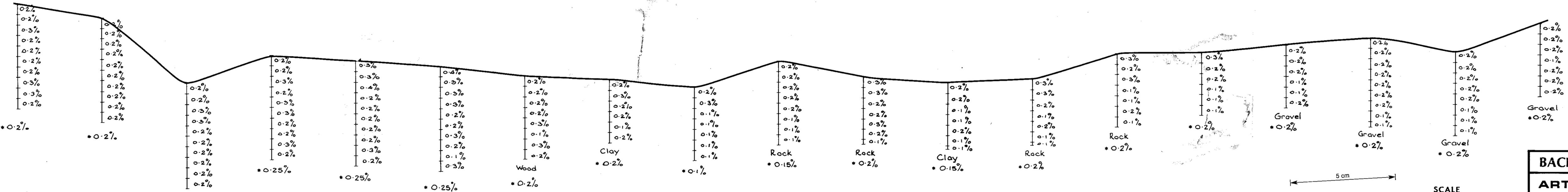
BACH HOLDINGS		
NELSON BAY TRAVERSE LINE 1		
Author: G.L.	Date: MAR'88	Fig.No.: 7

039

WEST

AR72North AR68 AR64 AR60 AR56 AR52 AR48 AR44 AR40 AR36 AR32 AR28 AR24 AR20 AR16 AR12 AR8 AR4 AR0

EAST



5 cm

SCALE



LEGEND
 0.2% Average grade for drill hole

V = 5
 H = 1

794040

BACH HOLDINGS
ARTHUR RIVER
LINE 1
NORTH

Author: G.LEE Date: Mar'88 Fig: 8a

88-2796 Vol 1/2

037

WEST

AR116

AR112

AR108

AR104

AR100

AR96

AR92

AR88

AR84

AR80

AR76

AR72

EAST

5 cm

SCALE



$$\frac{V}{H} = \frac{5}{1}$$

794041

BACH HOLDINGS
ARTHUR RIVER
LINE 1
SOUTH

Author: G.L. | Date: MAR'88 | Fig. No.: 8b

88-2796 Vol 1/2

LEGEND

*0.2% Average grade for drill hole

H.W.M.

Boiling

*0.2%

0.3%
0.1%
0.2%

Boiling

*0.15%

0.2%
0.2%
0.1%
0.1%

Boiling

*0.2%

0.2%
0.1%
0.2%
0.2%

Boiling

*0.15%

0.2%
0.1%
0.1%
0.2%
0.2%

Boiling

*0.2%

0.2%
0.1%
0.2%
0.2%
0.2%
0.2%

Boiling

*0.2%

0.3%
0.1%
0.2%
0.2%
0.2%
0.2%

Boiling

*0.2%

0.2%
0.3%
0.2%
0.2%
0.2%
0.2%

Boiling

*0.2%

0.3%
0.2%
0.2%
0.2%
0.2%

Boiling

*0.2%

0.2%
0.3%
0.3%
0.2%
0.2%
0.2%
0.2%

*0.2%

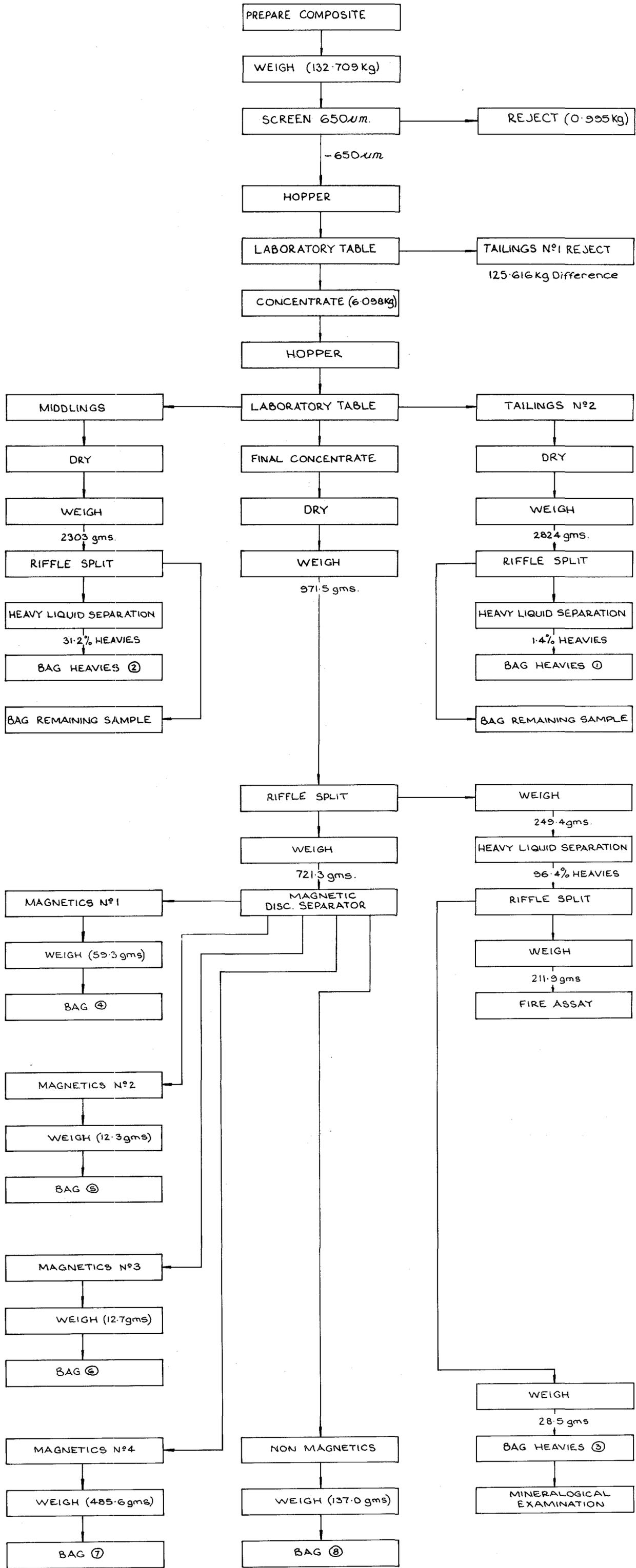
0.3%
0.2%
0.2%
0.2%
0.2%
0.2%
0.1%
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*0.2%

0.3%
0.3%
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0.2%



794042

BACH HOLDINGS
FLWSHEET FOR
TEMMA LINE 1
COMPOSITE SAMPLE
TESTWORK
 Author: G.LEE | Date: Mar'88 | Fig.: 9

PETER H. STITT & ASSOCIATES PTY. LTD.
MINING AND GEOLOGICAL CONSULTANTS

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 KING YORK HOUSE,
 32 YORK STREET,
 SYDNEY N.S.W. 2000
 PHONE: (02) 29 1403
 FAX: (02) 262 2395

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REPORT NO 6/88

VOLUME 11

EL 33/86 TASMANIA

Annual Report on Exploration Completed in
 Arthur River - Sandy Cape Area
 of Western Tasmania
 to 17/4/88

Report Prepared for Bach Holdings Pty. Ltd.

G. Lee
 April, 1988

88-2796

MINES	
EL 33/86	
- 6 APR 1988	
Doc. Ref.	
Action Officer	Initials
COVER	SHEET
ON FILE	
REFERS	
Resubmit to	Date

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APPENDIX 1

Drill Hole Descriptive Logs.

Preliminary Study of Coast between Arthur River
and Sandy Cape.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

LINE NO: HOLE NO: ARI

Located in small beach ridge development north of Temma Harbour

LOGGED BY: Eastern edge of ridges, on western face of E-most ridge
Graham Lee

DATE DRILLED:

043

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 0.5) 1 sample	SAND, white, fine grained.			
0.5 - 1.5		SAND, yellow, fine grained, trace shell + H.M.			1.64
1.5 - 3.0		SAND, yellow, fine grained with visible H.M. Trace of shell			1.25
3.0 - 4.5		AS ABOVE Water table at 4.2m. 4.3m. coarse shell and increased H.M.			2.39
		END OF HOLE 4.5m.			
		Average			1.76

794046

31.

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

West of AR1. On west side of ridge ~100m. east of coast.

LOGGED BY: Graham Lee

TITLE NO: EL 33/86

LINE NO: HOLE NO: AR2

DATE DRILLED:

034

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 0.3		SAND & SOIL, grey			
0.3 - 1.5		SAND, fine grained, yellow with shell and Tr H.M. Some medium grained shell rich zones.			
1.5 - 3.0		SAND, medium grained, yellow. Shell rich.			
3.0 - 4.0		AS ABOVE			
		Water Table 4.0m.			
		END OF HOLE			

794047 32.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER West of Temma 2.4 km.
Old sand dunes \approx 250-300m west of old quartzite shore line with
LOGGED BY: rounded pebbles and cobbles
Graham Lee

LINE NO: HOLE NO: AR3

DATE DRILLED:

045

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, fine grained, dark grey, grading paler to white. No visible H.M.			
1.5 - 2.2		AS ABOVE			
2.2 - 2.3		SAND, dark grey, clayey then to grey weathered bedrock. END OF HOLE 2.3m.			

794048

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER West of Temma 1.8 km.
≈ 400m. west of AR3

LINE NO: HOLE NO: AR4

LOGGED BY: Graham Lee

DATE DRILLED:

049

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, fine grained, dark grey grading paler to white			0.05
1.5 - 2.5		SAND, fine grained, white. Water Table.			0.09
		END OF HOLE 2.5m.			
		Average			0.07

794049 34.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER West of Rebecca Lagoon near coast

LINE NO: HOLE NO: AR5

LOGGED BY: Graham Lee

DATE DRILLED:

0.07

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, medium to fine grained, shelly, grey to 1.0m. then yellowish grey			0.15
1.5 - 3.0		SAND, as above but yellow. Trace H.M. near 3.0m.			0.10
3.0 - 4.5		SAND, medium grained, very shelly.			0.08
4.5 - 6.0		AS ABOVE			0.08
6.0 - 7.5		AS ABOVE			0.17
7.5 - 9.5		AS ABOVE			0.05
9.5 - 10.5		AS ABOVE			0.05
		END OF HOLE 10.5m.			
		Average			0.1

794050

35.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER Southern end Arthur River Beach.
In swale on frontal dune

LINE NO: HOLE NO: AR6

0.18

LOGGED BY: Graham Lee

DATE DRILLED:

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, fine grained, grey, with minor shell to 0.75m. then yellow.			1.60
1.5 - 3.0		SAND, fine grained, yellow with minor shell and Tr H.M.			0.82
3.0 - 4.5		AS ABOVE			1.40
4.5 - 6.0		AS ABOVE Slight increase in H.M.			0.70
6.0 - 7.5		AS ABOVE			1.13
7.5 - 8.5		SAND, fine grained yellow, minor shell and visible black H.M. (\approx 5%) near top of sample interval)			1.72
8.5		SAND getting wet. Struck rock. Possible old beach. END OF HOLE			
		Shingle banks on centre section of beach at toe of dune. Also contain H.M. cons and mineral slicks on beach. Could underly dunes.			
		Average			1.2

794051 36.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

North end Arthur River Beach. Behind frontal dune but seaward of high vegetated dunes.

LINE NO: AR7

HOLE NO:

LOGGED BY: Graham Lee

DATE DRILLED:

049

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, fine-medium grained, yellow. Some shell and very little H.M.			
1.5 - 3.0		AS ABOVE			
3.0 - 4.5		AS ABOVE			
4.5 - 5.0		AS ABOVE			
5.0		Water Table			
		END OF HOLE			

794052

37.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER High dunes east of Temma Road

LINE NO: HOLE NO: AR8

LOGGED BY: Graham Lee

DATE DRILLED:

0350

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, grey to 0.3m. then SAND, fine grained to medium grained yellow. Some shell.			0.15
1.5 - 3.0		SAND, medium to fine grained, yellow, shelly, Tr. H.M.			0.17
3.0 - 4.5		AS ABOVE			0.17
4.5 - 6.0		AS ABOVE			0.19
6.0 - 7.5		AS ABOVE			0.18
7.5 - 9.0		AS ABOVE			0.12
9.0 - 10.5		AS ABOVE			0.17
		END OF HOLE			
		Average			0.16

794053

38.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: SANDY CAPE South end of Sandy Cape beach \approx 500 m inland
from water in depression between dunes.

LINE NO: HOLE NO: SCI

LOGGED BY: Graham Lee

DATE DRILLED:

051

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, fine grained, yellow. Some shell and fine grained mineral.			0.69
1.5 - 3.0		AS ABOVE			0.54
3.0 - 4.5		SAND, fine grained, yellow. No shell, increasing H.M.			0.90
4.5 - 5.7		AS ABOVE with some shell. Some richer mineral bands 5.5 to 5.7m. Water Table 5.7m.			1.09
		Average			0.79

794054

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: SANDY CAPE Approx 200m inland from beach

LINE NO: HOLE NO: SC2

LOGGED BY: Graham Lee

DATE DRILLED:

053

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, fine grained, yellow with shell and Tr H.M.			
1.5 - 3.0		AS ABOVE			
3.0 - 3.75		AS ABOVE			
3.75		Water Table			
		END OF HOLE			

794055

40.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: SANDY CAPE 100m E of mobile dunes. Old dune east of mobile dunes. Heavily vegetated

LINE NO: HOLE NO: SC3

LOGGED BY: Graham Lee

DATE DRILLED:

053

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, fine grained, pale yellow, shelly with Tr fine H.M.			0.28
1.5 - 3.0		AS ABOVE			0.14
3.0 - 4.5		AS ABOVE with minor orange and yellowish grey bands.			0.30
4.5 - 5.1		SAND, as above 5			0.26
5.1		Water Table			
		END OF HOLE 5.1			
		Average			0.24

794056 41.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: SANDY CAPE Flat depression inland from coast. Old vegetated soil showing in much of area

LINE NO: HOLE NO: SC4

LOGGED BY: Graham Lee

DATE DRILLED:

054

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine grained, yellow, shelly. Tr H.M.			
1.0		Water Table			
		END OF HOLE 1.0m.			

794057 42.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: SANDY CAPE Half-way between SC4 and coast. On wedge
of ridge 2-3m. above plain below

LINE NO: HOLE NO: SC5

LOGGED BY: Graham Lee

DATE DRILLED:

055

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND & SOIL, grey profiles. Some shell. Tr H.M.			
1.0		Water Table			
		NO SAMPLE			

794058 43.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: SANDY CAPE Top of high dune at junction of mobile dune blowing over old vegetated dune

LINE NO: HOLE NO: SC6

LOGGED BY: Graham Lee

DATE DRILLED:

056

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, medium grained, yellow, shelly			0.12
1.5 - 3.0		AS ABOVE			0.09
3.0 - 4.5		SAND, as above to 3.3m. then old dark grey soil profile to 3.8m. which grades back to yellowish orange. Shelly sand.			0.13
4.5 - 6.0		SAND, medium grained, yellow, shelly with trace H.M.			0.10
6.0 - 7.5		AS ABOVE, with more H.M. visible			0.11
7.5 - 9.0		AS ABOVE			0.10
9.0 - 10.5		AS ABOVE			0.07
		END OF HOLE			
		Average			0.10

794059

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: SANDY CAPE Older vegetated dune inland from Greenes Point Dunes,
appear to go considerable distance inland and vegetated
with low heath (0.5m. high)

LINE NO: HOLE NO: SC7

LOGGED BY: Graham Lee

DATE DRILLED:

CEP

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.5		SAND, medium grained, grey and white. Tr H.M. No shell.			0.05
1.5 - 3.0		SAND, medium to coarse grained, white, no shell. Tr H.M.			0.03
3.0 - 4.5		SAND, white, as above to 4.0m. then yellow grading to dark brown old soil.			0.04
4.5 - 5.2		SAND, medium grained, dark brownish grey.			0.03
5.2		Water Table			
		Average			0.04

794060 45.

