

NORTHERN TERRITORY GEOLOGICAL SURVEY REPORT G.S. 74/17

THE MCKINLEY GOLD MINE N.T.

RESULTS OF DIAMOND DRILLING

by

A.W. NEWTON

CONTENTS

	Page
1. SUMMARY	2
2. INTRODUCTION	2
3. LOCATION AND ACCESS	2
4. HISTORY	2
5. GEOLOGY	2
6. DISCUSSION OF DRILLING RESULTS	2
7. CHIP SAMPLING	4
8. CONCLUSIONS	4
9. REFERENCES	4
Appendix I Assay Results	
Appendix II Geological Logs	
Plate 1. Location Map	Scale 1: 250,000
Plate 2. Geological Plan and Drill Hole Location Map	Scale 1: 1,000
Plate 3. Drill Hole Section D.D.H.1 and D.D.H. 2	Scale 1: 500
Plate 4. Drill Hole Section, D.D.H. 3 and D.D.H. 4	Scale 1: 500
Plate 5. Costean Assays	Scale 1: 120

### 1. SUMMARY

A drilling programme of 4 holes, totalling 305 metres, was carried out at the McKinley Gold Mine, N.T., at the request of the leaseholder. The programme was designed to test the continuation at depth of surface gold mineralization.

No significant gold mineralization was encountered in the 4 drill holes. Drilling results indicate that concentrations of gold are due to surface enrichment and that no extensive gold deposits are present below the present workings.

### 2. INTRODUCTION

In October, 1973, Barge Express Pty. Ltd. applied for drilling assistance under the Mining Assistance Ordinance from Mines Branch, Department of the Northern Territory. This application was subsequently approved. A drilling programme of four holes was outlined to test the gold zone at about 30 metres below the surface, over a strike length of approximately 250 metres. The drilling programme commenced on 3rd January, 1974 and was completed on 28th April, 1974.

### 3. LOCATION AND ACCESS

Map : Ban Ban 1 mile Geological Series.

Co-ordinates : 13° 24' 05" Lat.  
131° 44' 10" Long.

The McKinley gold mine is situated 9 miles by road from the Mt. Wells Battery, on a bearing of 10 degrees east of north. Good roads connect Darwin with Mt. Wells. The Mt. Wells - McKinley road is accessible with a four wheel-drive vehicle throughout the wet season.

### 4. HISTORY

The history of the mine is outlined by Hossfeld (1940).

### 5. GEOLOGY

The McKinley Gold Mine lies within sediments of the Burrell Creek Formation of Lower Proterozoic age. The rocks consist of fine-grained sandstone, chialstolite slates and chloritic schists, intruded by discontinuous bands of an altered basic igneous rock (amphibolite?). The mine appears to be associated with a major north-north-west trending shear zone. Hossfeld (1940) described the mineralized rocks as consisting of replacement lodes, partially replaced sedimentary rocks and quartz reef and veins. The first-mentioned are the most important, and consist (at the surface) of quartz, kaolin, sericite, limonite and chlorite with a little pyrite and arsenopyrite.

### 6. DISCUSSION OF DRILLING RESULTS

#### 6.1 Summary of assay results

Split core samples were assayed over the entire length (75 and 80 metres respectively) of diamond drill holes 1 and 4. Selected intersections of split core from diamond drill holes 2 and 3 were also assayed. Sludge samples were taken over sections of diamond drill holes 2,3 and 4 to assess whether gold in unconsolidated material was being washed away in the drilling process.

Samples were assayed principally for gold, silver, copper, lead and zinc and many samples were also assayed for bismuth, cobalt, nickel, antimony, mercury and tin. All samples were assayed by the atomic absorption method and assay results were recorded in parts per million.

No significant assay values for any of the above minerals were recorded in any of the four diamond drill holes. All gold assays were less than 1 part per million (less than 1 dwt.), and only one split core sample assayed above the detection limit for gold of 0.2 parts per million.

Assay values for sludge samples were noticeably higher than split core samples for equivalent intersections; this indicates that some mineralized material was washed away during drilling. The amount of mineralized material lost during drilling is however of no economic significance. Zinc values ranging from 0.2 to 0.7% were encountered in sludge samples in diamond drill hole 2 between 47 and 72 metres. A pyritic, graphitic chiasmolite slate was intersected in this section of the drill hole and the zinc values though somewhat high are not unusual in such a rock type.

The assay results show that the gold mineralization encountered at the surface and recorded by Hossfeld in 1940 does not persist at approximately 30 metres depth below the surface.

#### 6.2 Drilling results in relation to geology.

Hossfeld (1940) states that the sedimentary rocks and amphibolite have been folded to form an anticline, the axis of which strikes at approximately  $345^{\circ}$ , that is, in the same direction as the ridge on which the mine is situated. Drilling results have not confirmed this postulated structure and have only indicated that all bedding is very steep in the mine area.

Two apparently separate amphibolite bands were intersected in diamond drill holes 1 and 2; they are conformable with the sedimentary bedding, confirming the sill-like nature stated by Hossfeld. The western sill may have a true width of approximately 7 metres while the eastern sill has a true width of less than 1 metre. An altered intrusive rock was intersected at 57 metres in diamond drill hole 4. This may be the western amphibolite sill of diamond drill holes 1 and 2 displaced a little to the west. Extensive fracturing and quartz veining noted in diamond drill hole 3 suggests that cross-faulting may have taken place in the vicinity of the hole, displacing the western amphibolite sill. No amphibolite was noted in diamond drill hole 3. A further altered intrusive rock was intersected at 78 metres in diamond drill hole 4.

Extensive fracturing and quartz veining in all drill holes indicates that the major shear zone continues at depth.

In general, rock types encountered in all diamond drill holes varied little from surface rock types apart from the degree of weathering. The chialstolite slate was strongly graphitic and pyritic at depth.

The presence of chialstolite and intrusive veinlets of chloritic material within the slates indicate some contact matamorphism probably due to the presence of a granitic body at fairly shallow depth.

#### 7. CHIP SAMPLING

As a result of the poor gold values encountered in all diamond drill holes, 3 of the old costeans were chip sampled to check the sampling results reported by Hossfeld (1940). While present sampling intervals and locations did not exactly duplicate the previous work they are sufficiently close to draw a comparison.

Gold values were consistently and markedly lower for the present limited sampling and would indicate that not enough gold is present to continue mining of the material adjacent to the costeans. It is possible that, as a result of weathering over the last 30 years, gold has been washed from the walls of the costeans hence reducing the values from those obtained in 1940.

#### 8. CONCLUSIONS

A diamond drilling programme of 4 holes, totalling 305 metres, has failed to locate any significant gold mineralization at approximately 30 metres below the surface. Check sampling of 3 old costeans has failed to substantiate gold values recorded in a previous survey.

These results indicate that there are no extensions of gold mineralization at depth in the mine area and that the chances of continuing a viable surface mining operation are limited.

#### 9. REFERENCES

- |                                                           |      |                                                                                                     |
|-----------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------|
| Hossfeld, P.S.                                            | 1940 | The McKinley Gold Mine, Pine Creek district, <u>Aer. Surv. N. Aust. Terr.</u> Rep. 46.              |
| Walpole, B.P., Crohn, P.W.<br>Dunn, P.R. and Randal M.A., | 1968 | Geology of the Katherine - Darwin Region, Northern Territory <u>Bur. Min. Resour. Aust. Bull 82</u> |

APPENDIX I.

