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LINDSEY ARCHAEOLOGICAL SERVICES

SALTFLEETBY-THEDDLETHORPE
Saltfleetby B Pipeline
Howdales, South Cockerington-Theddlethorpe Gas
Terminal

NGR: TF 415 909-487 872
Site Code: STG 99
LCNCC Accession No.: 12. 99

ARCHAEOLOGICAL
DESK-BASED ASSESSMENT

for

CANDECCA RESOURCES LTD

LAS Report No. 344

February 1999

Lincolnshire County Council
Archaeology Section

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Summary

A proposed gas pipeline starting at the Saltfleetby A drill site, connecting with the Saltfleetby-B drill site; both at Howdales, South Cockerington will run across the Lincolnshire Marsh south-eastwards, through Saltfleetby parish and Theddlethorpe All Saints village to the Conoco gas terminal near the coast. The route crosses a post-Roman landscape of marine silts, an area containing a low concentration of recorded archaeological sites, but which may conceal the presence of Roman and/or Iron Age saltmaking sites at a depth calculated to be between 1m-2m below existing ground levels. The proposed route does not affect any known above ground archaeological remains, except for a small block of surviving medieval ridge and furrow, but excavation may disturb saltmaking sites. It is recommended that a Watching Brief should be maintained along the whole route.

INTRODUCTION

Candecca Resources Ltd is currently planning to construct a c.9km long pipeline, called the Saltfleetby to Theddlethorpe gas pipeline, to transport natural gas between the existing Saltfleetby A and B drill sites at South Cockerington (TF 415 909) and the Conoco gas terminal at Theddlethorpe (TF 487 872) in East Lindsey (Fig. 1).

In January 1999 Lindsey Archaeological Services (LAS) was commissioned by Candecca Resources Ltd to carry out an archaeological desk-based assessment, in order to quantify and assess the known and potential archaeological resource within the proposed route corridor, and to make outline recommendations for further investigation.

Aims and Objectives

The overall objectives are:

- To identify and define the known extent of the archaeological deposits within the 0.5km wide data-collection area centred on the proposed route, and to provide a preliminary evaluation of their importance.
- To assess the potential for new sites as yet unrecorded.
- To assess the potential for further stages of archaeological recording

Preliminary Archaeological Study

A preliminary review of the Lincolnshire Sites and Monuments Record (SMR) was carried out by Mark Bennet (SMR Officer) at the request of Candecca Resources Ltd in December 1998. The appraisal recorded nine archaeological sites and findspots within the Route Corridor. Further investigations by LAS identified two possible additional sites along the route.

Scope of Work

The present archaeological assessment consisted of a thorough search of the county-based SMR within the 0.5km-wide data-collection area and the detailed examination of aerial photographic data from a variety of sources. A preliminary field visit was made to establish which of the recorded areas of medieval earthworks survive intact.

This report comprises a detailed assessment of the archaeological resource along the proposed pipeline corridor. The primary objective was to enable the pipeline route to avoid the known archaeology of the area, but the assessment also provides a brief summary of the known history and archaeology of the region, in order to place the recorded sites into a broader context.

Depiction on the archaeological constraint maps of cropmark and earthwork sites, discovered by aerial photography, is limited to their known extents, rather than to the drawing in detail of their component parts. However, more detailed descriptions are included in the Catalogue of Sites (Table 1).

Method

The main source of information was the SMR held by Lincolnshire County Council. Archaeological features identified on air photographs of Lincolnshire held at the National Monuments Record (NMR) in Swindon, and the Cambridge University Collection of Air Photographs (CUCAP) have been sketch-plotted at 1:10,000 scale by the Royal Commission on the Historic Monuments of England (RCHM[E]) Lincolnshire National Mapping Programme (NMP) project. Copies of the sketch-plot are available for consultation at the SMR; this resource has been used in preference to a direct search of the photographs.

A limited amount of cartographic and documentary data was examined at Lincoln Central Library, Reference Department and Local Studies Collection. Published books, articles and periodicals were also consulted for general background information on the archaeology and topography/geology of the region.

Geology and Topography

The proposed 9km pipeline runs roughly NW to SE from South Cockerington to the Theddlethorpe gas terminal and crosses the Outmarsh zone of the Lincolnshire Marsh. The Lincolnshire Marsh comprises the area between the Lincolnshire Wolds and the North Sea. The Outmarsh is the true coastal plain, which lies below 10m OD and is virtually flat. Much of the proposed pipeline route lies below 3m OD.

The Lincolnshire Marsh was formed by ice sheets, and consists of thick boulder-clay deposits with some ridges of terminal moraine. Its surface was probably gently undulating, with localised areas of poor drainage. The coastline has since encroached many kilometres inland, and post-glacial marine transgressions have covered the late glacial land surface with marine silts.

The stratigraphy of the Outmarsh varies, but the boulder-clay and initial forest vegetation of the Mesolithic period exhibit peat growth by the late Neolithic, indicating poor drainage produced by marine transgression. The sea retreated during the Middle Bronze Age but a further transgression is recorded by the Late Bronze Age, extending into the Early Iron Age. A retreat phase is marked by peat growth from the Mid Iron Age, replaced by

Scrobicularia clay deposited by marine transgressions during the Roman and post-Roman period (Van de Noort and Davies 1993, 22-23).

