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Prospect 600

PACMINEX PTY. LIMITED

77-1241

STANLEY REWARD : E.L. 53/70
GRID SOIL GEOCHEMISTRY
1975 - 1977

PMR 168/77

SYDNEY

P.M. MACNAMARA

December, 1977

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LIST OF ILLUSTRATIONS

KEYWORDS

TASMANIA	8SK 55-Ø3
GEOLOGY	GEOCHEMISTRY
SURVEY	SOIL
ROCK	CHIP
SEDIMENT	TIN
COPPER	ZINC
LEAD	BISMUTH
SILVER	CALCIUM
COBALT	NICKEL
CHROMIUM	SCAN
1977	

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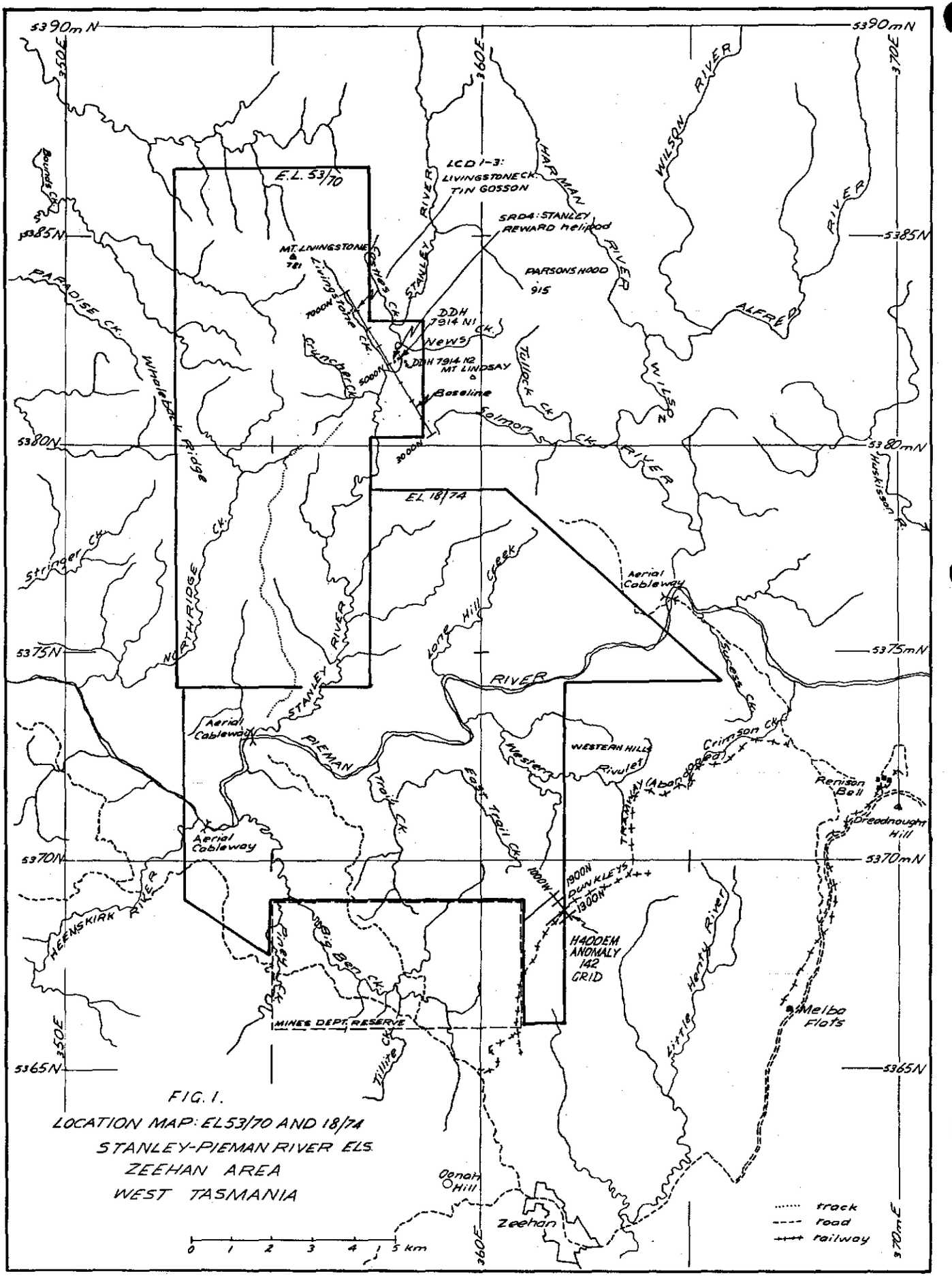

FIG. 1.
LOCATION MAP: EL53/70 AND 18/74
STANLEY-PIEMAN RIVER ELS
ZEEHAN AREA
WEST TASMANIA

5 cm

1. INTRODUCTION

1.1 Between 1975 and 1977 geochemical surveys were carried out by Pacminex Pty. Limited over the Stanley Reward grid on E.L. 53/70 by agreement with the title holder, Valley Exploration (Holdings) Pty. Limited (see Figure 1).

The chemical analyses of soil (mainly) and rock chip samples collected in 1975 and 1976 are tabulated in Macnamara (1977). Results of the 1977 soil augering programme are attached to this report (Appendices I to III).

1.2 The main purpose of this report is to show the positions of the major soil geochemical anomalies indicated to date. On maps attached to this report are plotted the tin, copper, lead and zinc values of most samples collected to date.

1.3 In addition, evidence is presented which suggests deep soil augering (to 1.5 m depth or greater) and chemical analyses of the -20 mesh fraction of the resultant soil sample may be worth considering over some areas where gravels cover the prospective dolomite horizon. Previous soil sampling in these areas involving the -80 mesh fraction of soils collected at a shallow (30 cm) depth in the gravel cover, yielded no obvious anomalies. However recent auger results suggest country rock mineralisation may be shed into and be detectable by augering into basal sections of gravels where they occur close to the mineralised country rock.

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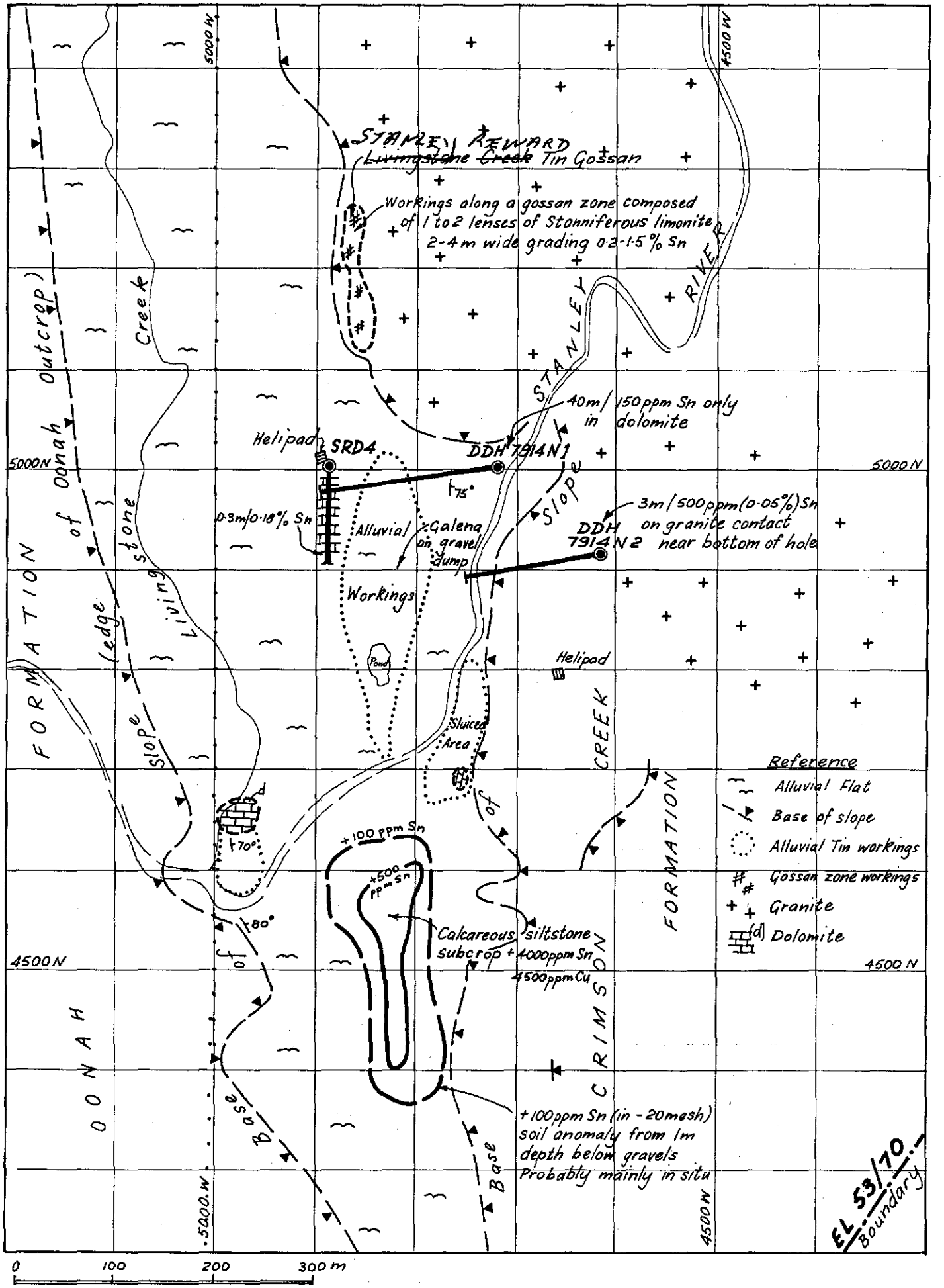

FIG. 2. TIN OCCURRENCES STANLEY REWARD AREA

E.L. 53/70 TASMANIA

5 cm

2. SUMMARY

2.1 Drawings K 553-8, 9 and 10 attached to this report show the location of the various tin (mainly) and other geochemical anomalies located to date on the Stanley Reward grid. The main anomalies are also listed on Table 2. Most in-situ tin anomalies located to date occur in dolomitic rocks which are usually concealed by a thick gravel cover (especially north of line 4600N) containing few "windows" through it to the underlying dolomites.

2.2 The most promising in-situ soil tin-copper anomaly located occurs in a mud-gravel covered dolomitic horizon between lines 4600N and 4400N around co-ordinate 4800W (see Figure 2). It is referred to as the "45N/48W" Anomaly. Indicated in the late stages of the 1976 field programme by soil augering done to 1.5 m depth through a thinner-than-usual gravel cover, the anomaly was confirmed and expanded by soil augering in early 1977 (DWG No. K 553-10 and Appendices I and II). It lies within the contact aureole of the Devonian Mount Meredith Granite in bedded dolomites. Some evidence suggests the dolomites could be stratigraphically similar to the main mineralised Renison Bell Carbonate Members (Nos. 2 and 3). Soil sample values in the -80 mesh soil fraction exceeding 4000 ppm Sn and up to 6500 ppm Cu (the highest copper value obtained to date on the grid) define the anomaly. Sn responds even more strongly in the -20 mesh fraction.

2.3 The "45N/48W" Anomaly deserves drilling although costeaning, I P./resistivity etc. surveys may be desirable initially to optimize the positions of drill targets.

2.4 Figure 2 shows that the old alluvial workings in the area are on line with and between Anomaly "45N/48W" and the Stanley Reward Tin Gossan. This suggests that it might be worth checking below these (and other) alluvial tin areas for evidence of mineralisation in the country rock.

I.E. the alluvial tin may be locally derived rather than from the Stanley Reward gossan zone to the north as previously assumed. While deep augering in this area should be tried initially as a possible way of outlining the extent of the tin concentrations (in situ or otherwise), the greater depth of gravels north of the Stanley River compared with the southern areas is likely to mask any underlying in-situ mineralisation.

