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DEPARTMENT OF MINES

SOUTH AUSTRALIA

Report No. 2

re

PROSPECTING SOUTH OF IRON KNOB

KATUNGA HILLS (NORTH) AREA

by

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GEOLOGICAL SURVEY BRANCH

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Map References	Titles	Scale
54-169	Iron Knob Area Katunga Hills	900' to 1 inch.
S 1127	Katunga Hills (North) Area. Location of Samples	100' to 1 inch.

Report Reference	Date
G.S. 348 41/50	2nd September, 1955.

DEPARTMENT OF MINES

SOUTH AUSTRALIA

PROSPECTING SOUTH OF IRON KNOB

KATUNGA HILLS AREA

Report No. 2

Refer to Proposals in Report No. 1 dated 8/8/55.

1. INTRODUCTION

Following approval of the proposals for initial stages of sampling outlined in Report No. 1 a visit was made to the Katunga Hills area by the writer and Mr. R.C. Mirams (Geologist) during the week ending 19/8/55 when the following work was carried out.

Mon. 15/8/55)
Tues. 16/8/55) Manual Surface Sampling of Taconites on Katunga Hills (North) with ½ man day spent on a reconn-
Wed. 17/8/55) aissance of wagon drill sites in the vicinity.

Thurs. 18/8/55 Boxing of samples for transfer to Adelaide.
Reconnaissance of rest of wagon drill sites and an examination of Katunga Hills (South).

Fri. 19/8/55 Inspection of Racecourse Area.
Visit to Whyalla to discuss sampling with B. H. P. Geologists.

2. SAMPLING ALONG THE STRIKE

Vide Plans 54.169 and S 1127 attached.

In the Upper Middleback Quartzites of Katunga Hills (North) a 3' quartzite breccia marker containing some limonite in the interstices was traced for approximately 1000' and 20 samples each covering 6' stratigraphic thickness were chipped at 60'-140' intervals along the strike of three neighbouring beds over a length of 600'. Although the beds sampled could be traced further the outcrops were not suitable for sampling.

A typical section from East (H/W) to West (F/W) comprises:-

Bed	Thickness	Remarks
(a)	50'-100'	Hematite-quartzite
(b)	6'	" " , 7 samples
(c)	6'	" " 8 samples
(d)	6" - 9"	Quartzite, fine banded
(e)	3'	Upper Marker Bed; a quartzite breccia well cemented by limonite.
(f)	6'	Hematite-quartzite, 5 samples. The lower 6" is fine banded and less ferruginous against
(g)	6" - 9"	Lower Marker Bed; thick cherty slightly brecciated quartzite with minor limonite between the fragments.
(h)	100'?	Hematite Quartzite
(j)	40'+?	Schist, mainly not outcropping
(k)	100' +	Hematite quartzite

Plan S 1127 attached shows the location of the 20 samples. These were also marked on the outcrop with paint so that they can be picked up when necessary or duplicate samples taken.

Examination of results of sampling of these three beds will indicate how consistent mineralisation is in any one bed and how far assay results can be extrapolated along the strike.

In two other places on Katunga Hills North (see Plan 54.169 attached) a similar marker bed has been recognised in approximately the same stratigraphic position but outside the area of interest shown in blue on the plan. Should mapping disclose that this bed is the same in each case, further surface sampling is indicated to check whether the grade does in fact vary greatly along the strike.

3. SAMPLING UP DIP

Vide Plan S 1127 attached.

Nine samples were chipped up dip from that penetrated in Wagon Hole 1Cx. While 3 unmarked possible collars of this wagom hole exist over an area, sampling began at the collar of

the most easterly hole so that correlation of geology by dip should be possible. A gap in sampling exists where a soil covered flat was crossed and this may be the surface expression of schist intersected in the hole and enable another structural correlation to be obtained. Sample positions were marked on the outcrop with paint.

Examination of results of this sampling may indicate if correlation between surface and underground sampling is possible. Overseas experience appears to be that hematite-quartzite in the oxidized zone runs 5% richer in iron than the magnetite-quartzite underlying it. So long as this difference is regular and not haphazard, surface sampling will be useful to outline areas of interest.