The proposed pipeline route crosses the valleys of the Great Eau, the Long Eau, and tributary streams flowing to Saltfleet Haven. The drainage pattern shows the varied effects of marine silt deposition impeding the flow of water off the Lincolnshire Wolds. Within the Outmarsh, artificial ditches and larger channels have been necessary to encourage surface drainage. The pipeline route crosses Grayfleet Drain, Fleet Drain and Mar Dyke, and runs alongside The Cut. The origin of some of these drains was probably medieval and possibly earlier.

Nearly all of the land along the proposed route is at present in agricultural use, with arable land-use predominating. The survival of ridge and furrow cultivation earthworks into this century reflects a more extensive pastoral economy in the post-medieval period, which has only reverted to arable since the Second World War.

Archaeological Background

The proposed pipeline passes through a landscape which has received little systematic attention but, on current evidence, appears not to have been densely settled in the post-Roman period. There are no reported casual finds of pottery or other artefacts from within the study area. Elsewhere in the Outmarsh, observation along the sides of deep drainage ditches has resulted in the identification of buried archaeological features of prehistoric and Roman date.

This area was subject to post-glacial flooding and in the Roman period consisted largely of saltmarsh with many salt production sites. There were continued alternating marine transgressions and regressions, resulting in regular flooding of the saltmarsh, from the late Iron Age and into the post-Roman period, at varying times in different parts of the Outmarsh. The transgressions resulted in Roman and earlier deposits being buried beneath marine silts.

The distribution of Anglo-Saxon settlements on the eastern fringe of the Middlemarsh, to the west, suggests that the Outmarsh was still not permanently settled at this time, although it may have been suitable for seasonal grazing. However, Saltfleetby, Mare Haven and Theddlethorpe are mentioned in the Domesday Survey of 1086, indicating that the settlements were in existence before the Norman Conquest. Lands in Saltfleetby were held by various landowners, including the king and Bishop of Durham, but some smaller holdings were described as wasteland. At Theddlethorpe no wasteland is recorded. Saltfleet Haven and Mare Haven appear to have been flourishing ports, with new tolls imposed after the Conquest (Foster and Longley 1976).

Known Archaeology Within the Study Corridor

In the descriptions which follow, discussion has been largely restricted to those archaeological sites lying on the proposed pipeline route or within the 0.5km study corridor. Mention of specific sites is accompanied by the relevant figure number, the source reference, and the national grid reference (NGR). Where available, the SMR Primary Record Number (PRN) is used; the RCHM(E) cropmark references for the National Mapping Programme have not yet been assigned PRN's and the NMP references, prefaced with LI, are used in their absence.

There are no Scheduled Ancient Monuments or Listed Buildings within the study area.

Reference	NGR	Description	Fig. No.
LI.388.1.1	TF 4300 9115	'barrow', probably mis-identified post-medieval feature	3a
LI.388.1.7	TF 4485 9058	Medieval enclosures, field systems	3a
R & F block A	TF 4340 9110	Ploughed out	3a
R & F block B	TF 4455 9055	Intact	3a
Site 1	TF 4251 9126	Square ditched platform attached to linear earthwork (CPE UK 2395.3007, 17/11/47) ploughed out	3a
Site 2	TF 431 907	Circular ditched earthwork, on top of ridge and furrow (CPE UK 2395.3016, 17/11/47) ploughed out. same as LI.388.1.1?	3a
LI.388.3.1	TF 4413 9055	Rectangular enclosure, possible post-medieval pound	3a, b
LI.367.11.1	TF 4550 8990	Late medieval tofts and enclosures, settlement remains	3b
LI.371.5.1	TF 4593 8924	Medieval enclosure	3b
R & F block C	TF 4515 9013	Ploughed out	3b
R & F block D	TF 4520 8987	Ploughed out	3b
43509	TF 4685 8825	Theddlethorpe railway station	3b, c
LI.380.1	TF 4689 8866	Medieval trackway, from settlement further east	3b, c
LI.433.1	TF 4678 8824	Medieval enclosures, settlement remains, ploughed out	3b, c
LI.380.2	TF 4792 8716	Late medieval house platforms and tofts, settlement remains + ridge and furrow, intact but scrappy	3c
R & F block E	TF 4745 8775	Ploughed out	3c
R & F block F	TF 4765 8744	Ploughed out	3c

Table 1: Catalogue of Archaeological Sites along Pipeline Route

Prehistoric

The earliest identified archaeological site in the vicinity of the route is a cropmark site interpreted by the RCHM(E) as a possible Bronze Age barrow or burial mound (LI.388.1.1, Fig. 3a). This is highly unlikely given that the Bronze Age land surface in this part of the Marsh should be buried beneath at least 1metre of marine silts. The field is under arable cultivation and there is no sign of the feature on the ground. Its date and function are open to conjecture-two alternatives are proposed, there may be more.

The 'barrow' site lies 450m north of a 25-30m diameter circular ditched earthwork (Site 2?, Fig. 3a) in Saltfleetby St. Peter, recorded on an air photograph of 1947 but not plotted on the NMP sketch-plot. This feature was described by P. Everson as sited 'on top of ridge and furrow' (RCHM index card). A feature above ridge and furrow could be a late medieval windmill; there is a possibility that LI.388.1.1 is either the same feature transposed, or a second post-medieval windmill mound.