2.5 Any southward extension of mineralisation beneath the gravels from the Livingstone Creek Tin Gossan in the northern part of the grid may also be indicated by alluvial tin concentrations over or close to the in-situ mineralisation. Deep augering is also worth trying here in the hope of locating such alluvial tin concentrations and/or "windows" in the gravels.

2.6 Costeaning is likely to be eventually required to evaluate deeply concealed extensions or possible extensions of mineralisation from known anomalies.

TABLE I

ROCK UNITS : STANLEY REWARD GRID

AGE	UNIT NAME	SYMBOL	ROCK TYPE
Quarternary	-	Qra	Alluvium - button grass, mud flats
	-	Qrg	Gravels
	-	-	Limonite bodies :- "gossans" etc.
Tertiary	-	Tg	High level gravels
Devonian	Meredith Granite	G	Granite (G), with quartz porphyry (Gqp), diorite (Gd) etc. phases.
Cambrian	Crimson Creek Formation	A	Green and purple mudstones, tuffs, basic volcanics, volcanoclastics, greywackes etc. - generally deeply weathered to a khaki clay soil.
	"Marker Sequence"	M	(Inferred): ideally a 50-150 m thick sequence with magnetic upper and lower chert horizons separated by dolomite (its presence is inferred from magnetometer traverses across an area obscured by Crimson Creek Formation talus).
	"Dolomitic Sequence"	D	Dolomitic carbonate-chert-shale (low lying area immediately above the Oonah Quartzite and Slate).
Cambrian ?	Oonah Quartzite and Slate	N	Top units are ridge forming finely bedded sericitic quartzite siltstones separated by (?) shale bottomed valleys. (Including black shales and siltstones).

3. GEOLOGY

3.1 The stratigraphic sequence within the Stanley Reward gridded area is set out on DWG K 553-8 and Table I. Briefly, the sequence is as follows:-

Meredith Granite	-	Devonian
Crimson Creek Formation "Marker Sequence" "Dolomitic Sequence" Oonah Quartzite and Slates ("Oonah Formation")		Cambrian

3.2 The "Dolomitic Sequence" forms the low ground shown on DWG K 553-8 and K 553-9. It is concealed by "button grass" mud flats and gravels. The flat is flanked to the west by the Oonah Quartzite and Slate, and to the east by the Crimson Creek Formation in the south and the Meredith Granite north of line 4800N. These flanking units form steeply undulating to rugged topography.

3.3 By analogy with the characteristic magnetic signature (described by Newnham, 1975) the "Marker Sequence" is inferred to occur along the eastern edge of the flat between lines 3800N-5000N.

3.4 The tin-copper geochemical anomalies are related to mineralisation in the "Dolomitic Sequence" below the "Marker Sequence". It is inferred that these are the equivalents of the No. 2 and No. 3 Carbonate Members below the Red Rock Member at Renison Bell.

4. MINERALISATION

4.1 Evidence of tin and tin-copper mineralisation occur on the grid as outcropping stanniferous limonite bodies (2), old alluvial workings and soil geochemical anomalies.

There are two main linear zones of interest. These are:-

1. The Livingstone Creek Tin Gossan around line 6500N and possible southward extensions.

2. The line of mineralisation stretching southwards from around line 5250N.

   It includes the Stanley Reward Tin Gossan (5200N to 5100N), the old alluvial workings (5000N to 4700N) and the recently indicated tin-copper soil anomaly centred at 4500N/4800W (the "45N/48W Anomaly".

4.2 The Livingstone Creek and Stanley Reward Tin Gossans are contact metasomatic skarn replacements of dolomite in contact with the granite. Available evidence suggests that the general dip of the replaced dolomitic horizons is to the east, i.e. towards the granite.

While a fairly significant down-dip potential is possible, the granite may eventually encroach and cut off mineralisation at depth. This situation has been demonstrated on the drilled section of the Livingstone Creek Tin Gossan (Macnamara 1974 and 1977). Thus for both gossans the best potential for large ore tonneages appears to be southwards along strike away from the (known) granite bodies and into the contact aureole country rock adjacent to the granite. The gossans where in contact with the granite can (for the time being) be regarded as having a potential for

limited ore reserves subject to future drilling indicating economic grades and tonneages.

4.3 Southwards of the Livingstone Creek Tin Gossan, soil sampling to 30 cm depth has not been successful in indicating a residual soil tin geochemical extension because of the thickness of the gravels overlying the country rock. Magnetic surveys however do show a magnetic high and thus indicate a potential for a strike extension southwards from the outcropping gossan to around line 6000N.

4.4 While DDH 7914N2 (Figure 2) intersected only 45 m of 150 ppm Sn (Macnamara, 1977) the lining up of the Stanley Reward Tin Gossan, the alluvial workings to the south and the recently discovered in-situ "45N/48W Anomaly" indicate a very promising zone of mineralisation in which richer ore shoots (such as the gossan) may develop. The location of the alluvial workings between the two in-situ tin-copper occurrences indicates that the alluvial workings themselves could be closely associated with or even overlie nearby mineralisation rather than being derived (as previously thought) from the gossan to the north. Unfortunately alluvial gravels again conceal bedrock in the vicinity of the alluvial workings (although exhaustive test probing by auger has not been done in this area). Shallow (30 cm) soil sampling confirms anomalous tin values in the vicinity of the alluvial workings on lines 4800N to 5000N around 4800W (see DWG K 553-9).

4.5 Anomaly "45N/48W" is concealed beneath a thin veneer of gravels which are, in places, only 0.5-1m thick. Auger hole geochemical prospecting indicated the presence of cassiterite-sulphide-dolomite crystals associated with calc-silicate hornfelses in a few auger holes. This mineralisation apparently occurs away from the main granite contact (unlike the outcropping limonite gossans). Angular blocks of limonite-veined hornfelsed dolomitic siltstone containing +4000 ppm Sn and 4000 ppm Cu have been brought to the surface in the roots of a large overturned tree just

south of line 4550N at 4830W. An auger hole into the former root site of this tree brought up cassiterite-sulphide-dolomite crystal fragments. This occurrence plus the presence of cassiterite-sulphide-carbonate fragments from depth in other holes on line 4500N are the main evidence of the in-situ nature of the tin-copper geochemical anomaly at "45N/48W".

5. GEOCHEMICAL SURVEYS

5.1 The chemical analyses from geochemical surveys completed in 1975 and 1976 are tabulated in Macnamara (1977). Results of the 1977 soil augering programme are tabulated in Appendices I and II of this report. Most of the results obtained from the surveys conducted between 1975 and 1977 are plotted on the drawings attached to this present report (DWG Nos. K553-8, 9 and 10). Except where otherwise specified, chemical analyses were carried out on the -80 mesh fraction of the soil and drainage samples collected. (Rock chip samples were pulverised).

5.2 All 1975 and many of the earlier 1976 soil samples were obtained from 25-30 cm depth using a mattock. As shown on DWG K 553-8 and 9, these cover the bulk of sample results north of line 4800N and south of line 4100N, and those in the topographically higher ground west of line 5000W and east of (approximately) line 4700W.

5.3 As that part of the topographically low, central, alluvial-covered "Dolomitic Sequence" between lines 4000N and 4600N appeared to have less gravel cover than the section to the north it was decided to probe it using a 1.5 m long soil auger. An additional favourable feature was that in contrast to the "button grass" and ti-tree cover on this zone north of 4600N, this particular southern part of the zone carries a number of large trees, the growing rocks of which might be expected to have lifted up fragments of country rock through the gravel cover. For this reason repeated attempts were made to obtain depth by by-passing blocking gravels during augering and the root zones of any large trees near the cut survey lines were particularly sampled in the hope of detecting any mineralised material from below lifted up by the tree roots during growth.

5.4 This type of approach in 1976 was instrumental in locating the most important anomaly found to date on the grid. It is centred at 4500N/4800W away from the main

granite contact, in the metamorphic aureole, in a dolomitic horizon towards the base of the "Dolomitic Sequence". While the 1975 30 cm soil sampling along line 4550N had indicated a slight unexceptional anomaly in the area (60 ppm Sn in one sample and 110 ppm Zn in another), the 1976 auger results set out below indicated a strong Sn-Cu anomaly deserving follow up in 1977, i.e.:-

LINE	WESTING	Sn	Cu	Zn	Pb	Bi (ppm)
4500N	4820W	320	56	200	27	14
4550N	4868W	100	29	52	14	4
	4830W	+4000	4500	300	29	4
4600N	4825W	140	70	115	26	16

5.5 A yellow limonitic-veined siltstone sample from the roots of an overturned tree at 4550N/4830W indicated the anomaly was in-situ. In 1977 testing with HCl indicated the shale itself contained carbonate. In addition an auger hole in the root zone obtained cassiterite-sulphide bearing dolomite fragments.

5.6 The results of the 1977 soil auger programme are tabulated in Appendix I. Chemical analyses are shown on DWGs K 553-8 and 9. Results around anomaly "45N/48W" are shown on DWG K 553-10.

5.7 Initially in 1977 all samples were sieved to -80 mesh prior to chemical analyses. Results confirmed the tin geochemical anomaly on lines 4500N, 4550N and 4600N over a greater width than obtained in 1976 while values of 50-60 ppm Sn on line 4400N indicated the anomaly could be weakly reporting here also.

5.8 While relogging the dried soil samples to check for the presence of calc-silicate minerals, it was decided to pan part of each sample to check for the presence of sulphides, magnetite and cassiterite. Recognisable cassiterite crystals were found in a few samples whose

-80 mesh fraction had yielded low, barely anomalous tin values only. As the cassiterite appeared to be fairly coarse, -20 mesh fractions were then sieved from 60 of the samples which straddle the line of the -80 mesh Sn anomaly. These were analysed for a large group of elements by emission spectrograph (in contrast to the AAS method used up to this point on all samples from 1975 onwards).

Results are tabulated in Appendices I and II and are shown on DWG K 553-10. Briefly they confirm that the -20 mesh fraction shows tin anomalies more strongly in the soils than the -80 mesh and over a wider area.

5.9 Visual scanning of results in Appendix I indicates that the more chemically mobile elements (Cu, Zn, Pb, Bi) appear to give a stronger response in the -80 mesh fraction.

5.10 The remainder of the samples listed in Appendix I will be sieved to -20 mesh and checked also. Weak zinc anomalies obtained on line 4300N around 4800W (DWG K 553-10) indicate the geochemical anomaly could extend this far. Zinc appears to be a good pathfinder element, apparently showing more strongly than copper, in those samples where tin values report only weakly in the -80 mesh fraction but more strongly in the -20 mesh fraction.

5.11 As shown on Figure 2, the old alluvial workings between Sn-Cu anomaly "45N/48W" and the Stanley Reward Tin Gossan could lie over part of the one mineralised zone and thus be of local derivation. Preliminary augering confirmed that the gravel cover is thicker on this zone than over anomaly "45N/48W" but more intensive auger probing might detect "windows" in the gravel and show whether the underlying rocks are mineralised. If auger probing is unsuccessful, bulldozer costeaning would need to be eventually tried to check the zone.