Assays of:

- 1) Split core samples: D.D.H. 1  
D.D.H. 2  
D.D.H. 3  
D.D.H. 4
  
- 2) Sludge samples: D.D.H. 2  
D.D.H. 3  
D.D.H. 4
  
- 3) Chip samples: Costean No. 1  
Costean No. 2  
Costean No. 4

## McKinley Gold Mine

D.D.H. 1

(Split Core Samples)

Interval (metres)	Cu	Pb	Zn	Bi	Au	Ag	Sn
7.70 - 9.92	15	340	55	-20	-0.2	5	-50
9.92 - 12.12	15	75	75	-20	-0.2	-2	-50
12.12 - 14.28	20	40	80	"	"	"	"
14.28 - 16.21	15	55	55	"	"	"	"
16.21 - 18.64	- 5	80	25	"	"	"	"
18.64 - 20.29	15	205	40	"	"	"	"
20.29 - 22.65	25	485	25	"	"	"	"
22.65 - 24.86	15	105	105	"	"	"	"
24.86 - 26.66	15	105	95	"	"	"	"
26.66 - 28.54	30	185	160	"	"	"	"
28.54 - 31.06	25	180	435	"	"	"	"
31.06 - 33.03	20	25	75	"	"	"	"
33.03 - 35.23	20	65	185	"	"	"	"
35.23 - 37.05	20	105	250	"	"	"	"
37.05 - 38.58	15	154	285	"	"	"	"
38.58 - 40.00	20	95	240	"	"	"	"
40.00 - 41.32	20	155	450	"	"	"	"
41.32 - 42.10	25	95	1180	"	"	2	"
42.10 - 43.45	15	65	1450	"	"	2	"
43.45 - 45.01	5	55	300	"	"	- 2	"
45.01 - 46.17	10	65	490	"	"	"	"
46.17 - 47.55	10	30	320	"	"	"	"
47.55 - 48.52	15	45	785	"	"	"	"
48.52 - 49.34	20	60	210	"	"	"	"
49.34 - 50.76	- 5	45	220	"	"	"	"
50.76 - 53.00	180	710	1740	"	"	12	"
53.00 - 54.04	275	245	600	"	"	7	"
54.04 - 55.51	55	125	715	"	"	- 2	"
55.51 - 56.65	5	40	815	"	"	"	"
56.65 - 57.49	35	40	605	"	"	"	"
57.49 - 58.95	35	120	360	"	"	"	"
58.95 - 60.00	55	195	280	"	"	"	"
60.00 - 62.16	25	140	585	"	"	"	"
62.16 - 63.75	20	70	400	"	"	"	"
63.75 - 65.38	35	80	230	"	"	"	"
65.38 - 66.91	15	40	225	"	"	"	"
66.91 - 69.25	335	310	205	"	0.4	8	"
69.25 - 71.35	75	100	260	"	-0.2	-2	"
71.35 - 72.95	20	125	815	"	"	"	"
72.95 - 75.00	25	35	200	"	"	"	"

NOTE: All assay values in parts per million  
- means "less than"

McKinley Gold MineD.D.H. 2.(Split Core Samples)

Interval (Metres)	Cu	Pb	Zn	Bi	Au	Ag	Sn
34.00 - 35.00	10	75	115	-20	-0.2	3	-50
35.00 - 36.00	-5	55	145	"	"	-2	"
36.00 - 37.00	20	60	125	"	"	"	"
37.00 - 38.00	20	30	75	"	"	"	"
45.00 - 46.41	35	200	1060	"	"	3	"
46.41 - 47.72	20	210	1300	"	"	2	"
47.72 - 48.83	10	80	500	"	"	-2	"
48.83 - 49.70	20	105	2700	"	"	-2	"
49.70 - 50.77	35	565	1970	"	"	10	"
50.77 - 51.83	75	2060	2610	"	"	19	"
51.83 - 53.13	110	280	2900	"	"	6	"
53.13 - 54.22	275	1480	1460	"	"	11	"
54.22 - 55.00	40	130	770	"	"	-2	"
55.00 - 56.47	5	50	680	"	"	"	"
56.47 - 57.91	20	75	200	"	"	"	"
57.91 - 58.81	40	95	285	"	"	"	"
58.81 - 60.00	45	130	585	"	"	"	"

McKinley Gold MineD.D.H. 3(Split Core Samples)

Interval (Metres)	Cu	Pb	Zn	Bi	Au	Ag	Sn
28.00 - 30.98	105	2480	30	-20	-0.2	9	-50
30.98 - 34.19	100	120	195	"	"	2	"
34.19 - 36.20	20	45	95	"	"	-2	"
36.20 - 38.33	20	30	240	"	"	"	"
38.33 - 40.35	20	25	185	"	"	"	"
40.35 - 44.12	30	40	105	"	"	"	"
44.12 - 46.77	20	35	175	"	"	"	"
46.77 - 49.58	10	50	220	"	"	"	"
49.58 - 51.22	15	45	350	"	"	"	"
51.22 - 53.03	30	75	330	"	"	"	"
53.03 - 55.45	30	60	195	"	"	"	"
55.45 - 58.21	10	50	195	"	"	"	"
58.21 - 60.00	25	80	285	"	"	2	"

Note: All assay values in parts per million  
 - means "less than"

McKinley Gold MineD.D.H. 4.(Split Core Samples)

Interval (Metres)	Cu	Pb	Zn	Ag	Au
5.93 - 9.67	35	145	205	-2	-0.2
9.67 - 12.00	35	95	430	"	"
12.00 - 15.00	45	155	350	"	"
15.00 - 17.75	30	135	325	"	"
17.75 - 21.00	50	490	1550	"	"
21.00 - 25.00	45	330	750	"	"
25.00 - 27.75	65	85	370	"	"
27.75 - 29.75	25	120	285	"	"
29.75 - 33.00	45	1310	270	"	"
33.00 - 36.15	115	1665	110	3	"
36.15 - 39.95	35	140	80	-2	"
39.95 - 42.91	50	320	140	"	"
42.91 - 45.65	35	445	275	"	"
45.65 - 48.92	10	85	150	"	"
48.92 - 51.00	185	1310	290	3	"
51.00 - 54.00	15	555	565	-2	"
54.00 - 57.00	20	40	560	"	"
57.00 - 60.00	10	40	595	"	"
60.00 - 63.00	20	280	575	"	"
63.00 - 66.00	20	330	270	2	"
66.00 - 69.28	40	455	280	-2	"
69.28 - 72.96	15	145	220	"	"
72.96 - 76.55	25	550	1460	2	"
76.55 - 80.00	20	40	160	-2	"

NOTE: All assay values in parts per million  
- means "less than"



McKinley Gold MineD.D.H. 2.(Sludge Sample)

Interval (Metres)	Cu	Pb	Zn	Au	Ag	Bi	Co	Ni	Sb	Hg	Sn
28.96 - 32.00	260	375	160	-0.2	4	10	-	-	-	0.1	-50
32.00 - 35.05	65	395	200	-0.2	2	15	-	-	-	0.1	"
35.05 - 38.10	60	230	150	0.25	2	20	-	-	-	-0.1	"
38.10 - 41.15	45	235	200	-0.2	2	20	-	-	-	-0.1	"
41.15 - 44.20	35	150	750	"	"	"	-	-	-	"	"
44.20 - 47.24	60	250	1600	"	"	"	-	-	-	"	"
47.24 - 50.29	50	310	1880	"	3	"	-	-	-	0.2	"
50.29 - 53.34	125	1770	7270	0.6	16	"	-	-	-	0.4	"
53.34 - 56.39	90	1330	4570	0.4	11	"	-	-	-	0.3	"
56.39 - 59.43	85	1040	3220	0.2	10	25	-	-	-	0.4	"
59.43 - 62.48	75	765	2890	-0.2	7	15	-	-	-	0.2	"
62.48 - 65.53	100	955	5870	-0.2	9	15	-	-	-	0.5	"
65.53 - 68.58	85	780	2720	"	6	15	-	-	-	0.5	"
68.58 - 71.63	95	680	3160	"	6	20	-	-	-	0.3	"

D.D.H. 3.

30.48 - 33.53	340	890	450	0.75	16	15	-	-	-	0.4	"
33.53 - 36.58	250	730	1120	0.2	14	15	-	-	-	0.3	"
36.58 - 39.62	125	320	1050	-0.2	8	15	-	-	-	0.5	"
39.62 - 42.67	125	545	1000	-0.2	7	15	-	-	-	0.3	"
42.67 - 45.72	70	260	760	"	4	10	-	-	-	0.3	"
45.72 - 48.77	90	265	800	"	4	15	75	60	50	0.4	"
48.77 - 51.82	75	250	700	"	4	30	65	60	50	0.2	"
51.82 - 54.86	80	225	775	"	4	20	70	55	50	0.3	"
54.86 - 57.91	65	140	675	"	4	15	60	45	50	0.5	"

D.D.H. 4.

38.57 - 41.65	120	1090	600	"	6	-10	35	50	-50	0.3	"
41.65 - 44.68	150	950	390	"	5	-10	35	45	50	0.3	"
44.68 - 47.73	235	1520	445	"	6	"	45	60	-50	0.9	"
47.73 - 50.78	200	1270	495	"	6	"	45	60	-50	0.4	"

NOTE: All assay values in parts per million  
- means "less than".

