

NORTHERN TERRITORY GEOLOGICAL SURVEY

REPORT N.T.G.S. 76/7

MT. BUNDEY STRATIGRAPHIC

DIAMOND DRILL HOLE

by P.W. CROHN

TABLE OF CONTENTS:

Mount Bundey Stratigraphic Diamond Drill Hole.
Lithological Log.
Analytical results.
Graphic log.
Locality Plan.
Plan of Quest 39 area (provided by Geopeko Ltd.)
Cross-section through drill hole.
Petrological description (provided by Geopeko Ltd.)

MT. BUNDEY STRATIGRAPHIC

DIAMOND DRILL HOLE.

The Mount Bunday Stratigraphic Diamond Drill Hole was put down in September-November 1975 at the Quest 39 Prospect, situated on the old Marrakai road, 6 Km south of the Arnhem Highway, 25 Km east of the Adelaide River crossing.

The Prospect falls within Exploration Licence 142 held by Geopeko Ltd., and the drilling was undertaken at the request of the Company in order to obtain a representative section through part of the Craig Creek Member of the Golden Dyke Formation, which is regarded as a potential host rock for uranium and base metal mineralisation. The dominant rock types within the Craig Creek Member in this area are shales, siltstones and subordinate sandstones in part cherty and/or ferruginous, and occasional "ironstones" (ferruginous breccias) which may represent the alteration products of originally sulphide-rich zones.

The hole had originally been planned to a depth of 250 metres and was intended to intersect at least one of these "ironstones" below the zone of oxidation. However, owing to close jointing and local dip reversals within the sedimentary rocks, extremely difficult drilling conditions were encountered and the hole had to be terminated at 178 metres.

Two ironstones were intersected at about 30 m and 100 m downhole depths respectively, both still within the zone of oxidation. Shales in the core were substantially fresh below about 100 m downhole depth, but sandy and brecciated intervals showed noticeable alteration to at least 130 m. Only very minor amounts of sulphides were noted, mainly pyrite as thin seams parallel to bedding or associated with quartz in minor zones of shearing and brecciation.

Trace element values, as expected, reached their maxima in the ironstone zones. Highest values were 2400 ppm copper (0.24%), 55 ppm lead, 580 ppm zinc, 440 ppm nickel, and 200 ppm cobalt. Uranium values were less than 100 ppm (0.01%) throughout.

MT. BUNDEY STRATIGRAPHIC

D.D.H. 1.

- 0.5 - 10.5 m. Weathered shale + sandy shale. Generally white reddish brownish and purplish in parts. Bedding at 45° - 50° to core axis. Some sections of core very broken.
- 10.5 - 18.25 m. Similar. Iron staining and some pyrite casts on minor joints and on some bedding planes. Bedding 60° t.c.a.
- 18.25 - 21.35 m. Similar. Argillaceous clasts to 2 cm along bedding plane at 20.75 m. Bedding 55° t.c.a.
- 21.35 - 23.0 m. Similar. Number of pyrite casts increasing.
- 23.0 - 24.0 m. Shale, increasingly impregnated by limonite and some ? hematite. Bedding 35° - 40° t.c.a.
- 24.0 - 26.75 m. Ironstone. Dominantly limonite, some hematite. Varying degrees of brecciation, with angular fragments of shale and ironstone up to 2 cm in matrix showing various degrees of replacement, up to massive ironstone. Numerous vugs generally less than 1 cm. Clay-filled joints widely spaced. Some patches of botryoidal limonite.
- 26.75 - 27.2 m. Remnants of incompletely replaced shale.
- 27.2 - 29.9 m. Ironstone with remnants of incompletely replaced shale. Similar to 24.0 - 26.75 m. Some structures resembling box-works, but probably due to exotic limonite at 29.0m.
- 29.9 - 31.2 m. Ironstone, as above.
- 31.2 - 31.3 m. Transition zone with decreasing intensity of iron impregnation.
- 31.3 - 36.3 m. Very weathered shale, in part slightly iron-impregnated. Generally white; in places brownish, purplish. Little structure preserved.
- 36.3 - 37.1 m. Minor zone of brecciation and moderate iron-impregnation.
- 37.1 - 42.7 m. Shale, moderately weathered. Generally white in places brownish and purplish. Minor zones of brecciation and moderate to strong iron-impregnation at 39.0 - 39.2 m, 39.4, and 41.6 - 41.9 m.
- 42.7 - 43.5 m. Shale, slightly to moderately weathered. Bedding 30° to core axis.

43.5	-	53.0	m.	Shale and sandy shale, slightly to moderately weathered. Minor zone of brecciation and iron-impregnation from 43.8 to 44.0 m. Bedding 15° - 25° t.c.a.
53.0	-	58.3	m.	Shale and sandy shale. Moderately to rather strongly weathered. Generally white. Bedding about 20° t.c.a.
58.3	-	62.0	m.	Shale, slightly to moderately weathered. Generally brownish. Bedding poorly developed.
62.0	-	63.0	m.	Shale, similar to above.
63.0	-	65.5	m.	Shale, moderately weathered. Whitish and brownish. Bedding 25° t.c.a.
65.5	-	68.2	m.	Shale; moderately to rather strongly weathered. Whitish, pink or reddish. Bedding parallel to core axis.
68.2	-	68.9	m.	Shale; moderately to rather strongly weathered. Brownish. Bedding poorly developed.
68.9	-	69.6	m.	Shale. Strongly weathered. Mainly whitish.
69.6	-	73.0	m.	Shale. Brownish to purplish. Similar to 68.2 - 68.9 m.
73.0	-	73.6	m.	Shale. Whitish and pinkish. Strongly weathered.
73.6	-	76.2	m.	Shale, as above.
76.2	-	77.5	m.	Shale. Purplish and brownish. Moderately weathered. Bedding 10° - 15° to core axis.
77.5	-	80.0	m.	Shale. Rather strongly to strongly weathered. Whitish, purplish or brownish. Bedding parallel to core axis. Unidentified yellow secondary mineral at 78.1 and 78.8 - 79.1 m. ? mixture of clay and iron oxides. Test for radioactivity negative.
80.0	-	81.9	m.	Shale and sandy shale. Slightly to moderately weathered. Dominantly brownish. Bedding parallel to core axis.
81.9	-	83.5	m.	Shale and sandy shale. Moderately to strongly weathered. Bedding variable, up to 45° to core axis.
83.5	-	83.6	m.	Sandy shale. Very strongly weathered.
83.6	-	84.6	m.	Fine-grained sandstone. Rather strongly weathered.
84.6	-	85.4	m.	Shale and sandy shale. Strongly to very strongly weathered. Bedding at 15° to core axis.
85.4	-	90.4	m.	Siltstone, grading to very fine-grained argillaceous sandstone. Mostly brownish. Strongly to very strongly weathered. Bedding poorly developed.
90.4	-	90.5	m.	Shale. Somewhat indurated.

