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#### **SML 59**

#### MOONTA - WALLAROO AREA

# PROGRESS REPORTS FOR THE PERIOD 1/9/63 TO 31/8/65

Submitted by

Western Mining Corp. Ltd 1964

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## WESTERN MINING CORPORATION LIMITED

MOONTA-WALLAROO INVESTIGATION

SPECIAL MINING LEASE No. 59

#### SIX MONTHLY REPORT

for

Period Ended 31st August, 1964.

Perth, W.A.

24th September, 1964

#### WESTERN MINING CORPORATION LIMITED

## MOONTA-WALLAROO INVESTIGATION Special Mining Lease No.59

#### Report for 6 months ended August, 1964

This report gives a general summary of the results of the geophysical, geochemical and diamond drilling investigations of the area for the six-monthly period ended 31st August, 1964. It is accompanied by the following plans:-

 $1^{\text{H}} = \frac{1}{2} \text{ mile Plans Nos.}$  451-33; Wallaroo and Kadina

451-44; Tickera

451-28; Tiparra

451-32; Kilkerran & Maitland

1" = 1000 ft Plans No. - Kadina

1" = 1000 ft Overlay of Kadina sheet showing geochemical results.

I.P. profiles, detailed and reconnaissance.

Diamond drill sections, D.D.H. No. 3

467

(Hole not complete)

#### GEOCHEMICAL TESTING.

Geochemical testing continued with two Gemco sampling drills, tests being carried out in conjunction with I.P. surveys in the Kadina area, particularly on the Doora Anomaly, and in the Moonta Mines area. Anomalous copper values over Moonta lodes appear to be much lower than those in the Kadina area. In order to improve the sampling technique, hollow auger drill stems have been introduced.

Results of geochemical testing are shown on an overlay to accompany magnetic contour and I.P. anomaly plan of Kadina area.

A total of 970 holes were drilled, representing 24,931 ft of hole length.

#### GEOPHYSICAL TESTING

Magnetometer testing of the magnetically "live" area of the lease was completed from Tickera in the north to Maitland in the south, and detailed magnetic testing was carried out in conjunction with close I.P. work over the Doora Anomaly. A totalof 424 line miles of magnetic survey was run. The accompanying plans show magnetic contours and I.P. anomalies.

I.P. testing was increased with the introduction of a second I.P. unit. Detailed I.P. testing was carried out with one unit over the strongly magnetic Doora Anomaly. Results were sufficiently encouraging to justify diamond drill testing of the stronger anomalous areas. The second unit was engaged in reconnaissance north-east of Kadina and south and south-east of the old Moonta Mines. North-east of Kadina some anomalous areas were traversed; however, later geochemical auger drilling showed the existence of slatey material, similar to that intersected in the previously tested Thrington area, and probably part of the Adelaide System. A total of 116 miles of I.P. lines were run during the period.

#### DIAMOND DRILLING

Drilling of the <u>Thrington anomaly</u> was completed at the end of D.D.H. No. 4. The hole intersected black slate and spotted hornfels, with occasional finely disseminated pyrite scattered through the core, confirming the existence of flatlying slates and siltstones overlying the Precambrian basement rocks.

In the <u>Jericho area</u>, in D.D.H. No. 6, similar rocks to those in D.D.H. No. 5, 2000 ft west, schists, biotite schists and gneisses were encountered, but mineralisation in this hole was much weaker. A section of the hole showing magnetic, I.P. and geochemical profiles in relation to the hole is attached. Significant core assays are in tabular form.

D.D.H. No. 7 was drilled to test the eastern end of the large <u>Doora Anomaly</u>. The hole was drilled to a depth of 1649 ft mainly in chlorite schist, occasionally biotitic, becoming sandy after 1450 ft. Sparse sulphide mineralisation was noted throughout the chloritic schist. Between 1248 ft and 1254 ft, a quartz-calcite zone with biotite and tourmaline was intersected carrying fairly coarse splashes of chalcopyrite and pyrrhotite. From 1254 ft to 1275 ft, the magnetite-bearing chloritic schist carried chalcopyrite in excess of pyrite in seams up to one-half inch and in small reticulating networks.

Assays are tabulated on the attached drill section. From 1247'6" to 1275'0", assays averaged 1.20% Cu.

Deflection of the hole was effected at 941 ft and a second intersection of the mineralised zone was made between 1245'0" and 1271'0" and assays averaged 1.80% Cu.

D.D.H. No. 8 was commenced in the vicinity of the old <u>Doora Mine</u>. Bad ground has been encountered and the target area has not yet been reached.

A total of 4001 ft of diamond drilling was carried out during the period.

#### SUMMARY

Magnetometer reconnaissance of the magnetically "live" area of Special Lease No. 59 is complete.

Systematic testing of the major magnetically anomalous zones is continuing, using detailed magnetic surveys, I.P. traverses and geochemical sampling. Major targets shown up by I.P. and geochemistry are being tested by diamond drilling. The large Doora magnetic anomaly is currently being drilled, and interesting zones of mineralisation have been intersected at the eastern end of the anomaly. In D.D.H. No. 7, 27 ft 6 ins. of mineralised schist averaged 1.20% Cu between 1247'6" and 1275 ft. A deflection of the hole intersected mineralisation

between 1245'0" and 1271'0", assays averaging 1.80% Cu.

424 line miles of magnetometer surveys and 116 line miles of I.P. were run during the period. A total of 970 geochemical holes were drilled, amounting to 24,931 ft of hole. 4001 ft of diamond drilling was completed.

H.E. Hall

Perth, W.A. 24/9/64

#### WESTERN MINING CORPORATION LIMITED

# MOONTA-WALLAROO INVESTIGATION SPECIAL MINING LEASE No. 59.

This report gives a general summary of the results of the geophysical, geochemical and diamond drilling investigations of the area to the end of February, 1964. It is accompanied by the following plans:-

1" = ½ Mile Plans Nos. 451-28 32 33 34 35 44 48

Geochemical profiles

I.P. Profiles detailed and reconnaissance

Diamond Drill Sections DDH No. 3 at Thrington

DDH No. 5 at Jericho.

#### MAGNETOMETER WORK

The airborne magnetometer survey carried out by the South Australian Department of Mines, several years ago, in revealing the magnetically "live" areas, outlined the Precambrian zones which are potentially of mineralogical interest.

Early ground magnetometer work by Western Mining Corporation Limited was run to give definition to the magnetic contours in the general vicinity of the old mines and their surrounding country to assist in the control of direction of subsequent I.P. traverses.

Using two magnetometer parties, this work has been extended to cover the Hundreds of Tickera, Wallaroo, Kadina, Tiparra, Kilberran and Maitland, and the top of the Hundred of Wauraltee. During the last six months, a total of 735 miles of magnetometer lines were run, with readings taken every 300 feet. The attached plans show the contours of the magnetic results, where complete, and the magnetometer lines which have been run, but for which contouring is not yet complete.

#### I.P. TRAVERSES

A total of 108 miles of I.P. lines was run during the period.

In the Thrington area a strong I.P. anomalous zone was located and outlined in an area of low magnetics. Check lines were run at 150' and 75' spreads.

Around Kadina, further geophysical surveying has tested the Jericho and Doora anomalies and, on a broad scale, indicated an I.P. anomalous zone between Doora anomaly and Kadina. To the east and northeast of Kadina some preliminary work was carried out, indicating some weak anomalies which may justify further work, although the area may have Adelaide System rocks present, which would be a deterrent.

In the Moonta area, testing was by broad traverses on 300 ft. spreads across the northeast extension of the old Moonta lodes system. Some anomalous zones were revealed, some possibly corresponding to extensions of old lodes. These anomalous zones will be tested further with closer traverses and spreads, but no drilling targets became manifest from work to date.

#### GEOCHEMICAL TESTING

A total of 925 holes were drilled with Gemco auger drills during the period, representing nearly 20,000 feet of hole length.

Initially the drilling was confined to tests over anomalous zones, both magnetic and I.P., in the Thrington area

and around Kadina, including over the old Wallaroo lode system.

Later, with a second Gemco unit, some work was done in the Moonta

Mines area.

The technique of auger sampling was shown to be effective in providing:

- (a) Satisfactory geochemical samples of bedrock, weathered and partially weathered, both above and below the water table and to depths of up to 50 feet and, in most cases
  - (b) samples suitable to determine the lithology of the bed-rock.

Test traverses across known lodes confirmed that anomalous copper zones hidden below the kunkar and post Precambrian sedimentation can be revealed with this geochemical technique.

#### DIAMOND DRILLING

Two areas were selected for diamond drill testing, one an anomalous zone just south of the old Wallaroo lode line in the Jericho area, the other the strongly I.P. anomalous zone near Thrington. In each area one hole is complete and one is in progress. The drill holes are illustrated in cross sections accompanying this report.

#### 1. THRINGTON AREA

I.P. traverses in this zone showed a strongly anomalous zone over which geochemical testing showed weakly anomalous copper. Magnetometer results were low. However, Gemco drill cuttings revealed a band of sediments thought to be masking the Precambrian basement rocks. D.D.H. No. 3 penetrated grey slate and then siltstone to a depth of 800 feet, with from 100 feet to 400 feet being weakly mineralised with iron sulphides disseminated along bedding planes and in small vughs. Assays showed the mineralised zone to be very low in copper.

A second hole, D.D.H. No. 4 at Thrington, drilled after February, confirmed the existence of flat-lying slates and siltstones; these are now thought to be part of the Adelaide System and therefore of no economic significance at present, for copper prospecting.

This drilling, together with information from subsequent geochemical drill holes, shows the existence of these rocks in a large area east of Kadina and north and south of Thrington.

#### 2. JERICHO AREA

South-west of Kadina, and just south of the old Wallaroo line, a strongly mag. and I.P. anomalous zone was tested geochemically, revealing a good anomalous copper area in the basement rocks. Diamond drilling, D.D.H. No. 5, revealed the geological structure and zones of copper enrichment to be as predicted from mag., I.P., and geochemical results. The dominant rock type is biotite schist, similar to the Wallaroo Lode system. Mineralisation was mainly pyrite with some associated chalcopyrite, assays averaging 0.15% copper in sections from 353 feet to 920 feet with some minor zones up to 0.7% copper.

#### SUMMARY.

Magnetometer surveying now has covered a large area north and south of Moonta-Wallaroo-Kadina in the area defined as magnetically "live" with aeromagnetics.

I.P. geophysics have tested a number of anomalous zones, with good results being obtained at Jericho, south of Kadina in the Doora anomaly, in a zone between Doora anomaly, and Kadina and north-east of Kadina. Some of these zones, and other weak anomalies in the N.E. Moonta area, are to be tested with closer traverses and closer spreads.

Geochemistry is being used to test some of these anomalies and at Jericho diamond drilling has given good confirmation of predictions for mineralisation based on mag., I.P., and geochemical results, with a wide zone of mineralisation

showing disseminated pyrite and copper sulphides averaging 0.15% copper in sections over a total of 567 feet.

At Thrington a good I.P. anomaly in an area of low magnetics and weak geochemically anomalous copper was drilled. Slate and siltstone thought to be Adelaide Series was intersected and the I.P. effect is felt to be due to disseminated pyrite within the slate zone. This drilling, together with cuttings from Gemco drilling, shows these slates to cover a large area east of Kadina and north and south of Thrington.

#### FUTURE PROGRAMME.

More detailed I.P. and geochemical work will be carried out on the Doora Anomaly and in the area north-east of the old Moonta lodes in order to establish, if possible, worthwhile drilling targets.

A second I.P. unit has been purchased and will be engaged in closer reconnaissance of the magnetically "live" areas south of the Moonta lodes and in the Tippara area.

Assuming encouraging results from a detailed examination of the Doora anomaly, to the extent that a drill programme can be established, more detailed geophysics will then concentrate on key areas in the southern Moonta-Tippara area.

Н.Е. На**11** 

Perth, W.A. 5/5/64

1400 63

### GOLD MINES OF AUSTRALIA LIMITED

Address all Mail to P.O. BOX 860 K, MELBOURNE, C.1

TELEGRAPHIC & CABLE ADDRESS: "AUSTRAGOLD MELBOURNE"

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360 COLLINS STREET

MELBOURNE, C.1

27th. August, 1963.

The Director of Mines, Department of Mines, Box 38, Rundle St. P.O., ADELAIDE. S.A.

Dear Sir,

### Special Mining Lease No. 42

Further to our letter of 20th August, 1963, we now enclose copies of the following plans:-

Plan No. 1010-36 Cross Section of Diamond Drillholes Plan No. 1010-35 Geochemical Testing

being the plans referred to under 2 and 3 on page 1 of the report. We would point out that these plans and maps of Magnetic Contour Lines and I.P. results recently sent to you have been brought up to date to the end of July, 1963.

In relation to our application for a new Special Mining Lease in lieu of Special Mining Lease No. 42 which expires on 31st August, 1963, we have previously advised you that expenditure incorporated in our books on active field exploration since early 1960 is £65,465 and we suggest that the expenditure covenant to be incorporated in any new lease should read as under:-

"(5.) The Company to spend £25,000 in the first year and a further £25,000 in the second year on active field exploration."

During the ensuing 2 years, subject to a new Special Mining Lease being granted to the Company for this period, it is proposed to continue geophysical prospecting by Induced Polarisation and Magnetic methods as well as geochemical testing on a scale at least comparable to that carried out in the last 12 months.

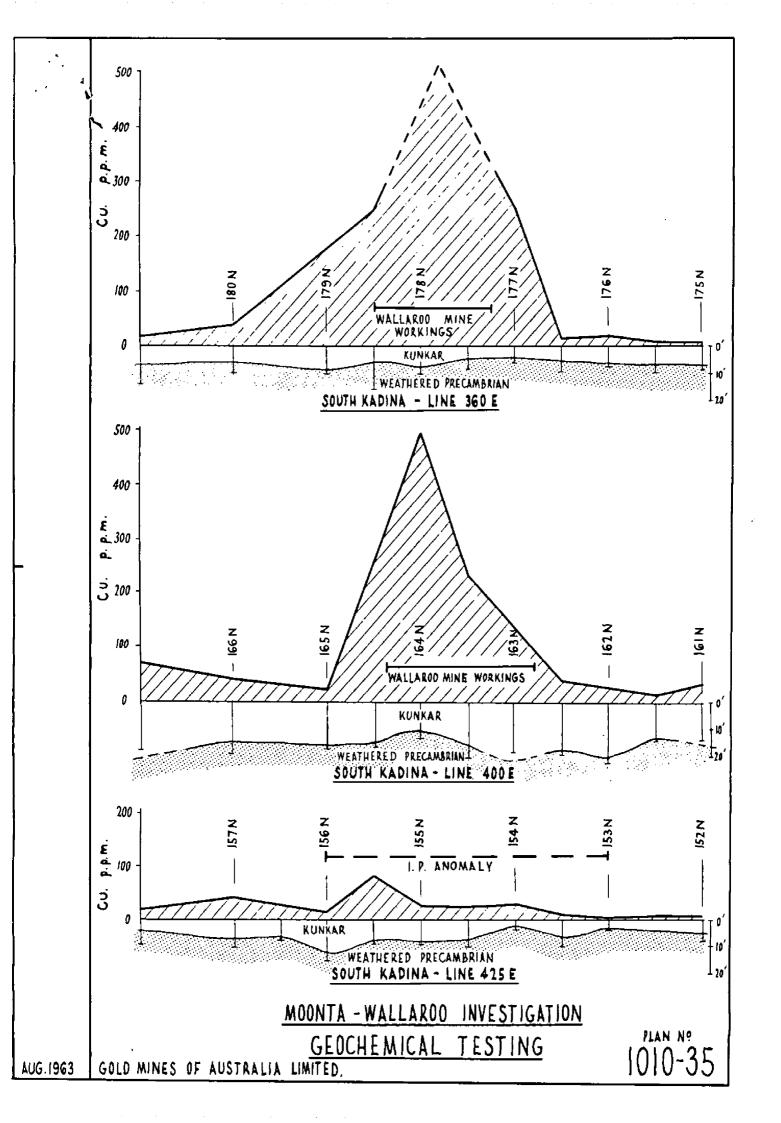
The geophysical work done to date has given encouraging indications around Moonta and Kadina and has also given good results for some distance to the east of Kadina and to the Following up these results will require south of Moonta. detailed work to be extended over nearly all the area of the original mining lease, and it is not possible at present to decide which portions of the area are likely to be the most attractive and which may be found to be less interesting. To allow time for the proper evaluation of the whole area, which will require an extensive programme of geophysical and geochemical prospecting we would appreciate your giving favourable consideration to allowing the area granted under Special Mining Lease No. 42 to continue unchanged. If you are agreeable to this proposal, we would undertake to reduce the area of the lease at the earliest opportunity.

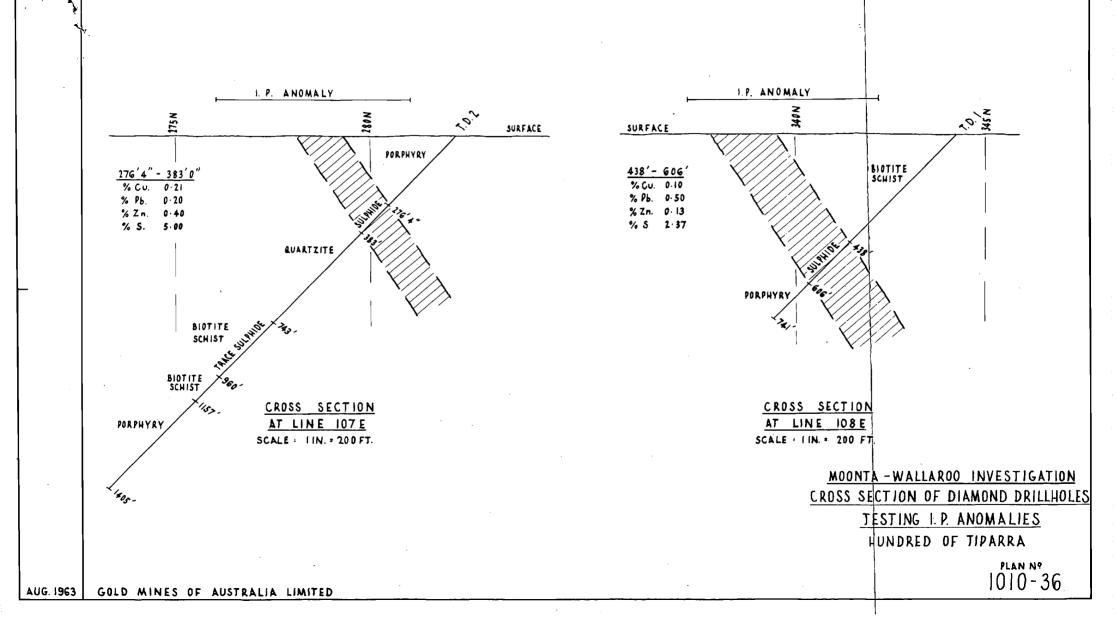
We trust that the foregoing will enable you to make a recommendation to the Hon. the Minister with respect to our application for a new Special Mining Lease of the same area.

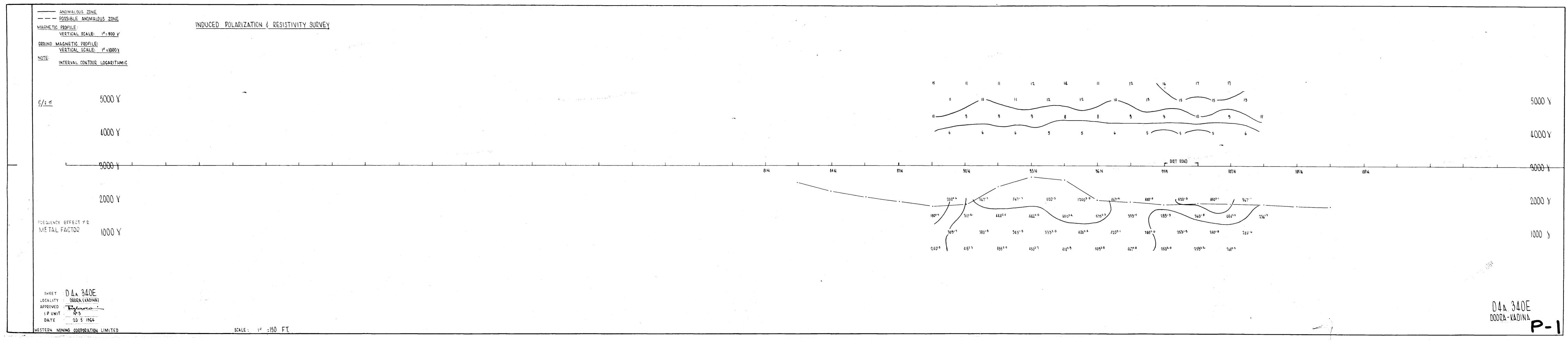
Yours faithfully, GOLD MINES OF AUSTRALIA LIMITED

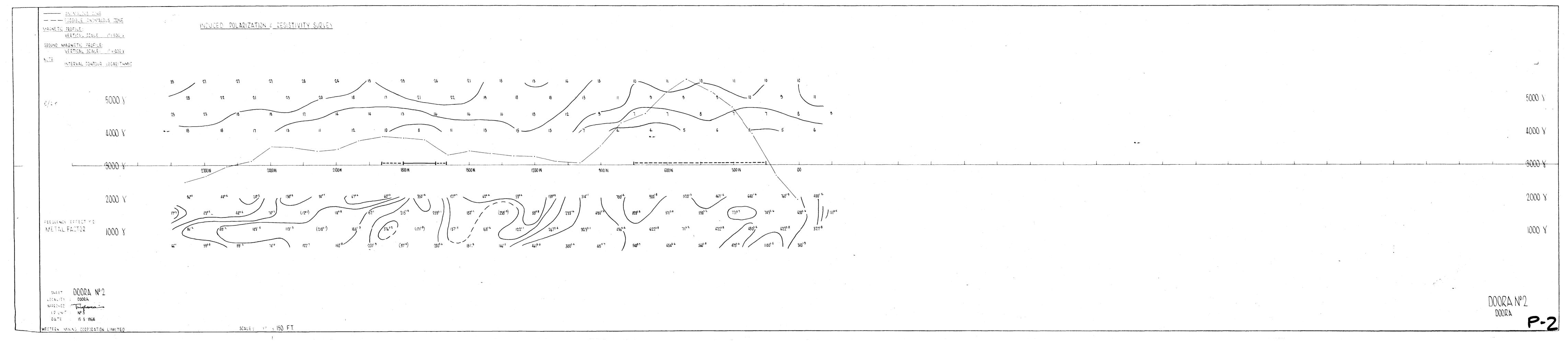
W. M. Morgan Director

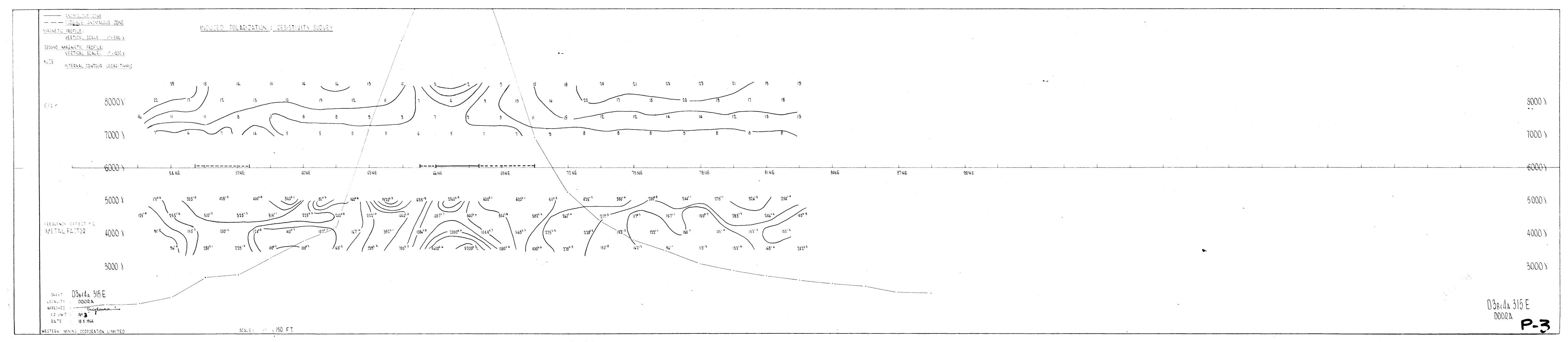
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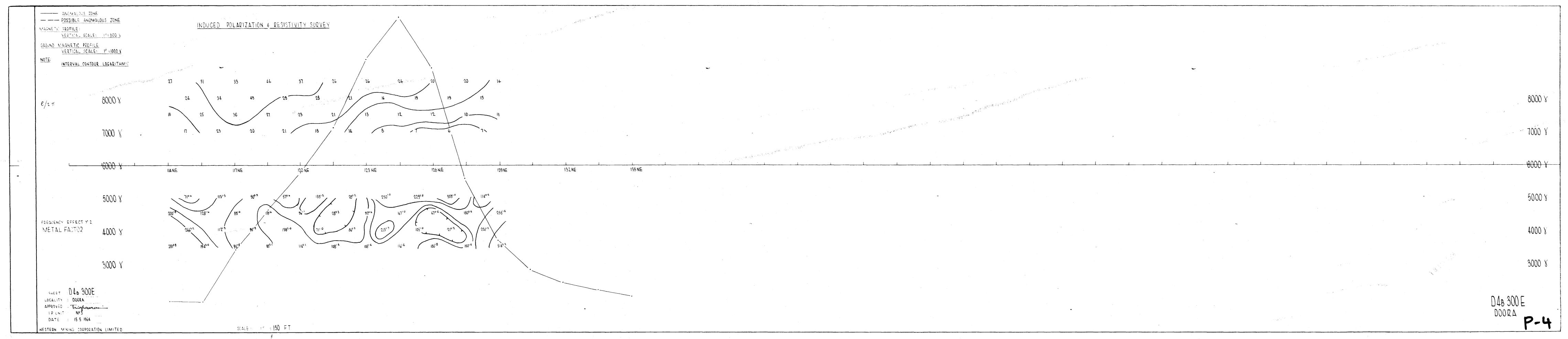


