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

INTERPRETATION OF GROUND ELECTROMAGNETIC SURVEY DATA

JAMIESON I (PORTIONS OF CON.I, II)

Base Map 42A/12S

Porcupine Mining Division, Ontario.

C. W. Faessler 27th March, 1956.

TABLE OF

INTRODUCTION

A ground electromagnetic survey was carried out by Dominion Gulf Company field personnel, during the month of January, 1956, on approximately 20 claims of the Jamieson I claim group. These claims are, in Concession I:- P-35762 to P-35764 inclusive, P-35766, and P-36005 to P-36007 inclusive; and in Concession II:- P-35765, P-36708, P-36709, P-37213, P-37214, P-37216, P-37884, P-37889, P-38036, P-38037, and P-38187 to P-38189 inclusive. The claims in Concession I and claim P-35765 in Concession II, form the Wallingford option. Claims P-37884, P-37889, and P-38187 to P-38189 are part of the original Jamieson I claim group staked for the Company in Concession II. The other seven claims in Concession II form the Smerechanski purchase. The staked claims had previously been ground magged. On the Wallingford option, the EM survey was followed by a ground magnetometer survey which will be the subject of a separate report except for the ground magnetometer data from the three southwestern-most claims which have already been interpreted by J. H. Ratcliffe.

The survey equipment consisted of an 8-ft. radius vertical hexagonal transmitting coil powered by a 3000 watt, 1000 cycles per second gasoline motor-driven generator, and two 14-inch diameter receiving coils mounted on tripods and fitted with miniature amplifiers and earphones. The electromagnetic data were obtained by setting up at various locations the transmitter-coil in a vertical plane, orientated in such a manner that this vertical plane also contains the point (or points) where the receiving coil (or coils) are located. From a given transmitter set-up, several lines are run in this manner. The receiving coils measure the strike and dip angle of the resultant electromagnetic field by the null method. The width of strike and dip nulls are also noted. Later, the ratio "dip-angle to dip-angle width" is calculated.

Under the supervision of G.F.West, 974 receiver locations at 100 ft. intervals were occupied on 50 profiles, from eleven transmitter set-ups, thus producing 18.4 miles of profiles. However, some of these profiles were duplicated and even triplicated, so that 84,700 ft. (or 16.0 miles) of cut and chained picket lines were covered. The observed data are presented in the Appendix of this report. The dip angle is also plotted as profiles along the proper picket lines on the accompanying maps. These maps also show the interpretation of the electromagnetic data.

SUMMARY

Several conductors and groups of conductors have been interpreted on the basis of the electromagnetic data from this and past surveys, incorporating known geological and ground magnetic information available.

Three alternatives are considered possible in claims P-36005 to P-36007 inclusive. These are:- a water reservoir formed by a westerly sloping rock-surface abutting against a sub-surface escarpment formed by an erosion resistant diabase dyke; or a very strong conductor trending N70^{o}W to N75^{o}W, in the northern part of claim P-36007; or a combination of a water reservoir, as previously described, and a weak conductor with the same trend and location as the second alternative.

At, and immediately north of, the concession line I and II, two alternatives are also presented. One is a wide conductive zone trending N72^{o}W, possibly 150 feet in width, possibly displaced in a 200-ft. left-hand movement by the northerly trending fault interpreted between lines 80E and 82E. The second alternative is a series of short, narrow conductors trending N50^{o}W, as shown on the accompanying maps. The dip angle to dip-angle width ratios suggest fair mineralization in a shear zone also indicated magnetically.

A group of three conductors, possibly on echelon, is indicated in claims P-37882 and P-37216. The western-most, and most important, of these conductors has already been drilled but with very poor results. Several possibilities are pointed out, and, amongst others, that the drill hole may have been stopped too soon. The two other conductors of this group are very short.

A group of weak conductors are suggested in claims P-37213 and P-37214. It is pointed out that their interpreted trend, N50^{o}W, is similar to the trend suggested as one alternative along the concession line I and II. It is pointed out, however, that due to the spacing of the profiles, this trend is not uniquely determined.

The presence of strong north dip-angles in claims P-38036 and P-38037, indicates the possible existence of very strong conductors to the south of the concession line I and II. The dip angles observed are the most intense of the present survey. A more exact location and trend of these conductors cannot at present be determined.

RECOMMENDATIONS

(1) Claims P-36005 to P-36007 inclusive:- Three possible interpretations are presented for this area. Depending on which is correct, the extreme northern portion of claim P-36007 may or may not have economic possibilities. This area was, unfortunately, inadequately covered by this survey. It is, therefore, recommended that claim P-36007 be resurveyed in detail, with N-S profiles at two hundred-foot intervals from transmitter set-ups north and south of the interpreted conductors. Such a detailed survey may also give some indication of the advisability of obtaining the mineral rights to the ground to the north and west.

(2) Claims P-35765 and P-38189:- Although two possible trends are indicated, it is thought that electromagnetically the data are adequate. Detailed ground magnetometer surveying has already been programmed to attempt to better locate the possible numerous diabase dykes in this area. One diamond drill hole has already been planned to investigate the possibility of this group of conductors. Further drilling will depend on the results of this hole, and should be programmed according to information obtained from the detail ground magnetometer survey.

(3) Claims P-37882 and P-37216:- The two eastern conductors, too small to form orebodies by themselves, do not warrant drilling at this time. The western and more important conductor has already been drilled with negative results. This is thought to be inconclusive at present. It is recommended that one or two gravity profiles be made across this conductor, and possibly resistivity in the diamond drill hole be made, to determine the presence or absence of sulphides.

(4) Claims P-37213 and P-37214:- Weak conductors are suggested in this area. They have not been adequately surveyed to obtain unique trends and locations. A different location of transmitter may also have obtained better coupling. It is, therefore, recommended that a detailed electromagnetic survey be made over this area, with profiles at 200-ft. intervals from at least two transmitter set-ups, one north and the second south of the suggested conductor trend.

(5) Area south of claims P-38036 and P-38037:- Conductors, at least as strong as those obtained elsewhere in the present survey, are indicated in this area. This ground has now been optioned by the Company. It is recommended that the electromagnetic survey be extended to cover this new ground, with profiles at 200-ft. intervals over conductors. During this work, more adequate coverage of the southeastern parts of claim P-38189 and the southwestern part of claim P-38036, should be obtained.

INTERPRETATION

Set-up No. 1

Three lines were run from this transmitter set-up. Lines 42E and 46E show strong (up to 15^{o}) south dip angles to the north, and weaker north dip angles to the south, producing apparent reverse cross-overs. Line 50E shows definite but weak (4^{o}) south dip angles to the north of the transmitter, and a mixture of weak north and south dip angles to the south. The three apparent reverse cross-overs lie on a line striking N85^{o}E through the transmitter location, if allowance is made for the roughness of these profiles. This roughness is mainly ascribed to the fact that the transmitter location and orientation had to be estimated as no cut and chained picket lines extended this far, and that the operator was new at this type of survey. The one profile, read from transmitter set-up number 11, overlaps the north end of the profile on L46E, obtained from set-up number 1, by 1000 feet. It shows very weak north and south dip angles (maximum 2^{o}) with a suggested weak normal cross-over about 150 ft. north of the extent of the data obtained from set-up number 1. Taking into consideration the above observations and limitations, no definite interpretation can be made. Several possibilities of varying degrees of probability are as follows:

(i) A ground return, telephone line is located north, but within 50 ft., of the Kamiskotia road. Such a system, if reacting to the electromagnetic field of the transmitter, would produce reverse cross-overs below or quite close to the line. The reverse cross-overs observed are considered to be much too far north to be caused by the telephone line. Stronger north dip angles would also be expected south of the line. The smaller observed dip angles on line 50E are also thought to bear against this hypothesis.

(ii) It is thought that magnetic masses may react to electo-magnetic fields in much the same way as a conductor, except for a phase shift of 180° between primary and secondary field. In other words, north dip angles are to be expected where south dip angles are produced by a conductor. Two diabase dykes are interpreted by J.H.Ratcliffe striking slightly west of north, thereby agreeing as far as strike is concerned with that indicated by the location of the reverse cross-overs. One dyke is indicated magnetically through the central portions of claims P-36005 to P-36007 inclusive, ending 400 ft. south of the northern limit of claim P-36007. The second dyke is known geologically just west of the northwest corner of claim P-36006 and is interpreted to trend through the northwest and southwest corners of claim P-36005. The weak south dip angles observed on line 50E would then suggest a weak reaction of the eastern dyke. Line 46E, being located immediately over the eastern dyke in the south, and just east of the dyke in the north, should show null dip angles in the south, and weak south angles to the north. The observed strong south dip angles to the north and weak north dip angles to the south may, therefore, be partly due to the western dyke. The observed dip angles on line 42E agree qualitatively with the theoretical reaction of the western dyke if this dyke does not cross this line. J.H.Ratcliffe suggests that the dyke crosses the line about 350 feet north of the township line on the basis of magnetic data which are inconclusive due to their lack of detail. If this were the case, a normal cross-over would be expected at the intersection of the line and the dyke. The absence of this expected cross-over would then point out that the dyke does not cross line 42E, at least where surveyed by E.M. Serious objections must be presented against this possible interpretation of the electromagnetic data. The profile run from set-up number 11 shows very little effect from either dyke. Admittedly, the eastern dyke stops abruptly in claim P-36007, but the western dyke, which outcrops just west of claim P-36006, is indicated magnetically on concession line I-II, and again a quarter-mile north. It is then known magnetically through the remainder of concession II, through the whole of concession III, and well into concession IV. Therefore, lack of continuity could not explain the poor response from this dyke, as obtained from set-up number 11. Throughout its great northern known extension, this dyke was covered by other electromagnetic surveys and nowhere did it respond. Numerous other dykes were also covered by E.M. surveys in this area during the search for metallic conductors, and it can be categorically stated that not one reacted. It must be concluded, therefore, that the probability of this interpretation being correct is quite small.

(iii) Another possible interpretation invokes one or two vertical or steeply dipping conductors. In the case of one conductor, it would have to be located almost immediately under L50E to explain the weak angles observed on that line. The expected normal cross-overs between this theoretical conductor and the transmitter may produce the weak north dip angles observed on lines 56E and 60E from set up number 2. However, such a conductor, striking almost due north, would imply an error of some 100 feet too far north in the location of transmitter set up number 1. If the location of set-up number 1 must be accepted as correct, then two conductors must be assumed, both trending slightly west of north, the first between lines 46E and 50E and the second between L50E and the transmitter (but west of the southward projection of L56E). The effects of both conductors would be additive to produce the strong reverse cross-overs on lines 42E and 46E from set-up number 1 and the weaker north dip angles (suggesting a normal cross-over further south) due to greater distance on lines 56E and 60E from set-up number 2. The overlap of the profile on L46E obtained from set-up number 11 implies that the western conductor just barely reaches into claim P-36007, while the eastern conductor would extend 300 or 400 feet into this claim. Both conductors may extend as far south as the Kamiskotia road, as suggested by the weak north dip angles. Although physically this interpretation appears quite plausible, the known geology of this area presents serious objections. Such conductors would necessarily be related to some discontinuity in the rock, such as water-filled fissures, mineralized (graphite and/or sulphides) faults, shear-zones or contacts. No such structure is known to trend in a west-of-north direction in this region. No similar trend is indicated by the ground magnetometer survey nor by the large outcrop areas to the south and immediately to the east of these claims. This interpretation is, therefore, not acceptable unless it stands up under detailed investigation such as east-west electromagnetic profiles over the assumed conductors.

