D O M I N I O N G U L F C O M P A N Y

DETAILED GEOLOGY - JAMIESON II

BASE MAP 42A/12S

PORCUPINE-KIRKLAND ONTARIO

A. K. Temple August 1, 1955

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ABSTRACT

Jamieson II includes a 29-claim group situated in Lots 4 - 7, Concessions II and III, Jamieson Township, accessible by the Mattagami and Kamiskotia Rivers, and a 3-claim group in Lots 7 - 9, Concession II, Jamieson Township, accessible by road from the Kamiskotia-Timmins road.

Rocks exposed on the property include rhyolite, diabase and lamprophyre. The rhyolite forms part of a large N-S striking rhyolite ridge. The rock is massive and fairly uniform, striking WNW to NW; flow structure is common. Diabase dykes cut the rhyolite; one lamprophyre dyke was noted.

A strong NW trending dextral strike-slip fault throws rhyolite against diabase, and controls the direction of the rapids in the Kamiskotia River. The fault is considered to have originated pre-diabase, the post-diabase movement being posthumous.

The only mineralization observed was barren white quartz, of little interest as apparently a metamorphic differentiate of rhyolite, and disseminated pyrite in rhyolite in vicinity to the strong fault noted above.

RECOMMENDATIONS

The lack of significant mineralization and the lack of host rock other than rhyolite makes recommendation of further work on the grounds of surface geology difficult.

It is recommended that an EM survey be conducted on these claims followed by geochemical soil sampling of conductive zones. A more complete evaluation of the property, together with specific recommendations will be possible when the results of the EM and geochemical surveys are available.

INTRODUCTION

Jamieson II is composed of a group of 29 claims (P-38160, 38179-86, 38190-38209), situated in Lots 4 - 7, Concessions II and III, Jamieson Township, together with 3 claims (P-38187-89), situated in Lots 7 - 9, Concession II, Jamieson Township.

The 29-claim group (Sheet 1 of the attached geological maps on scale 1" - 200') is accessible by the Mattagami River from Sandy Falls, and then up the Kamiskotia River to Kamiskotia Landing. Camp was established at Kamiskotia Landing. The 3-claim group (Sheet 2) is accessible by timber road from the Kamiskotia-Timmins road; the 29-claim group can be reached by trail from the timber roads.

Previous work on the claim groups is negligible. Rhyolite outcrops in the 3-claim group was mapped by ODM (Vol. LIII, pt. 4), and the outcrop at the rapids on the Kamiskotia River was incorrectly recorded as wholly rhyolite.

The present investigation was carried out at the end of May and beginning of June 1955. Mapping of the topography and a thorough search for outcrop was undertaken by R. Hodgins and F. Faulkner. Outcrop was geologically mapped by A. K. Temple and R. Hutchinson using control of picket lines spaced at 400' intervals in the 29-claim group, and 200' intervals in the 3-claim group.

TOPOGRAPHY

The 29-claim group is a plateau sharply dissected by numerous small streams draining into the Kamiskotia and Mattagami Rivers. The rivers occupy a valley approximately 60' in depth; both rivers (the Kamiskotia below the rapids) are flooded back due to Hydro schemes. The

plateaus covered with fairly uniform poplar and birch, with spruce, balsam, alder, etc. Spruce and cedar occupy the low ground bordering the rivers.

The outcrops in the west of the 29-claim group form prominent topographic features. The rapids in the Kamiskotia River are formed by diabase outcrop and the direction of the rapids controlled by a fault. The other outcrops form abrupt high ground. Outcrop occupies approximately 2% of the group.

The two easterly claims of the three claim group are situated on high ground formed by boulder covered rhyolite ridge. The area was burnt fairly recently and vegetation is of the shrub variety - moose maple, young poplar, birch and spruce, cherry, alder, hazel, willow; blueberries, raspberries, wild roses, harebells and willowherb are common. Outcrop occurs in the northeast portion of the 2 claims, occupying approximately 12% of the 2 claims.

The westerly claim of the 3-claim group, P-38189, is drained by Godfrey Creek. The claim occupies relatively high ground, covered by poplar and birch; cedar, spruce and alder occur near Godfrey Creek. No outcrop was found on the claim.

GEOLOGY

Table of Formations

Diabase

Lamprophyre

Rhyolite

Description of Formations

Rhyolite Rhyolite is the principal rock outcropping on Jamieson II. It is a hard, generally massive, white, grey or green-pinkish rock. Flow banding is often pronounced and amygdules were observed. "Augen" structure

is common, individual "augen" of massive, jointed rhyolite up to 20' in length being surrounded by finely foliated rhyolite which appears to have flowed round the "augen"; the structure is most probably a flow phenomenon.

Small quartz gash veins parallel to either strike or joint are common in the rhyolite. The rhyolite is red or strongly pink in proximity to the veins, passing out into a normal colour a few inches from the veins. This colour change is probably due to a "metamorphic differentiation" origin of the quartz - i.e., derivation of the quartz from rhyolite, so enriching the rhyolite in K-spar, thus enhancing the pink colouration.

Lamprophyre

An 18" wide, fine grained, basic dyke outcrops in the NW of Claim P-38187. The dyke strikes 55°E of N and is jointed normal to the dyke walls. The rock is tentatively regarded as a lamprophyre. The age relation to diabase is not known.

Diabase Several diabase dykes outcrop on Jamieson II. The largest dyke noted, approximately 180' wide, forms the rapids in the Kamiskotia River. The dyke varies in grain size from very fine grained at the margins to coarse grained in the centre. Narrow lenses of micropegmatite, rich in K-spar and quartz occur in the centre of the dyke, and presumably represent an end phase of crystallization differentiation.

Smaller dykes occur in Claims P-38188 and -87 of the 3-claim group. These narrow dykes, varying in width from 3" to 12' may occur in groups, in which the various members retain their individuality over long strike distances. Horsts of rhyolite occur in the centres of the diabase "groups"; the rhyolite horsts are strongly jointed and may have a shattered appearance. The diabase dykes unvaryingly have a narrow chilled margin.

Structure

Regionally, the rhyolite of Jamieson II forms part of the rhyolite ridge occupying the south central portion of Jamieson Township. This rhyolite probably forms the NE limit of a major anticlinal structure.

The strike of the rhyolite, as determined from flow banding, is WNW to NW. The dip is either vertical or steeply inclined to the NE.

Strike faults and shearing along strike were noted. A spectacular fault controls the course of the rapids in the Kamiskotia River. Diabase is thrown against rhyolite along a dextral fault. The fault strikes 120° and dips 80°N. The fault plane is marked by gouge; mullion structure dips 8° towards WNW. The diabase is highly jointed and altered for 20' from the fault. The joints swing round towards the SW and slickenriding marks the joint planes. The diabase is veined with carbonate, and chlorite seams are common. Rhyolite close to the fault is jointed at 115° and 185° and veined with quartz (with minor carbonate close to the fault plane), and has disseminated pyrite. Rhyolite 100' from the fault is shattered and jointed at 25° (dip 70°NW) and 265° (dip 80°S).

The swing in the jointing of both rhyolite and diabase, together with the displacement and mullion structure, suggests that the fault is a dextral strike-slip fault with very little vertical movement. The smashing of the diabase shows the fault to have been active post-diabase intrusion, although in all probability the movement occurred along a rejuvenated pre-diabase fault plane. The composition of the vein filling in the two rock types near the fault is of interest as an illustration of the derivation of vein material from the host rock -no introduction of material is necessitated.

