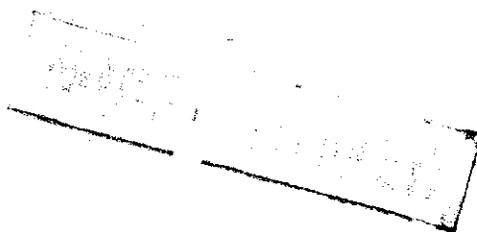


NEW CONSOLIDATED GOLD FIELDS (A'SIA) PTY. LIMITED

000



REPORT

on

SPECIAL PROSPECTOR'S LICENCE NO. 378

MT. STORMONT AREA

TASMANIA

by

G. I. WILSON

62-0343

Report No. 8/1962

April 1962

CONTENTS

	<u>Page</u>
RECOMMENDATIONS	1
SUMMARY	1
GENERAL	2
HISTORY OF INVESTIGATION	2
REGIONAL GEOLOGY	2
LOCAL GEOLOGY	3
STRUCTURE	4
MINERALISATION	4
PRESENT POTENTIAL OF THE AREA	6
CONCLUSIONS	7

PLATES

<u>No.</u>	<u>Description</u>	<u>Scale</u>
1	Geological Plan of the Mt. Stormont Prospect, Tasmania	1 inch = 100 feet
2	Mt. Stormont Prospect, Tasmania Geological Sections. Based on Plane Table Mapping	1 inch = 100 feet
3	Plans showing locality and access, Mt. Stormont Area, Tas.	1 inch = 16 miles
4	Mt. Stormont Prospect, Tasmania showing locations of samples taken.	1 inch = 100 feet

RECOMMENDATIONS

Tests to date are not encouraging and indicate that, although a large tonnage of calc-silicate host rock may be present, the overall grade is likely to be too low for economic production.

Work done to date is not conclusive, however, and the overall grade will be dependent on the intensity of fracturing and associated mineralisation in the host rock in obscured areas. It is suggested that some test drilling and/or geochemical work on samples of weathered rock from deep auger holes be carried out to properly check the area.

It is also recommended that some consideration be given to what other possible obscured areas with disseminated mineralisation may occur in the Gordon Limestone within the contact aureole of the granite in the same general area.

SUMMARY

The basal marls of the Gordon Limestone, now garnet-magnetite skarn rocks, are possible host rocks of low grade disseminated bismuth-gold mineralisation. Their structure and probable extent in the Lea Valley has been mapped and several points of heavy soil cover tested by pits. An uncertain figure of 5,500,000 tons of calc-silicate rock is in outcrop and a similar tonnage may lie beneath a heavy basalt capping. The rocks are heavily soil covered, in fern and beech forest. Three points of bismuth mineralisation are known within an area of an half square mile, namely, Mt. Stormont (0.3% Bi), Fletchers' Adit (0.175% to 0.2% Bi) and weak bismuth mineralisation located by this survey on the northern slopes of the Lea Valley. Gold values up to 6 dwts. are associated with a narrow fault zone. Bismuth values obtained from weathered pit and outcrop samples are not encouraging but, in several cases, do not agree with visual estimates based on visible mineralisation.

0.6
(see table)

GENERAL

The Fletcher's Adit - Mt. Stormont area is 40 miles south of Devonport, Tasmania in the valley of the Lea River, a tributary of the Forth River.

The area is covered by Special Prospector's Licence No. 378, held for N.C.G.F. in the name of K. S. Cordwell.

This investigation was made in March 1962 by W. Delaney and the writer.

HISTORY OF INVESTIGATION

Between 1927 and 1959, five reports touching on the Mt. Stormont district have been prepared by officers of the Tasmanian Geological Survey. In the latest of these (Tech. Rept. No. 3, Tas. Dept. of Mines) K. Burns concluded that although the base metal lode deposits of the area were uneconomic, geological investigation was warranted of skarn rocks which could carry disseminated bismuth and gold values.

K. Cordwell reported on these deposits to N.C.G.F. in March 1961 and agreed with Burns' conclusions.

The present survey was undertaken primarily to provide detailed information on the extent of the skarn rocks in the Lea River Valley.

REGIONAL GEOLOGY

The regional geology was described by Burns and Cordwell. Briefly, Cambrian sediments and flows are unconformably overlain by the Ordovician Rolan Conglomerates, Moina Quartzites and Gordon Limestones. Tertiary basalt flows and minor, consolidated Pleistocene fluviatile and scree deposits cap large areas of the Palaeozoic rocks.

