



**Halloon Farm,  
St Columb Road,  
Cornwall**

**Geophysical Survey**

**by**

**Tim Sutherland**

HALLOON FARM, ST COLUMB ROAD, CORNWALL

Geophysical Survey 1991

by

Tim Sutherland

for

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# GEOPHYSICAL SURVEY REPORT

**1 Site** Halloon Farm, St. Columb Road, Cornwall

**2 National Grid Reference** SW91055985

**3 Site description** The site is situated 500m to the N of St. Columb Road village which in turn lies 11km (or 7 miles) to the E of Newquay, Cornwall (see Fig. 1).

The survey area covered several fields which surrounded Halloon Farm on its E, S and SW sides (see Fig 3). At the time of the survey the site was under pasture. It is well drained and relatively flat with slopes of no more than approximately 5 degrees.

**4 Geology** The underlying geology is of Meadfoot Beds, Calcareous slate, grit and thin limestone.

## **5 Archaeology**

5.1 The name Halloon means 'hall on the down' (pers comm George Collins) and reportedly appears in the Domesday survey, although we were unable to check this reference.

5.2 The area around Halloon Farm displays a variety of archaeological sites, the most extensive of which are tin mines and china clay quarries.

5.3 There was once a tin mine within the confines of the farm itself (pers. comm. George Collins) but very little visible evidence of this now exists.

5.4 The 1:25000 map (Fig 1) shows a pond (SW 91005980), within the limits of the survey area, in the corner of a field. This once fed an iron, over-shot water wheel that is still visible in the farmyard. No trace of the leat that would have fed the pond can now be seen, although one corner of the brick-lined pond remains visible, the remainder having been filled by the farmer in an attempt to reclaim usable land (pers comm George Collins).

5.5 Several small parallel banks can be seen running along the entrance way to the farm (SW 91105980) and are shown on the 1:25000 map (Fig 1) as retaining or containing water.

5.6 A major field boundary shown on the 1:25000 map (Fig 1: SW91055970) no longer exists and was apparently ploughed out by the farmer in the 1970's (pers comm George Collins).

5.7 Linear and circular crop marks at, and to the W of, SW90505965 have been recorded on the Cornwall Sites and Monuments record as 54 /21097, 56 /21098 and 57/21099.

**6 Aim of survey** This geophysical prospection survey was carried out in June 1991 in advance of a new road which would run across the site (see Fig 2). The aim of the survey was to identify and assess evidence of early settlement and land use on the site, especially in relation to the crop marks mentioned above (5.7). It was carried out by Bournemouth Polytechnic as part of a wider archaeological assessment of the site by Cornwall Archaeological Trust.

Please note that technical terms used in this report are well explained in Clark 1990.

**7 Type of survey** Magnetometry.

arrangement of the grids and is seen as the main integrating element within this set of illustrations. If required for eventual publication these illustrations could be re-presented in other arrangements, or at alternative scales.

**11 Magnetic anomaly interpretation** All grids were initially processed by examining the degree of intensity of magnetic flux (measured in nT) at +/- 1nT to the mean for each grid square (the grid mean). This equation was subsequently modified on a grid-by-grid basis to optimise graphical resolution.

In this report magnetic anomalies are referred-to as anomalies, and are defined as areas of either high or low magnetic flux density in relation to the grid mean. Where anomalies are patterned they may be described as features. These features may or may not be archaeologically relevant. Their interpretation is discussed below on a feature-by-feature basis.

## 12 Results

*Feature 1* (Figs 5, 6 and 25) This very strong feature lies in the NE of Grid 6. It could be produced by a concentration of archaeological features, further definition of which would require additional investigation. A feature which appears to run from the E of Feature 1 on the line plot (see Fig 5) is in fact a bank still observable as an earthwork.

*Feature 2* (Figs 8, 9, 11, 12 and 26) This strong feature runs roughly WNW/ESE through grids 13, 14, 16, 19, 22, 26 and 30. Its magnetic field is strong enough to obscure other possible features either side of it. This feature is entirely consistent with the effects caused by a service trench containing a ferrous pipe.

*Feature 3* (Figs 8, 9, 11, 12 and 26) This strong feature runs roughly WNW/ESE through grids 15, 17, 20, 23, 27 and 31. The dot density plots (Figs 8 and 11) display this feature as a series of interrupted high readings or blobs. This phenomenon is consistent with the effects of some buried ferrous pipes ( Gaffney, Gater and Ovenden 1991, 7).

*Feature 4* (Figs 8, 9, 11, 12, 14, 15 and 26) This slight feature runs roughly NW/SE through grids 21, 24, 23, 27, 30 and 31. It contains either very little magnetic material or magnetic material which is well masked by the soil above. It is not clear whether his feature is geological or man-made. It may represent the course of the leat noted in 5.4.

*Feature 5* (Figs 8, 9, 11, 12 and 26) This strong feature runs roughly E/W through grids 18, 25, 29 and 34. It strongly resembles Feature 3 above on the dot density plot. It is therefore likely to represent a service trench and its ferrous pipe.

*Feature 6* (Fig 8, 9 and 26) This disturbed area runs roughly NNW/SSE through grids 16, 17 and 18. This feature is known to be the remains of the ploughed away field boundary mentioned in 5.6 above.

*Feature 7* (Figs 11,12 and 26) This feature runs roughly NE/SW through Grids 22, 23, 27, 28, 32 and 33. It can be seen on the line plot (Fig 26) as a row of peaks which appear to be mainly above the grid mean. The readings are consistent with those of a ditch. However the fact that this feature runs in an almost straight line between two gaps in the stone boundaries may suggest that it is a trackway.

*Feature 8* (Figs 11,12 and 26) This feature runs roughly NW/SE through Grid 34. It contains several readings greater than 204 nT. This feature is likely to represent a service trench containing a ferrous pipe.

*Feature 24* (Fig 24) This slight linear feature runs NW/SE in Grids 62 and 64. It aligns with, but does not link with, part of Feature 20.

### 13 Conclusions

13.1 Areas of relatively high magnetic field strength may be caused by accumulation of materials with enhanced magnetic susceptibility. Magnetic susceptibility may be enhanced by a range of human activities, of which the most important is the cumulative effect of heating topsoil in the absence of air (eg under bonfires). Topsoil modified in this way can give rise to enhancements of magnetic field strength if it accumulates in features such as pits or ditches. Linear anomalies in these plots may therefore indicate ditches. Further evaluation of such features, using eg aerial photographs, surface collection and/or test excavations, is recommended.

13.2 Some of these anomalies might alternatively be of geological origin. It is difficult, in some cases where slight patterning is evident, to distinguish between archaeological and geological features among magnetic anomalies, although large anomalies of a 'fuzzy', ill-defined or amorphous appearance may well be explained by geological changes. Test excavations might resolve the matter in these cases.

13.3 The site generally shows evidence of many features which are not apparent on the surface. Some features give readings consistent with those of ferrous pipes, which show up very clearly (eg Features 2, 3, 5 and 8). These may mask other features which lie in close proximity.

13.4 Features which might repay further archaeological investigation are Features 1, 4, 9, 10, 11, 13, 14, 15, 16, 17, 19, 20, 21, 23, and 24.

**14 Survey archive** The survey archive is held at Bournemouth Polytechnic's Field Centre. It consists of fieldwork notes, all geophysical data (held on disk) and all originals of illustrations used in this report. Access to this material, or copies, can be arranged by contacting Jenny Yates at the address given on the title page of this report.

**15 Acknowledgements** We acknowledge the co-operation and assistance of Nancy and George Collins of Halloon Farm, Peter Rose of the Cornwall Archaeological Unit, and Mr and Mrs Morris.

**16 Survey personnel** The survey was carried out in the field by Tim Sutherland and Vince Devine. Jenny Yates carried out the computer processing of survey data, with the assistance of Carol Burns. Text and illustrations are by Tim Sutherland. The report was read by John Beavis, and edited by John Gale and Alan Hunt.

### 17 Bibliography

- |  |      |  |
|--|------|--|
| Clark A J                              | 1990 | <i>Seeing Beneath the Soil</i>   |
| Gaffney C,<br>Gater J and<br>Ovendon S | 1991 | <i>The Use of Geophysical Techniques in Archaeological Evaluations</i> (Institute of Field Archaeologists Technical Paper 9) |

