GEOPHYSICAL REPORT
ON A
HORIZONTAL LOOP ELECTROMAGNETIC SURVEY
OVER
THE DAMBO CLAIMS
PICKET LAKE, FRANCOIS LAKE AREA
OMINECA MINING DIVISION
BRITISH COLUMBIA

DAMBO CLAIM	: 60 km due south of Houston, B.C., on the north side of Ootsa Lake.
	: 53° 51' North Latitude 126° 33' West Longitude
	: N.T.S. 93E/15
WRITTEN FOR	: EXETER MINING INC. 1326-510 W. Hastings St Vancouver, B.C.
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SUMMARY

A ground horizontal loop electromagnetic survey was carried out during February and March, 1989 on the Dambo claim located on Jap Hat Hill, on the north side of Ootsa Lake adjacent to Picket Lake, and approximately 60 km due south of Houston, within the Omineca Mining Division, B.C.

The property consists of 40 contiguous claims optioned to Exeter Mining Inc. of Vancouver, B.C.

The property is found within the western part of the physiographic unit known as the Nechako Plateau, about 30 km east of the border of the Coast Mountains. Rhyolite breccia is exposed in the area of Jap Hat Hill, and is interbedded with minor rhyolite flows and cut by quartz feldspar porphyry dikes. The rhyolite shows widespread weak to intermediate clay alteration, and contains minor disseminated iron sulphides mainly altered to limonite. High values for various elements including gold can be found within a sulphide-rich shear zone, as well as from pyritic clasts in rhyolite breccia.

Previous surveys include soil sampling, magnetic field measurements, and IP/resistivity surveys. The purpose of this survey was to locate conductive zones suggestive of mineralized shear or alteration zones, as well as to determine the existence of new anomalous target zones.

The electromagnetic surveys, which total 15.5 km, were carried out with an Apex Parametrics MaxMin II electromagnetometer in the horizontal loop mode. The coil spacing was 100 m, with a reading interval of 25 m. The five frequencies recorded were 222, 444, 888, 1777 and 3555 Hz. The EM readings were profiled and interpreted where possible for location, dip, depth to top, and conductivity-thickness. The 1777 and 3555 Hz frequencies were plotted in plan form as both profiled and contoured data sets.

CONCLUSIONS

The horizontal loop EM survey has revealed several conductors, labelled from A to E respectively, which strike from near easterly to northerly. The conductors on the Dambo claim property vary in strength of conductivity from poor to medium. Higher conductivities suggest the causative sources to be zones of clay alteration, or water-filled shear zones within fragmental rhyolite.

In many cases, the HLEM conductors of the survey under discussion correlated very well with resistivity low zones discovered in a previous resistivity survey conducted over the same grid, as well as with subtle magnetic highs from a survey conducted in 1988.

The strongest conductor, labelled A, strikes at least 1600 metres long across the entire length of the property, and is more indicative of geologic structure. This conductor may be classified as weak-to-medium, but was the only one identified which was able to be quantitatively interpreted: it dips approximately 65^{o} - 85^{o} in a westerly to southwesterly direction, from an approximate depth of 20 - 30 metres. Possible causative sources of this conductor include a mineralized shear or contact zone between a zone of silicification and un-altered rhyolite, or a zone of clay alteration between unaltered rhyolite and silicified rhyolite.

Conductor B is a poor conductor which occurs south of conductor A, and strikes a total of approximately 700 metres long. The causative source of this anomaly could be a water-filled shear zone or a clay alteration zone.

Conductors C and E can appear at the point where conductor A begins to trace northerly, and could reflect the splaying of the source of conductor A, possibly reflecting a source caused by the same source of conductor A, or could reflect a cross-faulting shear zone.

Conductor D is a poor conductor occurring immediately northwest of conductor A, and could reflect a zone of clay alteration at depth or a zone of unweathered sulphides.

RECOMMENDATIONS

1. Detailed geologic mapping should be carried out along the trends of the various conductors in order to determine the causes of the MaxMin responses of this survey. Special attention should be given to conductors A and B, as well as the area where conductors C and E appear to splay off from conductor A. It is helpful to determine, with some degree of confidence, the dip directions of the various conductors, though most of those in this survey appear near-vertical. Additional MaxMin work should assist with this determination.

2. Because of the manner in which anomaly A strikes obliquely to the survey lines of the existing grid, and the fact that quantitative interpretation of the MaxMin results was only possible along the baseline, further reconnaissance MaxMin should be attempted along this trend to the north. Pending results of this suggested survey, reconnaissance IP and resistivity surveys may also be carried out along these same lines.

3. Following the results of the above work, some trenching may be attempted in areas of shallow overburden, to determine the causes of the conductors of this MaxMin survey.

4. Should favourable results be found in the above surveys, drilling is recommended to determine the potential for economic mineralization within the causative sources of the geophysical anomalies.

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INTRODUCTION

This report discusses the survey procedure, compilation of data, interpretation methods, and the results of a horizontal loop electromagnetic (EM) survey carried out over a portion of the Dambo claims. The property is located over Jap Hat Hill, beside Picket Lake, and approximately 60 km due south of the city of Houston, in the Omineca mining division, B.C.

The field work was completed from February 14 to March 17, 1989, under the supervision of Mr. Tam Mitchell, geophysical technician, who also formed part of the field crew. He was assisted by Mr. Graeme Price, geophysical technician.

The purpose of this survey was to locate conductive zones suggestive of mineralized shear or alteration zones, as well as to determine the existence of new anomalous target zones.

PROPERTY AND OWNERSHIP

The property consists of four contiguous claims containing 40 units as described below and as shown on map #2.

Claim Name	Record No.	No. of Units	Anniversary Date
Dambo 1	3271	12	Oct. 6
Dambo 2	3272	8	Oct. 6
Dambo 3	3273	12	Oct. 6
Dambo 4	3274	8	Oct. 6

These claims are under option to Exeter Mining Inc., from BP Minerals Ltd. They were staked by BP Minerals in October 1980 to cover a target defined by prospective geology and interesting rock chip sample results, discovered during a reconnaissance exploration programme as detailed in a report by Findlay et al(1981).

LOCATION AND ACCESS

The Dambo property is located on the northern side of Ootsa Lake, approximately 60 km due south of Houston, B.C. and approximately 30 km due south of Francois Lake. The northeastern corner of the claims overlie Picket Lake, less than 3 km north of Ootsa Lake. Access may be gained by a good gravel road which provides year-round access to the property.

The geographical coordinates are 53°51′ north latitude and 126°33′ west longitude.

PHYSIOGRAPHY

The property is found within western part of the physiographic unit known as the Nechako Plateau, about 30 km east of the border of the Coast Mountains. Most of the property and immediately surrounding area consists of gently undulating terrain, from which the conical peak of Jap Hat Hill rises as a prominent landmark. Elevations on the property range from approximately 880 to 1075 metres.

The area is mainly sparsely covered by coniferous trees and a more open, largely deciduous forest on the south facing slopes. Some swamps occur within the property.

HISTORY OF PREVIOUS WORK

The following is quoted from a 1981 report on the Dambo claims by Findlay et. al.:

" The 1981 program included linecutting, geological mapping, a soil geochemical survey, and Pulse EM and IP surveys. A 31 line-kilometer grid was established over the central part of the property to provide control for geological mapping, and geochemical and geophysical surveys. Geological mapping was carried out on a scale of 1:2,000 within this grid, and at a scale of 1:15,000 over the remainder of the property and adjacent area, using a photomosaic as control. The nature and coverage of the geochemical and geophysical surveys is described in later report sections.

" Geological mapping and geochemical sampling was completed during the period of May 29 to June 16, 1981 by A. Findlay, project geologist, E. Lyngberg, senior assistant and D. Piquette and R. Kessler, junior assistants. The crew was accommodated in the Eurocan Pulp and Paper Andrews Bay logging camp, 20 km southwest of the property. The IP orientation and production surveys were completed in mid-June, and in late August and early September, respectively. The Pulse EM survey was completed in late May. Geochemical and geophysical surveys were supervised by S. Hoffman and G. Mitchell, respectively."

In 1988, J.G. Ager Consultants Ltd. conducted soil geochemical and magnetic surveys.

