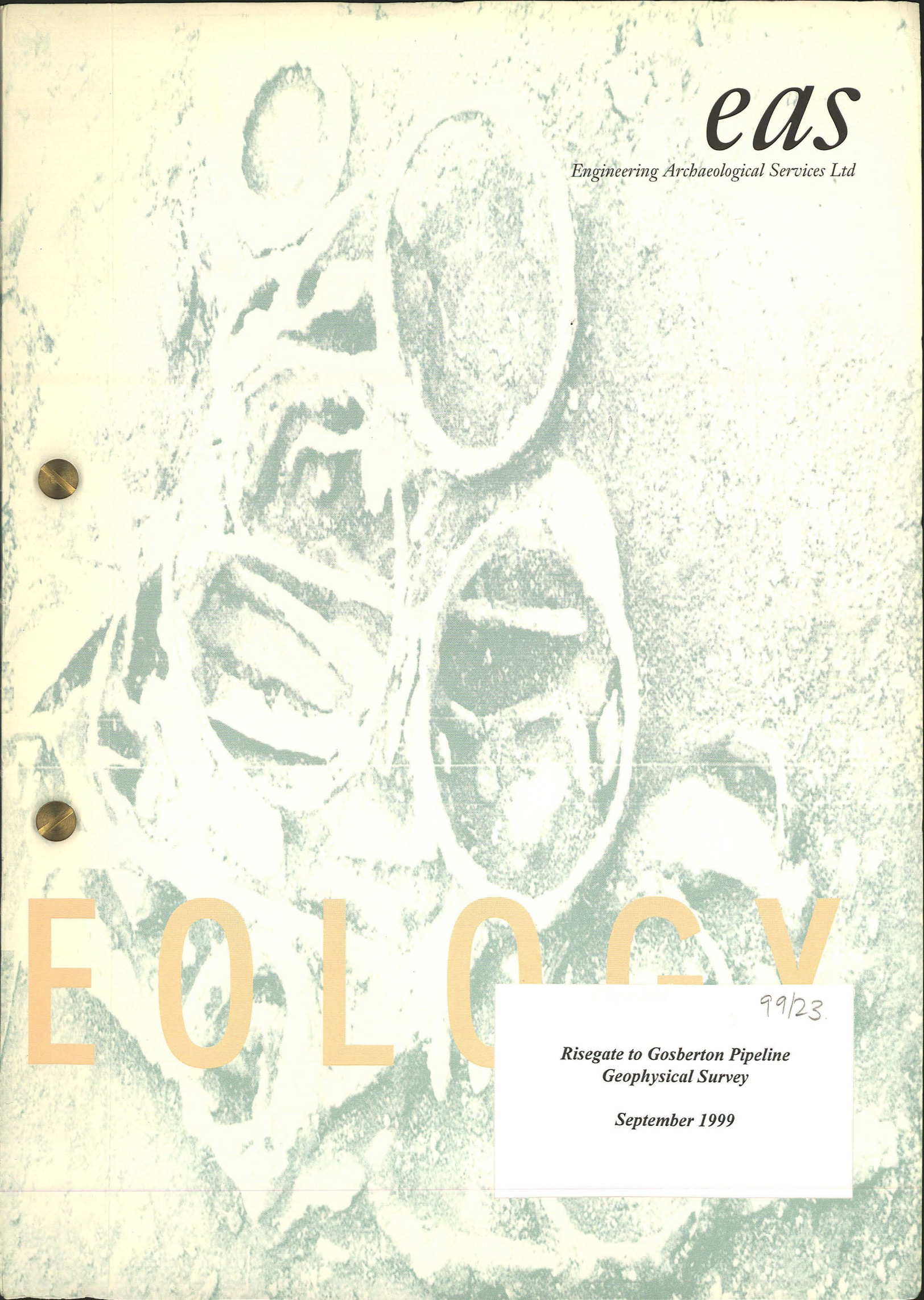

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Engineering Archaeological Services Ltd

99/23

Risegate to Gosberton Pipeline
Geophysical Survey

September 1999

Event LI953
SH15852

Lincolnshire County Council
Archaeology Section

15. OCT 99
ack 15/10/99

Survey Commissioned
by
Archaeological Project Services

Surveyed
by
I.P. Brooks
Engineering Archaeological Services Ltd.

registered in England
№ 2869678

99/23.

Risegate to Gosberton Pipeline Geophysical Survey

September 1999

CONTENTS

Risegate to Gosberton Pipeline Geophysical Survey - Introduction:

NGR

Centred on TF 16782890 and TF 16602810

Location and Topography

Two areas were surveyed along the line of the Risegate to Gosberton Pipeline. Both were were on flat fields. Area 1 was adjacent to the Fifth Drove on Gosberton High Fen. Area 2 ran north east from the Risegate Water Works

Archaeological Background

The areas were located as of potential archaeological interest in a Desk-Top Study carried out by Archaeological Project Services based on existing archaeological records and aerial photographs. (99/12).