The 'barrow' site lies in South Cockerington parish, close to the junction between the historic parish boundaries for South Cockerington, Skidbrooke with Saltfleet Haven, and Saltfleetby St. Peter. When the parish boundaries were set out, probably in the 10th century or a little later, this feature could have been prominent in the landscape and used as a useful marker for identifying land divisions.

Grayfleet Drain, used as the parish boundary by the three parishes, changes course abruptly close to the site, perhaps hinting at its antiquity. However, it is possible that the drain was diverted along the parish boundaries at a later date.

Iron Age/Roman

No Iron Age or Roman findspots have been recorded within the study area, despite the numerous drainage ditches which may have cut into the contemporary ground surface. The potential for finds of this period lies below ground and the extent to which any former land surface and associated salt making sites may be disturbed by the excavation of the pipe trench is unknown.

Anglo-Saxon and Medieval

Anglo-Saxon occupation of parts of this area is reflected in the place-names recorded in the Domesday Survey of 1086. 'Theddlethorpe' (*Tedlagestorp*: outlying farmstead of *Theodlac*) contains Old English and Old Scandinavian elements. The elements in 'Saltfleetby' (*Salflatebi*: farmstead/village by the salt stream) derive from the same period (Mills 1991). The name 'Mar Dyke' probably derives from Old Norse (Smith 1987). Occupation sites of the Anglo-Saxon period are most likely to have been sited on slightly higher or better-drained land, and to have developed into the modern village sites. As the pipeline skirts modern settlement, it is unlikely to reveal any such remains. Parish boundaries were generally created in the 10th century (with alterations in the following centuries) but constant re-excavation and improvement of drainage ditches is likely to have removed all trace of the original features.

Medieval settlement remains survived until this century at three locations beside the route (LI.367.11.1; LI.433.1 and LI.380.2). These sites have been recorded as earthwork remains of house sites on air photographs studied by the NMP.

An area of former settlement (LI.367.11.1, Fig. 3b) lay to either side of Back Street, Saltfleetby All Saints. Most of the earthworks have been ploughed out but two small blocks survive. A narrow block of land parallel to the former railway line east of Back lane remains unploughed. The pipeline route runs along the former railway line next to the remains but the impact of the pipe trench is thought to be minimal because it will be dug through the area already disturbed during construction of the rail track.

Another medieval settlement site (LI. 433.1, Fig. 3b,c) is recorded around the road junction east of Theddlethorpe All Saints. The route passes to the north and east, apparently beyond its former extent. The settlement remains are crossed by The [railway] Cut, including the former station (PRN 43509) and the earthworks have been ploughed out. The potential impact of the route is low.

NE of Salter Corner, in Theddlethorpe St. Helen, the pipeline route continues along the disused railway line which passes part of a smaller medieval settlement site (LI.380.2, Fig. 3c) north of Plough Lane. The earthworks survive intact and comprise a series of rather scrappy house platforms with ridge and furrow backing on to the railway line. The pipe trench will cut through ridge and furrow, if it survives beneath the rail track, and not settlement remains.

A fourth area of medieval settlement remains next to The Old Manor House, Saltfleetby All Saints lies close, but not adjacent, to the pipeline route. This site (LI.388.1.7, Fig. 3a) beside Mar Dyke at the edge of the parish, has been plotted by the NMP as medieval enclosures and a field system. The route passes through intact ridge and furrow 100m to the west (see below) and is therefore unlikely to affect any settlement features. (The settlement remains themselves have been ploughed out.)

The pipeline route crosses Saddleback Road, Long Gate Road, Fishmere Gate Road, Mar Dyke Road and Back Street, as well as other roads. Many, or all, of these may be of medieval origin, linking settlements and their economic resources for fishing, saltmaking, agriculture and pasture. If the pipe trench is excavated through these roads, there may be some evidence for early metallurgy. One particular location is NW of Theddlethorpe All Saints, where the projected line of a medieval track cropmark (LI.380.1, Fig. 3b,c) may cross the route.

A total of six blocks of ridge and furrow (A-F on Fig. 3) were identified from aerial photography during the NMP project as surviving earthworks. These are cultivation remains belonging to the medieval or post-medieval periods. Survival of ridge and furrow indicates land which was ploughed but then used as pasture. It can reflect less fertile ground which was only ploughed during peak periods of population. Most ridge and furrow has been removed by more recent ploughing and a site visit made on 12th January 1999 established that all but two of the earthwork sites have been ploughed out since the photographs were taken. The surviving ridge and furrow (Block B) on the north side of Mar Dyke is crossed by the pipeline route.

Post-Medieval

The cropmark of a small enclosure, identified as a post-medieval animal pound, has been plotted close to the Fleet Drain (LI.388.3.1, Fig. 3a). This interpretation for a site in the middle of fields is perhaps doubtful. Another cropmark site of unknown nature is a small ditched square platform (Site 1), crossed by the proposed route east of Exploration Site B (Fig. 3a). It was identified from vertical aerial photographs taken in 1947 by the RAF and appears to show the feature attached to existing drainage ditches, suggesting it may be post-medieval in date. The site is now ploughed out but remains may be revealed after stripping of topsoil.