- 90.5 - 91.4 m. Shale and sandy shale. Rather strongly weathered. Bedding 5° to core axis.
- 91.4 - 91.7 m. Shale. Rather strongly weathered. Vuggy. Brecciated quartz veins, to 2 cm wide, at acute angle to core axis.
- 91.7 - 93.0 m. Sandy shale, grading to very fine-grained argillaceous sandstone. Moderately to rather strongly weathered. Mainly brownish. Bedding 25° to core axis.
- 93.0 - 95.1 m. Shale and sandy shale. Somewhat indurated. Closely jointed in part. Manganese coatings on joints. Bedding at 25° to core axis.
- 95.1 - 96.0 m. Fine-grained sandstone. Very strongly weathered. Purple to grey. Only fragments recovered.
- 96.0 - 97.2 m. Ironstone; mainly limonite. Very vuggy and broken.
- 97.2 - 97.4 m. Vuggy ironstone. Mainly limonite.
- 97.4 - 104.0 m. Ironstone; mainly limonite, ? some hematite. Massive to vuggy and broken. Abundant manganese staining on joints. Some remnants of incompletely replaced shale.
- 104.0 - 104.4 m. Transition zone.
- 104.4 - 106.5 m. Shale; moderately indurated; rather strongly weathered; jointed; somewhat brecciated in part.
- 106.5 - 109.6 m. Shale, similar to above; less weathered; more strongly indurated and jointed. Abundant manganese coatings on joints.
- 109.6 - 110.1 m. Shale, similar to above; greenish grey; only slightly weathered. Bedding at 40° - 60° to core axis.
- 110.1 - 117.2 m. Shale and sandy shale. Greenish grey, occasionally brownish. Only slightly weathered. Somewhat indurated, jointed. Some manganese coatings on joints. Bedding 60° - 80° to core axis.
- 117.2 - 120.0 m. Similar to above, with minor interbeds of fine-grained sandstone, generally less than 5 cm thick, moderately to rather strongly weathered.
- 120.0 - 124.0 m. Shale and sandstone interbeds in almost equal proportions. Moderately to rather strongly weathered. Bedding 50° to core axis at 121 m, subparallel to axis at 122.5 m.

- 4.
- 124.0 - 124.4 m. Shale and fine-grained sandstone in interbeds less than 1 cm thick. Brownish to purplish. Rather strongly weathered. Highly ferruginous and manganeseiferous. Bedding 20° t.c.a.
- 124.4 - 125.2 m. Shale and sandy shale with very minor sandstone interbeds. Moderately weathered. Grey. Occasional pyrite clots and lenses to 0.1 cm wide, aligned parallel to bedding.
- 125.2 - 125.9 m. Very heavily brecciated zone. Fragments of shale and ? vein quartz up to 2 cm. Cavities ? due to leaching of sulphides. Matrix heavily iron and manganese impregnated. General trend of shearing at 20° to core axis.
- 125.9 - 127.5 m. Shale. Grey. Only slightly weathered but closely jointed. Core very broken.
- 127.5 - 128.8 m. Interbeds of shale, grey only slightly weathered, and fine-grained sandstone, generally purplish, rather strongly weathered. Thin pyrite seams (about 0.05 cm) parallel to bedding in sandstone at 128.2 m. Minor shear-zone, heavily iron and manganese impregnated at 128.6 m.
- 128.8 - 132.0 m. Shale and sandy shale. Bluish grey. Almost fresh. Moderately jointed. Clay coatings on joints. Bedding 25° - 35° to core axis.
- 132.0 - 136.5 m. Shale and sandy shale. Bluish grey, almost fresh. Minor interbeds of very fine-grained argillaceous sandstone, especially between 132.5 and 133.0 m. Bedding at about 40° to core axis.
- 136.5 - 147.8 m. Shale and sandy shale. Grey and bluish grey, almost fresh, but core very broken, particularly at 137.4 - 137.5, 140.8 - 141.6, 142.5 - 142.2 and 145.0 - 146.0 m. Bedding at 45° to core axis at 137m, subparallel to core axis at 147 m.
- 147.8 - 150.8 m. Shale and sandy shale, grey to bluish grey, almost fresh. Bedding subparallel to core axis.
- 150.8 - 151.4 m. Only sand and fragments of shale to about 1 cm recovered.
- 151.4 - 158.7 m. Shale and sandy shale with thin interbeds, generally less than 0.5 cm, of very fine-grained sandstone. Grey to bluish grey. Fresh to very slightly weathered. Rare pyrite seams to about 0.1 cm. Bedding at 20° to core axis at 152 m, subparallel to core axis at 153 m, 35° - 40° to core axis at 156 - 158 m.