Aims of Survey

It was hoped detailed magnetometry would detect any archaeological features and help to clarify their nature and extent.

SUMMARY OF RESULTS

A few possible linear features were located, although these are rather vague. Areas of probable modern disturbance were also located.

Risegate to Gosberton Pipeline Geophysical Survey -Results:

Survey Results:

Area

A total of 1.92 ha were investigated consisting of two areas. Area 1 being 0.6 ha (Figure 1) and Area 2 being 1.32 ha (Figure 2).

Display

The results are displayed as Grey Scale Image and as X-Y Trace Plots.

Results:

Detailed survey:

Forty eight 20 x 20 m grids were investigated with Area 1 being fifteen 20 x 20 m grids (Figure 1) and Area 2, thirty three grids (Figure 2)

Area 1

A number of feint, possible, archaeological features can be seen in the data (Figures 3 and 4), These are illustrated in red on the interpretation (Figure 5). Some areas of magnetic disturbance were also located. Those along the eastern side of the survey are probably related to modern disturbance associated with the Fifth Drove. However the remainder may relate to archaeological features.

Areas of ferromagnetic disturbance are shown in blue

Area 2

A number of feint features were recorded in the data (Figures 6 - 9) These would appear to relate to the modern field boundaries and are therefore probably related to the modern drainage in the fields. The magnetically disturbed areas shown are all adjacent to modern drainage channels and probably relate to the cleaning of these features.

The major ferromagnetic disturbance would appear to be a pipe crossing the easement, possibly a piped and back filled drainage channel.

Magnetic Susceptibility

Soil samples were taken from the area of detailed survey in order to assess the magnetic susceptibility of the soils. It was not possible to obtain a subsoil sample for comparison .

Sample	Volume susceptibility χ_v	Mass susceptibility χ_m
Grid 1	10	8.85
Grid 3	13	12.26
Grid 5	13	12.04
Grid 7	18	14.29
Grid 9	12	11.21
Grid 11	11	9.24
Grid 13	11	10.68
Grid 15	10	8.62
Grid 16	11	10.28
Grid 18	9	8.33
Grid 20	14	13.33
Grid 22	13	12.62
Grid 24	15	13.39
Grid 26	13	11.30
Grid 28	14	13.46
Grid 30	15	11.63
Grid 32	20	18.02
Grid 34	9	8.41
Grid 36	9	7.56
Grid 37	9	7.76
Grid 39	14	12.96
Grid 41	11	11.22
Grid 43	16	16.00
Grid 45	17	16.50
Grid 47	26	25.74

Risegate to Gosberton Pipeline Geophysical Survey - Conclusions:

The susceptibilities as measured are generally low and vary little across the survey areas. The two higher readings in Grids 32 and 47 may relate to the cleaning or filling of modern drainage channels

In general the results demonstrate conditions were less suitable for magnetic survey.

Conclusions

It is a fundamental axiom of archaeological geophysics that the absence of features in the survey data does not mean that there is no archaeology present in the survey area only that the techniques used have not detected it.

A few feature were located in Area 1 which may relate to archaeological activity.

In Area 2 few features which cannot be related to modern farming practise were located. However a number of humanly struck flint artefacts, including at least one scraper, were noted whilst carrying out the survey.

Risegate to Gosberton Pipeline Geophysical Survey - Technical Information:

Techniques of Geophysical Survey:

Magnetometry:

This relies on variations in soil magnetic susceptibility and magnetic remenance which often result from past human activities. Using a Fluxgate Gradiometer these variations can be mapped, or a rapid evaluation of archaeological potential can be made by scanning.

Resistivity:

This relies on variations in the electrical conductivity of the soil and subsoil which in general is related to soil moisture levels. As such, results can be seasonally dependant. Slower than Magnetometry this technique is best suited to locating positive features such as buried walls that give rise to high resistance anomalies.

Resistance Tomography

Builds up a vertical profile or pseudosection through deposits by taking resistivity readings along a transect using a range of different probe spacings

Magnetic Susceptibility:

Variations in soil magnetic susceptibility occur naturally but can be greatly enhanced by human activity. Information on the enhancement of magnetic susceptibility can be used to ascertain the suitability of a site for magnetic survey and for targeting areas of potential archaeological activity when extensive sites need to be investigated. Very large areas can be rapidly evaluated and specific areas identified for detailed survey by gradiometer.

Instrumentation:

1. Fluxgate Gradiometer - Geoscan FM36

2. Resistance Meter - Geoscan RM4/DL10

3. Magnetic Susceptibility Meter - Bartington MS2

4. Geopulse Imager 25 - Campus

Methodology:

For Gradiometer and Resistivity Survey 20m x 20m or 30m x 30m grids are laid out over the survey area. Gradiometer readings are logged at either 0.5m or 1m intervals along traverses 1m apart. Resistance meter readings are logged at 1m intervals. Data is down-loaded to a laptop computer in the field for initial configuration and analysis. Final analysis is carried out back at base.

For scanning transects are laid out at 10m intervals. Any anomalies noticed are where possible traced and recorded on the location plan.