Discussion

The proposed pipeline route passes through an apparently quiet archaeological landscape, with some areas appearing largely devoid of known archaeological remains. The majority of sites identified comprise ridge and furrow cultivation remains of medieval or post-medieval date, with associated field boundaries and settlement. The majority of these recorded sites have been ploughed flat, although some remains may survive below the plough soil.

The infrequency of reported archaeological sites and finds may be due to a genuine absence of past human settlement, but this has not been proven. Other reasons include:

- The nature of the geology and topography of the region and its effect on the discovery of former settlements. There is an almost complete absence of known pre-medieval sites on the marine silts of the Outmarsh.

- The quantity of past archaeological and/or historical research in the area, including the amount of aerial photographic cover. There has been little specialist aerial photography in the region and, until the National Mapping Programme was initiated by the RCHM(E) in the 1990s, there had been no systematic archaeological recording of the region.

Potential Impact of the Proposed Pipeline route on the Archaeological Resource

The potential impact of the proposed pipeline route on archaeological sites has already been mitigated. Part of the route follows the line of a removed railway, the installation of which would probably have destroyed any archaeological sites close to the ground surface. No features of industrial archaeological interest have been identified along this section of the route.

Although the potential impact of the pipeline groundworks on medieval and later features is believed to be low, the pipe trench will penetrate the masking layer of marine silts and intrude into the earlier ground surface. Here there is a potentially high impact on unknown archaeological remains, where Roman and earlier saltmaking or occupation sites may be found.

Recommendations

Overall route

Apart from cover of ridge and furrow, the proposed pipeline route crosses areas of little or no known archaeology on the surface. These areas should generally be regarded as areas of uncertain potential rather than of no potential. In accordance with current practice for assessing linear developments, it is recommended that the entire proposed route be subject to an archaeological watching brief during topsoil stripping and excavation of the pipeline trench.

In addition to the impact of the proposed pipeline itself, a number of other associated temporary and permanent engineering works are expected. These include pipe storage areas, compounds and any wider stripped easements, eg. at road crossings and block valve locations, will need archaeological inspection. The location of these works has yet to be confirmed.

Specific Areas

The pipeline route cross a single field of ridge and furrow Block B (Fig. 3a) which survives intact, and is proposed that the route should be diverted around the edge of the field to minimise damage to the earthworks.

The route crosses post-medieval field ditches and open drains, but no obvious sea banks. Earthwork survey is not thought to be a useful option.

After topsoil removal it will be obvious if any higher parts of the Roman ground surface protrude through the marine silts to the stripped easement. If this occurs, features or artefacts found on the stripped surface would indicate a nearby archaeological site. In this situation, evaluation of the easement in advance of trenching might be appropriate.

The pipe trench will be dug to depths of c. 1.50m through marine silts. Experience of sewer pipe trenches between Burgh-le-Marsh and Ingoldmells, and Tetney and Cleethorpes (monitored by LAS in 1993-5) suggests that safety considerations will

usually prevent access into the trench and detailed recording. Limited recording of obvious features should be possible from the trench top. A proportion of disturbed artefacts may be recovered from the spoil heap. In practice, recovered information may be limited to the presence/absence, date and depth of archaeological deposits, together with some record of the depths of marine silts and the profile of the earlier ground surface. An enhanced watching brief, with additional personnel, may be the most useful response to these locations. There may be opportunities to recover information when the trench has been partly backfilled.

Conclusion

The proposed Saltfleetby-Theddlethorpe pipeline is unlikely to have a significant effect on the known archaeological resource along the proposed route. Excavation of the pipe trench through the Out Marsh offers an opportunity to record the profile of the underlying ground surface, and to prepare a distribution map of any saltern sites identified. This information could be of considerable future value in predicting the buried archaeological landscape in a region which has received little attention. It may also allow environmental information to be collected. The collected data could complement the work of The Humber Wetlands Project when it surveys the Lincolnshire Marsh.

LAS recommends that all topsoil stripping of the route is watched. The intensity of the monitoring would depend on the working methods used by the groundwork contractor. This process may reveal archaeological sites that warrant investigation prior to excavation of the pipe trench. The nature of that investigation would be agreed between Candecca Resources Ltd, the County Archaeology Section and the archaeological contractor.

As further archaeological remains may be disturbed by the trench itself, LAS recommends that all trenching is also monitored. Where archaeological remains are exposed, recording should be as thorough as safety and time constraints permit before the pipe is laid.

Acknowledgements

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Naomi Field and Geoff Tann
Lindsey Archaeological Services
5th February 1999

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The Figures

Fig. 1 Saltfleetby B Pipeline, proposed route.

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Fig. 2 Part of the first edition one-inch OS map for the Louth and Patrington area, published 1824 with railways inserted in 1888.