**18 Date of this report** November 1991

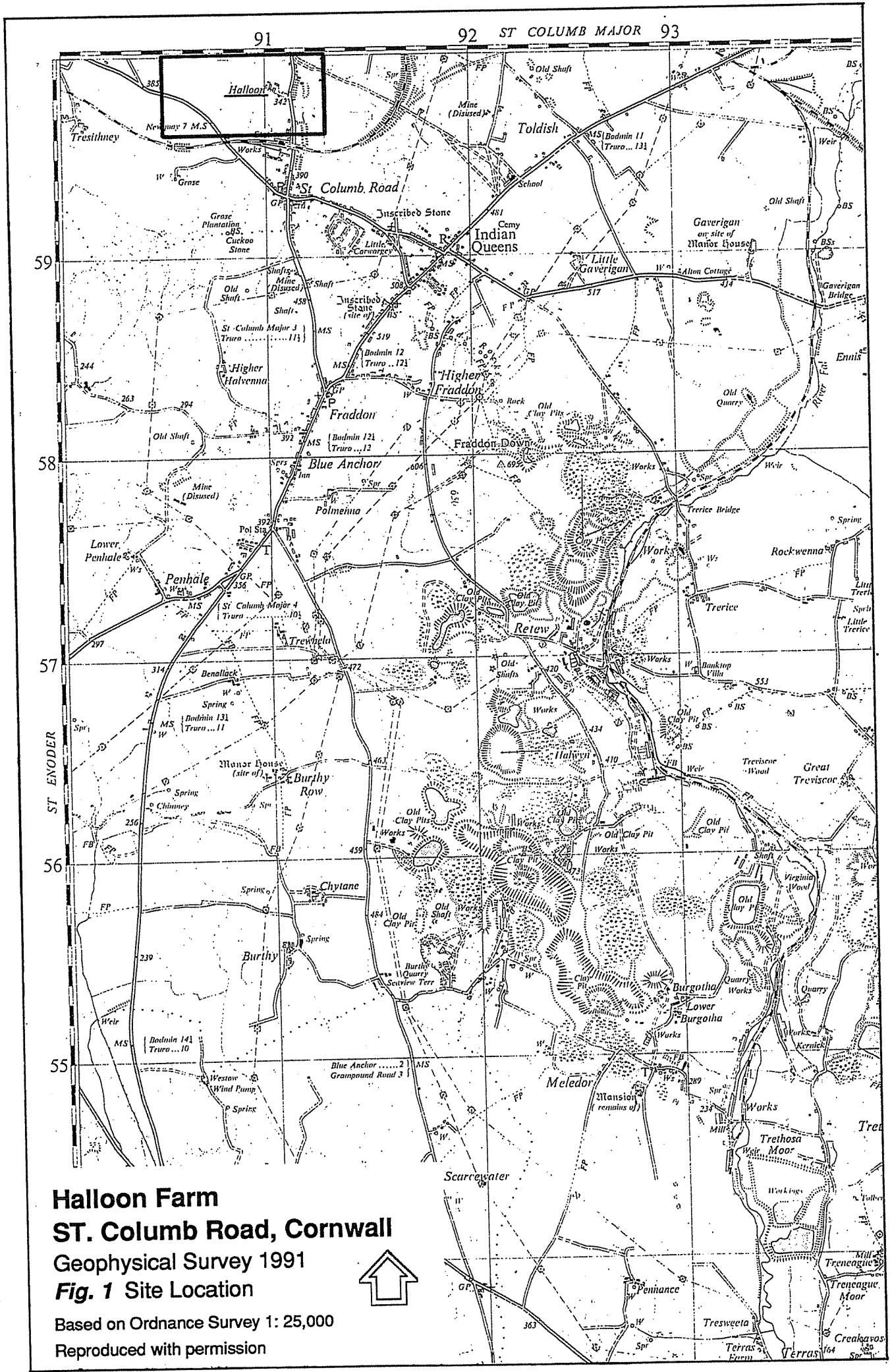
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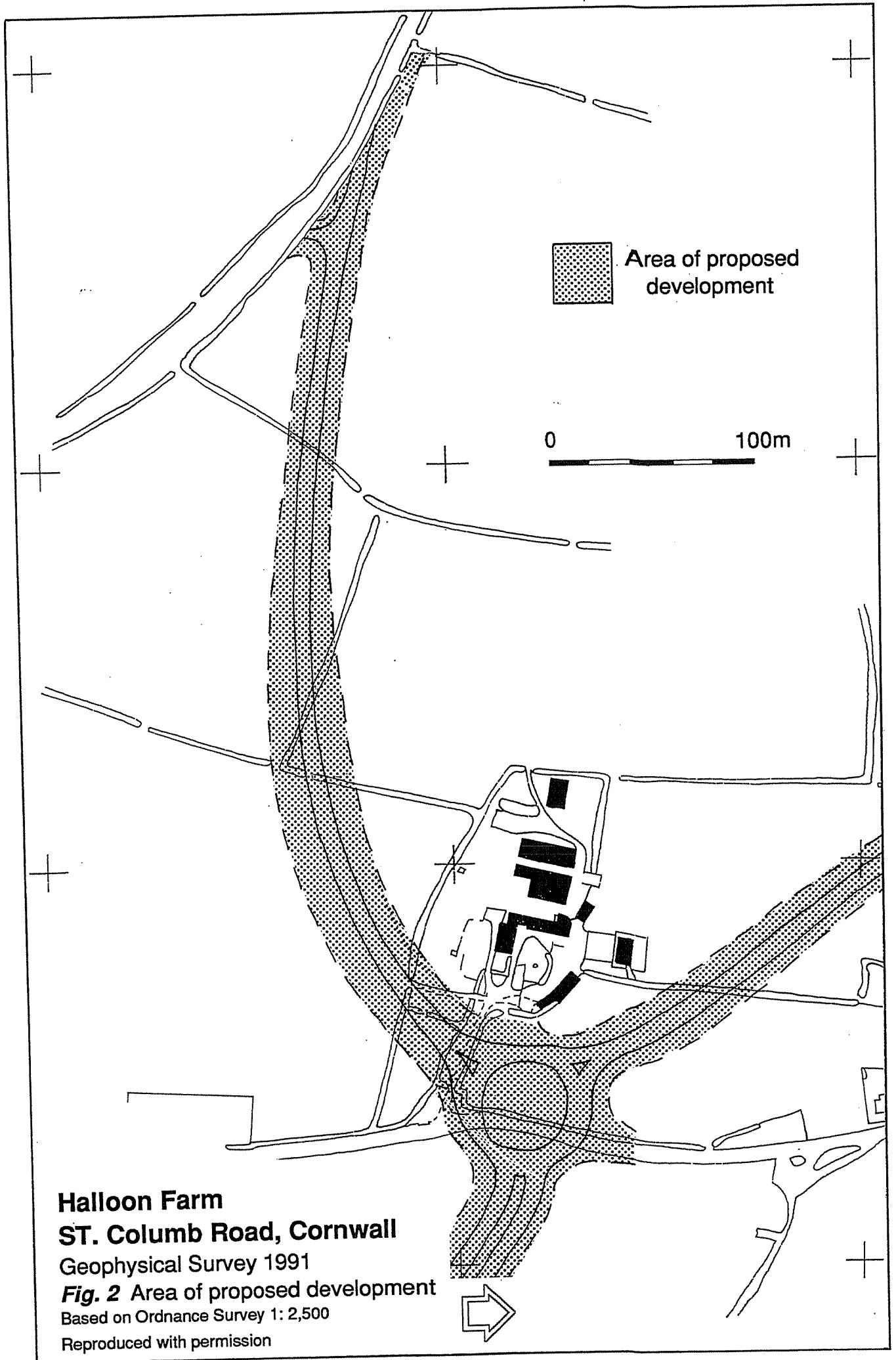
**Fig. 28** Area 4, Stacked line plots of grids 44-68



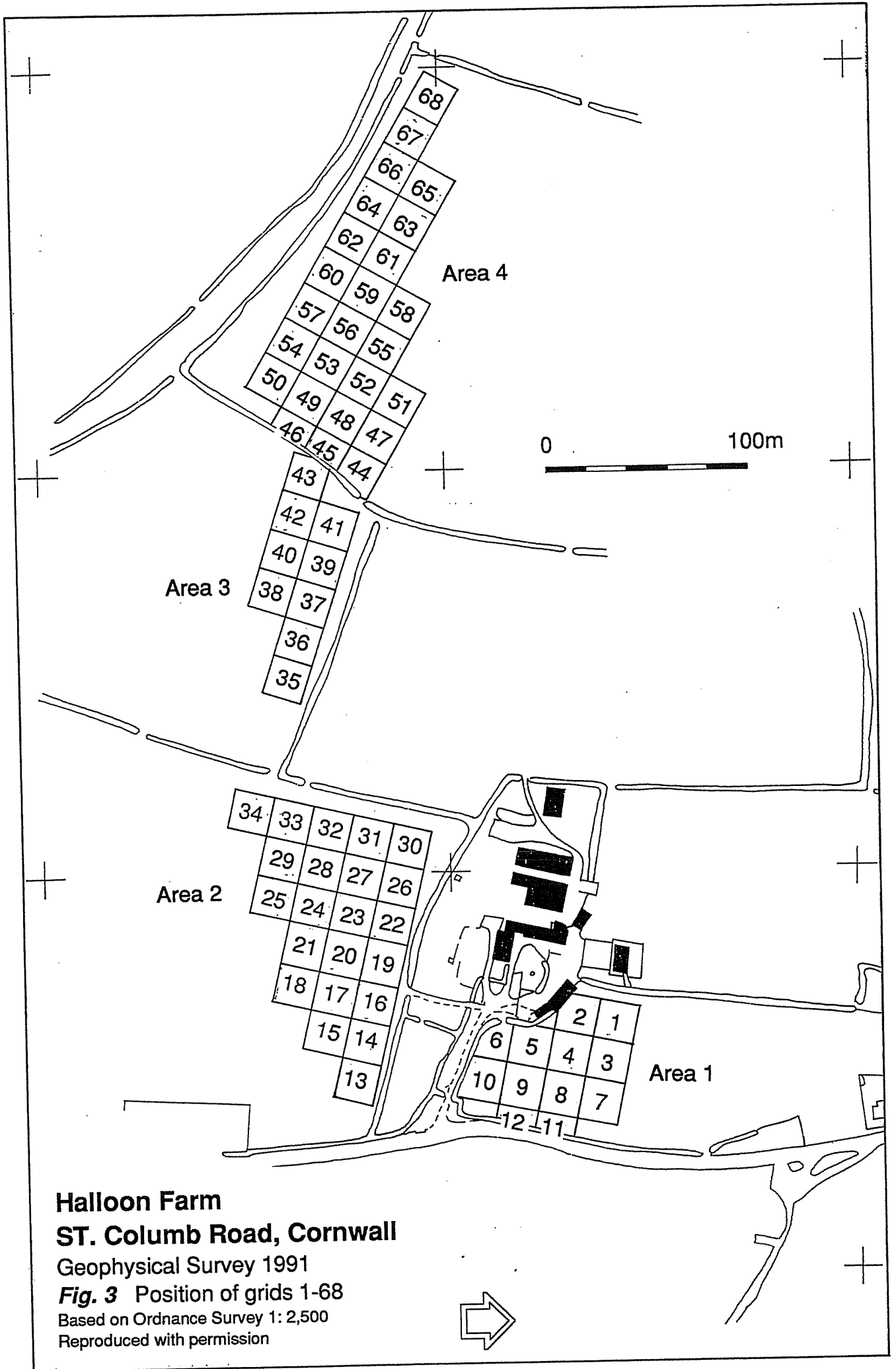




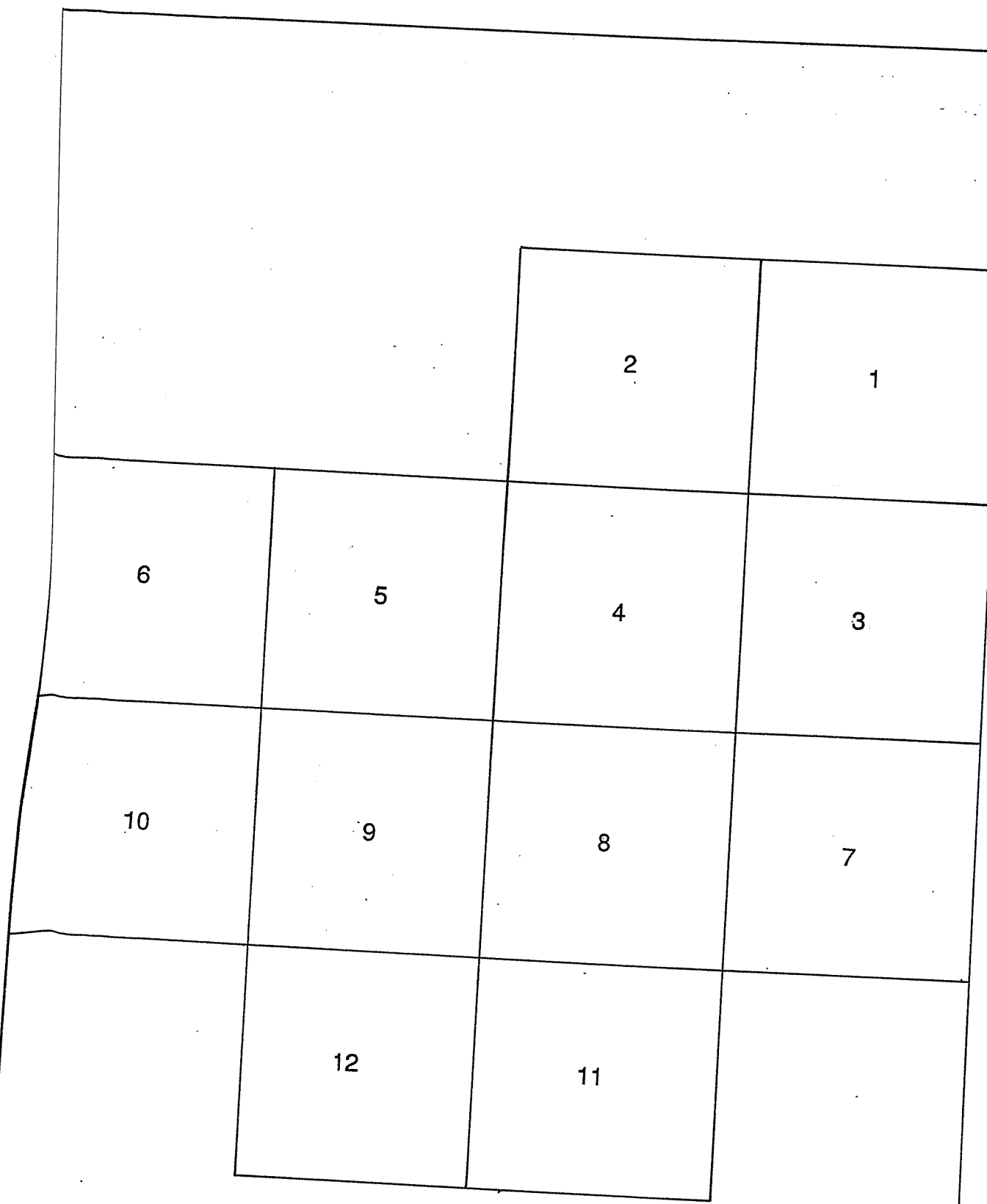
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 Geophysical Survey 1991  
**Fig. 1 Site Location**  
 Based on Ordnance Survey 1: 25,000  
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Geophysical Survey 1991  
**Fig. 2** Area of proposed development  
Based on Ordnance Survey 1: 2,500  
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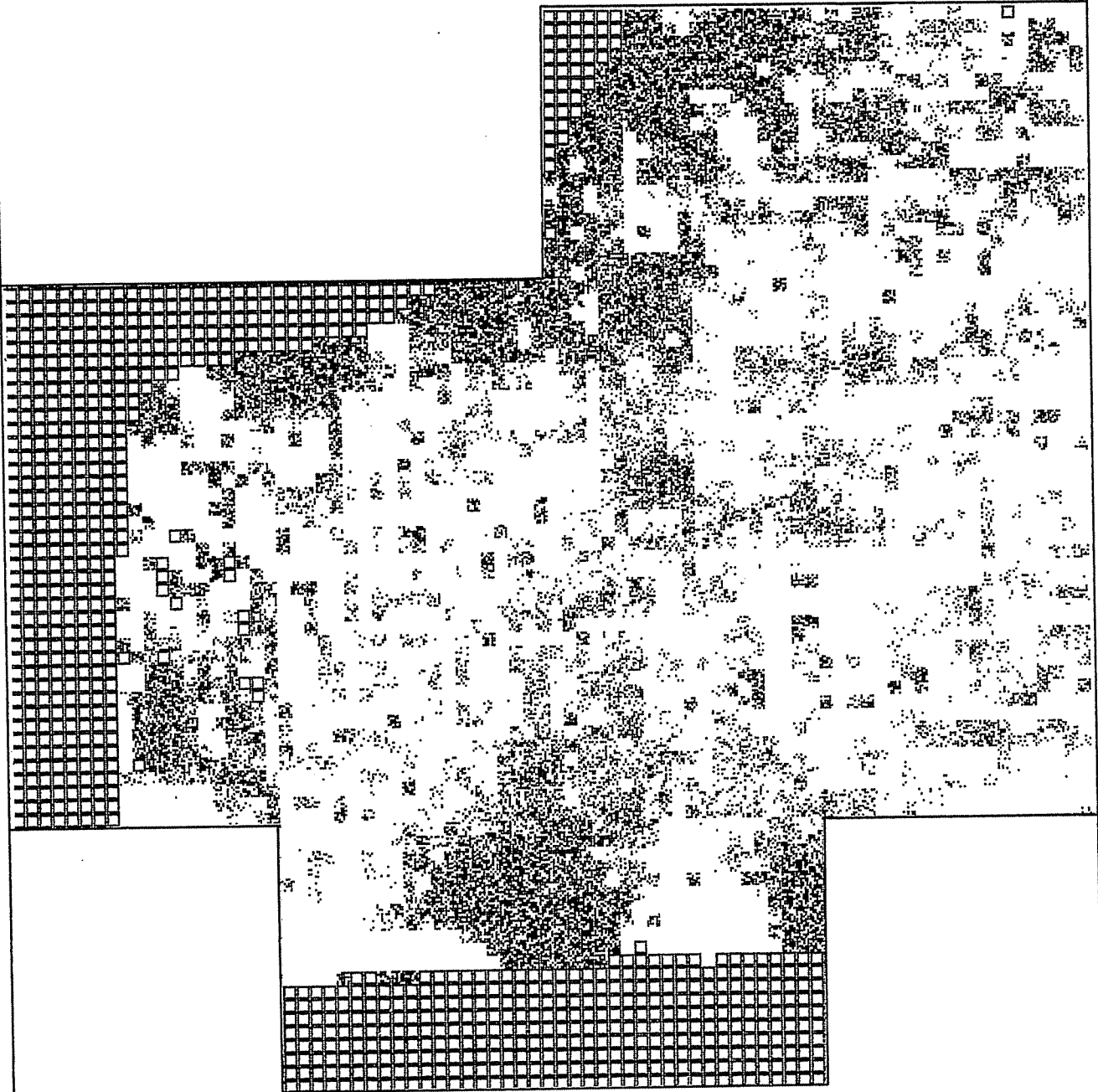
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**Fig. 3** Position of grids 1-68  
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**Fig. 4** Position of grids 1-12