For Magnetic Susceptibility survey a large grid is laid out and readings logged at 20m intervals along traverses 20m apart, data is again configured and analysed on a laptop computer.

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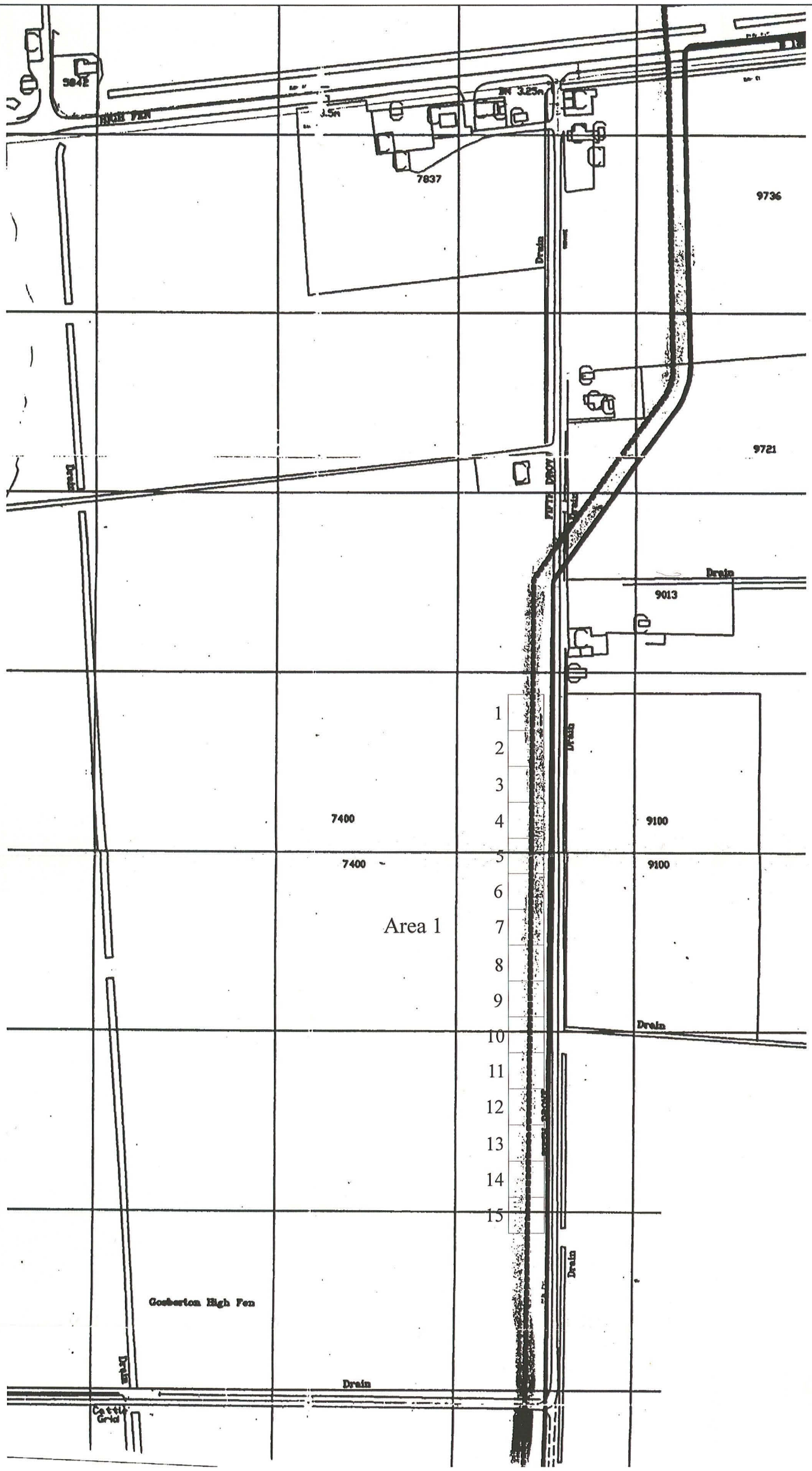


Figure 1: Risegate to Gosberton Pipeline 1999
Location of Area 1.