TABLE 2

TIN AND OTHER GEOCHEMICAL ANOMALIES

ANOMALOUS ZONE	LOCATION	Sn	Cu	Zn	Pb	Bi	COMMENTS/PROPOSED ACTION Values (ppm)
Livingstone Creek Tin Gossan	6550N-6300N/ 5050W-5100W						Values exceeding 0.5% Sn (Action: deeper augering should be attempted to find "windows" in the gravels; costeaning; I.P./resistivity surveys to indicate any mineralisation extensions southwards and the position of the granite contact).
Extensions south of Livingstone Creek Tin Gossan	6200N/5120W	760	18	195	20	40	(600 447R) : limonitic cobbles mixed with other gravels : possibly only scree from the main outcrop of gossan to the north. (Action: attempt deep augering to locate "windows" in the gravels or possible alluvial SnO_2 concentrations which may be close to or overlie mineralisation. Auger the low level gravel zone 6200N to 5300N)
-	5360N/4965W	2200	500	100	34	880	(Sample 5300N/4960W) : limonitic cobble from gully bed - origin unknown but possibly:- (1) from Livingstone Creek Tin Gossan (but no direct drainage) via reworked gravels? or (2) concealed northern extension of the Stanley Reward Gossan. (Action: attempt to locate origin of the limonitic cobble initially).
Stanley Reward Tin Gossan	5150N-5250N/ 4850W						Up to 1.5% Sn: 1, 2 or more discontinuous subparallel limonite lenses, 2-3 m wide. (Action: will eventually require costeaning to indicate potential prior to drilling).
Alluvial Workings 48N/48W	5000N-4700N/ 4800W-4850W						Old alluvial workings : values to 3040 ppm Sn have been located by shallow (30 cm) soil sampling; A 1 kg lump of galena was located on a gravel dump at 4903N/4827W. (Action: to locate possible mineralisation beneath the gravels, deep augering should be tried to check for "windows" in the gravels. Costeaning eventually will be required to check for drilling potential. I.P./resistivity surveys to aid drill hole siting).
ANOMALY 45N/48W	4600N-4400N/ 4800W-4850W						Up to +4000 ppm Sn, 6500 ppm Cu in auger holes at 1.5 m below gravel cover : evidence of SnO_2-sulphide-dolomite associated with in-situ calc-silicate hornfelses. (Action: further deeper augering required on this trend southwards to the E.L. border and north towards the gossan near 5200N. Drilling is indicated in the vicinity of Anomaly 45N/48W but costeaning and I.P./resistivity surveys prior to drilling would assist in optimizing the potential of the drill sites chosen).
NEWS CREEK ALLUVIAL WORKINGS	4700N/4100W						Old alluvial tin workings in this area near the E.L. border. Some slightly anomalous Sn and Zn values on lines to the south. Preliminary work indicates SnO_2 associated with a granite/Crimson Creek Formation contact. (Action: the general area of the contact needs checking - soil sampling, mapping, etc.).
OTHER WEAK LOW PRIORITY ANOMALIES							Action: these mainly require checking out by visual prospection and additional soil sampling in an attempt to upgrade or elimate them.
(1)	4000N/ 5720W-5762W						60-200 ppm Sn : near Stanley River; probably river bank alluvials contaminated by Stanley Reward mineralisation, reworked gravels or tin from the granite (as for 4400N/ 5637W-5687W ?).
(2)	4400N/ 5637W-5687W						Alluvials on the Stanley River flood bank - not in-situ (see Appendix I).
(3)	4200N/4250W	180	70	50	18	12	fine grained black hornfels (shale or basalt ?) with fine grained sulphides; near border of E.L.
(4)	4400N/4225W	60	60	38	17	12	in Crimson Creek Formation khaki soil - possibly along strike from (3) above.
(5)	4800N-4600N/						A number of Cu-Zn values in the 100 to 200 ppm range occur in this region and may deserve

6. TIN GEOCHEMICAL ANOMALIES

6.1 Table 2 lists the major and minor soil geochemical anomalies located to date. It suggests possible future follow-up action.

6.2 The "45N/48W" anomaly is considered to be the best found to date because of a strong tin-strong copper association in a hornfelsed dolomite zone which apparently is stratigraphically similar to the Renison Bell mineralised horizon.

6.3 The presence of alluvial tin concentrations as possible indicators for lines of tin mineralisation, the ability of deep augering to detect these concentrations where shallow (30 cm) soil sampling did not, and the enhanced response recently found to occur in the -20 mesh soil fraction compared with the -80 mesh fraction mainly used to date, indicate that it would be worth while rechecking the main alluvial gravel-covered areas which have to date been only tested to 30 cm depth. Initially those areas along strike from known mineralisation/gossans could be checked in an attempt to locate alluvial/eluvial tin concentrations above or near mineralised country rock. Probing may even reveal unsuspected "windows" in the gravels which will enable the country rock beneath to be sampled.

6.4 Table 2 lists the anomalies worth concentrating around initially.

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APPENDIX I

CHEMICAL ANALYSES - AUGERED SOIL SAMPLES AND ROCK CHIP SAMPLES (1977)

Note: All soil/drainage results are from the -80 mesh fraction unless -20 is specified in the sample number column.

-80 mesh results by A.A.S.
-20 mesh results by Emission Spectrograph

LINE	PAGE
4300N	7
4400N	6, 10
4400N (west)	8, 11
5800W	8
4500N	1-2
4550N	2-3
4600N	3-4, 10
4700N	5
4750N	5
4800N	5
5200N	10
5250N	9
5300N	9
6600N - 6200N	8, 10

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 500S*	10	65	84	60	10	1.0						4502N/5000W - residual soil - Oonah Quartzite and Slate (N) shaley siltstone, weathered limonitic. Close to hornfelsed siltstone o/c.
600 501S	x	15	44	27	10	0.8						In depression; 0-0.5 m grey-brown alluvial N silt; 0.5-1.3 m yellow-brown weathered limonitic siltstone. (as for 600 500S) - residual. (4495N/4972W).
600 502S	10	12	12	30	8	0.8						Weakly limonitic light to medium brown clay with white clay patches with crenulations = N shale (as for 600 500S) - residual (4500N/4965W).
600 503S	x	6	8	15	8	0.8						Pale grey-brown Oonah (N) quartzose siltstone equivalent to occurrence of N at 4600N/5000W in Stanley River. Residual (4500N/4945W).
600 504S	10	23	56	14	10	0.6						Alluvial; black mud flat soil; organic (4500N/4935W).
600 505S	10	16	68	20	4	0.6						Alluvial; grey-brown mud flat soil (as for 600 504) (4500N/4925W).
600 506S	80	34	60	15	8	0.8						Alluvial; fine gravels, quartz (granitic) detritus, 3 mm pebbles fibrous (?) wollastonite calc-silicate (4500N/4912W).
600 507S	60	32	54	20	12	0.8						? Alluvial; pale micaceous siltstone fragments, minor brown chert fragments; (?) boulder at 1.5 m depth (4500N/4900W).
600 508S	200	1100	22	28	20	1.6						Alluvial flat; pyrite on hard bottom at 1.2 m under alluvials - in-situ? or on boulder; carbonate fragments plus chlorite-pyrite lumps (4500N/4887W).
600 509S	20	16	50	22	6	0.6						Alluvial; some small dark limonitic clayey pebbles in khaki brown (not Crimson Creek Formation) clay; on (?) gravel bedrock (4500N/4877W).
600 510S	10	18	42	13	4	0.6						Alluvial; mud-leaf debris, minor limonite ?, gravels bedrock 1.5 m depth (4500N/4860W).
600 511S	30	22	104	18	6	0.6						0-1.0 m alluvials - bottomed on (?) gravels; fibrous (?) wollastonite plus red chert fragments in sample (4490N/4854W).
600 512S	x	27	90	20	6	0.8						Alluvial; light khaki brown clay with limonitic pebbles; fine gravels to 1.0 m depth - ? gravel base. (4500N/4853W).
600 513S	x	22	72	14	8	0.6						0-1.0 m mud, dark organic with some light khaki (shale) lumps; bedrock boulder (4508N/4847W)
600 514S	x	34	108	19	6	1.0						Alluvial; light brown to light khaki clay with pebbles greywacke siltstone and
-20**	200	5	<20	<1	50	0.3	0.07	5	30	<20	300	limonitic shale to 1 m depth (4495N/4840W).
600 515S	340	51	170	25	12	1.4						0-1.0 m black mud then gravels; fragments of vein/geode quartz, limonitic shale
-20	1000	10	<20	3	30	0.2	0.095	5	<5	30	1000	and quartzose siltstone (4515N/4830W).
600 516S	290	24	145	20	12	1.0						0-1.0 m mud, then fine gravels (lifted by tree roots ?); fibrous quartz and
-20	500	5	<20	3	50	0.5	0.04	5	<5	30	300	limonitic shale fragments (4514N/4845W).
600 517S	50	35	190	22	8	1.0						0-1.0 m mud, then fine gravels including fibrous quartz, medium yellow-brown
-20	500	10	<20	5	30	0.3	0.04	10	<5	30	50	limonitic siltstone in dark grey-brown organic alluvial soil (4495N/4825W).
600 518S	20	14	64	18	12	1.0						Black organic mud flat soil with light brown cherty and quartz fragments -
-20	3	3	<20	<1	10	<0.1	0.2	5	<5	30	5000	alluvial (4505N/4818W).
600 519S	x	30	68	21	14	1.2						0-1.0 m mud; 1-1.5 m fine gravels with very fine crystalline quartz (siltstone ?)
-20	50	5	<20	<1	50	0.2	<3	5	<5	<20	300	fragments (4500N/4810W).

* -80 mesh soil/drainage sample fraction by AAS
** -20 mesh soil/drainage sample fraction by Emission Spec.

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 520S	x	24	90	19	10	0.8						0-1.0 black mud, then mud plus soft yellow siltstone; possible calc-silicate (??) and fibrous quartz fragments (4500N/4807W).
-20	300	5	<20	3	50	0.2	<3	10	<5	30	100	
600 521S	120	31	76	13	8	2.0						0-1.0 m mud, then fine gravels with fine grained greywacke siltstone (Crimson Creek Formation ?) in dark brown organic alluvial mud (4500N/4798W).
-20	500	10	<20	3	50	0.3	<3	20	<5	50	300	
600 522S	x	48	44	16	10	1.4						0-1.3 m mud; 1.3-1.5 m fine gravels in dirty green grey khaki clayey organic soil with fragments of greywacke siltstone, and yellow-brown limonitic shale (4520N/4787W).
-20	100	10	<20	<1	50	0.3	<3	50	<5	20	300	
600 523S	x	18	22	10	10	0.6						0-1.5 m mud; at 1.5 m organic dark brown-black alluvial clay plus f.g. grey hornfels shale and white micaceous shale fragments (4500N/4775W).
-20	10	5	<20	<1	30	0.3	<3	<3	<5	<20	300	
600 524S	10	32	46	13	10	1.0						At 1.5 m purplish brown, mauve and grey-brown clay; limonitic shale pebbles, first appearance of Crimson Creek Formation on this traverse (4500N/4768W).
-20	20	20	<20	3	50	0.2	<3	<3	<5	<20	100	
600 525S	30	42	38	16	10	1.0						0-1.5 m in khaki clayey sand with fragments of limonitic clayey siltstone at base = Crimson Creek Formation (4500N/4762W).
-20	30	10	<20	<1	50	0.3	<3	5	<5	<20	300	
600 526S	x	65	48	20	16	1.0						Khaki clay with fragments of pinkish brown (hornfels?) chert (4515N/4753W).
600 527S	x	65	48	22	10	1.0						At 1.5 m subangular ferruginous gravel, black limonitic "pebbles" and grey-blue and khaki silty shale = Crimson Creek Formation (4500N/4750W).
600 528S	x	90	52	25	16	1.0						Base of slope; 0-1.5 m khaki clay (Crimson Creek Formation); at 1.5 m friable black granular material in clay plus yellow and blue-grey shaley siltstone fragments (4500N/4740W).
600 529S	x	57	28	26	12	1.0						Yellow brown limonitic clayey siltstone (Crimson Creek Formation), lump of goethite-limonite (4500N/4730W).
600 530S	x	75	40	27	12	1.0						Brown-khaki siltstone - fine greywacke sandstone, purplish siltstone pieces - in-situ ? Crimson Creek Formation (4500N/4712W).
600 531S	x	58	40	21	6	0.8						In gully - North bank, drains west; Crimson Creek Formation clay, quartz grains, creamy brown chert fragments - alluvial ? (4547N/4706W).
600 532S	x	75	58	24	14	1.0						South banks at 1.5 m depth : Crimson Creek Formation - yellow-brown clay, grey siltstone fragments, residual ? or hill slump ? (4537N/4710W).
600 533S	x	55	38	24	10	0.8						? Slumped Crimson Creek Formation ? At 1.2 m khaki to yellow-brown clay (Crimson Creek Formation) with fragments of gritty quartz (G ?), chert ??, purple clayey sand, grey mudstone (4550N/4743W).
600 534S	x	48	44	19	8	0.8						At 1.5 m purple-brown (Crimson Creek Formation) clay with fragments blue-grey shale, cherty black (?) hornfels-? Alluvial (4556N/4758W).
600 535S	x	60	460	40	24	1.0						Base of slope (flats to west). At 1.5 m radiating calc-silicate (wollastonite ?) plus mica and Mn staining - altered calc-shales ? (4550N/4765W).
600 536S	x	55	52	23	8	1.0						0-1.5 m - no gravels; dark greenish-khaki clayey sand alluvial (4550N/4777W).
600 537S	x	70	90	27	12	1.2						At 1.0 m - basement (or gravels); dark green-khaki silty clay. Soft altered micaceous (?) pelite with white and green-brown "bands" (4532N/4778W).
600 538S	x	50	36	19	6	0.6						At 1.5 m brown-khaki and medium brown clay with (?) wollastonite (radiating white calc-silicate), pebbles of G (quartz-tourmaline). Alluvial ? Basement ?
600 539S	x	75	56	25	8	1.2						? Alluvial: At 1.5 m green to yellow-brown clayey silt at roots of tree; minor pebbles of grey siltstone (A?) (4520N/4810W).
600 540S	x	100	60	32	8	1.0						Red limonitic patches in khaki clayey siltstone, grey-blue siltstone fragments - residual ? (4560N/4803W).

