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February 2, 1972

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LONGREACH METALS NO LIABILITY

SPECIAL PROSPECTING LICENCE NO 99

NORTH DUNDAS, TASMANIA

TECHNICAL REPORT ON EXPLORATION

NOVEMBER 1971 to JANUARY 1972

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Chief Geologist

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PLANS

1. N.D.1 "S.P.L. 99, North Dundas, Geochemical
High A, Geological Plan, Northern Sheet"
Scale 1" = 100'

2. N.D.2 "S.P.L. 99, North Dundas, Geochemical
High A, Geological Plan, Southern Sheet"
Scale 1" = 100'

3. N.D.3 "S.P.L. 99, North Dundas, Channel
Sample Results from Costeans A to E"
Scale 1" = 100'

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1. SUMMARY

Exploration has concentrated on following up work by Renison Ltd. on Geochemical High A in the north of SPL 99. The area covered by the high tin values in soils has been costeamed, mapped and sampled. Results, though of uneconomic grade, have substantiated the high soil values and it is felt that the prospect warrants further investigation.

2. LOCATION AND ACCESS

SPL 99, covering 1980 acres, lies seven miles ENE of Zeehan, central western Tasmania. Access is by the North East Dundas Tram Formation from the Renison Bell-Zeehan road or by Renison lease road from Renison Bell to Confidence Saddle thence by the Tram Formation.

Geochemical High A is situated in the central north of the SPL and access is obtained along a bulldozed access road turning off the Tram Formation about one mile from Confidence Saddle.

3. PREVIOUS EXPLORATION

The Consolidated Syndicate (New Consolidated Gold Field (A/sia) Pty Limited, Mt Lyell M & R Co. Limited and Renison Limited) carried out exploration from 1967 to 1970. The techniques employed were geological mapping, soil geochemistry and ground magnetics. These led to the defining of several areas favourable for economic mineral deposits. The most propitious was the tin geochemical high in the north of the SPL. A costean was dug across the zone of highest values and samples. The Consolidated Syndicate did not consider

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the results warranted any further work. A detailed description of this exploration is contained in the following reports -

- 1) "Progress Report on the North Dundas Project (SPL No. 20) Tasmania for 1967-1968 Field Season" - D.L. Forsythe
- 2) "North Dundas Project, Tasmania (SPL No. 20) - Progress Report for 1968-1969 Field Season" - D.L. Forsythe
- 3) "North Dundas Project, Tasmania (SPL No. 20) - Report on Follow-up Work Done in 1969-1970 Field Season" - K.M. Ferguson
- 4) "North Dundas Project, Tasmania (SPL No. 20) - Report on Activities in Winter 1970" - K.M. Ferguson

4. ENVIRONMENT

The topography is very rugged and dense rain forest covers most of the area. The annual rainfall is 90 inches and the winters are severe.

Within the area costeamed by Longreach and along the access road, the relief is comparatively slight. However, on the eastern side of the costeams the ground drops rapidly away into the Great Northern Creek Valley. On the western side is an area of swampy alluvium and meandering streams.

5. LONGREACH EXPLORATION

Longreach has concentrated exploration on the tin geochemical high established by the Consolidated Syndicate in the north of SPL 99.

The object of the exploration was to -

- (a) determine the source and grades of bedrock tin mineralization giving rise to the high soil values by channel sampling;
- (b) gather information on the structure, lithology and mineralization to determine control of tin concentrations by geological mapping;
- (c) draw a conclusion as to whether the area may yield a viable ore body and hence is worth further expenditure.

Field work was commenced on 10th November, 1971 and was completed on

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22nd December, 1971. A D6 bulldozer was hired from Mr F. Groves of Renison Bell. The following work was carried out -

Access Road

A road approximately one mile in length was cut from the North East Dundas Tram Formation to Geochemical High A to allow for four-wheel drive vehicular access.

Costeaning

Five costeans were dug totalling 2550 feet in length. The costeans were positioned approximately 250 feet apart to cover the area of the tin geochemical high and were directed approximately at right angles to the trend of the high values. For convenience these mostly followed the soil sample lines put in by the Consolidated Syndicate. Costeans were cut as straight as the topography and vegetation would allow. A costean was put in alongside the Renison costean to check results and to obtain a continuous cross section at that point. The costeans were dug to sufficient depths to expose undisturbed bedrock for their whole length.