Scale 1:2500

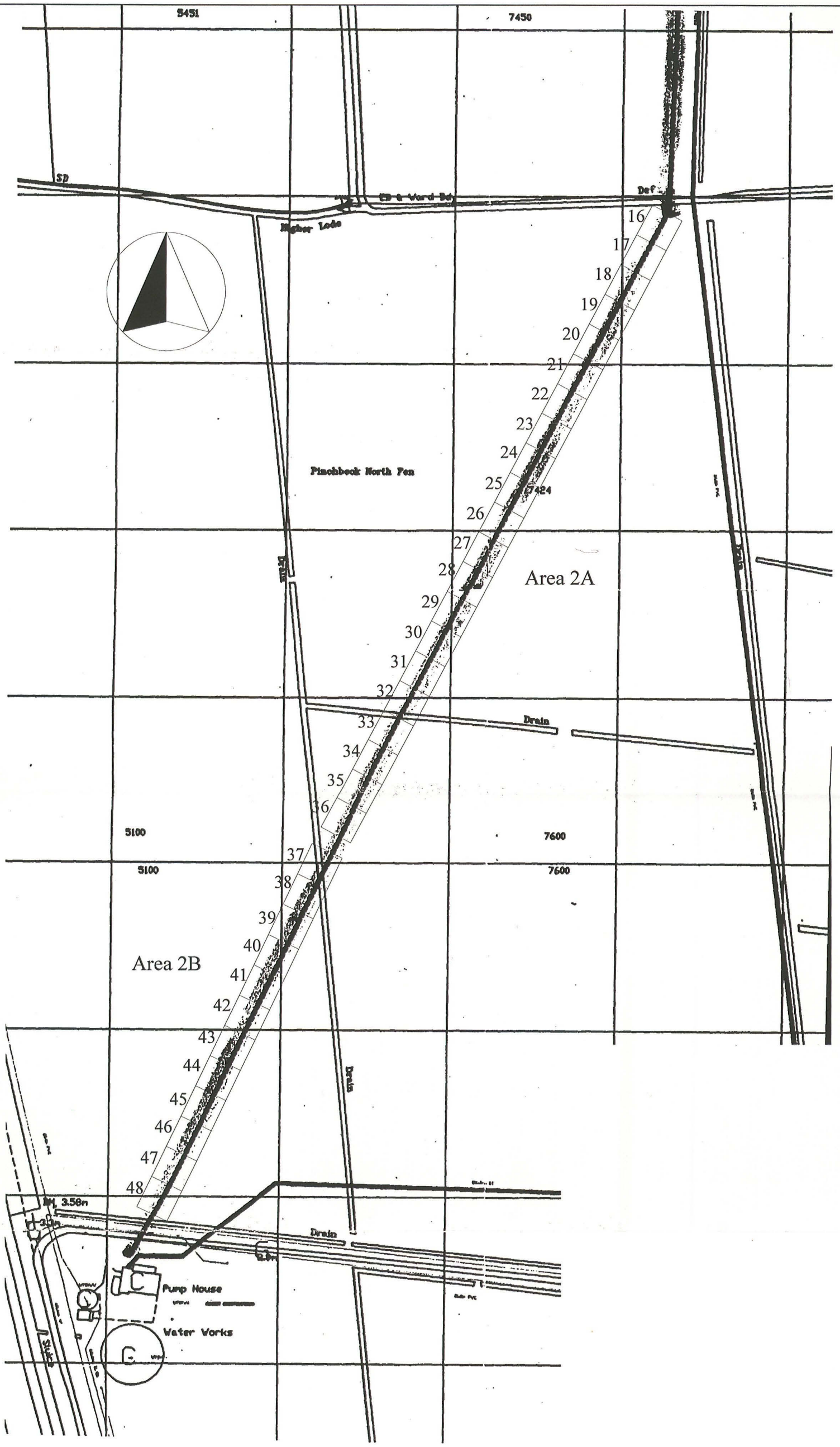


Figure 2: Risegate to Gosberton Pipeline 1999
Location of Area 2.