McKinley Gold MineChip Samples of Costeans

Costean No.	Interval (Metres)	Gold (p.p.m.)
1	0 - 1	-0.2
"	1 - 2	-0.2
"	2 - 3	-0.2
"	3 - 4	1.7 ✓
"	5 - 5	1.6 ✓
"	5 - 6	12.7 ✓
"	6 - 7	0.6 ✓
"	7 - 8	0.3
"	8 - 10	-0.2
"	10 - 12	1.2 ✓
2	0 - 1	0.2
"	1 - 2	0.3
"	2 - 3	0.3
"	3 - 4	1.1 ✓
"	4 - 5	0.8 ✓
"	5 - 6	0.4 ✓
"	6 - 8	0.3 *
"	8 - 10	0.3
4	0 - 1	-0.2
"	1 - 2	-0.2
"	2 - 3	0.3
"	3 - 4	0.3
"	4 - 5	0.2
"	5 - 6	0.2

APPENDIX II

Geological Logs

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT MCKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE No. D.D.H. 1 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13° 24' 05" Lat. 131° 44' 10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 15° N

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
No core recovery			
2m.			
4m.			
6m.			
8m.			
Quartz vein (iron-stained fractures)			
Fine grained, fawn SANDSTONE with thin bands of grey chistolite slate (5-20cm.). Several narrow quartz veins (0.5-1cm.) with green chloritic material. Abundant iron-stained fractures	.....	100	
10m.	.....	85	
12m.	-----	98	
Light grey chistolite SLATE. Many iron-stained fractures parallel to bedding planes.	-----	93	
14m.	-----	57	
16m.	-----	78	
Fine grained fawn SANDSTONE with narrow bands of chistolite slate. Many iron-stained fractures.	.....	100	
Light grey chistolite SLATE abundant iron-stained fractures.	-----	91	
18m.	-----	31	
20m.	-----	82	
22m.	-----	97	
24m.	-----	88	

REFERENCES

LOGGED BY A.W. NEWTON

SHEET 1 OF 4

DRAWING No. 1374/17

TO ACCOMPANY N.T.G.S. REPT. G574/17

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT MCKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE No. D.D.H. 1 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 15° M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
Light gray chialtolite SLATE (as for 15-20m.)	-----	96	
White, kaolinized chialtolite SLATE Highly leached & altered, friable. Abundant iron-stained fractures	-----	49	
Medium to fine grained spotty SANDSTONE (dark spots probably chialtolite) A few narrow bands of chialtolite slate, some quartz veins and iron-stained fractures.	-----	65	
22m.	-----	100	
24m.	-----	92	
26m.	-----	100	
28m.	-----	92	
(Fawn medium grained felsepathic sandstone between 29.3 & 30.3m.)	-----	92	
30m.	-----	97	
Altered intrusive rock - AMPHIBOLITE Abundant feldspar, fine grained hornblende, much chloritic material. Hornblende weathered to iron-stained material in part. 32m. Rare, narrow quartz veins and several iron-stained fractures; fractures more abundant below 36.5m. and increasing in frequency with depth.	v v v	100	Slides prepared from samples at 33.1m. and 39.5m.
32m.	v v v	76	
34m.	v v v	100	
36m.	v v v	78	
38m.	v v v	68	
39m.	v v v	100	
40m.	v v v	97	
41m.	v v v	97	

REFERENCES

LOGGED BY A.W. NEWTON

TO ACCOMPANY N.T.G.S. REPT. CS74/17

SHEET 2 OF 4

DRAWING No. 4

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT M<sup>c</sup>KINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE N<sup>o</sup> D.D.H. 1 CO-ORDINATES \_\_\_\_\_ RL GROUND \_\_\_\_\_  
 LOCATION 13° 24' 05" Lat. 131° 44' 10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
Altered intrusive rock - AMPHIBOLITE (see previous page)	✓ ✓ ✓ ✓	97	
Light green, highly altered AMPHIBOLITE 42m. (has the appearance of fine grained sandstone) Grades to a chloritic schist? near 43m.	✓ ✓ ✓ ✓	90	Slide prepared from sample at 42.30m.
White QUARTZ vein, many iron-stained fractures. Thin amphibolite vein (2cm.) containing silver-coloured metallic mineral - arsenopyrite 44m.		42	
White (highly leached) chialstolite SLATE	-----	80	
Grey-green AMPHIBOLITE 46m. (much pyrite)	✓ ✓ ✓ ✓ ✓	98	Slides prepared from samples at 45.3 & 46.3m.
	✓ ✓ ✓ ✓	42	
	✓ ✓ ✓ ✓	80	
	✓ ✓ ✓ ✓	24	
	✓ ✓ ✓ ✓	85	
Mid grey chialstolite SLATE, <del>veins with associated pyrite</del> <del>quartz</del> 50m.	-----	100	
	-----	80	
	-----	68	
	-----	31	
Dark grey chialstolite SLATE, many quartz veins with associated pyrite. Slate is strongly graphitic & pyritic in part. 53.3-53.7m. Strongly pyritic 55.9-56.4 Many quartz veins with pyrite. 54m. 56m. 58m.	-----	40	
	-----	28	
	-----	86	
	-----	79	
	-----	60	
	-----	86	
	-----	63	
	-----	87	
	-----	98	
	-----	98	

REFERENCES

LOGGED BY A. W. NEWTON

TO ACCOMPANY N.T.G.S. REPT. G574/17

SHEET 3 OF 4

DRAWING N<sup>o</sup> SE

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT MCKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE N° D.D.H. 2 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13° 24' 05" Lat. 131° 44' 10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
Dark grey chertolite SLATE (see 50.8-60m.)	[Symbol]	93	Slide prepared from sample at 61.8m.
Altered intrusive rock - AMPHIBOLITE 62m.	[Symbol]		
Dark grey chertolite SLATE, strongly graphitic and pyritic in part. 66.9 - 68.3m. V. Strongly graphitic	[Symbol]	100	
68.3 - 70.3m. Quartz vein, strongly pyritic. Thin chalybe bands.	[Symbol]	79	
72.0 - 72.3m. Quartz vein.	[Symbol]	95	
	[Symbol]	100	
	[Symbol]	17	
	[Symbol]	93	
	[Symbol]	100	
	[Symbol]	89	
	[Symbol]	100	
	[Symbol]	88	
	[Symbol]	76	
	[Symbol]	89	
	[Symbol]	100	
	[Symbol]	85	

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT MCKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE No. D.D.H. 2 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
No core recovery.			
Pale green chistolite SLATE, highly leached and altered.	8m.	53	
QUARTZ vein, fractured and iron-stained	[Symbol]	42	
Interbedded CHLORITE SCHISTS & fine grained SANDSTONES. Highly leached and altered, many iron-stained fractures.	10m. 12m.	68	
As above with less leaching and alteration.	14m.	78	
	16m.	93	
	18m.	100	
QUARTZ vein, many iron-stained fractures	[Symbol]	73	
	[Symbol]	91	

REFERENCES

LOGGED BY A. W. NEWTON

TO ACCOMPANY N.T.G.S. REPT. Q574/17

SHEET 1 OF 4

DRAWING No



# GEOLOGICAL LOG OF DRILL HOLE

PROJECT M<sup>c</sup>KINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE N<sup>o</sup> D.D.H.2 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
See previous page		100	
Grey spotted chistolite SLATE many iron-stained fractures. 24.2-24.5m. Very soft & crumbly, highly weathered zone	22m.	87	
	24m.	100	
	26m.	88	
	28m.	51	
Grey spotted chistolite SLATE very highly leached and iron-rich. Very poor core recovery - Probable fault or shear zone.	28m.	19	
	30m.	43	
Fawn medium grained SANDSTONE some iron-stained fractures	32m.	100	Contact not well defined, rather a gradational change in rock properties.
Medium to fine grained altered intrusive rock - AMPHIBOLITE Abundant feldspar → chlorite fine grained hornblende, quartz. Many iron-stained fractures	24m.	81	
	34m.	97	
	36m.	100	
	36m.	90	
	38m.	100	

REFERENCES

LOGGED BY A.W. NEWTON



# GEOLOGICAL LOG OF DRILL HOLE

PROJECT MCKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE N° D.D.H. 2 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°044'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES	
Dark grey spotted chistolite SLATE (See previous page)	62m.	100		
	64m.	67 100		
	66m.	92 100		
	68m.	76 25		
	70m.	19 80 100		
	Grey-green highly altered intrusive rock - AMPHIBOLITE 72m.	✓ ✓ ✓ ✓ - -		Slide prepared from sample at 72.8m.
	Dark grey spotted chistolite SLATE with narrow quartz vein.		96	
	Grey-green highly altered intrusive rock - AMPHIBOLITE	✓ ✓ ✓ - - -		
	Dark grey spotted chistolite SLATE Barren quartz vein (30cm.) at approx. 74m. 74m.			