Sampling

Continuous channel samples were taken over approximately ten foot sections along the central line of the costeans. Sample intervals were to be varied if strong mineralisation was observed. Some samples were taken in approximately five foot sections in Costeans D and E.

Each sample was quartered and sent for analysis to Geochemical and Mineralogical Laboratories, Rushcutters Bay, New South Wales. In all, 234 samples were taken and analysed for Sn. Of these, 23 samples were analysed for Cu, Pb, Zn and As. Samples 14128 and 2486 were assayed for Sn to check results.

An area of gossan and pyritic quartz veining was exposed within a gabbro intrusive along the access road. Three samples were taken of the gossan and sulphides for analysis for a number of common metallic elements and two samples of common rock types were taken for thin section.

All Sn samples were analysed colourimetrically. All other analyses were done by AAS methods except for No. 14139 from the access road, which was scanned by XRF.

Geological Mapping

Mapping on a scale of 1" = 100' was carried out along the access road, the water race and in the costeans. Outside these exposures, mapping is severely restricted by soil cover and vegetation.

6. GEOLOGY6.1 S.P.L. No. 99

Within the SPL the geology consists of a sequence of clastic sediments and volcanics of Cambrian age, intruded by basic dykes. The sediments are strongly folded and faulted. Faults and shear zones are frequently quartz filled and mineralised. The Devonian Pine Hill quartz porphyry, which outcrops to the west of the SPL, is a possible source of mineralising fluids.

The Consolidated Syndicate reports differentiate the sediments into the Brewery Junction Formation and the underlying Razorback Conglomerate. The Brewery Junction Formation consists of black shales and siltstones, intermediate to acid volcanics and coarse clastics. The Razorback Conglomerate contains greywacke conglomerate and lithic greywacke.

Numerous fissure veins have been worked in the area for modest tonnages of Cu, Ag, Sn and Bi.

6.2 Longreach Mapping

Within the area mapped by Longreach the sediments consist essentially of interbedded shales, siltstones and sandstones of the Brewery Junction Formation. Thin bedded buff grey and green shales dominate the lithology. The most significant variation is the occurrence of blue-grey shale beds containing bedded sulphides. These beds appear to be dolomitic and have been designated as such on the geological plans.

The plans show lithological boundaries based on colour, dominant grain-size and mineralogy. Due to the incompleteness of the mapping, resulting from lack of exposure and the similarity of rock units, symbols have been avoided and lithological descriptions have been used where lithology is known.

Mapping along the water race and access road infers a southerly plunging syncline as the dominant structure in the area. Folding becomes complex to the east and dip variations within the costeans suggest a number of minor folds on the eastern limb of the syncline. Where dip reversals occur these have been marked as fold axes and an attempt has been made to trace these from costean to costean. Rapid variations in dip may be due to flexing of the beds or small overturned folds. A difficulty in interpretation arises, for example, between costeans B and C where dolomitic shales have been mapped on either side of what appeared to be a continuous synclinal axis. The shales are absent from the eastern side of the axis near Costean C.

Faulting, which is not apparent in the costeans, may be responsible for many of the discrepancies. A fault has been inferred between

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Costeans C and D to explain the absence of the NNW trending shear zone in Costean C. The fault further explains the lack of continuity of some fold axes and the absence of sulphide bearing dolomitic shale along the access road near Costean D. The shear zone mentioned above, though narrow and discontinuous, is the most prominent linear structure mapped. Quartz veins up to four feet wide containing minor sulphides were uncovered near the eastern end of Costean E.

A gabbro intrusive was exposed along the access road. Within the intrusive and near the contact are fault controlled gossans associated with strongly pyritic quartz veins. Adjacent to the gabbro is an indurated sub-greywacke suggesting a section of the Razorback Conglomerate has been faulted in.

Mineralisation within the sediments consists of -

- a) minor bedded sulphides in the dolomitic shales;
- b) limonitic fracture and shear fillings;
- c) iron pyrites in vein quartz.