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 541S	x	75	74	30	14	1.6						Grey siltstone plus quartz-tourmaline (G) pebbles - alluvial (4555N/4815W).
-20	20	10	<20	<1	20	0.2	0.08	5	<5	<20	300	
600 452S	160	75	64	25	12	1.4						Alluvial; 0-1.0 m "bedrock" gravels, greenish-khaki sandy clay, pebbles quartz-tourmaline and calc-silicate (?wollastonite) fragments (4552N/4824W).
-20	1000	10	<20	<1	30	<0.1	0.06	<3	<5	<20	1000	
600 543S	>4000	6500	300	40	10	13						Alluvial ? dark yellow-brown soil, patches limonitic goethite and pieces greywacke siltstone (4562N/4826W).
-20	2000	300	50	<1	50	5	0.1	5	30	<20	100	
600 544S	>4000	2300	240	40	12	3.4						In roots of old tree - former 4000 ppm Sn and Cu site. Bright red limonitic and brown goethetic clayey soil; pyrite and small euhedral brown-black cassiterite crystals panned. No pyrrhotite ? In-situ ? (4543N/4833W)
-20	3000	300	50	5	50	3	0.09	5	30	<20	300	
600 545S	>4000	1500	102	65	12	2.2						As for 600 544 at 1.1 m depth - pyritic khaki clayey soil; pieces of crystalline carbonate (calcite ?) "gossanous" limonite and hornfelsic cherty shale fragments (4543N/4833W).
-20	3000	300	50	30	50	5	0.09	<3	30	<20	50	
600 546S	900	145	76	25	8	1.0						At 1.4 m depth fine gravels on (?) gravel base, dark greenish khaki clay with radiating (?) wollastonite + quartz-tourmaline + white cherty fragments (4553N/4840W).
-20	1000	30	<20	3	30	0.5	0.13	5	10	20	300	
600 547S	320	90	74	25	10	1.0						Alluvial, gravels to 1.5 m - dark grey-khaki clayey silt with fragments white wollastonite and quartz-tourmaline pebbles (4565N/4848W).
-20	500	30	<20	5	30	0.5	0.09	<3	<5	<20	100	
600 548S	60	18	38	24	6	0.4						Mud flat dark brown-grey alluvial soil with quartzose gravels to 1.5 m (4553N/4865W).
-20	100	5	<20	5	20	<0.1	0.03	5	5	30	300	
600 549S	70	18	46	14	6	0.4						Alluvial to 1.5 m - medium grey-brown clayey sand, no gravels - swamp mud (4558N/4877W).
-20	300	10	<20	3	30	<0.1	<3	5	<5	30	500	
600 550S	10	27	28	15	6	0.4						Alluvial (?) to 1.5 m medium grey-brown clayey sand, gravelly. Cream cherty shale fragments (4555N/4886W).
-20	500	10	<20	5	20	<0.1	<3	<3	<5	<20	200	
600 551S	10	4	5	9	12	x						0-0.7 m rounded gravels near Stanley River (4540N/4890W).
-20	1000	5	<20	5	30	<0.1	<3	<3	<5	<20	500	
600 552S	10	7	10	12	12	0.6						0-1.0 m gravel base; light grey and light brown clayey soil with gravels of mixed shales, quartz-tourmaline, quartz etc. (4550N/4906W).
600 553S	x	11	14	18	14	0.6						Rounded gravels at 1.2 m base. Pale grey brown silty clay, hornfels-shale fragments (4548N/4927W).
600 554S	x	6	12	10	6	0.2						In tree roots - base of slope 5 m to west. At 1.5 m - alluvials; organic, light grey-brown (?) Oonah silt and shale soil (as in last 5 or 6 samples). (4525N/4947W).
600 555S	x	2	4	5	6	0.2						?Alluvial light clayey "washed" sand to 1.3 m (4600N/4984W).
600 556S	x	2	4	6	4	0.4						Pale grey-brown clayey silt (Oonah ?) at 1.5 m - no gravels - residual ? (Ns soil in fallen tree roots at 4600N/4980W). (4604N/4973W).
600 557S	x	4	6	14	4	0.4						Alluvial - pale grey and grey-brown clayey Ns (Oonah siltstone), quartz fragments (4600N/4910W).
600 558S	30	5	8	9	6	0.6						Fine gravels at base (1.5 m) of Ns type soil (see 557) with fragments of quartz, hornfels siltstone, quartz-tourmaline (4604N/4903W).
600 559S	140	29	52	14	6	0.6						Alluvial. Fine gravels at 1.3 m beneath dark organic mud (4597N/4885W).
600 560S	150	7	20	7	32	0.4						Alluvial - root of fallen tree - rounded gravels. Fine gravels to 1 m then grey-brown (alluvial ?) sand (4615N/4874W).

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 561S	30	12	18	5	6	0.4						0-0.8 m - 5 cm gravels then dark organic mixed alluvial sand (including granitic soil) (4596N/4857W).
600 562S	30	44	52	17	16	0.6						0.5 m old pit in gravels augered to 1.3 m - hard gravel (?) bottom - fine gravels above bottom sampled - dark black-brown organic soil (4590N/4845W).
600 563S	x	25	38	16	6	0.6						Fine gravels at 1.4 m on hard gravel bottom dark black-brown soil (4597N/4841W).
600 564S	20	32	54	10	8	0.6						At 1.3 m - hard (?) gravel base. Dark green-grey-brown clayey silt, fine gravels
-20	300	10	<20	3	30	<0.1	<3	<3	<5	30	300	including, quartz, quartz-tourmaline (4600N/4838W).
600 565S	40	40	64	7	8	0.8						As for 600 564S - Alluvial (4600N/4831W).
-20	100	5	<20	<1	50	0.3	<3	30	<5	<20	500	
600 566S	50	65	48	9	10	1.2						As for 600 564 at 1.3 m; quartz, quartz-tourmaline, mica and shaley fragments -
-20	20	3	<20	<1	10	<0.1	0.1	5	5	<20	300	green-brown clay. Roots of tree (4590N/4828W).
600 567S	110	51	64	17	10	1.2						0-1.3 m - alluvials; hard (gravel ?) base. Dark grey-brown alluvials with quartz,
-20	500	5	<20	<1	30	0.2	0.08	5	5	20	500	quartz-tourmaline, shale (4596N/4820W).
600 568S	x	46	64	12	4	1.0						0-1 m dark organic mud then gravels (base) at roots of a tree (4596N/4814W).
-20	30	5	<20	<1	30	0.2	0.09	<3	5	<20	300	
600 569S	x	49	56	19	8	0.8						0-1.0 m fine gravels then hard bottom; dark grey-khaki soil plus minor fibrous
-20	300	10	<20	<1		0.2	<3	10	5	<20	300	wollastonite fragments, quartz-tourmaline gravels (4603N/4808W).
600 570S	1200	44	62	10	4	0.8						0-1.3 m then base. Calc-silicate (wollastonite) plus (?) granitic debris("quartz
-20	1000	20	200	3	50	0.3	0.05	10	30	20	5000	grit") (4600N/4800W).
600 571S	10	28	50	8	8	0.6						Calc-silicate (fibrous wollastonite ?) at 0.5 m on hard (dolomite ?) base
-20	500	10	<20	3	20	0.3	<3	5	<5	30	300	(4600N/4785W).
600 572S	20	58	64	20	6	1.2						In roots of old tree; 1.1 m to hard (gravel ?) base; grey-khaki and khaki clayey soil with quartz grit, khaki shale fragments.
600 573S	20	53	54	22	12	1.2						In remnants of old tree root - quartz grit, white fragments (wollastonite ?) in khaki clay. (4643N/4790W)
600 574S	x	60	46	24	14	1.2						1.5 m depth in old tree roots. Fine gravels in dark khaki clay with white (?) calc-silicate "bands/lenses". (4640N/4775W)
600 575S	10	23	22	10	8	0.4						Remnants of old tree root augered; (?) calc-silicate fragments, cellular cherty fragments, f.g. tourmaline rock (replaced siltstone ?) in dark organic soil.
600 576S	x	40	46	18	8	1.0						0-1.5 m sticky grey-khaki clay. Not bottomed. Some fibrous (?) wollastonite fragments (4600N/4778W).
600 577S	x	75	50	30	16	1.4						Yellow-brown-khaki clay, limonitic, greywacke siltstone (or tuff) fragments (4630N/4795W).
600 578S	x	90	42	30	10	1.2						Yellow-brown clayey soil (Crimson Creek Formation ?) with mottled grey-pink greywacke siltstone, limonitic fragments (4594N/4750W).
600 579S	x	95	64	25	12	1.2						0-1.0 m khaki soil with hornfelsed (?) black shale, grey-pink greywacke siltstone (as for 578), banded greywacke shale/siltstone - slump ? (4600N/4741W).
600 580S	x	65	34	20	10	1.0						Yellow-brown clay with fragments grey siltstone at bottom of auger - residual or slump Crimson Creek Formation ? (4600N/4725W).
600 581S	x	60	40	17	10	1.0						Khaki clay, purple clay at 1.5 m = residual Crimson Creek Formation with grey-blue and yellow-brown shaley fragments and limonite fragments. Black angular (2 mm) cherty pieces as gravel = chert ? (4600N/4715W).