GEOLOGY

The following is quoted from the report by Findlay et al.:

(a) Regional

" The regional geology of the Ootsa Lake area is described in the report 'Whitesail Lake Map-area B.C.' by S. Duffel (G.S.C. Memoir 299, 1959). A more recent geology map has been compiled by G.J. Woodsworth (G.S.C. Open File 708, 1980).

" Felsic and lesser intermediate and mafic volcanics of the Upper Cretaceous (?) and Lower Tertiary Ootsa Lake Group underlie an extensive area along the northern shore of Ootsa Lake in the vicinity of the Dambo claims. These volcanics overlie various Jurassic and Cretaceous volcanic and sedimentary formations, and are unconformably overlain by relatively undeformed subaerial basalt and andesite of the Eocene to Miocene Endako Group.

Structure and alteration

" The Ootsa Lake Group volcanics within the map area show rather variable east to northeast trending strikes and generally dip moderately to steeply to the north or northwest. Tight small scale folding was observed locally in banded rhyolite in the northeast corner of the map area, but it is uncertain to what extent the local sharp reversals in attitude quite often observed in both rhyolite and dacite elsewhere represent small scale folding rather than original complex flow deformation of viscous magma.

" Dacite commonly shows a weak or less often moderate to strong clay alteration of feldspar phenocrysts and chloritisation of mafics. Rhyolites show variable but more frequently moderate to strong clay alteration. Clay alteration is believed to be largely caused by early Tertiary paleoweathering.

(b) Property

" The geology of the Dambo claims and surrounding area is shown on Figure 2. The map area is almost entirely underlain by Ootsa Lake Group volcanics, consisting of dacite with lesser rhyolite and minor andesite, basalt and volcanic wacke. These rocks are cut by various likely coeval felsic and intermediate dikes, by a few younger granitic stocks and by basalt dikes probably correlative with the Endako Group.

" The geology of the Jap Hat Grid area and immediate vicinity is shown on figure 4, while figure 3 illustrates the geology of the central part of the grid area at a larger scale. The Jap Hat grid area is largely underlain by rhyolite breccia which is interbedded with rhyolite flows and cut by several quartz feldspar porphyry dikes. Both rhyolite and dike rocks show widespread pervasive weak to moderate clay alteration, while silicification, locally associated with close spaced quartz veinlets, has affected rhyolite within a 200 metre wide zone on the north side of Jap Hat Hill. Rhyolite contains ubiquitous minor disseminated iron sulphides, largely weathered to limonite, as well as more abundant pyrite locally within clasts in rhyolite breccia.

Structure

" Banding in rhyolite flows in the northwestern part of the area trends northeasterly with steep, highly variable dips. On the north side of Jap Hat Hill and along the east shore of Baseline Lake, declinations in flows and tuffs are northerly with steep, variable dips. Complex flow deformation of highly viscous magmas likely accounts for a substantial part of the small scale variation in attitude recorded in flow banded rhyolite. Quite possibly a major component of the steep to sub-vertical dips observed in flow banded rhyolite at Jap Hat Hill represents original steeply inclined banding, suggesting a subvolcanic rather than surface emplacement.

MINERALIZATION

The following is also quoted from the report by Findlay et al.:

" Rhyolite breccia and flows within an area at least 200 m across on the north side of Jap Hat Hill are notably siliceous, suggesting a significant degree of silicification. Rhyolite here locally shows secondary colour banding and mottling likely caused by differential silicification. Within a zone at least 50 m wide rhyolite is cut by abundant typically disoriented very narrow quartz veinlets and quartz coated hairline fractures which locally show densities of several veinlets per cm. Elsewhere, quartz veinlets are sparse and nowhere abundant. Rhyolite within the area of silicification outlined in Figure 3 contains ubiquitous disseminated very fine grained specular hematite with an abundance of up to 1%. A composite rock chip sample of rhyolite with unusually abundant hematite (sample 621006) contains 7,700 ppm Mn and 1.7 ppm Ag. Rhyolite at two other localities (64 and 70, fig. 4) in the southeast part of the area has unusually siliceous groundmass.

" Rhyolite elsewhere in the Jap Hat Hill area shows widespread, more or less pervasive, clay alteration, generally of weak to moderate intensity. Adjacent clasts in rhyolite breccia often show different degrees of clay alteration. The intensity of pervasive clay alteration shows no obvious variation within the area. The most strongly clay altered rhyolite is exposed in the large bulldozed outcrops immediately south of Baseline Lake, where matrix and clasts are everywhere moderately to strongly clay altered with some clasts converted to very soft white clay. Most composite rock chip samples of pervasively clay altered rhyolite and dike rocks do not show anomalous metal values. Pervasive, often moderate to strong clay alteration of rhyolite appears to be of regional extent and is quite likely in large part a product of early Tertiary paleoweathering although locally (and perhaps at Jap Hat Hill) this alteration may be of hydrothermal origin, associated with extrusive centers.

" Minor limonite is widespread throughout the Jap Hat Hill area except within the central silicified zone. This limonite was generally formed by weathering of fine grained iron sulphides along fractures and within quartz infilled drusy cavities and, less abundantly, disseminated within rhyolite breccia clasts. Unweathered iron sulphide abundance probably averages between 1/2 and 2%, locally reaching 3%.

" Sparse limonite stained clasts were observed at numerous localities. These clasts are unusually abundant in rhyolite breccia exposed in the large bulldozed outcrops immediately south of Baseline Lake, and adjacent to the northwest corner of the grid: In both cases may form up to 10% of the breccia. At these two locations limonitic clasts are typically composed of strongly weathered rhyolite stained with limonite which is likely a weathering product of both pyrite and iron carbonate. A rock chip sample collected in 1980 from pyritic clasts immediately south of Baseline Lake contained anomalous Au (100 ppb) and As and Ag (600 and 5.7 ppm respectively).

" Rhyolite exposed on the north side of Jap Hat Hill, within the silicified zone, is but by a few lenses, pods and veins of recessive clay altered material (sample 621007) containing slightly anomalous Au (15 ppb) and Ag, Pb and As (1.0, 117 and 37 ppm respectively). A few similar clay altered bodies, lacking anomalous metal values, were recorded elsewhere on Jap Hat Hill. A persistent, southeast trending sulphide rich shear zone up to 5 cm wide within the silicified zone (sample 621009) contains anomalous Au (30 ppb), and (values in ppm) Mo (68), Cu (146), Pb (72), Zn (547), As (191), Hg (30), Bi (31), and W (18)."

INSTRUMENTATION AND THEORY

A MaxMin II portable 2-man electromagnetometer, manufactured by Apex Parametrics Ltd. of Toronto, Ontario was used for this survey. This instrument is designed for measuring the electromagnetic field which results from a conductive body; that is a structure which conducts electricity better than barren rock-types do. This particular instrument has the advantage of flexibility over most other EM units in that it can operate with different modes and frequencies as well as having a variety of distances between transmitter and receiver. Five frequencies can be used (222, 444, 888, 1777 and 3555 Hz) and six different coil separations (25, 50, 100, 150, 200 and 250 metres).

In all electromagnetic prospecting, a transmitter induces an alternating magnetic field (called the primary field) by having a strong alternating current move through a coil of wire. This primary field travels through any medium and if a conductive mass such as a sulphide body is present, the primary field induces a secondary alternating current in the conductor and this current in turn induces a secondary magnetic field. The receiver picks up the primary field and, if a conductor is present, the secondary field. The fields are expressed as a vector which has two components, the in-phase (or real) component and the out-of-phase (or quadrature) component. The results are expressed as the percent deviation of each component from what the values would be if no secondary field (and therefore no conductor) was present.

Since the fields lose strength proportionally with the distance they travel, a distant conductor has less of an effect than a close conductor. Also, the lower the frequency of the primary field, the further the field can travel and therefore the greater the depth penetration.

The MaxMin II EM unit can vary the strength of the primary field and so use different separations between transmitter and receiver coils, change the frequency of the primary field for varying depth penetrations, and use three different ways of orienting the coils to duplicate the survey in three styles so that more accuracy is possible in the interpretation of the data.

The use of the MaxMin II electromagnetometer allows for better discrimination between low conductive structures such as clay beds and barren shear zones and more conductive bodies like massive sulphide mineralization. It also gives several different types of data over a given area so that statistical analysis can result in less error in the interpretation.