Fig. 3a Saltfleetby B Pipeline. Recorded sites prepared from information at the Lincolnshire SMR. *Based on the OS 1:10,560 scale map with the permission of the Controller of the HMSO, © Crown copyright. (LAS licence AL50424A).*

Fig. 3b Saltfleetby B Pipeline. Recorded sites prepared from information at the Lincolnshire SMR. *Based on the OS 1:10,560 scale map with the permission of the Controller of the HMSO, © Crown copyright. (LAS licence AL50424A).*

Fig. 3c Saltfleetby B Pipeline. Recorded sites prepared from information at the Lincolnshire SMR. *Based on the OS 1:10,560 scale map with the permission of the Controller of the HMSO, © Crown copyright. (LAS licence AL50424A).*

CANDECCA RESOURCES LIMITED PROPOSED GAS PIPELINE

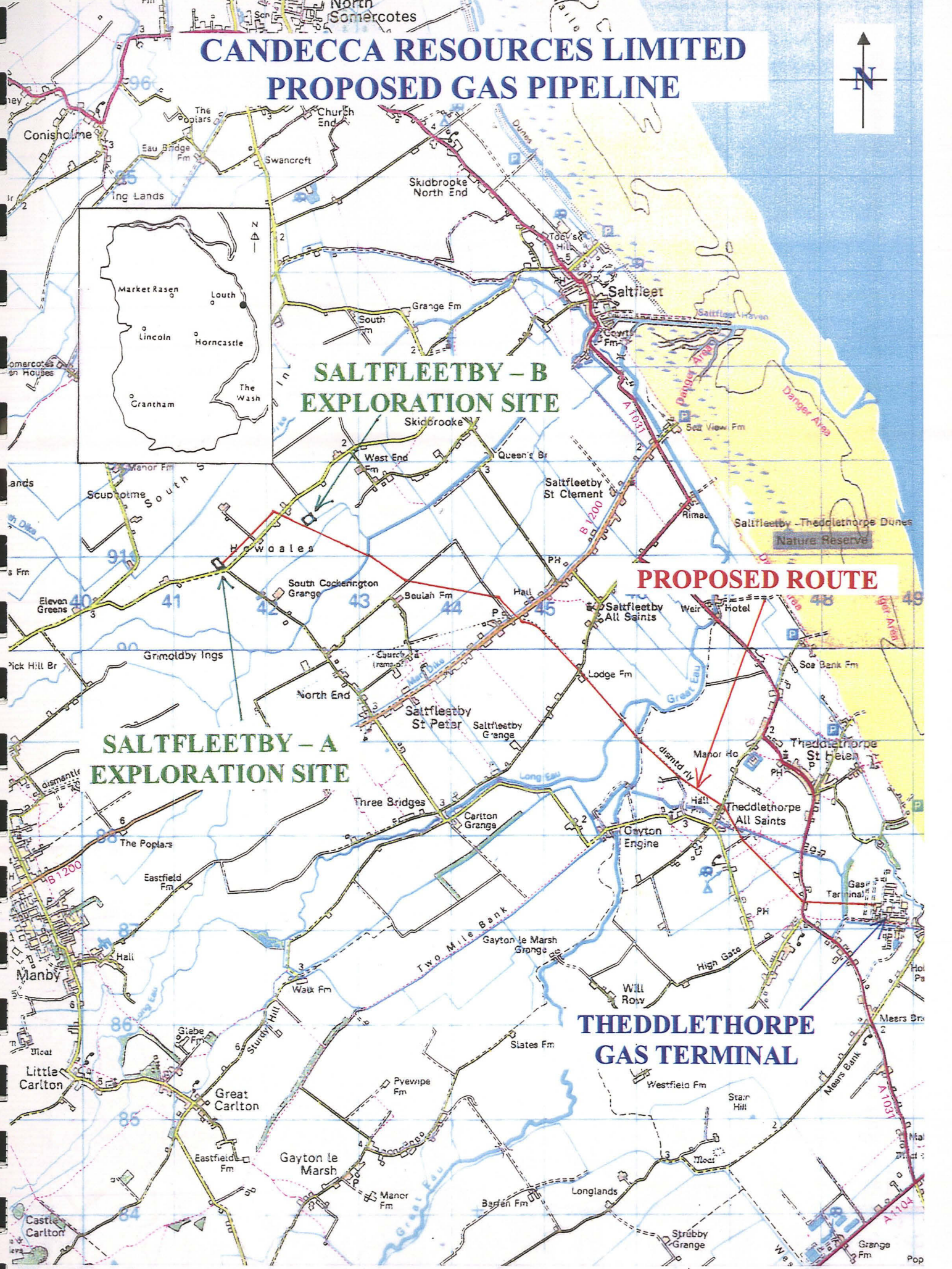


Fig. 1 Saltfleetby B Pipeline, proposed route.
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Sewage Wks

