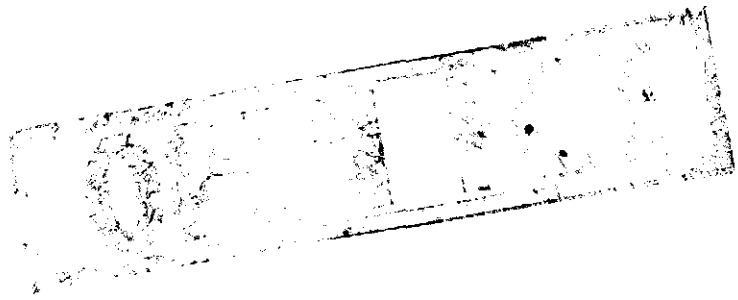

AVOCA TRANSPORT COMPANY PTY LTD
E.L. 1/84

STANHOPE AREA

FINAL REPORT

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CONTENTS

TABLES

FIGURES

AMG REFERENCE POINTS ADDED

1.0 INTRODUCTION

This report details the results of exploration carried out in the licence area around Stanhope north of Avoca. Figure 1 shows the licence area.

A small drilling and mapping programme was conducted within E.L.1/84. This programme included the drilling of one diamond drill hole in the area immediately adjacent to the abandoned NEW STANHOPE COLLIERY workings and five diamond drill holes in the area of the abandoned OLD STANHOPE COLLIERY. Other than a general inspection no other work was undertaken in the general licence area, as an examination of previous exploration results indicated that exploration efforts were better concentrated in the Stanhope Mine's area.

The locations of the holes drilled in the OLD STANHOPE area are indicated on FIGURE 2 while FIGURE 3 shows the location of the NEW STANHOPE hole. A drilling summary is presented in TABLE 1.

The information obtained from this programme is discussed in this report and incorporated with existing data where possible.

2.0 PREVIOUS EXPLORATION AND MINING

Bacon (Bacon, 1983) has documented most of the information available on the geology and mining history of the area.

2.1 Mining

Mining in the area was almost continuous from 1923 until the closure of the New Stanhope Mine in 1973. Production over this period was in the vicinity of 400,000 tonnes. Extensive faulting was always the major problem for mine management.

Mr. D. Fenton has a mining lease in the centre of the E.L. and he is presently developing a drive to the north of the Old Workings.

Old Workings

This mine was initially called the Excelsior and operated from approximately 1923 to 1937. The coal seam has been recorded as being badly faulted and banded, and mining difficult because of extensive faulting and some seam thinning. Mining in this area appears to have been restricted to a downthrown block.

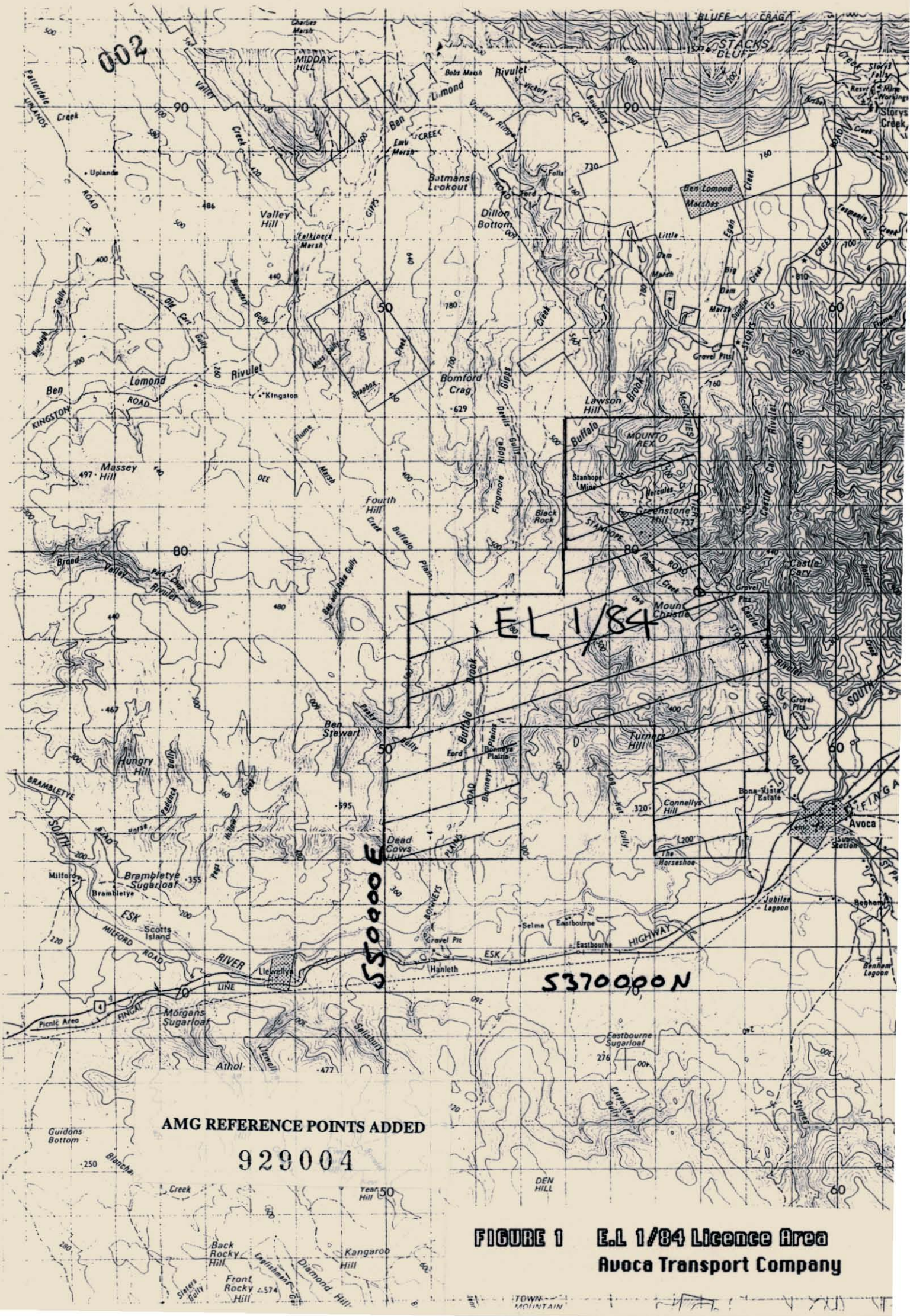

FIGURE 1 **E.L 1/84 Licence Area**
Avoca Transport Company

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929005

TABLE 1

DRILL HOLE SUMMARY

HOLE No.	EASTING	NORTHING	ELEVATION (ASL)	TOTAL DEPTH (m)	PRE-COLLAR DEPTH (m)
ATS 55	11,500'	7,400'	965'	24.0	7.8
ATS 56	10,500'	9,600'	960'	26.4	2.4
ATS 57	11,900'	7,450'	975'	11.9	1.9
ATS 58	13,100'	7,300'	1000'	15.2	1.4
ATS 59	12,800'	7,400'	990'	10.3	2.8
ATS 60	13,260'	7,400'	1013'	20.2	12.0

Mining to the south was limited by a major (20m) fault, and in the north and east other more minor faults had similar effects. These faults are shown in Fig. 1. Some pillars were extracted by surface mining in the period 1931-1939. This appeared to have occured mainly at the eastern end of the workings where the seam is still burning as a result of a bushfire in the 1960's.

Stanhope

Mining was transfered to the "New Workings" in 1937 and continued in this area until 1957. These are located east of a five metre fault, adjacent , but not connected to the Old Workings. Coal was mined mainly by bord and pillar and troubled with a large number of small faults. These often caused driving to be abandoned and pillars to be removed. The main drive shown in the Figure 2 terminated against dolerite, and further to the south-east, against a fault. In the west the ground is recorded by Hughes (Hughes, 1954) to be faulted, which probably limited development in this direction. To the east is where the major development occurred. This also appears to have been limited by faulting, and apparently terminated when drilling to the east revealed a major (22m) fault. Dip of the seam is recorded by Hughes as being to the south-west at 4 to 5^0, with a strike of about 150^0. This is of course, complicated by faulting.

Hughes in his report regarding future operations made mention of these faults, the dolerite boundary, and that most sections of the underground workings were inaccessible, apparently due to pillar removal. This was in 1954 when the Stanhope management were looking for a site for a new development. At this time operations where limited to recovering pillars from the workings. Apparently this continued for another 2 or 3 years and it can therefore be assumed that little coal remains in the form of pillars.

This is reinforced by figures quoted by Bacon. She records 175,000 tonnes being mined. The workings cover approximately 70,000 m^2, and from this a coal recovery of approximately 2.5 tonnes/ m^2 is derived. This compares with 3 tonnes/m^2 if a seam working thickness of 2.1m is assumed.
For practical purposes therefore, it is assumed that the Stanhope mine area is worked out. Drilling concentrated on identifying small areas of open cut coal at the edge of the workings.

Mount Christie

The workings on the flanks of Greenstone Hill have been collectively called the Mount Christie mine. N & D. Fenton put in a new drive in 1959, and worked the area until 1965. Total production was about 13,000 tonnes.

Fenhope

Mr. D. Fenton opened this mine in 1981, within a mine lease held in his name. It is not producing commercially, and is operated solely by Mr. Fenton. The seam is 3.1m thick with a 450mm thick dirt band in the middle.

