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OPEN FILE

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1. INTRODUCTION

ZETETIC was engaged by Monier to supervise an auger drilling programme for silica sands in the Savage River, Boat Harbour and Lapoinya areas of N.W. Tasmania, as follows:

<u>Area</u>	<u>Drill</u> <u>Locations</u>	<u>No. of</u> <u>Holes</u>	<u>Test</u> <u>Pits</u>	<u>Days</u> <u>Drilled</u>
Savage River	# 39(85/1 to 84/39)	41	Nil	12
Boat Harbour	10(85/40 to 85/49)	14	21	4
Lapoinya	10(85/50 to 85/59)	10	5	3

The above programme was carried out between November 13th and December 12th, 1985.

This document deals only with the Boat Harbour and Lapoinya areas.

Technical details of the silica sand exploration in the Savage River area have previously been reported to Monier.

As requested by Monier, this document records the results of the drilling without comment as to their economic importance or geological content. However, in order to provide a basis for further drilling programmes of this kind, section 3 of the document comments on the drilling techniques employed, the validity of sampling methods and suggested future improvements.

2. SITE LOCATION AND REGIONAL GEOLOGICAL SETTING

The holes and pits excavated in the Boat Harbour area were located in a block of land owned by Brambles Holdings Ltd., approximately 2.0 kilometres SW of Boat Harbour Beach (see Figures 1 and 2).

The work completed in the Lapoinya area was situated near the eastern boundary of Monier's EL 15/85, some 2.5 kms SW of Lapoinya (see Figures 1 and 3).

Drilling and pitting in both areas tested potential silica sand deposits formed as a product of weathering of the steeply dipping Proterozoic^o Jacob Orthoquartzite.

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3. METHODS OF INVESTIGATION

Sub-surface samples were obtained mainly by the use of a trailer mounted Gemcodril 210D continuous flight auger. In the Boat Harbour area, drilling was supplemented by pitting with a Kato tracked excavator, while at Lapoinya the D4 bulldozer required for rig access was used to scrape excavations to confirm suspected shallow bedrock detected by the drill.

Samples in the pits were obtained by standard channel-sampling procedures; no samples were obtained from the bulldozer scrapes in the Lapoinya area.

Samples from the drill were collected by three different methods:

- (i) from the turning augers as samples were returned to collar elevation; samples thus taken were suffixed 'F';
- (ii) from the augers as they were pulled, usually to clear the bit, at the end of a hole or when tube-sampling failed; samples thus taken were suffixed 'F*' in the log-sheets;
- (iii) by 'tube-sampling'; this entailed attaching a hollow steel-tube to the end of the auger string and pressing the tube into the virgin down-hole ground; samples thus taken were suffixed 'T' in the log-sheets.

The above methods (ii) and (iii) were attempts to obtain uncontaminated samples from known depths, but were of only limited success for the following reasons:

Samples direct from pulled flights

- where the hole had been widened by drill-string vibration and flexure, samples often shook-off or washed off the flights as they were pulled;
- when the auger-string was pulled, material was often scraped off the sides of the hole on the way up, thus contaminating the samples on the auger flights.

Tube samples

- the main problem was caving of the hole prior to insertion of the tube; this resulted in a sample contaminated by up-hole material; where this occurred the sample was rejected;
- secondary problems were caused by the sample falling out of the tube as it was extracted from the hole and the difficulty of forcing the tube into the down-hole virgin ground, the drill occasionally being inadequately powerful for this purpose.

Other difficulties encountered included damp clayey silts packing around the bit and lower flights, thus preventing efficient sample return, and excessive bit wear owing to the abrasiveness of the sands.

It is recommended that, for future augering exercises, thought is given to utilising hollow-stem sets of auger flights as these may provide higher quality samples. Alternatively, a more expensive and more cumbersome reverse air circulation rig may be appropriate. Where possible, test-pitting should be carried out before drilling.