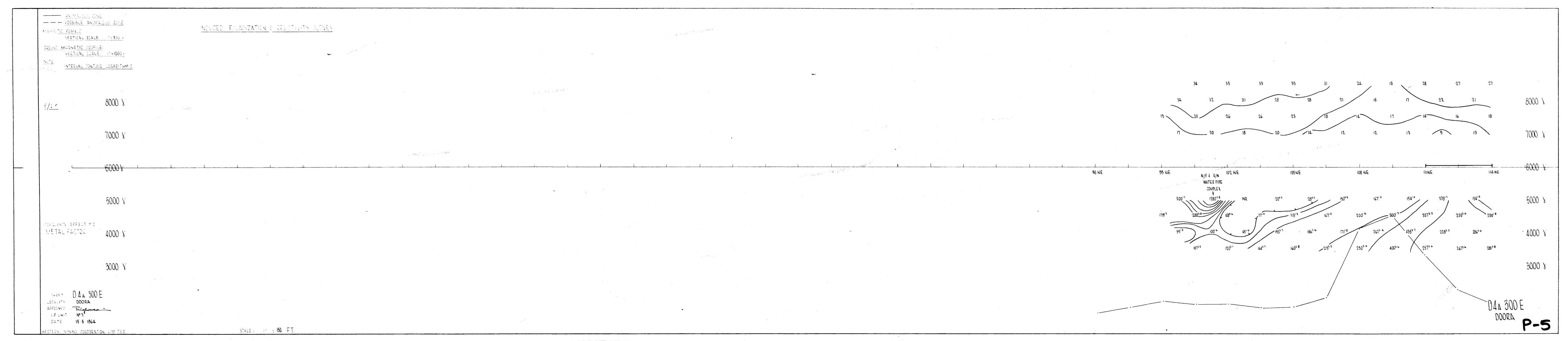


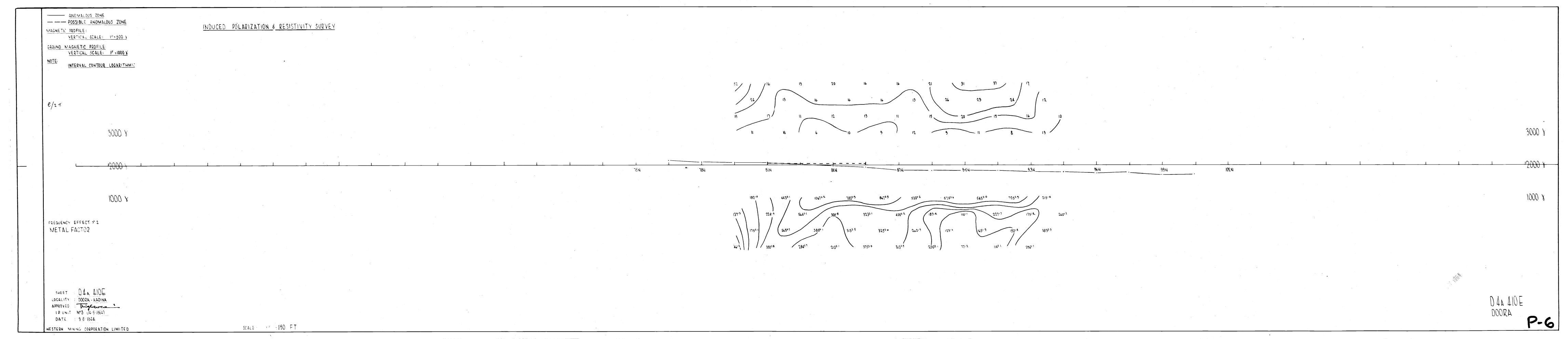


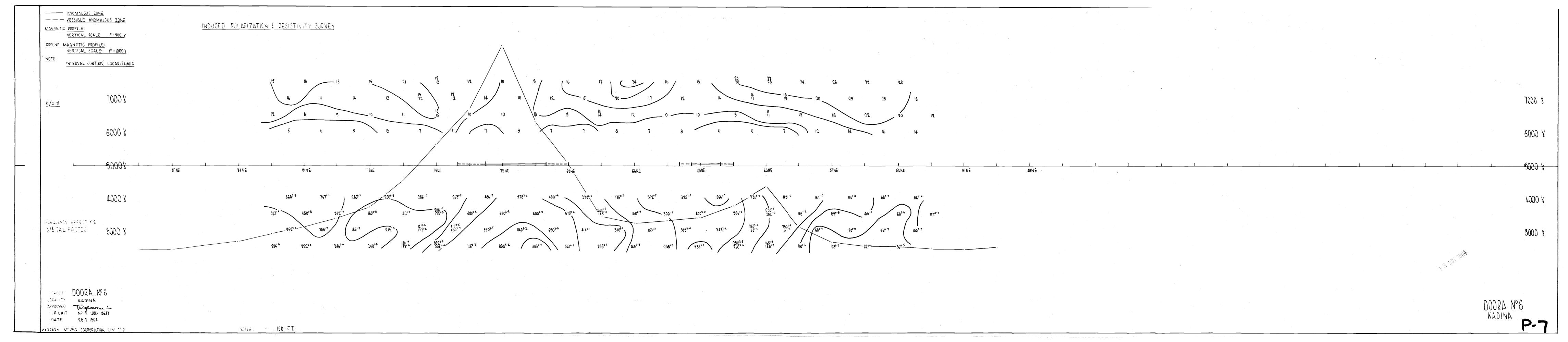


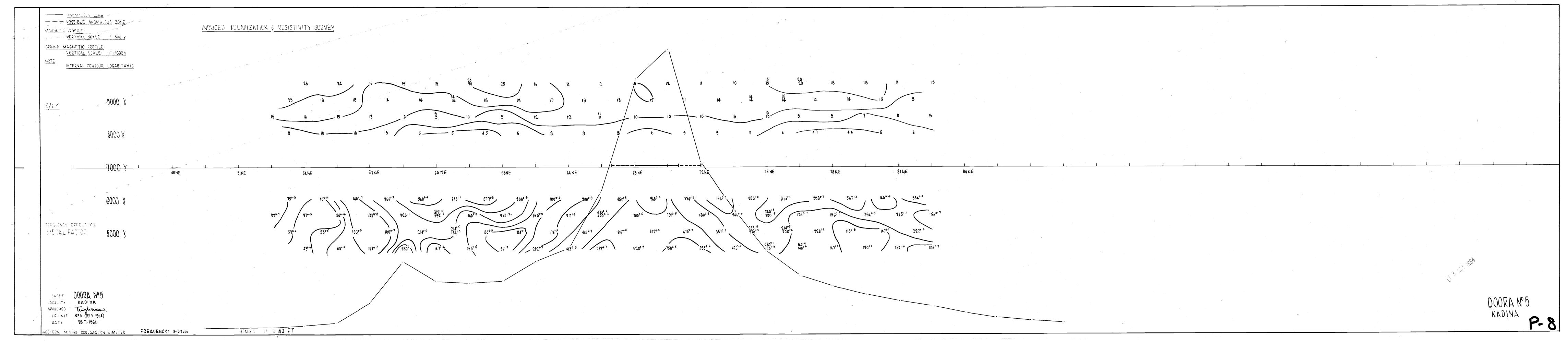


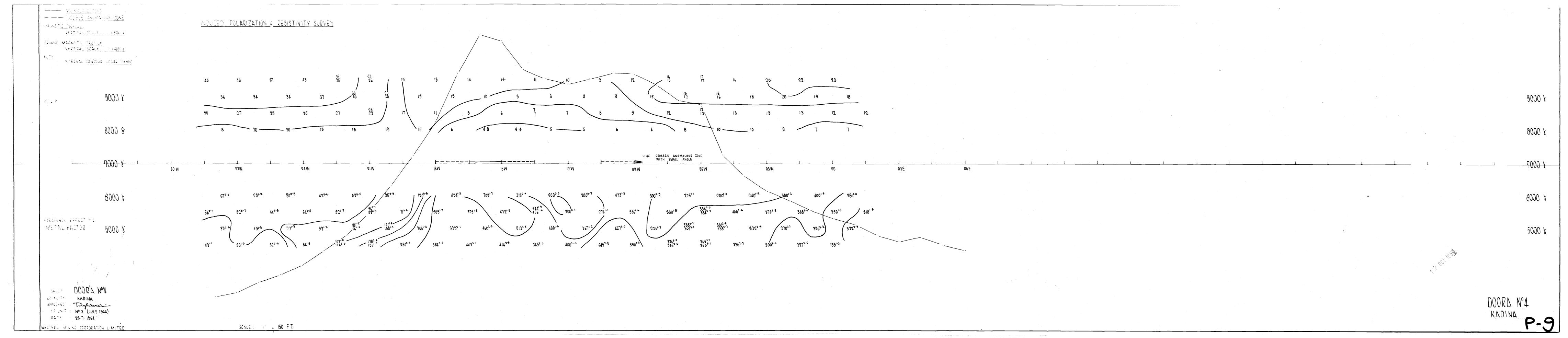


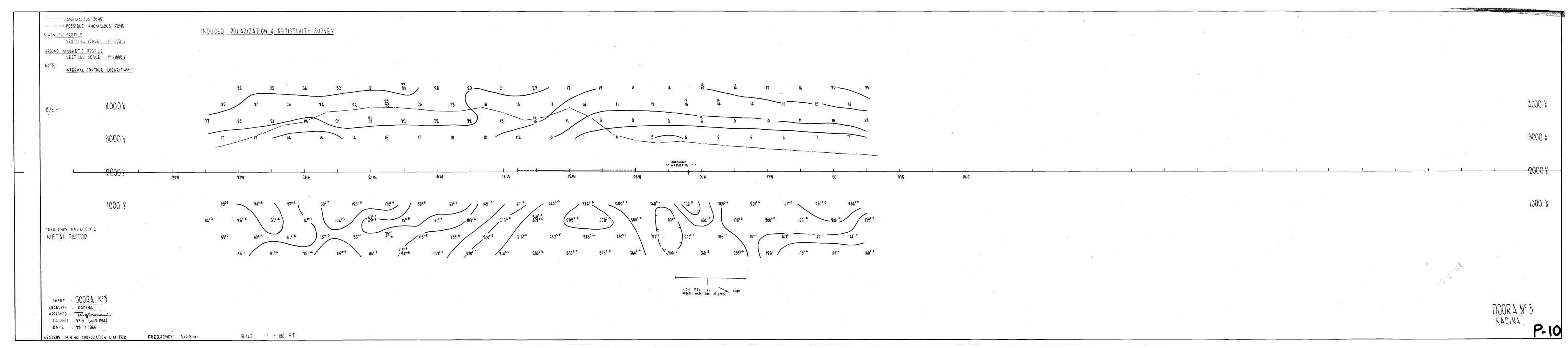


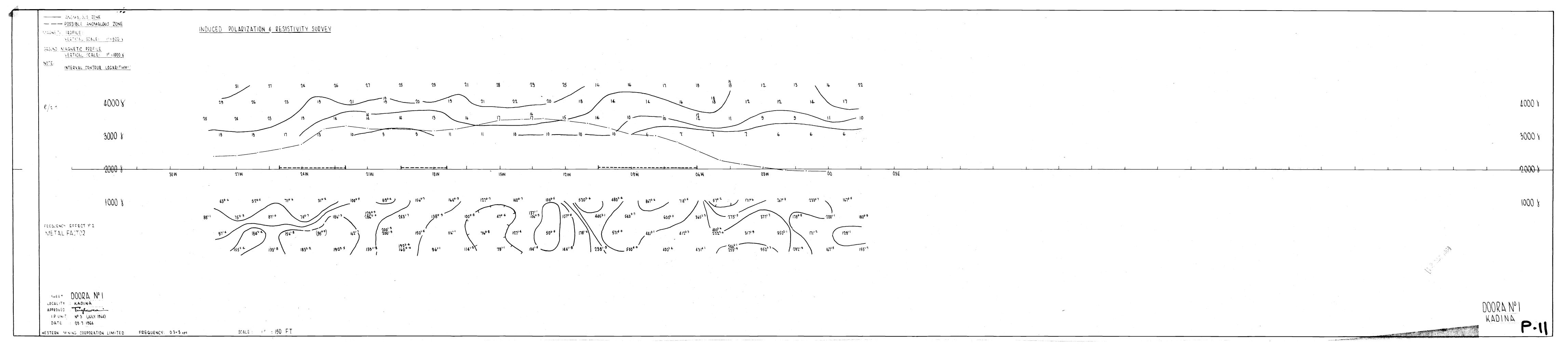


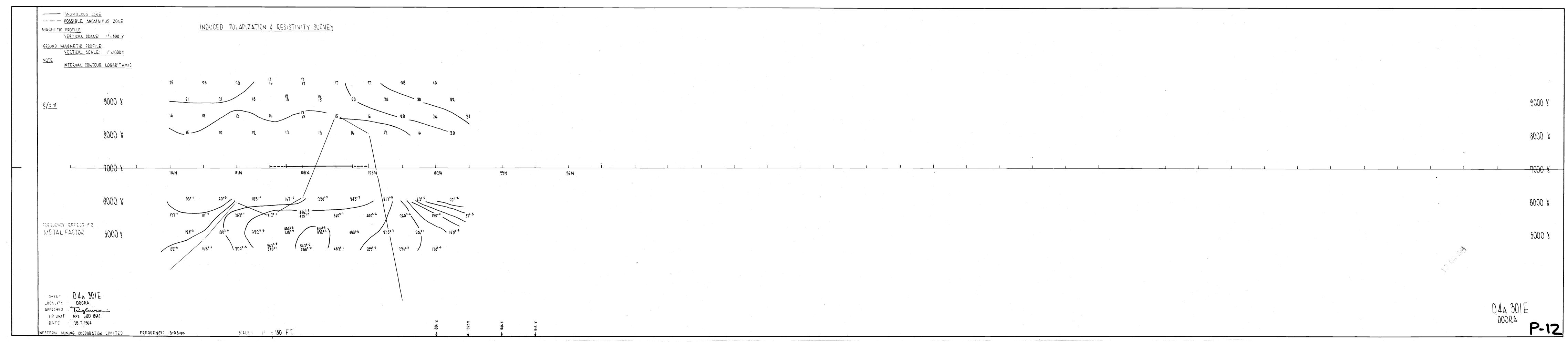


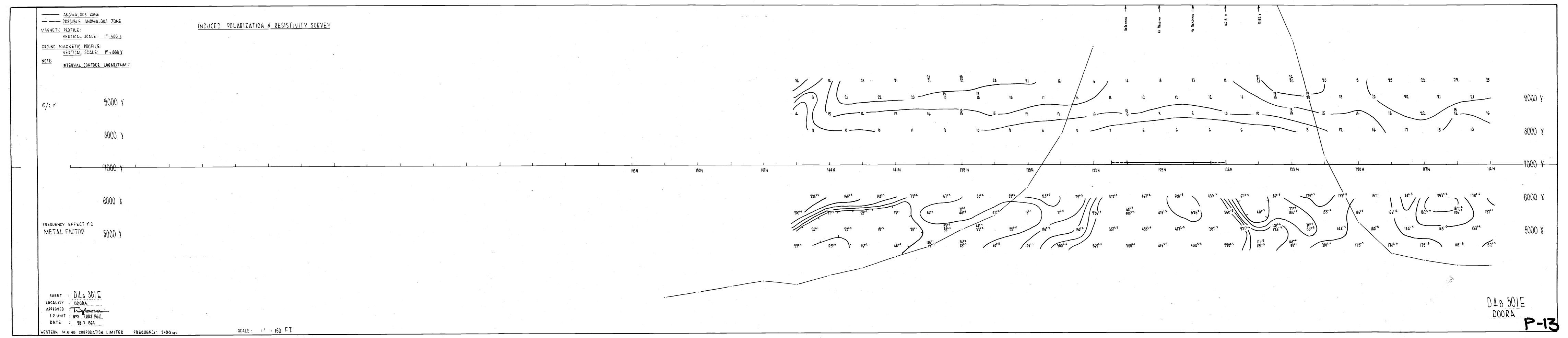


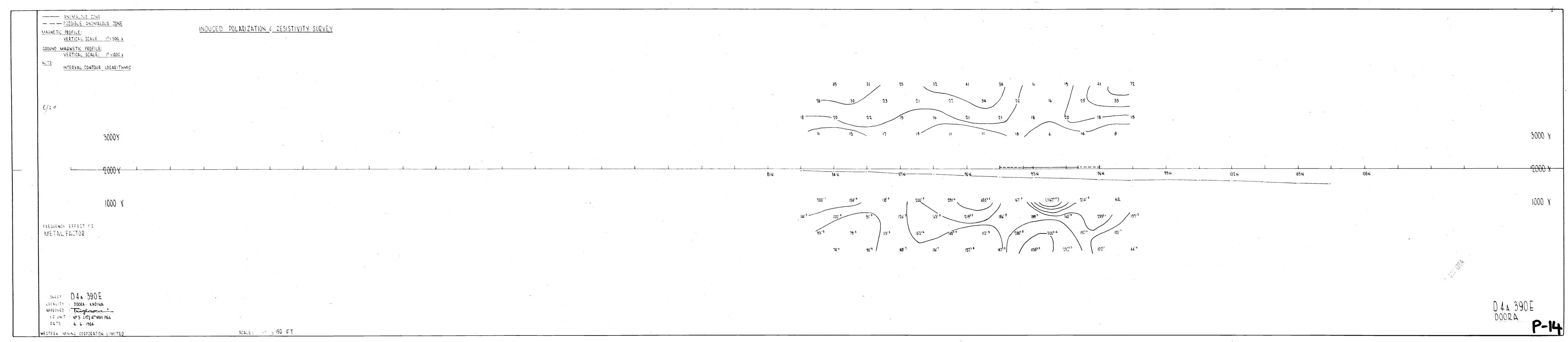


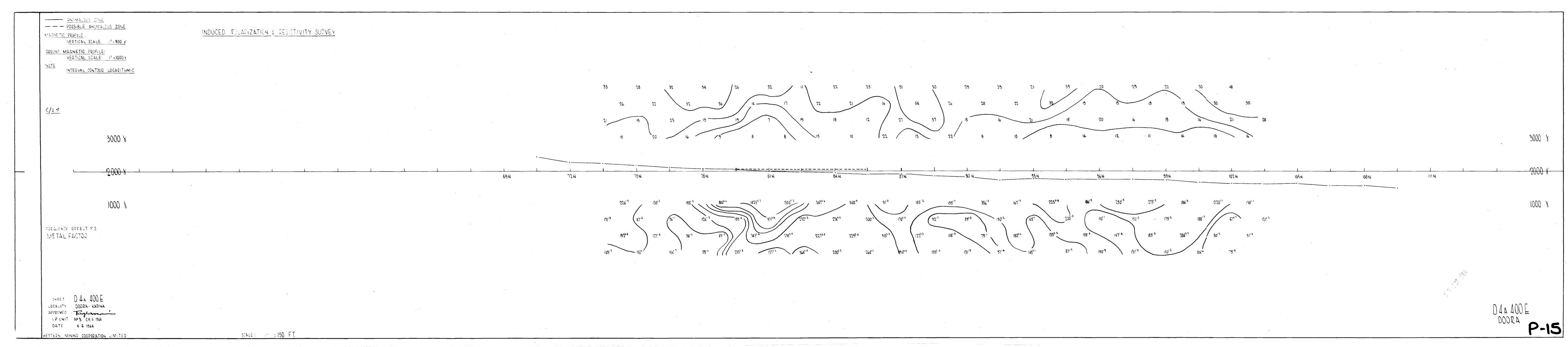


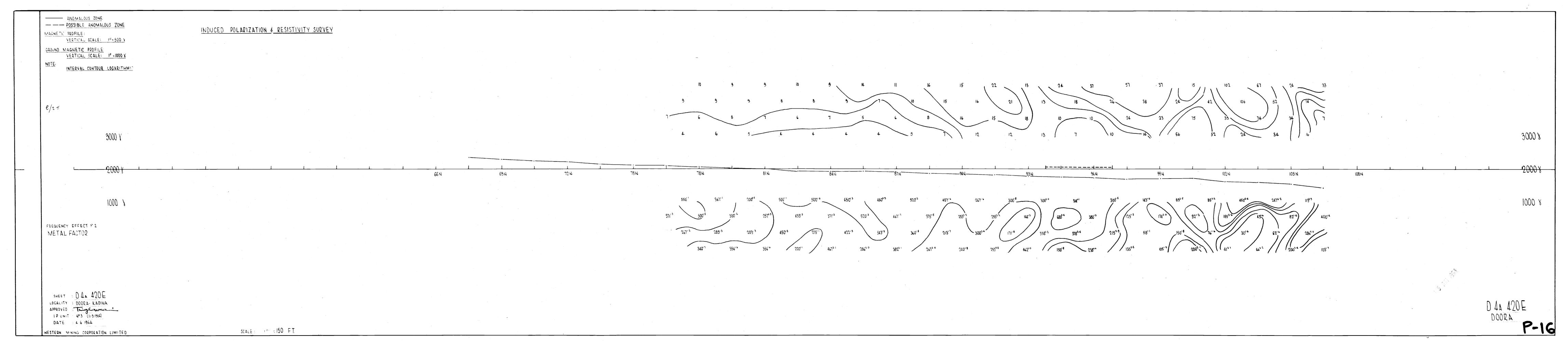


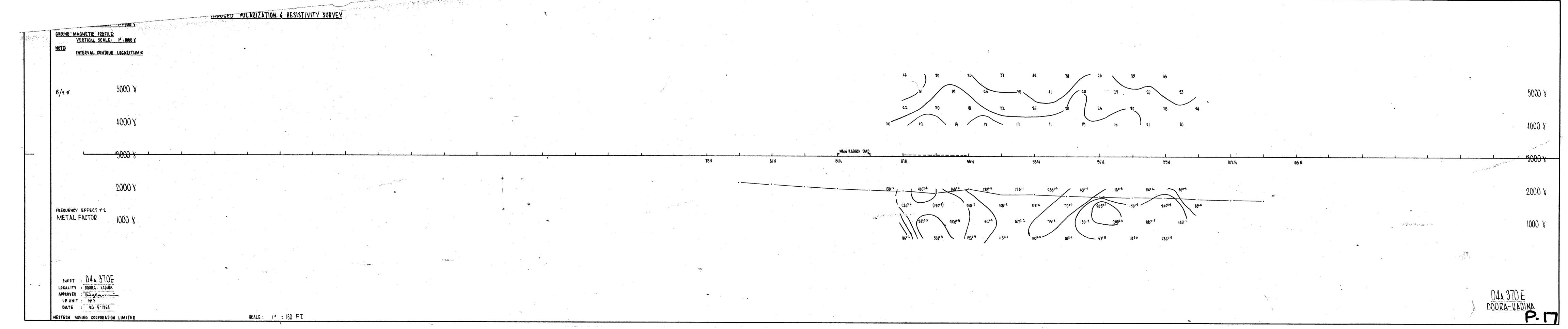


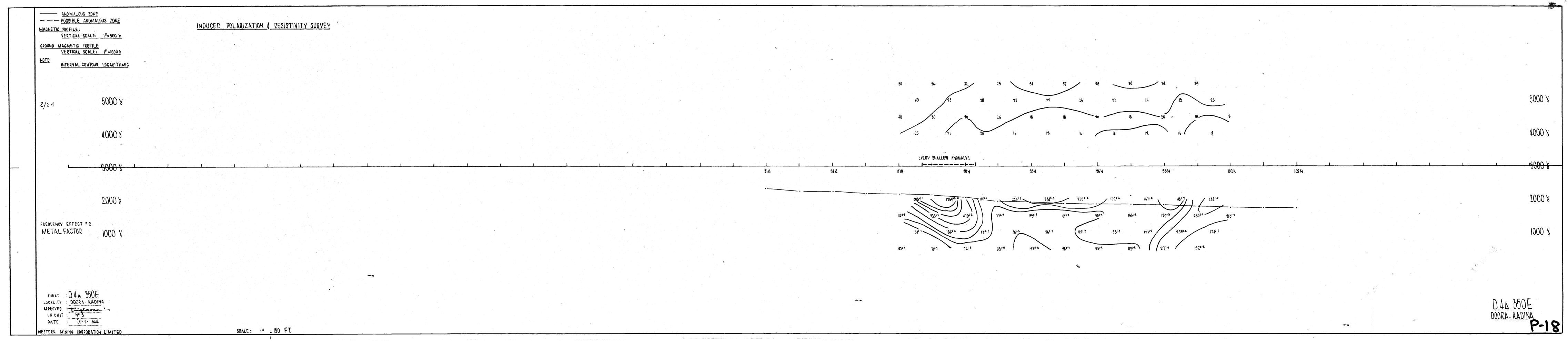


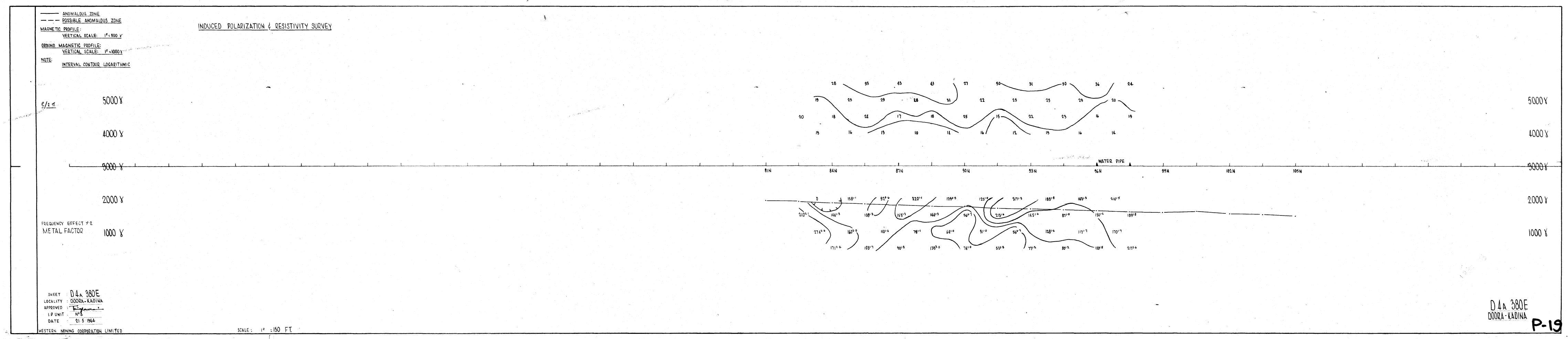


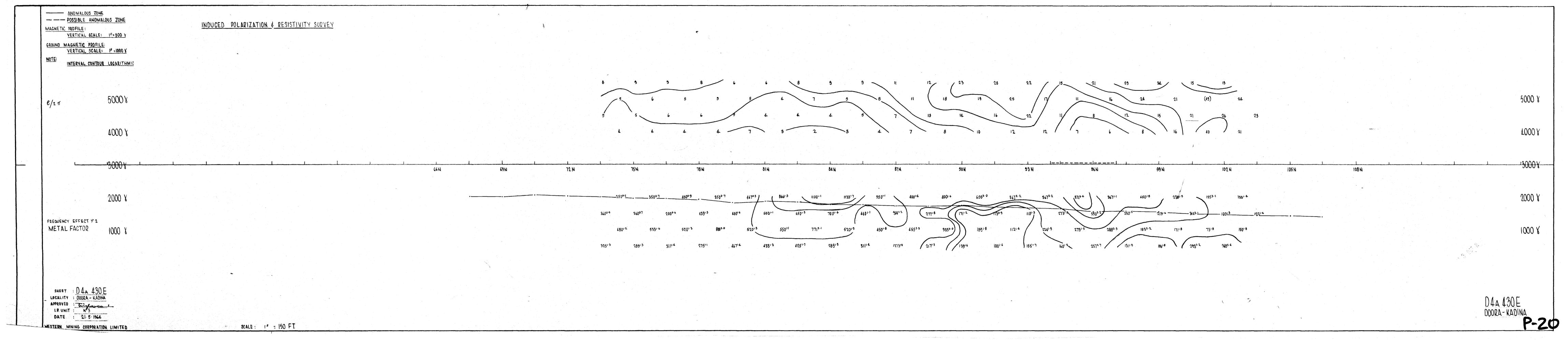


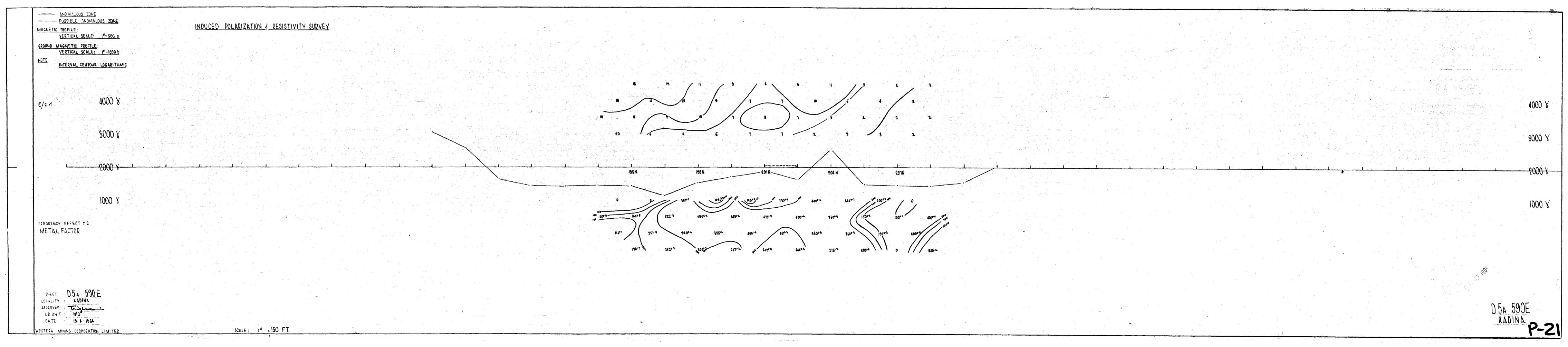


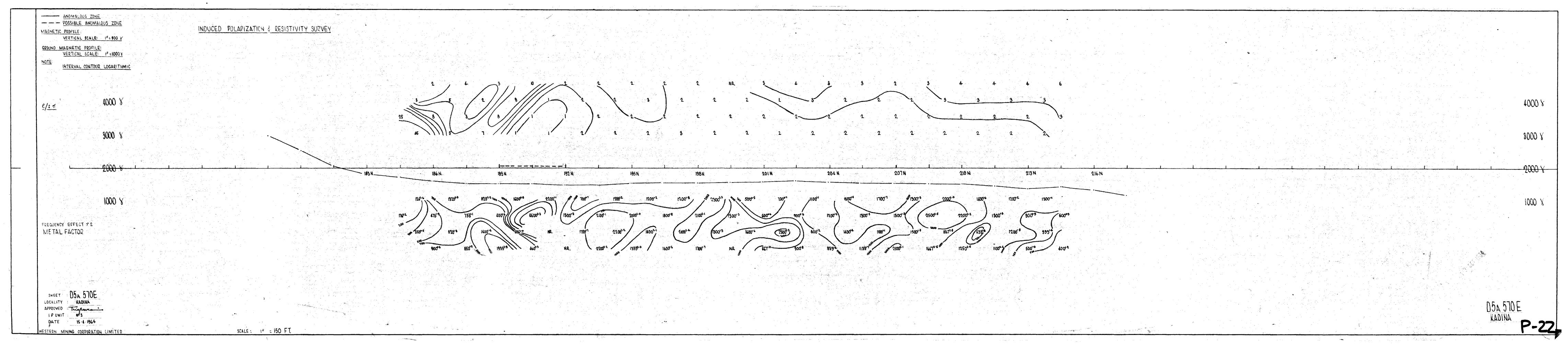


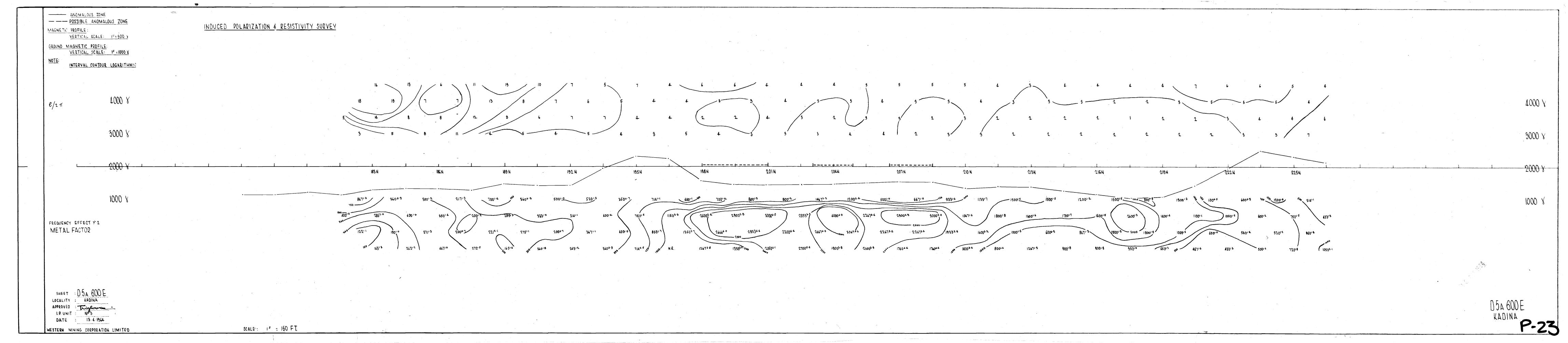


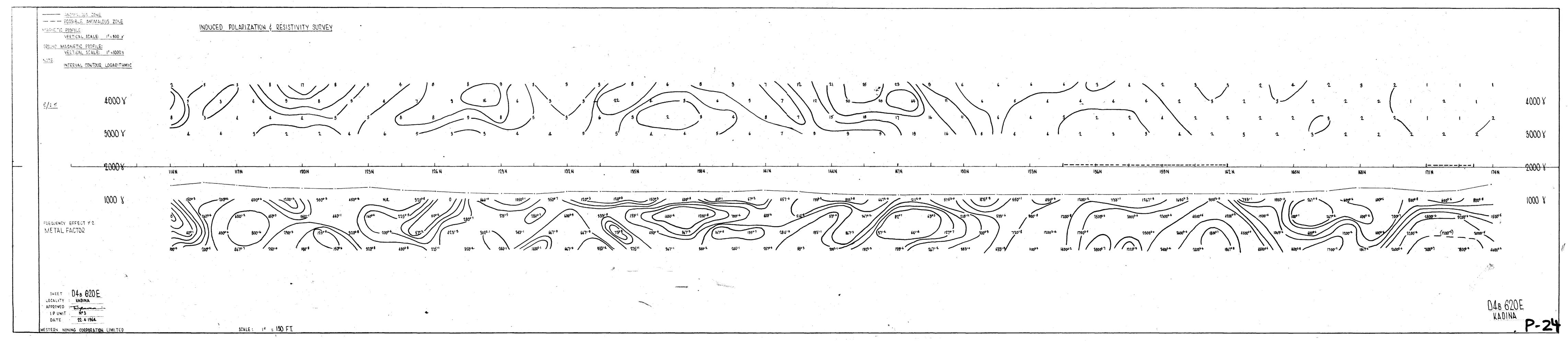


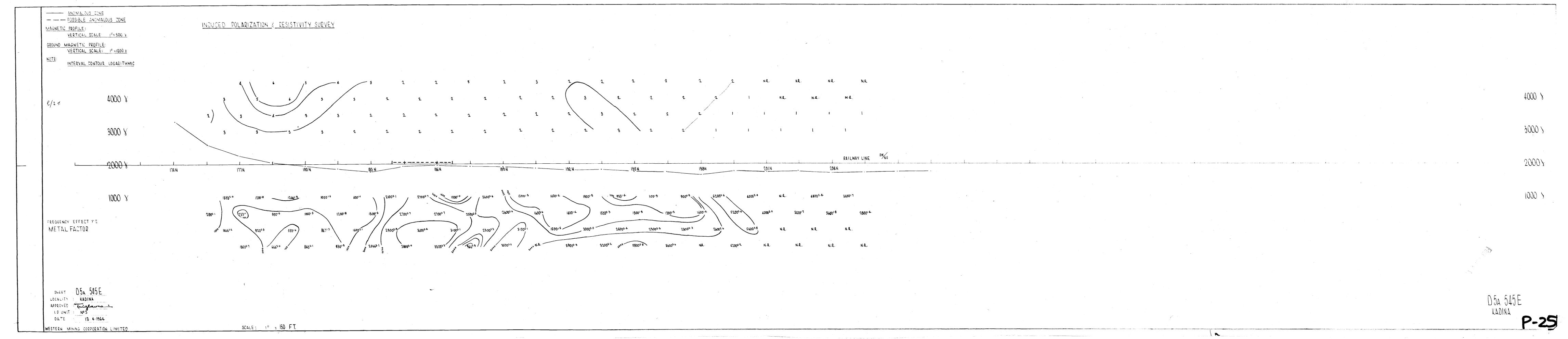


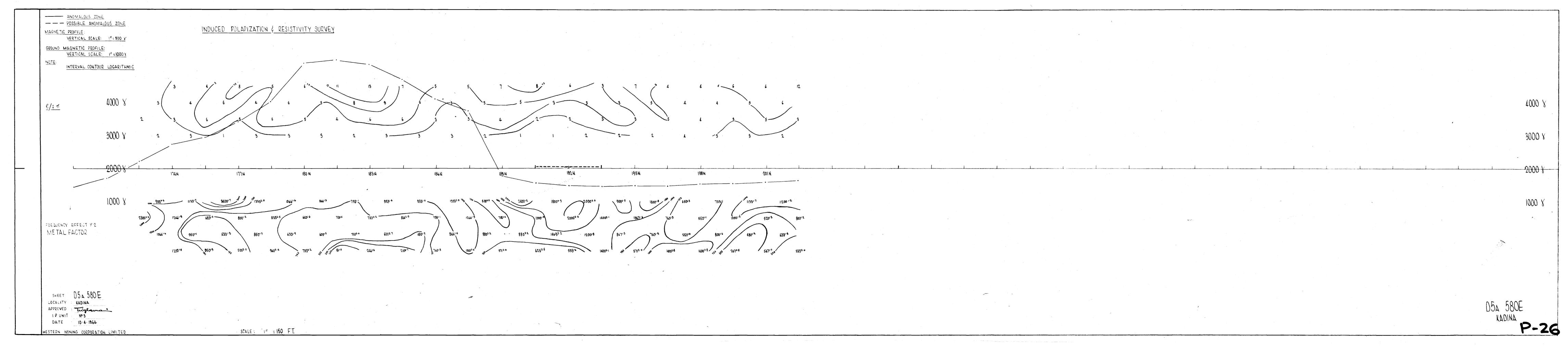


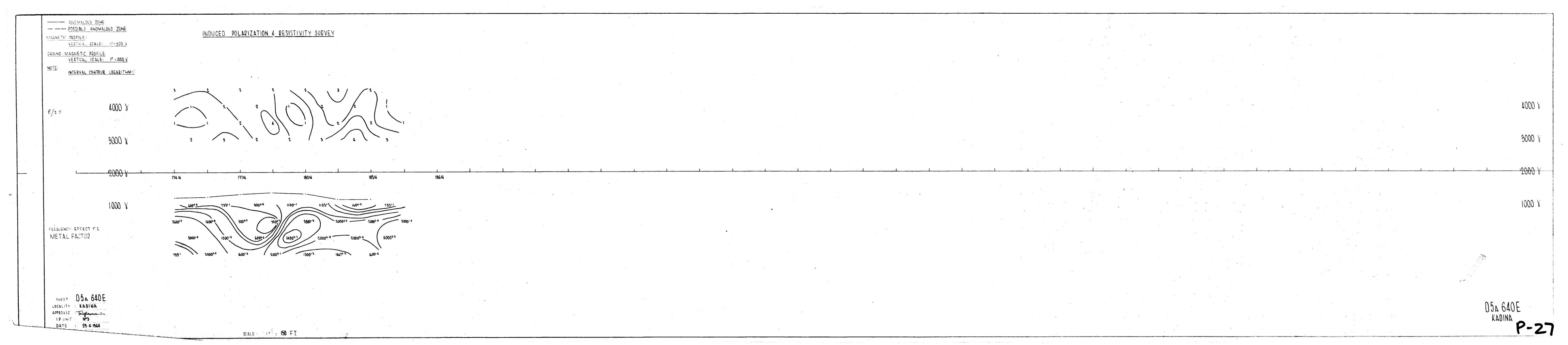


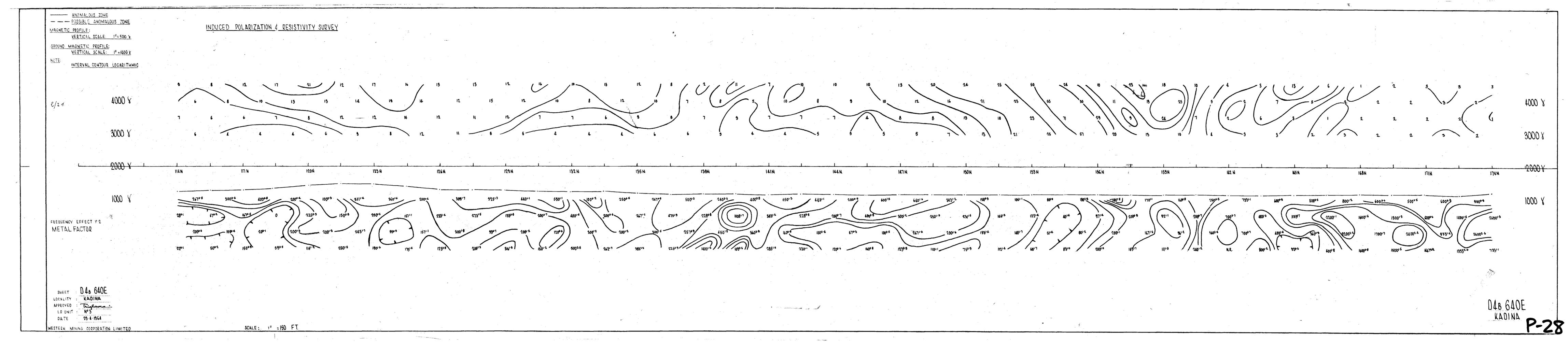


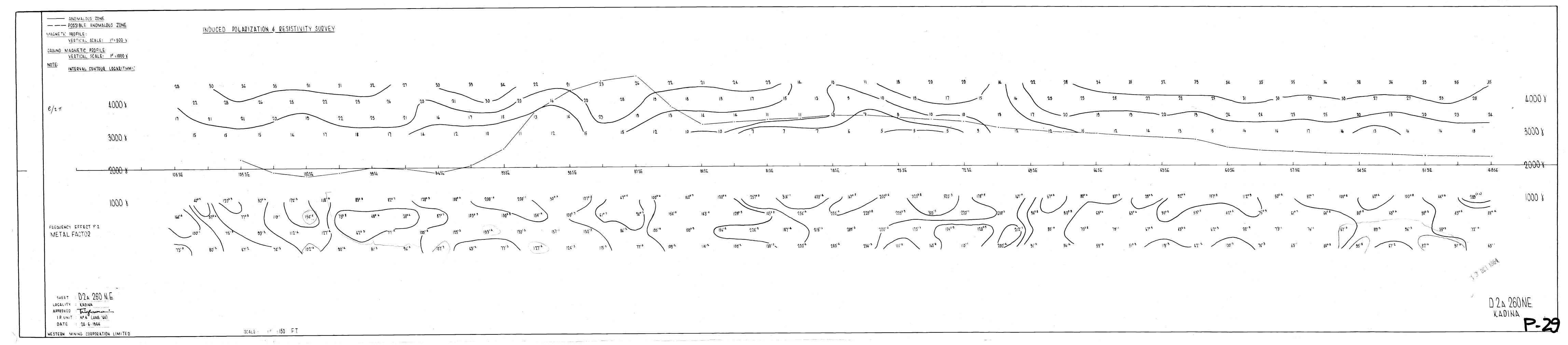