058

APPENDIX 2

Results of Laboratory Heavy Mineral Separations.

for Preliminary Study

- AR and SC Samples



Gold Coast Assay Services



20 WHEELER CRESCENT, CURRUMBIN, GOLD COAST, QUEENSLAND, AUSTRALIA
POSTAL ADDRESS: P.O. BOX 31 CURRUMBIN, QUEENSLAND, 4223.
TELEPHONE: (075) 34 7255. TELEX: AA40451

LABORATORY REPORT

SOURCE: Peter Stitt & Associates Pty., Ltd.
SAMPLE: Drill Hole Samples ref. Letter dated 20th November.
DATE: 8th December 1986

HEAVY MINERAL ASSAY

Description	%H/M	Description	%H/M	Description	%H/M
AR1 0 - 1.5	1.641	AR6 4.5 - 6.0	0.700	SC3 1.5 - 3.0	0.137
AR1 1.5 - 3.0	1.245	AR6 6.0 - 7.5	1.134	SC3 3.0 - 4.5	0.301
AR1 3.0 - 4.5	2.385	AR6 7.5 - 8.5	1.715	SC3 4.5 - 5.1	0.264
AR4 0 - 1.5	0.049	AR8 0 - 1.5	0.149	SC6 0 - 1.5	0.117
AR4 1.5 - 2.5	0.090	AR8 1.5 - 3.0	0.167	SC6 1.5 - 3.0	0.094
AR5 0 - 1.5	0.148	AR8 3.0 - 4.5	0.174	SC6 3.0 - 4.5	0.133
AR5 1.5 - 3.0	0.100	AR8 4.5 - 6.0	0.187	SC6 4.5 - 6.0	0.100
AR5 3.0 - 4.5	0.083	AR8 6.0 - 7.5	0.181	SC6 6.0 - 7.5	0.106
AR5 4.5 - 6.0	0.084	AR8 7.5 - 9.0	0.121	SC6 7.5 - 9.0	0.098
AR5 6.0 - 7.5	0.168	AR8 9.0 - 10.5	0.174	SC6 9.0 - 10.5	0.068
AR5 7.5 - 9.0	0.048	SC1 0 - 1.5	0.687	SC7 0 - 1.5	0.054
AR5 9.0 - 9.75	0.046	SC1 1.5 - 3.0	0.544	SC7 1.5 - 3.0	0.027
AR6 0 - 1.5	1.595	SC1 3.0 - 4.5	0.896	SC7 3.0 - 4.5	0.040
AR6 1.5 - 3.0	0.819	SC1 4.5 - 5.7	1.087	SC7 4.5 - 5.2	0.026
AR6 3.0 - 4.5	1.392	SC3 0 - 1.5	0.280	3 Mile Beach	4.889
				Arthur River Beach.	2.053

Signatory
(C.H. RAHNER)

PHYSICAL SEPARATIONS & X.R.F ANALYSIS

DETRITAL HEAVY MINERAL SUITES
GENERAL LABORATORY ANALYSIS



C80



Gold Coast Assay Services



20 WHEELER CRESCENT, CURRUMBIN, GOLD COAST, QUEENSLAND, AUSTRALIA
POSTAL ADDRESS: P.O. BOX 31 CURRUMBIN, QUEENSLAND, 4223
TELEPHONE: (075) 34 7255. TELEX: AA40451

LABORATORY REPORT

SOURCE: Peter Stitt & Associates Pty. Ltd.

SAMPLE: ~~3 Mile Beach South End~~ *Arthur River Beach*

DATE: 9th December 1986

Please note the following correction to the assay of the above sample as shown in the Heavy Mineral Assay report of the 8th December.

The percent Heavy Mineral figure of 4.889 represents that of the sand fraction only. This sample contained 58% by weight of weathered rock. The correct figure, when allowance is made for this material then becomes 2.053%

Yours faithfully,


.....
(C.H. RAHNER)

PHYSICAL SEPARATIONS & X.R.F ANALYSIS

DETRITAL HEAVY MINERAL SUITES
GENERAL LABORATORY ANALYSIS



C61

APPENDIX 3

"AR1" Check Drilling

- Drillhole Descriptive Logs
- Laboratory Test Result

CLIENT: BACK HOLDINGS
 AREA: ARTHUR RIVER 1
 1m north of original AR1 hole being 000^o Mag
 LOGGED BY: Graham Lee

TITLE NO: EL 33/86
 LINE NO: HOLE NO: AR1/1N
 DATE DRILLED: 28.7.87

062

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine grained to medium brownish amber)			
1.0 - 2.0		SAND, fine grained to medium amber with visible heavy mineral)		0.1	1.4
2.0 - 3.0		AS ABOVE, with increasing heavy mineral.)			
		Sample 0 - 3.0m.)			
3.0 - 4.0		AS ABOVE with increasing heavy mineral +1%.)		0.0	2.4
4.0 - 4.8		AS ABOVE WITH IRON STAINING AT 4.4m.)		0.2	2.3
		Water table 4.6m.)			
		Abundant mineral 4.5-4.7m.)			
		Start sludging 4.7m. Sludge to 4.8m.)			
		Rock at 4.8m.)			
		Some pebbles in sand from 4.7 to 4.8m. along with heavy mineral.)			
		END OF HOLE 4.8m.)			
		Average			1.76

794065 50.

CLIENT: BACH HOLDINGS
 AREA: ARTHUR RIVER 1
 1m east of AR1 being 090° mag
 LOGGED BY: Graham Lee

TITLE NO: EL 33/86
 LINE NO: HOLE NO: AR1/1E
 DATE DRILLED: 28.7.87

033

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 3.0		AS for AR1/1N		0.1	1.5
3.0 - 4.0		SAND, amber, fine grained to medium grained with abundant heavy mineral, +1%.		0.1	2.3
4.0 - 4.8		SAND, as above. Water table at 4.6m. START SLUDGING 4.6m. Rock at 4.8m.		0.1	2.2
		END OF HOLE 4.8m.			
		Average			1.78

794066

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER 1
1m south of AR1 bearing 180° mag

LINE NO: HOLE NO: AR1/1S

LOGGED BY: Graham Lee

DATE DRILLED: 28.7.87

03A

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 3.0		As for AR1/1N		0.2	1.5
3.0 - 4.0		SAND, amber, fine to medium grained with abundant heavy mineral, +1%.		0.0	2.5
4.0 - 4.3		AS ABOVE Rock at 4.3m. and some grey Clay		0.0	2.4
		END OF HOLE 4.3m.			
		Average			1.8

794067

52.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER 1
1m west of AR1 bearing 270°

LINE NO: HOLE NO: AR1/1W

LOGGED BY: Graham Lee

DATE DRILLED: 28.7.87

085

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 3.0		AS for AR1/1N		0.2	1.3
3.0 - 4.0		SAND, fine grained to medium grained. Amber with visible heavy mineral, +1%.		0.1	2.5
4.0 - 4.5		SAND, as above, damp at 4.5m. Rock at 4.5m. END OF HOLE 4.5m.		0.1	3.0
		Average			1.76

794068
53.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER 1
2m west of AR1 bearing 270°

LINE NO: HOLE NO: AR1/2W

LOGGED BY: Graham Lee

DATE DRILLED: 28.7.87

066

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 3.0		AS for AR1/1N		0.2	1.3
3.0 - 4.0		SAND, amber, fine to medium grained, with visible heavy mineral, +1%.		0.1	1.8
4.0 - 4.75		SAND, medium grained, with coarse at bottom. Some bands of black mineral, coarse shell and pebbles. Rock at 4.75m.		0.3	3.3
		END OF HOLE 4.75m.			
		Average			1.72

794069 54.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER 1

LINE NO:

HOLE NO:

ARI/2E

2m east of ARI being 090° mag

LOGGED BY: Graham Lee

DATE DRILLED: 28.7.87

copy

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 3.0		AS for ARI/1N		0.2	1.7
3.0 - 4.0		SAND, abmer, fine to medium grained with visible heavy mineral, +1%.		0.0	2.3
4.0 - 4.95		AS ABOVE Water table 4.95m. Rock 4.95m. Some coarse shell fragments at bottom.		0.3	2.3
		END OF HOLE			
		Average			1.94

794070

55

058

APPENDIX 4

Drill hole Descriptive Logs

Traverse lines drilled:

Temma Harbour	TH Line 1, 0 to 44 TH Line 2, 0 to 36
Nelson Bay	NB, Holes 0 to 44 and BB
Arthur River	AR, Holes 0 to 116
Hazard Bay	HB, Holes 4 to 36

089

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: THO

LOGGED BY: G. LEE

DATE DRILLED: 6/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, grey organic rich, fine grained.		0.8	0.9
1.0 - 2.0		SAND, brown, fine grained		0.2	0.7
2.0 - 3.0		SAND, amber, fine grained		0.0	0.5
3.0 - 4.0		SAND, amber, fine grained. Trace of H.M. Shell layer and dark grey sand at 3.8m. to 4.0m.		0.3	0.5
4.0 - 5.0		SAND, dark amber & brown. Fine grained, some shell. Water Table 5.0.		0.5	0.7
		START SLUDGING			
5.0 - 5.50	1.5	SAND, dark brown, fine grained then into dark brown sandy clay. Too hard to sludge. Blocked sludge.		0.2	1.0
		END OF HOLE 5.50m.			
		Average			0.69

794072

57.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH1

LOGGED BY: GRAHAM LEE

DATE DRILLED: 6/5/87

070

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, grey, fine grained	1.5	0.7	1.2
1.0 - 2.0		SAND, brown then amber, fine grained		0.1	0.7
2.0 - 3.0		SAND, amber, fine grained		0.1	0.5
3.0 - 4.0		AS ABOVE		0.0	0.5
4.0 - 5.0		AS ABOVE		0.2	0.5
5.0 - 6.0		SAND, amber, fine grained, trace of mineral		0.0	0.5
6.0 - 7.0		AS ABOVE		0.1	0.4
7.0 - 8.0		AS ABOVE		0.0	0.6
8.0 - 9.0		AS ABOVE. Shell layer at 8.3m. then brownish grey, damp sand		2.2	0.7
		END OF HOLE 9.0m.			
		Water Table			
		Average			0.62

784073

58.

CLIENT: BACH HOLDINGS

AREA: TEMMA HARBOUR

LOGGED BY: GRAHAM LEE

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: TH2

DATE DRILLED: 5/5/87

CT1

794074
59.

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, grey, fine grain	1.5	0.2	1.4
1.0 - 2.0		SAND, pale amber, fine grained		0.1	0.8
2.0 - 3.0		AS ABOVE		0.0	0.7
3.0 - 4.0		AS ABOVE		0.0	0.7
4.0 - 5.0		AS ABOVE with trace of H.M.		0.0	0.6
5.0 - 6.0		AS ABOVE with trace of H.M.		0.0	0.4
6.0 - 7.0		AS ABOVE		0.1	0.5
7.0 - 8.0		AS ABOVE		0.1	0.5
8.0 - 9.0		AS ABOVE		0.0	0.6
9.0 - 10.0		AS ABOVE with layer of shell at 9.5m.		0.2	0.8
		END OF HOLE 10.0m.			
		Average			0.7

073

CLIENT: BACH HOLDINGS

794076

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH4

LOGGED BY: GRAHAM LEE

DATE DRILLED: 5/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, brown, fine grained		0.4	1.4
1.0 - 2.0		SAND, fine grained, amber. Trace H.M.		0.2	1.3
2.0 - 3.0		AS ABOVE		0.4	0.9
3.0 - 4.0		AS ABOVE. Visible mineral +1%		0.1	1.0
4.0 - 5.0		AS ABOVE		0.3	1.0
5.0 - 6.0		AS ABOVE		0.0	0.6
6.0 - 7.0		AS ABOVE		0.1	0.6
7.0 - 8.0		AS ABOVE		0.1	0.9
8.0 - 9.0		AS ABOVE		0.1	0.9
9.0 - 9.5		AS ABOVE. Slightly increased mineral. 9.50 hard rock - stopped drilling.		0.1	1.0
		END OF HOLE			
			Average		0.96

61.

CLIENT: BACH HOLDINGS

794077

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH5

LOGGED BY: GRAHAM LEE

DATE DRILLED: 6 / 5 / 87

07A

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, grey and brown, fine grained		0.6	1.4
1.0 - 2.0		SAND, pale brown - amber		0.0	1.1
2.0 - 3.0		SAND, amber with visible heavy mineral \approx +1%		0.1	1.6
3.0 - 4.0		AS ABOVE		0.0	1.0
4.0 - 5.0		AS ABOVE		0.0	1.5
5.0 - 5.4		AS ABOVE		0.1	1.2
5.4		Hard weathered white clayey bedrock			
		END OF HOLE 5.4m.			
					Average 1.31

CLIENT: BACH HOLDINGS

794078

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH6

LOGGED BY: GRAHAM LEE

DATE DRILLED: 6/5/87

075

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, grey & brown with shell fragments		0.8	1.6
1.0 - 2.0		SAND, pale amber with one black shelly horizon - (old soil profile)		0.3	0.9
2.0 - 3.0		SAND, amber with visible ~+1% H.M.		0.0	0.8
3.0 - 4.0		AS ABOVE		0.0	0.9
4.0 - 5.0		AS ABOVE		0.0	1.1
5.0 - 6.0		AS ABOVE (5.4-5.7m. abundant mineral, dark grey bands up to +10% interbedded with 1% amber bands, each band millimetres thick)		0.1	3.8
		START SLUDGING			
6.0 - 6.3	2.0 kg	SAND & GRAVEL. 6.30 large boulder. Would not drill - tried star bit also		0.5	1.5
		END OF HOLE			
		Average			1.52

076

CLIENT: BACH HOLDINGS

794079

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1 HOLE NO: TH7

LOGGED BY: GRAHAM LEE

DATE DRILLED: 6/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, brownish grey, fine grained		0.3	1.5
1.0 - 2.0		SAND, amber with heavy mineral \approx +1%		0.1	1.0
2.0 - 3.0		SAND as above		0.1	1.6
3.0 - 4.0		SAND as above with increasing heavy mineral		0.0	1.8
4.0 - 5.0	4.5 kg	AS ABOVE with bands of +10% heavy mineral interbedded with amber sand 1% heavy mineral		0.1	3.3
		START SLUDGING 4.5m.			
5.0 - 5.16	1.25 kg	SAND, amber with pebbles and shell fragments. Visible fine mineral 2 - 3%. Hole stopped with pebbles blocking casing.		17.0	1.8
		END OF HOLE 5.16m.			
		Average			1.84

CLIENT: BACH HOLDINGS

794080

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH8

LOGGED BY: GRAHAM LEE

DATE DRILLED: 6/5/87

077

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, brown, fine grained		0.3	1.6
1.0 - 2.0		SAND, amber, fine grained. Heavy mineral +1%		0.1	0.8
2.0 - 3.0		SAND as above		0.4	1.0
3.0 - 4.0		AS ABOVE with some richer mineral bases		0.0	0.8
4.0 - 5.0		AS ABOVE with some richer mineral bases		0.0	1.7
5.0 - 6.0	5.5 kg	SAND, amber with abundant minerals and roots		0.2	3.5
		START SLUDGING 5.2m.			
6.0 - 6.5	3.0 kg	SAND, grey shell rich + H.M. Some organics and abundant pebbles. 6.5m. pebbles blocked sludge in casing		4.7	1.2
		Average			1.54%
		END OF HOLE 6.5m.			

CLIENT: BACH HOLDINGS

794081

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH9

LOGGED BY: GRAHAM LEE

DATE DRILLED: 6/5/87

078

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, brown, fine grained		0.2	2.6
1.0 - 2.0		SAND, amber, fine grained with visible mineral ~1%		0.1	1.4
2.0 - 3.0		AS ABOVE		0.2	2.1
		START SLUDGING 3.0m.			
3.0 - 3.8	4.25 kg	SAND, amber and grey with pebbles at bottom		3.0	3.9
		Pebbles at 3.80m. stopped drilling			
		END OF HOLE 3.80			
			Average		2.43%

CLIENT: BACH HOLDINGS

794082

TITLE NO: EL 33/86

079

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH10

LOGGED BY: GRAHAM LEE

DATE DRILLED: 6/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
I - 1.0		SAND, brown, medium grained		0.1	1.6
1.0 - 2.0		SAND, amber. Tr of H.M.		0.0	2.1
		START SLUDGING			
2.0 - 3.0	5.0 kg	SAND, amber, bands of mineral ~10% heavies		0.1	3.9
3.0 - 3.40	4.0 kg	SAND, amber - Tr of H.M.		1.5	2.9
		HOLE STOPPED AT ROCK			
		Average			2.58%

CLIENT: BACH HOLDINGS
 AREA: TEMMA HARBOUR
 LOGGED BY: GRAHAM LEE

794083

TITLE NO: EL 33/86
 LINE NO: 1 HOLE NO: TH11
 DATE DRILLED: 7/5/87

000

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, brown & grey		0.3	1.6
1.0 - 2.0		SAND, medium grained, amber. Trace H.M. START SLUDGING		0.3	2.0
2.0 - 3.0	2.75	SAND, amber, fine to medium grained. Visible H.M.		0.1	2.7
3.0 - 3.6	4.25	SAND, amber and grey with coarse shell and H.M. ≈2 - 4% Rock at 3.6m. END OF HOLE 3.6m.		2.3	2.7
		Average			2.20%

CLIENT: BACH HOLDINGS

794084

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH12

LOGGED BY: GRAHAM LEE

DATE DRILLED: 7/5/87

681

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine grained, grey and brown		1.0	1.9
1.0 - 2.0		SAND, amber, fine grained with visible h.M.		0.8	1.0
2.0 - 3.0		AS ABOVE, heavy mineral +1%		0.2	1.3
3.0 - 4.0		SAND, amber, medium grained with coarser shell H.M. + 1%		4.3	1.7
		START SLUDGING			
4.0 - 5.0	4.75 kg	SAND, amber, medium to fine grained H.M. 2 - 4%		0.7	1.9
5.0 - 5.7	6.0 kg	SAND, grey, medium grained, shell rich + organics. Visible H.M. + pebbles		2.6	1.3
		Average			1.53%
		END OF HOLE 5.7m.			

CLIENT: BACH HOLDINGS

794085

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH13

LOGGED BY: GRAHAM LEE

DATE DRILLED: 7/5/87

0532

70.