(iv) This interpretation is physically much the same as the previous one. The two vertical conductors are replaced by a flat-lying conductor, with a wedge-shaped cross-section, the thickest section lying to the west. Its north-south extent would be similar to that of the two conductors. It would extend eastward from the eastern contact of the diabase dyke to approximately line 52 + 80E. The wedge-shaped cross-section might well explain the apparent stronger reaction along the western edge of this conductor. Such a conductor may be produced by ground waters collecting in a natural reservoir produced by a westerly sloping volcanic rock surface and a sub-surface ridge of diabase, the latter being more resistant to glacial erosion. The magnetic data neither prove nor disprove this possibility, while the presence of outcrops to the east of, and absence of outcrops over, this conductor substantiate the existence of a sloping bedrock surface. G.F.West, who directed this field work, reported that, although the survey was carried out in January, the frost had penetrated the overburden to a depth of only a few inches. Without actual depth determinations the ground magnetics suggest a fair depth to bedrock (50 or 100 feet), at least in claims P-36006 and P-36007, while a maximum thickness of 10 or 20 feet of collected ground waters is thought to be sufficient to act as the assumed conductor. This interpretation is shown on the accompanying map as one of three probable alternatives.

(v) The second probable alternative is suggested in part by the very weak cross-over IIX on line 46E, and the zero dip angle observed at the north end of the profile on line 50E from set-up number 1. The strong south dip angles on lines 42E and 46E suggest a strong conductor with intense lateral effects. The suggested weak cross-over at the end of the profile along line 50E suggests that this conductor begins between lines 46E and 50E and trends in the northwest quadrant. Cross-over IIX would give it a trend of N70^{o}W to N75^{o}W which is the same trend as the wide conductor found as one of two alternatives in the interpretation of set-ups numbers 3, 4, 5 and 10. The weak angles associated with cross-over IIX, although not satisfactorily explainable at this time, cannot be considered a major objection despite the almost on-strike location of set-up number 11, as the same phenomenon is clearly observable at set-ups numbers 3 and 4 in connection with the conductor(s) clearly indicated by set-ups numbers 4, 5 and 10. This interpretation has the advantage of explaining the more intense dip angle to dip-angle width ratios observed at the north ends of profiles 42E and 46E. However, these cannot be taken as conclusive due to the inexperience of the operator at the beginning of this survey.

(vi) The third probable alternative is a combination of effects of the water reservoir east of the diabase dyke and a conductor of weak conductivity, coinciding with the conductor suggested in paragraph (v). Its lateral extent west-northwestward would not be known, while its extent east-southeastward would be limited by line 56E. Weak or very weak south dip angles produced by this conductor are then added to the much stronger south dip angles caused by the water reservoir to produce the angles observed on lines 42E and 46E. Such an interpretation would have the great advantage of explaining the weak response to the conductor to set-up number 11 instead of calling on an unknown (at present) explanation.

Set-up No. 2

Strong south dip angles (up to 20°) are observed at the northern end of all four of the profiles. These are clearly due to the conductor(s) better located by set-ups number 3, 4, 5 and 10.

Reverse cross-overs (2RX) are observed on lines 56E and 60E. They definitely do not line up with the transmitter set-up and must be considered as being produced by conductors to the north and to the south. The conductor to the north has already been discussed. The conductor to the south is suggested to be at a greater distance from the south end of profile 60E than that of profile 56E as supported by the change in intensities of the dip angles. The location of this conductor cannot be more closely located from the data on hand, but several possibilities can be mentioned. The first is a conductor located in the extension of the fault or shear zone interpreted from ground magnetometer data by J.H.Ratcliffe, as shown on the accompanying map. Such a conductor may well be produced by mineralization of this geological break. Another possibility is dependent on the interpretation of set-up number 1. If the water reservoir exists to the east of the eastern dyke on claims P-36005 to P-36007, then north dip angles on lines 56E and 60E are to be expected. However, the magnitudes of these expected dip angles are not known, and, therefore, the observed effect may have a dual cause, that is, the water reservoir and another conductor such as the one previously mentioned, along the extension of the interpreted fault or shear zone.

<u>Set-ups Nos. 3, 4, 5 and 10</u>

These four transmitter set-ups were used in an attempt to detail a zone of conductors crossing the concession line in south - central claim P-38189, and are, therefore, discussed together.

Set-up number 3 reveals a very weak cross-over (max. 4°) on all three profiles 68E, 72E, and 76E.

Set-up No. 4 produced a strong cross-over (13° north to 14° south or more) on the base line, and another (8° north, south data incomplete) about 100 ft. north of the base line on line 76E, accompanied by rather large (up to 2.5) ratios of dip angles to dip-angle width. Two other but weaker cross-overs were observed at 19+50N on L76E, and at 84+50S on L60E, and will be discussed in conjunction with set-up No. 6.

Set-up No. 5 produced two cross-overs on L70E, and one each on the other four profiles, L74E, L78E, L78+96E, L82E, L86E. The observed dip angles are weaker near the transmitter, especially on L70E where this may also be ascribed to mutual interference of the two cross-overs. The dip angles increase on the eastern profiles (up to 20°), are stronger to the south of the cross-overs, and are associated with strong dip angle to dip-angle width ratios (up to 3.0).

Set-up No. 10 reveals a cross over on each of the three profiles L68E, L72E and L76E. The dip angles observed show maxima of 5° north and 20° south, and are associated with fair dip angle to dip-angle width ratios (up to 1.2).

A study of the cross-overs, 3X, 4X, 5X and 10X, suggests the possibility of a series of short, narrow conductors striking N50°W in claim P-35765. The conductors producing the cross-overs on lines 82E and 86E are shown with a similar trend by inference. This view is supported by the two cross-overs obtained on line 70E from set-up No. 5. However, this trend possesses too great a northern component to conform to the usual trends associated with these features in the Jamieson area.

A closer study of the distribution of these cross-overs reveals that, within the uncertainty of their location, cross-overs 3X, 4X and 10X fall on a straight line trending N72°W. The northern 5X cross-over on line 70E, and the 5X cross-overs on lines 74E and 78+96E also fall on a straight line parallel to, but 150' north of, the first line. If these lines are parallel to the trend of a single but wide conductive zone, it is seen that transmitter set-ups number 3, 4 and 10 are north of the strike extension of this zone, thereby causing an apparent shift southward of the conductor axis, while set-up No. 5, being south of the strike extension, produced an apparent shift northward. It is, therefore, suggested that this wide conductive zone is characterized by its N72^{o}W trending axis as shown on the accompanying maps. Assuming similar conditions to exist on lines 82E and 86E, an offset segment of the previous zone, or an "en echellon" second but similar zone, is interpreted, its axis being shown as displaced south from the location of the 5X cross-overs. This cannot be verified at present since no information from other set-ups is available on these lines. Such a zone is quite acceptable from geological information and is easily correlated to an expected shear zone in this area with such a trend. The main objection to the interpretation of this wide continuous conductive zone is presented by the southernmost of the two 5X cross-overs on line 70E. However, the double cross-over is produced by only one north dip angle reading at 3+00N. This reading may be in error as the operator was able to obtain only a dip angle reading and no strike angle due to lack of time.

The high dip angle to dip-angle width ratios calculated in this area suggest a fair conductor such as fairly massive mineralization in the shear zone. The slightly more intense south dip angles may suggest that the conductors have a slight northern component of dip.

Set-up No. 10 also reveals a reverse cross-over (10 RX) on line 68E. This reverse cross-over cannot indicate a northeasterly trending conductor between it and the transmitter as numerous profiles from set-ups numbers 3, 4, 5, 6 and 10 over that area prove the non-existence of such a conductor. A normal cross-over father north on L68E would produce the reverse cross-over observed due to the presence of a second cross-over farther south. The suggested conductor would then have to be located north of 10 RX, and west of the profile because of lack of response of profiles to the east. Because of the overlap produced by profiles from set-up No. 3 and set-up No. 6 on L68E, it is seen that the expected normal cross-over to the north of 10 RX must coincide with the observed cross-over 6X.

A similar reverse cross-over (4 RX) is observed at 14+50N on L76E from set-up No. 4. As this profile was carried far enough northward, it is seen that 4 RX is produced by the two normal cross-overs 4X, one to the north at 19+50N, which will be discussed in conjunction with set-up No. 6, and one to the south at 1+00N.

Set-up Number 6 (West Half)

A number of normal and reverse cross-overs have been obtained from this transmitter set-up. They will be discussed singly or in groups, according to their interpretation.

Normal cross-over 6X on line 68E is related to cross-overs (11X) and (12X) obtained from a previous survey on lines 64E and 60E, and to 4X on line 60E. These cross-overs delineate the axis of a conductor trending N72^{o}W, limited by lines 56 E and 72E. This conductor has just been drilled with a total lack of success, the core indicating the presence of a small open fault near the rock surface, in massive unmineralized andesite. This drill hole, however, may have been stopped too soon if the conductor has a southerly dip of 75^{o} or less. The much weaker response obtained from this conductor during the present survey (max. 4^{o} as compared to 40^{o} or more) may suggest a change in the conductivity of the conductor such that sulphide mineralization must be excluded. This change, however, may also be produced independently of the conductor if saturated overburden acted as a shield in the second survey. It must be concluded, therefore, that no definite explanation can be given at this time to the apparently contradictory observations of two surveys, one indicating a strong conductor, the other a poor conductor, while the diamond drill hole is barren.

A reverse cross-over, 6 RX, is observed south of cross-over 6X on line 68E. It is produced by the south dip angles to the north, related to the conductor just discussed, and to north dip angles to the south caused by the presence of the conductor(s) just north of the concession line.

A second normal cross-over, 6X, is observed on line 80E. A cross-over,4X, from transmitter set-up No. 4, was observed on line 76E but without any response from set-up No. 6. It is, therefore, concluded that these cross-overs indicate two short conductors, one between lines 72E and 76E, and the other between lines 76E and 84E. As shown on the accompanying map, their length extent is not well known, but must be relatively short. Their strike is not known, but is assumed to parallel that of the more important conductor to the west.

Three reverse cross-overs, 6 RX, are observed, one each on lines 72E, 76E and 80E. The first two lie on a straight line through the transmitter set-up No. 6, while the third is located at a distance of this straight line which is within the uncertainty of the exact location of the reverse cross-over. This line, therefore, is at right angles to a conductor trending N to N5^{O}E located between the eastern-most reverse cross-over on line 80E and the transmitter set-up No.6. Its location is further limited by its effects on other profiles to between lines 80E and 82E.

