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GEOPHOTO MINERALS REPORT 1973/14
STATUS OF THE ALLUVIAL TIN PROGRAMME,
E.L.6/68, N.E. TASMANIA,
NOVEMBER, 1973

Prepared by -

GEOPHOTO RESOURCES CONSULTANTS

for

TEXINS DEVELOPMENT PTY. LIMITED

I.R. MORTIMORE

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INTRODUCTION

This report deals with the progress made within the alluvial tin programme since the writing of Geophoto Minerals Report 1973/9 in March, 1973, the latter outlining the situation at that time and the proposed programme for 1973.

During this 8 month period a revision of our target was made in the light of current trends in tin mining, particularly those related to tin mining in N.E. Tasmania. The programme was now aimed at a revised target of at least 2,000,000 cubic yards, grading around 1 lb/cu. yd. SnO₂, located within a number of small pockets which could be worked by similar methods and more importantly by one tin washing plant moving from prospect to prospect. A prospect which could only be worked by mining techniques specially adapted to its location/attitude etc and therefore requiring alternative equipment to that set out above, would have to hold proven reserves of 2,000,000 cubic yards alone before consideration of a mining operation. The Ringarooma River and the various deep lead prospects would fit into this category in contrast to the type of deposit found on the Dorset Flat, Swains Creek, Wyniford River etc.

During the 8 months through to November, 1973 field work was conducted on six prospects listed in Geophoto Minerals Report 1973/9 with literature research and reviews carried out on a further six.

This work, with the data produced through it, brought the alluvial tin programme to a position where positive decisions could be made on the viability of a tin mining operation in N.E. Tasmania based on reserves proven or indicated within, or close by, the bounds of EL6/68.

The final decision was that no scope existed for a mining operation of the size and scale envisaged by Texins, without considerable expenditure on exploration over and above that warranted by the projected returns of such a mining operation.

EXPLORATION ACTIVITIES (MARCH-NOVEMBER 1973)

PROSPECTS

1. Eastern Leads

One seismic traverse (690 metres) was run over the central sector of this lead just to the north of Corduroy Creek (See drawing A214).

The aim was to establish whether the seismograph system (in this case the RS-4) could be used effectively in defining deep leads and, in the test area, to determine the deepest section of this lead down from its confluence with a second major lead entering from the east (See Geophoto Minerals Report 1971/28).

Using the reverse probe method with geophones spaced at 8m or 15m and shots off either end for each spread, depths were attained below the shot points.

The objectives were achieved with a deep section being defined with a maximum depth of 45.9m (See map A214).

Although the section was defined, subsequent exploration on other prospects failed to realise their potential in order to warrant further expenditure on this prospect.

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1a. Other Deep Leads

GOLDEN SOVEREIGN (HERRICK)
(Mines Dept. Plan).

Reports were obtained from the Mines Department pertaining to a drilling programme conducted by the Department in 1944 on the Golden Sovereign Deep Lead near Herrick.

In this programme a total of 38 holes (see map in appendix) were drilled ahead of the work face, which although clearly defining the lead, failed to locate tin values in excess of 6ozs./cu. yd. Sn. in the basal sections.

The findings of this programme of drilling coupled with the results of a similar programme conducted on the Echo Lead at Moorina (discussed later), suggested the possibilities of further economic deep leads being located in the general area were poor and exploration for such not warranted.

2. Dorset Flat

(see 1973/7).

No further field work was completed on this prospect.

The details of the exploration activities and the findings have been fully documented in Geophoto Minerals Report 1973/7.

An option agreement covering a further 6 months to 1st November, 1973 on mineral leases 76M/64 and 77M/64 was negotiated with R.C. Lawry with an initial cash payment of \$1000.

As of 1st November, 1973 the option agreement was allowed to lapse.

The status of this prospect regarding reserves remains as outlined in Geophoto Minerals Reports 1973/7 and 1973/9.

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3. Swains Creek (1973/8).

Again no further field work was completed but the details and results of the earlier work were reported upon in Geophoto Mineral Report 1973/8.

A yardage of 223,750 cu. yds. grading 0.65 lbs/cu. yd. SnO₂ (72% Sn concentrate) was computed to exist over the prospect area, this figure being upgraded by the removal of marginal grades to a figure of 122,750 cu. yds. grading 0.87 lbs/cu. yd. SnO₂. An overburden of 96,000 cu. yds. was applicable in both instances. The second set of figures i.e. 122,750 cu. yds. grading 0.87 lbs/cu. yds. SnO₂, would be the more realistic upon which to consider a mining venture. However it was concluded that insufficient reserves existed to support a mining operation with added problems created by irregular overburden ratios and the patchy distribution of economic grade material.

No further work was recommended.

4. Bald Hill Eluvial Prospect (1972/23).

No further work was completed on this prospect apart from the drafting of Geophoto Minerals Report 1972/23.

The status of this prospect remained the same.

5. Wyniford River

The initial phase of work to evaluate the potential of tin bearing gravels within the lower reaches of the Wyniford River was completed.

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Full details of the work programme and the results are to be found in Geophoto Minerals Report 1973/11.

Indicated yardages in excess of 148,000 cu. yds. grading 1.03 lbs/cu. yd. SnO₂ (72% Sn concentrate) were computed for the Quaternary gravels within the tested area with additional yardage of comparable or higher grade existing as Tertiary washes below the more recent fluvial sediments.

With consideration of the facts that a) only 55% of the total prospect area had been included in this initial programme and b) the true depth of the ground tested was not determined in the majority of the holes, it can be assumed that yardages in excess of 400,000 cu. yds. grading 1 lb/cu. yd. SnO₂ or greater, may exist within the Wyniford River prospect area.

However to prove or disprove this assumption, considerable expenditure and time would be required on additional backhoe work and/or drilling.

The decision was made to delay further work on the Wyniford River prospect pending the results of testing being carried out on the other prospects within the overall alluvial tin programme.

The results of this alternative work however were disappointing and gave no basis for renewed exploration within the Wyniford River prospect.

The position has therefore remained as stated in Geophoto Minerals Report 1973/11.

6. Echo Mine (NEW MOORINA TIN MINE). Remets 1930.
(Mines Dept Plan)

Production records and drilling results on the old mine

were requested from the Mines Department in Hobart.

The production records for the period 1901-1932 are incomplete but show that in the final years of the mine, the grade of material treated was 0.73 lbs/cu. yd. SnO_2 (68% Sn) in 1928 and 0.61 lbs/cu. yd. SnO_2 (67% Sn) in 1929. Minor production in 1932 showed a grade of 0.20 lbs/cu. yd. SnO_2 (71% Sn).

Drilling was carried out by the Mines Department in 1930 ahead of the work faces to the west and north of the mine. A total of 13 holes were put down using a cable tool percussion rig.

In general, the results from the grade and depth consideration were poor.

