Natural Environment Research Council

Institute of Geological Sciences

Mineral Reconnaissance Programme Report

A report prepared for the Department of Industry

D. Ostle
Programme Manager
Institute of Geological Sciences
Keyworth,
Nottingham NG12 5GG

No. 25

Mineral investigations near Bodmin, Cornwall.

Part 1 Airborne and ground geophysical surveys

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J. M. C. Tombs, BSc

London 1978

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25 Mineral investigations near Bodmin, Cornwall. Part 1 Airborne and ground geophysical surveys

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Airborne survey maps: (a) Aeromagnetic contour

(b) Electromagnetic contour

(c) Electromagnetic in phase/out of phase ratios

SUMMARY

This report describes the results of airborne magnetic and electromagnetic surveys and their ground follow-up in an area of central Cornwall south and south-west of Bodmin. Reference is also made to gravity surveys described elsewhere. For various reasons airborne geophysical methods are not well suited to this area: no significant new mineralised areas were located as a result of them.

INTRODUCTION

At the commencement of the Mineral Reconnaissance Programme, several areas in different parts of Great Britain were selected for airborne geophysical survey. In 1972, geologists from the South-Western Unit of IGS chose an area of 46 km^2 to the south and west of Bodmin, for the following reasons:

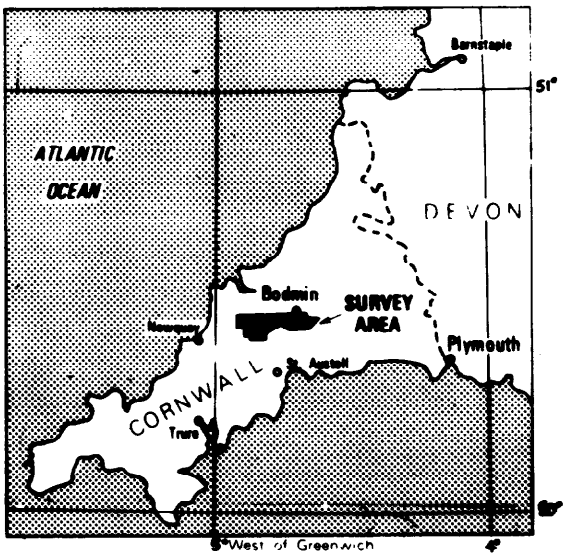
(a) The northward underground extension of the Hensbarrow granite, with known mineral associations, lies at shallow depth throughout the area.

(b) The northern part of the designated area includes the E-W trending belt of metamorphosed calc-silicate rocks known as calc-flintas. In the eastern parts of this belt some copper lodes have been worked. Geochemical Cu and Zn anomalies occur over mapped calc-flinta outcrops.

(c) The southern part of the area embraces the isolated granite domes of Belowda Beacon and Castle-an-Dinas, with Sn-W mineralisation, as well as some smaller sulphide lodes and the southern parts of the major N-S iron lodes of Retire and Lanjew.

Initial tests showed that airborne electromagnetic measurements made near the GPO transmitting station at Innis Downs (SX 015 625) would be rendered useless by severe interference. Some adjustments were accordingly made to the boundaries of the survey area; the final area surveyed is shown in Fig. 1. The surveys were flown by Hunting Geology and Geophysics Ltd. during a 16 day period in May 1973 and totalled 633

LOCATION DIAGRAM



SHEET LAYOUT

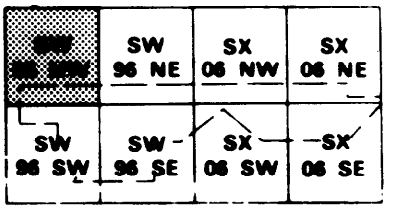


FIG.1. GENERAL LOCATION MAP

line-km. A Scintrex HEM 701 electromagnetic system was used, comprising vertical coaxial transmitter and receiver coils mounted at each end of a rigid horizontal 'bird' 9.1 m long towed 30.5 m below the survey helicopter. The survey parameters were: line orientation NE-SW, spacing 200 m, mean terrain clearance 30 m; continuous recording of total magnetic field, in-phase and out-of-phase secondary electromagnetic fields at 1600 Hz, together with incident gamma radiation in three energy bands corresponding to K, U and Th. (The radiometric surveys will be reported on separately). Further details can be found on the legends to the accompanying maps and in report no. 20 in this series (Burley and others, 1977).

A programme of ground follow-up was carried out in 1973 and 1974; in addition, areas selected on other grounds were investigated by IP. In 1977 a limited ground follow-up of an earlier airborne survey was undertaken using EM and IP methods.

Gravity surveys in the area have been reported on elsewhere (Tombs, 1977); the results are briefly summarised here.

MAGNETIC AND IP SURVEYS

Aeromagnetic survey

The accompanying magnetic contour maps show a large number of small localised anomalies superimposed on an undisturbed background field. The only feature of any size is a WNW-ESE trending "high" 3 km S of Bodmin (SX 06 SE) which corresponds to a mapped greenstone intrusion. Many of the localised anomalies can be immediately attributed to groups of buildings, rubbish tips, old mine workings and other non-geological sources. There is little indication of the Retire and Lanjew Fe lodes (the possible exception being a small anomaly at 006 646); evidently magnetic iron ores are absent (Dines, 1956).

Ground follow-up and IP surveys

Ground magnetic and IP surveys were carried out together and for convenience are reported on together here. An Elsec proton magnetometer and Huntec Mk III IP equipment, using dipole-dipole and gradient arrays (Burley and others, 1977) were used. There were three criteria for the choice of survey locations:

(a) aeromagnetic anomalies without obvious cause;

(b) geochemical anomalies notified by the IGS Radioactive and Metalliferous Minerals Unit;

(c) formerly mined areas with known sulphide deposits (Dines, 1956).

Some of the sites were outside the airborne survey area. Grid references of the ends of traverse lines on which results were negative or contained magnetic anomalies due to known minor "greenstone" intrusions are listed in Appendix A together with a locality name and type of survey. Disappointingly, only the following two sites showed significant anomalies (Fig. 2).

(a) Tretoil

The site of a former copper mine, this area was surveyed with a gradient array with a receiver spacing of 20 m. The results,

indicated in Fig. 4, show a zone of low resistivity corresponding broadly but not exactly to a zone of high chargeability. Anomalous values are not exceptionally high; the source may be a shallow broad zone of weak mineralisation or a deeper richer deposit. The E-W trending zone of high resistivity south of the centre is probably an old adit. Magnetic measurements were confused by excessive noise levels, possibly a magnetic storm or artificial interference; the aeromagnetic results indicate anomalies in harmony with the intrusive geology.

(b) St Ingunger

This gradient array was located over a small aeromagnetic anomaly. Moderately anomalous chargeabilities occur in the southern part of the array (Fig. 5) but standing crops prevented extension of the survey in this direction. The true nature of the anomaly is therefore uncertain.

Fig. 3 shows the relative total magnetic field anomaly along the centre line of the array at ground level. Qualitative interpretation suggests a shallow source dipping to the south. The magnetic anomaly was much reduced along lines 20E and 60W and negligible along 60E and 120W. The suspected strike of the source is indicated in Fig. 5 and corresponds broadly to the edge of the IP anomaly. The source is probably an unmapped greenstone intrusion possibly not quite reaching surface.

ELECTROMAGNETIC AND IP SURVEYS

1973 airborne surveys

The results are presented on the accompanying maps in two ways. The in-phase component contour plot facilitates the precise location of the centre of an anomaly; the in-phase/out-of-phase ratio map characterises, by symbols, each anomaly on each flight line (a high in-phase/out-of-phase ratio implies a good conductor).

Inspection of the maps shows that the records are cluttered with non-geological "noise" arising from metallic objects, power lines and radio interference. There are no obvious geological features; even known mineralised areas (Tretoil, Retire, Lanjew) have no associated anomaly.

Ground follow-up

The in-phase contour presentation was chosen as a basis for follow-up because (a) any anomaly due to a reasonably good conductor should be recognisable by its in-phase component; (b) the symbol presentation does not give sufficient information for a ground traverse line to be sited with the certainty of crossing the causal structure; and (c) the contour map shows more clearly which are likely to be the more significant anomalies.

Again the vast majority of anomalies were found to be of man-made origin or spurious. The remaining few anomalies, checked on the ground using a dual-frequency EM gun with 60 m coil separation, were characteristic of variations in overburden conductivity rather than mineralisation. Appendix B lists the sites visited,