New Stanhope

Production at this mine commenced at the end of the productive life of the Stanhope mine, in 1957. Two adits were driven and No. 1 was worked until No 2 was driven in 1963, and development was concentrated in this area. Complex geology (presumably faulting) and finally roof falls after some pillar extraction caused the abandonment of this area in 1971. Mining was then recommenced in the No. 1 adit where pillars were extracted until the closure of the mine in 1973. The coal seam was recorded by Bacon as 2.1m thick, and total production for the mine life of approximately 220,000 tonnes. No dips were mentioned by Bacon, but Mines Department drawings (Drg. 3549-48) indicate a dip of almost 5^0 to the north.
The underground workings cover an area of approximately 110,000 m^2, which give a production figure of 2 tonnes/m^2 . The No. 1 adit area for practical purposes can be regarded as being worked out. However, there does appear to be some coal left in the No.2 adit area in the form of pillars. A drill hole was put down in this area.

2.2 Drilling

The Stanhope management diamond drilled in the vicinity of the Stanhope and New Stanhope workings. The reliability of some previous data, particularly the locations of some of the STANHOPE MINE MANAGEMENT drill holes is questionable (BACON , 1983/22) and consequently is only referred to sparingly.

3.0 EXPLORATION

3.1 OLD STANHOPE MINE AREA

Five drill holes were completed in the Old Stanhope Mine area in the 1986 exploration programme. These were holes **ATS 55** and **ATS 57** to **60**. Four holes, **ATS 51** to **54**, had previously been drilled in the area by AVOCA TRANSPORT. Holes **ATS 51** and **ATS 60** were drilled on the same site as it was thought that the initial hole had not been drilled deep enough to intersect the Stanhope seam. FIGURE 4 presents a correlation of the holes drilled to date.

Drill hole **ATS 55**, the westernmost hole drilled in this area, was terminated at 24m in a weathered sandstone. Considerable core loss occured in this hole and it is now thought it is located on the western side of a fault which is upthrown to the south west. Consequently **ATS 55** commenced below the Stanhope seam. This postulated fault is probably an extension of the fault which prevented the southern progress of the eastern workings of the OLD STANHOPE MINE.

Drill hole **ATS 57**, located approximately 120m east of **ATS 55**, intersected a 2.7m Stanhope seam at 7.2m. The roof sediments are composed of medium grained massive sandstone which has an erosional lower contact with the coal seam in this hole. The correlation presented in FIGURE 4 indicates as much as 25 cm may have been eroded from the seam by the overlying sandstone.

Holes **ATS 58** and **ATS 59** were located within the area of the initial Old Stanhope Mine workings. **ATS 59** actually broke into the old workings at a depth of 10.3m while **ATS 58** appears to have intersected a pillar in the workings. The seam in this hole was intersected at 9.7m and contained a 0.25m mudstone band within the 3.7m section.

Hole **ATS 60**, located north of the old workings, intersected what appears to be the burnt remnants of the Stanhope seam at 16.3m. the burnt coal area appears extensive as the previously drilled **ATS 54**, located approximately 300m to the south east, also intersected burnt coal. Smoke whisps can still be seen in the area of the eastern workings near **ATS 54** indicating the coal is still burning.

Hole **ATS 52**, drilled as part of the early 1985 AVOCA TRANSPORT programme was terminated in the top of the Stanhope seam,

intersected at 21.39m. The seam contains a 1.0m band which probably represents a thickening of the top band in **ATS 58** to the north. **ATS 53** was drilled outside of the seam subcrop.

3.2 NEW STANHOPE MINE AREA.

Only one fully cored hole was drilled in the area of the abandoned NEW STANHOPE MINE. This hole, **ATS 56**, was drilled immediately to the south east of the old workings . Signs of subsidence from the collapsed workings could be seen less than 20m from the drill site.

ATS 56 commenced in thick dolerite scree (12.1m) which contained boulders up to 70cm thick. It was necessary to core this unit as drill progress using a roller bit was extremely slow due to the hardness of the dolerite. The Stanhope seam was intersected at 20.43m. The seam roof was a thick, competent coarse to madium grained sandstone which appears to have eroded the top of the seam.

The Stanhope seam at this location is comprised of two coal plies of 2.61m and 1.06m separated by a 0.25m thick mudstone band which appears bentonitic and if mined would produce some problems in a coal preparation plant. The basal coal ply contained a high percentage of shaly coal and will probably be much higher in ash content than the thicker top ply.

The top coal ply contained three thin claystone bands which could be correlated with bands in the seam in the Old Stanhope mine area. This correlation is presented in FIGURE 5.

Previous holes drilled in the area by Stanhope Mine Management recorded seam thicknesses of between 1.63m and 2.58m. Such variation in a very localised area is unusual and may only be the result of the incorrect location of the drill holes (Bacon). Other reasons for the variation could be the the effects of the sandstone channel eroding portion of the seam and the disappearance of the basal coal ply.

4.0 RESOURCE AND MINING POTENTIAL

The geology of the area is complicated. The proximity to the Castle Carey Fault has resulted in a large number of smaller associated faults across the area, some of these have been intersected in the mine workings . Jurassic dolerite has also intruded the coal sequence and

caps most of the more elevated areas.

Mining potential in the OLD STANHOPE MINE area is probably restricted to an area bounded in the west by the postulated fault and containing drill holes **ATS 57** and **ATS 52**. Additional reserves could probably be gained by recovering pillars left in the initial workings of the Old Stanhope mine. The Department of Mines drawing 3549-48 indicates pillars were not extracted in these workings. However, Bacon reports that pillars were mined by open cut methods in the period 1931 - 1939 and this will reduce the reserves available for future extraction. The area of burning coal will restrict potential in the north and east.

There appears to be little potential in the NEW STANHOPE MINE area for significant quantities of shallow open cut coal. A significant percentage of pillars have been extracted in the abandoned workings. This, coupled with the rapid increase in overburden due to topography changes and seam dip will extremely limit the reserves available for future open cut extraction in the area.

No attempt has been made to estimate reserves in the area. Insufficient, and in some cases unreliable data for the area, does not allow prediction of trends in seam geology and geometry at this stage. It is generally felt that any surface mining potential is limited to small areas around the abandoned mine workings. Additional investigation is required to better assess the seam trends and structure, which given the degree of faulting and seam variability, could have a significant impact on mineability. Further delineation of the area of burnt coal is also required.

Further exploration in the balance of the EL is not warranted on existing information, as significant potential shallow open cut coal resource is unlikely.

5.0 REFERENCES

Bacon, C. A., 1983. The Mount Christie- Stanhope Coalfield. Department of Mines Tasmania Report 1983/22.

Hughes,T.D., 1954. Future Operations At Stanhope Colliery. Department of Mines Unpublished Reports, 1954.

009

929011

BOREHOLE LITHOLOGICAL DESCRIPTION

EL2/82 STANHOPE

D.D.H. 51

HOLE TYPE	:	CORE
GRID	:	MINES DEPT. 3549-48
EASTING	:	~(13260 FEET) 4042 METRES
NORTHING	:	~(7400 FEET) 2255 METRES
ELEVATION A.S.L.	:	~1013 FEET 309 METRES
TOTAL DEPTH DRILLED	:	13.2 METRES
DRILLING STARTED	:	15/4/85
DRILLING TIME	:	1 DAY
CORE SIZE	:	NQ 44mm
LENGTH CASED	:	3 METRES
INITIAL WATER LEVEL	:	1.5 METRES
DRILLING FLUID	:	WATER
DRILLING CONTRACTOR	:	STACKPOOLE
LITHOLOGICAL DESCRIPTION BY	:	SARGEANT
INFORMATION AVAILABLE	:	LITHOLOGICAL LOGS.
STATUS	:	HOLE LOOSELY FILLED.

010

929012

BOREHOLE 51

DEPTH TO BASE M	THICK-NESS M	REC %	SAMPLE NUMBER	ROCK TYPE	AGE	GEOLOGICAL DESCRIPTION
0.30	0.30	0		100% Soil	Recent	
1.65	1.35	10		100% Clay	"	Grey and brown, stiff.
1.75	0.10	90		100% Sandstone	Trias-sic	Lithic, brown, very weak rock, highly weathered, fragmented.
2.60	0.85	60		100% Sandstone	"	Lithic, medium grained, grey-brown, very weak, rock, highly fragmented, fractures infilled with clay, in "open-cut" 60 metres south west rare pebbles and cobbles show this rock to be conglomeratic.
2.70	0.10	100		100% Clay	"	Brown, stiff.
2.90	0.20	100		60% Sandstone 40% Mudstone.	"	Lithic, medium grained grey-brown. Grey, very weak rock, base of weathering.
4.90	2.00	100		100% Sandstone	"	Lithic, coarse grained, grey-brown, very weak rock, with mud pellets that are typically flat - 10-20 mm along long axis and 2 - 5 mm thick, bedding dip 15^0.
6.60	1.70	100		100% Sandstone	"	Lithic, coarse grained, light grey, very weak rock, bedding dips 8^0 - 23^0. Calcite cemented fractures typically 1 mm width and occurring at 500 mm intervals. Fault at 6.70 metres at 30^0 to core axis, 170 mm thick and filled with clay, carbonaceous mudstone and coal traces.
6.90	0.30	100		98% Sandstone 2% Coal	"	Lithic, light grey. Black bands, very weak rock, bedding dip 26^0.
8.20	1.30	100		100% Sandstone	"	Lithic, coarse grained light grey, bedding dip 10^0.
8.60	0.40	100		98% Sandstone 2% Coal	"	Lithic, coarse grained light grey. Sooty, black, weak rock with carbonaceous wisps, bedding dip 10^0 - 22^0, calcite cemented fractures typically 1mm width at about 500mm intervals.
9.21	0.61	100		100% Sandstone	"	Lithic, coarse grained coaly traces, light grey, moderately weak rock, with mud pellets bedding dip 0^0- 10^0 .