From the point of view of grade, the overall grade was low, falling below 0.10 lbs/cu. yd. SnO_2 and below an economically accepted grade to support a dredge operation. Basal sections grade to 1.15 lbs/cu. yd. SnO_2 (over 12 feet in one hole) but are generally in the range 0.40 to 0.60 lbs/cu. yd. SnO_2 , these being found under overburden to 200 feet plus, with the deepest hole drilled extending to 280 feet.

These grades are subeconomic for both a dredge operation and an operation based on basal wash sections.

The results of this drilling programme could be rechecked by further drilling but the techniques and equipment used in the old programme have not greatly been improved upon in any way today. Today's assay techniques may be more accurate but the error would have to have been substantial to make the results from the previous drilling even close to being economic.

No further work was recommended on this prospect.

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The report covering the 1930 drilling programme with maps and assays is included in the appendix.

7. Pioneer Mine (Lead) - Extensions

No work was completed on this prospect as no moves were made toward an option agreement over Wood's Pioneer Mine leases.

As stated in Geophoto Minerals Report 1973/9 such an agreement would be necessary before consideration of extending the mine westwards into Texins ground became feasible.

8. Ringarooma River (1973/13)

A programme of 33 percussion (churn) drill holes was completed following a reconnaissance of the prospect area and limited surface sampling.

Geophoto Minerals Report 1973/13 covers all aspects of these activities and evaluates the results.

The basic conclusion was that although the yardages existed, the overall grade fell below that considered adequate to support a dredging operation.

High grades in excess of 1 lb/cu. yd. SnO_2 (70% Sn concentrate) were encountered on Line 1 but the yardage in this upstream sector of the river was unlikely to approach the 2,000,000 cu. yds. target considered the minimum for a small company scale operation. The nature of the deposit rendered it improbable that it could be grouped with the Dorset Flat, Swains Creek and the Wyniford River prospects to be worked in

sequence by similar mining methods. The problems encountered in working such a deposit as the Ringarooma River would require greater capitilisation and different mining techniques.

No further work was considered warranted.

9. Shallow Marine/River Terraces, Pioneer to South Mt. Cameron

Field work on these areas was limited to one seismic traverse (400 metres) running roughly E-W across the section between R. Lawry's South Mt. Cameron leases and S. Kerrison's leases near Corduroy Creek. (See map A214 in appendix).

The maximum depth to a basement attained in this work was 3.7 metres. This was assumed not to be a granite basement but to mark the upper surface of highly cemented, siliceous and/or ferruginous layer of sediment ("clinker") which is exposed on the slopes to the east of the line.

True depths to a granite basement could not be determined.

A review was made of all available data from the former Texins, Utah and Mines Department drilling programmes within the Pioneer/South Mt. Cameron area.

The work confirmed the view that tin values of significance were found largely over shallow terraced areas around granite outcrops, generally on the north side, suggesting a source from this direction.

Where thicker sequences of Tertiary strata existed the values were located in the upper 10-15 feet, particularly the upper 5', probably the result of reworking and reconcentrating

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in post-Tertiary times.

With the closing down of the South Mt. Cameron mine, which Texins had under option, relinquishment to B.M.I. of areas of shallow tin-bearing ground in the vicinity of South Mt. Cameron and poor results from other prospects within EL6/68, again no sound basis could be found for continued exploration of these areas.

10. Emu Flat, Frome River

Owing to its relatively poor accessibility this area was low in priority.

With the status of the alluvial tin programme assessed in November, 1973, no grounds for continued exploration could be found for the area as a whole and the Emu Flat was included in that decision.

11. Weldborough Area

Again through the lack of data on this area, it rated low on the priority list and upon assessment of the alluvial tin area of EL6/68, the Weldborough area suffered a similar fate to the Emu Flat with no constructive work being completed.

OPTIONS

a. Black Creek - L. Barnett - 16 acre Mineral Lease

No work completed.

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- b. Pearce Cascade Creek - D. Mullins - 46 $\frac{1}{4}$ acres of Mineral Leases (3)

No work completed.

- c. Fly-By-Night Creek - R. Lawry - 90 acres of Mineral Leases (3) (36M70, 44M70 and 88M67).

Permission was sought and obtained from R. Lawry to carry out preliminary sampling, prior to any decision to negotiate for a possible option on the 90 acres of mineral leases.

The leases cover the contact zone within a body of Devonian "tin" granite where the granite has intruded into mudstones and siltstones of the Silurian Mathinna Beds.

The granite within this zone has been extensively greisenised with a stockwork of quartz and greisen stringers apparent.

The whole is in a highly decomposed state and as such is soft enough to have been worked as a residual tin deposit by hydraulic mining methods.

The sampling programme took the form of channel sampling the numerous work faces and single adit (See sketch plan - A191).

A total of 53 channel samples were recovered, 11 (2 metre intervals) along the wall of the adit, 5 vertically down the wall of the adit and 37 from work faces of the irregular shaped open cuts. (See sketch plan).

All samples were reduced to a heavy mineral fraction before assay in Brisbane.

The results are tabulated in the appendix with a conversion to grade lbs/cu. yd. SnO₂ (72% Sn concentrate).

Values range from 0.01 lbs/cu. yd. SnO₂ to 5.28 lbs/cu. yd. SnO₂ with a mean value of 0.29 lbs/cu. yd. SnO₂.

The results obviously render this prospect as an uneconomic proposition and no further work was considered warranted.

- d. Star Hill - R. Lawry - 208 acres of Mineral Leases (41M/66, 41M/66, 92M/67, 20M/70, 33M/70, 62M/46, 122M/47, 50M/70 49M/70, 48M/70.)

B.M.I.'s option on these leases expired on July 4th and was not renewed.

A study of B.M.I.'s drilling results (to May, 1973) and drilling results from programmes completed in the 1920's and 1930's, indicated semi-proven reserves of approximately 650,000 cu. yds, with grades ranging between 1 lb. and 1.5 lb/cu. yd. SnO₂ (70% Sn concentrate), located on leases 40M/66, 92M/67, 49M/70, 50M/70, 122M/47 and 62M/46).

Further yardages amounting to approximately 1,200,000 cu. yds. could be blocked out on leases 40M/66, 92M/67, 48M/70 and 20M/70, of unknown grade, but likely to be comparable to those grades above.

At the time of this study, the results of Texins work within EL6/68 were proving to be poor and it was decided not to be a suitable time to enter into an option agreement on these leases possibly tying Texins to an involved, time consuming, drilling programme.

This position has been maintained.

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e. Amber Hill - R. Lawry - 62 acres of Mineral Leases.

As in the case of Star Hill an evaluation of old drilling results (63 percussion (churn) drill holes) were made.

This revealed a restricted yardage of only approximately 90,000 cu. yds. with much of this yardage existing as overburden. Drilling results were recorded as a grade for the whole hole (top to bottom) with no indication of the pay dirt/overburden ratio. No positive estimations of pay dirt grade could be made although this was likely to be high.

