00 Phil Jones and Associates Pty. Ltd.

Geotechnical Personnel

617001

EXPLORATION LICENCE

No. 14/88 - MAYDENA

PROGRESS REPORT ON EXPLORATION ACTIVITY

5 AUGUST 1988 TO 5 JULY 1989

P.A. JONES JULY 1989
PHIL JONES AND ASSOCIATES
FOR PIONEER SILICON INDUSTRIES

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SUMMARY AND CONCLUSIONS

Exploration Licence 14/88 was granted to Pioneer for a period of 12 months from August 1988. The tenement embraces significant occurrences of Precambrian orthoquartzites which in some instances have been upgraded through secondary processes to produce high grade silica material.

An evaluation of the silica potential has been completed and involved geological mapping, sampling of existing quarries and outcrop/float occurrences, percussion drilling of anomalous areas and silica assaying surveys.

The Western Quarry area within the overall Pine Hill sequence proved to be the most prospective and bulk sampling surveys are currently under way to ascertain the yield, mining feasibility and furnace compatibility of the quarry material. Importantly, the possible silica deposit outlined at the Western Quarry will have far cheaper freight costs associated with the transport of screened material to Electrona which is approximately 110 kilo-

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Project Location

metres to the south-east, especially when taking into account material being transported from Smithton in the far north-west.

On-going detailed sampling and regional surveys will be completed during the following season to increase the possible resource potential of the area.

RECOMMENDATIONS

The discovery by Pioneer of high grade silica at the Western Quarry near Maydena means a significant resource may be mineable at a closer distance to the Mill site than Pioneer's other deposits.

It is recommended that the proposed exploration programme be carried out to adequately test the resource prior to Mining Lease applications being made. The exploration programme entails bulk sampling and detailed geological and geochemical assessment of the Western Quarry and other peripheral areas.

EXPLORATION TARGETS

Pioneer targeted Maydena as a possible source for high quality silica deposits thought to occur in association with Precambrian Quartzites.

Field work to date has confirmed that the primary Precambrian orthoquartzites when subjected to various secondary weathering phenomenon (which has leached many of the deleterious elements including Al_2O_3 and Fe_2O_3 from the host) has had the silica component significantly upgraded. At Pine Hill leached and secondarily silicified siliceous lag is observed overlying an equivalent outcropping more massive siliceous host.

Additional areas of outcropping Precambrian orthoquartzite within the licence remain to be tested.

DESCRIPTION OF THE PROPERTY AND OWNERSHIP

EL 14/88 is situated immediately west of Maydena in central southern Tasmania (Fig. 1) and is bounded by the following co-ordinates:

> Commencing at the north west corner of the area whose grid co-ordinates are 461 000 mE 5 269 000 mN thence grid east to 469 000 mE grid south to 5 257 000 mN grid west to 466 000 mE grid north to 5 260 000 mN again grid west to 461 000 mE aforesaid thence again grid north to the point of commencement.

The licence totals 81 square kilometres and was granted to Pioneer Silicon Industries Pty Ltd on the 5th August 1988. A renewal of the licence for a further 12 month period has been lodged with the Department of Mines. A Mining Lease application covering the Western Quarry area is to be submitted to the Department.

One pre-existing Mining Lease (13 M/83) of 10 hectares held by ANM is located near the northern boundary of the licence and

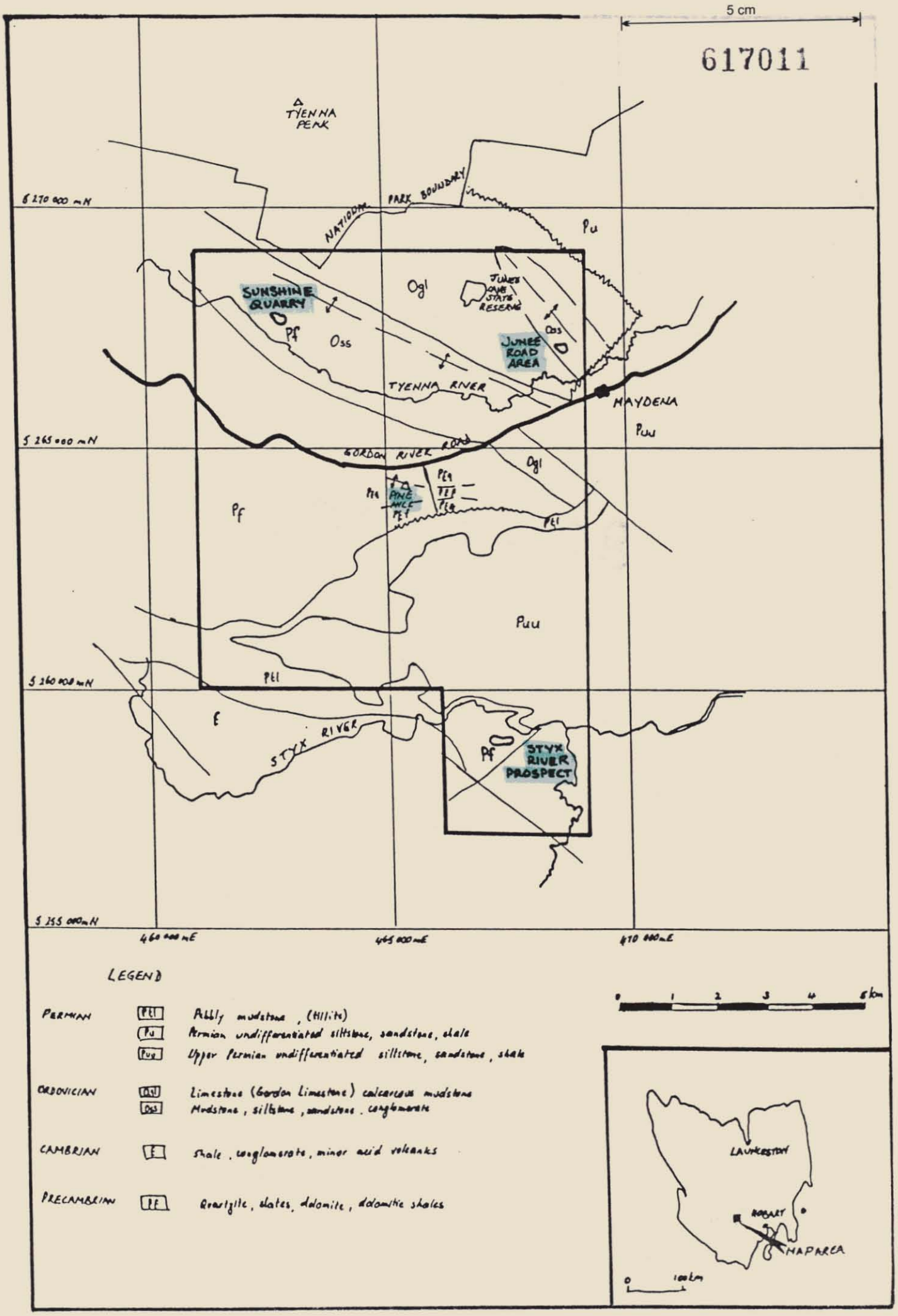

FIG. 1 LOCATION MAP, EL. 14/88 MAYDENA

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LOCATION AND ACCESS

The licence, located approximately 70 kilometres north west of Hobart, is served by both the sealed Gordon River Road and a network of variable quality gravel roads giving reliable access to most parts of the licence. The ANM built and maintained gravel roads are an integral part of its logging operations within its timber concession. Recent developments including a planned gravel road through to the Huon would greatly assist any mining operations at Pine Hill as presently the end product has to be transported through Hobart to Electrona near Snug.

The majority of the licence is State Forest (ANM concession) or ANM freehold title. Minor areas of private land, National Park, State Reserve and Crown Reserve are also contained within the licence boundaries.

The licence supports a thick, generally regrowth, wet eucalypt minor rainforest with subordinate understorey sword grass,

bauera, and ti-tree, particularly in the deep gullies. Some freehold title has been sown down to pine plantations.

The licence has an average annual rainfall of 190 cm which falls predominantly during the May to October period.

HISTORY AND EXPLORATION

Minor exploration surveys have been conducted over the area by BHP and Amoco looking for tin, gold and basemetals. Apart from minor mapping exercises by students from the University of Tasmania and some quarrying by ANM for road metal little other work has been completed in EL 14/88. No investigations were conducted for industrial minerals.

A fuller description of previous work can be found in Appendix One: Interim Report, Pioneer Silicon Industries, Exploration Licence No. 14/88, Maydena, Tasmania.

REGIONAL GEOLOGY

The oldest rocks in the licence area are shallow marine mudstones, orthoquartzites and minor carbonates of Proterozoic age. Unconformably overlying this succession are a series of dolomitic carbonates lying against the south-eastern margin of the Florentine Synclinorium (Ordovician Sequence). The dolomites are probably unconformably overlain by a succession of feldspathic, micaceous wacke, mudstone, chert and minor carbonates and basic volcanics. This unit is late Proterozoic to Early Cambrian in age.

A late-middle Cambrian shallow marine succession overlies the previous formation. Above this lies the Denison Sub-group, a shallow marine orthoquartzite and mudstone sequence. This is conformably overlain by the Gordon Sub-group, a sequence of shallow marine limestones, with minor siliceous clastic rocks.

Unconformably overlying these Siluro-Ordovician rocks is the Parmeener Super Group of Permo-Carboniferous to Triassic age.

These are generally 'dirty' feldspathic, lacustrine of glacio-marine sequences containing some of Tasmania's coal sequences.

In places the Parmeener Super Group is intruded by Jurassic dolerite sills.

Present day structure is largely a product of the Tabberabberan orogeny. The Florentine Synclinorium composed of Ordovician rocks is a product of this orogeny.

LOCAL GEOLOGY

Sedimentary rocks in the licence area range in age from Precambrian to Permian. The Precambrian rocks include various carbonate and siliciclastic sequences, the most important to Pioneer being the siliceous orthoquartzites located at Pine Hill and possibly those at the Sunshine Quarry and the possible inlier located on the southern bank of the Styx River (Fig. 1). These units have been tightly folded around west-north-west to north-west trending axes.

Ordovician siliciclastic and carbonate sequences outcrop in the northern part of the tenement from Maydena west to the EL boundary. These rocks are generally open folded around north-west to north-south axes.

The Permo-Carboniferous rocks, composed predominantly of glacio-marine, lacustrine to shallow marine siliciclastic mudstones and siltstones, with minor limestones, dip gently eastward.

The Precambrian orthoquartzite sequences at Pine Hill occur as an inlier where flat lying Permian and gently folded Siluro-Ordovician material has been eroded away to expose the older rocks. Quaternary fluvioglacial and fluvial material has infilled many of the drainage channels in the area and Tertiary peat bogs and buttongrass flats have developed on some of these.

Also during the Quaternary the area was block faulted prior to the onset of glaciation.

WORK CONDUCTED BY PIONEER

Work conducted during the August 1988 to July 1989 period by contract geologists P. Jones and P. Ellis, entailed data compilation, gridding, sampling, mapping, percussion drilling and bulk sampling surveys predominantly over Pine Hill.

These surveys were a result of Pioneer's targeting Maydena as a possible source for high quality silica deposits thought to occur in association with Precambrian quartzites. A summary of these surveys for the period August to November 1988 and a more detailed account for the period November 1988 to July 1989 follows. A detailed account for the August to November 1988 period by P. Ellis is appended, Appendix 1.

The Pine Hill orthoquartzite sequence was targeted due to the existence of three roadmetal quarries containing siliceous material. ANM used this material for the formation and upgrading of logging tracks within the licence. To adequately explore the entire sequence a 2.8 kilometre long grid was

established over the strike length of the hill with cross lines varying from 600 to 1000 metres in length occurring at 200 metre intervals. Infill lines at 100 and 50 metre spacings were completed over the existing quarries to aid detailed work. All lines were geologically mapped and some 102 silica samples were assayed for Al_2O_3, Fe_2O_3 and some for TiO_2 and CaO using Pioneer's in-house laboratory at Electrona. Three samples of ferruginous stockworked siliceous material sampled from old pits and trenches were submitted to Analabs for gold analysis with negative results (Appendix 2).

Two areas of anomalous silica were highlighted from initial results and both required drill testing. Drill access was necessary for the hydraulic rotary air blast rig and some 1.4 km of new track was cut at the Western Quarry while 0.9 km was cut at the Eastern Quarry. Some old tracks were renovated slightly at both quarries.

A drilling programme of 45 holes in the Western Quarry and 23 holes in the Eastern Quarry was completed during the period with holes varying in depth from 5 to 18 metres.

A total of 785 metres was drilled using a 75 mm bit. Samples were collected over 1 metre intervals with the hole being cleaned at the end of each sample interval. Holes were chip logged prior to being despatched to Electrona where sub-samples were submitted for analysis. All samples were analysed for Al_2O_3 and Fe_2O_3, with some samples also being analysed for TiO_2 and CaO.

The drilling survey outlined several areas of high grade silica within the vicinity of both the Eastern and Western Quarries. The Eastern Quarry, however, comprises predominantly -19 mm material which at present is of no use to Pioneer's operation. However, other operators have shown interest in this deposit which has very low contaminants and appears suitable for a number of projects including optical glassware. Should an agreement be

reached regarding the extraction of this resource, Pioneer would have access to the small tonnage but significant grade +19 mm fraction which is estimated to be less than 10% overall.

At the Western Quarry significant quantities of high grade +19 mm silica occur in association with a number of pockets of ferruginous and clayey material. A yield of approximately 50% can be assumed for the high grade material giving rise to a possible resource totalling 75,000 to 100,000 tonnes.

At this point, Pioneer's management reviewed the programme and authorised further surveys which were designed to bulk sample the Western Quarry to ascertain mining yields, mining feasibility and smelting compatibility. Pioneer sought and was granted authorisation from both the Department of Mines and New Norfolk Council to obtain a 1,000 tonne screened bulk sample of siliceous orthoquartzite.

Prior to the bulk sampling programme being implemented, surveyors Brooks, Lark and Carrick were contracted to survey in detail the Western Quarry area in order to locate tracks, drill holes and ANM's private property boundary (which transects the deposit) which will assist in the determination of resource volumes (Enclosure 1).

G. Triffett was then contracted to excavate, screen and deliver to Electrona a 1,000 tonne bulk sample. A 30 tonne JSW hydraulic excavator was used to quarry the material from the backs of the existing quarry using a 1 metre bucket and single tine ripper. This proved very slow and inefficient, however, during the slow excavation period the contractor was able to set up his screening plant. The programme was planned to take approximately one to two weeks, however, due to delays because of breakdowns, lack of spare parts and, towards the end, heavy rain, was eventually terminated after approximately two months. Approximately 100 tonnes of screened material was produced and no

product was delivered to Electrona. The remaining unscreened material had partially set due to rain affecting the silica flour matrix to the gravel. The excavation programme has revealed weakly lithified quartzitic gravels overlying more competent but heavily fractured siliceous quartzite outcrop which in the future will probably need drill and blast techniques to allow quarrying operations to proceed. The siliceous quartzite exposed in the backs is of high quality and allows for a better than expected (at present) yield due to its massive habit. Sections of the quarry initially showed abundant ferruginous clayey material covering the benches which upon minor stripping proved to be less extensive than thought. Previous bulldozing by ANM had smeared out the ferruginous material over working benches. Black carbonaceous 'rotten' quartzite was also observed within a trench in the quarry floor and assays from this showed high titanium but acceptable iron and aluminium levels. Excavations will need to avoid this material in the future.

As the initial contract for the excavation/screening and supply of siliceous material was terminated, a second round of tenders was requested to complete the programme. Brambles Ltd, Duggans Ltd and Hazell Bros submitted tenders after a field visit to the quarry at Pine Hill with all three contractors stating that a new sample would have to be won from the quarry face and screened as soon as possible to negate the rainfall problems. Brambles Ltd's tender was accepted and at present it is excavating material from the quarry backs after having previously bulldozed the previously excavated material to one side leaving a level working surface. The original 100 tonne sample has been retained for shipment to Electrona.