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, brown and amber with visible H.M.		0.2	2.3
1.0 - 2.0		SAND, amber with visible H.M.		0.0	2.0
2.0 - 3.0		AS ABOVE H.M. 2 - 4%		0.0	1.9
3.0 - 4.0		AS ABOVE		0.1	1.0
4.0 - 5.0		AS ABOVE		0.1	0.6
5.0 - 6.0		SAND, amber, medium grained with 1% H.M.		0.1	0.8
		START SLUDGING			
6.0 - 7.0	3.5 kg.	SAND, amber, fine grained 1 - 2% H.M.		0.2	1.5
7.0 - 7.5	1.5 kg.	SAND, grey with medium to coarse shell and fine to medium sand + organics 1 - 2% H.M.		0.6	1.5
		ROCK at 7.5m.			
		Average			1.45%

CLIENT: BACH HOLDINGS

794086

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH14

LOGGED BY: GRAHAM LEE

DATE DRILLED: 7/5/87

083

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, brown and amber, medium grained		0.3	2.0
1.0 - 2.0		SAND, amber, medium grained. Visible H.M. 1%		0.0	2.7
2.0 - 3.0		AS ABOVE		0.1	1.8
3.0 - 4.0		SAND, medium grained with coarser shell, amber H.M. 1%		0.1	1.8
		START SLUDGING			
4.0 - 5.0	4.0 kg	AS ABOVE		0.1	1.6
5.0 - 6.0	3.5 kg	SAND, medium grained, amber with coarser shell. Some organics H.M. 1 - 2%		2.0	1.4
6.0 - 6.3	0.5 kg	SAND, grey, medium grained with coarse shell and organics		8.8	0.9
		HOLE FINISHED IN BROWN PEATY CLAY			
		END OF HOLE 6.3m.			
			Average		1.85%

CLIENT: BACH HOLDINGS

AREA: TEMMA HARBOUR

LOGGED BY: GRAHAM LEE

794087

TITLE NO: EL 33/86

LINE NO: 1

DATE DRILLED: 7/5/87

HOLE NO: TH15

034

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to fine grained, grey and brown		6.4	1.6
1.0 - 2.0		SAND, amber, fine grained H.M. 1%		0.0	1.4
2.0 - 3.0		AS ABOVE		0.1	1.4
3.0 - 4.0		SAND, amber, medium grained with coarse shell. Tr. H.M.		0.1	1.8
		START SLUDGING			
4.0 - 5.0	5.0 kg	SAND, amber and medium grained with shell Tr H.M.		0.6	1.2
5.0 - 5.2	1.25 kg	SAND, medium grained with coarse and very coarse shell; grey, some pebbles		5.0	0.8
		PEBBLES STOPPED DRILLING 5.2m.			
		Average			1.45%
		END OF HOLE 5.2m.			

085

CLIENT: BACH HOLDINGS

794088

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH16

LOGGED BY: GRAHAM LEE

DATE DRILLED: 7/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine to medium grained, brown and amber		0.6	1.4
1.0 - 2.0		SAND, fine to medium grained, amber. Tr. of H.M.		0.1	2.4
2.0 - 3.0		SAND, medium grained, amber. H.M. 31%. Some coarser H.M. START SLUDGING		0.4	1.3
3.0 - 4.0	6.5 kg.	SAND, amber, medium grained with coarse shell. Tr. of H.M.		0.2	2.6
4.0 - 5.0	4.5 kg.	AS ABOVE		1.1	1.2
5.0 - 5.7	3.0 kg.	SAND, medium grained with coarse shell, grey. Tr. of H.M.		5.6	0.7
Average					1.65

036

CLIENT: BACH HOLDINGS

794089

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH18

LOGGED BY: GRAHAM LEE

DATE DRILLED: 7 /5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to fine grained, brown and amber		0.6	0.6
1.0 - 2.0		SAND, medium to fine grained, amber. Tr of H.M.		0.2	0.8
2.0 - 3.0		SAND, medium grained, amber. H.M. 1 - 2%		1.5	1.0
3.0 - 4.0		AS ABOVE		0.2	1.4
4.0 - 5.0		AS ABOVE H.M. Trace		0.2	1.3
		START SLUDGING			
5.0 - 6.0	3.5 kg	SAND, amber. Medium to fine grained H.M. 1-2%		3.9	1.3
6.0 - 6.6	3.0 kg	SAND, grey, medium grained with coarse shell. Tr of H.M.		4.4	1.0
		Average			1.1

CLIENT: BACH HOLDINGS

794090

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH20

LOGGED BY: GRAHAM LEE

DATE DRILLED: 7/5/87

087

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine grained, grey and amber		0.5	0.9
1.0 - 2.0		SAND, amber, fine to medium grained ± 1% H.M.		0.1	0.7
2.0 - 3.0		SAND, amber, medium grained with Tr of H.M.		0.2	0.6
		START SLUDGING			
3.0 - 4.0	5.0 kg	SAND, amber and grey, medium grained. Tr of H.M.		2.2	1.0
4.0 - 5.0	3.5 kg	SAND, medium grained with coarser shell. Brownish grey.		3.9	1.0
5.0 - 6.0		SAND, medium grained with coarse shell. Grey.		7.0	0.5
		END OF HOLE 6.0m.			
		Average			0.8

75.

CLIENT: BACH HOLDINGS

AREA: TEMMA HARBOUR

LOGGED BY: GRAHAM LEE

794091

TITLE NO: EL 33/86

LINE NO: 1

HOLE NO: TH22

DATE DRILLED: 7/5/87

0388

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and brown		0.2	0.8
1.0 - 2.0		SAND, amber. Medium grained. Tr. H.M.		0.1	0.7
2.0 - 3.0		SAND, amber. Medium grained. H.M. 1 - 2%.		0.0	1.0
3.0 - 4.0		AS ABOVE		0.0	1.0
4.0 - 5.0		AS ABOVE		0.0	0.7
5.0 - 6.0		AS ABOVE		0.1	0.8
6.0 - 7.0		SAND, amber, medium to coarse grained with coarse shell. Tr. of H.M.		0.2	0.6
		START SLUDGING			
7.0 - 8.0	4.0 kg	AS ABOVE		2.5	0.6
8.0 - 9.0	3.5 kg	SAND, medium grained with coarse shell, grey.		3.2	0.5
		END OF HOLE 9.0m.			
		Ran out of casing			
		Average			0.7

76.

039

CLIENT: BACH HOLDINGS

794092

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH24

LOGGED BY: GRAHAM LEE

DATE DRILLED: 8/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and amber		0.1	0.9
1.0 - 2.0		SAND, as above. Tr of H.M.		0.2	0.7
2.0 - 3.0		SAND, medium grained with coarse shell. Tr of H.M.		0.1	0.6
3.0 - 4.0		AS ABOVE		0.2	0.4
4.0 - 5.0		AS ABOVE		0.1	0.4
5.0 - 6.0		AS ABOVE		0.4	0.4
6.0 - 7.0		AS ABOVE with coarser shell		0.6	0.4
		START SLUDGING			
7.0 - 8.0	4.5 kg	AS ABOVE		1.3	0.7
8.0 - 9.0	4.25 kg	SAND, medium to coarse grained with coarse and very coarse shell. Amber and grey.		2.3	0.5
9.0 - 10.0	3.75 kg	SAND, medium grained with coarse shell. Rich in shell + organics. Very little H.M.		7.3	0.4
		9.7 - 10.0 Black silt and clay			
		END OF HOLE 10.0m.			
		Average			0.5

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

794093

LINE NO: 1

HOLE NO: TH26

LOGGED BY: GRAHAM LEE

DATE DRILLED: 8/5/87

090

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, grey, medium grained		0.2	0.6
1.0 - 2.0		SAND, medium grained, amber. Tr of H.M.		0.2	0.4
2.0 - 3.0		AS ABOVE		0.2	0.5
3.0 - 4.0		AS ABOVE		0.1	0.6
4.0 - 5.0		AS ABOVE		0.1	0.8
5.0 - 6.0		AS ABOVE H.M. ~1%		0.1	0.8
6.0 - 7.0		SAND, medium to coarse grained with abundant shell Tr. H.M.		0.4	0.5
7.0 - 8.0	4.0 kg	SAND, medium to coarse grained with very coarse shell, amber		3.4	0.3
8.0 - 9.0	3.75 kg	SAND, medium grained with coarse shell, grey.		3.5	0.2
9.0 - 9.4	2.5 kg	SAND, medium to fine grained, grey, with brown organic rich mineral at 9.4m.		8.0	0.3
		END OFHOLE 9.4m.			
		Average			0.5

CLIENT: BACH HOLDINGS

794094

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH28

LOGGED BY: GRAHAM LEE

DATE DRILLED: 8 /5/87

1091

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and amber		0.2	0.6
1.0 - 2.0		SAND, medium grained, amber with one grey horizon		0.4	0.5
2.0 - 3.0		SAND, medium grained, amber with H.M. ≈ 1%		0.1	0.5
3.0 - 4.0		AS ABOVE		0.1	0.6
4.0 - 5.0		AS ABOVE		0.1	0.4
5.0 - 6.0		AS ABOVE		0.1	0.4
6.0 - 7.0		AS ABOVE		0.1	0.4
7.0 - 8.0		AS ABOVE but grading coarser with depth to coarse sand		0.2	0.2
8.0 - 9.0		SAND, medium to coarse grained, amber		0.1	0.4
9.0 - 10.0		SAND, coarse grained to very coarse, shell rich, amber		1.1	0.3
		END OF HOLE 10.0m.			
		Average			0.4

092

CLIENT: BACH HOLDINGS

794095

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH30

LOGGED BY: GRAHAM LEE

DATE DRILLED: 8/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, grey and amber. Fine grained		0.5	0.4
1.0 - 2.0		SAND, fine to medium grained, amber. Tr. of H.M.		0.3	0.4
2.0 - 3.0		AS ABOVE		0.2	0.3
3.0 - 4.0		AS ABOVE		0.3	0.2
4.0 - 5.0		AS ABOVE. H.M. ≈ 1%		0.1	0.3
5.0 - 6.0		AS ABOVE with coarse grained shell		0.3	0.5
6.0 - 7.0		AS ABOVE		0.3	0.4
7.0 - 8.0		AS ABOVE		0.6	0.5
		8.0 END OF HOLE Water Table			
		Average			0.4

093

CLIENT: BACH HOLDINGS

794096

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH32

LOGGED BY: GRAHAM LEE

DATE DRILLED: 8/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, grey and brown, fine grained		0.6	0.3
1.0 - 2.0		SAND, medium grained, brown and amber		1.4	0.3
2.0 - 3.0		SAND, medium grained, amber		0.5	0.3
3.0 - 4.0		SAND, medium grained, amber. Tr. H.M.		0.2	0.4
4.0 - 5.0		AS ABOVE		0.6	0.3
5.0 - 6.0		SAND, medium grained with coarse grained shell. Amber. START SLUDGING		2.6	0.3
6.0 - 7.0		AS ABOVE		4.3	0.4
7.0 - 8.0		Sand, coarse grained with very coarse shell, amber. Shell greater than quartz rock at 8.0m.		6.6	0.2
		END OF HOLE 8.0m.			
		Average			0.3

C9A

CLIENT: BACH HOLDINGS

794097

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH34

LOGGED BY: GRAHAM LEE

DATE DRILLED: 8/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to coarse grained, grey, shell rich		1.0	0.3
1.0 - 2.0		SAND, medium to coarse grained amber, shell rich		0.5	0.2
2.0 - 3.0		AS ABOVE START SLUDGING		2.0	0.2
3.0 - 3.3		AS ABOVE 3.3 ROCK		5.6	0.2
		Average			0.2

095

CLIENT: BACH HOLDINGS

794098

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH36

LOGGED BY: GRAHAM LEE

DATE DRILLED: 8/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to coarse grained, grey, shell rich.		0.9	0.1
1.0 - 2.0		AS ABOVE, amber		2.1	0.1
2.0 - 3.0		AS ABOVE, amber		1.7	0.1
3.0 - 4.0		AS ABOVE		1.2	0.1
4.0 - 5.0		AS ABOVE		3.7	0.2
5.0 - 5.8		SAND, coarse grained, grey, shell rich		14.4	0.2
		5.8 ROCK			
		Average			0.1

CLIENT: BACH HOLDINGS

794099

TITLE NO: EL 33/86

096

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH38

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, coarse grained, shell rich, grey		3.8	<0.1
1.0 - 2.0		AS ABOVE, amber		1.9	0.1
2.0 - 3.0		AS ABOVE, amber and grey; shell rich bottom			0.1
3.0 - 4.0		SAND, coarse grained with shell; shell rich			
4.0 - 5.0		AS ABOVE			
5.0 - 6.0		AS ABOVE			
6.0 - 7.0		AS ABOVE			
7.0 - 8.0	4.75 kg	AS ABOVE		2.2	0.1
8.0 - 9.0	3.5 kg	SAND, grey, coarse grained with very coarse shell. Large shells stopped drilling END OF HOLE 9.0m.		9.8	0.3
		Average			0.1

097

CLIENT: BACH HOLDINGS

794100

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH40

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, coarse grained, shell rich, grey		2.1	<0.1
1.0 - 2.0		SAND, coarse grained, shell rich, amber, with grey soil horizon near 2m.		1.5	0.2
2.0 - 4.0		SAND, medium grained, with some coarse grained shell, amber. Tr. of H.M.		0.8	0.2
4.0 - 5.0		AS ABOVE		0.8	0.2
5.0 - 6.0		AS ABOVE		2.3	0.2
6.0 - 7.0		SAND, coarse grained with some very coarse shell, amber START SLUDGING		1.2	0.2
7.0 - 7.7	1.5 kg	Shell, coarse grained and very coarse, lesser silica rock at 7.7m. END OF HOLE 7.7m.		17.5	0.1
		Average			0.2

098

CLIENT: BACH HOLDINGS

794101

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH42

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, coarse grained, shell rich, amber		3.3	0.1
1.0 - 2.0		AS ABOVE, amber and brown		1.2	0.1
2.0 - 3.0		AS ABOVE, amber and brown		0.7	0.1
3.0 - 4.0		SAND, medium to coarse, amber		0.5	0.1
4.0 - 5.0		AS ABOVE		1.2	0.1
5.0 - 6.0		AS ABOVE		1.1	0.1
6.0 - 7.0		SAND, coarse grained, shell rich, amber		2.2	0.1
7.0 - 8.0		AS ABOVE with some very coarse shell.		6.0	0.1
		Water at 8.0m. Insufficient casing to run below 9.0m.			
		END OF HOLE 8.0m.			
		Average			0.1

CLIENT: BACH HOLDINGS

794102

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 1

HOLE NO: TH44

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

099

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to coarse grained, brown, shell rich		1.3	0.1
1.0 - 2.0		SAND, as above, amber		1.5	0.1
2.0 - 3.0		AS ABOVE, some coarse shell and Tr. H.M.		2.0	0.1
3.0 - 4.0		SAND, coarse grained, amber. Shell rich.		1.4	0.1
4.0 - 5.0		SAND, medium grained, amber, shell rich. Tr. of H.M.		0.5	0.1
5.0 - 6.0		AS ABOVE		0.7	0.1
6.0 - 7.0		AS ABOVE		0.8	0.1
7.0 - 8.0		AS ABOVE		0.8	0.1
8.0 - 9.0		AS ABOVE		1.4	0.1
9.0 - 10.0		SAND, coarse with very coarse shell. Shell rich, amber.		2.7	0.1
		Water 10.0m.			
		Average			0.1
		END OF HOLE 10.0m.			

