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ASSESSMENT REPORT

BAR PROPERTY

D.D.H. BAR 88-2

N.T.S. 82 G/5 W

LATITUDE 49 DEGREES 27'N, LONGITUDE 115 DEGREES 56'W

FORT STEELE MINING DIVISION

FILED

SUB-RECORDER
RECEIVED
OCT 7 1988
M.R. # _____ \$ _____
VANCOUVER, B.C.

Owner: Therm Exploration Ltd.
Operator: Goldpac Investments Ltd.
Author: John M. Leask
Hole Logged By: F. R. Edmunds

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17-886

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INTRODUCTION

The objective of this project is to find another economic massive sulphide deposit in the Aldridge Formation which hosts the immense Sullivan Zn-Pb-Ag deposit. The Sullivan horizon exists at depths of 900 meters to 2500 meters within the Bar Claims Group.

During 1988 diamond drill hole Bar 88-2 was initiated in order to test the Sullivan Time Horizon for a Sullivan type ore body.

The impetus for the project was the existence of a Controlled Source Audiomagnetotelluric anomaly at the approximate Stratigraphic level of the Sullivan within a geologic framework believed to be favourable for massive sulphide deposition.

The hole was drilled to a depth of 1650 meters during the months of April, May and June, and was continuing to 2000+ meters during July and August. This report is for assessment work applied on July 6, 1988 and covers the first 1650 meters of drilling.

LOCATION, ACCESS AND PHYSIOGRAPHY

Diamond Drill Hole Bar 88-2 is located approximately 10 km. Southwest of Cranbrook, B.C., north of Lumberton Reservoir, at approximately the following co-ordinates:

Longitude 115 degrees 56'W
Latitude 49 degrees 27'N

Access to the drill site is by Highway 3-95, south from Cranbrook, then west on the Moyie River Forest Road for 4 km, then north on the Lumberton Mountain Lookout Road for 3 km.

Steep sided valleys with abundant cliffs both east and west of Lumberton Lookout Mountain characterize the topography. Elevations range between 870 meters A.S.L. and 1700 meters A.S.L. in the area of the claims.

Climate is that of the Rocky Mountain Trench rain shadow with annual precipitation of 40 centimeters. Snowpack in winter rarely exceeds 2 meters. Temperatures range from -40 degrees celsius in winter to +40 degrees celsius in summer.

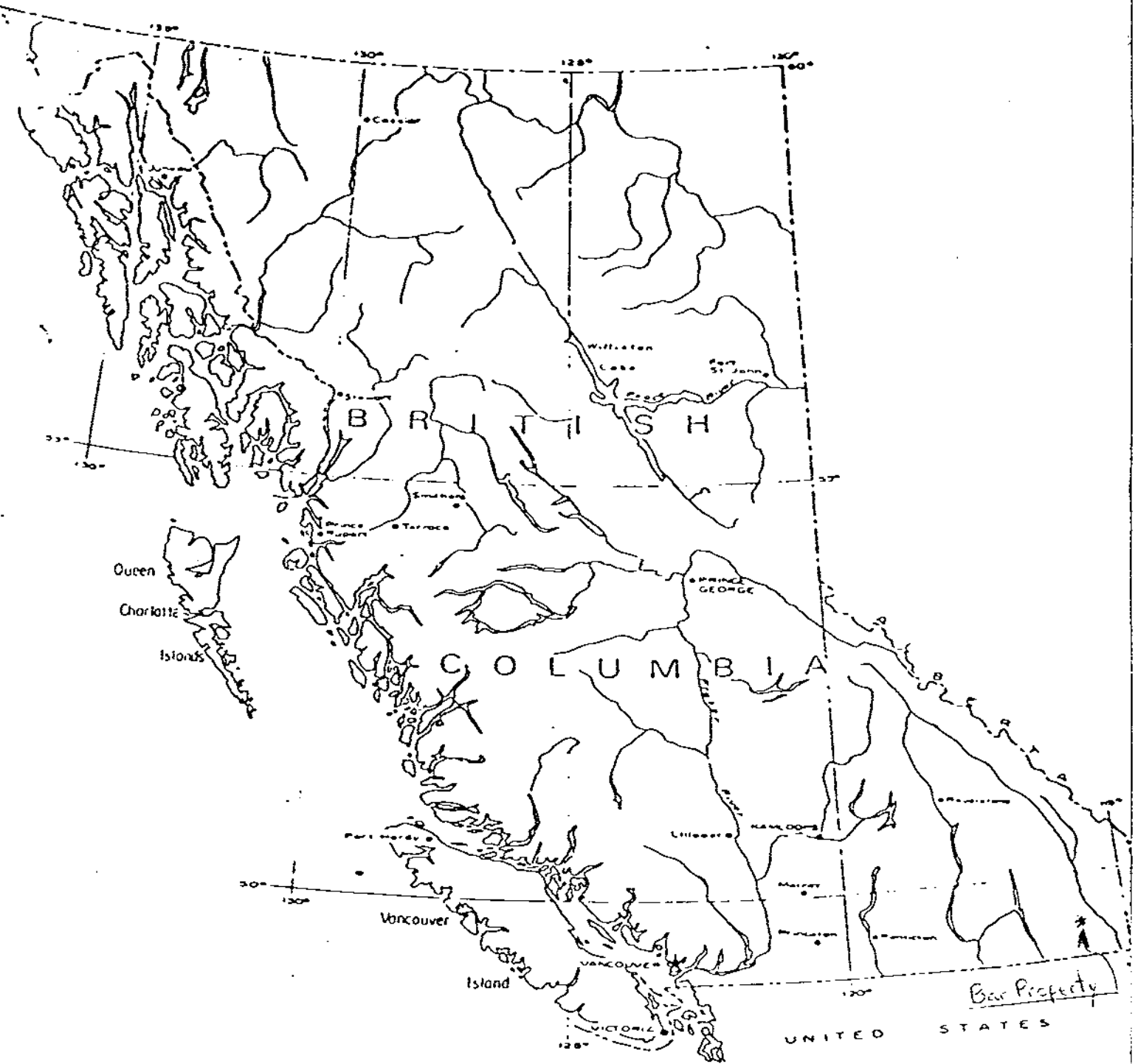


Fig. 1

LEASK ASSOCIATES	
LOCATION MAP	
<p>SCALE IN MILES</p>	
<p>3</p>	

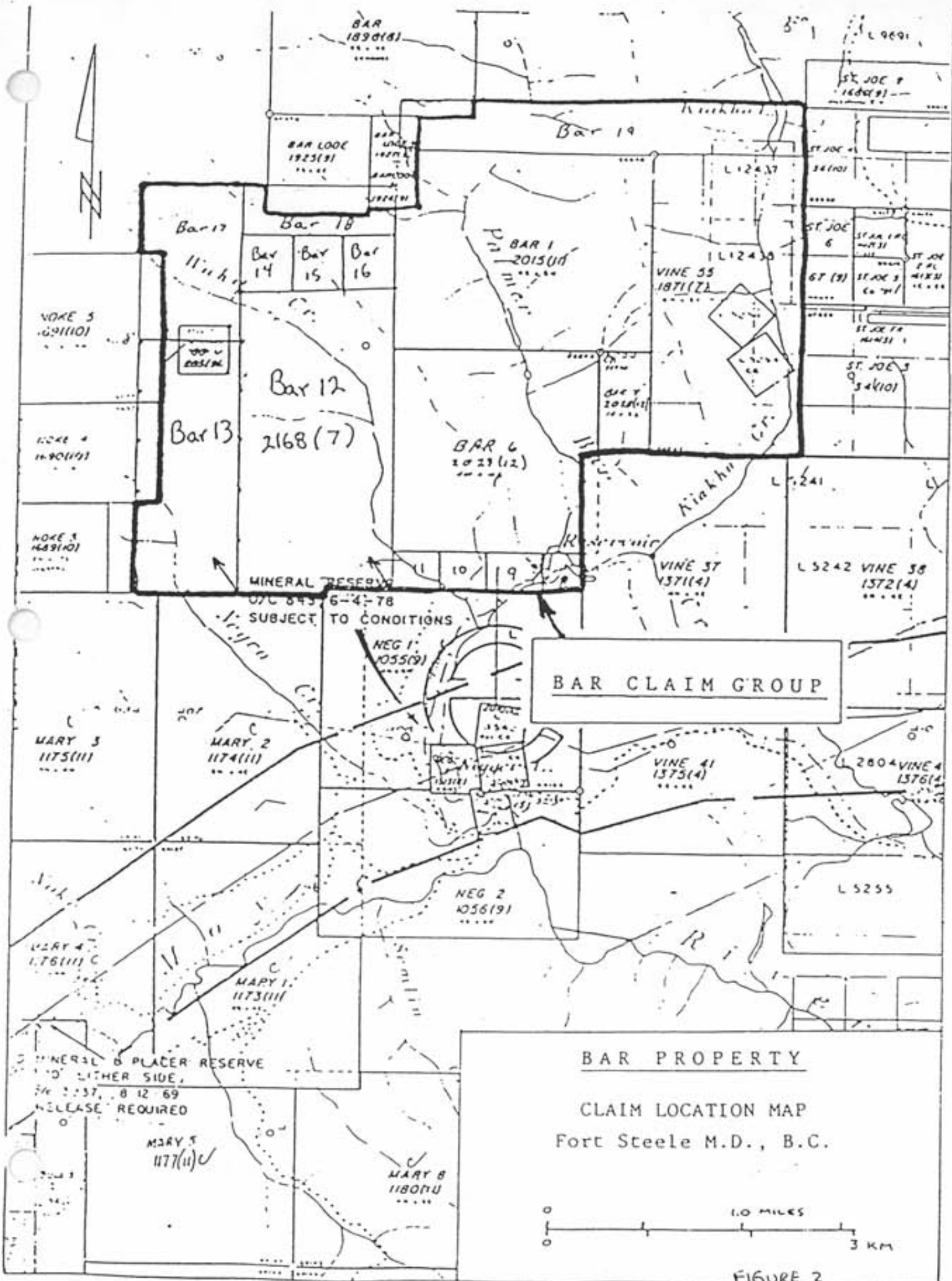
CLAIMS AND OWNERSHIP

All claims are located within the Fort Steele Mining Division and are owned by:

THERM EXPLORATION LTD.
808-525 SEYMOUR STREET
VANCOUVER, BC
V6B 3H9

CLAIM NAME	UNITS	RECORD NO.	RECORD DATE
Vine 55	18	1871	July 18, 1983
Bar 1	20	2015	November 10, 1983
Bar 6	16	2028	December 14, 1983
Bar 7	2	2029	July 3, 1984
Bar 8	1	2164	July 3, 1984
Bar 9	1	2165	July 3, 1984
Bar 10	1	2166	July 3, 1984
Bar 11	1	2167	July 3, 1984
Bar 12	18	2168	July 3, 1984
Bar 13	10	2169	July 3, 1984
Bar 14	1	2170	July 3, 1984
Bar 15	1	2171	July 3, 1984
Bar 16	1	2172	July 3, 1984
Bar 17	6	2354	February 20, 1985
Bar 18	3	2355	February 20, 1985
Bar 19	18	3041	December 1, 1988
Belleville	Claim Grant		
Lookout	Crown Grant		

The location of the claims is shown on Figure 2 at a scale of 1:50,000.



HISTORY

Mining development of the district began with the discovery of a showing of Zn-Pb-Ag ore on the North Star Hill in 1891, followed by the discovery of the HU zone of the Sullivan orebody in 1892 just 4 kilometers northeast of North Star Hill. From the date of acquisition in 1909 by the Consolidated Mining and Smelting Company to the end of 1987 the Sullivan Mine produced 139,500,000 tons of ore containing 6.7% Pb, 5.8% Zn, and 2.2 oz/ton Ag. In total, the Sullivan orebody approached 180,000,000 tons of ore grading 12% Pb-Zn and 2 oz/ton Ag.

The St. Eugene vein orebody was located in 1893 some 50 kilometers south of the Sullivan Camp and 20 kilometers south of the Bar Claim Group.

The Bar property to this date has been explored by approximately 300 meters of underground workings aimed at developing several Zn-Pb-Ag-Au veins high in the Middle Aldridge Section.

In recent years exploration of the area has been advanced by the following developments:

- o Recognition in 1962 of varved markers, their potential use in stratigraphic control within the Middle Aldridge and subsequent potential for exploration.
- o Discovery of lead-zinc mineralized strata of the Sullivan Time Horizon beneath deep overburden at the Polaris prospect in 1971. This property is 10 kilometers south of the Sullivan Mine.
- o During October 1976, D. L. Pighin, a Cominco employed geologist/pro prospector discovered massive sphalerite-galena-

pyrrhotite boulders in a recently excavated road cut north of Moyie Lake. This discovery was protected as the Vine 1 claim, consisting of 20 units. Further excavation in the immediate vicinity of the boulder occurrence uncovered a very impressive vein with widths from 2 to 6 meters. As the Sullivan Time Horizon was known to exist a hundred meters or so below this new showing it was suggested that the sulphide vein was leakage from a bedded sulphide body below. Since 1976 nine drill holes have probed the Sullivan Horizon.

- o Further geological work by Trygve Hoy, Leask and Associates, and Noranda geologists combined with Controlled Source Audio-magnetotelluric surveys, magnetotelluric surveys, and drilling resulted in the recognition of the Cranbrook graben, a north-south trending axial trough structure.

REGIONAL GEOLOGY

Regionally, the area is underlain by rocks of the Purcell Supergroup on the western flank of the Purcell Anticlinorium, a broad, slightly north plunging arch-like structure in Helikian and hadrynian aged rocks. The oldest rocks exposed in the Purcell Anticlinorium are greenish, rusty weathering thin bedded siltites and quartzites of the Lower Aldridge formation. Overlying the Lower Aldridge is a monotonous section of Middle Aldridge quartz wackes, subwackes, and argillites some 3000+ meters thick. Within the Middle Aldridge formation, fourteen varved marker horizons can be correlated varve for varve over hundreds of kilometers. These represent the only accurate stratigraphic control. A number of areally extensive diorite sills are present within the Lower and Middle Aldridge Formations. The Middle Aldridge is overlain by Upper Aldridge, 300 meters to 400 meters of thin fissile, rusty weathering argillite/siltite.

Conformably overlying the Aldridge Formation is the Creston Formation, comprising 1800 meters of grey, green and maroon, cross bedded and rippled marked platformal quartzites and mudstones. Kitchener-Siyeh Formation, which includes 1200 to 1600 meters of green-grey dolomitic mudstone and buff coloured mudstone are shallow water sediments overlying the Creston Formation and mark the end of Lower Purcell Time.

The upper portion of the Purcell supergroup consists of the Dutch

Creek and Mount Nelson Formations. Dutch Creek Formation consists of approximately 1200 meters of dark grey, calcareous mudstones. This marks the top of the Purcell Supergroup.

The Aldridge basin hosts the world class Sullivan Pb-Zn-Ag deposit. It is believed the basin evolved as a deep intercratonic trough, analogous to the Guaymas Basin on the west coast of Mexico, as a result of tectonic activity along an ancient crustal spreading center. It is proposed that the Sullivan deposit is situated at the junction of a major penecontemporaneous transform fault (the Kimberley Fault) and an oceanic spreading center (rift zone). Transform faults are generated to relieve stresses in the crust induced during spreading.

Zones of spreading within the Aldridge are believed to be marked by albitization (sodium addition), gabbro feeder complexes, and tourmalinite, a mineral/rock type produced from replacement by boron-silica rich fluids of magmatic origin.

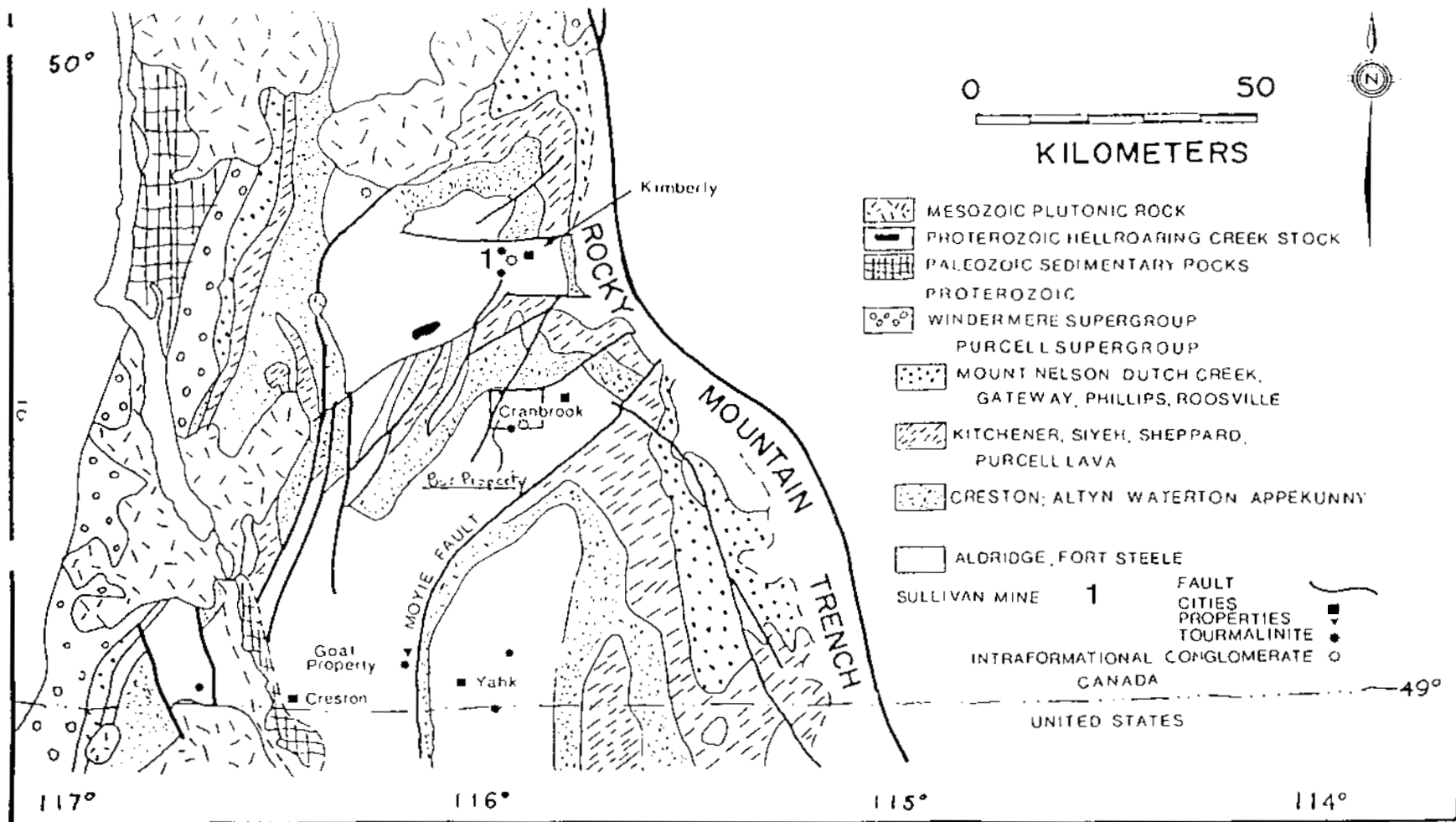


FIGURE 3 REGIONAL GEOLOGY

MODELLING

The model used in targetting DDH Bar-88-2 was that of a north-south trending graben in Lower Aldridge rocks linked to a penecontemporaneous transverse fault (Cranbrook Fault).