SURVEY PROCEDURE

The survey grid is located as shown on the claim map (map # 2) and cut out as shown on the survey map (map # 3). First, lines had to be re-established along the grid. As part of the EM survey, inclinometer readings were carried out along the lines. In order to accomplish this, the whole grid was re-chained, and tied into old points wherever possible. This was carried out by personnel of Target Surveys Inc. Translation of the old grid coordinate system may be accomplished by the relations: Lines 80E and 81E, old grid coincide with lines 10+40W and 9+40W, new grid, respectively; positions 40N and 41N, old grid coincide with 500S and 400S, new grid, respectively.

The slope separation between the transmitter and receiver was measured to an accuracy of 0.3 %. The separation between the transmitter and receiver was 100 metres for all lines; this was to permit measurements through the deep overburden.

The receiver operator read and recorded the in-phase and out-of-phase responses. Calibration and phase mixing tests were also conducted three times a day and the appropriate corrections made when necessary. All five frequencies were read by the receiver operator, which were 222, 444, 888, 1777, and 3555 Hz. A total of 15.5 km of electromagnetic survey was carried out.

COMPILATION OF DATA AND INTERPRETATION METHODS

The plotting point is taken at the mid-point between the transmitter and the receiver. All in-phase data for two frequencies, 1777 and 3555 Hz, were profiled for each line on Maps 8 to 10, respectively, at a horizontal scale of 1:5,000 and a vertical scale of 1 cm = 7%. Quantitative interpretation was carried out wherever anomalous readings (and thus, conductors) were encountered. The quantitative interpretation included:

(1) the location of the top of the conductor,
(2) the depth to the top of the conductor,
(3) the dip of the conductor, and
(4) the conductivity-thickness of the conductor.

Conductivity-thickness is always described as a product since a poorly conductive, thick conductor can give the same EM response as a highly conductive, thin conductor.

The EM-mapped conductors have been divided into three classes; definite, probable, and possible conductors. Often, very little quantitative information can be interpreted from the probable and possible conductors, usually because of noise problems and/or a low response parameter.

The trace of the top of each conductor has been drawn on the base map (map #3), which includes the electromagnetic data and contours at a scale of 1: 5,000. The definite conductor is drawn in solid, the probable, dashed, and the possible dotted.

INTERPRETATION PITFALLS

One of the main problems with EM surveying is conductive overburden. If the overburden thickness is uniform, then the problem is minimized. The conductive overburden causes the in-phase and out-of-phase profiles to separate from each other and away from the zero line as well as alters the amplitude of the negative peak for both the in-phase and out-of-phase. One therefore moves the zero line to correlate with the background reading and then uses special quantitative interpretation procedures.

More difficult problems are produced, however, if the thickness of the conductive overburden undulates, or if there exists a buried bedrock trough, or ridge. This can produce an EM profile similar in shape to that over a normal conductor. However, this feature will become minimal at lower frequencies, and, therefore, this type of "false conductor" can be sorted out.

A related problem to conductive overburden is conductive host rock. This can be seen when the in-phase decreases (goes more negative) and the out-of-phase increases (goes more positive) with increasing frequency. In other words the effect is opposite to that of conductive overburden so that on the 3555 Hz frequency the in-phase profile is lower than the out-of-phase profile. The effect of conductive host rock is to lower the response parameter of a bedrock conductor since the conductivity contrast between the bedrock and the conductor is lessened. In other words, it becomes more difficult for the EM system to respond to a bedrock conductor occurring within conductive host rock.

The dip of the conductor is probably the most difficult piece of information to interpret from the EM profiles. The major cause of this difficulty is non-uniform conductive overburden which tends to affect the shape (from which the dip is taken) of the EM profile over a conductor. Another cause of the problem is two closely-spaced conductors, as occurs on this survey, so that one affects the shape of the other.

Another problem is geological noise which is produced from such features as faults, fracture zones, contacts, and graphitic horizons. This can also affect the shape of the EM profile over a conductor.

In some cases, an interpretation can be carried out using two different models. The most common problem is deciding whether the causative source is one wide conductor, or two narrow conductors. Often the interpretation for each case produces similar results (i.e. similar dip, similar depth-to-top).

DISCUSSION OF RESULTS

The above survey has revealed several electromagnetic conductors, which are labelled from A to E. Most of these conductors show strike trends which agree, for the most part, with the trends of major faulting seen within the Ootsa Lake Group of volcanics and sediments. The causative sources of each of these conductors is most likely similar, and could each be a shear zone containing clay alteration and/or sulphides. Due to the nature of EM prospecting methods, the surveys are most likely not responding to the disseminated sulphides, but rather the clay alteration within the fracture systems. For this reason, it must be noted that even a weak conductor does not necessarily point to poor mineralization.

It must be noted also that structural information is difficult to obtain in the profiles, for several reasons: all conductors show generally low-amplitude responses, making the noise levels appear more prominent; all responses show many possible conductors close together, their respective responses interfering with each other; the survey directions sometimes proved to be at an oblique angle to the direction of the conductor trend.

IP and resistivity correlations have been achieved by comparing the results of the 1981 survey with the results of this HLEM survey.

The magnetic survey results from 1988 show a magnetic field with subtle variations, and an overall range of 690 gammas against a background of approximately 400 gammas (above 57,000). A wide zone of magnetic lows (greater than 400 gammas) correlates directly with the wide zone of silicification noticed on the geological surveys, as well as with a wide zone of resistivity highs. In most cases, magnetic highs (≥ 500 gammas) show correlation with HLEM conductors, and could reflect mineralized shear zones.

The geochemical survey results from 1988 show generally low, localized anomalous zones which have some correlation with the previous geophysical, and more current MaxMin surveys.

Conductor A is the longest, extending approximately 1600 metres long in a northeasterly trend, from IP anomaly 2 at (0+30W,100S) across the northern edge of resistivity high anomaly R1 and on to approximately (12+40W, 300S). This conductor may be classified as a weak-to-medium conductor, which apparently often changes dip direction from northerly to southerly along its length. Close correlation may be seen between conductor A and the southern edge of resistivity high anomalies, as well as a line of subtle magnetic highs at the western side of the resistivity anomalies, across all lines. These correlations suggest that the conductor could reflect a mineralized shear or contact zone between a zone of silicification and un-altered rhyolite. Another possible explanation is that this conductor reflects a zone of clay alteration between un-altered rhyolite and silicified rhyolite.

Conductor A also correlates with gold and silver geochemistry anomalies within the area of IP anomaly 2 and at the northern side of the Jap Hat Hill peak, as well as with multi-element geochemistry anomalies immediately about Jap Hat Hill peak. Where this conductor crosses lines 5+40W to 3+40W, it correlates closely with rhyolite breccia outcrops and rhyolite flows.

In general, it may be seen that magnetic values are higher to the northwest of conductor A than those to the southeast. This implies a change of rock type across this conductor; the southeast section possibly shows more silicification than the northwest section, and/or deeper overburden.

Conductor A appears to cross the baseline at 0+75E, and at this point it was possible to quantitatively interpret this conductor. It dips approximately 65^{o} to 85^{o} in a westerly to southwesterly direction, the approximate depth to the top of the conductor is 20 to 30 metres.

Conductor B is a weak conductor which occurs south of conductor A, striking approximately 700 metres long in the southwest quadrant of the survey grid, from approximately (11+40W, 525S), to approximately (6+40W, 750S). This conductor apparently dips steeply southward, and correlates very well with the northern edge of IP anomaly 3 from line 9+40W to 6+40W, and tends to trace along the ground surface contours. Conductor B correlates with low-amplitude magnetic highs, suggesting that minor amounts of pyrrhotite or magnetite are associated with the causative source. This conductor is possibly reflecting a northeasterly-to-easterly trending mineralized shear zone or clay alteration zone.

Conductor C strikes south of conductor A, from approximately (7+40W, 450S) to (4+40W, 500S), where it appears to split into two separate, closely spaced conductors which continue on to line 0+70E. From line 0+70E, conductor C is open to the northeast, for a minimum length of 700 metres. Conductor C correlates with a minor resistivity low zone along the south edge of resistivity high zone R1. Minor magnetic high zones correlating with this conductor could reflect minor concentrations of magnetite or pyrrhotite. This conductor could reflect clay alteration or a mineralized shear zone, as either a splaying of the same structural zone as conductor A, or a cross-cutting structure.