The Moina Quartzites and the overlying basal beds of the Gordon Limestone are capped by Tertiary basalt around Mt. Stormont and Fletcher's Adit (Plate 1). Hard, white, silicified quartz sandstones, grits and gravels occur in patches and may represent superficial Pleistocene fluviatile sediments and scree.

Outcrop of all rocks is restricted to the river beds and banks and to parts of the hill tops. Hill slopes are covered by deep, loose, humic soil and heavy fern and beech forest. Hill tops have been cut out by timber-getters and have a dense secondary growth. Knowledge of the rocks on hill slopes was gained from observation of down-slope rubble trails and by pitting.

The Moina Quartzites are dense, tough crystalline rocks, strongly jointed and sometimes sheared or crushed with secondary quartz in-filling. Traces of bedding are common but easily confused with joint planes. Minor shaley beds, now quartz-sericite-schist, are rare.

There is transition over some 20 feet thickness, from Moina Quartzite to Gordon Limestone. The transition beds characteristically contain thinly-bedded, impure quartzite and shaley rocks. They were observed in three separate localities.

The basal beds of the Gordon Limestone, originally marls, are now fine to medium grained skarn rocks. Garnet and magnetite are the characteristic minerals. The magnetite content may increase towards the base of the Gordon Limestones. The skarn rocks also become more siliceous towards their base.

Apart from this variation in quartz, garnet and magnetite content, there appears little variation in the skarn rocks throughout the area mapped.

Folding

The Moina Quartzites and Gordon Limestones are folded along north-westerly axes into a series of open flexures. Dips are low, generally not exceeding 35 degrees.

Pitch reversal of the fold axes is likely and is indicated in the syncline upon whose eastern limb Fletcher's Adit lies (Section B-B', Plate 2). This reversal of pitch may be a regional effect. North of Fletcher's Adit, the basal members of the Gordon Limestone pass beneath a basalt capping, which forms a northern limit of outcrop. No sign of outcrop of calc-silicate rocks was found to the north of the basalt cap. Closure of the fold structures of the Gordon Limestone is assumed.

Faulting

Two definite and one possible fault are recognised. Faults are normal with east-side-up movements and are inclined steeply to the west. Lateral extent of the faults is uncertain.

MINERALISATION

Extent of the Gordon Limestone

As the potential host rock for mineralisation, the extent and thickness of the basal beds of the Gordon Limestone is of great importance.

Calc-silicate rocks are expected in the northern slopes of the Lea Valley and have been located in a number of pits (Plate 1). The rocks pass beneath a basalt capping, with the fold structures of the calc-silicate rocks closing beneath the basalt.

Forecast of the thickness of calc-silicate rock is based on limited structural data. The possible order of thickness, along the synclinal axes, is shown in Section B-B', Plate 2. A summary of the possible dimensions of the calc-silicate rock in outcrop is as follows:-

Area of outcrop	950,000 sq. ft.
Possible maximum thickness	140 ft.
Possible average thickness	70 ft.
Possible minimum tonnage of rock in outcrop or with thin superficial sediment cover.	5,500,000 tons

It should be noted that -

- (a) hill slope and bedding inclination may be similar in some places and could lead to an erratic outcrop pattern.
- (b) depth of weathering is unknown and the above tonnage does not differentiate fresh and weathered rock.

The dimensions of the basalt-capped calc-silicate rock cannot be predicted but could at least equal that exposed in the Lea Valley, although a pitch to the south would mean a progressive thinning of calc-silicate rock beneath the basalt cap.

Mineralisation in the Gordon Limestones

Economic bismuth/gold mineralisation is known only in and near faults at Mt. Stormont and Fletcher's Adit. Bismuth and gold values are, in places, disseminated through calc-silicate rock adjacent to the faults.

The general features of mineralisation were described by Burns and Cordwell and no modifications of their conclusions are necessary from this latest survey.

During the present work, bismuth mineralisation was located in a pit close to the base of the basalt capping in the northern slope of the Lea Valley (Plate 1). Small laths of bismuthinite coat a joint plane in fine-grained, dark green, rather siliceous calc-silicate rock. Several narrow, pyritic quartz veins also cut this rock.

A number of rock and soil analyses have been made and results are set out in Table 1.

Results show overall low values for bismuth, gold, tungsten and molybdenum.

(a) Rock Analyses

The bismuth values of 0.2% and 0.175% at Fletcher's Adit compare with that of 0.3% Bi obtained by Cordwell, from the Mt. Stormont mine. However, the values of 0.005% (D188) and 0.035% (D191) are suspicious, as both included material containing visible bismuthinite and analyses are below those expected.