Recent studies have shown that massive sulphide deposits are now forming at the intersection of crustal centers and major transform fault fractures. Two present day sites are the Gulf of Afar and the Guaymas Basin.

The importance of these intersections between transform faults and spreading centers is three fold:

1. It causes down-faulting and graben development which forms the sub-basin necessary for thick accumulations of sulphides.
2. It halts the propagation of the spreading center allowing the "hot spot" to be focussed long enough to form a convective hydrothermal cell.
3. The Transverse Fault-Magma Chamber couplet is the heat sink-heat source necessary for convection with seawater recharge accommodated by the Transverse Fault fault system.

Typically a spreading centre is not a single linear fracture, rather, it is a zone one to several kilometers wide consisting of down dropped blocks.

The marginal growth faults of these blocks are the locus of hydrothermal activity and may be marked by sodium addition (albite alteration) and tourmalinization. Both alteration types support a close magmatic association for these deposits.

DRILL RESULTS

DDH Bar 88-2 encountered a repetitive succession of quartz wacke turbidites typical of the Middle Aldridge Formation from 4 meters to approximately 1400 meters. Two Moyie Gabbro sills were intersected at 100-150 meters and 350-425 meters respectively.

The turbidite succession was primarily comprised of proximal and intermediate turbidites, the former being represented by thick and medium bedded, medium to coarse grained quartz wacke bases and thin bedded siltstone tops. Sedimentary features common to these AE turbidites (Bouma designation) include thick amalgamated bases, scours, vague current laminations, rip up clasts and a general massive character.

From 1300 meters to 1486 meters the character of the section changed dramatically from the quartz wacke dominated section above. Thin bedded slumped siltstones with minor interbedded quartz wacke were the prevalent lithologies. Thin calcareous beds are noted within this section.

The sediments below 1300 meters are correlated with the Lower Aldridge - Middle Aldridge Transition zone.

Alteration below 1250 meters is common and consists of tourmalization, albitization, silicification, chloritization, and a quartz-chlorite-garnet assemblage. Sulphide content was markedly

increased from 1250 meters to 1490 meters and consisted of disseminated Pyrrhotite, Pyrite, sphalerite and Pyrrhotite-sphalerite-galena veinlets.

At 1490 meters a thick gabbro sill was intersected. The drill hole was still in this sill at 1650 meters. This thick sill is correlated to the Fors Sill intersected at 900 meters in DDH Bar 85-1. In that hole the sill was 550' thick. It is believed to be almost totally contained with a graben infill succession. Geologic evidence suggests it may be crosscutting as it was intersected lower in the section than predicted from DDH Bar-85-1.

The drill core from DDH Bar-85-1 and DDH Bar-88-2 are currently stored in a warehouse at Cranbrook.

No sections of DDH Bar-88-2 had been sent for assay as of the date that this report was prepared.

SUMMARY

Thus far, DDH Bar 88-2 has encountered typical Aldridge rocks through, with a fining of the sequence at about 1300 meters. This lithologic change, interpreted as a transition from high energy turbidite deposition to low energy turbidite deposition, marked a period of tectonic dislocation and increased rate of turbidite deposition.

CONCLUSIONS

DDH Bar 88-2 encountered a thick succession of Middle Aldridge quartz wacke turbidites to 1300 meters where it entered the predominantly siltstone - quartz wacke assemblage correlated with the Lower-Middle Aldridge contact. At 1490 meters the top of a thick gabbro sill was intersected. The stratigraphy intersected has generally conformed with the original geological prognosis with local thickening of 15% over DDH Bar 85-1 indicated at the location.

STATEMENT OF EXPENDITURES

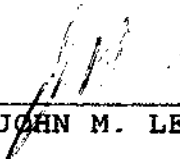
Road and Site Preparation	\$ 15,000.00
Unit Costs For Drilling	
1650 meters X \$223.90/meter. (includes down time, mud, additives fishing, etc.)	\$369,484.00
	<hr/>
TOTAL	\$384,484.00

STATEMENT OF QUALIFICATIONS

I, JOHN M. LEASK, do hereby certify that:

1. I am a geologist with residence at 843 West 15th Avenue, Vancouver, British Columbia, V5Z 1R8.
2. I am a graduate of the University of British Columbia with a Bachelor of Applied Science degree in Geological Engineering (1980).
3. I have been involved in mining exploration since 1979.

Respectfully submitted,



JOHN M. LEASK

GOLDPAC RESOURCES

Suite 808, 525 Seymour Street, Vancouver, B.C. V6B 3H9

I, Frederick R. Edmunds, hereby certify that:

1. I am a consulting geologist residing at 6840 Hycroft Road, West Vancouver, B.C. V7W 2K8.
2. I am a graduate of Keele University, U.K. with the degree of BA (Geology, 1958); of Toronto University, Canada with the degree of MSc (Petrology, 1966); and of the Pennsylvania State University, U.S.A. with the degree of PhD (Mineralogy and Petrology, 1977).
3. I am registered with the Geological Association of Canada as a Fellow.
4. I have practiced my profession as a geologist for the past 30 years in Canada, U.S.A and parts of Europe.
5. I do not have, nor do I expect to have, directly or indirectly, any interest in the properties of Goldpac Resources.
6. I visited the Bar Property, Fort Steele Mining Division daily between 9 April and 7 July, 1988, during which time I logged Drill Hole BAR 88-1, and the core of Drill Hole BAR 88-2 to a depth of 1,686.58 metres (5,533 feet).

F.R. Edmunds
F.R. Edmunds, PhD, FGAC.
12 January, 1989



APPENDIX 1

DETAILED DRILL LOGS

~~TECTONIC COMPANY~~ GOLD PAC

808-525 Seymour St, Vancouver B.C. V6B3H9

LOG OF DDH BAR88-2

M.D. Fort Steele Project BAR Property BAR Claim VINE 55
N.T.S. 82G5W UTM 578540 E, 5479280N ^{Lat.} Northing 49°27'47" N ^{Long.} Easting 116°54'59" W Elevation 1359 ... (4792 ft)
Collar Azimuth 0 Collar Angle -90° Depth _____ Date Started 24 APRIL 1988 Date Completed _____
Contractor BOYLES BROS DRILLING Company, Spokane Wa. Drill BOYLES CP 50

Objective CSAMT conductor on the Middle/Lower Albridge formation contact.

ORIENTATION TESTS






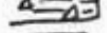

Depth	Inclination	Azimuth
152.40m	-89.50°	210°
304.80m	-89.25°	202°
457.20m	-88.00°	217°
609.60m	-82.10°	279°
762.00m	-81.35°	283°
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

CORE SIZE

Depth	Core Size
to 134295m	HX
_____	Nx
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Orientation test instrument
SPERRY SUN
SINGLE SHEET

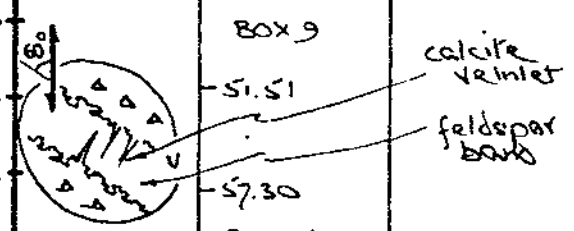
CONVENTIONS & SYMBOLS

-  - Quartzitic Wacke (Quartzite)
-  - Wacke
-  - Subwacke also Marker Argillite
-  - Gabbro
-  - Calc. Wacke
-  - "Granophyre"
-  - Quartzitic Wacke (Argillaceous Quartzite)

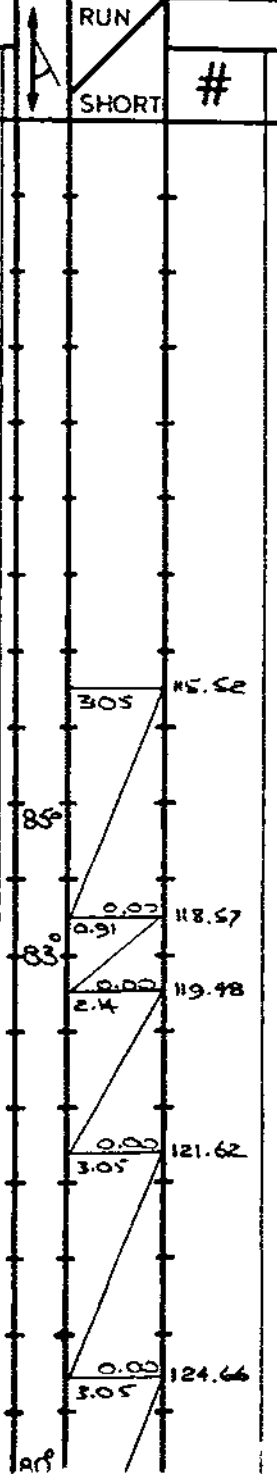
Logged by R. Edmunds
EDMUNDS & ASSOCIATES
West Vancouver, B.C.

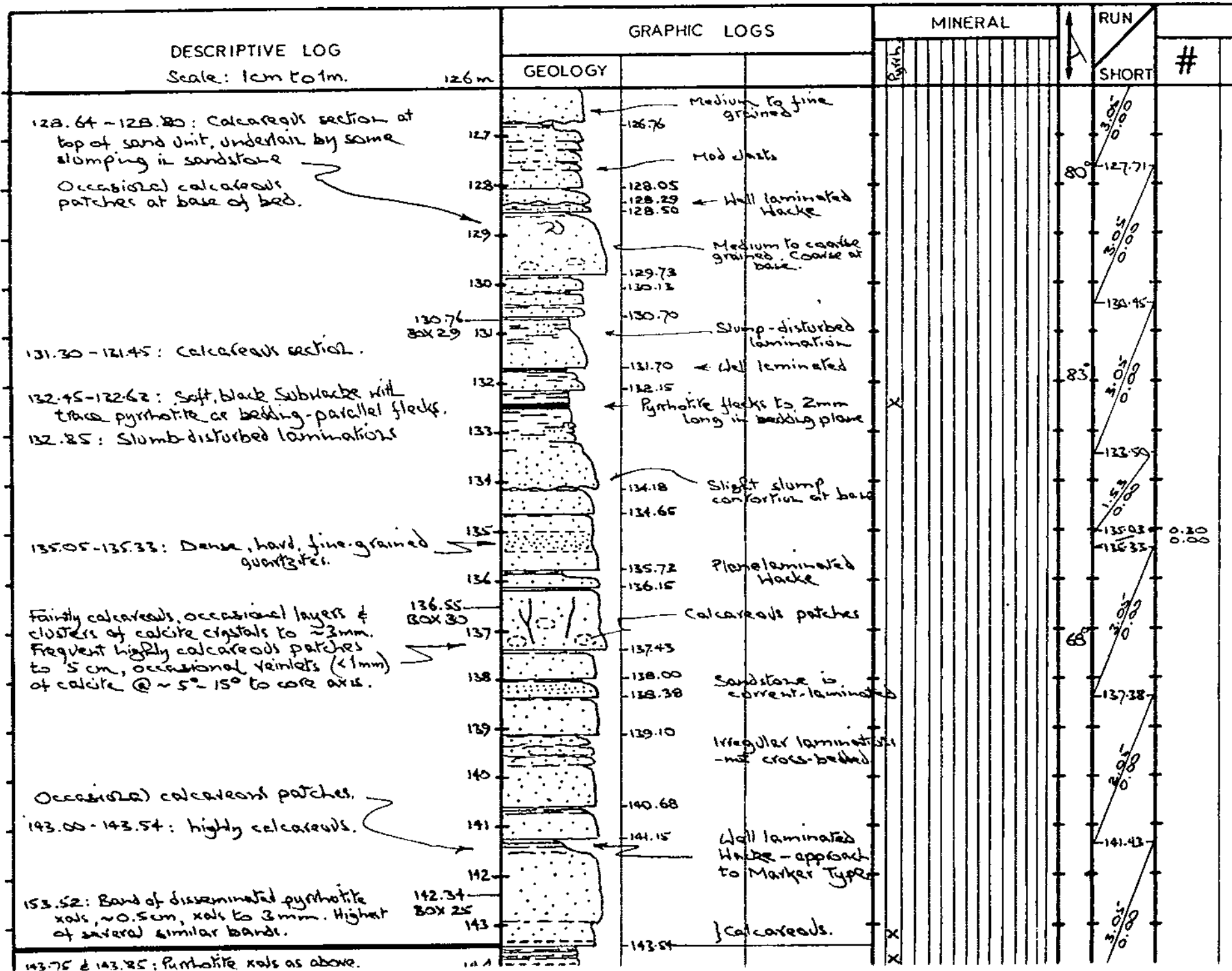
DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL	RUN	#
	GEOLOGY				
18 m					
19.76-20.74: Rather hard, calcareous. Minor carbonate veining. Sediment is slightly disturbed - possibly incipient fluidization.		Slight disturbance of laminar = irregular sandy patches		70°	18.29
	19	19.76		3.05	
	20	20.74		0.00	
20.74 - 117.19				85°	21.34
Hornblende Gabbro		Calcite		3.05	
Medium grained, slightly calcareous & chloritic. Green to dark green.	21			0.00	
Gradual increase in grain size away from contact.	22			3.05	
Occasional veinlets and irregular masses of calcite; occasional open, rusty fractures at ~15° to 25° to C.A.	23			0.00	
Occasional development of alignment in hornblende xals, imparting a vague foliation.	24			3.05	
20.74 - 21.00: Contact zone. Breken, rusty. Carbonate aggregates and biotitic seams. Contact itself is frozen as a chlorite seam 2 cm thick.	25			0.00	
21.00 - 21.20: Strongly calcareous; cataclastic texture.	26			3.05	
	27			0.00	
	28			3.05	
	29			0.00	
	30			3.05	
	31			0.00	
	32			3.05	
	33			0.00	
	34			3.05	
34.60: 2 cm calcite vein @40° to C.A.; coarse xals of calcite, vuggy, with chloritized gabbro for about 5cm each side.				6.00	33.52
	35			7.00	
	36				

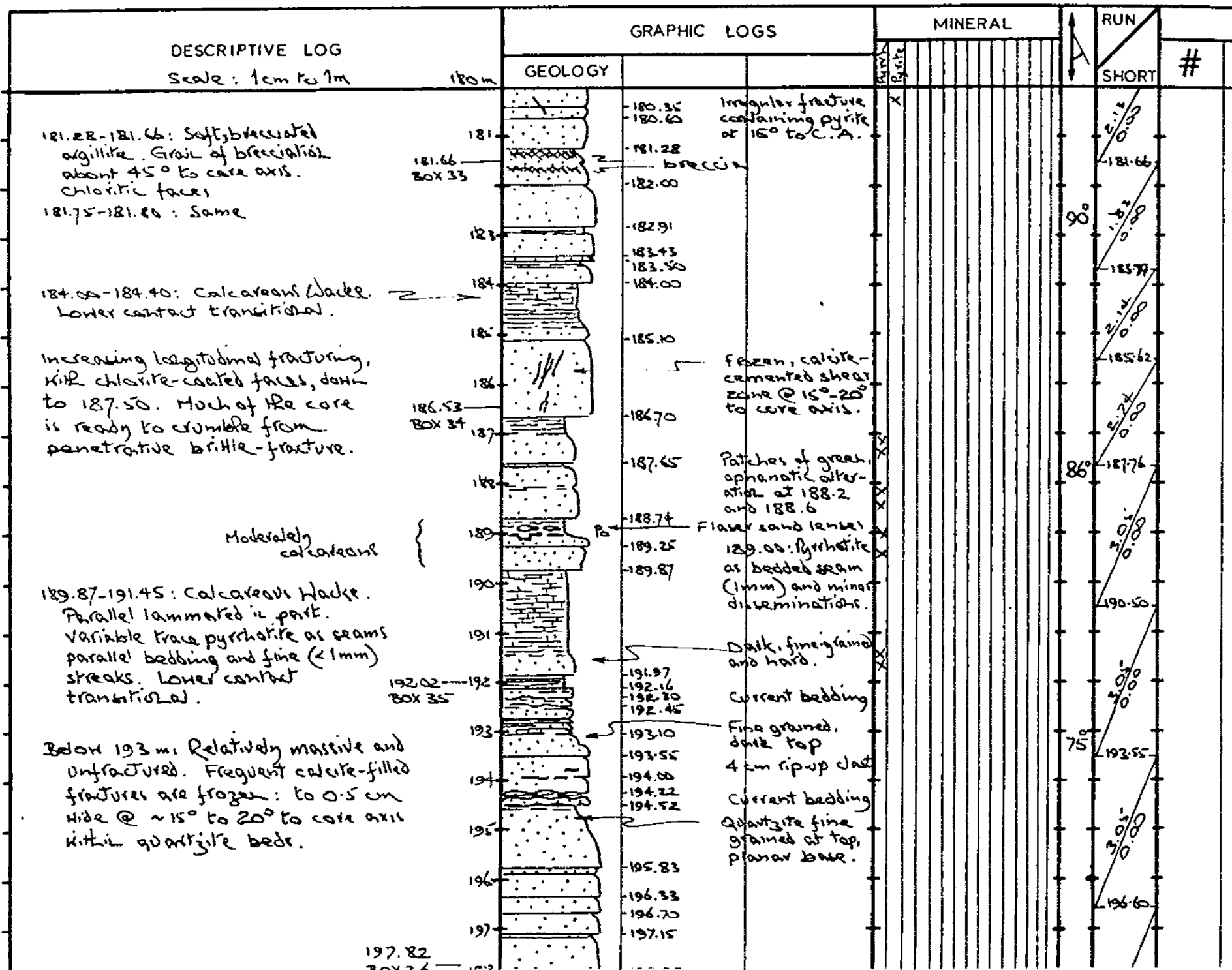
DESCRIPTIVE LOG Scale: 1cm to 4m	GRAPHIC LOGS			MINERAL	RUN	#
	GEOLOGY	BOX #				
By 36m, gabbro is coarse-grained massive. (< 1 cm aggregates of plag & hblnd).	36m					
40	▲ ▲	-39.62				
42.19-42.67: Carb-chlorite shear zone with gradational margins @ 55° - 60° to C.A. - faulted by slight decrease in grain size.	44	▲	-45.42			
52.44-58.29: Five bands of pure feldspar segregations, 1cm to 6cm thick, cross core. Continuous with feldspar of gabbro - same habit, etc. Calcite- filled fractures perpendicular to contacts cross bands.	48		BOX 8			
52		-51.51	BOX 9			
56		-57.30				
56.12-57.30: Broken rock, longitudinal fractures and longitudinal calcite veins.	60	▲ ▲	BOX 11			
60m on - finer grained. ± 1 mm.	64	▲	-62.42			
62-64: very fine grained (< 1 mm).	68	▲	BOX 12			
72m on - medium grained	72	▲	-68.28			
76m on - coarse grained & massive, hornblende acicular.	76	▲	BOX 13			
79.23-79.64: fine grained zone with gradational margins.	80	▲	-73.76			
80-90m: grain size quite variable in patches of 3-30cm.	84	▲	BOX 14			
87.80-88.80: Calcareous chloritic zone.	88	▲	-79.25			
89.84-90.05: As above with 5cm of irregular calcite-chlorite ven- ing @ $\sim 60^{\circ}$ to core axis.	92	▲ ▲	BOX 15			
98.00-99.70: Pale green, hblnd-chl- plag-(epidote?) rock.	96	▲ ▲	-85.65			
100	▲	BOX 16				
104	▲	-91.14	BOX 17			
108	▲	-96.93	BOX 18			
		-102.41				
	▲	BOX 19				