However, the reserves rendered this prospect unattractive to Texins and no attempt to negotiate an option was made.

f. South Mt. Cameron - South Mt. Cameron Syndicate - 111 acres of Mineral Leases (11074M, 11075M, 49M/66, 48M/66, 47M/66, 69M/63, 68M/63 and 10003M)

Texins interest in these leases stemmed from the possibility of working a number of similarly sized pockets of tin bearing ground proven within EL6/68. The purchase price of these leases was \$26,000 which included all machinery and equipment then working on the leases including the main items of a HD16 Allis-Chalmers bulldozer, an 8 in. Warman gravel pump, a Ricoss jig, sluice boxes, two water pumps etc. etc. The equipment alone was valued at \$26,000. This equipment could be used for similar operations on the Dorset Flat, Swains Creek etc.

An option on the leases and machinery was signed in May covering a 6 month period to 1st November, 1973 with an initial cash payment of \$1000.

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Since the expiry date, the option agreement has been allowed to lapse.

Work over this six month period included compiling a report and map covering all relevant information on the mine i.e. estimations of grade and remaining reserves, operational costs and outlines of modifications which could be made to the operation should the option be exercised.

Field work included two seismic traverses (of 80m. and 240m.) run over ground ahead the then present work face. This was an attempt to establish the depth over this section of unworked ground (leases 49M/66 and 11074M).

No reproducible results were obtained due to continual noise from drilling and mining operations close by and the nature of the sediments with intermediate layers of cemented (Fe/Si) sands and grits common.

Limited channel sampling of work faces and backhoe pits and sampling of shallow surface washes on lease 10003M was completed but the heavy mineral concentrates (31) recovered were never assayed, a visual appraisal of their cassiterite content showing low grades to exist in this area.

In the above mentioned report the reserves remaining were estimated to be in the order of 72,000 cu. yds. grading approximately 1 lb/cu. yd. SnO_2 . This figure proved optimistic as within 3-4 months, after the removal of some 25,000 cu. yds., the mine closed down due to poor grades. The lead of high grade material had appeared to trend northwards into B.M.I.'s mineral leases.

As stated above the option agreement was not renewed after 1st November, 1973.

POSITION OF THE ALLUVIAL TIN PROGRAMME - 1ST NOVEMBER, 1973.

In the introduction of this report the minimum target upon which Texins would consider a tin mining venture in N.E. Tasmania was put at 2,000,000 cu. yds. grading approximately 1 lb/cu. yd. SnO₂.

This figure could be derived from a number of prospects each carrying small to moderate size yardages which could be worked in a similar fashion.

Should a deposit be proven which, although economic, could not be worked in conjunction with the remaining pockets of tin bearing ground because of peculiarities in its location attitude etc. requiring a different approach in mining techniques and therefore increased capitilisation on equipment, then this prospect would be required to carry at least 2,000,000 cu. yds. of grade 1 lb/cu. yd. SnO₂. Dredging prospects would require yardages in excess of 15,000,000 cu. yds. of approximately, grade 0.50 lbs/cu. yd. before consideration.

Exploration during 1973 has been designed with these objectives.

The results of this work and preceding work have been evaluated and fully documented in the following reports:-

Geophoto Minerals Report 1969/3 - The Prospects for Alluvial Tin between the Pioneer and Endurance Mines and near Moorina, N.E. Tasmania EL6/68 by B.R. Herd.

- Geophoto Minerals Report 1969/33 - Memorandum Report, Scout Boring Rig and Preliminary Procedures for Sampling EL6/68 N.E. Tasmania by B.R. Herd and J.H. Rattigan.
- Geophoto Minerals Report 1969/54 - Proposals on the Eastern Leads Tin Prospect EL6/68 N.E. Tasmania.
- Geophoto Minerals Report 1970/42 - Exploration Targets in the Texins Dev. Permit EL6/68 N.E. Tasmania.
- Geophoto Minerals Report 1971/28 - Report on Percussion Drilling on the Eastern Leads Alluvial Tin Prospect in the South Mt. Cameron Area, EL6/68 N.E. Tasmania I.R. Mortimore.
- Geophoto Minerals Report 1972/23 - Bald Hill Eluvial Tin Prospect EL6/68 N.E. Tasmania I.R. Mortimore.
- Geophoto Minerals Report 1973/9 - Report on the Status of Prospects with the Alluvial Tin Programme. EL6/68 N.E. Tasmania.
- Geophoto Minerals Report 1973/7 - Evaluation of the Alluvial Tin Potential of the Dorset Flats, Pioneer, EL6/68, N.E. Tasmania.

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Geophoto Minerals Report 1973/8 - Percussion (churn) Drilling
on the Swains Creek Alluvial
Tin Area, EL6/68 N.E. Tasmania.

Geophoto Minerals Report 1973/11 - Evaluation of the Wyniford
River Alluvial Tin Prospect
EL6/68 N.E. Tasmania.

Geophoto Minerals Report 1973/13 - Percussion Drilling - Ringa-
rooma River EL6/68, N.E.
Tasmania.

All remaining data outside that included in these above
reports is found within the covers of this report.

A programme of 43 auger drill holes, about which there
is very little data save the knowledge that the work was done,
was completed on the Derby Flat between Derby and Branxholm
in 1969.

This area has not been included in reports on the
alluvial tin programme as it lies within an area relinquished
upon renewal of the exploration licence in 1970.

The overall situation within the alluvial tin programme
as of 1st November is summarised below:-

RESERVES

PROSPECT	PROVEN		INDICATED		REMARKS
	Yardage Cu.Yds.	Grade Lbs/Cu.Yd.SnO ₂	Yardage Cu.Yds.	Grade Lbs/Cu.Yd.SnO ₂	
1. Eastern Leads	Nil		Nil		Limited scope for further testing 1973/14
1a. Deep Leads	Nil		Nil		1973/14
2. Dorset Flat	154,100	0.95			
3. Swains Creek	122,750	0.87			Semi-proven limited drilling required. 1973/8
4. Bald Hill	131,000	\$2.15			
5. Wyniford River	Nil		Approx. 400,000	Approx. 1.03	Considerable additional work required before Indicated→proven 1973/11
6. Echo Lead	Nil		Nil		
7. Pioneer Mine	Untested		Untested		
8. Ringarooma River	Nil		Nil		Some indication of high grades in upstream sector but yardage unknown (1.75 million cu. yds.) 1973/13

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PROSPECT	PROVEN		INDICATED		REMARKS
	Yardage Cu.yds.	Grade Lbs/Cu.Yd.SnO ₂	Yardage Cu.Yds.	Grade Lbs/Cu.Yd.SnO ₂	
9. Shallow Marine /River Terraces	Untested		Untested		Limited Seismic work only com- pleted.
10. Emu Flat	Untested		Untested		
11. Weldborough	Untested		Untested		
12. Black Creek	Untested		Untested		
13. Pearce Cascade Creek	Untested		Untested		
14. Fly-By-Night Creek	Nil		Nil		
15. Star Hill	650,000	1.00-1.50			Calculated from old drilling programmes. Further 1.2 million cu. yds. possibly of similar grade.
16. Amber Hill	90,000				
17. South Mt. Cameron	Nil		Nil		

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It is obvious that with the work completed during the year we have progressed little toward a target of 2,000,000 cu. yd. of approximately 1 lb/cu. yd. SnO₂ grade.