- 124.0 - 124.4 m. Shale and fine-grained sandstone in interbeds less than 1 cm thick. Brownish to purplish. Rather strongly weathered. Highly ferruginous and manganiferous. Bedding 20° t.c.a.
- 124.4 - 125.2 m. Shale and sandy shale with very minor sandstone interbeds. Moderately weathered. Grey. Occasional pyrite clots and lenses to 0.1 cm wide, aligned parallel to bedding.
- 125.2 - 125.9 m. Very heavily brecciated zone. Fragments of shale and ? vein quartz up to 2 cm. Cavities ? due to leaching of sulphides. Matrix heavily iron and manganese impregnated. General trend of shearing at 20° to core axis.
- 125.9 - 127.5 m. Shale. Grey. Only slightly weathered but closely jointed. Core very broken.
- 127.5 - 128.8 m. Interbeds of shale, grey only slightly weathered, and fine-grained sandstone, generally purplish, rather strongly weathered. Thin pyrite seams (about 0.05 cm) parallel to bedding in sandstone at 128.2 m. Minor shear-zone, heavily iron and manganese impregnated at 128.6 m.
- 128.8 - 132.0 m. Shale and sandy shale. Bluish grey. Almost fresh. Moderately jointed. Clay coatings on joints. Bedding 25° - 35° to core axis.
- 132.0 - 136.5 m. Shale and sandy shale. Bluish grey, almost fresh. Minor interbeds of very fine-grained argillaceous sandstone, especially between 132.5 and 133.0 m. Bedding at about 40° to core axis.
- 136.5 - 147.8 m. Shale and sandy shale. Grey and bluish grey, almost fresh, but core very broken, particularly at 137.4 - 137.5, 140.8 - 141.6, 142.5 - 142.2 and 145.0 - 146.0 m. Bedding at 45° to core axis at 137m, subparallel to core axis at 147 m.
- 147.8 - 150.8 m. Shale and sandy shale, grey to bluish grey, almost fresh. Bedding subparallel to core axis.
- 150.8 - 151.4 m. Only sand and fragments of shale to about 1 cm recovered.
- 151.4 - 158.7 m. Shale and sandy shale with thin interbeds, generally less than 0.5 cm, of very fine-grained sandstone. Grey to bluish grey. Fresh to very slightly weathered. Rare pyrite seams to about 0.1 cm. Bedding at 20° to core axis at 152 m, subparallel to core axis at 153 m, 35° - 40° to core axis at 156 - 158 m.

- 158.7 - 161.2 m. Shale and sandy shale as above, with increasing proportion of fine-grained argillaceous sandstone interbeds. Thin carbonate veinlets (less than 0.2 cm) on joints, sometimes displacing bedding by up to 2 cm. Bedding at 40° to core axis.
- 161.2 - 161.3 m. Zone of quartz veining and brecciation. Traces of pyrite and some cavities ? due to leaching of sulphides.
- 161.3 - 164.7 m. Shale and sandy shale with fine-grained sandstone interbeds as for 158.7 - 161.2 m. Bedding at about 45° to core axis.
- 164.7 - 165.0 m. Fine-grained argillaceous sandstone.
- 165.0 - 172.0 m. Shale and sandy shale interbedded with fine-grained argillaceous sandstone in roughly equal proportions. Bedding at 50° to core axis at 166 m., 30° at 171 m.
- 172.0 - 177.0 m. Shale and fine-grained sandstone as above. Core mostly rather broken. Bedding at 35° to core axis at 176.8 m.
- 177.0 - 177.8 m. Sandstone, coarser than above, but still rather argillaceous.
- 177.8 - 178.2 m. Shale and sandstone interbedded. Core rather broken.

-End of Hole-

M. FUNNEY STRATIGRAPHIC

D.D.H. 1.