7. GEOCHEMISTRY

Sample results have been presented in Plan ND3 as groups of results designated on the costeans and profiles.

The profiles are presented such that the sample values are plotted at a point in the centre of the sample interval. The results on the costeans have been shown as groups for convenience. The groups have been selected by inspection of the profiles.

The >300 ppm Sn Renison Limited soil sample anomalies are superimposed on the costean sampling to illustrate their relationship.

The better values are irregular and apparently do not relate to any continuous geological feature. High values on Costean B clearly relate to the dolomitic shale with bedded sulphides. There appears to be some relationship between the shear zone and some high values on Costeans E and D. However the high values closest to the shear do not fall directly on it. Mapping has indicated that a number of sampled sections which exceed 1000 ppm Sn and in particular, the highest ten foot section of 0.33% Sn in Costean D, are not related to structural features or sulphides. These values are apparently disseminated in the sediments.

The soil sample values clearly reflect the results from bedrock sampling. There is little evidence that the anomaly is transported and hence the area of the anomaly would closely define the area of high bedrock values. However the absence of anomalous soil values

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covering Costeans C and A illustrates it is possible to get high tin values outside the soil anomaly.

Sampling from the access road exposure indicated minor concentrations of lead and zinc in the gossan. All other values were low.

8. CONCLUSIONS

The tin mineralisation appears to be disseminated in sedimentary beds, associated with bedded sulphides and to some extent related to shearing. The tin is irregularly distributed throughout the sediments but clearly substantiates the Renison anomaly. It is felt values are sufficiently high and concentrated to warrant a closer look at the property.

There is no necessity to extend the costeaning outside the area covered to date as it is felt the soil sample anomaly corresponds sufficiently well with the hard rock results to define the extent of interesting values.

It is probable that shear zones and faults have acted as channel ways for mineralising fluids which have subsequently replaced sedimentary beds or crystallised in joints and fractures.

It is possible that grades and distribution of values would not improve with depth as there is little evidence of large open structures to convey sufficient mineralising fluids to cause large scale replacement of the sediments.

There is, however, complex folding in the locality and the possibility exists of major dislocations.

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 AFTER HOURS: 36 4904
 TELEGRAMS & CABLES:
 GEOCHEM-SYDNEY

MICROFILMED

76 McLACHLAN AVENUE,
 RUSHCUTTERS BAY,
 N.S.W., 2011

Longreach Group Management Pty.,
 G.P.O. Box 4737,
SYDNEY, N.S.W. 2001.

PETROGRAPHIC REPORT.

2403A

The rock is a gabbro consisting of moderately coarse-grained, predominantly anhedral clinopyroxene and twinned plagioclase, with scattered former opaque oxide grains now completely altered to fine-grained aggregates of (?) sphene or other titanium rich minerals. There is a tendency for elongate sections of the pyroxene and plagioclase grains to show a sub-parallel alignment, suggesting either a flow-structure or a cumulate-structure. Some of the plagioclase has been partly replaced by fine-grained white mica. Locally "limonite"-stained patches of very fine-grained chlorite are present, suggesting the possible presence originally of a few grains of olivine.