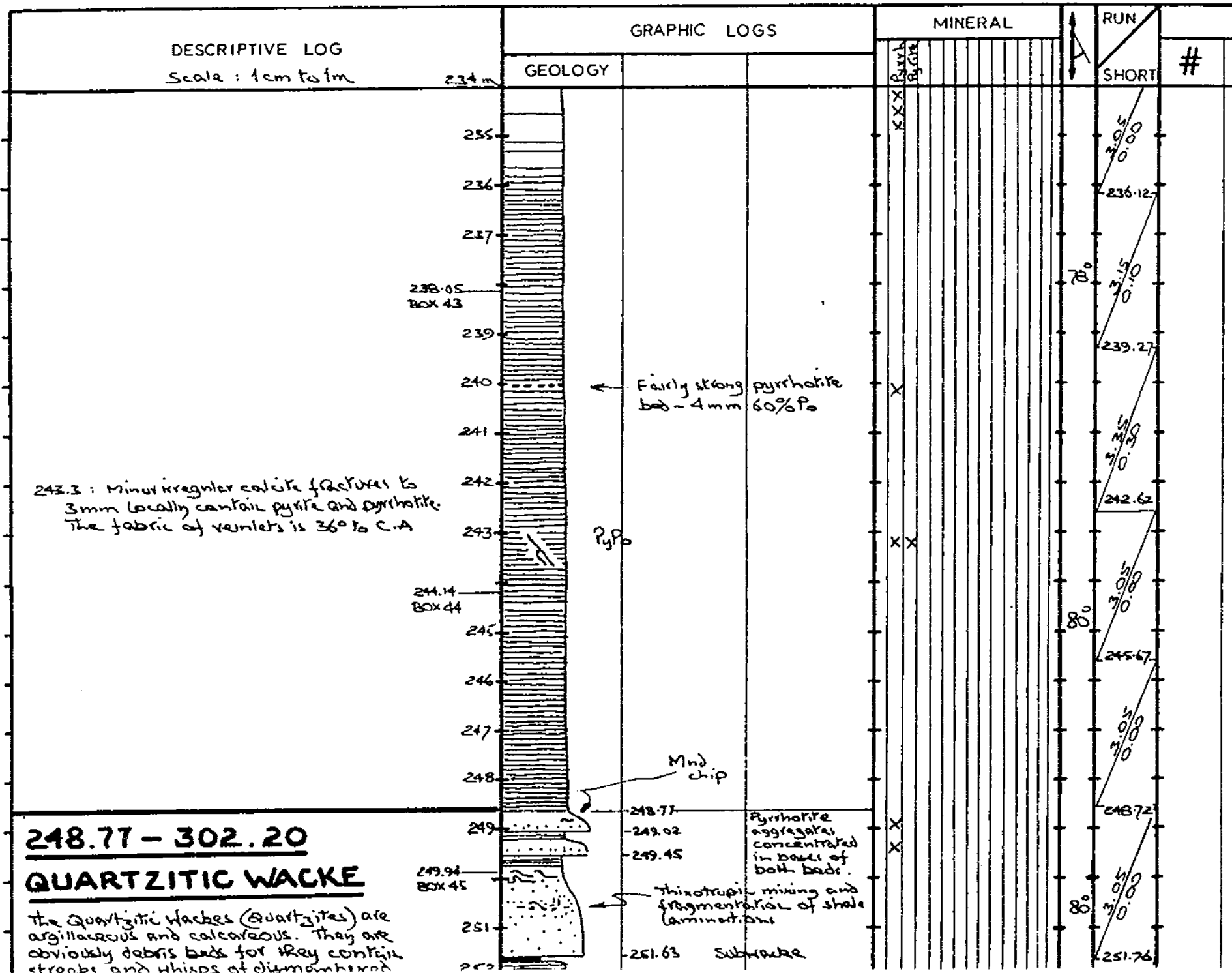


DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS			MINERAL	RUN	#
	108m	GEOLOGY				
From 108.50 on increasingly finer grained.	108.20 BOX 20					
108.96-109.50: Foliated, chloritic zone, central on 1cm calcite vein at 109.18 @ 70° to C.A.	109					
	110					
	111					
	112					
	113					
Contact - frozen @ ± 85° to C.A.	113.39 BOX 21					
5cm of very fine grained, grey-brown baked sediment to 117.24. Then massive calcite veining with sediments, sediment brecciated, and possibly a gabbro (chlorite) dykelet to 118.20, apparently perpendicular to contact.	114					
	115					
	116					
	117					
117.19 - 143.45						
QUARTZITIC WACKE						
From 117.19 to 118.50 sediments are very fine grained and very hard-baked.	117.19		117.19 calcite veining & chloritic dykelet ~perpendicular to contact. Argillite is very hard			
These are:-						
Interbedded graded Quartzitic Wackes and Wackes, with occasional subwackes immediately below Quartzitic Wackes. Medium bedded on 1m to 2m scale.	118		118.50 Quartzitic Wacke is dark and fine grained			
Wackes (argillites) are faintly laminated on 2cm to 5cm scale, and contain arenaceous sections.	119		119.50 no good bases to these beds			
These are normal, long-distance turbidites. The quartzites are all variably calcareous. The subwackes are black, soft, and probably fine interbedded.	119.48 BOX 22					
	120		120.90			
	121		122.25 Very calcareous, but very fine grained			
	122		123.28			
	123		123.80			
	124		124.25 Faint current effects			
	124.97-125 BOX 23		124.66 ← subwacke			
			124.88 ← subwacke			
			125.43			
			125.85			

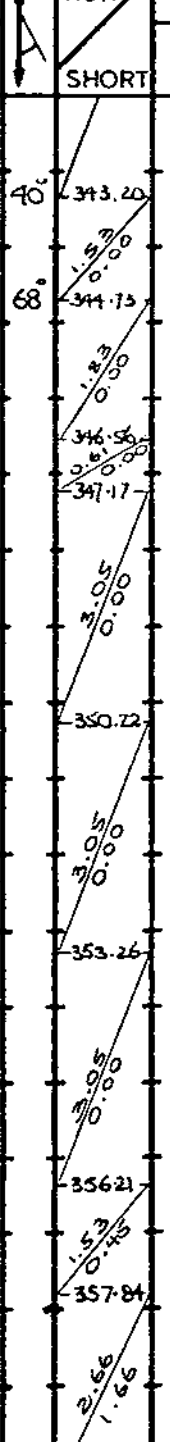
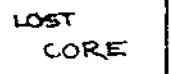
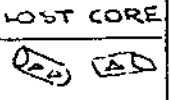






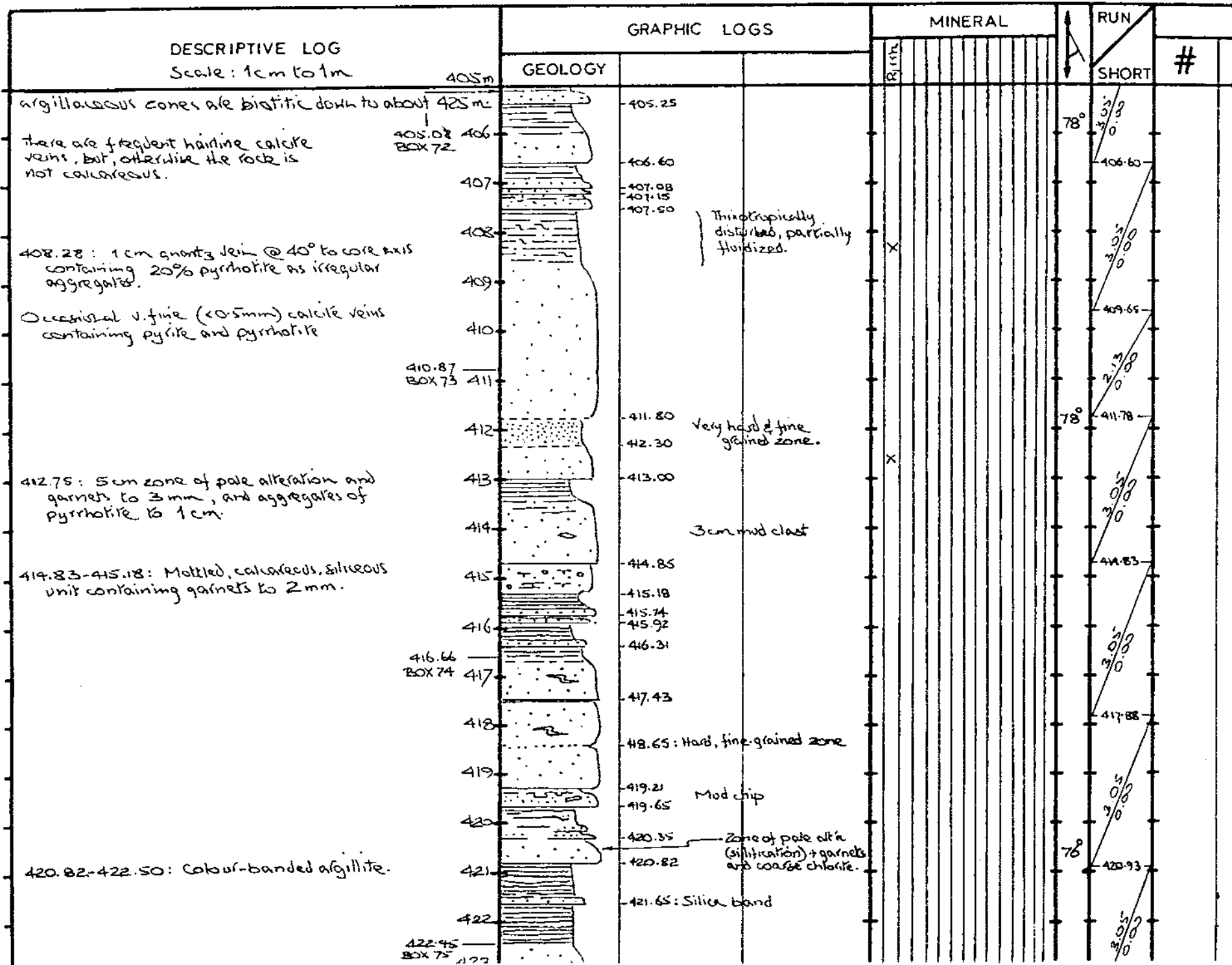


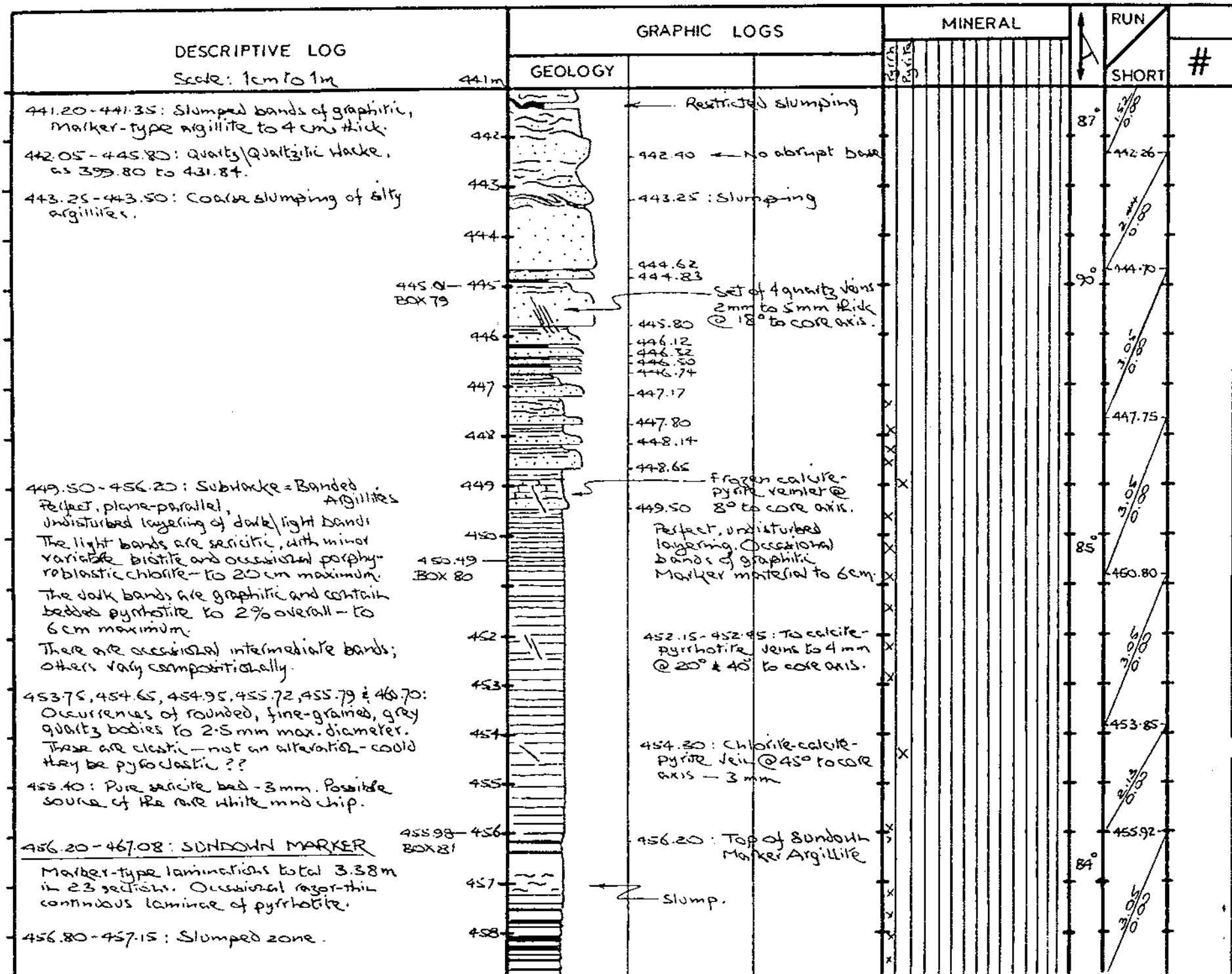
DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL										RUN	#	
	GEOLOGY		Quartz	Chlorite											SHORT
342 m															
		342.66													
		343													
		344													
		344.73													
344.73 - 399.80		345													
HORNBLENDE GABBRO		346													
There is virtually no contact phenomena. 2cm of green chlorite on sediment side, then a ragged, chloritic face on which there might have been slight movement - speckled with fine pyrite. Then 1.5cm of hard quartzite, another chloritic face, then medium grained feldspathic gabbro veined with subparallel, hairlines of epidote @ 68° to core axis.		346.86 BOX 62													
		347													
		348													
		349													
		350													
The gabbro is a medium grained mat of axillar hornblende to about 0.75cm (60%) filled with interstitial feldspar (40%).		351													
The hornblende is probably partly chloritized, but there is NO CARBONATE at all.		352													
Occasional epidote-faced fractures @ 25° to core axis.		352.35 BOX 63													
		353													
356.55 - 358.20: Increased chlorite, probably KfC, and an unidentified brown granular mineral - not biotite. Core consists of cobble sized blocks, some of which are coarser-grained (3mm) rogy quartz.		354													
The chlorite-falc-brown mineral alteration continues to 360.50		355													
		356													
356.62: Water loss, cave, cement.		356.85													
356.55 - 362.60: Large cave, water flow		357													
		358													
THERE IS NO INDICATION THAT THIS ZONE IS A FAULT.		358.75 BOX 64													
		359													
		360													

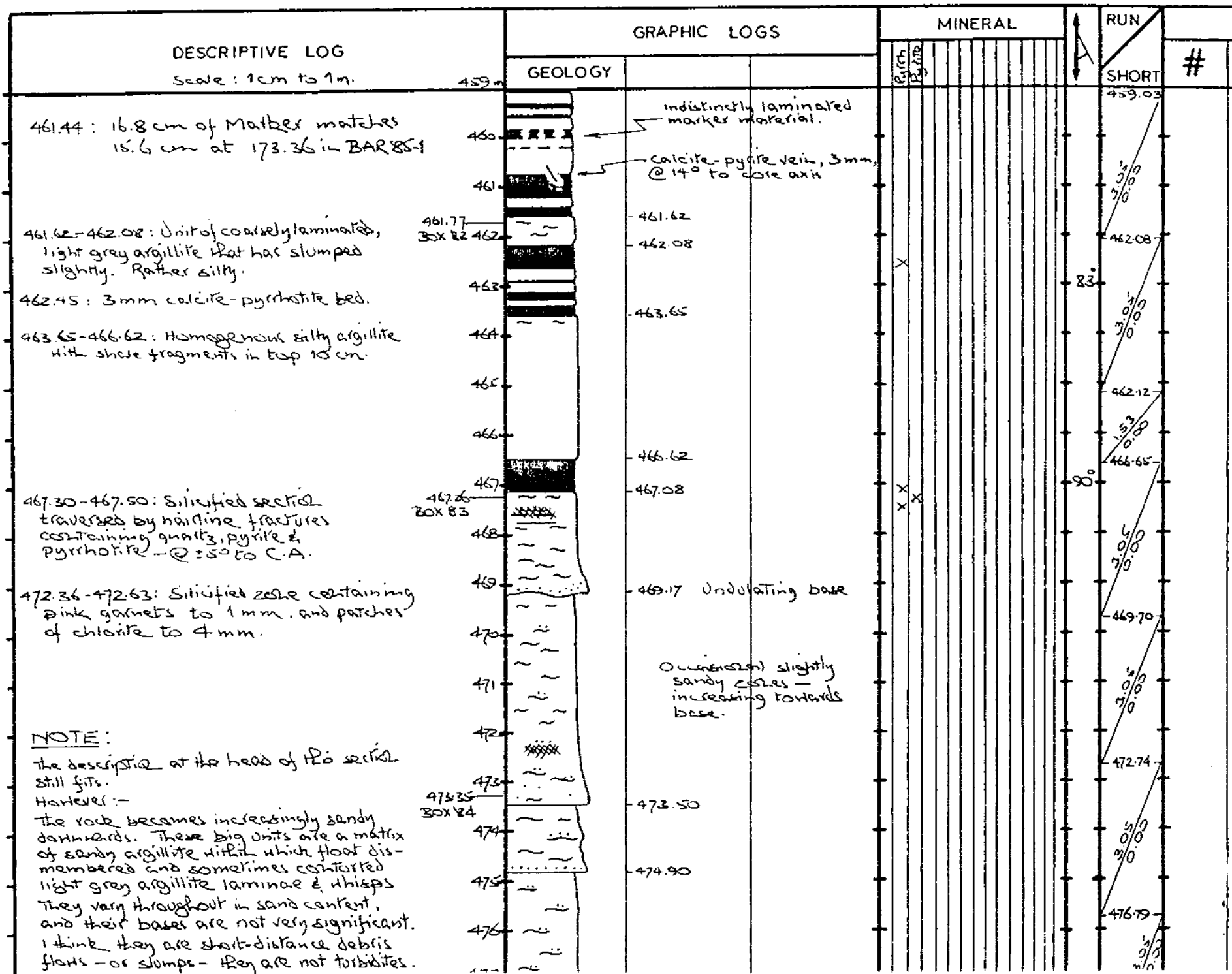


Rubby core includes coarse grained quartz veining with lots of open-face crystal growth and quartz-crystal sand to 4mm - no loss of material.