			ppm.	ppm.	ppm.	ppm.	ppm.	ppm.	ppm.	ppm.	ppm.
			Cu	Pb	Zn	Ni	Co	Mn	Fe	U.	
75/DK/0301.C.	0.00 -	5.65	150	35	260	16	-5	30	3.6	-0.01	
302.C.	5.65 -	9.65	55	25	50	8	-5	25	1.4	-0.01	
303.C.	9.65 -	15.25	85	25	20	14	-5	25	3.3	-0.01	
304.C.	15.25 -	18.25	80	20	25	12	-5	35	3.9	-0.01	
305.C.	18.25 -	21.35	25	20	10	8	-5	20	1.2	-0.01	
306.C.	21.35 -	23.20	290	25	85	60	-5	20	4.4	-0.01	
307.X.	23.20 -	24.50	960	40	460	280	60	380	48.9	-0.01	
308.X.	24.50 -	26.40	2300	35	580	350	75	1780	52.6	-0.01	
309.X.	26.40 -	28.00	2400	35	480	330	60	310	41.3	-0.01	
310.X.	28.00 -	28.95	2100	35	580	340	75	1875	51.4	-0.01	
311.X.	28.95 -	29.93	1900	50	480	260	70	440	57.6	-0.01	
312.X.	29.93 -	31.40	1400	35	490	290	65	700	50.4	-0.01	
313.C.	31.40 -	37.25	760	35	190	180	20	320	22.4	-0.01	
314.C.	37.25 -	40.36	670	15	230	170	30	640	23.0	-0.01	
315.C.	40.36 -	43.81	190	10	50	50	12	640	5.5	-0.01	
316.C.	43.81 -	46.73	150	-10	40	35	-5	230	3.6	-0.01	
317.C.	46.73 -	50.30	100	-10	40	25	-5	220	3.7	-0.01	
318.C.	50.30 -	53.35	80	-10	40	25	-5	230	3.2	-0.01	
319.C.	53.35 -	57.17	75	10	45	25	8	210	2.8	-0.01	
320.C.	57.17 -	60.67	85	-10	40	30	8	160	3.0	-0.01	
321.C.	60.67 -	65.55	70	10	25	35	16	300	2.8	-0.01	
322.C.	65.55 -	69.93	45	15	40	35	12	75	3.3	-0.01	
323.C.	69.93 -	74.70	35	-10	30	35	16	110	3.0	-0.01	
324.C.	74.70 -	79.64	60	15	25	35	20	380	2.7	-0.01	
325.C.	79.64 -	84.46	120	15	45	85	30	640	3.5	-0.01	
326.C.	84.46 -	88.93	400	20	180	330	100	3300	6.5	-0.01	
327.C.	88.93 -	93.00	410	20	210	310	100	2900	7.6	-0.01	
328.C.	93.00 -	96.00	1200	25	230	330	200	24000	12.1	-0.01	
329.X.	96.00 -	97.89	90	30	190	260	55	180	57.5	-0.01	
330.X.	97.89 -	100.99	1100	30	460	440	160	15000	47.7	-0.01	
331.X.	100.99 -	104.20	1300	55	470	400	120	2400	46.1	-0.01	
332.C.	104.20 -	108.39	220	20	240	140	25	380	9.5	-0.01	
333.C.	108.39 -	111.30	150	10	55	50	14	50	3.3	-0.01	
334.C.	111.30 -	114.35	200	15	55	50	6	20	2.9	-0.01	
335.C.	114.35 -	117.40	240	15	45	45	8	25	3.1	-0.01	
336.C.	117.40 -	120.21	300	20	55	50	10	35	4.1	-0.01	
337.C.	120.21 -	123.50	1200	30	140	120	-5	50	10.5	-0.01	
338.C.	123.50 -	126.57	1500	20	16	45	-5	25	1.7	-0.01	
339.C.	126.57 -	128.03	1000	15	25	75	5	30	4.0	-0.01	
340.C.	128.03 -	129.30	460	20	40	80	10	35	9.0	-0.01	
341.C.	129.30 -	133.49	140	-10	55	40	-5	45	2.3	-0.01	
342.C.	133.49 -	136.50	100	10	75	35	-5	40	1.7	-0.01	
343.C.	136.50 -	141.08	140	-10	55	40	-5	70	3.2	-0.01	
344.C.	141.08 -	146.13	25	-10	40	35	-5	50	2.3	-0.01	
345.C.	146.13 -	151.40	220	10	70	40	-5	60	2.0	-0.01	
346.C.	151.40 -	156.10	280	10	350	60	-5	180	5.2	-0.01	
347.C.	156.10 -	160.96	45	20	80	50	-5	280	3.9	-0.01	
348.C.	160.96 -	165.10	50	25	140	90	20	1190	6.9	-0.01	
349.C.	165.10 -	170.58	16	20	90	45	5	490	3.3	-0.01	
350.C.	170.58 -	175.02	18	30	140	70	12	970	5.0	-0.01	
351.C.	175.02 -	178.20	40	30	340	110	25	2810	7.8	-0.01	

C: Composite Sample (chips)

X: Split core sample.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT Stratigraphic Drill Hole REMARKS Quest 39
 HOLE N 1 CO-ORDINATES _____ RL GROUND _____
 LOCATION Mount Bunday ANGLE FROM HORIZONTAL 45° DIRECTION Grid E.

Metres	DESCRIPTION OF CORE	LOG	CORE RE- COVERY %	Cu ppm.	Pb ppm.	Zn ppm.	Fe %
5	Weathered shale and sandy shale. Generally white; reddish, brownish + purplish in parts. Core very broken in parts.	/ / / / /	35	150	35	260	3.6
			100				
			73	55	25	50	1.4
10			53				
			100				
	Shale similar to above. Iron staining and some pyrite casts on minor joints and some bedding planes.	/ / / / /	58	85	25	20	3.3
			31				
15			81				
			100	80	20	25	3.9
20	Shale as above. Argillaceous clasts to 2 cm. on bedding plane.	/ / / / /	69	25	20	10	1.2
			100				
	Shale as above. Increasing number of pyrite casts.	/ / / / /	97	290	25	85	4.4
	Shale. Incr. impregn. by iron oxides.	/ / / / /					
25	Ironstone. Brecciation, vugs, clay- filled joints, botryoidal limonite.	/ / / / /	100	960	40	460	48.9
				2300	35	580	52.6
				2400	35	480	41.3
	Iron impregnated shale.	/ / / / /					
	Ironstone, w. remnant imcompletely replaced shale. Exotic limonite.	/ / / / /	88	2100	35	580	51.4
30				1900	50	480	57.6
	Ironstone as above.	/ / / / /	100	1400	35	490	50.4
35	Very weathered shale; generally white, in parts brownish, purplish. Iron-impregnated. Little structure.	/ / / / /	17	760	35	190	22.4
			24				
	Brecciated + Iron-impregn. zone.	/ / / / /					
	Shale, moderately weathered. Generally white, in places brownish + purplish. Minor zones of brecciation + iron- impregnation.	/ / / / /	41	670	15	230	23.0
40			17				
			100				
			38	190	10	50	5.5
			57				
			68				
	Shale, sl. to mod. weathered.	/ / / / /	100				
45	Shale and sandy shale. Sl. to mod. weathered. Minor zones of brecciation + iron-impregnation.	/ / / / /	17	150	-10	40	3.6
			100				
				100	-10	40	3.7
50			68				

REFERENCES

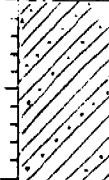
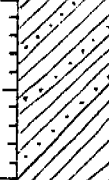
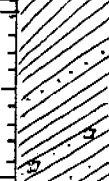
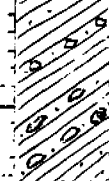


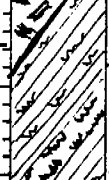
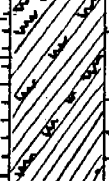
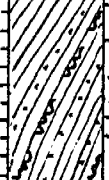