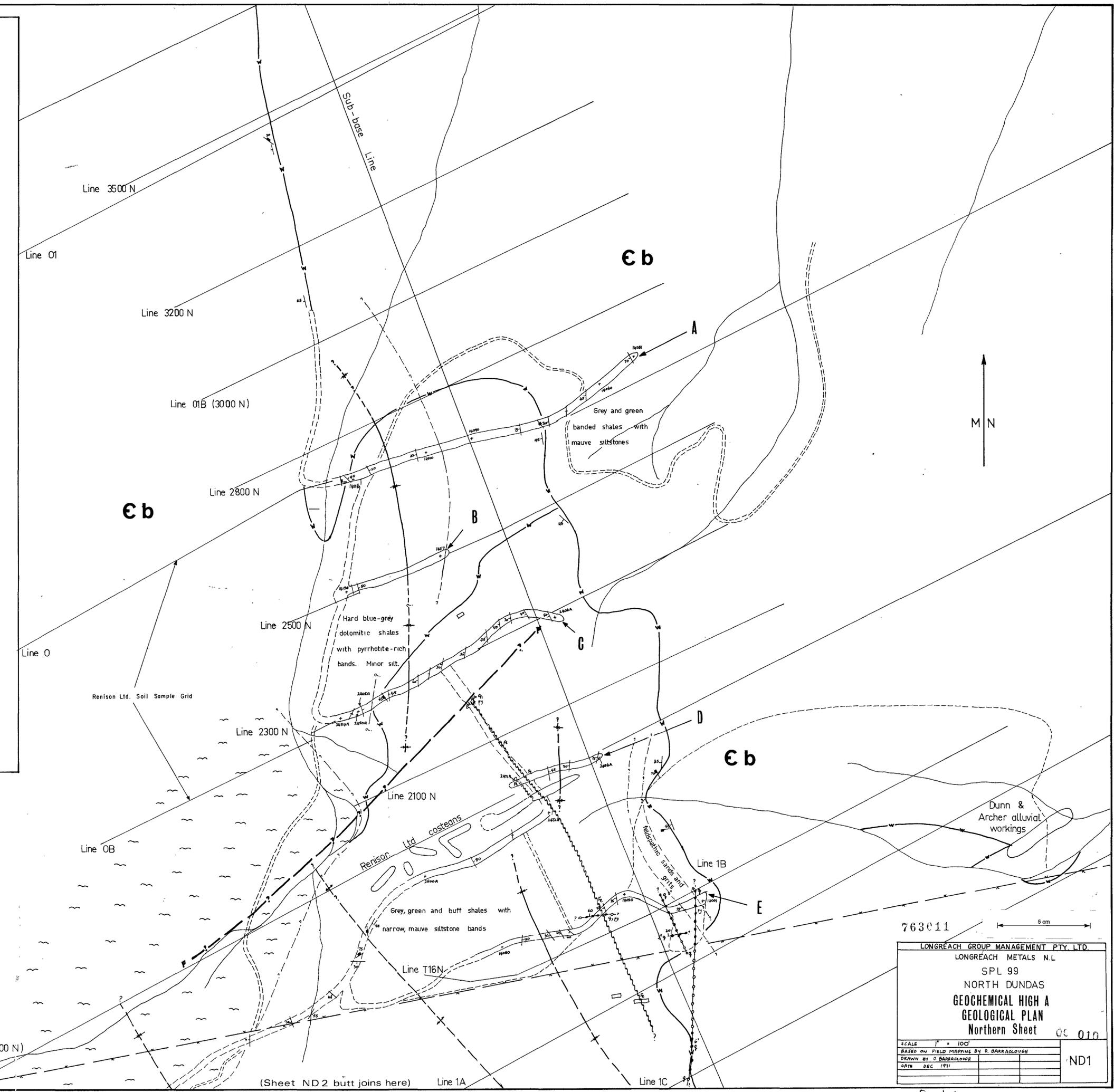
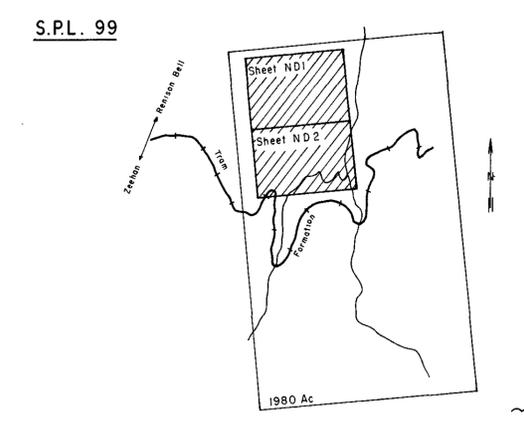
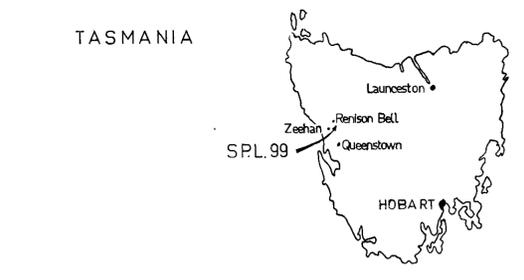
2404A