BOREHOLE 51

DEPTH TO BASE M	THICK-NESS M	REC %	SAMPLE NUMBER	ROCK TYPE	AGE	GEOLOGICAL DESCRIPTION
(Cont'd)						
9.32	0.11	100		100% Carbonaceous mudstone.	Trias-sic	Slickensided, dark brown.
13.30	3.98	100		100% Sandstone	"	Lithic, medium grained calcareous partings 1 mm in width at about 300 mm intervals, light grey. This hole was stopped because it was concluded that there was a fault with a throw of at least 5m between it and the nearest workings which are on the down-thrown block.

012

929014

BOREHOLE LITHOLOGICAL DESCRIPTION

EL 2/82 STANHOPE

D.D.H. 52

HOLE TYPE	:	CORE
GRID	:	MINES DEPT. 3549-48
EASTING	:	~ (12275 FEET) 3740 METRES
NORTHING	:	~ (7330 FEET) 2234 METRES
ELEVATION A.S.L.	:	~ (1030 FEET) 314 METRES
TOTAL DEPTH DRILLED	:	23.70 METRES
DRILLING STARTED	:	16/4/1985
DRILLING TIME	:	1 DAY
CORE SIZE	:	NQ 44mm.
LENGTH CASED	:	3 METRES
INITIAL WATER LEVEL	:	1.50 METRES
DRILLING FLUID	:	WATER
DRILLING CONTRACTOR	:	STACKPOOLE
LITHOLOGICAL DESCRIPTION BY	:	SARGEANT
INFORMATION AVAILABLE	:	LITHOLOGICAL LOGS. ANALYSES.
STATUS	:	HOLE LOOSELY FILLED

013

BOREHOLE LITHOLOGICAL DESCRIPTION

EL2/82 STANHOPE

D.D.H. 53

HOLE TYPE	:	CORE
GRID	:	MINES DEPT. 3549- 48
EASTING	:	~ (13270 FEET) 4045 METRES
NORTHING	:	~ (6705 FEET) 2046 METRES
ELEVATION A.S.L.	:	~ (995 FEET) 303 METRES
TOTAL DEPTH DRILLED	:	8.00 METRES
DRILLING STARTED	:	17/4/85
DRILLING TIME	:	1 DAY
CORE SITE	:	NQ 44mm
LENGTH CASED	:	3 METRES
INITIAL WATER LEVEL	:	2.0 METRES
DRILLING FLUID	:	WATER
DRILLING CONTRACTOR	:	STACKPOOLE
LITHOLOGICAL DESCRIPTION BY	:	SARGEANT
INFORMATION AVAILABLE	:	LITHOLOGICAL LOGS.
STATUS	:	HOLE LOOSELY FILLED.

DEPTH TO BASE M	THICK-NESS M	REC %	SAMPLE NUMBER	ROCK TYPE	AGE	GEOLOGICAL DESCRIPTION
3.00	3.00	0		Soil	Recent	
3.50	0.50	100		100% Sandstone	Trias-sic	Lithic, medium grained, grey-brown, weak rock, highly weath-ered.
4.80	1.30	40		100% Sandstone	"	Lithic, medium grained, grey-brown,very weak rock, moderately weathered, basal contact abrupt dipping 13°.
5.26	0.46	100		100% Sandstone	"	Lithic, medium grained, grey-brown, moderately weak rock, base of weathering.
5.27	0.01	100		100% Carbonaceous mudstone	"	Black, moderately weak rock, very thinly bedded, dip 7°.
5.43	0.16	100		90% Clay 10% Carbonaceous mudstone.	"	Kaolinitic, cream firm.
6.40	0.97	100		95% Carbonaceous mudstone. 5% Coal	"	Earthy, black, very weak rock. Dull, with few bright bands, black, very weak rock.
6.72	0.32	100		100% Mudstone	"	Coaly traces, grey, very weak rock, dip 7°-10°.
6.73	0.01	100		100% Coal	"	Bright, black, very weak rock.
6.81	0.08	100		100% Mudstone	"	Coaly traces, grey, very weak rock.
6.90	0.09	100		100% Carbonaceous mudstone	"	Brown-black.
7.03	0.13	100		100% Mudstone	"	Grey.
7.07	0.04	100		100% Coal	"	Sooty, black.
7.70	0.63	100		50% Carbonaceous mudstone 30% Coal 20% Mudstone	"	Black. Dull with few bright bands. Grey, dip 9°-13°.
8.45	0.75	100	ST1	80% Coal 20% Carbonaceous mudstone	" "	Dull with few bright bands. Black.
9.68	1.23	100		100% Mudstone	"	Coaly traces, grey, very weak rock dip 5°. Fracture slickensided at

015

BOREHOLE 52

929017

DEPTH TO BASE M	THICK-NESS M	REC %	SAMPLE NUMBER	ROCK TYPE	AGE	GEOLOGICAL DESCRIPTION
(cont'd) 9.68	1.23	100		100% Mudstone	Trias-sic	9.70m on fracture. Dip 40°.
10.40	0.72	100		100% Mudstone	"	Grey, weak rock. Dip 3°-6°.
12.69	2.29	100		100% Mudstone	"	Grey, weak rock, basal contact abrupt, thinly laminated, dip 8°-11°.
18.20	5.51	100		100% Sandstone	"	Lithic, medium grained, coaly traces, light grey, moderately weak rock, massive, carbonaceous wisps at 15.00.
18.88	0.68	100		100% Sandstone	"	Lithic, fine grained carbonaceous wisps, mud pellets 16.20-16.30 fragmented, very weak rock.
19.90	1.02	100		100% Sandstone	"	Lithic, fine grained, carbon-aceous wisps, light grey, moderat-ly weak rock, bright cleated coal at 19.18, dip 15°.
20.36	0.46	100		100% Sandstone	"	Lithic, medium grained, light grey.
21.30	0.94	15		100% Mudstone	"	Grey, very weak rock, dip 8°, cross bedded.
21.39	0.09	100		100% Clay	"	Cream, firm.
22.40	1.01	100	ST2	90% Coal 10% Mudstone	"	Dull, black. Stanhope seam, upper ply. Clayey, grey, moderately weak rock, dip 9°, calcite filled fractures at 21.65m.
23.40	1.00	40		100% Sand		Coaly fragments, black. Could be (affected by) old workings.
23.70	8.30	100		100% Coal		Dull, few bright bands, black. Top of Stanhope seam bottom ply. Hole stopped in coal. Seam located testing not required.

016 BOREHOLE 53

929018

DEPTH TO BASE M	THICK-NESS M	REC %	SAMPLE NUMBER	ROCK TYPE	AGE	GEOLOGICAL DESCRIPTION
2.00	2.00	0		Soil	Recent	
3.10	1.10	70		60% Sandstone	Trias-sic	Lithic, fine grained, grey-brown, weak rock, very weathered.
				40% Mudstone	"	Grey-brown.
5.10	2.00	10		100% Sandstone	"	Lithic, weak rock, completely weathered, dip 3^0-5^0.
6.10	1.00	95		100% Sandstone	"	Lithic, medium grained, grey-brown, very weathered, calcite in fractures, vertical fracture 5.30 to 5.90 clay filled.
7.40	1.30	5		100% Sandstone	"	Lithic, completely weathered.
8.00	0.60	95		100% Sandstone	"	Lithic, fine grained, grey-brown, moderately weak rock, very weathered, dip 0^0-4^0 calcite in fractures, hole stopped subcrop probably at a higher elevation.

BOREHOLE LITHOLOGICAL DESCRIPTION

EL2/82 STANHOPE

D.D.H. 54

HOLE TYPE	:	CORE
GRID	:	MINES DEPT. 3549-48
EASTING	:	~ (13220 FEET) 4030 METRES
NORTHING	:	~ (6530 FEET) 1990 METRES
ELEVATION	:	~ (1020 FEET) 311 METRES
TOTAL DEPTH DRILLED	:	18.0 METRES
DRILLING STARTED	:	18/4/85
DRILLING TIME	:	1 DAY
CORE SIZE	:	NQ. 44 mm
LENGTH CASED	:	2.5 METRES
INITIAL WATER LEVEL	:	1.0 METRES
DRILLING FLUID	:	WATER
DRILLING CONTRACTOR	:	STACKPOOLE
LITHOLOGICAL DESCRIPTION	:	SARGEANT
INFORMATION AVAILABLE	:	LITHOLOGICAL LOGS.
STATUS	:	HOLE LOOSELY FILLED