20m x 20m grids



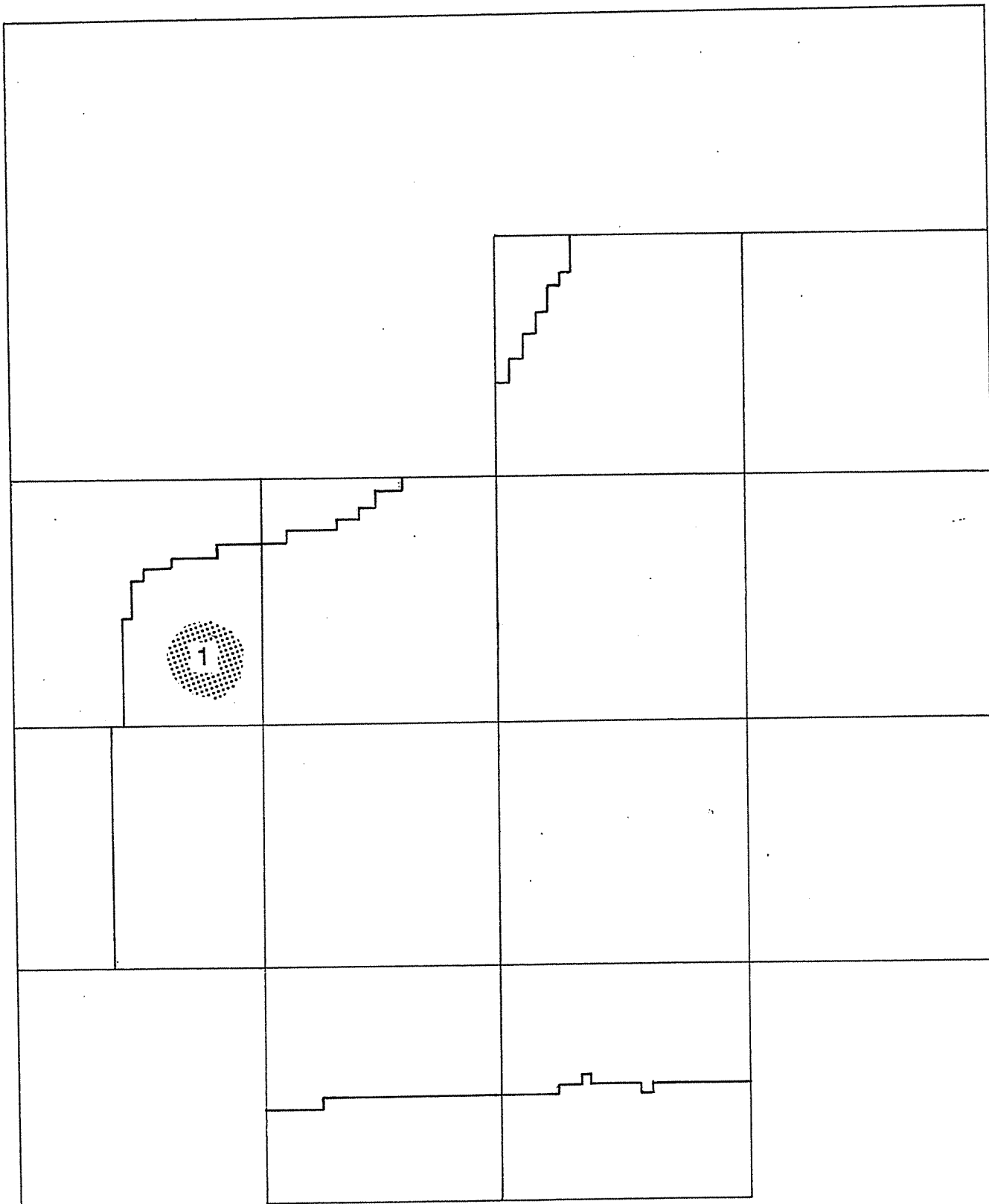
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**Fig. 5** Dot density plots of grids 1-12

Min. 3.76 nT      Max. 5.50 nT

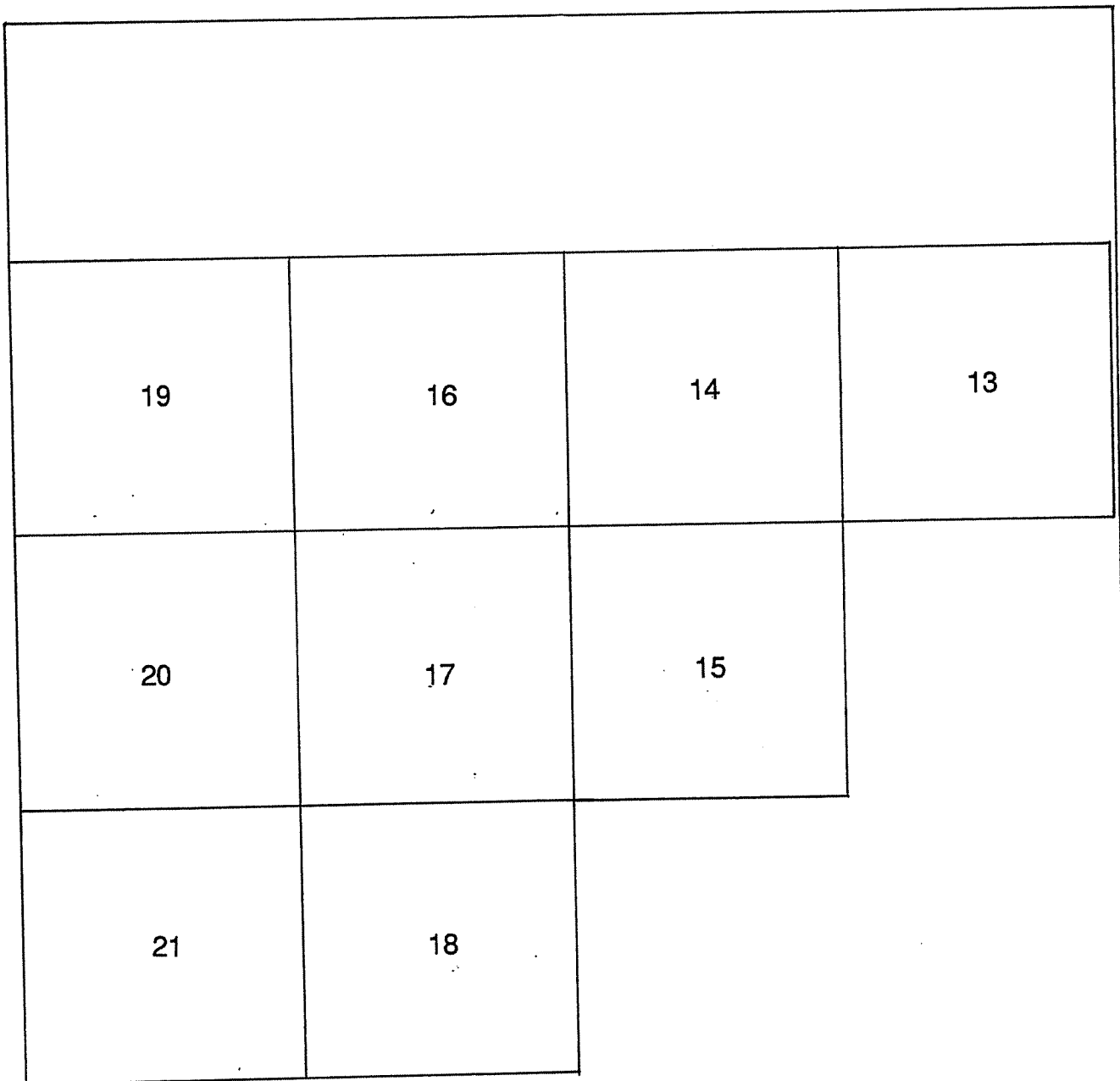




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**Fig. 6** Interpretation of grids 1-12