On profiles from transmitter set-up No 5, this northerly trending conductor should produce south dip angles to the east and north dip angles to the west. These are observed on lines 79+96E, 82E and 86E, added to the north dip angles produced by the conductor(s) at the concession line. The southward extension of this juxtaposition of two effects clearly indicates the southward extension of the conductor. The northward extension of the conductor is limited by the lack of reaction on the profiles from set-up No. 9. Mainly on the basis of the trend, and the generally weak effects on the various profiles, it is suggested that this conductor is a water-filled fault, probably extending beyond its conductive length. The southward extension of this fault could well explain the apparent lefthand horizontal displacement of 200 feet, of the wide conductive zone near the concession line. The physical facts of this survey do not altogether deny the possibility of weak mineralization in this fault, but the geological information of this region indicates that such faults are later than any known mineralization.

The reverse cross-over 6 RX in the northwest corner of claim P-37216 on line 68E cannot be explained as directly produced by a single conductor consistent with data from present and past surveys. It must be considered as being produced by the change from the north dip angles produced by the conductor to the south, and to south dip angles. These south dip angles may possibly be caused by the conductive fault interpreted between lines 80E and 82E. But the intensity of these angles are thought to be too intense to be produced at this distance by such a feature which at best is only weakly conductive. The south dip angles must, therefore, be attributed to some cause such as a dipping bedrock surface, or errors in the survey evolving from possible misorientation of the transmitter.

Set-up No. 6 (East Half)

To the east of the transmitter set-up No. 6, four profiles show north dip angles increasing southward. The maximum angles obtained are: 8° for line 96E, 5° for line 100E, 10° for line 104E, and 25° for line 108E, the latter being accompanied by fair dip angle to dip-angle width ratios (up to 1.3). The profile on line 108E also suggests that the peak for the north dip angles has been reached at the base line. This, then, suggests the possibility of two good conductors, en echellon, with a northwesterly trend, probably similar to that of the conductor farther west along the concession line. Electrically, these partially indicated conductors are as good, as, or better than, any other one discovered by this survey, as suggested by the most intense dip angles observed. The above, although only one of several possibilities due to the incomplete set of data available, is approximately shown on the accompanying map to show its possible economic importance. This importance is in no way deterred by the lack of response on neighbouring profiles from transmitter set-up No. 7, which is to be expected considering the poor coupling between transmitter and conductor due to their relative position.

Set-up No. 7

The profiles from this set-up show small angles, up to 3°, which form in some cases apparent cross-overs. Since these cross-overs do not form any general trends, it is concluded that they are insignificant, being produced by small errors in readings, topography, transmitter orientation, etc.

Set-up No. 8

The same remarks as for set-up No. 7 apply to set-up No. 8, except that the profiles appear slightly more regular. The eastern-most profile, line 140E, shows a peak of 6° north, but no cross-over. This may be related to something farther east. However, on the basis of the available data, no further conclusions may be reached.

Set-up No. 9 (West Half)

The western profiles of set-up No. 9 all show a slow but steady increase northward of N dip angles. This increase is slightly greater on the western-most profiles. The maximum angle observed is 5° north. These angles cannot be explained by any possible location and orientation of a conductor consistent with data from past and present surveys. It must be concluded, therefore, that they are produced by such factors as misorientation, surface or subsurface topography, etc.

Set-up No. 9 (East Half)

A number of weak cross-overs have been observed. The greatest dip-angle read is [illegible]°. Maximum dip angle to dip-angle width ratio is 0.5. The cross-overs suggest very weak conductors trending $N50^{\circ}W$. This trend is parallel to that of the short, segmented conductors interpreted as one of two possibilities at the concession line, in claim P-35765. However, due to the spacing of the profiles and the number of cross-overs, this trend is not uniquely determined. On the basis of the available data, it is suggested that these conductors may be formed by weak mineralization along bedding planes of lithological units or along shearing. However, it is also suggested that further detail electromagnetic data over the immediate vicinity may reveal a completely different picture.

Set-ups Nos. 10 and 11

Set-ups number 10 and 11 have been adequately discussed in conjunction with set-ups number 3, 4, 5 and 1 respectively.

C. W. Faessler.

March 27, 1956.

CWF:BL

ATTACHMENTS

Maps:

D.G.C. - Electromagnetic Survey, Jamieson I,
Concession I Section,
Base Map 42A/12S, Scale 1"= 200', 1"= 20^{0}.
February 24, 1956.

D.G.C. - Electromagnetic Survey, Jamieson I,
Concession II Section,
Base Map 42A/12S, Scale 1"= 200', 1"= 20^{0}.
February 24, 1956.

REFERENCES

Maps:

D.G.C. - Ground Magnetometer Survey, Jamieson I,
Concession I Section,
Base Map 42A/12S, Scale 1"= 200', Feb.1956

D.G.C. - Ground Magnetometer Survey, Jamieson I,
Concession II Section,
Base Map 42A/12S, Scale 1"= 200', Feb.1956

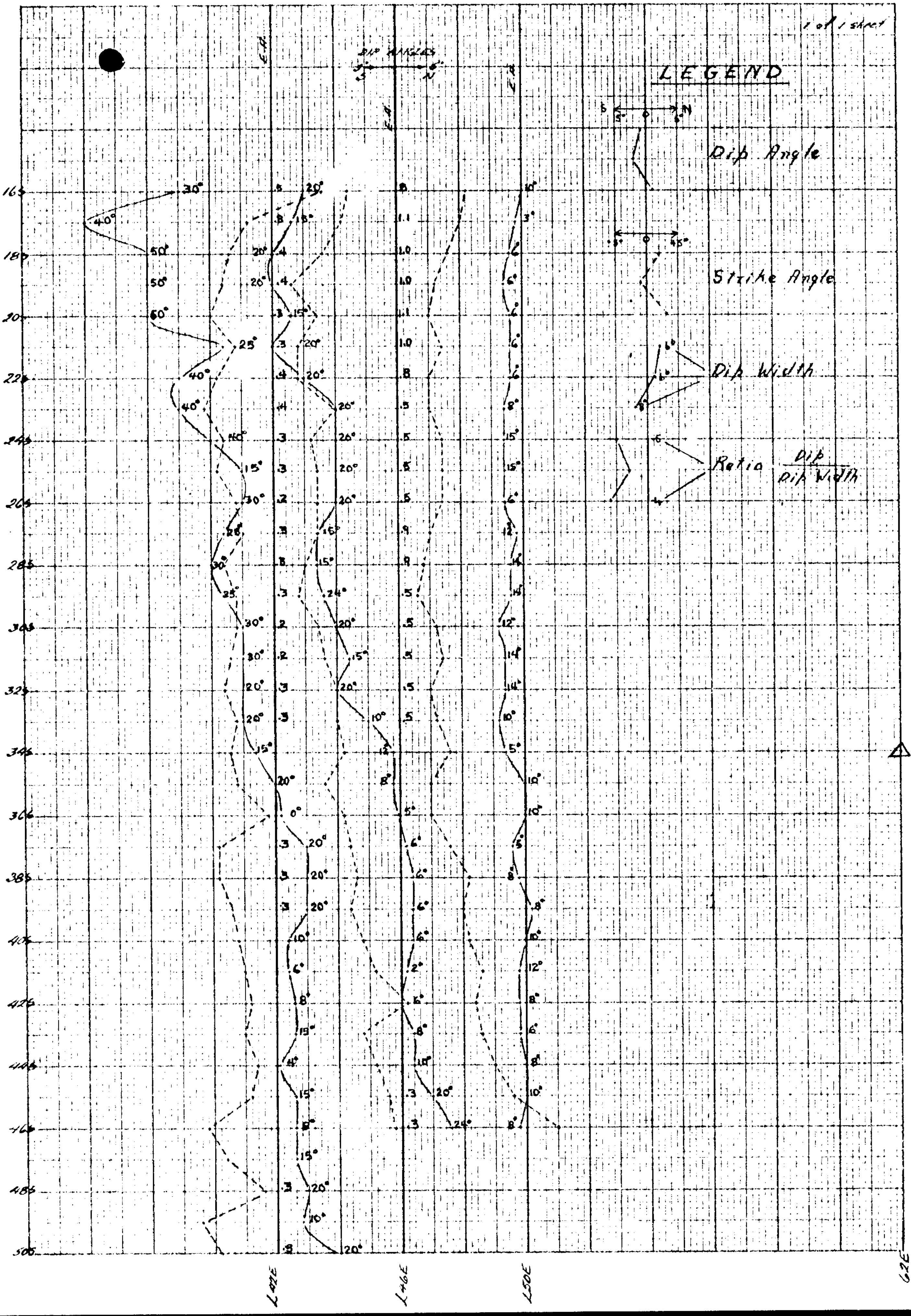
Report:

D.G.C. - Interpretation of Ground Magnetometer Survey Data,
Jamieson I (West Part of Wallingford Option)
by J. H. Ratcliffe, March 13, 1956.