REFERENCES

LOGGED BY A.W. NEWTON

To ACCOMPANY N.T.C.S. REPT. G574/17

SHEET 4 OF 4

DRAWING N°

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT M<sup>c</sup>KINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE N<sup>o</sup> D.D.H. 3 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
No core recovery.	2m.  4m.  6m.		
Pale green sandy CLAY Contains medium to fine grained quartz. Possibly a weathered siltstone.	8m.  10m.	c c c c c c c c c c c c c c	25
Light brown medium grained SANDSTONE, some iron-stained fractures.	12m.		45
Light brown-white chlastolite SLATE Highly leached and weathered, many iron-stained fractures.	14m.		69
Light green-brown medium grained SANDSTONE Some thin bands of light green chlastolite slate. Many iron-stained fractures. Thin quartz vein (< 10cm-) near 13.50m.	16m.		100  66
Light grey-green chlastolite SLATE Many iron-stained fractures.	18m.		82  100  10  39

REFERENCES

LOGGED BY A.W. NEWTON

TO ACCOMPANY N.T.G.S. REPT. G574/17

SHEET 1 OF 4

DRAWING N<sup>o</sup> \_\_\_\_\_

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT M<sup>o</sup>KINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE NO. D.D.H. 3 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
Light grey-green chistolite SLATE (see previous page)	-----	39	
	-----	52	
	-----	100	
22m. Pink-fawn medium grained SANDSTONE Abundant iron-stained fractures	-----	96	
	-----	100	
Light grey-green chistolite SLATE Abundant iron-stained fractures Several thin quartz veins. 25.8-26.0m. Quartz vein 26.0-26.2m. Bedding in slate    hole direction. (Bedding normally approx 45° to hole direction for D.D.H.3.)	-----	91	
	-----	94	
	-----	63	
	-----	97	
	-----	69	
30m. QUARTZ vein Vuggy with some iron-stained fractures. Some boxworks present in vugs.	-----	55	
	-----	40	
	-----	14	
Light grey-green chistolite SLATE Many iron-stained fractures. 33.1-33.4m. Quartz vein.	-----	69	
	-----	39	
	-----	73	
	-----	84	
36m. QUARTZ vein with iron-stained fractures.	-----	100	
	-----	60	
Mid grey-green chistolite SLATE Iron-stained fractures and iron-rich boxworks.	-----	95	
	-----	95	
38m. QUARTZ vein with iron-stained fractures.	-----	100	
	-----	81	
SEE 40-41.5m. NEXT PAGE	-----	88	

REFERENCES

LOGGED BY A.W. NEWTON

TO ACCOMPANY N.T.G.S. RPT. G574/17

SHEET 2 OF 4

DRAWING NO

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT MCKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE N° D.D.H. 3 CO-ORDINATES \_\_\_\_\_ RL GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
Mid grey-green chialtolite SLATE many iron-stained fractures and many narrow quartz veins.		88	
		64	
QUARTZ vein, many iron-stained fractures, 42m. some narrow slate bands. fugs & boxworks in the quartz.		34	
		59	
Mid grey-green chialtolite SLATE Some iron-stained fractures Thin bands of green, fine grained sandstone and green chlorite schist. Bedding appears to be    drill hole direction between 45.2 & 45.4m.		46m.	86
		48m.	100
Light green CHLORITE SCHIST Abundant iron-stained fractures. Much boxwork material.  50.7-51.5 Abundant iron-rich boxworks probably after pyrite.		80	
		50m.	90
			100
Dark greyw chialtolite SLATE abundant iron-stained fractures. 52.5-52.8m. Thin quartz vein.		52m.	73
			100
Dark grey chialtolite SLATE many narrow quartz veins. Graphitic along fracture planes.  53.75-54.05m. White (leached) SLATE  58.2 - 58.4m. Strongly pyritic (pyrite has very golden colour).  59.0 - 59.3m. Highly contorted zone (bands of quartz, chlorite schist & slate - graphitic along fractures)  59.3 - 59.5 Strongly pyritic.		69	
		54m.	30
			40
		56m.	40
			93
		58m.	72
			96

Slide prepared from sample at 54.0m.

REFERENCES

LOGGED BY A.W. NEWTON

TO ACCOMPANY N.T.G.S. REPT. G574/17

SHEET 3 OF 4

DRAWING N°

## GEOLOGICAL LOG OF DRILL HOLE

PROJECT McKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE N° D.D.H. 3 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 75° M

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
Dark gray chistalite SLATE (See previous page 52.8 - 60m.)	62m.	96	
		90	
		100	
		91	
		100	
		87	
Grey-green medium-fine grained SANDSTONE	64m.	100	
		87	
Dark gray chistalite SLATE Strongly pyritic in part 69.2-69.8m. Quartz vein.	66m.	100	
		92	
	68m.	33	
		69	
Mid grey-green medium-fine grained SANDSTONE Many quartz veins & small scale faults & folds Several thin bands of iron-rich boxworks. Pyritic in part, a few thin slate bands.	70m.	79	
		85	
	72m.	99	
	74m.	99	

REFERENCES

LOGGED BY A.W.

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT McKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE No. P.D.H. 4 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 255° M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
2m.  4m.  6m.			
No core recovery			
Light green CHLORITE SCHIST, highly leached, kaolinized. some iron-rich bands	6m.	91	
Medium-fine grained, fawn SANDSTONE - some narrow quartz filled fractures - a few iron stained fractures - a few thin bands of light green chlorite schist 8m.	8m.	89	
	9m.	95	
	10m.	78	
	12m.	74	
Fawn chistalite SLATE, highly leached, many iron-stained fractures, several quartz-filled fractures. Very broken material from 13-14m. Quartz vein (15cm.) at 13m., vein is iron-enriched and may have bowwork after pyrite	14m.	26	
	16m.	100	
Interbedded fawn medium-grained SANDSTONE & fawn spotted siltstone. Many narrow quartz veins often running    hole direction. Abundant iron-stained fractures. Sediments are iron-enriched.	18m.	87	
Pink spotted SILTSTONE (see 20-22.1m.)	20-22.1m.	9	

REFERENCES

LOGGED BY A.W. NEWTON

TO ACCOMPANY N.T.G.S. REPT. 98 74/17

SHEET 1 OF 4

DRAWING No. \_\_\_\_\_



# GEOLOGICAL LOG OF DRILL HOLE

PROJECT MCKINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE NO. D.D.H. 4 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 255°M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
Pink spotted SILTSTONE replaced by iron-rich material Several thin quartz veins (< 2cm.) Abundant iron-stained fractures Very broken ground.  22m.	5	5	9
	5	5	26
	5	5	
	5	5	
	5	5	
Pink spotted SILTSTONE, iron-stained fractures and narrow quartz veins  END OF LEACHED ZONE	5	5	
FRACTURE ZONE Spotted SILTSTONE, some thin slate bands 24m. Iron quartz filled fractures common.  26m.	5	5	72
	5	5	21
	5	5	
	5	5	
	5	5	
Medium grained SANDSTONE (grey-green & light brown) with interbedded siltstone & slate. Many iron & quartz filled fractures. Thin quartz veins as follows:-  28m.  29.65 - 29.75m. } 30.10 - 30.17m. } All with many iron-stained 31.40 - 31.50m. } and partly chlorite filled 32.07 - 32.17m. } fractures. 32.27 - 32.50m. } 33.10 - 33.25m. }	5	5	100
	5	5	61
	5	5	100
	5	5	13
	5	5	100
	5	5	65
	5	5	96
	5	5	100
	5	5	100
	5	5	100
QUARTZ vein, some iron-stained fractures, inclusions of light green chloritic material	5	5	79
Grey-green chiastolite SLATE, iron & quartz filled fractures common.  36m.	5	5	100
QUARTZ vein, some iron-stained fractures.	5	5	92
Grey-green chiastolite SLATE, abundant iron & quartz stained fractures and narrow quartz veins.  38m.	5	5	100
QUARTZ vein with thin bands of slate & chlorite schist	5	5	83
light green CHLORITE SCHIST	5	5	91
Mid grey-green chiastolite SLATE	5	5	91
REFERENCES	LOGGED BY <u>A.W. NEWTON</u>		
To ACCOMPANY N.T.C.S. REPT. G574/17	SHEET <u>2</u> OF <u>4</u>		DRAWING NO

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT MCKINLEY GOLD MINE REMARKS \_\_\_\_\_

HOLE NO. D.D.H. 4 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_

LOCATION 13°24'05" Lat. 131°44'10" Long. ANGLE FROM HORIZONTAL 45° DIRECTION 255°M.