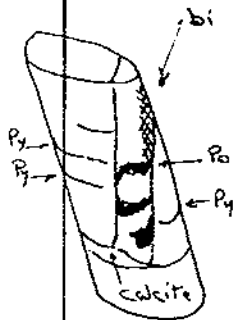
DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL	RUN	#
	360m	GEOLOGY			
361.80 - 362.30: Recovered material consists of core from above - talcose gabbro and 1.2 m. of coarse (4mm) quartz crystal sand, plus one cube of pyrite, together with quartz vein fragments.	361	360.58: WATER LOSS Gabbro fragments talcose & chloritic		360.50	
362.30 - 365.00: Medium grained talc-chlorite gabbro.	362	CORE LOSS & CAVE		361.40	362.10
As above core, NO CARBONATE	363			362.41	
365.00 - 366.15: Crystalline aggregates to 3mm of grey-to-white feldspar or else quartz-feldspar intergrowth. Hornblende blades to 2mm, decreasing to 40% - 50%.	364	364.00: Vuggy quartz vein fragments. One contact @ 8° to core axis.		364.85	
366.00 - 366.06 BOX 65	365			366.59	
368.40: 5cm vein of "bull quartz" @ 25° to core axis. No apparent movement. Vein bordered by 20cm - 30cm of brown mineral development, as 356.55 to 358.20.	366			367.59	
	367			370.25	
	368			371.68	
	369			373.68	
	370			376.73	
	371				
	372				
	373				
374.45 - 376.90: Quartz veining, frozen margins @ 15° to core axis. Maximum width 3cm.	374	QUARTZ veining			
	375				
	376				
	377				
	378				







DESCRIPTIVE LOG Scale: 1cm to 1m.	GRAPHIC LOGS		MINERAL					RUN	#
	GEOLOGY		Pyrite	Pyrrhotite	Chalcopyrite	Sphalerite	SHORT		
509.57-510.03: Silicification, pale alteration and <1mm garnet occurrence as at 482.00 to 482.15.	513	514.32 517.52	x	x					
510.38-510.95: Alteration as at 482.00	514								
512.20-512.07: Alteration as at 482.00 with a zone of white calcite and 1cm chlorite-pyrrhotite cblts for 4 cm @ 512.83.	515	514.95							
516.20-516.45: Pegmatite vein 1cm wide as at 516.70-516.82 - but less mineralization.	516	516.00 516.70	x	x					
516.70-516.97: Discontinuous bedding laminae of pyrite in pale grey shale - razor thin, v fine grained.	517	517.45 517.91	x	x	x	x			
516.70-516.82: 2.5cm pegmatite vein @ 18° to C.A. terminating downward against a calcite-bearing bedding plane. Contains magnetic pyrrhotite as semi-perpendicular aggregates, plus interstitial (minor) chalcopyrite & sphalerite. Also bronze biotite.	518 BOX 92	518.58 518.75 519.20					80°		
520.22-520.50: Pegmatite quartz vein with coarse chlorite blades (0.6mm) at margins - enc 3mm mass of pyrrhotite pyrite associated with a vug @ 520.32. 17° to C.A.; 2cm wide	519	519.83							
	520	520.65	x						
	521	521.00							
	522	521.55 521.85							
	523	522.40 522.44							
	523.95 BOX 93	523.60 524.25							
	524	524.5							
	525	525.41							
526.41-526.47: zone of pale silicification.	526	526.16							
527.20: 3cm band of pale silicification @ 45° to core axis.	527	526.69							
527.60-527.92: Pegmatitic quartz vein @ 15° to C.A. Good development of pyrrhotite aggregates perpendicular to vein margins. Contains chlorite and a speck of chalcopyrite 1.5mm wide.	528	528.03	x	x					
	529	528.83 529.34							
	530.05 BOX 94	530.62 530.75					88°		



DESCRIPTIVE LOG Scale: 1cm to 1m.	GRAPHIC LOGS		MINERAL					RUN SHORT	#
	GEOLOGY		Pyrite	Galena					
567.03-567.40: Set of pegmatitic quartz veins @ 20° to core axis; ±1cm; pyrrhotite spatter.	567.03	567.40							
568.50: As above; single vein = 7mm. Biotitic dots in sediment at margin.	568.50								
	569								
	570								
	571								
571.20 Box 101	571								
	572								
	573								
	574								
	575								
	576								
576.99-577 Box 102	577								
	578								
	579								
	580								
	581								
	582								
582.77 Box 103	583								
	584								
	585								

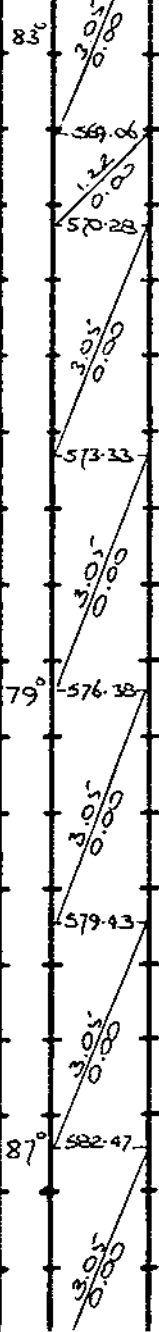
Gradual downward shift to plane laminar in argillites and planar bases in quartzites. At same time, decrease in garnets and coarse chlorite plates (>2mm). The argillites are mainly light greenish-grey, and they are still impregnated with fine (<1mm), late chlorite. All these quartzites are faintly calcareous.

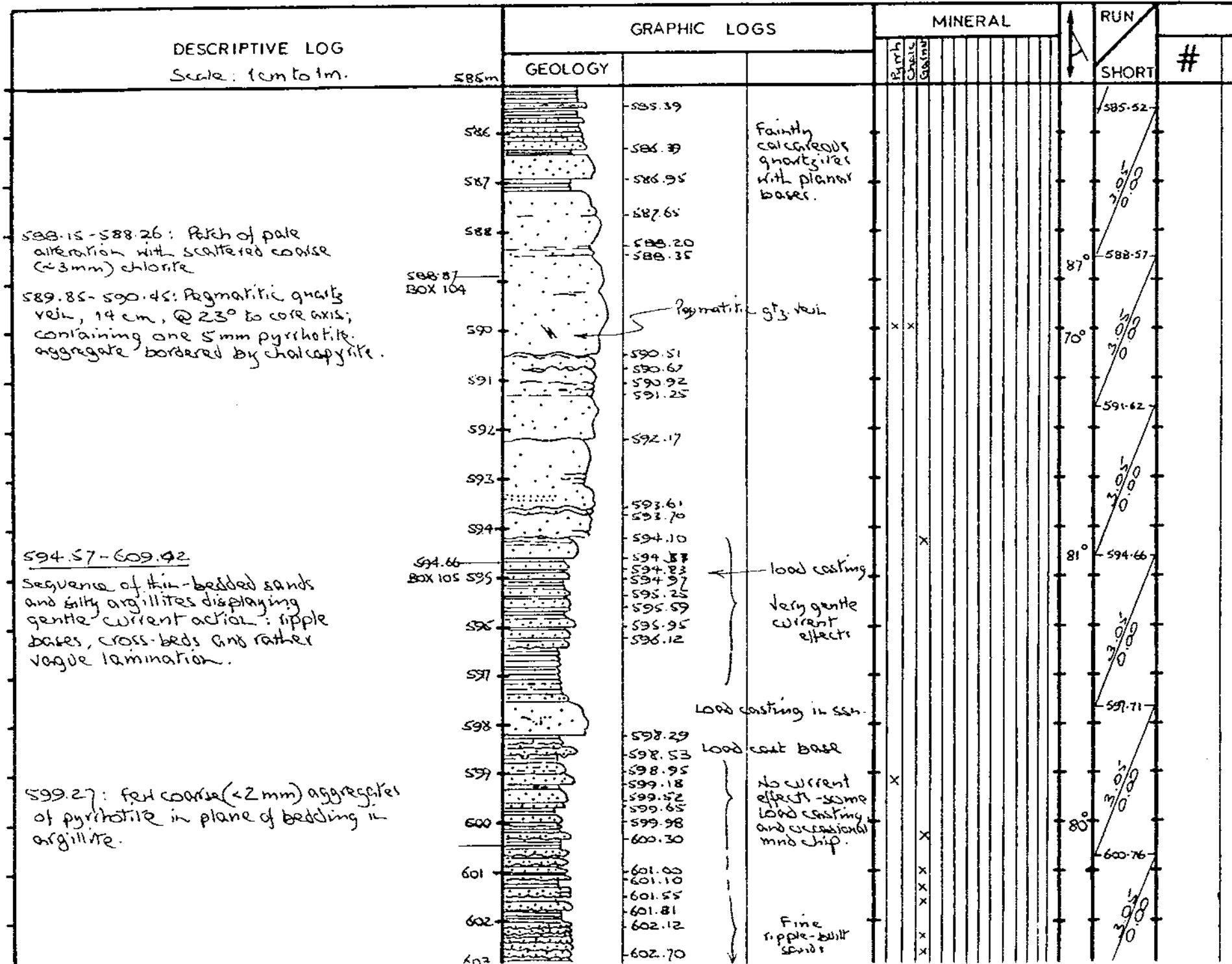
567.42
567.86 flame structures; 0.5cm amplitude

571.43
571.52
571.75
572.02
572.60
572.80
573.03
573.35
573.60
574.00
574.16
574.33
574.50
574.67
574.84
575.01
575.18
575.35
575.52
575.69
575.86
576.03
576.20
576.37
576.54
576.71
576.88
577.05
577.22
577.39
577.56
577.73
577.90
578.07
578.24
578.41
578.58
578.75
578.92
579.09
579.26
579.43
579.60
579.77
579.94
580.11
580.28
580.45
580.62
580.79
580.96
581.13
581.30
581.47
581.64
581.81
581.98
582.15
582.32
582.49
582.66
582.83
583.00
583.17
583.34
583.51
583.68
583.85
584.02
584.19
584.36
584.53
584.70
584.87
585.04

Very current bedding in argillites, mud chips in sandy units
Marker-type Substrate

Very gentle, small scale current effects
High silicon content =





DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL										RUN SHORT	#				
	GEOLOGY		Pyrite	Quartz														
657m		667.10																
658.06 BOX 116		667.93																
		668.43																
		668.75																
		669.32																
		669.48																
		669.84																
		669.88																
		669.92																
		669.96																
669.94-670.66 - Marker-type <u>MOYIE</u> laminar		669.97																
Matches 348.99-349.65 in BAR 85-1. Exactly same scale.		670.66																
		670.95																
		671.53																
		671.97																
		672.16																
		672.75																
		672.98																
		673.10																
		673.73																
		674.36																
		674.65																
		675																

662.12-662.49: 4 cm gtz vein @ 15° to core axis. Silicification and coarse crystalline breccia of lower contact for ~5cm. Zoned longitudinally with very coarse dark breccia (?) containing spiky and aggregates of pyrite. SPECIMEN

669.94-670.66 - Marker-type MOYIE laminar
Matches 348.99-349.65 in BAR 85-1. Exactly same scale.

672.20-674.35: 0.5mm calcite-faceted structures @ 0° to 15° to core axis.

gtz vein



Sharp truncation of 2mm laminae

Gentle c. 65°

8°

73°

81°

667.6

661.72

664.77

667.82

670.36

678.91

DESCRIPTIVE LOG Scale: 1cm to 1m.	GRAPHIC LOGS		MINERAL					RUN	#
	GEOLOGY		Quartz	Pyrite	Galena			SHORT	
693.15: Tourmalinized / partly tourmalinized argillite.	693.12	Bases uncertain, core blocky.	X					693.12	
694.05: Partly tourmalinized(?)	694.03		X					694.03	
695.45 - 695.70: Silicification or tourmalinization	695.26		X					695.26	
	695.26		X					695.26	
	697.24								
	698.60								
699.00 - 699.50: Irregular venter to 3mm @ 80° to CA containing pyrite	699.38	medium grained x-bed	X						
	700.13								
	701.95								
702.00 - 702.35: 8mm quartz vein @ 15° to C.A. containing minor calcite and a 1cm aggregate of pyrite as a skeletal cube.	702.65								
	702.87								
	703.72								
	704.12	3 cm dense carbonate band. Gentle current effects and some thallopitic disturbance in argillites							
	705.65								
	706.83								
	707.63								
	708.66	Occasional gentle lenticular bedding							
	709.08								
	710.30								

DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS			MINERAL										RUN	#	
	GEOLOGY			Quartz	Calcite											SHORT
711.18: 5cm carbonate concretions with 1cm dark biotite rim	711.24	711.21													0.00	711.71
	711.95	711.95													1.83	
	712.38	712.38														
	712.67	712.67		X												
	712.41	712.41													0.00	712.54
713.54 Box 126															2.15	
	715.06	715.06														
	715.47	715.47													0.00	715.67
716.40-716.55: Calcarenite matrix to quartzite and small (2cm) concretions.	716.55	716.55													5.05	
	716.65	716.65														
	716.95	716.95														
	717.57	717.57														
	717.63	717.63														
	717.82	717.82														
717.82-721.40: Banded Argillites with occasional development of Marker - quartz lamination. Abundant carbonate as seriate porphyroblasts to 3mm, and aggregates to 1cm. Occasional seams & zones of pyrrhotite aggregates	718.25	718.25														
	718.51	718.51														
718.72 Box 127															0.00	718.72
	720.80	720.80													3.05	
Should match 385m in BAR 85-1	721.20	721.20														
	721.34	721.34														
	722.45	722.45														
722.25-722.70: Two beds of quartzite with central sections of garnet-calcite-pale green fracture alteration. Diagenetic effect leading to development of calc-silicate concretions.	722.70	722.70													0.00	724.21
	723.50	723.50													7.05	
723.00-723.50: As above																
724.51 Box 128	724.81	724.81														
	725.00	725.00														
	725.16	725.16													0.05	724.81
	725.70	725.70													3.05	
	726.18	726.18														
	726.42	726.42														
	726.98	726.98														
	727.88	727.88														
	728.65	728.65													0.5	727.86

DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL					RUN	#
	GEOLOGY		Rock	Grain				SHORT	
729.00 — 730.00 BOX 129		730.00						79°	
731.22 - 734.20: Band bed Argillites cs 717.32 to 724.45. Occasional 1000-4000 thin pyrrhotite laminae in white argillite, box-22.		731.22 732.00 732.66						3.06	730.71
732.66 - 733.21: Massive Argillite (Eucaly m. int. 300 in BAR 85-1)		733.21						2.00	733.76
		734.00						2.15	
735.43 BOX 130		735.38						88°	
		736.18 736.66	Hard, altered, possibly tourmalinized					0.00	736.00
		737.00						2.76	
		738.00						0.00	738.24
		739.00						1.76	
		740.00						0.00	740.60
741.00 — 743.25: 2mm pyrrhotite-bearing quartz vein @ 13° to core axis.		741.00 742.00 742.43 742.66						3.11	
		743.00	Current-bedded sand.					0.00	743.71
743.51 - 743.66: Razor thin pyrrhotite laminae in white mudstone - instant saffron yellow under HCl.		743.32	Razor lame of P ₂					0.06	
The white thin beds at 742.22, 745.86 and 746.95 are highly calcareous.		744.76 745.10						3.06	
746.75: 2cm pyrrhotite-bearing quartz aggregate.		746.26	Slumped, sand cast unit containing 16cm mud ball.					0.00	746.76
746.76 — 747.00		746.95						80°	

DESCRIPTIVE LOG	GRAPHIC LOGS		MINERAL				RUN	#
	GEOLOGY		Tourmaline	Pyrite	Malachite	Chalcocite		
747.57-747.92: Very hard, dense, black & fine grained. Cherty or karminalized.	747	747.17 747.24 747.27 747.92 748.02 748.24 748.57						
749.37-749.77: 3 cm pegmatitic quartz-feldspar vein @ 9° to core axis. Contains dark bronze biotite zones at margins and coarse pyrrhotite plus trace pyrite and chalcopyrite.	748 749 750	750.32 Pegmatitic vein + Po + Py + Cp.		X	X			0.00 749.81 2.75
	751							
	752	752.24 752.56						0.00 752.56 3.05
752.56 BOX 133	753	753.50 753.61 754.22						
	754							
	755	754.90 755.00 756.29 756.75 756.05						0.00 756.60 2.05
756.73-756.05: Contains only about 6 cm of Marber quality laminae.	756	Well-laminated subgrade with disturbed top.						
	757	Fluxy silts, lost-cast at base.						
	758	757.83 758.03 758.27 758.65						0.00 758.65 2.05
758.45 BOX 134	759	cherty, fine grained, dark bed.						
	760							
	761	760.40						
	762	761.73 762.27 762.57						0.00 761.70 2.05
762.57-764.32: Alternating cherty and calcareous fine-laminated, dark shales. At base lost-cast and disaggregate silts with occasional laminae of pyrrhotite aggregates.	763	2 cm bedded quartz + trace Po calcareous and cherty laminae.		X				
	764							
764.94 BOX 135	765	764.32 764.44 764.74						0.00 764.74

DESCRIPTIVE LOG Scale: 1 cm to 1m	GRAPHIC LOGS		MINERAL										RUN		
	GEOLOGY		Quartz	Pyrite										SHORT	#
783.65-784.92: Laminar, approaching matrix quality - but too much fine detritus and minor current effects.	783m	783.03												2.74	78203
	784	783.50	Faint calc. matrix												
	785	783.75													
	786	784.65													
	787	784.92													
	788	784.29	Faint calc. matrix												
	789	785.63													
	790	786.00													
	791	787.05													
	792	787.48													
	793	788.15	calc-biotite concretions: 6cm												
	794	788.62													
	795	789.26													
	796	790.11	calc-biotite concretions up beds.												
	797	790.60													
	798	791.14													
	799	791.58													
	800	791.68	Hard, glassy, dark for 6cm?	x											
	801	792.23													
	802	792.68													
	803	793.56	Disrupted lamination												
	804	794.00													
	805	794.56													
	806	794.76													
	807	795.27	Carbonate matting												
	808	796.56													
	809	796.98													
	810	797.94													
	811	798.07													
	812	798.33													
	813	799.32	Composite unit.												
	814	799.62													
	815	800.00	Graded, fine bedded sandy argillites												
	816	800.57	As above: minor												

Note that from about 770m there has been a subtle change in sedimentation style. There are now definite pulses or cycles - e.g. 788.68 to 789.63 - each representing a turbidite unit. Nothing like 200MA cycles, however.

791.58-791.68: Marker-type lamination, underlain by 7cm of pyroclastic-laminated white mudstone.

792.70-793.24: Complex, branching, quartz conglomerate with biotitic margins & cross-fracture aggregates, local pyroclastic-pyrite aggregates, and calcite masses. $\Sigma = 4 \text{ cm} @ \sim 16^\circ$ to core axis. Brittle fracture on margins indicates low pressure response = Cretaceous??

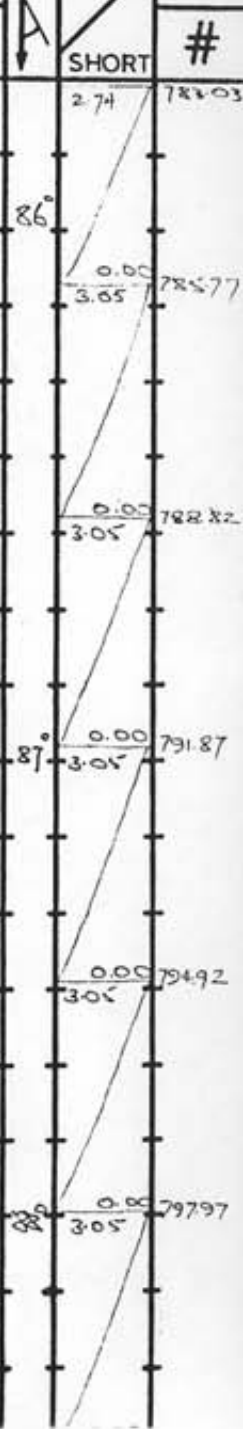
795.35-795.60: Calcite matting coarsely elongated in plane of bedding

796.15-796.42: As above.