Minor regional rock chip sampling surveys have been conducted over two additional quarries within the licence area.

Two composite samples were collected from bulldozer pit outcrop within the Sunshine Quarry approximately six kilometres west-

north-west of Maydena along the Sunshine Road. These samples proved to have too high an alumina level averaging 2.0% Al_2O_3, 97.6% SiO_2, 0.25% Fe_2O_3 (Appendix 2). Additional sampling surveys targeting this Precambrian orthoquartzite sequence will focus on the cleaner, less feldspathic or arkosic sections.

An additional quarry developed on quartzite lag derived from Precambrian orthoquartzite is located 1.5 kilometres north-west of Maydena along the Junee Road. A composite sample from the thin lag material assayed 0.31% Al_2O_3, 0.04% Fe_2O_3 and 0.06% TiO_2, thus showing the alumina levels to be too high (Appendix 2). However the iron and titanium are moderately acceptable. A large area of the moderately steep slope had been stripped of the lag for roadmetal purposes, leaving only small remnant gravel pockets.

EXPLORATION POTENTIAL

Significant potential exists within the Western Quarry area for high grade silica deposits of composite origin. There appears, on limited exposure, to be a quartzite lag deposit overlying massive siliceous quartzite outcrop in the existing quarry. Percussion drilling to date has indicated a possible 75,000 to 100,000 tonne resource allowing for yield and waste rock dilutions.

Mapping and rock chip sampling surveys conducted by contractor P. Ellis have highlighted an additional siliceous zone, approximate dimensions 400 x 200 metres, lying roughly 250 metres east of the Western Quarry. This area remains to be drill tested.

Should a market be found for the large tonnage high grade siliceous sand situated in the Eastern Quarry area then the minor (<10%) amount of +19 mm - 150 mm fraction will be an additional sweetener to the overall operation.

Possible potential exists in other less explored portions of the Precambrian orthoquartzite sequences, particularly in the Sunshine Quarry area and in the previously mapped area south of the Styx River.

EXPLORATION PROGRAMME PROPOSED

1. Western Quarry Area - Area 'A'

The bulk sampling programme of 1,000 tonnes is to be completed allowing for an accurate determination of yield, mining feasibility and furnace compatibility. Brambles will use Benders as a subcontractor for the air track blast hole drilling of the backs, however, it will use its own explosives crew from Launceston. Brambles is hiring a portable screening plant from Duggans Ltd, but will transport the +19 mm - 150 mm product using its own trucking division.

2. 250 metres east of Western Quarry - Area 'B'

Initial rock chip sampling and mapping highlighted an area of high grade silica lying approximately 250 metres east of the Western Quarry. The area will be more thoroughly assessed with some access development planned prior to the implementation of a percussion drilling programme totalling approximately 300 metres. Thirty holes will be drilled on eight lines of 250 metres length spaced at 50 metre

intervals. Percussion chips will be sampled at one metre intervals and will be assayed by Pioneer at Electrona for Fe_2O_3, Al_2O_3, TiO_2 and CaO. Should these samples prove encouraging, then pitting surveys will be implemented in order to ascertain yields and furnace properties. The area would also be surveyed prior to making an estimate of the resource potential.

3. Regional Exploration

Locate through more detailed ground surveys an inlier of Precambrian quartzite on the Styx River mapped previously by a geologist from the Geological Survey section of the Mines Department, Fig. 1. Detailed rock chip sampling and geological mapping surveys will be completed over the outcrop should it be found. If the mapped zone cannot be located, as is the case to date, then approximately 33 square kilometres of the southern portion of the tenement may be relinquished.

Further regional exploration in particular near the Sunshine Quarry in the north-west will include reconnaissance mapping and rock chip sampling surveys - across additional Precambrian quartzite sequences.

APPENDIX 1 Interim Report, Pioneer Silicon Industries
Exploration Licence No. 14/88
Maydena, Tasmania - P. Ellis

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INTERIM REPORT
PIONEER SILICON INDUSTRIES PTY LTD
EXPLORATION LICENCE NO. 14/88
MAYDENA, TASMANIA

BY

P.D. ELLIS

CONSULTING GEOLOGIST

HOBART

NOVEMBER 1988

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LIST OF ILLUSTRATIONS

KEYWORDS

TASMANIA	EXPLORATION
SILICA	GOLD
SAND	EL 14/88
GEOCHEMISTRY	PERCUSSION DRILLING
MAYDENA	

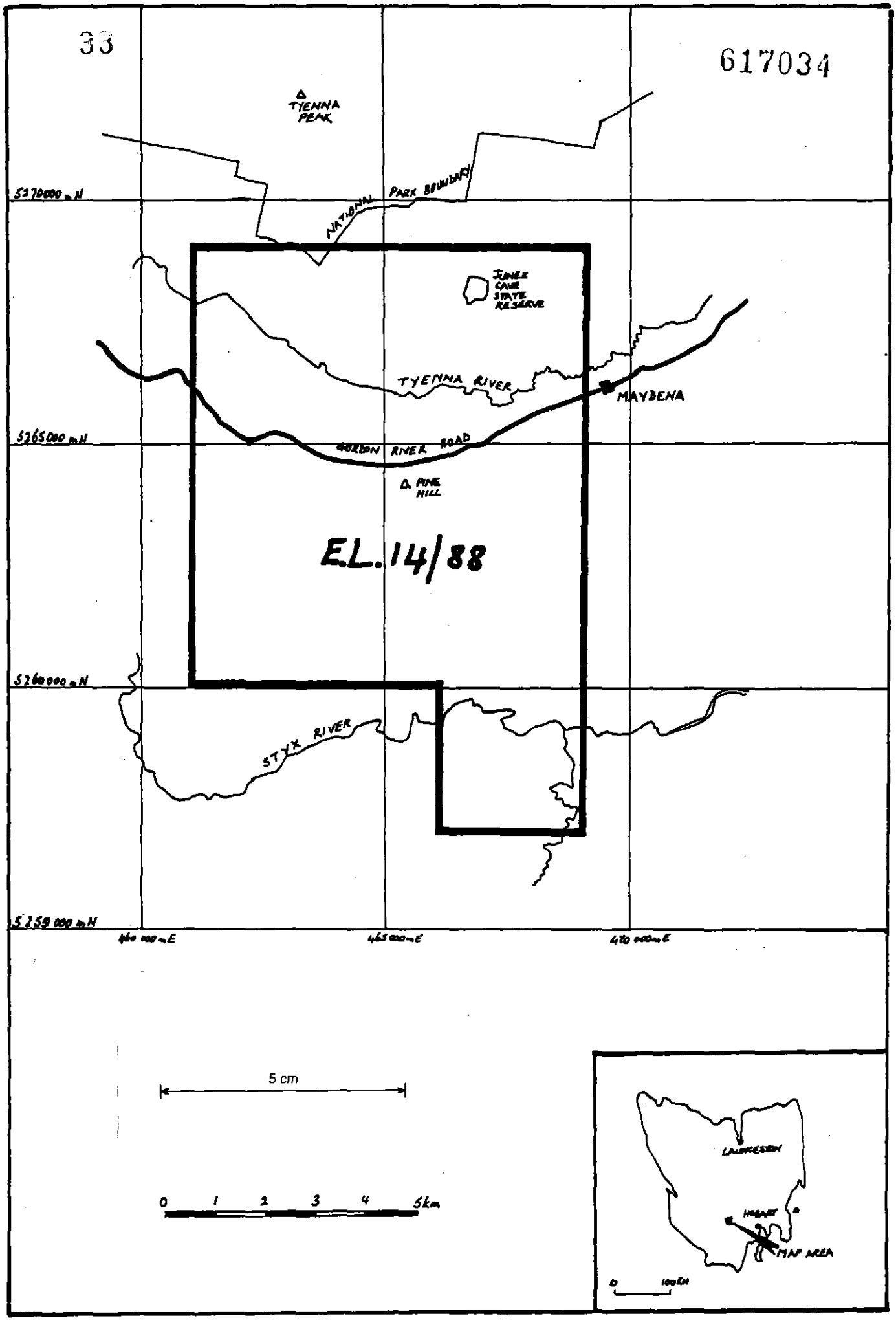

FIG.1 LOCATION MAP. E.L 14/88 MAYDENA

1. INTRODUCTION

EL14/88, over an area of 81 square kilometres in the vicinity of Maydena (Figure 1) was granted to Pioneer Silicon Industries Pty Ltd on the 5th August 1988.

The area covered by the Licence included many silica gravel deposits overlying Precambrian quartzites and conglomerates. Some of these deposits have been, or are being worked as sources of road gravel.

Phil Jones and Associates was contracted to evaluate the potential for high quality silica deposits, particularly in the Pine Hill area of the Licence. This evaluation involved geologically mapping the area, sampling of existing silica quarries, sampling of outcrop and float, and evaluation of higher grade areas by percussion drilling. Work on this evaluation commenced in September when Peter D. Ellis Pty Ltd was subcontracted to conduct the field work (mapping and logging).

This report summarises the evaluation of the Pine Hill area in the September to November 1988 period and includes the results of geological mapping and percussion drilling around the two main quarries.

2. SUMMARY

After the initial sampling of the Pine Hill quarries a grid was cut over the Pine Hill ridge and traversed with geological mapping and sampling.

Several areas of high grade silica values were defined in the eastern and western quarry areas. These areas were further evaluated by percussion drilling.

The eastern quarry area showed a large area of high quality silica sand with 5-10 per cent + 19 mm fragments. This silica, with low alumina, iron and titania, is too fine for Electrona, as is, but if a market for the fines can be found (optical lenses) then screening out the 5-10 per cent of coarse fragments may provide an economic source to Electrona.

The western quarry area contains approximately 180,000 cubic metres of quartzite gravel. This gravel is variable in quality due to variations in iron. However, the variations are clearly visible (colour changes) and thus quarrying of the higher quality areas would be possible, under strict supervision. A yield of approximately 50 per cent would be possible (by removing high iron material). Of this approximately 60-70 per cent would be +19 mm and suitable for Electrona (54,000 to 63,000 cubic metres).

Further evaluation of the western deposit is required to determine yield factors accurately. This would involve trenching to the east, north and west of the quarry, and trial shipments of the material from these trenches.

3. LOCATION AND GENERAL

EL 14/88 is located just west of Maydena in the headwaters of the Tyenna River (Figure 1). The area is traversed by the sealed Gordon River Road along which it is 90 km to Hobart (116 km to Electrona).

The Licence is serviced by a network of variable quality gravel roads most of which are maintained by ANM to facilitate forestry operations. These give good access to most parts of the Licence.

Most of the Licence is State Forest (concessioned to ANM) or ANM privately owned land. Minor areas of private land, National Park, State Reserve and Crown Reserve are also contained within the Licence boundaries.

Underlaying most of the Licence are Precambrian quartzites, sandstones, ferruginous sandstones, siltstones and conglomerates. The northeast corner is underlain by Ordovician Limestones. All these rocks support a thick rainforest vegetation cover with patches of sword grass, bauera and ti-tree, particularly in the deep gullies. Most areas have been forested in some form. Some areas now support pine plantations.

Most of the Licence is drained by the headwaters of the Tyenna River while a small portion of the south is drained by the Styx River. The rivers and streams are deeply incised resulting in a steep hilly topography ranging in elevation from 300 to 860m above sea level.

This is a high rainfall area.

4. PREVIOUS EXPLORATION

Apart from minor mapping exercises by students of the University of Tasmania in the Maydena Range area little work has been completed in the EL 14/88 area.

BHP held the area as part of its south-west Tasmania exploration programme (EL 13/65) but did no work in the EL 14/58 area. Its main target was tin and basemetal mineralisation around the Adamsfield area.

BHP again held the area in the late 1970s as EL 8/79. Again no work was completed around Maydena due to a moratorium on exploration in southwest Tasmania and because its main target was Renison style tin deposits associated with the Adamsfield mineralisation.

Amoco held the area in the mid-1980s as EL 14/84. Its work concentrated on gold mineralisation (and associated base metals) around the Mt Mueller and Humbolt mineralisation.

No investigations were conducted for industrial minerals.

Recent mapping on EL 14/88 suggests early prospectors trenched areas of iron rich quartzite on Pine Hill. This may have been for gold.

ANM (and others) have worked various quartz rich talus deposits for siliceous road metal. These workings have not been investigated in any detail.

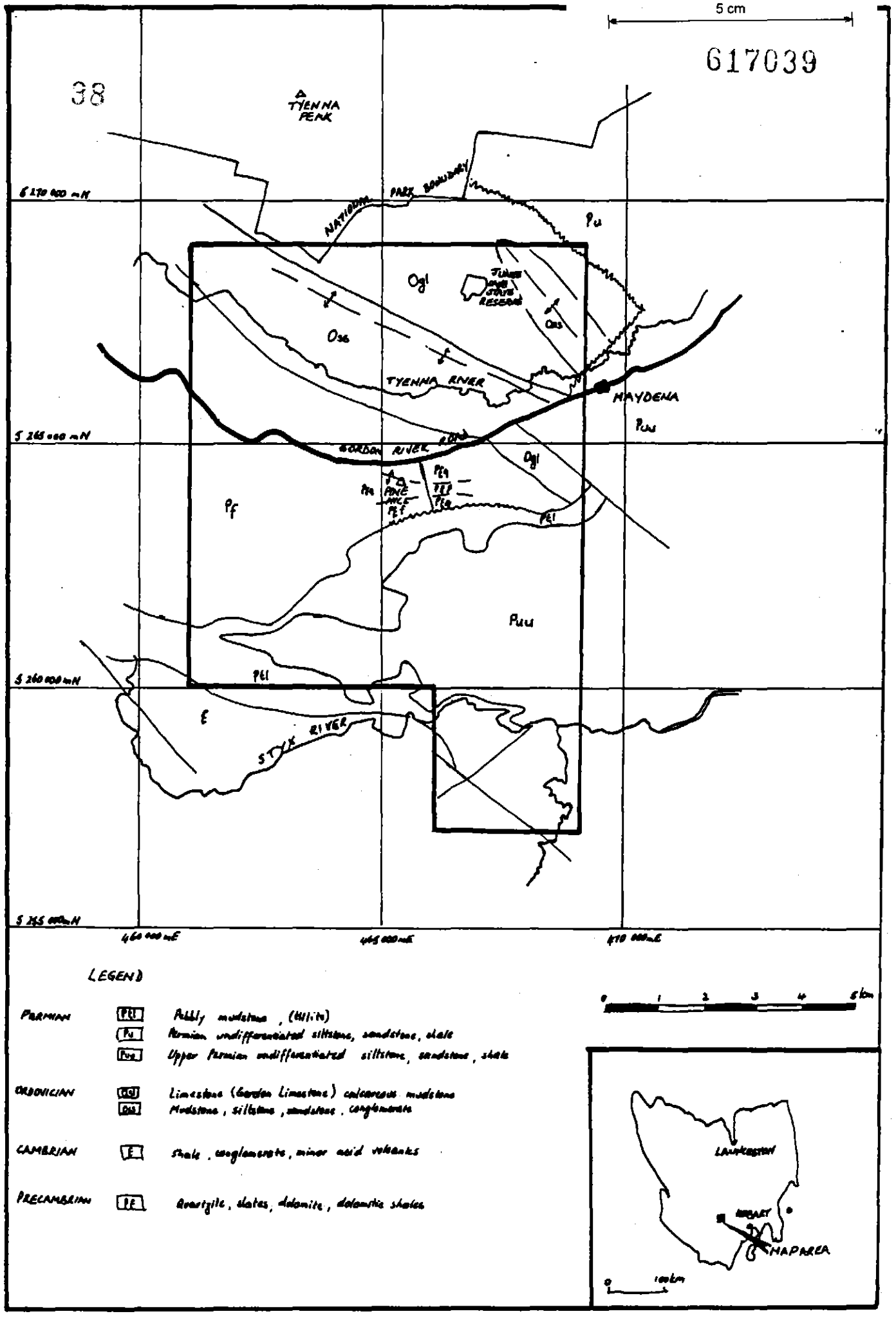

FIG. 2 GEOLOGICAL MAP, E.L. 14/88 MAYDENA

5. GEOLOGY

The oldest rocks of the area are the Precambrian pyritic quartzites with interbedded conglomerates. These are overlain by pebbly siltstones, ferruginous sandstones and siltstones and low iron quartzites and siltstones. These rocks were folded prior to the deposition of Ordovician Florentine Mudstone and Gordon Limestone.