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
Mid grey-green chistolite SLATE & SILTSTONE Some narrow sandstone bands, many iron & quartz filled fractures, several thin, ferruginous quartz veins.	S S S S S S	91	
42m.		100	
As above but very strongly fractured.	↑	71	
		79	
		9	
44m.		100	
		9	
46m.		89	
As above 49.80-50.20 Quartz vein Many thin ferruginous veins    bedding near 51m.		48m.	
50m.		98	
As above but strongly injected with quartz and softer chloritic material. Strongly pyritic in part.		52m.	
54m.		100	
Grey Siltstone and chistolite SLATE Strongly graphitic along some fracture planes. Pyritic in part with some thin quartz veins	S S S S S S S	56m.	
56m.		83	
QUARTZ veins, pyritic with some igneous material (CONTACT ZONE)		100	
Mid-grey-green, altered intrusive rock - AMPHIBOLITE 58m. - contains disseminated pyrite - a few iron & quartz filled fractures - a few narrow quartz veins	V V V V V V V V V	58m.	
58m.		86	
REFERENCES	LOGGED BY <u>A.W. NEWTON</u>		
TO ACCOMPANY N.T.G.S. REPT. G574/17	SHEET <u>3</u> OF <u>4</u>	DRAWING NO. <u>9701/17</u>	

# GEOLOGICAL LOG OF DRILL HOLE

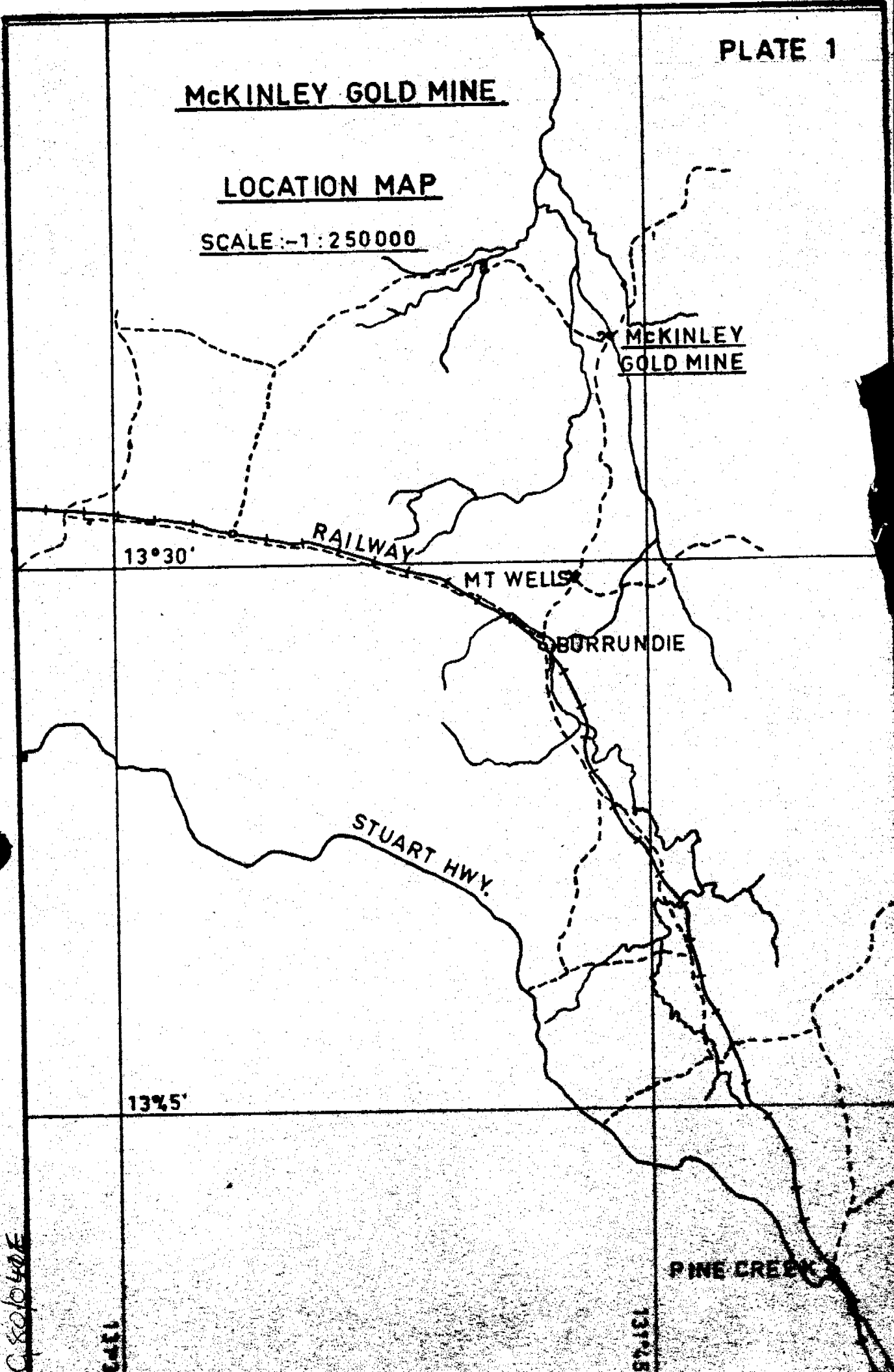
PROJECT M<sup>c</sup>KINLEY GOLD MINE REMARKS \_\_\_\_\_  
 HOLE N<sup>o</sup> D.D.H. 4 CO-ORDINATES \_\_\_\_\_ R.L. GROUND \_\_\_\_\_  
 LOCATION 13°24'05" Lat. 131°44'10" long. ANGLE FROM HORIZONTAL 45° DIRECTION 265°M

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
AMPHIBOLITE (as for previous page)	v v	86	
	v v		
62m.	v v		
	v v	100	
64m.	v v		
	v v	88	
INTRUSIVE ROCK with disseminated pyrite. Contains hornblende and chlorite in a f.g. groundmass.	v	100	
QUARTZ vein, some chloritic and graphitic inclusions		75	
		85	
Dark grey chistalite SLATE, strongly graphitic and pyritic, very strongly graphitic along "sickensided" fractures.	-----	100	
Thin injected veins of quartz & chlorite?	-----	80	
	-----	88	
	-----	49	
Black SLATE with finely disseminated graphite & pyrite.	-----	81	
Pyritic & graphitic along fractures	-----	92	
2 Thin quartz veins with abundant pyrite at 73 & 76.5m.	-----	100	
Narrow quartz veins becoming more prevalent with depth.	-----	78	
	-----	94	
	-----	100	
72m.	-----	91	
	-----	89	
74m.	-----		
	-----	96	
76m.	-----		
	-----	100	
	-----	92	
78m.	-----		
	-----	95	
Light grey-tan altered INTRUSIVE ROCK - 35-40% mafic minerals.	v v	86	
Thin pyrite-rich quartz veins run almost    drill hole direction.	v v	95	
	v v		END OF HOLE
REFERENCES	LOGGED BY <u>A.W. NEWTON</u>		
T6 ACCOMPANY N.T.C.S. REPT G.874/17	SHEET <u>4</u> OF <u>4</u>	DRAWING N <sup>o</sup>	

McKINLEY GOLD MINE

LOCATION MAP

SCALE: -1:250000



McKINLEY GOLD MINE

RAILWAY

13°30'

MT WELLS

BURRUNDIE

STUART HWY.