The work completed by Texins has proven reserves of only 407,850 cu. yds. with further indicated yardages of only 400,000 cu. yds. approximately in the Wyniford River.

Even adding the 740,000 cu. yds. of proven ground at Star Hill and Amber Hill, the total indicated and proven ground falls short of the 2,000,000 cu. yds. target.

This target could be surpassed should some of the 1.2 million cubic yards of material prove to carry economic grades at the Star Hill or additional ground be proven on the remaining untested prospects.

However several of these untested areas are poor prospects because of their location.

Further at this point of time we hold no option agreement on the Star Hill.

The Wyniford River is far from proven although the potential is there if suitable mining techniques to combat the extremely stoney nature of the deposit can be overcome.

Bald Hill continues to hold problems for development because of its situation while the Swains Creek area offers problems for the tin miner due to its irregular distribution of tin bearing material.

The overall picture presented suggests that considerable more work and expenditure is required to prove this elusive

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2,000,000 cu. yds of exploitable tin bearing ground. The results of this years work point to the fact that 2,000,000 cu. yds. will be a very hard target to attain. It is doubtful if the expenditure in attaining it, will be rewarded by the returns of a mining operation based on it.

It is concluded that although pockets of economic tin-bearing ground have been proven or are indicated to exist within, or close to, the confines of EL6/68, these do not amount, at present, to a sufficient total reserve upon which a company size mining venture could be mounted. It is ^{con?} perceivable that this target could be attained but the rewards are not likely to warrant the additional expenditure on exploratory work.

Consequently at this time it is recommended that the alluvial tin programme as such be terminated with no further expenditure committed.

I.R. MORTIMORE.

APPENDIX I
PROGRESS REPORT OF BORING OPERATIONS
ECHO DEEP LEAD, NEW MOORINA MINE
BY J. B. SCOTT
STATE MINING ENGINEER

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PROGRESS REPORT OF BORING OPERATIONS, ECHO DEEP LEAD
NEW MOORINA MINE

Boring operations by the Mines Department Victoria Drilling Plant were commenced on 14th April last for the purpose of testing the northerly extension of the deep alluvial tin deposit known as the Echo Lead. The first hole was put down on a site about 10 chains north westerly of the workings where sluicing operations are in progress, operating on a face of drift up to 80 ft. in depth. The drift extends below the floor of the paddock to a depth not actually determined.

The exact position of the site of the first bore is 188.5 ft. on a bearing of N.78°W. of the most easterly south west corner peg of Section 115/M, 60 ac.

The bore penetrated fine residual drifts similar to those exposed in the workings. At a depth of 186 ft. soft granite bedrock was reached; drilling was continued to a total depth of 200 ft., and completed on 30th April. A sample of drift was taken at each sectional depth of 7 ft., being approximately equivalent to a volume of 1 cub. ft., the diameter of the hole being 5 inches.

The initial sites are in the nature of scout bores to determine, if possible, the true course of the deeper and richer portion of the lead extending northerly from the workings.

In this connection, I have been greatly assisted by the Mine Manager (Mr. H.C. Lawry), who possesses an intimate knowledge of the general features and characteristics of the lead. He has recently carried out invaluable work by scout boring with a hand boring plant in determining the lateral extensions of the lead. The information thus obtained is most helpful in selecting future sites for bores.

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No. 2 site is situated $7\frac{1}{2}$ chains south of No. 1. At a depth of 88 ft; an extremely hard boulder of silicified drift was encountered, these boulders locally termed "clinker stone" vary in size, some being several feet in thickness.

In order to expedite the work the hole was abandoned and a second hole at a site a few feet therefrom was commenced and continued to a depth of 155 feet, when bed rock of soft granite was reached and boring discontinued on 21st May.

Appended is a list of results of analysis of sampled of the respective bores.

The samples from sectional depths indicated were carefully washed at bore site, no attempt being made to make a rich tin concentrate, the residues from vanning being merely dried and forwarded to the Mines Department Laboratory for further investigation. Owing to the comparatively small quantity of tin oxide in the respective samples, it was not practicable to make a high grade tin concentrate by vanning. The samples were therefore weighed and the concentrate assayed for the metallic tin content. A plan of the respective sites in relation to contour of workings is being prepared. The quantity of concentrate per cubic yard is given with the metallic tin content.

signed

J.B. Scott.

STATE MINING ENGINEER

Mines Department,
HOBART.

3rd June, 1930.

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RESULTS OF BORING - ECHO LEAD - NEW MOORINA MINE -
MOORINA 1930

NO. 1 BORE

NO. 2 BORE

<u>Sectional Depth in Feet.</u>	<u>Amount of tin oxide in ounces per cubic yard (70%Sn)</u>	<u>Sectional Depth in Feet.</u>	<u>Amount of tin oxide in ounces per cubic yard (70%Sn)</u>
0 to 6	Nil	0 to 7	0.111
6 " 13	0.051	7 " 14	0.876
13 " 20	0.054	14 " 21	0.984
20 " 27	0.317	21 " 28	0.331
27 " 34	1.035	28 " 35	0.365
34 " 41	0.829	35 " 42	0.353
41 " 48	1.701	42 " 49	0.690
48 " 55	4.588	49 " 56	1.206
55 " 62	0.743	56 " 63	2.135
62 " 69	0.663	63 " 70	0.558
69 " 76	3.166	70 " 77	0.477
76 " 83	3.595	77 " 84	0.843
83 " 90	1.333	84 " 90	7.352
90 " 97	Nil	90 " 146	Nil
97 " 104	0.513	146 " 155	1.141
104 " 109	Nil		
109 " 116	1.702		
116 " 146	Nil		
146 " 157	0.707		
157 " 168	0.616		
168 " 179	2.385		
179 " 186	1.317		
Average: 1.032		Average: .754	