Minor displacements of diabase dykes in Claim P-38187 appear to be due to displacement of joints along small strike faults prior to the diabase intrusion, rather than displacement after the emplacement of the diabase.

The principal joint direction noted varied from 20° - 60°, with a subsidiary direction approximately E-W.

Economic Geology and Mineralization

The only sulphide mineralization noted on the property was disseminated pyrite in rhyolite close to the fault plane described in the above section.

Barren white quartz veins are common in rhyolite and have been more fully described in the section on rhyolite.

A. K. Temple

AKT:bh

ATTACHMENTS

DGC Maps - Detailed Geology, Jamieson II - Scale 1" - 200' - Sheets 1 & 2.
DGC Sample Record Sheet.

REFERENCES

Geology of the Robb-Jamieson Area, by L. G. Berry - O.D.M. Vol. LIII, pt. IV, 1944.

D106B

DOMINION GULF COMPANY
Rock Specimen Record Sheet

Property or Twp. Jamieson II ..... Base Map No. 42A/12S Prov. Ontario.
To accompany ~~xxxxxxxxxxxxxxxxxx~~ geology report ~~xxxxx~~, ~~xxxxxxxxxx~~ ENTITLED
Detailed Geology - Jamieson II
.....By A. K. Temple ..... Dated August 1, 1955
(stroke out reports not applicable; state reasons for any lab. work at bottom of sheet)

Received in Central File by ..... Date ..... Stored at .....
Lab. Reports by (1) ..... Dated .....
(2) ..... Dated .....

C.F. No.	Field No.	Location	Field Name	Misc. Notes, Assay No., Results, Purpose, c/s, etc.
12537	126-AKT-1	22 claim group 12W 21N	Diabase	
38	-2	12W 21N	Diabase	
39	-3	11W 32/60S	Diabase	
40	-4	11/10W 33S	Rhyolite	
41	-5	10/30W 33/30S	Rhyolite	
42	-6	9/60W 33/30S	Rhyolite	
43	-7	9/45W 32/90S	Rhyolite	
44	-8	13/40W 20/30N	Rhyolite	
45	-9	3 claim group 142/10E 11/50N	Lamprophyre	

D O M I N I O N G U L F C O M P A N Y

INTERPRETATION OF GROUND MAGNETOMETER DATA

JAMIESON II

BASE MAP 42A/125

PORCUPINE MINING DIVISION ONTARIO

C.W. Fuessler September 9, 1955

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SUMMARY

A number of diabase dykes are interpreted and labelled with the prefix "D"-. These dykes indicate a number of faults by their property of being affected by pre-existing structures. The dykes trend mainly north-south, and their deflection is usually to the northwest.

Anomalies labelled "A"- are interpreted as caused by more magnetic horizons in the lavas or by alteration along northwesterly trending faults.

Two basic intrusive lenses or sills are interpreted as the causative bodies for anomalies B-1 and B-2. These rocks caused alteration of the lithologic l unit invaded as shown by the higher magnetic values of zones C-1 and C-2.

Topographical features are suggested to explain anomalies T-1, T-2, T-3 (sub-surface escarpment on rock floor) and T-21, T-22 (edge of outcrops).

An electromagnetic survey is recommended over the whole claim group to aid in formulating an appropriate drilling program.

INTRODUCTION

A ground magnetometer survey was made over the Jamieson II claim group held by Dominion Gulf Company. This group is composed of a main group of 29 contiguous claims (P-38160, P-38179 to P-38186 incl., and P-38190 to P-38209 incl.,) and a separate group of three claims (P-38187 to P-38189 incl.,) all 32 claims having been recorded on September 15 and 16, 1954.

The Jamieson II claims are located in Concessions II and III OF Jamieson township, Porcupine Mining Division, Ontario. The main group of 29 claims occupies the following lot fractions:

1) in Concession III: the SW and SE quarters of the north half, and the whole of the south-half of Lots 6 and 7; the SW quarter of the north-half, and the whole of the south-half, of Lot 5; and the SW quarter of the south-half of Lot 4.

2) in Concession II: the NW and NE quarters of the north-half of Lot 7; the NW, NE and SE quarters of the north-half of Lot 6; the whole of the north-half of Lot 5; and the NW and SW quarters of the north-half of Lot 4.

The small group of three claims occupies the SW quarter of the south-half of Lots 7 and 9 and the SE quarter of the south-half of Lot 8.

A rectangular grid system of chained picket-lines was established over these areas, the base-lines and tie-lines running E-W and the lines N-S at regular intervals. For the main group, the basic coverage consisted of 100-foot readings on 400-foot lines, and later was reduced to 100-foot readings on 200-foot lines over some anomalous sections, especially in the northwestern, northeastern and south-central parts of the group. Intermediate 50-foot readings were obtained over strong magnetic gradients, and a few, short pace and compass traverses were made between some lines to clarify the magnetic picture. The basic coverage for the small group of three claims consisted of 50-foot readings on 200-foot lines. Twenty-five of these intended stations on L7S + 96E and L8+00E could not be read due to the poor ice condition on the KamisKotia river at the time of this survey.

The main group was surveyed during the months of November and December 1954, and the small group in April 1955. The instrument used for both surveys is an Askania Schmidt-type vertical component magnetic balance, having a sensitivity of approximately 20 gammas per scale division. On the main group, 2,494 stations were read over 40.16 miles of chained picket lines (average 62.1 stations per line-mile) and an additional 118 values were obtained on some 9,000 feet of pace and compass traverses. On the small group, 738 stations were obtained over 6.77 miles of chained picket lines (average, 109 stations per line mile). Over the whole of the survey, therefore, 3,232 stations were read over 46.93 line-miles of chained picket lines with an additional 118 stations obtained on 9,000 feet of pace and compass traverses.

The survey was made by R. Hodgins, assisted by F. H. Faulkner, in two stages: the 29-claim group was surveyed during the months of November and December 1954, and the 3-claim group in April 1955, at which time it was tied-in

magnetically to the other claim groups held by the Company in this general area. At the same time, the 29-claim group was tied-in magnetically to the 3-claim group and was found to be 711 gammas too high.

For both surveys, preliminary drafts were made in the field, and the data were later checked, re-processed and interpreted by the Dominion Gulf Company staff in Toronto.

The results of these surveys and the interpretation of the data are presented on the attached maps, both at a scale of 1 inch to 200 feet, and with contour intervals of 100 gammas.

INTERPRETATION

A detailed search for outcrops was made on these claims. The few that were found are located in claims P-38196, P-38201, P-38202, P-38203, in the 29-claim group, and in claims P-38187 and P-38188 in the smaller group. These outcrops were examined by A. K. Temple, Dominion Gulf Company Geologist, who summarized his findings as follows:

"Rocks exposed on the property include rhyolite, diabase and lamprophyre. The rhyolite forms part of a large N-S striking rhyolite ridge. The rock is massive and fairly uniform, striking WNW to NW; one lamprophyre dyke was noted.

"A strong NW trending dextral strike-slip fault throws rhyolite against diabase, and controls the direction of the rapids in the Kamiskotia river. The fault is considered to have originated pre-diabase, the post-diabase movement being posthumous."