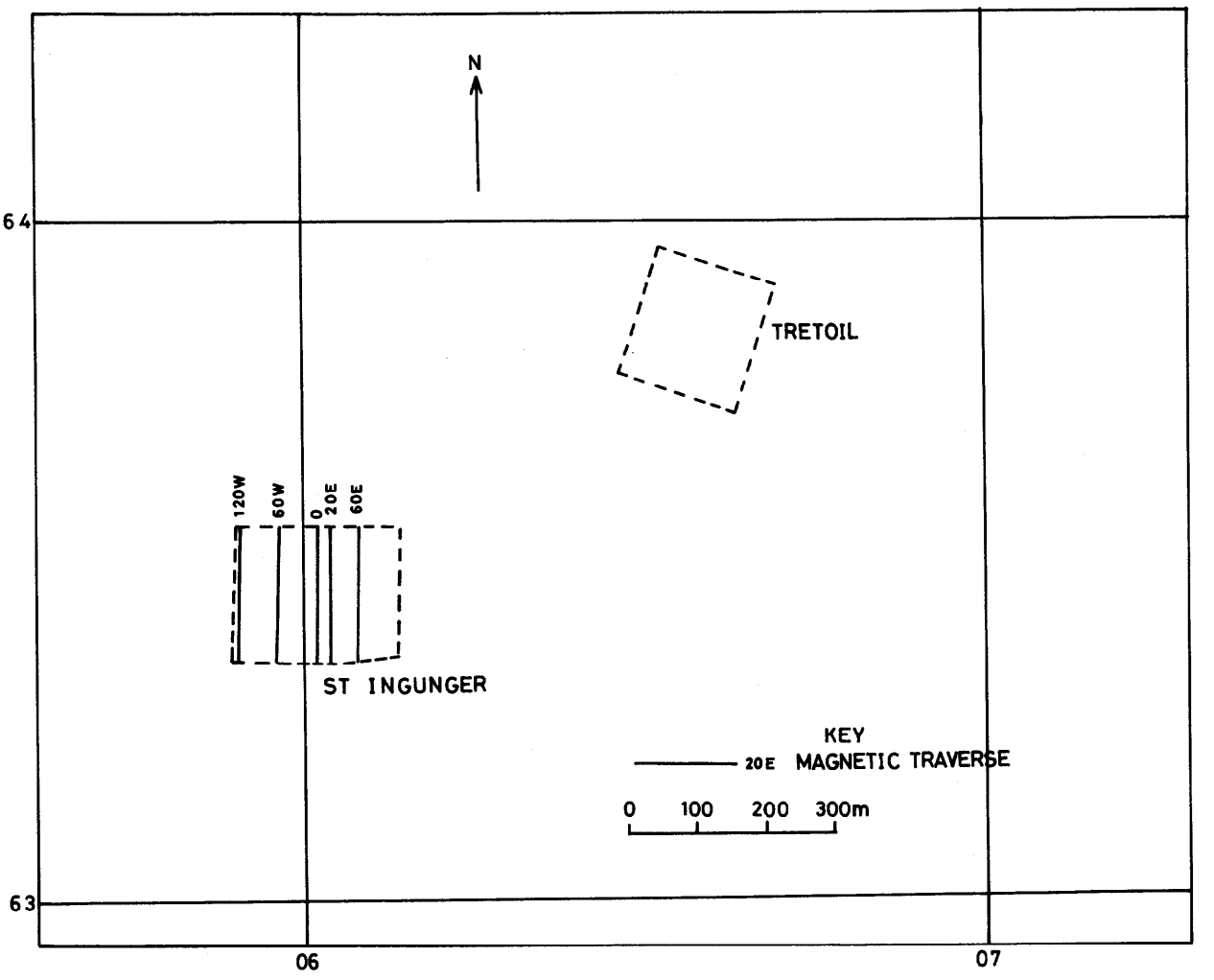


FIG 2 LOCATION MAP: TRETOIL AND ST INGUNGER GRADIENT ARRAYS

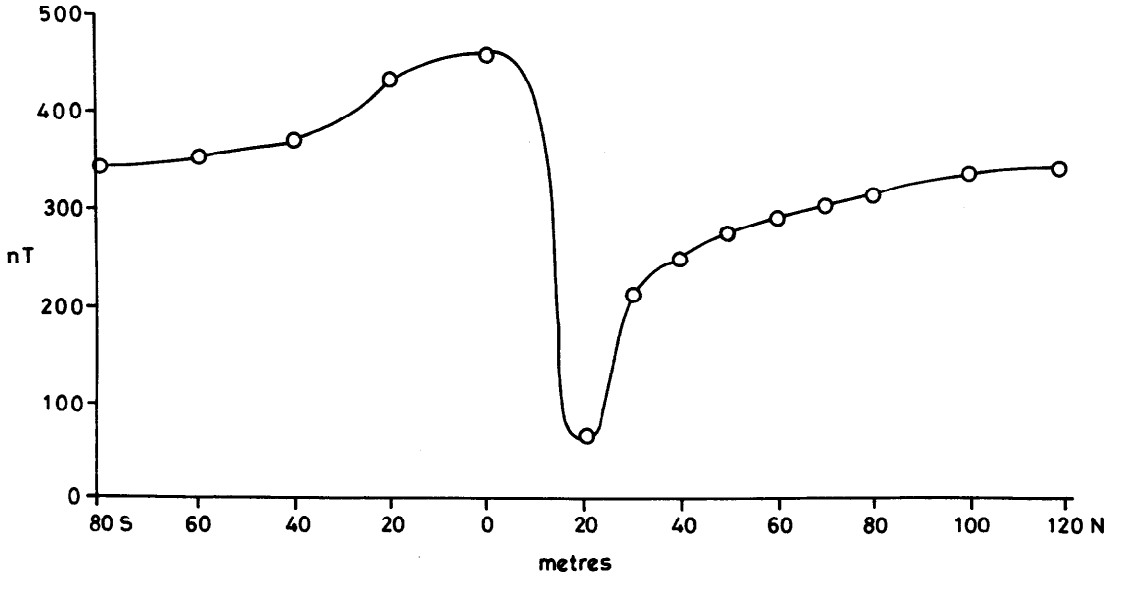
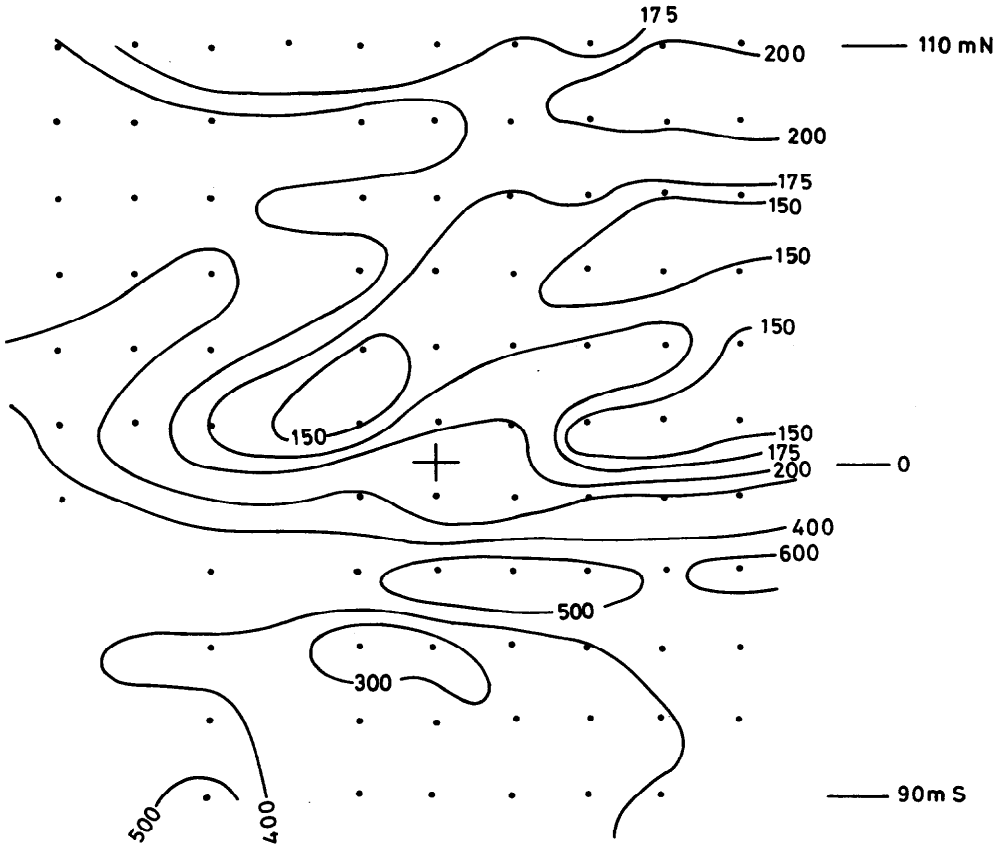


FIG 3 ST INGUNGER MAGNETIC ANOMALY



a APPARENT RESISTIVITY $\rho_a \Omega m$

40 m

b CHARGEABILITY m_c

(to convert to milliseconds multiply by 0.6. Limits of integration 75, 975 ms)

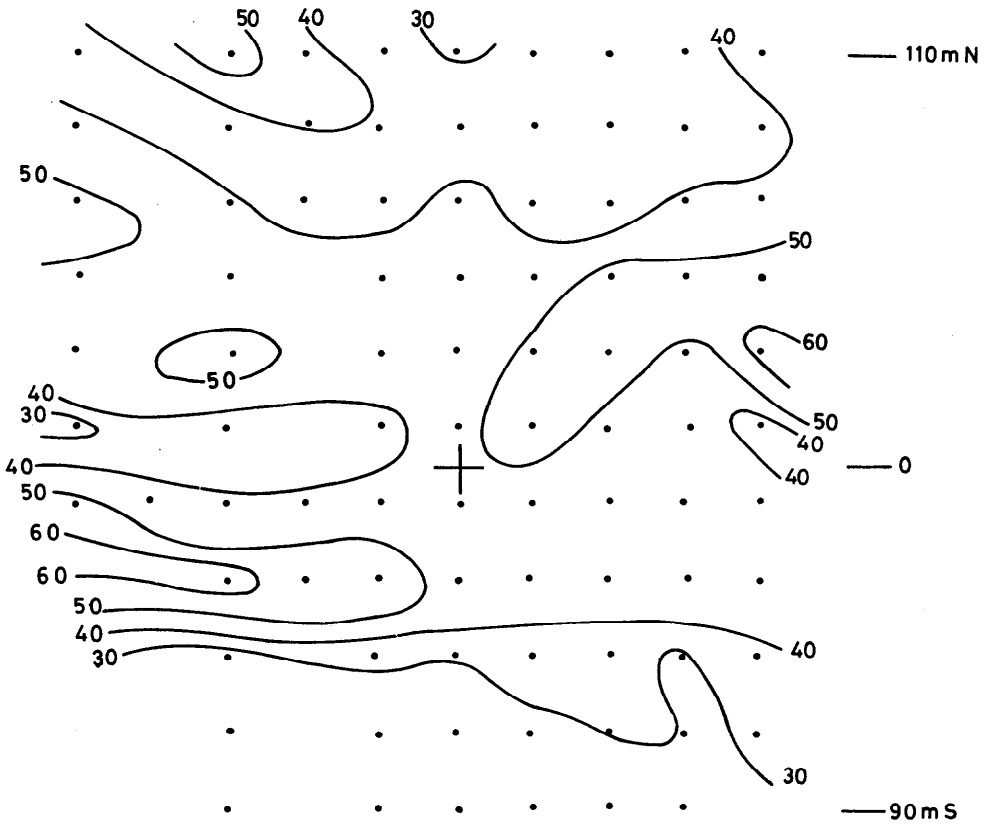


FIG 4 IP GRADIENT ARRAY RESULTS, TRETOIL

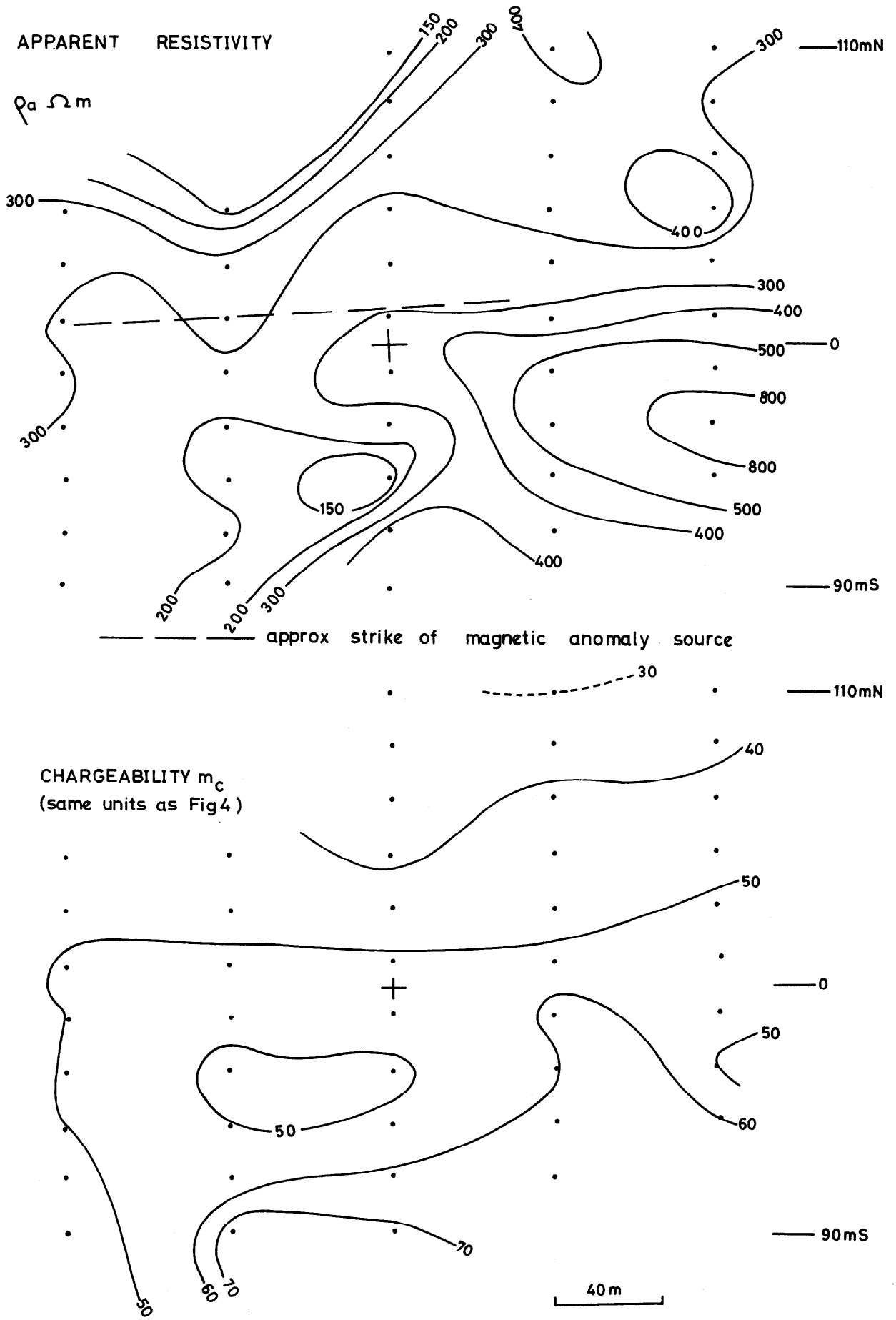


FIG 5 IP GRADIENT ARRAY RESULTS ST INGUNGER

indicates whether ground follow-up was carried out, and comments on the cause of each anomaly. Airborne anomalies at sites which were not visited were recognised as of artificial origin by inspection of the maps, with additional information on power line distribution supplied by electricity boards.

1957 airborne survey and ground follow-up

This survey covered central and western Cornwall using the dual-frequency method. The effective depth penetration and signal to noise ratio of this method have been disputed (Parasnis, 1972, p.180). Reference to the maps shows a linear belt of EM anomalies, at 2300 Hz, broadly following the northernmost calc-flinta belt. Localised anomalies, with no obvious linear trend, are also present at 400 Hz. Limited ground follow-up was carried out in 1977 in the belief that the increased ground clearance (500 ft) might have reduced the disturbing effect of man-made objects. Two specific anomalous areas were chosen for study by EM and IP methods, importance being attached to the presence of anomalies at 400 Hz because they are more likely to arise from better, deeper-seated conductors. Results (Figs. 6-11) were negative apart from a few EM anomalies of doubtful significance (L19 at 150 NW, L20 at 530 S and 725 S) which were neither confirmed by IP nor located near the airborne anomalies. Ussher and others (1909, p. 89) state that the northern calc-flinta outcrop shows widespread alteration due to pneumatolytic action, and it is likely that the airborne anomaly belt reflects a weak resistivity contrast resulting from this alteration rather than sulphide mineralisation. It is notable that the 1957 survey also provides no direct evidence of the Tretoil lodes.

GRAVITY SURVEYS

The results of gravity surveys are fully described in report no. 11 in this series (Tombs, 1977). Briefly, the granite roof lies less than 500 m below sea level over most of the southern part of the area. Calc-flintas appear to be denser than the surrounding non-calcareous killas, as might be expected. Most of the major known mineral deposits lie within the granite "roof region", including the Prosper lode but excluding the Mulberry stockwork. A small area of shallow granite, representing a possible exploration target, was defined.

CONCLUSIONS

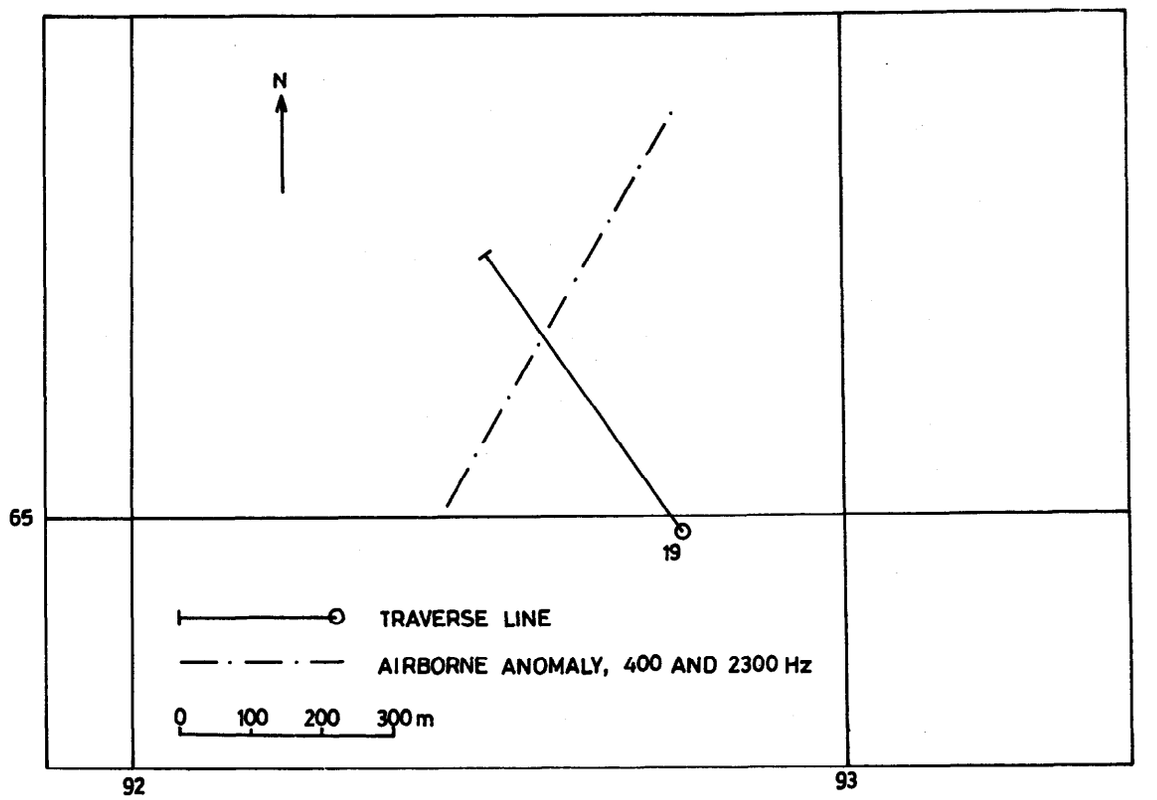
Most of the anomalies detected by the geophysical surveys were found to be due to non-geological causes, and no significant new indications of mineralisation were found.