13°45'

PINE CREEK

*C. S. 10/40 E*

137°30'

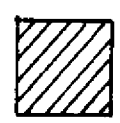
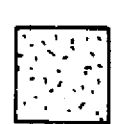
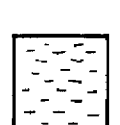
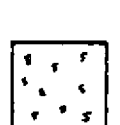


TO ACCOMPANY NLGS REPT. G574/17

137°45'

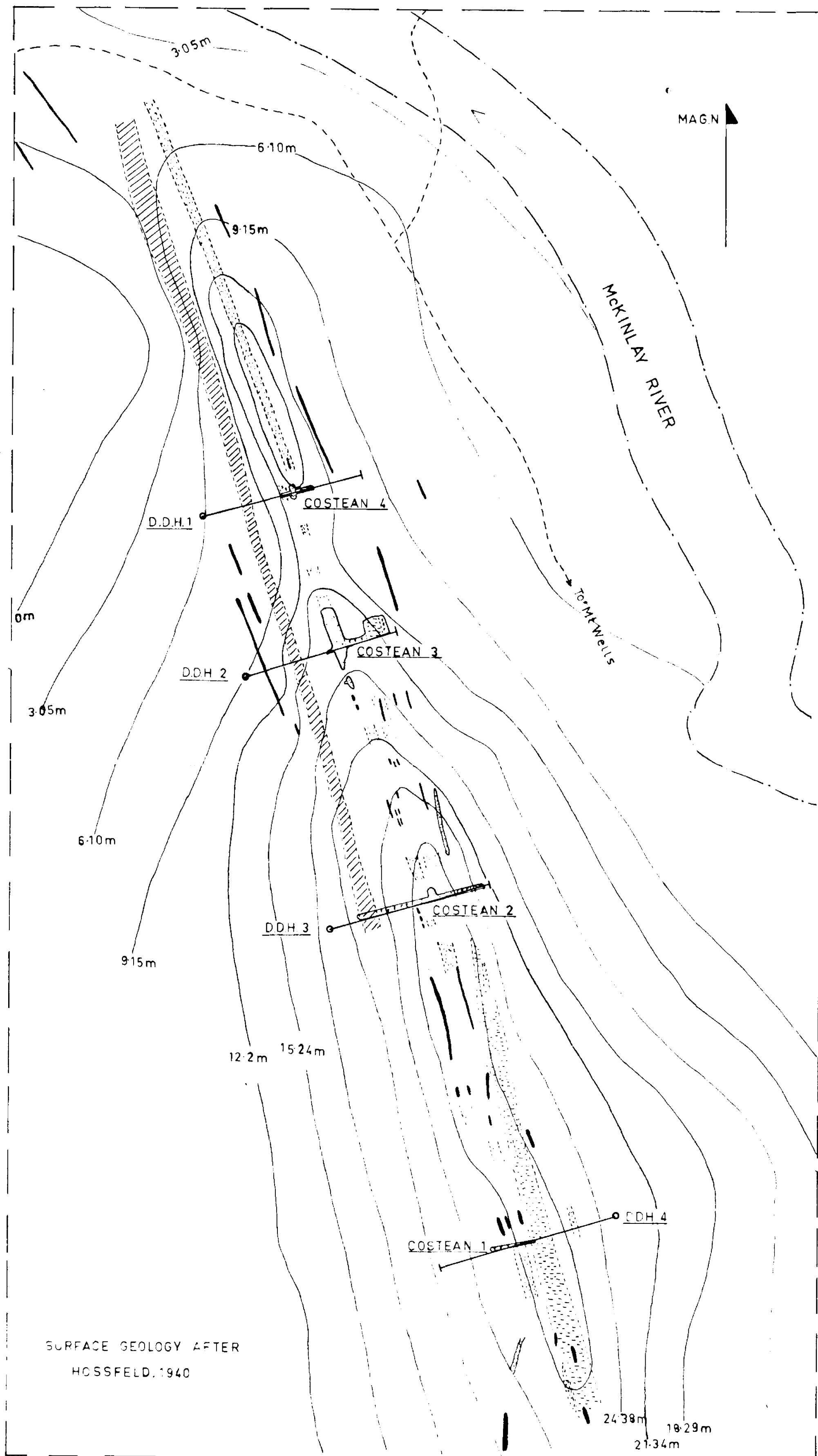
McKINLEY GOLD MINE

GEOLOGICAL PLAN  
AND  
DRILL HOLE LOCATION MAP

REFERENCE

-  AMPHIBOLITE
-  REPLACEMENT LODES
-  CHIASTOLITE SLATE
-  SANDSTONE (FINE GRAINED)
-  QUARTZ REEFS