Although the concrete geological data are quite scarce and limited to specific and relatively small areas of the property, it is sufficient to explain the broad features of the magnetic survey results. The general trend of the numerous diabase dykes is clearly established in the N to NNW direction. The anomalies caused by these dykes are numerous and of various shape, gradient and intensity. These will be discussed later. Other anomalies trend from WNW

to NW and are clearly related to the rhyolites or rocks and features which can have a similar trend.

To simplify the discussion and interpretation of these various anomalies, the survey will be divided into its two natural parts, that is, the 29-claim group and the 3-claim group, and each part will be discussed separately. This is quite justifiable, since the trends noticed vary from WNW to N, thereby separating the two groups lithologically. The first part to be discussed is the 29-claim group.

29-Claim Group:

The interpretation of this group is shown on the accompanying Sheet No.1. Seven diabase dykes are interpreted and will be discussed in detail, not because of their possible economic importance which is considered to be nil, but because of their property of being influenced by pre-existing structures. The diabase intrusives usually occur along zones of weakness in the country rock. These zones will be influenced by structural features such as faults. A diabase dyke can therefore show such displacements. However, the apparent displacement of a diabase dyke must not necessarily be related to the true movement of the fault it is crossing, since the dyke may follow one zone of weakness on one side of the fault and another on the other side of the fault. Then again, the dyke may intrude along tension fractures, which may cut an older fault without suffering any displacement, or may occur "en echellon" between a series of older faults. Therefore, a diabase dyke will not necessarily indicate the presence of an older structure it is cutting, but a sudden change in its trend or its aspect will usually be indicative of a discontinuity or change in the country rock.

The most continuous of the interpreted diabase dykes is that formed by D-11, D-12, D-13 and D-14. The sharp change in trend between D-11 and D-12, between D-12 and D-13, and between D-13 and D-14, suggest faults F-1, F-2 and F-3, respectively. A short distance to the west, another dyke is composed of segments D-9 and D-10. The change in trend between D-9 and D-10 suggests the

extension of F-2. At the north end of D-9, F-1 may be indicated, if the few magnetic data are read as shown by the interpretation. D-10 appears to die off southwards, but this will be discussed in greater detail in relation with D-7. The maximum possible width of this dyke is fairly well indicated by B.L.1, T.L.3 and by a traverse at 6+00S between lines 10W and 12W; it is not known south of T.L.3, its presence being indicated by hi her magnetic values on Line 10W only.

The next diabase dyke has been noted geologically where it outcrops in the rapids on Kamishotia river. It is labelled D-8 and extends southward to the property boundary where its sudden change in trend suggests the nearness of fault F-4. At the rapids, another fault, F-3 is seen and was mapped by A.K. Temple, who states that it throws the diabase against rhyolite, in a right-hand movement. The magnetic picture is quite complex at this point and to the north. To the south of F-3, the diabase produces a strong local positive peak followed by a strong negative peak immediately to the north of the fault. The negative peak rapidly loses intensity, but remains as a magnetic through trending north-northwesterly and gradually changes into a positive anomaly with another local but strong peak just south of fault F-2. This segment between F-3 and F-2 has been labelled D-7. The picture is further complicated by the presence of D-2 a short distance to the west of D-7. The anomaly D-3 is not very intense and appears to join up with D-3 after a change in trend across fault F-3 - D-3 parallels D-8, and shows little effect from fault F-4- Northward, the extension of anomaly D-2 appears to become lost in the stronger anomaly D-7, especially as the western flank of D-7 is quite uneven compared to its eastern flank. The difficulty in this interpretation is how to explain the bi-polarity in segment D-7. It is known for example, that a bar magnet can be broken into any number of shorter magnets, each with its north and south poles. Assuming that through some mechanical action of faults F-2 and F-3, a similar action took place, there would be left to explain the reversal of the polarity of the remanent magnetism, since it is evident that the north pole (producing a negative peak) is at the south end of the

fractional magnet D-7, and the south pole (producing a positive peak) is at the north end. Despite the fact that this cannot be answered at present, it is thought that this interpretation is the most probable. Other possible interpretations could be based on the assumption that the negative peak is due to geometric factors of a normally polarized body. These possibilities are seen for this case: the negative peak is related

1) to the south end of D-7,

2) to the north end of D-8,

3) to the topographical through formed by the rapids on the Kamiskotia river.

In the first case, the top surface, more or less horisontal, of D-7 has a surface polarization which will produce a positive anomaly; therefore the southern end surface must be such as to produce a negative anomaly stronger than the positive anomaly produced by the top surface, if the addition of these two is to produce a negative anomaly. The required polarization of the end surface will occur only if its northern component of dip is smaller than the dip of the total magnetic field. The total magnetic field dips between 77o W and 78oW and its declination is approximately 90° W of astronomical north. According to Temple, the fault plane dips 80° to the northeast. Considering the directions involved, it is possible that the northern component of dip of the end surface is less than the dip of the total field, thereby satisfying the first condition. But to increase the effect of the end surface, its angle to the dip of the field must increase. It is concluded, therefore, that the end surface may have a tendency to produce a negative peak, but its effect will be more than cancelled by the horizontal surface because the latter is nearer to the plane of measurement and because it is nearer to the perpendicular to the field and therefore more effective magnetically, than the end surface.

The two other cases can be studied together, although they have never been discussed in publication as far as could be determined. The nearest to

the dyke case is the figure of the total intensity over a 1x6 units dyke, vertical striking due north, the normal field dipping 75°, by Vacquier et al. (Interpretation of Aeromagnetic Maps, G. S. A., Memoir 47, Fig. A64, pl28). It is produced, somewhat pear-shaped, the wider end being nearer to the dyke. The observed anomaly cannot be directly compared with Vacquier's results as one represents measurements of the vertical component while the other is related to the total intensity of the field. However, due to the high inclination of the field in this area, the two must look alike, sufficiently so that one can conclude that the through-like magnetic low of the south half of D-7 is not related to the north end of D-8, unless a positive anomaly is superimposed on its east side. Similarly, in the case of topographical feature where a magnetic low may be expected the low would certainly not be confined to the observed narrow through of D-7 and a positive anomaly would be required, as previously. In both cases the positive anomaly would have to extend as far east, as D-7 extends to the west, as far north, and with more or less an equal but reversed intensity. The present writer cannot see that such a combination of anomalies exists here. It is true that an anomaly labelled D-10 appears to die out where the positive anomaly would start, but it seems that D-10 cannot have the shape to cancel the negative anomaly, despite the elegant interpretation possible if such were correct; that is, D-10 to be the continuation of D-8, and the positive northern half of D-7, the extension of D-2.

The north end of D-7 presents almost a repetition of the complex association of positive and negative peaks. Due to its nearness to the northwest corner of the property, the magnetic picture is not complete. However, it is suggested that the positive - negative sequence of peaks is caused by the end of D-7 at fault F-2, and D-6 the continuation of D-7. Whether there has been actual displacement of the dyke by F-2 cannot be stated. The local anomaly D-1 may be related to the dyke D-2, its higher intensity being possibly caused by its ending at fault F-2,

as in the case of D-7.

Another diabase dyke D-5, is suggested over a short distance in the southwest corner of this claim group. Its change in trend from N to NW is the main basis for suggesting fault F-4. The northwesterly trending portion of D-5 is thought to be unrelated to the host rocks, as it occurs between two large outcrops where the rhyolites strike WNW.