These Pre-Devonian rocks have been folded prior to the deposition of dominantly flat lying Permo-Triassic sandstones, shales, siltstones, mudstones, tillites and limestones and intruded by Jurassic dolerites.

The area was then block faulted prior to glaciation in the Quaternary. Glacial moraine deposits are common in the area and probably include many of the siliceous ground deposits.

6. CURRENT EXPLORATION

6.1 Techniques

EL 14/88 was acquired to cover the siliceous gravel deposits around the Maydena area. Initial sampling of rock fragments from gravel pits within the Licence area showed the Pine Hill area to have two quarries with high quality silica.

In September 1988 a 2.8 km long grid was cut over the Pine Hill area. This grid extended from the western end of Pine Hill along Pine Hill to east of the Styx Road. Twelve major 200m spaced cross lines (varying in length from 600 to 1000m) and 11 (50 to 100m spaced) infill cross lines (250 to 400m long) were cut (Figure 3) to give a total of 16.2 line kilometres of gridding. These lines were geologically mapped with samples for analysis being taken mainly from outcrop but also from float. A total of 102 silica samples were taken for alumina, iron, and possibly titania and lime analyses. Three samples were also taken from old ironstained workings (pits and trenches) for gold analysis.

Drill access was provided around the western (Maynes) quarry (Figure 4) and the eastern sand quarry (Figure 5) using a D8 and a D6 equivalent dozer from ANM. 1.4 kilometres of new track was cut at the western quarry while 0.9 kilometres was cut at the eastern quarry. Old tracks were renovated slightly at both quarries. The quarries to the east of the Styx Road were not road accessed as a result of the geological mapping.

A drilling programme of 45 holes in the western quarry and 23 holes in the eastern quarry was commenced on the 21st September and completed on the 18th October 1988. These holes, varying from 5 to 18m in depth, were

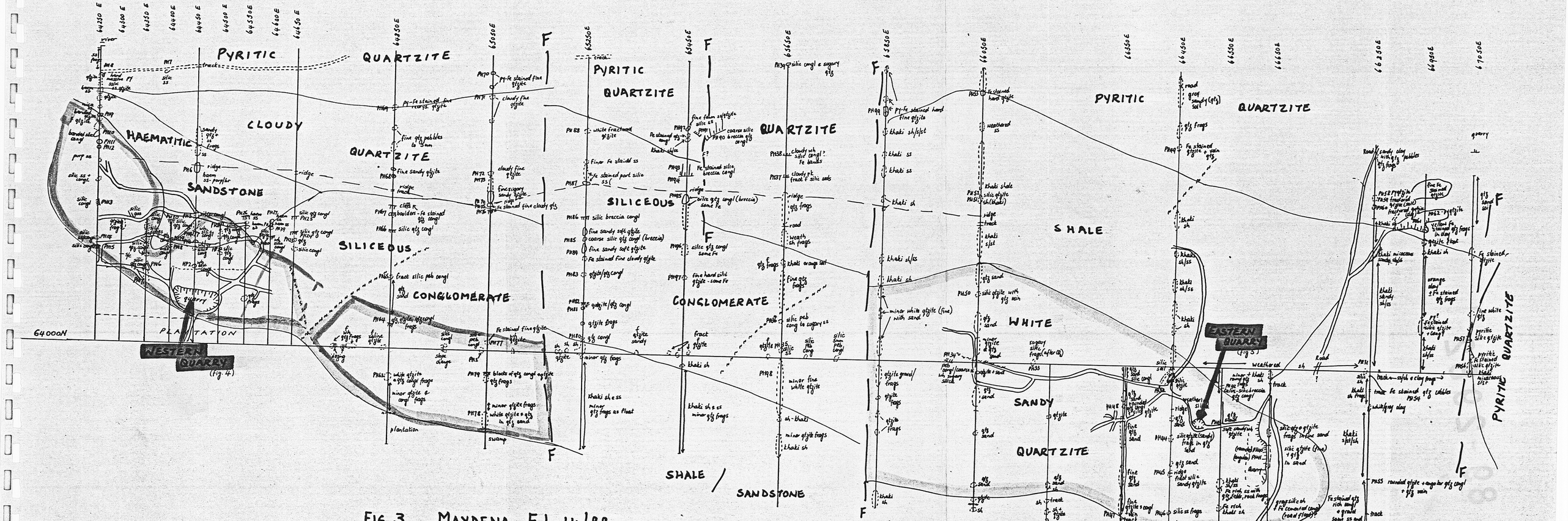

FIG. 3 MAYDENA E.L. 14/88

PINE HILL GRID - GEOLOGY

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drilled using an Atlas Copco 712 Hydraulic rotary air blast drilling rig with an XAS 80 (8 bar) compressor for chip return. All but one of the holes were vertical. Hole 12 was drilled at -45° to 050°. A total of 785.3m was drilled using a 75 mm diameter bit. A 100 mm diameter bit was used when the 75 mm bit jambed but this proved of no benefit.

Drill chips were initially collected using a cyclone attached to the drill. Clogging became a problem after rain started. A drill stem collector was used from Hole 27 onwards. Samples were collected over 1m intervals with the hole being cleaned at the end of each sample interval. Holes were logged on the chips and dust in each sample. All samples were taken to Pioneer Silicon Industries' Electrona plant where subsamples were taken for analysis.

Only white, clean looking holes had all samples analysed. Obvious iron rich intervals (pink, red, brown, orange, yellow) had only one or two samples analysed to confirm the poor quality. Holes with possible higher iron intervals (pale yellow and orange) had selected samples analysed. All samples were analysed for alumina and iron with some samples analysed for titania and lime.

6.2 Results

(a) General

The local geological fact was plotted on to the grid plan (Figure 3). This showed the Pine Hill to be underlain by a Precambrian basement of pyritic, matamorphosed, recrystallised quartzite which outcrops on the northern edge of the grid (samples PH8,

PH53, PH99) and on the hill to the east of Styx Road (samples PH56, PH57). These samples all showed elevated iron (0.4-1.5%) and alumina (0.8-4.6%) with the titania (0.04-0.3%) generally high (Appendix I).

In the eastern portion (east of line 65650E) the quartzite basement is overlain by a sequence of weathered khaki shales siltstones and sandstones. Similar rocks occur on the southern ends of most lines and probably underlie the pine plantation south of Pine Hill. These rocks appear bedded and dominantly unmetamorphosed and significantly younger than the pyritic quartzites.

West of line 65850E the quartzite basement is overlain by friable sandy impure quartzite. This occurs as boulders and small cliffs (occasionally high cliffs where more consolidated) on the north face of Pine Hill. Again, this unit tended to have high alumina (0.3-7.2%) and titania (0.03-0.4%) with some elevated iron values (0.02-0.8%).

On the ridge top to the north of the western quarry a unit of red brown haematitic sandstone occurs. This apparently flat lying unit has only been noted in the area between 64300E to 64700E.

To the west and south of the haematitic sandstone are silica rich conglomerates and gravels. The conglomerates are apparently silicified forms of the gravels exposed in the western quarry. These gravels are composed dominantly of fragments of vein quartz, hard quartzite, quartz conglomerate and quartz sandstone. Some shale siltstone and dolerite fragments were also noted. Most of the fragments are angular and vary from fine sand (5-10%) to

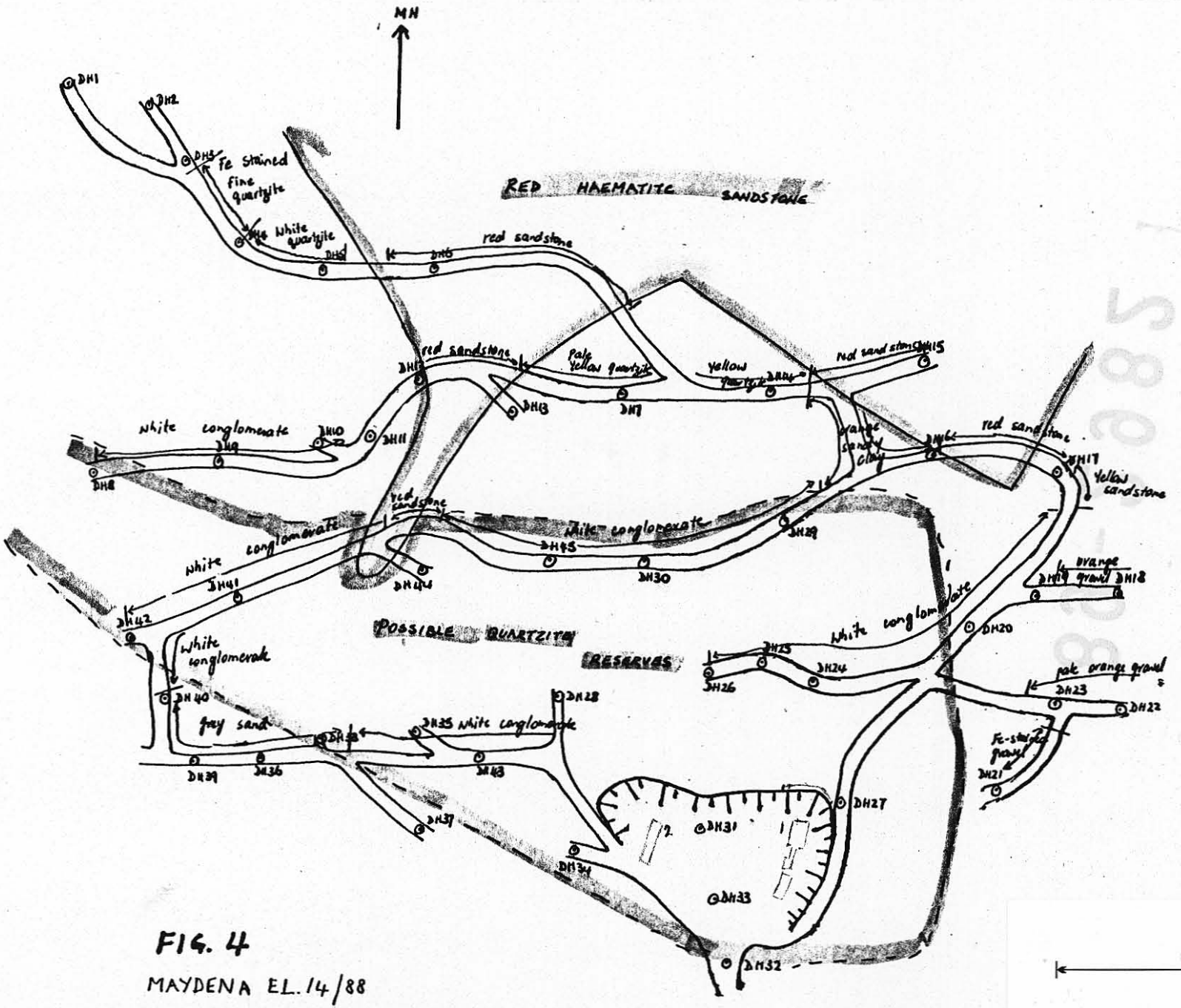

FIG. 4

MAYDENA EL. 14/88

WESTERN QUARRY AREA - PWIE HILL

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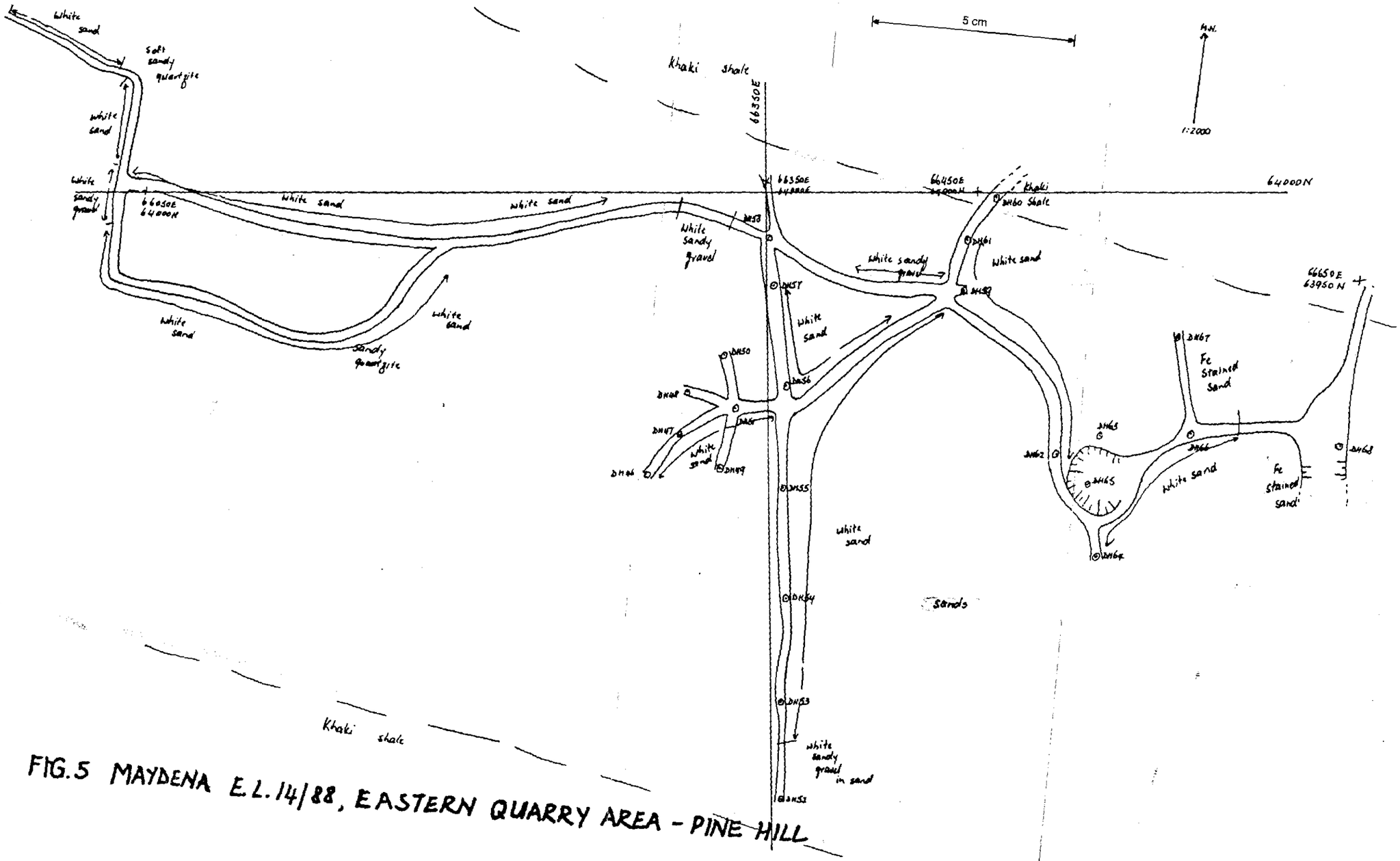

FIG. 5 MAYDENA E.L. 14/88, EASTERN QUARRY AREA - PINE HILL

APPENDIX 2 Assay Sheets

617048

P.S.I. Electrona Laboratory

Laboratory Number: 890036

Sample Delivery Date: .....

Analysis Issued Date: .....

Required by: .....