018 BOREHOLE 54

929020

DEPTH TO BASE M	THICK-NESS M	REC %	SAMPLE NUMBER	ROCK TYPE	AGE	GEOLOGICAL DESCRIPTION
2.40	2.40	0		50% Soil 50% Sandstone	Recent Trias-sic	Lithic, completely weathered, pyrite traces.
6.30	3.90	95		60% Sandstone 40% Sandstone	"	Lithic, fine grained, grey-brown. Lithic, medium grained, grey-brown very weathered, faulted 2.8 to 3.3 metres with clay infilling 10mm thick, fault dip 85^0 to 90^0, (fault could be due to subsidence) weak rock.
8.10	1.80	70		60% Sandstone 40% Sandstone	"	Lithic, fine grained, grey-brown. Lithic, medium grained, grey-brown moderately weathered.
9.43	1.33	70		70% Mudstone 30% Carbonaceous mudstone	"	Yellow-brown. Black, very weak rock, highly weathered.
9.79	0.36	100		100% Coal	"	Sooty black, highly weathered.
9.81	0.02	100		100% Clay	"	Cream, firm.
9.83	0.02	100		50% Coal 50% Carbonaceous mudstone	"	Sooty black, highly weathered. Black.
10.13	0.30	0		50% Coal (?) 50% Mudstone	"	Probably burnt coal. Note: only 65 metres to the west is a partly collapsed air shaft from which smoke wisps are currently issuing. It is concluded that this section probably represents the burnt and subsided remnants of the Stanhope seam.
10.15	0.02	100		100% Coal	"	Dull with numerous bright bands, black.
10.88	0.73	100		80% Mudstone 20% Sandstone	"	Grey. Lithic, fine grained, very weak rock.
11.60	0.72	100		80% Sandstone 20% Carbonaceous mudstone	"	Lithic, grey. Black, very weak rock, thinly laminated spacing less than 6mm, dip 0^0 to 10^0.
16.60	5.00	100		100% Sandstone	Trias-sic	Lithic, fine grained, light grey, very weak rock.

019

BOREHOLE 54

929021

DEPTH TO BASE M	THICK-NESS M	REC %	SAMPLE NUMBER	ROCK TYPE	AGE	GEOLOGICAL DESCRIPTION
16.75	0.15	100		80% Sandstone 20% Coal	Trias-sic	Lithic, fine grained, light grey, moderately weak rock. Black.
16.85	0.11	100		100% Sandstone	"	Lithic, fine grained, coaly traces, light grey, moderately weak rock.
17.00	0.14	100		90% Sandstone		Lithic, medium grained, light grey, with mud pellets, dip 30^{0}. Moderately weak rock.
17.28	0.28	100		100% Mudstone		Grey, moderately weak rock, dip 0^{0}.
18.00	0.72	100		100% Sandstone		Lithic, medium grained, light grey, with carbonaceous w isps. NOTE: Hole was stopped because it was concluded there was no open-cut coal between here and the old workings to the west.

020

929022

D.NELSON & ASSOCIATES PTY LTD
Mining & Geological Consultants

LITHOLOGICAL BORELOG

PROJECT: STANHOPE **CLIENT:** AVOCA TRANSPORT **PAGE:** 1

HOLE No.	CORE:	E	N	RL:
ATS 55	NQ	11,500	7,400	965

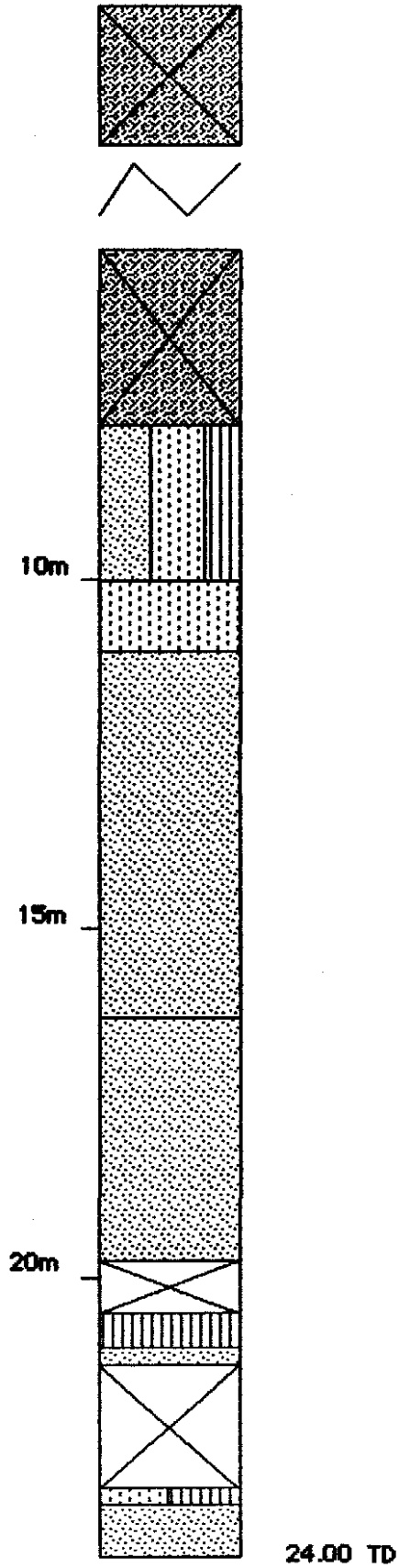
DRILLER: STACPOOLE **DATE DRILLED:** 24/6/86 - 25/6/86

FORM/ SEAM	SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
		7.80	7.80	Open Holed - Dolerite and Clay Scree.
		10.00	2.20	Sandstone, Siltstone and Clay - yellow/brown; badly broken andfaseef
				faulted, 60% core recovery, vertical iron stained joints.
		11.05	1.05	Siltstone - light brown, weathered, faulted, 80% core recovery.
		11.50	0.45	Sandstone - brown, coarse grained, massive, lithic, firm.
		11.90	0.40	Lost core.
		12.00	0.10	Sandstone - brown, fine to medium grained.
		12.75	0.75	Sandstone and Clay intermixed - broken and faulted, 60% core
				recovery.
		12.97	0.22	Sandstone - grey/brown, coarse grained, massive, firm.
		13.12	0.15	Sandstone and Clay intermixed - broken.
		15.45	2.33	Sandstone - light brown, coarse to medium grained, massive,
				firm, lithic.
		15.88	0.43	Sandstone - brown/grey, fine grained 20% bedding, carbonaceous
				threads along bedding planes, soft.
		16.24	0.36	Sandstone - brown, fine to medium grained, generally massive,
				soft.
		16.34	0.10	Clay - brown, sandy.
		16.44	0.10	Sandstone - grey/brown, medium grained, soft and clayey,
				20% bedding.
		19.80	3.36	Sandstone - brown, medium grained, massive, firm, 60% joints
				occasional fine grained horizons.
		20.50	0.70	Lost core.
		20.90	0.40	Clay - brown, soft.
		21.20	0.30	Sandstone - brown, medium grained, soft.
		23.00	1.80	Lost core.
		23.25	0.25	Siltstone and Clay intermixed - broken and faulted?
		24.00	0.75	Sandstone - brown, medium to coarse grained, 60% joints, soft.
				TD

Signed _____ Geologist.

021

STANHOPE DRILL HOLE ATS 55



SCALE 1:100

5 cm

022

D.NELSON & ASSOCIATES PTY LTD
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LITHOLOGICAL BORELOG

PROJECT: STANHOPE **CLIENT:** AVOCA TRANSPORT **PAGE:** 1

HOLE No.	CORE:	E	N	RL:
ATS 56		10,500'	9,600'	960'

DRILLER: **DATE DRILLED:** 25/6/86

FORM/ SEAM		SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
			2.40	2.40	Open hole - Dolerite Scree.
			12.10	9.70	Dolerite and Clay - Dolerite boulders up to 70 cm, core recovery about 50%. Clay washed.
			13.10	1.00	Lost core.
			13.40	0.30	Clay and Mudstone intermixed - badly broken, old soil horizon.
			13.50	0.10	Mudstone - light brown, broken.
			15.10	1.60	Sandstone - grey/brown, coarse grained, medium at top, massive, 60 degree joint.
			16.02	0.92	Sandstone - light grey, medium to coarse grained, carbonaceous threads throughout, sub-horizontally bedded, lithic.
			16.82	0.80	Sandstone - light grey, medium to coarse grained, massive, lithic.
			16.92	0.10	Sandstone - light grey, coarse grained, coaly threads and inclusions throughout.
			17.02	0.10	Conglomerate - light grey, chert pebbles.
			17.62	0.60	Sandstone - grey/brown, coarse grained, 60 degree high angle joint at top, iron stained.
			18.35	0.73	Sandstone - light grey, medium grained, coarse at base.
			20.43	2.08	Sandstone - light grey, medium to coarse grained, irregular coal threads and inclusions throughout, erosional lower contact.
ST	1	ST002	20.70	0.27	Coal - banded.
ST	1	ST002	20.85	0.15	Coal - dull with minor bright bands.
ST	1	ST002	21.00	0.15	Coal - banded.
ST	1	ST002	21.06	0.06	Coal - banded dull.
ST	1	ST002	21.12	0.06	Coal - banded.
ST	1	ST002	21.14	0.02	Claystone - carbonaceous threads throughout.
ST	1	ST002	21.36	0.22	Coal - dull and banded dull, broken.
ST	1	ST002	21.42	0.06	Claystone - light brown, soft.
ST	1	ST002	21.67	0.25	Coal - dull and banded dull, broken.

Signed _____ Geologist.