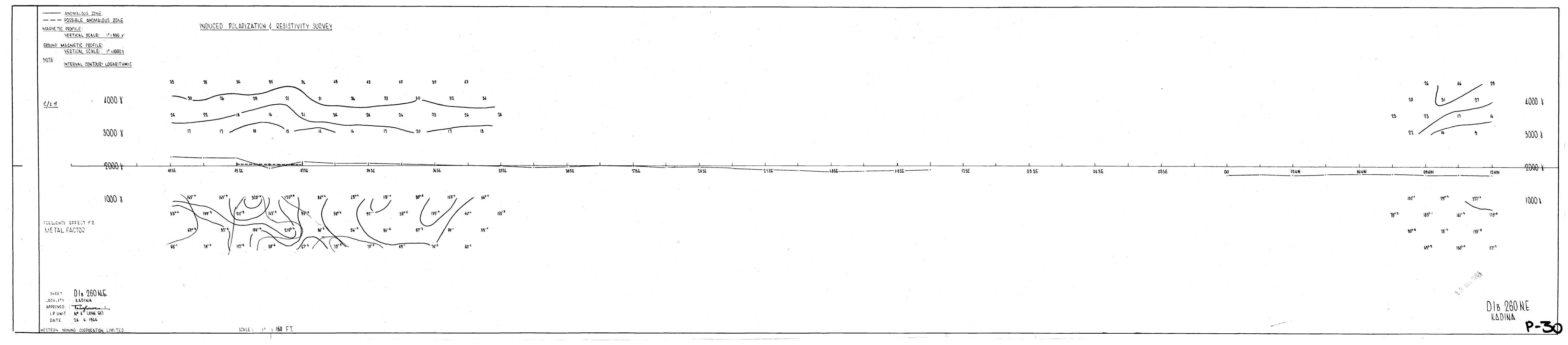


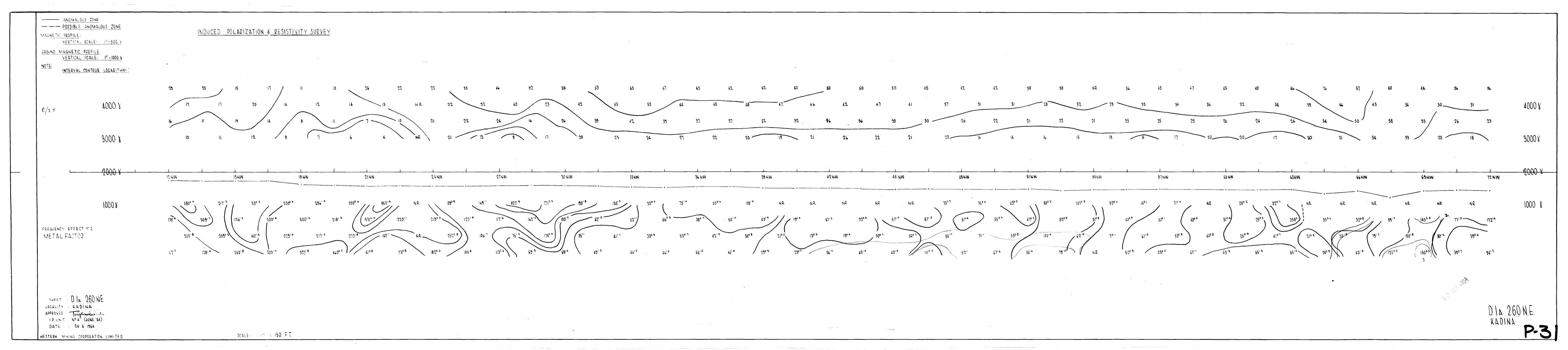


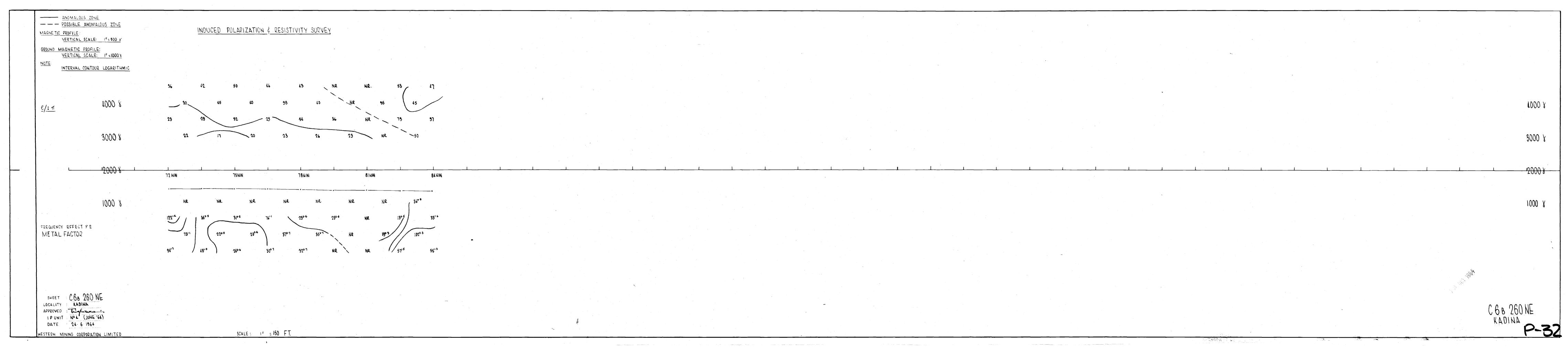


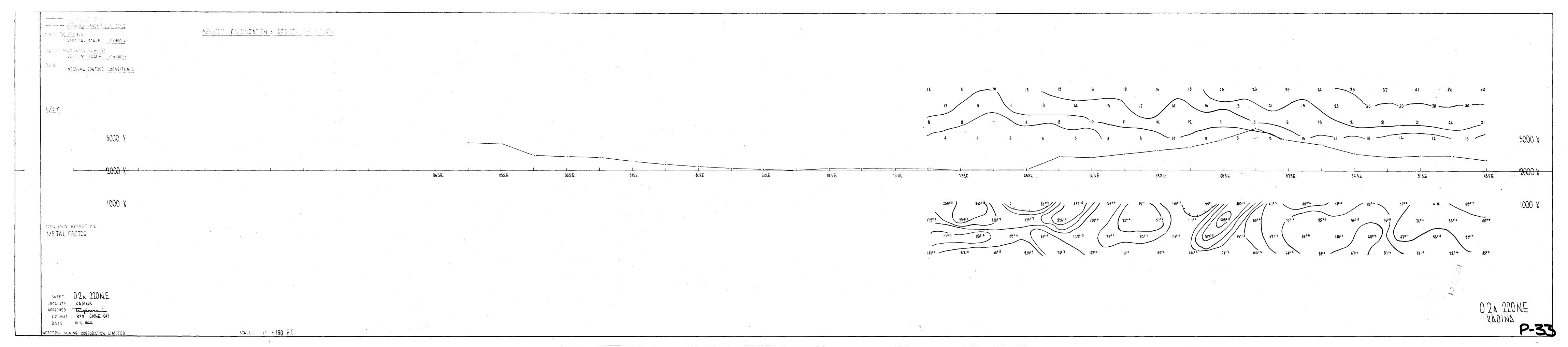


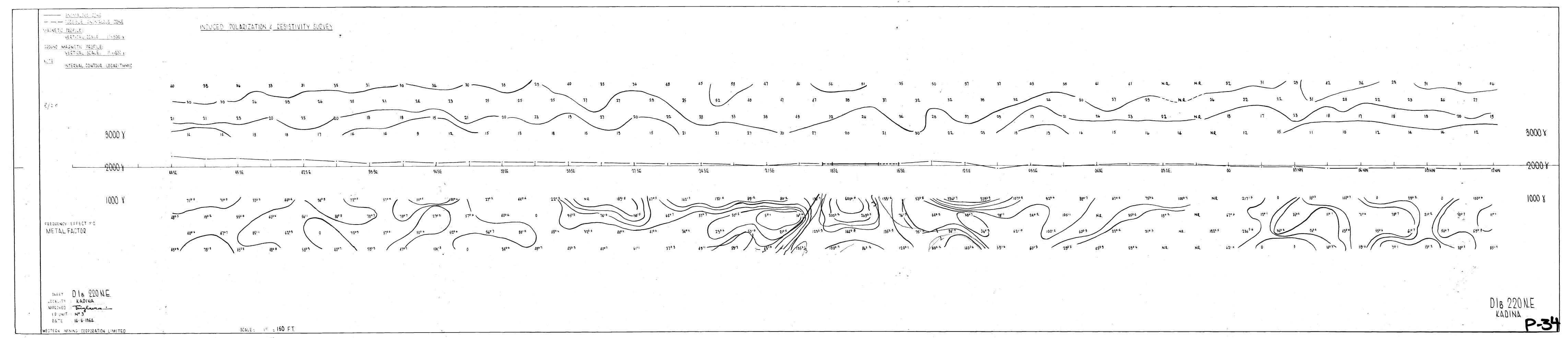


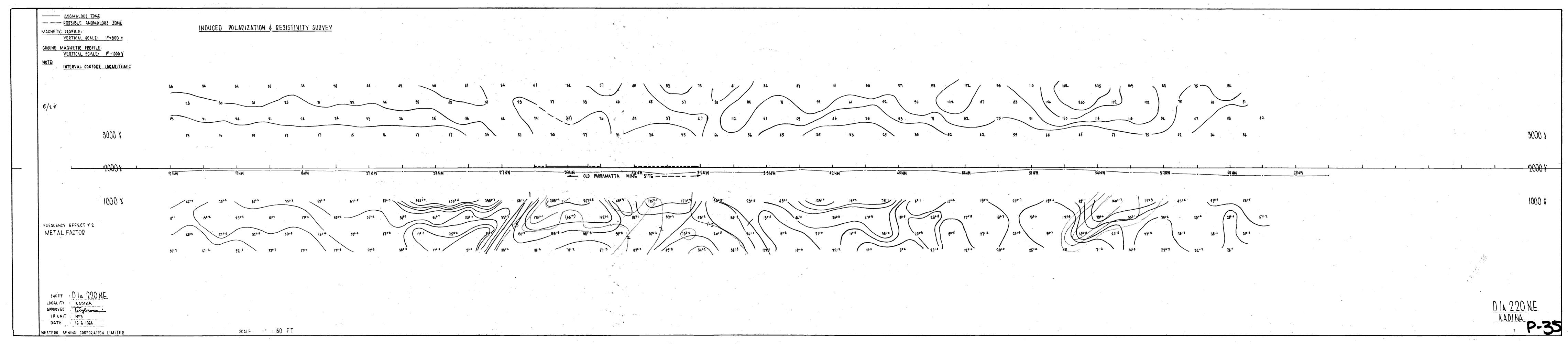


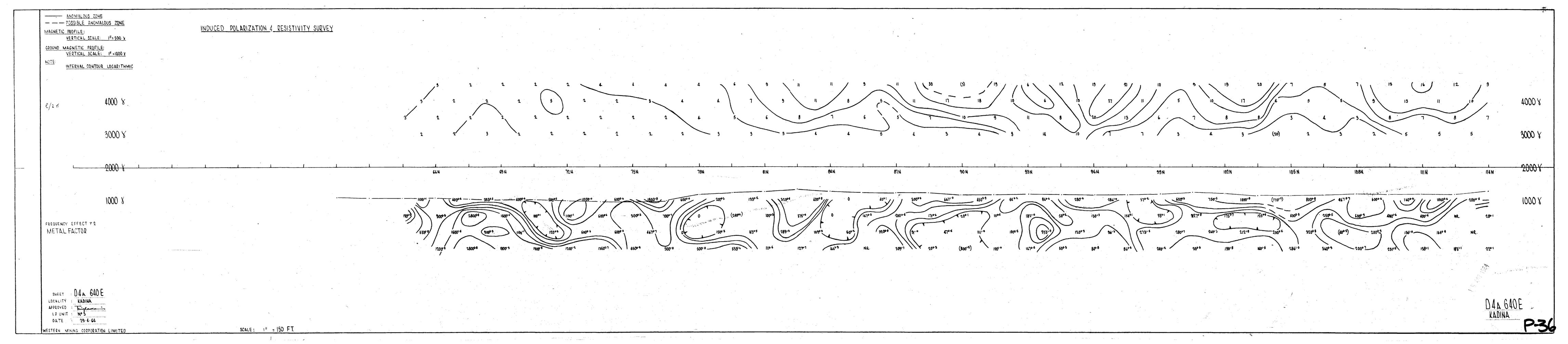


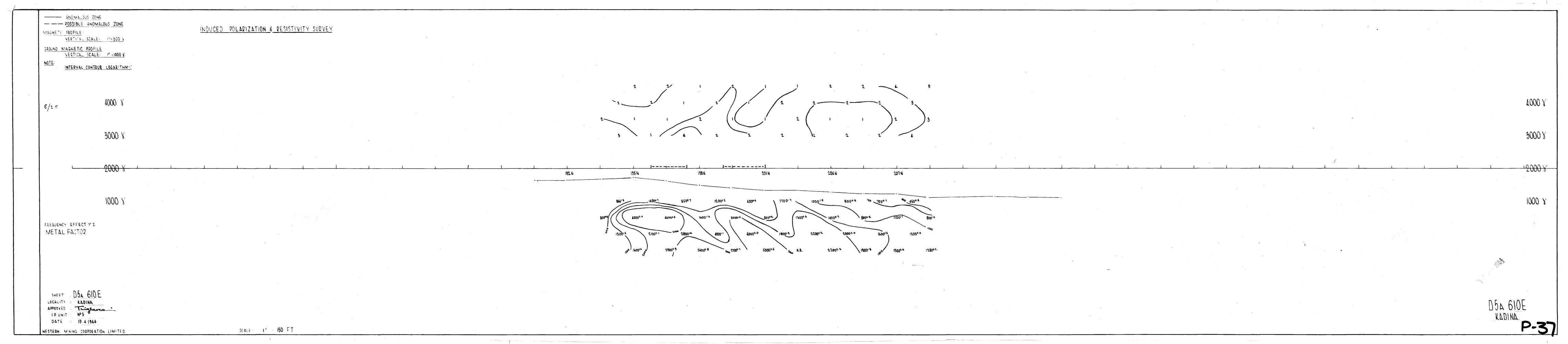


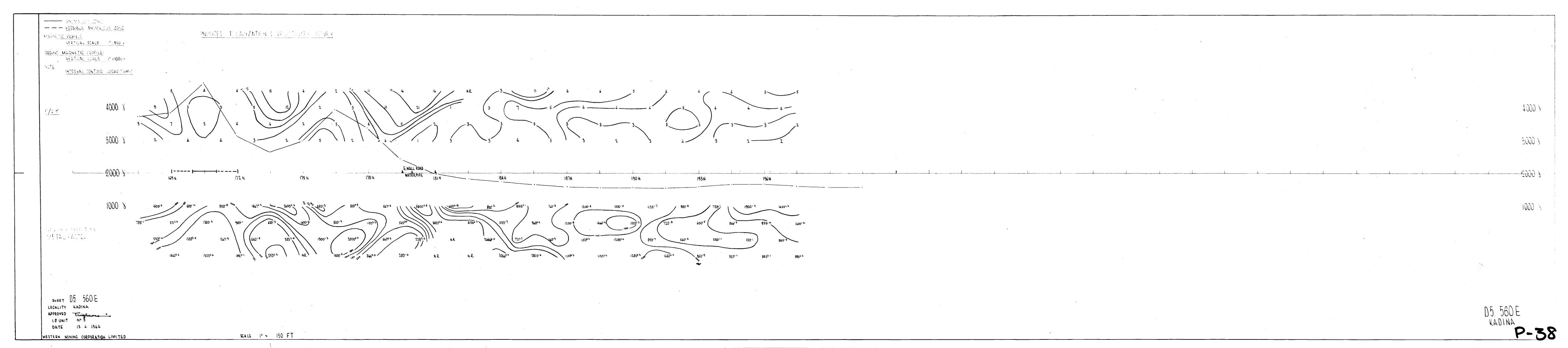


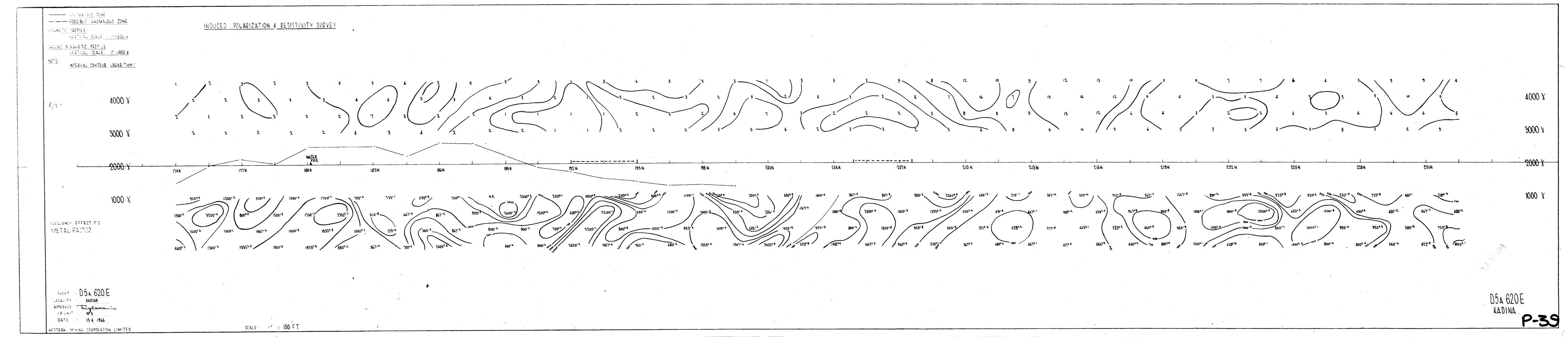


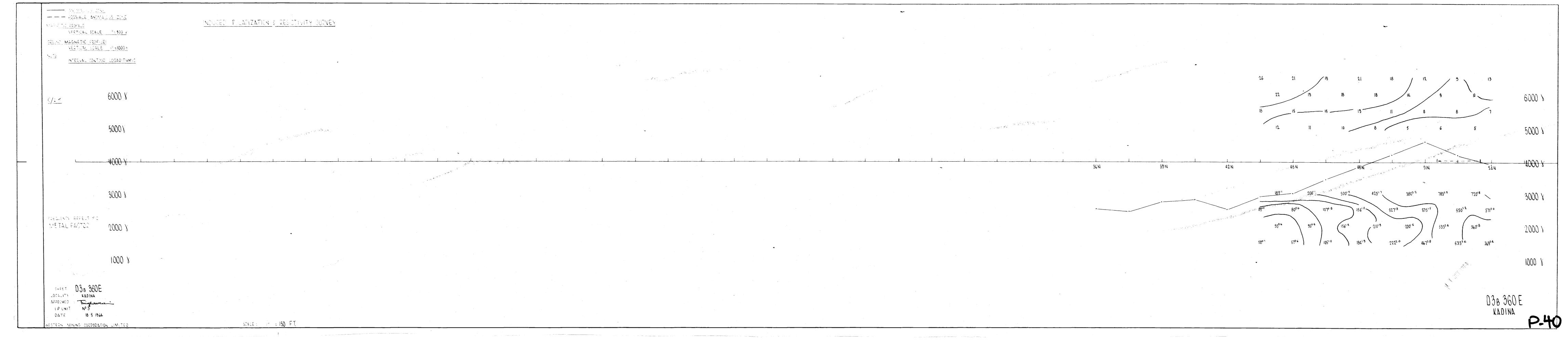


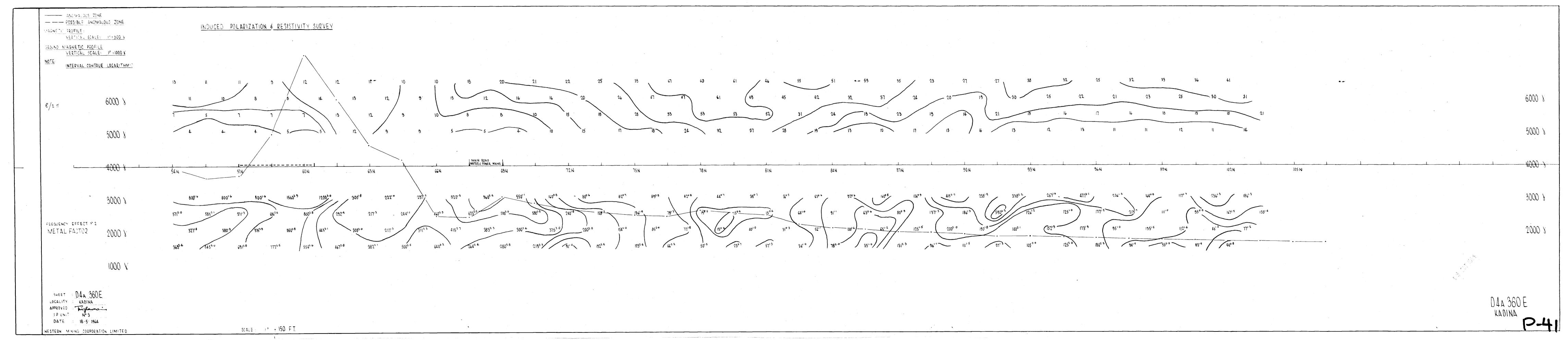


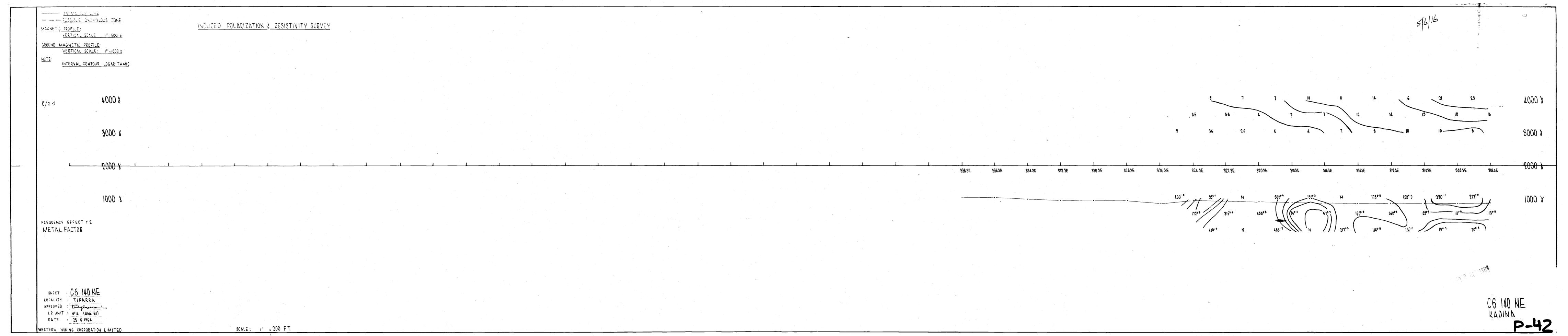


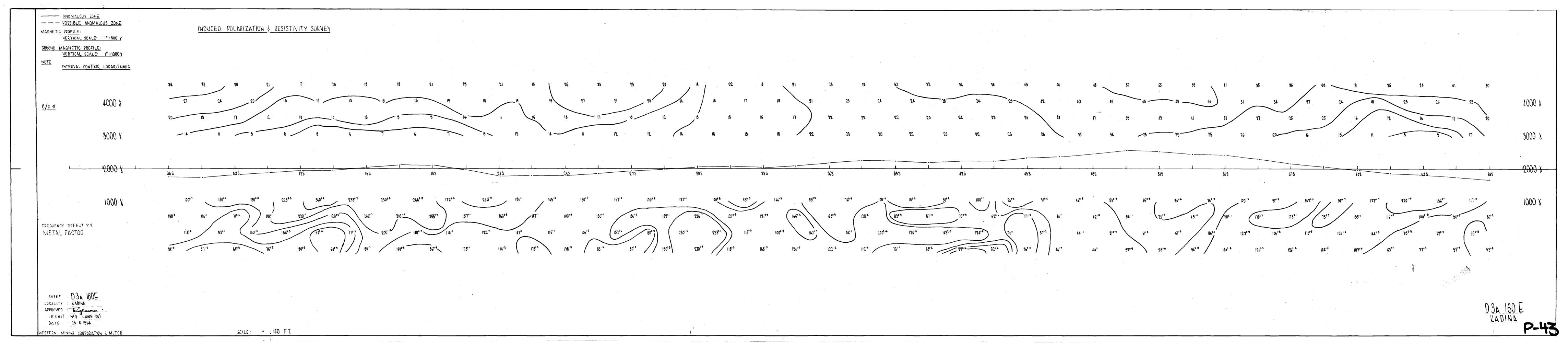


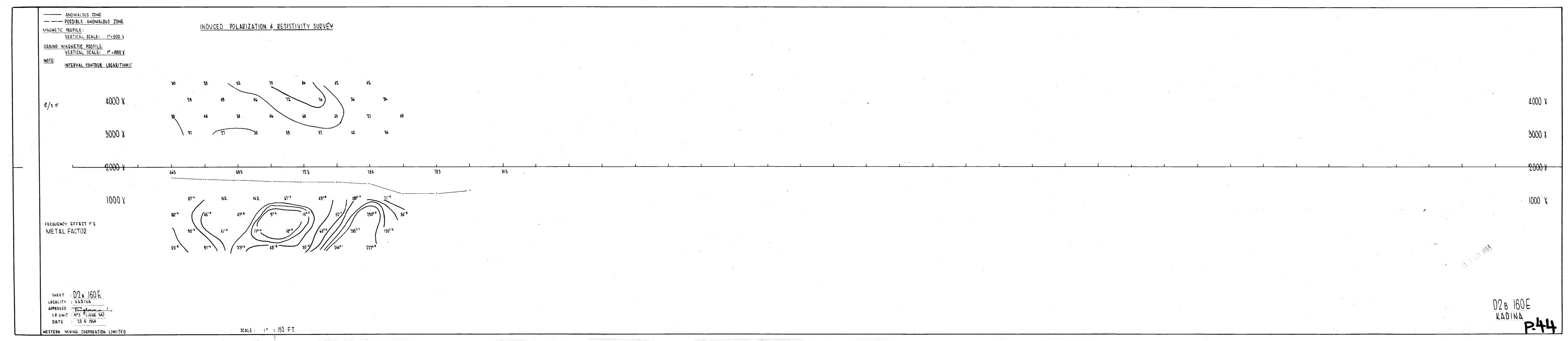


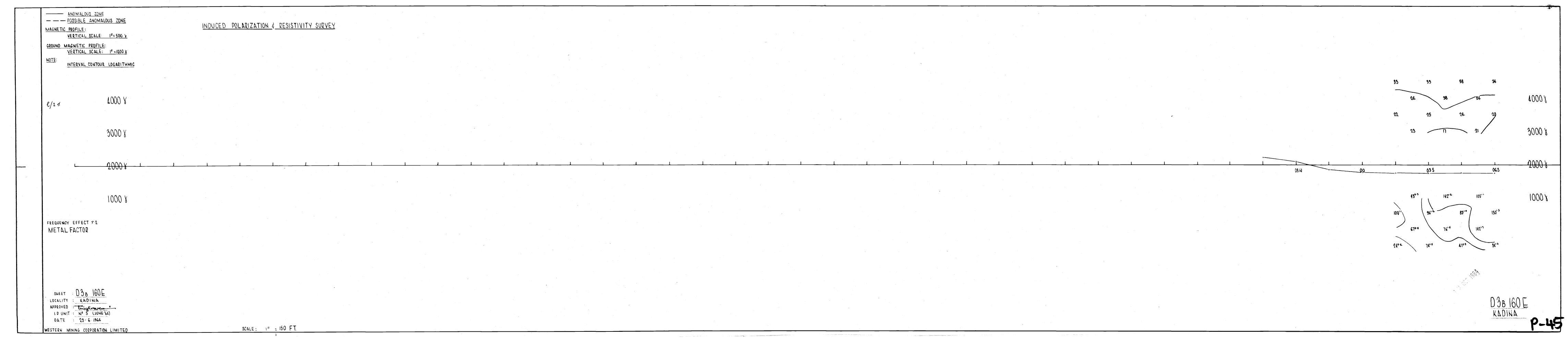


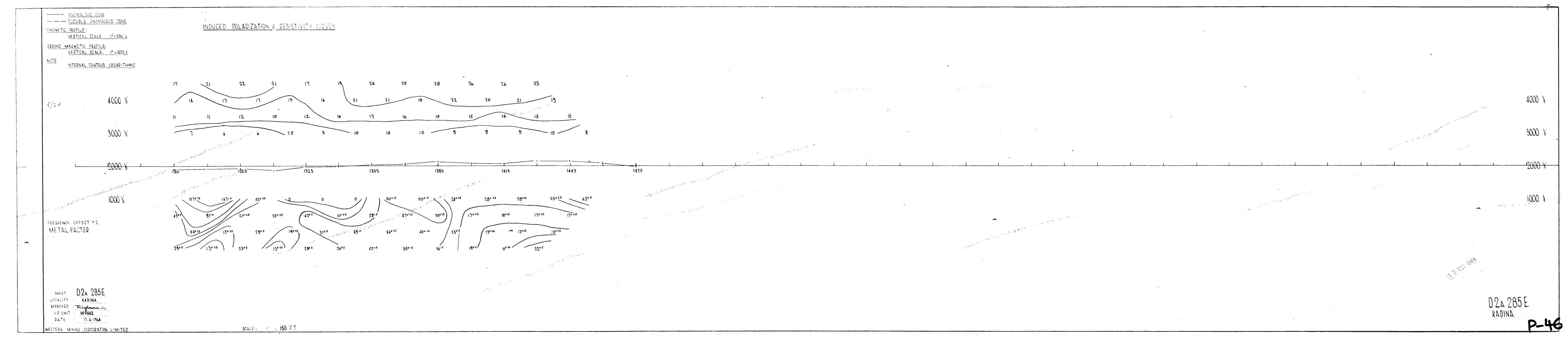


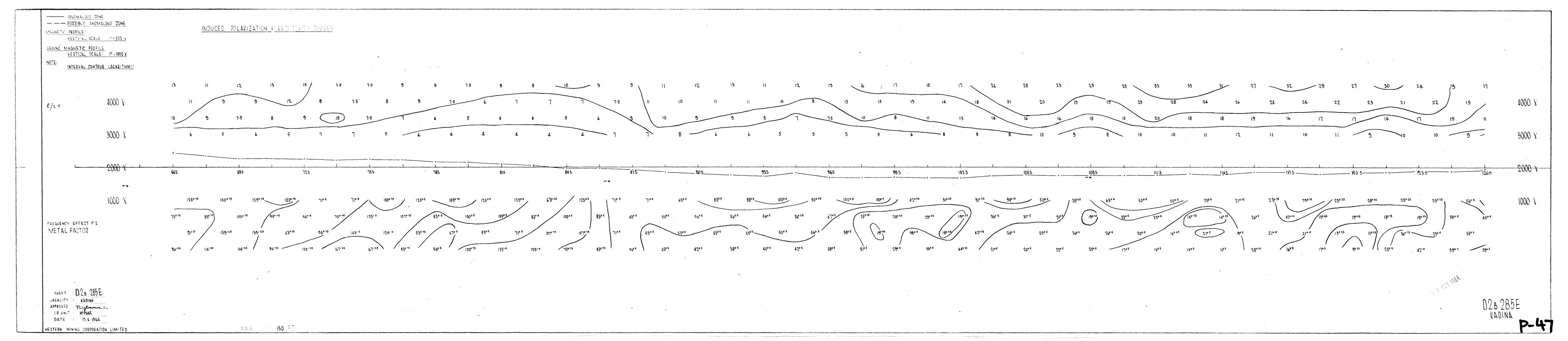


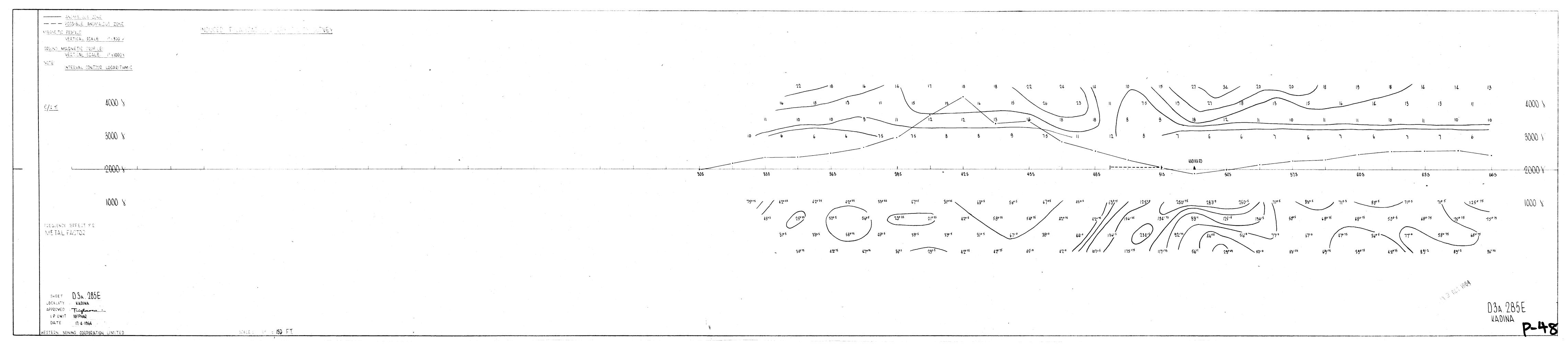


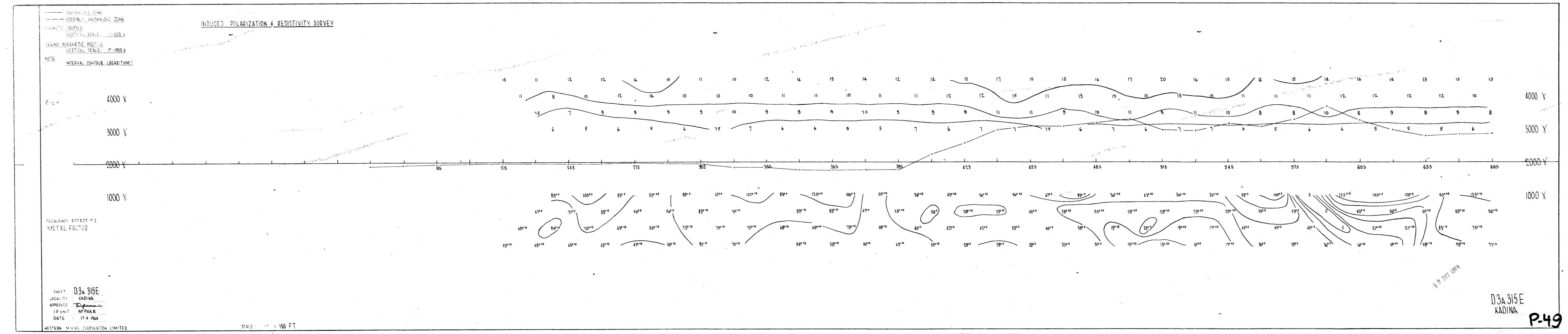


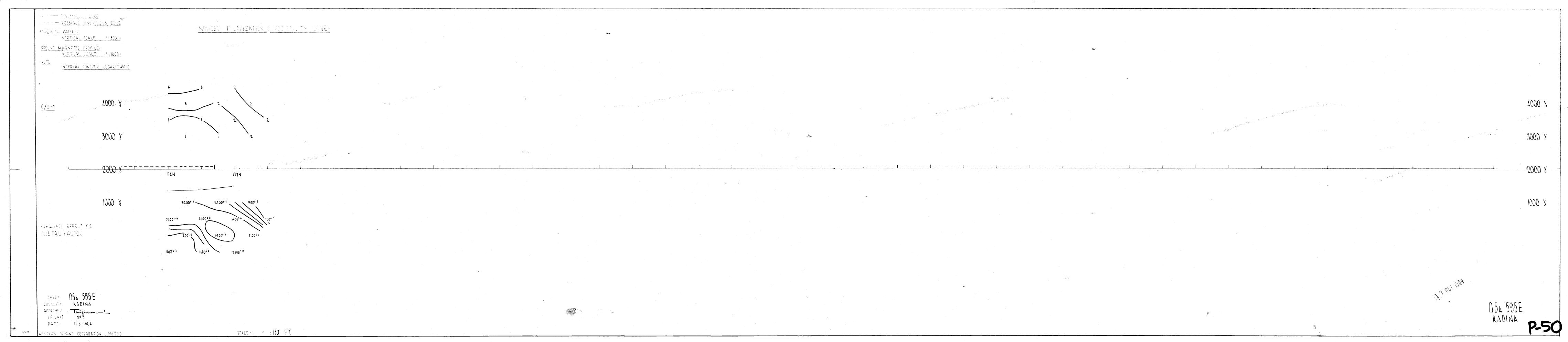


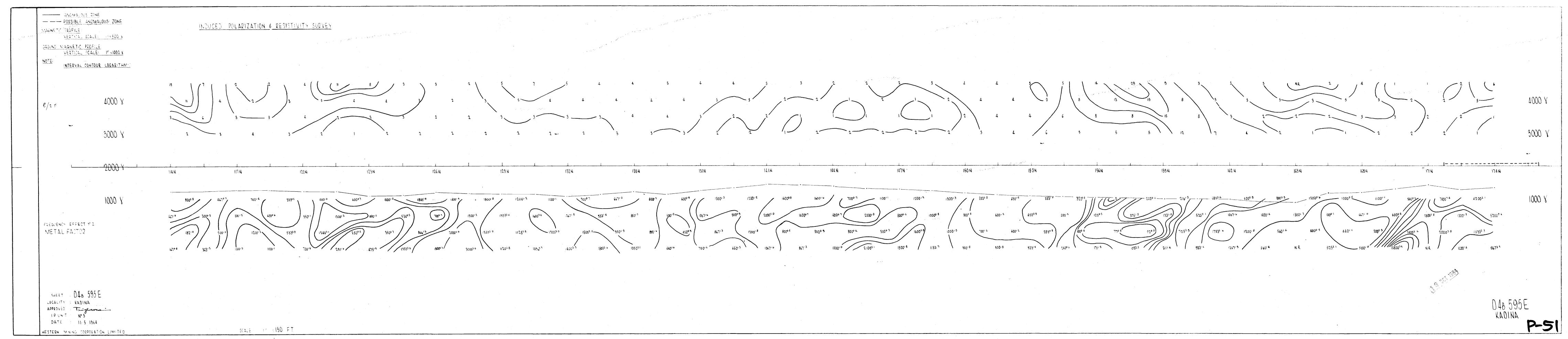


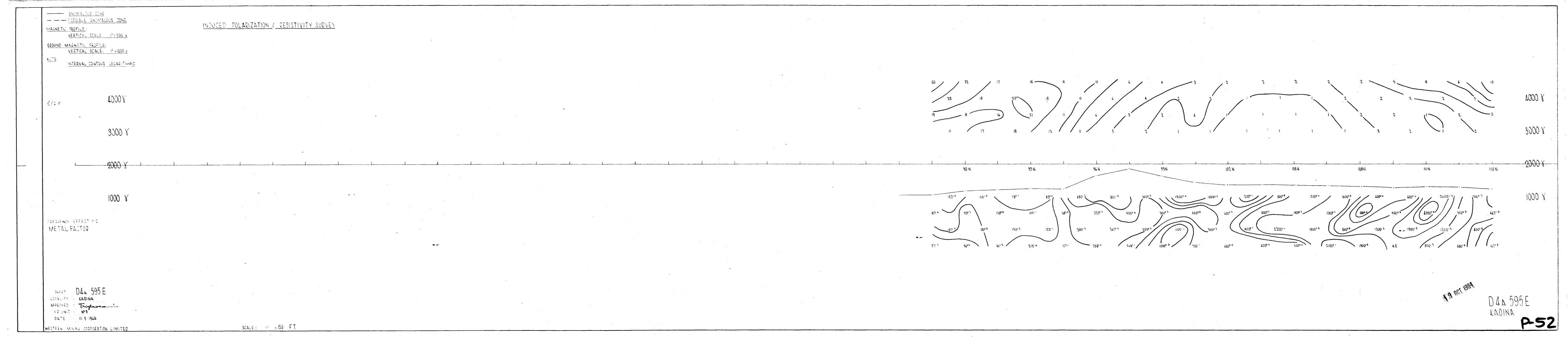


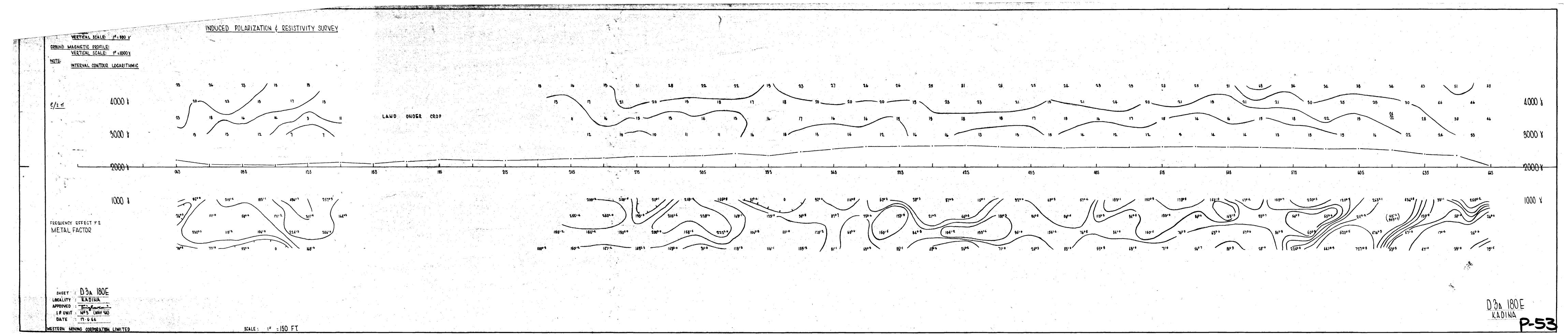


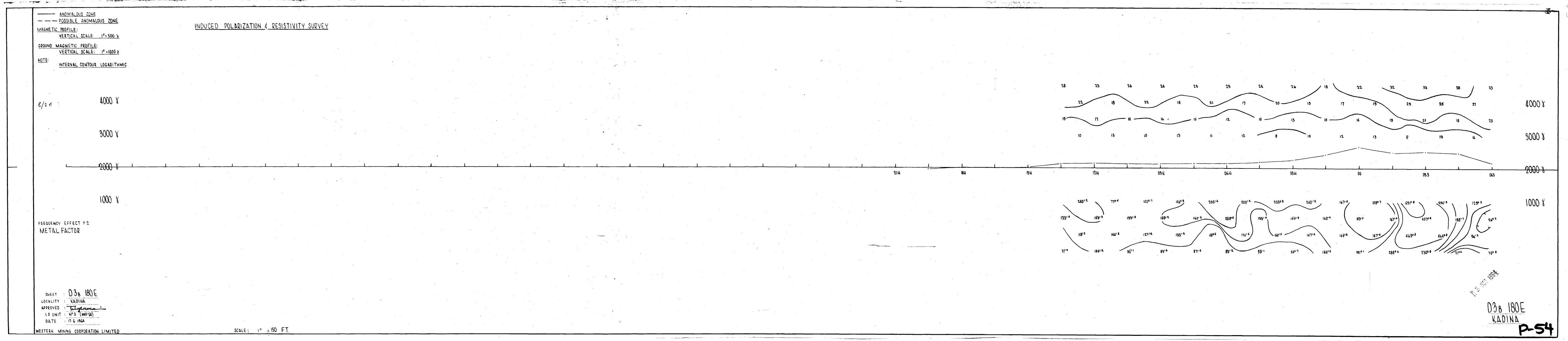