SAMPLE DETAILS QUARTZITE

MAYDENA – JUNEE RD QUARRY VISIT - GREG TRIFFID

SAMPLES	ANALYSIS										
	Al_2O_3	Fe_2O_3	TiO_2	CaO							
0531	0.31	0.040	.061	.008							
	?										

Monotone Art Printers

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MAYDENA QUARTZITE SURVEY SEP 1988

138 SPECIAL SAMPLES 617049

	DRILL #	Al_2O_3	Fe_2O_3	TiO_2	CaO	COMMENTS
149	S/S1	.59	.050	.076	.006	Sunshine Quarry Maydena
150	S/S2	.15	.029	.18	.005	
151	S/S3	2.4	.14	.11	.006	
152	S/S4	4.8	.79	.21	.006	

139

ANALABS

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ANALYTICAL REPORT No 999.16.08.05889

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Mr. W. Paterson,
Pioneer Silicon Ind. P/L
Channel Highway,
ELECTRONA
Tasmania 7054

ORDER No:	PROJECT:

DATE RECEIVED:	RESULTS REQUIRED
09/12/88	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	14/12/88	1	3

STATE OF SAMPLES	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYTE LISTING	PREPARATION	METHOD
	PH 104/106	RD	Prep: 009,011,013,016						Au/329		

REMARKS

RESULTS TO

Mr. W. Paterson,
Pioneer Silicon Ind. P/L
Channel Highway,
ELECTRONA
Tasmania 7054

RESULTS TO

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
hole core	WG	perchloric acid	A1	cold acid	A		
ill core	BC	hydrochloric acid	A2	specific digestion	S		
rilling	CU	nitric acid	A3	other mineral acids	MA		
rock	RD	aqua regia	A4	alkaline attack	AA		
split	SO	nitric-perchloric	A5	volatilization	VO		
ulp	PU	HF mixture	A6	ignition	IG		
other	WA	HF under pressure	A7	pressed powder (XRF)	PP		
issue	TI	fusion	A8	glass fusion (XRF)	GF		
stream sediment	SS						
heavy mineral	HM						

AUTHORISED OFFICER

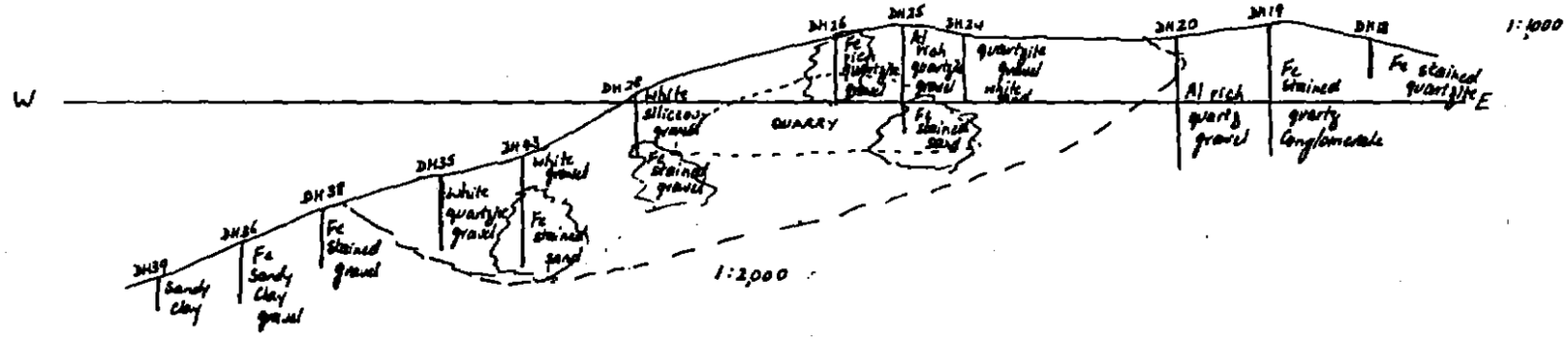
617050

blocks 4m across. Some fragments are ironstained. Samples of the conglomerates generally showed low alumina, iron and titania, although some samples had higher alumina (0.3-0.6%) and/or iron (0.01-0.6%). Conglomerate and/or gravel fragments occurred in a 250m wide east-west strip about 900m long. This strip is on the southern flank of Pine Hill from the break of slope at the edge of the flat low-lying pine plantation area. It extends from about 65150E to the western end of Pine Hill at about 64150E. There is an offset in the strip in the vicinity of 64700E (probably by a fault). Within this conglomerate/gravel zone are pods and bands of high iron material (see details in Western Quarry drilling).

To the east of 65150E only minor small deposits of siliceous conglomerate or gravel occur. These small areas are generally composed of softer silica sandstone and quartzite. However, there is a large area 300-400m wide and 1000-1400m long, extending west from the eastern sand quarry, of high silica low alumina, iron and titania white sand. This sand probably contains only 5% of +19mm fragments. Typical analysis for this material would be 0.01% Al_2O_3, 0.04% Fe_2O_3, 0.007% TiO_2 and 0.014% CaO.

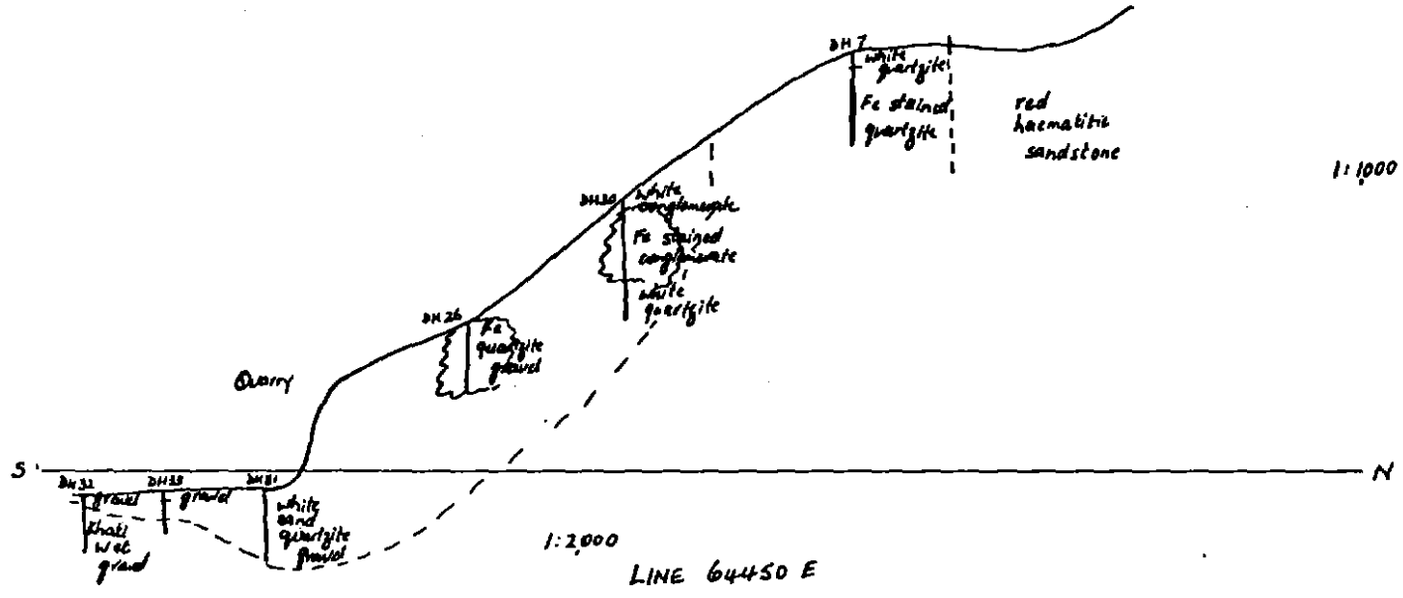
(b) Western Quarry

Mapping of the drill access tracks and the drill holes (Appendix II) has shown the haematitic sandstone unit to be much more irregular (Figure 4) and the iron staining of the white quartzite gravel to be patchy. In some areas the gravels are white with little, if any, iron staining while adjacent



LINE 6415ON

5 cm



LINE 6445O E

FIG. 6 MAYDENA E.L. 14/88 WESTERN QUARRY CROSS-SECTIONS

cuttings show yellow grading to orange iron staining. This is similar to exposures in the main western quarry.

Drilling confirmed the spotty nature of the high iron areas. Hole DH35 had good quality silica throughout (10m), hole DH34 had good quality silica above the basal clayey gravels (3m), DH28 had good quality silica overlying marginal silica (5m) while DH43 (between them) had 3.5m of good quality silica and then very high iron sand.

The drilling, and associated analyses of the chip sample, shows a triangular area of 22,500m^2 contains an average thickness of 8m (figure 6) of high quality silica gravel. This area is bounded on the east by 50m wide zone of higher alumina silica gravel before becoming iron rich. To the north the high quality and lesser quality silica are visually distinguishable due to iron colouration, while to the southwest the difference between the high and less quality silica is determined by colour changes into a khaki basal gravel. To determine accurately the quality of the silica in this area all samples in all holes would need to be analysed. That is holes 7, 8, 9, 10, 11, 13, 14, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 40, 41, 42, 43, 44 and 45 would require all samples (or composite samples) to be analysed.

Within this possible 180,000 cubic metres of high grade silica is a volume of iron rich siliceous gravel. The exclusion of this high iron material would sterilise a portion of the good silica. Estimating from the quarry face suggest a conservative yield of about 50% or a yield of 90,000 cubic

metres of good quality silica. Of this about 60 to 70 per cent would be +19 mm giving a feed yield to Electrona of 54,000 to 63,000 cubic metres of silica.

This warrants further investigations.

(c) Eastern Quarry

Mapping of the drill access tracks and the drill holes (Appendix III) has shown that most of the eastern quarry area is underlain by a quartz rich sand with minor small concentrations of lump silica (Figure 5). No large areas of hard silica were found. Individual samples varied from 0 to 30% soft quartz and/or sandy soft quartzite fragments (+5 mm).

Underlying the sand unit was a very fine clayey blue grey sand horizon. This did not show an increase in alumina even though it "balled" and clogged the drill holes. The sand and underlying clayey sand unit tend to overlap on to the khaki shales observed to the north of the basline in this area. This is shown by holes 61 and 57.

All analyses of the sand samples showed very low contaminant values, indicating the silica sand is of very high quality and purity. The only hole with obvious contaminant was DH55 where visible iron staining was confirmed by elevated Fe_2O_3 analyses.

The eastern quarry drilling has outlined a 800 by 250m area containing high quality silica. Conservatively this silica sand has an average depth in excess of 10m (commonly 11 to+18m thick). This

suggests over 750,000 cubic metres of sand occurs in the area. Mapping of grids and tracks suggests the area containing sand is more than doubled. Thus it is possible this area contains in excess of 1.5 million cubic metres of sand suitable for optical glass. This would contain about 10 per cent (guestimate), or 150000 cubic metres, of 19 mm lump silica (high grade).

A market would be required for the sand to utilise this high purity, softer, lump silica.

6.3 Conclusions

The drilling of the Western Quarry has outlined a triangular area from which it may be possible to obtain 50-60,000 cubic metres of lump silica suitable as feed for Electrona (i.e. <0.2% Al_2O_3, <0.09% Fe_2O_3 and <0.05% TiO_2). Further analyses of about 200 samples are required before detailed cross-sections are warranted for volume estimates.

If preliminary figures are confirmed then trenching to the north, northeast and northwest of the quarry with bulk sampling would be required. The bulk samples should be tested for yield of lump material and for continuity of grades of the silica both horizontally and with depth. Steepness of the terrain will present problems for siting of these trenches. On site visits in conjunction with the final analyses of the current programme should be used to locate the test trenches. Up to six trenches 50-75m long should be dug.

Surface geological mapping suggest the gravel deposit worked at the Western Quarry extends about

600m east of the quarry at the break in slope. About 150m east of the quarry this gravel deposit is contaminated by drainage (and possibly a fault) but dozer cuts suggest a continuation for a further 400m of the gravel. Analyses suggest a suitable grade for the silica lumps. Trenching and/or percussion drilling in this area could occur during the further evaluation of the Western Quarry area.

The Eastern Quarry area contains abundant fine pure silica sand (3/4-1.5 million cubic metres) with 75-150,000 cubic metres of lump silica (high grade). A market for the sand would be required before thought could be given to further testing of this deposit (to confirm yields). A possible market would be optical glass.

All silica gravel quarries in the Licence area should be located and sampled. Many gravel quarries are shown on the new 1:25000 topographic map of the area.

7. REFERENCES

JAGO, J.B., 1972
Geology of the Maydena Range
Pap. Proc. Royal Soc. Tas. Vol. 106, p 45.

APPENDIX I

ANALYSES OF ROCK CHIP SURFACE SAMPLES

53 MAYDENA QUARTZITE SURVEY 617059 SEP 1988

SPECIAL SAMPLES

	DRILL #	Al_2O_3	Fe_2O_3	TiO_2	LOI	COMMENTS
149	S/S1	.59	.050	.076	.006	Sunshine Quarry Maydena
150	S/S2	.15	.029	.18	.005	
151	S/S3	2.4	.14	.11	.006	
152	S/S4	4.8	.79	.21	.006	

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#	DRILL #	Al_2O_3	Fe_2O_3	TiO_2	CaO	COMMENTS
M001	PH 1	.032	.27	.011	.061	
2	2	.12	.13	.011	.021	
3	3	.13	.50	.024	.042	
4	4	.095	.86	.011	.029	
5	5	.076	.68	.019	.029	
6	6	9.1	3.1	.40	.005	
7	7	.21	.11	.091	.004	
8	8	4.6	.72	.28	.006	
9	9	.71	.14	.049	.011	
10	10	.25	.047	.041	.011	
11	11	.60	.35	.048	.009	
12	12	.37	.071	.038	.008	
13	13	.29	.061	.024	.053	
14	14	.25	.057	.064	.008	
15	15	.14	.48	.015	.038	
16	23	—	—	—	—	lost
17	24	.042	.33	.009	.025	
18	25	.11	.022	.007	.017	
19	HP 16	.12	.94	.003	.048	
020	17	.12	.20	.015	.038	
21	18	.089	.30	.007	.034	
22	19	.16	.18	.015	.035	
23	20	.16	.12	.009	.043	
24	21	.17	2.2	.015	.037	
25	22	.19	.15	.040	.051	
26	Near Mt Howatt Hp	.061	.11	1.1	.019	
27	PH 26	~~8.6~~ 12	~~4.4~~ 65	.34	~~.19~~ .009	good quality!
28	27	.82	.58	.053	.030	
29	28	.95	2.0	.085	.026	
030	29	.12	.65	.034	.007	

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55 MAYDENA QUARTZITE SURVEY 617061 SEP 1988

#	DRILL #	Al_2O_3	Fe_2O_3	TiO_2	CaO	COMMENTS
031	PH 30	.093	.29	.032	.092	
32	31	.27	.71	.072	.031	
33	32	.011	.028	.016	.023	
34	33	.010	.026	.020	.009	
35	34	.007	.016	.007	.020	
36	35	.010	.040	.007	.014	
37	36	.013	.017	.032	.065	
38	37	.12	.085	.057	.014	
39	38	.13	.097	.048	.010	
040	39	.86	.072	.071	.011	
41						
42						
43						
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45						
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47						
48						
49						
050						
51						
52						
53						
54						
55						
56						
57						
58						
59						
060						