This is a relative fine-grained felspatholithic-quartz-sandstone (or subgreywacke), composed of abundant angular to sub-rounded fragments of quartz and felspar (mostly partly sericitized or replaced by carbonate, but locally clear), with a few warped fragments of detrital white mica and biotite, and numerous rock fragments, cemented together by fine white mica, local chlorite, local (?) sphene and carbonate (all probably of authigenic origin). The rock fragments include varieties rich in fine white mica (shale and/or altered fine volcanic groundmass), quartzite, and quartzofelspathic aggregates that probably are parts of a former volcanic rock groundmass. Opaque grains (some altered to "leucoxene") occur through the rock. Many of the felspar fragments are too altered to determine their original nature, but among the clear grains both microcline and plagioclase were detected.

LEGEND

| GEOLOGICAL | | TOPOGRAPHICAL | |
|------------|--|---------------|---------------------------|
| | Alluvium RECENT | | Access road |
| | Intrusive gabbro | | Track |
| | Brewery Junction Formation CAMBRIAN | | Footpath |
| | Razorback Conglomerate | | Tramway |
| | Dip, strike of bedding | | Water race |
| | Dip, strike of joints | | Cut line |
| | Geological boundary position approximate | | Disused transmission line |
| | Anticline: position approx. | | Pit |
| | Anticline: position accurate | | |
| | Syncline: position approx. | | |
| | Syncline: position accurate | | |
| | Vein: inferred. | | |
| | Vein: quartz in-situ. | | |
| | Breccia. | | |
| | Fault. | | |
| | Shear: ferruginous. | | |
| | Adit | | |
| | Costean | | |
| | Costean sample number | | |
| | Soil sample number | | |

LOCALITY PLAN



763011

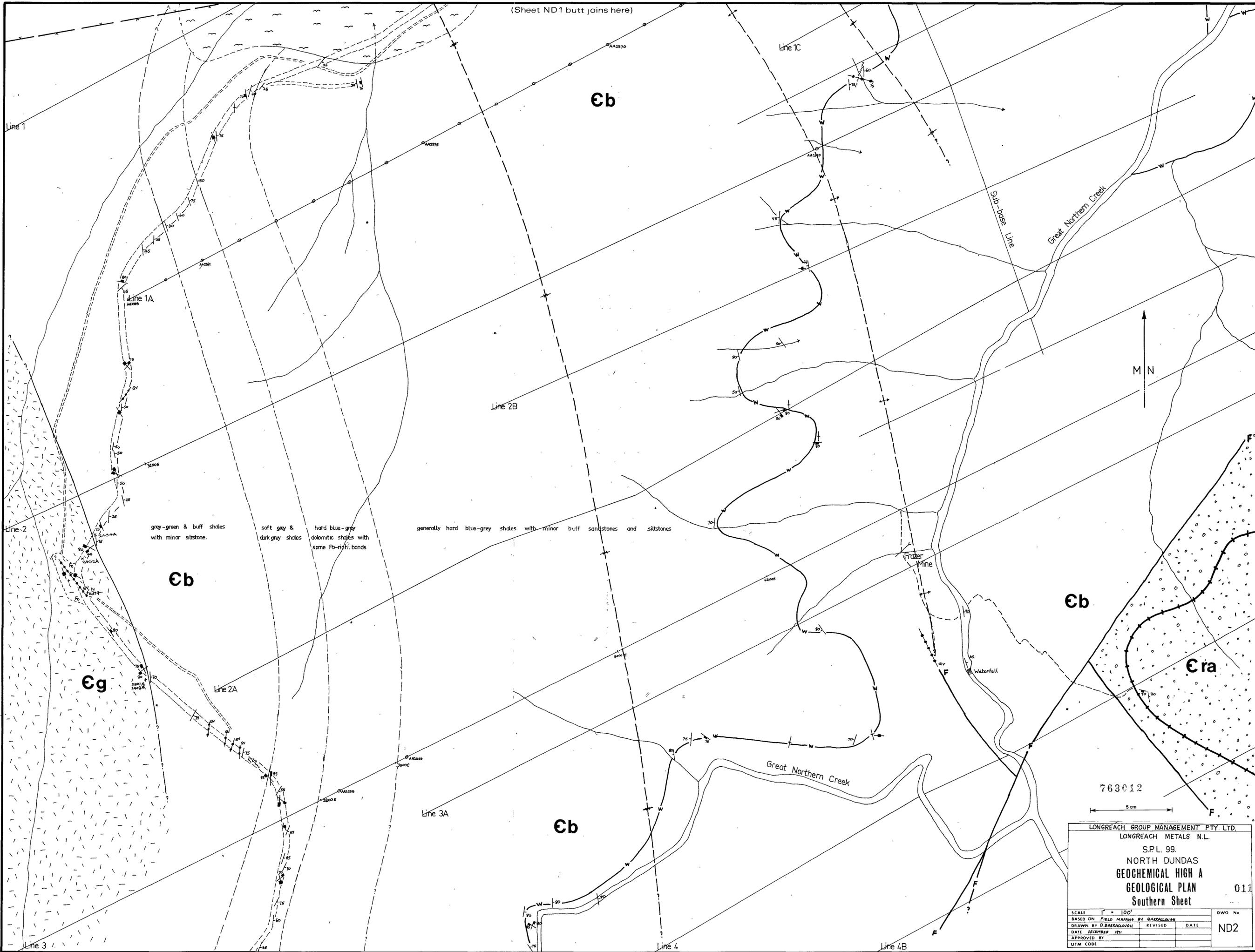
LONGREACH GROUP MANAGEMENT PTY. LTD.
 LONGREACH METALS N.L.
 SPL 99
 NORTH DUNDAS
GEOCHEMICAL HIGH A
GEOLOGICAL PLAN
 Northern Sheet 00 010