794103

TITLE NO: EL 33/86

100

CLIENT: BACH HOLDINGS

AREA: TEMMA HARBOUR

LINE NO: 2

HOLE NO: THO

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine to medium grained, well sorted, grey.		1.0	1.0
1.0 - 2.0		SAND, fine to medium grained, well sorted, amber. Tr. of H.M.		0.1	0.6
2.0 - 3.0		AS ABOVE. \approx 1% H.M.		0.0	0.6
3.0 - 4.0		as above		0.0	0.6
		START SLUDGING 4.5m.			
4.0 - 5.0		SAND, medium grained with coarse grained shell. H.M. \approx 1%		1.9	1.3
5.0 - 5.5		SAND, fine to medium grained, with coarse grained shell, grey. H.M. \approx 1%. 5.5m. rock.		1.0	1.9
		END OF HOLE 5.5m.			
		Average			0.9

101

794104

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 2

HOLE NO: TH4

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey.		0.7	0.9
1.0 - 2.0		sand, fine to medium grained, amber. Tr. of H.M.		0.1	0.4
2.0 - 3.0		AS ABOVE. H.M. 1-2%.		0.2	0.4
3.0 - 4.0		AS ABOVE. H.M. ≈1%.		3.7	0.3
		START SLUDGING 4.5m.			
4.0 - 5.0	3.5 kg.	AS ABOVE. H.M. ≈1%		0.4	0.5
5.0 - 5.5	3.0 kg.	SAND, medium grained with coarser shell. Amber and then grey. H.M. ≈1%.		1.9	0.4
		5.5m. rock.			
		END OF HOLE 5.5m.			
		Average			0.5

794105

TITLE NO: EL 33/86

102

CLIENT: BACH HOLDINGS

AREA: TEMMA HARBOUR

LINE NO: 2

HOLE NO: TH8

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine grained, grey		0.5	0.5
1.0 - 2.0		SAND, fine to medium grained, amber. Tr. of H.M.		0.2	0.3
2.0 - 3.0	2.5 kg.	SAND, medium grained, amber. Tr. of H.M.		0.0	0.3
3.0 - 4.0	4.75 kg.	AS ABOVE. Shell rich.		1.0	0.6
4.0 - 4.5		SAND, medium grained, grey. Shell rich with coarse shell at 4.5m. Rock at 4.5m.		15.6	0.4
		END OF HOLE 4.5m.			
		Average			0.4

794106

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 2

HOLE NO: TH12

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

103

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and amber		0.4	0.7
1.0 - 2.0		SAND, medium grained, amber		0.1	0.5
2.0 - 3.0	3.75 kg	SAND, medium grained, amber. Tr H.M.		0.1	0.2
3.0 - 3.3		SAND, medium grained with coarse shell. Grey. little mineral. ROCK at 3.3m.		2.0	0.2
		Average			0.45

101

794107

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 2

HOLE NO: TH16

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, dark grey and amber		0.5	0.7
1.0 - 2.0		SAND, medium grained, amber		0.2	0.5
2.0 - 3.0		AS ABOVE, grey sand on bottom		0.0	0.5
3.0		ROCK			
		END OF HOLE			
		Average			0.6

105

794108

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 2

HOLE NO: TH20

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0	3.75 kg	SAND, medium to coarse grained, amber		1.2	0.5
1.0 - 2.0		AS ABOVE with some iron stained zones START SLUDGING		1.0	0.6
2.0 - 3.0		SAND, medium grained, amber then grey. Tr. of H.M.		1.2	0.6
3.0 - 4.0		SAND, medium to coarse grained, grey		9.5	0.4
4.0 - 5.0		AS ABOVE with very coarse shell		4.9	0.5
5.0		ROCK			
		Average			0.5

794109

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 2

HOLE NO: TH24

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

109

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to coarse grained, grey then amber		0.5	0.3
1.0 - 2.0		SAND, medium to coarse grained, amber. Tr. of H.M.		0.3	0.2
2.0 - 3.0		AS ABOVE		0.2	0.4
3.0 - 4.0		AS ABOVE, coarser with increased shell near 4.0m.		0.8	0.2
		START SLUDGING			
4.0 - 5.0	4.25 kg	SAND, medium to coarse grained, coarser with depth and increasing shell. Amber. No visible mineral.		1.9	0.3
5.0 - 6.0	3.75 kg	SAND, coarse grained shell rich, grey. Very coarse shell at 6.0m. stopped auger.		9.3	0.5
		END OF HOLE 6.0m.			
		Average			0.3

CLIENT: BACH HOLDINGS

794110

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

LINE NO: 1 HOLE NO: AR20

LOGGED BY: GRAHAM LEE

DATE DRILLED:

107

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, brown		0.9	0.3
1.0 - 2.0		SAND, medium grained, amber. Tr. of H.M.		0.0	0.2
2.0 - 3.0		AS ABOVE then dark grey START SLUDGING		0.1	0.3
3.0 - 4.0		AS ABOVE, grey		0.1	0.1
4.0 - 5.0		AS ABOVE, with organics		0.1	0.1
5.0 - 6.0		AS ABOVE		0.8	0.2
6.0 - 7.0		AS ABOVE. Rock at 7.0m.		0.6	0.1
		END OF HOLE 7.0m.			
		Average			0.2

108

CLIENT: BACH HOLDINGS
 AREA: TEMMA HARBOUR
 LOGGED BY: GRAHAM LEE

794111

TITLE NO: EL 33/86
 LINE NO: 2 HOLE NO: TH28
 DATE DRILLED: 10/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to coarse grained, grey, amber.		1.7	0.2
1.0 - 2.0		SAND, medium to coarse grained, grey and brownish grey. Palaeosol		0.9	0.3
2.0 - 3.0		SAND, medium to coarse grained, amber		0.4	0.2
3.0 - 4.0		AS ABOVE with coarse grained shell bands		0.8	0.3
4.0 - 5.0		AS ABOVE with coarse grained shell layers		1.0	0.3
		START SLUDGING			
5.0 - 6.0	3.25 kg.	SAND, medium grained, amber		1.5	0.3
6.0 - 7.0	4.25 kg.	SAND, medium grained, grey		5.4	0.2
7.0 - 8.0	3.50 kg.	AS ABOVE		2.8	0.5
8.0 - 9.0	2.75 kg.	AS ABOVE with very coarse shell		14.0	0.4
		END OF HOLE 9.0m.			
		Average			0.3

794112

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: TEMMA HARBOUR

LINE NO: 2

HOLE NO: TH32

LOGGED BY: GRAHAM LEE

DATE DRILLED: 10/5/87

109

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, brown		1.3	0.2
1.0 - 2.0		SAND, medium to fine grained, grey. Palaeosol		0.7	0.2
2.0 - 3.0		SAND, medium grained, amber		0.7	0.3
3.0 - 4.0		AS ABOVE		0.4	0.3
4.0 - 5.0		AS ABOVE		0.7	0.3
5.0 - 6.0		AS ABOVE		0.2	0.2
6.0 - 7.0		AS ABOVE		0.6	0.2
7.0 - 8.0		AS ABOVE		0.9	0.3
8.0 - 9.0		AS ABOVE		1.8	0.2
		Average			0.2

111

CLIENT: BACH HOLDINGS
 AREA: NELSON BAY
 LOGGED BY: GRAHAM LEE

794114

TITLE NO: EL 33/86
 LINE NO: 1 HOLE NO: NBO
 DATE DRILLED: 12/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine grained, grey then amber.		0.8	0.5
1.0 - 2.0		SAND, fine grained, amber with shell.		0.2	0.4
2.0 - 3.0		SAND, fine grained, amber with shell at top, then white with no shell		0.9	0.5
3.0 - 4.0		SAND, fine grained, white. No shell.		0.2	0.4
4.0 - 5.0		SAND, fine grained, amber and dark brown.		0.0	0.6
		START SLUDGING			
5.0 - 6.0	2.75	SAND, fine grained. Black		0.2	0.4
		Too much slimes to hold sample in sludger			
		END OF HOLE 6.0m.			
		Average			0.47

CLIENT: BACH HOLDINGS

794115

TITLE NO: EL 33/86

AREA: NELSON BAY

LINE NO: 1

HOLE NO: NB4

LOGGED BY: GRAHAM LEE

DATE DRILLED: 12/5/87

112

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, fine grained, amber with shell. Grey at top.		0.3	0.6
1.0 - 2.0		SAND, fine grained, amber with shell.		0.1	0.4
2.0 - 3.0		AS ABOVE		0.4	0.5
3.0 - 4.0		AS ABOVE then sand, fine grained, white, shell free. (older sand deposit)		0.1	0.7
4.0 - 5.0		SAND, white, fine grained, shell free. (" " ")		0.1	0.3
5.0 - 6.0		SAND, fine grained, orange and brown (" " ") START SLUDGING		0.4	0.4
6.0 - 7.0	2.0	SAND, fine grained, black, minor shell. (" " ")		0.1	0.3
7.0 - 8.0	4.0	SAND, fine grained, amber with Tr of shell. H.M. 1 - 2% (" " ") Pebbles at bottom		0.2	0.3
		END OF HOLE 8.0m.			
		Average			0.44

100.

113

CLIENT: BACH HOLDINGS

794116

TITLE NO: EL 33/86

AREA: NELSON BAY

LINE NO: 1

HOLE NO: NB8

LOGGED BY: GRAHAM LEE

DATE DRILLED: 12.5.87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to fine grained, grey with shell		0.3	0.6
1.0 - 2.0		SAND, fine grained, amber, shell rich.		0.2	0.6
2.0 - 3.0		AS ABOVE		0.1	0.6
3.0 - 4.0		AS ABOVE		0.2	0.7
4.0 - 5.0		AS ABOVE		0.0	0.6
5.0 - 6.0		AS ABOVE		0.1	0.7
6.0 - 7.0		SAND, fine grained, white with minor amber		0.0	0.4
7.0 - 8.0		SAND, fine grained, grey		0.0	0.5
8.0 - 9.0		SAND, fine grained, grey at top and then dark brown.		0.1	0.4
9.0 - 9.5		SAND, fine grained, dark brown. ROCK at 9.5m.		0.1	0.4
		END OF HOLE 9.5m.			
		Average			0.6

114

CLIENT: BACH HOLDINGS

794117

TITLE NO: EL 33/86

AREA: NELSON BAY

LINE NO: 1

HOLE NO: NB12

LOGGED BY: GRAHAM LEE

DATE DRILLED: 13/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and brown		0.5	0.4
1.0 - 2.0		AS ABOVE, brown and amber, with shale		0.2	0.9
2.0 - 3.0		SAND, medium grained, amber, with shell. Tr. H.M.		0.1	0.7
3.0 - 4.0		AS ABOVE		0.1	0.7
4.0 - 5.0		AS ABOVE then white, medium grained, shell free (older dune)		0.1	0.5
		START SLEDGING			
5.0 - 6.0		AS ABOVE, grey		0.1	0.4
6.0 - 7.0		AS ABOVE, grey-brown		0.1	0.4
		ROCK			
		END OF HOLE 7.0m.			
		Average			0.6%

CLIENT: BACH HOLDINGS

794118

TITLE NO: EL 33/86

AREA: NELSON BAY

LINE NO: 1

HOLE NO: NB16

LOGGED BY: GRAHAM LEE

DATE DRILLED: 13/5/87

115

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and brown with shell		0.4	0.7
1.0 - 2.0		SAND, medium grained, amber with shell		0.5	0.5
2.0 - 3.0		AS ABOVE		0.1	0.4
3.0 - 4.0		AS ABOVE		0.1	0.5
		START SLUDGING			
4.0 - 5.0		SAND, medium grained, brown and grey, no shell (older dune)		0.1	0.6
5.0 - 6.0		AS ABOVE	2.1	0.1	0.4
6.0 - 7.0		AS ABOVE		0.7	0.5
		ROCK			
		END OF HOLE 7.0m.			
			Average		0.5

CLIENT: BACH HOLDINGS

794119

TITLE NO: EL 33/86

AREA: NELSON BAY

LINE NO: 1

HOLE NO: NB20

LOGGED BY: GRAHAM LEE

DATE DRILLED: 13/5/87

116

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.00		SAND, medium grained, grey and brown with shell		0.6	0.7
1.0 - 2.0		SAND, medium grained, amber with shell		0.2	0.9
2.0 - 3.0		AS ABOVE		0.1	0.7
3.0 - 4.0		AS ABOVE		0.1	0.3
4.0 - 5.0		AS ABOVE		0.4	0.5
5.0 - 6.0		AS ABOVE START SLUDGING		0.1	0.4
6.0 - 7.0		SAND, medium grained, dark grey & black, no shell (older dune)		0.3	0.5
7.0 - 8.0		AS ABOVE		0.3	0.3
8.0 - 9.0		AS ABOVE		0.2	0.3
9.0 - 10.0		AS ABOVE		0.1	0.5
		END OF HOLE 10.0M.			
		Average			0.5

104.

CLIENT: BACH HOLDINGS

794121

TITLE NO: EL 33/86

AREA: NELSON BAY

LINE NO: 1

HOLE NO: NB28

LOGGED BY: GRAHAM LEE

DATE DRILLED: 13/5/87

118

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, amber with shell		0.0	0.5
1.0 - 2.0		AS ABOVE		0.0	0.5
2.0 - 3.0		AS ABOVE		0.0	0.5
3.0 - 4.0		AS ABOVE		0.0	0.5
4.0 - 5.0		AS ABOVE		0.0	0.5
5.0 - 6.0		AS ABOVE		0.0	0.4
6.0 - 7.0		AS ABOVE		0.0	0.4
		START SLUDGING			
7.0 - 8.0		SAND, medium grained, amber and dark brown with shell		0.0	0.5
8.0 - 9.0		SAND, medium grained, brown, no shell		0.0	0.6
9.0 - 10.0		AS ABOVE, with shell		0.0	0.7
		END OF HOLE 10.0 M			
		Average			0.5

119

CLIENT: BACH HOLDINGS

794122

TITLE NO: EL 33/86

AREA: NELSON BAY

LINE NO: 1

HOLE NO: NB32

LOGGED BY: GRAHAM LEE

DATE DRILLED: 13/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, amber, with shell		0.1	0.3
1.0 - 2.0		AS ABOVE		0.0	0.3
2.0 - 3.0		AS ABOVE		0.0	0.3
3.0 - 4.0		AS ABOVE		0.0	0.5
4.0 - 5.0		SAND, medium grained, grey and brown, with shell, palaeosol		0.2	0.5
5.0 - 6.0		AS ABOVE, grey		0.0	0.6
6.0 - 7.0		AS ABOVE, amber		0.0	0.5
7.0 - 8.0		AS ABOVE, amber		0.1	0.6
		START SLUDGING			
8.0 - 9.0		AS ABOVE		0.0	0.6
9.0 - 10.0		AS ABOVE		0.0	0.5
		END OF HOLE 10.0M			
		Average			0.5

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: NELSON BAY

794125

LINE NO: 1

HOLE NO: NB44

LOGGED BY: GRAHAM LEE

DATE DRILLED: 13/5/87

122

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND; medium grained, amber, with shell		0.0	0.4
1.0 - 2.0		AS ABOVE		0.1	0.4
2.0 - 3.0		AS ABOVE		0.2	0.2
3.0 - 4.0		AS ABOVE		0.1	0.2
4.0 - 5.0		SAND, medium grained, grey Palaeosol		0.1	0.7
5.0 - 6.0		SAND, medium grained, amber, with shell		0.0	0.5
6.0 - 7.0		AS ABOVE, amber & grey, Palaeosol		0.2	0.5
7.0 - 8.0		AS ABOVE		0.0	0.7
8.0 - 9.0		AS ABOVE		0.2	0.8
9.0 - 10.0		AS ABOVE, amber		0.0	0.8
		END OF HOLE 10.0M			
		Average			0.5

123

CLIENT: BACH HOLDINGS

794126

TITLE NO: EL 33/86

AREA: NELSON BAY

LINE NO: 1

HOLE NO: BB (BACK OF BEACH)

LOGGED BY: GRAHAM LEE

DATE DRILLED: 13/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, amber, with shell		0.0	0.3
1.0 - 2.0		AS ABOVE, grey and amber		0.1	0.5
2.0 - 3.0		AS ABOVE, amber		0.0	0.5
3.0 - 4.0		AS ABOVE		0.0	0.4
4.0 - 5.0		AS ABOVE		0.0	0.4
5.0 - 6.0		AS ABOVE		0.0	0.5
6.0 - 7.0		AS ABOVE		0.1	0.4
7.0 - 8.0		AS ABOVE		0.0	0.5
8.0 - 8.5		AS ABOVE		0.0	0.6
		END OF HOLE 8.5M HOLE CAVING			
		Average			0.45

111.