MAYDENA QUARTZITE SURVEY

SEP 1988

#	DRILL #	Al_2O_3	Fe_2O_3	TiO_2	CaO	COMMENTS
308	PH 47	.019	.018	.16	.024	
309	48	.034	.019	.056	.013	
311	49	.31	.025	.026	.010	
281	50	.017	.012	.052	.038	
313/4	51,1	16.0	3.9	.51	.046	
	51,2	15.3	4.4	.51	.046	
282	52	.89	.51	.042	.016	
283	53	1.2	1.5	.066	.014	
284	54	1.4	.26	.066	.024	
285	55	.061	.012	.097	.019	
28	56	.93	.33	.046	.013	
287	57	3.8	.45	.096	2.5	
	58					
288	59	.25	.012	.18	.058	
289	60	.26	.028	.047	.017	
312	61	.63	.10	.063	.012	
315	62	1.0	.34	.078	.012	
290	63	.047	.061	.023	.041	
316/7	64,1	.16	.019	.026	.005	
	64,2	.82	.24	.028	.042	
318	65	.039	.039	.007	.015	
2	66	.56	.082	.036	.013	
319	67	.97	1.74	.057	.012	
320	68	3.3	.17	.41	.009	
321	69	.53	.046	.19	.009	
292	70	.82	.14	.033	.013	
322	71	.40	.026	.042	.010	
323	72	.41	.078	.037	.008	
293	73	.16	.028	.16	.011	
324	74	.31	.019	.092	.007	
294	75	.32	.016	.036	.009	
295	76	.52	.064	.036	.012	

MAYDENA QUARTZITE SURVEY SEP 1988

	DRILL #	Al_2O_3	Fe_2O_3	TiO_2	CaO	COMMENTS
16	1H 77	.53	.61	.067	.027	
47	78	.025	.007	.017	.054	
8	79	.018	.016	.006	.030	
299	80	.31	.10	.053	.009	
15	81	.024	.007	.007	.018	
326	82	.056	.66	2.2	.036	
17	83	.58	.73	.056	.009	
300	84	6.1	.97	.16	.012	
11	85	.59	.026	.048	.011	
18	86	1.1	.030	.088	.001	
302	87	7.2	.79	.39	.015	
9	88	.56	.018	.062	.010	
303	89	.33	.027	.086	.009	
4	90	1.7 ~~1.6~~	.031	.14	.013	
330	91	.73	.049	.087	.011	
	92					
305	93	1.3	.18	.066	.016	
306	94	1.5	.078	.083	.016	
1	95	.71	.027	.037	.004	
332	96	.79	.039	.056	.008	
	96-2	.37	.014	.026	.008	
4	97	.40	.085	.063	.007	
335	98	.16	.021	.036	.008	
7	99	.82	.41	.042	.011	
336	100	.009	.010	.046	.019	
7	101	.013	.012	.072	.015	
	102					
338	103	.033	.005	.013	.013	
	104					
	105					
	106					
339	112	.027	.019	.006	.022	

617063

APPENDIX II

DRILL LOGS - WESTERN QUARRY

MAYDENA - TASMANIA

DRILL HOLE	DH 1	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6438ON 6425OE (approx.)	FINAL DEPTH	15m
DATE	21/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Grey-white siliceous conglomerate (gravel) - minor Fe staining				
1	2	Grey-white siliceous conglomerate (gravel) - some high Fe bands give grey brown colour				
2	3	As above - very hard grey silica at base				
3	4	Very hard grey silica - probably conglomerate - minor Fe staining				
4	5	White to fawn siliceous conglomerate - not as hard as above - minor Fe staining				
5	6	Pink fawn siliceous sand - minor grey silica chips - clayey in parts (soft)				
6	7	Red brown sandy clay - very soft				
7	8	As above				
8	9	As above - some Fe stained white clay and minor silica chips (<2%)				
9	10	Yellow Fe stained shale/siltstone				
10	11	Pink-yellow Fe stained siltstone/ sand				
11	12	As above - minor silica chips contam. from above)				
12	13	White to grey shale with minor silica (contam. from above)				
13	14	As above - some Fe staining				
14	15	As above				

617066

MAYDENA - TASMANIA

DRILL HOLE	DH 2	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6338ON 64275E (approx.)	FINAL DEPTH	18m
DATE	21/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White quartzite - fine grained, soft and sugary				
1	2	As above - very soft	0.027	0.020	0.072	0.010
2	3	" " - very fine	0.30	0.020		
3	4	" " - very fine and soft - caving	0.34	0.053		
4	5	" " - very fine and soft - caving, clayey	1.8	0.18		
5	6	Brown fine clayey sand	6.4	1.1	0.34	0.011
6	7	As above - some grey silica chips (poss. contam.)				
7	8	As above - some grey silica chips (poss. contam.)				
8	9	Grey to white siliceous conglomerate - some fragments white, others grey, fawn and/or cloudy - hard - fine fawn matrix - poss. contam. from above				
9	10	As above				
10	11	" "				
11	12	" "				
12	13	" "				
13	14	" "				
14	15	" "				
15	16	" " - more finer fragments				
16	17	" " - more fine Fe staining				
17	18	" "				

61706

MAYDENA - TASMANIA

DRILL HOLE	DH 3	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64350N 64275E (approx.)	FINAL DEPTH	15m
DATE	21/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Khaki-fawn fine grained quartzite and shale mix				
1	2	White-grey quartzite fragments in orange fawn Fe stained matrix - gravel?				
2	3	As above				
3	4	Grey to brownish red translucent quartzite - some fine Fe stained orange sand/silt				
4	5	As above - less quartzite - more fine sand				
5	6	As above - more Fe staining				
6	7	Fine orange khaki powdery clayey sand - some quartzite fragments				
7	8	As above				
8	9	" " - patches of more quartzite				
9	10	" " - some brownish quartzite fragments				
10	11	" " - more orange clayey sand - some white and grey quartzite fragments				
11	12	White quartzite - possible contamination by orange fine clayey sand from above				
12	13	White to grey quartzite - fine grained - friable (breaks up) - some staining by Fe rich sand from above				
13	14	As above - some caving				
14	15	Fine siliceous sand - caving				

Hole caving

617068

MAYDENA - TASMANIA

DRILL HOLE	DH 4	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64315N 64275E (approx.)	FINAL DEPTH	18m
DATE	22/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to grey fine hard quartzite - minor Fe staining on some joints	1.4	0.071	0.083	0.011
1	2	As above - Fe staining gives fawn overall colour				
2	3	As above - less Fe staining	2.4	0.046	0.17	0.009
3	4	" " - hard				
4	5	" " - changes at 4.9m	1.4	0.018	0.082	0.009
5	6	Grey-white quartzite fragments in pink fawn sandy quartzite with fine Fe rich shale and siltstone	9.9	0.41	0.48	0.009
6	7	As above	12.3	0.14	0.54	0.013
7	8	Dark red brown Fe rich clayey sand				
8	9	As above				
9	10	" " - less Fe but more shale				
10	11	Hard sandy conglomerate - white, grey, brown quartzite pebbles in a sandy siliceous matrix				
11	12	As above - less sand matrix				
12	13	" " - some white and fawn siltstone fragments and some clay				
13	14	Green fawn shale/siltstone - soft - some Fe rich brown red bands				
14	15	Red brown shale/siltstone - soft and clayey				
15	16	As above				
16	17	As above - more Fe				
17	18	" "				

Bit broke off last rod

617069

MAYDENA - TASMANIA

DRILL HOLE	DH 5	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64280N 64300E (approx.)	FINAL DEPTH	6m
DATE	22/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Hard cream fawn quartzite - brown Fe stained white quartzite (fine)	0.48	0.81	0.042	0.009
1	2	As above - less Fe staining	0.72	0.56		
2	3	As above to 2.75m then soft khaki fawn Fe stained siltstone/ sandstone				
3	4	Bands of hard white quartzite in soft white sand - some Fe rich bands				
4	5	As above				
5	6	As above - some bands of coarse sand to pebbles - non consolidated and full of water				

Too wet for return

617070

MAYDENA - TASMANIA

DRILL HOLE	DH 6	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6428ON 6437OE (approx.)	FINAL DEPTH	9m
DATE	22/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Red brown haematitic sandstone				
1	2	As above				
2	3	" "				
3	4	" "				
4	5	" "				
5	6	" "				
6	7	" "				
7	8	" "				
8	9	" "				

617071

MAYDENA - TASMANIA

DRILL HOLE	DH 7	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6426ON 6445OE	FINAL DEPTH	13m
DATE	22/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Hard white fine quartzite				
1	2	Hard white fine quartzite with soft orange clay band at 1.5m				
2	3	Orange to brown khaki soft siltstone/sandstone - clayey				
3	4	As above				
4	5	As above - some quartzite fragments with Fe staining				
5	6	As above - some quartzite fragments				
6	7	As above				
7	8	As above				
8	9	Grey translucent quartzite fragments as conglomerate - Fe stained patches - soft Fe rich pink zones - overall pink fawn				
9	10	Fawn grey quartz conglomerate with quartz sand Fe rich matrix - some soft sandy bands - some fragments in conglomerate are hard and translucent				
10	11	Hard grey quartz conglomerate - Fe stained to khaki				
11	12	As above - increase in fine Fe stained matrix				
12	13	As above				

Hit crack in conglomerate at 12.7m - little return

MAYDENA – TASMANIA

617072

DRILL HOLE	DH 8	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64255N 64250E	FINAL DEPTH	14m
DATE	22/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Grey and white quartzite fragments in conglomerate	0.15	0.021	0.033	0.050
1	2	As above	0.39	0.013		
2	3	Grey soft siliceous sand – unconsolidated	0.59	0.023		
3	4	As above				
4	5	As above				
5	6	As above – some Fe staining				
6	7	As above – stained pink fawn by Fe				
7	8	As above – stained pink fawn by Fe				
8	9	As above – stained orange pink fawn by Fe				
9	10	As above – stained orange pink fawn by Fe – minor quartz fragments				
10	11	As above (9–10)				
11	12	As above (9–10)				
12	13	As above (9–10)				
13	14	As above (9–10)				

Sand caused hole to block – poor return from 2m

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MAYDENA - TASMANIA

DRILL HOLE	DH 9	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64255N 64300E	FINAL DEPTH	10m
DATE	22/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Purple brown khaki shale/ siltstone				
1	2	Cream orange shale/siltstone				
2	3	Cream and orange brown shale/ siltstone - minor quartz fragments				
3	4	Cream green shale/siltstone - minor quartz fragments				
4	5	As above - more Fe staining to pink orange quartz fragments are grey to red brown				
5	6	Grey quartz fragments in a pink orange silty matrix - conglomerate (unconsolidated)				
6	7	As above - less quartz fragments				
7	8	As above				
8	9	As above - more orange Fe staining				
9	10	As above				

Lost air return in conglomerate at 10m
No air from 10 to 12m

MAYDENA - TASMANIA

617074

DRILL HOLE	DH 10	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64275N 64330E	FINAL DEPTH	11m
DATE	22/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White quartzite fragments in fawn orange Fe rich matrix - unconsolidated conglomerate	0.46	0.093	0.072	0.004
1	2	As above - less Fe staining	0.42	0.049	0.093	0.004
2	3	As above	0.41	0.016	0.11	0.007
3	4	Hard white quartz conglomerate	0.50	0.007	0.092	0.006
4	5	Unconsolidated white quartz conglomerate with olive green fines				
5	6	As above - some grey quartz fragments				
6	7	As above - finer with more matrix				
7	8	As above				
8	9	As above - darker green fines (gravelly)				
9	10	As above - some larger white quartz fragments				
10	11	As above - some larger white quartz fragments - some sand				

617075

MAYDENA - TASMANIA

DRILL HOLE	DH 11	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64255N 64347E	FINAL DEPTH	2m
DATE	23/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Hard white quartz conglomerate				
1	2	As above				

617076

MAYDENA - TASMANIA

DRILL HOLE	DH 11A	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64255N 64352E	FINAL DEPTH	18m
DATE	23/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Hard grey white quartz conglomerate				
1	2	As above - more white quartz fragments	1.0	0.15		
2	3	As above - more translucent hard grey quartzite fragments	2.8	0.020	0.19	0.005
3	4	As above - mostly translucent hard grey fragments				
4	5	As above	8.0	0.082	0.39	0.008
5	6	As above - some Fe stained quartz fragments				
6	7	As above - some large hard quartz-rich boulders	3.3	0.20	0.19	0.006
7	8	As above - some large hard quartz-rich boulders - minor Fe staining to green grey				
8	9	As above - some fine green fawn sandstone	8.0	0.22	0.33	0.008
9	10	As above - significant red brown Fe staining				
10	11	Fawn brown Fe stained fine quartz conglomerate				
11	12	Fine pink fawn Fe stained quartz fragments with shale and sand - unconsolidated				
12	13	As above - mostly shale - Fe stained brown				
13	14	As above - mostly shale - less Fe				
14	15	As above - mostly shale - minor quartz fragments				

.../Cont.

DH 11A (Continued)

617077

15	16	As above - mostly shale
16	17	As above - mostly shale - pink fawn due to Fe
17	18	Red brown high Fe shale/silt-stone

617078

MAYDENA - TASMANIA

DRILL HOLE	DH 12	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6426ON 6437OE	FINAL DEPTH	15m
DATE	23/9/88	ANGLE	-45° to 055° Mag
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Hard white quartz conglomerate - some organic contamination				
1	2	Olive fawn Fe stained fine sandy quartz conglomerate				
2	3	White fine sandstone/quartzite with orange Fe staining - some clay				
3	4	As above - but yellow orange, white and orange bands				
4	5	As above				
5	6	As above				
6	7	As above - some quartz fragments				
7	8	As above - pink yellow due to Fe				
8	9	As above (7-8) - more pink				
9	10	As above (7-8) - more pink				
10	11	As above (7-8) - more pink				
11	12	As above (7-8) - fawn				
12	13	As above (7-8) olive fawn with some white quartz fragments				
13	14	Pale green fawn siltstone/ shale with some sandstone - some Fe staining				
14	15	As above - some red brown quartz fragments				

Hole clogging with clay and shale

MAYDENA - TASMANIA

DRILL HOLE	DH 13	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6426ON 6440OE	FINAL DEPTH	18m
DATE	23/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Yellow orange weathered fine sandstone/siltstone				
1	2	As above - some translucent brown grey quartz fragments				
2	3	As above - more pink				
3	4	As above - dark khaki - more siltstone				
4	5	Orange fawn quartz conglomerate - 50% translucent hard brown quartz fragments in siltstone				
5	6	As above				
6	7	Fine green fawn siltstone with brown Fe rich shale fragments - minor quartz and quartzite fragments - possibly conglomerate (unconsolidated)				
7	8	As above - some brown quartz fragments				
8	9	As above - more Fe staining				
9	10	As above - more Fe staining to yellow orange				
10	11	As above				
11	12	As above				
12	13	As above - orange fawn Fe staining				
13	14	As above - minor quartz chips - yellow fawn Fe stained				
14	15	As above (13-14)				
15	16	As above (13-14)				
16	17	As above (13-14)				
17	18	As above (13-14) more quartz sand fragments				

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617030

MAYDENA - TASMANIA

DRILL HOLE	DH 14	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64254N 64500E	FINAL DEPTH	18m
DATE	23/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Yellow orange fine grained sand with some white and translucent grey quartz fragments				
1	2	As above				
2	3	As above				
3	4	As above - coarser fragments				
4	5	As above - more orange due to Fe				
5	6	As above - more Fe staining to orange				
6	7	As above (4-5)				
7	8	As above (4-5) more brown quartz fragments				
8	9	As above (4-5)				
9	10	As above (4-5)				
10	11	As above (4-5)				
11	12	As above (4-5) more white translucent hard quartz fragments				
12	13	Hard pink quartz conglomerate - translucent white and grey brown quartz fragments				
13	14	As above to 13.5m then soft orange yellow sand with minor quartz fragments				
14	15	Soft orange yellow sand with minor quartz fragments				
15	16	As above				
16	17	As above - more khaki orange and white sandstone bands fine and clayey				
17	18	As above				