A background bismuth value for slightly weathered rock of 0.010% (D187) was obtained from a grab sample line along the Lea River.

(b) Soil Analyses

The samples taken were designed to test relative values in soil horizons at selected localities. Results show a range of values from 1 to 50 p.p.m. bismuth. Highest values are from a horizon directly above calc-silicate rock, containing little or no contamination from transported material and a low humus content.

Any geochemical prospecting would require deep augering into weathered rock. Purely surface soil testing would not be likely to produce any significant results.

PRESENT POTENTIAL OF THE AREA

Local

This prospect has, to date, been considered as a potential open-cut proposition, the bismuth being anticipated as disseminated mineralisation through the Gordon Limestone. Based on a bismuth content of 0.3% Bi or better, such an operation would require production of some 11,000 tons of ore per month for a monthly output of 50 tons of 65% Bi concentrate. The estimated tonnage of

rock in the Lea Valley would cover such a rate of production for at least 30 years.

The present indications are that an overall grade of 0.3% Bi may not be attained. This is based on only a few scattered analyses, mainly of weathered material. However, the control of mineralisation appears to be by faulting and lends weight to the idea that mineralisation may be confined to faulted zones or heavily fractured areas. The overall massiveness of the Gordon Limestone does not favour the possibility of sufficiently close mineralised minor fractures to allow bulk mining. The grade of 0.01% Bi obtained from the grab sample along the Lea River supports this conclusion.

Regional

Regional study may discover other areas of trace mineralisation controlled by fractured zones in the Gordon Limestone. Although the district has been well prospected, such an area may exist, possibly beneath heavy ground cover, within the contact aureole of the granite which intrudes south-east of Moina, within whose aureole the Mt. Stormont and Fletcher's Adit Prospect lies.

CONCLUSIONS

- (a) The basal beds of the Gordon Limestones can be confidently expected on the northern slopes of the Lea River Valley and have been identified in a number of pits within the predicted area of outcrop.
- (b) The sediments are openly folded on north-westerly axes. Pitch reversal of these axes is likely and would cause closure, beneath the basalt capping, of the structures enclosing the Gordon Limestone.
- (c) An uncertain figure of 5,500,000 tons of calc-silicate rock is thought to be present in outcrop or beneath superficial sandstone or gravel cover. A similar tonnage may be present beneath a basalt capping.

- (d) Weak bismuth mineralisation, as joint-plane coating, occurs in calc-silicate rock close to its contact with the basalt capping.
- (e) Rock analyses of samples from Fletcher's Adit (0.2% and 0.175% Bi) compare with those of Cordwell's from the Mt. Stormont Mine (0.3% Bi). Two rather low values were returned for samples containing visible bismuth mineralisation. Other mineral values are low.
- (f) Soil analyses indicate that geochemical testing of the area would require deep augering into weathered rock. Surface testing would be unlikely to produce significant results.