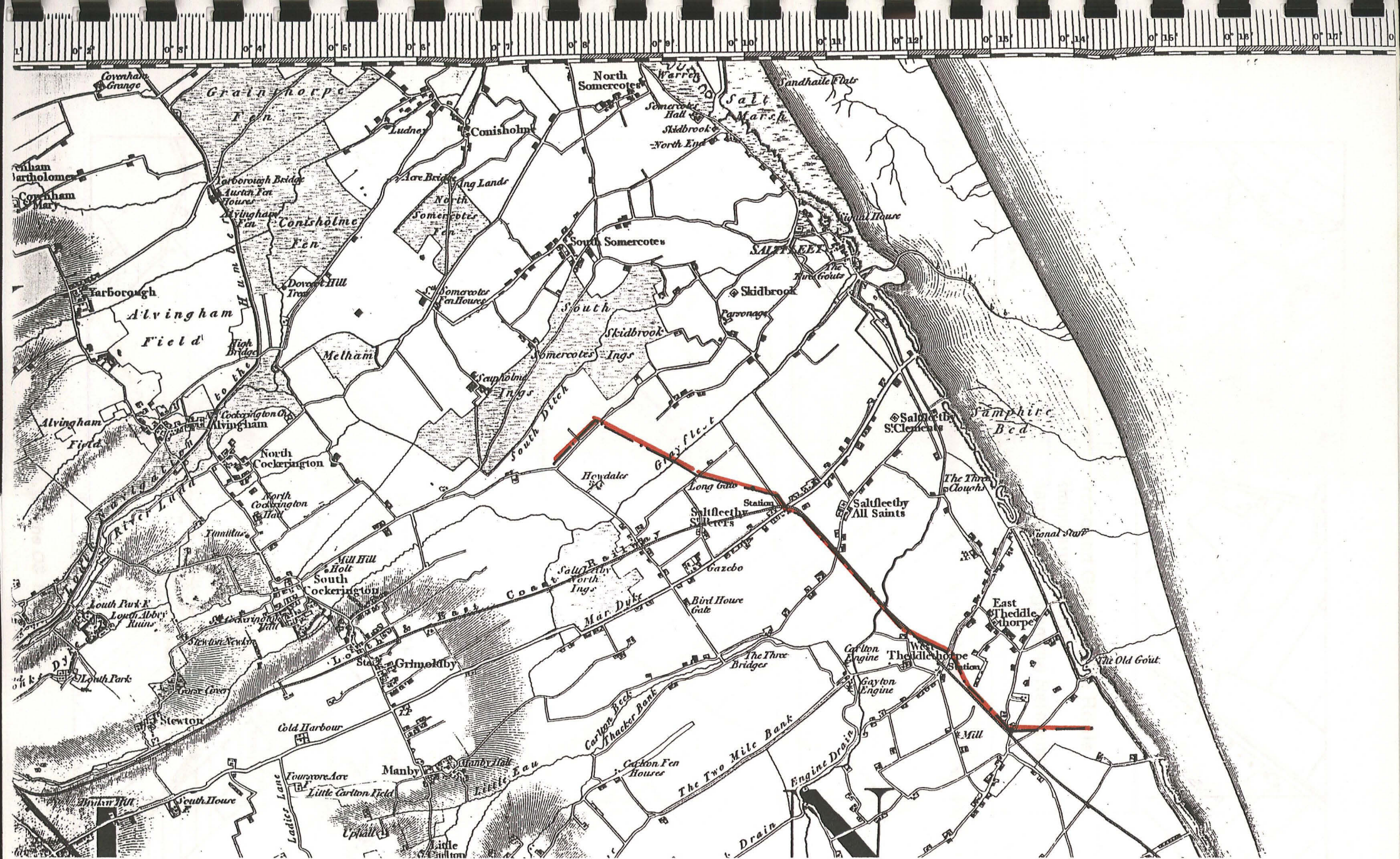


Fig. 2 Part of the first edition one-inch OS map for the Louth and Patrington area, published 1824 with railways inserted in 1888.