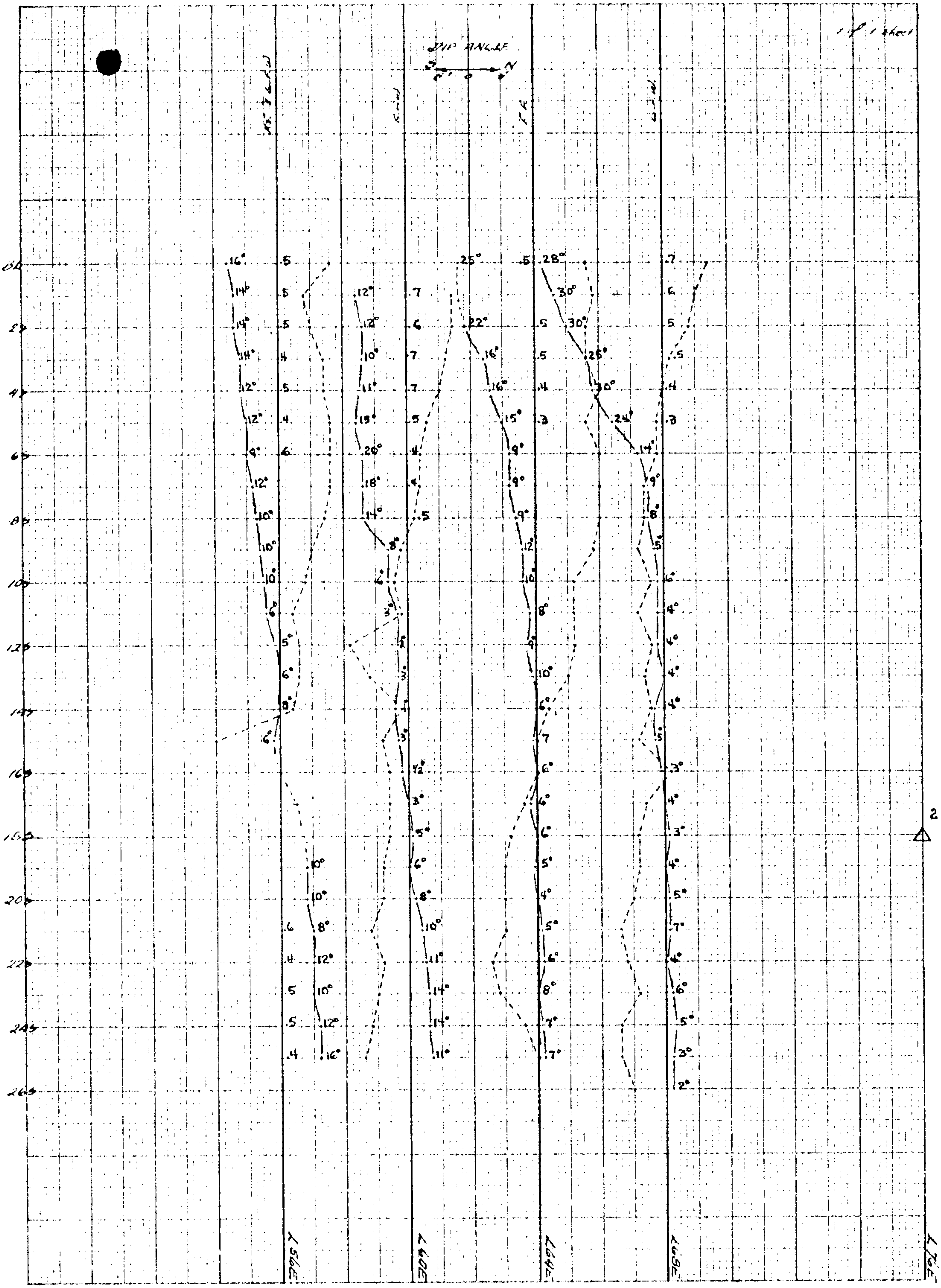
APPENDIX

Graphs of Electromagnetic Data for Individual Set-ups.

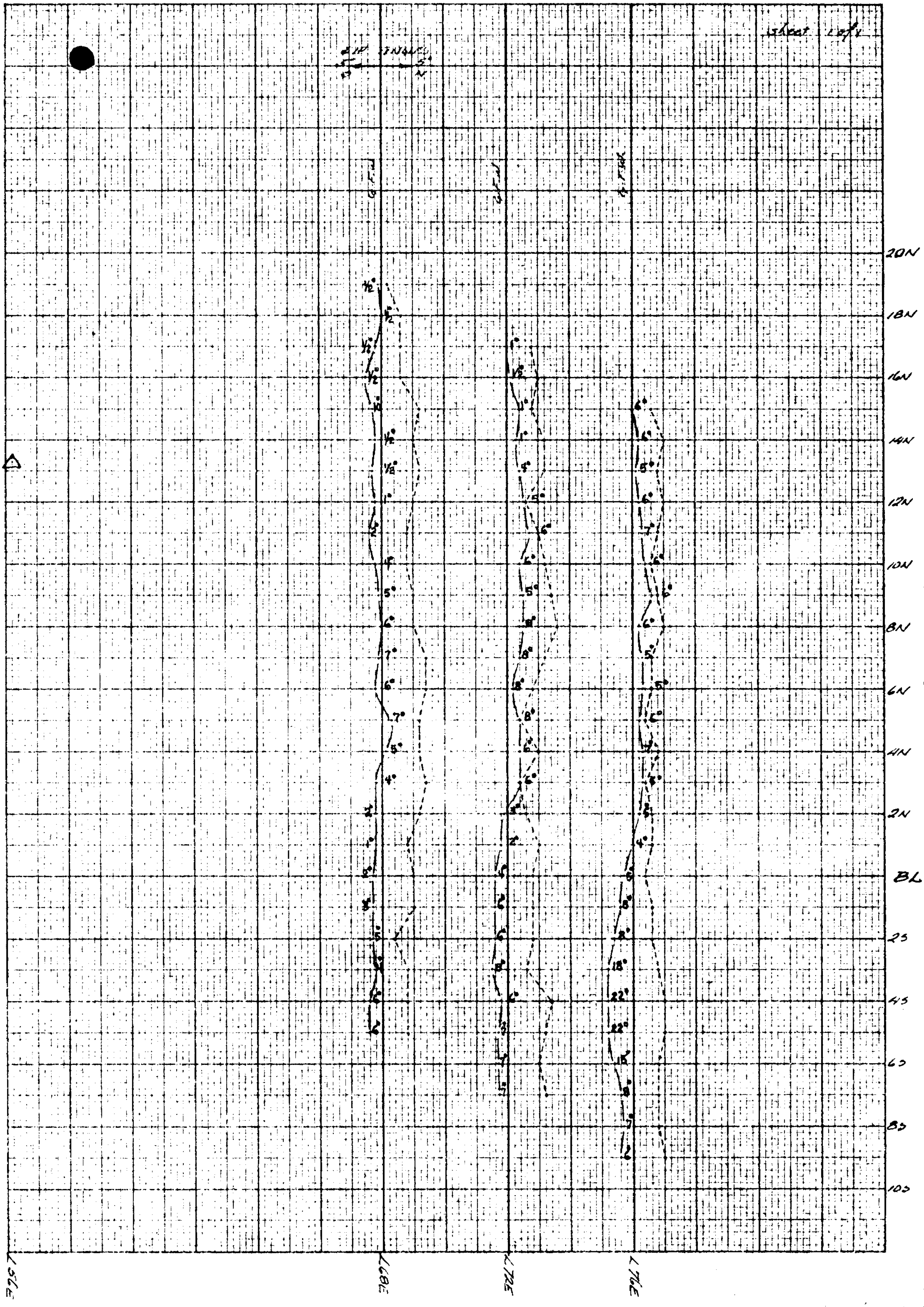
JAMIESON I SET-UP #1 62+00E 34+00S (ESTIMATED)