4. RESULTS

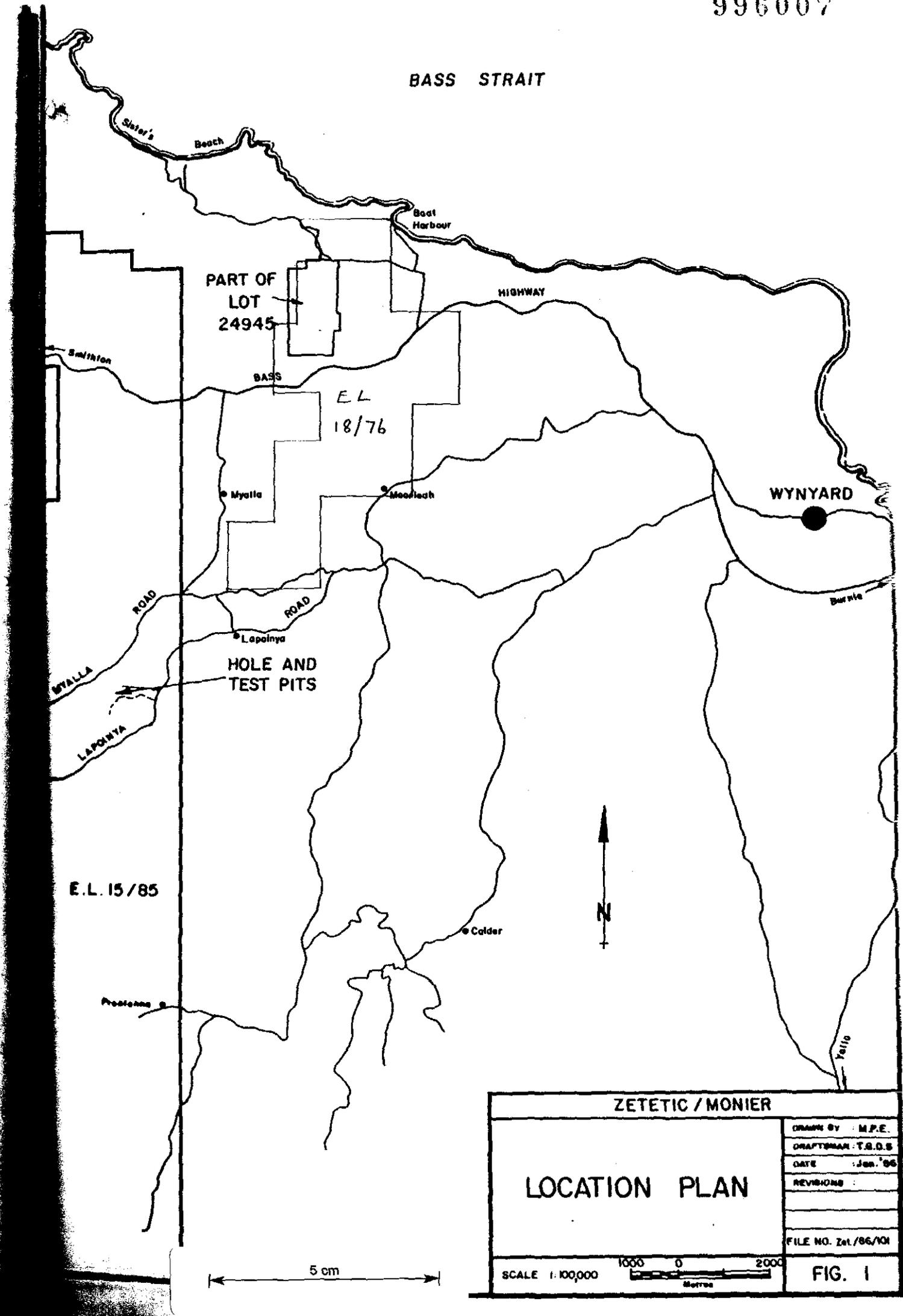
Drill and test pit log-sheets are to be found in Appendix 1 of the document and the sample results in Appendix 2.

M.P. Everett

R.W.L. Shaw

ZETETIC, Jan. 1986

BASS STRAIT



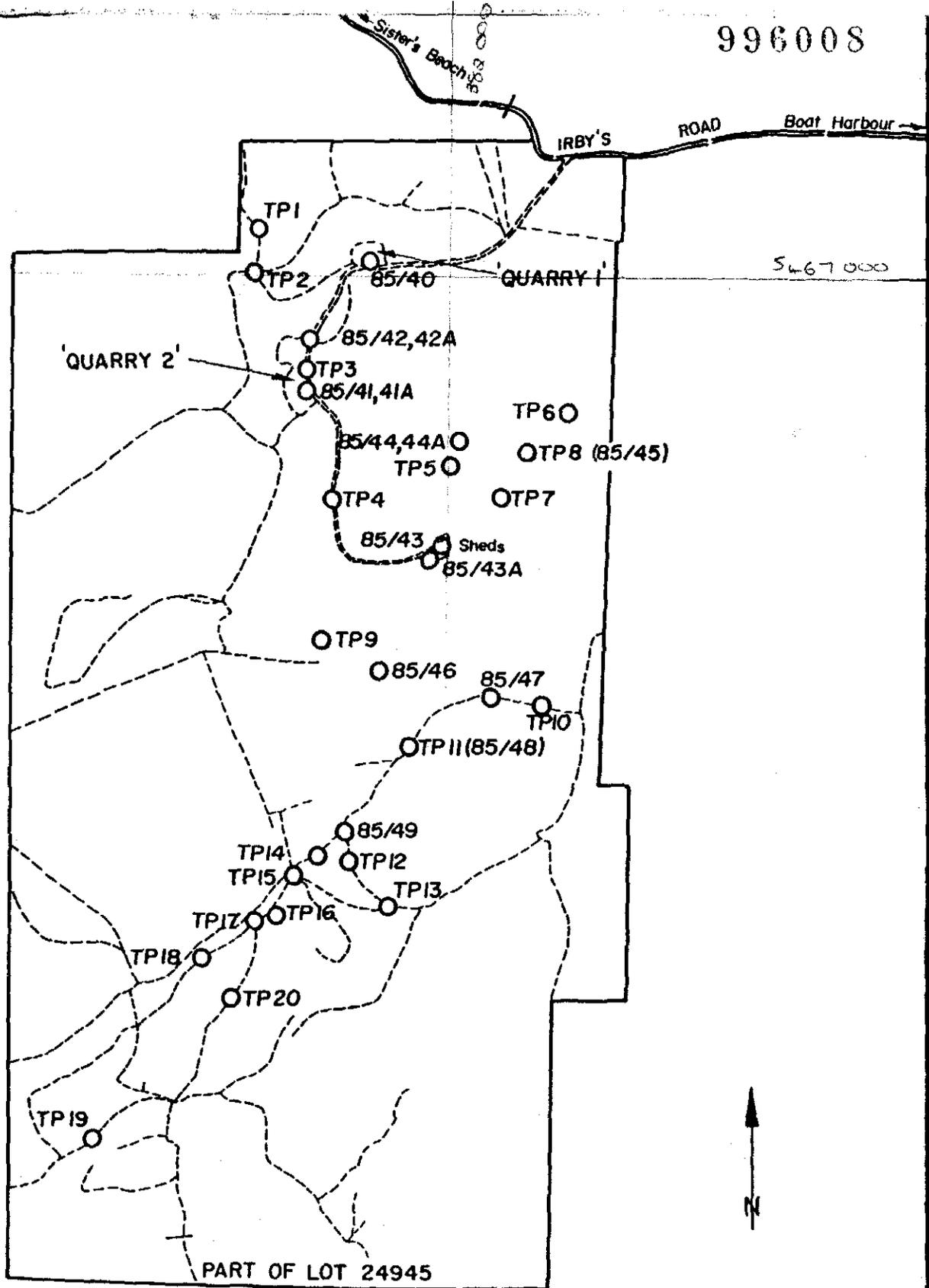
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ZETETIC / MONIER	
LOCATION PLAN	DRAWN BY : M.P.E. DRAFTSMAN : T.S.D.S. DATE : Jan '86 REVISIONS : FILE NO. Zet/86/101
SCALE 1:100,000	
FIG. 1	