4. TESTING REQUIRED

Samples have been submitted to the Research & Development Branch, Thebarton, with a request for the following information.

Original Sample:- SG; Assay for Fe and Insoluble

Davis Tube Concentrate:- % by weight; Assay for Fe and Insoluble

Davis Tube Tails:- % by weight; Assay for Fe and Insoluble.

By a comparison of SG and Assay for Fe it is hoped to obtain correlation so that SG determinations in the field can be used as an approximate guide to composition. By assaying each fraction for iron and insolubles an assay balance can be calculated and also variations in the magnetic fraction established

5. COMMENTS ON PREVIOUS DRILLING

An examination of all wagon drilling information in Adelaide and the field has revealed

(i) Most wagon drillholes have been drilled on areas of scree or soil even where outcrops were available in the vicinity so that the first prerequisite of exploration viz correlation of surface and subsurface exploration is not possible, at least to the present.

(ii) As a result of poor collar sites, 2 to 4 attempts have been made to complete many of the holes and yet in no cases have the successful holes been marked to distinguish them. In some cases holes are 200' apart and it is impossible to distinguish the successful holes from unsuccessful attempts.

Consequently the possibility of deepening any of them by diamond drilling can not be predicted.

(iii) No folders have been prepared for these holes as is done with Percussion Boreholes and Diamond Drillholes so that the records are chaotic and it is unlikely that the successful holes can be recognised from the records available. In fact a hole on the western end of Line 6 i.e. Hole 6B shown as proposed but not drilled on Plan 54-169 and in Mr. Gibson's report, has in fact been drilled after no less than 3 attempts.

While it is too late to correct this lack of organisation it is proposed to mark holes where recognised with certainty (e.g. diamond drill holes) and elsewhere (e.g. North of Iron Knob) to mark holes as drilled.

6. KATUNGA HILLS (SOUTH)

While all the sampling and the greater part of the examination was concentrated on Katunga Hills (North) one afternoon was spent in an inspection of Katunga Hills (South) which are in Lower Middleback Quartzites (Bull. 33).

From this brief inspection of the surface it is obvious

(i) The iron content of the Katunga Hills (South) is a great deal less than that of the Katunga Hills (North) and is inclined to be more limonitic. This lower grade has been reflected in the wagon drill hole assay results.

(ii) Large areas of amphibolite occur to dilute still further the total iron content and this amphibolite is in places reflected in the vegetation by concentrations of gum trees and by lack of spinifex.

(iii) The Wagon drill holes plotted on plan 54.169 (attached) are 200 to 400' northerly from their correct topographical positions being shown on the north slope of the hills rather than on the southerly slope.

7. SAMPLING COSTS ETC.

In 3 days, 2 men obtained 29 samples covering 174' of stratigraphic thickness and totalling 450' of 1" x 1" chip samples to give 2 lbs. of sample per foot of stratigraphic thickness. Greater than average care was taken because on these results, future prospecting depends, but it does appear that one man could do 50' of 1" x 1" chip sampling per day obtaining 1 lb. of sample per stratigraphic foot at a cost of perhaps 1/6 per foot.

For comparison, costs of No. 6 Diamond Drillhole in the Katunga Hills area was £15/16/5 per foot with overhead for geologists and assaying approximately the same.

It is therefore hoped that detailed surface sampling may be used to define the areas of interest as closely as possible so that drillings may be sited to best advantage.

8. CONCLUSION & RECOMMENDATIONS

Twenty nine surface samples have been taken on Katunga Hills (North) to check continuity of mineralisation along the strike and correlation between surface and underground (drilling) samples. Results of Davis Tube separations are awaited.

In the meantime it is recommended that surface mapping and sampling on a scale of 200' to the inch be started on a grid to be laid out at 200' centres by Mines Department Surveyors.