Scale 1:2500

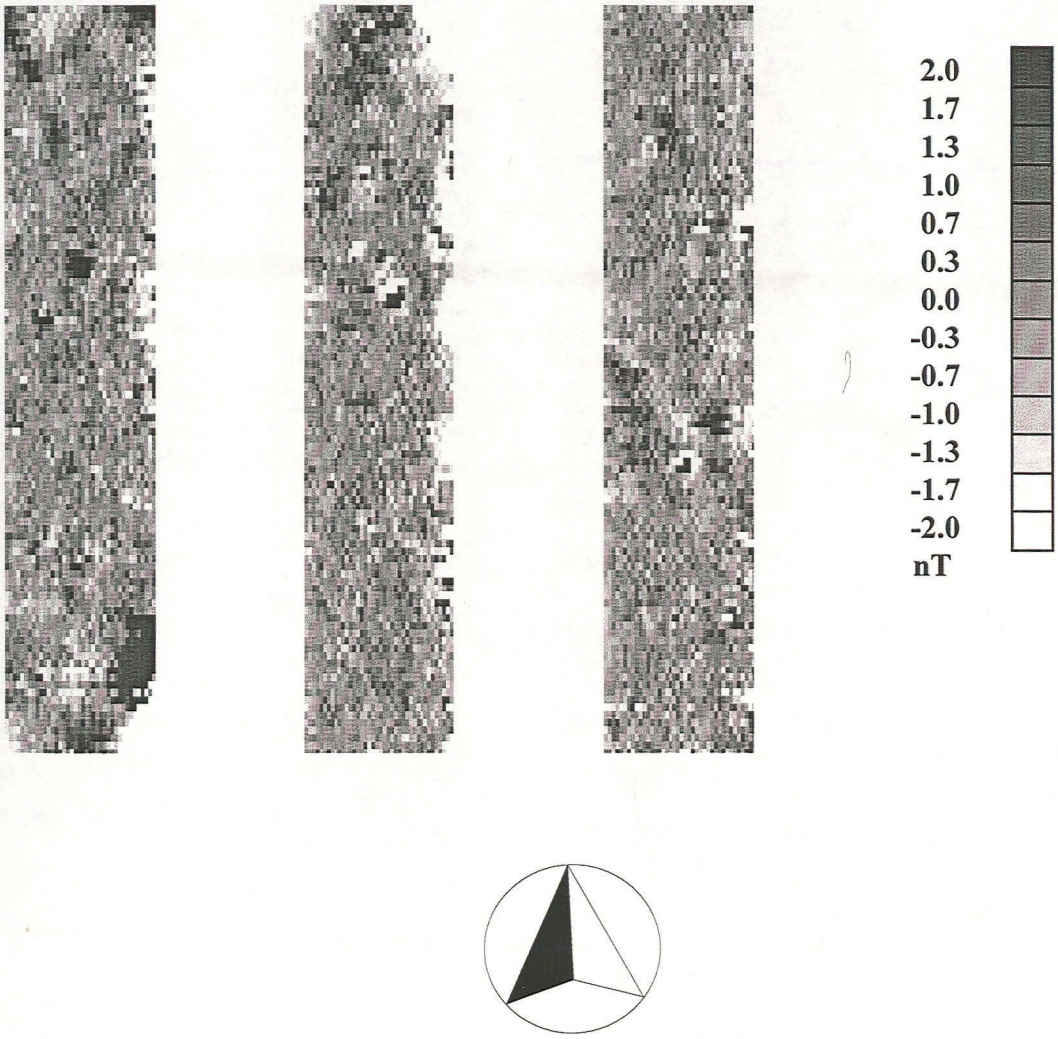
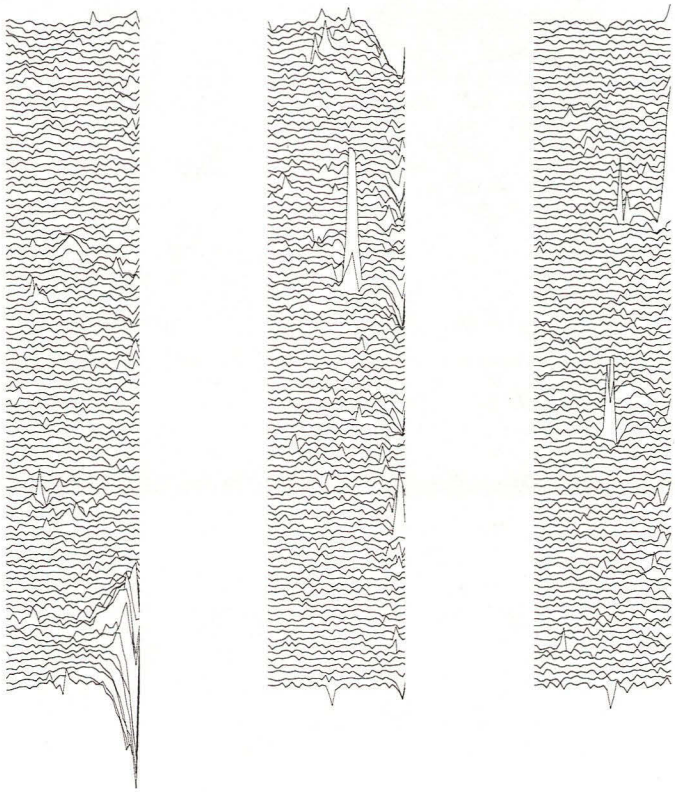
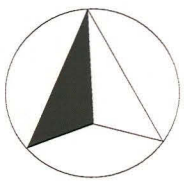


Figure 3: Risegate to Gosberton Pipeline
Area 1: Grey Scale Plot
Scale 1:1000





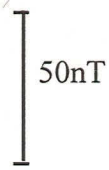


Figure 4: Risegate to Gosberton Pipeline
Area 1: X-Y Plot
Scale 1:1000

Figure 5: Risegate to Gosberton Pipeline 1999
Interpretation of Area 1.

