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DESK-TOP ASSESSMENT OF THE ARCHAEOLOGICAL IMPLICATIONS OF PROPOSED PIPELINE CONSTRUCTION BETWEEN LANGRICK BRIDGE AND RISEGATE, LINCOLNSHIRE (WRP97)

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DESK-TOP ASSESSMENT OF THE ARCHAEOLOGICAL IMPLICATIONS OF PROPOSED PIPELINE CONSTRUCTION BETWEEN LANGRICK BRIDGE AND RISEGATE, LINCOLNSHIRE (WRP97)

Work Undertaken For
Anglian Water Services Ltd

Report Compiled by
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1. SUMMARY

A desk-top assessment was undertaken to determine the archaeological implications of a proposed water pipeline scheme between Langrick Bridge and Risegate, Lincolnshire.

Investigation of the route of the proposed development has located numerous archaeological remains and findspots in the near vicinity. Romano-British, Anglo-Saxon and medieval activity has been identified within 500m on either side of the pipeline route.

Concentrations of archaeological remains have been recognised in several locations. Remains of Romano-British date (AD 43-450) are most likely to be encountered in the areas of Langrick Bridge, Hubbert's Bridge and Quadring. Saxon archaeology has been identified in the vicinity of Quadring, although this probably reflects a bias in the extent of past investigations and it is likely that remains of the period are more extensive than presently known. Moreover, place-names would suggest that virtually all the settlements along the pipeline route originated in the Saxon period (450-1066). Remains of medieval date (1066-1500) are most likely to be encountered at Brothertoft Hall, Swineshead Abbey, Bicker, Quadring and Risegate. In particular, the abbey remains at Swineshead are nationally significant. Regionally important medieval salt-making remains at Bicker are likely to be affected by the pipeline and a significant manorial complex at Cressy Hall near Risegate may also be impinged by the development.

Various episodes of marine silting are likely to have sealed deposits of all periods. Archaeological remains, as yet undiscovered, may therefore be disturbed by development.

2. INTRODUCTION

2.1 Planning Background

Archaeological Project Services were commissioned by Mr B Wadsworth, of Anglian Water Services Ltd, to undertake a desk-top assessment of the archaeological implications of construction of a new water pipeline. This pipeline was proposed to run for approximately 20km between the River Witham at Langrick Bridge, Brothertoft (national grid reference TF268464), and Burtey Fen (national grid reference TF211262), near Risegate, Pinchbeck, Lincolnshire (Fig. 1). The archaeological assessment was undertaken in accordance with a brief set by the Assistant Archaeology Officer, Lincolnshire County Council (Appendix 1).

3. AIMS

The aims of the desk-top assessment were to establish the location, type and extent of archaeological activity present within a corridor of 1km width, approximately 500m either side, along the route of the proposed pipeline. In particular the expected survival and quality of any archaeological remains will be assessed. Such location and assessment of significance would permit the formulation of an appropriate response to integrate the needs of the archaeology within the proposals for the water pipeline construction programme.

4. METHODS

Compilation of the archaeological and historical data relevant to the area of the proposed development involved the examination of all appropriate primary and secondary sources available. These have included:

- historical documents, held in Lincolnshire Archives
- enclosure, tithe, parish and other maps and plans, held in Lincolnshire Archives
- Ordnance Survey maps
- the County Sites and Monuments Record
- the files of the Boston District Community Archaeologist
- aerial photographs
- archaeological books and journals

The desk-top assessment was required to target a 1km corridor along the route of the pipeline. No field examinations of the area were carried out, though sources containing references to topography, geology and soils were consulted in order that any relevant archaeological activity could be placed within a broader environmental context.

5. LANGRIVILLE PARISH

5.1 Topography, Geology & Soils

Langrick is situated approximately 6km northwest of Boston, in East Lindsey District, Lincolnshire. Situated due north of the River Witham, the village stands on an area of relatively flat topography at a height of *c.* 3m OD.

Local soils are the Wallasea Series, pelo-alluvial gley soils. The land is generally level but there are occasional ridges on the sites of former creeks (Hodge *et al.* 1984, 338).

5.2 Historical Data

Langrak is Old English meaning 'bed of a stream'. The meaning of *Rak* in Langrick may be 'reach' or 'straight part of a river'. The meaning would then be 'long reach' (Ekwall 1974, 150). The place-name is therefore a topographic description of Anglo-Saxon date, which may imply the presence of a contemporary settlement in the area.