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NO. 3 BORE

NO. 4 BORE

<u>Sectional Depth in Feet</u>	<u>Amount of tin oxide in ounces per cubic yard (70% SN)</u>	<u>Sectional Depth in Feet.</u>	<u>Amount of tin oxide in ounces per cubic yard (70% Sn)</u>
0 to 7	Nil	0 to 7	Nil
7 to 14	0.287	7 to 14	0.352
14 to 21	0.434	14 to 21	0.436
21 to 28	0.363	21 to 28	0.252
28 to 35	0.387	28 to 35	0.300
35 to 42	0.805	35 to 42	0.072
42 to 49	0.478	42 to 49	0.541
49 to 56	2.661	49 to 56	0.946
56 to 63	1.478	56 to 63	4.695
63 to 70	0.726	63 to 70	4.174
70 to 77	Nil	70 to 77	1.949
77 to 84	2.597	77 to 84	0.866
84 to 91	8.531	84 to 91	3.200
91 to 98	1.909	91 to 98	1.133
98 to 105	0.932	98 to 105	3.427
105 to 132	Nil	105 to 112	0.212
132 to 143½	0.110	112 to 118	0.141
143½ to 155	7.194	118 to 128	Nil
155 to 166½	9.515	128 to 135	0.174
166½ to 172	2.088	135 to 142	0.276
		142 to 149	0.900
		149 to 156	7.718
		156 to 163	3.319
		163 to 174½	1.797
		174½ to 182	0.732

Average: 2.07

Average: 1.492

027

655028

NO. 5 BORE

<u>Sectional Depth in Feet.</u>	<u>Amount of tin Oxide in ounces per cubic yard (70% Sn)</u>
0 to 21	Nil
21 " 28	8.414
28 " 42	Nil
42 " 49	0.557
49 " 56	1.961
56 " 63	1.009
63 " 70	5.481
70 " 77	1.377
77 " 84	1.466
84 " 91	0.591
91 " 98	17.687
98 " 105	6.792
105 " 112	3.904
112 " 119	0.284
119 " 126	0.145
126 " 133	2.295
133 " 140	1.257
140 " 147	0.533
147 " 158 $\frac{1}{2}$	3.641
158 $\frac{1}{2}$ " 170	2.132
170 " 181 $\frac{1}{2}$	17.624
181 $\frac{1}{2}$ " 182	30.854

Average: 3.631

NO. 6 BORE

<u>Sectional Depth in Feet.</u>	<u>Amount of tin oxide in ounces per cubic yard (70% Sn)</u>
0 to 7	Nil
7 " 14	2.576
14 " 21	0.597
21 " 28	0.631
28 " 35	0.262
35 " 42	0.551
42 " 49	0.193
49 " 56	0.460
56 " 63	0.298
63 " 70	0.224
70 " 77	4.413
77 " 84	2.871
84 " 91	1.675
91 " 98	0.505
98 " 105	1.934
105 " 112	6.998
112 " 132	Nil
132 " 139	0.359
139 " 146	0.382
146 " 153	0.645
153 " 160	0.308
160 " 163 $\frac{1}{2}$	1.249
163 $\frac{1}{2}$ " 175	1.158
175 " 186 $\frac{1}{2}$	6.901
186 $\frac{1}{2}$ " 198	9.112
198 " 205	2.666

Average: 1.959

J28

NO. 7 BORE

<u>Sectional Depth in Feet.</u>	<u>Amount of tin oxide in ounces per cubic yard (70% Sn)</u>
0 to 7	0.527
7 " 14	1.364
14 " 21	2.184
21 " 28	2.173
28 " 35	0.531
35 " 42	0.956
42 " 49	0.256
49 " 56	0.526
56 " 63	3.780
63 " 79	Nil
79 " 86	0.549
86 " 93	0.817
93 " 100	3.733
100 " 125	Nil
125 " 132½	2.793
132½ " 144	3.457
144 " 155½	3.888
155½ " 166	0.905
166 " 169	9.448

Average: 1.568

NO. 8 BORE

<u>Sectional Depth in Feet</u>	<u>Amount of tin oxide in ounces per cubic yard (70% Sn)</u>
0 to 7	0.476
7 " 14	3.007
14 " 21	0.629
21 " 28	0.252
28 " 35	0.235
35 " 42	0.738
42 " 49	1.466
49 " 56	0.442
56 " 63	0.316
63 " 70	0.896
70 " 77	0.476
77 " 84	0.326
84 " 91	7.519
91 " 98	2.708
98 " 118	Nil
118 " 125	2.325
125 " 129	Nil
129 " 134	5.719

Average: 1.353

NO. 9 BORE

<u>Sectional Depth in Feet</u>	<u>Amount of tin oxide in ounces per cubic yard (70% Sn)</u>
--	--

0 to 7	Nil
7 " 14	0.128
14 " 21	0.793
21 " 28	0.311
28 " 35	0.121
35 " 42	0.130
42 " 49	0.343
49 " 56	0.393
56 " 63	0.161
63 " 70	0.124
70 " 77	0.313
77 " 84	0.694
84 " 91	1.505
91 " 98	2.336
98 " 107	Nil
107 " 114	1.852
114 " 121	7.021
121 " 124½	12.932
124½ " 136	1.164
136 " 147½	0.441
147½ " 159	0.091
159 " 170½	0.324
170½ " 182	0.180
182 " 186	10.451

Average: 1.215NO. 10 BORE

<u>Sectional Depth in Feet</u>	<u>Amount of tin oxide in ounces per cubic yard (70% Sn)</u>
--	--

0 to 7	Nil
7 " 14	0.136
14 " 21	1.083
21 " 28	0.393
28 " 35	Nil
36 " 43	0.443
43 " 50	0.129
50 " 57	0.175
57 " 64	0.326
64 " 71	0.286
71 " 78	0.112
78 " 85	0.117
85 " 92	Nil
92 " 99	0.497
99 " 113	Nil
113 " 120	0.422
120 " 127	0.687
127 " 138½	1.786
138½ " 150	0.331
150 " 161½	0.952
161½ " 173	0.404

Average: .425

NO. 11 BORE

<u>Sectional depth in Feet</u>	<u>Amount of tin oxide in ounces per cubic yard (70% Sn)</u>
0 to 7	Nil
7 " 14	0.484
14 " 21	0.95
21 " 28	0.208
28 " 33	0.404
33 " 35	Nil
35 " 42	0.729
42 " 49	0.856
49 " 56	0.289
56 " 63	0.231
63 " 70	0.262
70 " 77	0.777
77 " 84	0.191
84 " 91	Nil
91 " 98	0.344
98 " 105	Nil
105 " 112	0.141
112 " 126	Nil
126 " 133	0.434
133 " 140	0.52
140 " 147	1.573
147 " 154	0.738
154 " 161	Nil
161 " 168	3.165
168 " 175	1.689
175 " 186 $\frac{1}{2}$	2.579
186 $\frac{1}{2}$ " 194 $\frac{1}{2}$	3.269

Average: .791NO. 12 BORE

<u>Sectional depth in Feet</u>	<u>Amount of tin oxide in ounces per cubic yard (70% Sn)</u>
0 to 7	Nil
7 " 14	.219
14 " 21	.108
21 " 28	.272
28 " 35	.363
35 " 42	.205
42 " 49	1.108
49 " 56	1.273
56 " 63	.287
63 " 70	Nil
70 " 77	.194
77 " 84	.703
84 " 91	.364
91 " 98	1.466
98 " 105	Nil
105 " 112	.231
112 " 119	.288
119 " 126	Nil
126 " 133	Nil
133 " 140	.583
140 " 147	.372
147 " 154	1.040
154 " 161	Nil
161 " 168	Nil
168 " 179 $\frac{1}{2}$	1.553
179 $\frac{1}{2}$ " 191	3.392
191 " 202 $\frac{1}{2}$	3.119
202 $\frac{1}{2}$ " 214	2.704
214 " 225 $\frac{1}{2}$	2.793
225 $\frac{1}{2}$ " 236	2.497
236 " 247 $\frac{1}{2}$	4.077
247 $\frac{1}{2}$ " 259	2.315
259 " 266	1.867