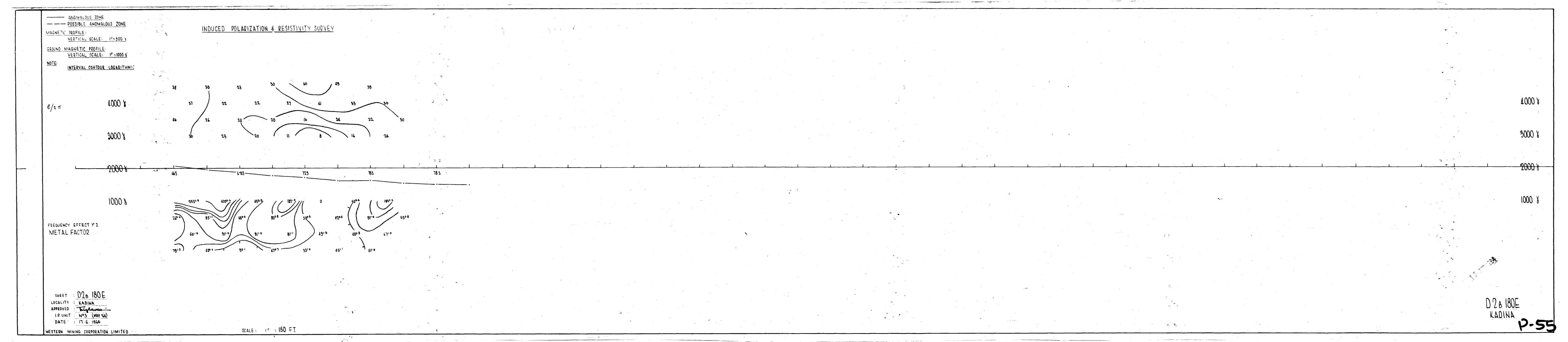


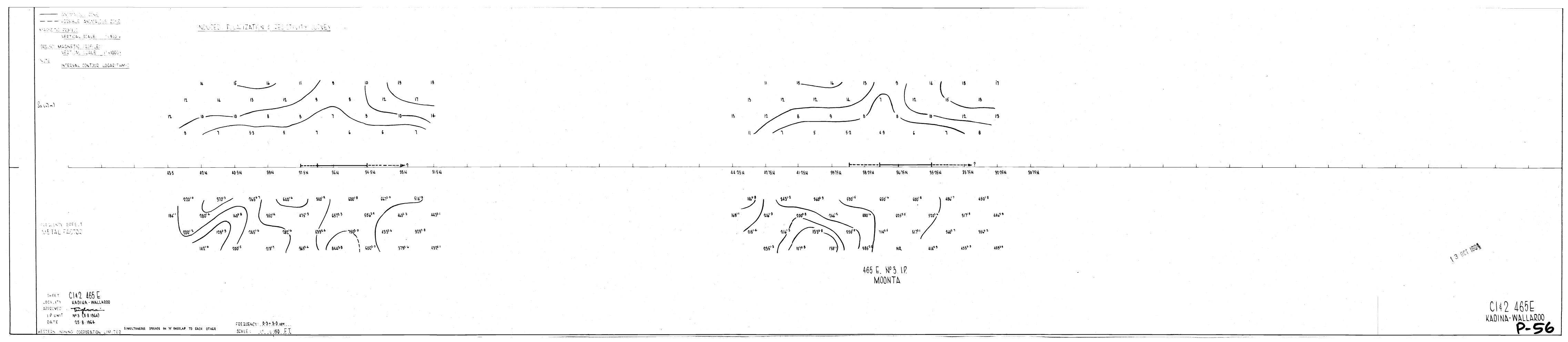


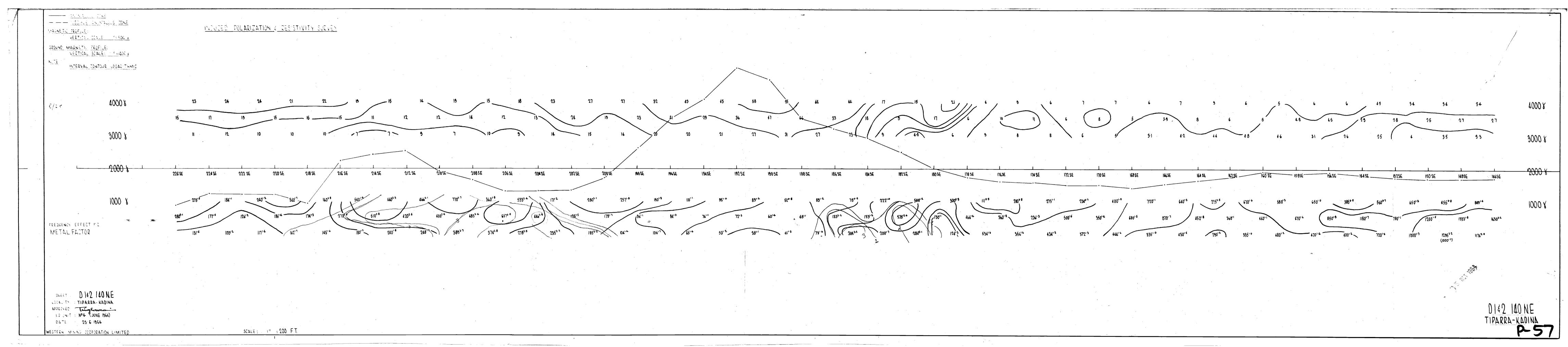


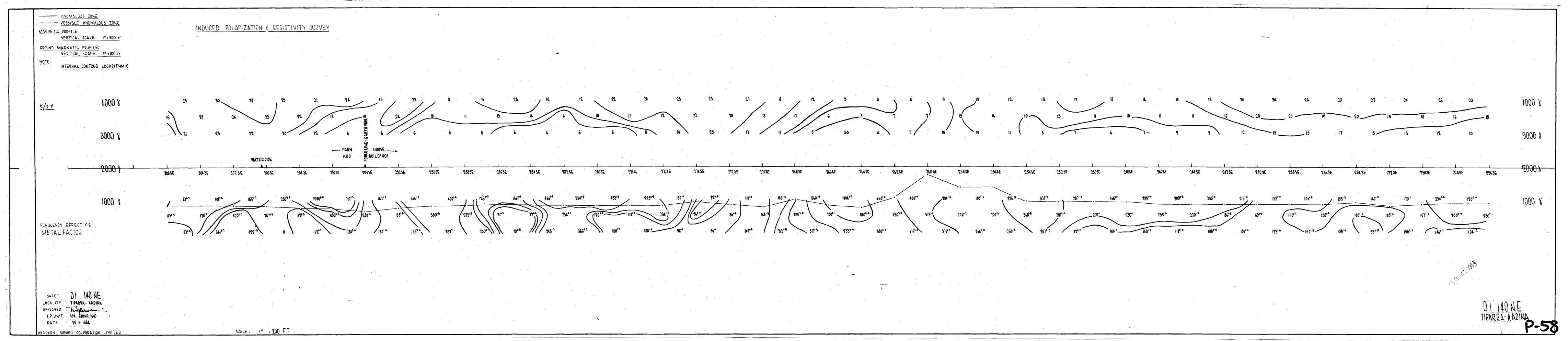


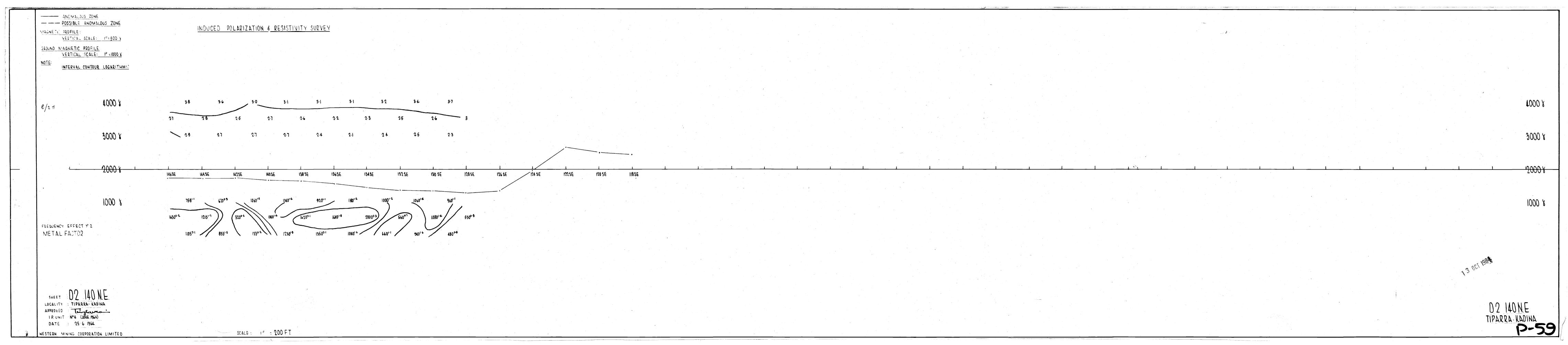


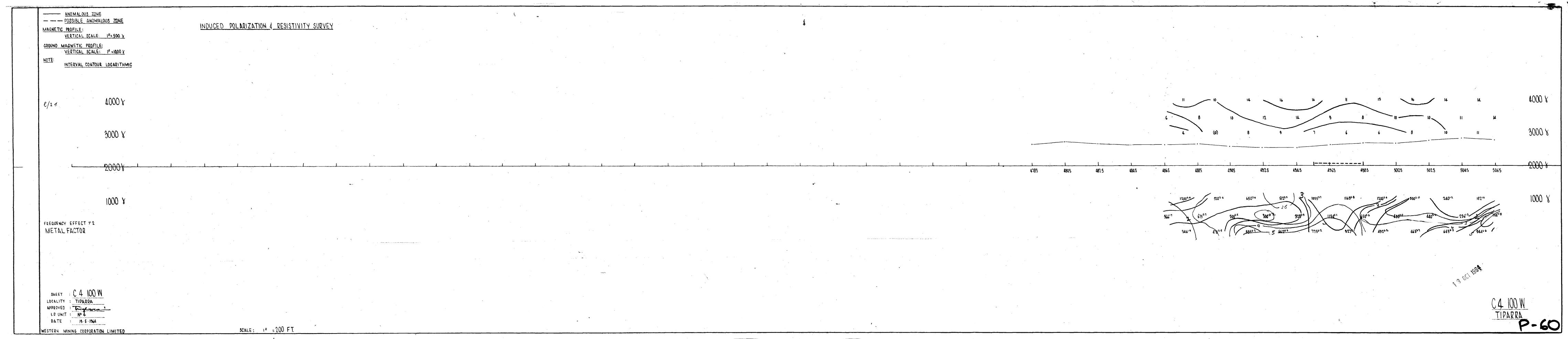


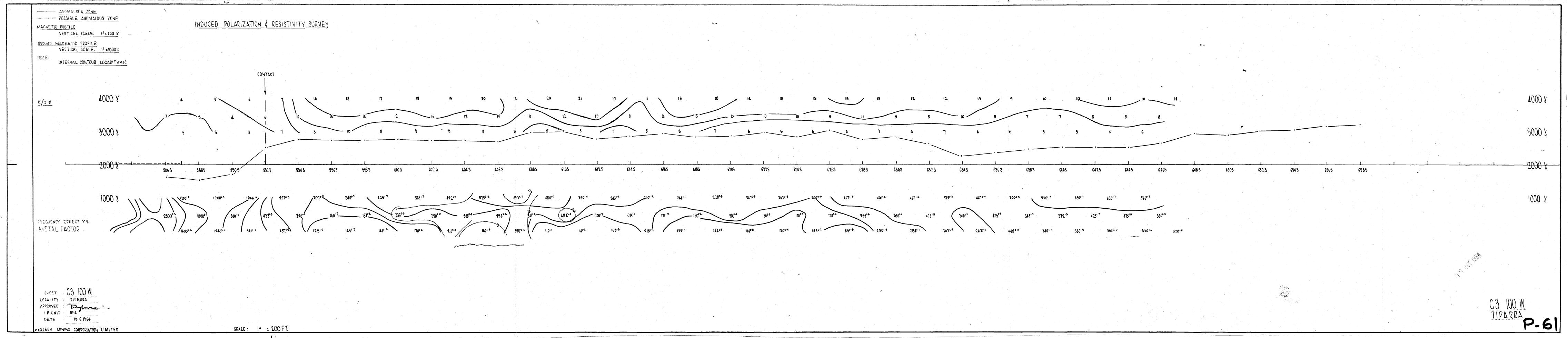


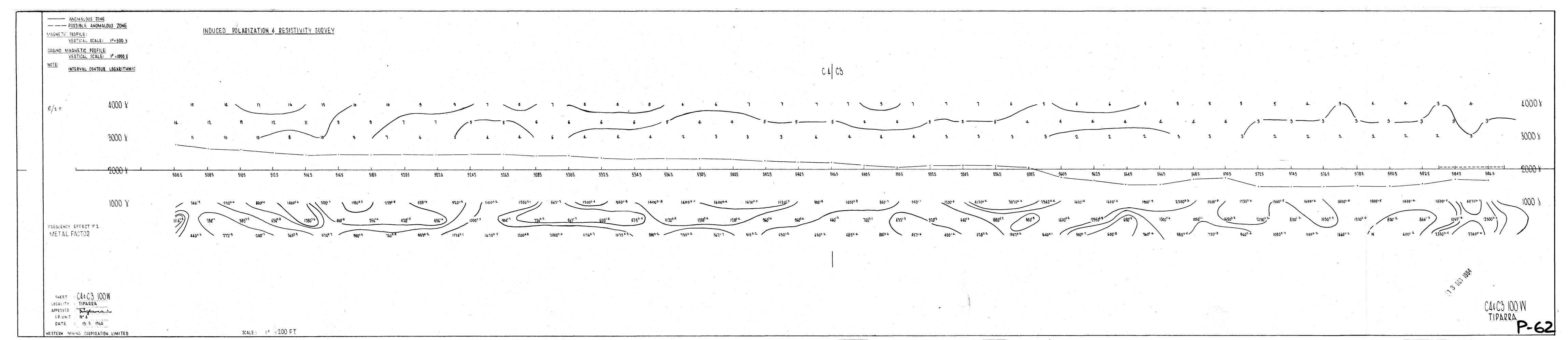


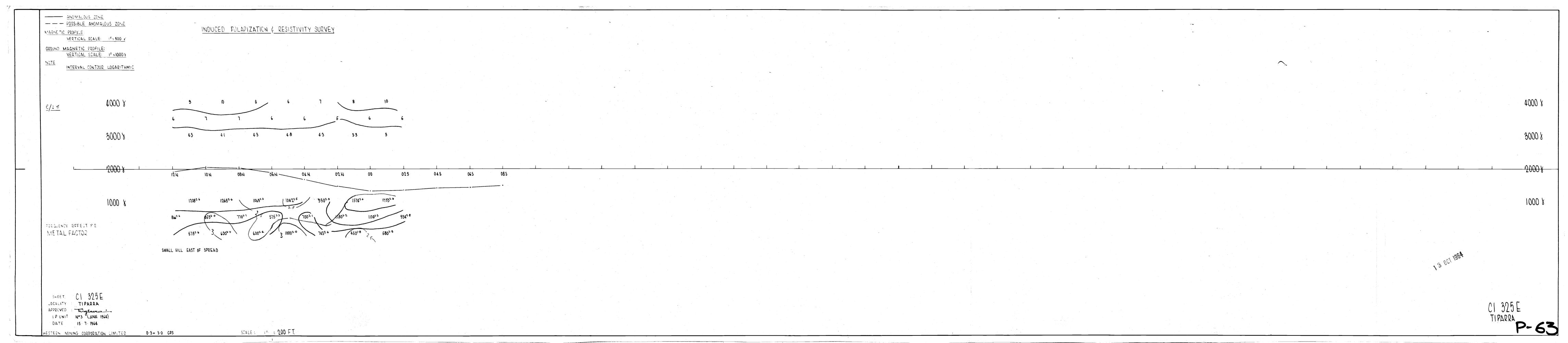


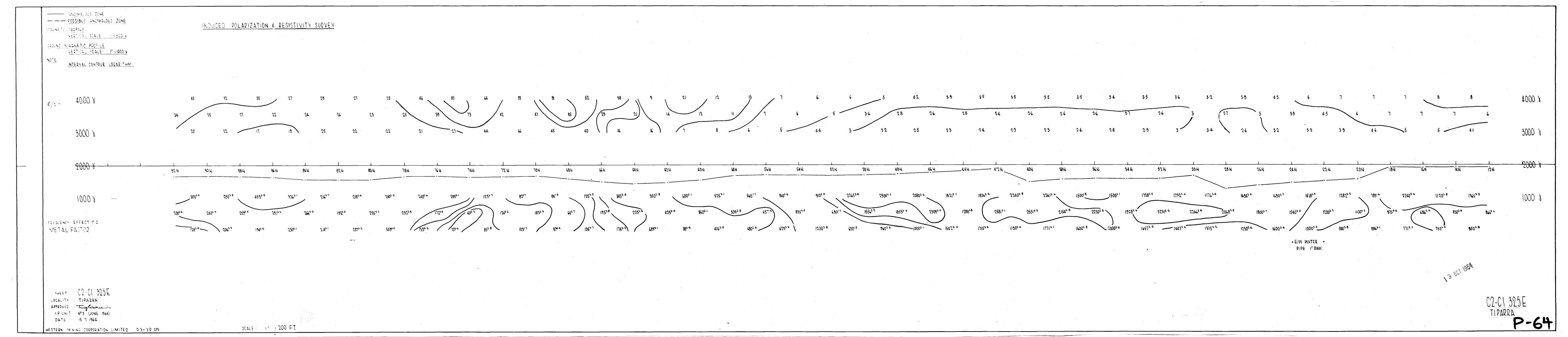


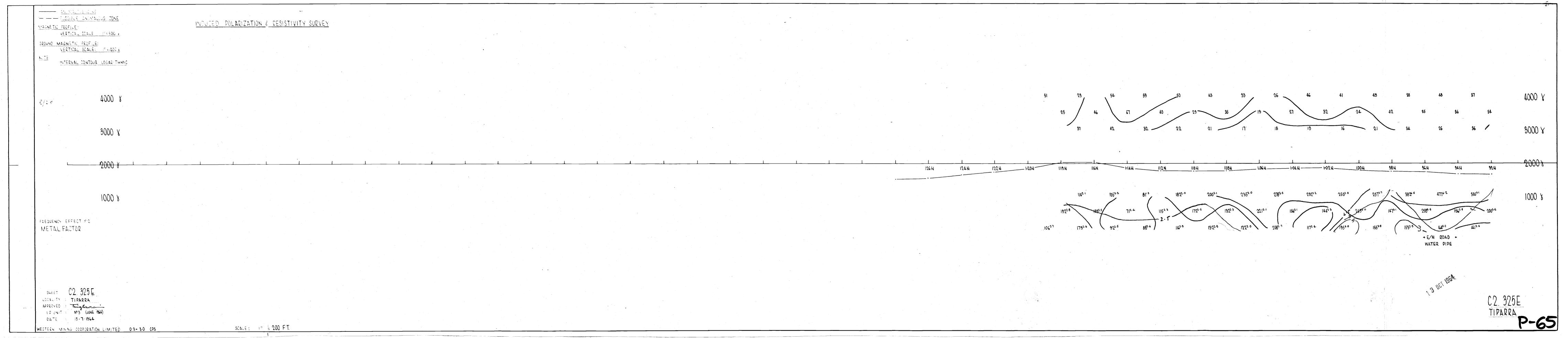


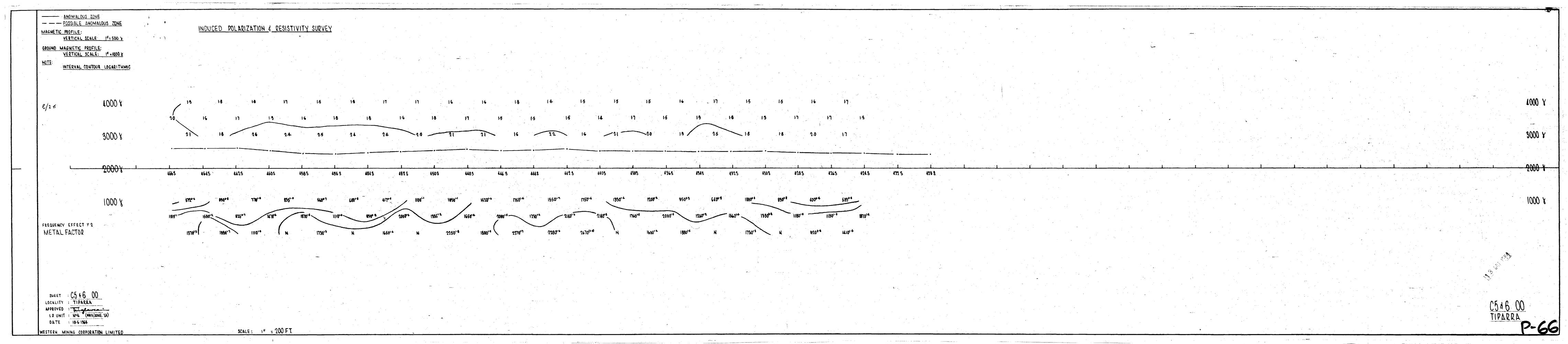


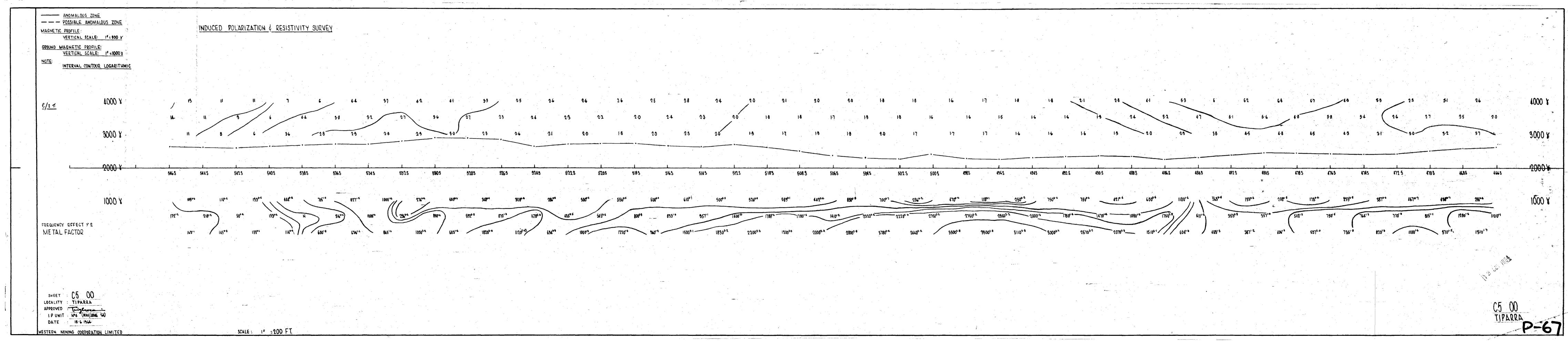


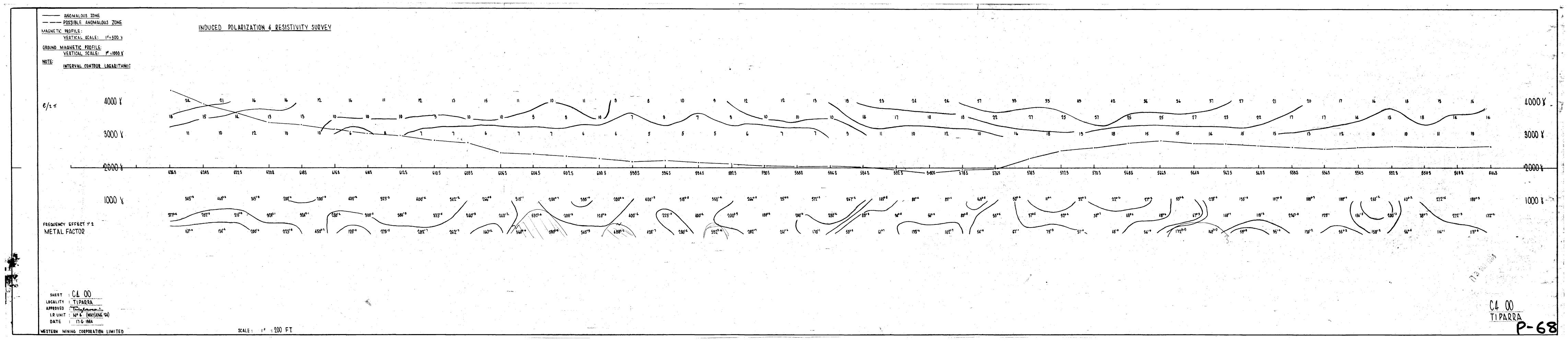


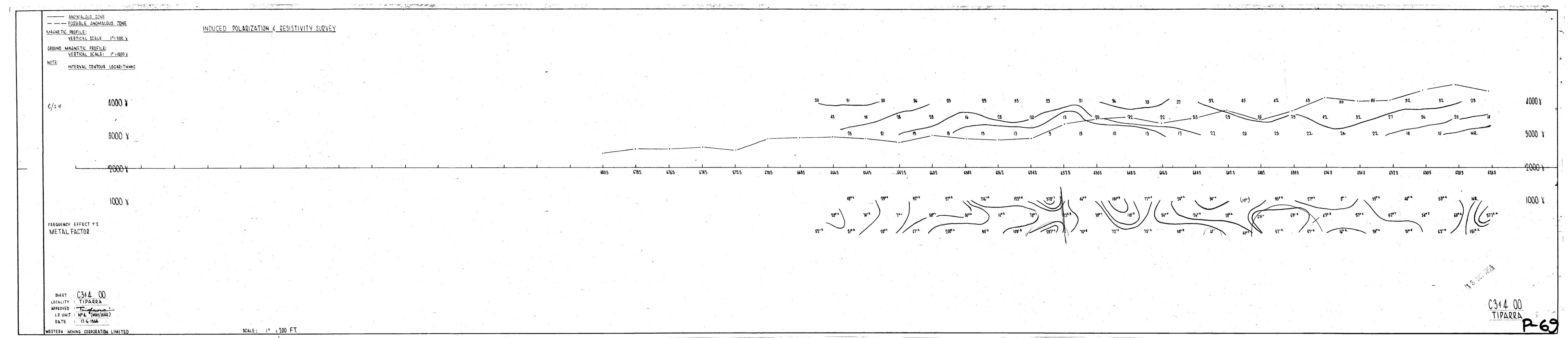


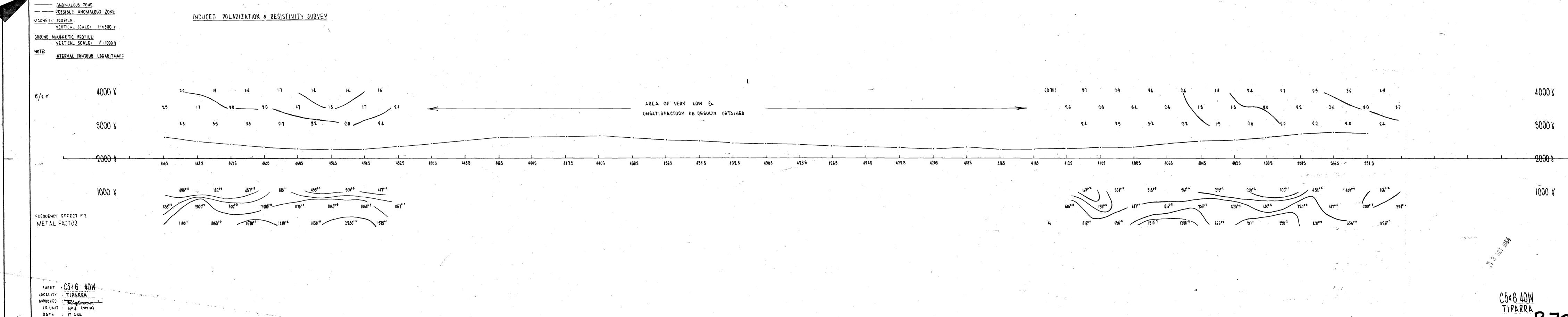






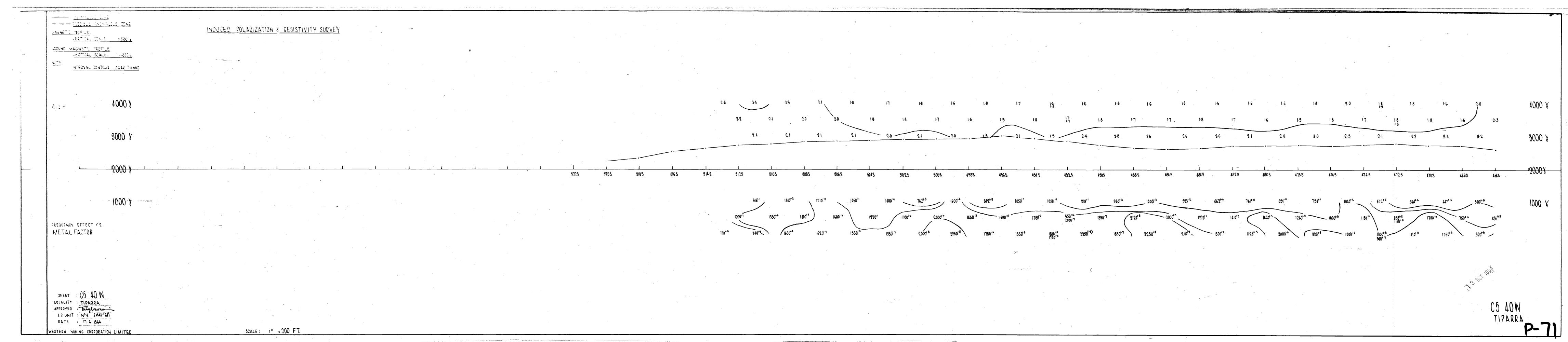


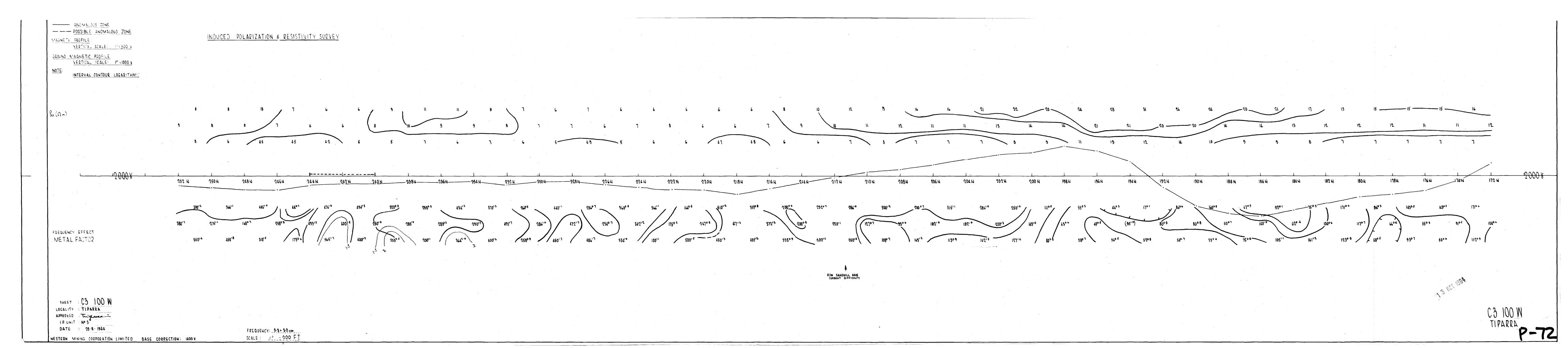


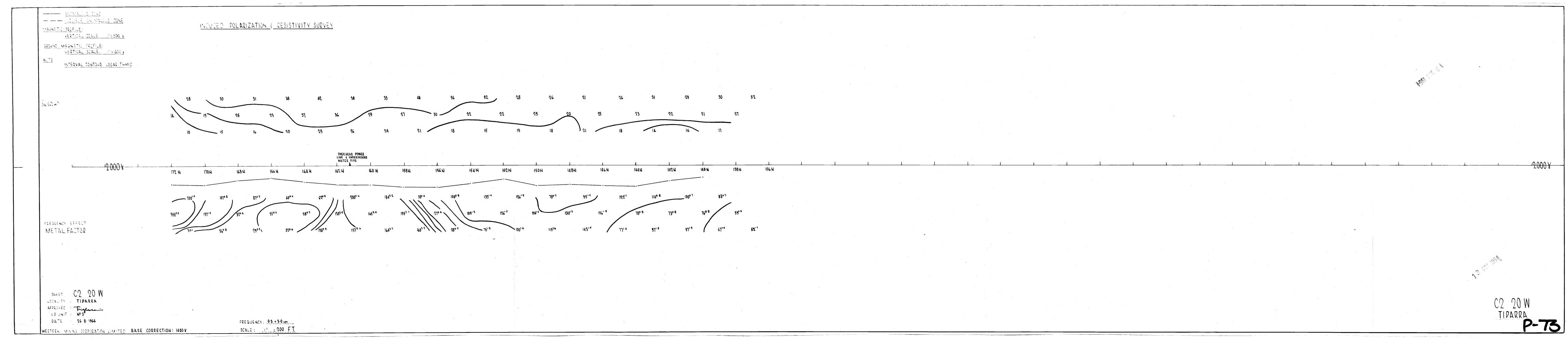


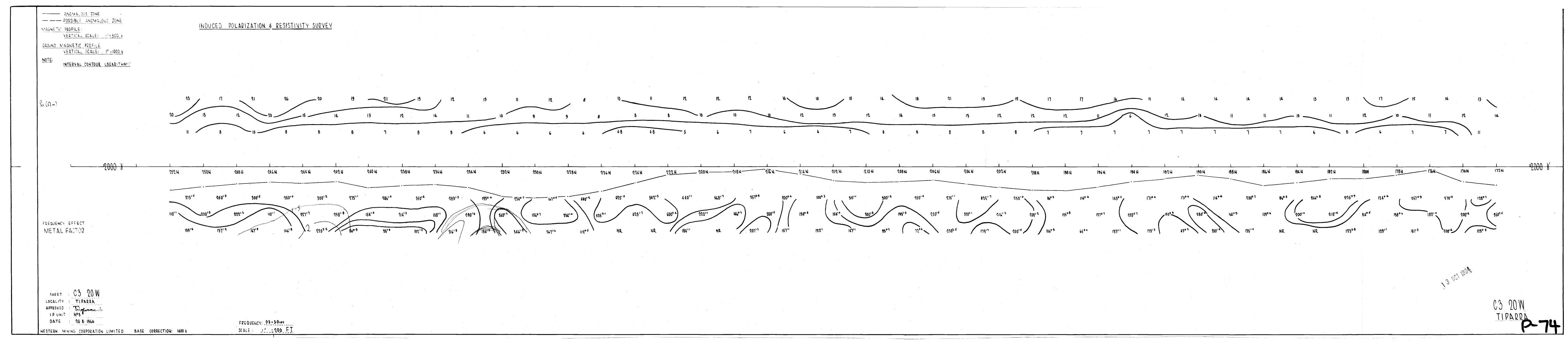
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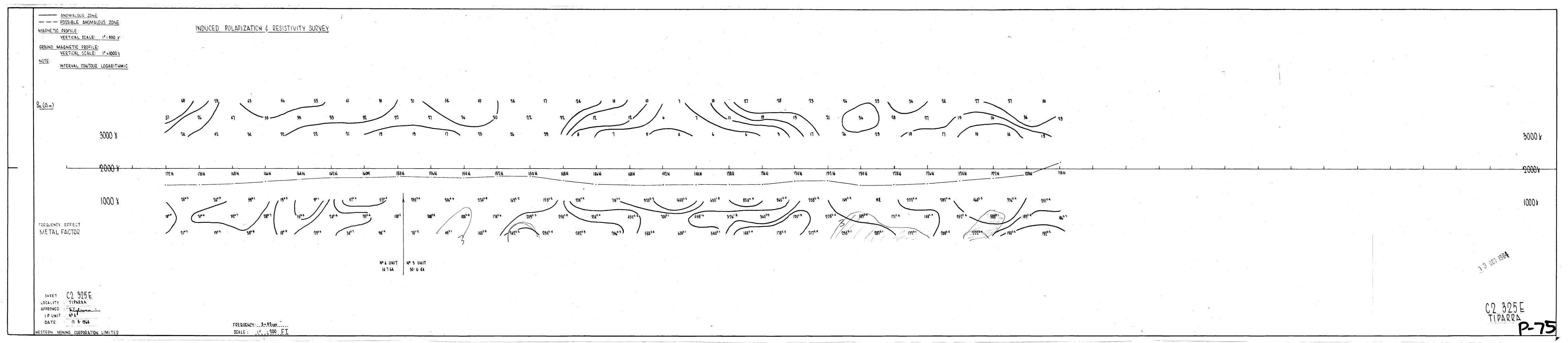
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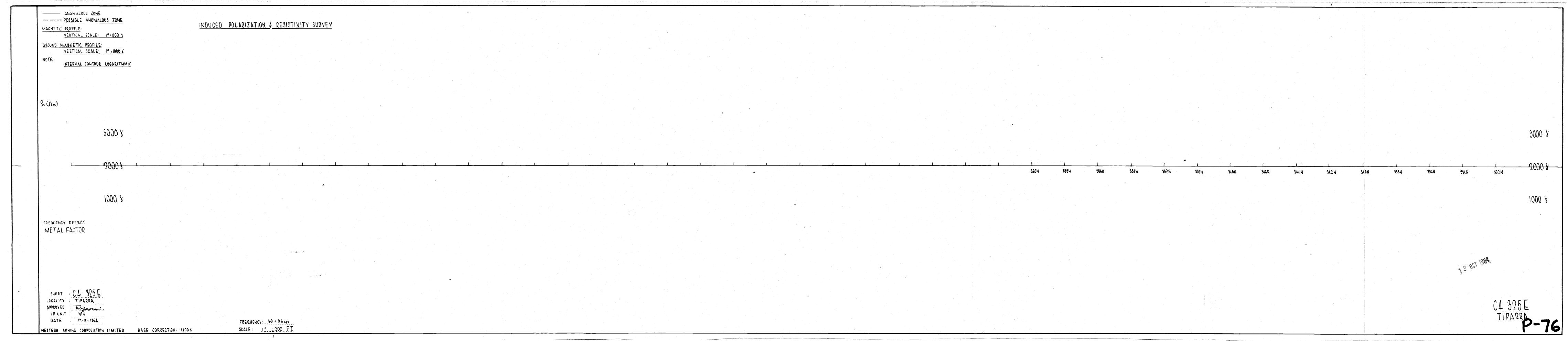