5.3 Cartographic Data

Dating from 1662, Dugdale's map of the East and West Fen concentrates on land north of the Witham. However, the map does not record any crossing point, or settlement, in the area of the present Langrick Bridge (Dear and Taylor 1988, 50).

Stukeley's 1723 map of the Lincolnshire fens is more extensive, detailed and accurate than the Dugdale plan. This map records Langrick Ferry and also depicts the river with a much more meandering route than at present (Fig. 3).

The 1824 Ordnance Survey 1 inch to 1 mile (Old Series) map depicts Langrick as a small hamlet on either side of the Witham. This small settlement was then called Langrick Ferry. The map also records a meandering boundary which crosses and re-crosses the straight stretches of the river in the vicinity of Langrick (Fig. 4). Bryant's map of 1828 depicts an essentially similar arrangement. The meandering boundary reflects the earlier course of the Witham, which had clearly been canalised in this area since the publication of Stukeley's map a century previously.

The Ordnance Survey 25 inch to 1 mile map of 1905 provides the first available detailed record of the small hamlet at Langrick Ferry. This map also depict a pattern of predominantly rectangular fields in the area (Fig. 7).

In 1906, plans were drawn up for the construction of Langrick Bridge (Fig. 8). Although the map covers an area immediately west of the intended pumping

station and pipeline it is clear that the bridge has caused little disturbance of relevance to this assessment. The foundations of the bridge were established on the banks of the River Witham, though there was some further embankment at the bridge head.

Later maps indicate that the pattern of land parcelling has remained largely unaltered from the beginning of the century to the present day.

There is no tithe map for Langriville parish (Kain and Oliver 1995).

5.4 Aerial Photograph Data

Aerial photographs, depicting cropmarks of sub-rectangular and rectangular enclosures approximately 1.5km north of the area of investigation have been located (Fig. 2; L3, L4: Fig. 6). These features have been interpreted as the remains of Romano-British settlements, enclosures and droveways. Although these remains are not within the area of proposed development, their location is important as it allows the general distribution of Romano-British activity to be appreciated as an integral part of this investigation.

5.5 Archaeological Data

Records of archaeological sites and finds held in the Lincolnshire County Sites and Monuments Record and the files maintained by Heritage Lincolnshire were consulted. Other, secondary, sources were also examined. Details of archaeological and historical remains falling within 3 kilometres of the proposed development are discussed here and plotted as part of Figure 2.

A scatter of Romano-British pottery, including samian, greywares and colour-coated wares, has been recovered from a field approximately 1.3km east of the pipeline scheme (L2). The distribution of artefacts and cropmarks is likely to reflect a more generalized pattern of suspected Romano-British features and pottery scatters identified to the north and east of Langrick village (L1, L3 and L4).

6. BROTHERTOFT PARISH

6.1 Topography, Geology and Soils

Brothertoft is located 4km west of Boston in Boston District. Situated between the River Witham and the South Forty Foot Drain, the site lies on relatively flat topography at a height of 3m OD.

Local soils are the Wisbech Series coarse silty calcareous soils which are extensive on the silt fenlands around the Wash. It occurs mainly along present and former river courses and on ground reclaimed from saltings (Hodge *et al.* 1984, 362).

6.2 Historical Data

Place-name evidence would suggest that Brothertoft originated during the Anglo-Saxon period. Brothertoft translates as 'the Toft of *Brodor*'. The word *Brodor* is probably from the Old Danish or Old Swedish *Brodher*, meaning 'brother' (Ekwall 1974, 69).

Construction of the South Forty Foot Drain, on the southern boundary of Brothertoft, took place between 1635-38. Later, in 1720, the North Forty Foot Drain was cut through the parish in order to drain Holland Fen (Robinson 1993, 72).

Brothertoft Hall was constructed *c.* 1780 for Major John Cartwright, a gentleman whose fortune was established from the profits of a nearby woad processing factory (Lloyd 1983).