LOGGED BY _____

SHEET 1 OF 4

DRAWING N° _____

GEOLOGICAL LOG OF DRILL HOLE

PROJECT Stratigraphic Drill Hole REMARKS Quest 39
 HOLE N 1 CO-ORDINATES _____ RL GROUND _____
 LOCATION Mount Bunday ANGLE FROM HORIZONTAL 45° DIRECTION Grid E

Metres	DESCRIPTION OF CORE	LOG	COPE RL COVERY %	SAMPLES		
				Cu ppm.	Pb ppm.	Zn ppm.
5	Weathered shale and sandy shale. Generally white; reddish, brownish + purplish in parts. Core very broken in parts.		35	150	35	260
			100	55	25	50
			73			
10	Shale similar to above. Iron staining and some pyrite casts on minor joints and some bedding planes.		53			
			100			
			58	85	25	20
15	Shale as above. Argillaceous clasts to 2 cm. on bedding plane.		31			
			81			
			100	80	20	25
20	Shale as above. Increasing number of pyrite casts.		69	25	20	10
			100			
			97	290	25	85
25	Shale. Incr. impregn. by iron oxides. Ironstone. Brecciation, vugs, clay- filled joints, botryoidal limonite.		100	960	40	460
				2300	35	580
				2400	35	480
30	Iron impregnated shale. Ironstone, w. remnant incompletely replaced shale. Exotic limonite.		88	2100	35	580
				1900	50	480
			100	1400	35	490
35	Very weathered shale; generally white, in parts brownish, purplish. Iron-impregnated. Little structure.		17	760	35	190
			24			
			41			
40	Brecciated + Iron-impregn. zone. Shale, moderately weathered. Generally white, in places brownish + purplish. Minor zones of brecciation + iron- impregnation.		17	670	15	230
			100			
			38			
45	Shale, sl. to mod. weathered. Shale and sandy shale. Sl. to mod. weathered. Minor zones of brecciation + iron-impregnation.		57	190	10	50
			68			
			100			
50	Shale, sl. to mod. weathered.		17	150	-10	40
			100			
			68	100	-10	40

REFERENCES

LOGGED BY _____

SHEET 1 OF 4

DRAWING N° _____

GEOLOGICAL LOG OF DRILL HOLE

PROJECT Stratigraphic Drill Hole REMARKS Quest 39
 HOLE N. 1 CO-ORDINATES _____ RL GROUND _____
 LOCATION Mount Bundey ANGLE FROM HORIZONTAL 45° DIRECTION Grid E

Metres	DESCRIPTION OF CORE	LOG	CORE RECOVERY %	Cu	Pb	Zn	Fe
				ppm.	ppm.	ppm.	%
50	Shale + sandy shale, as above.		100	80	-10	40	3.2
			95				
			68				
55	Shale + sandy shale. Moderately to rather strongly weathered. Generally white.		95	75	10	45	2.8
			100				
			96	85	-10	40	3.0
60	Shale. Sl. to mod. weathered. Generally brownish. Bedding poorly developed.		100				
			47	70	10	25	2.8
	Shale, similar to above.		100				
	Shale, moderately weathered. Whitish + brownish.		43				
			55				
	Shale. Mod. to rather strongly weathered. Whitish, pink + reddish.		37				
			64	45	15	40	3.3
	Shale, as above. Brownish		75				
70	Shale, str. weathered. Whitish		93				
	Shale, mod. to str. weathered. Brownish and purplish.		100	35	-10	30	3.0
			62				
	Shale, str. weathered. White - pink		80				
75	Shale, similar to above.		55				
			76				
			60				
	Shale, mod. weathered. Purple-brown.		98	60	15	25	2.7
			75				
	Shale, str. to rather str. weathered. Whitish, purplish or brownish.		87				
			91				
80	Yellow secondary min ^s - ? iron oxides.		100				
	Shale + sandy shale. Brownish. Slightly to mod. weathered.		48				
	Shale + sandy shale, as above.		43	120	15	45	3.5
			62				
	Fine -gr. sst. Rather str. weathered.		78				
85	Shale + sandy shale.		92				
			50				
	Siltstone grading to very fine-gr. argillaceous sandstone. Brownish. Str. to v. str. weathered.		73	400	20	180	6.5
			86				
90			100				
	Shale + sandy shale.		92	410	20	210	7.6
	Shale + brecciated qtz. vein.		98				
	Sandy shale + fine-gr. argill. sst.		100				
	Shale + sandy shale. Sl. indurated. Jointed. Mn coatings on joints.		32	1200	25	230	12.1
95	Fine-gr. sst. V. Str. weathered.		31				
	Ironstone, vuggy + broken.		18	90	30	190	57.5
			50				
	Ironstone, massive to vuggy. Mainly limonite, some hematite. Mn staining.		70				
			18				
	Shale remnants.		86	1100	30	460	47.7
100			30				

REFERENCES

LOGGED BY _____

SHEET 2 OF 4

DRAWING N _____

GEOLOGICAL LOG OF DRILL HOLE

PROJECT Stratigraphic Drill Hole REMARKS Quest 39
 HOLE N 1 CO-ORDINATES _____
 LOCATION Mount Bunday ANGLE FROM HORIZONTAL 45° DIRECTION Grid E

