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BALLARAT CLAY COMPANY PTY. LTD.

EXPLORATION LICENSE 21/70

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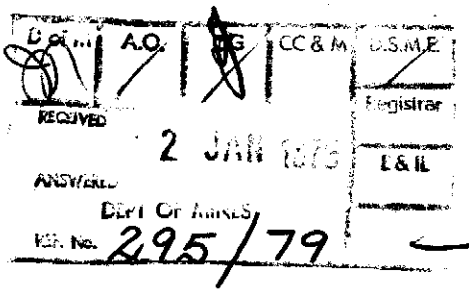
BALLARAT CLAY COMPANY PTY. LTD.

C/- P.O. Box 201,
BURNIE. TAS. 7320.

9th January, 1979.



Director of Mines,
G.P.O. Box 124 B,
HOBART. TAS. 7001.

Dear Sir,

Exploration Licence 21/70

We refer to your letter 420/22 dated 17th November, 1978 and in this connection our consultant has now compiled the following prospecting report for your information.

" Work done by Dorset Kaolin Division was summarized in the report by R. Hare and Associates dated 4th July, 1961.

The initial programme carried out by A.P.P.M. Ltd. was directed to determine whether substantial additional volumes of kaolin bearing material could be located in the vicinity of any of the three deposits on which that report was based, namely, Scotts, Brown and Y.Z.

SCOTTS AREA

This is situated on the eastern side of the main Herrick to Gladstone road near the H6 mile post and was covered by mining lease 8M/62. The area was drilled to exhaustion by Dorset Kaolin Division with substantial thickness of drift cover proved on all margins. The reserve was assessed at 200,000 solid yards at 77 brightness and would be much lower at brightness 80 as now required.

Topographic indications suggested a possible south-easterly continuation of the buried saprolite ridge and in 1970 drilling was commenced near the south-eastern lease corner using a churn drill with 6 inch casing. Bores were sited at approximate 30 metre intervals and covered an area extending to the north-west corner of 30M/67. Twenty-two holes numbered SS1 to SS22 with depths of up to 21.3 metres were drilled in this series. Two additional holes, No. NS23 and NS 24, were drilled North of the northern boundary of 8M/62.

Fourteen of the bores intersected granite saprolite from which 79 samples were processed. Of these only four reached the minimum brightness requirement of 80. This appeared to be due to a prevalent brownish colouration which was resistant to normal bleaching processes. The yield of minus 7 micron material was generally satisfactory and persisted in depth.

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Better quality material was exposed in isolated places. Samples from a tail-race near the eastern boundary of 30M/67 averaged 83.0 brightness and 55.4% minus 20 microns. Good values were also obtained from back-hoe pits near the main road, but three churn drill bores put down in 1974 failed to prove any useful thickness of white saprolite in that vicinty.

By 1975 much of the surface of 30M/67, then known as "Eastern Lead", had been stripped in tin mining operations and several patches of stained saprolite were exposed. A churn drill with 5 inch casing was used to bore 6 holes in apparently favourable positions. Four of these passed through 18.3 metres of near-white saprolite but no sample exceeded 74.5 brightness.

The conclusion reached is that in the area extending south-easterly from Scotts to the Ringarooma Riverthere is a very large volume of high-yield saprolite but that only small isolated patches reach or exceed 80 brightness.

BROWNS

This is situated at South Mount Cameron close to the water-filled workings of the Endurance Tin Mine known as the "Blue Lake". The deposit consisted of three small patches of saprolite covered by mining leases 12M/59, on the northern side of the Herrick to Gladstone main road, and 7M/59 on the southern side of the road. These patches were adequately drilled by Dorset Kaolin Division in 1962 and were estimated to contain 180,000 solid yards at brightness 77. Road re-location works and subsequent tin mining operations have altered the situation to an extent that the area can no longer be regarded as a significant source of good quality clay.

High quality saprolite, ranging up to 87 brightness can be obtained in selected samples from the vicinity of D. Brown's de-gritting plant which operated experimentally in 1959, but attempts to prove a workable area were unsuccessful. In June, 1974, two holes drilled on the North side of the main road, and two on the South side all failed to intersect any useful material. The areas stripped by Allied Mining on both sides of the road were also periodically examined and some samples taken but without any encouraging results.