6.3 Cartographic Data

A map of the late 18th century (Anon 1769-70) depicts an area of land between the River Witham and the South Forty Foot Drain. The proposed water pipeline follows the route of the thoroughfare described as 'Turnpike Road from Kirton Holme to Langrick Ferry'. Drainage channels form the most dominant features within the landscape, though marshes relating to the course of the River Witham are still present on the map. Land immediately north of the River Witham has been annotated as Wildmore Fen, suggesting the marshy origins of this land.

There is no tithe map for Brothertoft (Kain and Oliver 1995).

The 1905 and 1906 Ordnance Survey maps of the area depict Brothertoft Hall with a large area of open ground directly to the east (Fig. 11). This open ground has remained undeveloped to the present day. St. Gilbert's church lies due south of the hall. Several ponds were also recorded in the vicinity of the hall. Comparison with more recent maps (O.S. 1983) shows that the pattern of landuse depicted on early maps has remained unaltered to the present day.

South of Brothertoft Hall, along the route of the proposed pipeline, the 1905 Ordnance Survey map records occasional buildings, including a smithy, in an open landscape of rectangular fields (Fig. 12). Several ponds are also shown. Further south, towards the South Forty Foot Drain, the pattern of landuse continues to be dominated by rectangular field systems that contain small ponds (Figs. 13, 14). A railway station was located at Hubbert's Bridge, adjacent to the rail track which runs along the north side of the South Forty Foot Drain. On the opposite side of the drain, the 1905 map also recorded a chemical manure-works and a brick and tile works (Fig. 15).

6.4 Aerial Photograph Data

An aerial photograph in the County Sites and Monuments Record depicts cropmarks of rectangular and subrectangular enclosures (PRN12605). These are considered to represent the remains of possible Romano-British farmsteads, field systems and pits and are located approximately 1.5km east of the proposed development (Fig. 2; Br1). Aerial photographs in the files of the Boston District Archaeologist record cropmarks of a possible subrectangular enclosure (Fig. 2; Br19) 250m west of the proposed development. Further south, cropmarks associated with a known Romano-British settlement have been identified (Fig. 2; Br17).

6.5 Archaeological Data

Activity dating to the Romano-British period forms two separate clusters of activity to the southwest and east of Brothertoft.

Approximately 1.2km east of Brothertoft, archaeological excavations have identified a Romano-British settlement (Fig. 2; Br3). Excavations within an area of cropmarks previously identified by aerial photography (Fig. 2; Br1) revealed enclosure ditches and recovered Samian ware, amphora, colour-coated wares and greyware pottery.

Immediately south of this excavation area, fragments of coarse greywares (dated to the 2nd to 3rd centuries AD), animal bones and a coin, a *denarius*, of Septimus Severus (AD 193-211) have been recovered during unsystematic fieldwalking (Fig. 2; Br2).

A second substantial cluster of Romano-

British activity has been identified southwest of Brothertoft, approximately 800m west of the proposed water pipeline scheme. The remains of an almost complete greyware jar have been recovered *c.* 250m west of the proposed pipeline route (Fig. 2; Br4).

Artefacts and features dated to the Romano-British period have also been retrieved by archaeological excavation and fieldwalking on land south of Meads Farm, approximately 750m west of the pipeline scheme (Fig. 2; Br10, Br11, Br12 and Br14), in close proximity to a series of cropmark features identified by aerial photography (Fig. 2, Br17). Fragments of Romano-British pottery, including greywares and colour-coated wares (dated to the 2nd to 4th centuries AD), have been found (Fig. 2; Br9, Br10, Br11, Br12).

Archaeological evaluation due north of these pottery scatters (Fig. 2; Br14) revealed the remains of a small sandy island from which a single sherd of Samian ware was recovered (APS 1994a).

Further archaeological evaluation 200m north of the sandy island recorded evidence of freshwater and marine deposits that are likely to have formed within a stream channel (Fig. 2; Br18). A single, small ditch, previously observed as a cropmark, was also excavated. Although undated, this is believed to form part of a system of Romano-British enclosures. Natural silt deposits were recorded to a depth of 1.2m and are believed to have formed in a low energy environment (APS 1995b).

Further south, at Hubbert's Bridge, an archaeological watching brief recorded the presence of a fossil stream channel containing peaty deposits (Fig. 2; Br15). Natural silts occurred to a depth of 1.2m (Heritage Lincolnshire 1993). Fragments of Romano-British pottery have been found in the field to the west of this archaeological watching brief, approximately 400m west of the proposed pipeline (Fig. 2; Br9).