Two somewhat similar anomalous zones have been labelled D-15 and D-18 in the southeast part of the claim group. Their northerly trends suggest diabase dykes; the indicated width as compared with the observed intensity, and the uneven peaks, stronglypoint to a number of narrow dykes causing each zone. Both D-15 and D-18 are lost when approaching the strong anomaly B-2. To the north of this anomaly two dykes are suggested D-14 and D-17. Magnetically they are different from D-15 and D-18 in that they are narrower, more intense, and may each be caused by a single body. As diabase dykes sometimes change their appearance with a change in country rock, it is suggested that the causative body of B-2 is older than the diabase intrusions which changed from swarms of dykelets to the south, to more massive single dykes to the north.

Fault F-8 is weakly indicated by the apparent jog between D-16 and D-17. F-8 is thought to trend northeasterly because of the right-hand pseudo-displacement between D-16 and D-17.

A number of northwesterly trending anomalies were observed. they are grouped in these classes, the first composed of anomalies A-1 to A-13 included, the second of anomalies B-1, and B-2, and the third of anomalies C-1 and C-2.

The anomalies which are labelled with the prefix "A"-, are related to more magnetic horizons in the favas, such as andesites, or to alteration along channels such as the northwesterly trending faults of shear-zones would offer. Anomaly A-2 is almost on strike with fault F-1, while A-1 may be alteration along a separate but parallel fault plane. Actually it is thought that the faults in this area are not composed of single fault plane, but an ensemble

of "en echellon" fault planes forming fault zones. Under these conditions, A-1 and A-2 could be related to the fault zone which includes F-1. Anomalies A-4 A-5, A-6, and A-7 are more intense than the usual A- anomalies. Their configuration on both sides of the diabase dyke D-13, suggests a spill-over of the diabase, or the usual interpretation of the A- anomalies. It is possible that F-3 actually is the cause for the alteration of spill-over at A-4, A-5, A-6 and A-7, if the intersection of F-3 with D-13 as shown on the map is produced by an unknown fault at that point, parallel to F-3. To support this view, it may be stated that the strike attributed to F-3 at D-8, by Temple, would intersect D-13 at A-4. A number of faults, trending northeasterly, are suggested: F-5 to explain the discontinuity between A-5 and A-6 and the end of A-11; F-6 for A-6 and A-7. It is also possible that A-8 is related to A-7 suggesting the fault F-7. This fault is suggested to intersect D-14 just south of the property to explain the sudden southward increase in intensity of this anomaly.

Anomalies A-9, A-10, A-11, A-12 and A-13 cannot be directly related to a known or interpreted fault. However, their low intensity suggests some weakly magnetic alteration, or local horizon in the lavas.

Anomaly A-3 may be produced by conditions similar to those related to the other A- anomalies. However, it could also indicate the extension of the swarm of dykelets D-18.

A basic intrusive in the form of two lenses is interpreted as the cause of the anomalies labelled B-1 and B-2. The smaller lense - shaped body, B-1, is separated from the larger lense, B-2, by an area of relatively high magnetic values which is labelled C-1. To the southeast of B-2, another zone of high magnetic values is outlined as C-2. The arrangement strongly suggests two lense - shaped basic intrusives, B-1 and B-2, accompanied by alteration of the lithological unit which was intruded, or alteration along the zone of weakness which permitted and localized the intrusives. The causes of alteration of zones C-1 and C-2, are probably related to the basic intrusive.

Approximate calculations show that the causative body, B-2, is at a depth in the order of 100 feet, has a width of 200 feet and an excess of susceptibility in the order of 0.008 c.g.s units. The order of magnitude of the susceptibility is thought to be too high for volcanic rocks, but more in the range that a gabbro may have.

The last feature to be discussed in this group, has been labelled T-1, T-2, and T-3. Its trend is north-south and it is composed of a positive peak to the east followed immediately to the west by a negative peak of more or less equal intensity. It is interpreted as a topographical feature of the bedrock surface, in the form of a shelf, the higher region being to the east. A dyke-like body with a small dip angle to the east could produce the same anomaly qualitatively. However, all the other known dykes show steep dip angles. The fact that this anomaly dies out southward suggests that the sub-surface escarpment disappears gradually. The escarpment is quite probably glacial in origin. The action of the ice appears to have been affected by the presence of faults F-1 and F-2, as suggested by the pseudo-displacement of the anomaly.

3-Claim Group

Six diabase dykes are interpreted in this group mainly on the basis of their N to NW trends; they are labelled D-21 to D-27 inclusive.

Dyke D-21 is only partially seen due to data lacking in claim P-38189. It would appear to trend slightly east of north and then swing to NNW. This change in trend may suggest a cross-structure somewhere to the north of this claim, but an extension of this survey would be needed to be more affirmative.

Dyke D-22 is well indicated and presents a change in trend at both ends suggesting possible faulting. Towards the north end, it appears to fork. This could be the result of a northeastorly fault.

D-23 also suffers a change in trend from north to northwest, which may indicate the presence of another fault. However its location is so indeterminate that it is not shown on the map. Dyke D-23 is known to outcrop 500 feet west

of the lot line on the Tie-Line 13+20N.

The next diabase dyke, D-24, shows an apparent right-hand displacement near the northern boundary of claim P-38187. Northwesterly faulting has been mapped by Temple just west of the lot line on Tie-Line 13+20N. It is also on strike with the sudden southward drop of magnetic intensities on the easternmost line, which suggests the abrupt ending or change in trend of dyke D-27.

The effect of this fault on D-25 and D-26 is not known due to lack of data in between lines 142+00E and 144+00E. Therefore these two segments were not joined. Geologically D-25 is underlain by a swarm of three or four small dykes. As D-25 and D-26 are on strike, it is suggested that the same conditions prevail for D-26.

Three "A"- type anomalies are recognised and labelled A-21, A-22 and A-23. They are thought to be in the same category as the anomalies labelled with the prefix "A"- in the 29-claim group, and their discussion will not be repeated here.

Two anomalous zones are outlined as T-21 and T-22. They are thought to be directly related to topographical features as suggested by their nearness to the edge of large out crop areas. Zone T-22 is formed by closely related positive and negative peaks. In the case of T-21, the negative peak is quite evident on Line 13+00E, and it is suggested that the related positive peak, while not measured, lies to the east, between lines 138+00E and 140+00E.

A zone of negative magnetic values was observed in the extreme north eastern corner of claim P-38187. This may be caused by topographical features on the easternmost line or immediately to the east of it, possibly accentuated by the extension of the diabase dyke D-27. Due to the location of this zone on the border of the survey, and the ensuing lack of data related to it, a detailed discussion of this magnetic feature is not possible.

RECOMMENDATION

The interest in this area is mainly caused by its nearness to the Kam-Kotia deposit, and the possibility of finding other similar

ore deposits. The known ore is magnetic to a certain degree as it contains pyrrhotite, and is found along sheared andesite-rhyolite contact.

The interpreted diabase dykes are not of economic interest. The interpreted basic intrusive lenses, B-1 and B-2, are definitely too magnetic to be caused by a sulphide body. The "A"- type anomalies are of interest: they could be caused by sulphide bodies, especially those that are related to faulting or shearing, such as in the case of anomalies A-1 and A-2, near fault F-1; and anomalies A-4 to A-8 and A-11 to A-13, inclusive, which are near F-3, and cut by F-5, F-6 and F-7. However, some of the other A-type anomalies may also be related to faulting which has not yet been detected.