YZ WORKINGS

These old workings are located on Ah Kaw Creek about 0.7 kilometre South of the Gladstone to Bridport main road at about 1.6 kilometres from Gladstone township. The Hare reports comments "It is likely that reserves of clay in this deposit meeting the specification will greatly exceed the total reserves of Browns and Scotts areas." This appears to have been an over-optimistic assessment. A scatter sample from selected parts of the sluiced-out workings had the satisfactory brightness of 81.3 and yield of 47% minus 20 microns but most of the exposed material is obviously inferior to this.

To test the possibility of a useful westerly extension of the saprolite beyond the tin-bearing gutters four bores were put down in late 1970. These ranged from 6 to 12 metres in depth and all encountered brown or red saprolite close to the surface passing to cream or nearly white and then to green. Of seven samples processed the maximum brightness recorded was 76. The average yield of all samples was 41.4% minus 20 microns. The churn drill used was too heavy to operate in the worked area and it was not considered worth while returning to the site with more mobile equipment.

AMBER HILL AREA

Access is gained to this area by crossing the Ringarooma River at Ogilvies Bridge and following the Lanka Road for about 0.8 kilometre to South trending tracks which lead to the old workings.

In 1970 R. C. Lawry made a dozer cut in green to white saprolite through the eastern wall of old workings on 35M/66 to accommodate a pipe line from the dam on 2W/67. A composite face sample from the cut had 78.5 brightness and 48% yield at minus 20 microns. Hand sampling from selected exposures in a creek bed south-easterly from the workings returned 82.0 brightness and 46% minus 20 microns.

Late in 1970 fourteen bores were put down by churn drill using 6 inch casing. The first three, sited to pick up a possible south-easterly extension of the saprolite exposed in the pipe-line cutting, bottomed without intersecting any useful material. The rig was then moved further south-easterly across the creek where four of the remaining eleven bores encountered reasonably good material. Bore No. 7 had three five-feet sample lengths averaging 84.6 brightness and 50.7% minus 20 microns.

Samples supplied to Englehard Minerals and Chemicals Corporation of Menlo Park, Edison, N.J., as consultants, were reported as being more promising for coating clay production than other Tasmanian crudes submitted to them.

In 1972 a bulk sample was obtained from back-hoe excavations, 1 minus 7 micron fraction prepared from it was reported by the Australian Mineral Development Laboratories to be "dominantly highly crystalline kaolinite, with a trace (less than 5%) of mica-illite and a trace of quartz (approximately 1%). No halloysite was detected". The absence of halloysite was regarded as an indication of probably lower viscosity and a further bulk sample was obtained in 1973 and sent to the United States for pilot plant study.

Late in 1973 the area was mapped and additional bores were put down in an unsuccessful endeavour to prove some finite reserve. Four bores in the known area confirmed the impression that the average thickness of first-class white saprolite was only three or four metres. Five exploratory bores failed to locate any extension of the deposit.

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In 1977 a further bulk sample of some 15 tonnes was obtained for local pilot plant work but has not helped in solving the viscosity problem in relation to the production of clay suitable for blade coating of paper.

LARK CREEK AREA

Lark Creek flows westerly into the Ringarooma River at a point some 4.2 kilometres South-East of Gladstone township. It is reached with difficulty by old mining roads which join the St. Helens Road about 2.3 kilometres from Bells Bridge.

Good quality white granite saprolite is exposed on mining lease 114M/68. Surface samples taken late in 1971 showed 83.5 brightness and 52% minus 7 microns. A hand drilling plant was used in 1974 to test the thickness of exposed material. In two holes the maximum depth capacity of 4.5 metres was reached in good quality material, one hole bottomed at 4.25 metres, one at 3.3 metres and one at 1.5 metres. Four holes intersected only stained saprolite. A composite sample of obviously commercial grade material from these bores had a minus 12 micron brightness of 81.0 and a minus 5 micron brightness of 82.0.

It was apparent that some small production was practicable from the area stripped by sluicing but that economic exploitation would depend on the continuation of good quality saprolite under the overlying drift in an easterly direction. To test this possibility a churn drill was taken to the area in 1975. The first hole, close to the workings, encountered coloured saprolite at 5 metres, the second hole, 100 metres along the ridge, intersected near-white from 3 metres to 17.7 metres but the average brightness was only 70. Three more holes drilled along the ridge at approximate 100 metre intervals encountered only drift gravel and clay.