006

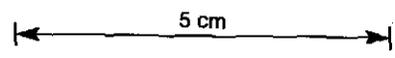
007

996008



LEGEND

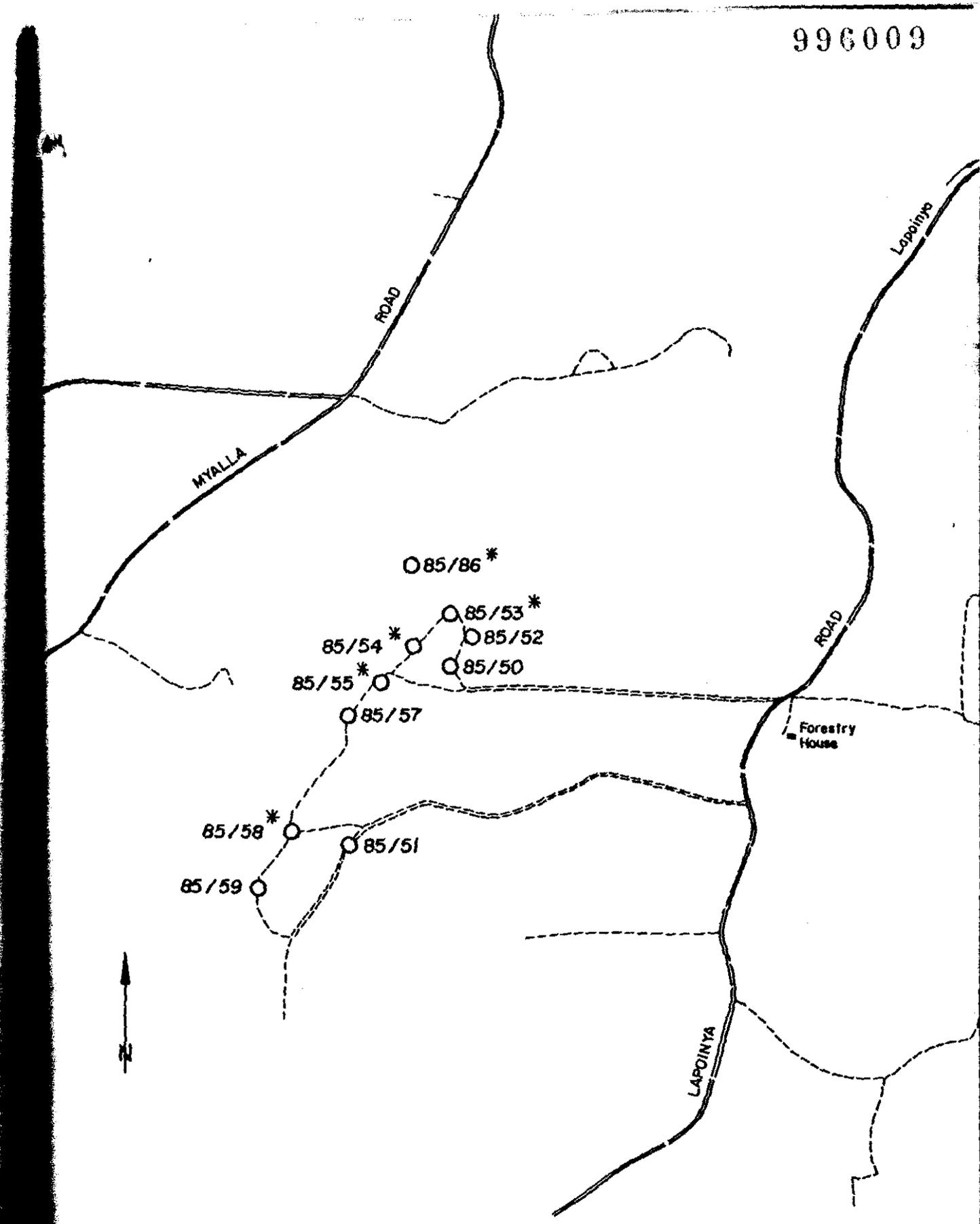
TP Test Pit
 85/47 Bore Hole



ZETETIC / MONIER	
BOAT HARBOUR AREA BRAMBLES	
LOCATION OF DRILL HOLES AND TEST PITS	
DRAWN BY	M.P.E.
DRAFTSMAN	T.S.D.S.
DATE	Jan. '86
REVISIONS	
FILE NO.	Mon/86/301
SCALE 1:10,000	
FIG. 2	

008

996009



LEGEND

- 85/59 Bore Hole
- ⊠ Bore hole supplemented by bulldozer pit.

5 cm

ZETETIC / MONIER	
LAPOINYA AREA (E.L. 15/85)	
LOCATION OF DRILL HOLES AND TEST PITS	
DRAWN BY M.P.E.	
DRAFTERMAN T.S.D.S.	
DATE Jan. '86	
REVISIONS	
FILE NO. Mon/86/302	
SCALE 1:10,000	
	FIG. 3

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996010

APPENDIX 1

DRILL AND TEST PIT LOGS

TEST PITS

Boat Harbour Area

010

011

		Boat Harbour, Tas.	Contractor: Brambles	Date Completed: 8/12/85
	Int	LITHOLOGY	Graphic Log	GENERAL COMMENTS
	0.25	Humus soil, white sand and gravel-size fragments of pink/white quartzite.		
	0.50			
	0.75	Loose, white, fine, equigranular sand.		
	1.00			
	1.25			
	1.50			
	1.75			
	2.00 m	Bottom of pit in compact but friable fine, pinkish, equigranular orthoquartzite.		Excavator could not penetrate into bedrock.