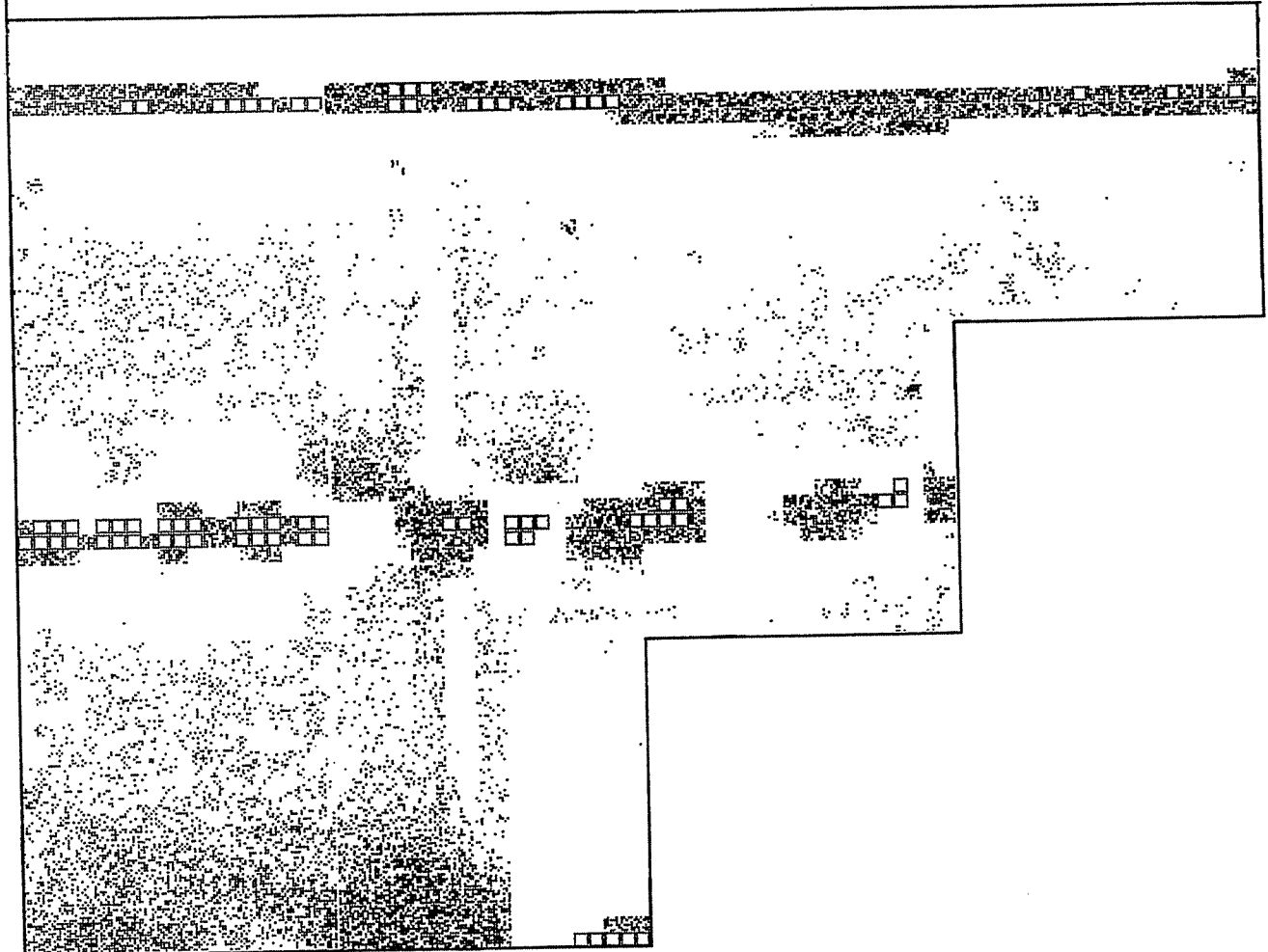
20m x 20m grids



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*Fig. 7* Position of grids 13-21



20m x 20m grids



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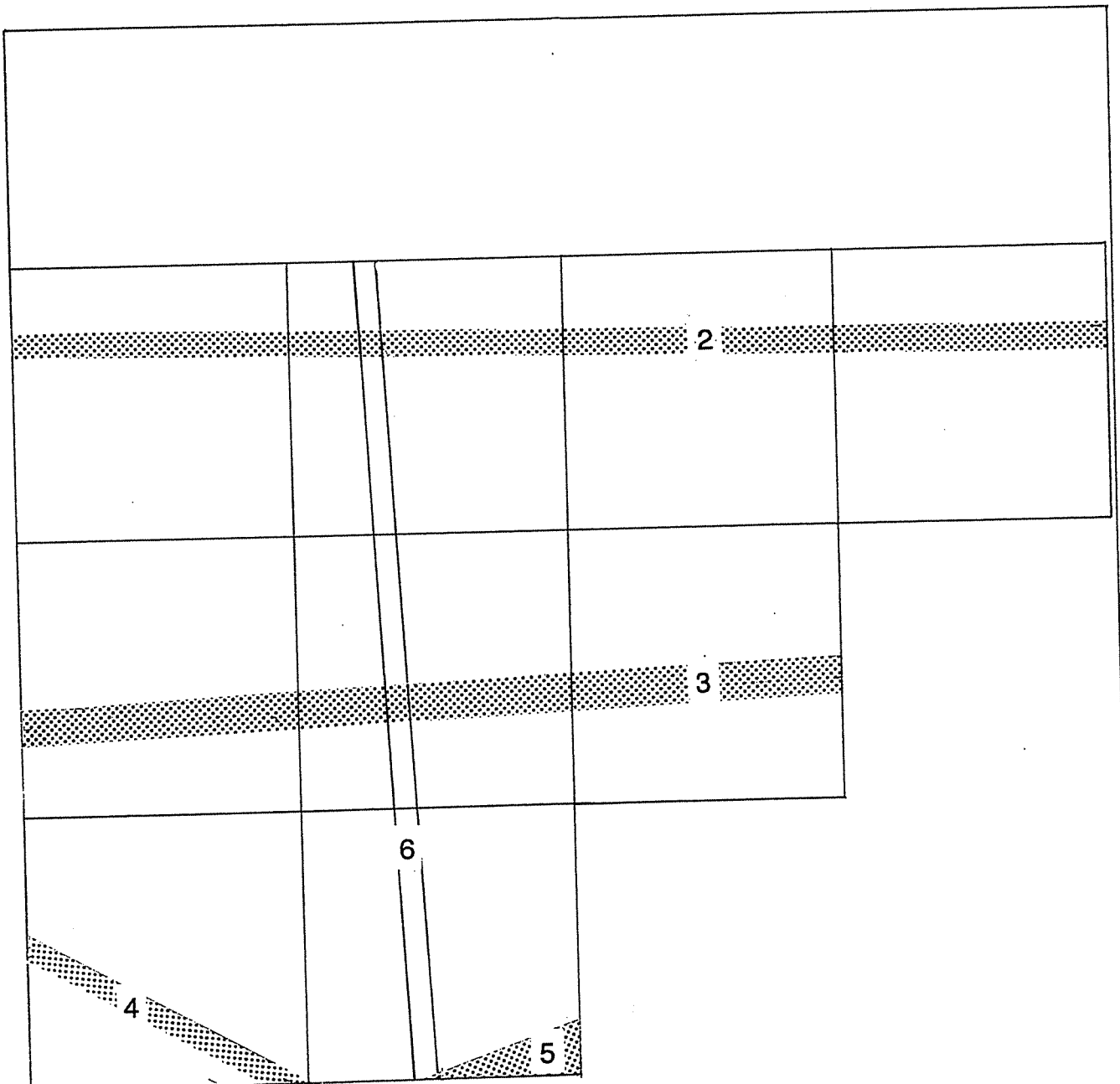
**Fig. 8** Dot density plots of grids 13-21

Min. 0.83 nT      Max. 15.00 nT



0      20m

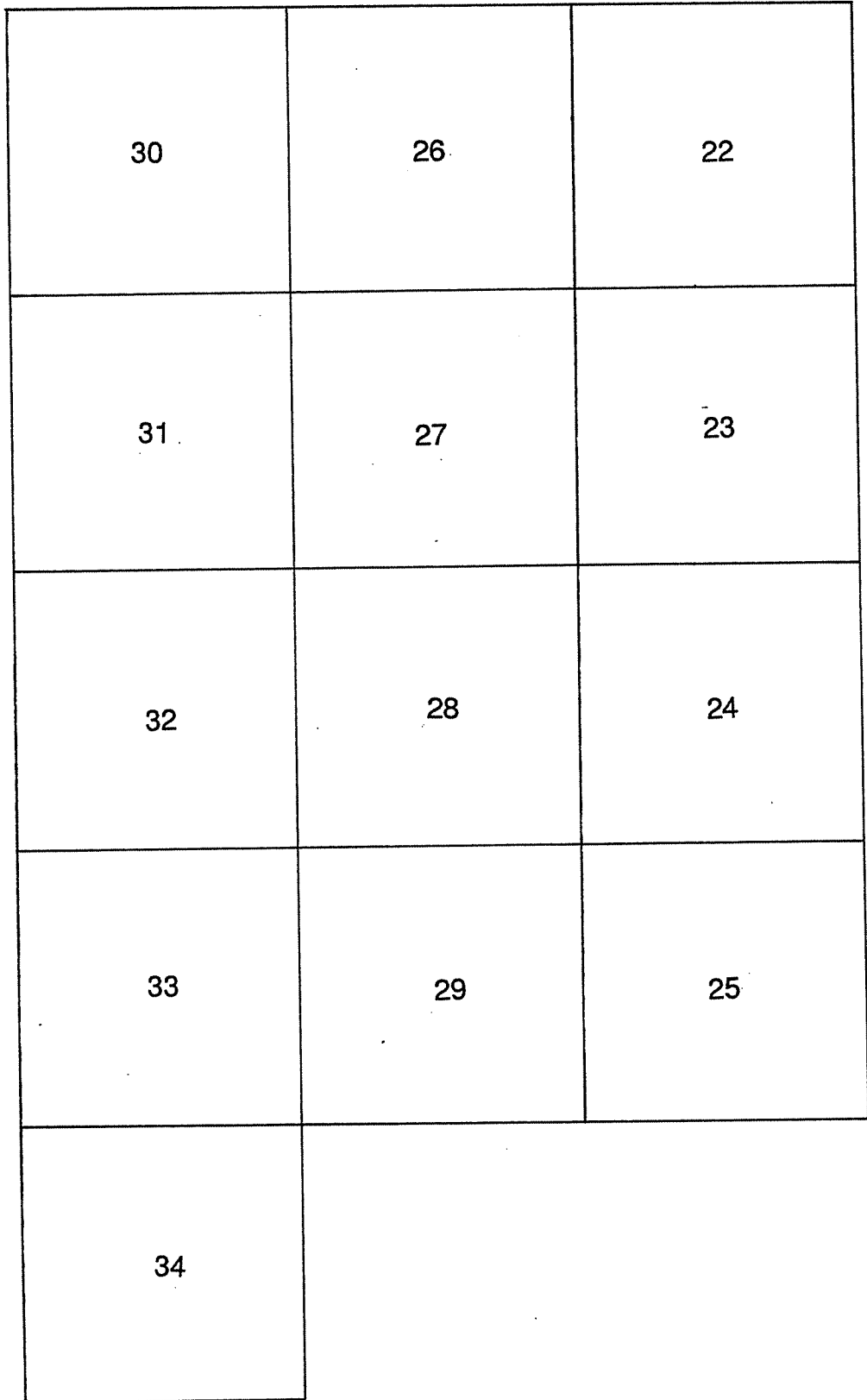




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**Fig. 9** Interpretation of grids 13-21