Total 48.201

Average: 1.461

NO. 13 BORESectional depth
in feet.Amount of tin oxide
in ounces per cubic
yards (70% Sn)

0 to 7	Nil
7 " 14	.283
14 " 21	.299
21 " 28	1.102
28 " 35	.850
35 " 42	.359
42 " 49	.595
49 " 56	.521
56 " 63	1.708
63 " 70	4.645
70 " 77	.272
77 " 84	.148
84 " 91	.679
91 " 98	.604
98 " 105	.529
105 " 112	.243
112 " 119	Nil
119 " 126	Nil
126 " 133	Nil
133 " 140	Nil
140 " 147	.261
147 " 154	.658
154 " 161	1.371
161 " 203	Nil
203 " 214½	2.312
214½ " 226	2.397
226 " 237½	1.605
237½ " 249	2.198
249 " 260½	1.069
260½ " 272	1.633
272 " 280	4.578

Average: 0.749

U32

655033

APPENDIX II

Geochemical Lab. Sheets 1365/1-2
(with conversion grades)

U33

655034

GEOPHOTO RESOURCES CONSULTANTS
 Millaquin House
 Herschel Street, Brisbane 4000
 Telephone 27320



CHEMICAL LABORATORY
 4th Floor Rod Comb House
 Roma Street, Brisbane 4000
 Telephone 21 3875

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No. 007308 PROJECT No. FL 6-68 ELY-BY-NIGHT CREEK

LAB. SHEET No. 1365/1 SAMPLE TYPE H/M CONC. DATE 23/6/73

SAMPLE No.	LAB. No.	Sn%	Weight gms	Weight lbs.	Vol. cu.in.	SnO ₂ lbs. cu.yd
F 1 - V	73-F-348	23.3	35.8	0.077	220	5.28
F 2 - V	73-F-349	1.2	18.3	0.040	190	0.16
F 3 - V	73-F-350	3.6	35.4	0.077	230	0.78
F 4 - V	73-F-351	5.2	31.7	0.069	230	1.14
F 4 - H	73-F-352	0.56	29.2	0.064	310	0.07
F 5 - V	73-F-353	3.4	33.1	0.073	310	0.52
F 6 - V	73-F-354	3.3	24.9	0.055	280	0.42
F 6 - H	73-F-355	0.86	17.0	0.037	330	0.06
F 7 - V	73-F-356	0.14	25.2	0.056	250	0.02
F 8 - V	73-F-357	0.18	24.4	0.054	250	0.03
F 8 - H	73-F-358	0.14	32.1	0.071	380	0.02
F 9 - V	73-F-359	2.5	28.1	0.062	240	0.42
F10 - V	73-F-360	4.4	36.2	0.080	240	0.95
F11 - V	73-F-361	1.2	32.7	0.072	200	0.28
F12 - V	73-F-362	0.25	26.6	0.059	180	0.05
F12 - H	73-F-363	0.15	26.4	0.058	240	0.02
F13 - V	73-F-364	0.24	22.7	0.050	190	0.04
F14 - V	73-F-365	0.06	19.6	0.043	190	0.01
F14 - H	73-F-366	0.31	24.8	0.055	300	0.04
F15 - V	73-F-367	0.16	17.0	0.037	200	0.02
F16 - V	73-F-368	0.10	32.8	0.072	210	0.02
F17 - V	73-F-369	0.20	33.8	0.075	230	0.04
F17 - H	73-F-370	0.18	12.2	0.027	310	0.01
F18 - V	73-F-371	0.11	31.4	0.069	220	0.02
F19 - V	73-F-372	0.05	30.8	0.068	230	0.01
F20 - V	73-F-373	0.26	21.0	0.046	320	0.02
F20 - H	73-F-374	0.10	22.3	0.049	240	0.01
F21 - H	73-F-375	0.07	35.6	0.074	320	0.01
F22 - V	73-F-376	2.6	23.7	0.052	250	0.35
F23 - H	73-F-377	1.1	31.1	0.069	280	0.18

METHODS: Sn by GRC No. 105
 weighing by GRC No. 704



This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

Chief Chemist

[Handwritten Signature]

034

655035

GEOPHOTO RESOURCES CONSULTANTS
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CHEMICAL LABORATORY
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Roma Street, Brisbane 4000
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GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No. 007308 PROJECT No. EL 6-68 FLY-BY-NIGHT CREEK

LAB. SHEET No. 1365/2 SAMPLE TYPE: H/M CONC. DATE: 23/6/73

SAMPLE No.	LAB. No.	Sn%	Weight gms	SnO ₂	
				Weight lbs.	Vol. cu. in. cu. yd
F24 - V	73-F-378	2.0	25.3	0.056	230 0.31
F25 - V	73-F-379	2.9	37.4	0.082	250 0.62
F26 - H	73-F-380	1.9	32.0	0.071	340 0.26
F27 - V	73-F-381	0.93	33.9	0.075	210 0.21
F28 - H	73-F-382	0.68	30.6	0.067	220 0.13
F29 - V	73-F-383	0.73	24.5	0.054	270 0.09
F30 - V	73-F-384	0.89	37.6	0.083	380 0.13
A 1 - H	73-F-385	1.1	20.0	0.044	480 0.07
A 2 - H	73-F-386	2.8	22.1	0.049	530 0.17
A 3 - H	73-F-387	15.8	22.2	0.049	490 1.02
A 4 - H	73-F-388	1.1	31.6	0.070	510 0.10
A 5 - H	73-F-389	2.3	21.8	0.048	550 0.13
A 6 - H	73-F-390	1.7	24.5	0.054	630 0.09
A 7 - H	73-F-391	3.1	24.7	0.054	550 0.20
A 8 - H	73-F-392	2.3	25.4	0.056	590 0.14
A 9 - H	73-F-393	9.8	22.0	0.049	570 0.55
A10 - H	73-F-394	0.65	26.7	0.059	550 0.05
A11 - H	73-F-395	0.11	23.1	0.051	240 0.02
A 1 - V	73-F-396	0.29	20.1	0.044	230 0.04
A 2 - V	73-F-397	0.79	11.3	0.025	230 0.06
A 3 - V	73-F-398	0.63	18.4	0.041	300 0.06
A 4 - V	73-F-399	0.35	23.9	0.053	330 0.04
A 5 - V	73-F-400	1.3	28.8	0.064	330 0.16