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794128

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: AR4

DATE DRILLED:

125

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey		1.9	0.2
1.0 - 2.0		SAND, medium grained amber, shell rich START SLUDGING		0.3	0.2
2.0 - 3.0		SAND, medium grained grey, with shell		0.1	0.2
3.0 - 4.0		AS ABOVE		0.0	0.2
4.0 - 5.0		AS ABOVE		0.5	0.2
5.0 - 6.0		AS ABOVE, dark grey		3.7	0.1
6.0 - 7.0		AS ABOVE, dark grey		5.9	0.1
7.0 - 8.0		AS ABOVE, dark grey with coarse shell and white quartz pebbles		6.8	0.1
		END OF HOLE 8.0m.			
		Average			0.2

CLIENT: BACH HOLDINGS

794129

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

LINE NO: 1 HOLE NO: AR8

LOGGED BY: GRAHAM LEE

DATE DRILLED:

129

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained brown, with shell		0.7	0.2
1.0 - 2.0		sand, medium grained, amber, with shell		0.1	0.2
2.0 - 3.0		AS ABOVE		0.2	0.2
3.0 - 4.0		AS ABOVE, brownish amber		0.2	0.2
		START SLUDGING			
4.0 - 5.0		AS ABOVE, grey		0.1	0.2
5.0 - 6.0		AS ABOVE		0.1	0.2
6.0 - 7.0		AS ABOVE, dark grey		1.9	0.2
7.0 - 8.0		AS ABOVE with only Tr of shell		2.9	0.1
8.0 - 8.5		AS ABOVE, pebbles at 8.5m.		6.6	0.1
		END OF HOLE 8.5m			
		Average			0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794130

LINE NO: 1

HOLE NO: AR12

LOGGED BY: GRAHAM LEE

DATE DRILLED:

127

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and brown		1.4	0.2
1.0 - 2.0		SAND, medium grained, amber, with shell		0.3	0.2
2.0 - 3.0		AS ABOVE START SLUDGING		0.0	0.2
3.0 - 4.0		SAND, medium grained, grey with shell and Tr. of H.M.		0.0	0.1
4.0 - 5.0		AS ABOVE		0.1	0.1
5.0 - 6.0		SAND, medium grained grey with shell. Grades coarse with white qtz granules and pebbles at 6.0m.		30.2	0.2
		END OF HOLE 6.0m.			
		Average			0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794131

LINE NO: 1 HOLE NO: AR16

LOGGED BY: GRAHAM LEE

DATE DRILLED:

128

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, brown then amber		0.3	0.3
1.0 - 2.0		SAND, amber, medium grained. Tr. of H.M. START SLUDGING		0.0	0.2
2.0 - 3.0		SAND, medium grained with coarser shell. Grey.		0.1	0.2
3.0 - 4.0		AS ABOVE		0.0	0.1
4.0 - 5.0		AS ABOVE, with organics		1.1	0.1
5.0 - 6.0		AS ABOVE		10.3	0.1
		END OF HOLE			
		Average			0.2

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794132

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: AR24

DATE DRILLED:

129

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, dark grey then amber, medium grained		0.4	0.3
1.0 - 2.0		SAND, medium grained with coarse shell. Some silt matrix, grey.		0.7	0.3
		START SLUDGING			
2.0 - 3.0		AS ABOVE		0.1	0.2
3.0 - 4.0		AS ABOVE, with organics		0.1	0.1
4.0 - 5.0		AS ABOVE		0.8	0.2
5.0 - 6.0		AS ABOVE		0.8	0.1
6.0 - 6.3		AS ABOVE. Rock at 6.3		3.7	0.1
		END OF HOLE 6.3m.			
		Average			0.2

CLIENT: BACH HOLDINGS

794134

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

LINE NO: 1 HOLE NO: AR32

LOGGED BY: GRAHAM LEE

DATE DRILLED: 18.5.87

131

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.3	0.3
1.0 - 2.0				0.1	0.3
2.0 - 3.0				0.1	0.2
3.0 - 4.0	3			0.1	0.2
4.0 - 5.0	3			0.2	0.3
5.0 - 6.0	4			0.8	0.2
6.0 - 6.5	3.50	ROCK		0.6	0.1
Average					0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794136

LINE NO: 1 HOLE NO: AR40

LOGGED BY: GRAHAM LEE

DATE DRILLED: 18.5.87

133

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.2
1.0 - 2.0				0.0	0.3
2.0 - 3.0				0.1	0.1
3.0 - 4.0	4.25			0.1	0.1
4.0 - 5.0	4.00			0.7	0.1
5.0 - 6.0	5.00			0.4	0.1
6.0 - 7.0	3.50	SAND boiling into casing		0.1	0.1
		Average			0.1

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

TITLE NO: EL 33/86

794137

LINE NO: 1 HOLE NO: AR40134

DATE DRILLED: 18.5.87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.2
1.0 - 2.0				0.0	0.3
2.0 - 3.0				0.1	0.1
3.0 - 4.0	4.25			0.1	0.1
4.0 - 5.0	4.00			0.7	0.1
5.0 - 6.0	5.00			0.4	0.1
6.0 - 7.0	3.50	SAND boiling into casing		0.1	0.1
		Average			0.1

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

TITLE NO: EL 33/86

794138

LINE NO: 1

HOLE NO: AR40

DATE DRILLED: 18.5.87

135

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.2
1.0 - 2.0				0.0	0.3
2.0 - 3.0				0.1	0.1
3.0 - 4.0	4.25			0.1	0.1
4.0 - 5.0	4.00			0.7	0.1
5.0 - 6.0	5.00			0.4	0.1
6.0 - 7.0	3.50	SAND boiling into casing		0.1	0.1
		Average			0.1

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794139

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: AR40

DATE DRILLED: 18.5.87

136

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.2
1.0 - 2.0				0.0	0.3
2.0 - 3.0				0.1	0.1
3.0 - 4.0	4.25			0.1	0.1
4.0 - 5.0	4.00			0.7	0.1
5.0 - 6.0	5.00			0.4	0.1
6.0 - 7.0	3.50	SAND boiling into casing		0.1	0.1
		Average			0.1

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794140

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: AR40

DATE DRILLED: 18.5.87

137

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.2
1.0 - 2.0				0.0	0.3
2.0 - 3.0				0.1	0.1
3.0 - 4.0	4.25			0.1	0.1
4.0 - 5.0	4.00			0.7	0.1
5.0 - 6.0	5.00			0.4	0.1
6.0 - 7.0	3.50	SAND boiling into casing		0.1	0.1
		Average			0.1

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794141

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: AR 44

DATE DRILLED: 18.5.87

138

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.1	0.2
1.0 - 2.0				0.2	0.3
2.0 - 3.0				0.0	0.2
3.0 - 4.0				0.0	0.2
4.0 - 5.0	4.0			0.0	0.1
5.0 - 6.0	4.0	CLAY		0.0	0.2
		Average			0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794142

LINE NO: 1 HOLE NO: AR 48

LOGGED BY: GRAHAM LEE

DATE DRILLED: 18.5.87

139

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.5	0.2
1.0 - 2.0				0.0	0.2
2.0 - 3.0				0.0	0.2
3.0 - 4.0				0.0	0.2
4.0 - 5.0				0.1	0.3
5.0 - 6.0	3.50			0.0	0.1
6.0 - 7.0	5.25			0.1	0.3
7.0 - 8.0	3.25	OLD VEGETATION WOOD		0.4	0.2
Average					0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794143

LINE NO: 1 HOLE NO: AR 52

LOGGED BY: GRAHAM LEE

DATE DRILLED: 18.5.87

140

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.1	0.4
1.0 - 2.0				0.0	0.3
2.0 - 3.0				0.0	0.3
3.0 - 4.0				0.0	0.3
4.0 - 5.0				0.1	0.2
5.0 - 6.0				0.0	0.2
6.0 - 7.0				0.1	0.3
7.0 - 8.0				0.0	0.2
8.0 - 9.0				0.0	0.1
9.0 - 10.0				0.0	0.3
		Average			0.25

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794144

TITLE NO: EL 33/86

LINE NO: 1

HOLE NO: AR 56

DATE DRILLED: 18.5.87

141

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.4	0.3
1.0 - 2.0				0.2	0.3
2.0 - 3.0				0.2	0.4
3.0 - 4.0				0.0	0.2
4.0 - 5.0				0.0	0.2
5.0 - 6.0				0.0	0.2
6.0 - 7.0				0.0	0.2
7.0 - 8.0				0.0	0.2
8.0 - 9.0				0.1	0.3
9.0 - 10.0				0.0	0.2
		Average			0.28

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794145

TITLE NO: EL 33/86

LINE NO: 1

HOLE NO: AR 60

DATE DRILLED: 18.5.87

142

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.1	0.2
1.0 - 2.0				0.0	0.2
2.0 - 3.0				0.0	0.3
3.0 - 4.0				0.1	0.2
4.0 - 5.0				0.0	0.3
5.0 - 6.0				0.0	0.3
6.0 - 7.0				0.0	0.2
7.0 - 8.0				0.0	0.2
8.0 - 9.0				0.0	0.3
9.0 - 10.0				0.0	0.2
		Average			0.25

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794146

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: AR 64

DATE DRILLED: 18.5.87

143

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.2
1.0 - 2.0				0.1	0.2
2.0 - 3.0				0.1	0.3
3.0 - 4.0				0.2	0.3
4.0 - 5.0				0.1	0.2
5.0 - 6.0				0.0	0.2
6.0 - 7.0				0.2	0.2
7.0 - 8.0				0.1	0.2
8.0 - 9.0				0.1	0.2
9.0 - 10.0				0.1	0.2
Average					0.2

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794147

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: AR 68

DATE DRILLED: 18.5.87

144

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0					
1.0 - 2.0					
2.0 - 3.0					
3.0 - 4.0				0.2	0.2
4.0 - 5.0				0.1	0.2
5.0 - 6.0				0.2	0.2
6.0 - 7.0				0.1	0.2
7.0 - 8.0				0.1	0.2
8.0 - 9.0				0.1	0.2
9.0 - 10.0				0.4	0.2
Average					0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794148

LINE NO: 1

HOLE NO: AR 72 NOR 143

LOGGED BY: GRAHAM LEE

DATE DRILLED:

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.1	0.2
1.0 - 2.0				0.0	0.2
2.0 - 3.0				0.0	0.3
3.0 - 4.0				0.1	0.2
4.0 - 5.0				0.1	0.2
5.0 - 6.0				0.0	0.2
6.0 - 7.0				0.0	0.2
7.0 - 8.0				0.1	0.3
8.0 - 9.0				0.0	0.3
9.0 - 10.0				0.0	0.2
		Average			0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794149

LINE NO: 1

HOLE NO: AR 72 SOUTH

LOGGED BY: GRAHAM LEE

DATE DRILLED:

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.1	0.3
1.0 - 2.0				0.0	0.2
2.0 - 3.0				0.0	0.3
3.0 - 4.0				0.0	0.3
4.0 - 5.0				0.0	0.3
5.0 - 6.0				0.0	0.2
6.0 - 7.0				0.0	0.2
7.0 - 8.0				0.0	0.2
8.0 - 9.0				0.0	0.2
9.0 - 10.0				0.0	0.2
		Average			0.2

146

130.

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794150

LINE NO: 1

HOLE NO: AR 84

LOGGED BY: GRAHAM LEE

DATE DRILLED:

147

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.E	0.2
1.0 - 2.0				0.2	0.3
2.0 - 3.0				0.1	0.3
3.0 - 4.0				0.0	0.2
4.0 - 5.0	3.0	Boiling 4.5 - 5.0m.		0.0	0.2
5.0 - 6.0	2.5			0.0	0.2
6.0 - 7.0	4.5			0.1	0.2
7.0 - 8.0	3.75			0.1	0.2
		Boiling *in a bit of shell			
		* Sand boiling into hole due to aquifer in sand - quick sand.			
		Average			0.27

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794151

LINE NO: 1

HOLE NO: AR 88

LOGGED BY: GRAHAM LEE

DATE DRILLED:

148

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.3
1.0 - 2.0				0.0	0.2
2.0 - 3.0				0.0	0.2
3.0 - 4.0	3.25			0.1	0.2
4.0 - 5.0	3.5			0.1	0.2
5.0 - 6.0	3.75			0.0	0.2
		Boiling Sand * in. Cannot go any further.			
		* Sand boiling into hole due to aquifer in sand - quick sand			
		Average			0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794152

LINE NO: 1

HOLE NO: AR 76

LOGGED BY: GRAHAM LEE

DATE DRILLED:

149

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.3	0.3
1.0 - 2.0				0.1	0.3
2.0 - 3.0				0.1	0.2
3.0 - 4.0				0.1	0.2
4.0 - 5.0				0.1	0.2
5.0 - 6.0				0.0	0.3
6.0 - 7.0				0.0	0.2
7.0 - 8.0	4.0	Boiling Sand 7.0 - 8.0		0.0	0.2
8.0 - 9.0	3.5			0.0	0.2
9.0 - 10.0	4.0			0.1	0.2
		Average			0.2

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

TITLE NO: EL 33/86

794153

LINE NO: 1 HOLE NO: AR 80

DATE DRILLED:

150

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.3
1.0 - 2.0				0.2	0.2
2.0 - 3.0				0.1	0.2
3.0 - 4.0				0.1	0.2
4.0 - 5.0				0.1	0.2
5.0 - 6.0	3.5			0.0	0.2
6.0 - 7.0	4.0			0.0	0.1
7.0 - 8.0	4.0			0.1	0.1
8.0 - 9.0	4.0			0.1	0.1
9.0 - 10.0	3.5	BLACK SLUDGE ON BOTTOM		0.2	0.2
		Average			0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794154

LINE NO: 1

HOLE NO: AR 92

LOGGED BY: GRAHAM LEE

DATE DRILLED:

151

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.2	0.2
1.0 - 2.0				0.1	0.3
2.0 - 3.0				0.0	0.2
3.0 - 4.0				0.0	0.2
4.0 - 5.0	3.5			0.0	0.2
5.0 - 6.0	4.0			0.0	0.2
6.0 - 7.0	4.0			0.1	0.2
		Boiling Sand - cannot go any further			
		Average			0.2

CLIENT: BACH HOLDINGS

TITLE NO: EL 33/86

AREA: ARTHUR RIVER

794156

LINE NO: 1

HOLE NO: AR 100

LOGGED BY: GRAHAM LEE

DATE DRILLED:

153

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.1	0.2
1.0 - 2.0				0.0	0.1
2.0 - 3.0	3.75	Boiling Sand		0.0	0.2
3.0 - 4.0	4.0			0.0	0.2
4.0 - 5.0	4.25	Too much sludge		0.1	0.2
		Average			0.2

CLIENT: BACH HOLDINGS

AREA: ARTHUR RIVER

LOGGED BY: GRAHAM LEE

794159

TITLE NO: EL 33/86

LINE NO: 1 HOLE NO: AR 112

DATE DRILLED:

156

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0				0.1	0.2
1.0 - 2.0				0.1	0.2
2.0 - 3.0	3.0			0.0	0.1
3.0 - 4.0	2.0	Sand boiling in Rods dropped		0.0	0.1
		Average			0.15

140.

158

CLIENT: BACH HOLDINGS

794161

TITLE NO: EL 33/86

AREA: HAZARD BAY

LINE NO: 1

HOLE NO: HB4

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, amber. Shell rich.		0.2	0.1
1.0 - 2.0		AS ABOVE		0.2	0.2
2.0 - 3.0		AS ABOVE		0.2	0.1
		START SLUDGING			
3.0 - 3.4	2.0	AS ABOVE, with Tr of H.M.		4.0	0.2
		3.4m. ROCK			
		Average			0.1

142.

CLIENT: BACH HOLDINGS

794162

TITLE NO: EL 33/86

AREA: HAZARD BAY

LINE NO: 1

HOLE NO: HB8

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, shell rich, amber.		1.4	0.1
1.0 - 2.0		AS ABOVE		0.5	0.1
2.0 - 3.0		AS ABOVE		1.0	0.1
3.0 - 4.0		AS ABOVE with Tr of H.M.		0.2	0.1
		START SLUDGING			
4.0 - 5.0		SAND, medium grained with shell - grey grading to black. Some silt and clay at 5m.		3.0	0.1
5.0 - 5.7		MUD, black, silty and sandy.		3.1	0.3
		END OF HOLE 5.7 ROCK			
		Average			0.12

160

CLIENT: BACH HOLDINGS

794163

TITLE NO: EL 33/86

AREA: HAZARD BAY

LINE NO: 1

HOLE NO: HB12

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium to coarse grained, amber. Shell rich.		1.5	0.1
1.0 - 2.0		AS ABOVE		1.4	0.2
2.0 - 3.0		AS ABOVE, Tr of H.M.		0.9	0.2
3.0 - 4.0		AS ABOVE, Tr of H.M.		1.4	0.1
4.0 - 5.0		AS ABOVE with coarse shell. Tr of H.M.		2.7	0.1
5.0 - 6.0		AS ABOVE. Coarse shell and Tr of H.M.		0.9	0.2
6.0 - 7.0		AS ABOVE		1.1	0.1
7.0 - 8.0		AS ABOVE, little H.M. Water Table		1.1	0.1
		END OF HOLE 8.0m.			
		Average			0.1

162

CLIENT: BACH HOLDINGS

794165

TITLE NO: EL 33/86

AREA: HAZARD BAY

LINE NO: 1

HOLE NO: HB20

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, well sorted, amber		1.8	0.1
1.0 - 2.0		SAND, as above, amber grading down to greyish brown START SLUDGING		0.3	0.1
2.0 - 3.0		SAND, medium grained, dark grey and black		0.4	0.1
3.0 - 3.5		MUD, black with some sand and silt END OF HOLE 3.5m.			
		Average			0.1

163

CLIENT: BACH HOLDINGS

794166

TITLE NO: EL 33/86

AREA: HAZARD BAY

LINE NO: 1

HOLE NO: HB24

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained with coarse grained shell. Grey and amber.		1.1	0.1
1.0 - 2.0		SAND, medium grained with coarse grained shell. Brownish grey and grey. Water at 1.8m. 2.0m. black MUD		0.9	0.1
		<p style="text-align: center;">END OF HOLE 2.0m.</p> <p style="text-align: center;">Average</p>			0.1

164

CLIENT: BACH HOLDINGS

794167

TITLE NO: EL 33/86

AREA: HAZARD BAY

LINE NO: 1

HOLE NO: HB28

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, amber, medium to coarse. Shell rich.		1.1	0.1
1.0 - 2.0		SAND, grey, medium grained. Shell poor.		0.3	0.3
2.0 - 3.0		AS ABOVE		0.2	0.2
3.0 - 4.0		SAND, medium grained. Shell rich, amber.		0.4	0.1
4.0 - 5.0		AS ABOVE		0.3	0.1
5.0 - 6.0		AS ABOVE, grading to greyish brown at depth		0.9	0.1
6.0 - 6.8		SAND, medium grained, grey and brownish grey. Black indurated sand at 6.8m.		1.5	0.1
		END OF HOLE 6.8m.			
		Average			0.15

148.