617081

MAYDENA - TASMANIA

DRILL HOLE	DH 15	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64250N 64540E	FINAL DEPTH	11.5m
DATE	23/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Red brown haematitic sandstone - clayey, soft and weathered				
1	2	As above, some shale fragments				
2	3	Olive pink shaley conglomerate - white quartzite fragments in fine high Fe siltstone matrix				
3	4	As above - less quartzite - dark pink				
4	5	As above - minor quartzite - Fe stained, dark pink				
5	6	As above				
6	7	As above - minor grey brown quartz fragments - very high Fe				
7	8	Red haematitic sandstone - minor quartz fragments				
8	9	Red haematitic sandstone - many quartz fragments				
9	10	Red haematitic sandstone - many quartz fragments, hard band over 0.5m				
10	11	Red haematitic sandstone - minor quartz fragments				
11	11.5	Red haematitic sandstone - more clayey				

Hole jammed in clayey sandstone

617032

MAYDENA - TASMANIA

DRILL HOLE	DH 16	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64225N 64550E	FINAL DEPTH	11.5m
DATE	26/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Red brown haematitic sandstone - orange red Fe rich clayey weathered matrix				
1	2	As above				
2	3	Purple brown haematitic sandstone - fine	12.5	6.7	1.6	0.040
3	4	As above				
4	5	As above				
5	6	As above				
6	7	As above				
7	8	As above - but hard				
8	9	Yellow orange pink sandy shale/ siltstone	15.1	4.3		
9	10	As above - with red brown Fe rich clay bands				
10	11	As above - some haematitic sandstone fragments				
11	11.5	As above				

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617083

MAYDENA - TASMANIA

DRILL HOLE	DH 17	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64200N 64590E	FINAL DEPTH	12m
DATE	26/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Yellow orange Fe stained quartz rich talus gravel - angular white quartz, quartzite and conglomerate fragments - 15% clay in matrix				
1	2	Orange yellow sandy clay	3.0	3.1	0.16	0.077
2	3	Orange to khaki siliceous gravel - white, cloudy white pink and translucent grey quartz and quartzite fragments in a dominantly clay/silt matrix				
3	4	As above				
4	5	Hard grey quartz conglomerate - little Fe				
5	6	As above				
6	7	Khaki stained Fe rich siliceous sandstone/sand				
7	8	As above - some orange clay zones (Fe stained) - some quartzite fragments				
8	9	As above				
9	10	As above - some quartzite fragments				
10	11	As above - more quartzite fragments				
11	12	As above - more quartzite fragments				

617084

MAYDENA - TASMANIA

DRILL HOLE	DH 18	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 6460OE	FINAL DEPTH	3m
DATE	26/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Fawn grey siliceous pebble talus				
1	2	As above				
2	3	As above - mostly white quartzite and quartz conglomerate fragments - minor orange Fe stained clayey sandstone				

MAYDENA - TASMANIA

DRILL HOLE	DH 18A	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 6459SE	FINAL DEPTH	5m
DATE	26/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Orange fawn Fe stained siliceous talus gravel quartz and quartzite fragments in a sandy matrix				
1	2	As above - mainly pebble sized quartzite fragments in Fe stained sandy matrix				
2	3	As above	0.45	0.29	0.057	0.051
3	4	As above - contains 0.5m diameter boulder of quartz conglomerate				
4	5	As above				

Hole jamming on quartz conglomerate boulder

0. 80

617086

MAYDENA - TASMANIA

DRILL HOLE	DH 19	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64165N 64575E	FINAL DEPTH	17.8m
DATE	26/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Hard white quartz conglomerate - minor Fe				
1	2	As above - minor pink Fe fragments	0.069	0.36	0.012	0.026
2	3	As above to 2.5m - then softer quartz gravel	0.20	0.11		
3	4	White quartz gravel to 3.1 with minor pink Fe stained quartzite fragments - then hard white quartz conglomerate	0.40	0.46		
4	5	Hard white quartz conglomerate - minor fine Fe rich fragments	0.21	0.54		
5	6	As above	0.18	0.23		
6	7	As above to 6.4m then grey fawn quartz sand with some Fe staining	2.5	0.38		
7	8	Unconsolidated quartz rich gravel talus with grey and white quartz and quartzite fragments - minor Fe staining - siliceous sand matrix	2.8	0.49	0.13	0.062
8	9	As above - less sand and less Fe				
9	10	As above - fawn with minor Fe staining	5.4	0.61		
10	11	As above (9-10) - more siliceous fragments				
11	12	As above (9-10) - more siliceous fragments	11.1	0.72		
12	13	As above (9-10) - fawn yellow Fe stained - some shale				
13	14	Orange fawn clayey sandstone/ shale - sand has yellow Fe staining on many fragments	7.5	0.53		

.../Cont.

617087

DH 19 (Continued)

14	15	As above - many fragments of quartz conglomerate				
15	16	Unconsolidated quartz and quartzite gravel - orange Fe staining	5.9	0.23	0.23	0.052
16	17	As above - fine Fe rich orange fragments				
17	17.8	As above - sandy in parts				

617088

MAYDENA - TASMANIA

DRILL HOLE	DH 20	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 6455OE	FINAL DEPTH	18m
DATE	26/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to grey siliceous rubble - quartz, quartzite and quartz conglomerate fragments - contaminated by road material				
1	2	Orange khaki clayey shale - some quartzite fragments and Fe stained orange clay bands				
2	3	Grey to white hard siliceous conglomerate - grey, white brown quartz, quartzite and quartz conglomerate fragments - minor fine brown Fe stained fragments	0.54	0.056	0.026	0.097
3	4	As above - less hard, less silicified - minor Fe staining	1.0	0.060		
4	5	As above - hard	1.0	0.048		
5	6	As above - little Fe staining	0.8	0.19		
6	7	As above to 6.5m - then fawn gravels				
7	8	Partly silicified quartz conglomerate - no visible Fe				
8	9	As above - one boulder of conglomerate 0.5m through	3.4	0.028	0.18	0.073
9	10	As above - with fine shale and Fe rich clay				
10	11	As above	2.3	0.049		
11	12	Partially silicified quartz gravel - fawn coloured fines and some orange Fe stained clay				
12	13	As above to 12.8m then hard grey white quartzite boulder	1.6	0.057		

.../Cont.

DH 20 (Continued)

617039

13	14	Partly silicified quartz conglomerate - some Fe stained fragments of white and grey quartz and quartzite - some shale and clay				
14	15	As above	0.83	0.019		
15	16	As above - less Fe, more silica fragments				
16	17	As above	1.9	0.016		
17	18	As above - less Fe more silica fragments, less fines	1.5	0.011	0.093	0.047

617090

MAYDENA - TASMANIA

DRILL HOLE	DH 21	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64100N 64550E	FINAL DEPTH	9m
DATE	26/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Khaki orange sandy clayey siliceous gravel with quartz and quartzite fragments	1.2	2.2	0.12	0.016
1	2	Quartzite rich gravel - soft white quartzite/sandstone in yellow khaki sandy clay matrix				
2	3	As above - less matrix and less Fe staining - khaki fawn	0.81	0.089		
3	4	As above - less matrix and less Fe staining - yellow fawn	1.6	0.14	0.16	0.016
4	5	As above - white grey - little Fe	0.75	0.054		
5	6	As above - white grey - little Fe white and grey quartz fragments				
6	7	As above (5-6)	0.28	0.057		
7	8	Orange Fe stained clayey quartz sand	0.24	0.085	0.047	0.024
8	9	As above				

Continually blocking between 7 and 9m
Tried 100 mm hammer - no better

617091

MAYDENA - TASMANIA

DRILL HOLE	DH 22	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6410ON 6460OE	FINAL DEPTH	10m
DATE	26/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White sandy siliceous gravel contaminated by brown Fe clay and soil				
1	2	Yellow fawn stained quartzite gravel - white and grey quartz and quartzite fragments				
2	3	As above - more Fe and fines	0.5	0.75	0.076	0.023
3	4	As above - more khaki Fe staining - more fines and clay				
4	5	White and orange clayey and sandy gravel - Fe stained	0.38	0.45	0.063	0.027
5	6	As above - less white sandy clay				
6	7	As above (5-6) - less clay more sand				
7	8	Orange fawn Fe stained fine sand (originally white) - minor clay and quartz fragments	0.76	0.61	0.036	0.046
8	9	Fawn fine sand with some clay and Fe staining				
9	10	As above - more Fe staining				

MAYDENA - TASMANIA

DRILL HOLE	DH 23	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64115N 64575E	FINAL DEPTH	12m
DATE	27/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White siliceous sandy gravel - quartz sand with fragments of white quartzite and minor clay - minor Fe on some fragments				
1	2	As above	0.29	0.14	0.11	0.051
2	3	As above - slightly greenish grey coloration				
3	4	As above - brownish grey soil contamination				
4	5	As above - more quartzite fragments - grey brown				
5	6	As above - grey brown				
6	7	As above - grey white				
7	8	As above - mainly white sand				
8	9	As above - mainly white sand				
9	10	As above - more quartzite fragments				
10	11	As above - more quartzite fragments				
11	12	As above - more quartzite fragments minor Fe staining				

Sand clogged hole

617093

MAYDENA - TASMANIA

DRILL HOLE	DH 24	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64145N 64500E	FINAL DEPTH	9m
DATE	27/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Light grey fawn (originally white) quartzite gravel				
1	2	As above	0.22	0.11	0.043	0.016
2	3	As above	0.28	0.30		
3	4	White gravelly sand - some quartzite fragments				
4	5	White sand - fine minor quartzite (soft)	0.15	0.062		
5	6	Grey white sand - fine - minor quartzite (soft)	0.27	0.11		
6	7	As above	0.11	0.093	0.036	0.021
7	8	As above	0.08	0.016		
8	9	As above - lot of water	0.085	0.022		

Water caused hole with sand to clog up

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617094

MAYDENA - TASMANIA

DRILL HOLE	DH 25	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 64475E	FINAL DEPTH	15m
DATE	27/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown grey quartzite gravel	0.33	0.10		
1	2	Dark brown green grey quartzite gravel				
2	3	Light brown quartzite gravel	0.23	0.038	0.023	0.022
3	4	As above				
4	5	As above - light yellow khaki	1.0	0.086		
5	6	As above - light brown				
6	7	As above - light brown to fawn				
7	8	As above - light brown to fawn	2.4	0.19		
8	9	As above - light brown to fawn				
9	10	As above - light grey to fawn	3.8	7.9	0.11	0.059
10	11	Yellow orange, Fe rich clayey sand				
11	12	As above				
12	13	As above				
13	14	As above				
14	15	As above				

Clayey sand clogged hole

MAYDENA - TASMANIA

DRILL HOLE	DH 26	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 6446OE	FINAL DEPTH	9m
DATE	28/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Orange fawn sandy quartzite gravel	0.14	0.66	0.016	0.018
1	2	As above - white to fawn	0.13	0.42		
2	3	As above - white to fawn	0.16	0.41		
3	4	As above - white to fawn	0.29	0.66	0.073	0.026
4	5	White to fawn - hard silicified quartzite conglomerate	0.25	0.41		
5	6	As above	0.090	0.17		
6	7	As above to 6.5m then white to fawn sandy quartzite gravel				
7	8	White quartz sand	0.55	0.63	0.096	0.030
8	9	As above				

Sand caused clogging - bogged rods

C 90

MAYDENA - TASMANIA

DRILL HOLE	DH 27	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64100N 64500E	FINAL DEPTH	13m
DATE	28/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Light brown fawn sandy quartzite gravel				
1	2	As above - very sandy	0.11	0.075	0.076	
2	3	As above - white - very sandy	0.11	0.039		
3	4	As above (2-3)	0.079	0.036		
4	5	As above "	0.10	0.037		
5	6	As above "	0.094	0.058		
6	7	As above "	0.078	0.056	0.043	0.038
7	8	As above "	0.083	0.032		
8	9	As above "	0.099	0.023		
9	10	White clayey sandy quartzite gravel				
10	11	As above	0.096	0.029	0.046	0.036
11	12	No return due to water				
12	13	As above				

Clogging from 6m
Water at 12m which caused clogging and lack of return

MAYDENA - TASMANIA

DRILL HOLE	DH 28	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 6440OE	FINAL DEPTH	9m
DATE	28/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White siliceous quartzite gravel - contaminated with fawn grey surface soil	0.19	0.019		
1	2	White to grey quartzite gravels with grey fawn silica fines - minor Fe stained orange fawn clay	0.54	0.24		
2	3	As above - orange Fe staining	0.26	0.039	0.013	0.032
3	4	As above - cream fawn Fe staining	0.70	0.17		
4	5	As above - some orange stained Fe bands	0.62	0.21		
5	6	As above - clayey	0.82	1.4		
6	7	Fawn yellow sandy clay - high Fe minor Fe quartzite fragments	3.6	0.50		
7	8	Orange Fe stained grit with some white quartzite fragments	1.4	1.2		
8	9	As above	0.80	0.99	0.026	0.056

MAYDENA - TASMANIA

617098

DRILL HOLE DH 29 PROJECT WESTERN QUARRY

GRID CO-ORDS. 64200N 64492E FINAL DEPTH 18m

DATE 29/9/88 ANGLE Vertical

DRILLER Maxfield Nominees Pty Ltd

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White partly silicified quartzite gravel conglomerate - minor small Fe fragments	0.13	0.021	0.028	0.023
1	2	As above - more sand size matrix	0.11	0.02	0.046	0.017
2	3	As above - very sandy				
3	4	White sand - fine even grained - 10 cm brown fawn band - minor quartzite chips	0.10	0.16		
4	5	As above - pale yellow fawn - minor quartzite chips	0.12	0.042		
5	6	As above (4-5)	0.10	0.057	0.052	0.019
6	7	As above "	0.11	0.043		
7	8	As above "				
8	9	As above "	0.09	0.12		
9	10	As above " to 9.3m - then hard silicified white sandy conglomerate	0.098	0.09		
10	11	Hard white silicified sandy quartzite conglomerate - minor pink Fe stained fragments	0.13	0.096		
11	12	As above - but fairly soft and sandy	0.095	0.058	0.013	0.019
12	13	As above - fairly soft and sandy, some hard patches				
13	14	As above (12-13)				
14	15	As above (12-13)	0.16	0.043		
15	16	As above (12-13) harder patches, probably silicified conglomerate boulders in sand matrix				
16	17	Harder siliceous conglomerate gravel - fawn - some sand	0.18	0.025	0.012	0.022
17	18	Brown fawn gravelly sand				

617099

MAYDENA - TASMANIA

DRILL HOLE	DH 30	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64200N 64452E	FINAL DEPTH	16.5m
DATE	29/9/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Hard white to grey silicified quartz conglomerate - white and translucent grey quartzites in silicified quartz matrix	0.31	0.027	0.028	0.013
1	2	As above to 1.5m - then brown fawn unconsolidated siliceous gravel				
2	3	As above to 2.7m then orange stained sandy clay	2.5	2.0		
3	4	Orange fawn Fe stained sandy quartzite gravel				
4	5	As above - many quartzite cobbles in Fe stained matrix				
5	6	As above (4-5)	1.7	2.2		
6	7	As above (4-5) - yellow fawn	0.78	1.2		
7	8	As above (6-7) - more Fe staining				
8	9	As above (6-7) to 8.3m then hard white siliceous quartzite conglomerate	0.39	0.76		
9	10	Hard silicified quartzite conglomerate - minor pink Fe staining and soft sand bands				
10	11	As above - more sandy bands	0.27	0.19	0.016	0.029
11	12	As above - much more sand - less silicified				
12	13	As above - mainly brown fawn sand				
13	14	As above - conglomerate and sand bands - fawn				
14	15	Light fawn conglomeratic sand - fine quartz sand with soft quartzite fragments				

.../Cont.