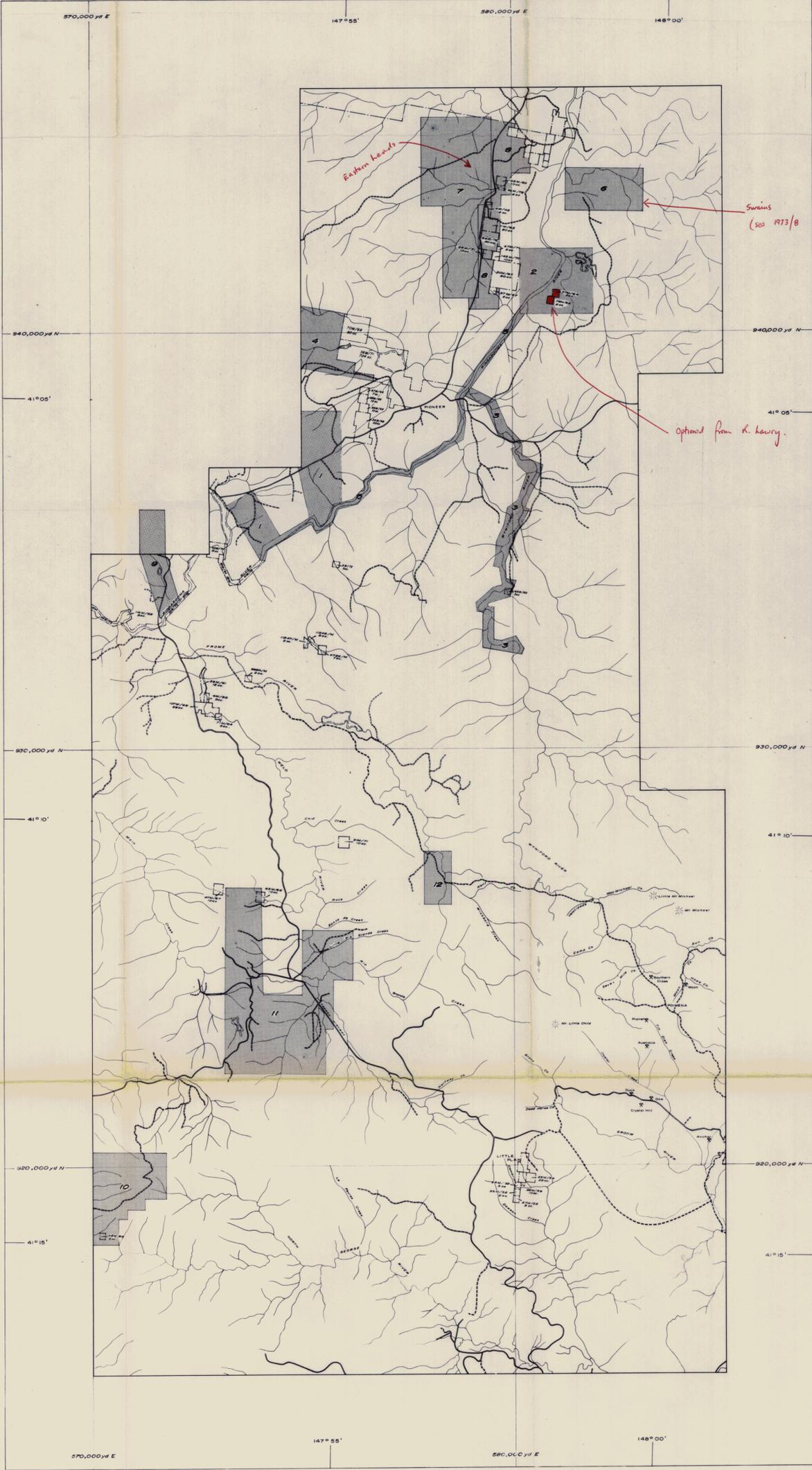
METHODS:



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Chief Chemist

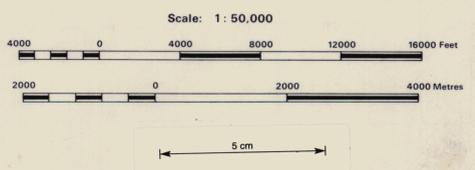
APPENDIX III



LEGEND

- Boundary of EL6/68 - April '73.
- - - Mineral Lease boundary excluded from EL6/68.
- Watercourse
- Road
- Vehicle track

PROSPECT AREAS	
1	Possible Deep Lead
2	Dorset Flat
3	Wyniford River
4	Pioneer Lead (Extensions)
5	Ringarooma River
6	Swains Creek
7	Eastern Leads
8	Shallow Marine / River Terraces
9	Echo Lead
10	Bald Hill (Eluvial)
11	Weldborough (Alluvial / Eluvial / Residual)
12	Emu Flat



655037 73-979

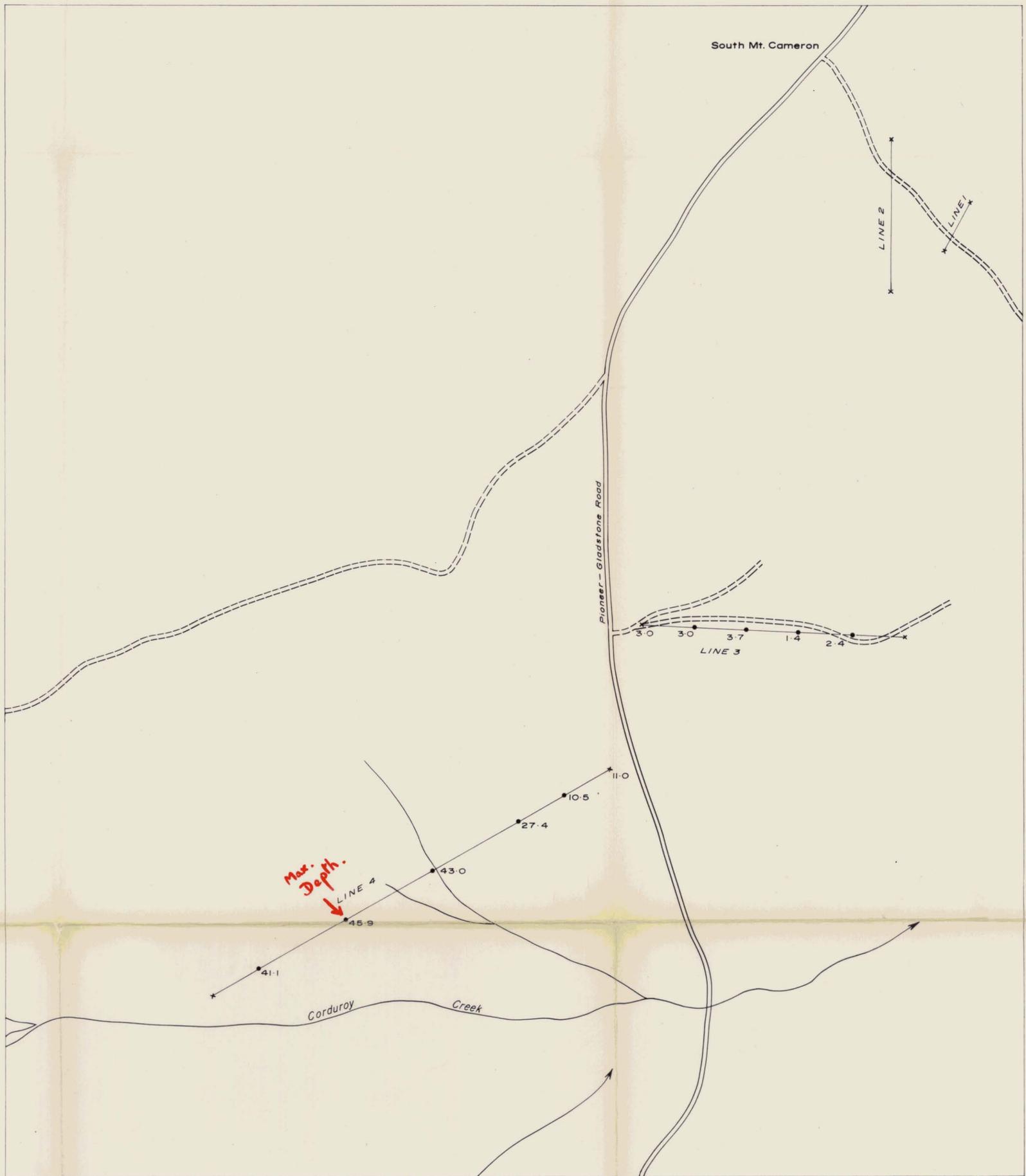
TEXAS INSTRUMENTS INCORPORATED
GEOPHOTO RESOURCES
 SYDNEY, AUSTRALIA
 TEXINS DEVELOPMENT PTY. LTD.
 EL 6/68 NORTH EAST TASMANIA