CLIENT: BACH HOLDINGS

794168

TITLE NO: EL 33/86

165

AREA: HAZARD BAY

LINE NO: 2

HOLE NO: HBO

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and amber		0.4	0.1
1.0 - 2.0		AS ABOVE		0.4	0.1
2.0 - 3.0		SAND, medium grained with coarser shell. Amber.		0.3	0.1
3.0 - 4.0		AS ABOVE, but slightly coarser		1.0	0.1
4.0 - 5.0	4.25	SAND, as above. Amber then Sand. Medium grained with abundant coarse shell. Grey.		2.2	0.1
5.0 - 5.6	2.0	SAND, dark grey. Shell rich as above. 5.6 MUD, black.		8.8	0.1
		END OF HOLE 5.6m.			
			Average		0.1

166

CLIENT: BACH HOLDINGS

794169

TITLE NO: EL 33/86

AREA: HAZARD BAY

LINE NO: 2

HOLE NO: HB8

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey.		0.4	0.2
1.0 - 2.0		SAND, medium grained, grey and amber		0.5	0.1
2.0 - 3.0		SAND, medium grained, amber		0.4	0.1
3.0 - 4.0		AS ABOVE		0.4	0.1
		START AUGERING			
4.0 - 4.5	2.75	AS ABOVE		0.8	0.1
		END OF HOLE 4.5m.			
		Average			0.1

CLIENT: BACH HOLDINGS

AREA: HAZARD BAY

LOGGED BY: GRAHAM LEE

794170

TITLE NO: EL 33/86

LINE NO: 2

HOLE NO: HB16

DATE DRILLED: 11/5/87

167

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained, grey and amber		0.5	0.2
1.0 - 2.0		SAND, medium grained, minor grey then amber.		0.7	0.1
2.0 - 3.0		SAND, medium grained, amber.		0.2	0.1
3.0 - 4.0		AS ABOVE		0.6	0.1
4.0 - 5.0		AS ABOVE		0.1	0.1
5.0 - 6.0		AS ABOVE		0.5	0.1
6.0 - 7.0		AS ABOVE. Tr of H.M.		0.1	0.1
		START SLUDGING			
7.0 - 7.65	2.75	SAND, amber as above, then grey. Shell rich. 7.65 Brown MUD		0.1	0.1
		Average			0.11

CLIENT: BACH HOLDINGS

794171

TITLE NO: EL 33/86

168

AREA: HAZARD BAY

LINE NO: 2

HOLE NO: HB36

LOGGED BY: GRAHAM LEE

DATE DRILLED: 11/5/87

Interval (m)	Wet Wt. (kg)	Description	% Slime	% +600 um	% H.M.
0 - 1.0		SAND, medium grained. Dark grey.		0.2	0.3
1.0 - 2.0		SAND, medium grained. Grey then amber. Shell rich.		0.0	0.1
2.0 - 3.0		AS ABOVE, then pale grey (older white dunes))		0.1	0.2
3.0 - 3.9		White SAND then black mud.)			
		END OF HOLE 3.9m.			
		Average			0.2

APPENDIX 5

Results of Laboratory

Heavy Mineral Separation - Main Study

Note all results are arranged in order of date on assay sheet.



DEPARTMENT OF MINES—TASMANIA

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:

Metallurgical Research }
Laboratory } 44 2431-2
Mines Inspection } (2 lines)
Explosives & Inflammable Liquids }

27th May 1987

Peter H. Stitt, & Assoc. P/L,
5th Floor,
King York House,
32 York Street,
Sydney
N.S.W. 2000

c.c. Mr. A. Birkner
Western Aust.

Reg. No 872755-71 &

Reg. No 872865-72

Dear Sir,

Please find enclosed results of Heavy Liquid
Separations on above samples.

Samples No 872761 & 872769 were washed as requested
and percent loss was 1.5% in each case. Results for these
samples are on the washed basis.

<u>Reg. No</u>	<u>Description</u>	<u>% Heavy Mineral</u>	<u>+ 600µm %</u>
872755	THO 0 - 1	0.9	0.8
756	1 - 2	0.7	0.2
757	2 - 3	0.5	0.0
758	3 - 4	0.5	0.3
759	4 - 5	0.7	0.5
760	5 - 5.5	1.0	0.2
761	TH1 0 - 1	1.2	0.7
762	1 - 2	0.7	0.1
763	2 - 3	0.5	0.1
764	3 - 4	0.5	0.0
765	4 - 5	0.5	0.2
766	5 - 6	0.5	0.0
767	6 - 7	0.4	0.1
768	7 - 8	0.6	0.0
769	8 - 9	0.7	2.2
770	TH2 0 - 1	1.4	0.2
771	1 - 2	0.8	0.1

171

<u>Reg. No</u>		<u>Description</u>	<u>+600um %</u>	<u>% Heavy Mineral</u>
872865	NB 4	0 - 1	0.3	0.6
866		1 - 2	0.1	0.4
867		2 - 3	0.4	0.5
868		3 - 4	0.1	0.7
869		4 - 5	0.1	0.3
870		5 - 6	0.4	0.4
871		6 - 7	0.1	0.3
872		7 - 8	0.2	0.3

Yours faithfully,


(P.L. James)

Acting Chief Chemist & Metallurgist

Senior Metallurgist.....


172

<u>Reg. No</u>		<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Mineral</u>
872865	NB 4	0 - 1	0.3	0.6
866		1 - 2	0.1	0.4
867		2 - 3	0.4	0.5
868		3 - 4	0.1	0.7
869		4 - 5	0.1	0.3
870		5 - 6	0.4	0.4
871		6 - 7	0.1	0.3
872		7 - 8	0.2	0.3

Yours faithfully,



(P.L. James)

Acting Chief Chemist & Metallurgist

Senior Metallurgist.....

173

<u>Reg. No</u>		<u>Description</u>	<u>+600μm %</u>	<u>% Heavy Mineral</u>
872865	NB 4	0 - 1	0.3	0.6
866		1 - 2	0.1	0.4
867		2 - 3	0.4	0.5
868		3 - 4	0.1	0.7
869		4 - 5	0.1	0.3
870		5 - 6	0.4	0.4
871		6 - 7	0.1	0.3
872		7 - 8	0.2	0.3

Yours faithfully,



(P.L. James)

Acting Chief Chemist & Metallurgist

Senior Metallurgist.....

DEPARTMENT OF MINES—TASMANIA



TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

4th June 1987

Peter H. Stitt, & Assoc P/L,
5th Floor,
King York House,
32 York Street,
Sydney
N.S.W. 2000

c.c. to A Birkner
Western Aust.

Reg. No 872772-95

Dear Sir,

Please find enclosed results of Heavy Liquid Separations
on above samples.

<u>Reg. No</u>	<u>Description</u>	<u>% Heavy Mineral</u>	<u>+600um %</u>
872772	TH2 2 - 3	0.7	0.0
773	3 - 4	0.7	0.0
774	4 - 5	0.6	0.0
775	5 - 6	0.4	0.0
776	6 - 7	0.5	0.1
777	7 - 8	0.5	0.1
778	8 - 9	0.6	0.0
779	9 - 10.0	0.8	0.2
780	TH3 0 - 1	1.6	0.2
781	1 - 2	1.1	0.0
782	2 - 3	0.9	0.6
783	3 - 4	0.5	0.0
784	4 - 5	0.6	0.0
785	5 - 6	0.8	0.1
786	6 - 7	0.5	0.1
787	7 - 8	0.6	0.0
788	8 - 9	1.1	0.0
789	9 - 10.0	1.2	0.2
790	TH4 0 - 1	1.4	0.4
791	1 - 2	1.3	0.2
792	2 - 3	0.9	0.4
793	3 - 4	1.0	0.1
794	4 - 5	1.0	0.3
795	5 - 6	0.6	0.0

Analyses by *X. K. ...*

Yours faithfully

(D James)



DEPARTMENT OF MINES—TASMANIA

794178 158.

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids }	

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

11th June 1987

TELEX 58764

Peter H. Stitt & Assoc P/L
5th Floor
King York House
32 York Street,
Sydney,
N.S.W. 2000

c.c. to A Birkner
Western Aust.

Reg. No 872796-819

Dear Sir,

Please find enclosed results of Heavy Liquid Separations on above samples.

<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>
872796	TH4 6 - 7	0.1	0.6
797	7 - 8	0.1	0.9
798	8 - 9	0.1	0.9
799	9 - 9.5	0.1	1.0
800	TH5 0 - 1	0.6	1.4
801	1 - 2	0.0	1.1
802	2 - 3	0.1	1.6
803	3 - 4	0.0	1.0
804	4 - 5	0.0	1.5
805	5 - 5.4	0.1	1.2
806	TH6 0 - 1	0.8	1.6
807	1 - 2	0.3	0.9
808	2 - 3	0.0	0.8
809	3 - 4	0.0	0.9
810	4 - 5	0.0	1.1
811	5 - 6	0.1	3.8
812	6 - 6.3	0.5	1.5
813	TH7 0 - 1	0.3	1.5
814	1 - 2	0.1	1.0
815	2 - 3	0.1	1.6
816	3 - 4	0.0	1.8
817	4 - 5	0.1	3.3
818	5 - 5.16	17.0	1.8
819	TH8 0 - 1	0.3	1.6

Yours faithfully,

Analyses by *P.L. James*

(P.L. James)
Acting Chief Chemist & Metallurgist

176



DEPARTMENT OF MINES—TASMANIA

794179

159.

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids)	

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

18th June 1987

TELEX 58764

Peter H. Stitt & Assoc P/L
5th Floor
King York House,
32 York Street,
Sydney N.S.W. 2000

c.c. to A. Birkmer
Western Aust.

Reg. No 872820-64

Dear Sir,

Please find enclosed results of Heavy Liquid Separations on above samples.

<u>Reg. No</u>	<u>Description</u>	<u>+600um %</u>	<u>% Heavy Min.</u>
872820	TH8 1 - 2	0.1	0.8
821	2 - 3	0.4	1.0
822	3 - 4	0.0	0.8
823	4 - 5	0.0	1.7
824	5 - 6	0.2	3.5
825	6 - 6.5	4.7	1.2
826	TH9 0 - 1	0.2	2.6
827	1 - 2	0.1	1.4
828	2 - 3	0.2	2.1
829	3 - 3.8	3.0	3.9
830	TH10 0 - 1	0.1	1.6
831	1 - 2	0.0	2.1
832	2 - 3	0.1	3.9
833	3 - 3.4	1.5	2.9
834	TH11 0 - 1	0.3	1.6
835	1 - 2	0.3	2.0
836	2 - 3	0.1	2.7
837	3 - 3.6	2.3	2.7
838	TH12 0 - 1	1.0	1.9
839	1 - 2	0.8	1.0
840	2 - 3	0.2	1.3
841	3 - 4	4.3	1.7
842	4 - 5	0.7	1.9
843	5 - 5.7	2.6	1.3

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<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Min.</u>
872844	TH13 0 - 1	0.2	2.3
845	1 - 2	0.0	2.0
846	2 - 3	0.0	1.9
847	3 - 4	0.1	1.0
848	4 - 5	0.1	0.6
849	5 - 6	0.1	0.8
850	6 - 7	0.2	1.5
851	7 - 7.5	0.6	1.5
852	TH14 0 - 1	0.3	2.0
853	1 - 2	0.0	2.7
854	2 - 3	0.1	1.8
855	3 - 4	0.1	1.8
856	4 - 5	0.1	1.6
857	5 - 6	2.0	1.4
858	6 - 6.3	8.8	0.9
859	TH15 0 - 1	6.4	1.6
860	1 - 2	0.0	1.4
861	2 - 3	0.1	1.4
862	3 - 4	0.1	1.8
863	4 - 5	0.5	1.2
864	5 - 5.2	5.9	0.8

Yours faithfully,

James for
(P.L. James)

Acting Chief Chemist & Metallurgist

Analyses by.....
James

178

794181

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DEPARTMENT OF MINES—TASMANIA

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids)	

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

25th June 1987

Peter H. Stitt & Assoc P/l
5th Floor
King York House
Sydney
N.S.W. 2000

c.c. to A. Birkner
Western Aust.

Reg. Nos 873461-75 873639-53

Dear Sir,

Please find enclosed results of Heavy Liquid
Separations on above samples

<u>Reg. No</u>	<u>Description</u>	<u>+600um %</u>	<u>%Heavy Min.</u>
873461	Line 2 TH 24 0 - 1	0.5	0.3
462	1 - 2	0.3	0.2
463	2 - 3	0.2	0.4
464	3 - 4	0.8	0.2
465	4 - 5	1.9	0.3
466	5 - 6	9.3	0.5
467	Line 2 TH 28 0 - 1	1.7	0.2
468	1 - 2	0.9	0.3
469	2 - 3	0.4	0.2
470	3 - 4	0.8	0.3
471	4 - 5	1.0	0.3
472	5 - 6	1.5	0.3
473	6 - 7	5.4	0.2
474	7 - 8	2.8	0.5
475	8 - 9	14.0	0.4
873639	Hole NB 44 0 - 1	0.0	0.4
640	1 - 2	0.1	0.4
641	2 - 3	0.2	0.2
642	3 - 4	0.1	0.2
643	4 - 5	0.1	0.7
644	5 - 6	0.0	0.5
645	6 - 7	0.2	0.5
646	7 - 8	0.0	0.7
647	8 - 9	0.2	0.8
648	9 -10	0.0	0.8

- 2 -

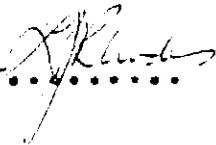
<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Min.</u>
873649	Hole NB BB	0 - 1	0.3
650		1 - 2	0.5
651		2 - 3	0.5
652		3 - 4	0.4
653		4 - 5	0.4

Yours faithfully,



(P.L. James)

Acting Chief Chemist & Metallurgist

Analyses by 

180



DEPARTMENT OF MINES—TASMANIA

794183

163.

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids)	

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

TELEX 58764

2nd July 1987

Peter H. Stitt & Assoc P/L
5th Floor,
King York House,
32 York Street,
Sydney
N.S.W. 2000

c.c. to A. Birkner
W....

Reg. No: 873333-51 873654-57 873781-93

Dear Sir,

Please find enclosed results of Heavy Liquid
Separations on above samples.

<u>Reg. No</u>	<u>Description</u>	<u>+ 600µm %</u>	<u>% Heavy Mineral</u>	
873333	Hole TH 22	0 - 1	0.2	0.8
334		1 - 2	0.1	0.7
335		2 - 3	0.0	1.0
336		3 - 4	0.0	1.0
337		4 - 5	0.0	0.7
338		5 - 6	0.1	0.8
339		6 - 7	0.2	0.6
340		7 - 8	2.5	0.6
341		8 - 9	3.2	0.5
342	TH 24	0 - 1	0.1	0.9
343		1 - 2	0.2	0.7
344		2 - 3	0.1	0.6
345		3 - 4	0.2	0.4
346		4 - 5	0.1	0.4
347		5 - 6	0.4	0.4
348		6 - 7	0.6	0.4
349		7 - 8	1.3	0.7
350		8 - 9	2.3	0.5
351		9 - 10.0	7.3	0.4
873654	NB BB	5 - 6	0.0	0.5
655		6 - 7	0.1	0.4
656		7 - 8	0.0	0.5
657		8 - 8.5	0.0	0.6

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794184

164.

<u>Reg. No</u>	<u>Description</u>	<u>+ 600um %</u>	<u>% Heavy Mineral</u>
873781	Line 1 AR 64 0 - 1	0.2	0.2
782	1 - 2	0.1	0.2
783	2 - 3	0.1	0.3
784	3 - 4	0.2	0.3
785	4 - 5	0.1	0.2
786	5 - 6	0.0	0.2
787	6 - 7	0.2	0.2
788	7 - 8	0.1	0.2
789	8 - 9	0.1	0.2
790	9 - 10	0.1	0.2
791	Line 1 AR 68 0 - 1	0.2	0.2
792	1 - 2	0.1	0.2
793	2 - 3	0.0	0.2

Yours faithfully,


(P.L. James)

Acting Chief Chemist & Metallurgist

Analyses by .....

182



DEPARTMENT OF MINES—TASMANIA

794185

165.

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids)	

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

8th July 1987

TELEX 58764

Peter H. Stitt & Assoc P/L
5th Floor
King York House,
32 York Street
Sydney 2000
N.S.W.

c.c. to A. Birkner
Western Aust.

Reg. Nos 873320-32 873432-43 873658-81 873794-800
873444-52

Dear Sir,

Please find enclosed results of Heavy Liquid Separations on above samples.

<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>
873320	TH 18 0 - 1	0.6	0.6
321	1 - 2	0.2	0.8
322	2 - 3	1.5	1.0
323	3 - 4	0.2	1.4
324	4 - 5	0.2	1.3
325	5 - 6	3.9	1.3
326	6 - 6.6	4.4	1.0
327	TH 20 0 - 1	0.5	0.9
328	1 - 2	0.1	0.7
329	2 - 3	0.2	0.6
330	3 - 4	2.2	1.0
331	4 - 5	3.9	1.0
332	5 - 6	7.0	0.5
873432	Line 2 TH0 0 - 1	1.0	1.0
433	1 - 2	0.1	0.6
434	2 - 3	0.0	0.6
435	3 - 4	0.0	0.6
436	4 - 5	1.9	1.3
437	5 - 5.5	1.0	1.9
438	Line TH4 0 - 1	0.7	0.9
439	1 - 2	0.1	0.4
440	2 - 3	0.2	0.4
441	3 - 4	3.7	0.3
442	4 - 5	0.4	0.5
443	5 - 5.5	1.9	0.4

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<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>
873444	Line 2 TH 8 0 - 1	0.5	0.5
445	1 - 2	0.2	0.3
446	2 - 3	0.0	0.3
447	3 - 4	1.0	0.6
448	4 - 4.5	15.6	0.4
449	Line 2 TH 12 0 - 1	0.4	0.7
450	1 - 2	0.1	0.5
451	2 - 3	0.1	0.2
452	3 - 3.3	2.0	0.2

These are results of samples you have
already received.