787.30
BOX 139

793.09
BOX 140

798.58
BOX 141



DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL					RUN	#
	GEOLOGY		Quartz	Pyrite	Sphalerite	Chalcocite	Other		
	819.00							0.00	819.30
These quartzites contain concentrated material of biotite and calcite (30)	820							3.05	
	821	820.77							
	822	821.49							
Box 145 is mottled with dark, rounded spots to a maximum of about 1cm. I think these are red grease - not hornblende.	823	822.32 822.64 822.90 823.07						0.00	823.25
	824	823.97							
	825	824.25 824.62							
825.25-826.08: Pale green/purple alteration, ophanitic, hard.	826	825.49 826.08						0.00	826.40
826.46: 1cm calcite band in plane of bedding associated with pyrrhotite (+ specks chalcocite?) as fragmented laminations	827	826.49 827.26		X				3.05	
826.27-826.39: Approaching Marker quality.	828	827.27		X					
827.32-828.35: System of branching pegmatite veins @ about 15° to core axis containing quartz, calcite, dark biotite, chlorite in zonaritic with dark interstitial aggregates of pyrrhotite.	829	828.52 828.83		X				0.00	828.40
	830	829.45 830.00 830.19 830.34						5.00	828.40
830.32-831.12: Fracture-bounded zone of silification, chalc-fracturing @ 60° to bedding associated with minor calcite and occasional aggregates of pyrite & pyrrhotite. Brittle, friable, possibly early lepiditization	831	830.82 831.12		X					
	832	831.65 831.84						0.00	831.49
	833	832.26						7.04	
	834	833.22 833.62 833.80							
	835	834.27		X					
834.55: Minor, 2cm, bedded zone of breccia and calcite	836	834.76						0.00	834.54
	837	836.64 826.73						2.54	

These quartzites contain concentrated material of biotite and calcite (30)

Box 145 is mottled with dark, rounded spots to a maximum of about 1cm. I think these are red grease - not hornblende.

825.25-826.08: Pale green/purple alteration, ophanitic, hard.

826.46: 1cm calcite band in plane of bedding associated with pyrrhotite (+ specks chalcocite?) as fragmented laminations

826.27-826.39: Approaching Marker quality.

827.32-828.35: System of branching pegmatite veins @ about 15° to core axis containing quartz, calcite, dark biotite, chlorite in zonaritic with dark interstitial aggregates of pyrrhotite.

830.32-831.12: Fracture-bounded zone of silification, chalc-fracturing @ 60° to bedding associated with minor calcite and occasional aggregates of pyrite & pyrrhotite. Brittle, friable, possibly early lepiditization

834.55: Minor, 2cm, bedded zone of breccia and calcite

819.00

820

821

822

823

824

825

826

827

828

829

830

831

832

833

834

835

836

837

820.77

821.49

822.32

822.64

822.90

823.07

823.97

824.25

824.62

825.49

826.08

826.49

827.26

827.27

828.52

828.83

829.45

830.00

830.19

830.34

830.82

831.12

831.65

831.84

832.26

833.22

833.62

833.80

834.27

834.76

836.64

826.73

5 cm ss - calc = 0
calc - biotite
concretion
+ cm Rink

Fine ss with calcite
occasional sph - host
- all rounded, to 3cm

823.97: Loose calc host

Zone of fine Pb
fragmental.

Quartz-calcite
pegmatite vein
complex.

These sandstones
have variable,
low matrix carbonate

Occasional sections
speckled with
calcite

Calcite speckled
zones as above

83°

80°

0.00 0.00 0.00

DESCRIPTIVE LOG Scale: 1 cm to 1 m	GRAPHIC LOGS		MINERAL										RUN SHORT	#
	GEOLOGY		Pyrite	Quartz										
<p>928.65-938.07 colour banded argillite with slightly silty/sandy units locally. Possibly cherty in part. Occasional fine pyrrhotite laminae. Between 930 m and 935 m trending to Marbr quality. Thinner sections as shown are predominantly Marbr quality</p> <p>930.43-930.56; 934.09-935.16: sections of brittle breccia between bedding planes. Cemented by quartz, minor calcite and pyrrhotite/pyrite. The lower is associated with soft rock deformation, and consists of major planes at about 45° to bedding along which there has been extensional movement of a few cm.</p> <p>By analogy, these dry, quartz-brecciated and earth deformation (non-tectonic) objects.</p>	927.02 927.12 927.64 927.78	Rhyolites with concentrations of pyrrhotite at base												
	928.64													
	929.64 30X 164													
	930.43 930.56													
	931.09													
	932.10													
	933.29													
	934.09 934.16 934.46 934.79 935.16		Calcarenous sandy shale											
	935.74 25X 164		Regular fine pyrrhotite laminae											
	<p>938.07-938.00: festoon cross bedding in units ~ 3 cm x 8 cm. Yield a transport direction about 15° anti clockwise from regional dip. That is, about north north east or north east.</p> <p><u>938.07 -</u> <u>QUARTZITIC WACKE</u></p>	936.64	Weak silty quartzite-pyrrhotite aggregate subequally very gentle, convex effects of deformation and cut and fill lenses.											
937.83														
938.07														
938.74														
938.92														
940.72			Thin silty calcarenous argillite											
940.92			Strongly bedded argillaceous silty mudstone											
941.22 941.72 942.00			Regular fine pyrrhotite laminae											
943.31			Calc. matrix											
943.72 943.91			Regular thin Po lens											
<p>943.91-945.04: The lower section are of plane-laminar banded argillite type. They are pyrrhotite-laminated and contain calcarenous shale sections</p>	945.00													
	945.00													

107

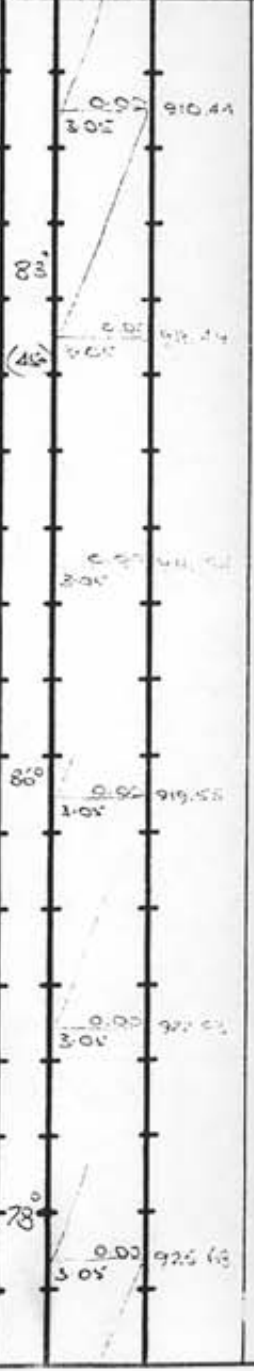
DESCRIPTIVE LOG	GRAPHIC LOGS		MINERAL										RUN	#	
	Scale: 1cm to 1m.	GEOLOGY	Partic	Clay	Sphal										SHORT
<p>These units are sandy argillites possessing disorganized laminae of argillite and pyroclite in their tops. Partial fluidization. The very base is often quite coarse (c 1m), and calcareous. Locally, the sandier beds are thin-laminated.</p> <p>911.15: Aggregates of brown sphalerite, calcite clusters near a small fracture just above bed base. Garnets along bed base.</p>	909m	-909.21 -909.44 -909.43	Four-fossil argillaceous sandstone	X											
	910	-910.48 -910.90	Fine grained laminae sand.	X										0.02 3.05	910.44
	911	-911.56 -911.80	Banded argillite	X	X	X									
	912	-912.27	Biohermal and coral fragments	X	X	X									
	913	-913.47	Highly disordered beds	X	X	X								83°	
	914	-914.50	Slump unit	X										(40°)	
	915	-915.22		X											
	916			X											
	917	-917.15		X											
	918		Highly calcareous matrix	X											
<p>These units are characterized by VERY low velocity Plane bases, zero current effects. They are not the long-distance turbidites of the above 897.12 type although the material of which they consist could have been brought in by turbidity currents. Then they sloughed, slid or settled - perhaps a few metres or a few kilometres - into their present form and structure.</p>	919	-919.45 -919.69	Cross-bedding and pull-apart internal structure	X											
	920	-920.00 -920.35	Slump unit	X											
	921	-921.33	Slump unit	X											
	922	-922.30 -922.60	locally bioclastic	X											
	923	-923.00 -923.48	calc matrix, laminated sand	X											
	924	-924.10 -924.22	calcareous sand	X											
	925	-925.40	well laminated, biotite base	X											
	926	-926.20 -926.40 -926.70		X											
	927	-927.00		X											
	928	-928.00		X											

919.40: 2.5cm quartz-pyrite band, hornfels texture. Fragment appearance of same texture in underlying

912.27 BOX 161

918.26 BOX 162

924.15 BOX 163



DESCRIPTIVE LOG Scale: 1 cm to 1m.	GRAPHIC LOGS		MINERAL						RUN SHORT	#
	GEOLOGY		Quartz	Pyrite	Chalcopyrite	Chalcocite	Other			
945m										
946		945.88	min chip	Y						
		946.59		X X						
946.65-947.74: Calc. laminated cherty vein.	946.65-947.74 80X167	947.17	2 lams - 2mm.	Y					81°	946.71
		948.11		Y						
		948.55	Simple section	Y						
		948.74		Y						
		949.51		Y						
		950.36	coarsely current-bedded	Z Z						
		950.65								
		950.80			Y					
		951.52								
		952.42	slightly desegregate							
952.56-953.16	952.56-953.16 70X168	953.67							87°	953.17
		954.10								
		955.10		Y						
		956.10		Y						
		957.10	large internal structure. Local faint calc. matrix	X						
957.60-957.80. Irregular quartz vein to 3cm @ ~26° to calc. vein.		957.73								
		958.22								
958.22-958.69	958.22-958.69 35X169	958.92	clim 20 laminae siliceous calc-laminated zone	Y						
		959.76								
		960.45								
		960.57								
		960.93	Two or three argillaceous zones							
		961.21								
961.22-963.24: complex quartz vein, ~15cm @ 20° to calc. vein. Zoned marginally with coarse dark biotite, chlorite. Spots of pyrite. Local aggregates of coarse sulphides to 2cm, mainly pyrrhotite, also pyrite.		961.21								
		961.91								
		962.21								
		963.21								

Quartzite is darker & has grains in vein.

DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL					RUN SHORT	#
	GEOLOGY		Pyrite	Quartz	Calc	Other			
1017m		1017.10							
		1018	Minor disaggregation	x	x			3.05	1017.73
		1019	Quartzites are exceptionally matrix - devoid of internal structure	x	x				
		1020		x	x				
		1020.22						81°	
		1020.71						0.00	1020.70
		1021						3.05	
		1022		x	x				
		1023	Fine cross bedding, climbing tipples	x	x				
		1024		x	x				
		1024.67							
		1024.86						81°	
		1024.97							
		1026		x	x				
		1026.25		x	x				
		1026.79	Current bedded sand shale alternations	x	x			0.00	1026.77
		1026.97	Variable tourmaline, trace pyrite.	x	x			2.44	
		1028		x	x				
		1028.25		x	x				
		1029		x	x				
		1030		x	x			0.00	1029.51
		1031	Current bedded sands and silty shales - some mud chips and whisps of laminae	x	x			2.74	
		1032		x	x				
		1032.31		x	x				
		1032		x	x			80°	
		1032.51		x	x			0.00	1032.00
		1033		x	x			3.05	
		1033.26		x	x				
		1033.72		x	x				
		1034	A soft fine Po lens and local disaggregation materials	x	x				
		1034.63							
		1034.95							

1027.17-1028.71: Tourmalinization. The argillites and the matrix of the argillaceous sands is variably tourmalinized. A few untourmalinized argillites, and an untourmalinized mud chip are interbedded within tourmalinites. Therefore, the alteration is syngenetic and the source is some (short) distance away. The rock is relatively unfractured. The tourmalinization decreases below this interval gradually, but terminates abruptly upwards. Speckled with pyrite.

1026.79
BOX 181

1032.55
BOX 182

DESCRIPTIVE LOG Scale: 1 cm to 1 in.	GRAPHIC LOGS		MINERAL					RUN SHORT	#
	GEOLOGY		Calcite	Pyrite	Pyrrhotite				
	1035.5								1035.10
	36	1036.80							
	37	1036.96 1037.05		X					
1036.85 - 1037.25: 0.5 cm quartz vein @ 15° to core axis. Local date of encaised pyrite.									
	38	1037.82							
1038.15 BOX 182									
	39	1038.70							
	40	1040.02							
1040.78 - 1040.92: Stylolitic-type fracture trending across bedding at about 70° - contains pyrite and trace pyritite.									
← Palau ↳ Sintergreen									
	41	1040.62							
	42	1040.62 1042.70 1042.70							
	43	1042.70							
1043.68 BOX 184									
	44	1043.72							
	45	1044.12 1044.37 1044.63							
	46	1045.10 1045.17							
	47	1045.30 1045.32 1046.24 1046.40							
	48	1047.23							
	49	1047.51 1047.81 1048.03 1048.14							
	50	1049.25 1049.50							
1050.72 - 1050.95 Biotite-zoned quartz granitic vein, 1.5 cm @ 12° to core axis. Terminates downwards in a bedding-parallel vein, ~4 cm and some streaking parallel bedding. Broken core. Unconform form.									
1049.50 BOX 185									
	51	1051.45							
	52	1051.84 1052.16 1052.40							
1052.0									



DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL				RUN SHORT	#
	GEOLOGY		Garnet	Pyrite	Chalcopyrite	Quartz		
1052.50-1060.60: Interval mainly composed of slightly graded argillaceous sands and silts. Frequent minor small scale current effects. Occasional disaggregation.	1053	1052.17 1052.50 1052.74 1052.92					0.00 2.05	1052.39
1054.20-1054.56; 1056.10-1056.35; 1057.40-1057.72; 1058.40-1058.67; 1059.00-1059.20; Zones of minor pale green alteration and garnet development; occasionally calcareous.	1054.22 20X 186	1054.56 1054.91 1055.24 1056.00 1056.20					85° 0.00 2.05	1056.44
Note: From about 1057 downwards the core is necessarily chopped through quartzites and blocks through argillites. Incipient fracturing throughout - chaotic facies - tectonic effect. Improves below 1071m.		1056.95 1057.72 1058.23 1058.67						
1060.60-1062.20 is probably a chemical sediment on the whole. Very cherty at base grading to highly calcareous in the middle and increasing argillite to top. May be tourmaline not chert - but if so, why carbonate, and why not at top?	1060.12 20X 187	1059.20 1059.70 1060.60					83° 0.00 2.05	1059.15
1062.25-1062.85: Variably silicified, fractured. Variable pale alteration as 1054.30 etc.		1062.20 1062.50 1062.85						
1066.00-1066.12: longitudinal calcite brecciation.	1066.58 20X 182	1063.80 1064.11 1065.15 1065.84						
1066.55-1067.10: as above.		1066.05 1066.31 1066.86 1067.11					305° 0.00 3.05	1067.12
Zone 1065 attached to clays: 1. On the sea floor. 2. Some distance away. 3. After Unit A was deposited. 4. Before Unit B was transported and laid down.		1067.17 1067.67					22° 0.00 2.15	1067.56
		1068.63 1069.34 1069.74 1070.00 1070.58						1068.63
	1071.00 1071						0.00 2.44	1070.76

DESCRIPTIVE LOG	GRAPHIC LOGS			MINERAL										RUN	#					
	GEOLOGY			Quartz	Calcite	Pyrite														
<p><u>Barren Alteration</u></p> <p>I think it is tourmaline - but may be chert or silification. Hacksaw blade w/ scratch #. But occurrence is unusual: with sandstone beds and the laminated calc-arenites. The argillite tops are unaltered. The association with coarse (4mm) carbonate crystals is unusual. Thin pyrite specks. Saw surface of high power lens suggests tourmaline.</p> <p>So: B-rich fluid transported with- or migrated within the sandstone beds. Substrate tops unaltered. Not pervasive epigenetic or diagenetic alteration. Source is nearby, but not too close.</p> <p>1073.24 - 1076.24 Box 190</p> <p>1073.24 - 1076.24 Box 191</p> <p>1073.24 - 1076.24 Box 192</p>	1071.00	1071.00	1071.00																	
	70	1072.00	1072.00	1072.00																
	71	1073.00	1073.00	1073.00																
	72	1073.73	1073.73	1073.73																
	73	1074.04	1074.04	1074.04																
	74	1074.60	1074.60	1074.60																
	75	1074.79	1074.79	1074.79																
	76	1075.63	1075.63	1075.63																
	77	1076.30	1076.30	1076.30																
	78	1076.61	1076.61	1076.61																
	79	1078.10	1078.10	1078.10																
	80	1078.71	1078.71	1078.71																
	81	1079.41	1079.41	1079.41																
	82	1080.41	1080.41	1080.41																
	83	1081.92	1081.92	1081.92																
	84	1084.24	1084.24	1084.24																
	85	1084.70	1084.70	1084.70																
	86	1085.05	1085.05	1085.05																
	87	1086.10	1086.10	1086.10																
	88	1086.54	1086.54	1086.54																
89	1086.81	1086.81	1086.81																	
90	1088.54	1088.54	1088.54																	
91	1088.87	1088.87	1088.87																	

1073.24 - 1076.24
Box 190

1073.24 - 1076.24
Box 191

1073.24 - 1076.24
Box 192

Minor biotite, calcite, local pyrite, whips

Very pale garnets

Coarse (2cm) carb. weathering

Fine matrix carbonate

Sandy argillite debris beds - fragmented laminae, E. zone, thin calc. matrix zone

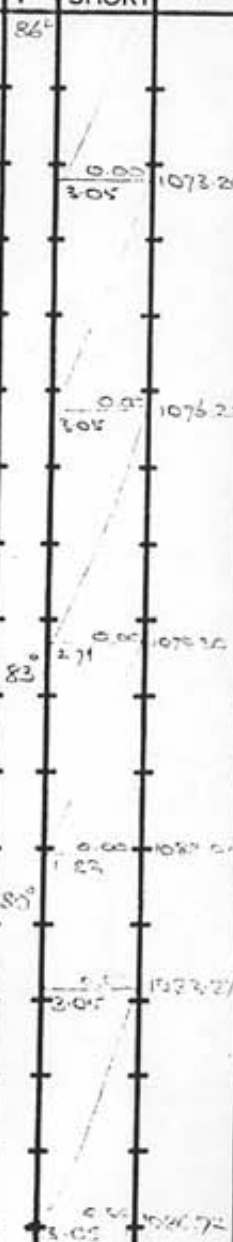
Sandy fine pyrite laminae. Local matrix agglutinate zone. Carb. matrix in base

Tourmalinized greenish patch - 3cm, vague margin - not a real chip

Variable carbonate matrix - large silicification

Argillaceous debris beds with some current effects.

Disaggregated through 1cm zone. Occasional hair-line pyrite lam.



DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL										RUN	#			
	GEOLOGY		Quartz	Calcite	Pyrite	Chert	Other	Other	Other	Other	Other	Other	Other		Other	Other	Other
	107m																
	08	1108.09															
	09	1108.24															
	10	1109.77															
		1109.52															
		1110.95															
		1111.34															
		1111.52															
		1111.76															
	13																
	14	1114.00															
	15	1114.26															
	16	1116.60															
	17	1117.16															
	18	1118.34															
	19	1118.95															
	20	1119.97															
	21	1120.85															
	22	1121.40															
	23	1121.52															
	24	1122.78															
	25	1123.03															
	26	1123.77															
	27	1124.42															
	28	1124.57															

1114.78-1114.96: fractured rock of gouge zone. Not noticeably chloritic - possibly sericitized a bit. Pyrite surfaces & very minor, local calcite

1115.68-1116.10: 2cm Qtz vein at 21° to core axis. Lower margin diffuse; apex sharp with dark bronze biotite concentration

1118.34-1118.95: Dense black laminated calc-tourmaline rock, disseminated pyrochlorite specks. This probably is tourmaline, possibly chert-chemical sed. mat in either case

1121.40-1122.03: As above. There are three beds of sericite (max 4mm) un-tourmalinized. Difficult to recognize with barren alteration, but easy with chert.

100 easting, cross-bedding

Locally minor current effects of local calcite

fracture

laminating calcite

calcareous sand bed

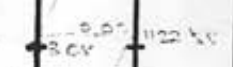
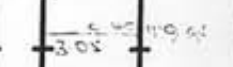
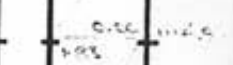
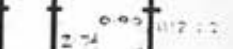
Banded argillites, become cherty toward base

pebble 7mm of tourmaline at 1119.26

Pyrite-coated fracture faces


Minor disaggregation

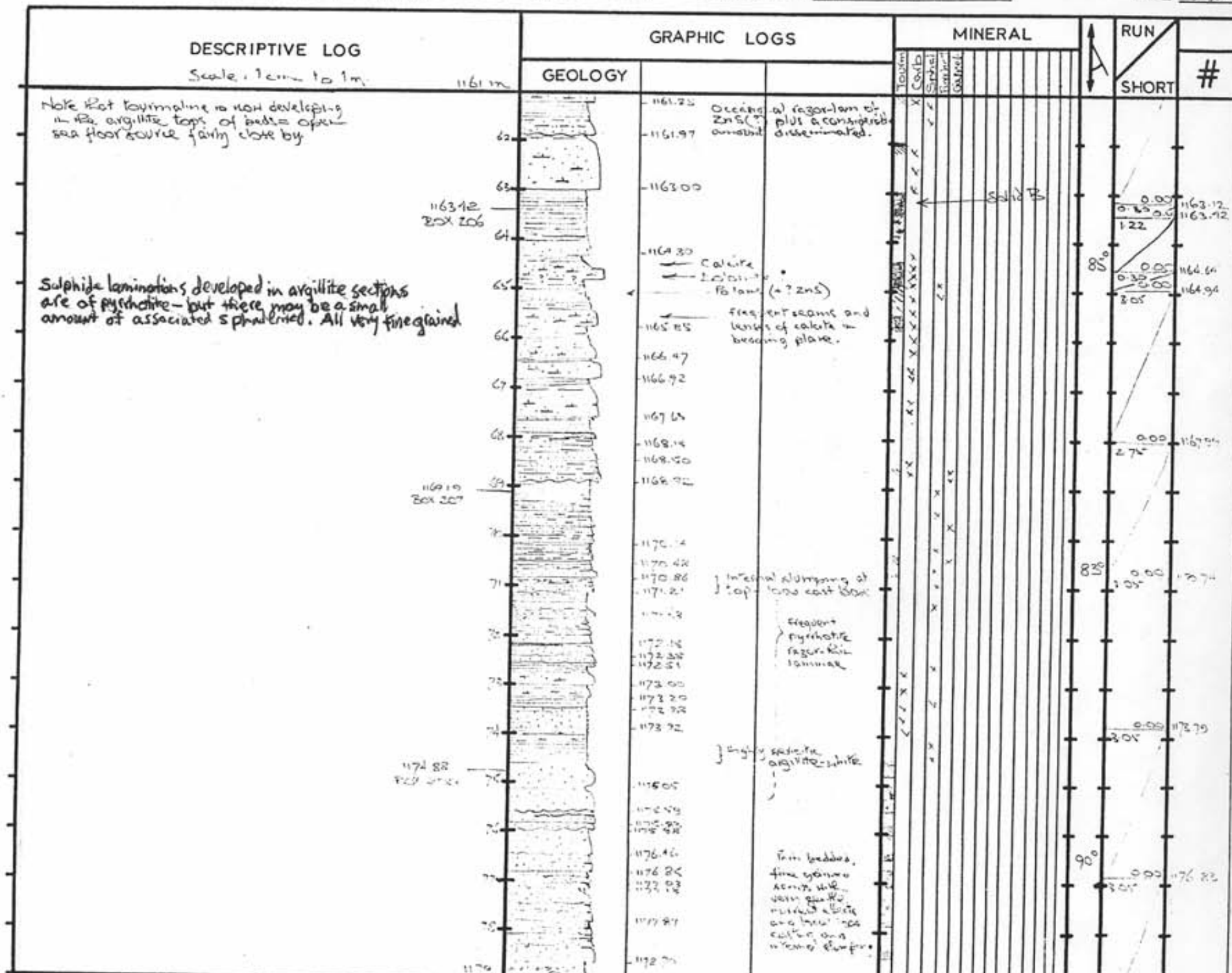
Minor internal slumping



1121.71 25 x 100

DESCRIPTIVE LOG <i>Scale: 1 cm to 1 m</i>	GRAPHIC LOGS		MINERAL				RUN SHORT	#
	GEOLOGY		Tourmaline	Galena	Calcite	Pyrite		
1125.80 - 1126.05: Zone of pale green chert, opaline development and local carbonate.		1125.80 1126.05		X	X			
1126.07 - 1127.90: Barro Argyllite, rather hard in short sections, possibly partial tourmalinized. Occasional thin pyritic laminae.		1126.07 1127.90	Strongly calcareous zone of pyrite facies on 1126.07 - 1127.90					
1128.65 - 1129.55: Zone of longitudinal to 30° fractures of pyrite facies. Pyrite in grains.		1128.65 1129.55	Trace disseminated Pyrite. Pyrite in grains. Pyrite in laminae.					
1130.69 - 1130.95: Laminated carb-tourmaline rock. Hard, fine grained, laminated, black speckling of pyrite (?)		1130.69 1130.95						
1131.20 - 1131.25: As above		1131.20 1131.25	1131.50 Untourmalinized white mudchip - 2 cm					
1132.00 - 1132.35: Tourmalinized sand bed. Variable patchy tourmalinization downwards as indicated. Little carbonate association - both sand beds and relatively massive (arg?)		1132.00 1132.35						
1132 m - 1137 m Core badly fractured. Uncertain sedimentological details. Chloritic facies & occasional pyrite smeary etc. tectonic in general, grains are longitudinal.		1132.00 1137.00	4cm of vein at 20° to core axis. Marginal biotite pyrite facies					
		1136.08 1137.34						
		1137.81 1138.20	Internally slumped & fragmented beds					
		1138.74 1139.77	Subwacke					
		1141.70 1144.00						
1141.70 - 1144.00: Chert badly chopped. Fine calcite fractures.		1141.70 1144.00	Minor current effects and fine low casting					

DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL					RUN	#
	GEOLOGY		Quartz	Calcite	Sphalerite	Pyrite	Other	SHORT	
1143.00 - 1146.32: Dark, homogeneous, finely laminated argillite, occasional coarse calcite crystals. Irregular calcite-pyrite-filled longitudinal fractures - continuous down to 1146.70 - with minor frozen effecting	44	1143.74	X	X					
	45	1144.16	X	X					
	46	1144.82	X	X					
	46	1145.23	X	X					
1146.55-1146.65: Pale green alteration	46	1145.60	X	X					
1148.40: Rounded dust ± 2 cm of bedded sulphides. Appears to be mainly sphalerite - small fols.	47	1147.06	X	X					
 ZnS?	48	1148.47	X	X					
	49	1148.70	X	X					
	50	1148.90	X	X					
	51	1149.52	X	X					
	51	1150.08	X	X					
	51	1150.60	X	X					
	51	1150.90	X	X					
1152.10 Razor fine laminae of sulphides - fine + a dark mineral - sphalerite?? Some mineral disseminated throughout adjacent argillite	52	1151.48	X	X					
Note ZnS(?) is probably sphalerite with minor pyrrhotite. Very fine grained, as razor thin perfect laminae. AND as variable dissemination in both argillites and the argillaceous sand beds. Not in v. fine grained quartzites.	53	1152.05	X	X					
	53	1152.95	X	X					
	53	1153.12	X	X					
	53	1153.60	X	X					
	54	1154.55	X	X					
	55	1154.94	X	X					
	55	1155.08	X	X					
	56	1155.30	X	X					
	56	1156.90	X	X					
	57	1156.25	X	X					
	57	1156.80	X	X					
	58	1157.80	X	X					
	59	1158.14	X	X					
	59	1158.75	X	X					
	60	1159.60	X	X					
	60	1159.83	X	X					
	60	1160.07	X	X					
	60	1160.23	X	X					
	60	1160.85	X	X					



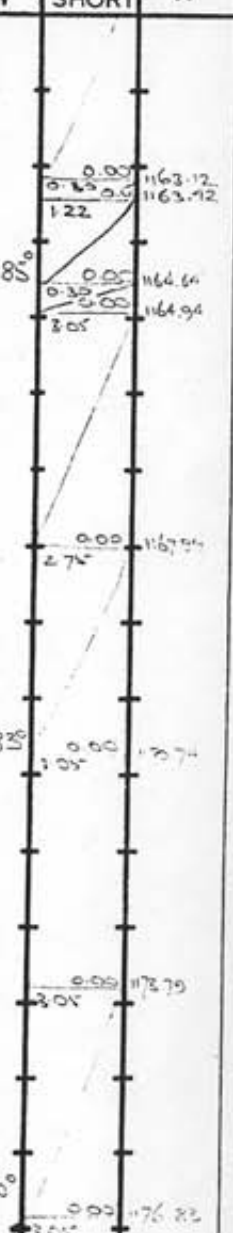
Note that tourmaline is now developing in the argillite tops of beds - often sea floor source fairly close by.

Sulphide laminations developed in argillite sections are of pyrrhotite - but there may be a small amount of associated sphalerite. All very finegrained.

1163.12 Box 206

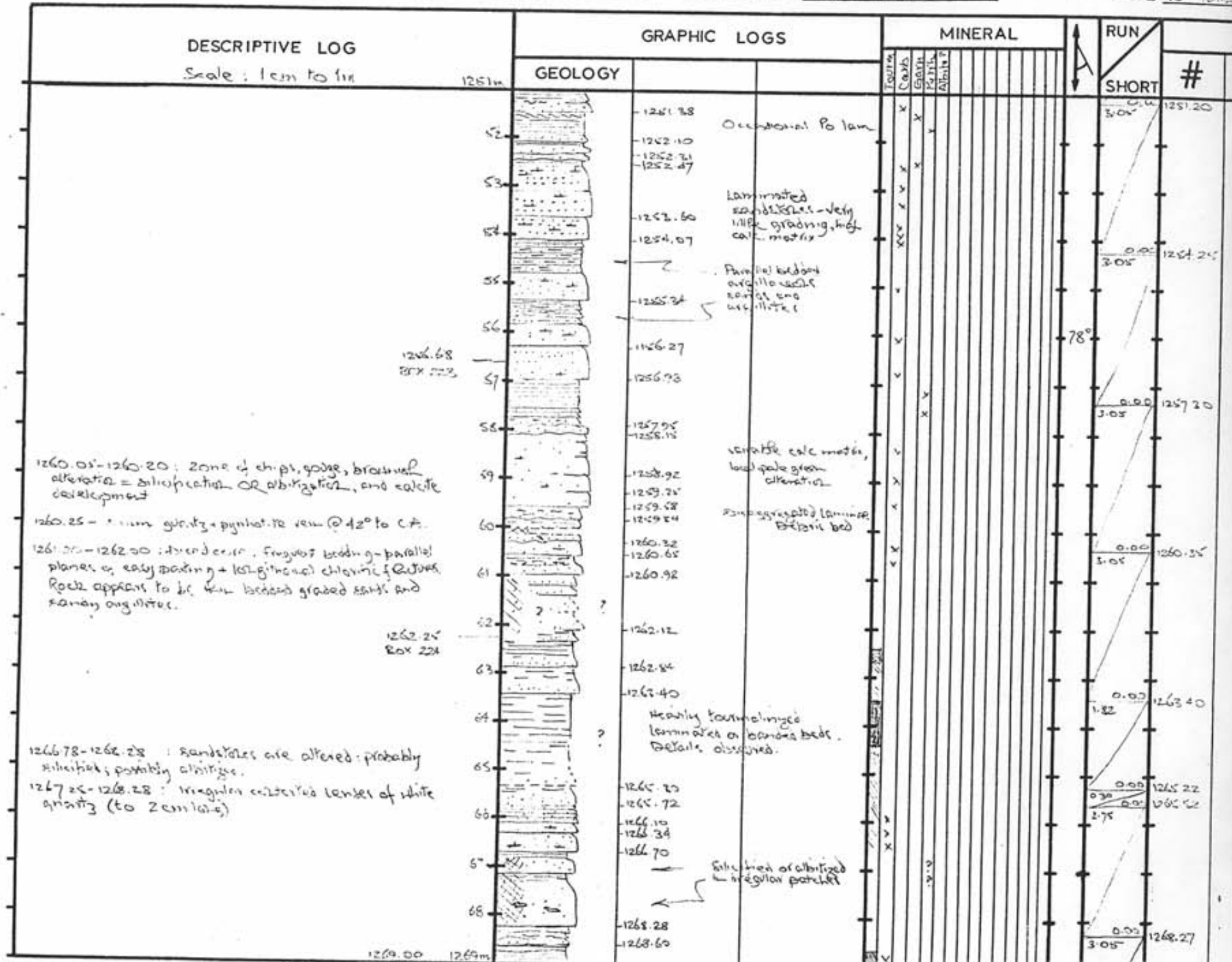
1169.10 Box 207

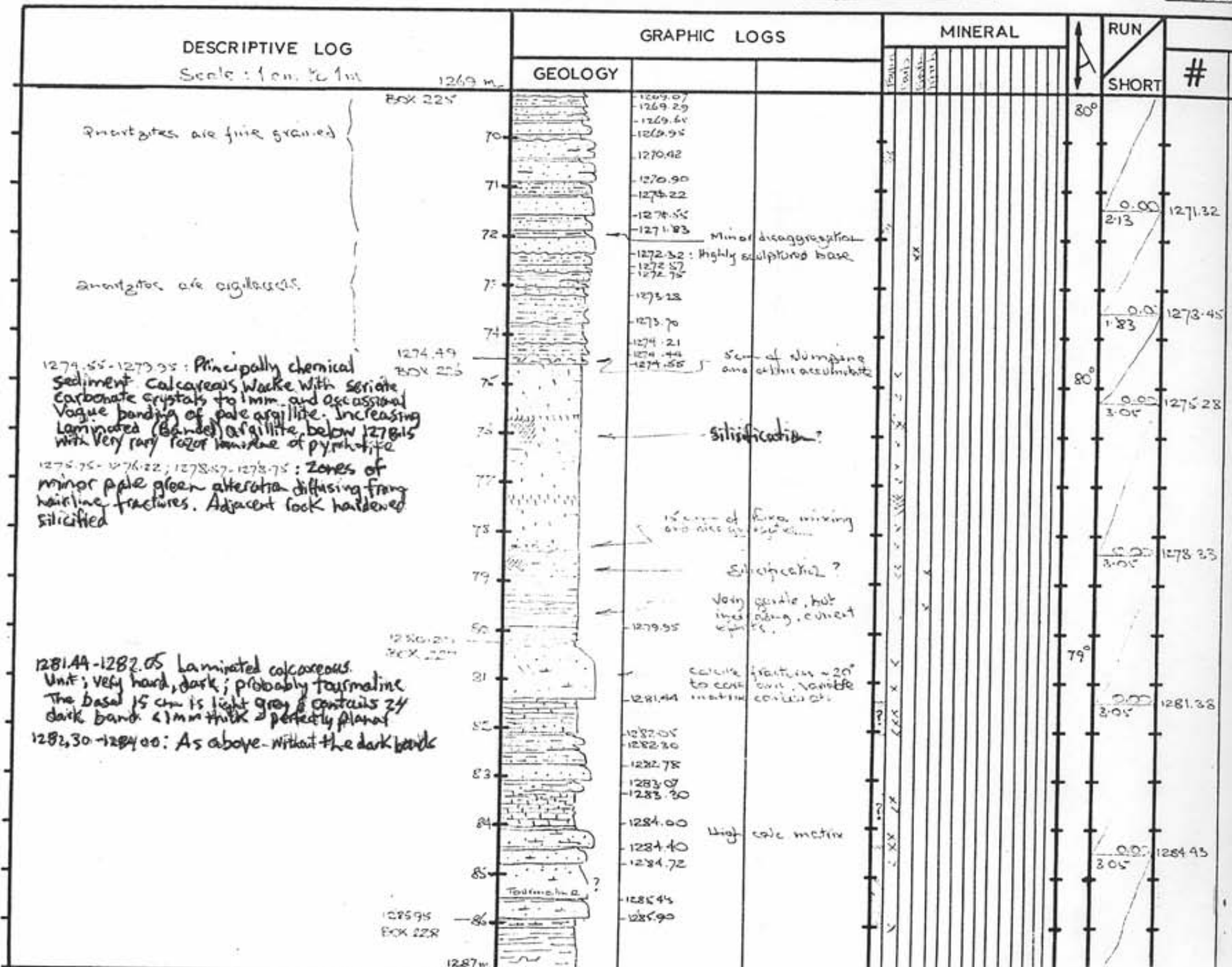
1174.82 Box 208



Fine bedded, fine grained argillite with some quartz, mica and biotite and thin layers of calcite and pyrrhotite.

DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL				RUN SHORT	#
	GEOLOGY		Quartz	Carb	Mineral			
1197m								
1197.35 Box 212	98	1197.21 1197.53 1197.72		X			0.00 3.00	1197.56
		1192.62		X				
	99	1159.12	15cm of thin traps slump disturbance					
	1200	1199.88		X			86°	
	01	1200.45		X			0.00 3.00	1200.61
	02	1201.60		X				
		1202.22		X				
		1202.86		X				
1202.05 Box 213	03	1202.22 1202.72 1202.51		X				
	04	1203.85		X			0.00 3.00	1203.66
	05	1204.85		X				
	06	1205.03		X				
		1205.10		X				
		1205.70		X				
		1206.37		X				
		1207.10		X			0.00 3.00	1206.70
		1207.40	100% calc	X				
		1207.74		X				
1208.24 Box 214	08	1208.29		X				
	09	1209.18	Pyrite laminae	X			86°	
	10		10% of spinel, feldspar, biotite, pyrite	X			0.00 3.00	1209.75
	11	1210.69	Pyrite laminae 3 to 0.5 mm	X				
1211. 1212.70-1212.95 Coarse grained calc-alexite	12		Calc-alexite	X				
	13	1212.70 1212.95	Chert fracture zone about 1cm - 0.15 BSA	X			0.00 2.44	1212.95
1213.60 Box 215		1213.80		X				

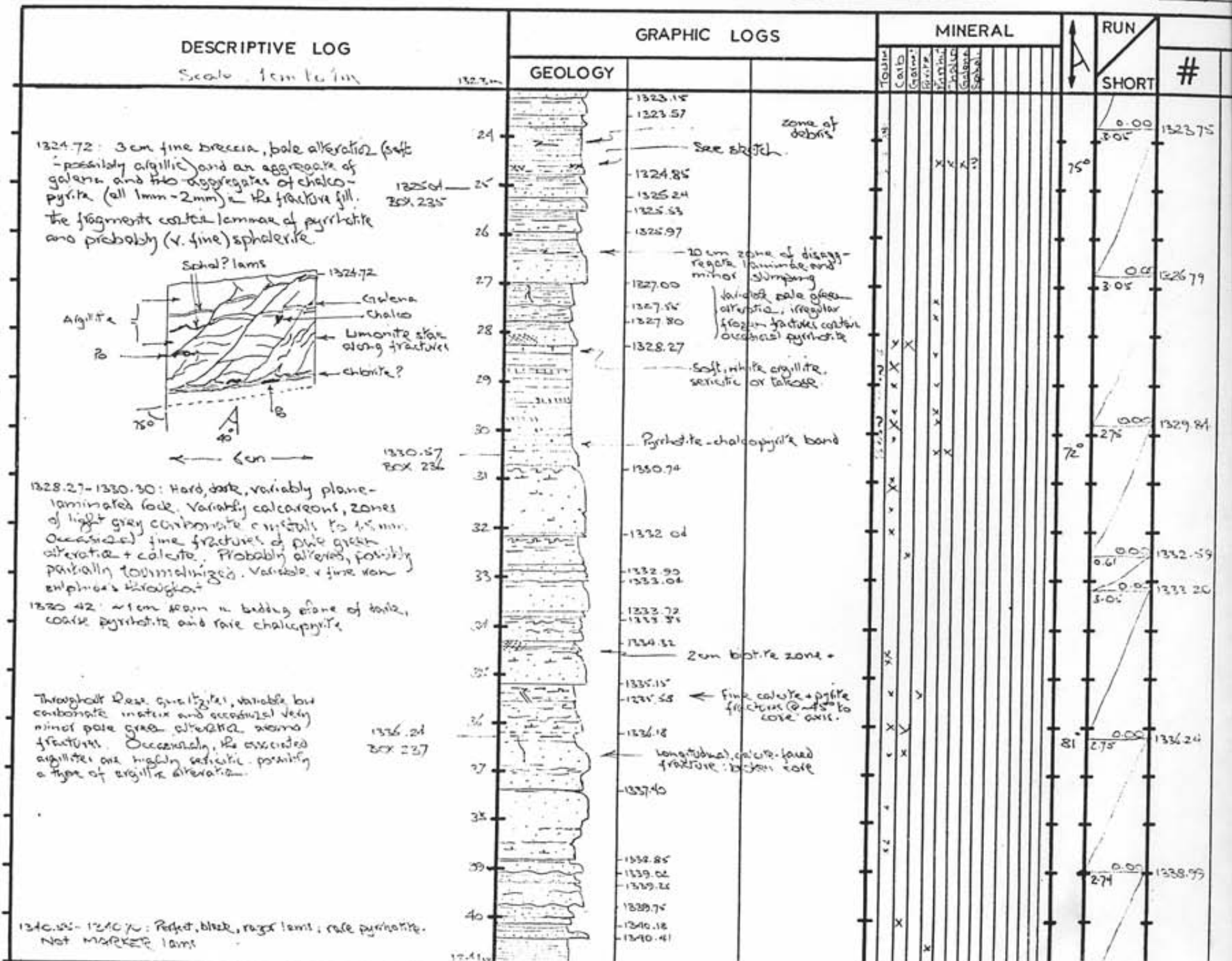




DESCRIPTIVE LOG	GRAPHIC LOGS		MINERAL										RUN	#					
	GEOLOGY		Quartz	Calc.	Granite	Pyrite	Pyrox.	Amph.	Chlorite	Illite	Other	Other			Other	Other	Other	Other	
1287.10-1287.50 : As above - calc. faultline	28	1287.10 1287.50															81°	0.00 1.22	1287.48
1289.15-1289.25 : Irregular qtz. vein to 2 cm, principal attitude @ 8° to core axis, calcite at contact & in cross fractures. Pyrite smears on cross-fracture faces. Adjacent mudstone is silicified or quartzite	89	1288.26 1288.60 1288.88																0.00 2.44	1289.30
1289.30-1290.20 : Irregular coarse fracturing, chlorite-faded pyrite smears. frequent fine quartz veins containing occasional vugs and pyrite aggregates	90	1290.00																	
1291.74-1292.20 : FAULT (WATER COURSE)	91	1291.74 1292.20															78°	0.00 3.05	1291.74
1291.74-1292.20 : FAULT ZONE : Poorly cemented breccia of irregular, semi-rounded fragments to 2 cm; gouge & chips; cement = calcite, strong calcite veining; pyrite development in adjacent rock.	92	1293.75															74°		
	93																		
	94																	0.00 2.74	1294.79
	95																		
	96																		
	97	1296.85															82°	0.00 3.05	1297.53
	98	1298.05 1298.45																	
	99	1298.74																	
	1300	1299.86 1300.19 1300.58																	
	01	1301.00 1301.50 1301.73																0.00 3.05	1301.58
	02																		
	03	1303.09 1303.40 1303.83																0.00 3.05	1303.63
	04	1304.17																	
	1305	1304.82															78°		

DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS				MINERAL	RUN	#
	GEOLOGY						
1304.32- : Continuation of previous (overlying) zone as a vein homogenized, rarely banded, argillite. Occasional ultra fine bands, no grading, best zones of pale alteration associated with hardening and garnets.	1305.00	06	← zone of pale alt + hardening				
		07	← Sphagnum (?)				
1307.70-1307.85: Altered, hard = garnets, hornblende and pyrite. Calcarenite	1207.66 BOX 232	08	← zone of pale alt + hardening				
		09	← 5cm of dark laminae resembling Marble; still in Middle Aldridge formation.				
		10	← 1038.96 } local zones of silification(?) + quartz, hornblende, calcite + pyrrhotite				
		10	← 1039.37 } ← 1039.60 } ← 130.22 }				
Slump bed - fine grained material		11					
1312.50-1312.75: As 1307.70-1307.85		12	← Fine grained slump surface				
1313.17-1313.62: Gray-pale gray, very hard (possibly silicified) slightly calcarenite, and laminated with dark bands - as 1281.90-1282.05		13					
	1313.52 BOX 233	14	← 1313.62 very hard - possibly body of bed - partly laminated				
		15	← 1324.25				
		16	← Principally slumped material				
		17	← silicified and veined with quartz, fine calcite fragments				
		18	← 1317.10				
1318.48-1318.65: Very hard, silicified calcarenite, veined with pale green alteration, and garnets, pyrite		19					
1318.82-1319.25: As above	1319.14 BOX 234	20					
		21	← 1320.70				
		22	← 1321.08				
1322.08: Dark band containing pyrrhotite + quartz with associated calcite & garnet ± 1cm - 20" back.		23	← 1322.15				
Layers (3mm) of bleaching = possible chloritization at top of bed		24	← 1322.50				





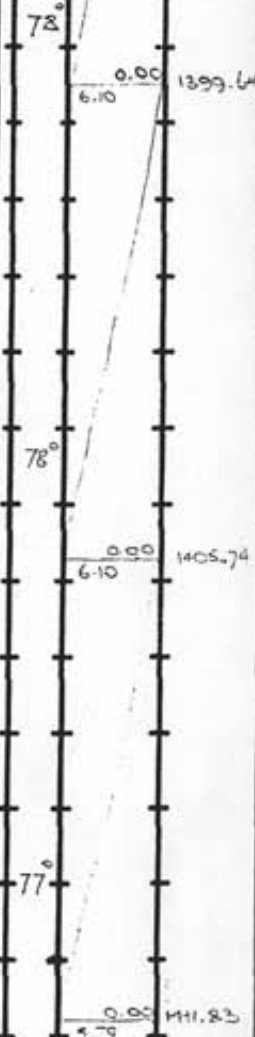
DESCRIPTIVE LOG Scale: 1 cm to 1 m.	GRAPHIC LOGS		MINERAL					RUN SHORT	#
	GEOLOGY		Pyrite	Chalc	Pyrrhot	Pyrite	Pyrrhot		
1341.57 30X 238	1341.66 1341.65								
1342.52-1343.60: zone of extreme silicification, partially bounded by frozen fractures (2-8° to core axis. Contains an irregular dilational zone, 1.5 cm wide, at 27° to core axis, containing sub-rounded areas of sediment (silicified) in a matrix of pale chlorite (calc?), bronzite and fine pyrite	1342.55	cross-bedded sands.	X					82°	1341.73
	1343.70	highly silicified & possibly altered.			X	X			1342.95
	1344.45	} silicified zone							1344.47
	1344.93								
	1344.92	Indistinct Very hard, possibly laminarized	X						
	1345.90								
	1346.29								
	1346.61	Disseminated pyrite			X	X			
	1347.26	Silicified aggregates and a few disseminated pyrite & pyrrhotite.						81°	
1349.02-1358.82 Mainly as follows	1347.91								
	1348.18								
	1348.46								
1349.60-1350.10: Hard, dark, faintly laminated and variably calcareous. Occasional zones pale on low distance alteration	1349.02								
1350.15-1350.78: As above	1350.10				X	X			
1351.00-1351.33: As above plus garnets to 4 mm	1350.78				X	X			
1352.20-1358.93: As 1349.60-1350.10.	1350.95				X	X			
1358.75-1358.82: As above	1351.23				X	X			
	1351.42	Very fine grained, some mineral layers.						80°	1356.67
	1352.11								
1352.70 30X 240	1353.25								
	1354.44								
	1355.42								
	1355.63								
	1355.87								
	1357.28								
	1357.64								
1358.60-1358.71: irregular structures (looks soft-foam) contain pyrrhotite masses & specks chalc. limit	1358.43								
1358.72 30X 241	1358.88				X	X		77°	1356.66

DESCRIPTIVE LOG Scale: 1 cm to 1m	GRAPHIC LOGS		MINERAL										RUN SHORT	#		
	GEOLOGY		Salite	Coals	Sphalerite	Pyrite	Galena	Chalcopyrite	Pyrrhotite	Chalcocite	Native Cu	Native Ag			Native Au	
1377.00																
1380.35: 2 cm glauk. seam as at 1276.30.																
1381.00: v. coarse (4 cm) irregular aggregate of pyrrhotite w/ occasional chalcopyrite	72		-1377.42 Slump													
	70		-1378.20 Slump													
1381m to 1387.45: Fragmental ore matrix-supported. The matrix, and rarely the clasts, are variably tourmalinized frequent irregular aggregates of pyrrhotite. Low variable carbonate. Clasts to about 3cm so the total surface is fairly close	50		-1380.20 v. local slumping. Occasional fragment of lam of Po. and local patch of disseminated Po. Slump fragmental													
	51															
	52		1382.97													
	53		-1383.21 Slump fragmental													
1384.08-1385.20: Altered rock. Silicified or albited rock containing knots of chlorite + niobite to 4mm rounded w/ muscovite. Primary material a slump unit.	54		-1384.08													
1386.75-1387.45: As above but chlorite alone without the sil. Part tourmalinized	55		-1386.20 Slump frag													
1386.82-1386.95: Fracturing, silty staining and possible alteration @ ~40° to CA	56		-1386.00													
	57		-1386.68 Slump fragmental + chlorite blasts													
	58		-1387.45 Obscured													
1387.75-1389.00. 3cm gr. vein within region of silicification	59															
1389.45: 3mm coarse gr. pyrrhotite bed	60															
1389.59: 2mm pyrrhotite, galena, chalcopyrite (sphalerite?) bed. Coarse crystals to 3mm (big)	61		-1389.37													
1390.76: 3mm bed of sphalerite (+galena + chalco)	62															
1391.00: Bedded surface containing pyrrhotite, galena, chalcopyrite and sphalerite	63															
	64															
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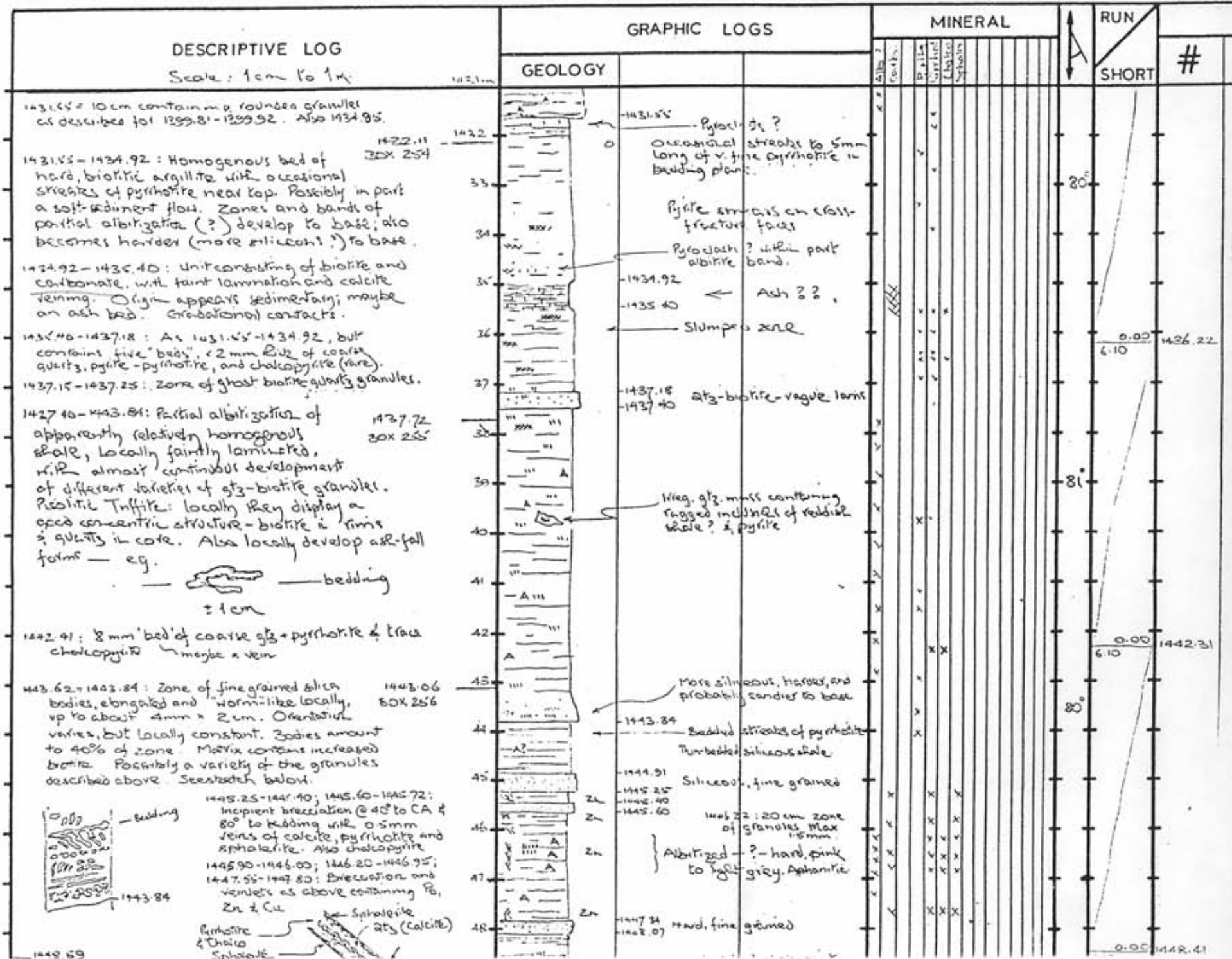
DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL										RUN SHORT	#		
	GEOLOGY		Silica	Carb	Chert	Pyrite	Pyrrhotite	Pyrite	Sulphide	Pyrite	Pyrrhotite	Pyrite			Pyrrhotite	
	1395.11															
		1395.82														
1397.64: 1.5cm zone of round, polymineritic (biotite + quartz?) grains - <1mm at top of bed. They appear to be primary.	97	1397.64														
1398.75: V. fine iridescent calcite vein with fine sphalerite along cleavage	98															
		1398.95 1399.13														
1399.81-1399.92: Occasional zones, 2-3cm wide, bedded, of granules, rounded to oval, of biotite + quartz. From ~1mm to 5mm, but constant size within a zone. Appear primary, possibly pyroclastic. Limited to argillite.	99															
		1399.72 1400.17														
Abundant pyroclastic, some pyritic, as aggregates + fine calcite fracture filling	101															
1401.55-1402.60. Fine biotite laminated zone with spherical inclusions (3mm) of biotite at top grading downward into quartz-biotite laminae. Homogenous biotite zone at 1402.05. Possible tuffite.	102	1401.55														
		1402.60														
1403.22-1403.25: G.L. 1395.00-1395.13	103															
1404.90-1404.95 Gauge ~ 60 to C.A.	104															
1405.21: 3cm of <1mm quartz-biotite + biotite-tinted granules, deformed (elongated) along cleavage. Some contain grains of v. fine sulphides (Pd or Py?)	105															
		1405.75 1406.90														
1407.80-1409.65: Breccia zone of fine fractures and sericite (clay mineral) matrix. Adjacent argillite alteration and local, rare (?) albification. Locally, zones of angular fragments and some cavities containing Py + quartz. Negligible stibnite, no chlorite. Probably an early brecciation. Textural effect - not much actual displacement.	107															
Dominant fabric varies between 40° & 65° to C.A. This is about 40° to bedding	108															
		1409.65 1409.89														
1410.45-1411.12: Bed tops contain zones of granules as 1399.81-1399.92. Up to 5mm. Biotite clots in some basals may be similar. Tuffite?? Occasionally the granules contain v. fine sulphides	110															
		1410.45 1410.70 1411.07 1411.37														
The argillite matrix is very striae below 1399m	112															
		1411.34														

Pyroclastic?