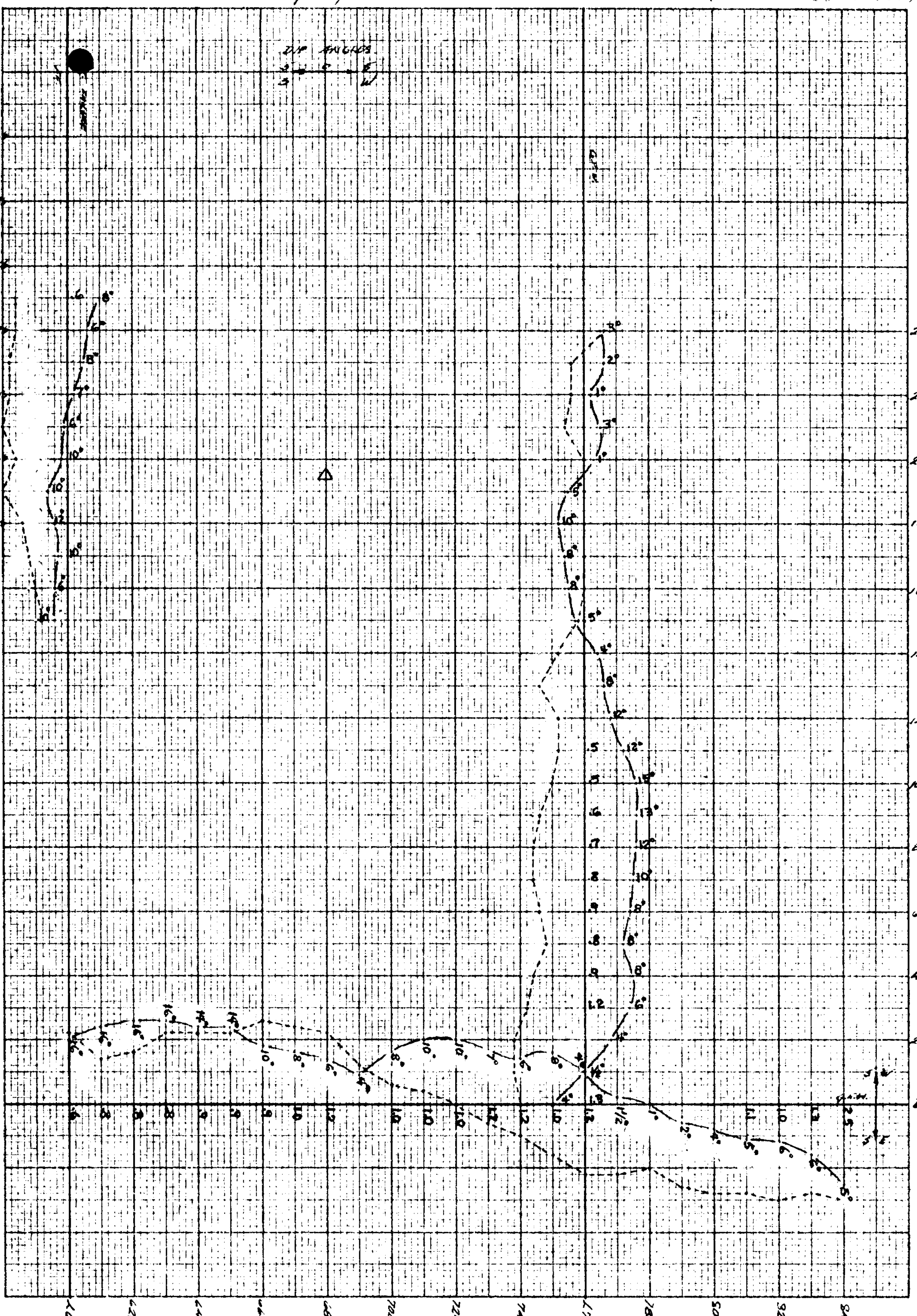
JAMIESON 1 SET-UP #2 L76E 18+00S



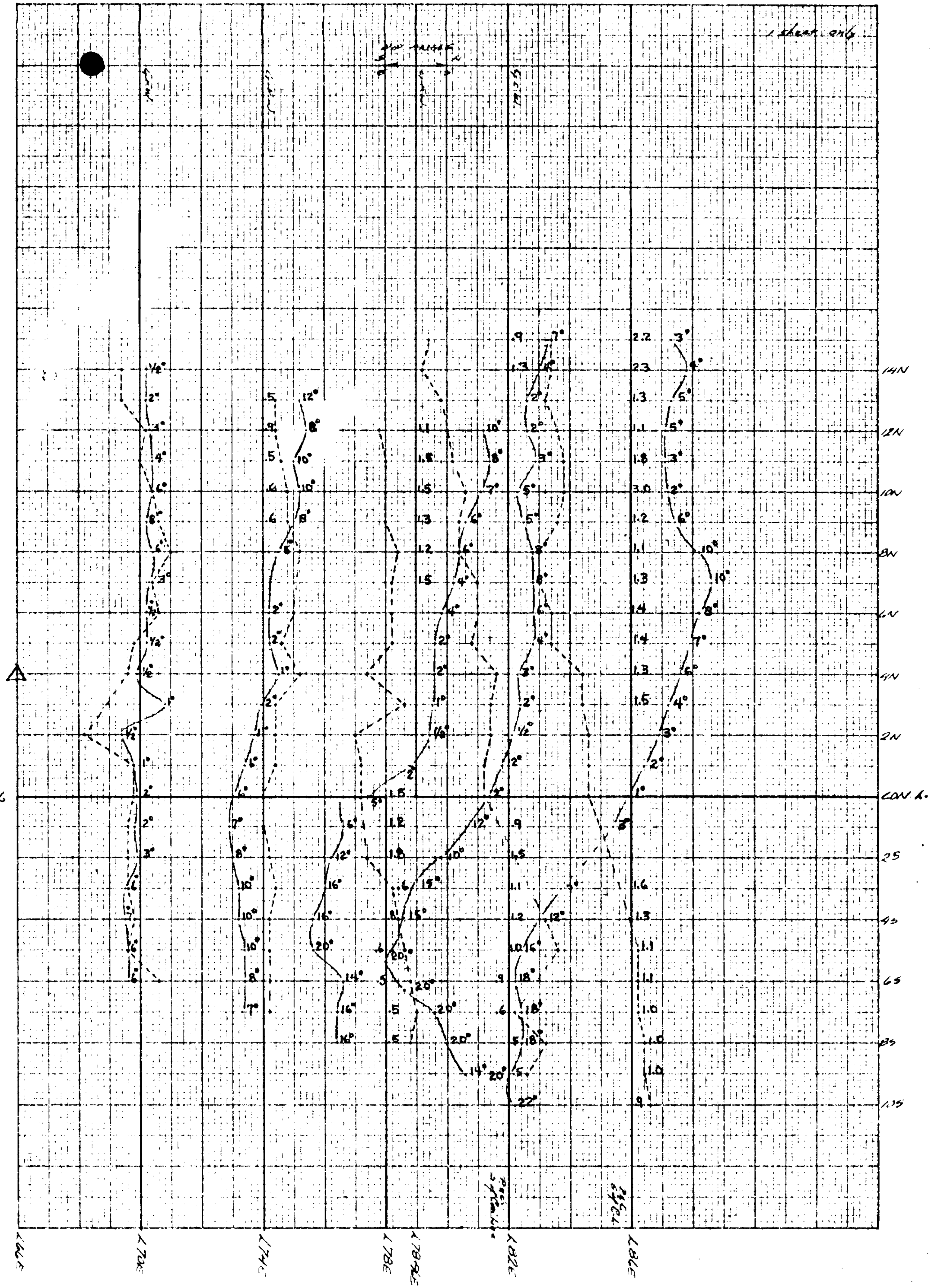
JAMIESON I SET-UP #3 L56E 13+40N



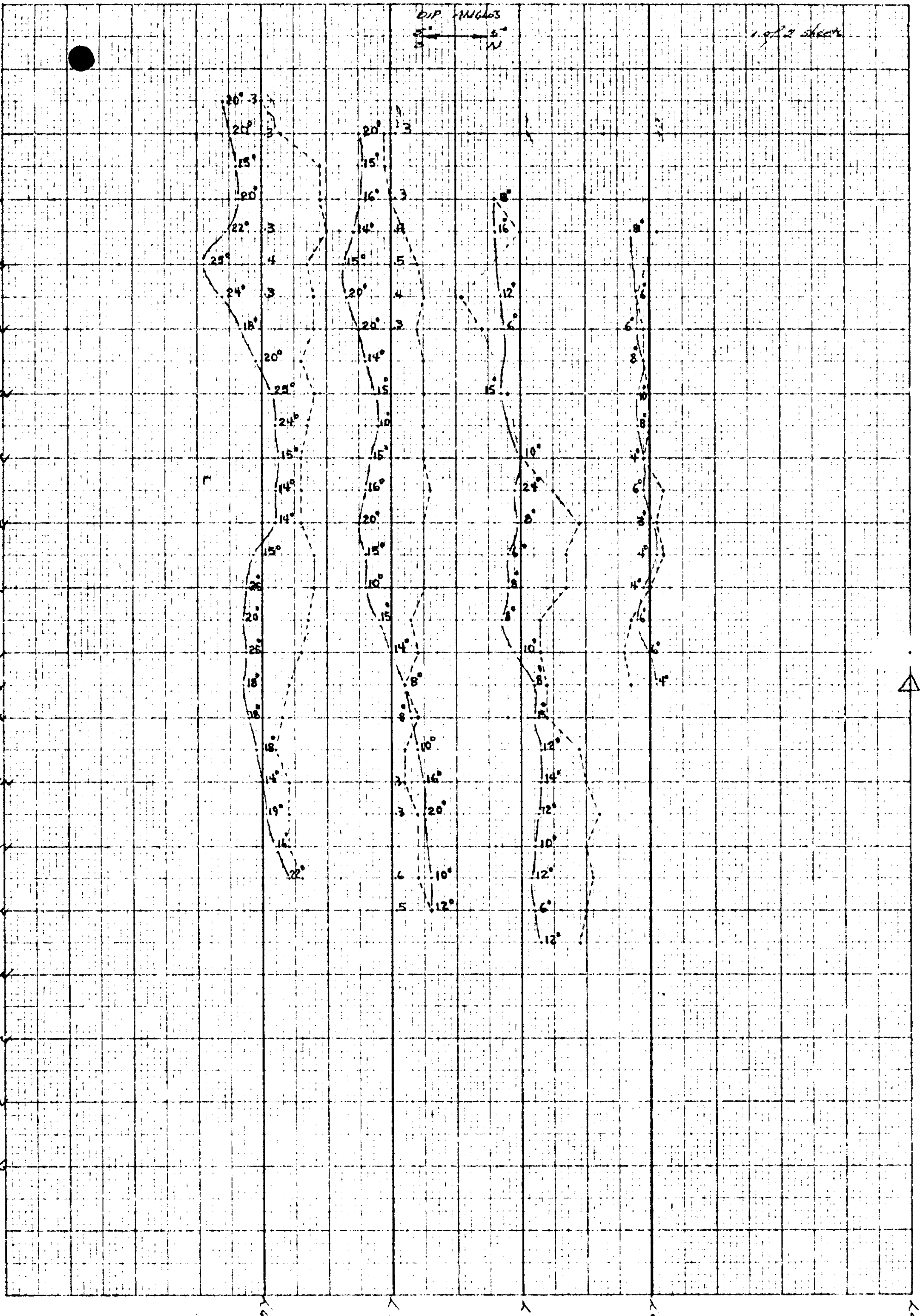
JAMIESON I SET UP #4 L 68E 19+50N



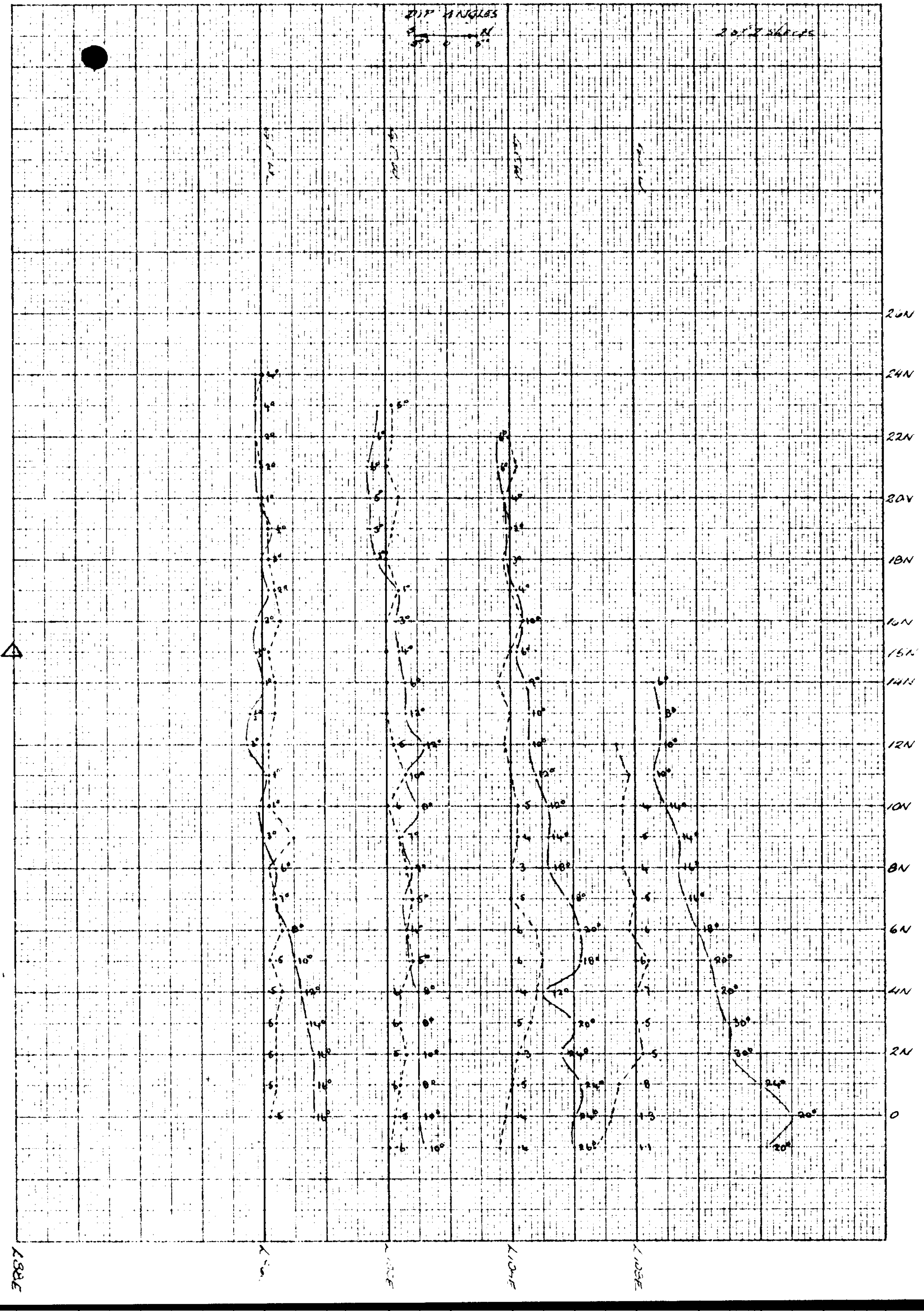