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 582S	10	45	64	18	12	1.0						0-1.2 m - gravel basement in alluvial mining area. Gravels of quartz, quartz-tourmaline. In roots of overturned tree (4675N/4794W).
600 583S	x	1	2	3	2	0.2						Alluvial; silt above gravels in overturned tree roots on west bank Livingstone Creek : grey-brown silt. (4688N/4957W).
600 584S	x	2	4	3	4	0.2						Alluvial from overturned tree roots west bank of Livingstone Creek : granitic debris (4693N/4957W).
600 585S	x	2	4	4	6	x						1.5 m alluvials on hard (boulder ?) base granitic origin to alluvials (4750N/4810W).
600 586S	20	2	4	8	10	x						1.5 m alluvial sand, including granitic and siltstone debris in mid-creek bank. Check for alluvial Sn (4750N/4795W).
600 587S	20	24	195	16	10	1.0						Alluvial : base of slope and bank on edge of alluvial mined area. Black organic mud with shale and quartz (granite) fragments (4750N/4730W).
600 588S	10	25	4	10	4	0.4						Alluvial or slope wash : dark altered chloritic silicified granite soil plus rounded pebbles (4750N/4720W).
600 589S	10	5	6	8	2	0.4						Alluvial granitic soil (roots of old tree) (4750N/4708W).
600 590S	x	1	2	3	2	0.2						In-situ ? : granitic soil (4775N/4700W).
600 591S	x	27	22	15	10	1.0						Quartz-tourmaline fragments overlying shale hornfels soil (Crimson Creek Formation ?) at 1 m depth (4750N/4687W).
600 592S	x	35	22	15	6	0.8						Yellow-brown fine granitic soil at 1.5 m depth - slump or in-situ - Crimson Creek Formation contamination (4750N/4675W).
600 593S	x	105	30	13	6	1.6						Yellow-brown clay on Crimson Creek Formation (purplish laminated siltstone hornfels) (4700N/4650W).
600 594S	x	58	104	17	6	1.2						Dark contaminated granite - hornfels contact rock (4700N/4620W).
600 595S	x	125	84	20	8	1.4						Khaki clay plus grey hornfelsed greywacke siltstone (Crimson Creek Formation) at 1 m depth (4750N/4593W).
600 596S	x	70	58	18	8	1.2						Crimson Creek Formation hornfelsed argillite - in-situ (4750N/4578W).
600 597S	x	54	18	26	8	1.4						Crimson Creek Formation khaki clay, limonite lumps - in-situ ? (4800N/4550W).
600 598S	x	8	18	19	4	0.8						Granite debris overlying Crimson Creek Formation clay - in-situ shale (4800N/4575W).
600 599S	x	7	4	15	x	0.2						At 1.5 m reddish granitic soil. In-situ ? (4800N/4600W).
600 600S	x	44	20	12	6	0.8						In-situ weathered fine grained blue-grey-green siltstone (Crimson Creek Formation) (4800N/4625W).
600 601S	x	42	104	22	12	1.4						Khaki clayey micaceous soil after hornfelsed siltstone (4800N/4652W).
600 602S	x	16	14	22	12	1.0						Kaolinitic granitic soil to 1.5 m depth - in-situ (4800N/4675W).
600 603S	x	16	37	39	10	1.0						Greenish-grey clayey rock with quartz grains - digested shale in granite ? at contact. Radiating aggregates of kaolin/mica (4800N/4700W).
600 604S	x	22	20	22	10	0.8						At 1.5 m dark brown organic clayey soil after siltstone overlain by granite wash and pebbles (4800N/4725W).
600 605S	10	6	17	20	6	0.4						Dark grey fine micaceous alluvial sand (4800N/4731W).
600 606S	x	4	11	18	4	0.8						1.5 m of alluvial pale grey silt in mid river bank (4800N/4775W ?)

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 607S	x	1	6	6	x	x						2-5 mm ovoid black cherty "oolitic" masses in white siliceous groundmass. Possibly silicified oolitic rock. Plus Oonah Formation soil and scree. Alluvial. (4400N/4981W).
600 608S	x	2	6	8	2	x						Oonah Formation soil and silicified Oonah Siltstone fragments; at 0.3 m hard (gravel ?) base. Alluvial. (4396N/4950W).
600 609S	20	5	50	28	32	0.2						0.5 m Oonah silty soil, "columnar" and "geode" quartz fragments in roots of old tree. Alluvial. Ca reported. (4400N/4937W).
600 610S	x	2	17	8	4	0.2						0.5 m grey-brown alluvial Oonah siltstone soil - alluvial with columnar quartz fragments (4400N/4915W).
600 611S	x	2	10	7	4	0.2						0-1.0 m gravels on hard (gravel ?) base : Oonah siltstone, white milky chert (x - carbonate ?), limonite pebbles, etc (4400N/4892W).
600 612S	x	3	12	15	8	0.4						0.7 m alluvials to Oonah bedrock ? - alluvial grey-brown clayey silt, yellow
-20	30	3	50	<1	50	0.5	<3	50	<5	<20	1000	limonite staining (4400N/4880W).
600 613S	x	13	23	15	6	0.4						0.5 m to bedrock (Oonah) of Oonah sandy silt, fibrous ? wollastonite, calc-silicate,
-20	30	10	50	<1	30	<0.1	<3	30	<5	20	3000	grey-brown siliceous shale fragments with limonite ovoids, limonite coated "columnar" quartz fragments etc. in roots of fallen tree (4405N/4860W).
600 614S	x	7	30	15	2	0.2						0-1.0 m grey-brown clayey silty sand with calc-silicate (? wollastonite) fragments,
-20	200	10	50	3	30	0.3	<3	30	<5	<20	3000	SnO_2 particles (on panning), black "oolites" in white siliceous matrix, "columnar" quartz, grey-blue micaceous siltstone etc. fragments; bedrock = N ? (4400N/4843W).
600 615S	60	8	50	19	6	0.4						0.7 m to bedrock ? (N-Oonah ?) grey-brown clayey sand with calc-silicate
-20	500	10	<20	10	50	0.2	<3	5	<5	20	3000	(wollastonite), black "oolitic" in f.g. quartz rock etc. fragments (4404N/4835W).
600 616S	20	11	140	30	8	0.6						0.8 m grey-brown (N?) sand with fine gravels above (?) bedrock of fine white quartz
-20	300	5	<20	<1	50	0.3	<3	5	<5	20	300	sand (N?); green-brown felted minerals in rock, ?wollastonite, columnar quartz (4400N/4828W).
600 617S	x	11	43	12	8	0.6						0-1.1 m fine gravels, yellow-brown limonite to hard base in roots of fallen tree
-20	500	20	<20	<1	30	1	<3	10	<5	<20	1000	(4387N/4816W).
600 618S	x	21	65	18	8	0.8						As for 600 620S - white quartzose siltstone, talcose and calc-silicate (wollastonite ?)
-20	300	10	<20	<1	30	0.5	<3	<3	<5	<20	1000	fragments (4400N/4807W).
600 619S	40	9	24	28	54	1.4						1.2 m khaki-grey gravels in roots of fallen tree to soft bedrock of very fine grained
-20	500	20	300	<1	30	0.3	<3	10	<5	<20	2000	chloritic quartzose siltstone (as for 620) (4390N/4800W).
600 620S	50	5	19	29	54	1.4						At + 1.2 m depth at site 600 619S - altered white quartzose siltstone with ?biotite-
-20	500	10	1000	<1	30	0.5	<3	5	<5	30	>1%	chlorite; acid test yielded CO_2 - possibly a micaceous (phlogopite ?) carbonate siltstone.
600 621S	30	6	39	28	38	1.4						As for 620 at 1.0 m, acid test positive, felted radiating (?) wollastonite (25 m at
-20	50	3	<20	<1	30	0.1	0.1	<3	30	<20	3000	122°M from 600 620S).
600 622S	x	15	95	23	14	1.2						1.0 m fine gravels on hard base. Calc-silicate fragments (wollastonite ?) in khaki
-20	100	3	<20	<1	50	0.1	<0.02	<3	5	<20	300	clay (4400N/4792W).
600 623S	50	9	25	29	50	1.6						1.2 m to bedrock. As for 600 620S - white and greenish chloritic carbonate siltstone;
-20	300	5	<20	<1	50	0.3	<0.02	<3	5	30	5000	CO_2 with acid SnO_2 in heavy minerals from panning (4400N/4782W).
600 624S	10	12	13	7	250	0.2						At 1.5 m depth, radiating calc-silicate (? wollastonite) rock (4400N/4768W).
-20	300	10	<20	<1	100	0.3	<0.02	<3	50	<20	5000	
600 625S	x	60	37	26	6	1.0						Grey-brown khaki clay with fine gravel at 1.5 m depth - not bottomed. Fragments of
-20	200	50	100	<1	50	0.3	0.05	<3	<5	<20	200	green crystals (calc-silicate ?), radiating (?) wollastonite, minor dark chert, minor blue-grey shale (4400N/4756W).

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 626S	x	46	95	19	10	0.8						Calc-silicate chert at 0.2 m - residual; large fragments with white (?) wollastonite
-20	<1	5	30	<1	20	<0.1	<0.02	<3	<5	<20	100	in chert (4400N/4743W).
600 627S	10	45	40	22	4	0.8						Grey-brown-khaki clay with fragments of limonite and pink quartzose siltstone. In-situ ? No obvious calc-silicates (4400N/4735W).
600 628S	x	80	200	50	18	1.6						0-1.5 m : Crimson Creek khaki clay, one red cherty pebble. Chloritized green micaceous calcareous greywacke shale, finely banded, some calc-silicate (inter-banded or exotic ?) (4400N/4731W).
600 629S	x	60	18	24	10	0.8						Finely banded greenish-grey and blue-grey greywacke shale. Similar to 600 628S but non-laminated (4400N/4716W).
600 630S	10	60	26	31	8	0.8						White, grey and green micaceous banded kaolinite greywacke shale (no calc-silicate seen but similar to 628 629S). Angular pieces of soft "porcellanite" (4400N/4708W).
600 631S	x	375	75	44	18	2.0						Dark yellow-brown clayey soil after banded limonitic white-yellow-brown shale; limonite coated greenish greywacke siltstone fragments (4402N/4696W).
600 632S	x	80	54	26	8	1.0						0-1.2 m dark brown-khaki soil with red limonitic earthy rock fragments (= hornfelsed siltstone or shale ?). Possibly soil slump (pebbles in clay) or in-situ (4300N/4703W).
600 633S	x	28	33	15	8	1.0						0-1.5 m dark blue-black alluvial soil = ?black shale?, minor grey shale fragments (4303N/4721W).
600 634S	x	54	27	18	4	0.8						Greenish-blue-grey clayey sand, some pale white shale fragments (4300N/4737W).
600 635S	x	35	40	15	8	0.8						Calc-silicate in banded greenish (chloritic) and white siltstone - altered shaley dolomite ? (4300N/4749W).
600 636S	x	17	26	10	4	0.4						Dark greenish-grey-brown soil with calc-silicate (wollastonite ?) fragments at 1.0 m - similar to 600 635S.
600 637S	x	38	100	20	6	1.0						1.5 m dark green-grey-brown (?) alluvial sand, traces of wollastonite fragments (4300N/4776W).
600 638S	10	11	42	10	x	0.4						0.7 m fine gravels in green-brown clayey soil. Calc-silicate chips, hard base (4300N/4787W).
600 639S	x	24	140	20	10	0.6						0-1.0 m to hard base. Greenish brown clayey sand with calc-silicate fragments at base. In-situ ? (4300N/4794W).
600 640S	x	6	27	10	8	0.4						Greenish-khaki clayey sand with white f.g. siltstone (calc-silicate ??), limonitic columnar quartz fragments, pale cream chert fragments - alluvial (4300N/4808W).
600 641S	x	2	19	11	12	0.4						0-1.0 m bedrock. As for 600 640S with white f.g. quartz siltstone (Oonah ?) (4300N/4819W).
600 642S	40	3	15	28	64	1.2						0-0.7 m hard base; green-khaki clayey silt, white quartz "siltstone" (Oonah ?) (4300N/4831W).
600 643S	x	2	17	9	4	0.2						Brown clayey grit, white porcellanite chips, radiating wollastonite, grey-white quartz fragments. (4300N/4844W).
600 644S	x	6	33	20	6	0.4						Dark brown organic mud with fragments of fine grained white "quartzose" siltstone, radiating calc-silicate, white chert and possibly black oolites in grey-white quartz matrix. Not Oonah (4300N/4856W).
600 645S	x	1	6	10	6	0.2						Dark grey-brown organic clay, hard base 0.3 m. Fragments of milky-glassy chert and wollastonite ? - chert fragments, black oolitic chert in white quartzose matrix. Not Oonah (4300N/4867W).