Elev m	DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES			
				Cu	Pb	Zn	Fe
00	Ironstone, as above.		90	ppm.	ppm.	ppm.	%
			60	1300	55	470	46.1
			37				
105	Shale, mod. indurated, rather strongly weathered, jointed, brecciated in part.		93	220	20	240	9.5
	Shale, less weathered, more strongly indurated + jointed. Mn staining.		82				
			76				
110	Shale, greenish grey. Only sl. weathered.		100	150	10	55	3.3
	Shale + sandy shale. Greenish grey, occas. brownish. Only sl. weathered. Somewhat indurated, jointed. Mn coatings on joints.		48	200	15	55	2.9
115	Shale with interbeds fine - gr.-sst. generally <5cm. Mod. weathered.		98	240	15	45	3.1
			100				
120	Shale + sst. in almost equal proportions. Mod. to rather strongly weathered.		52	300	20	55	4.1
			65	1200	30	140	10.5
125	Shale + sst. Ferrug. + manganiferous Shale + sandy shale. Pyritic Brecciated zone. Fe + Mn impregnated. Shale, grey. Closely jointed.		100	1500	20	16	1.7
	Shale + fine gr. sst. Pyritic, sheared.		35	1000	15	25	4.0
			100				
130	Shale + sandy shale; Bluish grey. Almost fresh. Clay coatings on joints.		82	460	20	40	9.0
	Shale + sandy shale as above. Minor interbeds very fine-gr. argillaceous sandstone.		31	140	-10	55	2.3
135	Shale + sandy shale. Grey to bluish grey. Almost fresh, but core very broken in parts.		100	100	10	75	1.7
			93				
			100				
			67				
140	Shale + sandy shale, as above.		100	140	-10	55	3.2
			96				
			100				
			70				
			58				
145	Shale + sandy shale, as above.		91	25	-10	40	2.3
			98				
			11				
			100				
			22				
150	Shale + sandy shale, as above.		37	220	10	70	2.0
			48				
			71				
			98				
			85				
			54				
			73				

REFERENCES

LOGGED BY _____

SHEET 3 OF 4

DRAWING N° _____

GEOLOGICAL LOG OF DRILL HOLE

PROJECT Stratigraphic Drill Hole

REMARKS Quest 39

HOLE N° 1 CO-ORDINATES

RL GROUND

LOCATION Mount Bunday

ANGLE FROM HORIZONTAL 45°

DIRECTION Grid E

Metres	DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES			
				Cu	Pb	Zn	Fe
150	Shale + sandy shale, as above.		78	280	10	350	5.2
	Only sand + shale fragments recovered.		70				
	Shale + sandy shale. Thin interbeds very fine-gr. sst. Grey to bluish grey, fresh to sl. weathered. Rare pyrite seams.		90	45	20	80	3.9
			100				
155			40				
			100				
	Shale + sandy shale, incr. proportion. fine-gr. sst. Carbonate veins on joints.		86	50	25	140	6.9
160			80				
	Zone of qtz. veining + brecciation.		100	16	20	90	3.3
	Shale + sandy shale. Interbeds of fine-grained sandstone.		78				
		63					
	Fine-gr. argillaceous sandstone.	74					
165	Shale + sandy shale, interbedded with fine-gr. argillaceous sst. in roughly equal proportions.	87	18	30	140	5.0	
		100					
		77					
		57					
	Shale + fine-gr. sst. as above. Core mostly rather broken.	78	40	30	340	7.8	
170		30					
	Sst., sl. coarser than above.	46	100	30	340	7.8	
		100					
	Shale + sst. Core rather broken.	27	100	30	340	7.8	
175		20					
	T.D. 178.2 metres.	100	100	30	340	7.8	
		24					
		100					