Geophysical methods are of limited value in mineral reconnaissance in this area, for two main reasons:

(a) The principal ore minerals known in the area are cassiterite, wolframite and hematite, none of which has physical properties which enables it to be readily detected by geophysical means. Magnetite and various forms of pyrite, which give a better geophysical response, occur in the area but are less common.

(b) Persistent radiated interference from power lines and a radio transmitter, together with abundant anomalies from man-made objects on the ground, confuse the results of airborne survey and may mask some minor anomalies of geological origin.

Nevertheless, it is considered that any major, highly conductive or magnetic lodes near the surface would have been detected, and it is likely that no such lodes exist in the area.



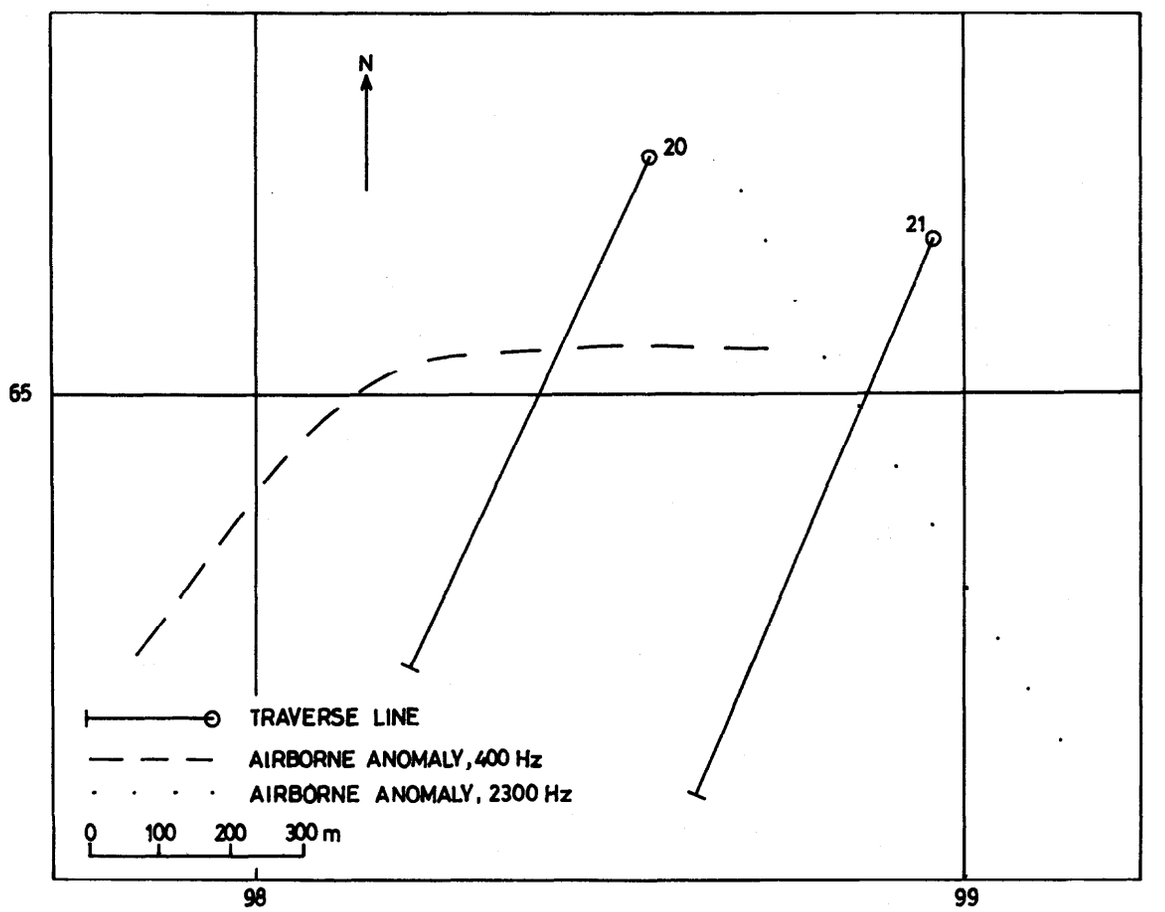


FIG. 6. LOCATION MAPS: FOLLOW-UP OF 1957 AIRBORNE SURVEY (LINES 19 - 21)