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<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>	
873658	Line 1 ARO	0 - 1	1.7	0.2
659		1 - 2	0.1	0.2
660		2 - 3	0.0	0.2
661		3 - 4	0.1	0.1
662		4 - 5	0.0	0.2
663		5 - 6	0.0	0.2
664		6 - 7	0.7	0.2
665	Line 1 AR4	0 - 1	1.9	0.2
666		1 - 2	0.3	0.2
667		2 - 3	0.1	0.2
668		3 - 4	0.0	0.2
669		4 - 5	0.5	0.2
670		5 - 6	3.7	0.1
671		6 - 7	5.9	0.1
672		7 - 8	6.8	0.1
673	Line 1 AR8	0 - 1	0.7	0.2
674*		1 - 2	0.1	0.2
675		2 - 3	0.2	0.2
676		3 - 4	0.2	0.2
677		4 - 5	0.1	0.2
678		5 - 6	0.1	0.2
679		6 - 7	1.9	0.2
680		7 - 8	2.9	0.1
681		8 - 8.5	6.6	0.1
873794	Line 1 AR68	3 - 4	0.2	0.2
795		4 - 5	0.1	0.2
796		5 - 6	0.2	0.2
797		6 - 7	0.1	0.2
798		7 - 8	0.1	0.2
799		8 - 9	0.1	0.2
800		9 -10	0.4	0.2

*(Al. Tag Reads 2.0-3.0)

Yours faithfully

(P.L. James)

Analyses by.....
 (Acting Chief Chemist & Metallurgist)

185



DEPARTMENT OF MINES—TASMANIA

794188

168.

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids }	

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

15th July 1987

Peter H. Stitt & Assoc P/L
5th Floor
King York House
32 York Street
Sydney 2000
N.S.W.

c.c. to A. Birkner
Western Aust.

Reg. Nos 873352-61 873372-79 873398-413
873453-60 873476-93 874204

Dear Sir,

Please find enclosed results of Heavy Liquid
Separations on above samples.

<u>Reg. No</u>	<u>Description</u>	<u>+600µm%</u>	<u>% Heavy Minerals</u>
873352	TH 26 0 - 1	0.2	0.6
353	1 - 2	0.2	0.4
354	2 - 3	0.2	0.5
355	3 - 4	0.1	0.6
356	4 - 5	0.1	0.8
357	5 - 6	0.1	0.8
358	6 - 7	0.4	0.5
359	7 - 8	3.4	0.3
360	8 - 9	3.5	0.2
361	9 - 9.4	8.0	0.3
873372	TH 30 0 - 1	0.5	0.4
373	1 - 2	0.3	0.4
374	2 - 3	0.2	0.3
375	3 - 4	0.3	0.2
376	4 - 5	0.1	0.3
377	5 - 6	0.3	0.5
378	6 - 7	0.3	0.4
379	7 - 8	0.6	0.5
873398	TH 38 0 - 1	3.8	<0.1
399	1 - 2	1.9	0.1
400	2 - 3	2.2	0.1
401	3 - 4	0.4	0.2
402	4 - 5	0.7	0.1

- 2 -

<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>
873403	TH 38 5 - 6	0.8	0.2
404	6 - 7	3.6	0.1
405	7 - 8	2.2	0.1
406	8 - 9	9.8	0.3
407	TH 40 0 - 1	2.1	<0.1
408	1 - 2	1.5	0.2
409	2 - 4	0.8	0.2
410	4 - 5	0.8	0.2
411	5 - 6	2.3	0.2
412	6 - 7	1.2	0.2
413	7 - 7.7	17.5	0.1
873453 Line 2	TH 16 0 - 1	0.5	0.7
454	1 - 2	0.2	0.5
455	2 - 3	0.0	0.5
456 Line 2	TH 20 0 - 1	1.2	0.5
457	1 - 2	1.0	0.6
458	2 - 3	1.2	0.6
459	3 - 4	9.5	0.4
460	4 - 5	4.9	0.5
873476 Line 2	TH 32 0 - 1	1.3	0.2
477	1 - 2	0.7	0.2
478	2 - 3	0.7	0.3
479	3 - 4	0.4	0.3
480	4 - 5	0.7	0.3
874204	5 - 6	0.2	0.2
873481	6 - 7	0.6	0.2
482	7 - 8	0.9	0.3
483	8 - 9	1.8	0.2
484 Line 2	TH 36 0 - 1	0.9	0.2
485	1 - 2	0.6	0.1
486	2 - 3	1.3	0.2
487	3 - 4	1.6	0.2
488	4 - 5	0.7	0.2
489	5 - 6	0.5	0.2
490	6 - 7	0.3	0.3
491	7 - 8	1.3	0.2
492	8 - 9	0.9	0.2
493	9 - 10.0	1.8	0.3

Analyses by.....

(P.L. James)
Acting Chief Chemist & Metallurgist



DEPARTMENT OF MINES—TASMANIA

TELEPHONES:

Metallurgical Research
Laboratory } 44 2431-2
Mines Inspection } (2 lines)
Explosives & Inflammable Liquids }

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

22nd July 1987

Peter H. Stitt & Assoc P/L
5th Floor
King York House
32 York Street
Sydney 2000
N.S.W.

c.c. to A. Birkner.
WesternAust.

Reg. Nos 873314-19 873362-71
873380-97 873414-31

Dear Sir,

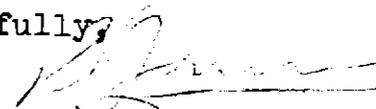
Please find enclosed results of Heavy Liquid
Separations on above samples.

<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>
873314	Hole No TH 16 0 - 1 m	0.6	1.4
315	1 - 2	0.1	2.4
316	2 - 3	0.4	1.3
317	3 - 4	0.2	2.6
318	4 - 5	1.1	1.2
319	5 - 5.7	5.6	0.7
873362	TH 28 0 - 1	0.2	0.6
363	1 - 2	0.4	0.5
364	2 - 3	0.1	0.5
365	3 - 4	0.1	0.6
366	4 - 5	0.1	0.4
367	5 - 6	0.1	0.4
368	6 - 7	0.1	0.4
369	7 - 8	0.2	0.2
370	8 - 9	0.1	0.4
371	9 - 10.0	1.1	0.3
873380	TH 32 0 - 1	0.6	0.3
381	1 - 2	1.4	0.3
382	2 - 3	0.5	0.3
383	3 - 4	0.2	0.4
384	4 - 5	0.6	0.3
385	5 - 6	2.6	0.3

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<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>
873386	TH 32 6 - 7 m	4.3	0.4
387	7 - 8	6.6	0.2
388	TH 34 0 - 1	1.0	0.3
389	1 - 2	0.5	0.2
390	2 - 3	2.0	0.2
391	3 - 3.3	5.6	0.2
392	TH 36 0 - 1	0.9	0.1
393	1 - 2	2.1	0.1
394	2 - 3	1.7	0.1
395	3 - 4	1.2	0.1
396	4 - 5	3.7	0.2
397	5 - 5.8	14.4	0.2
873414	TH 42 0 - 1	3.3	0.1
415	1 - 2	1.2	0.1
416	2 - 3	0.7	0.1
417	3 - 4	0.5	0.1
418	4 - 5	1.2	0.1
419	5 - 6	1.1	0.1
420	6 - 7	2.2	0.1
421	7 - 8	6.0	0.1
422	TH 44 0 - 1	1.3	0.1
423	1 - 2	1.5	0.1
424	2 - 3	2.0	0.1
425	3 - 4	1.4	0.1
426	4 - 5	0.5	0.1
427	5 - 6	0.7	0.1
428	6 - 7	0.8	0.1
429	7 - 8	0.8	0.1
430	8 - 9	1.4	0.1
431	9 - 10.0	2.7	0.1

Yours faithfully,


 (P.L. James)

Acting Chief Chemist & Metallurgist

 Analyses by 

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DEPARTMENT OF MINES—TASMANIA

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

TELEPHONES:
Metallurgical Research
Laboratory
Mines Inspection
Explosives & Inflammable Liquids }
44 2431-2
(2 lines)

TELEX 58764

29th July 1987

Peter Stitt & Assoc,
5th Floor,
King York House,
32 York Street
Sydney 2000
N.S.W.

c/c. to G. Beckett
Western Aust.

Reg. Nos 873504-11 873520-26 873619-38
873821-40

Dear Sir,

Please find below results of samples submitted to
this laboratory, for Heavy Liquid Separations.

<u>Reg. No</u>		<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Min.</u>
873504	Hole HB 12	0 - 1	1.5	0.1
505		1 - 2	1.4	0.2
506		2 - 3	0.9	0.2
507		3 - 4	1.4	0.1
508		4 - 5	2.7	0.1
509		5 - 6	0.9	0.2
510		6 - 7	1.1	0.1
511		7 - 8	1.1	0.1
873520	HB 28	0 - 1	1.1	0.1
521		1 - 2	0.3	0.3
522		2 - 3	0.2	0.2
523		3 - 4	0.4	0.1
524		4 - 5	0.3	0.1
525		5 - 6	0.9	0.1
526		6 - 6.8	1.5	0.1
873619	NB 36	0 - 1	0.1	0.5
620		1 - 2	0.0	0.4
621		2 - 3	0.1	0.3
622		3 - 4	0.1	0.3
623		4 - 5	0.2	0.5
624		5 - 6	0.2	0.4
625		6 - 7	0.1	0.6

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<u>Reg. No</u>		<u>Description</u>	<u>+600um %</u>	<u>% Heavy Minerals</u>
873626	NB 36	7 - 8	0.2	0.7
627		8 - 9	0.1	0.6
628		9 - 10	0.2	0.5
629	NB 40	0 - 1	0.1	0.6
630		1 - 2	0.1	0.7
631		2 - 3	0.0	0.7
632		3 - 4	0.0	0.6
633		4 - 5	0.1	0.6
634		5 - 6	0.0	0.5
635		6 - 7	0.1	0.4
636		7 - 8	0.1	0.6
637		8 - 9	0.0	0.6
638		9 - 10	0.2	0.5
873821	Line 1 AR 76	0 - 1	0.3	0.3
822		1 - 2	0.1	0.3
823		2 - 3	0.1	0.2
824		3 - 4	0.1	0.2
825		4 - 5	0.1	0.2
826		5 - 6	0.0	0.3
827		6 - 7	0.0	0.2
828		7 - 8	0.0	0.2
829		8 - 9	0.0	0.2
830		9 - 10	0.1	0.2
831	Line 1 AR 80	0 - 1	0.2	0.3
832		1 - 2	0.2	0.2
833		2 - 3	0.1	0.2
834		3 - 4	0.1	0.2
835		4 - 5	0.1	0.2
836		5 - 6	0.0	0.2
837		6 - 7	0.0	0.1
838		7 - 8	0.1	0.1
839		8 - 9	0.1	0.1
840		9 - 10	0.2	0.2

Yours faithfully,

(P.L. James)

Acting Chief Chemist & Metallurgist

DEPARTMENT OF MINES—TASMANIA



TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

14th August 1987

Peter Stitt & Assoc.
5th Floor
King York House,
32 York Street
Sydney 2000
N.S.W.

c/- Mr. G. Beckett
Western Aust.

Reg. Nos 873494-97 873512-19 873527-37
874434-51

Dear Sir,

Please find below results of samples submitted to this laboratory, for Heavy Liquid Separations.

<u>Reg. No</u>	<u>Descriptions</u>	<u>+600µm %</u>	<u>% Heavy Min.</u>
873494	Hole HB 4	0 - 1	0.1
495		1 - 2	0.2
496		2 - 3	0.1
497		3 - 3.4	0.2
873512	HB 16	0 - 1	0.4
513		1 - 2	0.1
514	HB 20	0 - 1	0.1
515		1 - 2	0.1
516		2 - 3	0.1
517		3 - 3.5	Not Yet Found
518	HB 24	0 - 1	0.1
519		1 - 2	0.1
873527	Line 2 HB 0	0 - 1	0.1
528		1 - 2	0.1
529		2 - 3	0.1
530		3 - 4	0.1
531		4 - 5	0.1
532		5 - 5.6	0.1
533	Line 2 HB 8	0 - 1	0.2
534		1 - 2	0.1
535		2 - 3	0.1
536		3 - 4	0.1
537		4 - 4.5	0.1

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DEPARTMENT OF MINES—TASMANIA

794195 175.

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

TELEX 58764

21st August 1987

Peter Stitt & Assoc Pty Ltd,
5th Floor,
York House,
32 York Street
Sydney 2000
N.S.W.

C/- Mr. G. Beckett
Western Aust.

Reg. Nos 873498-503 873715-29
873751-60

Dear Sir,

Please find below results of samples submitted to
this laboratory, for Heavy Liquid Separations.

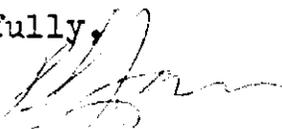
<u>Reg. No</u>	<u>Descriptions</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>	
873498	Hole HB 8	0 - 1	1.4	0.1
499		1 - 2	0.5	0.1
500		2 - 3	1.0	0.1
501		3 - 4	0.2	0.1
502		4 - 5	3.0	0.1
503		5 - 5.7	3.1	0.3
873715	Line 1 AR 32	0 - 1	0.3	0.3
716		1 - 2	0.1	0.3
717		2 - 3	0.1	0.2
718		3 - 4	0.1	0.2
719		4 - 5	0.2	0.3
720		5 - 6	0.8	0.2
721		6 - 6.5	0.6	0.1
722	Line 1 AR 36	0 - 1	0.5	0.2
723		1 - 2	0.1	0.2
724		2 - 3	0.0	0.2
725		3 - 4	0.0	0.2
726		4 - 5	0.1	0.2
727		5 - 6	0.1	0.1
728		6 - 7	0.1	0.1
729		7 - 8	0.3	0.1

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<u>Reg. No</u>	<u>Descriptions</u>	<u>+600um %</u>	<u>% Heavy Mineral</u>
873751 Line 1 AR 52	0 - 1	0.1	0.4
752	1 - 2	0.0	0.3
753	2 - 3	0.0	0.3
754	3 - 4	0.0	0.3
755	4 - 5	0.1	0.2
756	5 - 6	0.0	0.2
757	6 - 7	0.1	0.3
758	7 - 8	0.0	0.2
759	8 - 9	0.0	0.1
760	9 - 10	0.0	0.3

Yours faithfully,



(P.L. James)
Acting Chief Chemist & Metallurgist

Analyses by.....


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DEPARTMENT OF MINES—TASMANIA

794197

177.

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

27th August 1987

Peter Stitt & Assoc Pty Ltd,
5th Floor,
York House,
32 York Street
Sydney 2000 N.S.W.

C/- Mr. G. Beckett
Western Aust.

Reg. Nos 873580-608 873743-50

Dear Sir,

Please find below results of samples submitted to this laboratory, for Heavy Liquid Separations.

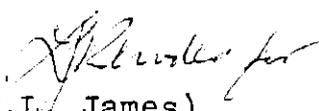
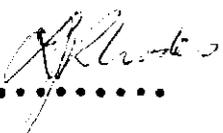
<u>Reg. No</u>	<u>Descriptions</u>	<u>+600um %</u>	<u>% Heavy Minerals</u>
873580	Hole NB 20 0 - 1	0.6	0.7
581	1 - 2	0.2	0.9
582	2 - 3	0.1	0.7
583	3 - 4	0.1	0.3
584	4 - 5	0.4	0.5
585	5 - 6	0.1	0.4
586	6 - 7	0.3	0.5
587	7 - 8	0.3	0.3
588	8 - 9	0.2	0.3
589	9 - 10	0.1	0.5
590	Hole NB 24 0 - 1	0.0	0.4
591	1 - 2	0.0	0.4
592	2 - 3	0.0	0.4
593	3 - 4	0.1	0.3
594	4 - 5	1.9	0.6
595	5 - 6	0.2	0.6
596	6 - 7	0.0	0.4
597	7 - 8	0.0	0.3
598	8 - 9	0.0	0.5
599	Hole NB 28 0 - 1	0.0	0.5
600	1 - 2	0.0	0.5
601	2 - 3	0.0	0.5
602	3 - 4	0.0	0.5
603	4 - 5	0.0	0.5
604	5 - 6	0.0	0.4

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<u>Reg. No</u>	<u>Descriptions</u>	<u>+600μm %</u>	<u>% Heavy Minerals</u>	
873605	Hole HB 28	6 - 7	0.0	0.4
606		7 - 8	0.0	0.5
607		8 - 9	0.0	0.6
608		9 - 10	0.0	0.7
873743	Line 1 AR 48	0 - 1	0.5	0.2
744		1 - 2	0.0	0.2
745		2 - 3	0.0	0.2
746		3 - 4	0.0	0.2
747		4 - 5	0.1	0.3
748		5 - 6	0.0	0.1
749		6 - 7	0.1	0.3
750		7 - 8	0.4	0.2

Yours faithfully,


 (P.L. James)
Acting Chief Chemist & MetallurgistAnalyses by.....