DH 30 (Continued)

617100

15	16	Brown grey fawn clayey sand with minor quartzite chips
16	17	As above

Clayey sand blocked hole

MAYDENA - TASMANIA

DRILL HOLE	DH 31	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6410ON 6445OE	FINAL DEPTH	9m
DATE	3/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White siliceous quartz conglomerate gravel with fine quartz sand matrix - minor Fe staining - some surface contamination				
1	2	As above - no Fe staining	0.12	0.058	0.033	0.015
2	3	As above - (1-2)	0.15	0.027		
3	4	As above - (1-2)	0.16	0.023		
4	5	White hard conglomerate boulder to 4.5m then fine white sand	0.17	0.021		
5	6	Fine white sand - minor quartzite fragments	0.09	0.014		
6	7	White sandy quartzite - some clay and some brown grey sandy quartzite fragments				
7	8	White sandy quartzite conglomerate - soft - some clay and brown grey quartzite fragments	0.092	0.012	0.067	0.014
8	9	Fine white wet sand	0.11	0.031		

Sand clogged hole

96

MAYDENA - TASMANIA

DRILL HOLE	DH 32	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64050N 64450E	FINAL DEPTH	6m
DATE	3/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Dark grey quartzite gravel - road fill	0.16	0.071	0.043	0.031
1	2	As above - including log				
2	3	As above to 2.5m - then khaki shale with some quartzite fragments	1.8	0.71		
3	4	Khaki weathered shaley gravel - some quartzite chips in sandy matrix	2.8	1.1		
4	5	As above				
5	6	As above - wet				

Wet gravel clogging hole

MAYDENA - TASMANIA

DRILL HOLE	DH 33	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64075N 64450E	FINAL DEPTH	5m
DATE	3/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Dark grey to white quartzite gravel				
1	2	Grey white quartzite sandy gravel - some white quartzite and fawn olive sandy fragments	0.23	0.11		
2	3	As above - some white quartzite bands	0.19	0.023	0.033	0.022
3	4	Orange fawn Fe stained quartzite gravel	0.47	0.45		
4	5	Brown muddy quartz rich unconsolidated wet gravels	4.0	0.93		

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MAYDENA - TASMANIA

DRILL HOLE	DH 34	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6410ON 6440OE	FINAL DEPTH	10m
DATE	5/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to light grey quartzite gravel	0.18	0.031	0.042	0.016
1	2	As above	0.30	0.05		
2	3	As above	0.22	0.023		
3	4	As above to 3.4m then dark olive brown gravels				
4	5	Dark olive brown gravels with green sandy clay matrix	6.9	1.61		
5	6	As above - some sand bands				
6	7	As above	0.81	0.086		
7	8	Dark fawn clayey gravel with quartzite fragments and sand	1.1	0.11	0.048	0.093
8	9	As above				
9	10	Olive fawm water saturated gravels - quartzite fragments in mud matrix				

MAYDENA - TASMANIA

DRILL HOLE	DH 35	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 6435OE	FINAL DEPTH	10m
DATE	6/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White quartzite gravel - white and grey quartzite fragments in silicified sand matrix	0.14	0.01	0.027	0.022
1	2	As above - white, sandy	0.20	0.026		
2	3	As above - more sandy	0.11	0.017		
3	4	As above - gravelly	0.13	0.03		
4	5	As above - sandy quartzite gravel				
5	6	As above	0.12	0.02		
6	7	As above				
7	8	As above - more rounded quartzite fragments in sand and clay matrix	0.13	0.03		
8	9	As above (7-8) - white	0.099	0.015	0.046	0.016
9	10	As above (7-8)	0.12	0.23		

Water in sand and clay matrix caused clogging

MAYDENA - TASMANIA

617106

DRILL HOLE	DH 36	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 6430OE	FINAL DEPTH	9m
DATE	7/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Pink purple fine sand with quartzite fragments in an orange brown clay overlying (as a lag deposit) brown shale				
1	2	Orange sandy clay - minor quartzite fragments	7.4	3.1	0.96	0.004
2	3	As above - more quartzite fragments				
3	4	Yellow khaki sandy clay/shale - some quartzite fragments				
4	5	As above - wet				
5	6	Yellow khaki; quartzite rich gravel - white quartzite chips in yellow wet silty matrix				
6	7	As above				
7	8	As above - wet clay in matrix	1.2	0.52	0.097	0.014
8	9	As above - wet clay in matrix				

Hole bogging in wet clay

MAYDENA - TASMANIA

DRILL HOLE	DH 37	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64110N 64350E	FINAL DEPTH	3m
DATE	7/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to grey quartzite gravel - minor yellow Fe stained quartzite chips				
1	2	As above to 1.5m then yellow khaki wet sandy clay	0.71	0.16	0.046	0.040
2	3	Sandy clay				

Hole clogging in clay

MAYDENA - TASMANIA

DRILL HOLE	DH 38	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 6432SE	FINAL DEPTH	8m
DATE	7/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Pink grey orange sand at top to orange clayey sand at base				
1	2	White to pink Fe stained quartzite chips in orange clayey sand	2.3	1.2	0.27	0.019
2	3	Orange sandy clay with minor quartzite chips				
3	4	Orange khaki clayey sand - with many quartzite (white) chips				
4	5	White to orange quartzite chips in khaki sandy matrix - gravel				
5	6	White to grey hard quartzite boulders and khaki fawn quartzite pebbles in khaki sand matrix - gravel				
6	7	Khaki fawn quartzite gravel - mainly white to yellow or grey quartzite fragments				
7	8	Wet khaki fawn quartzite gravel	0.49	0.078	0.047	0.026

MAYDENA - TASMANIA

617109

DRILL HOLE	DH 39	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6415ON 64265E	FINAL DEPTH	4m
DATE	7/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown grey sandy soil with clay and organics				
1	2	Khaki to orange sandy clay				
2	3	Yellow khaki sandy clay	9.5	4.3	0.43	0.014
3	4	Yellow wet quartzite gravel - clayey matrix				

Clay clogged drill hole

MAYDENA - TASMANIA

617110

DRILL HOLE	DH 40	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64175N 64255E	FINAL DEPTH	6m
DATE	7/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to fawn quartzite gravel - white quartzite chips in purple brown clayey sand matrix				
1	2	As above - less clay and more sand in matrix	1.1	0.053	0.088	0.011
2	3	As above				
3	4	As above - more khaki - wet gravel at base				
4	5	Wet khaki, muddy gravel				
5	6	As above	0.9	0.082	0.076	0.035

617111

MAYDENA - TASMANIA

DRILL HOLE	DH 41	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64200N 64300E	FINAL DEPTH	9m
DATE	7/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to light grey quartzite connglomerate - quartzite chips in fine sand - some surficial contamination				
1	2	As above - no contamination	0.29	0.021	0.076	0.02
2	3	As above - light cream				
3	4	As above - light cream				
4	5	As above to 4.3m - then khaki gravel with Fe rich chips				
5	6	Khaki quartzite gravel with matrix of sand and Fe sand	2.1	0.80		
6	7	As above				
7	8	Orange sandy clay				
8	9	As above				

Clay bogging hole

617112

MAYDENA - TASMANIA

DRILL HOLE	DH 42	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6420ON 6425OE	FINAL DEPTH	8m
DATE	7/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Hard white to light grey quartz conglomerate (boulder outcrop) minor Fe staining				
1	2	As above to 1.5m - then white quartzite gravel with minor Fe chips	0.14	0.061	0.026	0.036
2	3	White fine sandy quartzite conglomerate at top, changing to brown fawn sand at base				
3	4	Yellow khaki quartzite gravel - white grey quartzite chips in yellow sandy matrix				
4	5	Wet khaki to light grey white quartzite gravel - sandy quartzite chips in wet clayey sand matrix				
5	6	As above	0.26	0.015	0.10	0.033
6	7	As above				
7	8	As above				

Hole stopped due to no return

617113

MAYDENA - TASMANIA

DRILL HOLE	DH 43	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	6414ON 64375E	FINAL DEPTH	14m
DATE	7/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to grey quartzite conglomerate - minor surficial contamination				
1	2	Sugary white to grey sandy quartzite - soft	0.13	0.012	0.036	0.037
2	3	As above	0.16	0.006		
3	4	As above to 3.2m then brown purple sandy conglomerate to 3.5m then khaki orange Fe stained clayey sand				
4	5	Orange khaki Fe stained sand with minor quartzite fragments				
5	6	As above - pale orange yellow				
6	7	As above - mustard to pink to white to orange yellow				
7	8	Mustard sand	0.75	12.7	0.016	0.14
8	9	Mustard sand - minor quartzite fragments				
9	10	Mustard sand - minor quartzite fragments - coarse				
10	11	Yellow orange coarse sand, minor quartzite fragments				
11	12	As above				
12	13	As above	0.39	0.14	0.016	
13	14	As above - becoming coarser and wet				

Hole clogging by wet sand

MAYDENA - TASMANIA

DRILL HOLE	DH 44	PROJECT	WESTERN QUARRY
GRID CO-ORDS.	64200N 64350E	FINAL DEPTH	18m
DATE	10/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to light grey quartz conglomerate - minor Fe staining in parts				
1	2	As above to 1.7m - then pink orange Fe stained sandy conglomerate	0.16	0.13	0.032	0.045
2	3	White to light grey hard quartz conglomerate boulder in softer sandy Fe stained quartz conglomerate (gravel)				
3	4	Hard quartz conglomerate - parts Fe stained to red brown				
4	5	As above - cream overall due to Fe				
5	6	As above				
6	7	As above - more yellow Fe staining				
7	8	As above - less Fe staining	0.094	0.10		
8	9	As above (7-8)				
9	10	As above (7-8) very hard				
10	11	As above (7-8) some white bands				
11	12	As above (10-11) to 11.7m then soft sandy gravel				
12	13	As above (7-8) - some white bands - hard				
13	14	As above (7-8) - some yellow Fe staining				
14	15	As above (13-14)				
15	16	As above (13-14) more yellow Fe staining	0.69	0.046	0.032	0.045

.../Cont.

617115

16	17	As above (13–14) to 16.5m then soft brown fawn shaley gravel
17	18	As above (16–17) – part soft part hard

11

MAYDENA - TASMANIA

DRILL HOLE DH 45 PROJECT WESTERN QUARRY

GRID CO-ORDS. 64200N 64400E FINAL DEPTH 13m

DATE 10/10/88 ANGLE Vertical

DRILLER Maxfield Nominees Pty Ltd

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to brown grey quartz conglomerate to gravel - many white and grey quartz fragments - some surficial contamination				
1	2	As above - some orange sand and Fe chips	1.2	1.2	0.087	0.069
2	3	As above				
3	4	As above - more sandy	8.5	3.7		
4	5	Fawn orange quartzite gravel - white, grey and red quartz and quartzite fragments in orange Fe stained sandy matrix				
5	6	As above				
6	7	Hard grey silicified quartz conglomerate - minor Fe staining - some Fe contamination from uphole				
7	8	As above - more white quartz chips	1.9	0.79		
8	9	As above (7-8)				
9	10	As above (7-8) - few orange Fe stained chips	0.36	0.016		
10	11	As above (7-8) to 10.5m, then soft sandy light yellow quartzite gravel				
11	12	Pale yellow fawn clayey sand quartzite gravel	0.89	0.40	0.056	0.061
12	13	As above but more clayey sand				

Hole clogging with clayey sand

APPENDIX III

DRILL LOGS - EASTERN QUARRY

MAYDENA - TASMANIA

DRILL HOLE	DH 46	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	6335ON 66275E	FINAL DEPTH	18m
DATE	11/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to grey fine sand with minor subrounded soft sandy quartzite pebbles - minor clay				
1	2	As above - white to faint yellow	.010	.005	.037	.025
2	3	Fine white sand - minor soft quartzite pebbles and clay				
3	4	As above	.011	.006		
4	5	As above				
5	6	As above	.010	.005		
6	7	As above to 6.5m then pale cream from Fe				
7	8	Pale yellow cream fine sand with some soft sandstone pebbles, minor clay	.013	.008		
8	9	As above				
9	10	As above - minor quartz pebbles	.014	.007	.016	.012
10	11	As above - minor quartz pebbles				
11	12	As above (9-10)	.011	.010		
12	13	As above "				
13	14	As above " to 13.3m then brown fawn fine sand with minor quartz fragments and some clay	.061	.093		
14	15	Orange fawn fine sand - Fe stained - minor quartz pebbles and clay (Fe stained)				
15	16	As above - increase in clay -> balling	.43	.30		
16	17	As above (15-16)				
17	18	As above	.22	.10	.008	.021

MAYDENA - TASMANIA

DRILL HOLE DH 47 PROJECT EASTERN QUARRY

GRID CO-ORDS. 63875N 66310E FINAL DEPTH 15m

DATE 11/10/88 ANGLE Vertical

DRILLER Maxfield Nominees Pty Ltd

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to grey fine sand with minor fine sandy quartzite (soft) fragments - some yellow Fe staining				
1	2	Pale yellow to white fine sand with some sandy white soft quartzite (sandstone) chips	.013	.004	.032	.014
2	3	As above				
3	4	As above - whiter below 3.6m	.031	.012		
4	5	As above - yellowish tinge				
5	6	As above - " "	.012	.007		
6	7	As above - some whiter bands				
7	8	As above - some whiter bands less sandy chips	.012	.009	.012	.031
8	9	As above (7-8)				
9	10	As above (7-8) increase in quartz chips	.015	.014		
10	11	As above (9-10)				
11	12	As above (9-10) - very fine clayey - blue grey sand at 12m - this may start at 10.5m when return dropped	.015	.011		
12	13	Fine grey blue clayey sand				
13	14	As above	.014	.010	.012	.018
14	15	As above				

Hole clogged badly from 11.0m

MAYDENA - TASMANIA

DRILL HOLE	DH 48	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63900N 66310E	FINAL DEPTH	12m
DATE	11/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White and brown fawn fine sand with some soft fine quartzite pebbles (sandstone)	.025	.007	.082	.014
1	2	As above				
2	3	As above - whiter				
3	4	As above "	.008	.004		
4	5	As above "				
5	6	As above " less quartzite pebbles (soft)				
6	7	As above (5-6)				
7	8	As above (5-6)				
8	9	As above - whiter - more quartzite pebbles (<5%) soft	.014	.004	.016	.016
9	10	As above - whiter - minor quartzite pebbles - soft	.014	.004	.013	.022
10	11	As above (9-10) to 10.6m then grey blue fine clayey sand				
11	12	Grey blue fine clayey sand changing to yellowish	.015	.011		

Hole clogging due to clayey sand

MAYDENA - TASMANIA

DRILL HOLE	DH 49	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	6385ON 6633OE	FINAL DEPTH	11m
DATE	11/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Fawn fine sand with 5% soft sandy quartzite chips as a surficial lag deposit				
1	2	Fawn yellow fine quartz sand with minor soft quartzite chips	.015	.005	.007	.014
2	3	As above				
3	4	As above - pale yellow orange	.011	.006		
4	5	As above (3-4)				
5	6	As above (3-4) - clayey	.013	.008		
6	7	As above (3-4)	.017	.005		
7	8	As above (3-4) with bands of pink Fe stained sand and white sand	.028	.036	.016	.029
8	9	As above - pink to white				
9	10	As above (8-9)	.18	.010		
10	11	White to cream fine sand with minor quartz chips and some clay				

Hole clogging in fine clayey sand

MAYDENA - TASMANIA

DRILL HOLE	DH 50	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63935N 66330E	FINAL DEPTH	9m
DATE	11/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown fawn fine sand with soft sandy quartzite chips and minor quartz chips (<5%)				
1	2	As above - yellowish - abundant chips (10%)	.015	.008	.067	.010
2	3	Pale yellow fine sand with minor quartz and soft quartzite chips (<5%)				
3	4	Yellow fawn and white bands of fine quartz sand minor quartzite (soft) chips	.013	.006		
4	5	Pale orange yellow fine sand with clay and minor soft sandy quartzite chips				
5	6	As above	.012	.008		
6	7	As above - more clay				
7	8	As above - " "	.050	.010	.017	.020
8	9	As above - " "				