023

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LITHOLOGICAL BORELOG

PROJECT: STANHOPE CLIENT: AVOCA TRANSPORT PAGE: 2

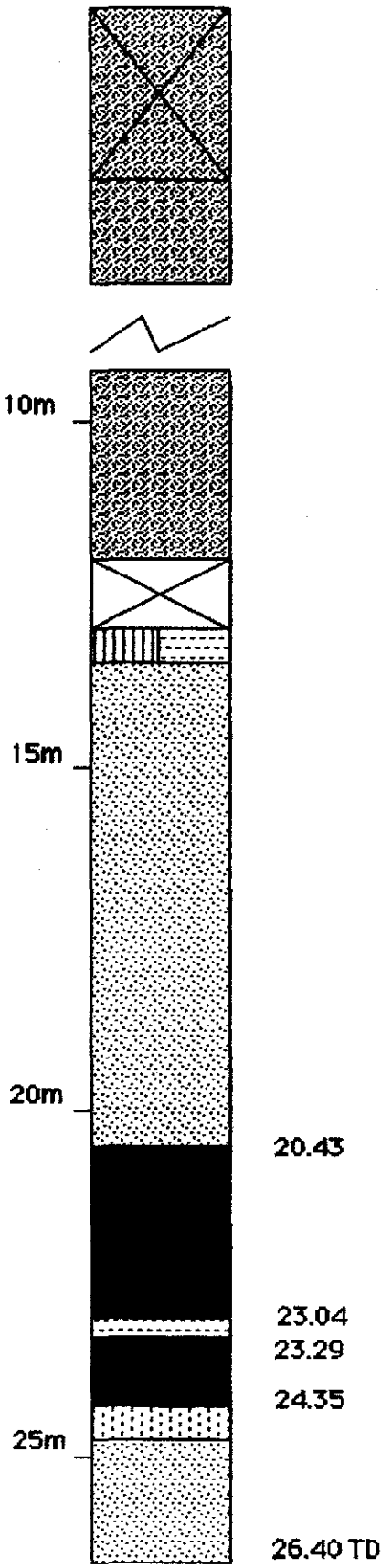
HOLE No.	CORE:	E	N	RL:
ATS 56	NQ	10,500'	9,600'	

DRILLER: DATE DRILLED: 25/6/86

FORM/ SEAM		SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
ST	1	ST002	21.69	0.02	Claystone.
ST	1	ST002	21.79	0.10	Coal - banded.
ST	1	ST002	21.91	0.12	Coal - dull)
ST	1	ST002	21.97	0.06	Coal - bedded) 5 degree dip.
ST	1	ST002	22.03	0.06	Coal - dull)
ST	1	ST002			Penny band, irregular.
ST	1	ST002	22.19	0.16	Coal - dull with minor bright bands.
ST	1	ST002	22.24	0.05	Coal - banded , dull.
ST	1	ST002	22.39	0.15	Coal - dull with minor bright bands.
ST	1	ST002	22.41	0.02	Claystone - light brown, carbonaceous threads.
ST	1	ST002	22.44	0.03	Coal - banded.
ST	1	ST002	22.58	0.14	Coal - dull with minor bright bands.
ST	1	ST002	22.63	0.05	Coal - banded, dull.
ST	1	ST002	22.80	0.17	Coal - dull.
ST	1	ST002	22.95	0.15	Coal - banded, dull with minor bright bands.
ST	1	ST002	22.98	0.03	Carbonaceous Mudstone.
ST	1	ST002	23.04	0.06	Shaly Coal.
ST	1		23.29	0.25	Mudstone - grey/green, soft broken.
ST	1	ST003	23.40	0.11	Coal - dull.
ST	1	ST003	23.63	0.23	Shaly Coal.
ST	1	ST003	23.64	0.01	Mudstone.
ST	1	ST003	23.66	0.02	Coal - dull.
ST	1	ST003	23.69	0.03	Carbonaceous Mudstone.
ST	1	ST003	23.79	0.10	Shaly Coal.
ST	1	ST003	23.94	0.15	Carbonaceous Mudstone - shaly Coal - broken.
ST	1	ST003	24.00	0.06	Carbonaceous Mudstone.
ST	1	ST003	24.30	0.30	Coal and shaly Coal - broken.
ST	1	ST003	24.35	0.05	Carbonaceous Mudstone.
			24.60	0.25	Siltstone - Carbonaceous - soft, mid-brown, 50 degree

Signed Geologist.

STANHOPE DRILL HOLE AT 56



SCALE 1:100

5 cm

025

929027

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LITHOLOGICAL BORELOG

PROJECT: STANHOPE **CLIENT:** AVOCA TRANSPORT **PAGE:** 3

HOLE No. ATS 56	CORE:	E 10,500'	N 9,600'	RL:

DRILLER: STACPOOLE	DATE DRILLED: 25/6/86

FORM/ SEAM	SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
				sheer zone at base.
		24.66	0.06	Siltstone - brown, grades into fine sandstone at base.
		25.21	0.55	Sandstone - light brown, fine grained, soft, broken.
		26.40	1.19	Sandstone - light brown, medium tocoarse grained, soft.
				80% recovery.
				TD

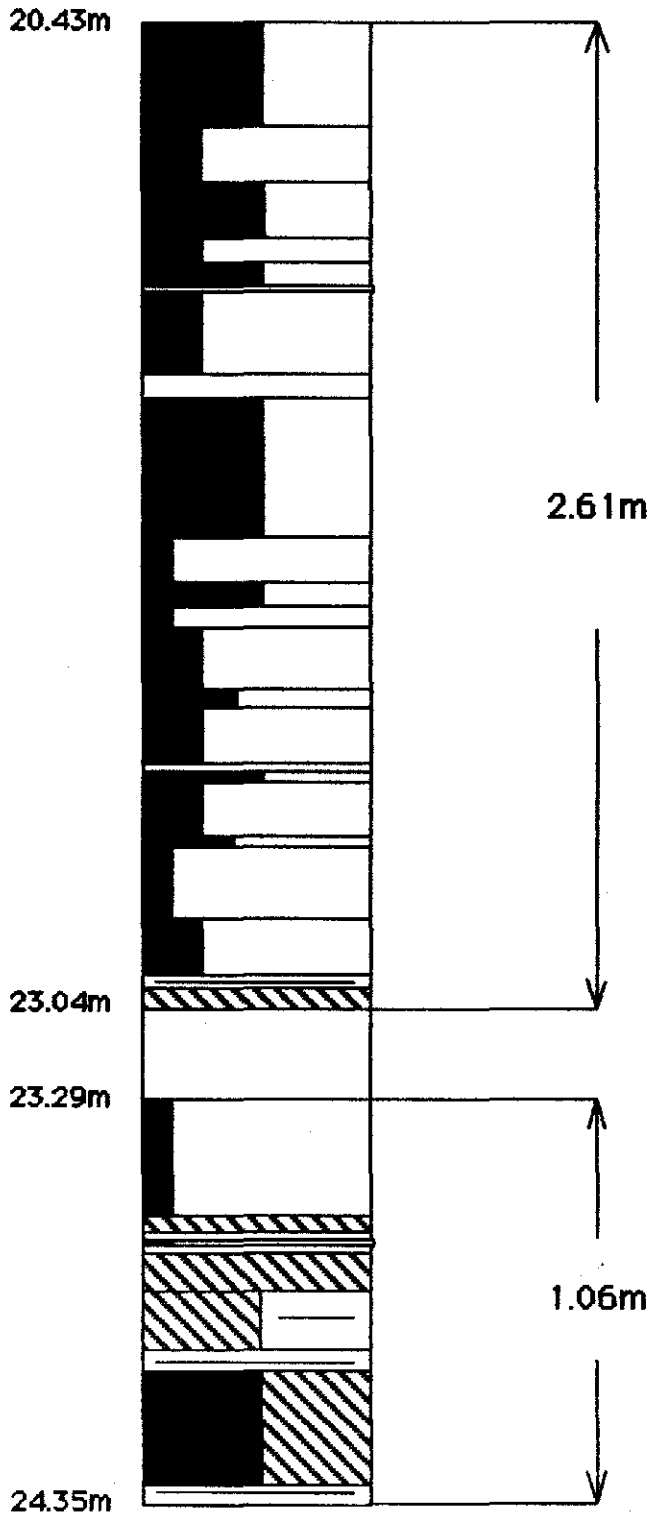
Signed _____ Geologist.

026

929028

STANHOPE ATS 56

DETAILED COAL LOG



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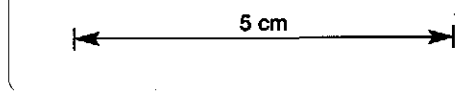

027

929029

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LITHOLOGICAL BOREHOLE

PROJECT: STANHOPE **CLIENT:** AVOCA TRANSPORT **PAGE:** 1

HOLE No.	CORE:	E	N	RL:
ATS 57	NQ	11,900'	7,450'	975'

DRILLER: STACPOOLE **DATE DRILLED:** 27/6/86

FORM/ SEAM		SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
			1.90	1.90	Open Holed - Mudstone.
			1.92	0.02	Smutty Coal.
			2.07	0.15	Mudstone - green/grey, weathered, broken.
			2.40	0.33	Lost Core.
			5.20	2.80	Sandstone - brown, fine to medium grained, clayey, soft,
					massive.
			6.00	0.80	Sandstone - brown, medium grained, irregular coaly threads
					and inclusions throughout clayey., 30cm core loss.
			7.00	1.00	Sandstone - brown, medium grained, massive, 60 degree joint
					at top, clayey.
			7.20	0.20	Sandstone - grey, medium grained, massive, clayey, erosional
					lower contact.
ST	1	ST004	7.40	0.20	Coal - banded and dull, broken.
ST	1	ST004	7.42	0.02	Claystone.
ST	1	ST004	7.72	0.30	Coal - dull to banded dull, broken.
ST	1	ST004	7.78	0.06	Shaly Coal.
ST	1	ST004	7.79	0.01	Coal - dull.
ST	1	ST004	7.86	0.07	Claystone - light brown, carbonaceous threads.
ST	1	ST004	7.96	0.10	Coal - dull.
ST	1	ST004	7.98	0.02	Coal - banded, carbonate on cleat.
ST	1	ST004	8.18	0.20	Coal - dull with minor bright bands
ST	1	ST004	8.23	0.05	Claystone - mid-brown.
ST	1	ST004	8.67	0.44	Coal - dull with minor bright bands.
ST	1	ST004	8.70	0.03	Coal - banded.
ST	1	ST004	8.76	0.06	Coal - dull.
ST	1	ST004	8.78	0.02	Coal - banded.
ST	1	ST004	8.83	0.05	Claystone - mid-brown.
ST	1	ST004	8.87	0.04	Coal - dull with minor bright bands.
ST	1	ST004	8.90	0.03	Coal - banded.