The resistivity and magnetic correlations with conductor C suggest that this conductor could be an eastern extension of conductor A. If this is so, then the interpreted northern extension of conductor A shown on maps 3 to 8 could reflect a cross-cutting fault.

Conductor D strikes north of conductor A, appearing to splay from that conductor at line 11+40W, and continues in a northerly to northeasterly direction to line 2+40W. This conductor is a weak conductor, which shows stronger quadrature responses than the in-phase responses, and generally correlates closely with a deep-seated resistivity low zone and moderate-to-strong magnetic responses. These correlations suggest that conductor D could reflect geologic structure at depth, with minor pyrrhotite or magnetite mineralization.

Conductor E strikes south of conductor C, from line 4+40W to line 0+40W, between 700S and 600S, and is open to the east. This anomaly is weak even at the higher frequencies of 1777 Hz and 3555 Hz, and the quadrature response is stronger than the in-phase, both suggesting that the response is due to an overburden anomaly. However, this conductor closely correlates with a zone of sublineal resistivity lows, and could reflect a narrow shear zone or a clay alteration zone.

From the contoured in-phase and quadrature maps, there can be seen at least one probable structure striking along the survey direction. Several anomalous spot lows occur along line 10+40W, and correlate with two weak conductors on the profiles of the baseline survey. Another, stronger, conductor occurs at the eastern end of the baseline, at approximately 0+65E. This conductor is apparently the extension of conductor A.

At the eastern corner of the survey area and at the southeast edge of Baseline Lake, two minor conductors correlate with minor magnetic highs. Strong clay alteration is known to occur in this area, as well as limonitic clasts with strongly weathered rhyolite. The causative sources could be alteration zones and/or rhyolite breccia zones with iron sulphide mineralization.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

Patrick Cruickshank
Geophysicist

April 19, 1989
DOC1/DAMBO89

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GEOPHYSICIST'S CERTIFICATE

I, M.A. Patrick Cruickshank, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a consulting Geophysicist of Geotronics Surveys Ltd., with offices located at #530-800 West Pender Street, Vancouver, British Columbia.

I further certify:

1. I am a graduate of the University of British Columbia (1986) and hold a B.A.Sc. degree in Geophysics.

2. I have been practising my profession for the past 2.5 years and have been active in the mining industry for the same period.

3. I am an active member of the Association of Professional Engineers of British Columbia, as an Engineer-in-Training, and am a member of the B.C. Geophysical Society.

4. This report is compiled from data obtained from a MaxMin II electromagnetic survey carried out over the Dambo Claims on Picket Lake in the Houston area, B.C. from February 14, 1989 to March 17, 1989. The survey was carried out by a 2-man crew of Target Surveys Inc., under the supervision of Mr. Tam Mitchell, geophysical technician, with Mr. Graeme Price, geophysical technician, as assistant.

5. I have no direct nor indirect interest in BP Minerals Ltd., nor in the Dambo Claims, nor do I expect to receive any interest as a result of writing this report.

April 19, 1989

M.A. Patrick Cruickshank,
Geophysicist

CERTIFICATE OF QUALIFICATIONS

I hereby certify that:

1. I am the president of Target Surveys Inc. I am a graduate of B.C.I.T. in Survey Technology, and I have been practicing my profession for eleven years. I have extensive experience in petroleum and mineral geophysics and exploration.

2. Target Surveys Inc. is a registered company in B.C. It is in the business of providing resource exploration contracting services.

3. Neither I nor Target Surveys Inc. have any interest in the shares or properties of the companies involved with Exeter Mines Inc.

4. I personally performed the MaxMin II survey and the subsequent data reduction as outlined in the accompanying report.

5. I consent to the use of my name as relating to work performed by me on the property covered in this report, in a prospectus, statement of facts or other public documents.

April 19,1989

Tam Mitchell, President
Target Surveys Inc.

AFFIDAVIT OF EXPENSES

I, Tam Mitchell, president of Target Surveys Inc., certify that line surveying and a MaxMin II electromagnetic survey were carried out from February 14, 1989 to March 17, 1989, over a portion of the Dambo claims, located over Jap Hat Hill, beside Picket Lake in the Houston area, in the Omineca Mining Division of British Columbia to the value of the following:

Field:

Provision of two field technicians, computer equipment, MaxMin II equipment, room and board, and vehicle.

Office:

Interpretive analysis of the field data, map production, and a complete assessment report.

Complete survey at $700/km for 15.5 km	$ 10,850
GRAND TOTAL	$ 10,850

Respectfully submitted,
TARGET SURVEYS INC.

Mr. Tam Mitchell,
President.

April 19, 1989

J. G. AGER & ASSOCIATES LTD.

EXETER MINING INC.

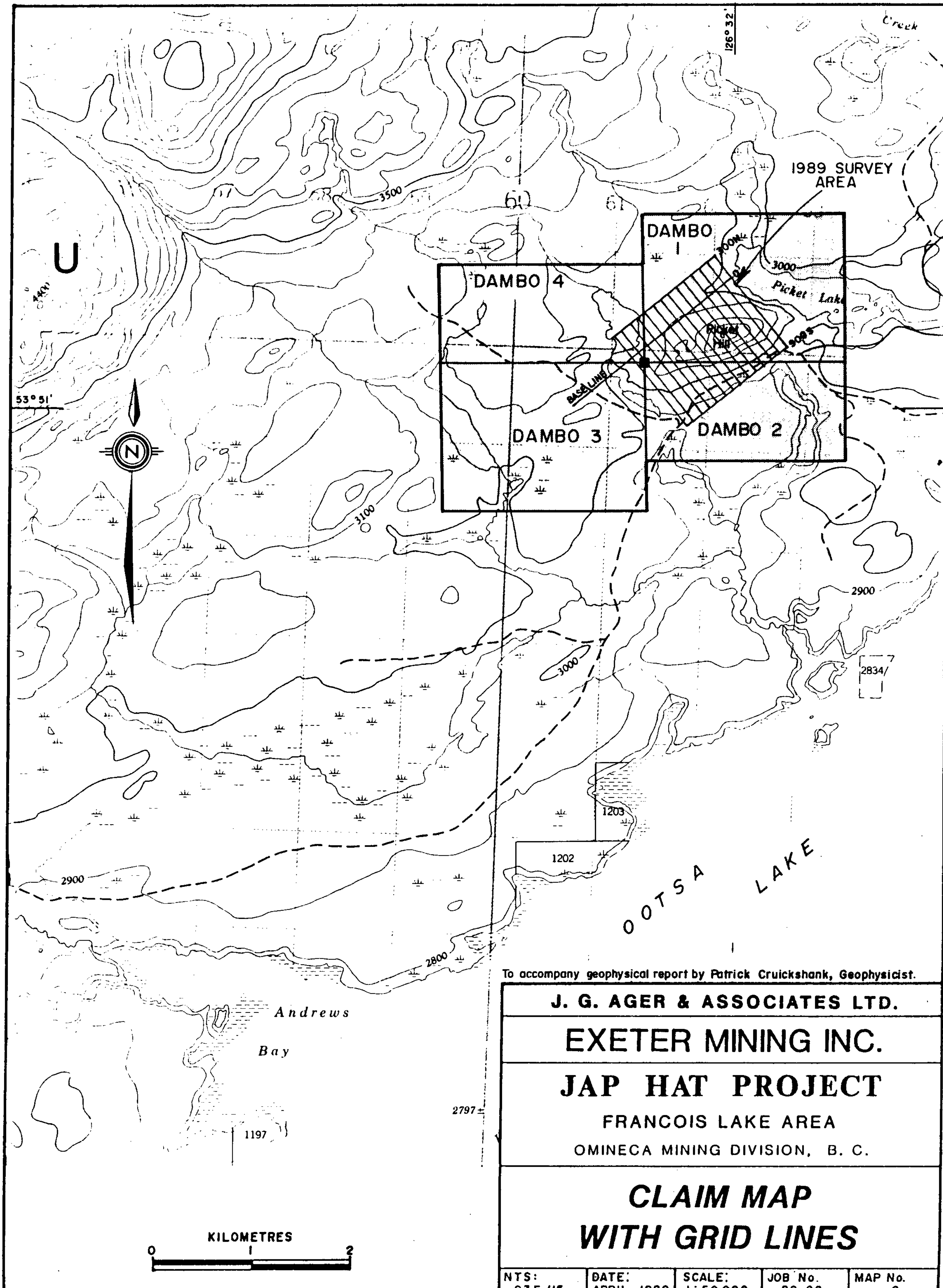
JAP HAT PROJECT

FRANCOIS LAKE AREA

OMINECA MINING DIVISION, B. C.