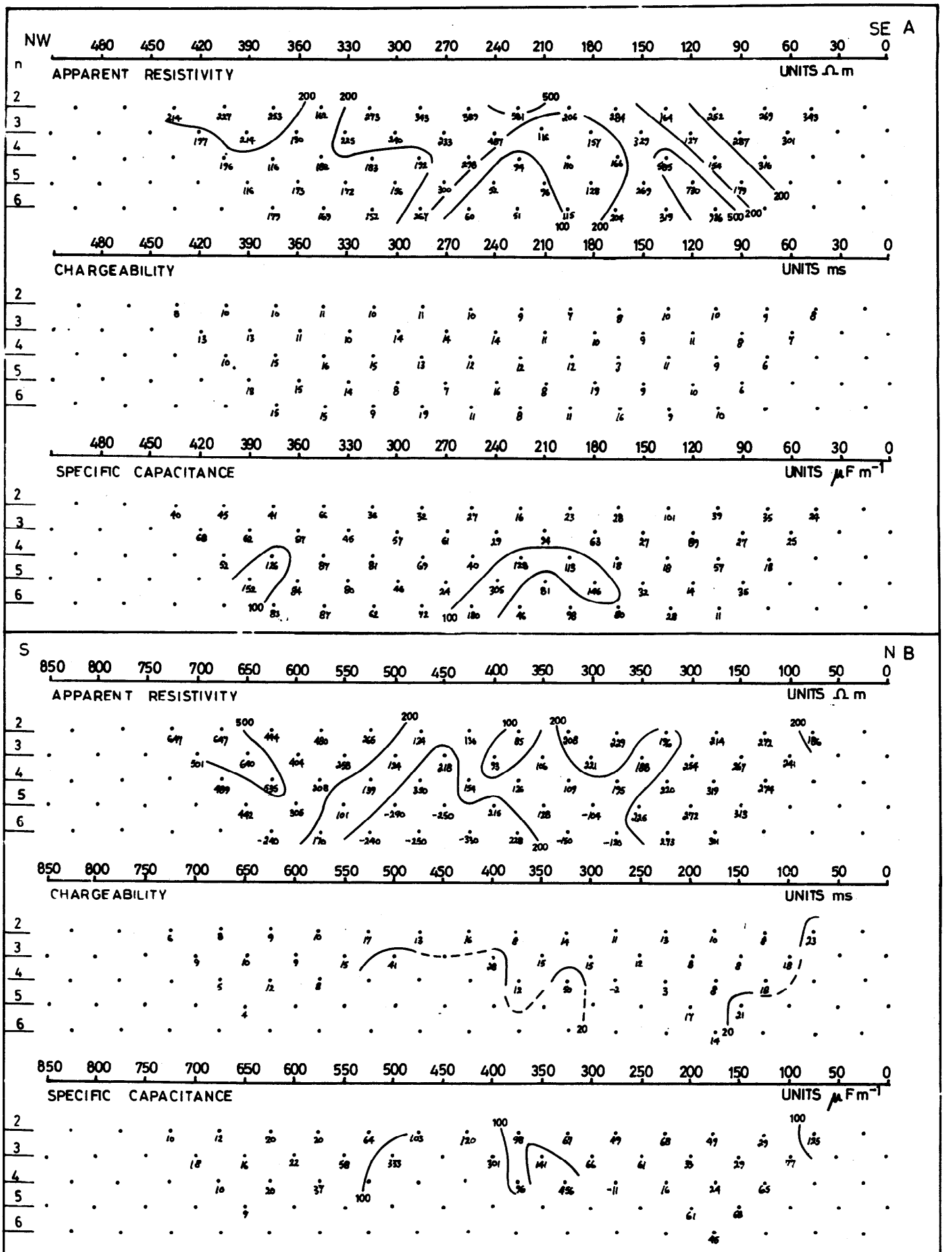


FIG. 7 I.P pseudo-sections for A LINE 19 SCALE A 1:3000

DIPOLE LENGTH A 30m B LINE 20 B 1:5000

B 50m

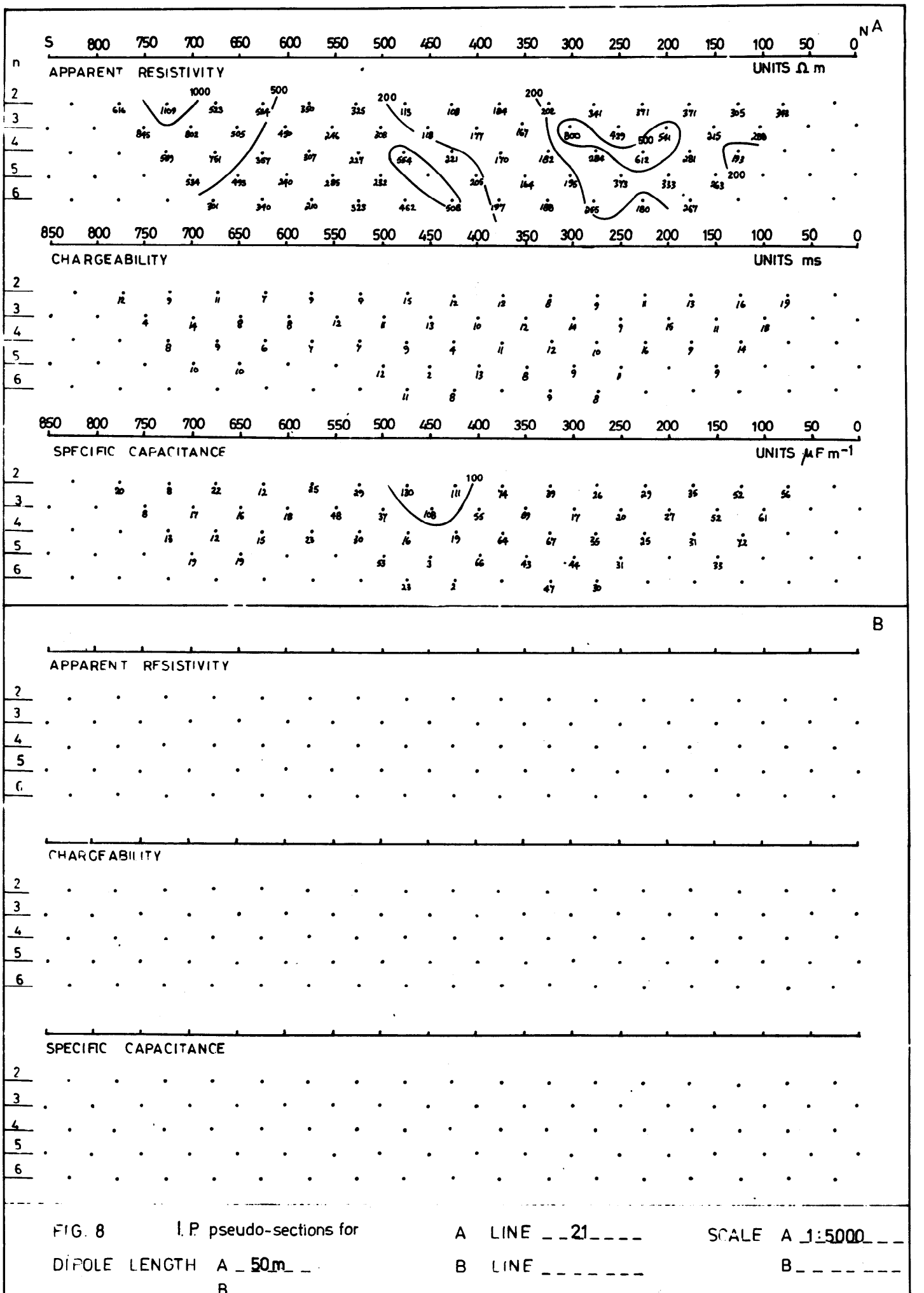


FIG. 8 I.P pseudo-sections for A LINE 21 SCALE A 1:5000

DIPOLE LENGTH A 50m B LINE B

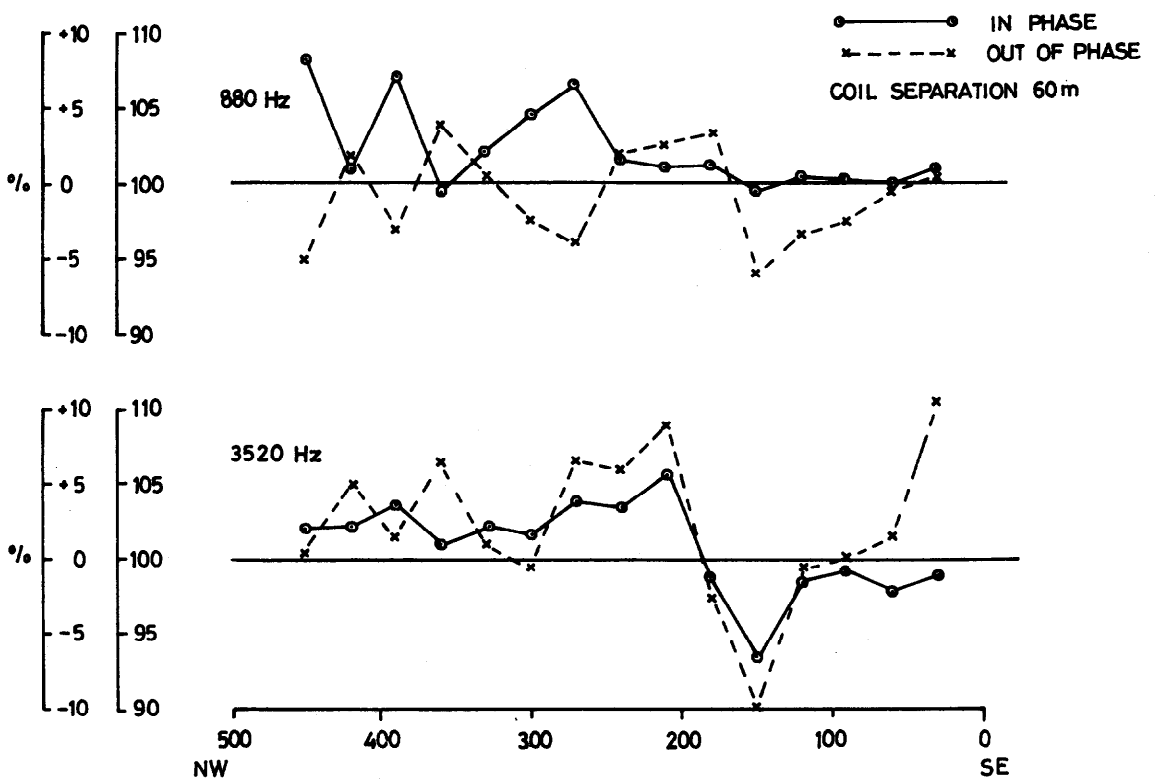


FIG.9. EM RESULTS : LINE 19

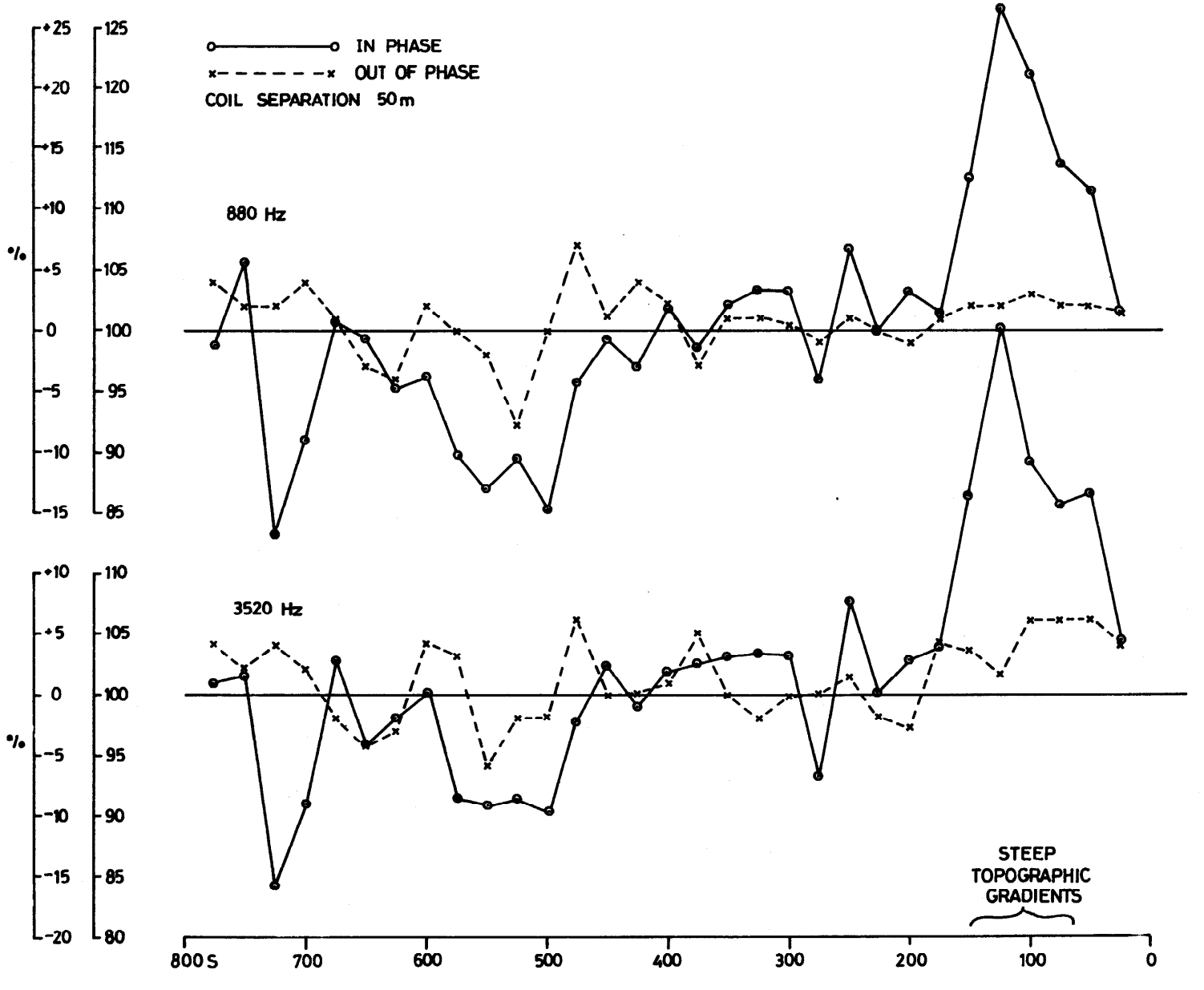


FIG.10. EM RESULTS : LINE 20

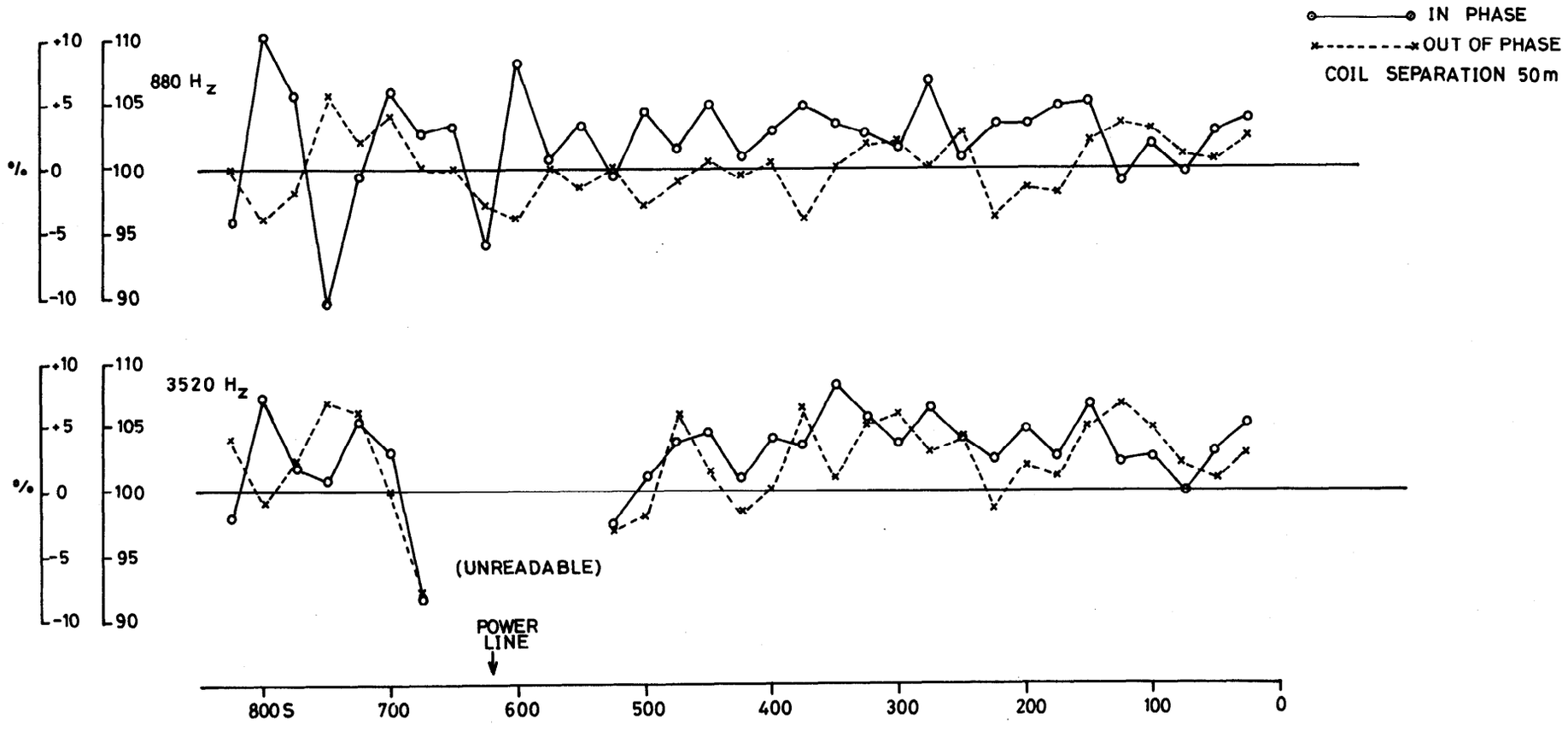


FIG 11 EM RESULTS : LINE 21

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APPENDIX A: Magnetic and IP ground survey locations

TRAVERSE	6 IN O.S. SHEET	LOCALITY	10m GRID REF. - TO -	IP SURVEY	MAGNETIC SURVEY
1	SW 96 SW	PENHELLICK	94916453 94766434	YES	YES
2	SW 96 SW	PENHELLICK	94486504 94266407	YES	YES
3	SW 96 SW	TREVITHICK	93576433 93306390	YES	YES
4	SW 96 SW	TREVITHICK	93676480 93336458	YES	YES
5	SX 06 NW	MULBERRY	01576550 02336540	YES	YES
6	SX 06 SW	ROSEWARRICK	01716434 02016397	YES	YES
7	SX 06 SE	TREGULLON	06626464 06666389	YES	YES
8	SX 06 SE	TRETOIL	SEE FIG. 1	YES	YES
9	SX 06 SE	TRELIGGON	05246415 05246365	YES	YES
10	SW 06 SE	ST INGUNGER	SEE FIG. 1	YES	YES
11	SX 06 SE/SW	TREMEER	05186367 04836403	YES	YES
12	SX 06 NE	HALGAVOR	07796528 07846503	NO	YES
13	SX 06 NW/SW	CADWIN	02976515 02626480	YES	YES
14	SW 96 SE	TREVIGOWE	99486461 99496411	YES	YES
15	SX 06 SW	LANIVET	03846467 03816427	YES	NO
16	SX 06 SE	MAUDLIN	08706247 08326213	YES	NO
17	SX 06 SE	RED MOOR	07466199 07506154	YES	NO
18	SW 96 SE	BELOWDA	96626236 97176258	YES	NO
19	SW 96 NW	TREVORNICK	92506537 92786498	YES	NO
20	SW 96 NE/SE	LANJEW	98566533 98226462	YES	NO
21	SW 96 NE/SE	TRENANCE	98966522 98636444	YES	NO

APPENDIX B: Electromagnetic ground survey locations

Map	100 m grid reference	Ground follow-up	Comments
SW 96 NW	942655	Yes	Small positive anomalies: airborne anomaly probably spurious
	913651	Yes	Water pipe
	913650	No	Water pipe
	918656	Yes	No ground anomaly: airborne anomaly spurious
	916656	Yes	Small out-of-phase anomaly: conductive overburden?
	929659	No	Buildings and power line
SW 96 NE	994653	No	Buildings
	991654	Yes	Small out-of-phase anomaly: airborne anomaly probably spurious
	961657	Yes	No ground anomaly: airborne anomaly due to power line or spurious
	972658	No	Power line
SX 06 NW	030660 to 045655	No	Power lines
	020654	Yes	Much interference; possible small ground anomaly
	014653	Yes	Much interference; no ground anomaly
	012652	Yes	Interference; no ground anomaly
	009657	No	Buildings and power lines
	005653	No	Power line
	005654	Yes	Weak ground anomaly: conductive overburden ?
	028653	Yes	No ground anomaly: airborne anomaly due to interference
	037652	No	Power line
SX 06 NE	088651	No	Power line
	067656	No	Power line
	052655	No	Power line
	063660	No	Power line
SW 96 SW	913649	Yes	Water pipe and power line
	911646	No	Buildings and power line
	915643	No	Power line
	914642	No	Buildings
	912640	No	Buildings

APPENDIX B (Contd)

