

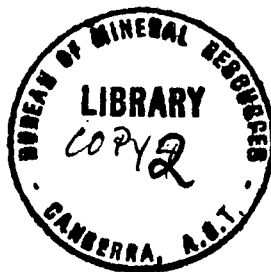
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BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS

REPORT ON GEOPHYSICAL SURVEYS AT MT. LYELL
PROGRESS REPORT NO. 1.

REPORT NO. 1949/29.
GEOPHYSICAL REPORT NO. 1949/2.

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BUREAU OF MINERAL RESOURCES

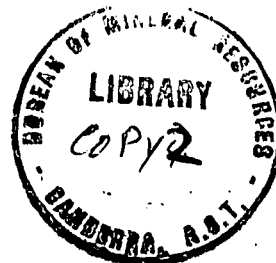
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INTRODUCTION.

Geophysical surveys were conducted by the Bureau at Mt. Lyell during the period March - July, 1948. The work was carried out by Messrs. J.E. Webb (Party Leader) and W.G. Morgan. Mr. W.J. Langron assisted for a few weeks during May and June. The surveys were made on behalf of The Mt. Lyell Mining & Railway Company. Officers of the Company assisted materially by handling a large part of the traverse pegging and surveying requirements.

Geophysical surveys were made on the Gormanston and adjacent areas. The former area was recommended for investigation by Mr. H. Connolly. Methods of survey used comprised Equipotential Line, Self-Potential and Gravity.

Concurrently with these operations the results of the 1934-38 geophysical surveys by E.L. Blazey & G. Douglas, on behalf of the Company, were examined in this office and reports on same, dated 13.5.48 and 3.3.49, have been submitted to the Company.

The results of the Bureau operations were described to Mr. Moline and Mr. Connolly in this office early in December, 1948. It was agreed on that occasion that a drilling recommendation would be supplied to test an anomaly area near Gormanston. Field operations were resumed by Mr. Webb and party in January, 1949 and are still in progress. The principal purpose of this Progress Report is to briefly describe the survey results obtained last year and to state recommendations for testing.

SUMMARY OF SURVEY RESULTS.

Equipotential Line Survey.

The Equipotential Line method was commenced, as a reconnaissance method, on the known schist area west of Gormanston and was continued easterly to the town to cover the "Gormanston Gap" where the Schist-Sediment contact is obscured by recent glacial deposits.

As the survey approached the town of Gormanston considerable disturbance in the potential distribution was found to be present in the vicinity of the water pipes forming the town reticulation. After carrying the survey as far as was practicable easterly in the Gormanston Gap, it was then extended northerly on to the Linda Creek area.

The accompanying plan (No. G26-3) shows the parts where conditions were disturbed, presumably due to the existence of "conductive" areas. It is possible that sulphide bodies occur within the boundaries of these disturbed anomaly areas as outlined on the plan. All the anomaly areas are located either wholly or partially on overburden areas where the underlying rocks

are considered more likely to be sediments than schist. Thus they appear to be outside the environment considered to be favourable for mineralisation.

Self-potential and gravity surveys were made over some of the anomaly areas and further detailed attention is being given to them by the current operations. Some details of the various anomaly areas are given below.

Area 1, near Gormanston, seems to be of chief interest. It is located near to schist outcrops and schist may occur at shallow depth over the area. A 4" water pipe crosses the area and the Gormanston water supply reticulation pipes flank the area on the south side. It is apparent that these pipes had a profound effect on the potential distribution over the area, and it is possible that they are wholly responsible for the disturbance encountered. Self potential and magnetic surveys over this area completed to date, give no confirmation of the existence of sulphides. However, this need not be regarded as negative evidence because there may be sulphides present below water level and therefore not undergoing the oxidisation necessary for the production of Self-potential effects and the supposed sulphides may not contain magnetic minerals. The gravity work completed in 1948 did not cover the area sufficiently to test it. Further gravity work has been contemplated for the 1949 season but has not yet been carried out.

The disturbed area lies close to a region favoured by Mr. Connolly for ore occurrence and a drill site for testing ground nearby this area has been selected by Mr. Connolly on straight out geological grounds.

In the light of all evidence available to date it is believed that this anomaly area should be tested by drilling although the anomaly cannot be classed as a satisfactory one from the geophysical point of view.

Area 2 is strongly disturbed and has been tested to a degree by vertical drill holes Nos. 9, 10, 11 and 12. These reveal the existence of clay and sand deposits containing native copper which are of substantial thickness in drill hole No. 12. The conglomerate was reported to be at a depth of 436 feet in drill hole No. 12. Presumably the above mentioned deposits have contributed to the disturbances under consideration and in fact are believed to be solely responsible. Exploration within the disturbed area east of No. 12 drill hole may be justified but a firm recommendation for testing is not submitted at this stage. The matter will be discussed in detail with company officers in the near future and it is hoped that it will be possible to arrange for a close superficial examination of the area to be made, with the aid of some shallow boring.

Areas 3 and 4 adjoin Area 2, which perhaps should be extended to include Areas 3 and 4. The above remarks re exploration of Area 2 apply also to Areas 3 and 4.

Area 5 is located on the edge of the area surveyed and is therefore not well defined. It is believed that, as a first step this area should be subjected to a close geological scrutiny in search of mineralisation evidence which may be showing if the area is not covered by recent deposits.