G. Wilson
Geologist

April 1962

Analyses of Rock and Soil Samples

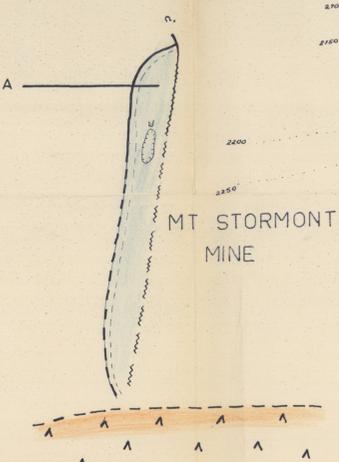
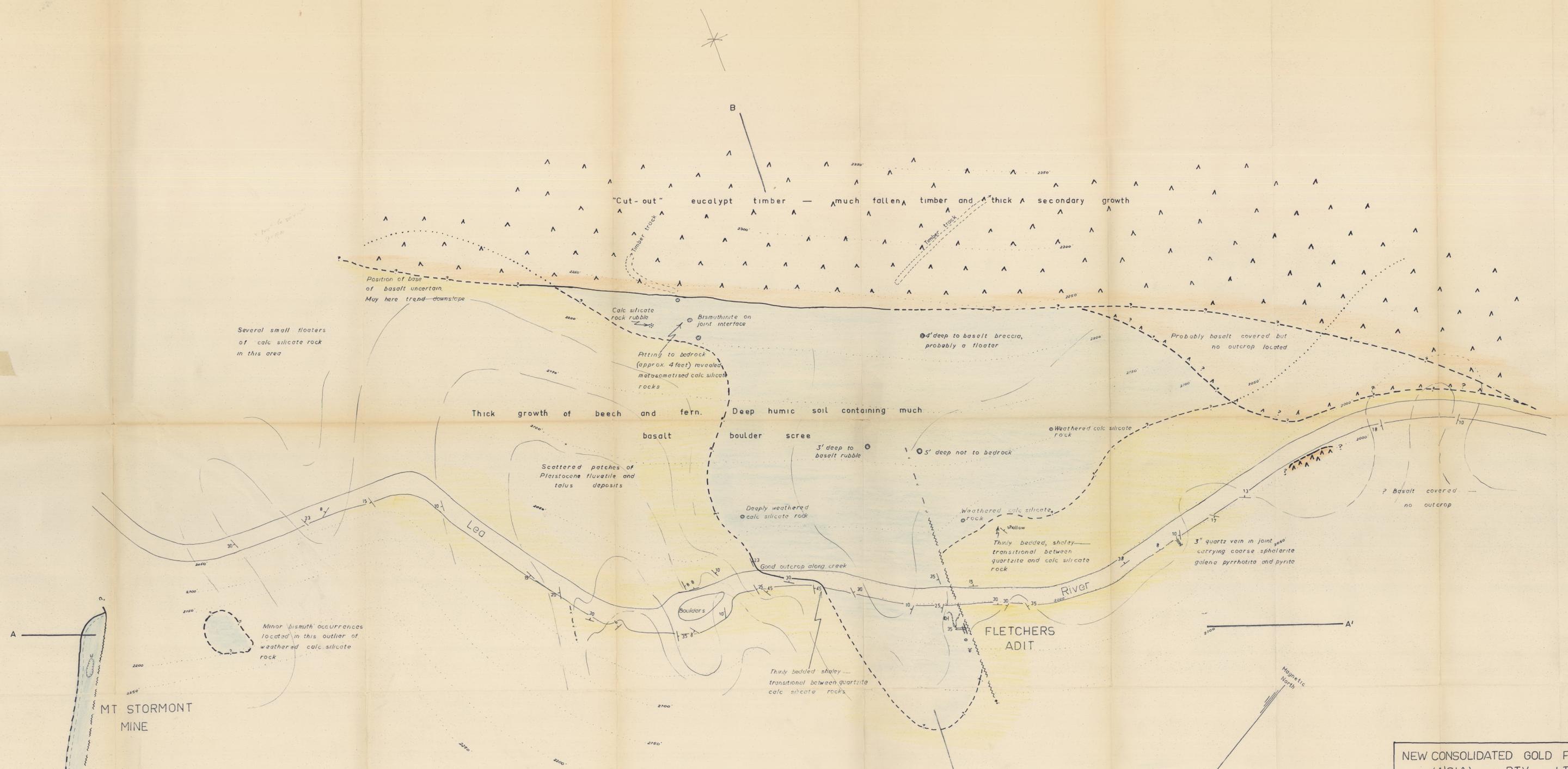
FLETCHER'S ADIT - MT. STORMONT PROSPECT

Tasmania (Fig. 3)

No.	Gold per Ton	Bismuth (Bi%)	Tungsten (W _{D3})%	Molybdenum (Mo)%
<u>R o c k A n a l y s i s</u>				
D182	N11	0.20	*0.005	0.001
D183	0.1 dwt.	0.030	nd	nd
D184	0.4 "	0.015	nd	nd
D185	0.6 "	0.175	nd	nd
D186	0.4 "	0.005	*0.005	*0.001
D187	N11	0.010	nd	nd
D188	N11	0.005	nd	nd
D189	N11	0.010	nd	nd
D190	N11	0.05	nd	nd
D191	N11	0.035	0.030	0.001
<u>S o i l A n a l y s i s (Spectrographic)</u>				
D192	* 3	6	* 30	nd
D193	* 3	4	* 30	nd
D194	* 3	8	* 30	nd
D195	* 3	12	nd	nd
D196	* 3	20	nd	nd
D197	* 3	5	* 30	nd
D198	* 3	4	* 30	nd
D199	* 3	* 1	* 30	nd
D200	* 3	50	* 30	nd
D651	* 3	2	nd	nd
D652	* 3	* 1	nd	nd

* less than

nd no determination



- Reference
- Strike and dip of bedding
 - Geological boundary - definite
 - Geological boundary - approximate
 - Geological boundary - inferred
 - Fault
 - Structural form lines
 - Topographic contours, position approximate

- Legend
- TERTIARY** Basalt flows and breccia.
 - ORDOVICIAN** Gordon Limestone
 - Maino Quartzite
 - Garnet-magnetite calc-silicate rocks.
 - Quartzite and minor sericitised shale bands.