Map	100 m grid reference	Ground follow-up	Comments
SW 96 SW (Contd)	917645	No	Buildings
	942639	Yes	Ground anomaly due to power line
	942619	Yes	Water pipe
	924642	No	Power lines and metal objects
	917639	No	Power line
	934634	Yes	No ground anomaly
	945638	No	Power lines
	909641	No	Power lines
SW 96 SE	96 62 to	Yes	Belowda Beacon area. No airborne anomalies.
	98 62		To see whether any response from known mineralisation (Sn/W): no ground anomalies recorded
	955628	Yes	Pipe
	957638		No ground anomaly: airborne anomaly spurious
	954631	Yes	No ground anomaly
	961639	Yes	Small ground anomaly: conductive overburden
	956647	Yes	Variable out-of-phase anomalies up to +20%. No in-phase anomaly: conductive overburden.
	965634	Yes	No ground anomaly
	980641	Yes	No ground anomaly
	972646	No	No access, but airborne anomaly suggests probably not mineralisation
	970648	Yes	Water pipe
	965645	No	Power lines and water pipe
	962639	Yes	Forested area: ground traverse inadequate to determine cause (trees ?)
	965609	No	Railway and cables
SX 06 SW	045642	No	Buildings
	037643	No	Buildings
	004648	Yes	Water pipe
	006649	Yes	Small out-of-phase anomaly. No associated aeromagnetic anomaly. Due to old workings ?
	000644	No	Power line

APPENDIX B (Contd)

Map	100 m grid reference	Ground follow-up	Comments
SW 06 SW (Contd)	043641	No	Power line
	001649	Yes	Weak anomalies: overburden ?
SX 06 SE	089640	Yes	Pipes and power lines
	069633	Yes	Small ground anomaly indicating poor conductor
	079637	No	Buildings
	085645	Yes	No ground anomaly
	089649	No	Power line
	055632	Yes	No ground anomaly

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AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SW 96 SW

Links 1000 500 0 — 80 — 160 — 240 Chains

CORNWALL
ST AUSTELL RD

ST WENN PH

ST COLUMB MAJOR

NORTH CORNWALL CO CONST

ROCHE PH

ST DENNIS PH
TRURO CO CONST

Higher Trekenning

Trekenning House

Bosporthennis

Bosporthennis House

Lanherne Vine

Nankelly

Rosewarne

Carloggas

Springfield

Philpzaugh

Tregamere

Gluvian

Lanhinsworth

Trenowth

Trevarrick

Trevarrick Mill

Tregonetha

Tregonetha Mill

Old Quarry

Tresaddern

Castle Downs

Castle-an-Dinas
Hill fort

Providence

Black-acre

Ennisworgey

Lower Trewolvas

Higher Trewolvas

Quoit

Giant's Quoit
(site of)

Quoit Farm

Ruthvoes

Gossamoor

Black Cross

Bible Christian Chapel

Travarren

Crugoes

Higher Killaworgey

Lower Killaworgey

Trethiller on site of Manor House

Roserrant

Treyahillian

Barn Barton

Rosewarne Mill

Rosewarne Viaduct

Railway & Cattle Market

Railway & Commercial Hotel

Chapel (site of)

Chapel (remains of)

Mort Chaos Cemetery

Elmfield House

Rosewarne Farm

Weir

Weirs

Pond

Spring

Springs

Stone

Wind Pump

Sunday Sch

Mill

Ford

Aqueduct

Tk of old Rly

Tunnel (Disused)

Indian Queens 1 Mile

Victoria 2½ Miles

Mawnan 2 Miles

St Columb Road ¾ Mile

St Columb Major 1 Mile

Rosewarne ½ Miles

Feet 12000 6000 3000 0 1500 3000

10 Metres 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390

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AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SW 96 NW

CORNWALL

NORTH CORNWALL CO CONST

WADEBRIDGE RD
ST ISSEY PH

ST ERVAN PH

ST BREOCK PH

MAWGAN-IN-PYDAR PH

ST WENN PH

ST COLUMB MAJOR PH

ST AUSTELL RD

Trelow Downs

Higher Bogee Common

Lower Bogee Common

Denzell Downs

Prince's Common

St Jidgey

Scotland Corner

Nine Maidens

Nine Maidens Stone Row

Mad Stone of the Fiddler

Trelow

Trevillian

Chapel (site of)

Manor House (site of)

Bogee

Mound

Cannalidgey

Halfway House

Wadebridge St. Columb Major

Pleasant Streams

Old Shaft

Old Quarry

Spring

Weir

Mount Misery

Long Stone

Music Water

Tumulus

Grey Mare (BS)

Wind Mills

Wind Mill

Little Pennatillick

Pennatillick

RD Bdy

Higher Retallick

Winnard's Perch

Burlasevath (site of Manor House)

Burlase Burgess

Pentreenys

Whitewater

Wadebridge St. Columb Major 1

Chapel (site of)

Tregustick

Tregonetha

Tregonetha 2 Miles

Little Petherick 2 Miles

Whitecross 2 Miles

Links 1000 500 0

10 Metres

240 Chains

Yards 1000 500 0 1000 2000 3000 4000 Yards

Feet 12000 9000 6000 3000 0 1500 3000

Furlongs 0 1 2 3 4 5 6 7 8

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APPLIED GEOPHYSICS UNIT

AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SW 96 SE

CORNWALL

Links 1000 500 0 — 80 — 160 — 240 Chains

ST WENN PH

ST COLUMB MAJOR PH

NORTH CORNWALL CO CONST

BODMIN CO CONST

WADEBRIDGE RD

TRURO CO CONST
ST AUSTELL RD

ST DENNIS PH

ROCHE PH

St Wenn

Tregonetha Downs

Tregoss

Belowda

Little Bryn

WITHIEL

Roche

River Fal

Tregoss Moor

Yards 1000 500 0 1000 2000 3000 4000 Yards

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AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SW 96 NE

Links 1000 500 0 — 80 — 160 — 240 Chains

CORNWALL
WADEBRIDGE RD

10 Metres — LONG 4° 53' W — 95 000 — 96 — 97 — 98 — 99 — LONG 4° 50' W — 200 000 — 2 Miles

070 000

12000 Feet

9000

6000

3000

Feet

0

1500

3000

10 Metres

065 000

69 — 68 — 67 — 66

LAT 50° 29'

LAT 50° 28'

ST ISSEY PH

NORTH CORNWALL CO CONST

BODMIN CO CONST

WITHIEL PH

ST AUSTELL RD

S T B R E O C K

Burial Chamber

Hayerock

Old Shaft

Old Shaft

Tregwindles

Highfurze

Spring

Morgan Wood

Pierce's Plantation

Stone

Ford

Belmin's Park Wood

Belingick Wood

Belingick Hill

Vyles Park Wood

Spring

Pawton

Tumuli

Pawtonsprings

Barrett's Tenement

Tom's Tenement

St Breock Beacon

RD Bdy

Tumulus

Stone

Beacon

Higher Cransworth

Tumuli

Tumulus

S t B r e o c

D o w n s

Spring

Hustyn Moor Head

Hustyn Mine Park

Hustyn Gate

Wind Pump

Tumulus

Little Hustyn

Co Const Bdy

Higher Tregustick

Wind Pump

Higher Bosneives

Crewennimoor

Tregamne Barrow

Cransworth W Comman

Cransworth Springs

Stone

Rosenannon Downs

Little Trewollack

L a n t u e l

Higher Tregolls

Trewollack Plantation

Tumulus

Well (remains of)

St Mary Magdalen's Chapel (site of)

Wind Pump

Little Tregullis

Tumulus

Rosenannon

Cransworth Mill

Trewollack

Trethillan

Old Level Mine (Dis)

Higher Tregullis

Higher Tregullis

Tregullis

Tregullis

Bosneives

Bosneives

Spring

Old Parsonage

Reeches

Withiel

Chimney

Mine (Dis)

Lower Polgrella

Great Skewes

Little Skewes

Spring

Coddles

Yards 1000 500 0 1000 2000 3000 4000 Yards

Furlongs 0 1 2 3 4 5 6 7 8

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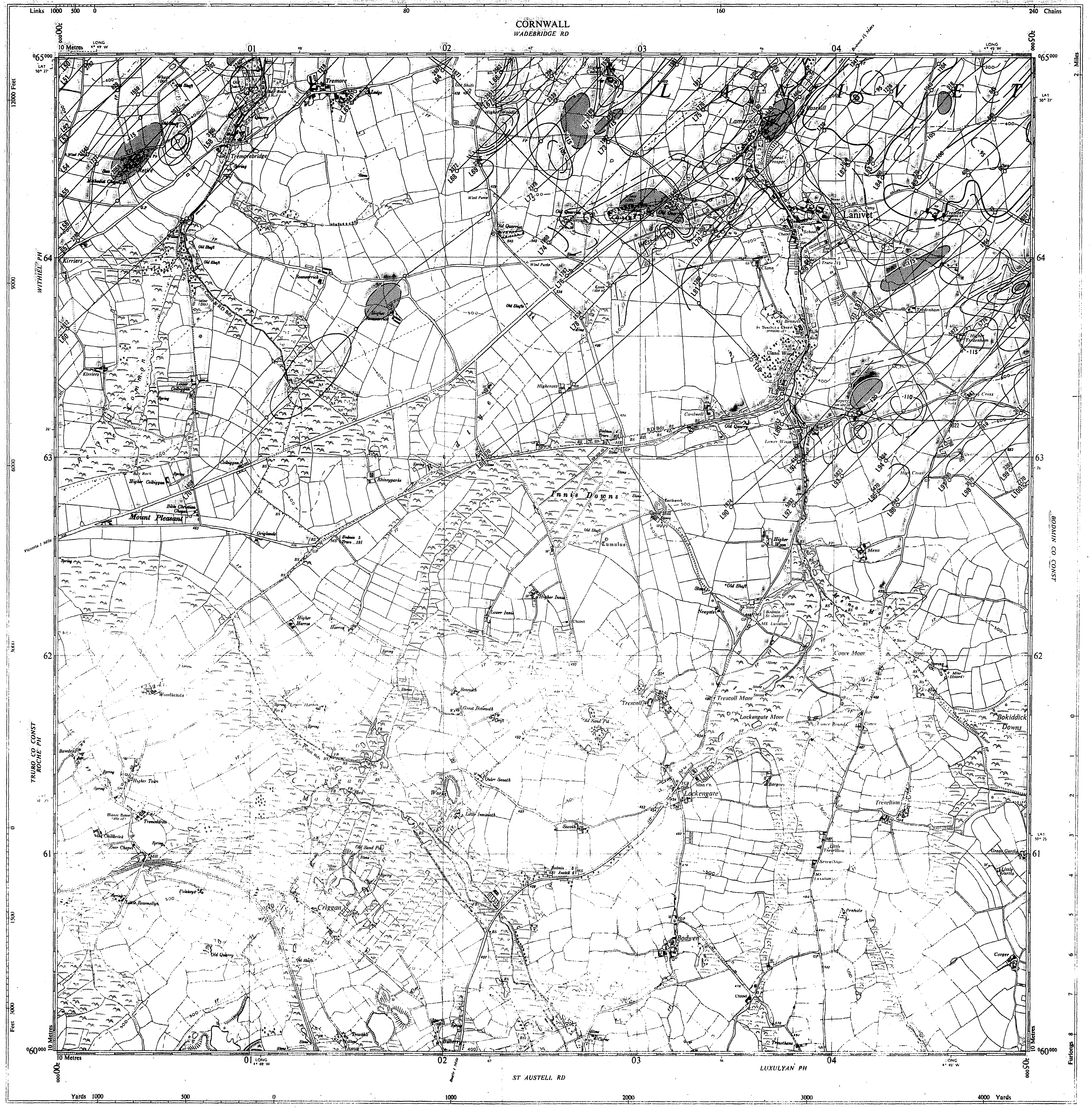
AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SX 06 SW



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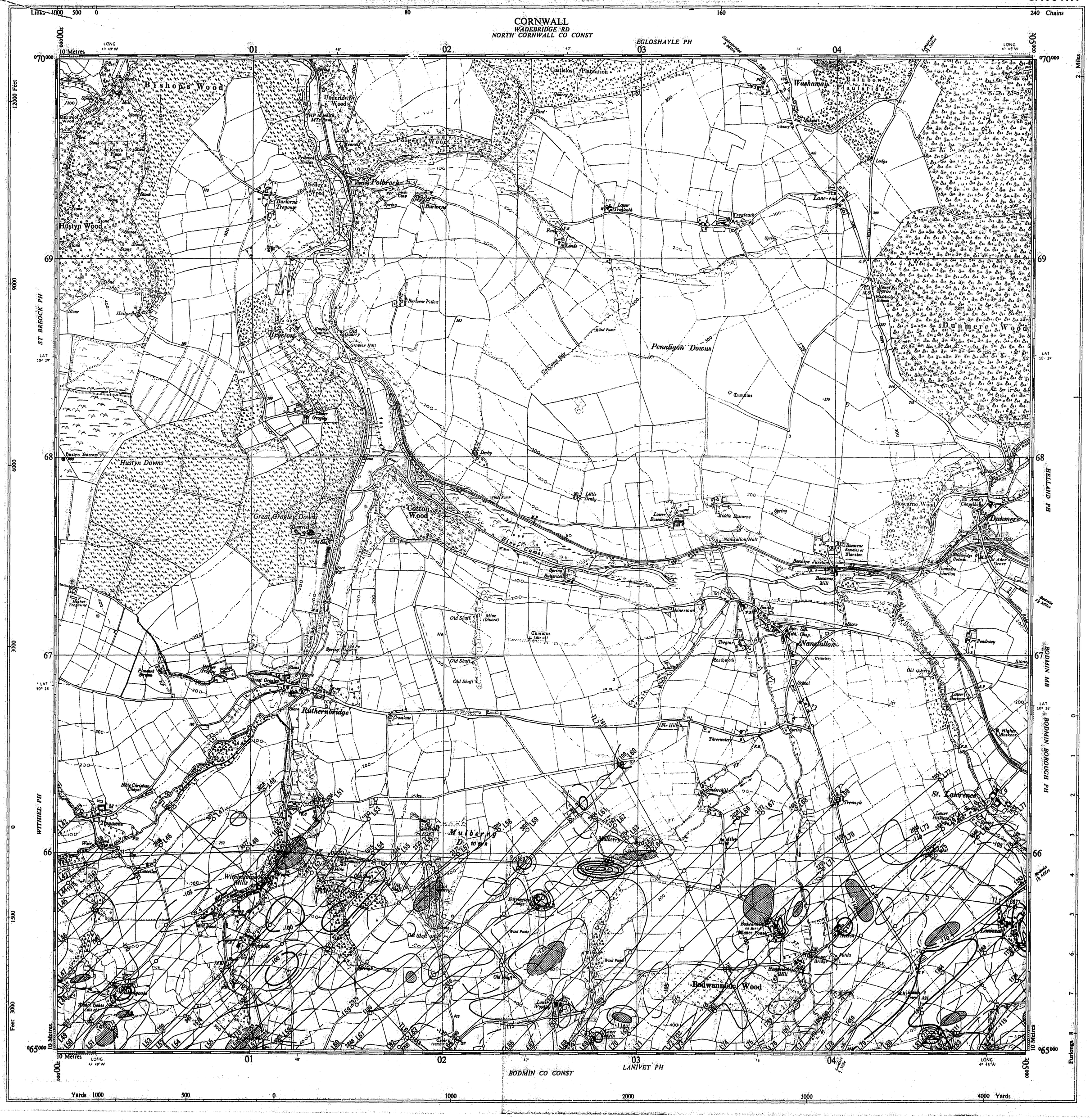
AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SX06 NW