TP1/0.75 - 2.0

996012



Consulting Economic Geologists

M. P. Everett - Somerset - phone (004) 35 2317
 R. W. L. Shaw - Devonport - phone (004) 27 2410

		Location	Stratigraphy	Graphic Log	Date Completed: 8/12/85	GENERAL COMMENTS
	(m)					
TP/2/0.90 - 1.60	TP 2					
	0.25		Humus, soil, sand and roots. Some angular blocks of pink or white orthoquartzite.			
	0.50		0.46 Pinkish, fine, equigranular sand and roots			
	1.00		0.90 Fairly clean, fine, equigranular loose pink sand. Occas. block of pinkish equigranular quartzite.			
	1.25					
	1.50 1.60		Bottom of pit in friable, weathered, pinkish orthoquartzite.			
	TP 3					
	0.25		Soil, humus, roots, fine orthoquartzite sand. Loose, white, fine sand with pinkish tinge.			
	0.50		Bottom of pit in pink orthoquartzite, partly breaking down to sand.			
	TP 4					
	0.20		20 cm of scree material, then into weathered but extremely competent orthoquartzite bedrock.			
	TP 5					
	0.25		25 cms of humus, soil and roots and then into white, fine grained, equigranular bedded orthoquartzite bedrock.			
	0.50 0.75		Bottom of pit, bedrock.			

996013



		Location <u>North Harbour, Tas.</u>	Contractor <u>Brambles</u>	Date Completed: <u>8/12/85</u>
	Depth met	Lithology	Graphic Log	GENERAL COMMENTS
	<u>TP 6</u>			
	0.25	Humus stained off-white, fine sand; root zone.		
	0.50	0.70 White, fine grained, equigranular sand.		
	0.75			
	1.00	1.10 Pinkish-white mottled orthoquartzite bedrock, weathered and friable on touch.		
	1.25			
	1.50	Bottom of pit.		
	<u>TP 7</u>			
	0.25	Sandy humus and soil. 0.20 White, fine grained, equigranular sand, some roots.		
<u>TP/7/0.20 - 1.35</u>	0.50			
	0.75			
	1.00			
	1.25	1.35 Bedrock of pinkish-white, mottled orthoquartzite, weathered and friable on touch.		
	1.50			
	1.75			
	1.90	Bottom of pit.		

996014



Depth (m)	Lithology	Graphic Log	GENERAL COMMENTS
<p><u>TP 8</u></p> <p>0.25</p> <p>0.50</p> <p>0.75</p> <p>1.00</p> <p>1.25</p> <p>1.50</p> <p>1.70</p>	<p>Pink to white equigranular sand with humus and roots.</p> <p>0.89 Bedrock of friable, decomposing pink to white equigranular, fine grained orthoquartzite.</p> <p>Bottom of pit.</p>		
<p><u>TP 9</u></p> <p>0.25</p> <p>0.50</p>	<p>Humus stained fine sand and roots.</p> <p>Bottom of pit - bedrock of weathering fine grained, equigranular orthoquartzite.</p>		
<p><u>TP 10</u></p> <p>0.25</p> <p>0.50</p> <p>0.75</p> <p>1.00</p>	<p>Humus stained fine grained, pinkish, sand.</p> <p>0.50 Bedrock as above.</p> <p>Bottom of pit.</p>		

996015



015

		ELEVATION (M)		DATE	
DEPTH (m)	DESCRIPTION	COMMENTS	GRAPHIC LOG	GENERAL COMMENTS	
TP 11	Soil, rubble and humus.				
0.25					
0.50	0.35 Bedrock; white, equigranular, friable but compact orthoquartzite.				
0.75					
1.00	Bottom of pit.				
TP 12	Equigranular, fine, pinkish sand mixed with large (20-30 cm) blocks of pinkish, friable but compact, orthoquartzite. Interpreted as scree deposit.				
0.25					
0.50					
0.75					
1.00					
1.25					
1.50					
1.70	Bottom of pit (water leaking into base of pit).				

996016



Consulting Economic Geologists

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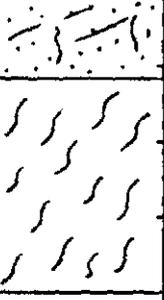
016

		Location: <u>Barrow, Tas</u>	Contractor: <u>Grashles</u>	Date Completed: <u>8/2/85</u>
Depth (m)	LITHOLOGY	Graphic Log	GENERAL COMMENTS	
<u>TP 13</u>				
0.25	Humus, roots, pinkish gravelly sand.			
0.50				
0.60				
0.75	Pinkish, equigranular, fine grained sand becoming more compact and not so free-running at depth.			
1.00				
1.25				
1.50				
1.75				
1.80	Bottom of pit - bedrock, pinkish, friable, compact, fine grained orthoquartzite?			
TP/13/0.60 - 1.80		sands grade into bedrock		
<u>TP 14</u>				
0.25	Humus and soil.			
0.40				
0.50	Sandy rubble, root zone, humus.			
0.75				
0.90	Bedrock of hard, indurated quartzite and micaceous siltstones, thinly bedded and steeply dipping.			
1.00				
1.25	Bottom of pit.			