| | |
|----------|---------------------------------|
| SCALE | 1" = 100' |
| BASED ON | FIELD MAPPING BY D. BARRACLOUGH |
| DRAWN BY | D. BARRACLOUGH |
| DATE | DEC 1971 |

ND1

Q5055

(Sheet ND1 butt joins here)



grey-green & buff shales with minor siltstone.

soft grey & dark grey shales

hard blue-grey dolomitic shales with some Pb-rich bands

generally hard blue-grey shales with minor buff sandstones and siltstones

763012

5 cm

LONGREACH GROUP MANAGEMENT PTY. LTD.
 LONGREACH METALS N.L.

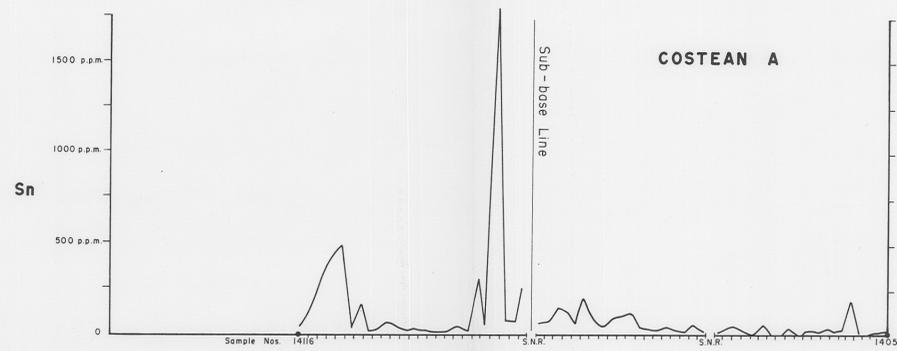
S.P.L. 99.
 NORTH DUNDAS
 GEOCHEMICAL HIGH A
 GEOLOGICAL PLAN
 Southern Sheet

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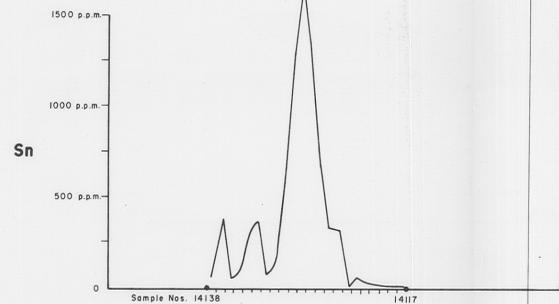
| | | |
|-------------|--------------------------|---------|
| SCALE | 1" = 100' | DWG No |
| BASED ON | FIELD MAPS BY BARRELOUGH | |
| DRAWN BY | D. BARRELOUGH | REVISED |
| DATE | DECEMBER 1971 | DATE |
| APPROVED BY | | |
| UTM CODE | | |