Scale 1:2500

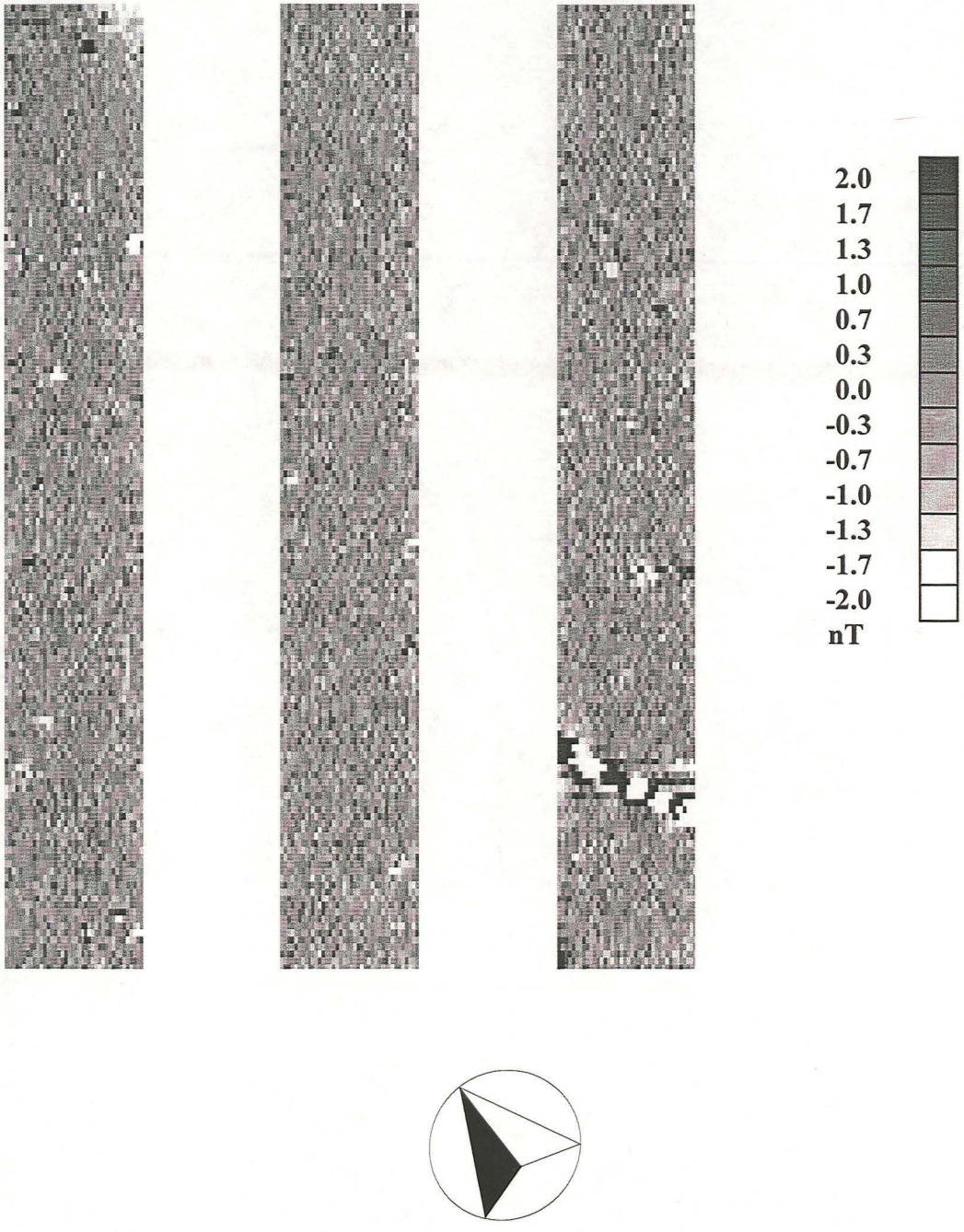
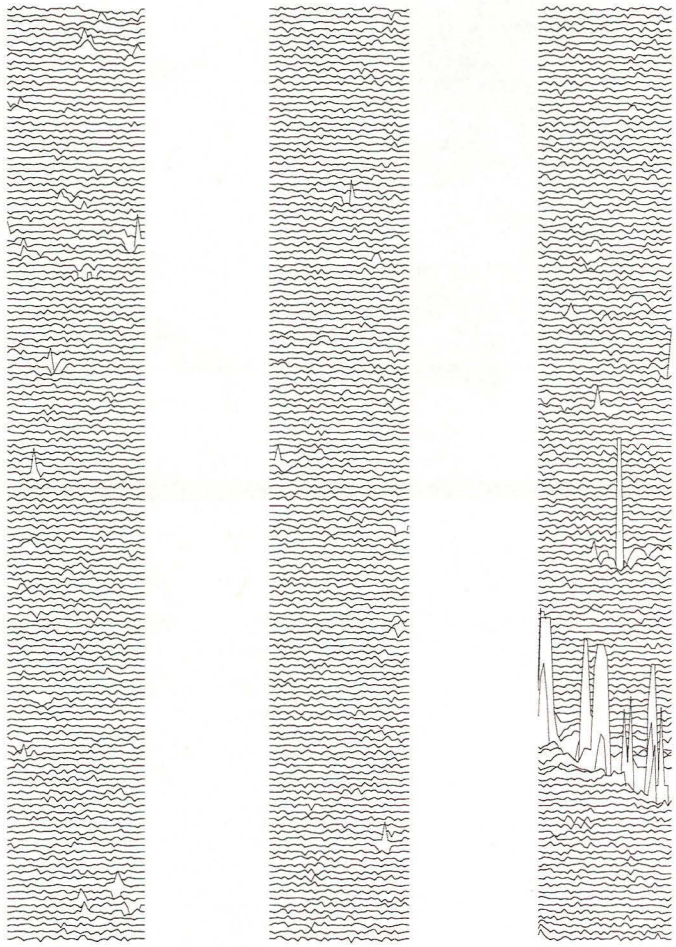
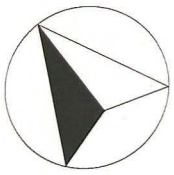