996017



017

LITHOLOGY	Lithology	Graphic Log	Date Completed: 8/2/85 GENERAL COMMENTS
<p><u>TP 15</u></p> <p>0.25</p> <p>0.50</p> <p>0.75</p> <p>1.00</p> <p>1.25</p> <p>1.50</p> <p>1.60</p>	<p>Humus, sand and roots.</p> <p>Humus stained fine sand and roots.</p> <p>0.90 White to pinkish fine, compact equigranular sand.</p> <p>1.08 Bedrock of friable, decomposing pinkish white equigranular, fine grained orthoquartzite.</p> <p>Bottom of pit.</p>		
<p><u>TP 16</u></p> <p>0.25</p> <p>0.50</p> <p>0.75</p> <p>1.00</p>	<p>Humus, roots and sand.</p> <p>0.30 Bedrock: friable white to pinkish, equigranular orthoquartzite.</p> <p>Bottom of pit.</p>		
<p><u>TP 17</u></p> <p>0.25</p> <p>0.50</p> <p>0.75</p> <p>0.80</p>	<p>Humus and roots, sand.</p> <p>0.45 Pinkish, white, equigranular, orthoquartzite bedrock.</p> <p>Bottom of pit.</p>		

996018



Consulting Economic Geologists

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		Location	Graphic Log	GENERAL COMMENTS
	TP 18	Humus and roots. 0.20 Pinkish, loose, fine grained, equi-granular sand.		
	0.25			
	0.50			
	0.75			
	0.80	Bottom of pit; pinkish orthoquartzite, veining noted.		
	TP 19			
	0.25	Light coloured humus stained fine grained sand.		
	0.50			
	0.75	0.70 Pinkish tinged white very fine sand; no grit or gravel.		
	1.00			
	1.25			
	1.50	Ditto.		
	1.75			
	2.00	1.90 Bedrock of pinkish, friable, orthoquartzite, steeply dipping, blocky fracture.		Bedrock 'higher' on other side of pit; shows bedrock sloping down hill contours.
	2.25			
	2.50	Bottom of pit.		

TP 19/0.70 - 1.90

996019



019

		LITHOLOGY		Graphic Log	GENERAL COMMENTS
TP 20	0.25	Humus, sand, gravel and rubbly bedrock.	0.83 Bedrock, pinkish orthoquartzite, decomposing and friable.		Bedrock exposed on track 40 m from pit.
	0.50				
	0.75				
	1.00	Bottom of pit.			
TP 21	0.25	Humus, fine sand and roots	0.40		
	0.50				
	0.75	Whitish fine grained, equigranular sand.			
	1.00				
	1.25				
	1.50	Bottom of pit. Bedrock of pink tinged white orthoquartzite.			

996020



026

996021

BORE HOLES

Boat Harbour Area

021

Location: <u>85/40/1.5F</u>		Contractor: <u>H. STACPOLE</u>		Date Completed: <u>3/12/85</u>
Depth (m)	Lithology	Colour	Graphic Log	General Comments
1	Surface of white medium sand.			
1	V. Fine, equigranular, off-white sand; no grit or gravel component.	→		
2				
3	Ditto.	off-white		
4				
5	Ditto; becoming slightly grey.	←	????	Penetrating weathered bedrock? - see following notes.
6		↑	S S S	
7			S	
8	Ditto; greyish v. fine equigranular sand.	greyish	S S	
9			S S	
10			S S	
11	Ditto; v. fine equigranular sand; colour change to greenish-khaki.	←	S S	
12		→	S S	
13		greenish-khaki	S S	
14	Ditto.		S S	
15			S S	

85/40/1.5F

85/40/5.0F*

85/40/10.0F*
(Hole caving; tube sampling abandoned)

85/40/12F

(*F Sample taken from auger flights after rods pulled.)

996022



Consulting Economic Geologists

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R.W.L. Shaw - Devonport - phone (004) 27 2410 1/2

02

Name of Hole		Contractor		Date Completed:
85/40/18F		H. STACPOOLE		3 / 12
Depth (m)	LITHOLOGY	Graphic Log	GENERAL COMMENTS	
16		S S		
17	Ditto	S S		
18		S S		
19		S S		
20	Ditto; but colour change to deeper khaki colour with orangey-brown bands.	S S S		
21		S S S		
22		S S		
22.50		S S	No penetration on siliceous zone; presumably fresh bedrock.	
EOH			N.B. No obvious bedrock was encountered until 22.50 m. However, experience from subsequent holes in this area showed that the auger was capable of penetrating weathered, rotting bedrock (e.g. Hole 85/45) for some distance. Since this hole was drilled on the side of a steep hill (at "Quarry 1"), it may have penetrated "soft" bedrock from at least 5 m onwards.	

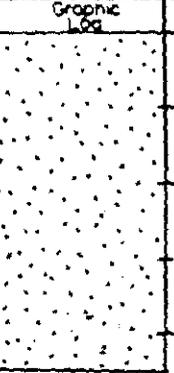
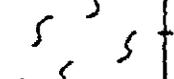
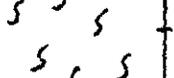
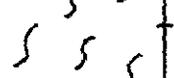
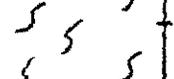
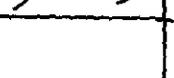
85/40/18F

(Sample at 22 m too contaminated by up-hole material.)

996023



023

Location and Reference		Contractor	Date Completed
55/41/2 - JC (exposure in quarry face above collar elevation) +1 to +2 - not sampled, slumped material.		H. STACPOOLE	4 / 17 / 85
Depth (m)	Lithology	Graphic Log	General Comments
+3	Slightly pinkish fine, equigranular sand.		
+2			
+1			
0	Collar - 25 cms of pinkish fine sand with 50-60 mm clasts of Jacob orthoquartzite		Difficult drilling.
1	-50 cms change to off-white silica 'flour' (i.e. ultrafine sand).		0.50 cms Interpreted as change to weathered bedrock (see Test Pit 3 for subsequent verification).
2	Ditto, becoming light grey with off-white 'flecks'.		
3	Ditto.		
4	Ditto, grey-black, fading quickly.		
4.75	Ditto, light brown bands.		
5	Ditto.		
6 EOH	Hard, siliceous layer - fresh bedrock?		Very slow drilling.