Signed _____ Geologist.

028

923030

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LITHOLOGICAL BORELOG

PROJECT: STANHOPE **CLIENT:** AVOCA TRANSPORT **PAGE:** 2

HOLE No.	CORE:	E	N	RL:
ATS 57	NQ			

DRILLER:	DATE DRILLED:
STACPOOLE	27./6/86

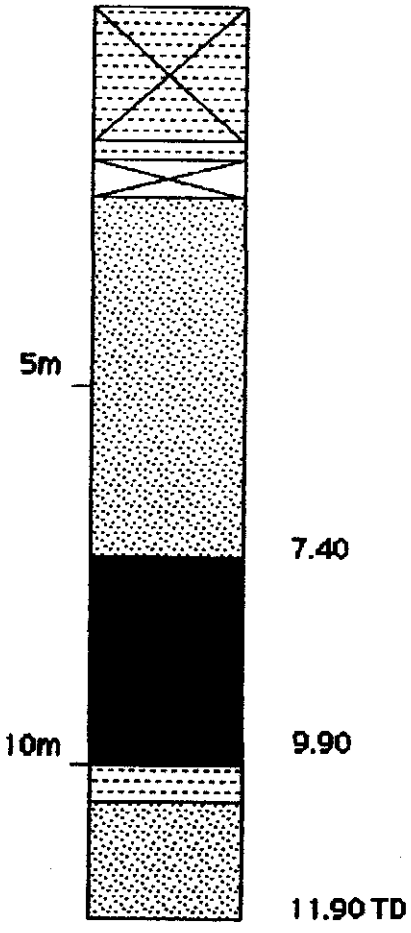
FORM/ SEAM		SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
ST	1	ST004	9.09	0.19	Coal - dull
ST	1	ST004	9.10	0.01	Claystone.
ST	1	ST004	9.19	0.09	Coal - banded, dull.
ST	1	ST004			Penny band - irregular.
ST	1	ST004	9.21	0.02	Coal - banded.
ST	1	ST004	9.22	0.01	Coal - dull.
ST	1	ST004	9.23	0.01	Shaly Coal.
ST	1	ST004	9.36	0.13	Coal - dull.
ST	1	ST004			Penny band.
ST	1	ST004	9.45	0.09	Coal - dull
ST	1	ST004			Penny band.
ST	1	ST004	9.58	0.13	Coal - dull.
ST	1	ST004	9.66	0.08	Coal - banded, dull.
ST	1	ST004	9.70	0.04	Coal - dull.
ST	1	ST004			Penny band.
ST	1	ST004	9.84	0.14	Coal - dull
ST	1	ST004	9.90	0.06	Coal - banded, dull.
			10.00	0.10	Mudstone - carbonaceous, dark brown, 60 degree joints.
			10.50	0.50	Mudstone - grey, massive.
			11.90	1.40	Sandstone - light grey, fine grained, silty at top, carbonaceous threads throughout, subhorizontal ly bedded.
					TD

Signed _____ Geologist.

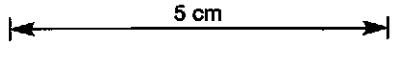
024

929031

STANHOPE DRILL HOLE ATS 57

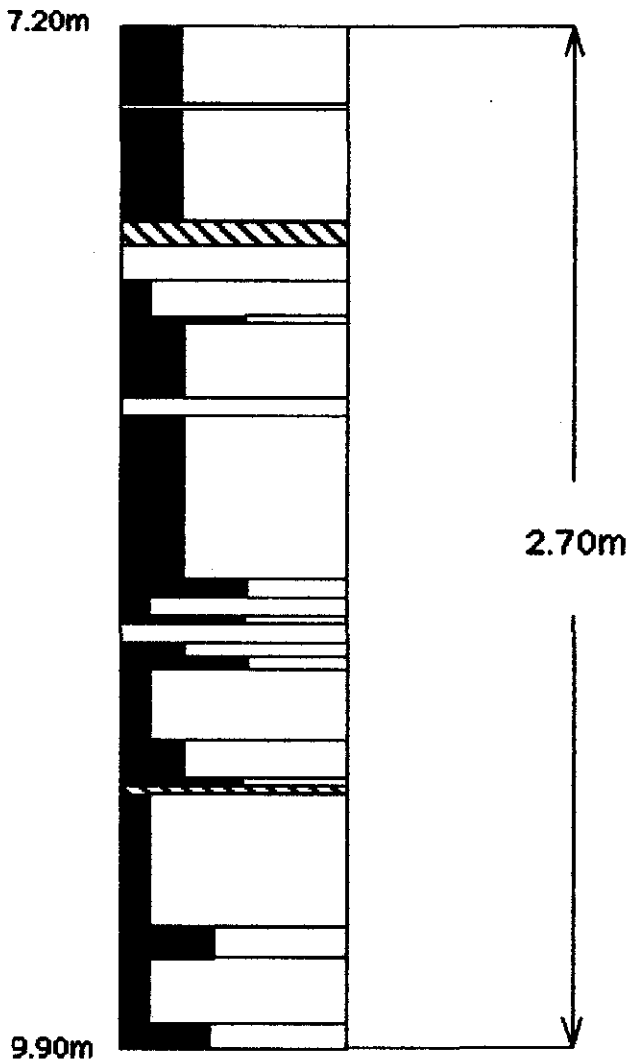


SCALE 1:100



030

STANHOPE ATS 57
DETAILED COAL LOG



SCALE 1:20

5 cm

031

929033

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LITHOLOGICAL BORELOG

PROJECT: STANHOPE CLIENT: AVOCA TRANSPORT PAGE: 1

HOLE No.	CORE:	E	N	RL:
ATS 58	NQ	12,800'	7,400'	990'

DRILLER: STACPOOLE DATE DRILLED: 30/6/86

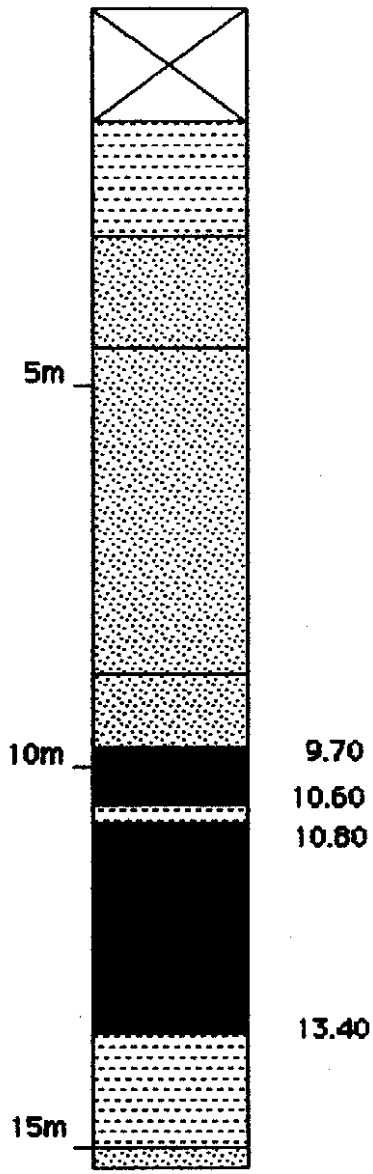
FORM/ SEAM		SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
			1.40	1.40	Open Holed - Mudstone
			3.00	1.60	Mudstone
			4.50	1.50	Sandstone - pale, lithic
			8.70	4.20	Sandstone - hard, carboneceous bands
			9.70	1.00	Sandstone - grey, carboneceous bands
ST	1	ST005	10.60	0.90	Coal
			10.80	0.20	Mudstone - competent
			10.85	0.05	Mudstone - pale, soft
ST	1	ST006	11.05	0.20	Coal
ST	1	ST006	11.10	0.05	Mudstone - pale, soft
ST	1	ST006	11.40	0.30	Coal
ST	1	ST006	11.45	0.05	Mudstone - brown
ST	1	ST006	12.11	0.66	Coal
ST	1	ST006	12.13	0.02	Mudstone - brown
ST	1	ST006	12.20	0.07	Coal
ST	1	ST006	13.40	1.20	Coal
			14.90	1.50	Mudstone
			15.20	0.30	Sandstone - grey, carbonaceous threads
					TD

Signed _____ Geologist.