JAMIESON I   SET-UP #5   L66E 4+00N



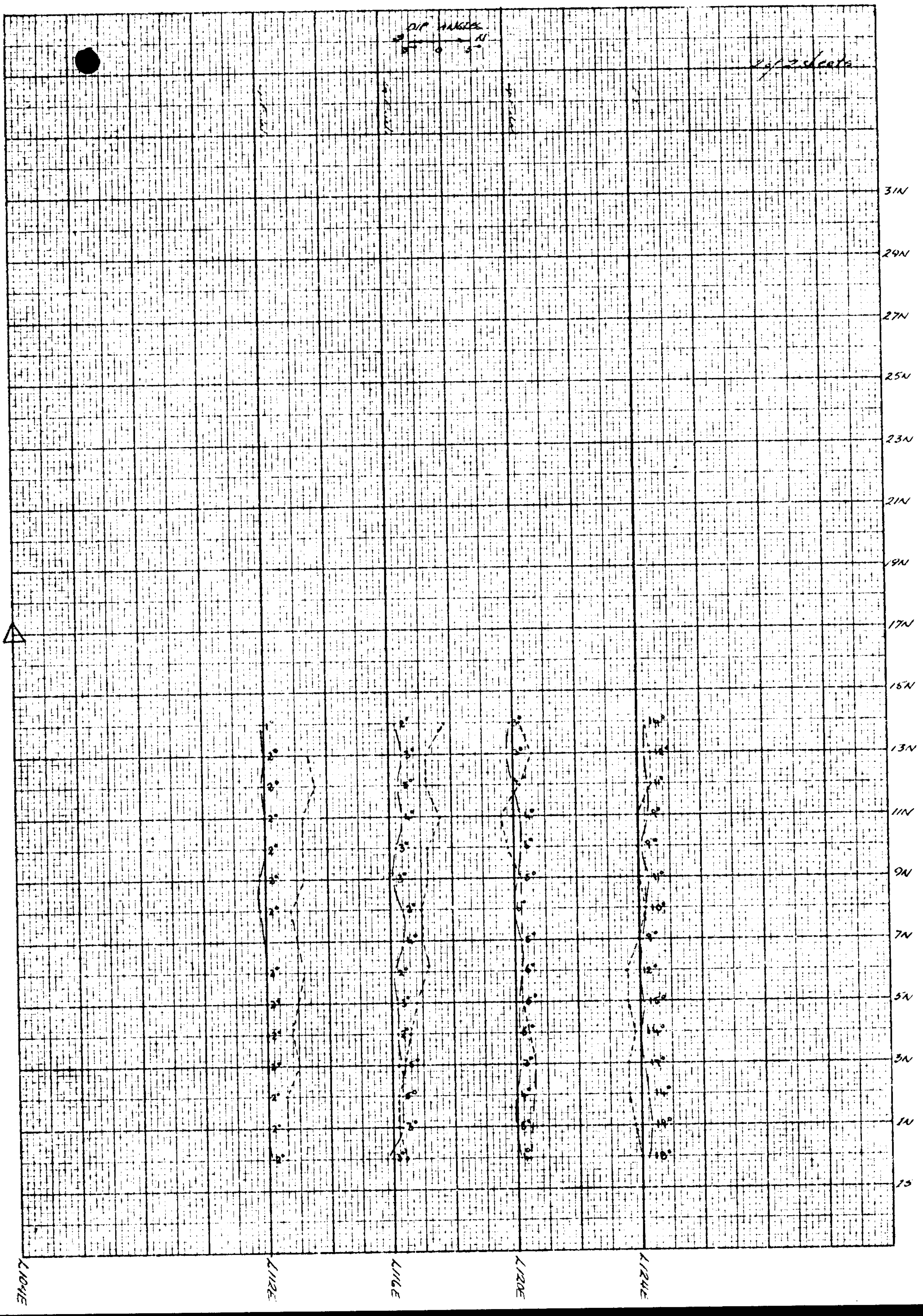
JAMIESON I SET-UP #6 L88E - 15N (WEST HALF)

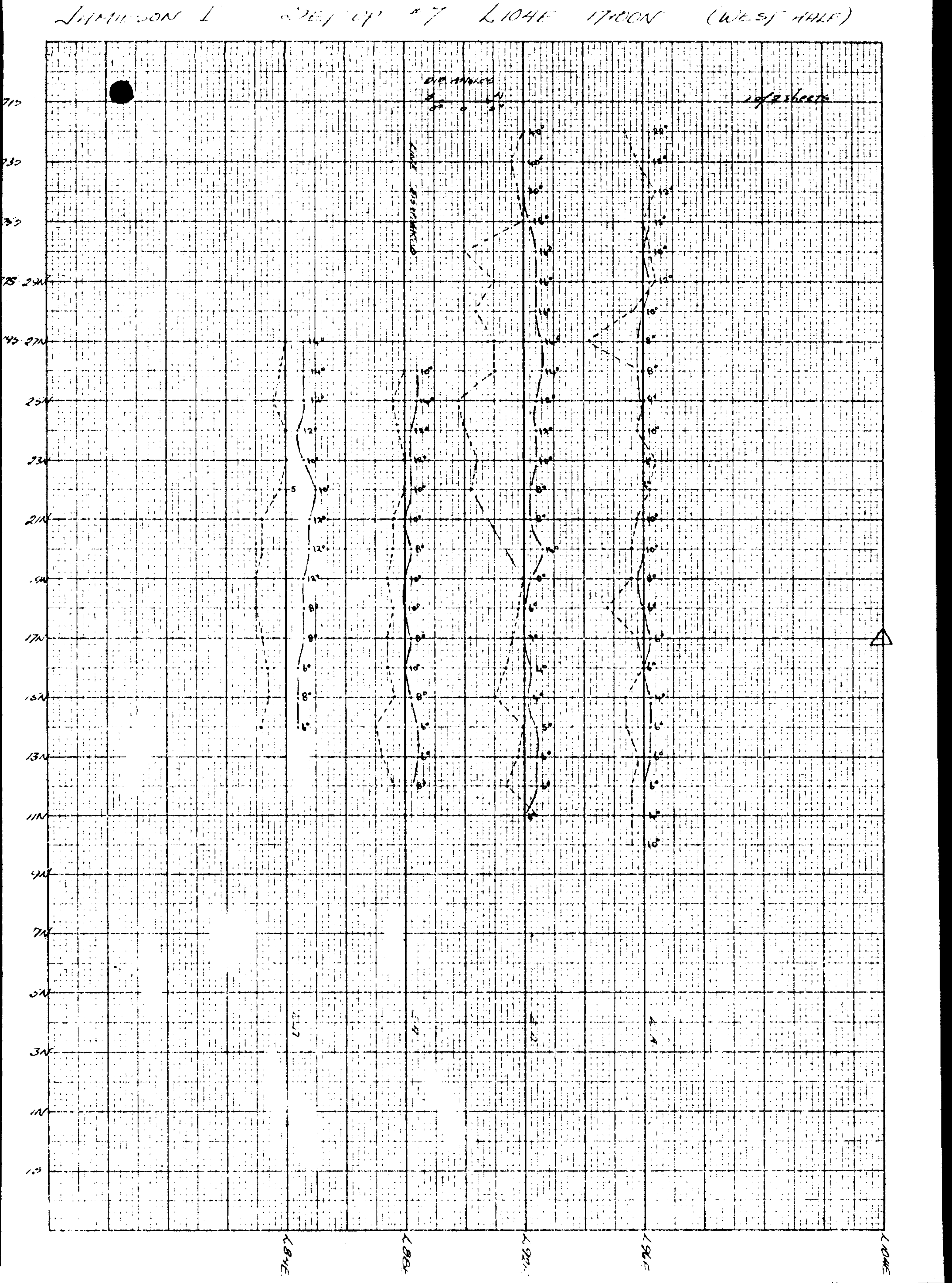


JAMIESON I SET-UP #6 L88E 15N (FIRST - HALF)

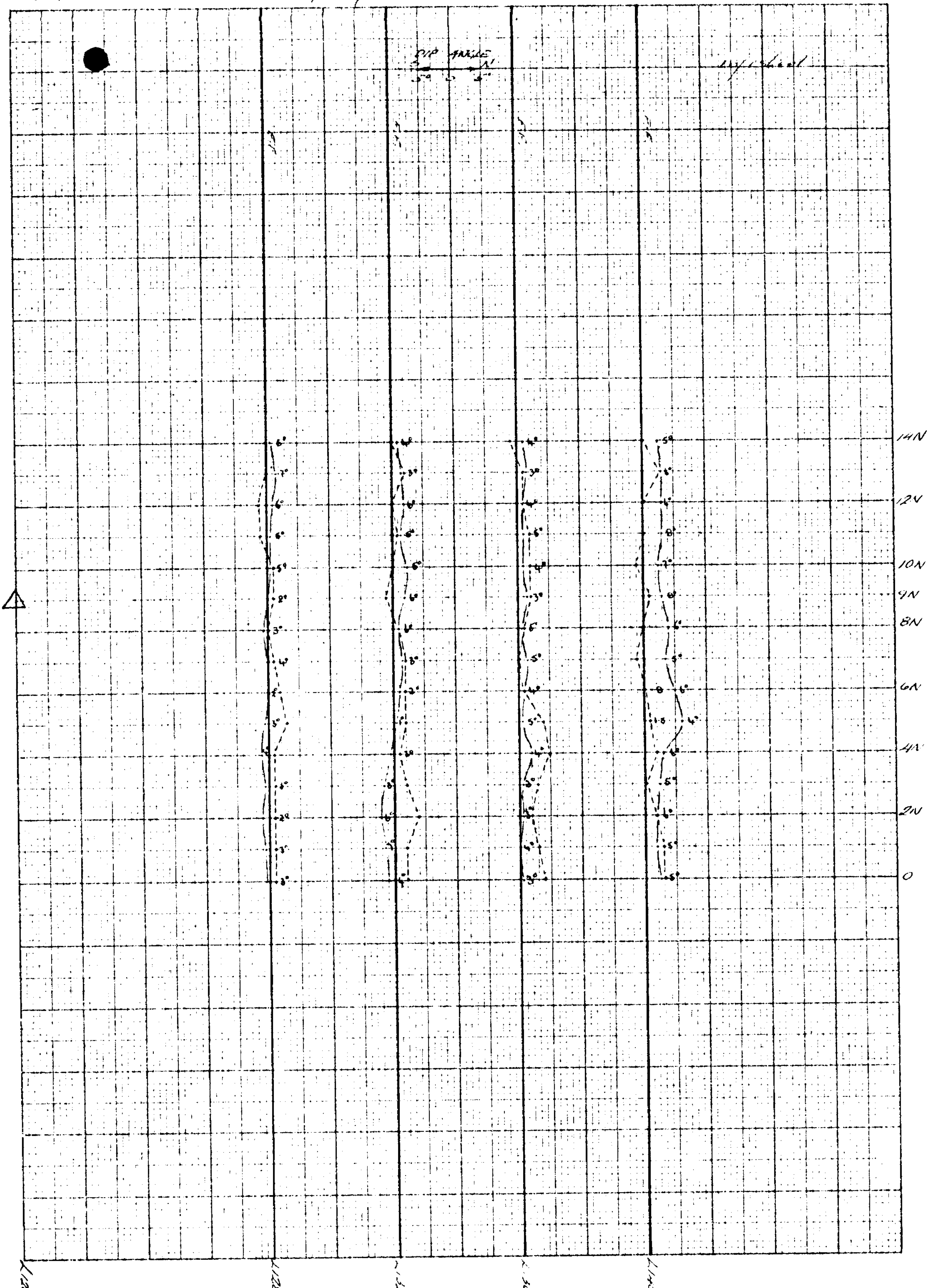


JAMIESON I SET-UP #7 L.104E 17+00N (EAST HALF)