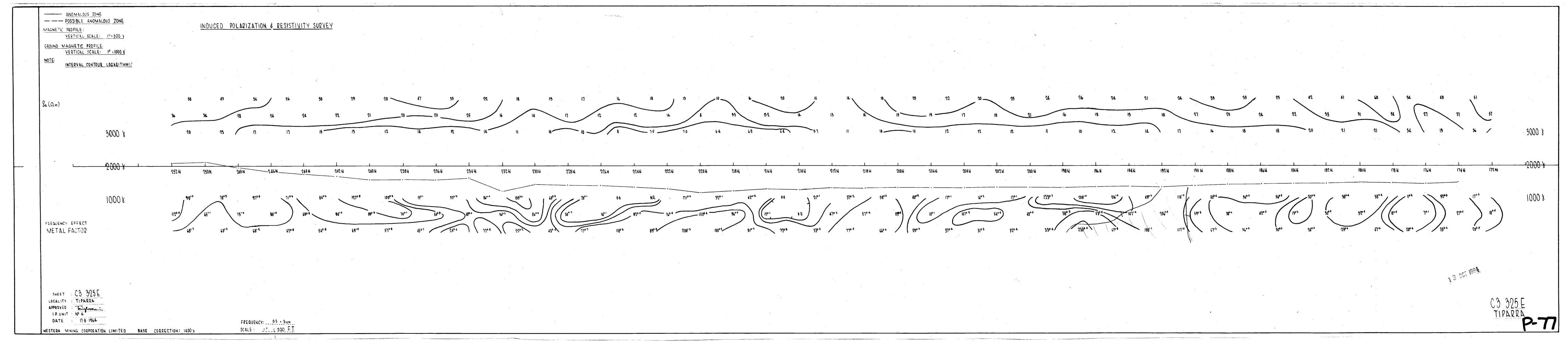


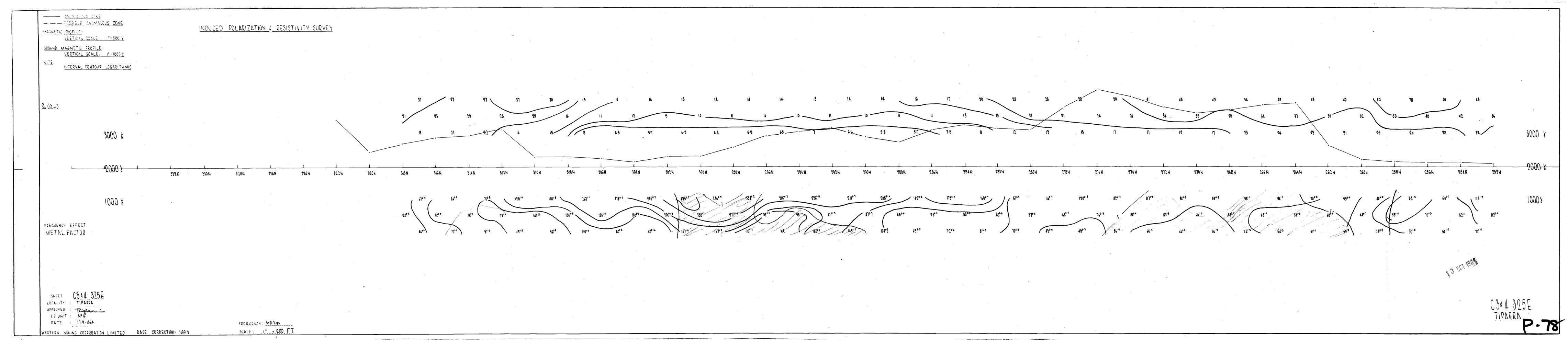


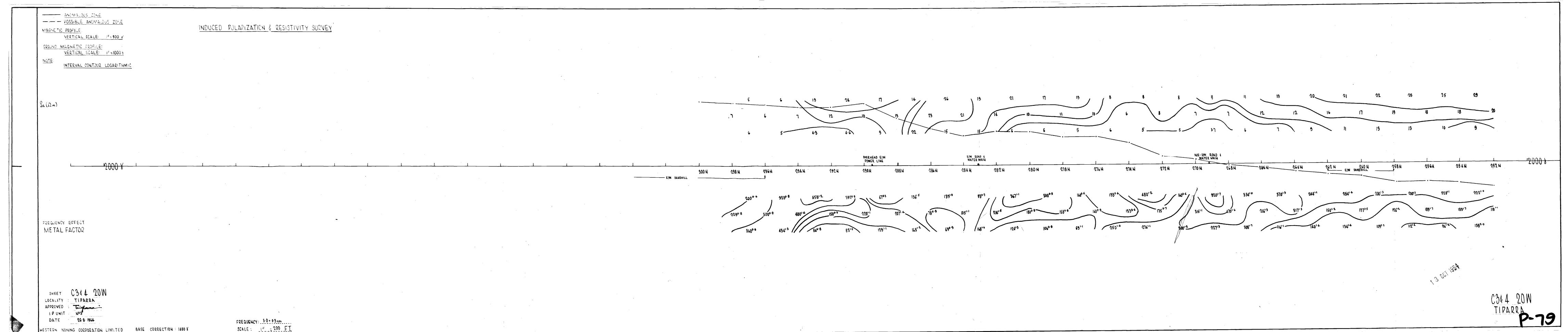


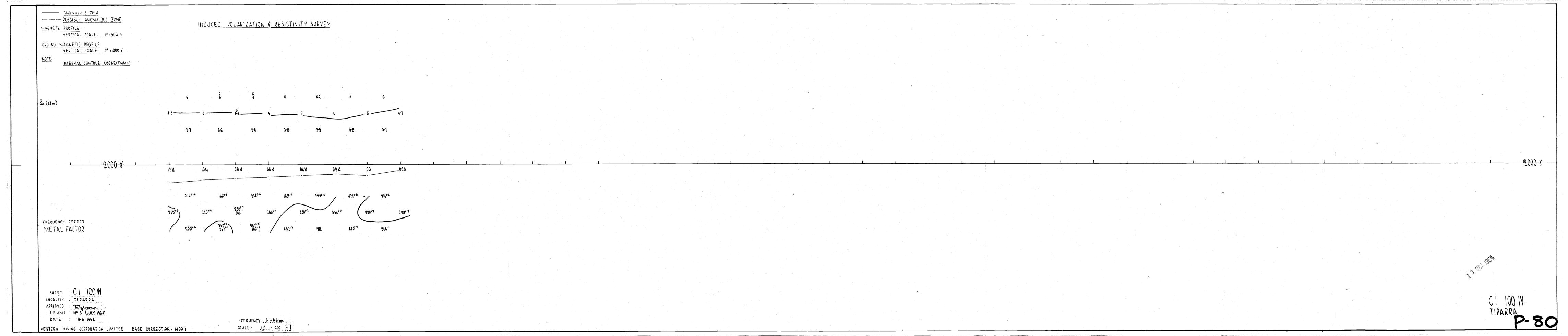


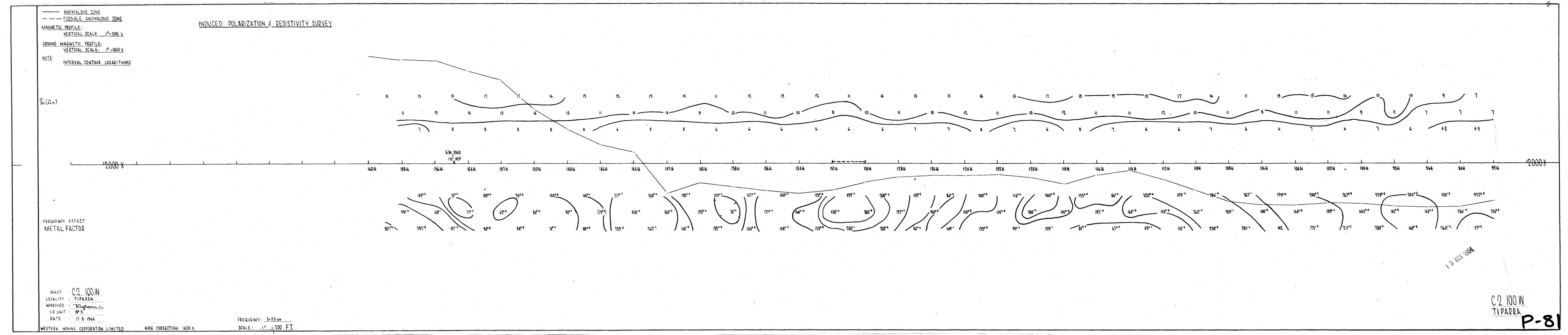


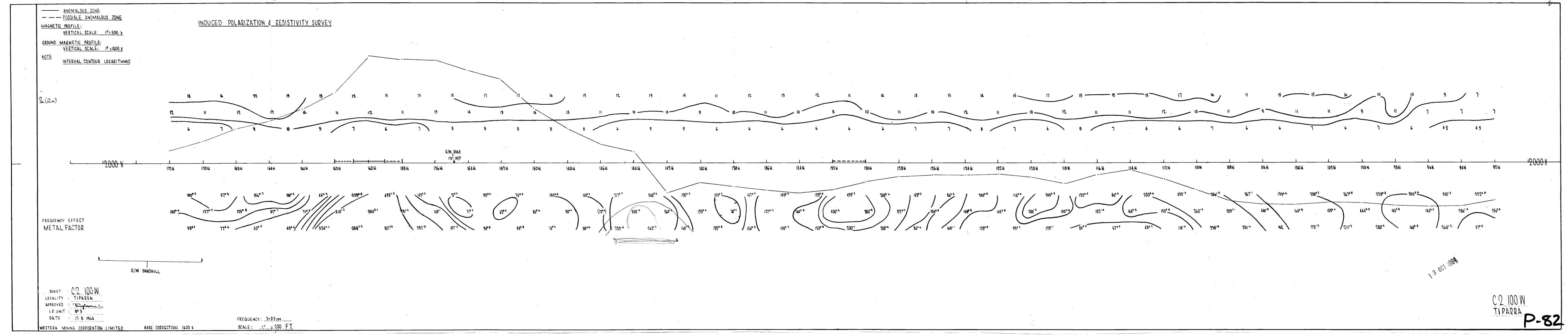


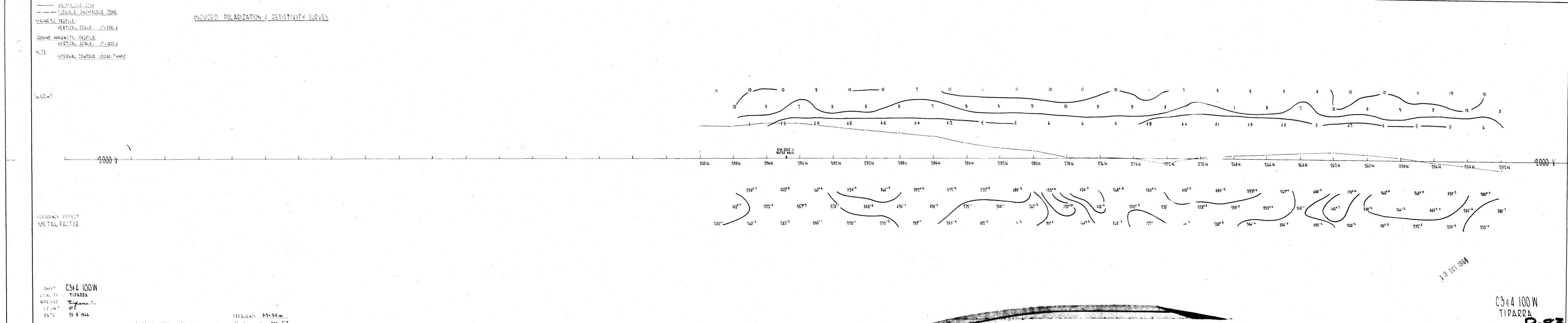


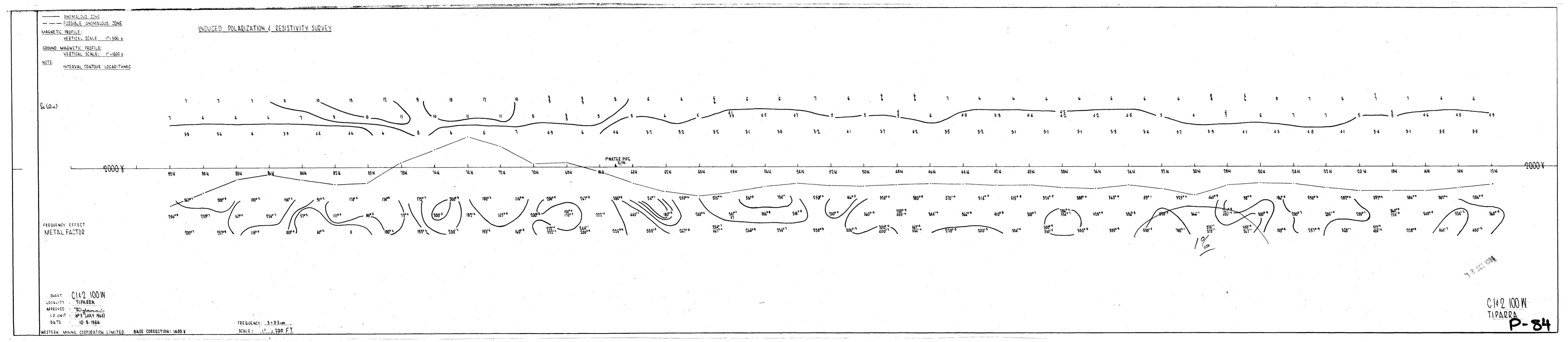


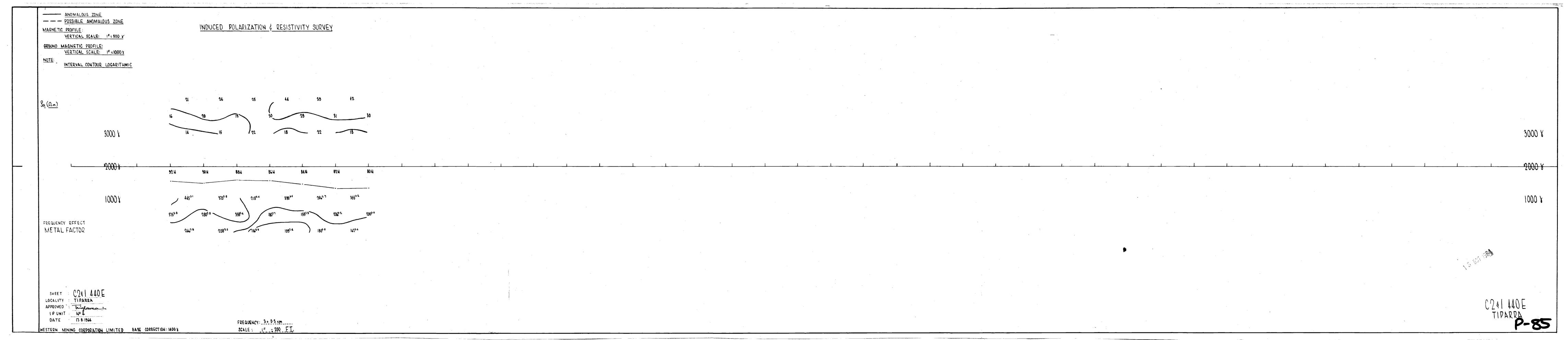


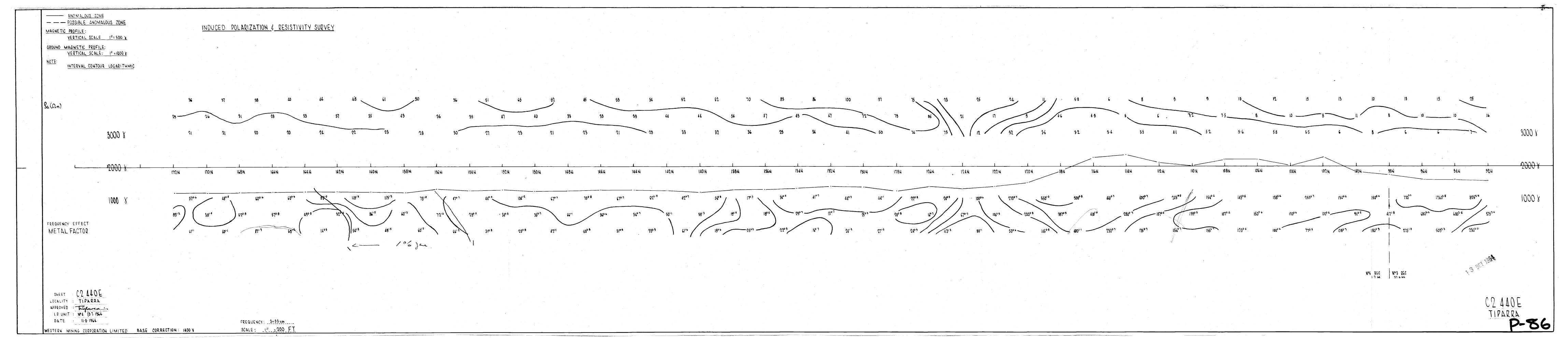


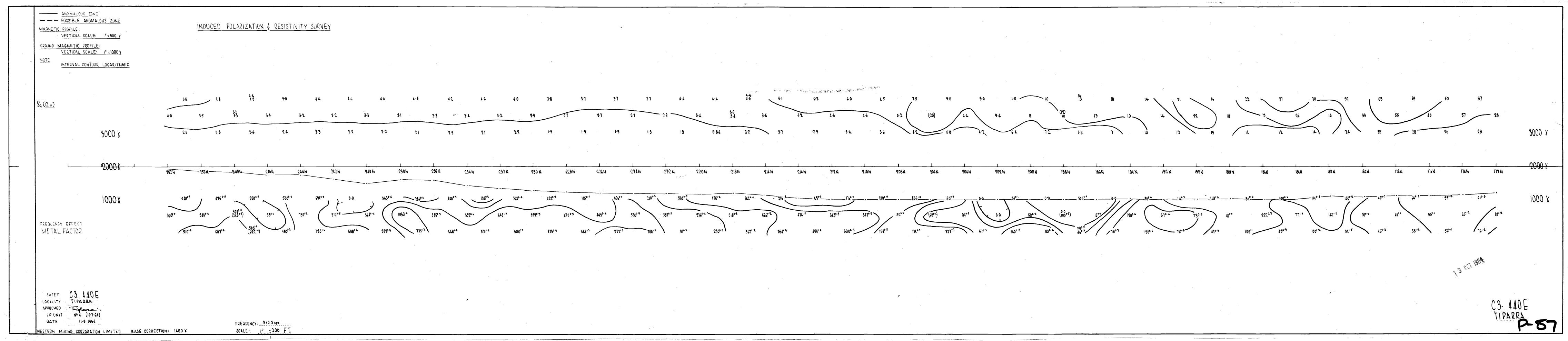


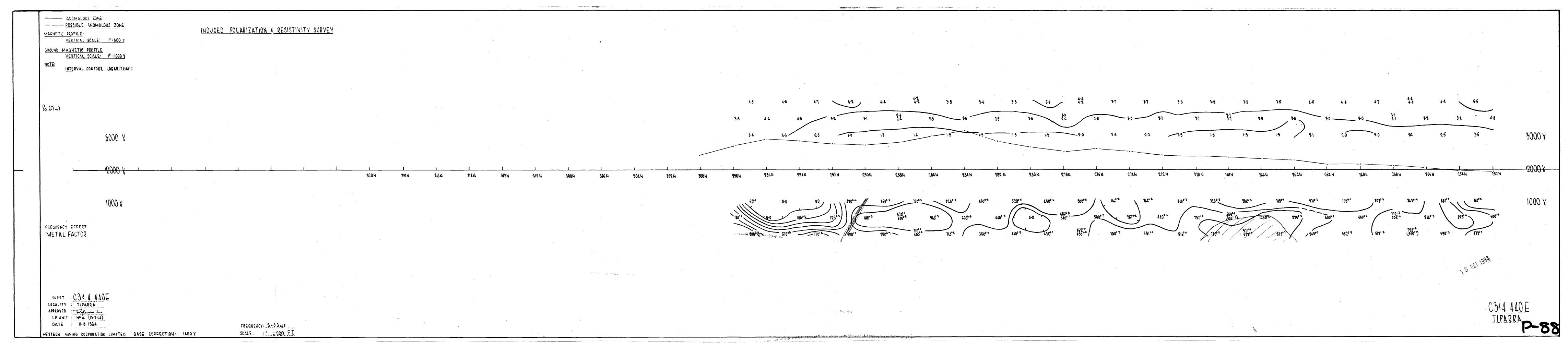


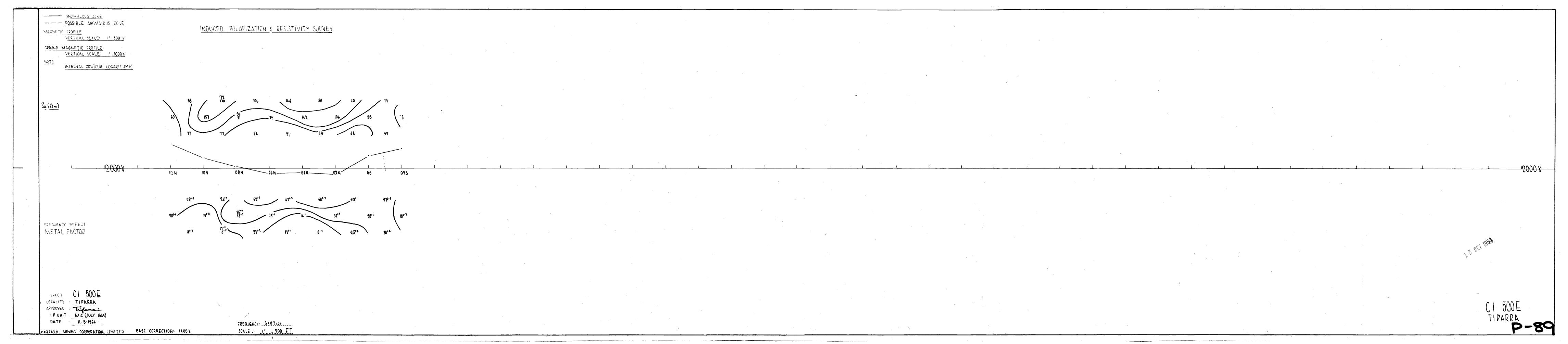


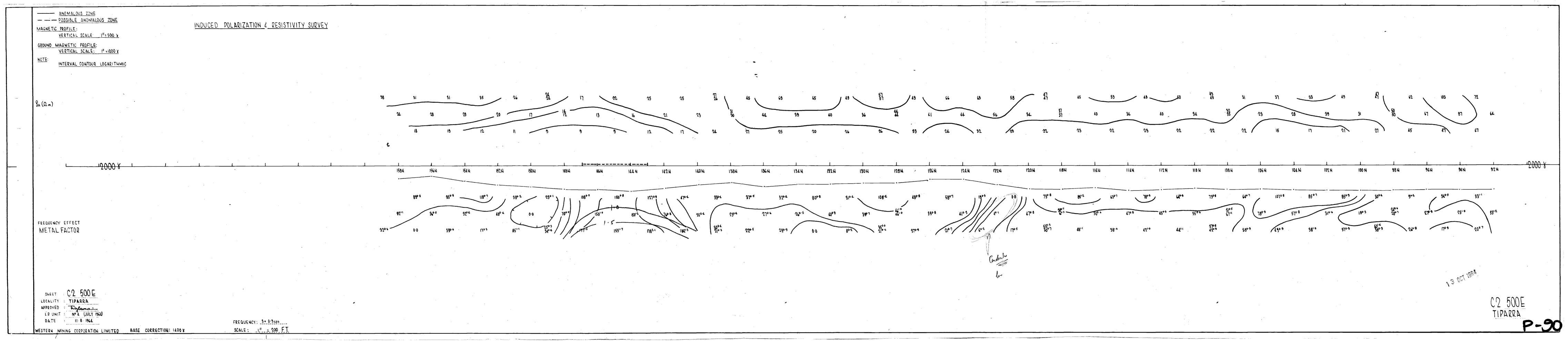


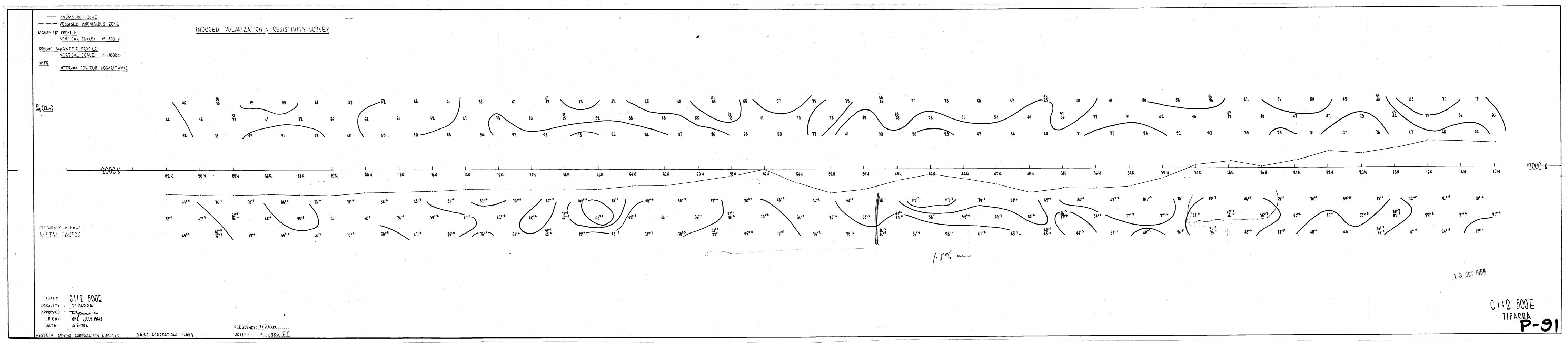


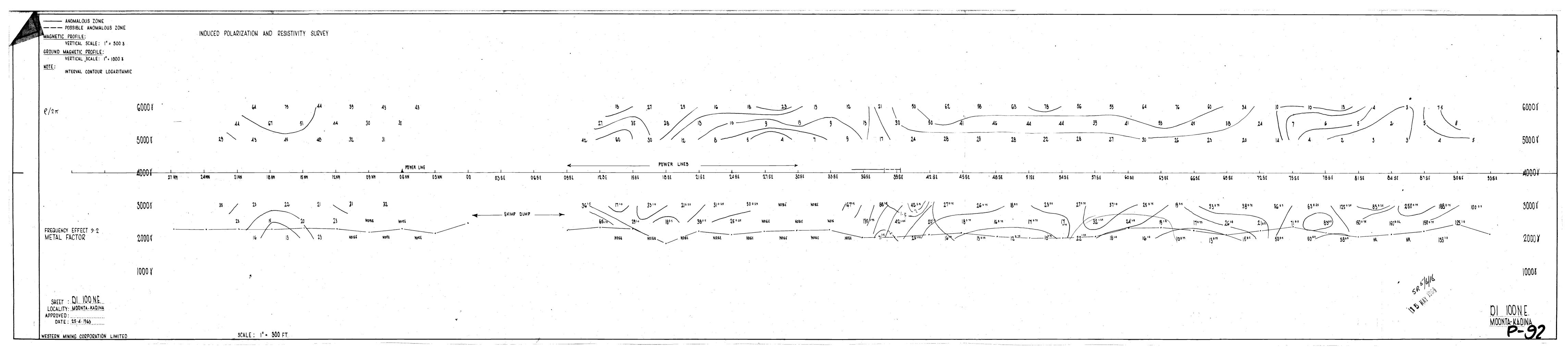


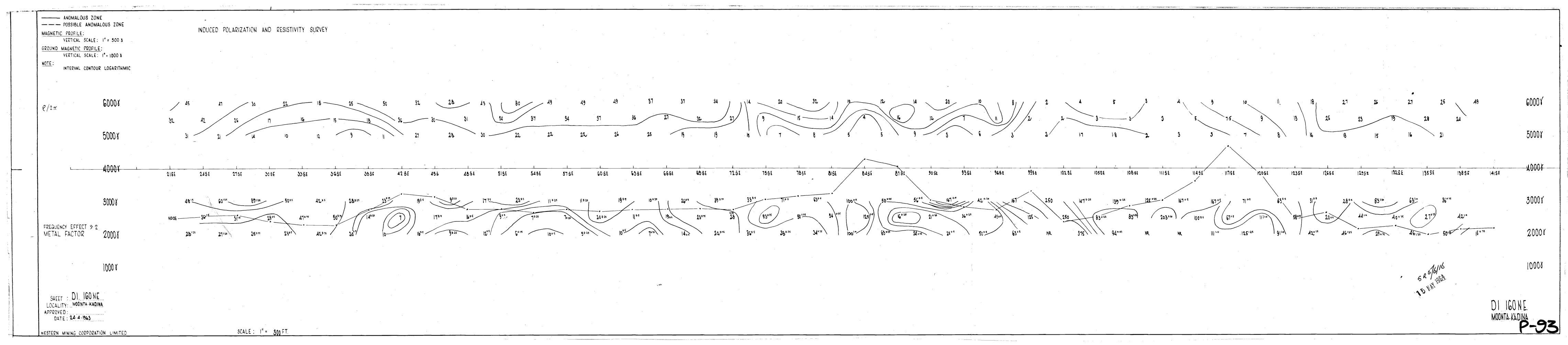


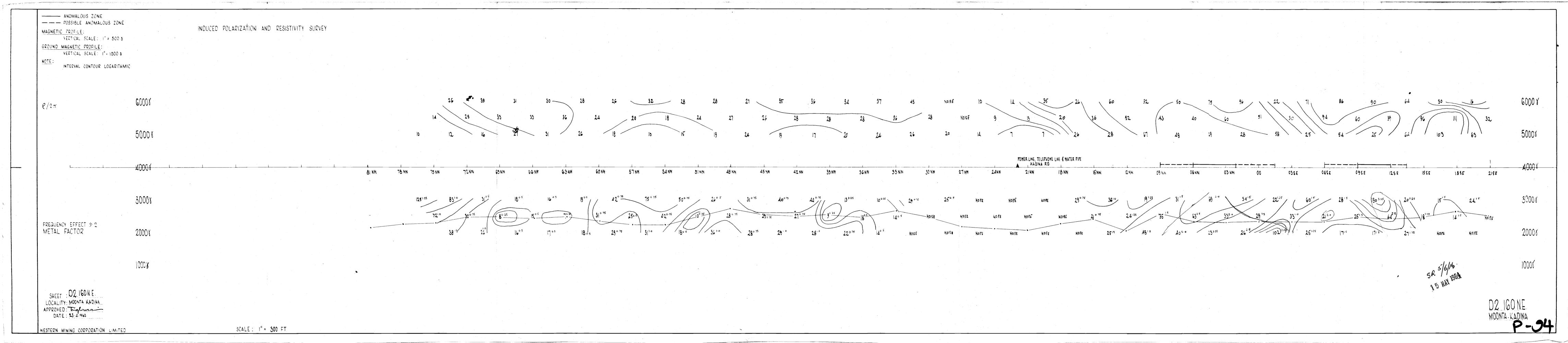


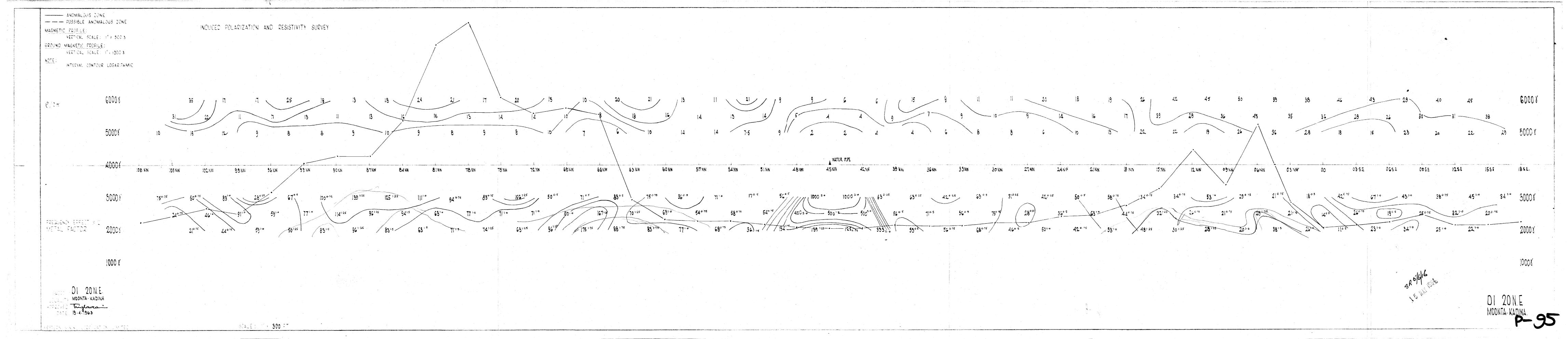


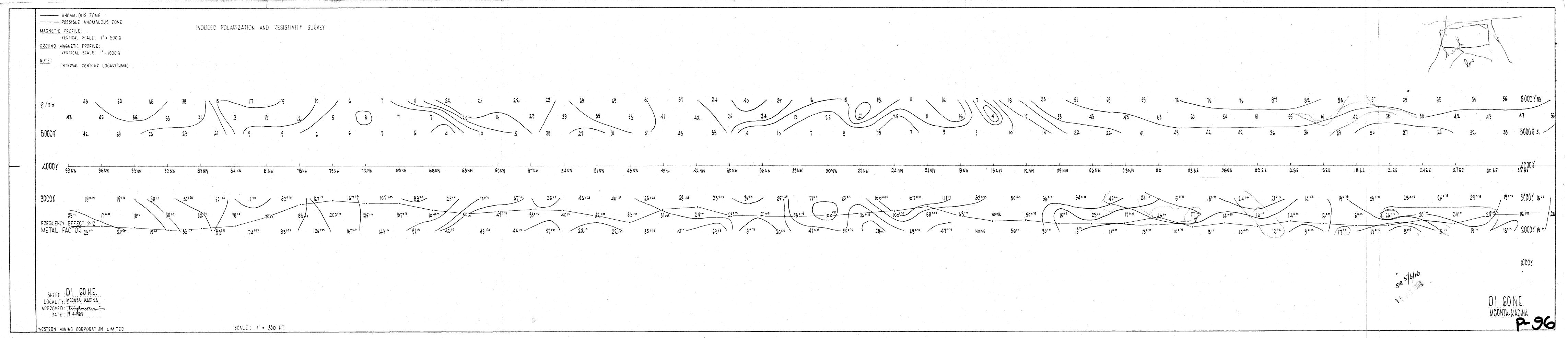