Medieval activity is located within 300m of the proposed pipeline route. Earthworks incorporating hollow-ways and raised platforms have been observed east of Brothertoft Hall (Fig. 2; Br5). The presence of worked limestone fragments may suggest that this is possibly the site of a deserted medieval settlement. St. Gilbert's church (Fig. 2; Br6), rebuilt during the 19th century using medieval masonry, is located *c.* 300m west of the proposed development within the grounds of Brothertoft Hall. Due north of Brothertoft Hall, aerial photography has recorded the location of a series of cropmark features, interpreted as undated enclosures (Fig. 2; Br19). The close proximity of a suspected medieval settlement (Fig. 2; Br5) to these cropmarks may suggest that they are likely to have been produced as a result of activity during the medieval period.

Evidence for post-medieval activity includes the remains of suspected 19th century river embankments (Fig. 2; Br8), a Methodist Chapel (Fig. 2; Br20) and scatters of post-medieval pottery (Fig. 2; Br13). Brothertoft Hall (Fig. 2; Br7) was constructed *c.* 1780. An archaeological watching brief on land approximately 200m east of the water pipeline route has recorded the presence of a post-medieval ditch (Fig. 2; Br16), though this feature was not associated with any further archaeological remains (APS 1994b).

7. FRAMPTON PARISH

7.1 Topography, Geology and Soils

Frampton is located approximately 3km south of Boston in the parish of Frampton,

Boston District, Lincolnshire. Situated due south of the Haven, and 7km from the coastline of the North Sea, the village lies on flat ground at a height of 3m OD.

Local soils are the Tanvats series consisting of stoneless, silty, silty over clayey and clayey soils developed in marine alluvium. This generally flat land is often affected by has ridges marking the sites of former creeks (Hodge *et al.* 1984, 319). Such geological deposits are typical of the silt fenlands in the vicinity of the proposed development, and can be expected to contain evidence of remnant stream channels and organic layers as an integral part of the stratigraphic sequence.

7.2 Historical Data

Place-name evidence suggests that Frampton originated in the Anglo-Saxon period. The different forms of the name can be explained as having originated from the Old English *Framecan tun*. Old English *Frameca* is a normal derivative of the personal name *Fram* and thus the place-name may be 'the *tun* (village) of *Fram's* people' (Ekwall 1974, 186).

The Domesday Book, written AD 1086, recorded that the parish comprised two manors. In one manor, held by Guy of Craon, was a church and a priest (Foster and Longley 1976, 182). In the second manor, held by Count Alan, were 15 salt-pans (*ibid*, 69).

7.3 Cartographic Data

Cartographic material relating to the parish of Frampton was examined for information pertaining to the development of landuse on the route of the proposed water pipeline. However, all of the material examined depicted land that was situated outside the area of investigation, and is therefore irrelevant to this report.

7.4 Aerial Photograph Data

Aerial photographs in the files of the Boston District Community Archaeologist were examined, though none relevant to the area of investigation were present.

7.5 Archaeological Data

Although all of the archaeological data from Frampton parish is located some 2-3km east of the proposed pipeline route, the location of these remains were considered to be important to the overall investigation because they allow a more comprehensive appreciation of the distribution of archaeological remains.

Romano-British activity is recorded within 4km of the proposed water pipeline route. A suspected settlement site, exposed during ploughing, is located 3.5km east of the pipeline (Fig. 2; F2).

Archaeological excavation of a series of enclosures, originally noted as soilmarks, 1.8km east of the pipeline recovered remains dating to the 2nd to 4th centuries AD (Fig. 2; F1). Pottery sherds retrieved during excavation included a fragment of mortarium stamped *Brusci* or *Bruscius*, that can be traced to a pottery workshop that existed in Warwickshire.

8. KIRTON PARISH

8.1 Topography, Geology and Soils

Kirton is located approximately 4km southwest of Boston in the parish of Kirton, Boston District, Lincolnshire. Situated between the River Witham and the Bicker Haven the village lies on relatively flat land at a height of 3m OD.

Local soils are the Wallasea and Agney series stoneless silty soils developed in

marine alluvium on flat reclaimed land (Hodge *et al.* 1984, 88).