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 646	x	7	4	10	2	0.2						0-0.2 m to bedrock dark grey soil with dark quartz mica siltstone and fine sandstone fragments - Oonah Formation in-situ (4400N/5925W).
600 647S	x	1	4	4	2	x						0.2 m to residual black or dark grey shale - Oonah Formation. Rounded boulders including altered granite capping hill top upslope - high level gravel remnants (4400N/5893W).
600 648S	x	2	5	3	4	x						Finely laminated grey-black shale in-situ (4400N/5850W).
600 649S	x	2	7	3	x	x						Fine grained grey-green shale (N), "columnar" crystalline quartz fragments (4400N/5830W).
600 650S	x	38	5	12	4	0.4						Pale limonitic grey shales beneath shallow cover of volcanic scree from upslope (4400N/5800W).
600 651R	80	45	140	47	20	1.6						Pale cream volcanic ? scree : 0.5 mm felsite with feldspar and chloritized FeMgs - see 600 664S and 600 720R (4400N/5790W).
600 652S	20	25	14	38	20	1.0						Shale soil (N) with fragments of quartz veined with limonite (from the volcanics ?) (4400N/5782W).
600 653S	x	6	9	20	4	0.6						1.5 m alluvial micaceous mud flat soil after N siltstone (ti-tree flat) (4400N/5747W).
600 654S	x	4	6	10	4	0.2						1.5 m black ti-tree flat alluvial silt (N type soil) (4400N/5731W).
600 655S	x	4	7	7	x	0.2						As for 600 654S, grey-brown (4400N/5700W).
600 656S	x	3	10	5	6	0.2						1.5 m alluvial washed pale grey-brown sand (4400N/5652W).
600 657S	x	4	7	8	6	0.2						Alluvial gravels, quartz and quartz-feldspar rich (granite) to 1.5 m depth (4400N/5625W).
600 658S	x	18	17	25	14	1.0						On slope - quartz veined blue-grey N quartzite (Ns) - hornfelsed ? Residual (4395N/5550W).
600 659S	x	3	5	8	4	0.2						Grey-brown alluvial clayey silt (N type) on flat area (4400N/5562W).
600 660S	x	6	3	8	6	0.4						Alluvial quartz-feldspar sand (granitic) to 1.5 m - river flat (4400N/5580W).
600 661S	50	3	3	6	4	0.4						Alluvial as for 600 660S (4400N/5608W).
600 662S	x	2	2	2	6	0.4						Oonah (N) siltstone downslope of volcanics: sericite siltstone (5800W/4360N).
600 663S	80	65	34	54	12	0.6						Yellow-brown clayey soil, residual - volcanics soil ? (5800W/4373N).
600 664S	10	24	36	85	16	1.0						Intermediate - basic volcanic soil, limonitic; in-situ; see chemical analysis 600 720R (5800W/4387N).
600 665S	x	2	1	2	2	x						0.2 m to Ns bedrock ? light grey-brown Ns soil and fragments (6250N/5170W).
600 666S	x	2	2	2	2	x						As for 600 665S (6250N/5150W).
600 667S	x	4	2	4	8	0.2						1.5 m alluvials with quartz, granitic debris. Possibly limonitic shale bedrock (6250N/5130W).
600 668S	30	3	1	5	4	0.2						1.3 m alluvials (granitic, N) to (?) bedrock of yellow-brown limonitic siltstone as small chips off possible bedrock (6250N/5114W).
600 669	70	2	1	2	4	x						0.2 m of alluvials including granite and traces of limonite "gossan" ? scree. Not bottomed (6250N/5100W).
600 670S	x	2	3	1	2	0.2						Alluvials, mainly Ns and some quartz-tourmaline pebbles (6250N/5087W).

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 671S	50	2	4	3	4	x						+1.0 m alluvials including granitic and Ns (5300N/4884W).
600 672S	x	2	4	30	2	x						0.7 m gravels to bedrock (?) possibly granite (?) (5300N/4873W).
600 673S	x	2	5	5	4	0.2						0-0.6 m : trench; 0.6 m - 1.0 m granite in-situ (5296N/4865W).
600 674S	x	3	5	6	12	0.4						Trench 0.5 m to granite base (5293N/4870W).
600 675S	x	2	6	5	6	0.2						1.5 m in-situ soft leucocratic chloritic granite soil (5269N/4847W).
600 676S	130	30	40	23	6	0.6						Hard chocolate shale hornfels at base of hill in bottom of costean; limonitic (5266N/4860W).
600 677S	x	20	11	24	6	0.4						In costean : 1.3 m into yellow limonitic fine grained granite (chilled ?) in-situ (5268N/4858W).
600 678S	x	2	9	14	4	0.4						Very limonitic granite, in-situ (5278N/4868W).
600 679S	x	2	7	11	4	0.2						Weathered clayey granite in-situ (5280N/4874W).
600 680S	x	21	102	115	6	0.8						Residual greenish-grey micaceous fine siltstone or shale with red hematite coloured bands; biotite hornfelsing ? Limonite scree on top 0.5 m thick (granite contact 0.5 m to the south) (5264N/4863W).
600 681S	x	5	6	13	4	x						Soft white granite in-situ in costean (5262N/4867W).
600 682S	10	14	140	70	8	1.0						Brown (biotite) micaceous shale with red hematite colour in places - in-situ, hornfelsed? (5259N/4868W).
600 683S	+4000	135	76	38	16	1.8						Limonitic "gossan" and red-brown soil in wall of costean - on shale ? (5254N/4872W).
600 684S	120	60	135	22	6	1.0						1.3 m to hard layer (gravels, gossan ?) of yellow-brown shaley, "talcose" soil - in-situ (5247N/4871W).
600 685S	860	85	106	27	26	1.2						South wall of costean leading to adit : pale yellow-brown clayey soil, "talcose" feel; shale on west side of gossan probably, (but loose ? scree gossan mixed in) (5246N/4867W).
600 686S	40	8	3	9	8	0.4						0-1.2 m grey granitic soil; 1.2-1.5 m yellow-white fine grained granite with quartz "eyes" (granite porphyry ?) (5258N/4849W).
600 687R	1.25%	175	88	24	18	2.4						Adit portal inwards, 0-2 m chip channel of limonitic clayey rock with signs of radiating calc-silicate (wollastonite ?). After calcareous shale ?
600 688R	3200	160	56	23	30	2.4						Adit, 2-5.5 m from portal, similar to 600 687R - chip channel.
600 689R	1.90%	175	52	26	26	2.4						Limonitic gossan chip channel 5.5 m from portal to 7 m (i.e. 1.5 m) on face. Face in gossan still.
600 690R	0.63%	210	70	30	28	2.6						Chip sample of hard and softer clayey limonitic "gossan" in slot (5249N/4861W).
600 691R	50	150	84	31	26	2.4						Chips of hard surface gossan in trench. Gossan extends NE to near shaft at 4850W (5254N/4859W).
600 692R	0.68%	200	58	32	78	2.2						Dump material from nearby outcrop and shaft - limonitic "gossan" fragments (5233N/4851W).

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 693R	1.80%	300	56	28	64	2.0						Limonitic shale - gossan shaft dump (5227N/4850W).
600 694R	1.05%	400	44	25	60	2.2						+2.5 m wide limonitic gossan in trench face with shale bands.
600 695R	1.50%	95	113	33	18	2.2						Limonitic gossan, clayey 3.7 m wide in trench - chips sample.
600 696R	3900	65	20	90	250	0.6						In bottom of trench - weathered granite (5204N/4859W).
600 697R	1300	170	22	32	700	1.0						Talcose pale grey and cream shale, probably in-situ. No limonitic gossan seen (5201N/4862W).
600 698R	190	65	50	10	10	0.4						Pale cream-white shaley siltstone with blue-green chloritic bands and fine grained quartz. In-situ (5193N/4872W).
600 699R	0.48%	650	60	29	52	2.4						Dump near shaft : limonitic gossan.
600 700R	2700	210	72	36	60	2.0						In trench deep brown limonitic shale with patches of harder limonite (3.3 m).
600 701R	100	7	8	3	4	0.2						Calc-silicate rubble - white radiating (?) wollastonite in white cherty quartz (see T.S.) (4400N/4752W).
600 702R	100	29	20	12	4	0.4						Black shale with bands of shale breccia - "slumped" crenulation breccia ? (4400N/4740W).
600 703R	2700	140	185	24	18	2.6						Chips of limonitic gossan line 6550N line
600 704R	0.56%	290	225	25	250	2.4						As for 600 703R.
600 705R	2700	12	82	25	700	2.2						Chips of limonite gossan outcrop line 6400N.
600 706R	0.41%	9	112	21	210	2.4						As for 600 705R.
600 707R	70	35	510	28	30	2.2						6375N adit, Livingstone Creek - north wall chip sample of gossan.
600 708R	140	60	500	44	22	2.2						6375N adit, Livingstone Creek - north wall limonitic gossan chips.
600 709R	130	48	900	45	20	2.4						As for 600 708R - south wall.
600 710R	100	70	470	38	14	2.0						As for 600 709R.
600 711R	120	31	170	140	16	1.6						6375N adit - north wall shales west of gossan nearer face of adit.
600 712R	100	26	140	30	16	1.6						As for 600 711R - south wall of adit, pale cream to cream-brown laminated (0.5 - 1 mm laminae) talcose - feeling (kaolin ?) siltstone. Veined by goethitic-limonitic chert.
600 713R	2700	145	165	21	62	2.4						Chips from limonitic gossan on line 6350N.
600 714R	2300	170	175	20	80	2.0						As for 600 713R.
600 715R	0.41%	18	160	20	34	3.0						As for 600 713R.
600 716R	3400	19	140	24	12	2.4						Chips from limonitic gossan on line 6300N.
600 717R	2000	110	240	160	44	2.4						As for 600 716R.
600 718R	750	18	24	10	8	0.4						Near top of Oonah Quartzite and Slate - outcrop south bank Stanley River (see previous report T.S. and chemical analysis) (4565N/4980W).
600 719R												Vicinity of Zeehan Western and Montana Mines, Zeehan at 1 km from Zeehan on old Corinna Road: Spilite near top of Oonah Formation probably from a shaft (unweathered sample). Compare with 5800W/4400N volcanic Stanley River. Grey volcanic with black ovoids and white crystalline 1-2 mm amygdules.

SAMPLE NO.	Sn	Cu	Zn	Pb	Bi	Ag	Au	Ni	Co	Cr	Ca	SAMPLE DESCRIPTION
600 720												Volcanic rock at 4400N/5800W. As for 600 651 and 600 664 - (?) basic felsite volcanic.
600 721R												As for 600 720R.
600 722R												As for 600 607R - white fine grained siliceous.

APPENDIX II

CHEMICAL ANALYSES - AUGERED SOIL SAMPLES (1977)

-20 MESH ANOMALY CHECKS BY EMISSION SPECTROGRAPH

Note: Sn-Cu-Zn-Pb-Bi-Ag-Au-Ni-Co-Cr results are also listed in Appendix I.