Zones C-1 and C-2 are also thought to be of interest as they may be caused by alteration from the basic intrusives. Should any deposits exist here, they would be different to the Kam-Kotia ore, but base metal deposits could well be related to the basic lenses.

Due to the inability of the magnetic method to point clearly to the ore, it is recommended that the whole property be surveyed by the electromagnetic method. A study of the combined results of both surveys will then permit to establish an appropriate drilling program. Drilling will be necessary as only this can definitely prove or disprove the economic possibility of this property.

C.W. Paessler

CWP:TF
Duplicate: Mr. R. D. Wyckoff

ATTACHMENT

1- D.G.C., Ground Magnetometer Survey, Jamieson II, sheet No.1, Porcupine Mining Division, Base Map 42A/12S, Scale 1"= 200', Contour Interval 100 gammas, September 9, 1955.

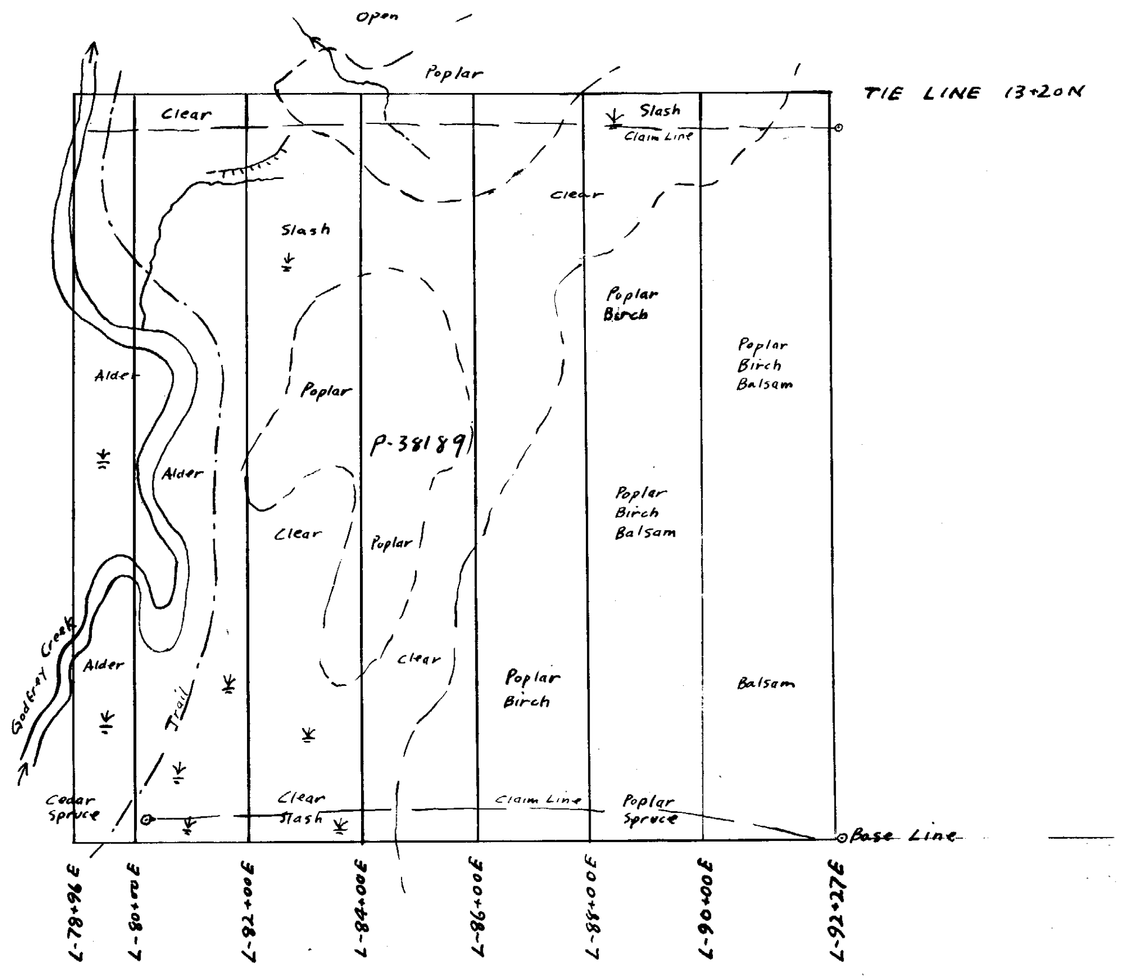
2- D.G.C. Ground Magnetometer Survey, Jamieson II, Sheet No. 2, Porcupine Mining Division, Base Map 42A/12S, Scale 1" = 200', Contour Interval 100 gammas, September 9, 1955.

REFERENCES

1- D.G.C. Detailed Geology, Jamieson II, Base Map 42A/12S, Porcupine-Kirkland, Ontario, by A. K. Temple, Aug. 1, 1955.

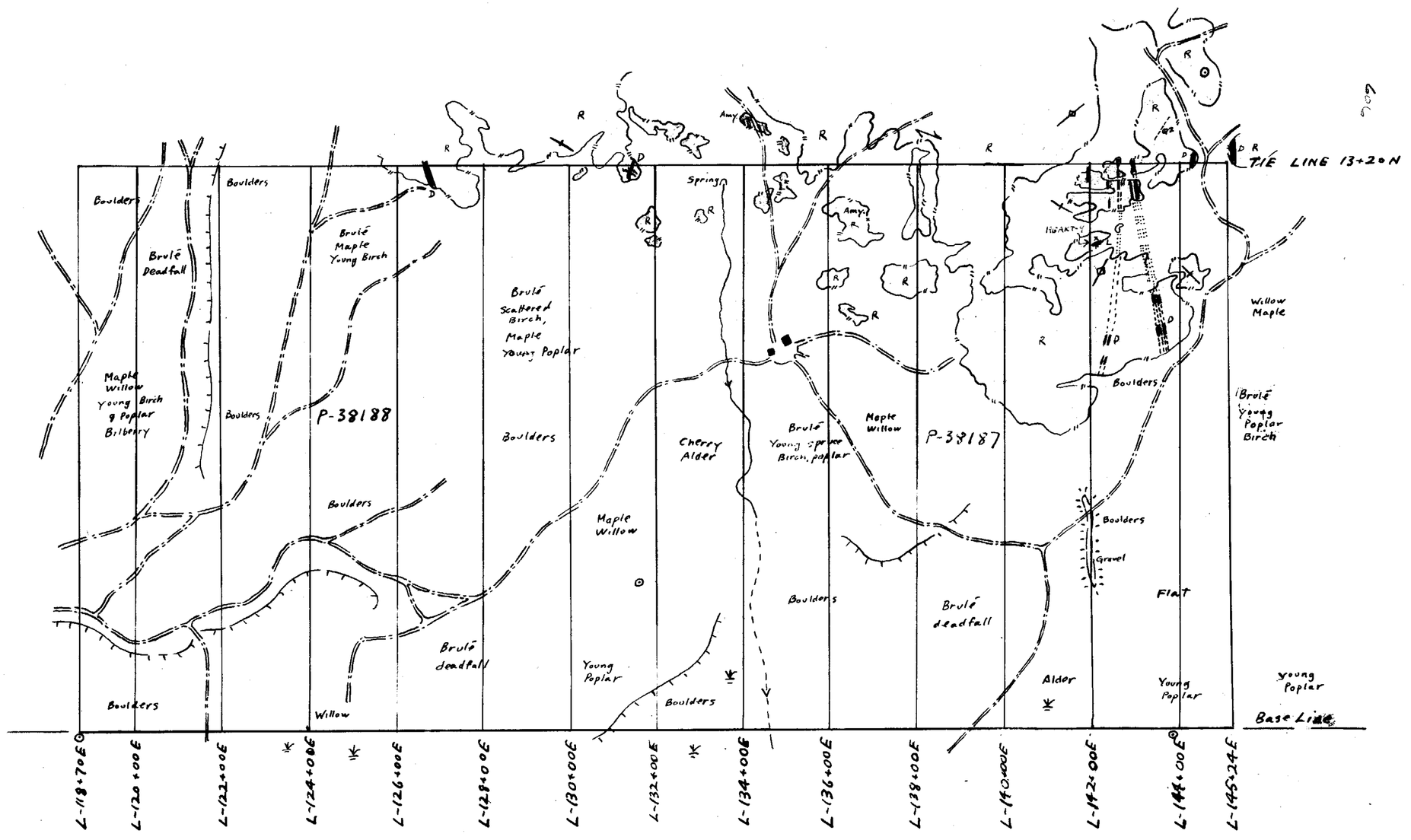
2- Interpretation of Aeromagnetic Maps, by Vacquier et al, G.S.A. Memoir 47, 1951.