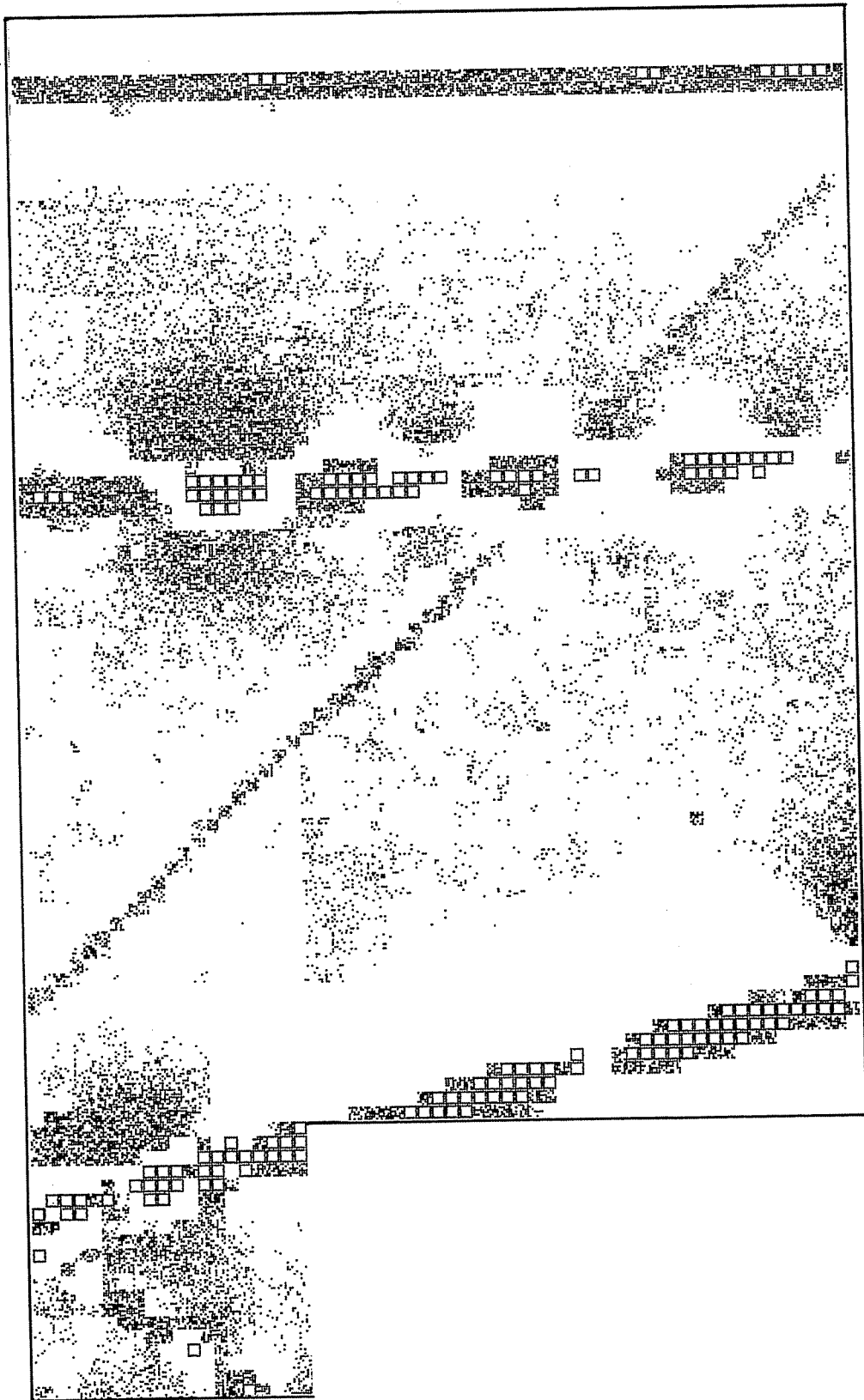
20m x 20m grids



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**Fig. 10** Position of grids 22-34



20m x 20m grids



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**Fig. 11** Dot density plots of grids 22-34

Min. 0.83 nT

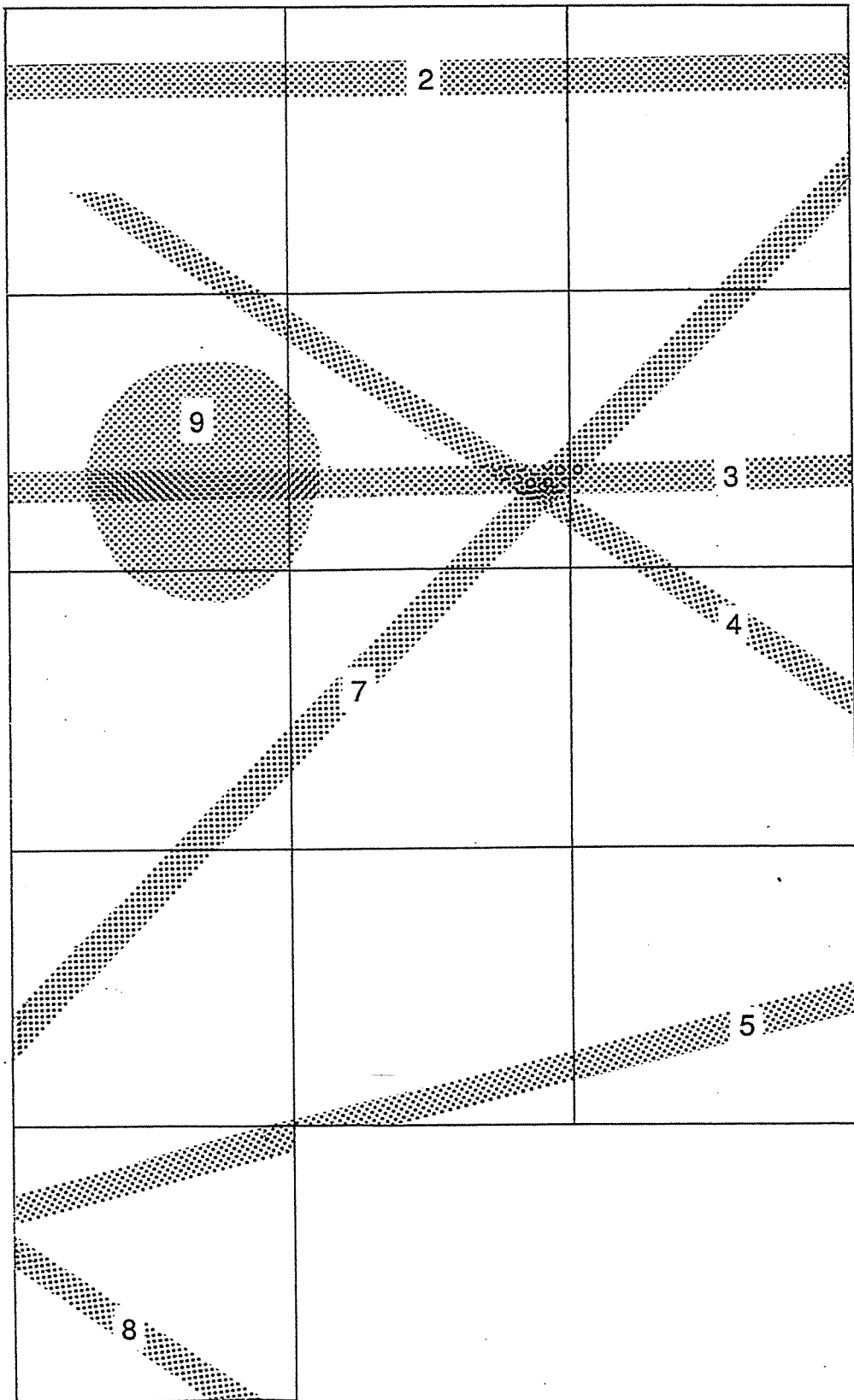
Max. 15.00 nT



0

20m





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**Fig. 12** Interpretation of grids 22-34



20m x 20m grids

32	31	30
28	27	26
24	23	22
21	20	19

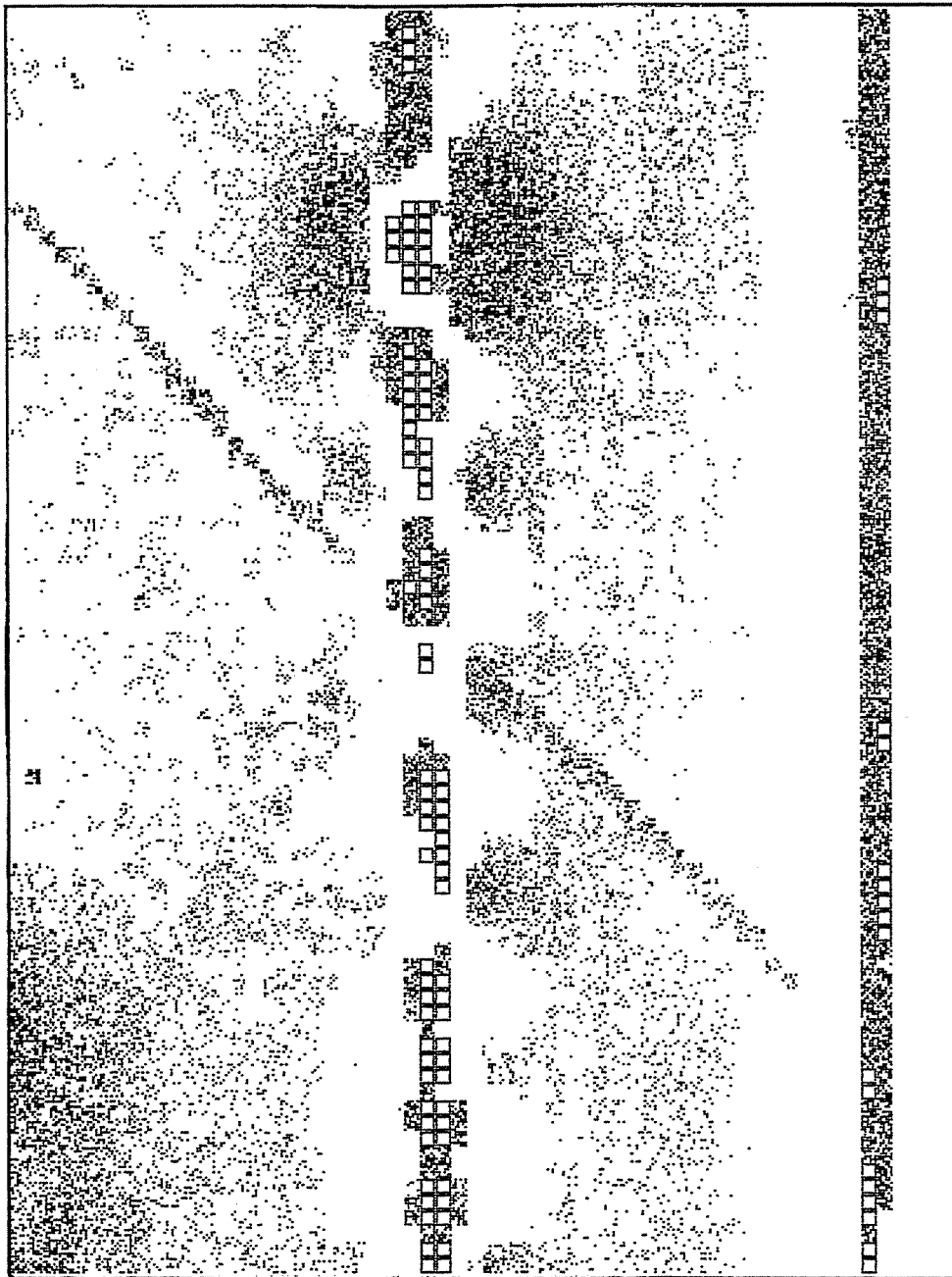
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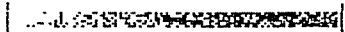


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**Fig. 13** Position of grids 19-24, 26-28, 30-32