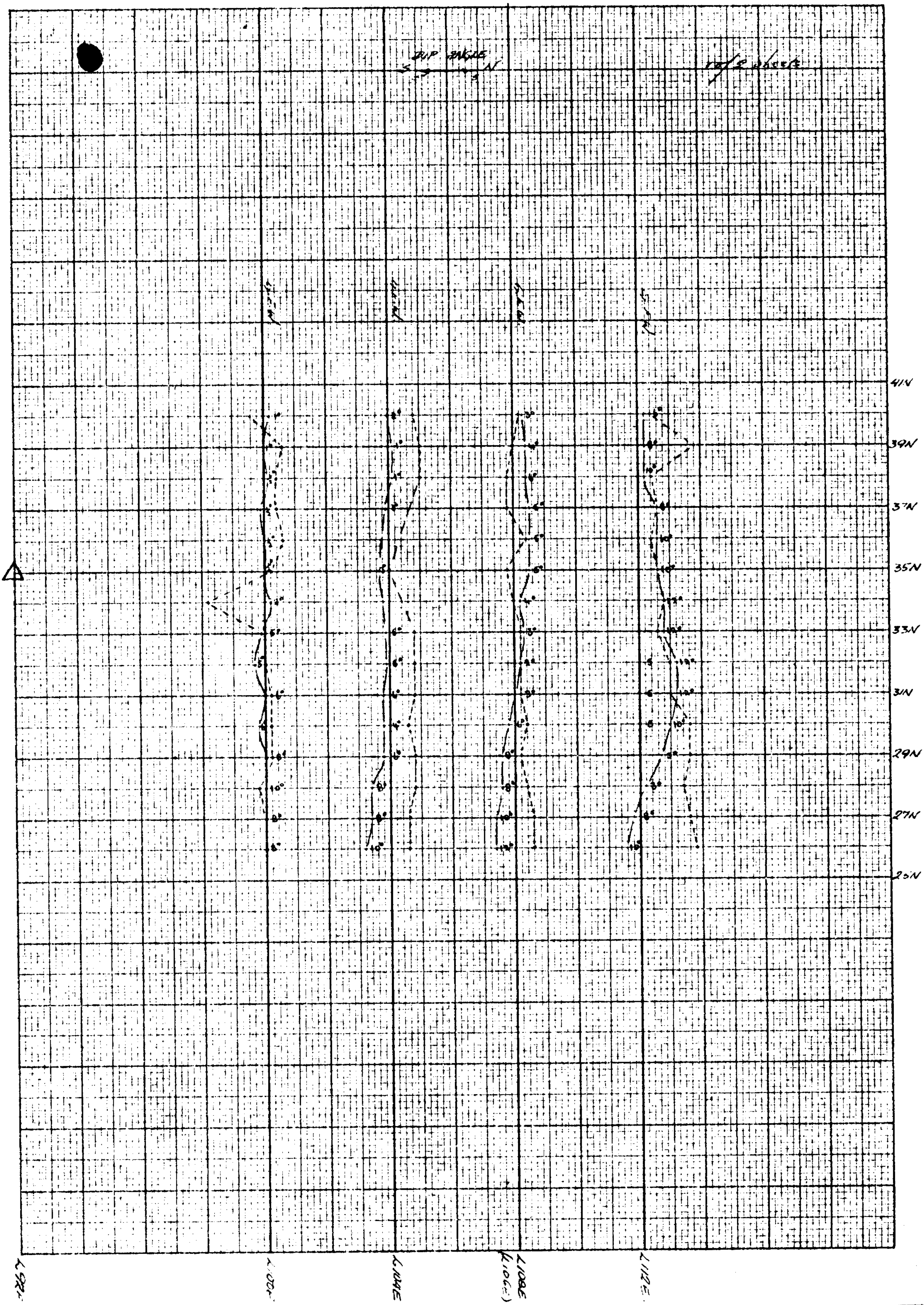



JAMIESON I   DEP. UP #7   L104E   1700N   (WEST HALF)
DIP ANGLES
LINE DISMANTLED
L84E
L88E
L92E
L96E
L104E

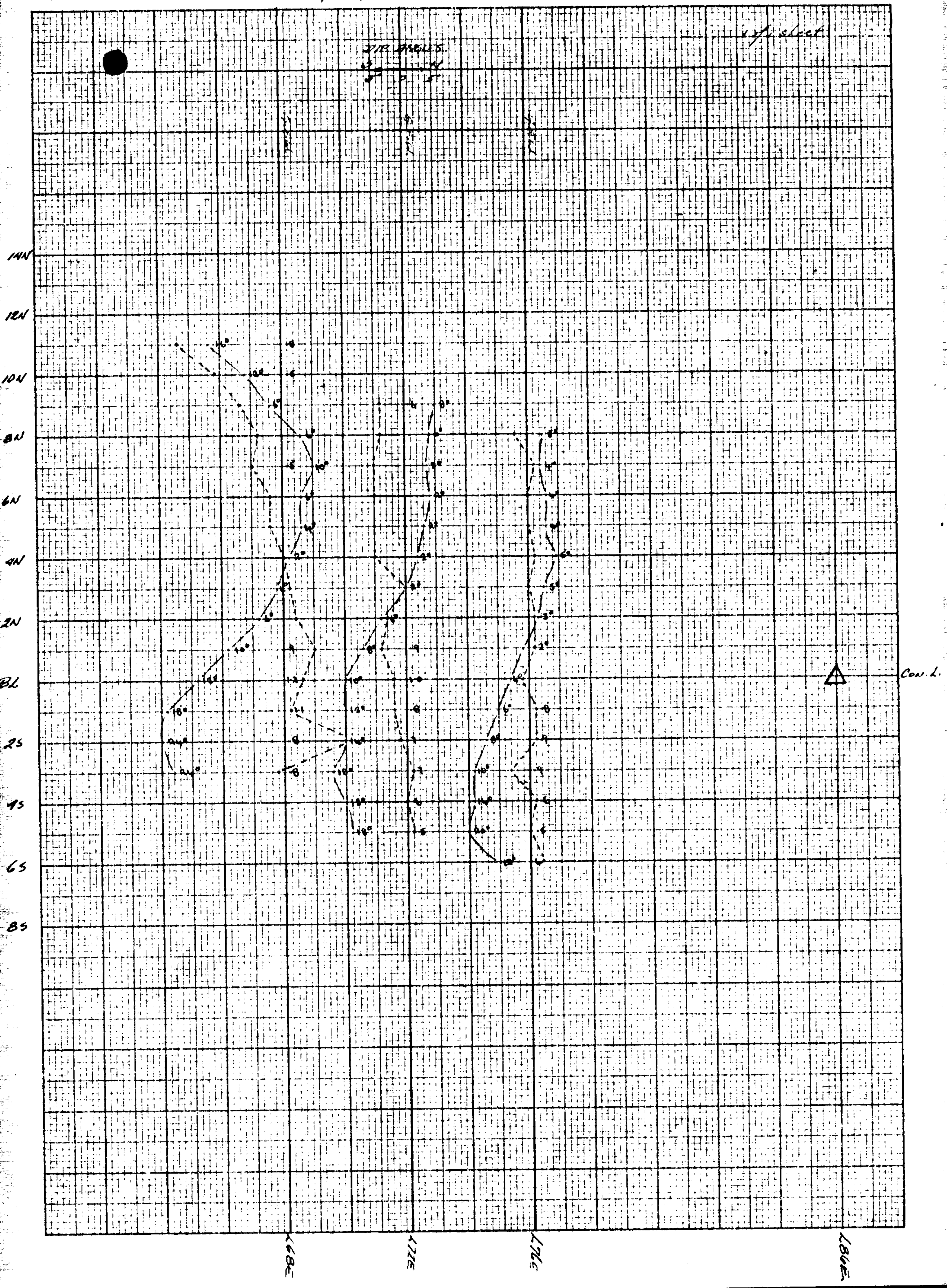
Jamieson 1   Set-up #8   L120E   9400N



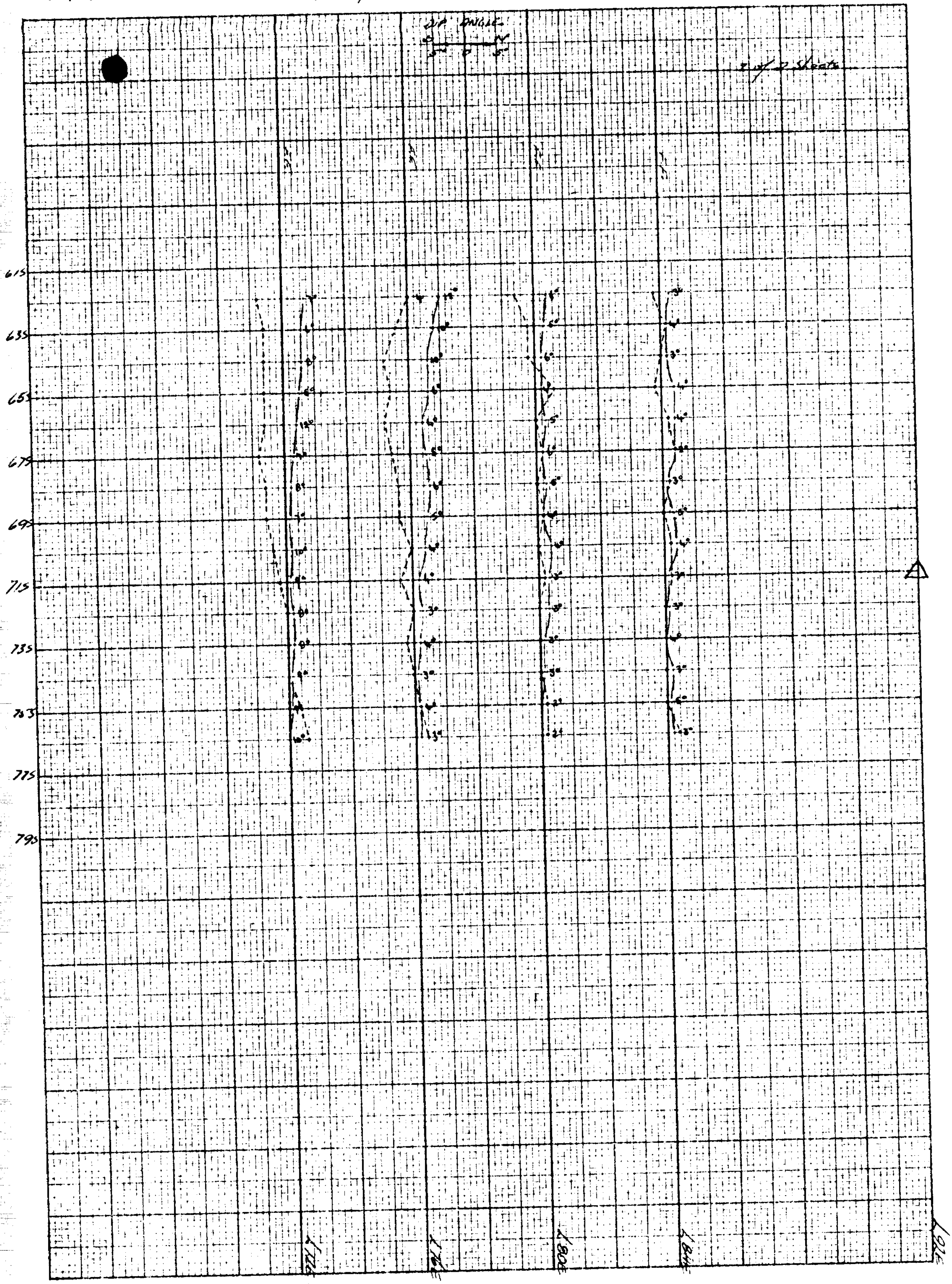
JAMESON I   SET-UP #7   L92E   71S   (EAST HALF)