LOCATION MAP

NTS:	DATE:	SCALE:	JOB No.	MAP No.
93E/15	APRIL, 1989	1:8,000,000	89-06	1



To accompany geophysical report by Patrick Cruickshank, Geophysicist.

J. G. AGER & ASSOCIATES LTD.

EXETER MINING INC.

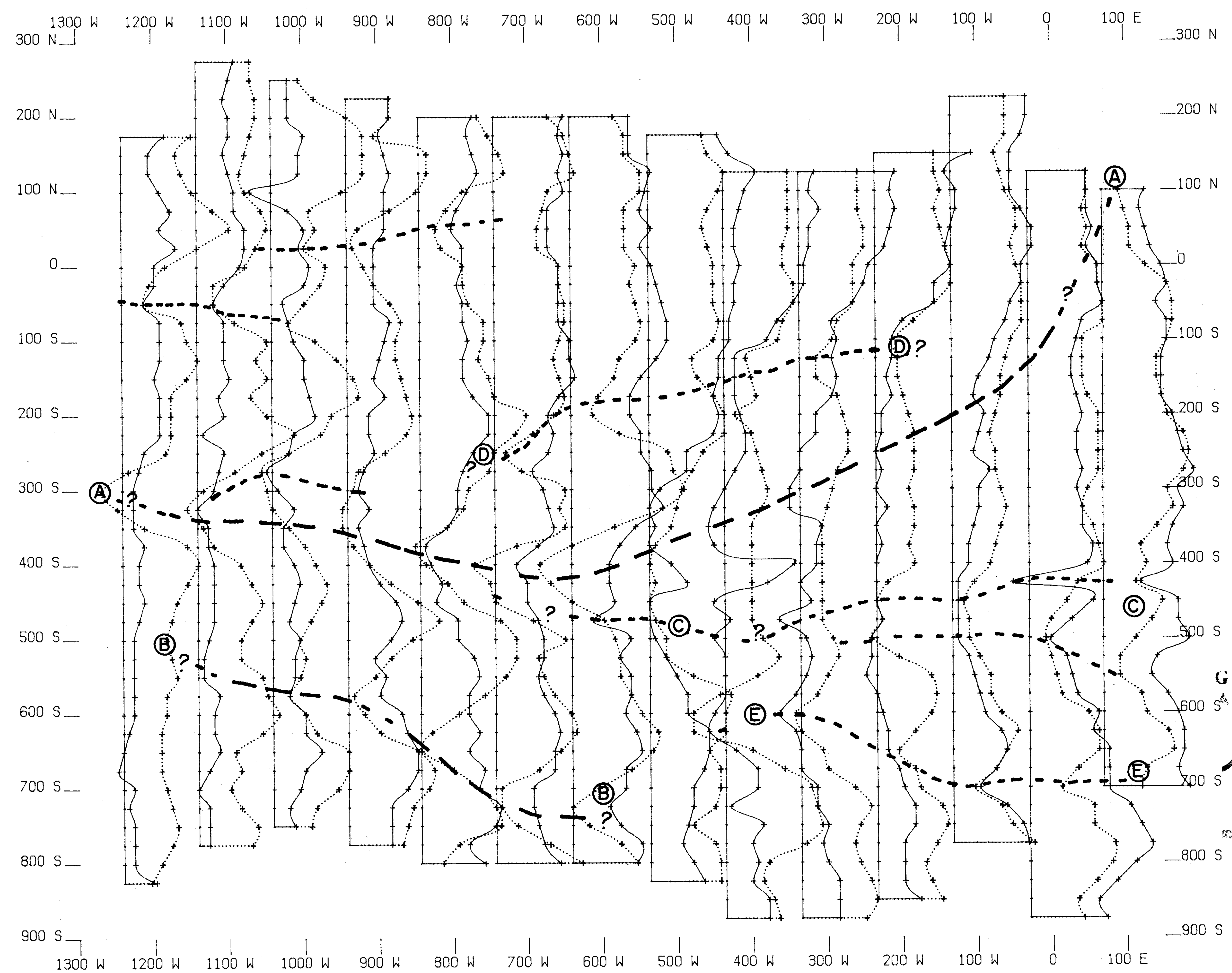
JAP HAT PROJECT

FRANCOIS LAKE AREA

OMINECA MINING DIVISION, B. C.

CLAIM MAP WITH GRID LINES

NTS:	DATE:	SCALE:	JOB No.	MAP No.
93E/15	APRIL, 1989	1:50,000	89-06	2



EM CONDUCTORS:

Definite

Probable (A) — — — (A)

Possible (E) - - - - (E)

IN PHASE ————

OUT OF PHASE . . . . . .

Survey Parameters

Scale: 1cm=7%
Coil Separ ation: 100 meters
Frequency :1777 Hz
Field Instrument: Apex Parametrics MaxMin II

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,098

SCALE 1 : 5000

100 0 100 (metres) 200 300 400

Surveyed By TARGET SURVEYS INC.
Vancouver, B.C.

EXETER MINING INC.

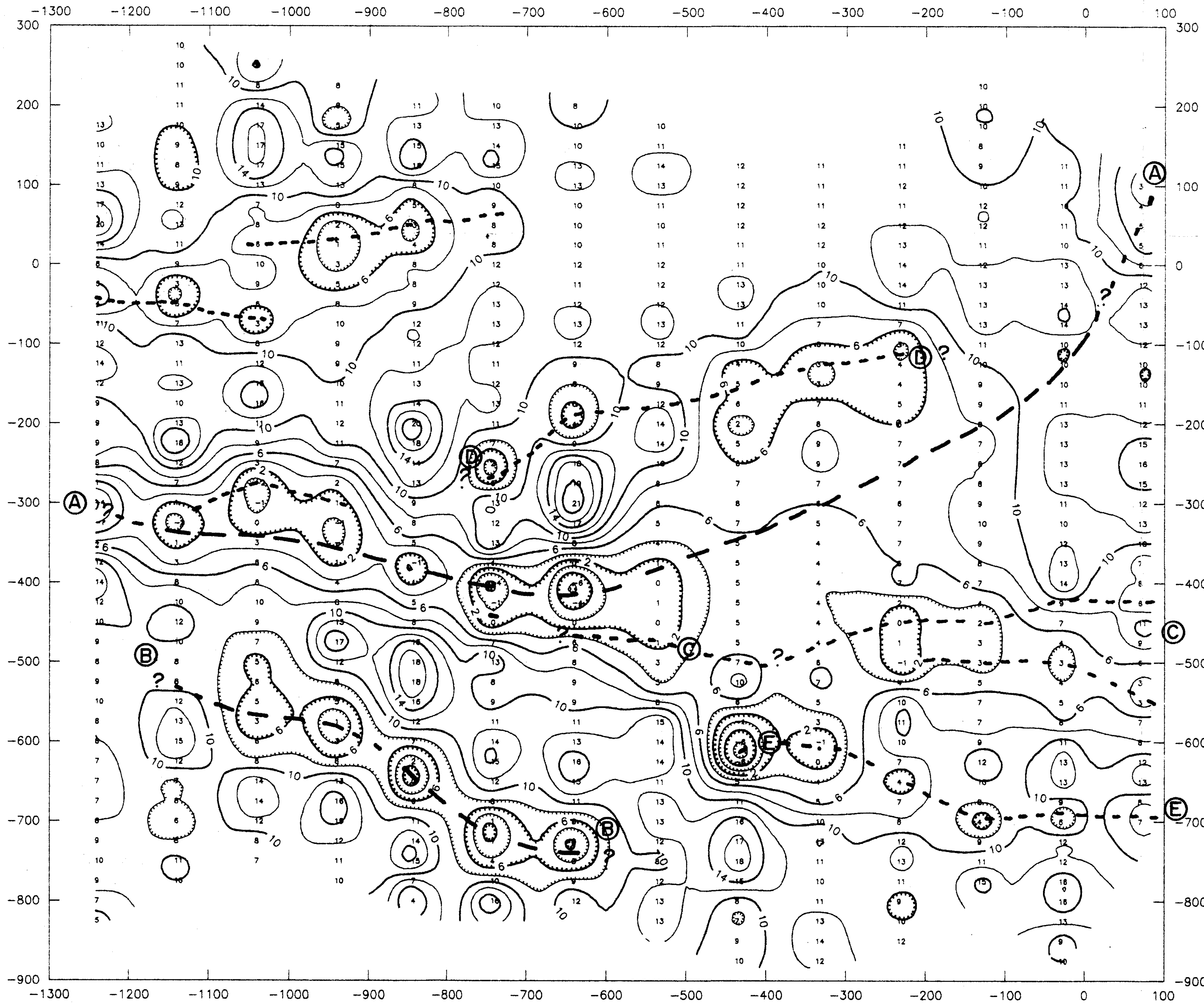
Jap Hat Project

MAXMIN II

DAMBO CLAIMS
Omineca Mining Division, B.C.