DEPARTMENT OF MINES—TASMANIA



TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

4th September 1987

Peter Stitt & Assoc Pty Ltd,
5th Floor
York House,
32 York Street
Sydney 2000 N.S.W.

C/- Mr. G. Beckett
Western Aust.

Reg. Nos 873566-3579 873609-18 873694-714

Dear Sir,

Please find below results of samples submitted to this laboratory, for Heavy Liquid Separations.

<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Minerals</u>	
873566	Hole NB 12	0 - 1	0.5	0.4
567		1 - 2	0.2	0.9
568		2 - 3	0.1	0.7
569		3 - 4	0.1	0.7
570		4 - 5	0.1	0.5
571		5 - 6	0.1	0.4
572		6 - 7	0.1	0.4
573	NB 16	0 - 1	0.4	0.7
574		1 - 2	0.5	0.5
575		2 - 3	0.1	0.4
576		3 - 4	0.1	0.5
577		4 - 5	0.1	0.6
578		5 - 6	0.1*	0.4
579		6 - 7	0.7	0.5
* 2.1% Slime				
873609	NB 32	0 - 1	0.1	0.3
610		1 - 2	0.0	0.3
611		2 - 3	0.0	0.3
612		3 - 4	0.0	0.5
613		4 - 5	0.2	0.5
614		5 - 6	0.0	0.6
615		6 - 7	0.0	0.5
616		7 - 8	0.1	0.6
617		8 - 9	0.0	0.6
618		9 - 10	0.0	0.5

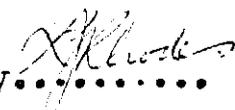
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<u>Reg. No</u>	<u>Description</u>	<u>+600µm %</u>	<u>% Heavy Mineral</u>	
873694	Line 1 AR 20	0 - 1	0.9	0.3
695		1 - 2	0.0	0.2
696		2 - 3	0.1	0.3
697		3 - 4	0.1	0.1
698		4 - 5	0.1	0.1
699		5 - 6	0.8	0.2
700		6 - 7	0.6	0.1
701	Line 1 AR 24	0 - 1	0.4	0.3
702		1 - 2	0.7	0.3
703		2 - 3	0.1	0.2
704		3 - 4	0.1	0.1
705		4 - 5	0.8	0.2
706		5 - 6	0.8	0.1
707		6 - 6.3	3.7	0.1
708	Line 1 AR 28	0 - 1	0.1	0.2
709		1 - 2	0.3	0.2
710		2 - 3	0.0	0.1
711		3 - 4	0.0	0.1
712		4 - 5	0.2	0.2
713		5 - 6	0.5	0.1
714		6 - 6.3	2.0	0.1

Yours faithfully,



(P.L. James)
Acting Chief Chemist & MetallurgistAnalyses by 

DEPARTMENT OF MINES—TASMANIA



LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

15th September 1987

TELEX 58764

Peter Stitt & Assoc Pty Ltd,
5th Floor
York House,
32 York Street
Sydney 2000 N.S.W.

C.C. Mr. G. Beckett
Western. Aust.

Reg. Nos. 873682-93 873761-80 873868-78

Dear Sir,

Please find below results of samples submitted to this laboratory, for Heavy Liquid Separations.

<u>Reg. No</u>	<u>Description</u>	<u>+ 600µm %</u>	<u>% Heavy Mineral</u>	
873682	Hole Line 1 AR 12	0 - 1	1.4	0.2
683		1 - 2	0.3	0.2
684		2 - 3	0.0	0.2
685		3 - 4	0.0	0.1
686		4 - 5	0.1	0.1
687		5 - 6	30.2	0.2
688z	Line 1 AR 16	0 - 1	0.3	0.3
689		1 - 2	0.0	0.2
690		2 - 3	0.1	0.2
691		3 - 4	0.0	0.1
692		4 - 5	1.1	0.1
693		5 - 6	10.3	0.1
873761	Line 1 AR 56	0 - 1	0.4	0.3
762		1 - 2	0.2	0.3
763		2 - 3	0.2	0.4
764		3 - 4	0.0	0.2
765		4 - 5	0.0	0.2
766		5 - 6	0.0	0.2
767		6 - 7	0.0	0.2
768		7 - 8	0.0	0.2
769		8 - 9	0.1	0.3
770		9 - 10	0.0	0.2

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<u>Reg. No</u>	<u>Description</u>	<u>+ 500um %</u>	<u>% Heavy Mineral</u>
873771	Line 1 AR 60 0 - 1	0.1	0.2
772	1 - 2	0.0	0.2
773	2 - 3	0.0	0.3
774	3 - 4	0.1	0.2
775	4 - 5	0.0	0.3
776	5 - 6	0.0	0.3
777	6 - 7	0.0	0.2
778	7 - 8	0.0	0.2
779	8 - 9	0.0	0.3
780	9 - 10	0.0	0.2
873868	Line 1 AR 100 0 - 1	0.1	0.2
869	1 - 2	0.0	0.1
870	2 - 3	0.0	0.2
871	3 - 4	0.0	0.2
872	4 - 5	0.1	0.2
873	Line 1 AR 104 0 - 1	0.2	0.2
874	1 - 2	0.0	0.1
875	2 - 3	0.0	0.1
876	3 - 4	0.0	0.1
877	4 - 5	0.0	0.2
878	5 - 5.8	0.1	0.2

Yours faithfully,

(P.L. James)

Acting Chief Chemist & Metallurgist

Analyses by.....

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DEPARTMENT OF MINES—TASMANIA

794203

183.

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

22nd October 1987

Peter Stitt & Assoc Pty Ltd,
5th Floor
York House
32 York Street
Sydney 2000 N.S.W.

Reg. No 873517 873538-65 873730-42
873801-20 873841-67 873879-89

Dear Sir,

Please find below results of samples submitted to this laboratory for Heavy Liquid separation.

<u>Reg. No</u>	<u>Description</u>	<u>+ 600 μm%</u>	<u>Heavy Mineral %</u>
873517	HB 20 3 - 3.5	1.4	0.2
873538	Line 2 HB 16	0 - 1	0.2
873539		1 - 2	0.1
540		2 - 3	0.2
541		3 - 4	0.6
542		4 - 5	0.1
543		5 - 6	0.5
544		6 - 7	0.1
545		7 - 7.65	0.1
546	" " 36	0 - 1	0.2
547		1 - 2	0.0
548		2 - 3.9	0.1
550	NBC	0 - 1	0.8
551		1 - 2	0.2
552		2 - 3	0.9
553		3 - 4	0.2
554 *		4 - 5	0.0
555		5 - 6	0.2
556	NB 8	0 - 1	0.3
557		1 - 2	0.2
558		2 - 3	0.1
559		3 - 4	0.2
560		4 - 5	0.0
561		5 - 6	0.1
562		6 - 7	0.0
563		7 - 8	0.0
564		8 - 9	0.1
565		9 - 9.5	0.1

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<u>Reg. No</u>	<u>Description</u>	<u>+600 μm %</u>	<u>% Heavy Mineral</u>
873730	Line 1 AR 40	0 - 1	0.2
731		1 - 2	0.0
732		2 - 3	0.1
733		3 - 4	0.1
734		4 - 5	0.7
735		5 - 6	0.4
736		6 - 7	0.1
737	Line 1 AR 44	0 - 1	0.1
738		1 - 2	0.2
739		2 - 3	0.0
740		3 - 4	0.0
741		4 - 5	0.0
742		5 - 6	0.0
873801-	Line 1 AR 72	0 - 1	0.1
802	North	1 - 2	0.0
803		2 - 3	0.0
804		3 - 4	0.1
805		4 - 5	0.1
806		5 - 6	0.0
807		6 - 7	0.0
808		7 - 8	0.1
809		8 - 9	0.0
810		9 - 10	0.0
811	Line 1 AR 72	0 - 1	0.1
812	South	1 - 2	0.0
813		2 - 3	0.0
814		3 - 4	0.0
815		4 - 5	0.0
816		5 - 6	0.0
817		6 - 7	0.0
818		7 - 8	0.0
819		8 - 9	0.0
820		9 - 10	0.0

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<u>Reg. No</u>	<u>Description</u>		<u>+600 μm %</u>	<u>% Heavy Mineral</u>
873841	Line 1 AR 84	0 - 1	0.3	0.2
842		1 - 2	0.2	0.3
843		2 - 3	0.1	0.3
844		3 - 4	0.0	0.2
845		4 - 5	0.0	0.2
846		5 - 6	0.0	0.2
847		6 - 7	0.1	0.2
848		7 - 8	0.1	0.2
849	Line 1 AR 88	0 - 1	0.2	0.3
850		1 - 2	0.0	0.2
851		2 - 3	0.0	0.2
852		3 - 4	0.1	0.2
853		4 - 5	0.1	0.2
854		5 - 6	0.0	0.2
855	Line 1 AR 92	0 - 1	0.2	0.2
856		1 - 2	0.1	0.3
857		2 - 3	0.0	0.2
858		3 - 4	0.0	0.2
859		4 - 5	0.0	0.2
860		5 - 6	0.0	0.2
861		6 - 7	0.1	0.2
862	Line 1 AR 96	0 - 1	0.1	0.3
863		1 - 2	0.0	0.1
864		2 - 3	0.0	0.2
865		3 - 4	0.0	0.2
866		4 - 5	0.0	0.2
867		5 - 6	0.0	0.2
873879	Line 1 AR 108	0 - 1	0.5	0.2
880		1 - 2	0.1	0.1
881		2 - 3	0.0	0.2
882		3 - 4	0.0	0.2
883	Line 1 AR 112	0 - 1	0.1	0.2
884		1 - 2	0.1	0.2
885		2 - 3	0.0	0.1
886		3 - 4	0.0	0.1
887	Line 1 AR 116	0 - 1	0.2	0.3
888		1 - 2	0.0	0.1
889		2 - 3	0.0	0.2

Analyses by *[Signature]*

(P.L. James) *[Signature]*

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794206

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APPENDIX 6

Mineralogical Study of Heavy Mineral Concentrate

by Artur Birkner

EL 33/86 TASMANIA

Sample Middle Arthur R. Beach

Surface Conc.

1. Total Sample out 19.92g.
 2. Total Heavy Mineral 4.53
 3. Per cent Heavy Mineral 22.74

Plantz Mag. Sep. mp.	4 wt. of fraction %	5 per cent in H/M $\frac{4 \times 100}{2}$	6 per cent in bulk $\frac{4 \times 100}{1}$	7 MINERAL	%	8 per cent in H/M $\frac{4 \times 7}{2}$	9 per cent in bulk $\frac{4 \times 7}{1}$
m.g.	0.18	3.9	0.9				
0.4	1.63	35.9	8.2				
0.35	1.0			Ilmenite	50	11.14	2.53
				Garnet	50	11.14	2.53
0.45	1.06			Chromite	30	7.02	1.60
				Epidote)	70	16.40	3.72
				Kyanite)			
0.8	0.94	20.7	4.7				
0.8	9.47			Monazite	15	1.56	0.35
1.2	0.46	10.2	2.3				
Non-mag.	1.32	29.1	0.15	Rutile	25	7.3	1.66
				Leucoxene	15	4.4	0.99
				Zircon	35	10.2	2.32
				Others	25	7.3	1.66

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EL 33/86 TASMANIA

Sample Mineral Slick

Greenes Creek

North end of Sandy Cape Beach

1. Total sample out 29.0g.
2. Total Heavy Mineral 4.32g.
3. Per cent Heavy Mineral 14.9

Frantz Mag. Sep. Amp.	4 wt. of fraction %	5 per cent in H/M $\frac{4}{2} \times 100$	6 per cent in bulk $\frac{4}{1} \times 100$	7 MINERAL %	8 per cent in H/M $\frac{4 \times 7}{2}$	9 per cent in bulk $\frac{4 \times 7}{1}$
Mag.	0.13	3.0	0.45			
0.4	2.13	49.3	7.34			
0.35	0.99			Ilmenite 70	16.0	2.4
				Garnet 30	6.9	1.0
0.45	1.64			Chromite 50	19.0	2.8
				Al-Silicates 50	19.0	2.8
0.8	1.0	23.1	3.45			
0.8	0.46			Monazite 20	2.1	0.3
0.2	0.07	1.6	0.24			
Non-Mag.	0.96	22.2	3.31	Rutile 30	6.7	1.00
				Leucoxene 10	2.2	0.33
				Zircon 35	7.8	1.16
				Others 25	5.6	0.83

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APPENDIX 7

Temma Harbour Line 1 Bulk Composite

Tasmanian Department of Mines

Test Results



TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

TELEX 58764

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7249

21st September 1987

Peter Stitt & Assoc. Pty Ltd,
5th Floor,
York House,
32 York Street
Sydney 2000 N.S.W.

Reg. Nos 872790=2864 873314-26

Dear Sir,

A composite was prepared of beach sand samples from
Holes TH4, TH5, TH6, TH7, TH8, TH9, TH10, TH11, TH12, TH13,
TH14, TH15, TH16, and TH18.

The details of the samples that made up the composite
are as follows:-

<u>Reg. Nos</u>		<u>Description</u>	<u>Mass g</u>
872790	TH4	0 - 1	1178
791		1 - 2	1891
792		2 - 3	1927
793		3 - 4	2473
794		4 - 5	1560
795		5 - 6	2278
796		6 - 7	1911
797		7 - 8	2141
798		8 - 9	2442
799		9 - 9.5	2022
2800	TH5	0 - 1	1514
801		1 - 2	1679
802		2 - 3	1962
803		3 - 4	2190
804		4 - 5	1998
805		5 - 5.4	875
806	TH6	0 - 1	1165
807		1 - 2	1501
808		2 - 3	1527
809		3 - 4	969
810		4 - 5	1027
811		5 - 6	1761
812		6 - 6.3	570

<u>Reg. No</u>		<u>Description</u>	<u>Mass g.</u>
872813	TH7	0 - 1	1500
814		1 - 2	1693
815		2 - 3	1991
816		3 - 4	1265
817		4 - 5	1989
818		5 - 5.16	501
819	TH8	0 - 1	928
820		1 - 2	1586
821		2 - 3	1552
822		3 - 4	1825
823		4 - 5	1085
824		5 - 6	1741
825		6 - 6.5	975
826	TH9	0 - 1	1098
827		1 - 2	835
828		2 - 3	1494
829		3 - 3.8	1454
830	TH10	0 - 1	1443
831		1 - 2	1295
832		2 - 3	2065
833		3 - 3.4	1608
834	TH11	0 - 1	928
835		1 - 2	1210
836		2 - 3	800
837		3 - 3.6	1950
838	TH12	0 - 1	1030
839		1 - 2	1407
840		2 - 3	1761
841		3 - 4	1795
842		4 - 5	2220
843		5 - 5.7	1940
844	TH13	0 - 1	1660
845		1 - 2	1477
846		2 - 3	1268
847		3 - 4	1215
848		4 - 5	1677
849		5 - 6	1962
850		6 - 7	1570
851		7 - 7.5	544

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<u>Reg. No</u>		<u>Description</u>	<u>Mass g.</u>
872852	TH14	0 - 1	1092
853		1 - 2	1441
854		2 - 3	1790
855		3 - 4	1350
856		4 - 5	1778
857		5 - 6	1030
858		6 - 6.3	179
859	TH15	0 - 1	863
860		1 - 2	1379
861		2 - 3	1689
862		3 - 4	2275
863		4 - 5	2132
864		5 - 5.2	455
873314	TH16	0 - 1	898
315		1 - 2	1876
316		2 - 3	2218
317		3 - 4	3082
318		4 - 5	2052
319		5 - 5.7	911
320	TH18	0 - 1	980
321		1 - 2	1590
322		2 - 3	1608
323		3 - 4	1275
324		4 - 5	1571
325		5 - 6	1486
326		6 - 6.6	841

The composite sample was given the Registered No 874410.

The total mass of the composite was 132,709 g.

The composite sample was screened on the 450mm diam Sweco screen fitted with a 653 μ m screen. The + 653 μ m fraction amounted to 995 g.

The - 653 μ m fraction of the composite was tabled on the Deister table to produce a concentrate, middling and a tailing, with the following mass balance.

	<u>Product</u>	<u>% Mass</u>
+653 μ m		0.75
-653 μ m	T1C	4.60
	T1M	94.65
	T1T	
Composite		100.0

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The table middlings T1M and table tailings T1T were discarded. The table concentrate was re-tabled to give the following mass balance.

<u>Product</u>	<u>% Mass</u>
T2C	0.73
T2M	1.74
T2T	2.13
T1C	4.60

A sample from each of the table products was subjected to heavy liquid separation with the following results.

<u>Product</u>	<u>% Heavy Mineral</u>
T2C	96.4
T2M	31.2
T2T	1.4

The heavy mineral concentrate from the heavy liquid separation of the table concentrate T2C was assayed for Au, Pt, and Ir, with the following results.

Au 0.11 g/t
Pt <0.01 g/t (of the order of 0.002 g/t)
Ir <0.2 g/t

Another portion of the table concentrate T2C was subjected to magnetic separation with the following mass distribution.

<u>Product</u>	<u>% Mass</u>
M/A1	9.67
M/A2	1.72
M/A3	1.77
M/A4	67.74
N	19.11
T2C	100.00

Yours faithfully,

(P.L. James)

Acting Chief Chemist & Metallurgist

Metallurgist.....
P.L. James