N
CON. III
CON. II
B.L.5
B.L.4
B.L.2.
B.L.1.
T.L.1
T.L.2
T.L.3
MATTAGAMI RIVER
KAMISKOTIA RIVER
Kamiskotia Landing Camp
LOT 5
LOT 6
LOT 7
LOT6
39+60E
26+40-W
66-E
64-E
60-E
56-E
52-E
48-E
44-E
40-E
36-E
32-E
28-E
24-E
20-E
16-E
12-E
8-E
4-E
2-E
0
2-W
4-W
6-W
8-W
10-W
12-W
14-W
16-W
18-W
20-W
22-W
24-W
P-38160
P-38179
P-38180
P-38181
P-38182
P-38183
P-38184
P-38185
P-38186
P-38191
P-38192
P-38194
P-38195
P-38196
P-38197
P-38198
P-38199
P-38200
P-38201
P-38202
P-38203
P-38204
P-38205
P-38190
Trail
old Trail
Forestry Telephone Line
Old Cabin
Cabin
Shack
Open Slash
Pond
Boulders
Rhyolite Boulders
Portage



MAP to SHOW the LOCATION of JAMIESON II.

Scale 1" = 2 miles.



Legend.

- Diabase
- Lamprophyre
- Rhyolite
- Shear
- Strike
- Joint
- Fault
- Road
- Cabin
- Claim post
- x 196-AKT-9 Specimen
- Amy. Amygdaloidal

DOMINION GULF COMPANY

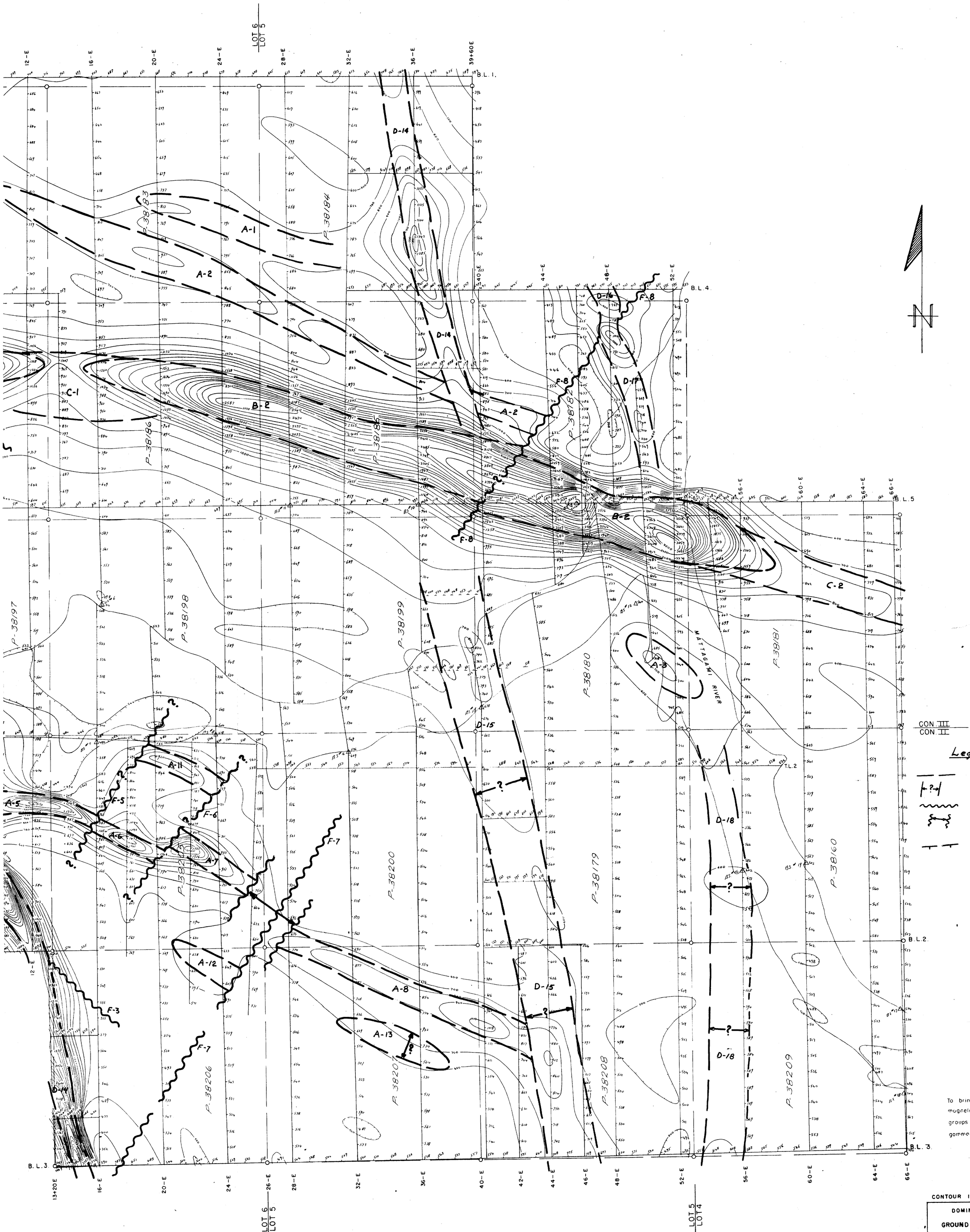
DETAILED GEOLOGY - JAMIESON II (Sheet 2)

BASE MAP 42A/125

PORCUPINE KIRKLAND ONTARIO

GEOLOGY BY A.K.TEMPLE 20TH JULY 1965

SCALE 1" = 200'



Legend:

- Contact
- Width not known
- Fault
- Possible extent of fault or its location
- Sub-surface topogr. escarpment (short line pointing down)

To bring this survey to the same magnetic level as the other claim groups in this area – subtract 211 gammas from each value

CONTOUR INTERVAL 100 GAMMAS

DOMINION GULF COMPANY

GROUND MAGNETOMETER SURVEY

JAMIESON II

SHEET #1

PORCUPINE, ONTARIO.