REFERENCES

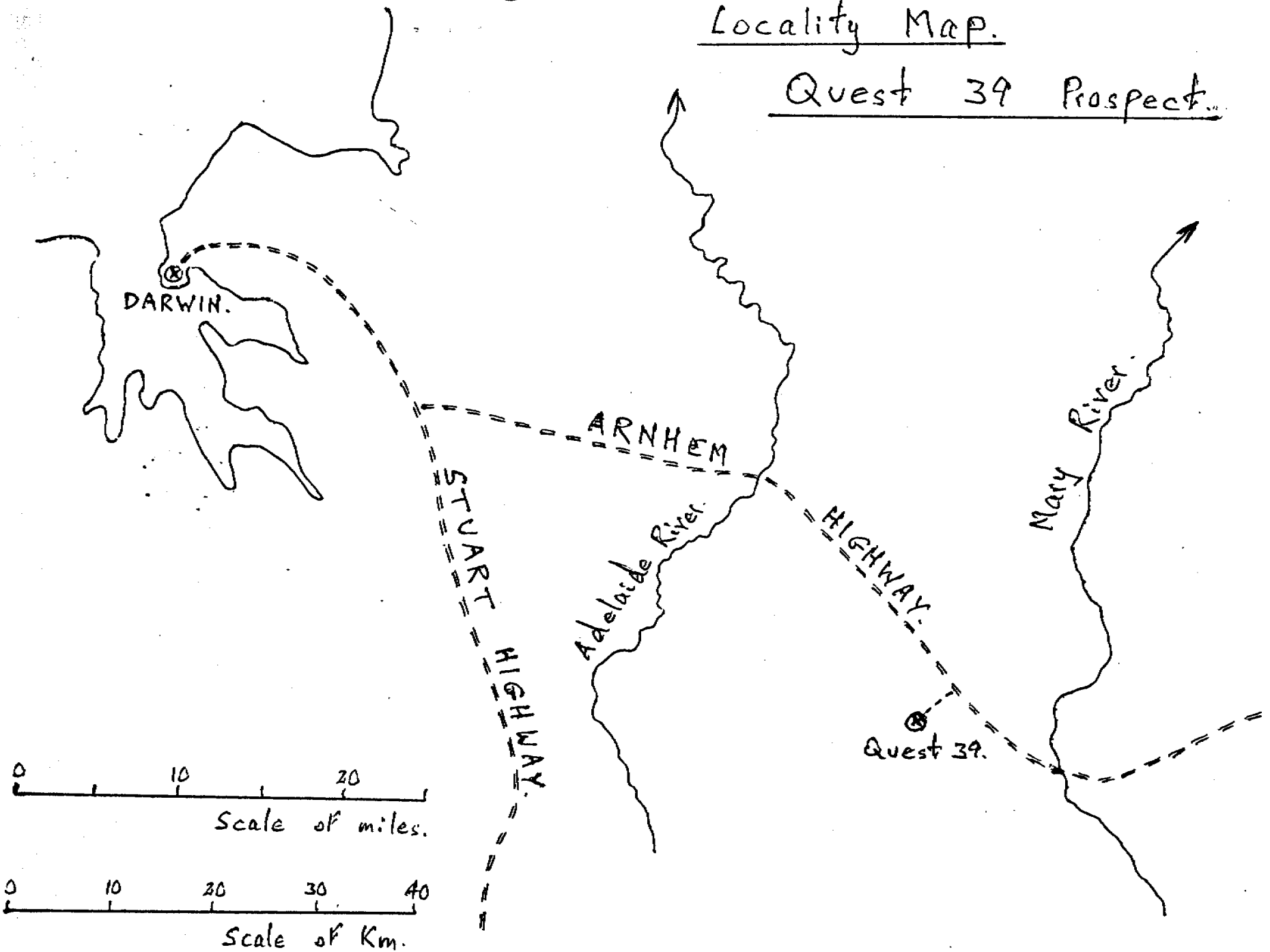
LOGGED BY _____

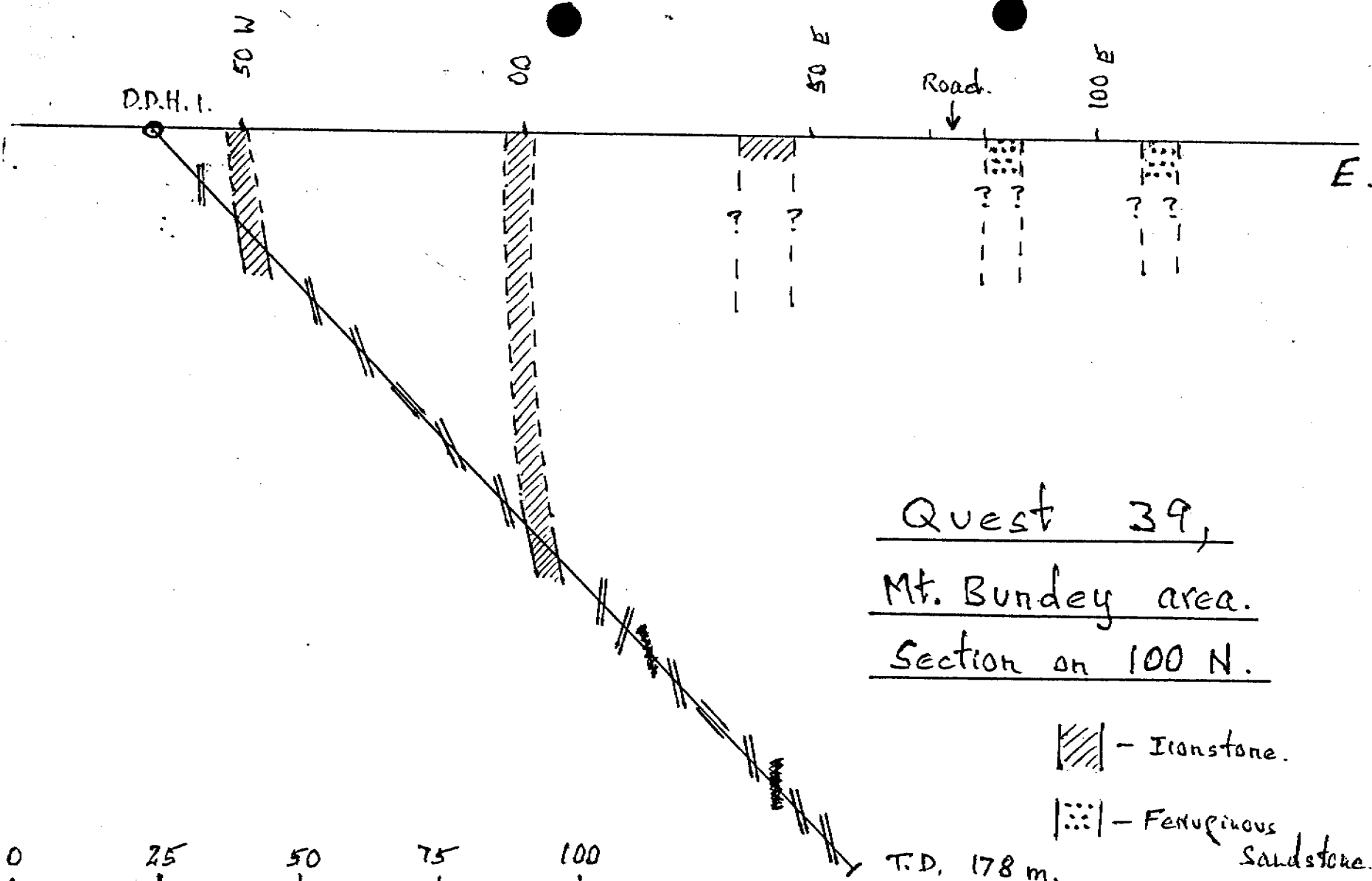
SHEET 4 OF 4

DRAWING N° _____

Locality Map.

Quest 39 Prospect.





Quest 39,
Mt. Bunday area.
Section on 100 N.

▨ - Ironstone.
 ▤ - Ferruginous Sandstone.

0 25 50 75 100
 Scale of metres.

T.D. 178 m.

CENTRAL MINERALOGICAL SERVICES PTY. LTD.

Date 25th March 1976

SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No. CMS 76/3/18 Date Received: 22.3.76

Reference Order No. G2213

Sample No. GG 6247

Nature of Sample: D, D, Core

DESCRIPTION SECTION No. 18573

IDENTIFICATION
GG 6247
SIDERITIC, CHERTY QUARTZITE

a. Hand Specimen:

Dark, clastic rock with fine sulphides.

b. Microscopic:

This rock may be termed a sideritic quartzite, with some unusual features.