J.G. AGER & ASSOCIATES LTD.

Drawn by	Job #	N.T.S	Scale	Date	Map #
GEOTRONICS	89-06	93E/15	1:5000	Mar/89	7



EM CONDUCTORS:

Definite

Probable Ⓐ— — — — — Ⓐ

Possible Ⓔ- - - - - - - Ⓔ

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,098

Instrument: Apex Parametrics MaxMin II

Frequency = Out-of-Phase 1777 Hz

Coil separation = 100 meters

Contour interval = 2%

FIGURE 6

EXETER MINING INC.

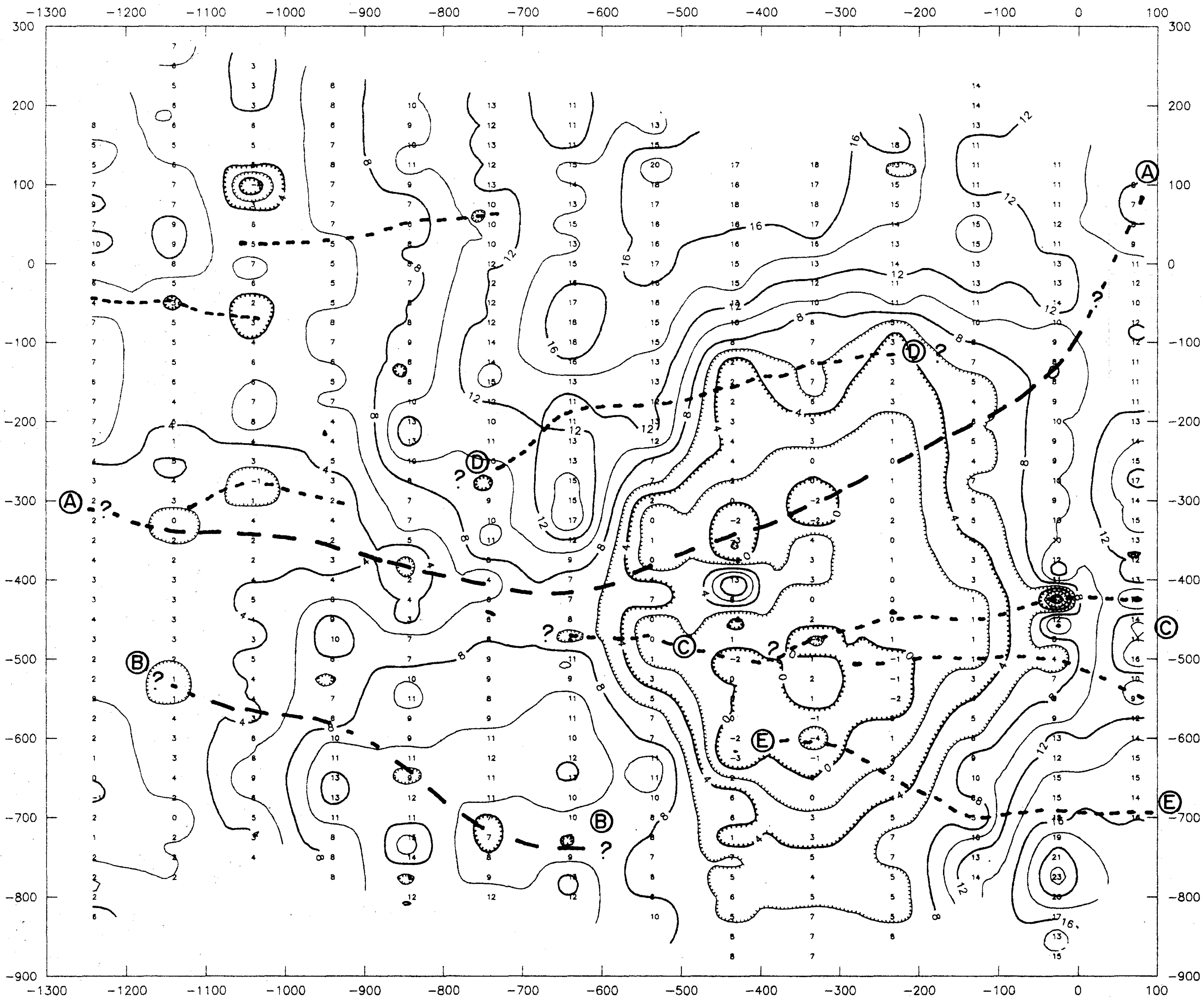
Jap Hat Project
MAXMIN II

Dambo Claims, Omenica M.D., N.T.S. 93E / 15

J.G. AGER & ASSOCIATES LTD.

Date: March 1989	Scale= 1 : 5,000	Dwg. By: T.L.M. Dwg. No.: 69DB02

TARGET SURVEYS INC. Vancouver, B.C.



EM CONDUCTORS:

Definite

Probable Ⓐ— — — —Ⓐ

Possible Ⓔ- - - - - -Ⓔ

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,098

Instrument: Apex Parametrics MaxMin II
Frequency = In-Phase 1777 Hz
Coil separation = 100 meters
Contour interval = 2%

FIGURE 5

EXETER MINING INC.