ARCADIA AREA

The Arcadia workings are situated on the eastern side of the Ringarooma River about 2.4 kilometres north-easterly from Amber Hill. Poor quality saprolite is exposed on mining lease 36M/66 and surface samples taken in 1970 averaged 73.7 brightness and 59.5% minus 20 microns.

Following the surface sampling twenty churn drill holes were put down using 6 inch casing. Bores Nos. 1 to 11 were in the vicinity of the workings and four of these intersected about 6 metres of near-white saprolite. The yield from the 19 samples taken averaged 45% minus 20 microns but only one bore, No. 7, showed even marginally acceptable brightness, the average of four samples being 78.9.

Bores Nos. 12 to 20 were sited to test the area South of the workings. Results were poor but No. 20 intersected reasonably good looking material from 3 metres to 11 metres. The area was surveyed for bore positions in 1972.

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In 1975 a bore was put down close to No. 20 and bottomed on blue-grey clay at 13.7 metres after passing through secondary clay of maximum brightness 65.5. Another bore 400 metres to the South-West encountered stained saprolite at 1.5 metres. From 6 to 10.7 metres the brightness was 72.5 and from 10.7 to 15.2 metres the colour was pale green with brightness 66.

In 1978 two additional bores were put down to complete coverage of the area. These reached 10 and 12 metres depth without locating any saprolite.

GARFIELD-CYBELE

These old leases are reached from Gladstone township by crossing the Ringarooma River at Bells Bridge and following the St. Helens Road for about 2.3 kilometres then turning South on a gravelled road for 1.5 kilometres to an extensively mined area.

Most of the exposed bottom is slate-sandstone but there are isolated patches of granite saprolite particularly along Cybele Creek. Much of the area was held under mining leases and active mining was in progress for the whole of the licence period, so that it was not practicable to select sites for drilling. A saprolite bottom sample from a pond close to the roadside had the very good minus 20 micron brightness of 87.2 with a yield of 54%.

There are possibilities in the area of patches of good quality primary and secondary clay but in spite of the considerable surfaces exposed from time to time by the mining operations, there was no indication that an extensive deposit was likely to be uncovered.

CLIFTON CREEK

Stained granite saprolite is exposed in an area at one time worked by W. G. Stevens and party about 0.8 kilometres West of the old South Mount Cameron Hall. In 1975 a bore located 30 metres at 155 degrees magnetic from the eastern corner of the workings encountered hard rock at 12 metres. A second bore, 38 metres at 230 degrees away met probable hard granite at 6.7 metres.

It was concluded that kaolinization in the area did not extend to a useful depth.

GARIBALDI

Granite saprolite is exposed in old workings on the northern flank of Garibaldi Hill. The area is reached from Pioneer township by the road crossing the Ringarooma and Wyniford Rivers and is about 1.5 kilometres south of the junction with the Tebrakunna Road.

Samples from exposed faces taken in 1970 showed good yields but sub-marginal brightness. In 1975 hand drilling of the most promising exposures showed a falling-off of colour and yield within two or three metres of the surface. A composite sample from three bores had a minus 12 micron brightness of 76.1 which improved to 78.5 in the minus 5 micron fraction. These results were not sufficiently encouraging to justify churn drilling.

Director of Mines 9th January, 1979.

CONCLUSION

During the eight years currency of the Exploration Licence most of the old mining excavations throughout the area were examined and mining operations in progress were kept under surveillance so that any fresh exposures could be checked.

Sub-surface prospecting by auger, churn drill or back-hoe was undertaken wherever it appeared justified and the programme was concluded by a wild-cat tour with a Gemco drill of accessible sites where geological and topographic conditions did not preclude the possibility of granite saprolite occurring under reasonable cover.

In all of this work no single deposit was located with the potential to support a treatment plant of the type required to supply the paper manufacturing industry. Alternatives such as collective mining to a central plant and field de-gritting to reduce bulk for transport have been investigated but are not considered viable under present market conditions.

It is to be expected that further deposits of granite saprolite and also of secondary clay will be exposed by excavation works in the future but there is not a high probability that these will vary greatly from the many deposits already examined.

These comments apply only to the requirements of the paper manufacturing industry. There is a vast quantity of clay in the area which may be suitable for other commercial applications. "

We trust that the above information answers your requirements.

Yours faithfully,
BALLARAT CLAY COMPANY PTY. LTD.