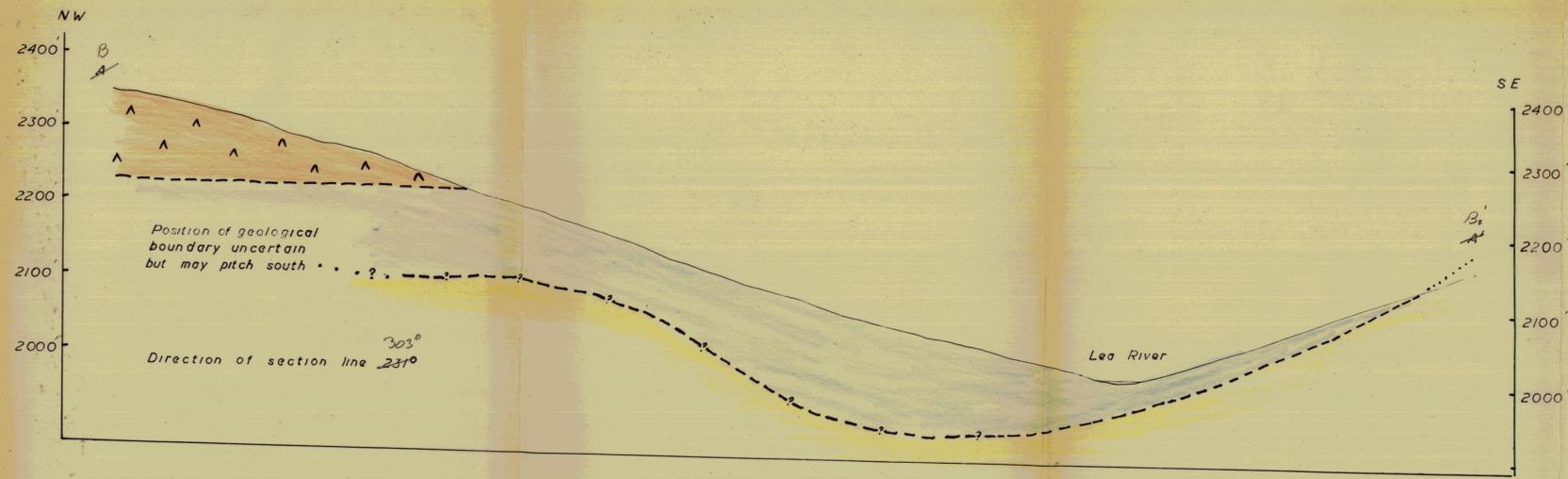
1 inch equals 100 feet
 100 0 100 200 300 feet

Plan based on plane table mapping by G.I. Wilson and W. Delaney, March 1962.



NEW CONSOLIDATED GOLD FIELDS (A'SIA) PTY LTD

Geological Plan of the MT STORMONT PROSPECT TASMANIA

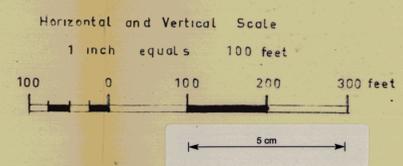
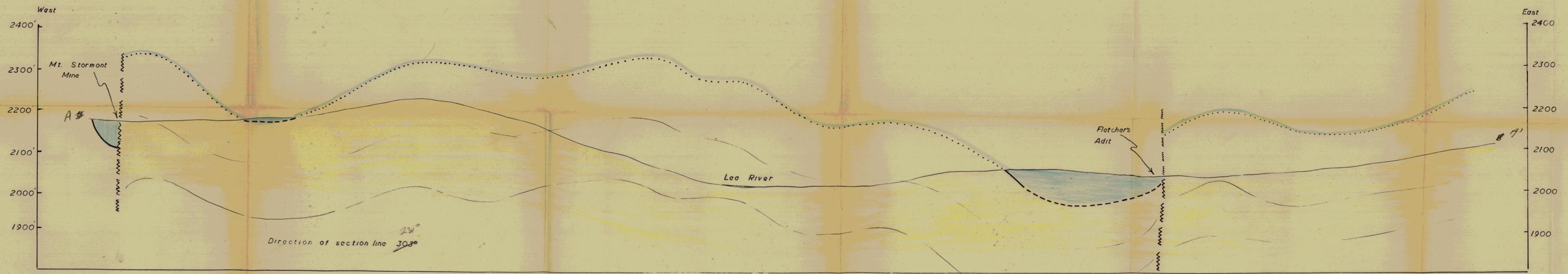


Legend

TERTIARY		Basalt flows and breccia.
ORDOVICIAN		Gordon Limestone
		Moina Quartzite
		Garnet-magnetite calc-silicate rocks.
		Quartzite and minor sericitised shale bands.