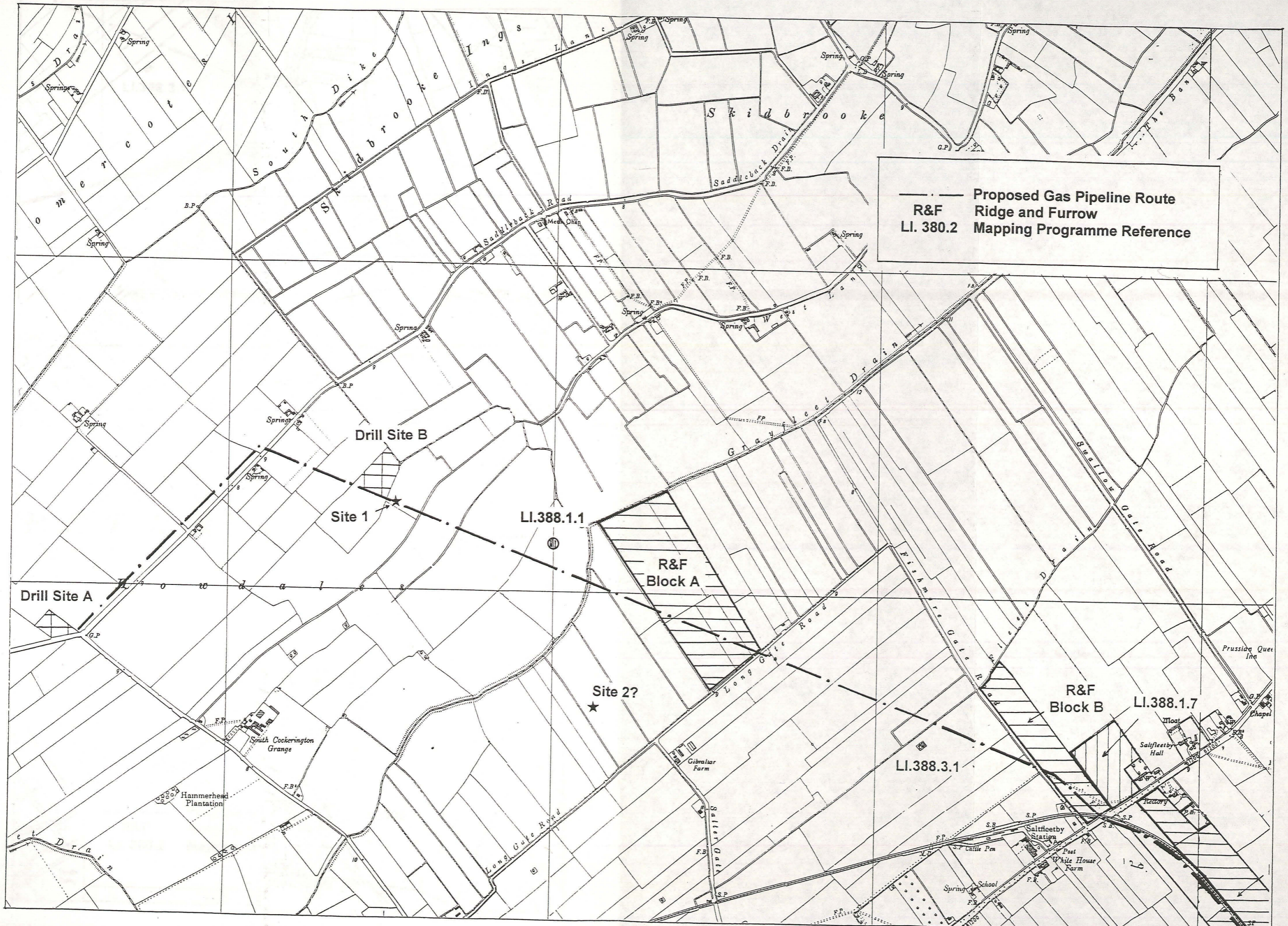


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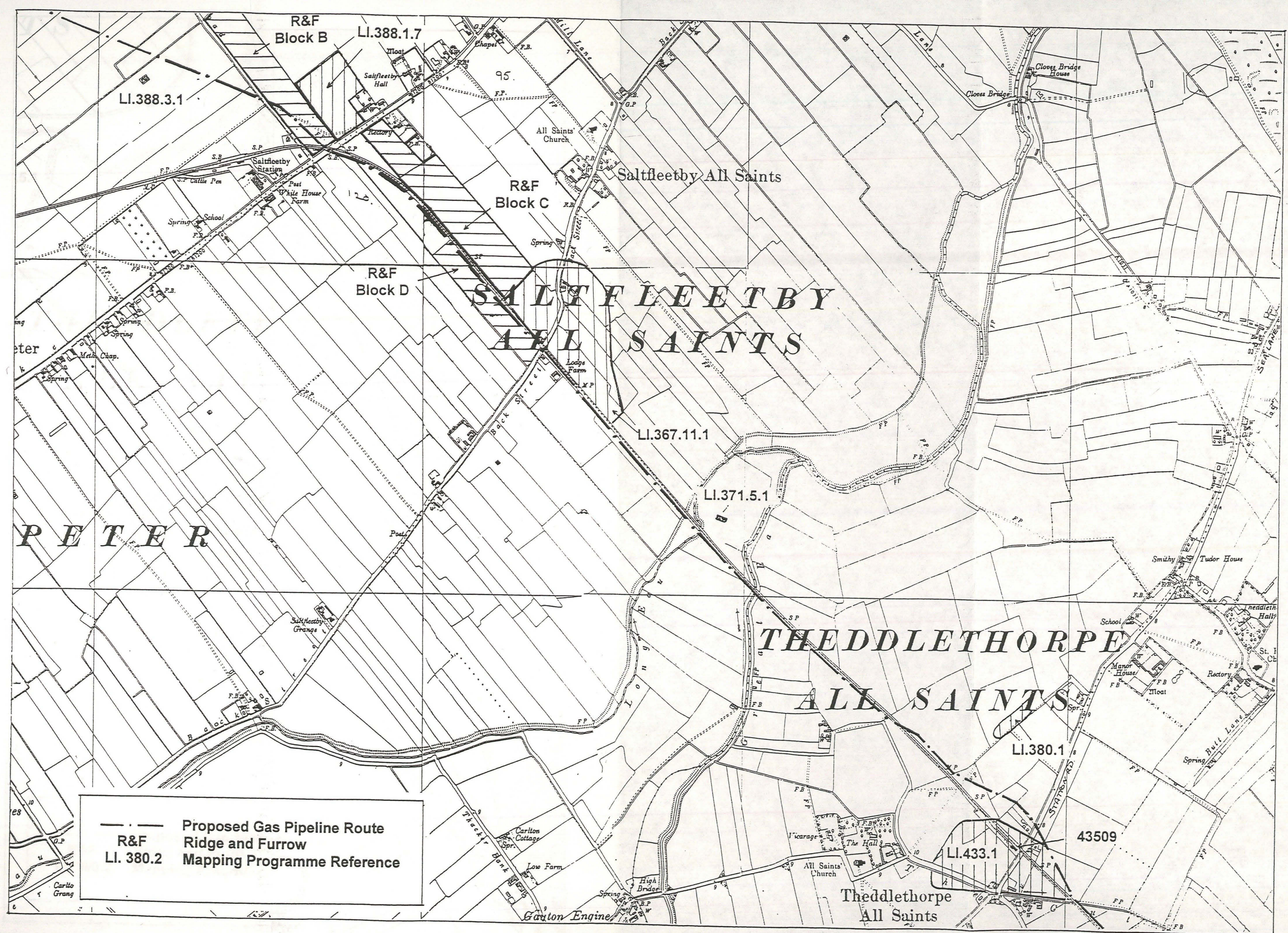