K.T. Dawkins.

KTD:RJN

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Open File Report 32/51

Ballarat Clay Company Pty. Ltd., 1979

Exploration Licence 21/70.

List of Plans accompanying the report.

	Title	Details	Scale
	Arcadia bores	Section A-B-C, July, 1979 (dyeline)	Horizontal 1:1250 Vertical 1:500
2	Bores at YZ workings near Gladstone.	(dyeline) plan and section, July, 1979	1:250
3	Amber Hill prospecting.	(dyeline) plan and section showing bore hole locations, July, 1979.	1:1000

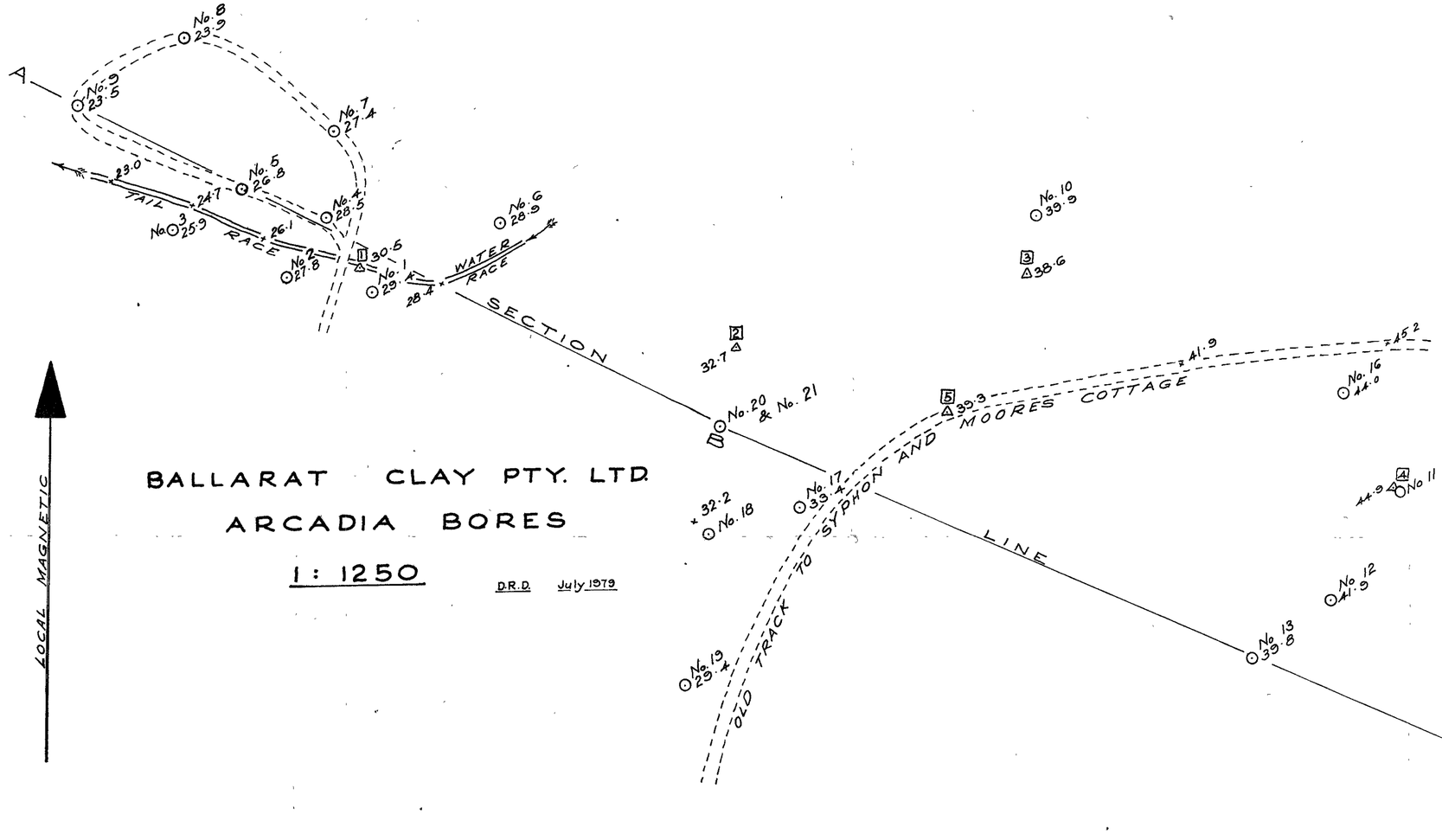
N.B. There are two sets of plans (all dyelines), one set is folded and included in the report and the other is filed in the vertiplan under open file report ~~32/51~~. 79/1322