Reference

	Geological boundary - definite
	Geological boundary - position approximate
	Geological boundary - position inferred
	Fault
	Structural form lines



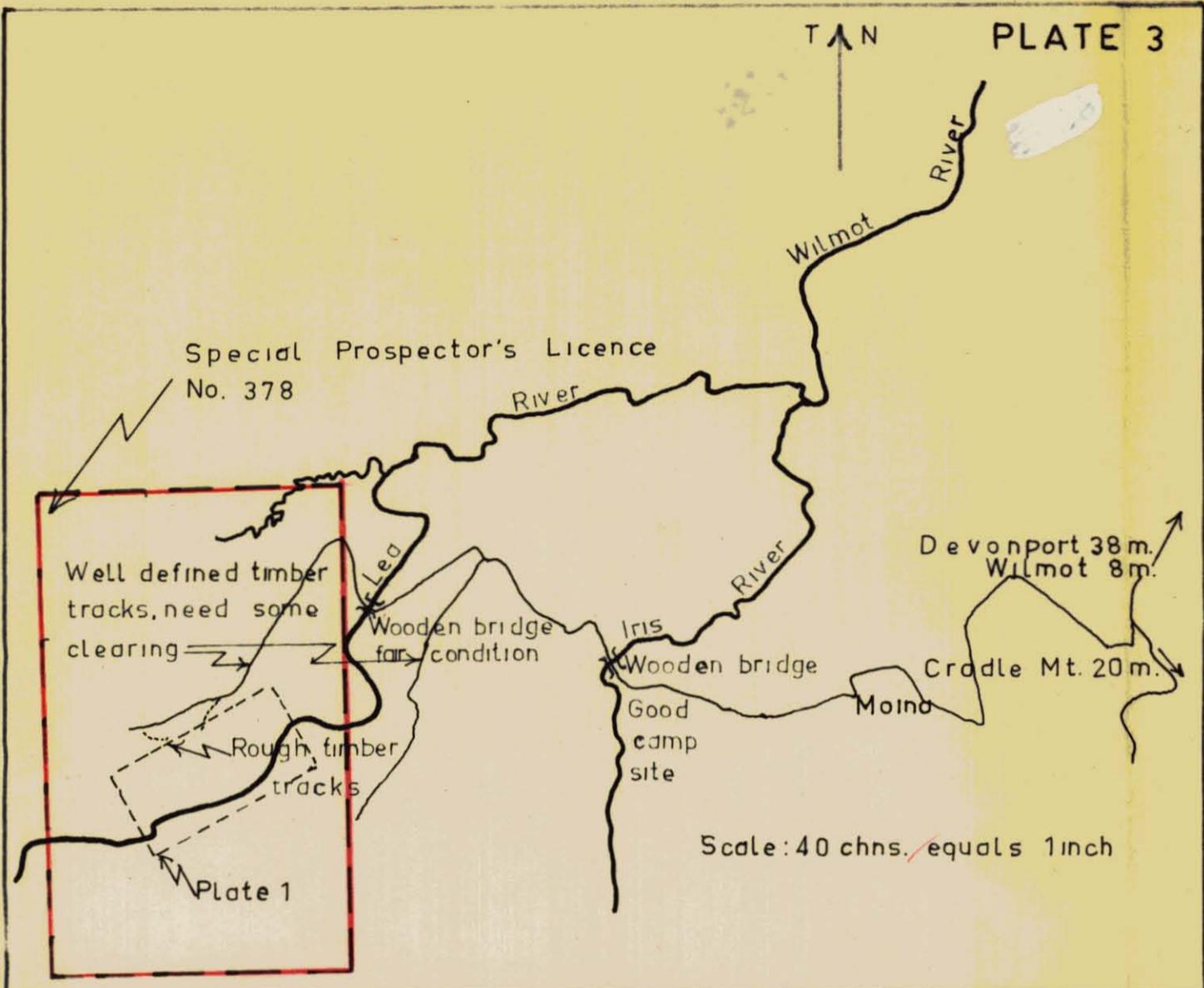
Based on plane table traverse by G.I. Wilson and W. Delaney, March 1962. Surface profile is approximate