Fig. 3b Saltfleetby B Pipeline. Recorded sites prepared from information at the Lincolnshire SMR. Based on the OS 1:10,560 scale map with the permission of the Controller of the HMSO. © Crown copyright. (LAS licence AL50424A).

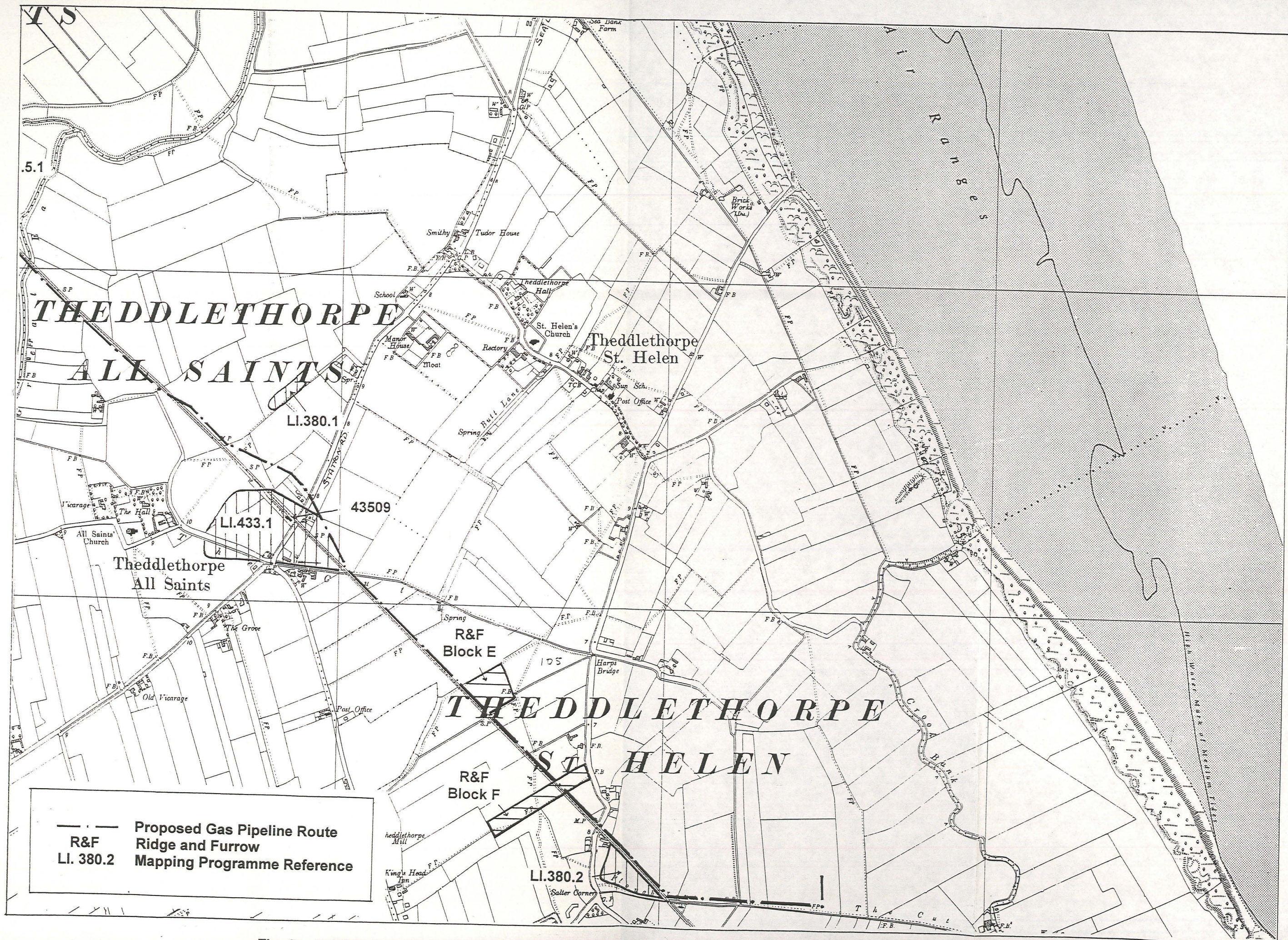


Fig. 3c Saltfleetby B Pipeline. Recorded sites prepared from information at the Lincolnshire SMR. Based on the OS 1:10,560 scale map with the permission of the Controller of the HMSO. © Crown copyright. (LAS licence AL50424A).