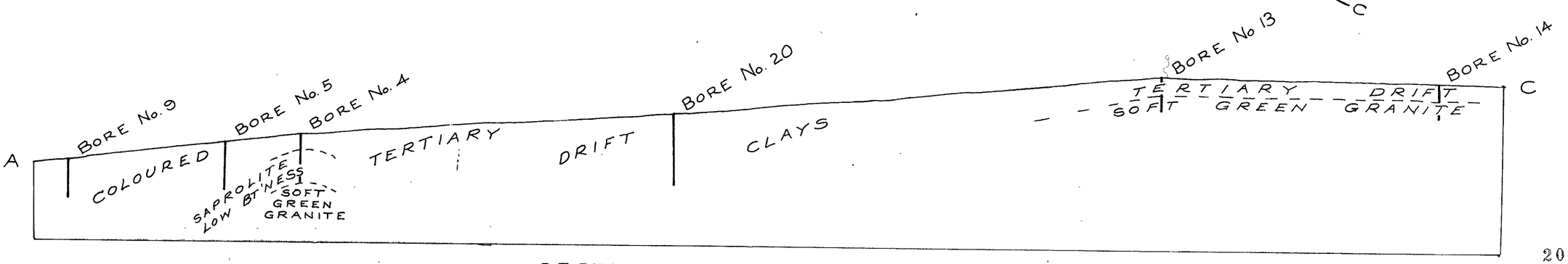
BALLARAT CLAY PTY. LTD.

ARCADIA BORES

1 : 1250

D.R.D. July 1979





SECTION A - B - C

H. 1 : 1250 V. 1 : 500

5 cm

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1 of 3

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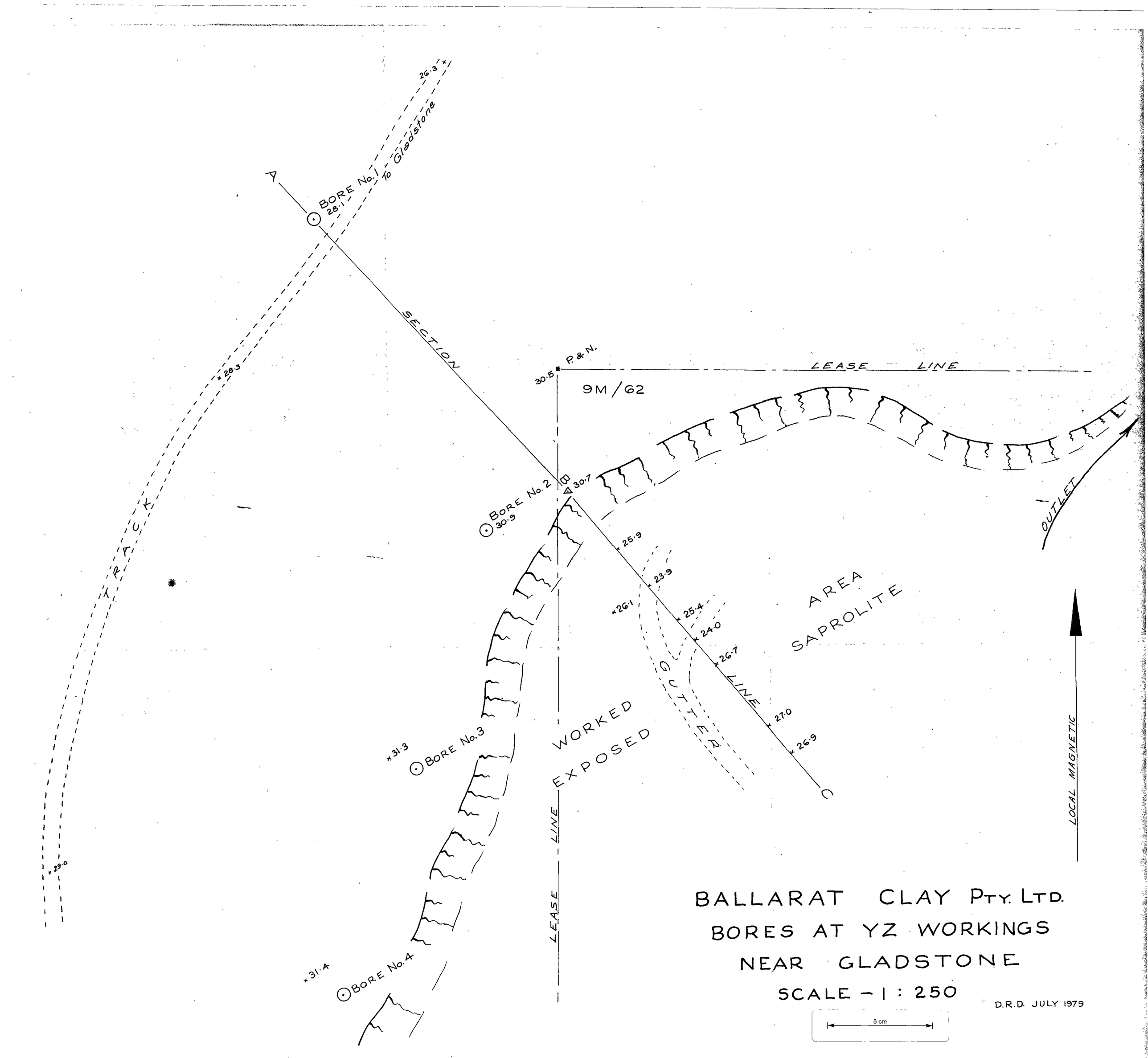