Figure 6: Risegate to Gosberton Pipeline
Area 2A: Grey Scale Plot
Scale 1:1000





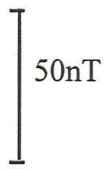


Figure 7: Risegate to Gosberton Pipeline
Area 2A: X-Y Plot
Scale 1:1000

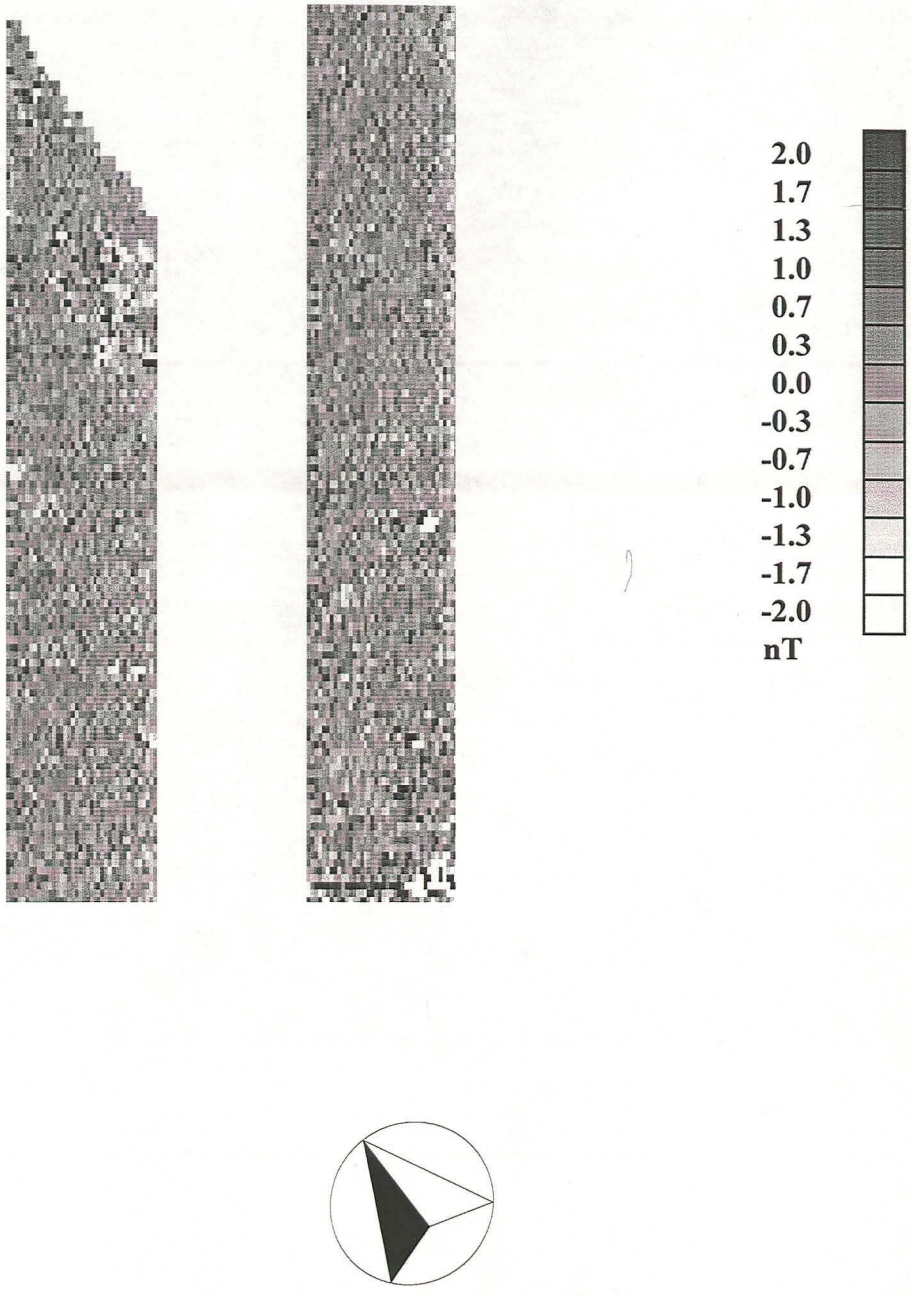
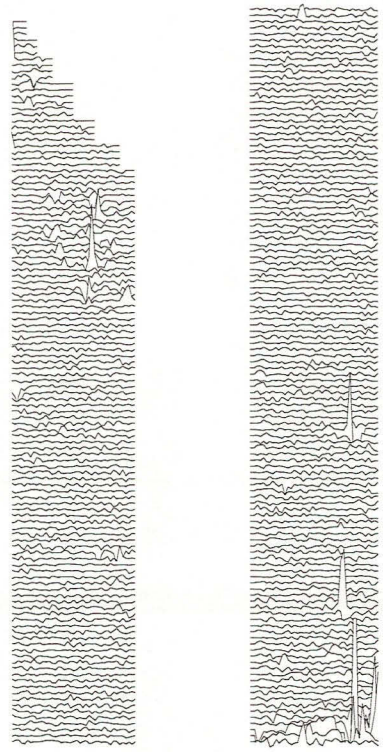
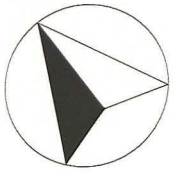