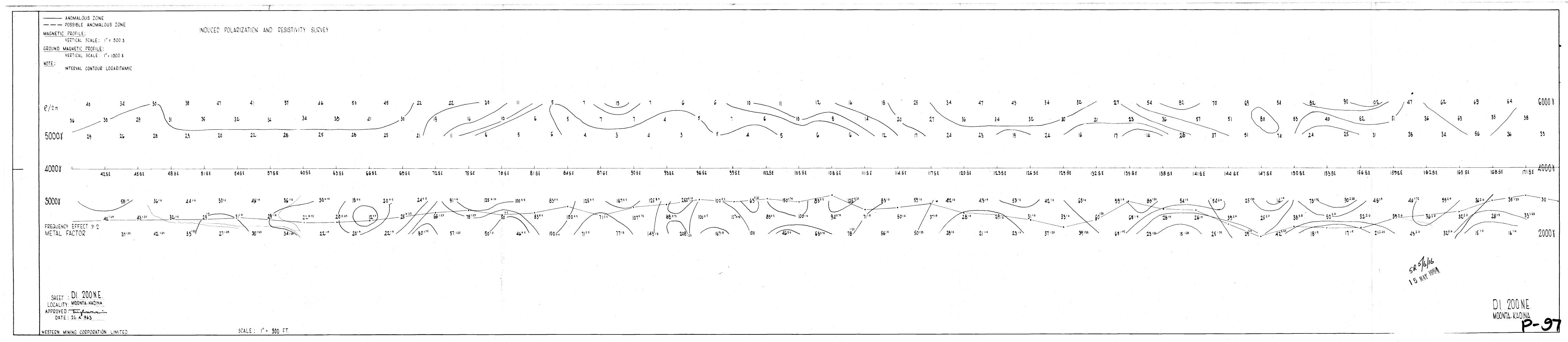


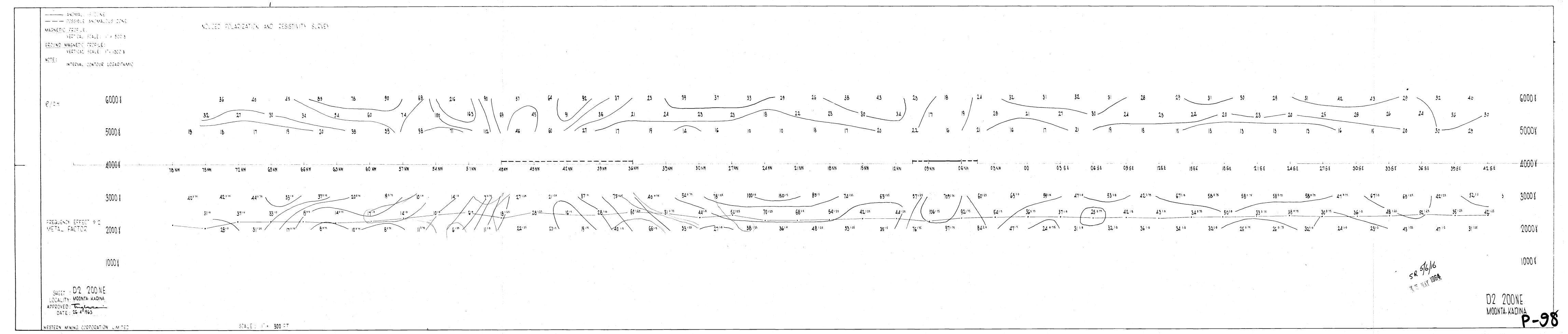


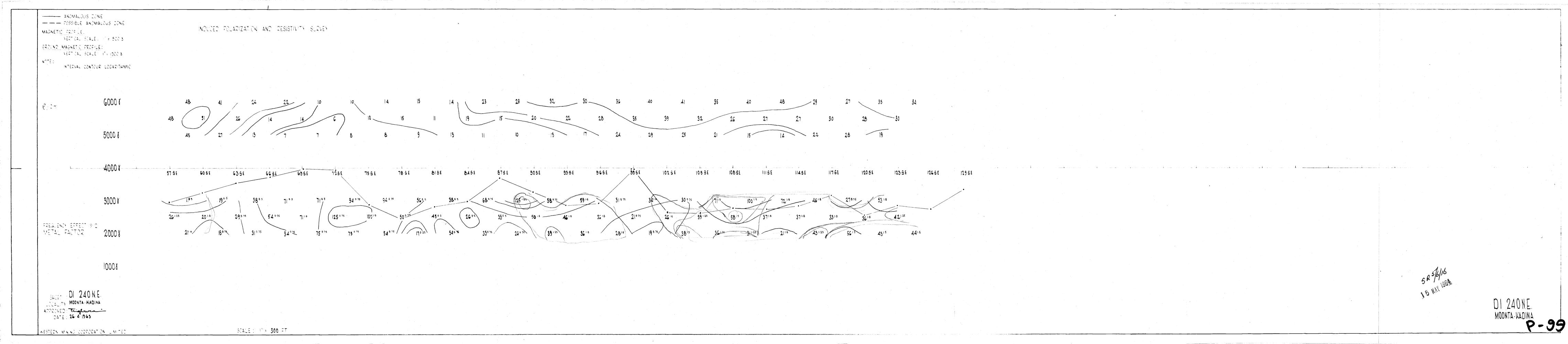


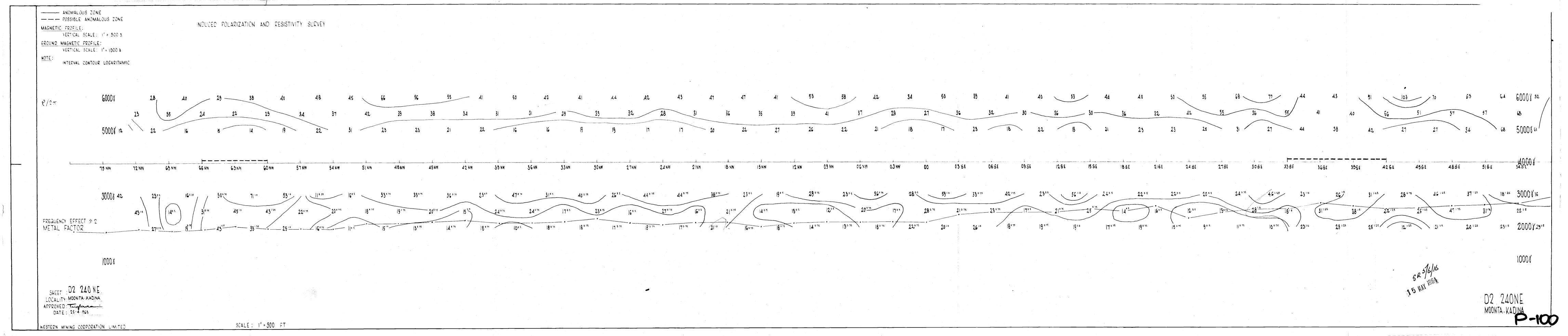


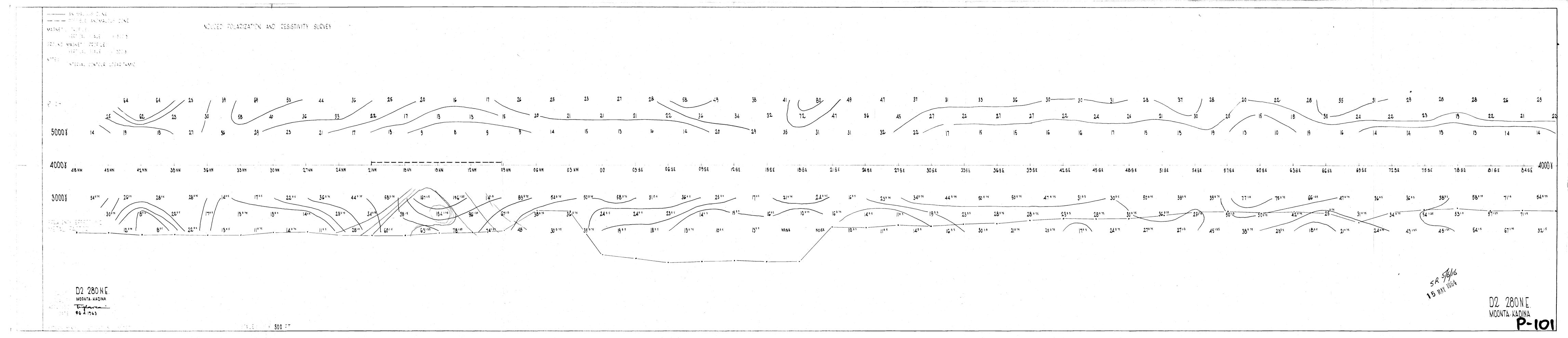


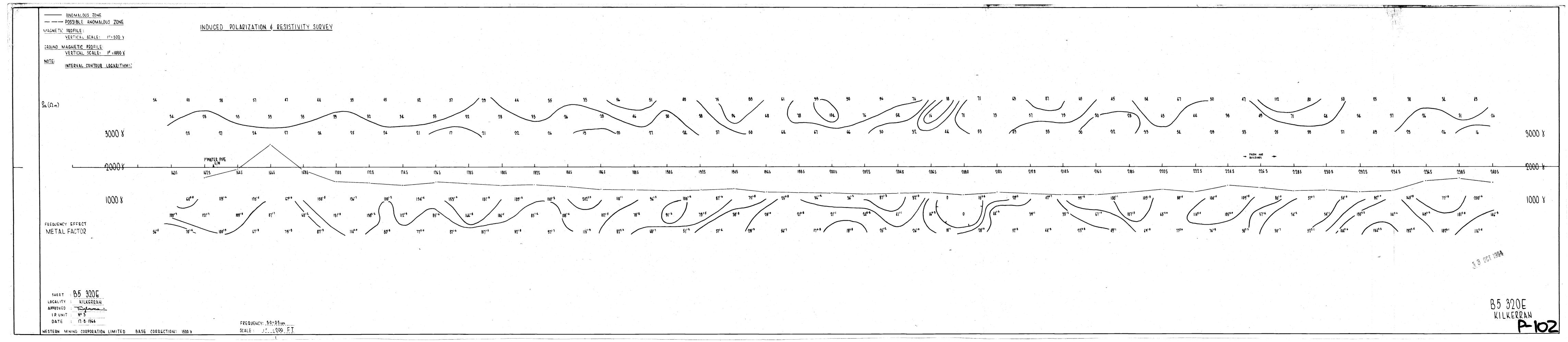


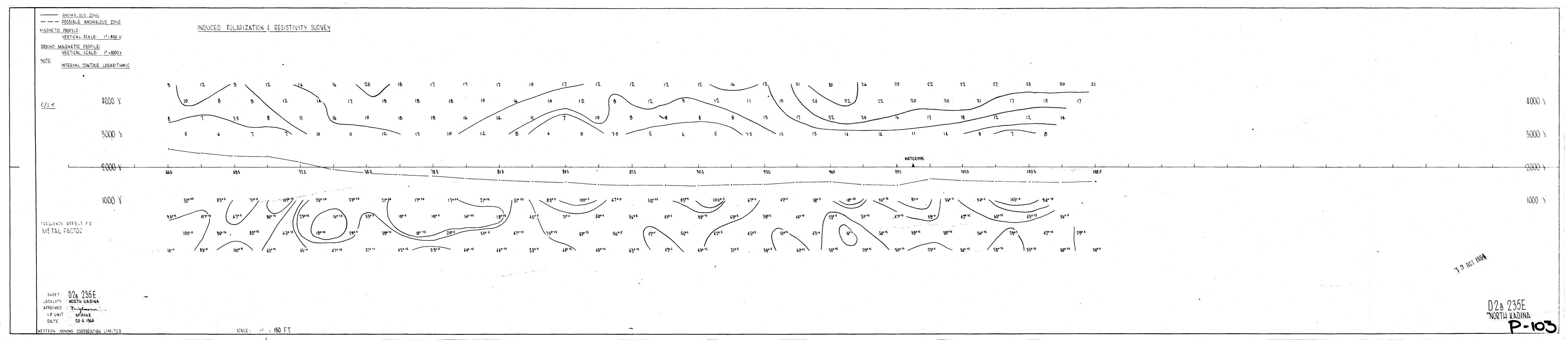


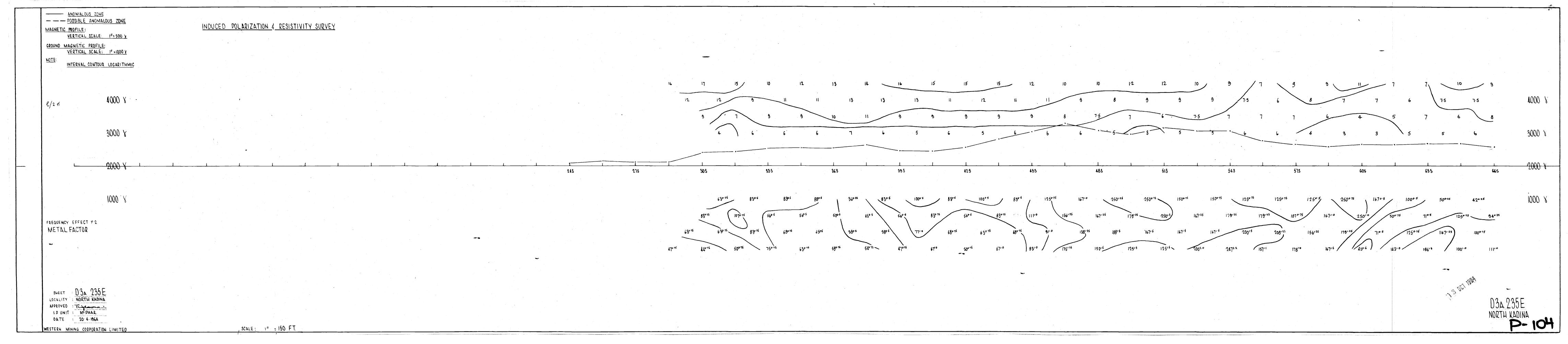


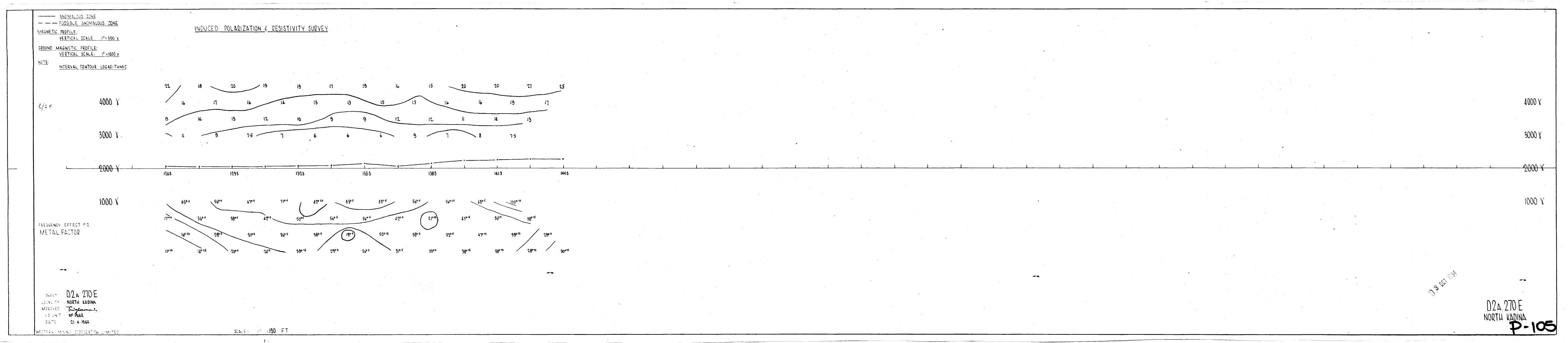


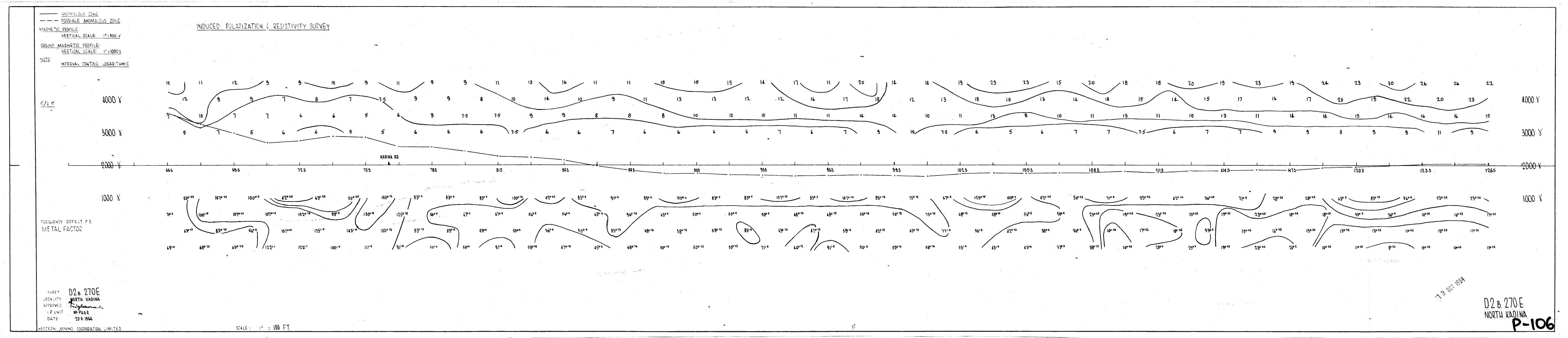


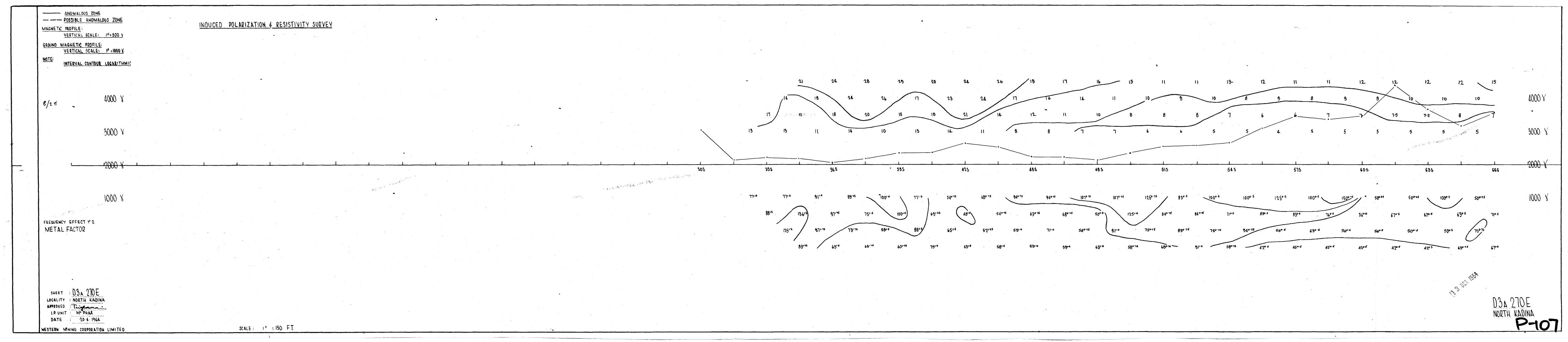


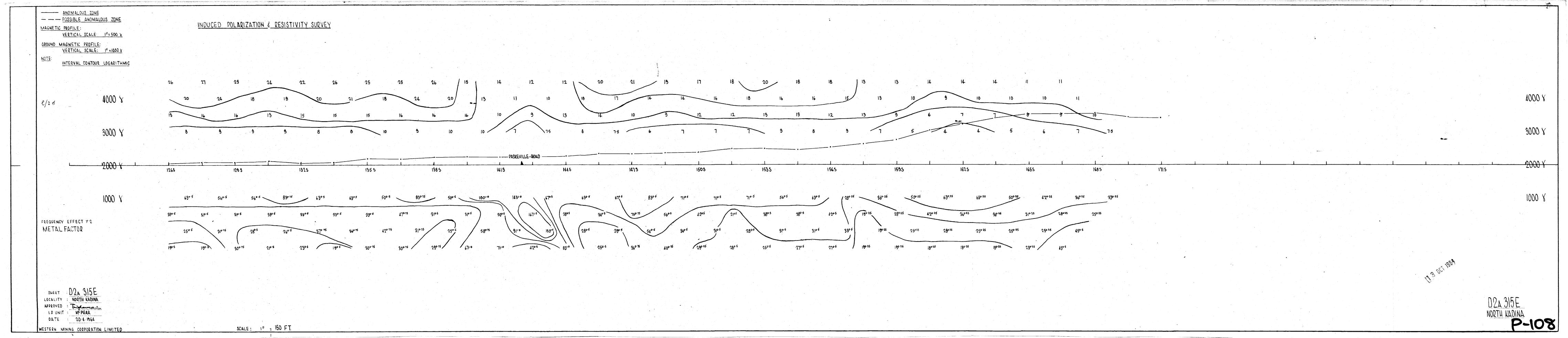


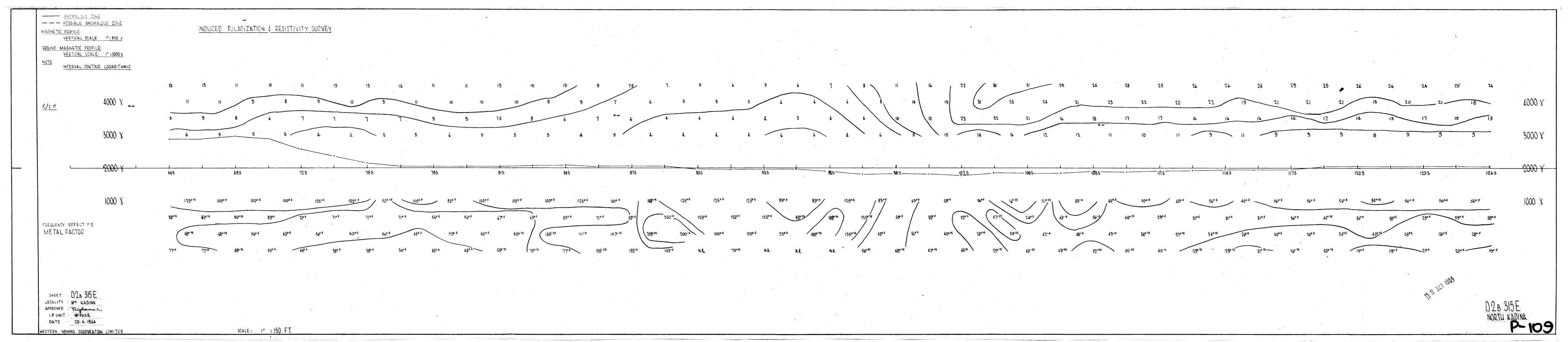


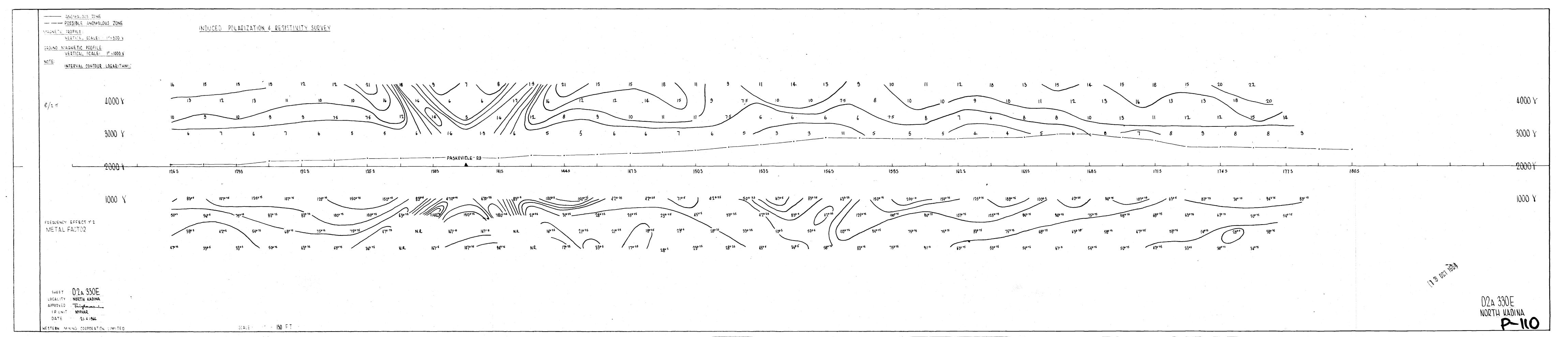


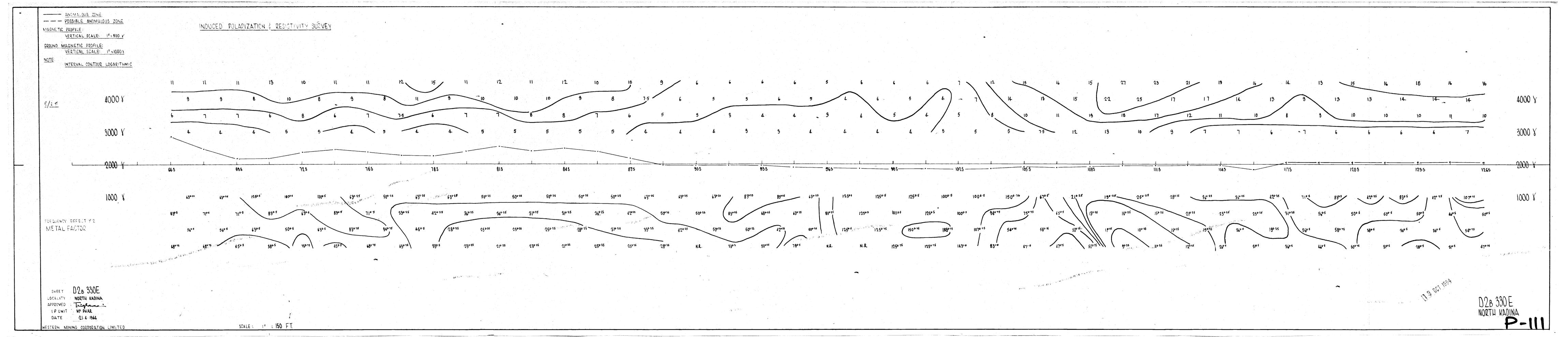


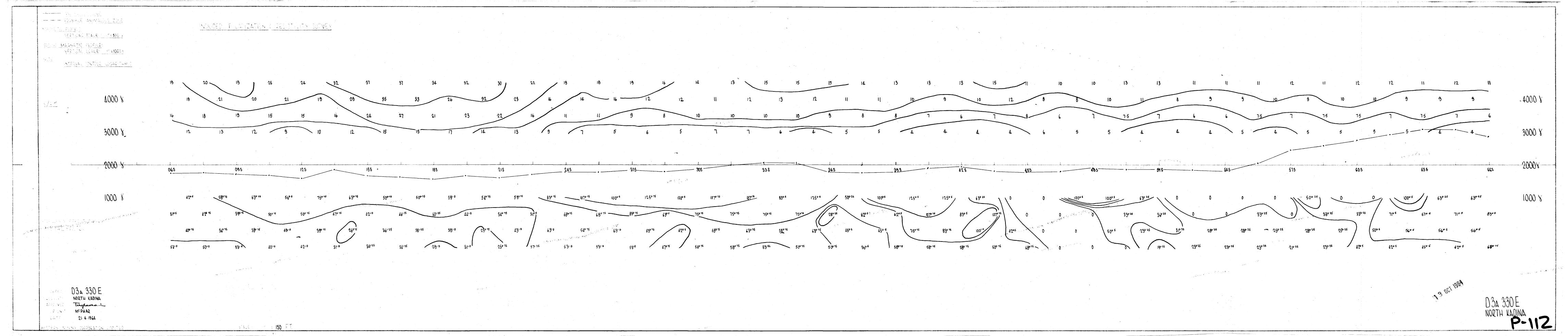


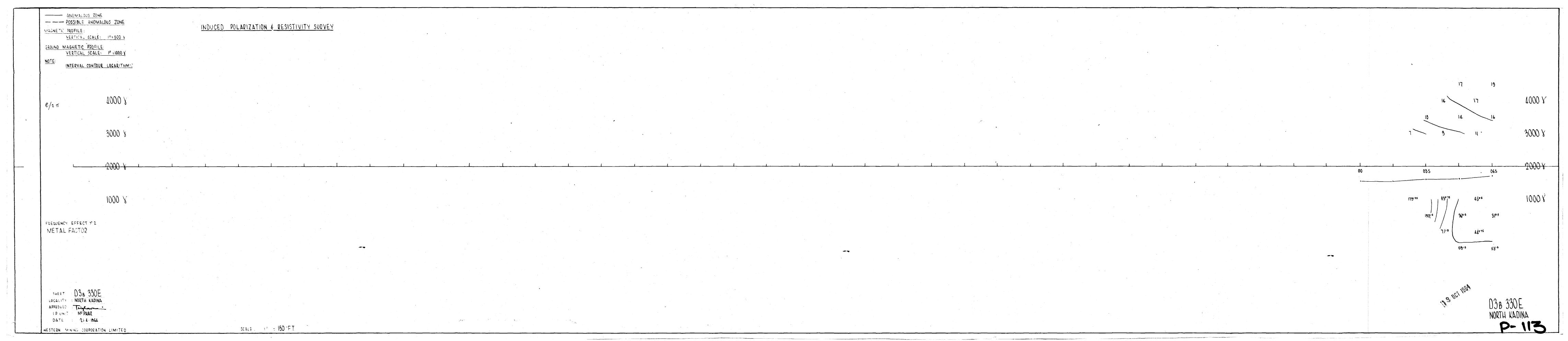


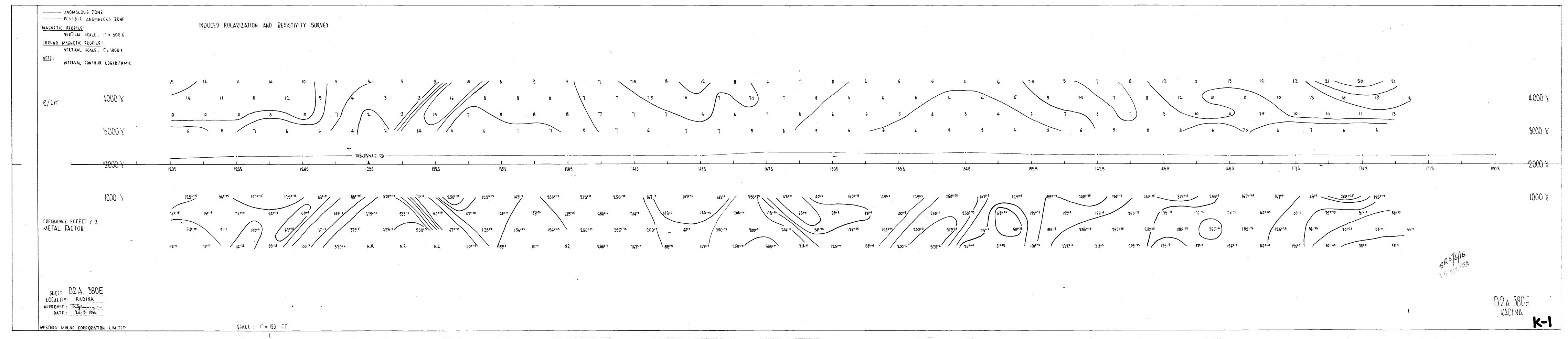


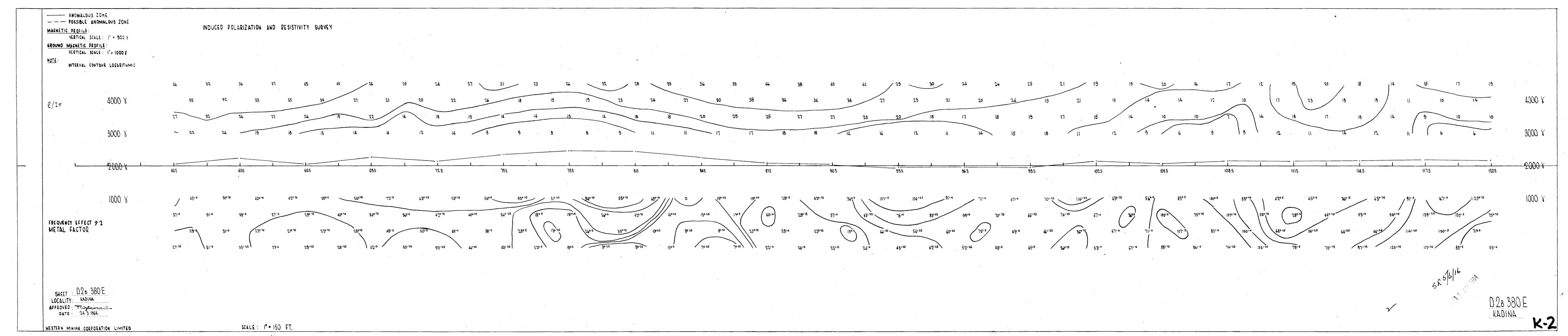


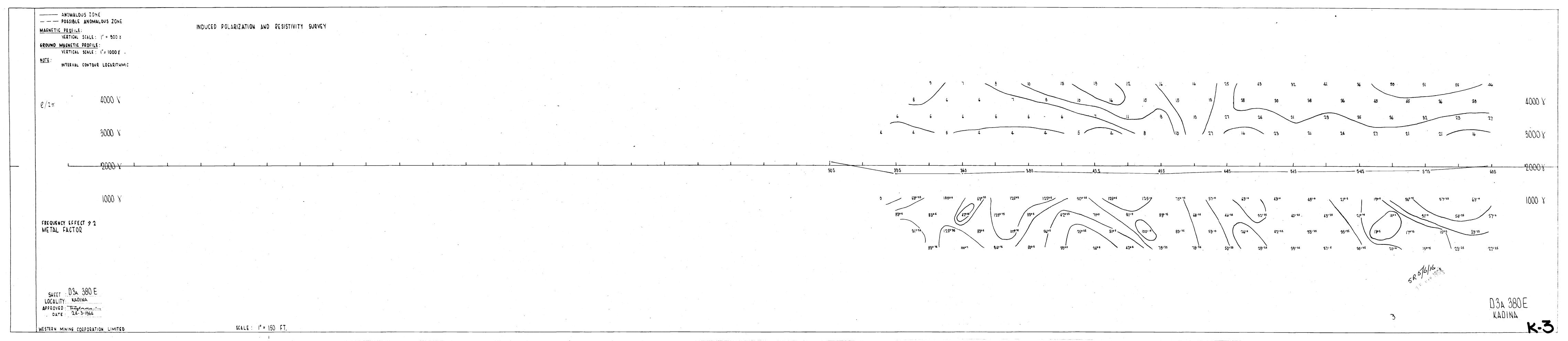