BALLARAT CLAY PTY. LTD.
BORES AT YZ WORKINGS
NEAR GLADSTONE

SCALE – 1 : 250

D.R.D. JULY 1979

5 cm

SECTION 1 : 250

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2 of 3

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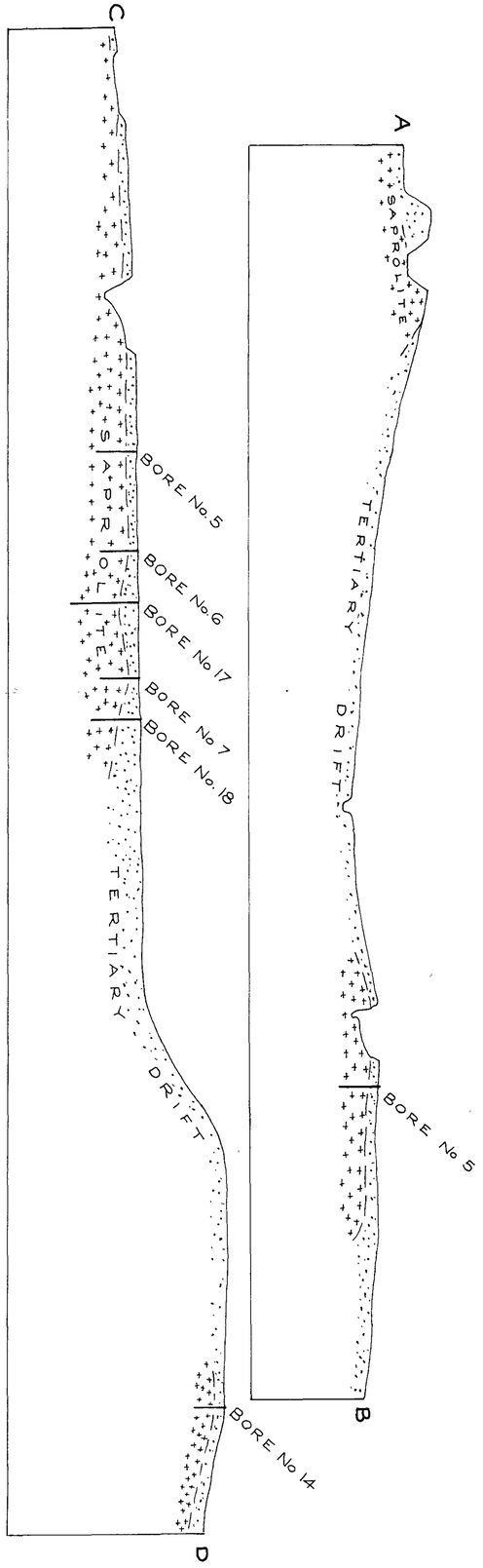
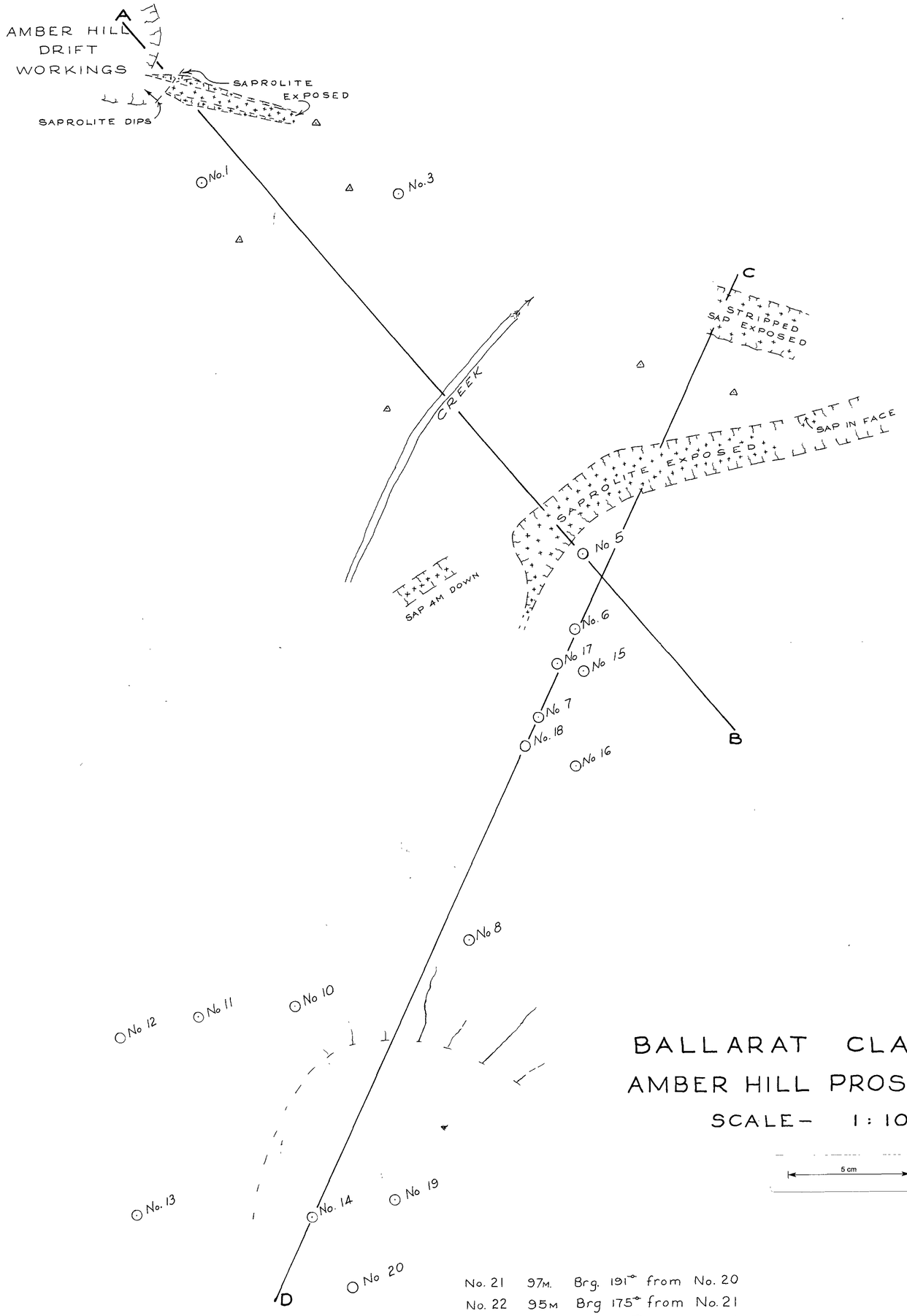
SKETCH SECTIONS
H.– 1 : 1000 V.– 1 : 500





No. 21 97M. Brg. 191° from No. 20
No. 22 95M Brg 175° from No. 21
No. 23 73M Brg 57° from No. 21

BALLARAT CLAY PTY. LTD.
AMBER HILL PROSPECTING
SCALE– 1 : 1000

DRD JULY 1979

5 cm

E.L. 21/70

204011

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32/51

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