8.2 Historical Data

Place-name evidence suggests that Kirton originated during the Anglo-Saxon period. Kirton or *Chirchetune* translates as 'Church village', probably a Scandinavianized form of the Old English *Ciric-tun* or *Circe-tun* (Ekwall 1974, 281).

In 1086, at the time of the Domesday survey, Kirton comprised two manors within which there was a church and two salt-pans (Foster and Longley 1976, 69; 182).

8.3 Cartographic Data

Maps of the estate of J.S. Fothergill Esquire dating to 1820 were examined for information relevant to the route of the proposed pipeline. However, the plans referred to land on the eastern edge and beyond the area of investigation, and were therefore considered irrelevant.

The 1824 Ordnance Survey 1 inch to 1 mile map (Fig. 4) records several roads or tracks across the route of the pipeline. Occasional farms are also depicted. Dating from 1905 and 1906, Ordnance Survey map record a pattern of rectangular fields in the area between the South Forty Foot Drain and New Hammond Beck (Fig. 15, 16, 17). More recent maps (1983) indicate that this land parcelling arrangement has been largely maintained, though boundaries have been removed to create larger fields. Additionally, more buildings have been constructed alongside Station Road the highway between the two watercourses.

8.4 Aerial Photograph Data

Aerial photographs relating to Kirton parish and held in the County Sites and Monuments Record and files of the Boston District Archaeologist were examined. However, none relevant to the area of investigation were present.

8.5 Archaeological Data

Prehistoric activity is represented by the find of a greenstone axe, probably Neolithic in date, approximately 2km east of the proposed pipeline route (Fig. 2; K1).

A large cluster of Romano-British material is located south of New Hammond Beck, *c.* 2km east of the proposed pipeline. Although these archaeological remains are situated outside of the corridor of investigation, plotting their distribution is important in order that a more comprehensive picture of Romano-British activity can be appreciated.

Romano-British pottery (dated to the 3rd to 4th centuries AD) has been recovered from two locations (Fig. 2; K2, K8). Some areas of dark soil, a colour-coated jet fragment and the remains of a painted wall have been found due south of these scatters (Fig. 2; K3). Similar areas of dark soil associated with Romano-British pottery and tile fragments have been located further south (Fig. 2; K4).

Samian ware, colour-coated ware, and grey-ware pottery fragments have been retrieved west of these remains; within 1km of the pipeline route (Fig. 2; K5). Amphora, grey-ware and whetstone fragments have been found from the ploughsoil due north of (K5) and is likely to reflect the location of an extensive Romano-British settlement (Fig. 2; K10). Fieldwalking within 1.5km of the pipeline route has recovered Romano-British pottery dated to the 3rd century and a bone toggle, respectively on the eastern and western limits of this cluster of archaeological activity (Fig. 2; K6, K9).

An undated earth and gravel bank, some 400m long, has been identified at Kirton Holme (Fig. 2; K7) and may represent some form of sea defence. Details of this site held in the county Sites and Monuments Records (PRN12544) state that this earthwork is possibly Roman.

9. SWINESHEAD PARISH

9.1 Topography, Geology and Soils

Swineshead is located approximately 7km west of Boston in Swineshead Parish, Boston District, Lincolnshire. Situated between the South Forty Foot Drain and the Bicker Haven, Swineshead village lies on relatively flat land at a height of approximately 3m OD.

Local soils are the Agney and Tanvats series silty, silty over clayey and clayey soils developed in marine alluvium (Hodge *et al.* 1984, 319).

During construction of the A17, due west of Swineshead, a series of 30 boreholes were sunk in order to establish the stratigraphic sequence within the local geology. Analysis of the results revealed the development of silty clays deposited in a marine or brackish environment, subsequently overlain by the emergence of a reedswamp with nearby brackish influence (Waller and Alderton 1994, 295). Radiocarbon dating of a layer of peat, contained within these deposits, established that the peat had begun to form during the Early Roman period (AD 170-315) prior to a return to marine conditions, dated to AD 315-425 and 395-535 (*ibid*).

Interpretation of the data indicates that Roman occupation in the vicinity of Swineshead can be expected to occur at a height of 1.74-1.8m OD (*ibid*, 292), approximately 1m below the present ground surface.