-  BUSH ROADS

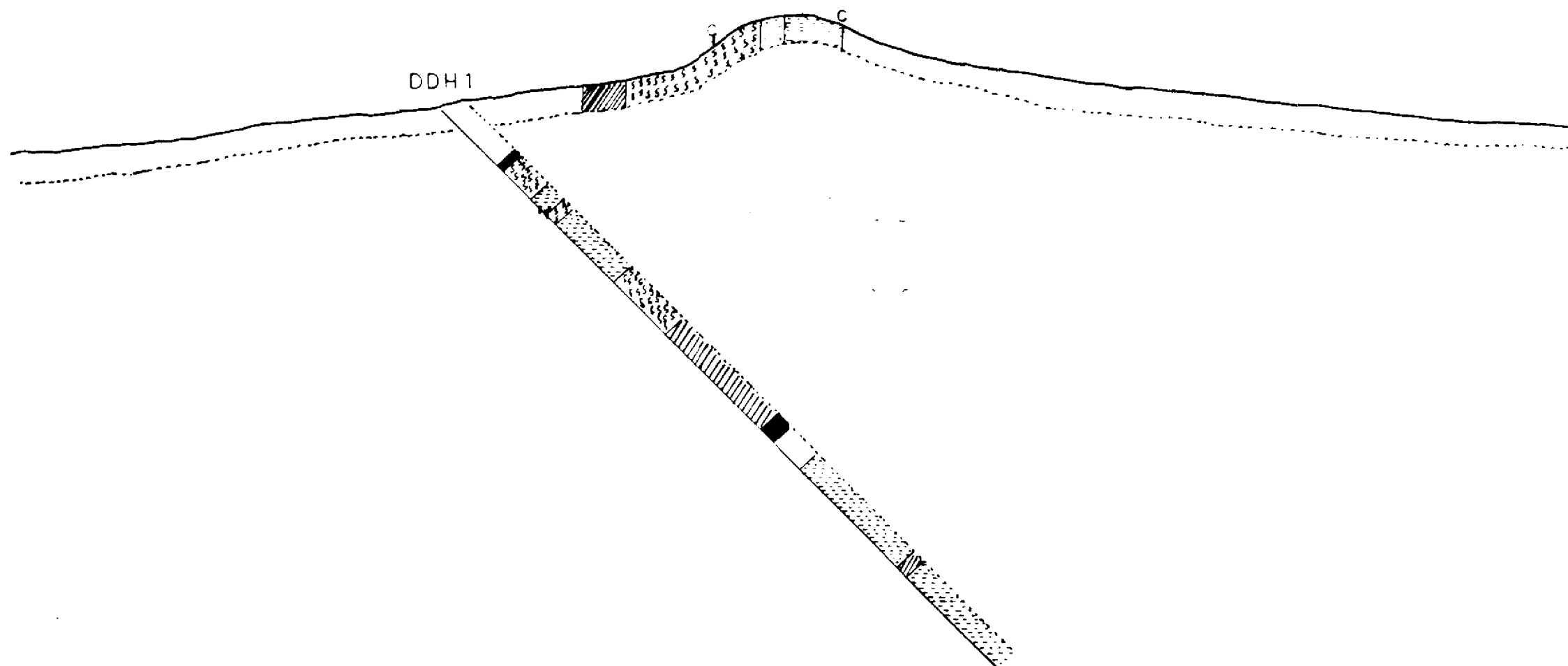
SCALE:- 1:1000



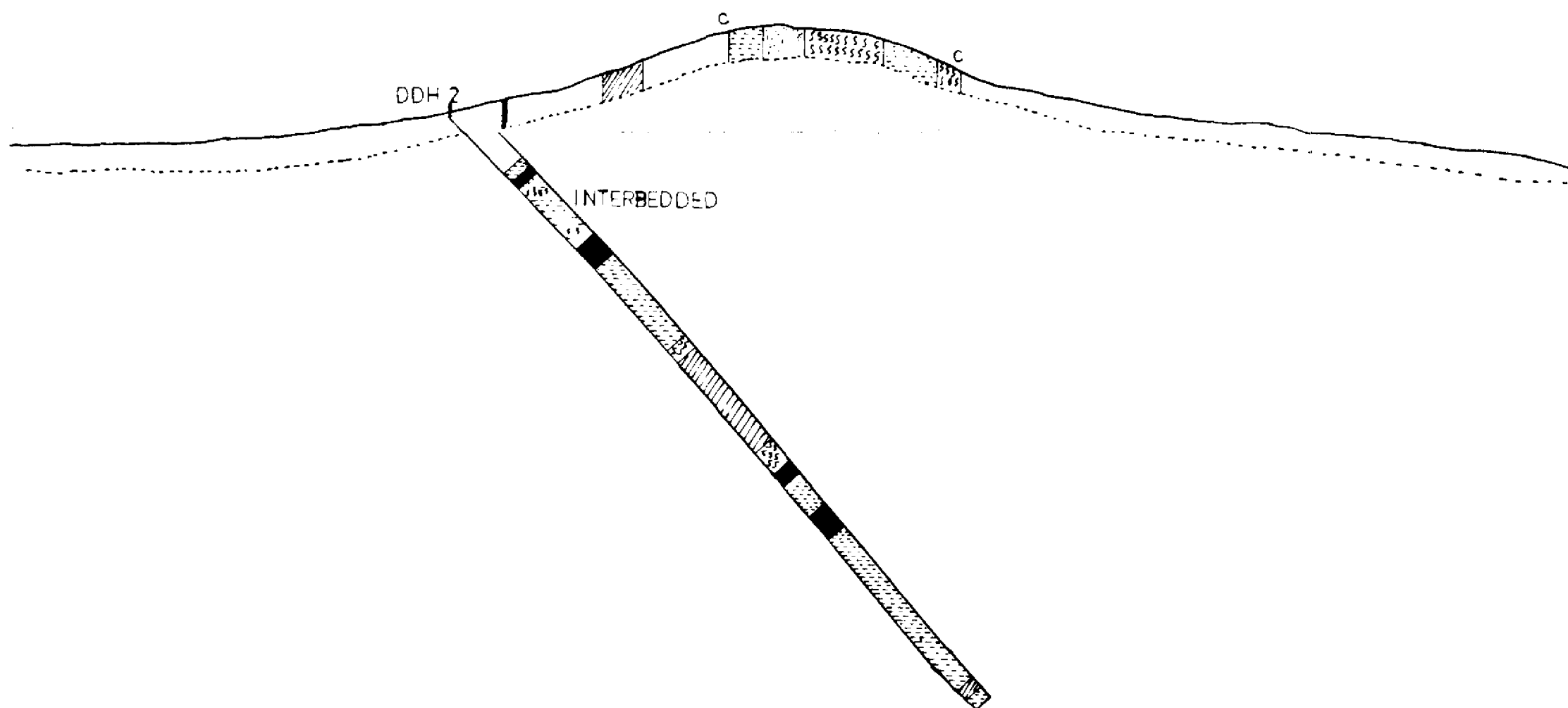
980642c

McKINLEY GOLD MINE  
DRILL HOLE SECTIONS

SECTION DDH1



SECTION DDH2



PLAN DDH2

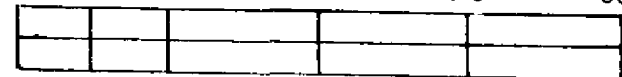
DDH2

O






MN

SCALE 1:500

10 5 0 10 20 30 METRES



REFERENCE

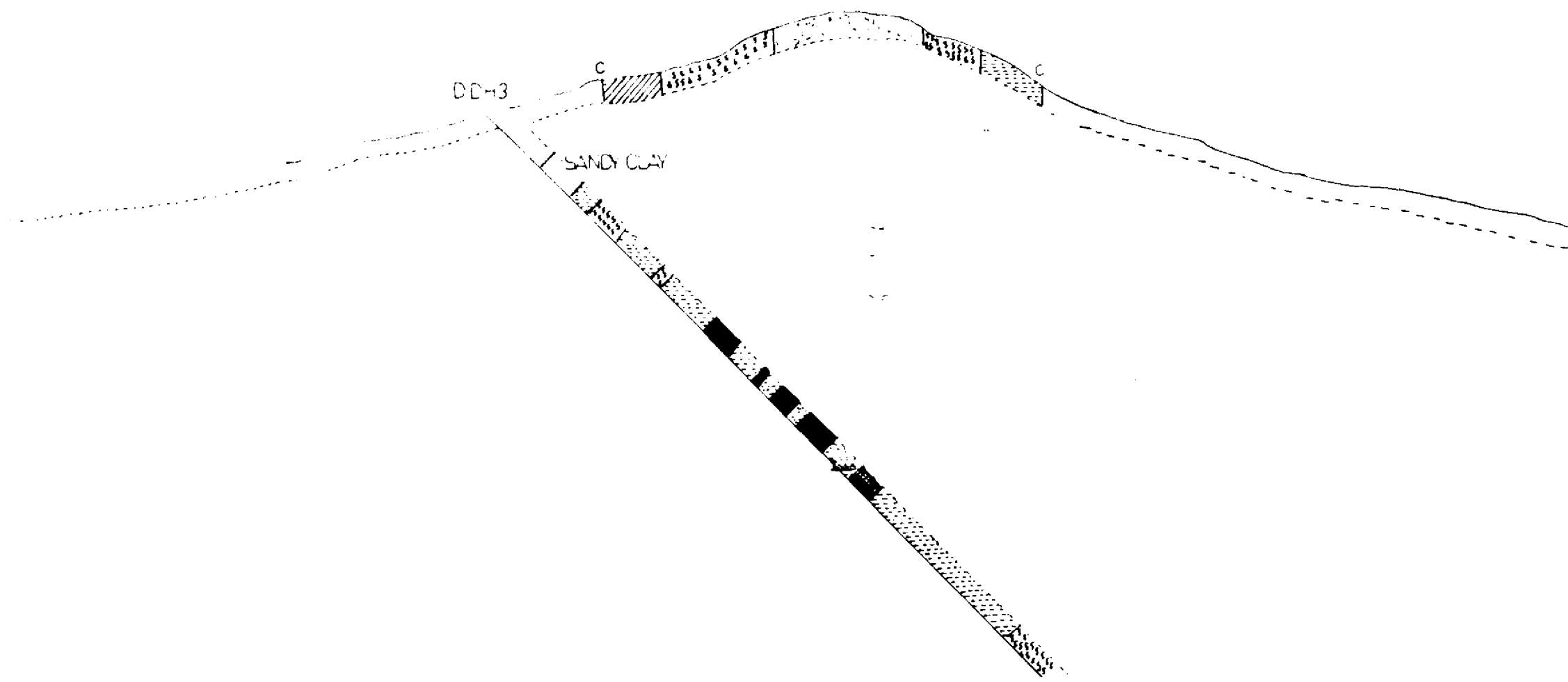
-  REPLACEMENT LO DE
-  FINE GRAINED SANDSTONE
-  CHIASTOLITE SLATE
-  QUARTZ VEIN
-  BASIC ROCK - AMPHIBOLITE