NEW CONSOLIDATED GOLD FIELDS (A'SIA) PTY LTD

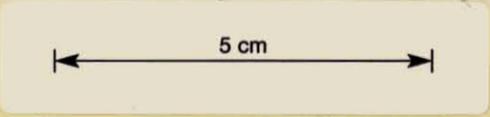
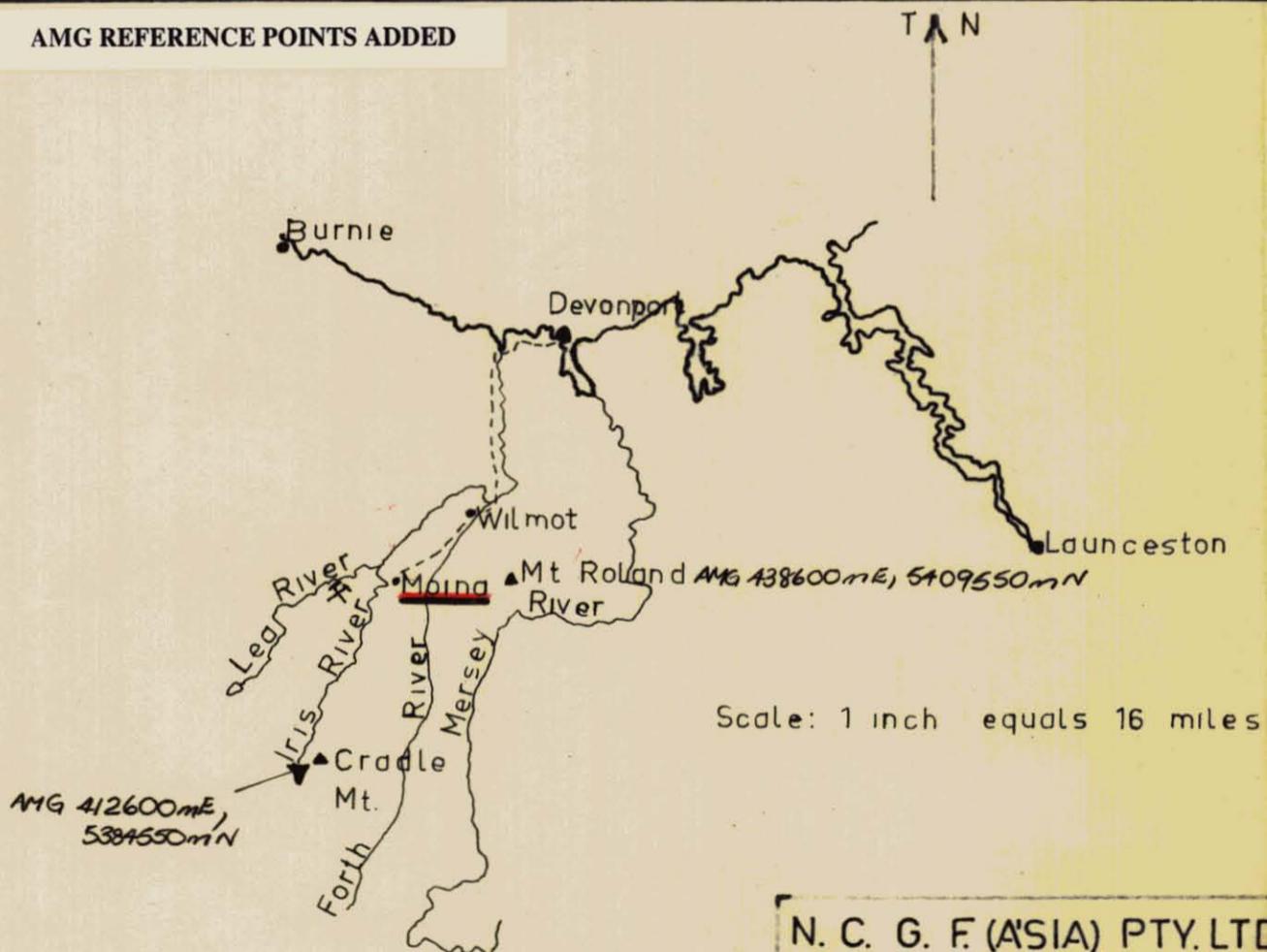
Mt Stormont Prospect, Tasmania.