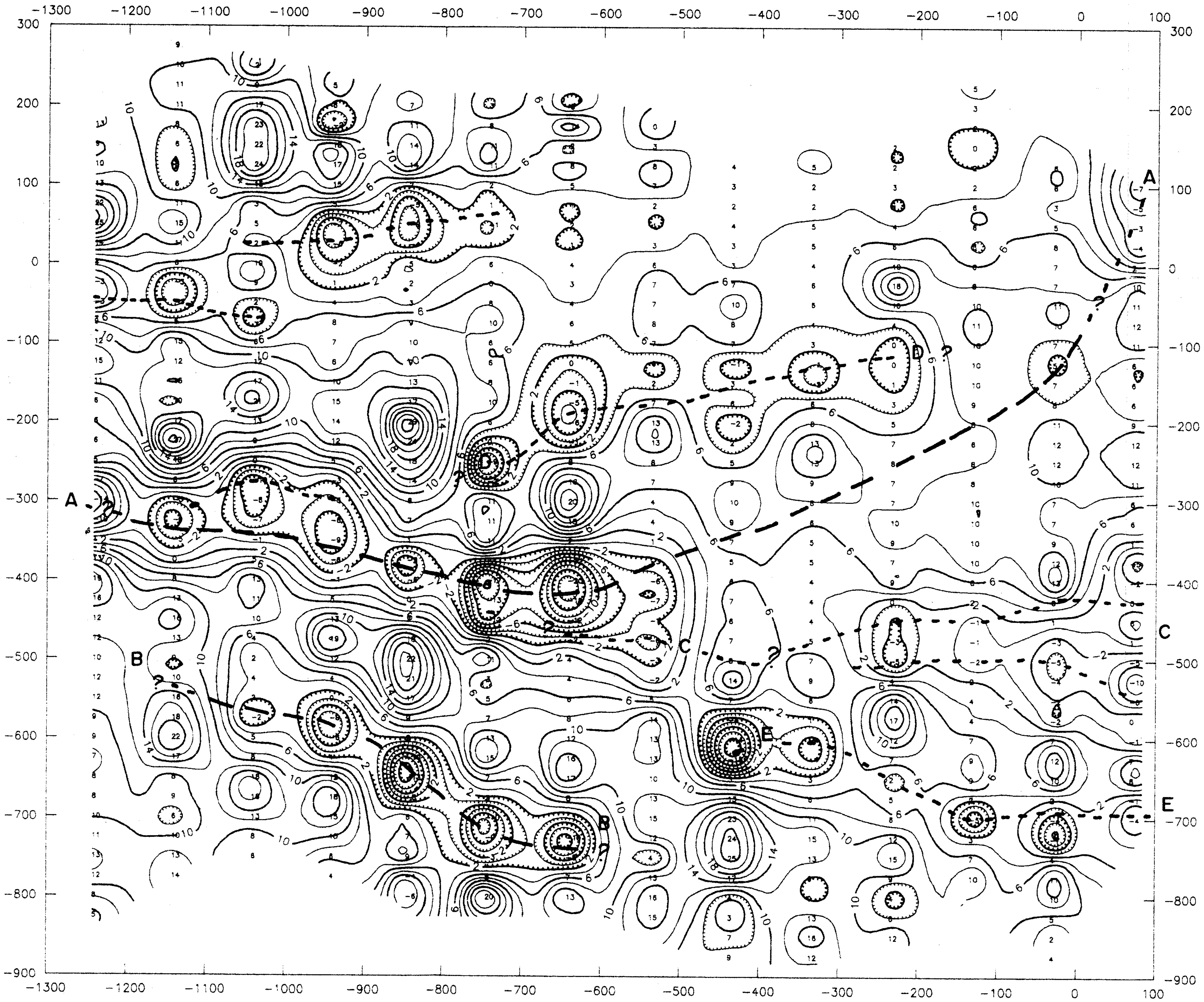
Jap Hat Project
MAXMIN II

Dambo Claims, Omenica M.D., N.T.S. 93E / 15

J.G. AGER & ASSOCIATES LTD.

Date: March 1989	Scale= 1 : 5,000	Dwg. By: T.L.M. Dwg. No: 89dc01

TARGET SURVEYS INC. Vancouver, B.C.



EM CONDUCTORS:

Definite

Probable (A) - - - - (A)

Possible (E) - - - - (E)

GEOLOGICAL BRANCH ASSESSMENT REPORT

19,098

Instrument: Apex Parametrics MaxMin II

Frequency = Out-of-Phase 3555 Hz

Coil separation = 100 meters

Contour interval = 2%

FIGURE 4

EXETER MINING INC.

Jap Hat Project

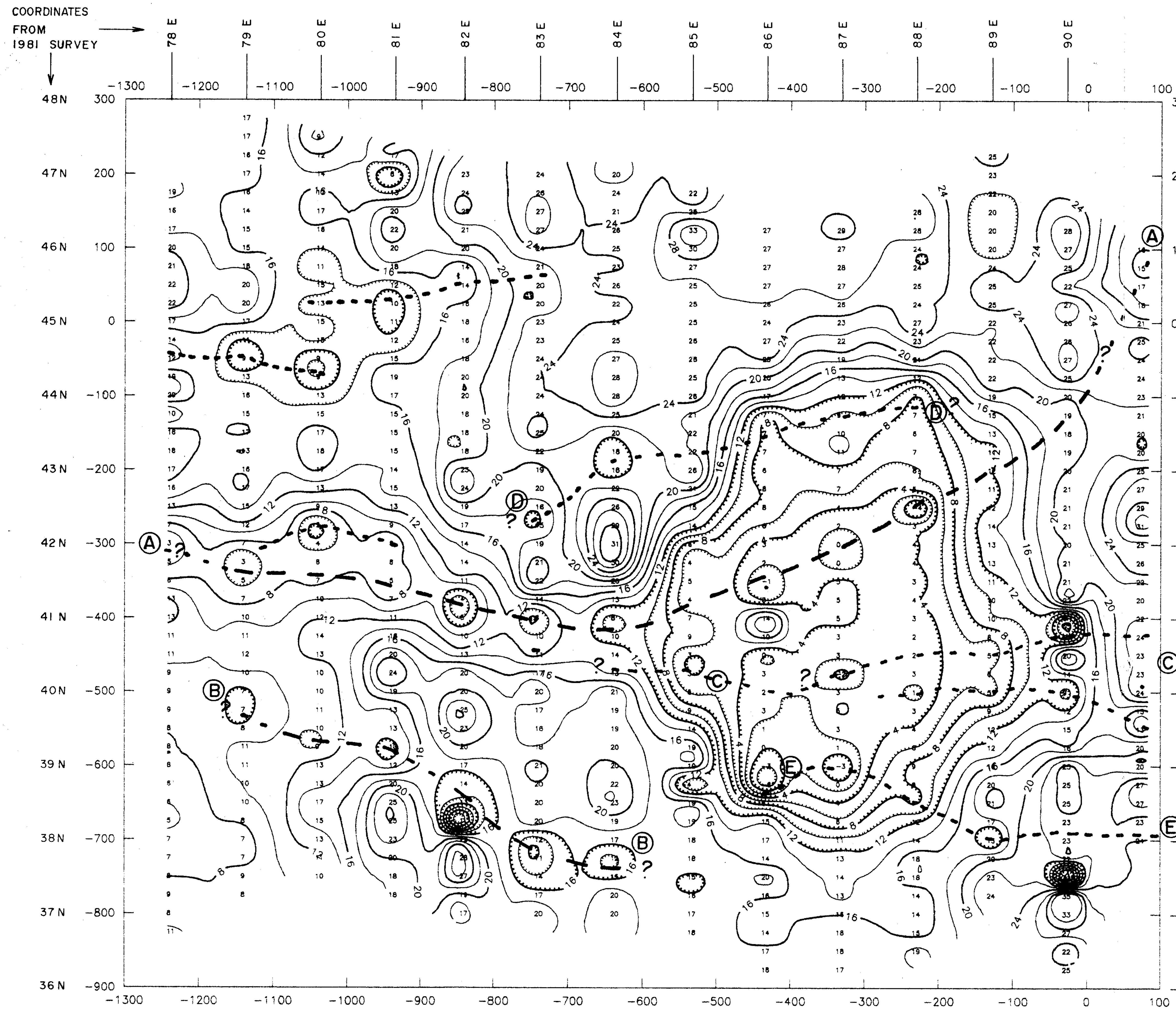
MAXMIN II

Dambo Claims, Omenica M.D., N.T.S. 93E / 15

J.G. AGER & ASSOCIATES LTD.

Date: March 1989	Scale= 1 : 5,000	Dwg. By: T.L.M. Dwg. No: 89DB04

TARGET SURVEYS INC. Vancouver, B.C.



EM CONDUCTORS:

Definite

Probable (A) — — — — (A)

Possible (E) - - - - - - - (E)

Instrument: Apex Parametrics MaxMin II

Frequency = In-Phase 3555 Hz

Coil separation = 100 meters

Contour interval = 2%

FIGURE 3

EXETER MINING INC.