Alluvial Tin Prospect - Locations
 (STATUS REPORT - 22ND MARCH 1973)

1989

PROJECT	6/68	AUTHOR	I. Mortimore	DATE	Nov. 1973	DWG. NO.	A.200
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PLAN 1.



LEGEND

- Watercourse
- Road, track
- Seismic traverse
- Depth to basement (metres)

T.N.

5 cm

Scale: 400 Feet to 1 Inch

400 0 400 800 1200 1600 Feet

200 0 200 400 Metres

655038 73-979

TEXAS INSTRUMENTS INCORPORATED
GEOPHOTO RESOURCES

SYDNEY, AUSTRALIA

TEXINS DEVELOPMENT PTY. LTD.

EL 6/68 NORTH EAST TASMANIA

ALLUVIAL TIN PROGRAMME 1990

LOCATION OF SEISMIC TRAVERSE

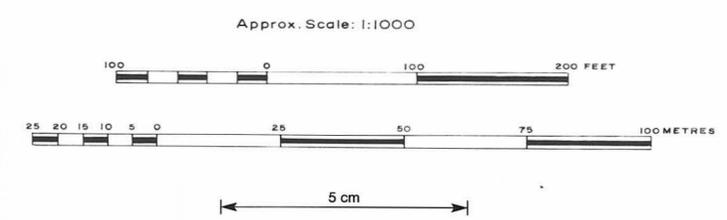
EASTERN LEADS. S.M.C.

PROJECT	6/68	AUTHOR	I. Mortimore	DATE	Feb., 1974	DWG NO	A-214
---------	------	--------	--------------	------	------------	--------	-------

PLAN 2.



- LEGEND**
- SILURIAN Sma Mathinna Beds - Quartzite/ siltstone/mudstone
 - DEVONIAN Dgt 'Tin' Granite - Biotite-muscovite granite extensively griesenized and decomposed
 - Contact dashed where indefinite
 - Old work face
 - Adit
 - Backhoe pit
 - Watercourse
 - Track
 - Mineral lease boundary approximate
 - F20 1.6 Vertical channel sample Depth (metres)
 - F20 1.0 Horizontal channel sample Length (metres)



655039 73-979

TEXAS INSTRUMENTS INCORPORATED

GEOPHOTO RESOURCES
SYDNEY, AUSTRALIA

TEXINS DEVELOPMENT PTY. LTD.

E.L. 6/68 NORTH EAST TASMANIA

Fly-by-Night Creek Prospect
CHANNEL SAMPLE LOCATIONS
1991

PROJECT	6/68	AUTHOR	D. Summers	DATE	July 1973	DWG NO	A-191
---------	------	--------	------------	------	-----------	--------	-------

PLAN 3.

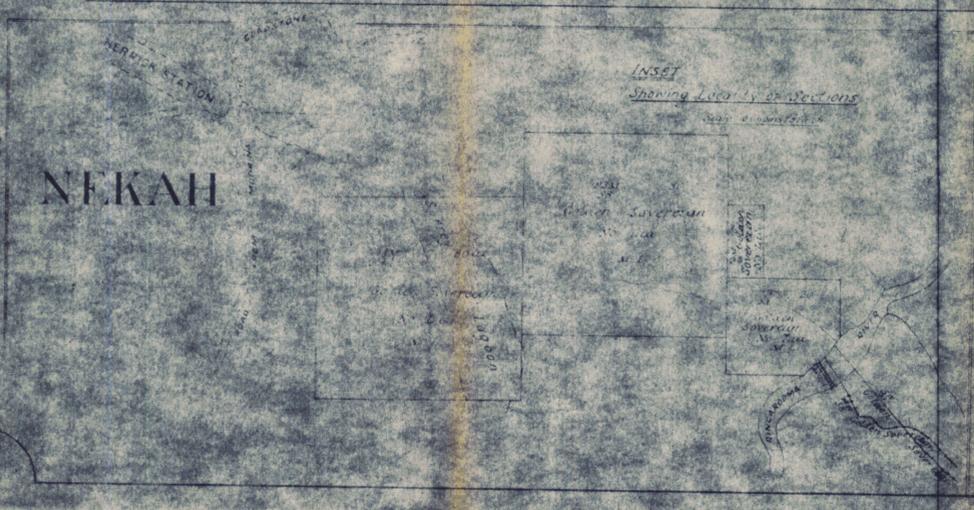


**BORING PLAN
GOLDEN SOVEREIGN MINE
NEAR HERRICK**

Scale 1 Chain to 1 inch



[Rendered legible (in part) D. J. Jennings 20-5-74]



73-979
9-861

NEW MOORINA

FORMERLY ECHO MINE

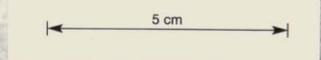
Showing position of *Old* 1030

Scale 1 in = 300 yds



2.54cm = 100.584m
1cm = 39.59m

655041



73-979

ECHO - NEW MOORINA

1993

PLAN 5.