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ANALYTICAL RESULTS

Samples from: Pacminex Pty. Ltd.
Area: Prospect. No. 600
Samples of: Rocks and soils.
Preparation: Crushed and pulverised.
Batch No.: A S.498

Sheet No.: 5.
Date: 2.6.77

SAMPLES WILL BE DISPOSED OF AFTER TWO MONTHS UNLESS WE ARE OTHERWISE ADVISED

Sample Description	Snppm	Znppm	Bappm	Cappm	Srppm		
600 514	200	<20	200	300	<30		
5	1000	<20	100	1000	<30		
6	500	<20	200	300	<30		
7	500	<20	<30	50	<30		
8	3	<20	200	5000	<30		
9	50	<20	100	300	<30		
20	300	<20	30	100	<30		
1	500	<20	50	300	<30		
2	100	<20	50	300	<30		
3	10	<20	30	300	<30		
4	20	<20	30	100	<30		
525	30	<20	50	300	<30		
541	20	<20	50	300	<30		
2	1000	<20	200	1000	<30		
3	2000	50	<30	100	<30		
4	3000	50	100	300	<30		
5	3000	50	<30	50	<30		
6	1000	<20	200	300	<30		
7	500	<20	30	100	<30		
8	100	<20	300	300	<30		
9	300	<20	300	500	<30		
50	500	<20	200	200	<30		
551	1000	<20	300	500	<30		
564	300	<20	100	300	<30		
5	100	<20	100	500	<30		
6	20	<20	100	300	<30		
7	500	<20	300	500	<30		
8	30	<20	100	300	<30		
9	300	<20	30	300	<30		
70	1000	200	200	5000	<30		
571	500	<20	200	300	<30		
612	30	50	200	1000	<30		
3	30	50	200	3000	<30		
4	200	50	300	3000	<30		
5	500	<20	300	3000	<30		
6	300	<20	50	300	<30		
7	500	<20	100	1000	<30		
8	300	<20	200	1000	<30		
9	500	300	30	2000	<30		
20	500	1000	200	>10000	<30		
1	50	<20	300	3000	<30		
2	100	<20	50	300	<30		
3	300	<20	50	5000	<30		
4	300	<20	<30	5000	<30		
5	200	100	30	200	<30		
600 626	<1	30	100	100	<30		
601 33S	<1	30	<30	100	<30		
34R	<1	<20	200	100	<30		
35R	<1	<20	200	100	<30		
601 36R	<1	30	200	100	<30		

ANALYTICAL METHODS:

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ANALYTICAL RESULTS

Samples from: Pacminex Pty. Ltd. (Your O/N 14131)
Area: Prospect No. 600
Samples of: Rocks and Soils.
Preparation: Crushed and pulverised.
Batch No.: AS.498

Sheet No.: 1.
Date: 2.6.77

SAMPLES WILL BE DISPOSED OF AFTER TWO MONTHS UNLESS WE ARE OTHERWISE ADVISED

Sample Description	Coppm	Crppm	Mnppm	Moppm	Nippm	Wppm	Agppm
600 514	30	<20	300	<3	5	<50	0.3
5	<5	30	200	<3	5	<50	0.2
6	<5	30	200	<3	5	<50	0.5
7	<5	30	200	<3	10	50	0.3
8	<5	30	200	<3	5	<50	<0.1
9	<5	<20	200	<3	5	<50	0.2
20	<5	30	300	<3	10	<50	0.2
1	<5	50	300	<3	20	50	0.3
2	<5	20	100	<3	50	<50	0.3
3	<5	<20	100	<3	<3	<50	0.3
4	<5	<20	100	<3	<3	<50	0.2
5	<5	<20	300	<3	5	<50	0.3
541	<5	<20	200	<3	5	<50	0.2
2	<5	<20	200	<3	<3	<50	<0.1
3	30	<20	500	<3	5	50	5
4	30	<20	300	<3	5	50	3
5	30	<20	300	<3	<3	50	5
6	10	20	200	<3	5	<50	0.5
7	<5	<20	100	<3	<3	<50	0.5
8	5	30	300	<3	5	<50	<0.1
9	<5	30	300	<3	5	<50	<0.1
50	<5	<20	300	<3	<3	<50	<0.1
551	<5	<20	300	<3	<3	<50	<0.1
564	<5	30	200	<3	<3	<50	<0.1
5	<5	<20	100	<3	30	50	0.3
6	5	<20	300	<3	5	100	<0.1
7	5	20	100	<3	5	50	0.2
8	5	<20	300	<3	<3	50	0.2
9	5	<20	300	<3	10	100	0.2
70	30	20	500	<3	10	300	0.3
571	<5	30	300	<3	5	<50	0.3
612	<5	<20	300	<3	50	<50	0.5
3	<5	20	300	<3	30	50	<0.1
4	<5	<20	300	<3	30	50	0.3
5	<5	20	200	<3	5	<50	0.2
6	<5	20	300	<3	5	100	0.3
7	<5	<20	200	<3	10	50	1
8	<5	<20	300	<3	<3	50	0.5
9	<5	<20	500	<3	10	50	0.3
20	<5	30	500	<3	5	<50	0.5
1	30	<20	300	<3	<3	<50	0.1
2	5	<20	300	<3	<3	50	0.1
3	5	30	500	3	<3	50	0.3
4	50	<20	1000	3	<3	50	0.3
5	<5	<20	300	<3	<3	<50	0.3
600 626	<5	<20	200	<3	<3	50	<0.1
601 33S	<5	<20	200	<3	<3	<50	<0.1
34R	<5	<20	100	<3	<3	<50	<0.1
5R	<5	<20	100	<3	<3	<50	<0.1
601 36R	<5	<20	300	<3	<3	<50	<0.1

ANALYTICAL METHODS:

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ANALYTICAL RESULTS

Samples from: Pacminex Pty. Ltd.
Area: Prospect No. 600
Samples of: Soils and rocks.
Preparation: Crushed and pulverised
Batch No.: A S. 498

Sheet No.: 3.
Date: 2.6.77

SAMPLES WILL BE DISPOSED OF AFTER TWO MONTHS UNLESS WE ARE OTHERWISE ADVISED

Sample Description	Asppm	Auppm	Bippm	Cdppm	Cuppm	Pbppm	Sbppm
600 514	<50	<3	50	3	5	<1	<30
5	<50	<3	30	<3	10	3	<30
6	<50	<3	50	<3	5	3	<30
7	<50	<3	30	<3	10	5	<30
8	<50	<3	10	<3	3	<1	<30
9	<50	<3	50	<3	5	<1	<30
20	<50	<3	50	<3	5	3	<30
1	<50	<3	50	<3	10	3	<30
2	<50	<3	50	<3	10	<1	<30
3	<50	<3	30	<3	5	<1	<30
4	<50	<3	50	<3	20	3	<30
525	<50	<3	50	<3	10	<1	<30
541	<50	<3	20	<3	10	<1	<30
2	<50	<3	30	<3	10	<1	<30
3	<50	<3	50	5	300	<1	<30
4	<50	<3	50	3	300	5	<30
5	<50	<3	50	30	300	30	<30
6	<50	<3	30	<3	30	3	<30
7	<50	<3	30	<3	30	5	<30
8	<50	<3	20	<3	5	5	<30
9	<50	<3	30	<3	10	3	<30
50	<50	<3	20	<3	10	5	<30
551	<50	<3	30	<3	5	5	<30
564	<50	<3	30	<3	10	3	<30
5	<50	<3	50	<3	5	<1	<30
6	<50	<3	10	<3	3	<1	<30
7	<50	<3	30	<3	5	<1	<30
8	<50	<3	30	<3	5	<1	<30
9	<50	<3	50	<3	10	<1	<30
70	<50	<3	50	<3	20	3	<30
571	<50	<3	20	<3	10	3	<30
612	<50	<3	50	<3	3	<1	<30
3	<50	<3	30	<3	10	<1	<30
4	<50	<3	30	<3	10	3	<30
5	<50	<3	50	<3	10	10	<30
6	<50	<3	50	<3	5	<1	<30
7	<50	<3	30	<3	20	<1	<30
8	<50	<3	30	<3	10	<1	<30
9	<50	<3	30	<3	20	<1	<30
20	<50	<3	30	10	10	<1	<30
1	<50	<3	30	3	3	<1	<30
2	<50	<3	50	5	3	<1	<30
3	<50	<3	50	5	5	<1	<30
4	<50	<3	100	3	10	<1	<30
5	<50	<3	50	30	50	<1	<30
600 626	<50	<3	20	3	5	<1	<30
601 33S	<50	<3	10	5	5	<1	<30
34R	<50	<3	10	5	5	3	<30
35R	<50	<3	10	3	3	3	<30
601 36R	<50	<3	10	5	20	100	<30

ANALYTICAL METHODS:

DISTRIBUTION:

Signed .....

039

284040

A.C.S. Laboratories Pty. Ltd.
50 MARY STREET
UNLEY, S.A. 5061
P.O. BOX 3
UNLEY, S.A. 5061
PHONE: 272 5733

ANALYTICAL RESULTS

Samples from: Pacminex Pty Ltd. (Your O/N 14131)
Area: Prospect No. 600.
Samples of: Rocks and Soils.
Preparation: Crushed and pulverised as req'd.
Batch No.: A S. 498.

Sheet No.: 1.
Date: 2.6.77.

SAMPLES WILL BE DISPOSED OF AFTER TWO MONTHS UNLESS WE ARE OTHERWISE ADVISED

Sample Description	Auppb.
600514	70
5	95
6	45
7	45
600518	200
600541	85
2	65
3	100
4	95
5	90
6	130
7	90
600548	30
600566	100
7	85
68	95
600570	55
600621	100
2	<20
3	<20
4	<20
5	55
600626	<20
REPEAT AND CHECK	
600542	65
600621	100

ANALYTICAL METHODS: Au by Special low level CRA/AAS method.

DISTRIBUTION: Pacminex Pty Ltd. - Sydney.
N.S.W.

Signed .....

APPENDIX III

CHEMICAL ANALYSES - ROCK FORMING ELEMENTS

284042

APPENDIX III

ANALYSES OF ROCKS BY AAS

SAMPLE NO.	Si%	Ti%	Al%	Cr%	Fe%	Mn%	Mg%	Ca%	Na%	K%	Pppm	Beppm	Lippm
600 651R	19.5	N/A	12.5	x	9.5	0.16	4.35	0.20	0.39	0.75	N/A	2.6	43
600 688R	2.25		2.75	x	53	0.07	0.26	x	x	0.01		24	1.0
600 689R	0.75		1.25	0.01	56	0.07	0.02	x	x	x		10.8	x
600 708R	12.7		3.90	0.01	34.0	0.19	0.16	x	x	0.02		37	2.0
600 711R	18.7		14.3	x	17.5	0.04	0.26	x	x	0.09		10.8	6.0
600 718R	33.0		9.0	0.01	2.8	0.02	0.88	x	0.12	3.50		3.1	16.5

6000mW 5500mW 5000mW 4500mW 4000mW

7000mN
6500mN
6000mN
5500mN

LINE 59 N
LINE 57N
LINE 56N
LINE 55 N

REFERENCE

Survey: Origin designated 5000mN/5000mW. Grid North is 316°M
- Pegs at 25m intervals

Lines 3300N, · · · 6600N (Pacminex grid) ML 18-20 (Renison Ltd)

- River, Creek, Track
- Edge of alluvial flat
- Ridge top (especially 1st ridge West of Livingstone Creek flat)
- Scarp, edge of higher level gravels
- 175°, ∠60° Strike and dip of bedding/jointing
- Fault
- Open cut, trench
- Costean, with adit
- Shaft, pit showing depth (metres)
- Mine dump
- Diamond drill hole
- E.L. Boundary (approximate position)

Livingstone CR Tin gossan

Adit No1

E.L. 18/73 Renison Ltd
E.L. 53/70

STANLEY RIVER

REFERENCE

QUATERNARY
- Qra — Alluvium(i) button grass(ii) mud flats(iii) ti-tree
- Qrg — Gravels (gvls)
- # # — Limonitic bodies - 'gossan' etc.

TERTIARY
- Qrg — Gravels

CAMBRIAN
- A — CRIMSON CREEK ARGILLITE: khaki clay weathering rocks incl green & purple mudstones, volcanoclastics, greywackes, (?) tuff etc.
- M — MARKER SEQUENCE (inferred): typically a 50-150m thick sequence with a magnetic upper (Mcu) & lower (Mcl) chert horizon separated by dolomite (Md). Its presence within E.L. 53/70 is inferred from magnetometer traverses in an area obscured by Crimson Creek Argillite (?) talus/slump material.
- D — DOLOMITIC SEQUENCE: dolomite (Dd), dolomitic siltstone (Dds), shale (Dsh), chert (Dc) etc. Forms a low lying alluvial covered area immediately above the Oonah Formation (N)

PROTEROZOIC ?
- N — OONAH QUARTZITE AND SLATE: top units are finely bedded sericitic quartzite siltstones (Nq) which typically form ridges separated by more easily eroded valleys (on shale/blackshale?)
- (blank)

DEVONIAN
- G — MEREDITH GRANITE: granite (G) with quartz porphyry (Gqp), diorite (Gd) etc phases

- V — Volcanics (ie Av etc)
- g — Greywacke
- q — Quartzitic siltstone
- s — Siltstone
- sh — Shale, blackshale
- m — Mudstone
- sh1 — Pale grey brown to fawn coloured sericitic shale
- d — Dolomite (ie Md, Dd, etc)
- ds — Banded green micaceous dolomitic siltstone
- coc — Chert, black oolite chert
- Soil ie +S granite soil
- Scree: eluvial to slope wash soil (SWS)
- h — Prefix denoting hornfelsing (most rocks on the grid show signs)

- Auger hole
- d — Dolomite at depth in auger hole (under alluvials)
- or dolomite fragments (eluvial?) in auger hole ~ 1m depth
- EW/HW — Extremely weathered/highly weathered
- o/c, s/c — Outcrop, subcrop (inferred from auger drilling ≤ 1.5m depth)
- Stream sediment
- Panned concentrate
- Rock chip
- × Soil
- Scree/slope wash
- Creek boulder/float
- Limonite (gossans etc.)