The framework consists of medium-sandsized grains, averaging 0.3mm across; the grain-shapes are not always well-defined, because of very thorough silicification. The main framework components are monocrystalline, angular quartz grains, rounded quartz grains with angular overgrowths, rounded grains of carbonaceous matter, carbonaceous chert and chert grains veined and rimmed with carbonaceous matter; occasional clay pellets occur, and there are isolated chert and clay nodules.

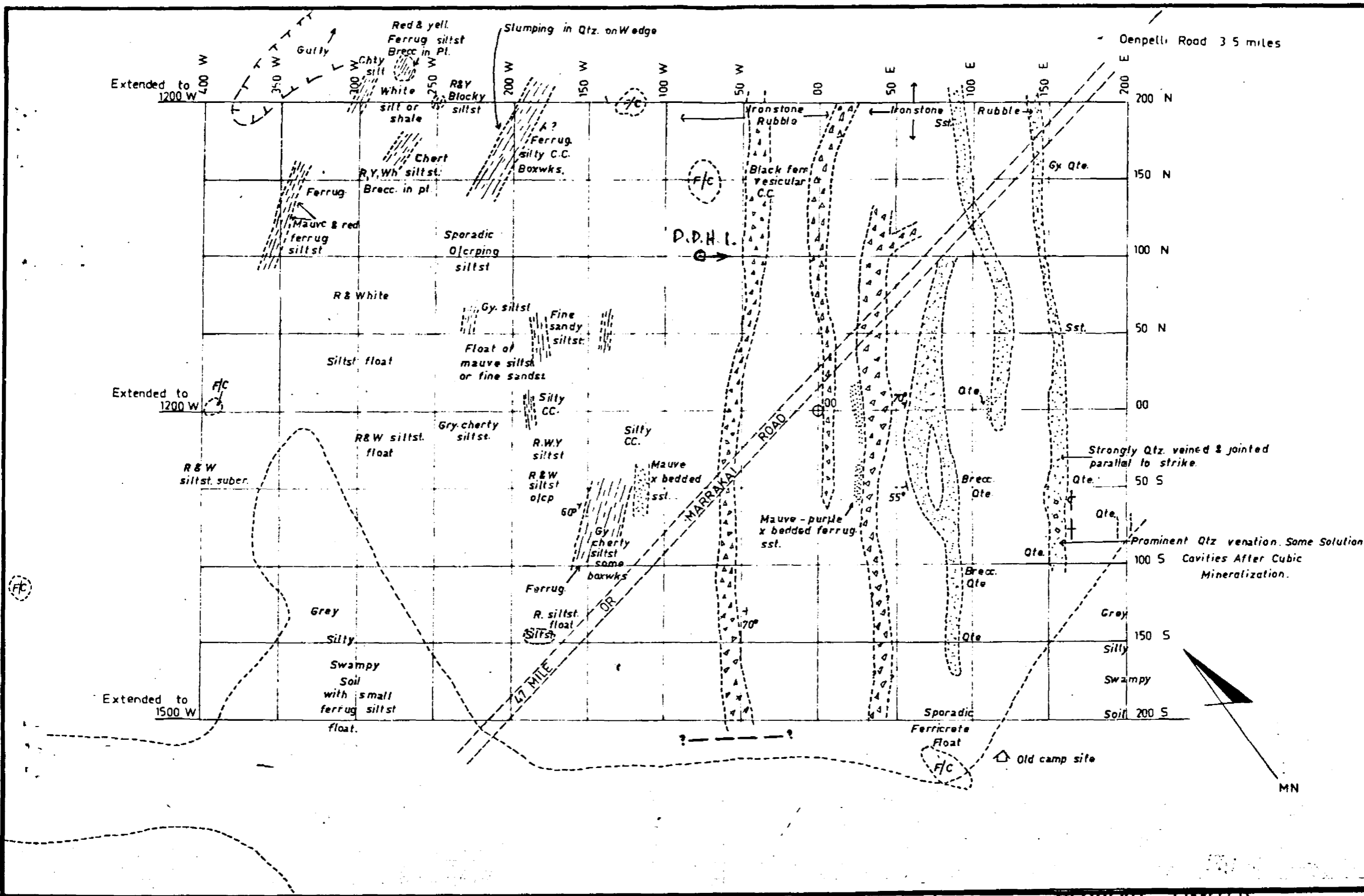
Many of the carbonaceous chert and carbon-veined grains are apparently recrystallised; some may actually be silicified, i.e. replaced by cherty quartz. The carbon-veined grains are quite unusual and distinctive, and their origin is not at all certain; they give the impression of being derived from a quartzite (or quartz sand) adjacent to coal seams or tar sands!

It is evident that the original cement was mainly microcrystalline quartz, which not only cemented the framework grains but partly corroded and replaced them. This in time was replaced by microgranular sideritic carbonate, probably at the same time as the pyrite was introduced.

The rock shows virtually no bedding or similar features, although the grains are closely sized. In polished section, the sulphide mineral is pyrite, as small poikiloblastic patches. An isolated small area of covellite was detected, intergrown on a fine scale with ? tenorite.

There is little meaningful resemblance between this rock and GG 5701, 3643-44, 4733 or 5050.

H.W. Fander, M.Sc.



- KEY**
- Ferricrete.
 - Predominantly Fine Sandy Siltstones, Brecciated in Parts
 - Ferruginous Auto Breccias
 - Sandstones & Quartzites

DATE: 23 6 74

GEOLOGIST: RFT

DRAWN: H.B. J.H.

CHECKED: R.F.

GEOPEKO LIMITED
GONDWANA PROJECT - DARWIN

SCALE: 1:2500

No. G 823 d

QUEST 39 GRID

GEOLOGICAL OUTCROP MAP