42 A/12.S

SCALE 1" = 200' Sept. 9, 1955

To accompany Report by C.W. Pacesky, Sept 9, 1955

63.606

CON. III
CON. II

P-38196

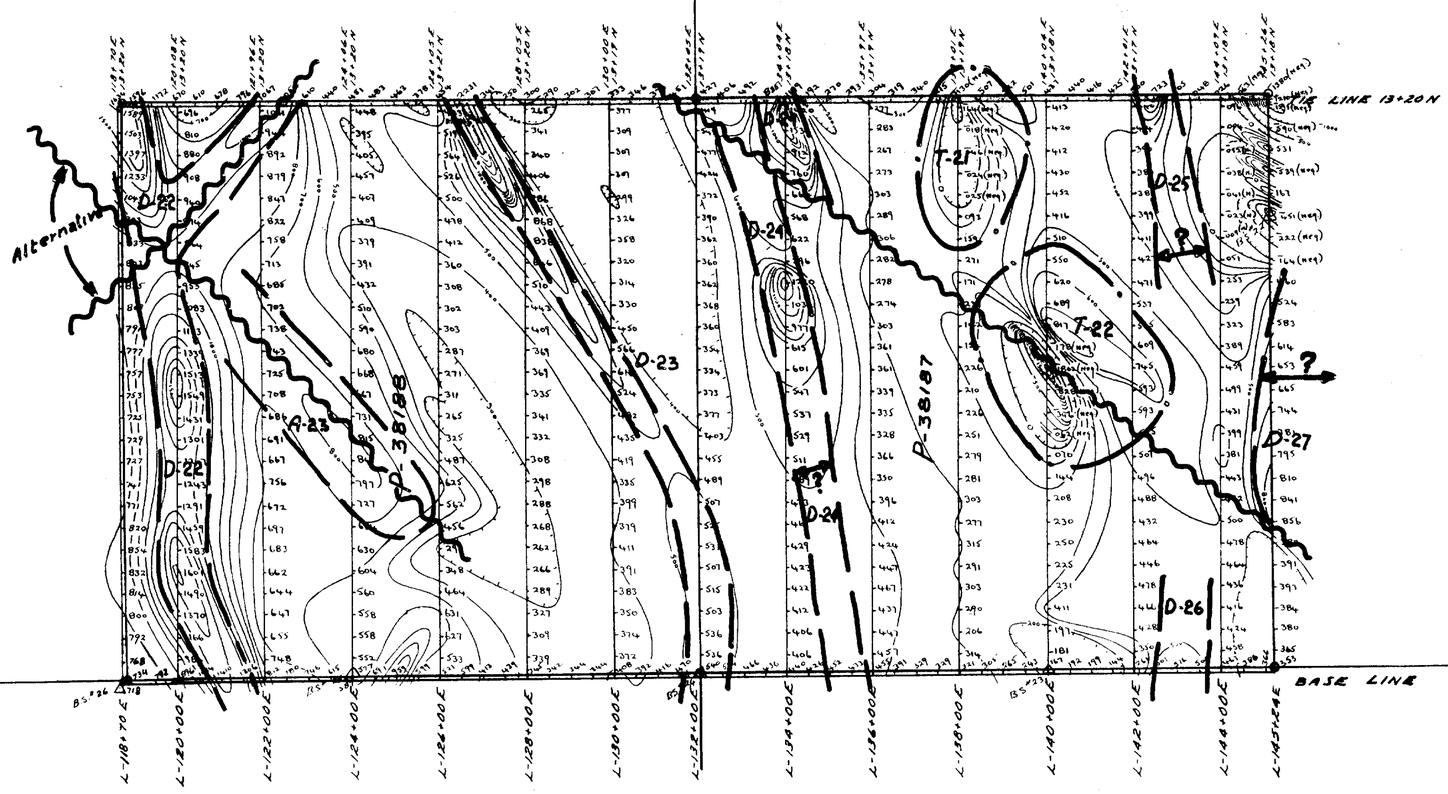
P-38203

Legend:

Contact

Fault

Anomalous Zone



CON. II
CON. I

LOT 8

LOT 7

CONTOUR INTERVAL 100 GAMMAS

DOMINION GULF COMPANY

GROUND MAGNETOMETER SURVEY

JAMIESON II

SHEET #2

PORCUPINE, ONTARIO

42 A/12S

SCALE 1" = 200' SEPT. 9, 1955

To accompany Report by C.W. Faessler, Sept 9, 1955

63,606

DOMINION GULF COMPANY

DETAILED GEOLOGY

JAMIESON II

(SHEET I)

PORCUPINE – KIRKLAND, ONTARIO.