Geological Sections

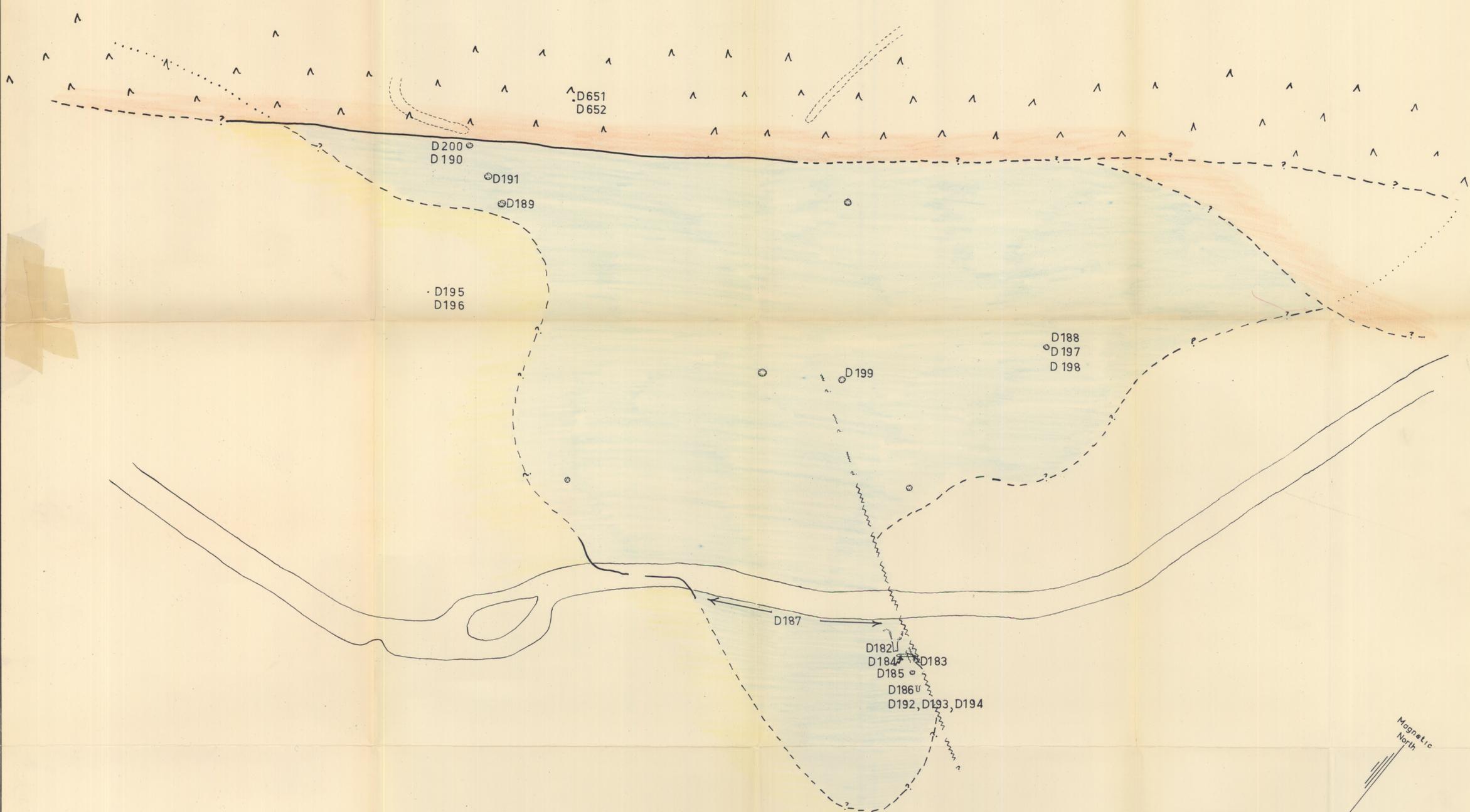
Based on plane table mapping



AMG REFERENCE POINTS ADDED



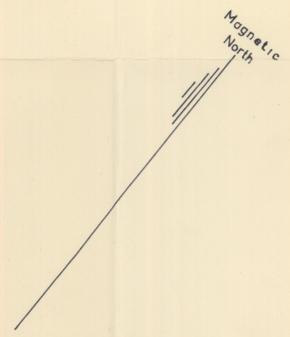
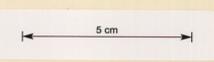
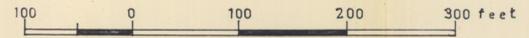
N. C. G. F. (ASIA) PTY. LTD.
 Plans showing locality
 and access, Mt Stormont
 area, Tasmania.



Legend

- TERTIARY  Basalt flows and breccia
- ORDOVICIAN  Gordon Limestone
-  Moina Quartzite

1 inch equals 100 feet



NEW CONSOLIDATED GOLD FIELDS (A'SIA) PTY LTD		
MT	STORMONT	PROSPECT
TASMANIA		
Showing of samples		locations taken