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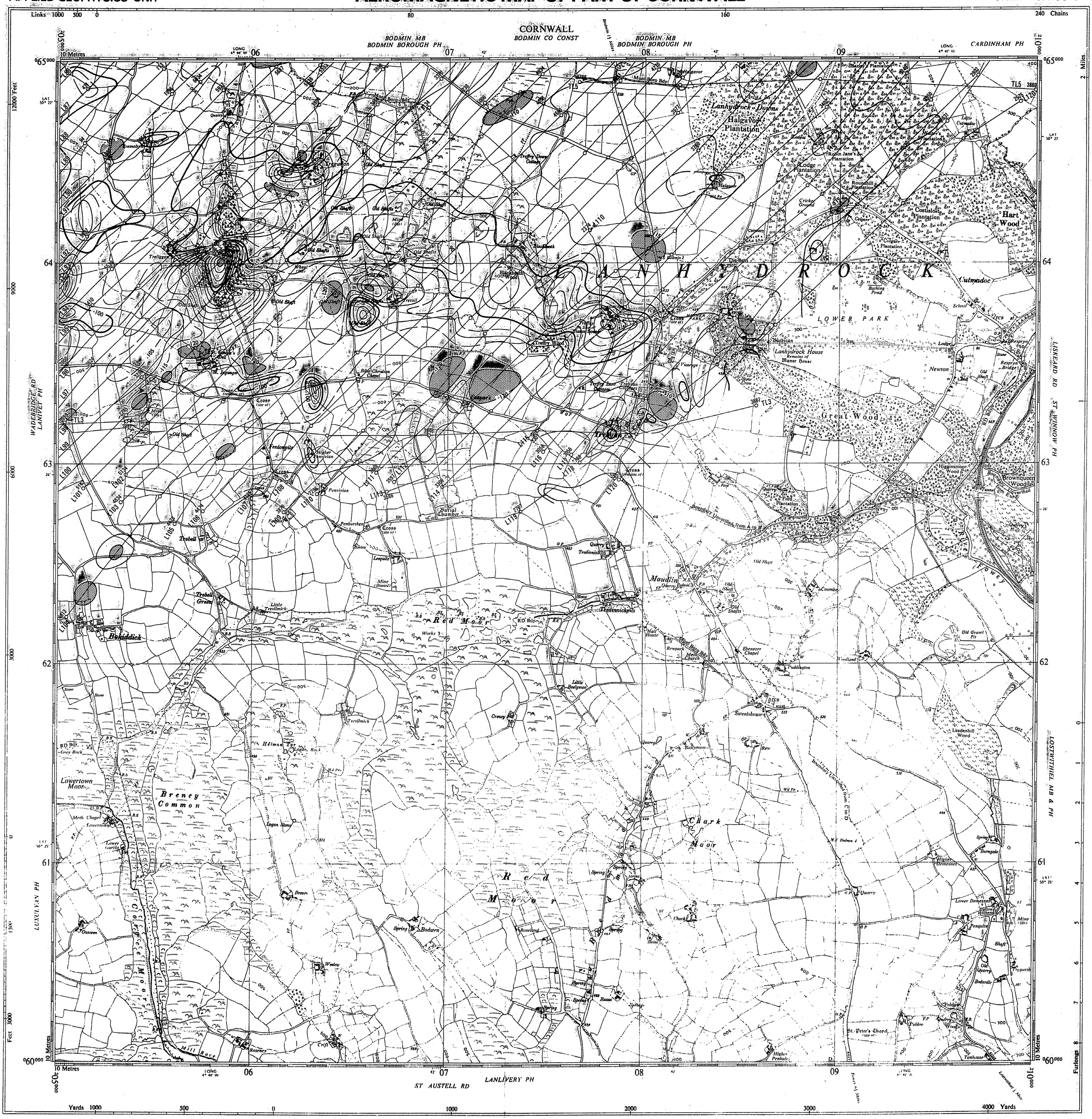
AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SX 06 SE



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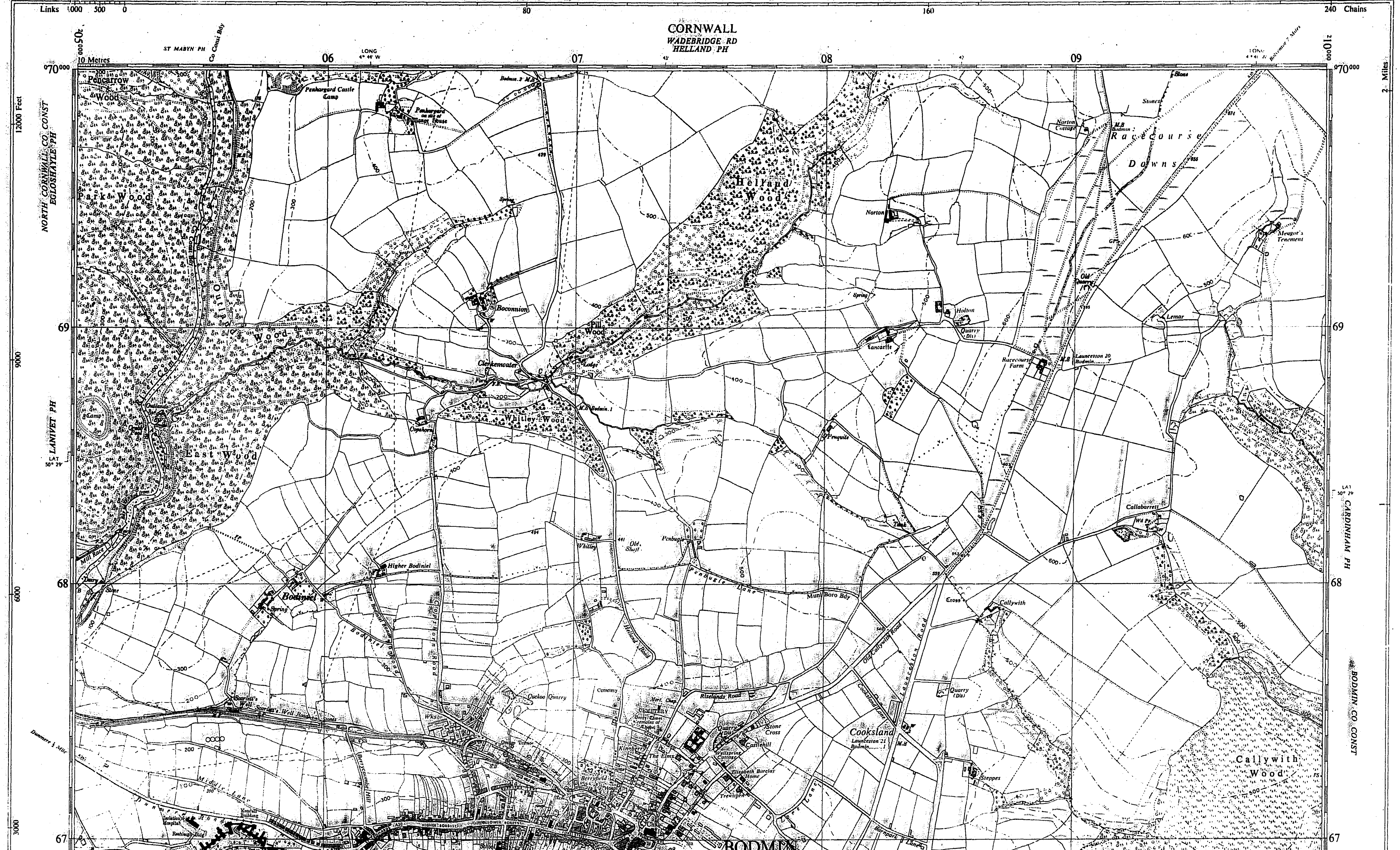
AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SX 06 NE



[redacted]

SHEET SW 96 NW

CORNWALL

NORTH CORNWALL CO CONST

WADEBRIDGE RD
ST ISSEY PH

ST ERVAN PH

ST BREOCK PH

MAWGAN-IN-PYDAR PH

ST WENN PH

ST COLUMB MAJOR PH

ST AUSTELL RD

Trelow Downs

Higher Bogee Common

Denzell Downs

Prince's Common

Links 1000 500 0

240 Chains

10 Metres

13000 Feet

Yards 1000 500 0 1000 2000 3000 4000 Yards

Miles 2 1 0 1

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AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN - PHASE CONTOURS

SHEET SW 96 SW

Links 1000 500 0 — 80 — 160 — 240 Chains

CORNWALL
ST. AUSTELL RD

ST WENN PH

ST COLUMB MAJOR

NORTH CORNWALL CO CONST

ST DENNIS PH
TRURO CO CONST

ROCHE PH

Yards 1000 500 0 1000 2000 3000 4000 Yards

10 Metres — 12000 Feet — 6000 — 3000 — 0 — 1500 — 3000 Feet — 10 Metres

2 Miles — 0 1 2 — Furlongs 1 2 3 4 5 6 7 8

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AEROMAGNETIC MAP OF PART OF CORNWALL

SHEET SW 96 SE

CORNWALL

ST WENN PH

WITHIEL

ST COLUMB MAJOR PH

NORTH CORNWALL CO CONST

BODMIN CO CONST

WADEBRIDGE RD

Tregonetha Downs

TRURO CO CONST
ST AUSTELL RD

ST DENNIS PH

ROCHE PH

Roche

Links 100 50 0 80 160 240 Chains

10 Miles 2 Miles

12000 Feet 9000 6000 3000 0 1500 3000 Feet

Yards 1000 500 0 1000 2000 3000 4000 Yards

[redacted]

SHEET SW 96 NE

CORNWALL
WADEBRIDGE RD

Links 1000 500 0

240 Chains

10 Metres

LONG 4° 32' W

96 97 98 99

LONG 4° 30' W

2 Miles

69 68 67 66

LAT 50° 29' / LAT 50° 28'

S T B R E O C K

Old Shaft
Old Shaft
Burial Chamber
Hayerock
Tregwindles
Highfurze
Springs
Morgan Wood
Trevice Plantation
Belmont's Park Wood
Belingick Wood
Belingick Hill
Willy's Park Wood
Stone
Spring
Pawton Springs
Tom's Tenement
Cumuli
Cumulus
Wreck Beacon
RD Bdy
Higher Cransworth
Cransworth Common
Cransworth Springs
Rosenannon Downs
Little Trewollack
Lantic
Trewollack
Higher Tregollis
Little Tregollis
Husyn-Moor Head
Husyn Mine Park
Husyn Gate
Wind Pump
Little Husyn
Co Const Bdy
Higher Tregustick
Higher Boswelvers
Gwennymoor
Tregawne Barrow
Old Level Mine (Bits)
Trevisker
Wi
St Mary Magdalen's Chapel (Ruins of)
Wind Pump
Cransworth Mill
Trewollack
Tregollis