929034

032

STANHOPE DRILL HOLE ATS 58

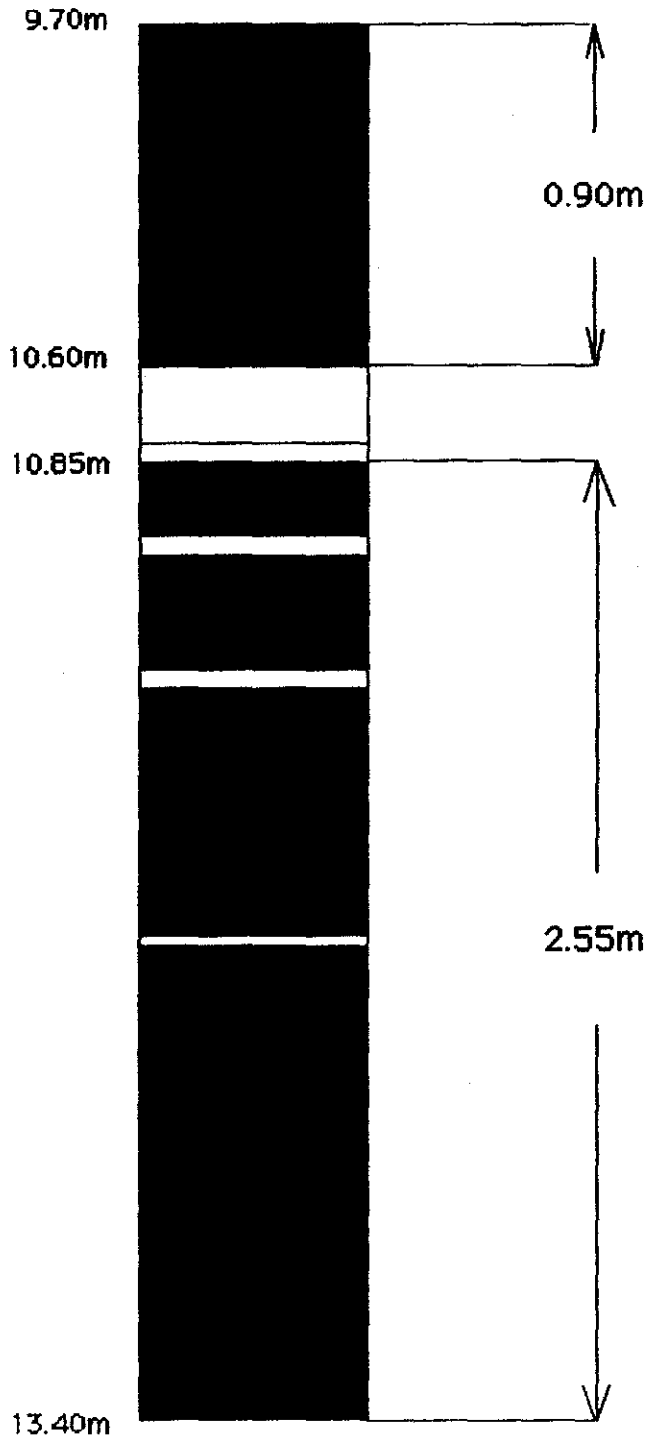


SCALE 1:100

5 cm

STANHOPE ATS 58

COAL LOG

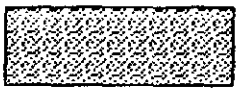


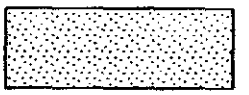
SCALE 1:20

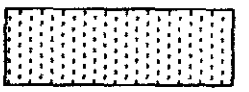
5 cm

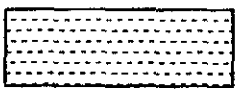
p34

LEGEND


DOLERITE & CLAY SCREE

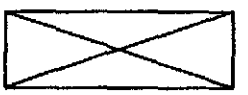

SANDSTONE


SILTSTONE


MUDSTONE


CLAY / CLAYSTONE


COAL


OPEN HOLE / LOST CORE

COAL SEAM DETAIL


COAL - DULL


COAL - DULL WITH MINOR BRIGHT BANDS


COAL - BANDED DULL


COAL - BANDED


COAL - BRIGHT


CARBONACEOUS MUDSTONE


SHALY COAL

929037

035

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LITHOLOGICAL BORELOG

PROJECT: STANHOPE **CLIENT:** AVOCA TRANSPORT **PAGE:** 1

HOLE No.	CORE:	E	N	RL:
ATS 59	HQ	12800'	7400'	990'

DRILLER: STACPOOLE **DATE DRILLED:**

FORM/ SEAM	SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
		2.80	2.80	OPEN HOLE - Soil and weathered sandstone
		5.50	2.70	Sandstone - brown, calcite throughout, carbonaceous threads
		5.53	0.03	Coal - dull
		6.63	1.10	Sandstone - brown, hard, carbonaceous bands
		6.65	0.02	Coal - dull
		8.30	1.65	Sandstone - brown, hard, carbonaceous bands
		10.30	2.00	Sandstone - grey
				Coal
				HOLE INTERSECTED ABANDONED UNDERGROUND WORKINGS AT 10.3m
				AND WAS TERMINATED

Signed _____ Geologist.

036

929038

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LITHOLOGICAL BORELOG

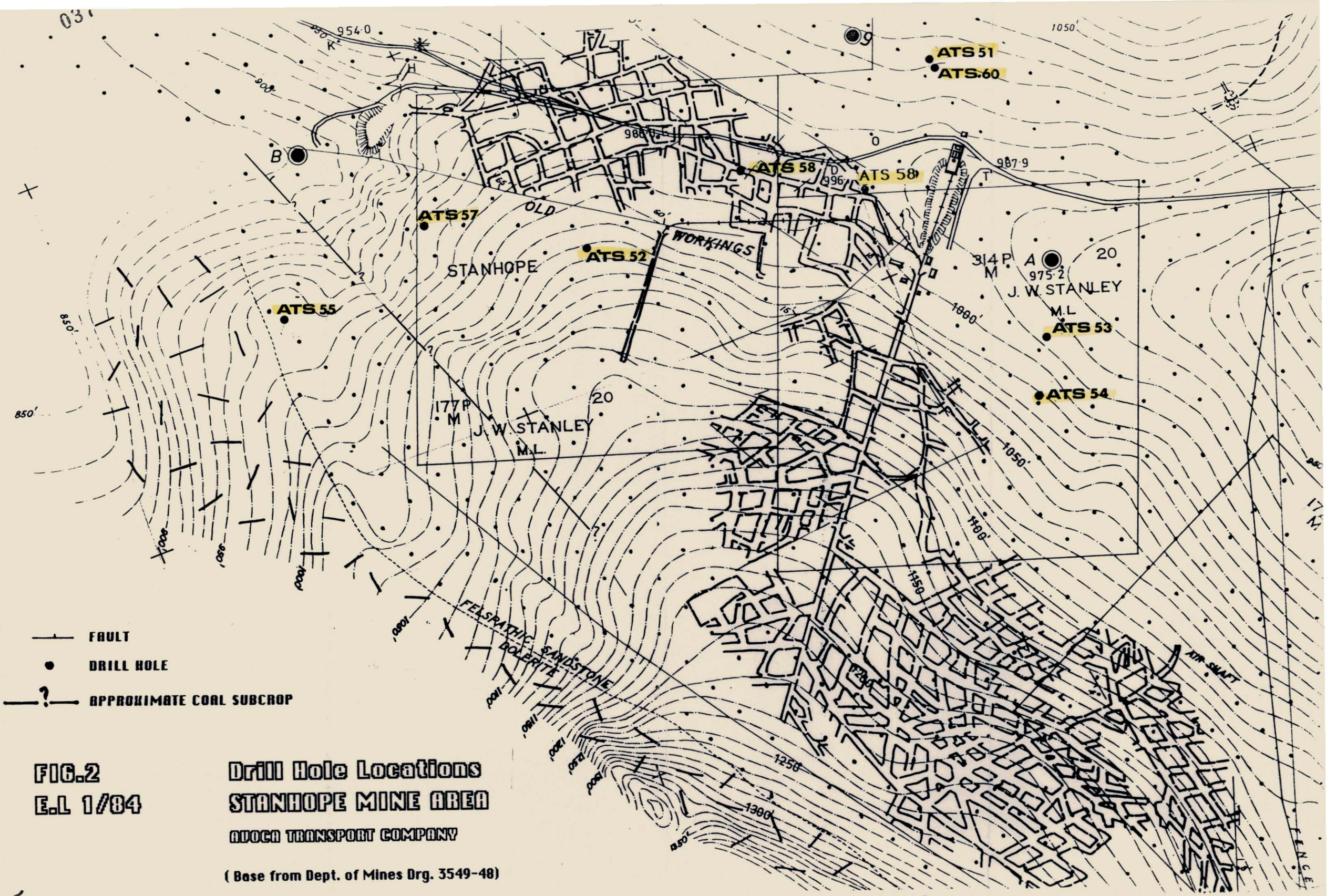
PROJECT: STANHOPE **CLIENT:** AVOCA TRANSPORT **PAGE:** 1

HOLE No.	CORE:	E	N	RL:
ATS 60	HQ	13260'	7400'	1013'

DRILLER: STACPOOLE **DATE DRILLED:** 2/7/86

FORM/ SEAM	SAMPLE No.	TO (m)	THICK (m)	GEOLOGICAL DESCRIPTION
		12.00	12.00	OPEN HOLE
		15.46	3.46	Sandstone - grey, carbonaceous threads
		16.30	0.84	Mudstone
ST?		16.76	0.46	Coal - dull, weathered, burnt?
		16.82	0.06	Mudstone - pale grey
		16.87	0.05	Mudstone - pale grey,. broken
		20.20	3.33	Mudstone - pale grey, soft

Signed _____ Geologist.