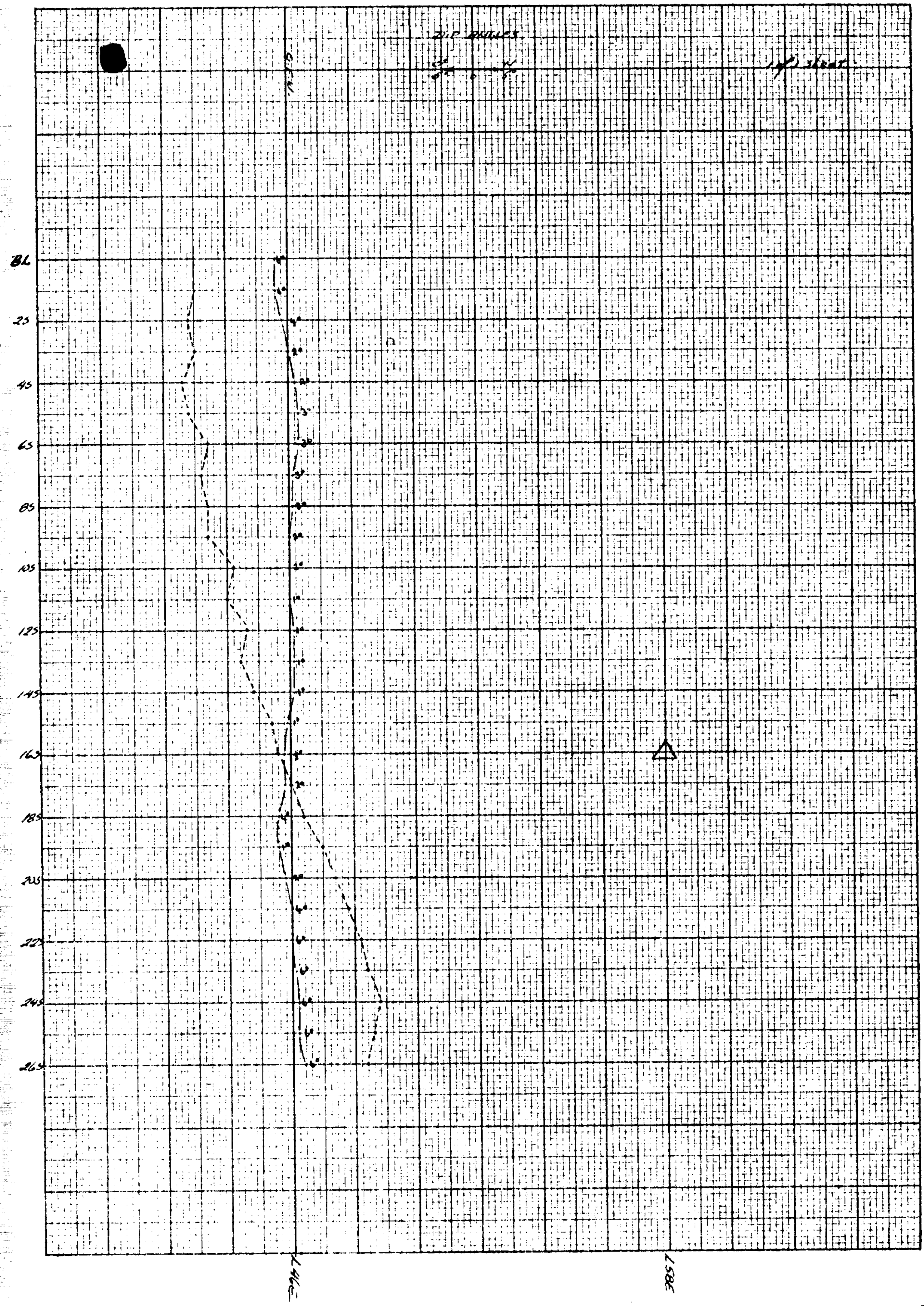
JAMIESON I SET-UP # 10 L86E. CON. LINE

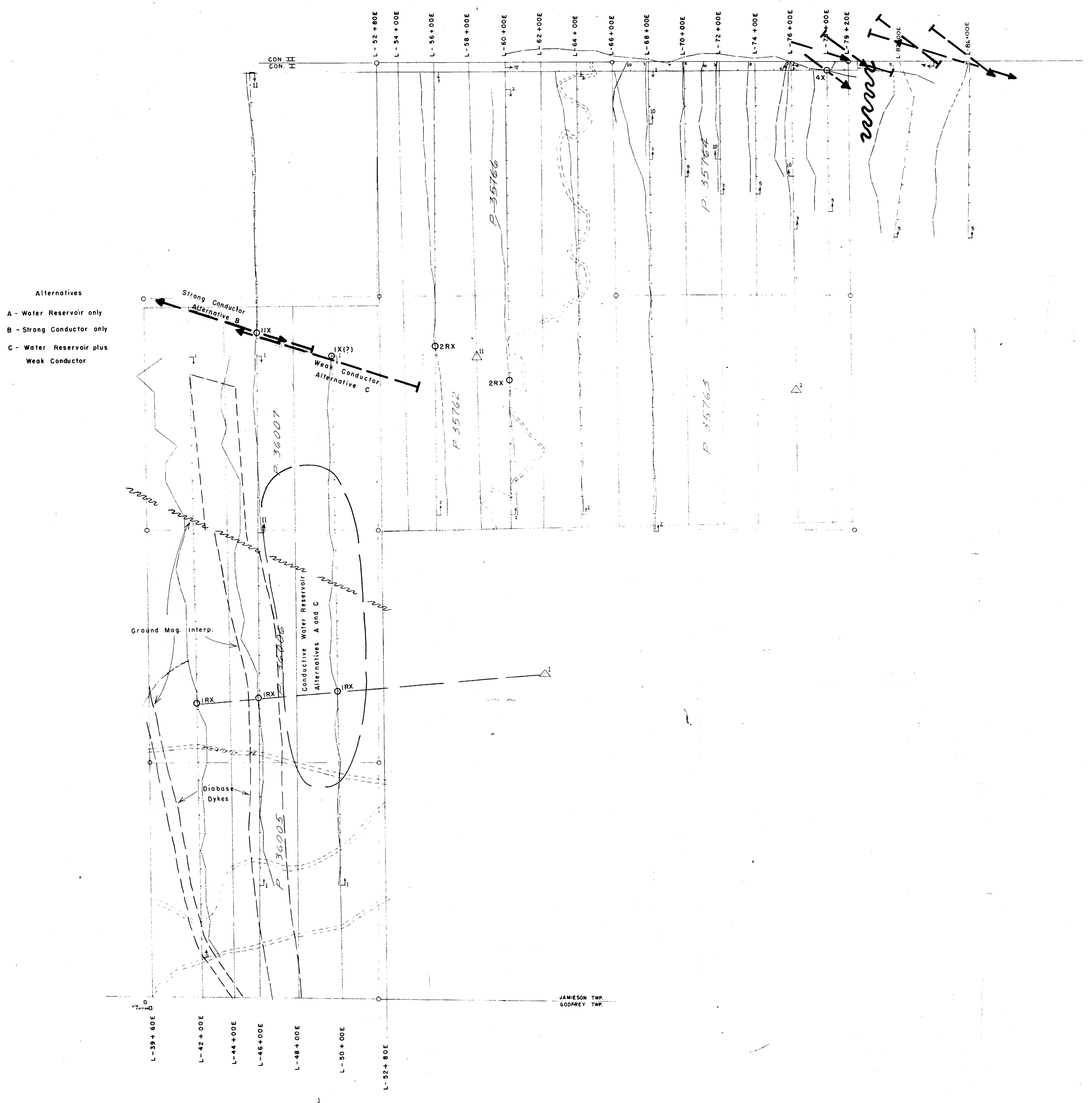


JAMIESON I SET UP #9 L 92E 71+00S (WEST HALF)



JAMIESON I SET-UP #11 L58E 16+00S





LEGEND

- O 1IX — Normal-Cross-over Obtained from Transmitter Set-Up No. II.
- O 1RX — Reverse Cross-Over Obtained from Transmitter Set-up No. I.
- Axis of Conductor
- Maximum Extent of Conductor
- Minimum Extent of Conductor
- Theoretical Line Through Reverse Cross-Overs and Transmitter (Normal to Axis of Conductor)

N

DOMINION GULF COMPANY
ELECTROMAGNETIC SURVEY
JAMIESON I
Base Map 42A/12S Prov. of Ontario.
CONCESSION I SECTION
Scale: 1" = 200'
1" = 20°
Feb. 24, 1956
To Accompany Interp. Report by C.W.F.
Dated: March 27/56.

63.597


LEGEND
O(12X) Normal Cross-Over obtained in Previous Survey from Transmitter Set up No. 12
O11X Normal Cross-Over Obtained from Transmitter Set-Up No. 11
O1RX Reverse Cross-Over Obtained from Transmitter Set-Up No. 1
Axis of Conductor
Maximum Extent of Conductor
Minimum Extent of Conductor
Theoretical Line through Reverse Cross-Overs and Transmitter (Normal to Axis of Conductor)
Possible Strong Conductors Exact Location and Orientation Not Known.
CONCESSION III
CONCESSION II
ROBB TWP.
JAMIESON TWP.
T.L. 53+65S
B.L. 66+80S
T.L. - 93+20S
B.L. 3-52+80S
T.L. - 52+40S
DOMINION GULF COMPANY
ELECTROMAGNETIC SURVEY
CONCESSION III SECTION
JAMIESON I
BASE MAP 42 A/12 S
PROV. OF ONT.
SCALE: 1" = 200'
1" = 20° To Acc. Interp. Report by C.W.F. dated: March 27/56.
FEB. , 1956
63.697