20m x 20m grids



  
 Min. 0.83 nT      Max. 15.00 nT

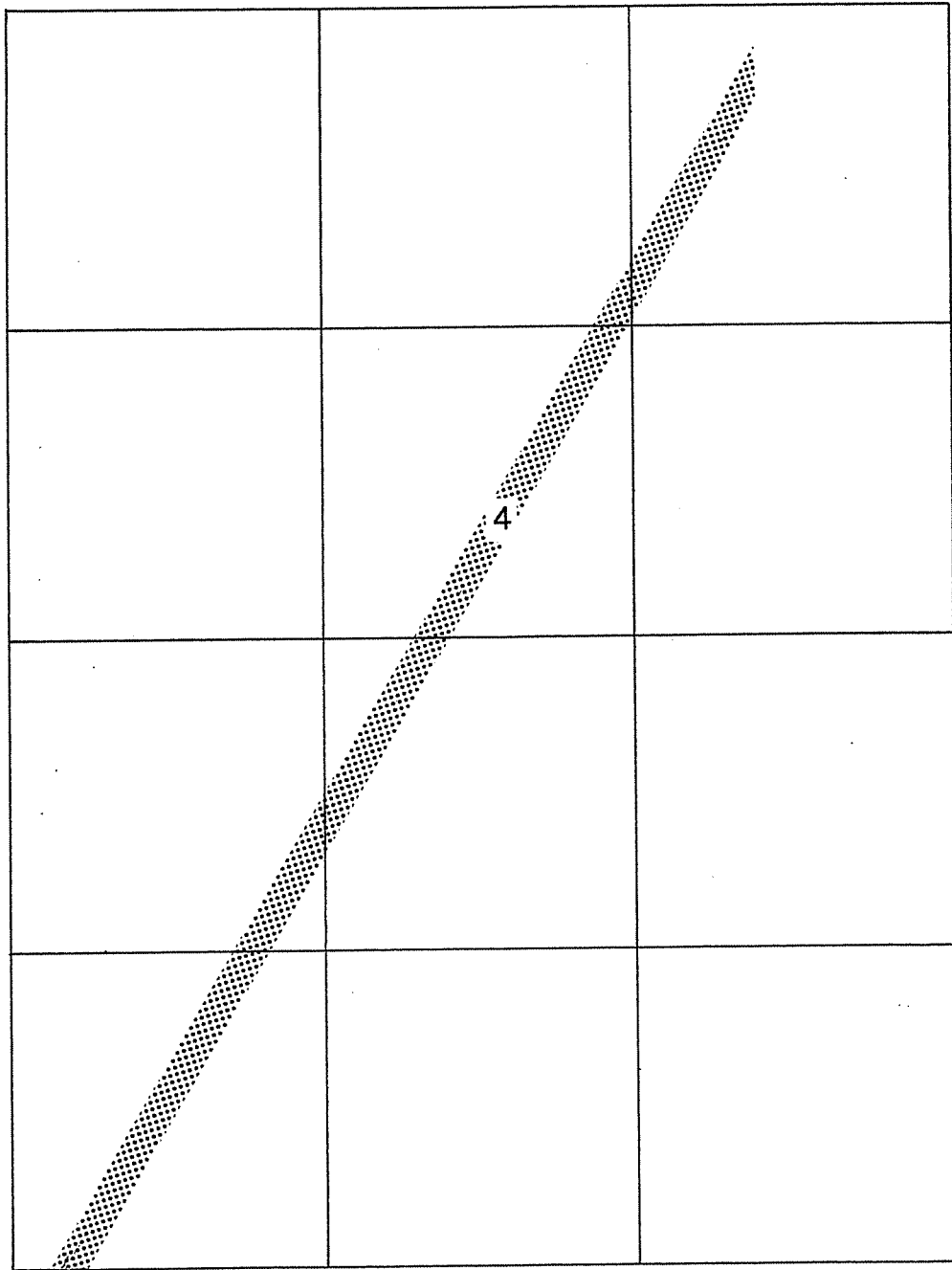
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**Fig. 14** Dot density plots of grids 19-24, 26-28, 30-32



0 20m  

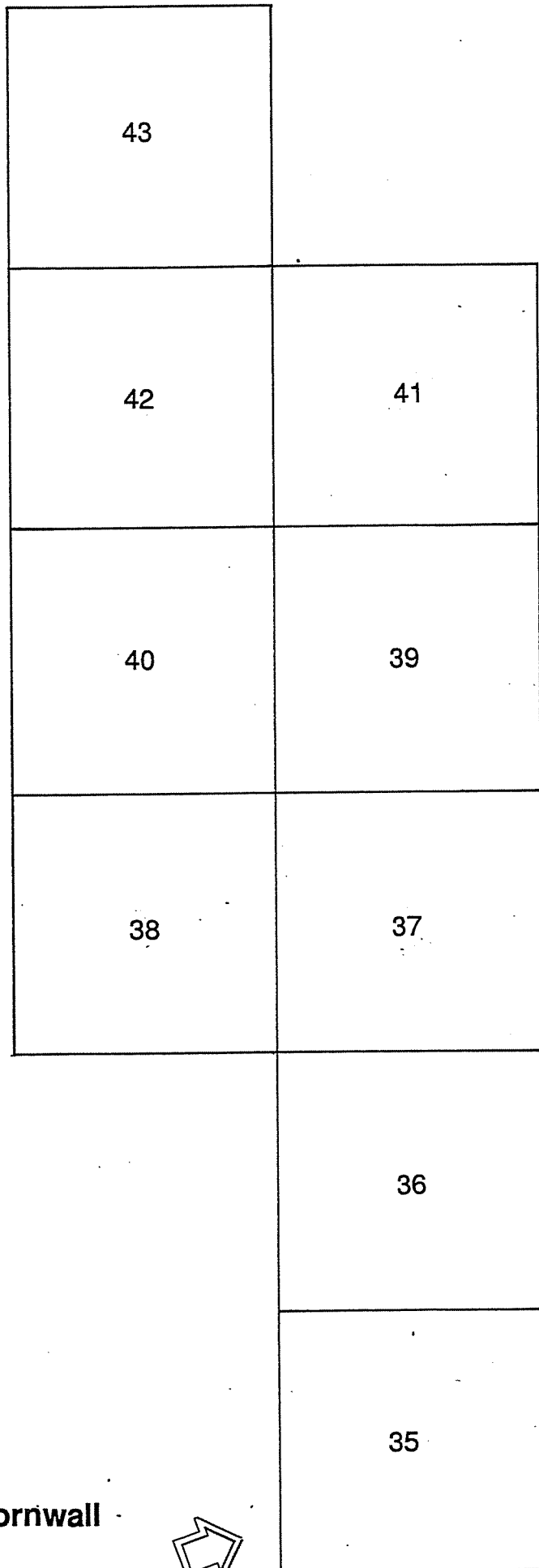
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**Fig. 15** Interpretation of grids 19-24, 26-28, 30-32

20m x 20m grids



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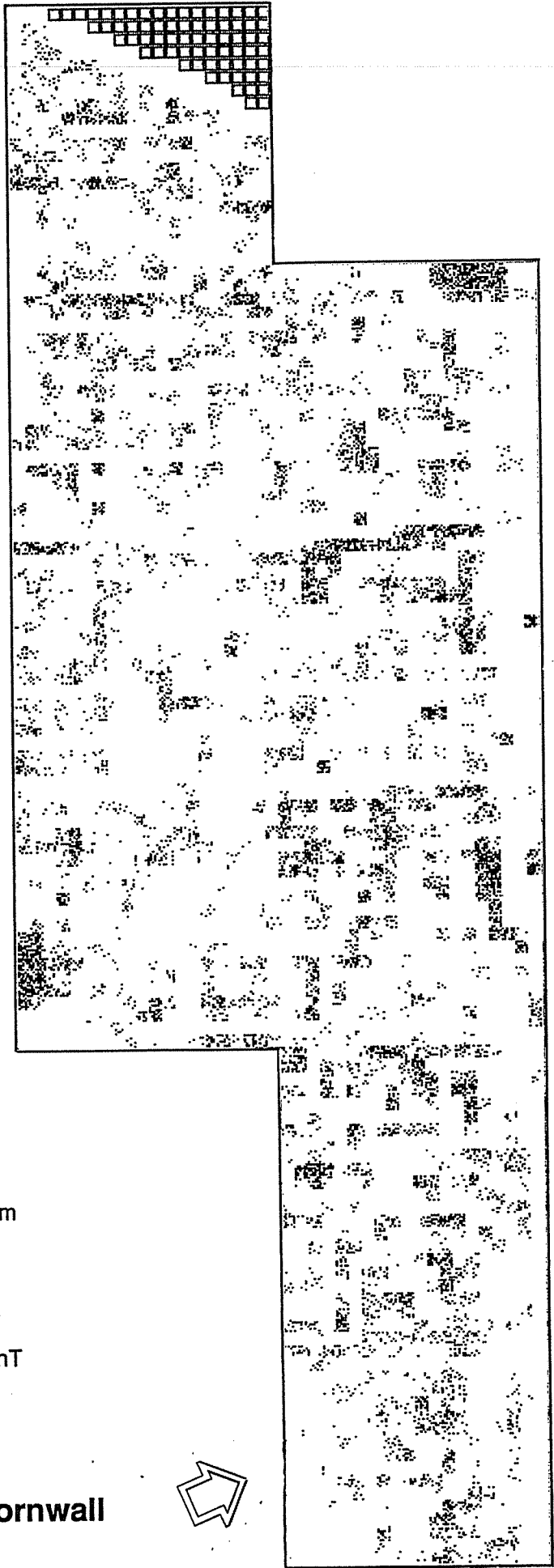
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**Fig. 16** Position of grids 35-43



20m x 20m grids





0 20m

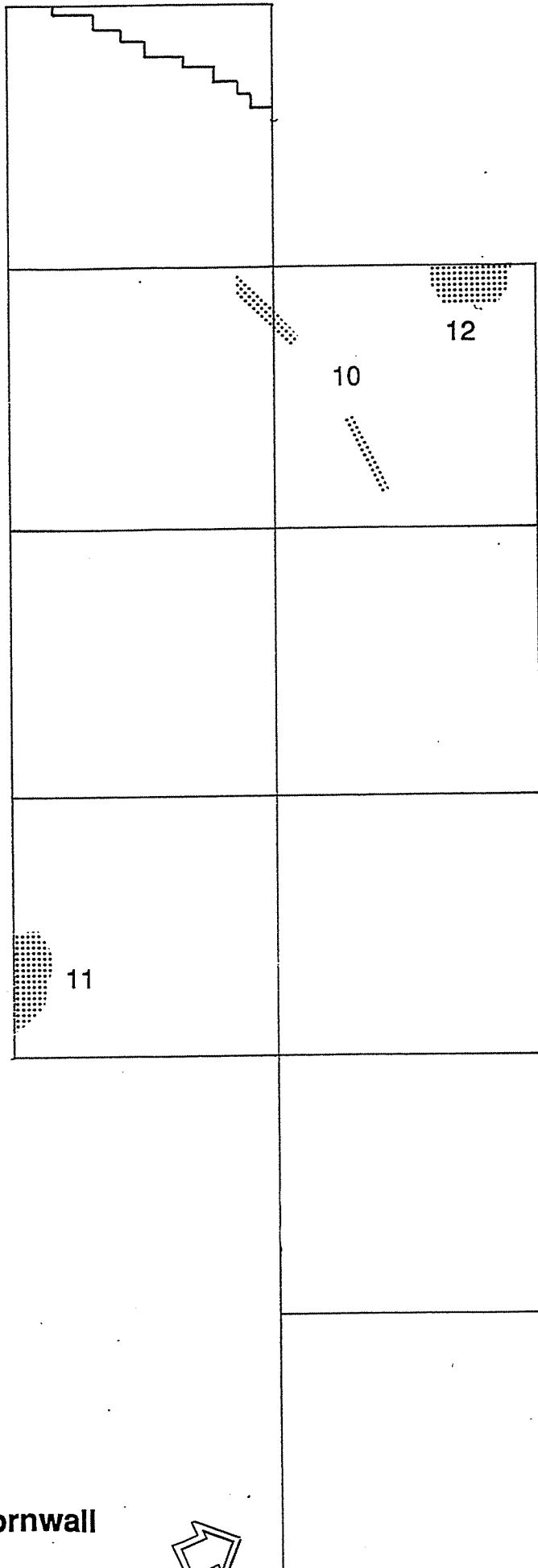
Min. 2.73 nT Max. 7.50 nT

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**Fig. 17** Dot density plots of grids 35-43