ST ISSEY PH
NORTH CORNWALL CO CONST
WADEBRIDGE RD
WADEBRIDGE CO CONST
WALTZEL PH

ST AUSTELL RD

Yards 1000 500 0 1000 2000 3000 4000 Yards

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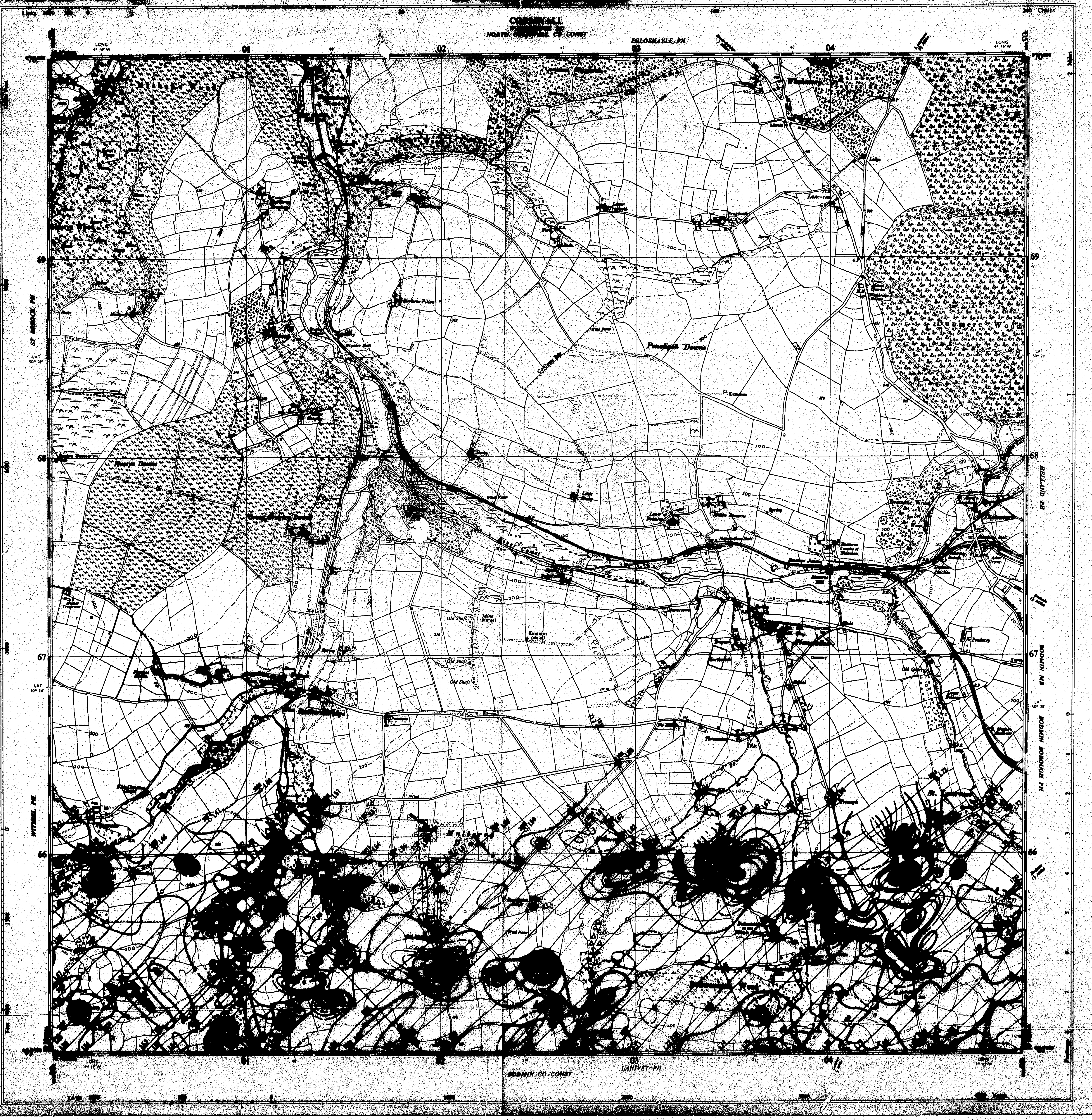
[illegible]

AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL

[illegible]

SHEET SX 06 NW



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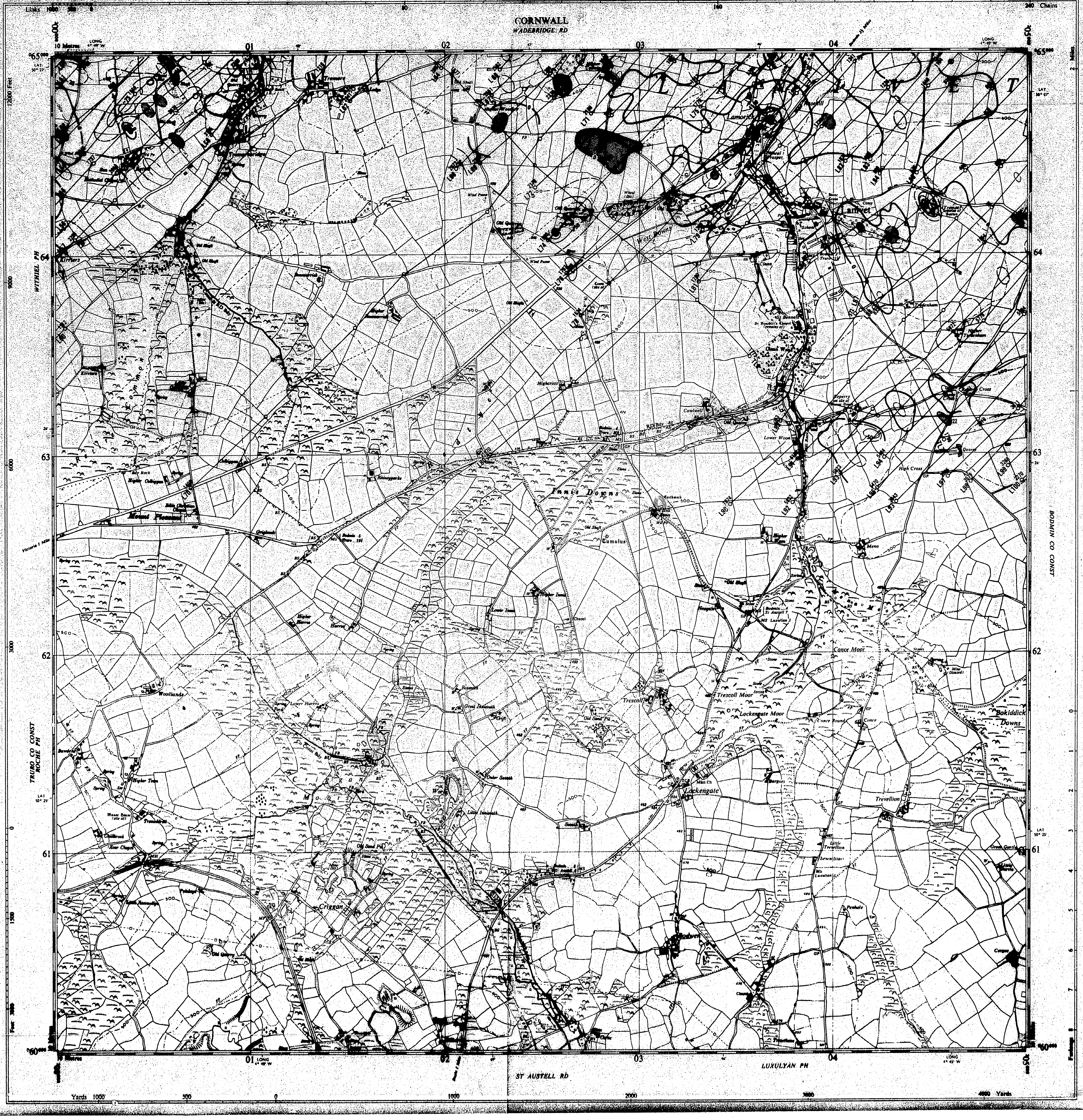
[illegible] [illegible]-[illegible] MAP OF PART OF CORNWALL
III - [illegible] [illegible]

SHEET SX 06 SW



SHEET SX 06 SE

CORNWALL
BODMIN CO CONST

BODMIN MB
BODMIN BOROUGH PH

CARDINHAM PH

LANLIVERY PH

LANLIVET PH

LUXULYAN PH

WADEBRIDGE RD

ST AUSTELL RD

LISKEARD RD

ST WINNOW PH

LOSTWITHIEL MB & PH

LAMPHADRICK

LOWER PARK

Great Wood

Red Moor

Breney Common

Lowertown Moor

Maudlin

Chark Moor

Links 1000 500 0 80 160 240 Chains

10 Metres 12000 Feet 9000 6000 3000 0

Yards 1000 500 0 1000 2000 3000 4000 Yards

Furlongs 8 7 6 5 4 3 2 1 0

Miles 2 1 0

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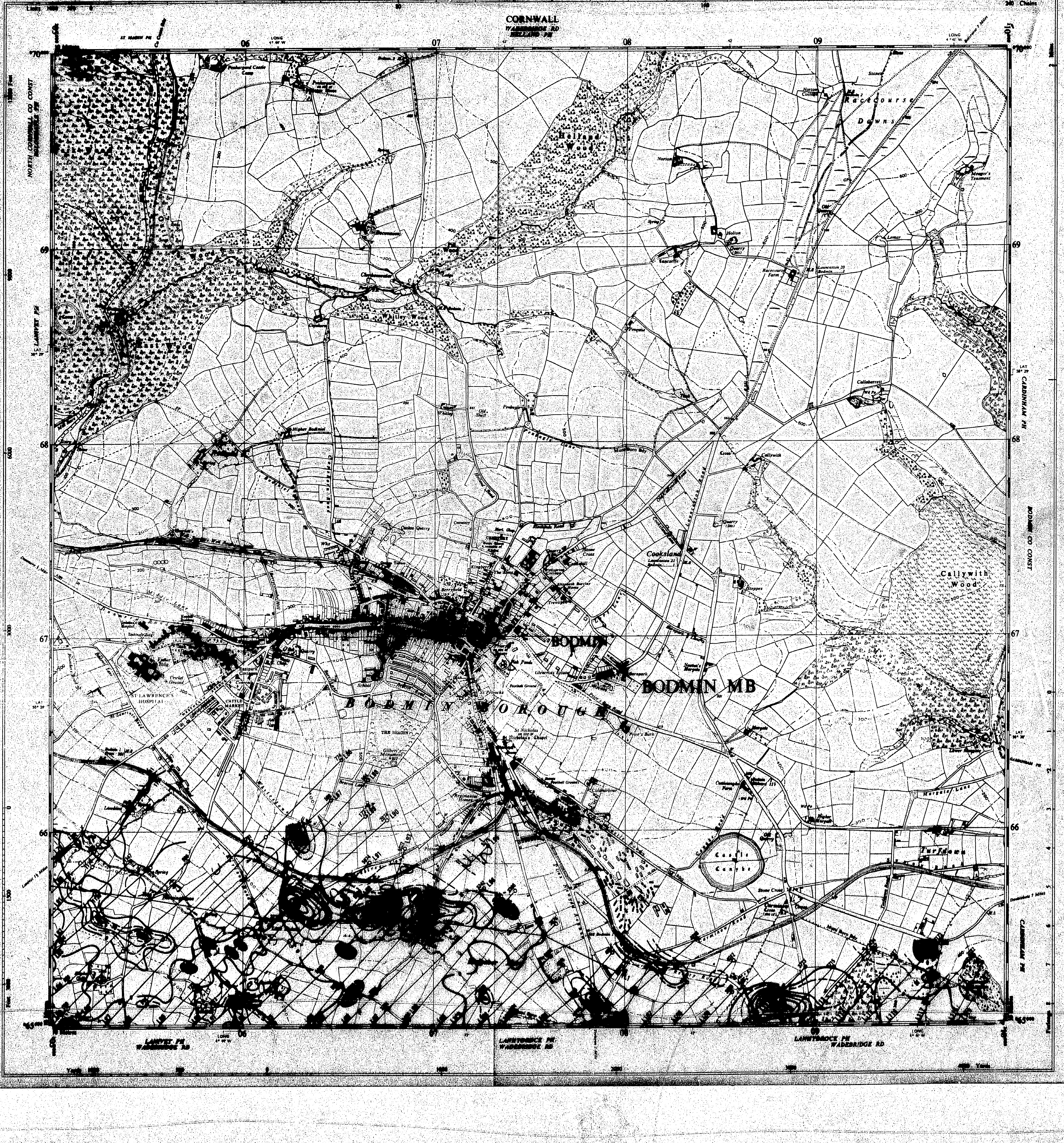
AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL

[illegible]

SHEET SX 06 NE



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AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN-PHASE/OUT-OF-PHASE ANOMALY RATIOS

SHEET SW 96NW

CORNWALL

NORTH CORNWALL CO CONST

WADEBRIDGE RD
ST ISSEY PH

ST ERVAN PH

ST BREOCK PH

MAWGAN-IN-PYDAR PH

ST WENN PH

ST COLUMB MAJOR PH

ST AUSTELL RD

Trelowarren Downs

Higher Bogee Common

Lower Bogee Common

Denzell Downs

Prince's Common

St Jidgey

Nine Maidens

Nine Maidens Stone Row

Scotland Corner

Higher Retallick

Lower Retallick

Penmennys

Rosedinnick

Winnard's Perch

Trelow

Cannalidgey

Halfway House

Wadebridge
St. Columb Major

Mag. Stone of the Fiddler

Old Quarry

Old Shaft

Tumulus

Spring

Chapel (site of)

Wind Mill

Pennatillick

Grey Mare

Mount Misery

Long Stone

Main Water

Pleasant Streams

Byplase Burgess

Manor House

Whitewater

Patskidick

Little Trevornick

Urpeth Trevornick

Tillergamouge

Scale 1:10000

Links 1000 500 0

10 Metres

240 Chains

Miles

Feet 3000

Furlongs

Yards 1000 500 0 1000 2000 3000 4000 Yards

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AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN-PHASE/OUT-OF-PHASE ANOMALY RATIOS

SHEET SW 96 SW

ST COLUMB MAJOR

CORNWALL
ST AUSTELL RD

ST WENN PH

ST DENNIS PH
TRURO CO CONST

NORTH CORNWALL CO CONST

ROCHE PH

ST WENN PH

Links 1000 500 0 80 160 240 Chains

10 Metres 12000 Feet 9000 6000 3000 0 1500 3000 Feet 10 Metres

2 Miles 1 0 1 2 3 4 5 6 7 8 Furlongs

Yards 1000 500 0 1000 2000 3000 4000 Yards

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AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN-PHASE/OUT-OF-PHASE ANOMALY RATIOS