55/41/1.5F

55/41/4F

996024



Consulting Economic Geologists

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LOG FOR <u>B H B 5/4 1A</u>	
Contractor <u>H. STACPOOLE</u>	Date Completed: <u>4 / 17</u>

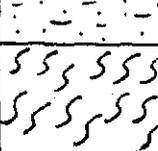
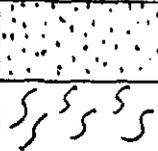
	DEPTH (m)	LITHOLOGY	Graphic Log	GENERAL COMMENTS
85/41A/1F	1	Pink tinged fine sand.		Located 5 m E of 85/41.
	2	Ditto. 1.5 m Ditto, occas. 40-50 mm clasts of pink Jacob orthoquartzite, crumbly when touched.		
	3	Change to light khaki silica 'flour' with some grit of pink quartzite.		
85/41A/5F	5	Ditto.		3 m. This fining of the sample grain size thought to be caused by the auger penetrating rotting bedrock. Subsequently confirmed by Test Pit 3.
	6	Ditto.		
85/41A/7.5F*	7			No drill penetration.
	7.6 EOH	Fresh bedrock?		

(*F sample taken from auger flights after rods pulled.)

996025



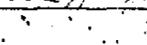
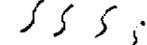
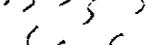
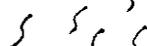
85/42/1F

Borehole	LITHOLOGY	Graphic Log	GENERAL COMMENTS
<p>85/42</p> <p>1</p> <p>1.10EOH</p>	<p>0-0.75 m - brownish fine sand, some clay</p> <p>0.75-1.10 m - off-white silica 'flour'</p> <p>Fresh bedrock?</p>		<p>0.75 m Interpreted as weathered bedrock.</p> <p>No drill penetration.</p>
<p>85/42A</p> <p>0</p> <p>1</p> <p>1.4EOH</p>	<p>0-1.40 m brownish fine sand, becoming 'flour'.</p> <p>Fresh bedrock?</p>		<p>Located 5 m S of 85/42</p> <p>Interpreted as weathered bedrock at ± 1.0 m.</p> <p>No drill penetration.</p>

996026

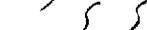


85/43/3F

	LITHOLOGY	Graphic Log	GENERAL COMMENTS
1	20 cms of mud and humus. Medium-brown, fine, equigranular sand (occasional grit of pink, friable quartzite).		
2	2.5 Change to off-white silica 'flour' as pellets in sand.		
3			2.5 Interpreted subsequently as start of weathered bedrock.
4			V. slow drilling penetration.
5	Ditto, now all 'flour', usually light khaki colour.		Poor sample return.
6	Ditto.		
7 EOH	Ditto.		Hole abandoned; rod string snapped; redrilled nearby as 85/43A.

996027



	LITHOLOGY	Graphic Log	GENERAL COMMENTS
1	Soil and brown fine equigranular sand becoming off-white at 1.0 m.		
2	1.75 Change to off-white silica 'flour', no grit or gravel content.		
3	Ditto.		
4	Ditto, change to khaki colouration, with white 'flour' pellets.		
5	Ditto, khaki 'flour'.		
6	6.75 Hard layer.		
7	Becoming darker brown, fine equi-		Poor sample return; reduced speed of penetration.
8	H ₂ O Table. granular sands, not 'flour' (i.e. slightly increased grain size).		
9	Ditto, brown fine sand.		
10			
11			V. Poor sample return.
12			
13			
14			
15	Ditto.		

85/43A/3F

85/43A/5F

85/43A/9F*

(*F Sample taken from auger flights after rods pulled.)

85/43A/15F

Poor sample return; reduced speed of penetration.

V. Poor sample return.

996028



Location: London East Harbour, Tas.