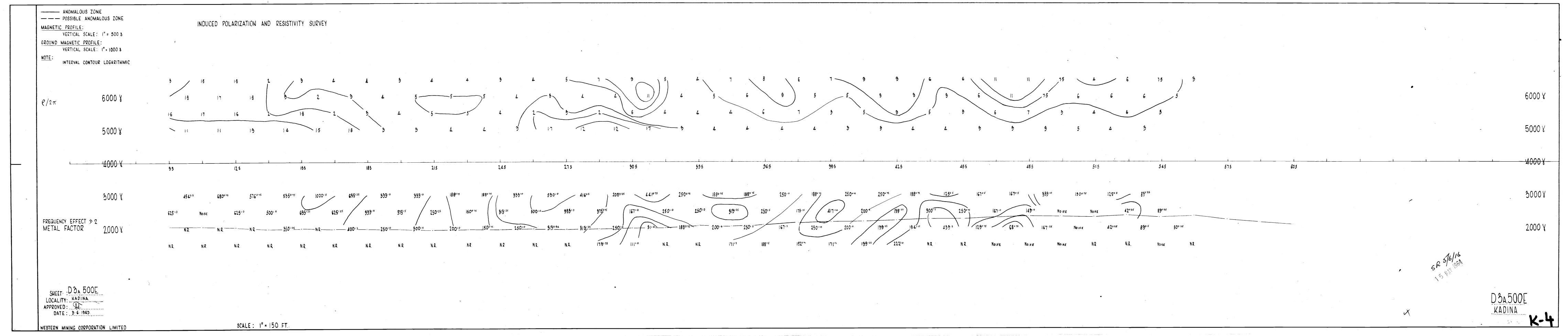


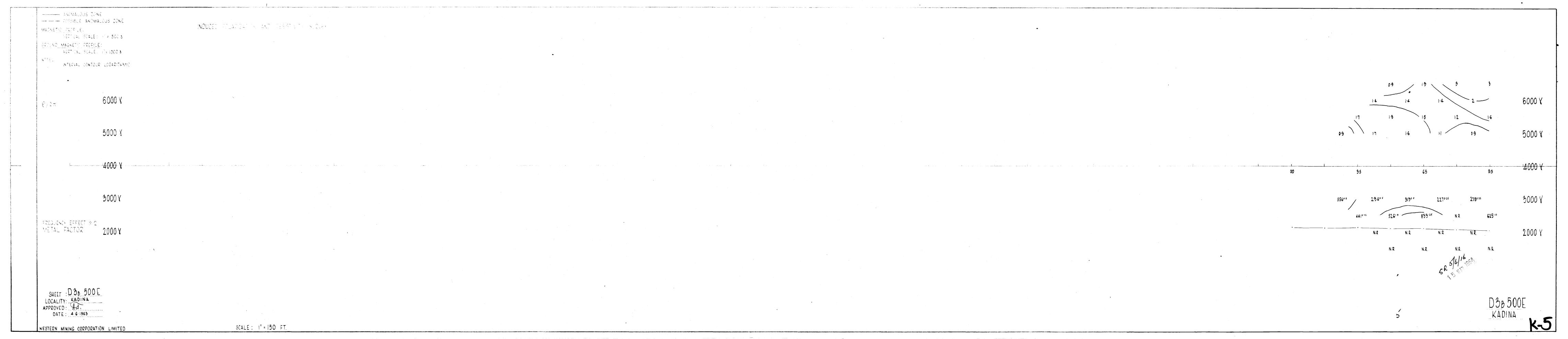


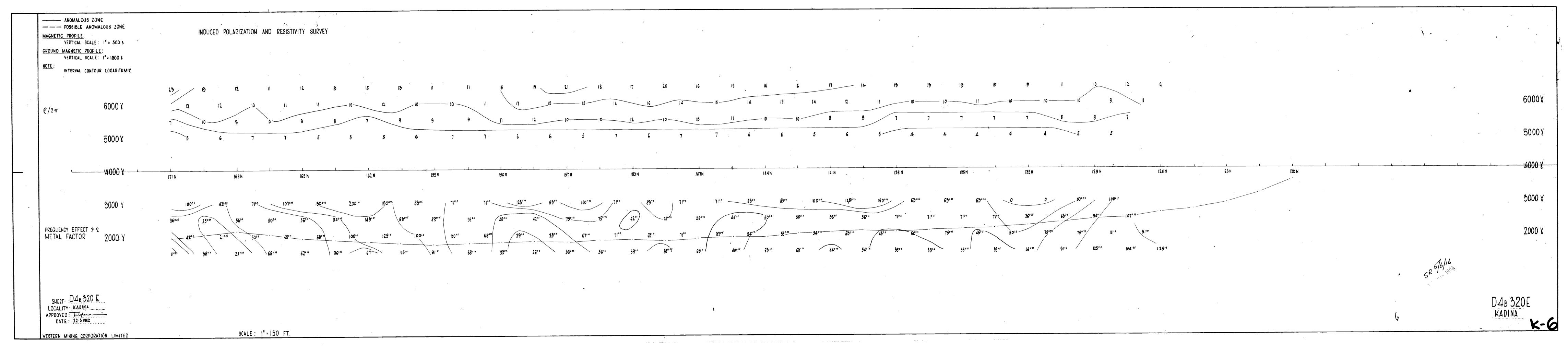


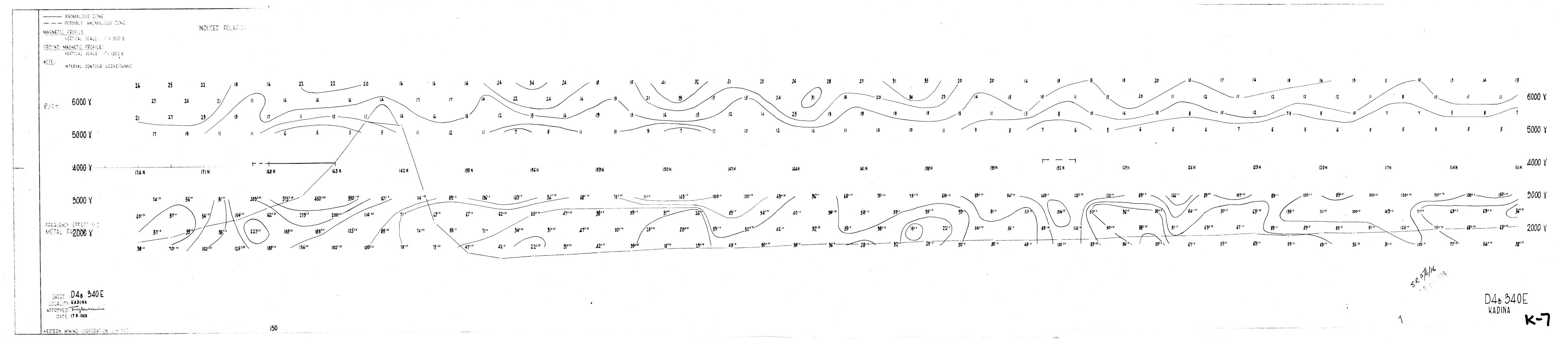


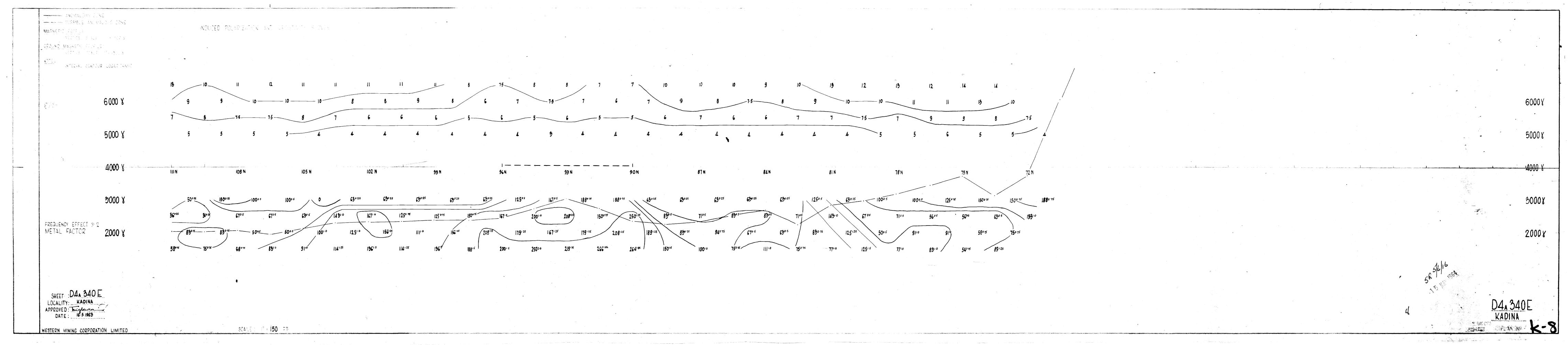


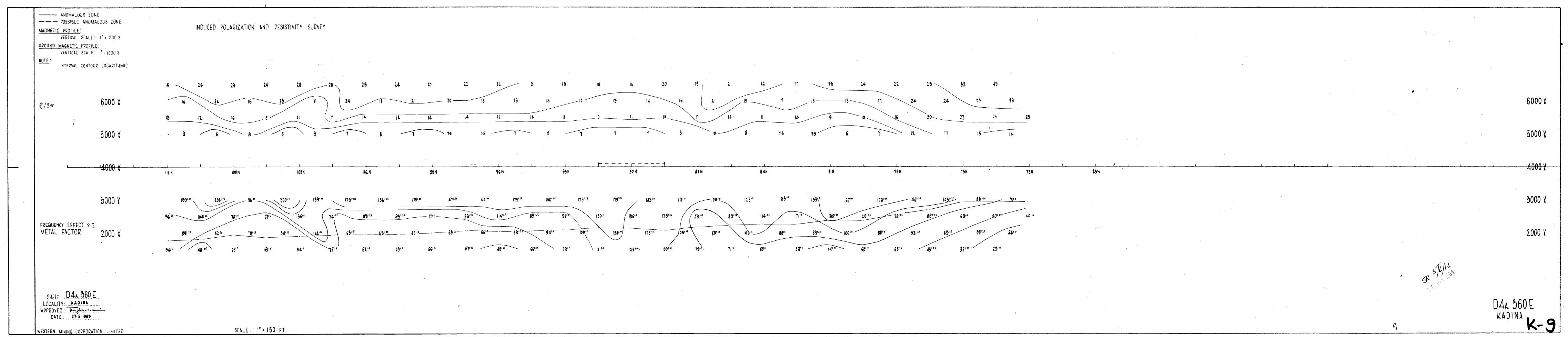


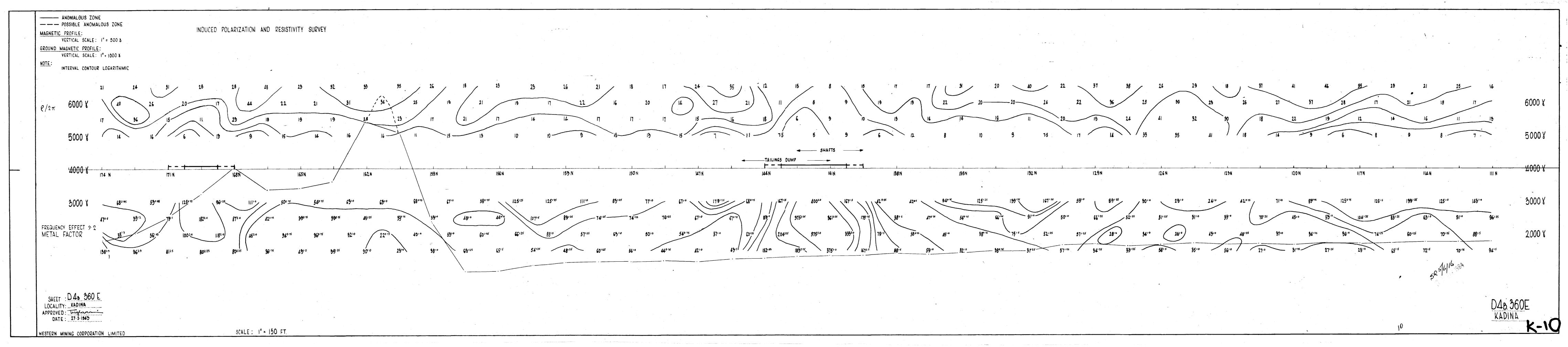


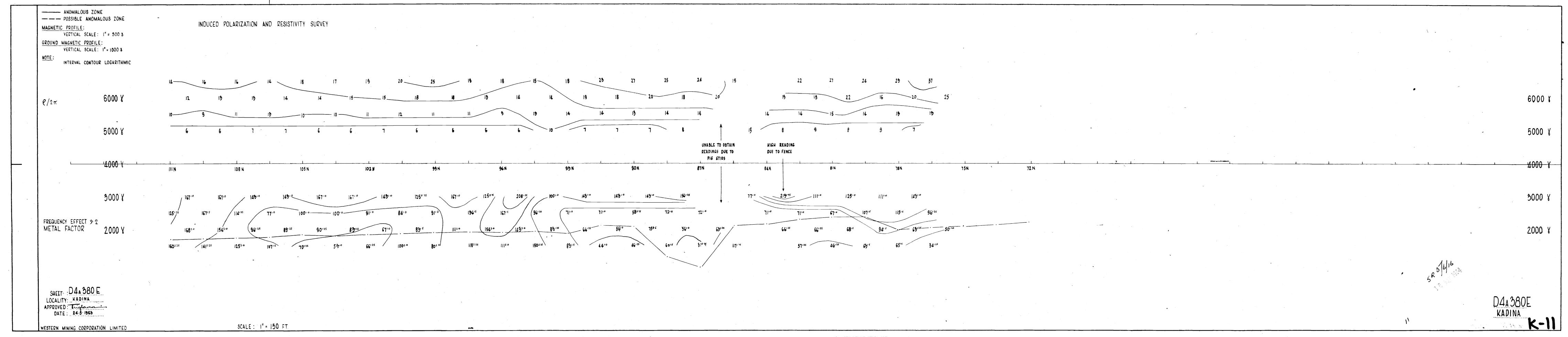


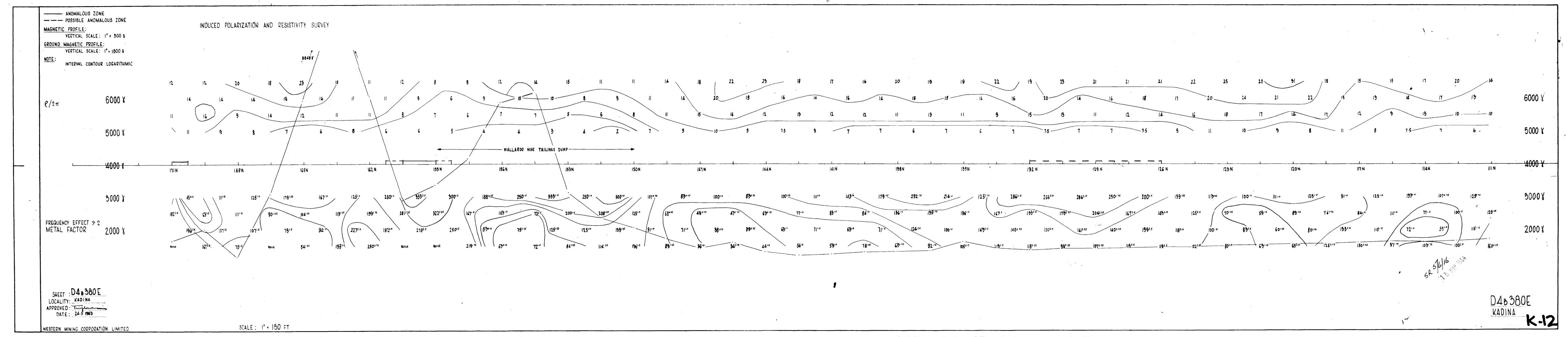


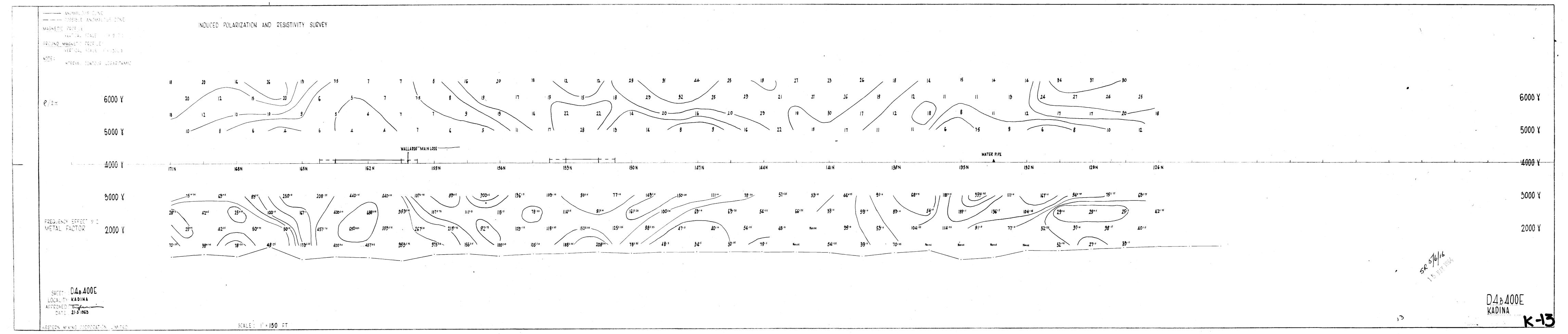


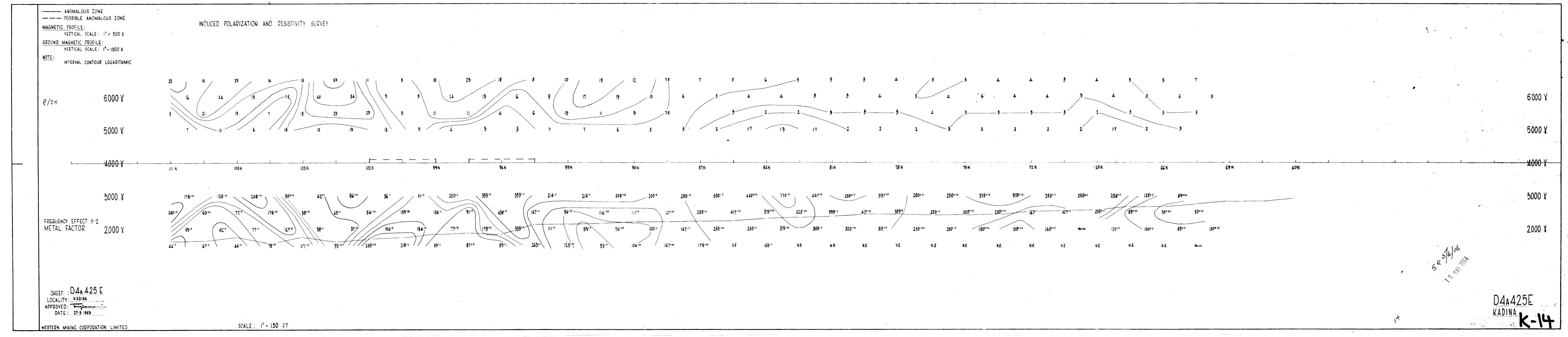


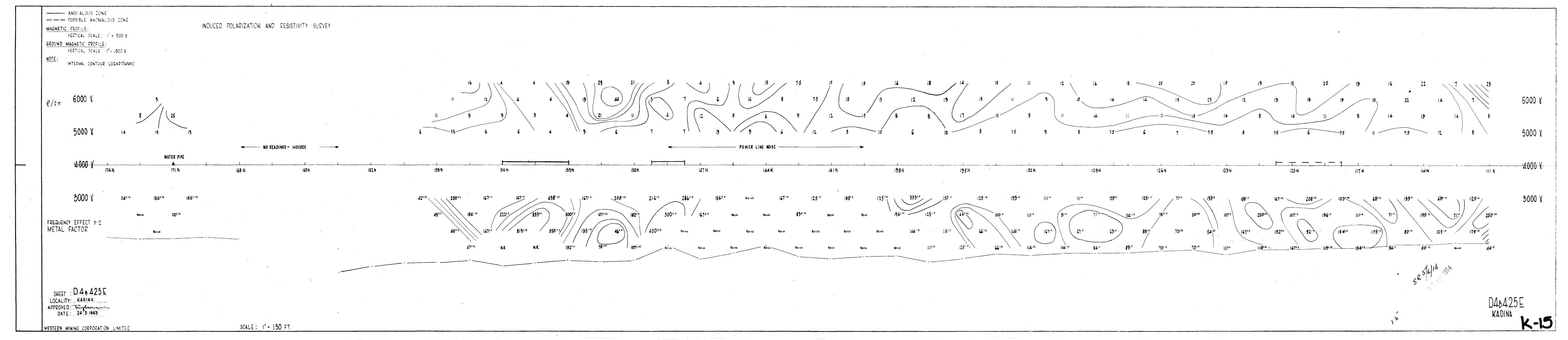


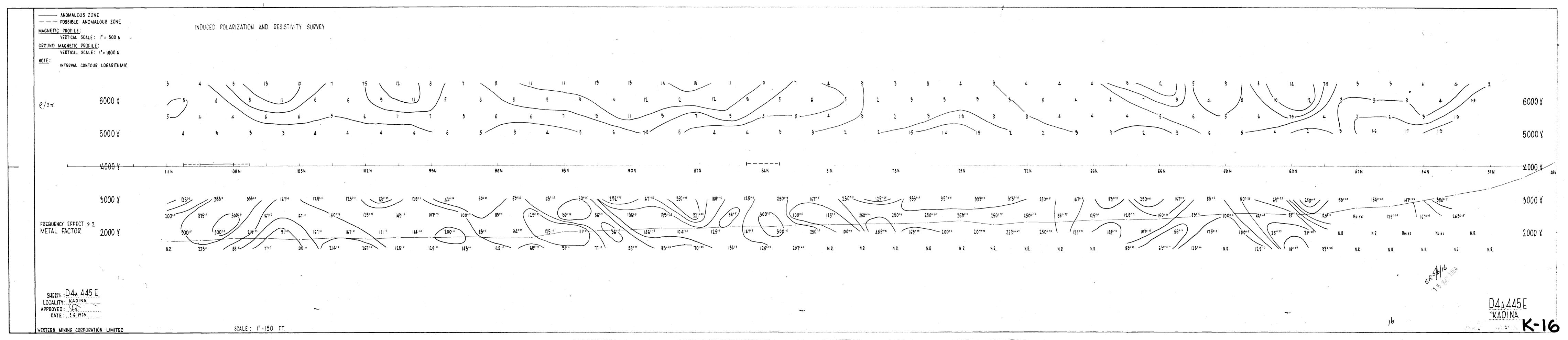


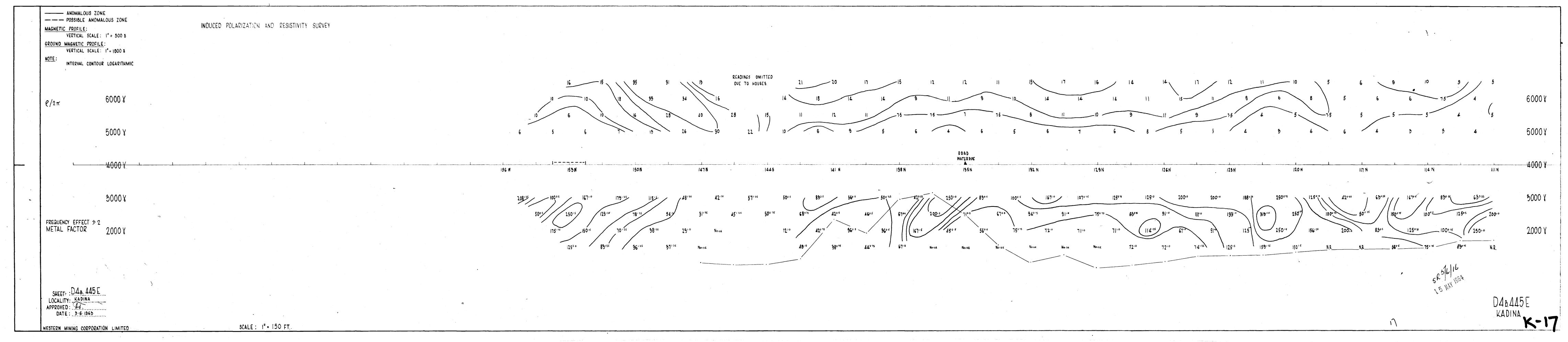


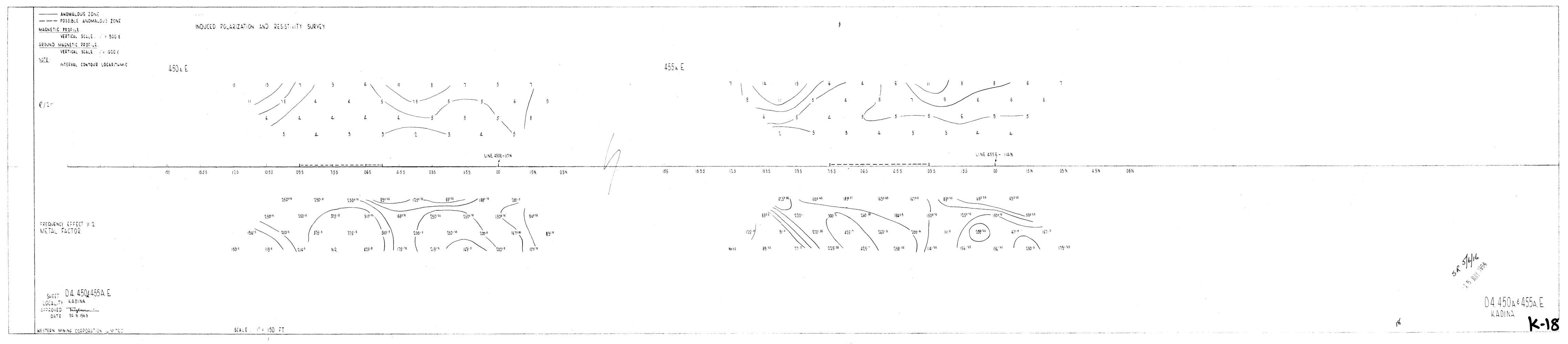


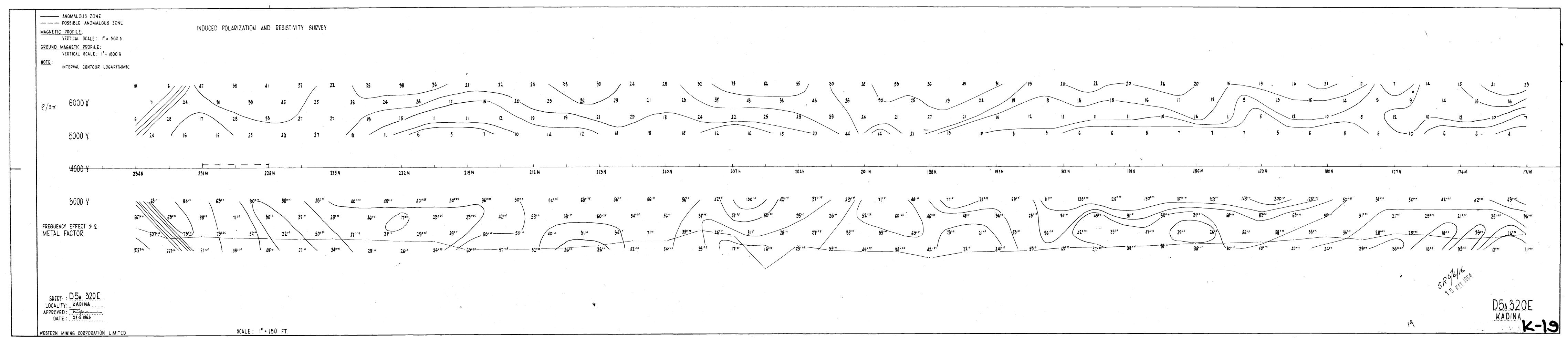


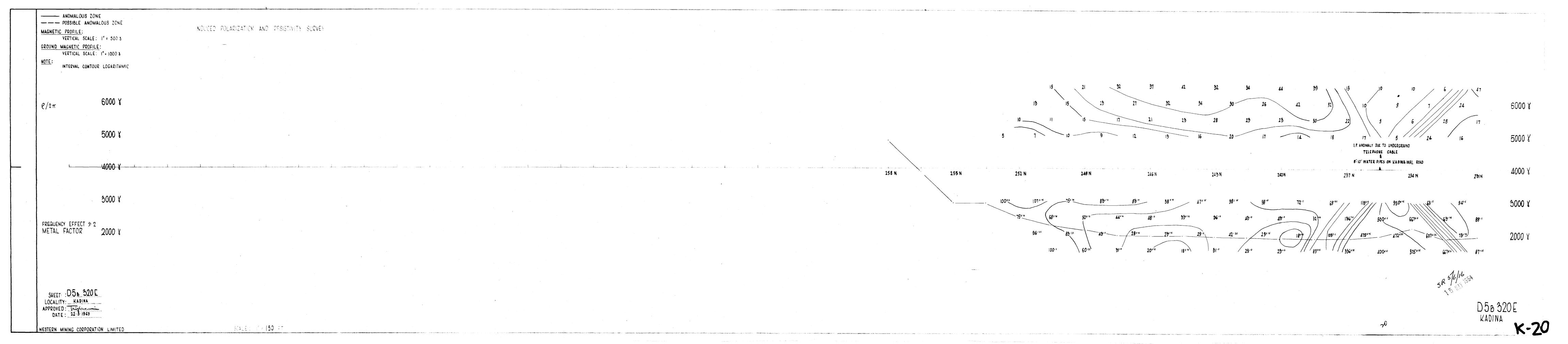


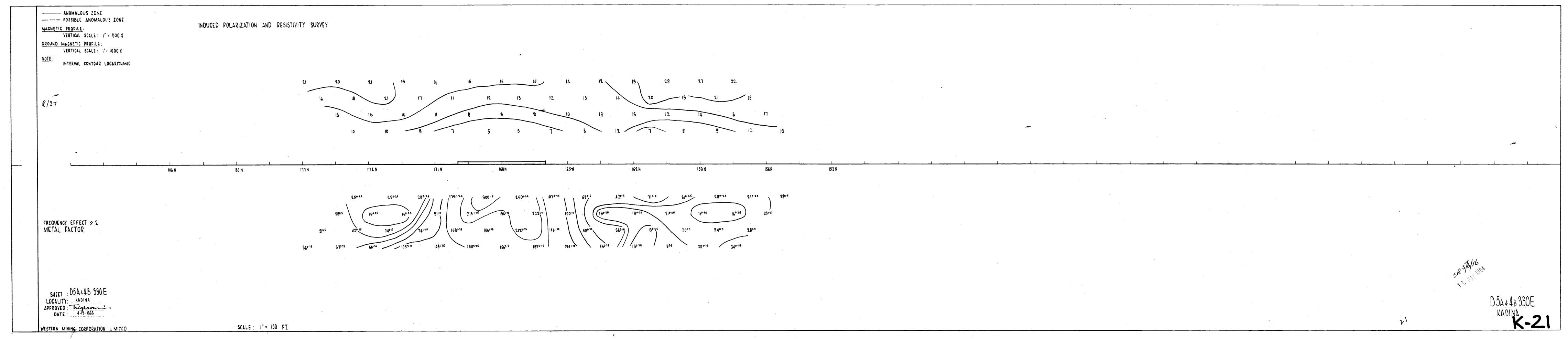


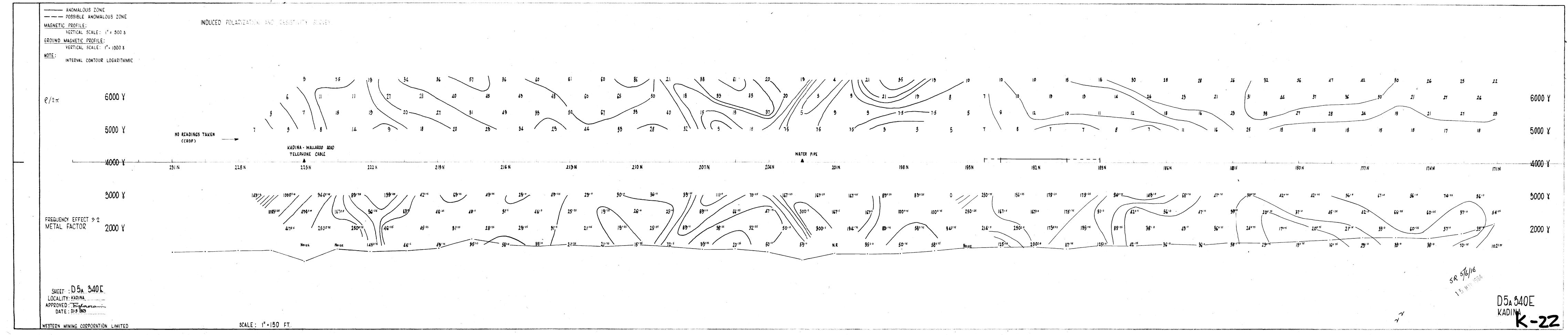


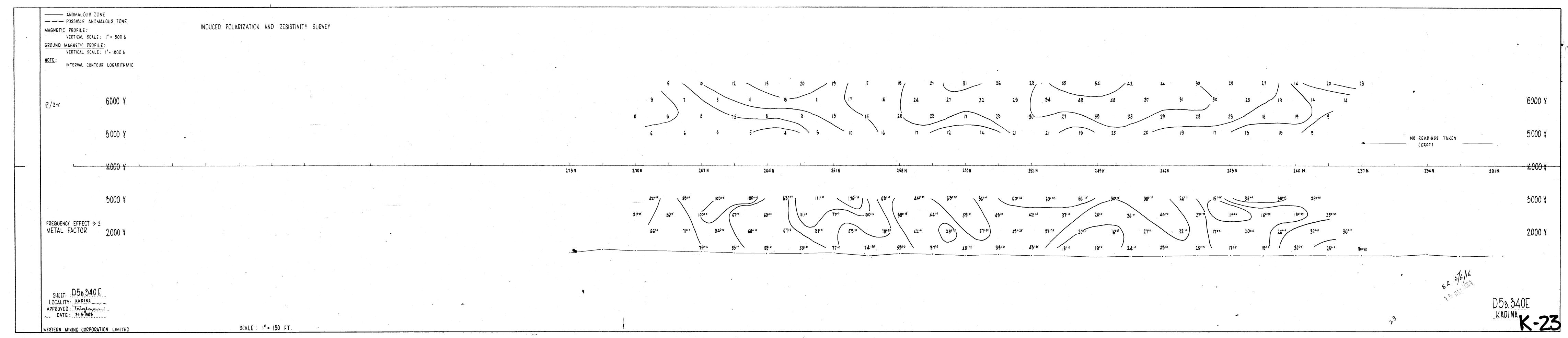


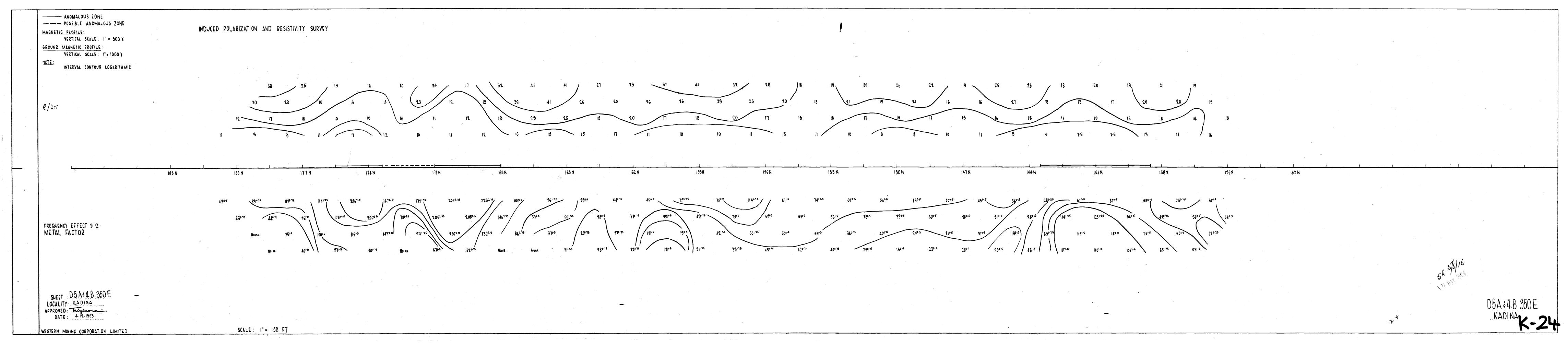