ND2

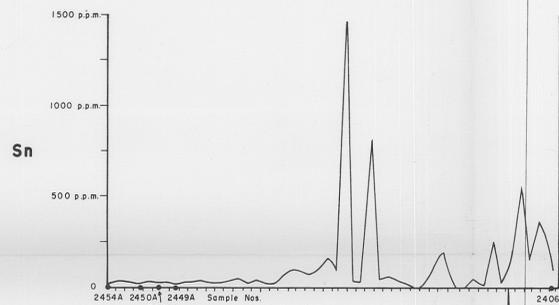
CHANNEL SAMPLE PROFILES



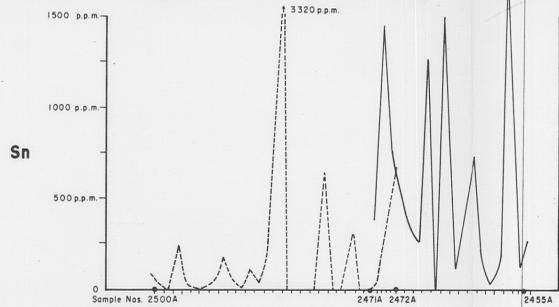
COSTEAN A



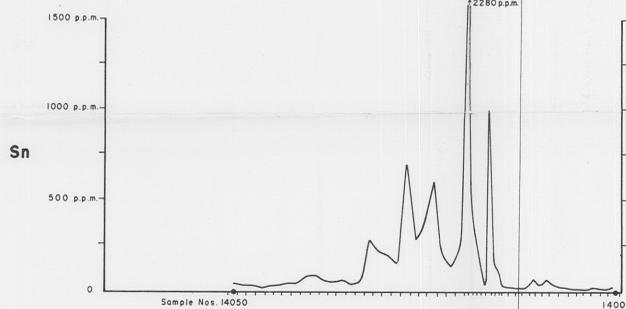
COSTEAN B



COSTEAN C

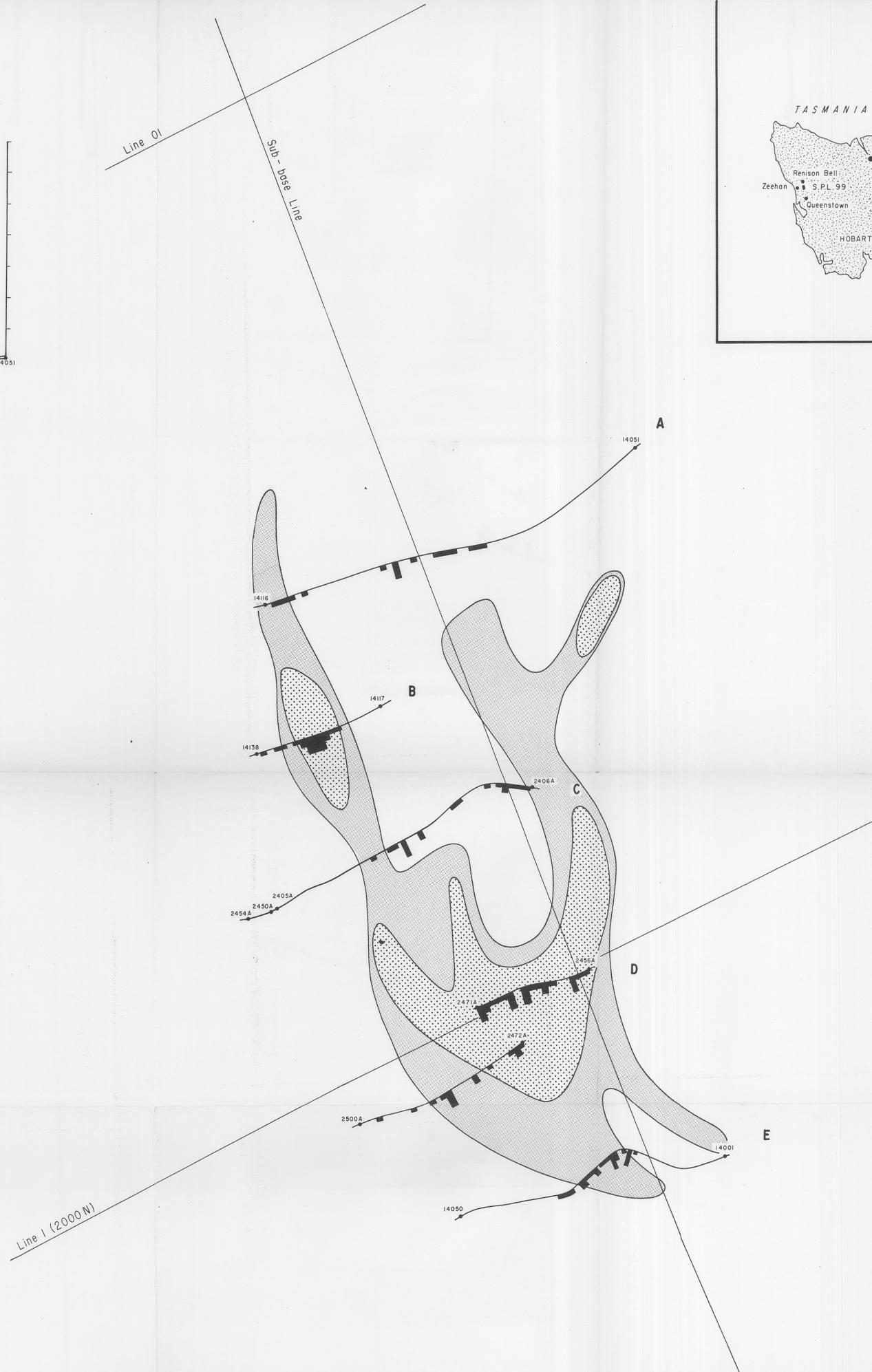


COSTEAN D



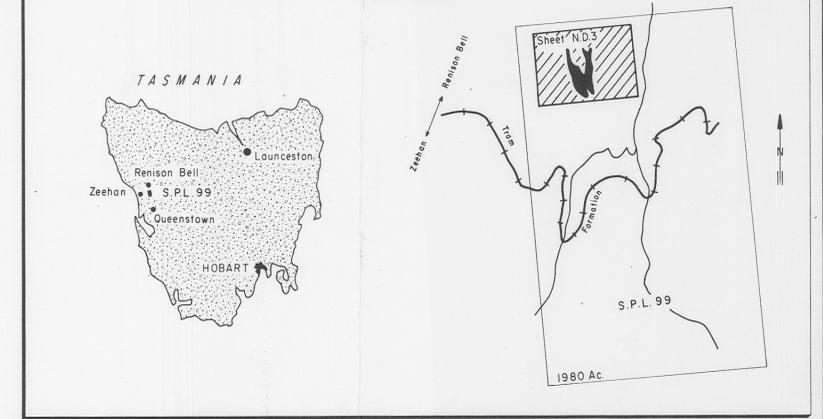
COSTEAN E

Sample Intervals
(1" = 100)



LOCALITY PLAN

S.P.L. 99



LEGEND

- A — Costean centre line
- CHANNEL SAMPLE VALUES -
- ▬ 100 - 500 ppm
- ▬ 500 - 1000 ppm
- ▬ > 1000 ppm
- SNR Sample not received

- REINSON LTD. - TIN SOIL SAMPLING ANOMALY -
- ▨ 300 - 1000 ppm
- ▨ > 1000 ppm



763013



LONGREACH GROUP MANAGEMENT PTY. LTD.
 LONGREACH METALS N.L.
 S.P.L. 99 North Dundas

**Channel Sample Results
 From Costeans A to E**

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| | |
|--------------------------|--------------|
| SCALE 1 inch = 100 feet | DWG. No. |
| BASED ON Geochem results | |
| DRAWN BY M.R. Chetency | REVISED DATE |
| DATE January 1972 | |
| APPROVED BY J. Clare | |
| UTM CODE | |

ND 3