42 A/12S

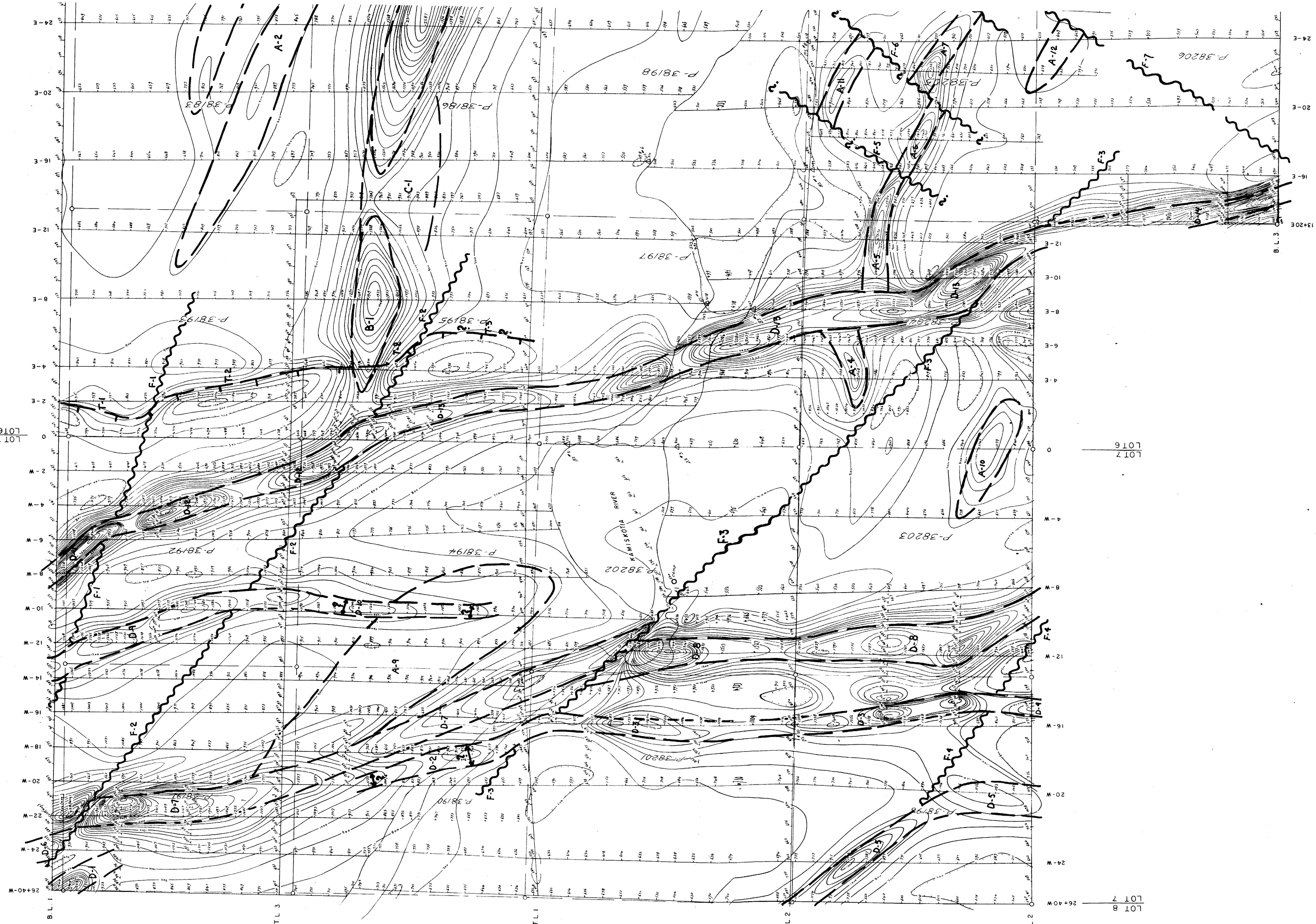
SCALE 1" = 200' JULY 20, 1955

Geology by A.K. Temple

Topography by R. Hodgins, F. Faulkner

63.606

P108-6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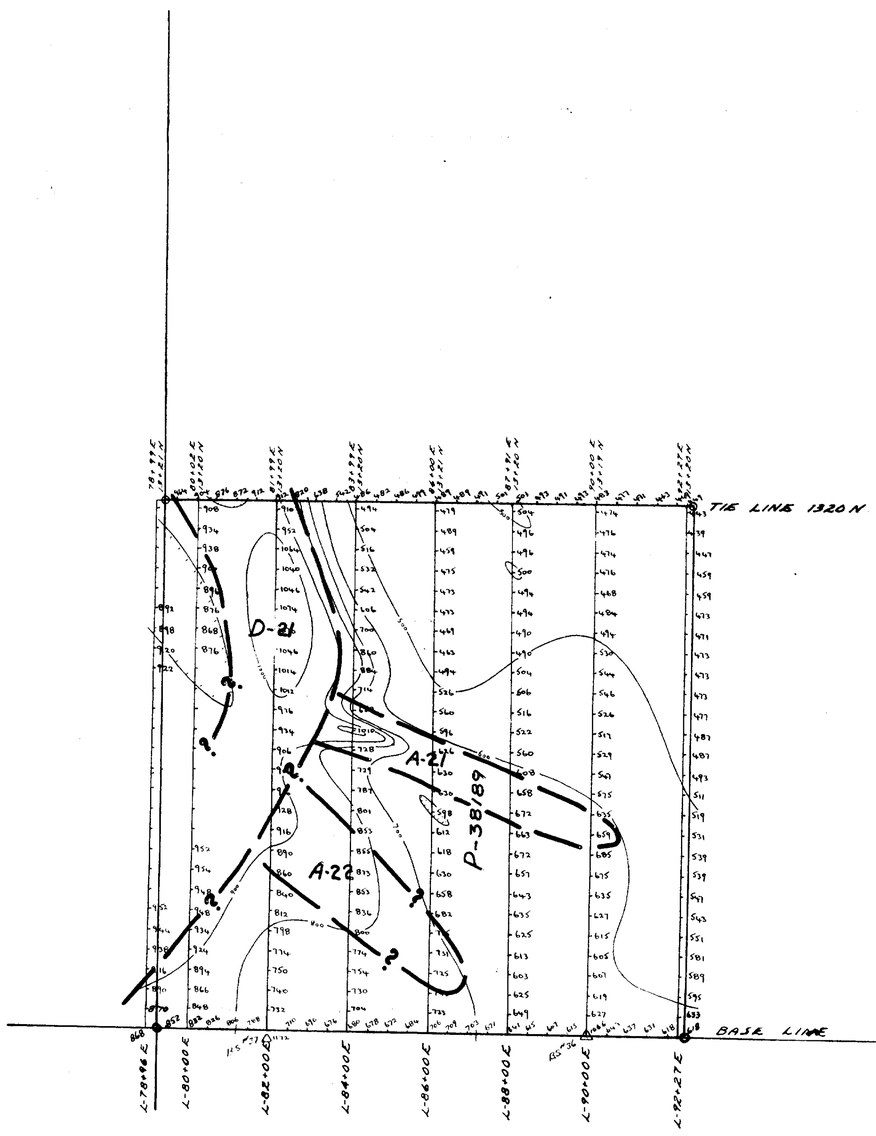
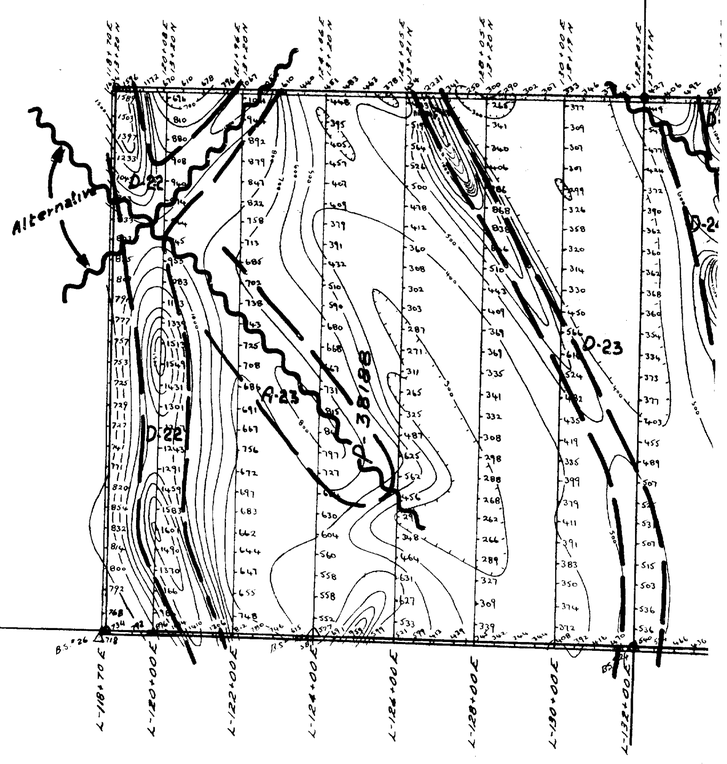
P-38183
P-38186
P-38197
P-38193
P-38195
P-38192
P-38194
P-38202
P-38203
P-38206
P-38201
P-38190
P-38179
A-2
A-1
A-12
A-11
A-5
A-6
A-7
A-4
A-10
A-9
B-1
C-1
D-1
D-2
D-3
D-4
D-5
D-6
D-7
D-8
D-9
F-1
F-2
F-3
F-4
F-5
F-6
F-7
T-1
T-2
T-3
KAMISKOTIA RIVER
LOT 7
LOT 6
LOT 8
LOT 7
B.L.1
TL 3
TL 1
TL 2
B.L.2
B.L.3
CON. III
CON. II
24-E
20-E
16-E
12-E
8-E
4-E
2-E
0
2-W
4-W
6-W
8-W
10-W
12-W
14-W
16-W
18-W
20-W
22-W
24-W
26+40W
13+20E

CON. III
CON. II



LOT 9

CON. II
CON. I



LOT 8