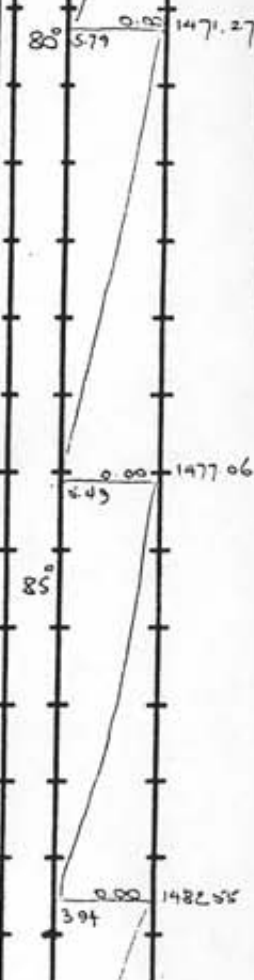
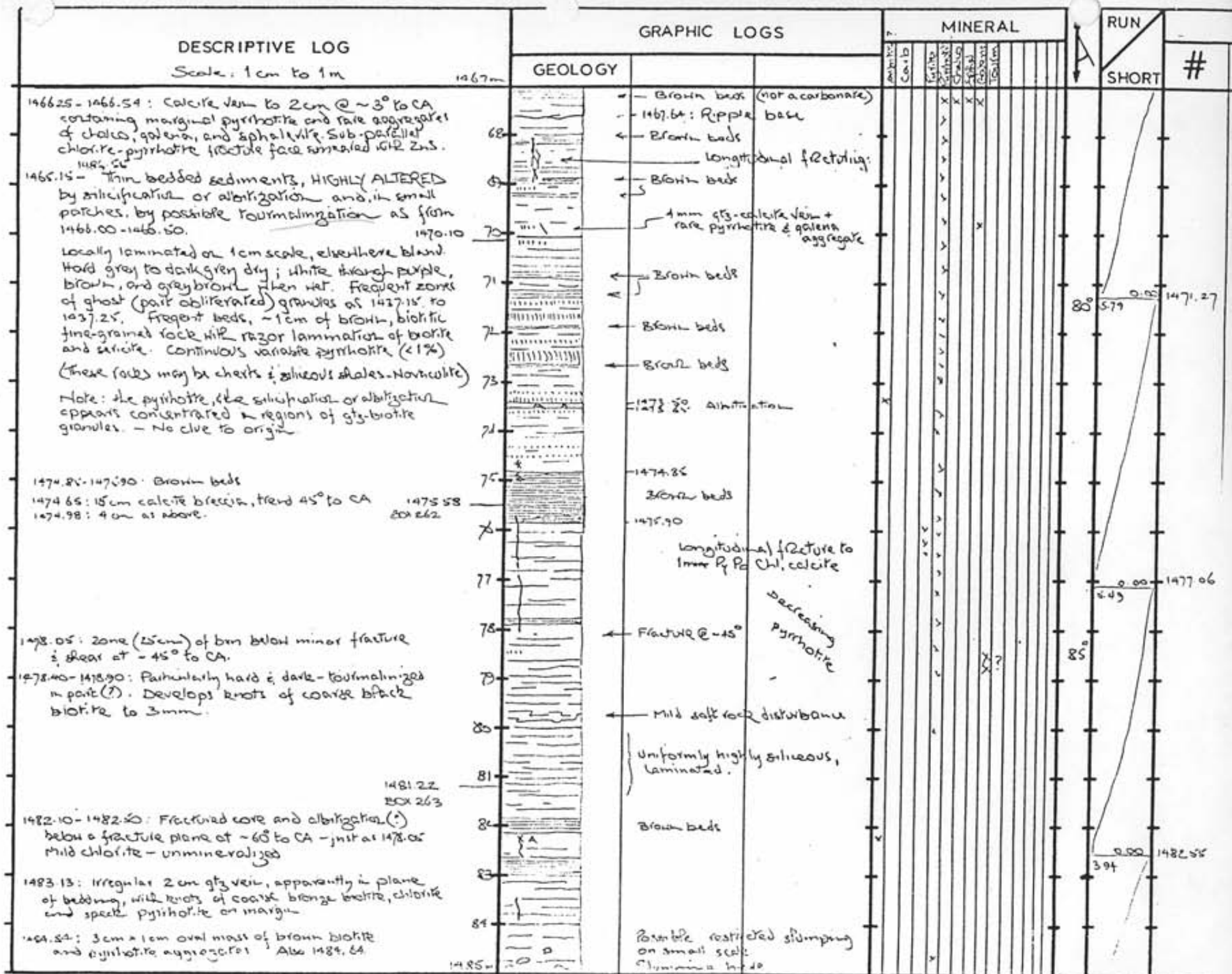
tuffite?



DESCRIPTIVE LOG	GRAPHIC LOGS		MINERAL					RUN	#
	GEOLOGY		Quartz	Calcite	Pyrite	Other	Other		
<p>Scale: 1 cm to 1 m</p> <p>1412.20-1412.33: Dune, hard, fine-grained calc. Speckles with fine quartz and coarse calcite (not calcite). 1412.30-1412.33 = the same. Possibly some tourmaline in these beds.</p> <p>Note: This is not mass slumping - rather disorganized cleep involving small thickness of beds at a time.</p> <p>1415.30: Argillic alteration penetrates upwards into overlying bed for a few mm.</p> <p>As 1412.30-1412.33</p> <p>Below 1416 m, increasing silica (or sodium) alteration may have destroyed primary features.</p>		<p>1412.30 1412.60</p> <p>Argillic alt. bed</p> <p>1415.30 1415.70</p> <p>Slumped section containing oyster-like zone</p> <p>variable low level of silica alteration or albite alteration throughout</p> <p>1418.35 Argillic alteration (?) for a coarse (2mm) speckling</p> <p>Siliceous, with dissem. by</p> <p>1419.20 1419.63</p> <p>slightly siliceous - increasing downward. May have obliterated some primary differentiation</p> <p>1420.85</p> <p>1422.52</p> <p>1423.53 : @ 63° to CA</p> <p>Medium grained gabbro, minor fine calcite veining, calcite matrix</p> <p>1425.00 : @ 61° to CA</p> <p>1425.66 Slumped or obliterated longitudinal calcite fracture set</p> <p>1426.15 1426.77</p> <p>thin siliceous, some branching-plane bands of albite</p> <p>Qtz vein</p> <p>1429.23 1429.50</p> <p>Breccia or fracture zone</p> <p>1429.70</p>	<p>Quartz</p> <p>Calcite</p> <p>Pyrite</p> <p>Other</p> <p>Other</p>	<p>70°</p> <p>77°</p> <p>80°</p>	<p>1417.60</p> <p>1423.53</p> <p>1427.70</p> <p>1430.12</p>				
<p>1423.53-1425.00 GABBRO. Medium grained, chilled margins. Upper contact: minor albification of gabbro and sediments. Lower contact: 3 cm of calcite breccia as lenticular fragments of baked sediment to 1.5 cm long then sediment baked for 15 cm. Looks like an intrusion at some shallow level in lithifying sands.</p> <p>1425.23: 2 cm calcite dislocation zone @ 62° to CA.</p> <p>1426.77-1431.55: ALBITITE (?) Aphanitic, light grey, light pinkish grey, light greenish grey. All more or less fractured frequently. Vague thin bedding-plane sutures of dark material; wavy to undulating.</p> <p>1427.10-1427.67: Quartz vein @ 43° to CA. Longitudinal fracture surfaces heavily plated with pyrite</p> <p>1429.23-1429.50: Fracture zone, intense brecciated clay (sericite)-filled. Little apparent movement.</p>									



DESCRIPTIVE LOG Scale: 1cm to 1m	GRAPHIC LOGS		MINERAL							RUN SHORT	#
	GEOLOGY		Calcite	Carb	Pyrite	Pyrrhotite	Sphalerite	Galena			
1449.12: 5mm planar gouge seam @ 45° to CA; calcite				X							
1449.50: Gouge seam @ 45° to CA.				X							
1449.54: Zone of disseminated pyrrhotite aggregates to 3mm	50	A 8x		X		X	X			75°	
1449.85 - 1449.80: Zone of fracturing & brecciation @ 45° to CA containing fine veinlets of chalcopyrite and pyrrhotite				X							
1448.07 - 1456 m: As 1437.40 - 1443.24, but without the albittization, except where noted. Variable disseminated pyrrhotite throughout.	51			X							
These rocks are medium- to fine-bedded slates varying to siliceous shales. Rare laminae, occasional bedding planes. 20% - 30% zones of quartz-biotite granules (Pisolitic texture!) - sometimes associated with the more siliceous sections	52			X		X	X				
1451.52: 3mm sp. carb vein at sketch base of Page 77. Coarse aggregates - to 3mm 30° to CA 70° to bedding	54					X	X				
1455.46: rectangular fragment containing laminae of pyrrhotite - 1.3cm x 0.3cm.	55					X				73°	
1456 m. By this point fragments are double Generally vague margins, sp. carb (< 2% of rock), oval to rhombs, up to 5cm long (any larger, and cannot be identified), free floating - matrix supported.	56					X					
1456.70 - 1456.95: Black, solid tourmalinite, pyrrhotitic.	57							X			
	58					X					
	59					X					
1459.23 BOX 259	60					X					
	61					X					
	62					X					
1462.90 - 1463.20: Partial albittization. Associated fracture face smeared with pyrite.	63	A				X	X				
1463.65 - 1463.85: Albite centered on laminated zone from 1464.00 - 1464.15. At 1463.70, 15cm of associated calcite + pyrite + pyrrhotite brecciation trending @ 30° - 40° to CA.	64	A				X	X				
	65	A				X	X				
1466.00 - 1466.50: Hard, black with brown cast when wet. Speckled with fine pyrrhotite and crystals of a non-calcite carbonate. Fairly fine laminated	66					X	X				



DESCRIPTIVE LOG

Scale: 1cm to 1m

GRAPHIC LOGS

MINERAL

RUN

GEOLOGY

SHORT

#

1485.23 - Irregular mass of quartz with one coarse (1.5mm) aggregate of sphalerite

1486.25 - Irreg. qtz vein containing clots of pale chlorite. Crosses core at high angle

1486.55 - GABBRO DYKE or SILL 1486.85 30x26x
 Fine grained green, chilled contact (upper) 2cm of biotite development in adjacent sediments. Calcite vein at contact at 60° to CA.

1cm qtz/calcite veins @ 80° to CA at 1486.67 and 1486.85. Very fine calcite veining throughout. Probable chlorite and epidote developed

1488.29 - 1488.55: Bull qtz vein containing v. coarse (4cm) aggregates of pyrrhotite and whiskers of garnet (?) bearing gabbro. Upper contact, irregular, frozen @ ~60° to CA. Lower contact a slip plane @ 50° to CA.

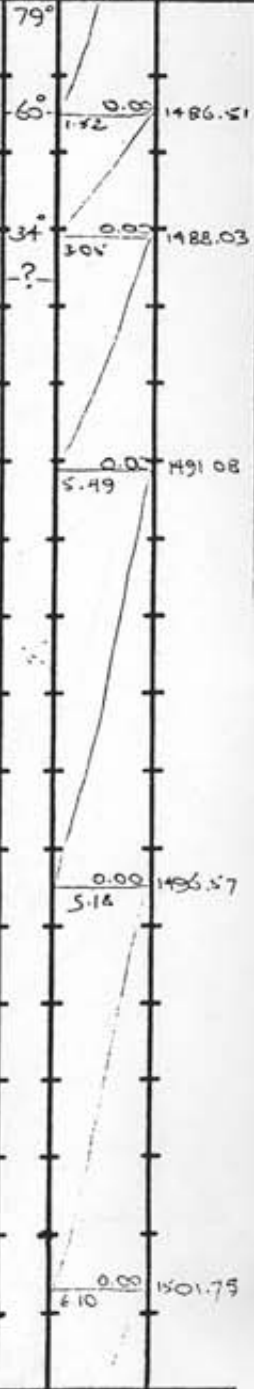
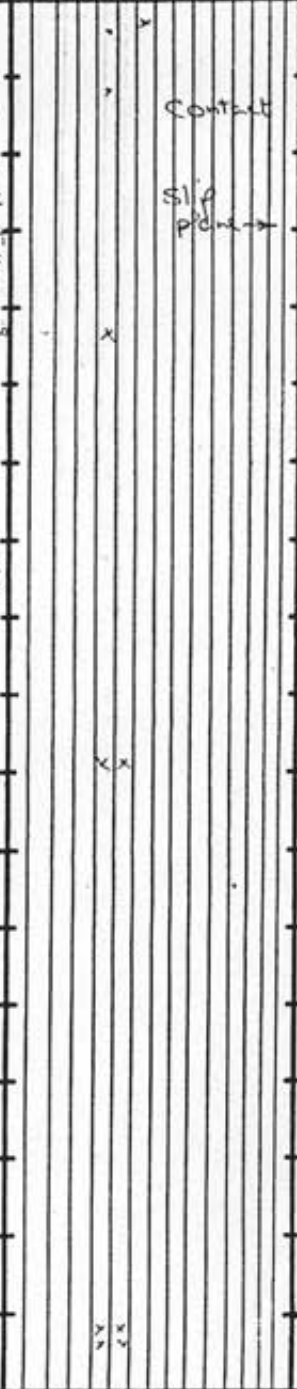
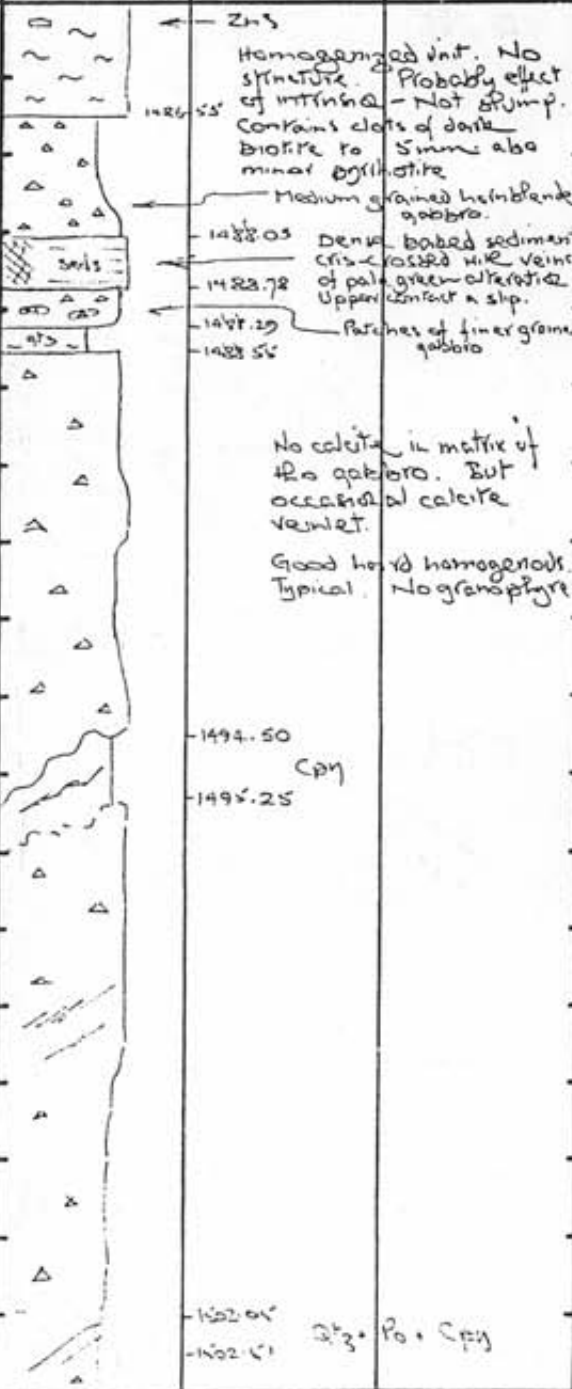
Gabbro is typically coarse grained - hornblende (1cm to 0.5cm), feldspar is interstitial, occasional brookite silicate (pyroxene?) and rare interstitial pyrrhotite. A foliation is sometimes apparent

1492.50 - 1495.25: fine grained residual of sediment. Top contact undulating @ ~25°. Contains irregular quartz-calcite mass with large (2-3cm) aggregates of pyrrhotite + chalcopyrite

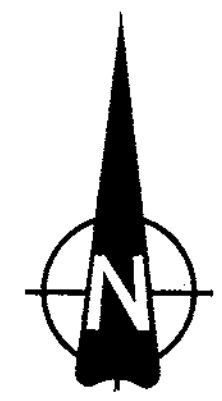
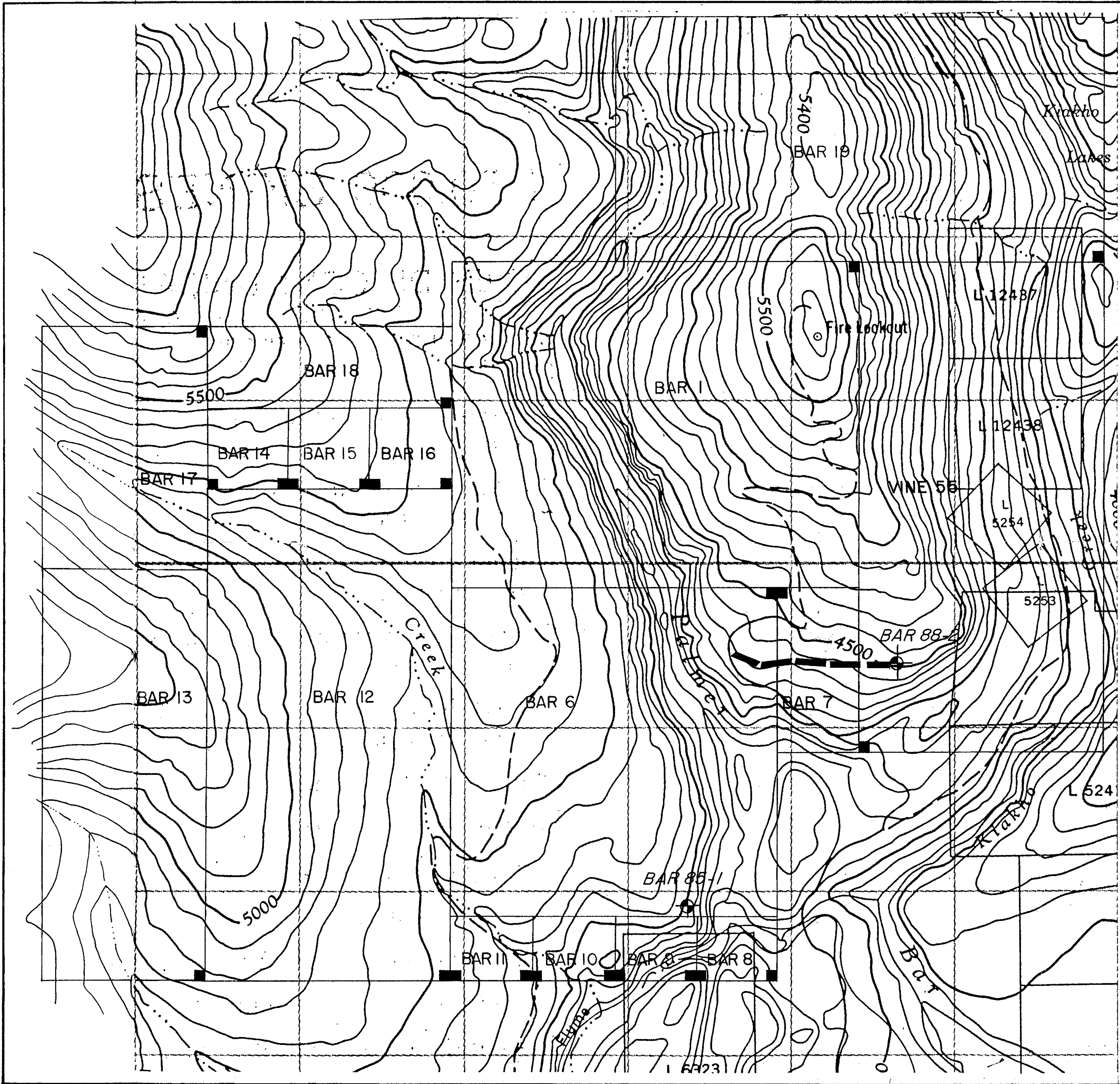
1497.30 - 1498.18: Minor zone of chloritic breccia, calcite veining @ 40° to C.A

1498.50: as above.





1502.05 - 1502.51: Quartz vein, undulating contacts @ ~25° to C.A. Marginal development of fine biotite, and locally, chlorite. Large (5-10cm) irregular aggregates of coarse pyrrhotite + chalcopyrite.

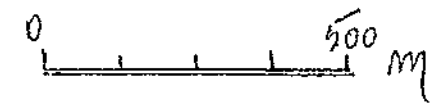


Not collected:
 Pink feldspar?



LEGEND

-  DRILL HOLE
-  NEW ROAD
-  CLAIM BOUNDARY
-  LEGAL CORNER POST



17.886

GOLDPAC INVESTMENTS LTD.

DRILL HOLE LOCATION

BAR 88-2

SCALE : 1:12,500	DATE : JAN. 1989
NTS : 82 G/5W	FIGURE : 4