SURFACE GEOLOGY AFTER  
HOSSFELD 1940

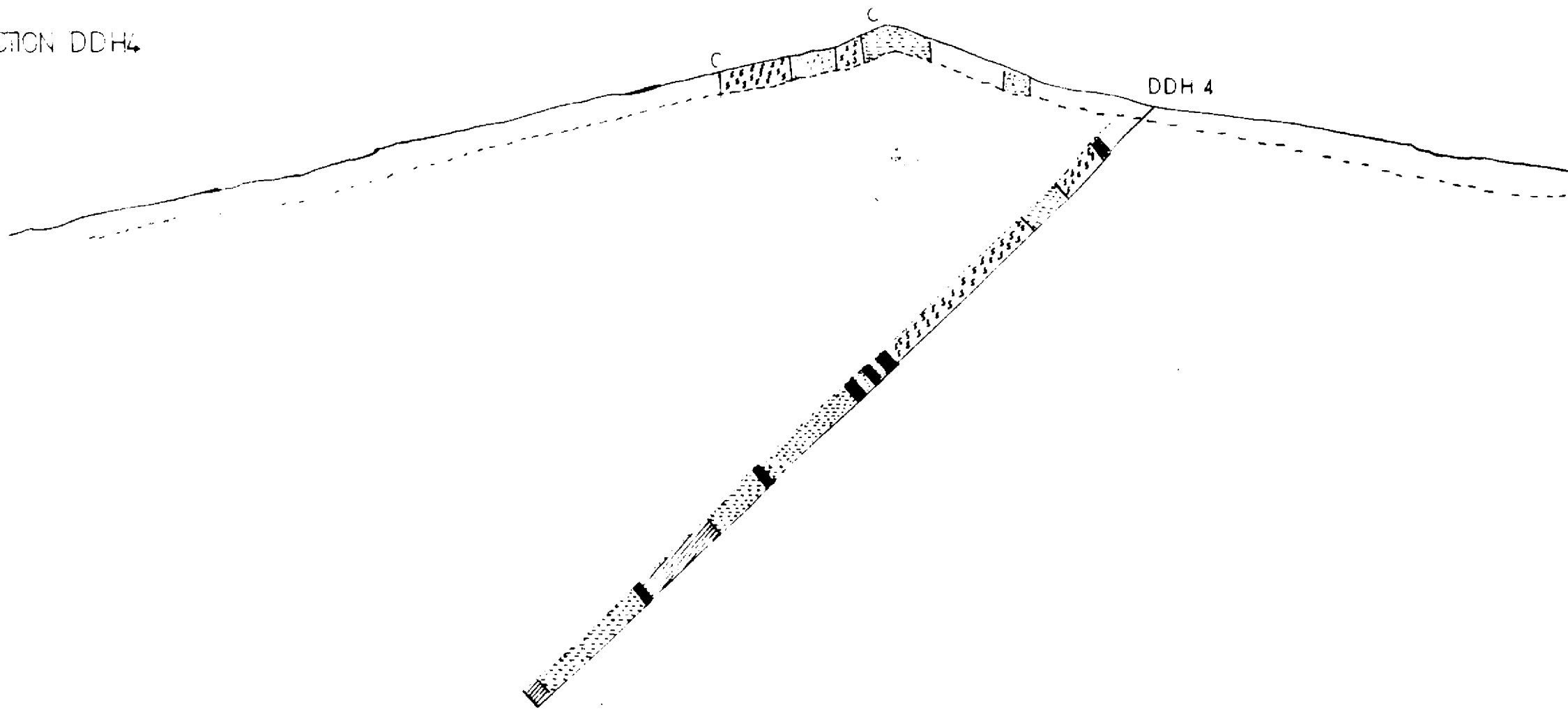
MCKINLEY GOLD MINE  
DRILL HOLE SECTIONS



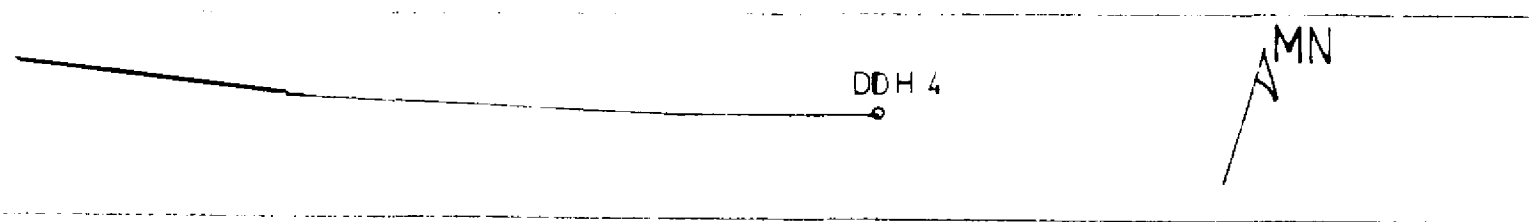
SECTION DDH3



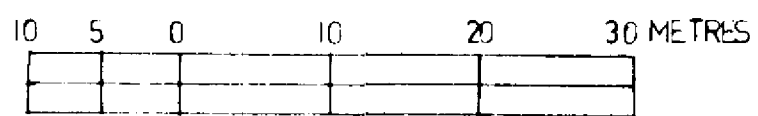
SECTION DDH4




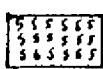
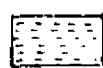



PLAN DDH 4



SCALE 1:500



REFERENCE

-  REPLACEMENT LODGE
-  FINE GRAINED SANDSTONE
-  CHIASTOLITE SLATE
-  QUARTZ VEIN
-  CHLORITE SCHIST
-  BASIC ROCK - AMPHIBOLITE

SURFACE GEOLOGY AFTER  
HOSSFELD 1940

TO ACCOMPANY NTGS REPT G574.17

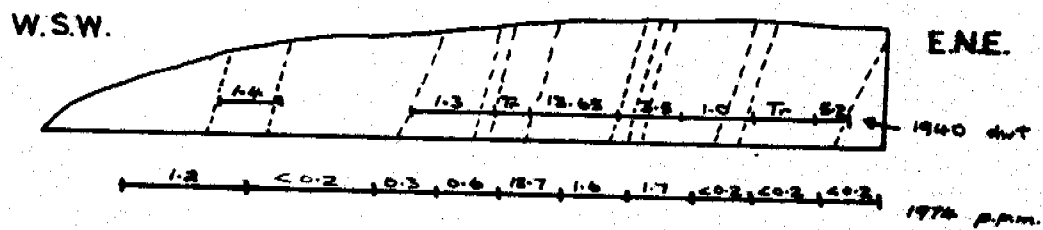
6801044c

McKINLEY GOLD MINE

COSTEAN ASSAYS

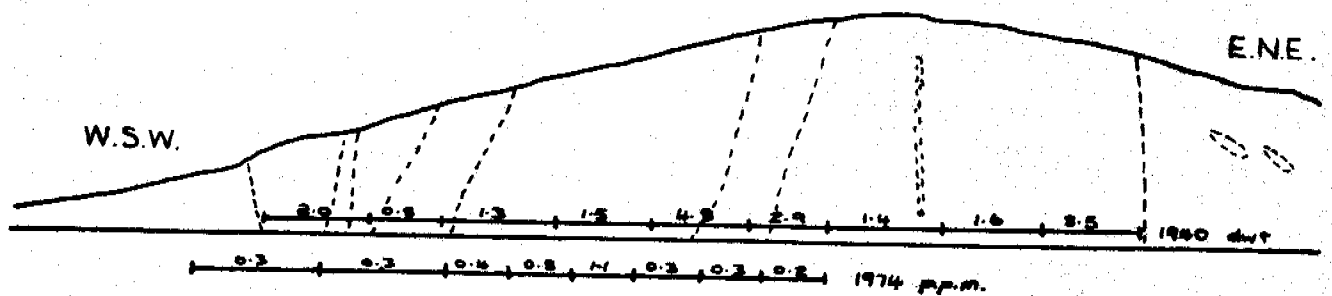
Scale: 1:120

NOTE: 1dwt.  $\doteq$  1.27p.p.m.



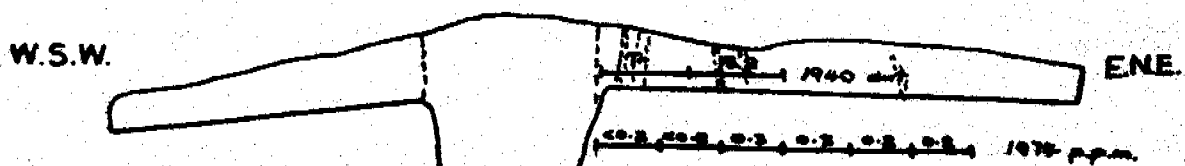
SECTION

Nº 1 COSTEAN



SECTION

Nº 2 COSTEAN



SECTION

Nº 4 COSTEAN

GEOLOGUE