SHEET SW 96 NE

CORNWALL
WADEBRIDGE RD

ST AUSTELL RD

ST ISSEY PH

NORTH CORNWALL CO CONST

BODMIN CO CONST
WITHIEL PH

S T B R E O C K

D o w n s

S t B r e o c k

R o s e n a n n o n
D o w n s

L a n t u e l

S T E N N

Trewollack Plantation

Morgan Wood

Belmarn's Park Wood

Belingick Wood

Belingick Hill

Withiel

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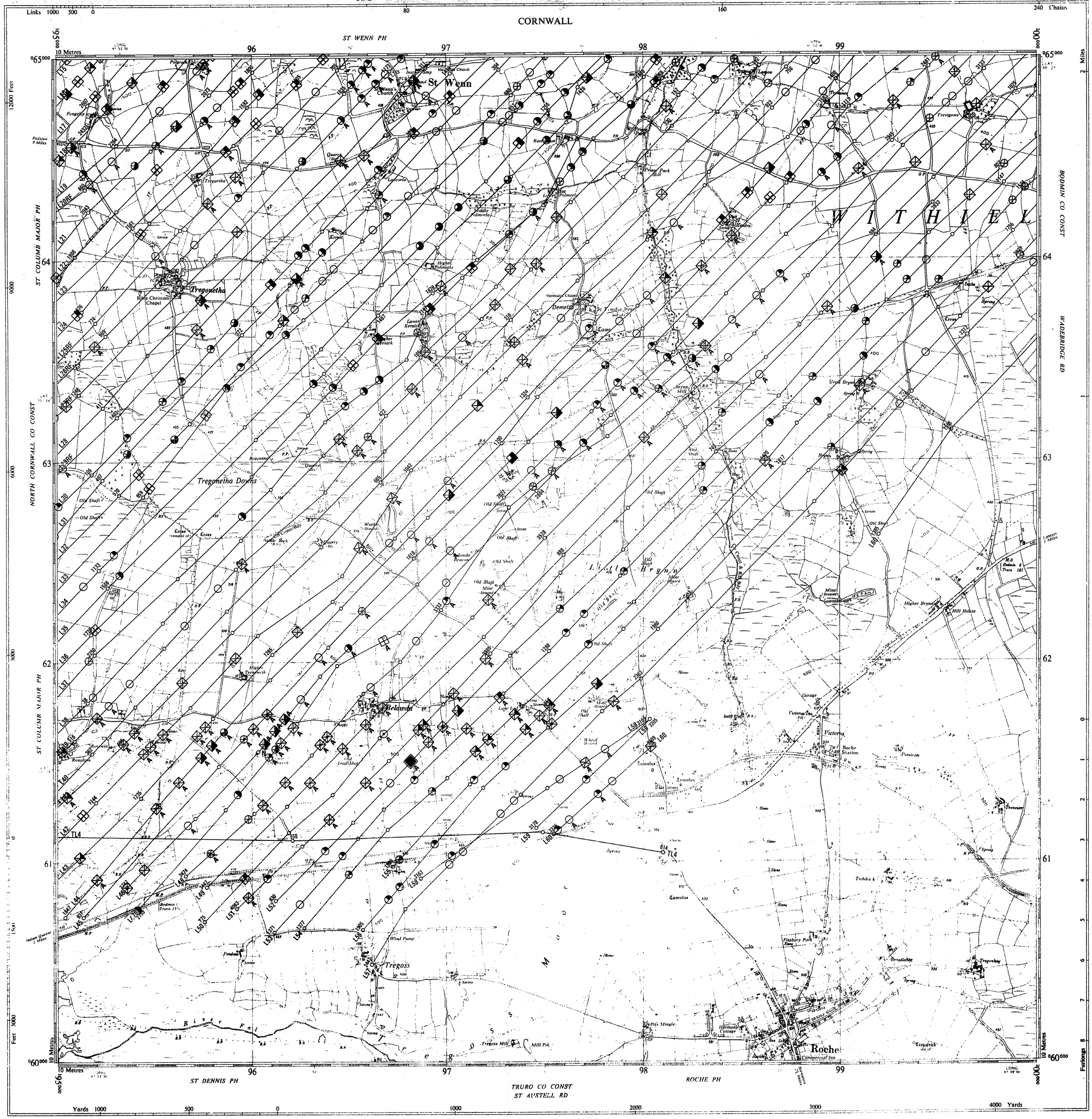
AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN-PHASE/OUT-OF-PHASE ANOMALY RATIOS

SHEET SW 96 SE



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AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN-PHASE/OUT-OF-PHASE ANOMALY RATIOS

SHEET SX06 NW

CORNWALL
WADEBRIDGE RD
NORTH CORNWALL CO CONST

EGLOSHAYLE PH

ST BREOCK PH

WITHIEL PH

HELLAND PH

BODMIN MB

BODMIN BOROUGH PH

LANIVET PH

BODMIN CO CONST

Bishop's Wood
Hustyn Wood
Hustyn Downs
Great Grogley Downs
Cotton Wood
Penaligon Downs
Dunmere Wood
Boscarne Wood
Mulberry Downs
Badwanna Wood
Polbrock
Burlorne
Burlorne Tregunna
Burlorne Pillaw
Ruthernbridge
Nanstallon
Dunmere
St. Lawrence
Washaway
Tregleath
Lane-end
Withiel Mills
Old Quarry
Great Grogley
Higher Tregunna
Tregaswne
Lavellen
Manor House (site of)
Whitehole
Pleasant Stream
Bible Christian Chapel
Husten Barrow
Cotton Wood Quarries
Old Shaft
Mine (Disused)
Tumulus (site of)
Tumulus
Earthwork
Cemetery
School
Sch. & Meth. Chap.
Meth. Chap.
Ch
Smithy
Spring
Wind Pump
Weir
Ford
Lodge
Library
Camp
Plantation
Quarry
Mill
Stone
Old Quarry
Lower Boskeyr
Higher Boskeyr
Pendewey
Tremayle
Laninval
Nanstallon Halt
Boscarne Junction
Boscarne Mill
Boscarne Remains of Mansion
Dunmere Junction
Dunmere Halt
St. Anne's Grove
Middle Boscarne
Lower Boscarne
Little Denby
Denby
Barrington Lodge
Lower Wadevale
Bodwannick on site of Manor House
Hoopers Bridge
Bloomsbridge Mill
Nanstallon
Trevarrer
Threwalers
Fir Hill
Sunderhill
Croslane
Old Shaft
Mine
Spring
Butterwell
Innertown
Lower Tregleath
Mount Charles
Wadebridge to Bodmin
Wadebridge to Bodmin
Wadebridge to Bodmin
Bodmin 12 Miles
Bodmin 13 Miles
Bodmin 2 Wadebridge 22½
Bodmin 15 Miles
Wadebridge 7 Miles
Launceston 13 Miles
Launceston 13½ Miles
Egloshayle ½ Mile
Egloshayle ¾ Mile
Egloshayle 1 Mile
Egloshayle 1¼ Miles
Egloshayle 1½ Miles
Egloshayle 1¾ Miles
Egloshayle 2 Miles
Egloshayle 2¼ Miles
Egloshayle 2½ Miles
Egloshayle 2¾ Miles
Egloshayle 3 Miles
Egloshayle 3¼ Miles
Egloshayle 3½ Miles
Egloshayle 3¾ Miles
Egloshayle 4 Miles
Egloshayle

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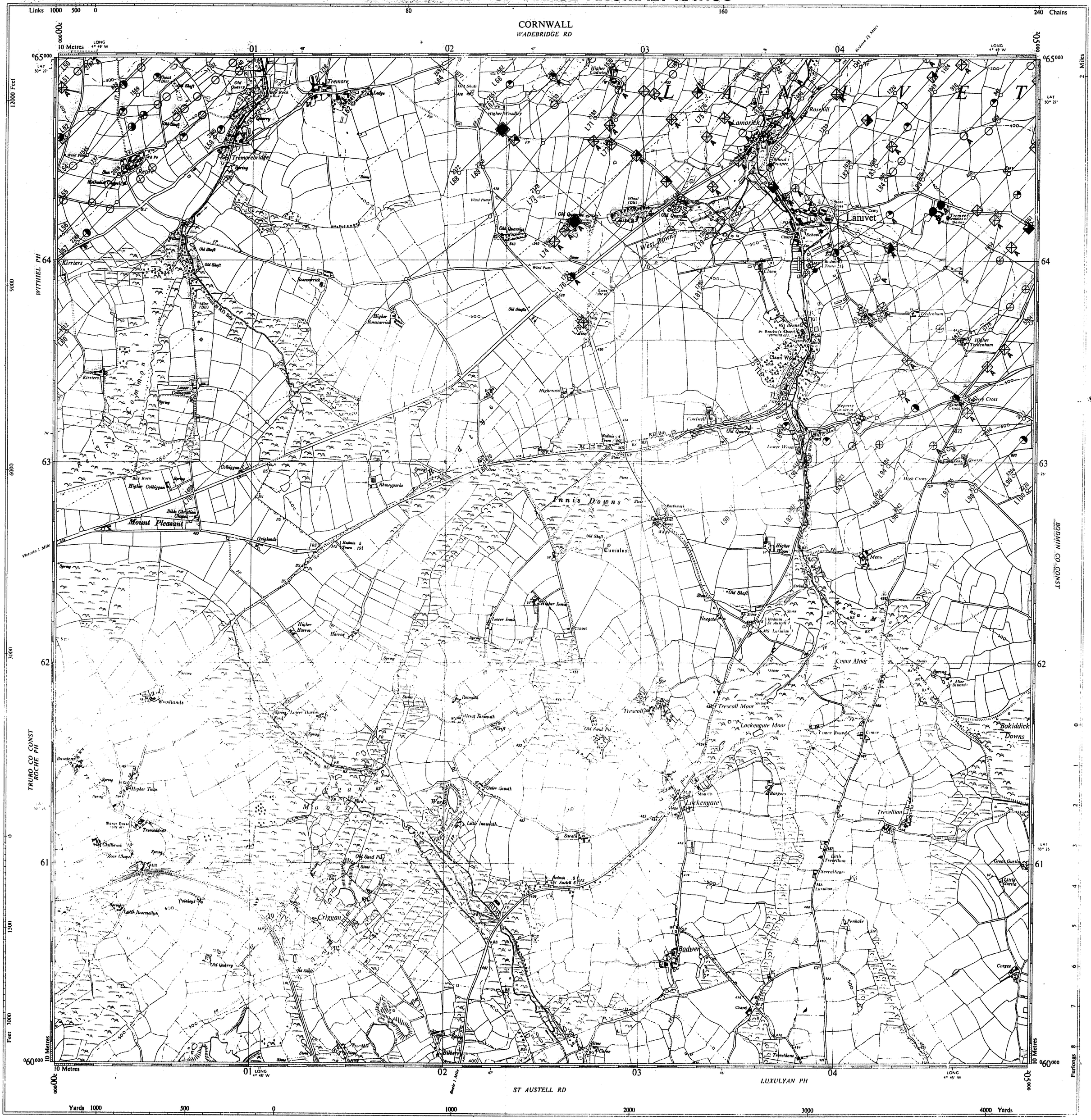
AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN-PHASE/OUT-OF-PHASE ANOMALY RATIOS

SHEET SX 06 SW



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AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN-PHASE/OUT-OF-PHASE ANOMALY RATIOS

SHEET SX 06 SE

Links 1000 500 0 — 80 — 160 — 240 Chains

CORNWALL
BODMIN CO CONST

BODMIN MB
BODMIN BOROUGH PH

CARDINHAM PH

WADEBRIDGE RD
LANIVET PH

ST AUSTELL RD
LANLIVERY PH

LISKEARD RD
ST WINNOW PH

LOSTWITHIEL MB & PH

LUXULYAN PH

L A N H Y D R O C K

Lanhydrock Dairy
Halgavor Plantation
Lodge Plantation
Robin Jane's Plantation
Roundhill Plantation
Cricket Ground
Costislost Plantation
Hart Wood
Cutmadoc
Little Cutmadoc
Walker's Plantation
Bathing Pond
LOWER PARK
Lanhydrock House
Manor House
Vicarage
Lodge
Newton
Great Wood
Higginsmoor Wood
Bronqueen Wood
Ford Plantation
Trenjan
Foxpark
Treffry Wood
Treffry Lane Cottages
Treffry Down Cottage
Treffry Site of Manor House
Higher Tremabyn
Tregullon
Treliggon
Trebell
Trebell Green
Bohiddick
Fentonpits
Higher Penvivian
Penvivian
Penburthen
Leaquite
Tredinnick
Tredinnickpits
Maudlin
Red Moor
Breney Common
Lowertown Moor
Chark Moor
Little Boslyman
Boslyman
Sweetshouse
Leudenhill Wood
Old Gravel Pit
Ebenezer Chapel
Meth Church
Puddington
Hall House
Rewpark
Creny
Crift
Roveney
Weatow
Badvren
Roselind
Gunveen
Tanhouse
Higher Penhalvel
St. Peter's Chapel
Lower Demercy
Higher Demercy
Pengulte
Bodardle
Old Quarry
Tarngate
Respryn Bridge
Respryn
Stone
Old Shaft
Mine (Dis)
Mill Race
Coombe
Boundary Unverified from A to B
Boundary Unverified from B to C
Boundary Unverified from C to D
Boundary Unverified from E to F
Munt Boro Bdy
RD Bdy
Parish Bdy
Tunnel
Quarry
Spring
Springs
Works
Ford
Pond
Tumulus
Cross (remains of)
Stone Cross (remains of)
Burial Chamber
Logan Stone
Meth Chapel
Chapel
Ch
TCB
MP
GP
FP
TL5 3869
TL3 3887
TL5 3869
TL3 3887

Grid 205000 / 065000 / 060000 — 06 07 08 09 — 10 Metres
Yards 1000 500 0 1000 2000 3000 4000 Yards
Feet 12000 9000 6000 3000 0
Furlongs 0 1 2 3 4 5 6 7 8

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AIRBORNE ELECTRO-MAGNETIC MAP OF PART OF CORNWALL
IN-PHASE/OUT-OF-PHASE ANOMALY RATIOS

SHEET SX 06 NE