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GFW:AGK
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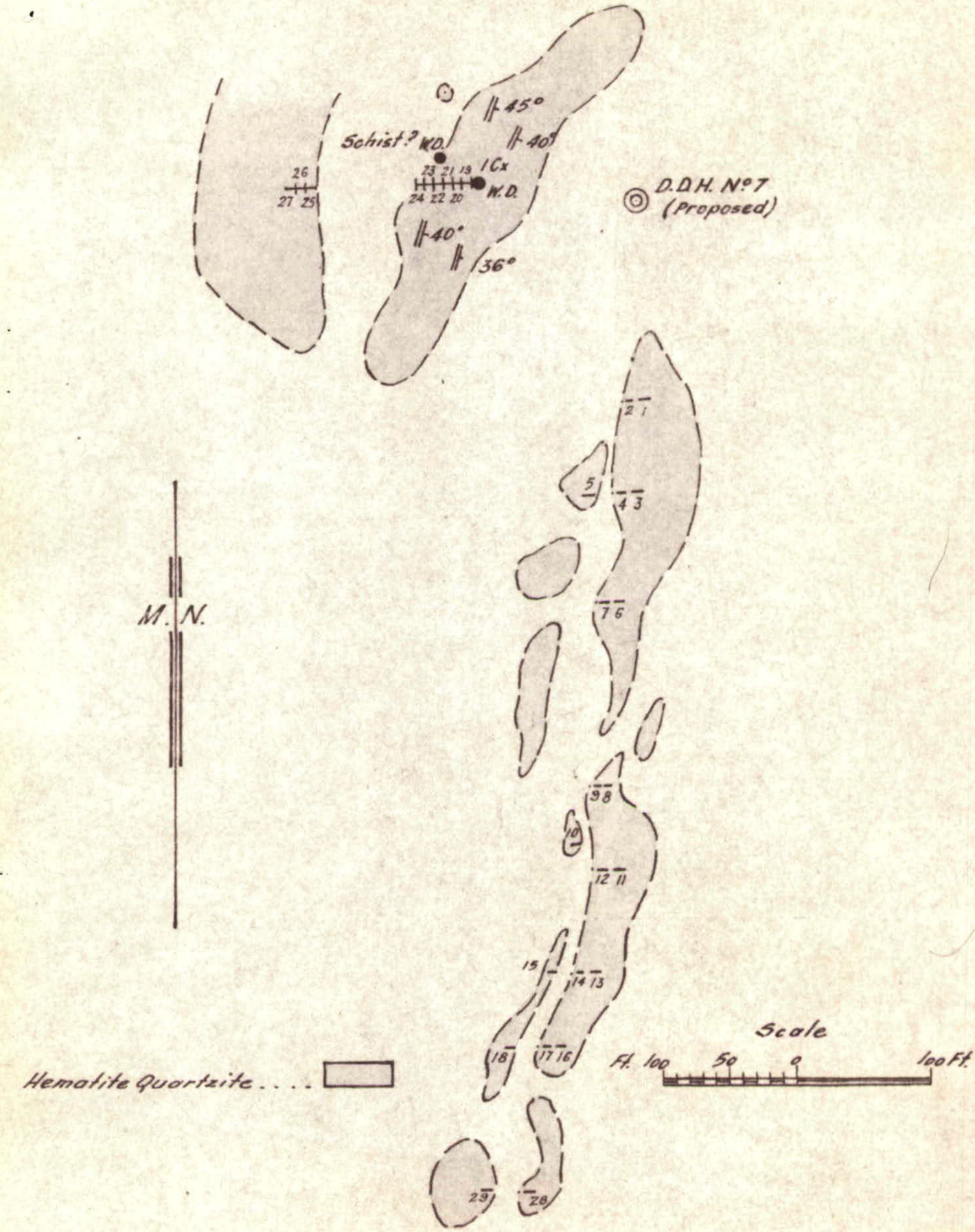
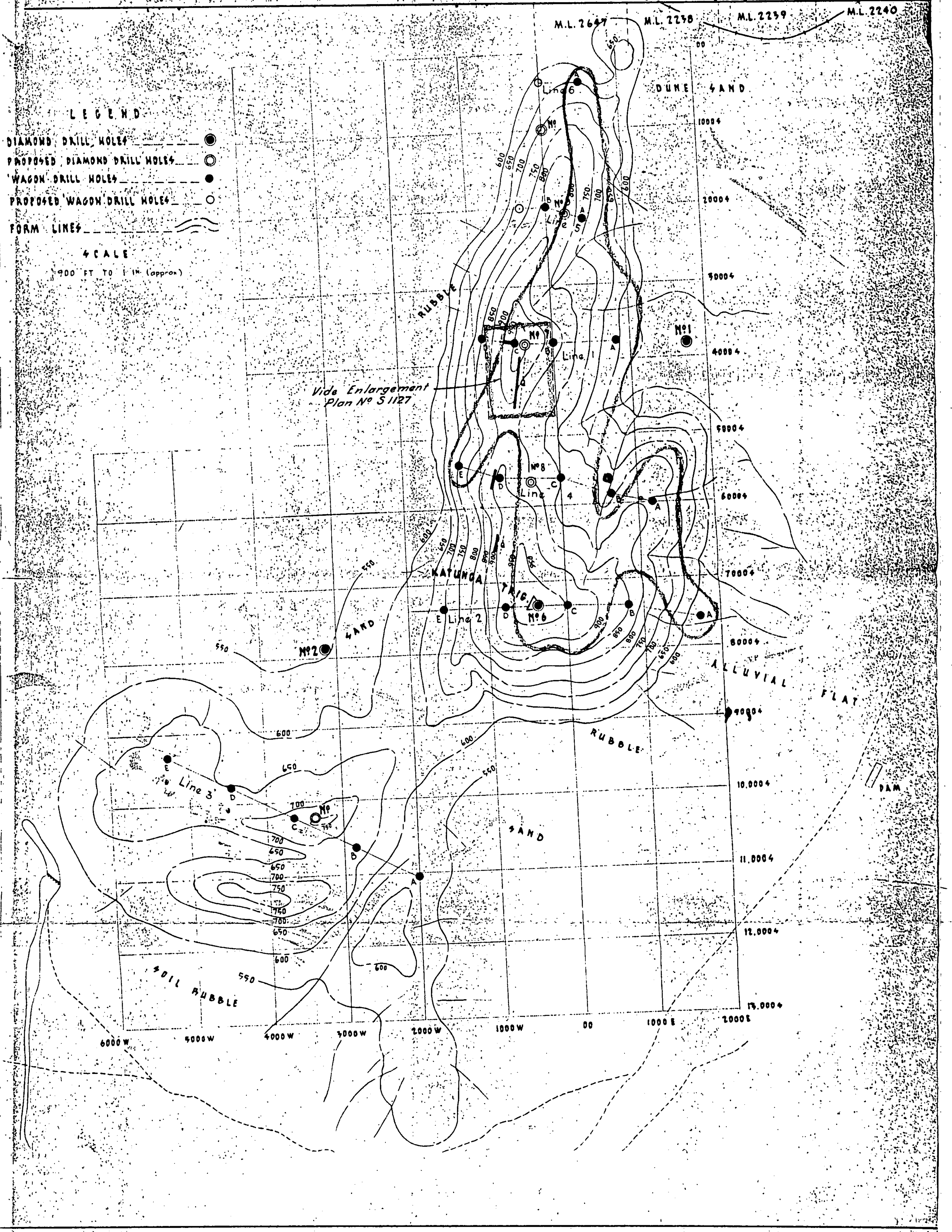


To accompany report by G.F. Whitten.

S.A. DEPARTMENT OF MINES					
Approved	Passed	Drn.	IRON KNOB DISTRICT	D.M.	Scale 100 ft to 1"
		Tcd. M.R.L.	KATUNGA HILLS (NORTH) AREA	Req.	51127
		Ckd.	Location of Samples		
Director		Exd.	SKETCH PLAN		Date 1-9-55 DE



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IRON KNOB AREA
KATUNGA HILL

54-169
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