Contractor: H. STACPOOLE

Date Completed: 5 / 12 / 85

LITHOLOGY

Graphic Log

GENERAL COMMENTS

16 No sample return.

17 EOH Hole abandoned.

~~~~~  
 ~~~~~  
 ~~~~~

Hole filling with water which washes sample from flights.

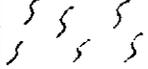
N.B. Subsequent interpretation of this hole (see Graphic log) puts weathered bedrock at 1.75 m; increasing grain size noted at water-table (7.5 to 8.0 m) presumably due to lessening resistance of bedrock to the drill bit below water level.

996029



2100 AUGER (GEMCOORIL 2100)  
 Location Wardour, Tas. Contractor H. STACPOOLE

Date Completed: 5 / 12

| m                                                                                | LITHOLOGY                                                                                                                                      | Graphic Log                                                                         | GENERAL COMMENTS                                      |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------|
| <p><u>85/44</u><br/>                     0.3 m<br/>                     EOH</p>  | <p>Failure to penetrate beyond 0.3 m.</p>                                                                                                      |  | <p>Outcrop of hard, white quartzite noted nearby.</p> |
| <p><u>85/44A</u><br/>                     0<br/>                     1 m EOH</p> | <p>Pinkish fine sand and numerous angular fragments (20-40 mm) of hard quartzite.<br/>                     1 m - Hole abandoned - Bedrock?</p> |  | <p>No drill penetration.</p>                          |

996030



|          |                                                                                                                    | Project: 14 (LIPCA SAND)     | Method: AUGER (GEMCODRIL 210D)                                                                                                                                  | LOG FOR BH 85/45        |
|----------|--------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
|          |                                                                                                                    | Location: Boat Harbour, TAS. | Contractor: H. STACPOOLE                                                                                                                                        | Date Completed: 5/17/85 |
| (m)      | LITHOLOGY                                                                                                          | Graphic Log                  | GENERAL COMMENTS                                                                                                                                                |                         |
| 1        | Humus and sand.<br>0.5 m Pinkish sand, fine, some humic staining<br>1.0 m Change to white ultrafine silica 'flour' |                              |                                                                                                                                                                 |                         |
| 2        |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 3        |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 4        |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 5        | Ditto.                                                                                                             |                              | N.B. Drill penetrated quite easily, although with severe bit wear to 16 m. Subsequent interpretation of bedrock at 1.0 m was confirmed by the later Test Pit 8. |                         |
| 6        | 6.5 Ditto but becomes light grey.                                                                                  |                              |                                                                                                                                                                 |                         |
| 7        |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 8        |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 9        | Ditto.                                                                                                             |                              |                                                                                                                                                                 |                         |
| 10       |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 11       |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 12       |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 13       | Ditto, becoming browner and mottled.                                                                               |                              |                                                                                                                                                                 |                         |
| 14       |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 15       |                                                                                                                    |                              |                                                                                                                                                                 |                         |
| 16.40EOH | Hole abandoned.                                                                                                    |                              | No penetration. Becoming wet.                                                                                                                                   |                         |

85/45/1.5F

85/45/5F

85/45/9F\*

(F\* Sample taken from auger flights after rods pulled.)

85/45/14.5F\*

996031



Consulting Economic Geologists

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R.W.L. Shaw - Devonport - phone (004) 27 2410

| SAMPLE NUMBER     | Depth below surface (m) | Client: MONTEP                                             |  | Logged by: MPE                 |  | Surface Elevation: m.a.s.l.                                                                   |  | LOG FOR <u>B H 8 5</u>   |  |
|-------------------|-------------------------|------------------------------------------------------------|--|--------------------------------|--|-----------------------------------------------------------------------------------------------|--|--------------------------|--|
|                   |                         | Project: SILICA SAND                                       |  | Method: AUGER (GEMCODRIL 210D) |  | Location: Boat Harbour, Tas.                                                                  |  | Contractor: H. STACPOOLE |  |
|                   |                         | LITHOLOGY                                                  |  | Graphic Log                    |  | Date Completed: / 12 85                                                                       |  |                          |  |
|                   |                         |                                                            |  |                                |  | GENERAL COMMENTS                                                                              |  |                          |  |
| <u>85/46/1.5F</u> | 1                       | Pinkish, fine, equigranular, some humus staining.          |  |                                |  |                                                                                               |  |                          |  |
|                   | 2                       | 2 m. Change to white to off-white silica 'flour'.          |  |                                |  |                                                                                               |  |                          |  |
| <u>85/46/3F</u>   | 3                       |                                                            |  |                                |  | N.B. Interpretation of bedrock at 2 m supported, subsequently, by nearby Test Pits, 11 and 9. |  |                          |  |
|                   | 4                       | Ditto                                                      |  |                                |  |                                                                                               |  |                          |  |
|                   | 5                       |                                                            |  |                                |  |                                                                                               |  |                          |  |
|                   | 6                       | Ditto, becoming light-brown.                               |  |                                |  |                                                                                               |  |                          |  |
| <u>85/46/7.5F</u> | 7                       | Ditto, becoming darker brown.                              |  |                                |  |                                                                                               |  |                          |  |
|                   | 8                       |                                                            |  |                                |  |                                                                                               |  |                          |  |
|                   | 9                       | Change to light brown fine sand with minor clay pelleting. |  |                                |  | Poor sample return.                                                                           |  |                          |  |
| <u>85/46/10F*</u> | 10                      |                                                            |  |                                |  |                                                                                               |  |                          |  |
|                   | 11 EOH                  | Hole abandoned.                                            |  |                                |  | No penetration; bit binding.                                                                  |  |                          |  |

(F\* Sample taken from auger flights after rods pulled.)

996032



Consulting Economic Geologists

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| SAMPLE NUMBER     | Depth below surface (m) | MONIER                                                                      |                              | Logged by: MPE                        | Surface Elevation: m.a.s.l. | LOG FOR <u>BH 85/47</u> |
|-------------------|-------------------------|-----------------------------------------------------------------------------|------------------------------|---------------------------------------|-----------------------------|-------------------------|
|                   |                         | Project: SILICA SAND                                                        | Location: Boat Harbour, Tas. | Method: AUGER (GEMCODRIL 210D)        | Contractor: H. STACPOOLE    |                         |
|                   |                         | LITHOLOGY                                                                   | Graphic Log                  | GENERAL COMMENTS                      |                             |                         |
| <u>85/47/1.5F</u> | 1                       | Variously coloured clayey silt to 1.50 m<br>1.5 Fine off-white clayey silt. |                              |                                       |                             |                         |
|                   | 2                       |                                                                             |                              |                                       |                             |                         |
|                   | 3                       |                                                                             |                              |                                       |                             |                         |
|                   | 4                       |                                                                             |                              |                                       |                             |                         |