Clayey sand clogging hole

617123

MAYDENA - TASMANIA

DRILL HOLE	DH 51	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63875N 66325E	FINAL DEPTH	7m
DATE	11/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Pink fawn fine quartz sand with 5-10% fine sandy quartzite chips and quartz chips	.011	.005		
1	2	As above - less (<5%) quartz and quartzite	.012	.007	.022	.020
2	3	As above (1-2) - fawn to white				
3	4	As above (1-2) - lighter coloured	.038	.015		
4	5	As above (1-2) - " "				
5	6	Pale yellow medium quartz sand with clay - balling	.019	.009		
6	7	Orange medium quartz sand with clay - clogging	.012	.006	.003	.015

Hole clogged with clayey sand

MAYDENA - TASMANIA

DRILL HOLE	DH 52	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63700N 66350E	FINAL DEPTH	11m
DATE	12/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown grey humic clayey sand with 20% white to cream sandy quartzite (soft) fragments - mine vein quartz chips				
1	2	Cream quartzite (soft) gravelly sand - mainly fine quartz sand with many fine sandy quartzite chips	.013	.017	.082	.014
2	3	As above - less chips (15%)				
3	4	As above (2-3) - white	.011	.007		
4	5	As above (2-3) - cream white				
5	6	As above (2-3) - " "	.017	.011		
6	7	As above - quartz chips to 20-25% - cream				
7	8	Mottled cream to brown weakly Fe clayey sand - 10-15% quartz and quartzite fragments	.037	.096	.038	.011
8	9	Fine gravelly (5-10%) orange mottled beige silty sand				
9	10	Cream, moderately gravelly (20-25%) fine to medium sand - chips of clear white vein (soft) quartz	.020	.050	.012	.012
10	11	Cream to orange beige slightly gravelly (5-10%) fine to medium silty sand - clay increasing				

Clay causing clogging

MAYDENA – TASMANIA

DRILL HOLE	DH 53	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	6375ON 6635OE	FINAL DEPTH	15m
DATE	12/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Grey brown humic clay sand				
1	2	Cream white fine grained silty, weakly clayey sand – trace fine gravelly quartz chips	.034	.011	.067	.007
2	3	As above				
3	4	As above – 5–10% quartz chips	.011	.005		
4	5	As above – <5% quartz chips				
5	6	White fine sand – trace fine gravel chips – moderate silt	.028	.015		
6	7	As above – gravel to 10% quartz – less silt				
7	8	As above – gravel 5–10%	.008	.005	.052	.007
8	9	Cream weakly gravelly fine sand (gravel <5%)				
9	10	As above but white 5–10% gravel	.010	.005		.008
10	11	As above (9–10)				
11	12	As above white to creamy white	.008	.004		.007
12	13	As above (11–12) <5% gravel				
13	14	White to cream gritty fine sand – minor pale orange quartzite fragments	.012	.004	.027	.008
14	15	Fine grained cream to mottled orange silty sand – higher clay				

Hole clogging in silty clayey sand

MAYDENA - TASMANIA

DRILL HOLE	DH 54	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63800N 66350E	FINAL DEPTH	15m
DATE	13-14/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown to mottled cream humic gravelly sand - gravel is sandy quartzite (soft)				
1	2	White cream gravelly medium sand - quartz veined sugary quartzite (soft) makes up 15% of material	.022	.008	.17	.007
2	3	As above - gravel 10%				
3	4	White fine sand - <5% quartz and quartzite (soft) chips - minor clay	.010	.005		
4	5	As above - 10% gravel				
5	6	As above - 5% gravel	.011	.006		
6	7	Fine white to cream sand - 5% gravel				
7	8	As above	.019	.007	.046	.017
8	9	As above				
9	10	As above - 5-10cm hard band at top	.012	.006		
10	11	As above				
11	12	As above	.014	.005		
12	13	As above to 12.4m then fawn fine sand with 5% gravel, some clay				
13	14	Fawn and white fine sand to 13.3m then orange Fe stained fine clayey sand - balling	.35	.91	.038	.020
14	15	Orange clayey sand - fine - Fe stained				

Clayey sand clogging hole

MAYDENA - TASMANIA

617127

DRILL HOLE	DH 55	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	6385ON 6635OE	FINAL DEPTH	18m
DATE	14/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Black grey sandy soil and purple brown fawn sandy gravel - sandy soft quartzite (15%) in fine sand matrix				
1	2	As above - pink fawn				
2	3	As above to 2.3m then pale pink to white fine quartz sand to 2.7m - then orange stained fine clayey sand, 5% gravel	.019	.017	.023	.014
3	4	Red orange and brown Fe stained clayey sand with 10% soft quartzite gravel				
4	5	As above to 4.4m then yellow to white fine clayey sand with 5% quartzite gravel				
5	6	Bands of white, red brown and orange fine sand - 5% gravel	.39	.071		
6	7	Fine orange yellow sand with 5% quartzite chips				
7	8	As above				
8	9	As above <5% quartzite chips	3.9	.73		
9	10	As above <1% " "	2.2	1.2	.032	.015
10	11	As above " " "				
11	12	As above " " " minor white bands	.48	.27		
12	13	Cream to white fine sand - Fe stained bands				
13	14	Fine cream sand - minor quartzite chips	.15	.061		
14	15	As above - minor Fe contamination from above	.044	.019		

.../Cont.

DH 55 (Continued)

15	16	As above 5-10% quartzite chips - Fe contamination	.080	.027		
16	17	Cream medium sand with 5% quartzite chips - some Fe contamination	.075	.089	.007	.020
17	18	As above				

MAYDENA - TASMANIA

DRILL HOLE	DH 56	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63900N 66350E	FINAL DEPTH	9m
DATE	14/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Dark grey fine quartz sand with 15% quartzite chips				
1	2	Brown fawn grey fine sand with 10% quartzite chips				
2	3	Brown fawn fine clayey sand with 5% quartzite chips				
3	4	Blue grey sandy clay - changing to khaki grey at base				
4	5	Khaki grey to yellow khaki; sandy clay				
5	6	As above				
6	7	Orange yellow khaki sandy clay				
7	8	As above				
8	9	As above				

Hole blocking in sandy clay from 6m

MAYDENA - TASMANIA

DRILL HOLE	DH 57	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	6395ON 6635OE	FINAL DEPTH	4m
DATE	14/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Black organic rich sandy soil				
1	2	Fawn grey sand to 1.4m then fawn khaki shale and silty clay				
2	3	Yellow khaki silty clay/shale				
3	4	As above - wet				

Clay blocking hole

MAYDENA - TASMANIA

DRILL HOLE	DH 58	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63980N 66350E	FINAL DEPTH	9m
DATE	14/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Soft khaki fawn silty shale/clay				
1	2	Soft yellow khaki fawn sandy shale/clay				
2	3	As above to 2.2m then pale blue grey shale/clay				
3	4	Pale blue grey silty clay/shale	4.6	.22	.16	.011
4	5	As above - minor sandy bands				
5	6	As above - greenish fawn				
6	7	As above (5-6) minor quartz chips				
7	8	As above (6-7)				
8	9	As above "				

Hole clogging in clay

125

MAYDENA - TASMANIA

DRILL HOLE	DH 59	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	6395ON 6645OE	FINAL DEPTH	7m
DATE	14/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White quartz and soft quartzite chips in grey black sandy soil				
1	2	Fawn dirty quartz fine sand				
2	3	As above to 2.5m then orange Fe stained clayey sand with minor quartz and quartzite chips - balling	.39	.62	.042	.027
3	4	Yellow fawn silty clay - balling				
4	5	As above				
5	6	As above				
6	7	As above				

617133

MAYDENA - TASMANIA

DRILL HOLE	DH 60	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	64000N 66460E	FINAL DEPTH	7m
DATE	14/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Orange khaki silty clay/shale - high Fe				
1	2	As above - some grey bleached fragments				
2	3	As above to 2.7m then orange clay (gritty)	.21	9.4	1.8	.021
3	4	Khaki silty clay/shale with orange Fe bands				
4	5	As above - more orange				
5	6	Orange Fe rich clay - minor shale				
6	7	Orange brown Fe rich shale/clay				

Hole clogging with clay

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617134

MAYDENA - TASMANIA

DRILL HOLE	DH 61	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63975N 66445E	FINAL DEPTH	11m
DATE	14/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Dirty brown grey sandy soil with white quartz and soft quartzite chips (5%)				
1	2	Cream yellow to fawn fine sand - 5-10% quartz and quartzite chips - some Fe staining	.023	.016	.14	.027
2	3	As above - 5% gravel				
3	4	As above - " "	.090	.015		
4	5	As above to 4.5m then orange Fe staining				
5	6	Cream yellow fine sand with some orange Fe stained sand				
6	7	Cream fawn fine sand				
7	8	Orange fine sand with clay shale and minor quartz chips				
8	9	Bad return - balling orange clay/ shale - sand contamination				
9	10	Orange fawn sand and clay/shale				
10	11	As above				

Clogging to the point of no air return

617135

MAYDENA – TASMANIA

DRILL HOLE	DH 62	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63875N 66490E	FINAL DEPTH	18m
DATE	17/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Fine white quartz sand – minor Fe staining <5% quartz and quartzite chips				
1	2	As above – minor cream bands	.019	.005	.037	.008
2	3	Fine yellow cream quartz sand <5% quartz chips				
3	4	As above – some balling clay	.041	.021		
4	5	As above (3–4) 10–15% gravel				
5	6	As above " 5% gravel	.057	.016		
6	7	As above " <5% gravel white bands				
7	8	As above (3–4) 5% gravel	.057	.022		
8	9	As above (3–4) <5% gravel most white				
9	10	As above (3–4) <5% gravel part white	.016	.005	.023	.026
10	11	As above (9–10)				
11	12	As above "	.022	.009		
12	13	As above "				
13	14	As above "	.043	.007		
14	15	As above yellow cream <5% gravel				
15	16	As above (14–15)	.026	.018	.018	.021
16	17	As above "				
17	18	As above " some blue grey clay	.061	.071		

MAYDENA - TASMANIA

DRILL HOLE	DH 63	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63875N 66510E	FINAL DEPTH	12m
DATE	17/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White to fawn fine quartz sand - 5% soft quartz and sandy soft quartzite chips				
1	2	White fine quartz sand - 5% gravel	0.47	.017		
2	3	As above 2% gravel				
3	4	As above " "	.090	.031	.047	.011
4	5	As above " "				
5	6	As above " " minor cream colour	.044	.019		
6	7	As above 2% gravel				
7	8	As above 2% gravel	.017	.004	.033	.009
8	9	As above 2% gravel minor cream colour				
9	10	As above 2% gravel minor cream colour	.023	.015		
10	11	As above 2% gravel cream coloured				
11	12	As above 2% gravel cream coloured	.024	.007		

MAYDENA - TASMANIA

DRILL HOLE	DH 64	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63815N 66510E	FINAL DEPTH	12m
DATE	17/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown grey sandy soil - quartz fine sand				
1	2	Grey to white fine quartz sand - <2% soft quartz and/or soft sandy quartzite chips	.019	.007	.047	.012
2	3	White to cream fine quartz sand - <2% gravel				
3	4	As above 3% gravel	.014	.005		
4	5	As above " "				
5	6	As above " "	.021	.005		
6	7	As above <2% " mainly white				
7	8	As above " " white to fawn	.013	.005	.018	.007
8	9	As above " " " " "				
9	10	As above 5-10% gravel white	.018	.006		
10	11	As above 5% gravel white				
11	12	As above 5-10% gravel white	.014	.008	.016	.013

617138

MAYDENA - TASMANIA

DRILL HOLE	DH 65	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	6385ON 6651OE	FINAL DEPTH	12m
DATE	17/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	White fine quartz sand - up to 30% soft white quartz and sandy quartzite chips - lag deposit	.022	.006		
1	2	As above 10% gravel	.016	.005	.017	.011
2	3	As above 5% gravel some grey				
3	4	As above " " " "	.052	.006		
4	5	White fine quartz sand <2% gravel				
5	6	As above	.014	.004		
6	7	As above				
7	8	As above	.020	.009		
8	9	As above minor clay				
9	10	As above (8-9)				
10	11	As above " little return				
11	12	As above (10-11)	.099	.061		

Little return of air or clayey sand

MAYDENA - TASMANIA

DRILL HOLE	DH 66	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63875N 66550E	FINAL DEPTH	12m
DATE	17/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown grey sandy gravel - up to 30% quartz and quartzite gravel				
1	2	Grey brown sandy soil - minor gravel				
2	3	As above 20% gravel				
3	4	As above to 3.8m with 5% gravel and clay then white (dirty) sand - fine				
4	5	Dirty fawn quartz fine sand - no gravel				
5	6	As above <2% gravel	.69	.10		
6	7	As above (5-6) increasing clay				
7	8	As above (6-7) to 7.5m then creamy white fine sand	.19	.036	.073	.022
8	9	Cream fine sand <2% gravel				
9	10	As above 5-10% soft quartzite gravel	.16	.030		
10	11	As above 30% soft quartzite gravel, some clay				
11	12	As above 30% soft quartzite gravel, some clay - balling	.019	.007		

MAYDENA - TASMANIA

617140

DRILL HOLE	DH 67	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	63925N 66530E	FINAL DEPTH	5m
DATE	18/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown mottled dark gritty humic clay				
1	2	Orange buff brown clayey shale				
2	3	Mottled grey orange clay/shale	14	2.9	.83	.014
3	4	Mottled grey - light brown sandy clay/silt				
4	5	Light olive brown gritty wet clay/shale				

Little air return

617141

MAYDENA - TASMANIA

DRILL HOLE	DH 68	PROJECT	EASTERN QUARRY
GRID CO-ORDS.	6385ON 6663OE	FINAL DEPTH	7m
DATE	18/10/88	ANGLE	Vertical
DRILLER	Maxfield Nominees Pty Ltd		

FROM	TO	DESCRIPTION	Al_2O_3	Fe_2O_3	TiO_2	CaO
0	1	Brown and orange Fe stained quartz and soft quartzite gravel				
1	2	Orange pebbly coarse quartz sand	.015	.11	.013	.019
2	3	As above but <2% gravel				
3	4	As above " "				
4	5	As above to 4.3m then brown khaki pebbly clayey sand				
5	6	Khaki brown quartz rich fine pebbly sand with some clay				
6	7	As above - similar to basal gravels beneath Western Quarry				

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ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	999.16.08.05889	14/12/88		1 OF 1

TUBE No.	SAMPLE No.	Au									
1	PH 104	<0.01									
2	PH 105	<0.01									
3	PH 106	<0.01									
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
17											
18											
19											
20											
21											
22											
23	DETECTION	0.01									
24	UNITS	PPM									
25	METHOD	329									

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

617142

141

See Drawing 8932/3 For Further Detail

Approximate Location of Ridge

This area dense scrub

Levels taken around perimeter

64250E LINE
64300E LINE
64350E LINE
64400E LINE
64450E LINE
64500E LINE
64550E LINE
64600E LINE
64650E LINE

64250N
64000N

TITLE BOUNDARY

Top of Quarry
Bottom of Quarry

Pine Plantation
Tree Plantation

Gravel
Edge of Road
Formation

Star Bar at 64250E 64000N
Survey Co-Ordinates 64250.00E 64000.00N

Star Bar at 64450E 64000N
Survey Co-Ordinates 64447.65E 63976.53N

End of Line

Creek

5 cm

000/10/005.

Note: Levels derived from H.E.C. B.M. 5112 R.L. 309.721 (State Datum)
Location Gordon Road
Azimuth for this area obtained from Magnetic Observations
Co-Ordinates derived from Star Bar at Stake 64250E 64000N
Contour Interval = 2.00 m
Observation to A.M.G. Co-Ordinates was not possible at time of Survey

BROOKS LARK & CARRICK
LAND & ENGINEERING SURVEYORS
9 WARNEFORD ST. SOUTH HOBART PH.(002) 23 5666

WESTERN QUARRY AREA AND PINE HILL GRID LOCATION

SCALE 1:750	DRAWING Nº 8932/2
DRAWN D.WALKER	DATE March 1989
APPROVED D.Walker	Nº OF SHEETS

ENCLOSURE 1

617143