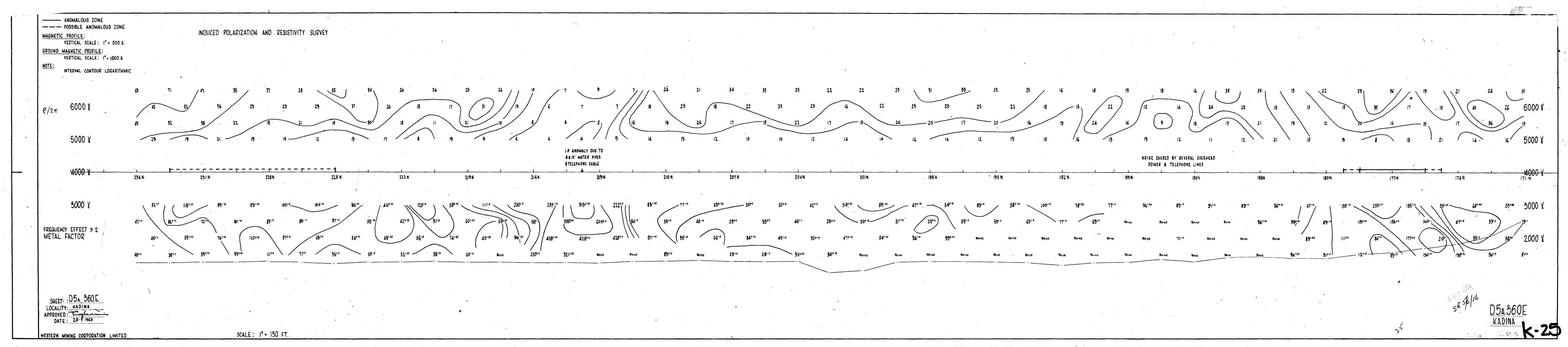


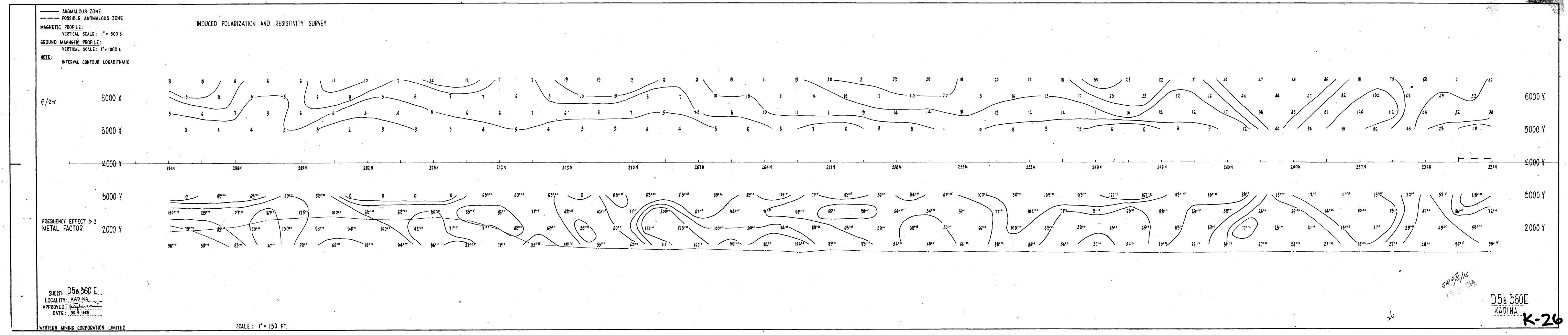


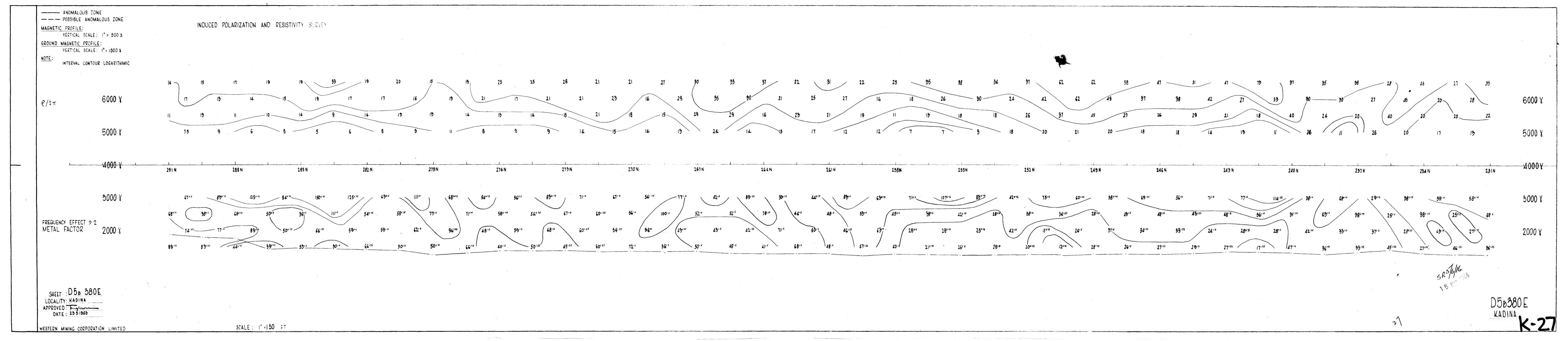


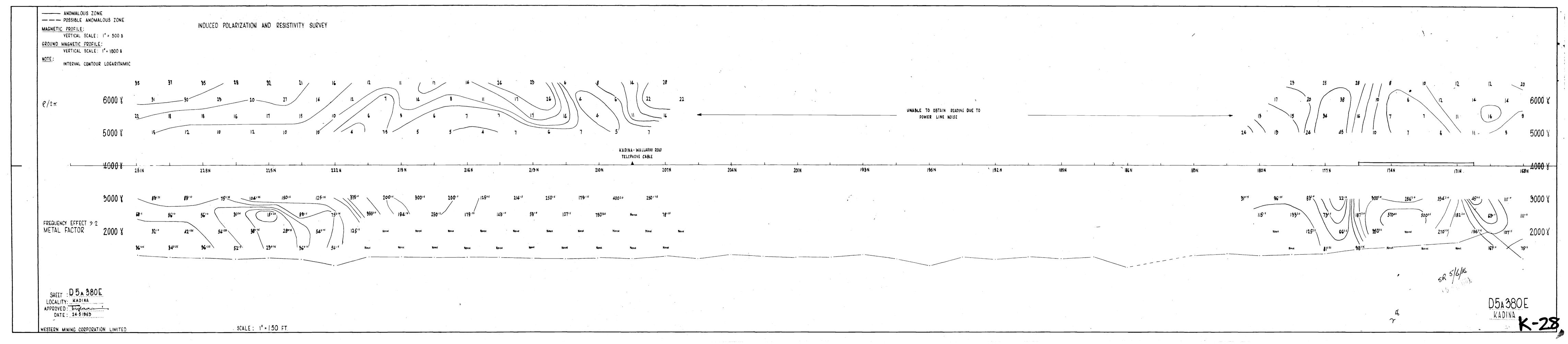


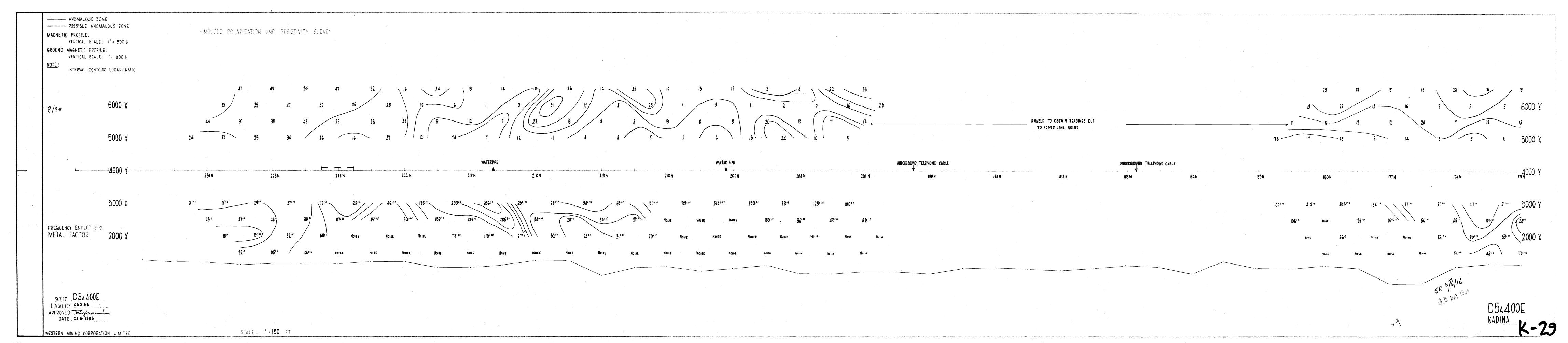


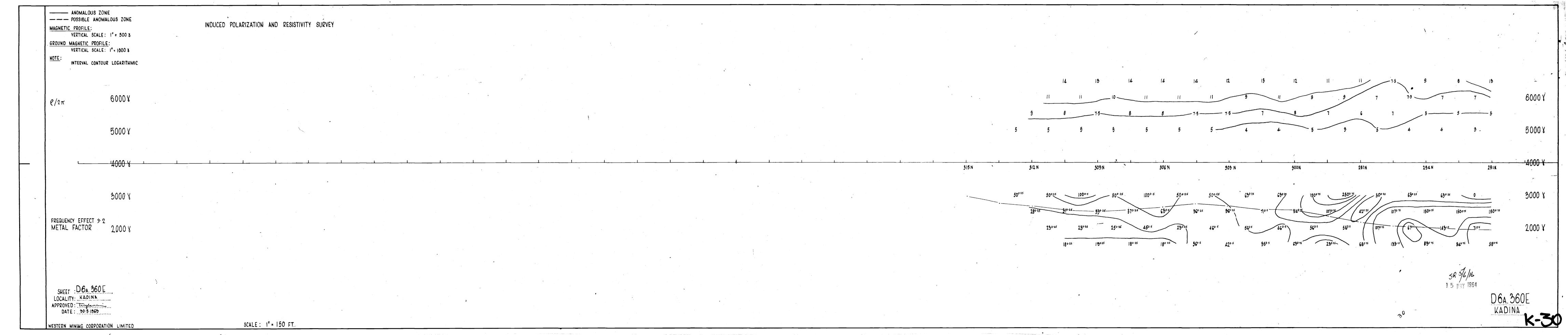


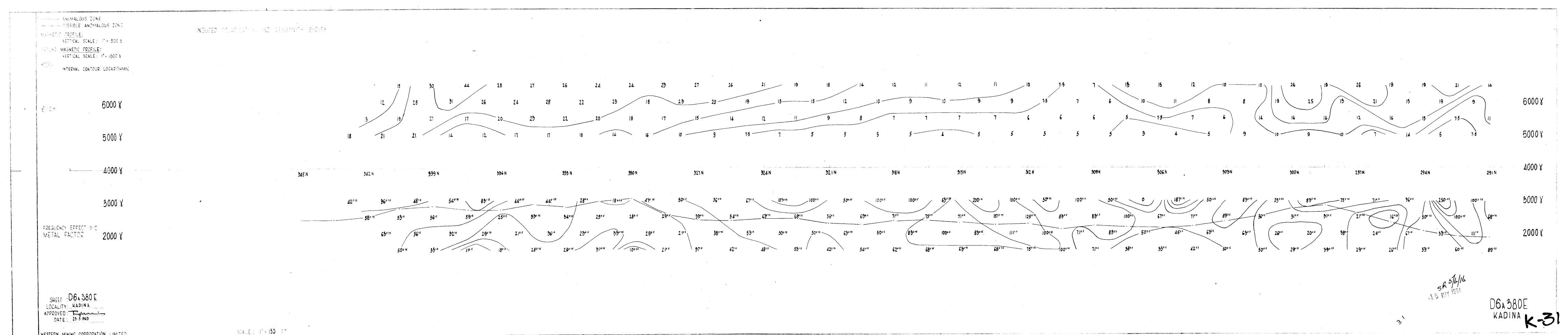


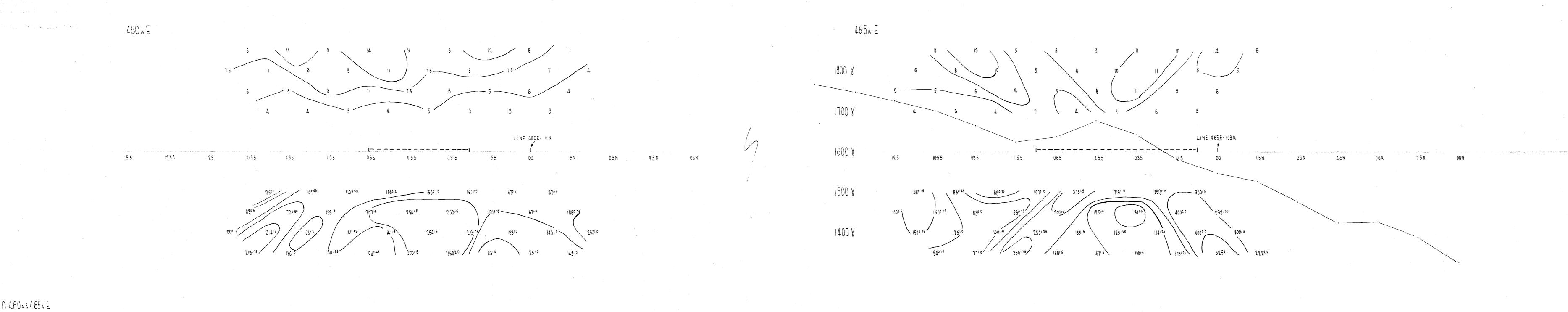




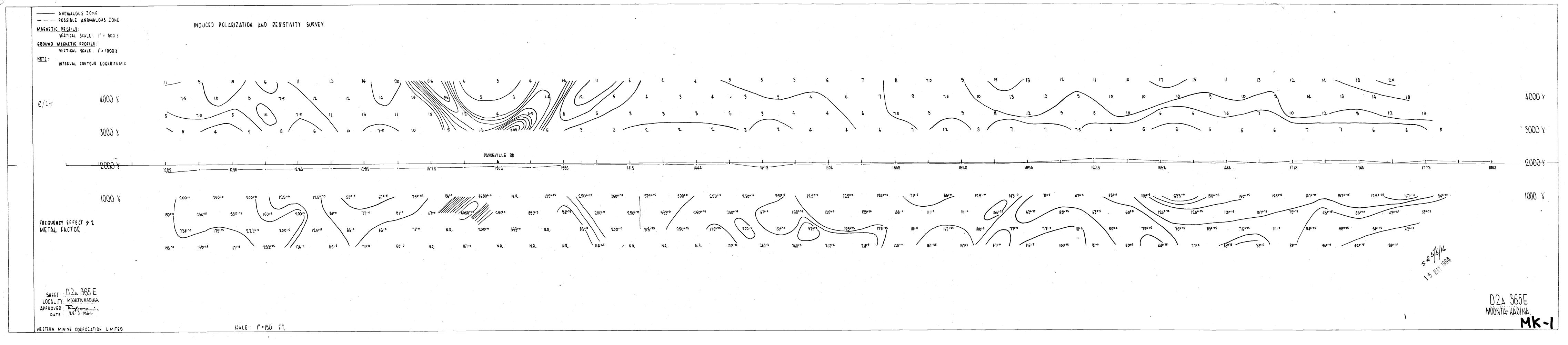


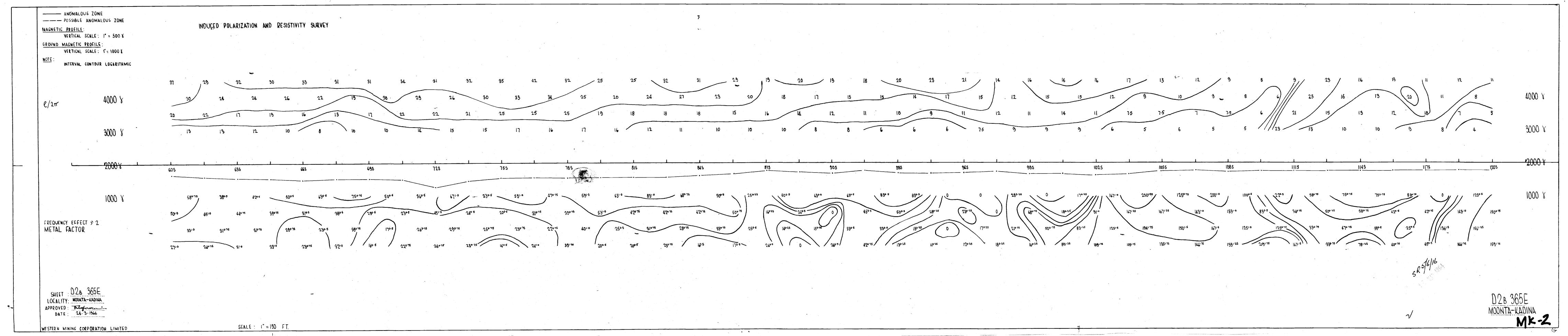


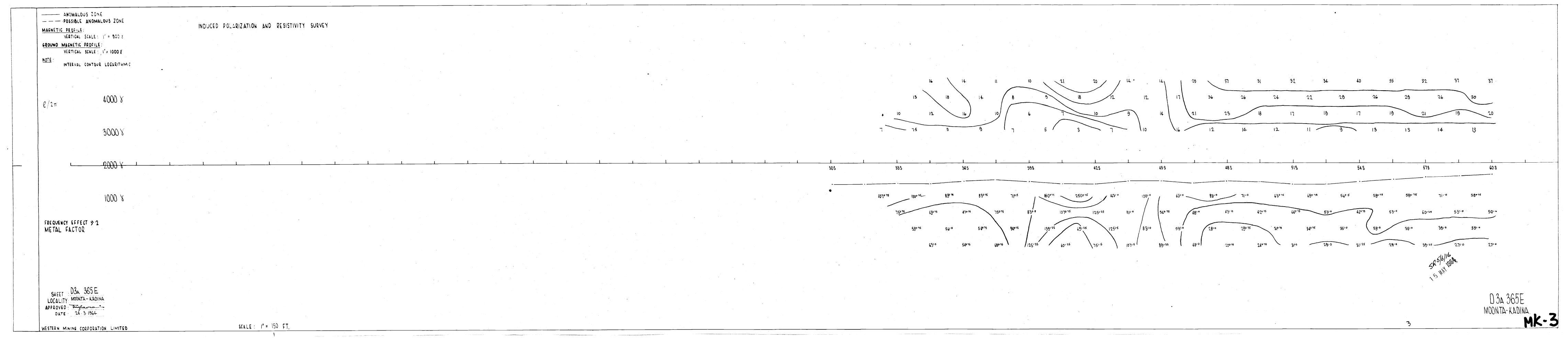


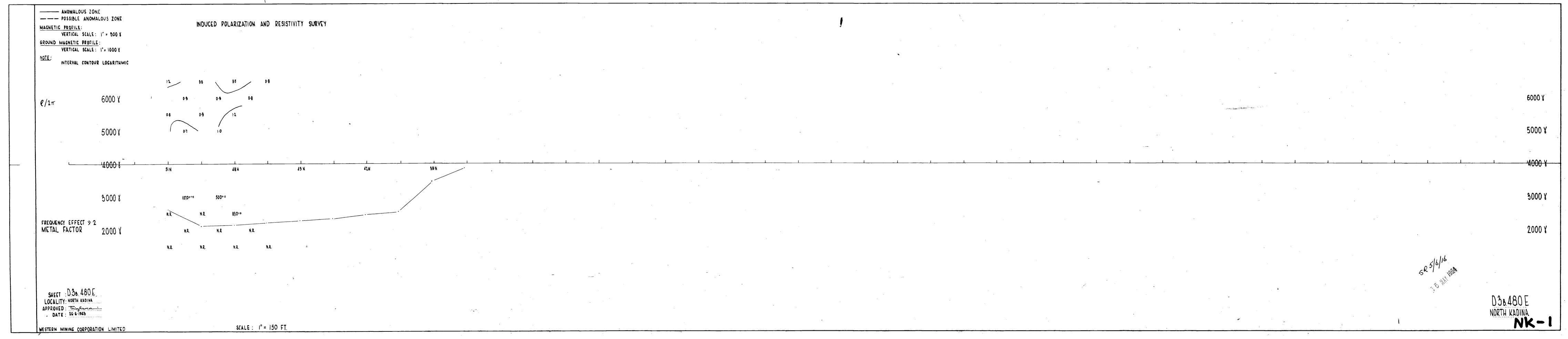


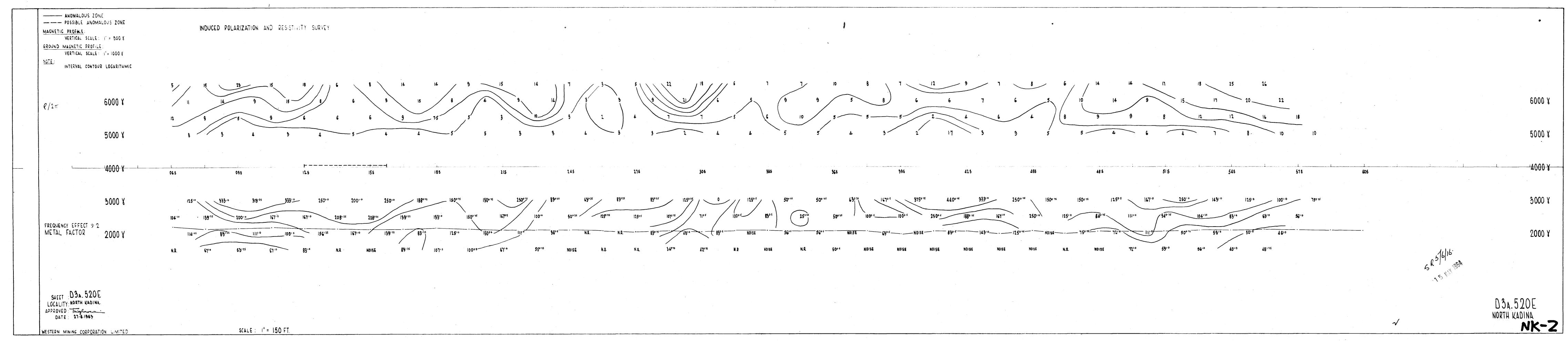
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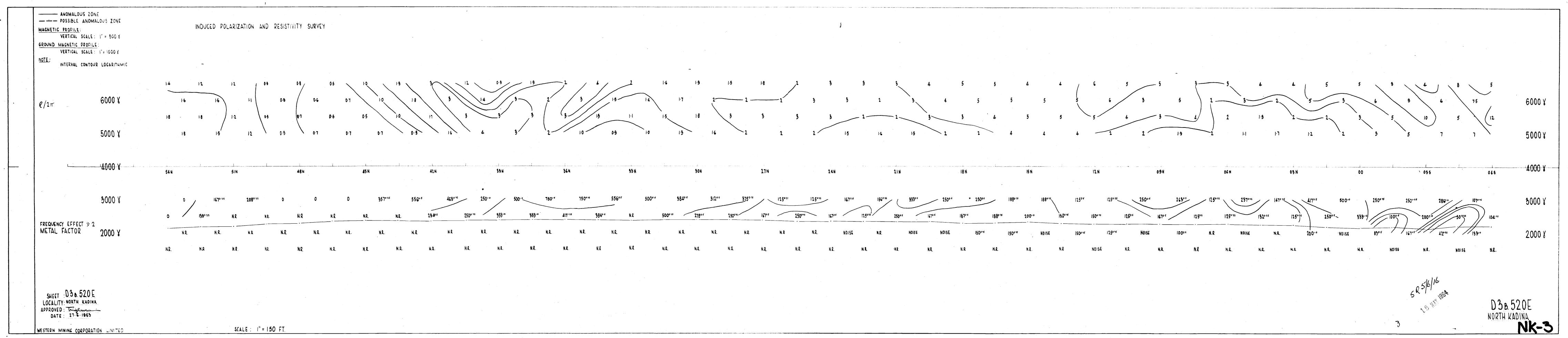


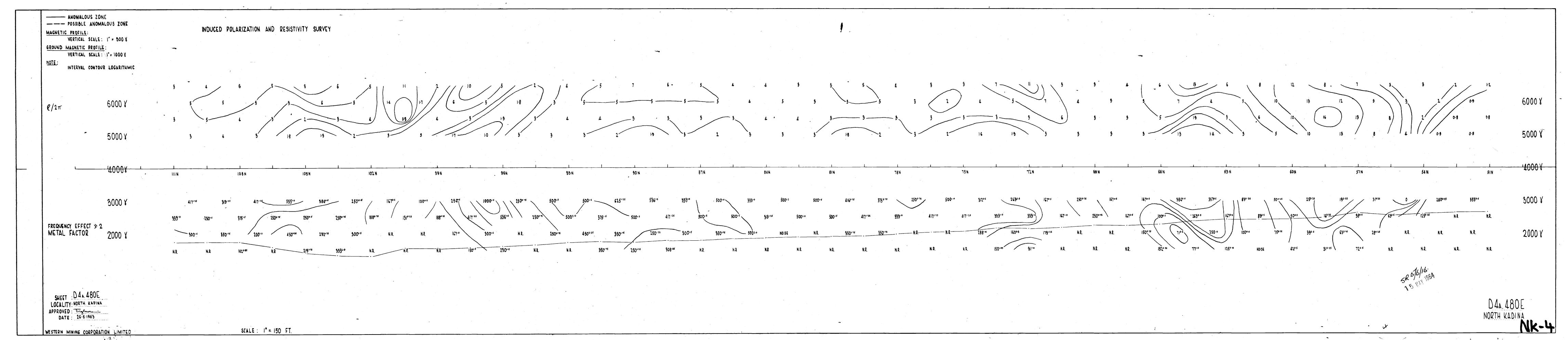


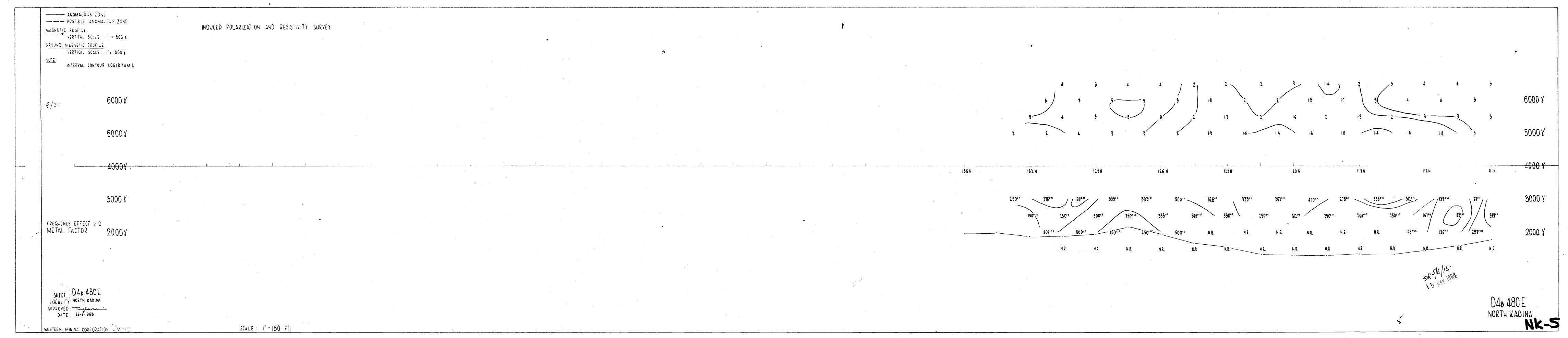


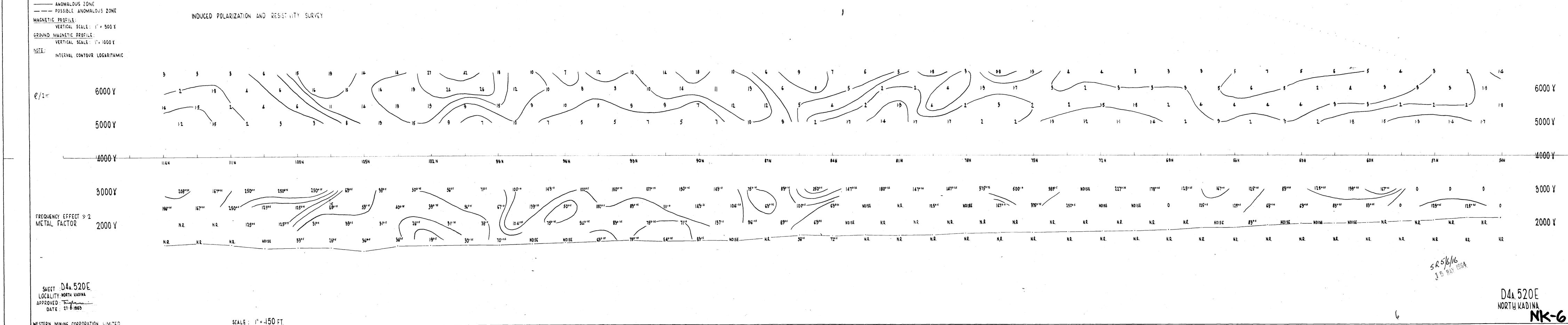












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