Chemical analyses of soils (ppm) - -80 mesh fraction mainly plus some subsequent -20 mesh results for Sn on some samples which are anomalous (or adjacent to anomalous) -80 mesh values

	-80 mesh	-20 mesh
Sn	x	(200)
Cu	60	
Zn	37	
Pb	26	
Bi	6	

Samples collected 1975-1977 and listed in reports PMR 153/77 and 168/77

x — below limit of detection

284013

5cm

PACMINEX PTY. LIMITED

SOIL GEOCHEMISTRY: Sn, Cu, Zn, Pb, Bi.

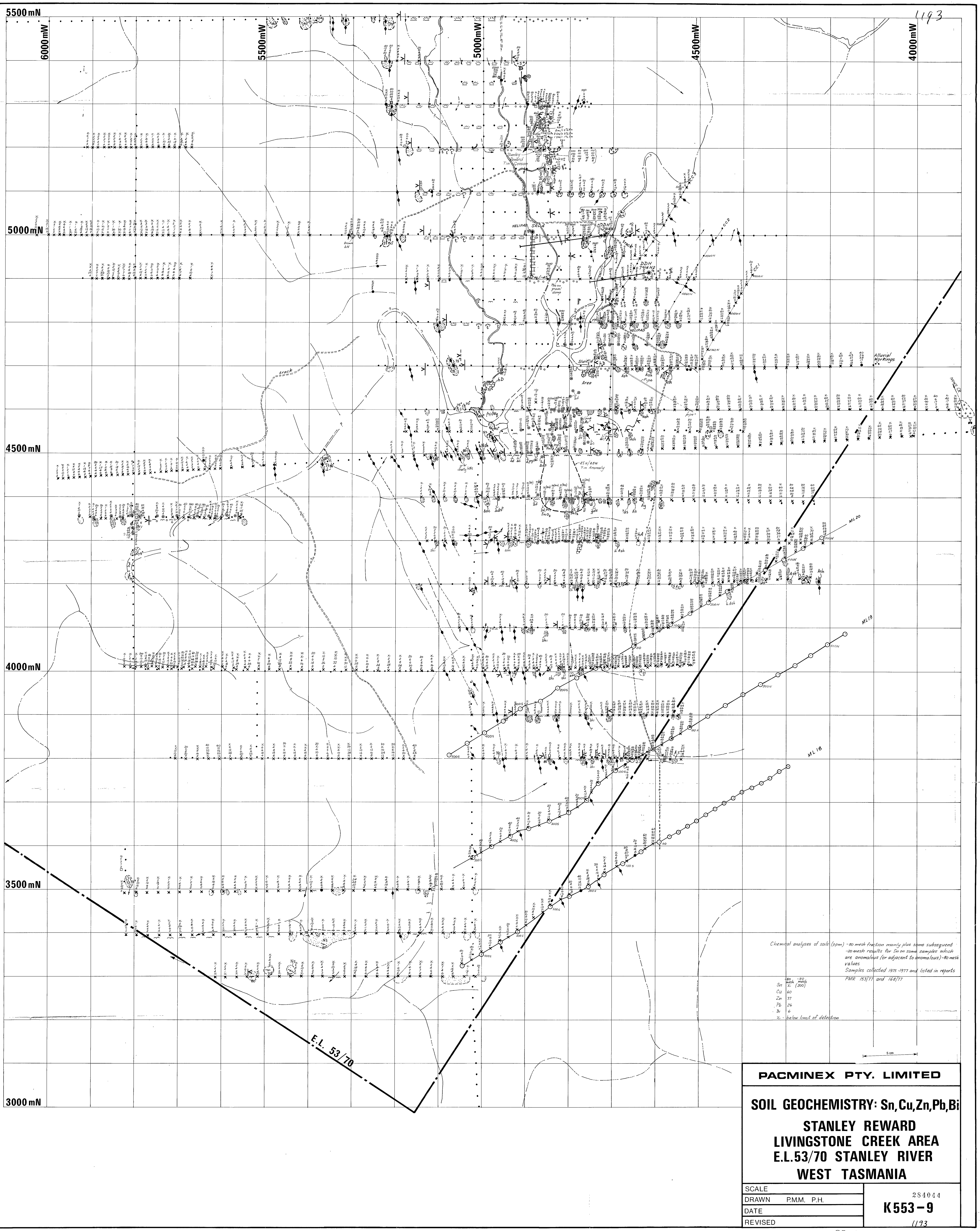
STANLEY REWARD
LIVINGSTONE CREEK AREA
E.L. 53/70 STANLEY RIVER
WEST TASMANIA

SCALE	1 2500
DRAWN	P.M.M P.H.
DATE	SEPT. '77
REVISED	

K 553-8

1192

77-1241



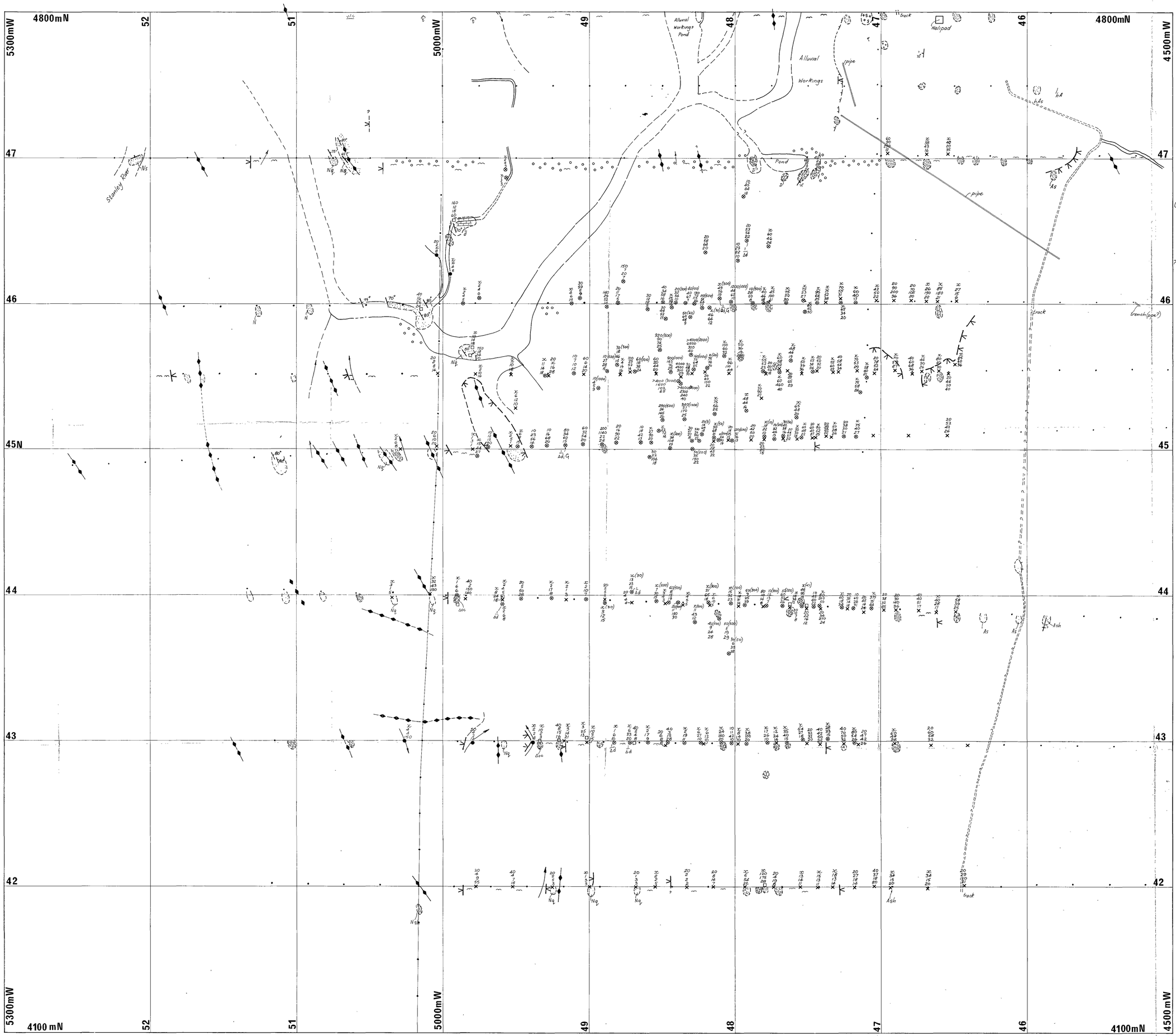
PACMINEX PTY. LIMITED

SOIL GEOCHEMISTRY: Sn, Cu, Zn, Pb, Bi

STANLEY REWARD
LIVINGSTONE CREEK AREA
E.L.53/70 STANLEY RIVER
WEST TASMANIA

SCALE	284044
DRAWN P.M.M. P.H.	K553-9
DATE	
REVISED	1193

77-1241



REFERENCE

- River, creek, track
- Edge of alluvial flat
- Ridge top (especially 1st ridge West of Livingstone Ck)
- Strike & dip of bedding/jointing (e.g. 75°, 65°)
- Fault

TERTIARY	Qrg	Gravels
CAMBIAN	A	Crimson Creek Argillite
	M	Marker Sequence (inferred)
	D	Dolomitic Sequence dolomite (Dd), dolomitic siltstone (Dds), shale (Dsh), chert (Dc), etc. Forms a low lying alluvial covered area immediately overlying The Oonah Formation (N)
?PROTEROZOIC	N	Oonah Quartzite & Slate top units are finely bedded sericitic quartzite siltstones (Nq)
DEVONIAN	G	Meredith Granite granite (G) with quartz porphyry (Gqp), diorite (Gd), etc. phases

- V — Volcanics (ie Av etc)
- g — Greywacke
- q — Quartzytic siltstone
- s — Siltstone
- sh — Shale, blackshale
- m — Mudstone
- d — Dolomite (ie Md, Dd etc)
- ds — Banded green micaceous dolomitic siltstone
- c, oc — Chert, black oolite chert
- Soil ie granitic soil
- Sree - eluvial to slope wash soil (SWS)

- ⊗ Auger hole
- d⊗ Dolomite at depth in auger hole (under alluvials)
- d Dolomite fragments (eluvial?) in auger hole ~1m depth

Chemical Analyses of soils (ppm):-
Sn 70 (300)
Cu 18
Zn 46
Pb 14
(-80mesh fraction) (figures in brackets -80 mesh fraction)
x below limit of detection

- × Soil sample ≤ 0.3m depth
- ⊗ Soil sample from auger hole ≤ 1.5m depth
- ● Stream sediment sample
- □ Rock chip sample

0 50 100m

284045

5cm

PACMINEX PTY. LIMITED

ANOMALY 45N/48W

SOIL GEOCHEMISTRY – Sn, Cu, Zn, Pb.

STANLEY REWARD AREA

EL 53/70 STANLEY RIVER - TASMANIA

SCALE	1:1000
DRAWN	P.M.M. / P.H.
DATE	SEPT '77
REVISED	

K553-10

1194.

77-1241