The positive S.P. anomaly, the axis of which is shown on plan G25-3, cannot be regarded as an indication of sulphides. These would, if undergoing oxidation, produce a negative S.P. anomaly. The Gravity anomaly, with axis as shown, could be due to a sulphide body but the electrical surveys give no confirmation of the existence of such in this position. The existence of the above mentioned anomalies will be kept in mind and may be further investigated.

RECOMMENDATIONS.

A review of all geophysical results to date leads to the following recommendations for testing, placed in order of preference.

1. Indication Zone A (Survey by Douglas)

Drill Hole, located at 5808/327OW, Depressed 40 degrees in the direction 53 degrees (Grid azimuth). Length of hole about 1500 feet, or probably more if drilling is to be continued to locate the contact.

2. Indication Zone B (Survey by Douglas).

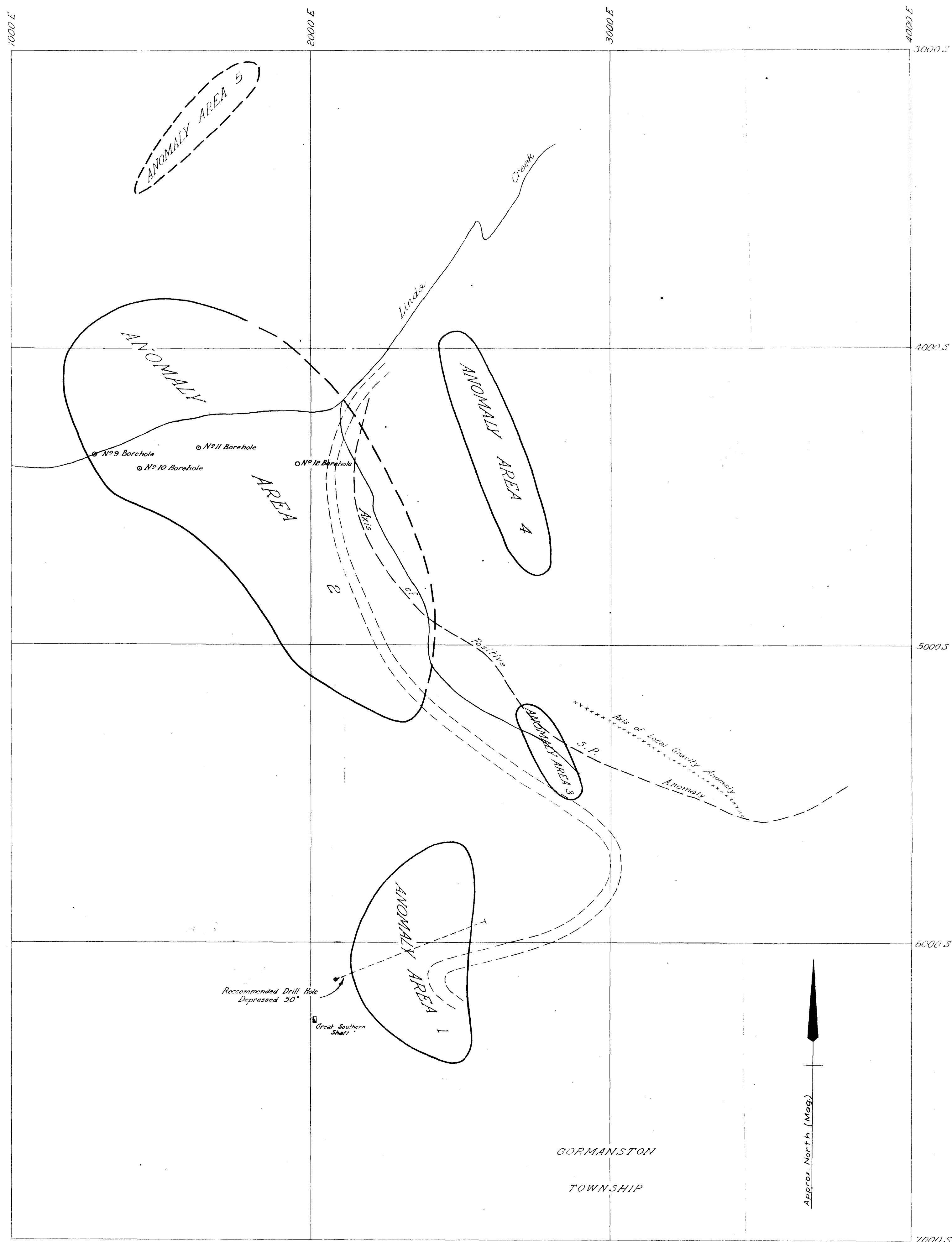
Drill Hole, located at 127ON/323OW, Depressed 40 degrees in the direction 43 degrees (Grid azimuth). Length of hole about 1000 feet, or probably more if drilling is to be continued to locate the contact.

3. Gormanston Anomaly Area 1 (Survey by Bureau).

Drill Hole, located at 6130S/208OE, Depressed 50 degrees in the direction 70 degrees (Grid azimuth). Length of hole about 800 feet.

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GEOPHYSICAL SECTION, BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS.

MT LYELL GEOPHYSICAL SURVEY GORMANSTON AREA

Plan showing
AREAS OF GEOPHYSICAL ANOMALY
to accompany Progress Report N° 1, dated 4 Mar. 49

Scale 1" = 200 ft.
0 100 200 400 600 800

4-3-49

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