Figure 8: Risegate to Gosberton Pipeline
Area 2B: Grey Scale Plot
Scale 1:1000





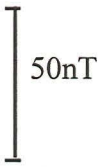


Figure 9: Risegate to Gosberton Pipeline
Area 2B: X - Y Plot
Scale 1:1000

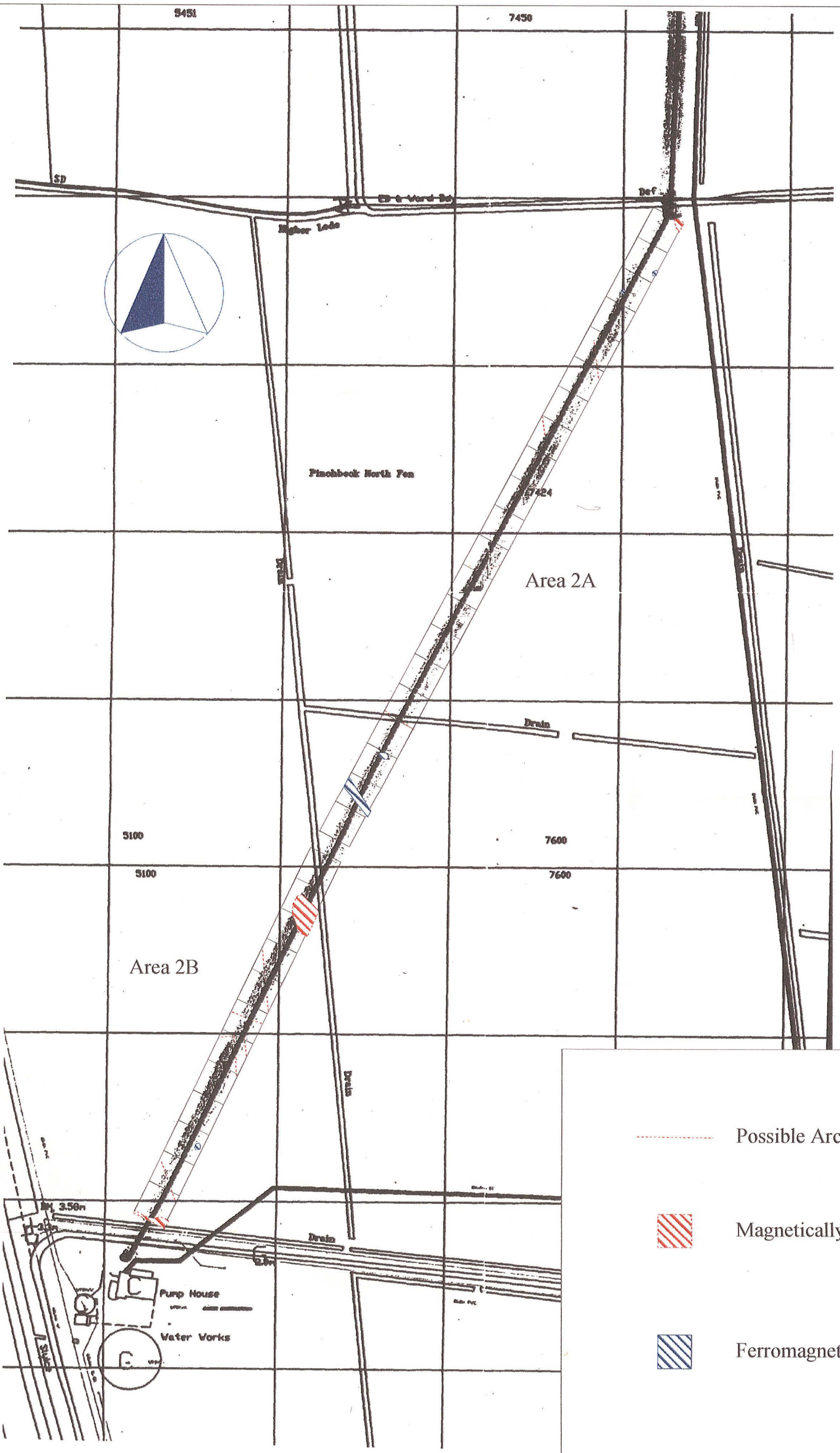


Figure 10: Risegate to Gosberton Pipeline 1999
Interpretation of Area 2

Scale 1:2500