FAULT

DRILL HOLE

APPROXIMATE COAL SUBCROP

FIG.2
E.L 1/84

Drill Hole Locations
STANHOPE MINE AREA

AVOCA TRANSPORT COMPANY

(Base from Dept. of Mines Drg. 3549-48)

037

929039

929040

FAULT

DRILL HOLE (Stanhope Mine Management)

APPROXIMATE COAL SUBCROP

5 cm

Scale (1: 3000)

0 100m 200m

N

17 16 15 14 13

B A

NEW STANHOPE

No 1 ADIT

No 2 ADIT

ATS 58

D. FENTON MINE LEASE 1008 P/M 25ha

12 11

1100 1200 1000 900

FIG.3 E.L 1/84

Drill Hole Locations NEW STANHOPE MINE AREA

NOVOCA TRANSPORT COMPANY

(Base from Dept. of Mines Drg. 3549-48)

038

FIGURE 4

929041

E.L 1/84
DRILL HOLE CORRELATION

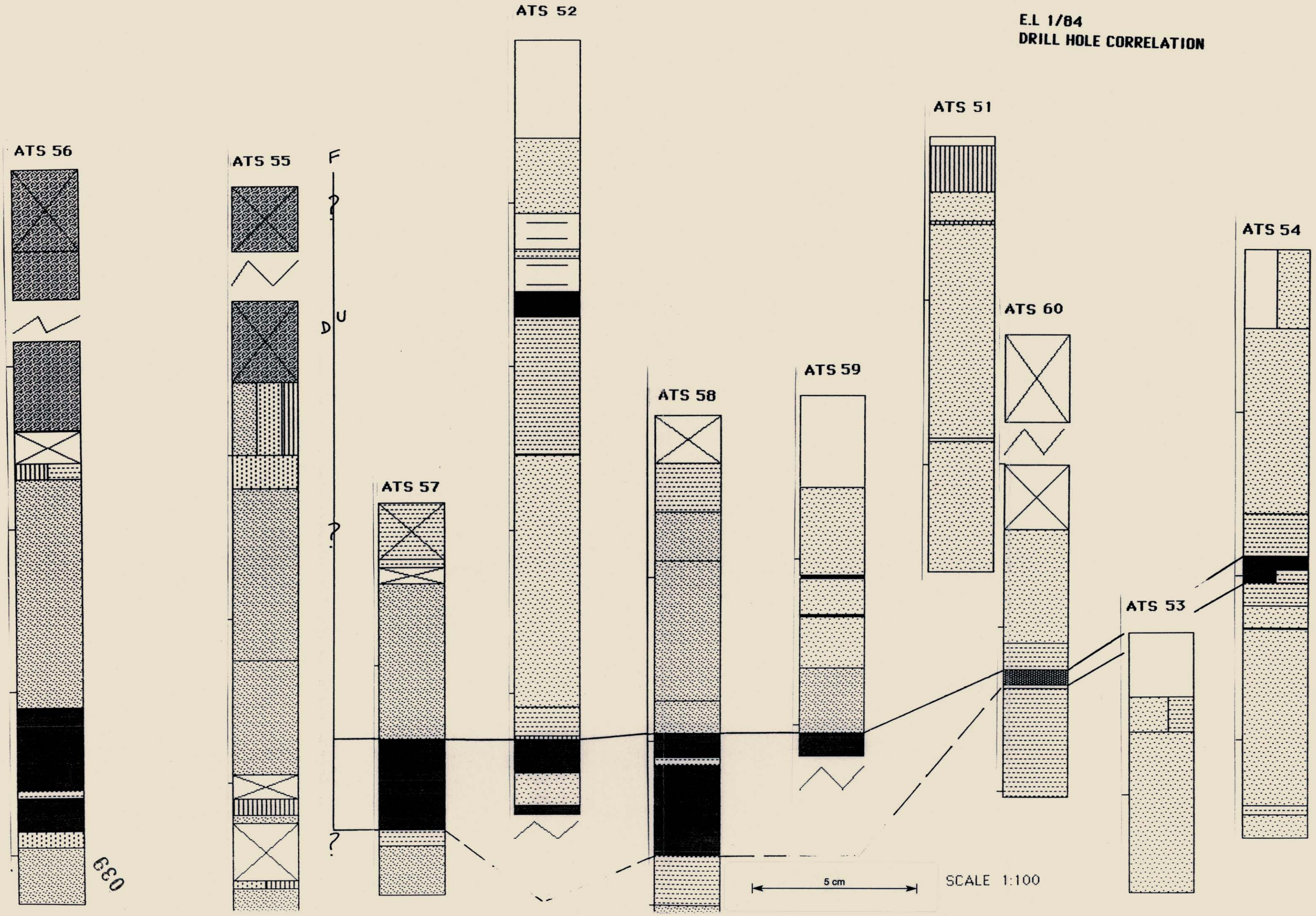


FIGURE 5

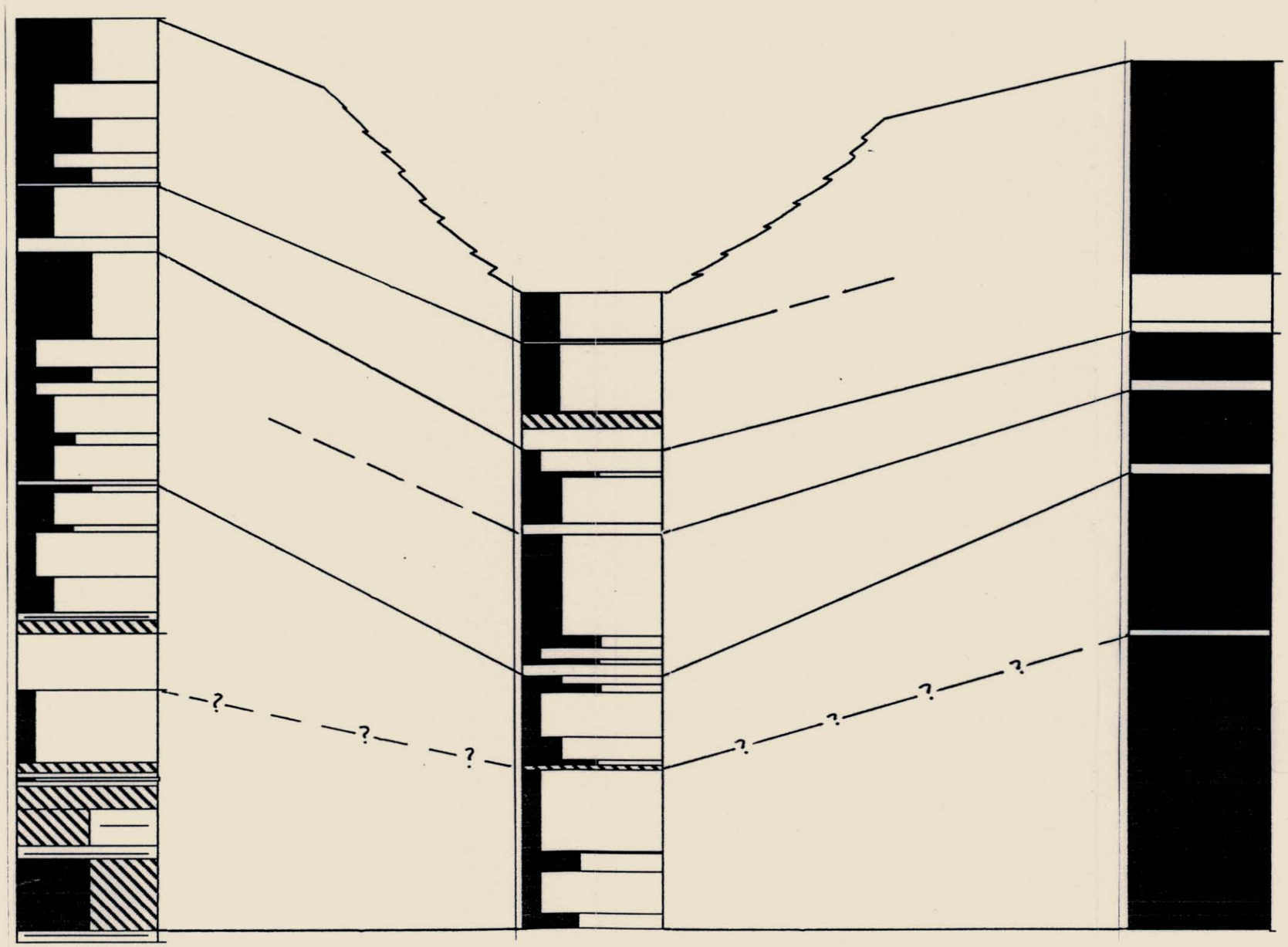
929042

E.L 1/84
STANHOPE SEAM PLY CORRELATION

STANHOPE ATS 56

STANHOPE ATS 57

STANHOPE ATS 58



SCALE 1:20

040