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**Fig. 18** Interpretation of grids 35-43



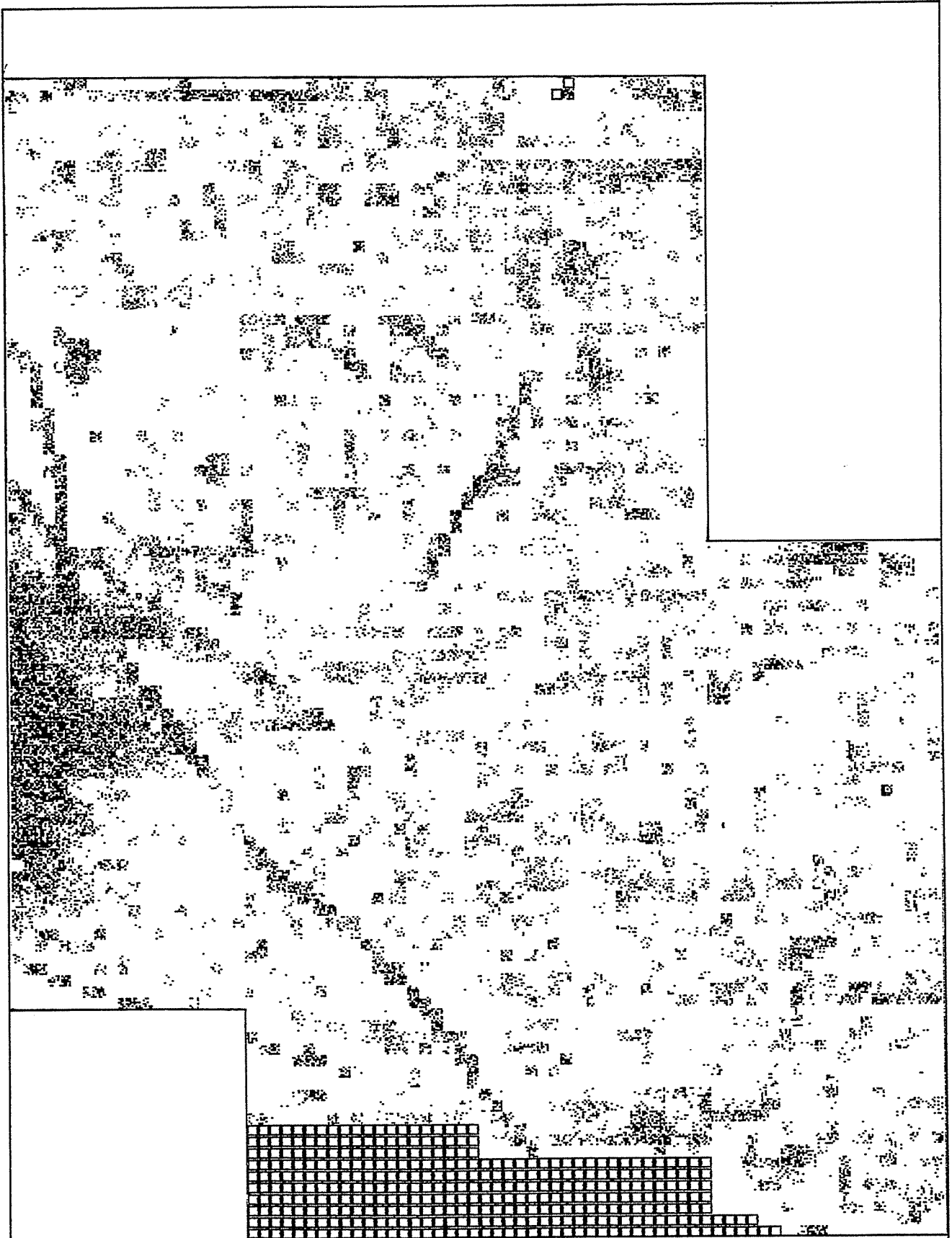
20m x 20m grids

60	59	58	
57	56	55	
54	53	52	51
50	49	48	47
	46	45	44

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**Fig. 19** Position of grids 44-60



20m x 20m grids



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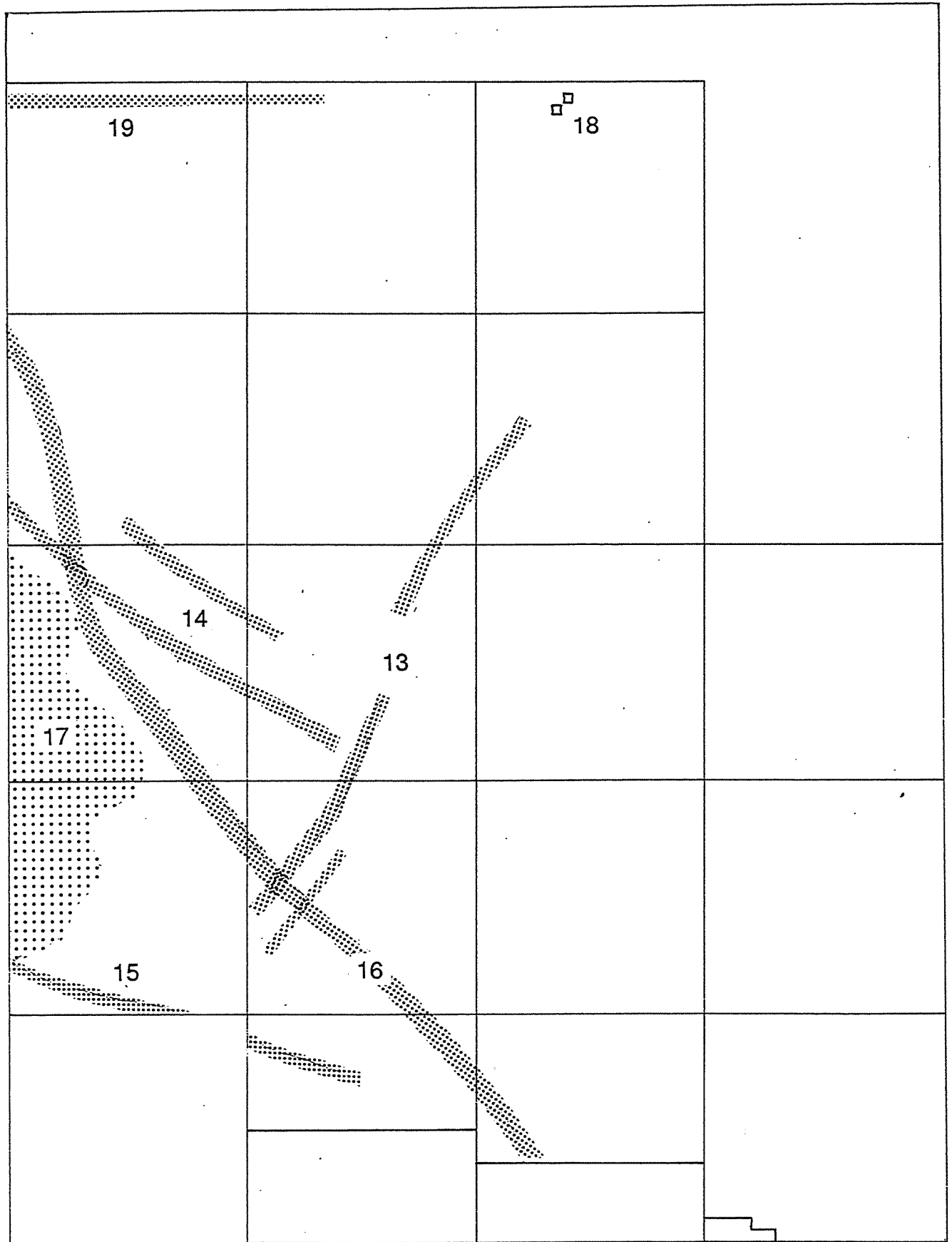
Geophysical Survey 1991

**Fig. 20** Dot density plots of grids 44-60

Min. -2.49 nT      Max. 1.00 nT



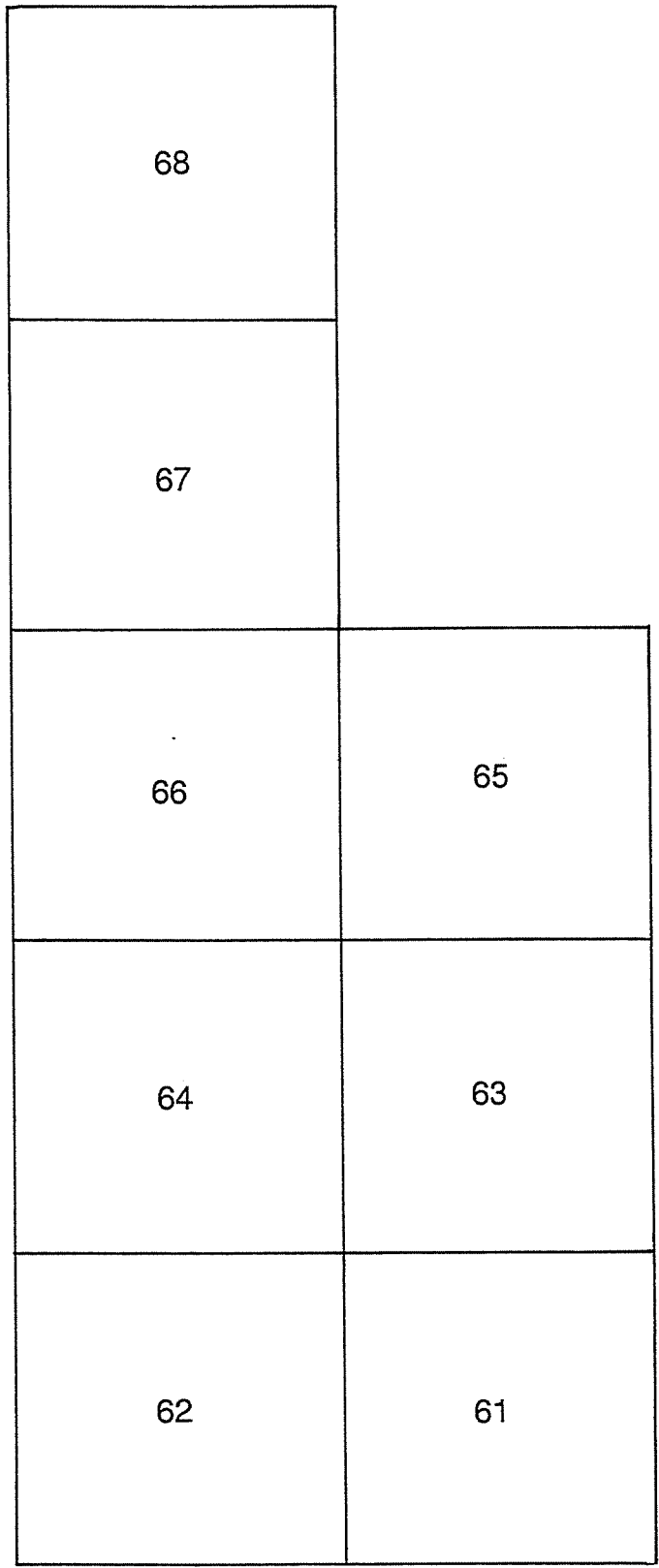
0                      20m



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**Fig. 21** Interpretation of grids 44-60



20m x 20m grids



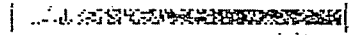
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**Fig. 22** Position of grids 61-68