| <u>85/47/4.5F</u> | 5                       | Ditto.                                                                      |                              |                                       |                             |                         |
|                   | 6                       |                                                                             |                              |                                       |                             |                         |
|                   | 7                       |                                                                             |                              |                                       |                             |                         |
| <u>85/47/9F</u>   | 8                       | Ditto.                                                                      |                              |                                       |                             |                         |
|                   | 9                       |                                                                             |                              |                                       |                             |                         |
|                   | 10                      |                                                                             |                              |                                       |                             |                         |
| <u>85/47/12F*</u> | 11                      | Ditto.                                                                      |                              |                                       |                             |                         |
|                   | 12                      |                                                                             |                              |                                       |                             |                         |
|                   | 12.50<br>EOH            | Hole abandoned.                                                             |                              | Sample return poor; v. slow drilling. |                             |                         |

(N.B. Sample taken from auger flights after rods pulled.)

996033



033

| SAMPLE NUMBER | Depth from surface (m) | LITHOLOGY                                               | Graphic Log | LOG FOR <u>BH 85/48</u>                                                                                                                                                                                                           |  |
|---------------|------------------------|---------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|               |                        |                                                         |             | GENERAL COMMENTS                                                                                                                                                                                                                  |  |
|               |                        |                                                         |             | Logged by: MPE      Surface Elevation: m.a.s.l.<br>Project: <u>SILICA SAND</u> Method: <u>AUGER (GEMCODRIL 210D)</u><br>Location: <u>Boat Harbour, Tas.</u> Contractor: <u>H. STACPOOLE</u><br>Date Completed: <u>6 / 17 / 85</u> |  |
|               | 1                      | 0 to 0.50m Soil, humus, rubbly quartzite.               |             | Two attempts at this location failed to penetrate beyond 1.5 m. Subsequent Test Pit 11 confirmed quartzite bedrock at 0.35 m below surface.                                                                                       |  |
|               | 1.5 EOH                | 0.50 to 1.50 m Bedrock of quartzite?<br>Hole abandoned. |             |                                                                                                                                                                                                                                   |  |

996034



Consulting Economic Geologists

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SAMPLE NUMBER

Depth  
Surface  
(m)

|                                |                                  |                               |
|--------------------------------|----------------------------------|-------------------------------|
| Client<br>MORFES               | Logged by<br>MPE                 | Surface Elevation<br>m.a.s.l. |
| Project<br>SILICA SAND         | Method<br>AUGER (GEMCODRIL 210D) |                               |
| Location<br>Boat Harbour, Tas. | Contractor<br>H. STACPOOLE       |                               |

LOG FOR BH 85/49  
Date Completed: 6 / 12 / 85

| LITHOLOGY                                                           | Graphic Log | GENERAL COMMENTS |
|---------------------------------------------------------------------|-------------|------------------|
| Orangey-brown clayey silt, 'pelletises' on drilling.                |             |                  |
| Ditto.                                                              |             |                  |
| Brown to orangey brown clayey silt.                                 |             |                  |
| Light brown clayey silt.                                            |             |                  |
| Water table.                                                        |             |                  |
| Hole abandoned in slimey clayey silts, dirty khaki brown in colour. |             |                  |

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11 EOH



Consulting Economic Geologists

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996035

996036

## APPENDIX 2

## SAMPLE RESULTS

SAMPLE RESULTSTEST PITSBOAT HARBOUR AREA

| <u>Sample Numbers</u> | <u>Al<sub>2</sub>O<sub>3</sub></u><br><u>ppm</u> | <u>Fe<sub>2</sub>O<sub>3</sub></u><br><u>ppm</u> | <u>TiO<sub>2</sub></u><br><u>ppm</u> |
|-----------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------|
| TP 1/0.75 - 2.0 m     | 940                                              | 300                                              | 950                                  |
| TP 2/0.9 - 1.6 m      | 330                                              | 250                                              | 470                                  |
| TP 2/1.6 m            | 495                                              | 340                                              | 880                                  |
| TP 7/0.2 - 1.35 m     | 450                                              | 155                                              | 820                                  |
| TP13/0.6 - 1.8 m      | 3500                                             | 720                                              | 3000                                 |
| TP19/0.7 - 1.9 m      | 1060                                             | 510                                              | 1200                                 |

LABORATORY: S.G.S. Aust. Pty. Ltd.

SAMPLE RESULTS  
BORE HOLES  
BOAT HARBOUR AREA

| <u>Sample Numbers</u> | <u>Al<sub>2</sub>O<sub>3</sub></u><br><u>ppm</u> | <u>Fe<sub>2</sub>O<sub>3</sub></u><br><u>ppm</u> | <u>TiO<sub>2</sub></u><br><u>ppm</u> |
|-----------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------|
| 85/40/ 1.5 F          | 680                                              | 530                                              | 850                                  |
| " 40/ 5 F             | 315                                              | 835                                              | 570                                  |
| " 40/10 F             | 290                                              | 1140                                             | 580                                  |
| " 40/12 F             | 340                                              | 8670                                             | 730                                  |
| " 40/18 F             | 375                                              | 7150                                             | 720                                  |
| " 41/1.5 F            | 560                                              | 6460                                             | 1400                                 |
| " 41/2-3 C            | 445                                              | 490                                              | 730                                  |
| " 41/4 F              | 340                                              | 6850                                             | 750                                  |
| " 41A/1 F             | 440                                              | 425                                              | 540                                  |
| " 41A/5 F             | 430                                              | 3200                                             | 950                                  |
| " 41A/7.5 F           | 540                                              | 1.19%                                            | 1260                                 |
| " 42/1 F              | 960                                              | 3200                                             | 2150                                 |
| " 43/3 F              | 400                                              | 5360                                             | 690                                  |
| " 43A/3 F             | 320                                              | 1000                                             | 760                                  |
| " 43A/5 F             | 650                                              | 1150                                             | 740                                  |
| " 43A/9 F             | 565                                              | 1280                                             | 720                                  |
| " 43A/15 F            | 3600                                             | 2670                                             | 930                                  |
| " 45/1.5 F            | 470                                              | 580                                              | 490                                  |
| " 45/5 F              | 575                                              | 710                                              | 490                                  |
| " 45/9 F              | 570                                              | 1610                                             | 460                                  |
| " 45/14.5 F           | 1520                                             | 2240                                             | 1040                                 |
| " 46/1.5 F            | 360                                              | 810                                              | 830                                  |
| " 46/3 F              | 650                                              | 830                                              | 960                                  |
| " 46/7.5 F            | 4650                                             | 2070                                             | 3850                                 |
| " 46/10 F             | 6.8%                                             | 1.48%                                            | 4200                                 |
| " 47/1.5 F            | 21.2%                                            | 1.11%                                            | 1.02%                                |
| " 47/4.5 F            | 12.7%                                            | 7200                                             | 1.02%                                |
| " 47/9 F              | 13.1%                                            | 7400                                             | 4400                                 |
| " 47/12 F             | 11.2%                                            | 1.52%                                            | 7800                                 |

LABORATORY: S.G.S. Aust. Pty. Ltd.