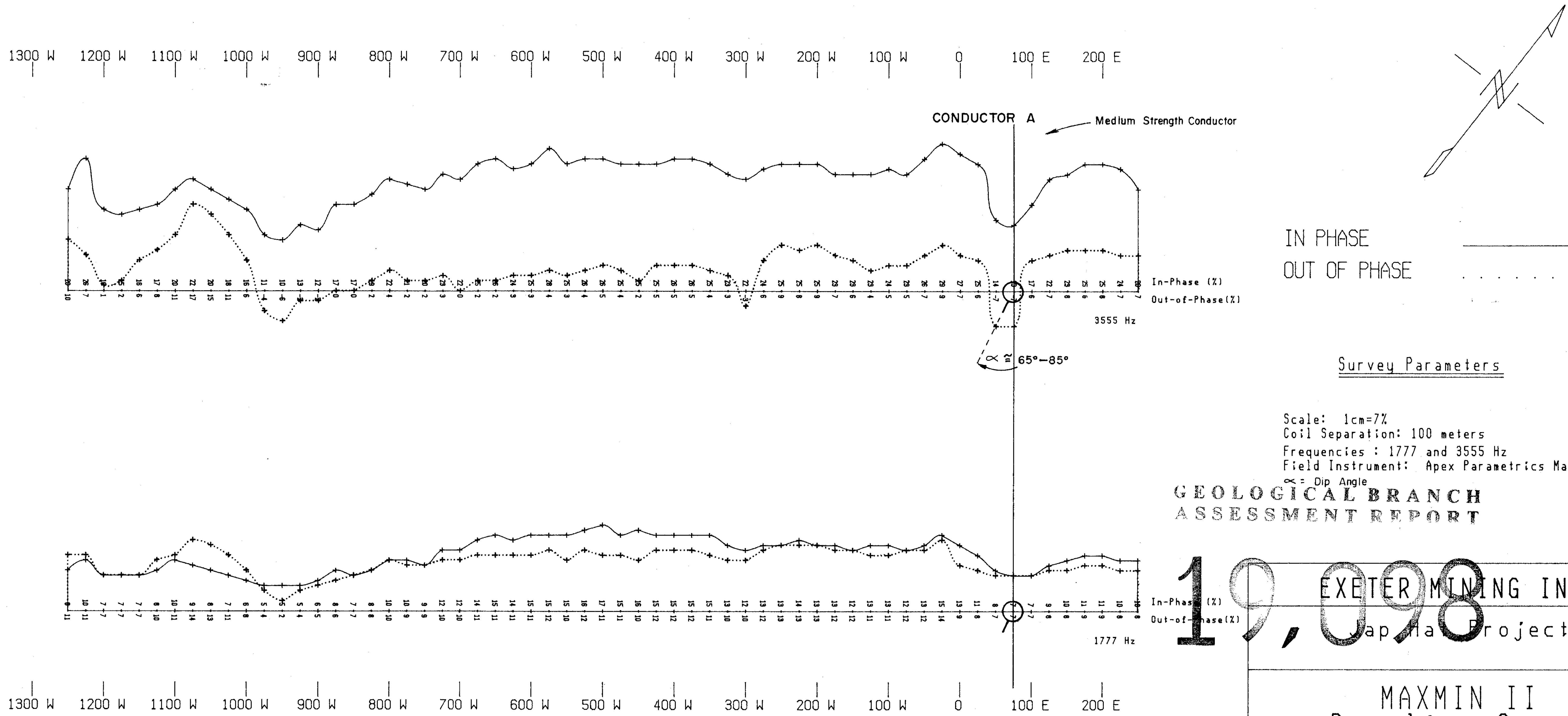
Jap Hat Project
MAXMIN II

Dambo Claims, Omenica M.D., N.T.S. 93E / 15

J.G. AGER & ASSOCIATES LTD.

Date March 1989	Scale= 1 : 5,000	Dwg. By: T.L.M. Dwg. No: 89DB03

TARGET SURVEYS INC. Vancouver, B.C.



IN PHASE ————————
OUT OF PHASE . . . .

Survey Parameters

Scale: 1cm=7%
Coil Separation: 100 meters
Frequencies : 1777 and 3555 Hz
Field Instrument: Apex Parametrics MaxMin II
∝ = Dip Angle

EXETER MINING INC.
Jap Hat Project

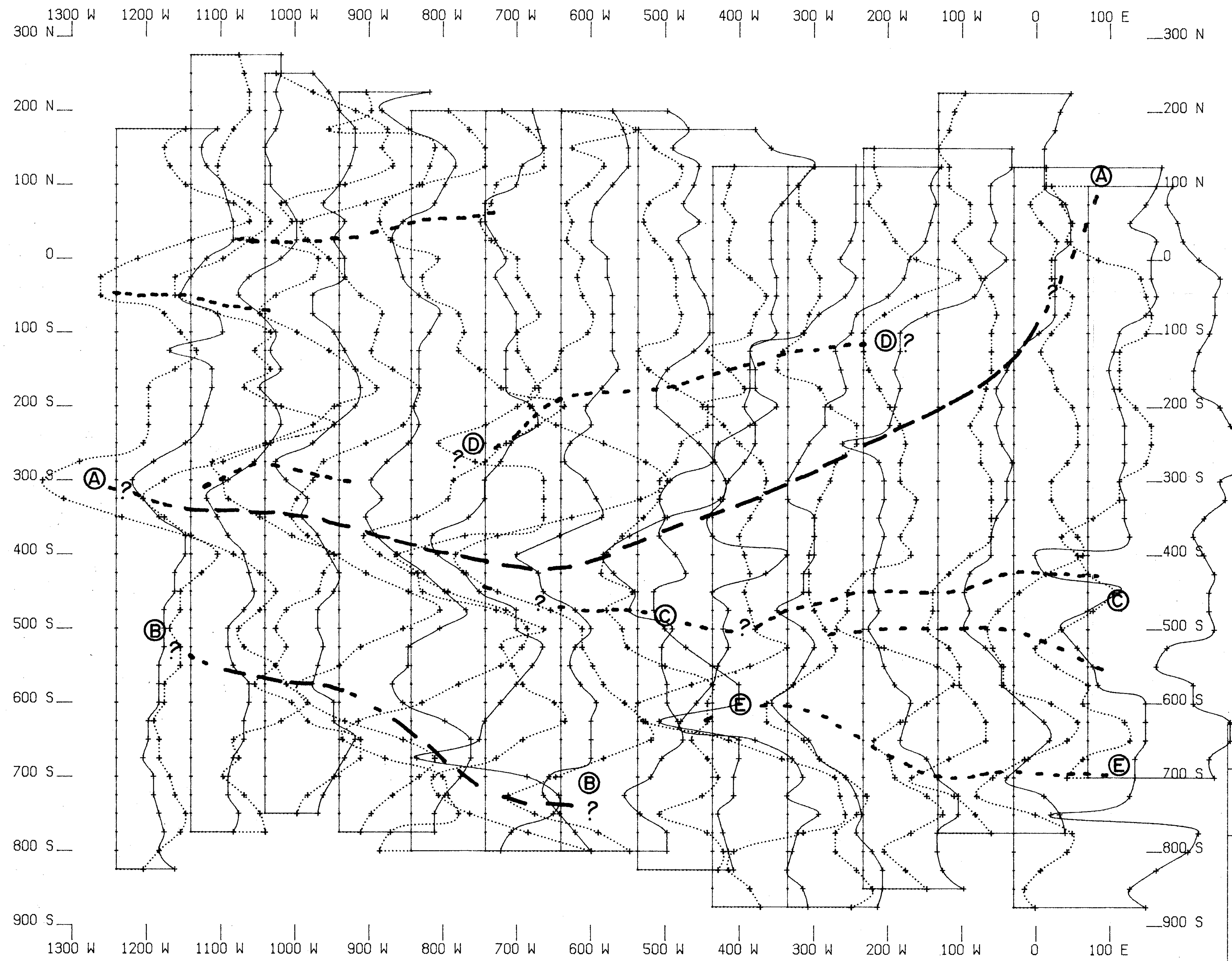
MAXMIN II
Baseline Survey
DAMBO CLAIMS
Omineca Mining Division, B.C.

J.G. AGER & ASSOCIATES LTD.

Drawn by	Job #	N.T.S	Scale	Date	Map #
GEOTRONICS	89-06	93E/15	1:5000	Mar/89	9

SCALE 1 : 5000
100 0 100 (metres) 200 300 400

Surveyed By TARGET SURVEYS INC.
Vancouver, B.C.



EM CONDUCTORS:

Definite
Probable (A)— — — —(A)
Possible (E)- - - - - -(E)

IN PHASE ————
OUT OF PHASE . . . .

Survey Parameters

Scale: 1cm=7%
Coil Separation: 100 meters
Frequency :3555 Hz
Field Instrument: Apex Parametrics MaxMin II

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,098

EXETER MINING INC.
Jap Hat Project

MAXMIN II

DAMBO CLAIMS
Omineca Mining Division, B.C.

J.G. AGER & ASSOCIATES LTD.

SCALE 1 : 5000

100 0 100 (metres) 200 300 400

Surveyed By TARGET SURVEYS INC.
Vancouver, B.C.

Drawn by	Job #	N.T.S	Scale	Date	Map #
GEOTRONICS	89-06	93E/15	1:5000	Mar/89	8