20m x 20m grids



Min. -2.49 nT      Max. 1.00 nT

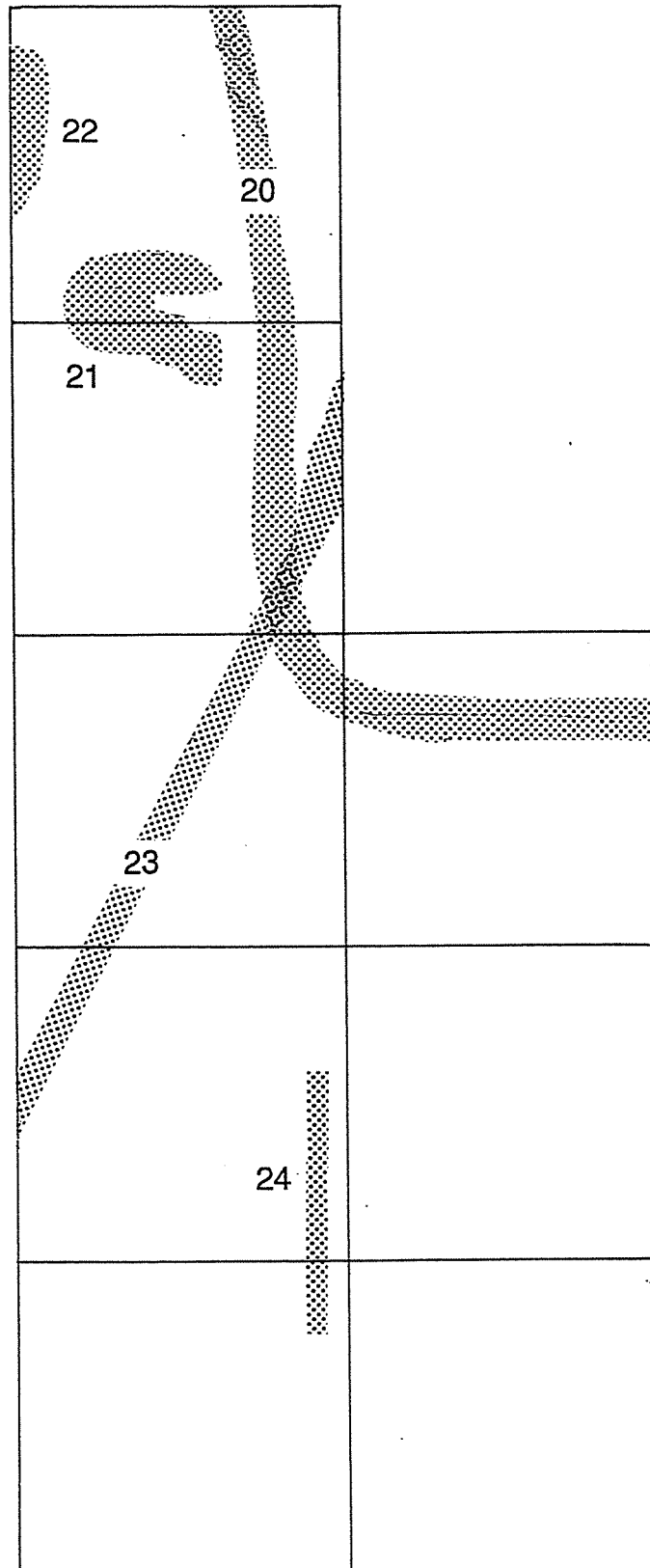
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**Fig. 23** Dot density plots of grids 61-68



0                      20m

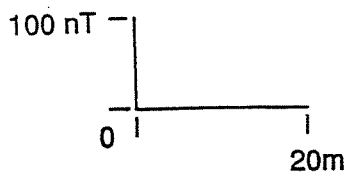
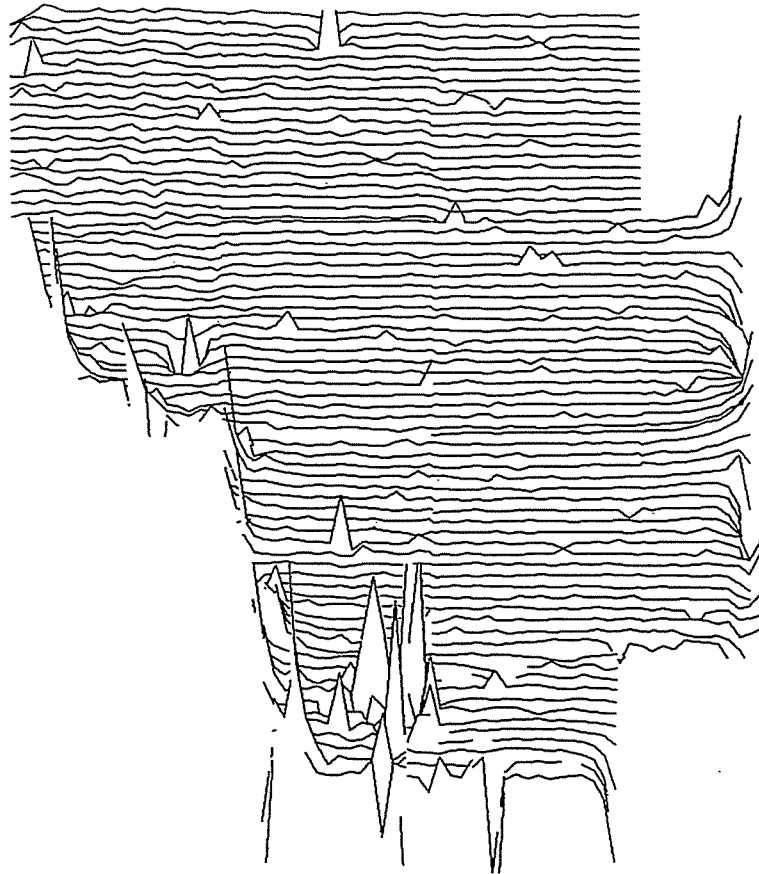


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**Fig. 24** Interpretation of grids 61-68



20m x 20m grids



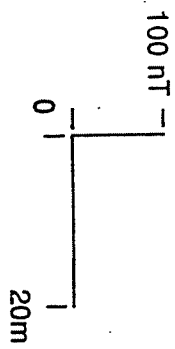
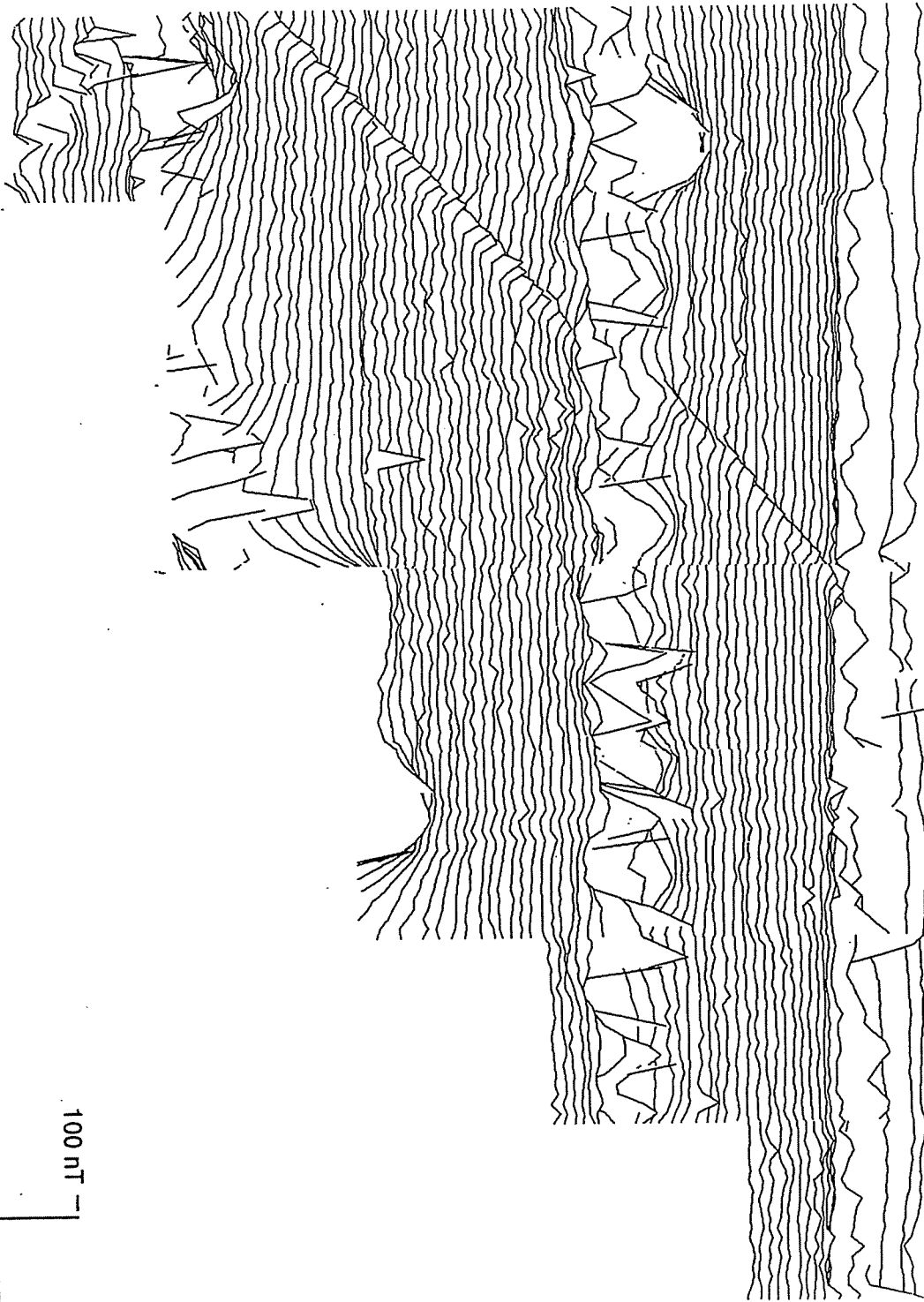


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**Fig. 25** Area 1, Stacked line plots of grids 1-12



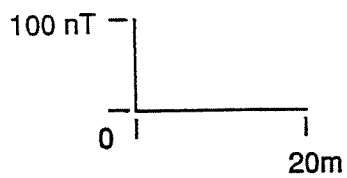
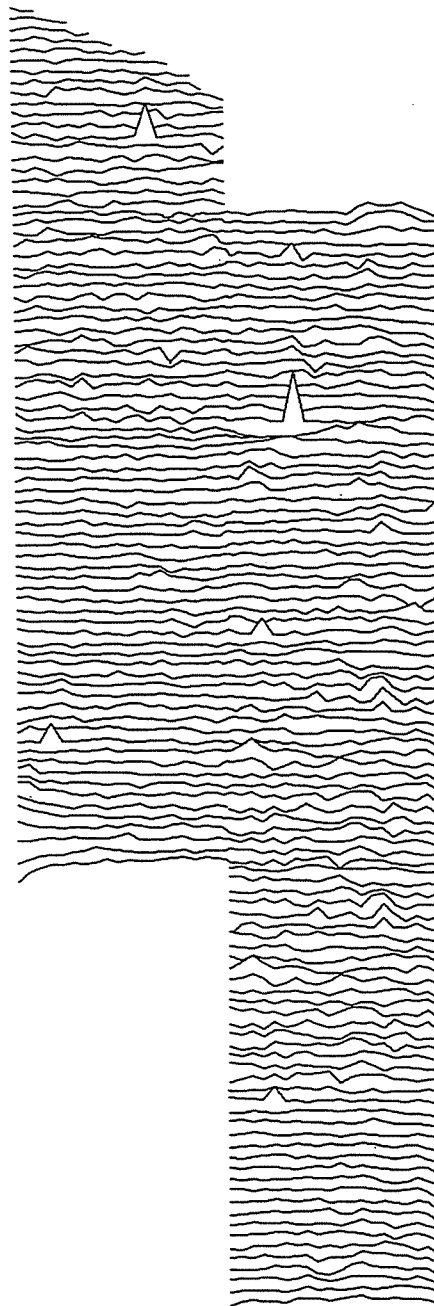


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**Fig. 26** Area 2, Stacked line plots of grids 13-34





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**Fig. 27** Area 3, Stacked line plots of grids 35-43



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**Fig. 28** Area 4, Stacked line plots of grids 44-68