9.2 Historical Data

Place-name evidence suggests that Swineshead is likely to have originated during the Anglo-Saxon period. Swineshead may mean 'the source of the *Swin*', (Ekwall 1974, 457), and is therefore a topographic description relating to the close proximity of the watercourse and indicative of the watery origins of much of this region.

The earliest historical reference to Swineshead, indicating the presence of a monastery, occurs shortly after AD 650. A passage from the Anglo-Saxon chronicle mentions *Swineshaefed* in 675 AD suggesting that occupation during the 7th century is to be expected (Ekwall 1974, 175).

St. Mary's Abbey, located to the east of the present Swineshead village (Fig. 2; Sw13), was founded *c.* 1135 AD by Robert de Greslei who endowed it with 240 acres of demesne land. Initially stated as belonging to the Order of Savigny, the monks of Swineshead were to become members of the Cistercian Order during September 1147 (Southworth 1996, 15). The abbey's numerous benefactors included both King Henry II and his son Richard I and, in 1291, according to the taxation of Pope Nicholas IV, the ecclesiastical revenues of the abbey stood at over £121 (*ibid*, 18). At the dissolution of the monasteries, the abbey fell under the First Act of Suppression in 1536, when the smaller monasteries were dissolved (*ibid*, 19). The Cistercian Abbey was totally destroyed in 1536 (*ibid*, 40). The estates were sold through the Court of Augmentation and the site of Swineshead Abbey was granted in 1552 to Edward, Lord Clinton (*ibid*, 26).

Masonry of the medieval abbey was re-used to build a house for Sir John Lockton during 1607. The location of this house is now referred to as 'the Abbey' (*ibid*, 40).

Documents and inventories dating to the late 17th century state that the demesne lands of the abbey included two deer parks, the Great Deer Park and the Lesser Deer Park, the Plague Pits, the Monks' Fish Pond, the Butcher's Close, the Crow Park and the Great Ratting Pits. The Great Ratting Pits were for the ratting and processing of flax which was grown on the abbey lands (*ibid*, 33).

In 1737 Samuel Reynardson was the tenant, and he appears to have been in possession of the abbey lands in 1777, before the property passed to Jacob Reynardson, who was probably his son. According to the Honourable John Byng, fifth Viscount Torrington, on his tour through England in 1791, an 'old fat farmer' lived at the abbey. This farmer (presumably Jacob Reynardson), gave John Byng a tour of the estate. He stated that he had once buried some cattle that had died of 'distemper' on the abbey lands and had disturbed an old burial ground of the monks, as human remains were uncovered (*ibid*, 37).

In 1825, during the construction of a well, the skeleton of a man measuring 6' 4" in height was unearthed from within the abbey grounds (*ibid*, 38).

9.3 Cartographic Data

A map dated to 1769-70, depicts land to the east of Hardwick Farm. Although the landscape has changed little in comparison with the more modern Ordnance Survey maps, the influence of drainage upon the land-use is striking; Hammond Beck, Creasey Plot Drain, New Hammond Beck and Five Towns Drain traverse the area concerned.

Hare's map of 1774 shows land in an area to the southwest of Hardwick Grange (Fig. 18). Linear strip-fields and larger rectangular enclosures are depicted aligned at 90 degrees to the route of Boston Road, incorporating a more compact area of land described as Hardwick Old Inclosures. Compared with the 1:25000 Ordnance Survey map, published in 1983, the parcelling pattern has altered little. Boundaries within Hardwick Old Inclosures have been removed to form a single field, but many of the fields retain the pattern of boundaries established by the 18th century. The base of the map describes Abbey Farm, belonging to Samuel Reynardson Esquire, as part of the Old Inclosures in Swineshead, located to the south of the map. Unmapped areas to the east and north of Hardwick Old Inclosures are described respectively as Wigtoft Fore Fen and Wigtoft Fen.

Ordnance Survey maps of 1905 and 1906 show a series of fields that seem to focus on the abbey site itself, with additional fields forming a pattern of linear boundaries at 90 degrees to the track running north of the abbey (Fig. 19, 20).

These maps also record several small ponds in the vicinity of the abbey, with a single linear water feature described as a fishpond. Fenhouses, a hamlet due east of the abbey, had a resident blacksmith on the western edge of the settlement. Northeast of Fenhouses was a brickworks and a large pit that is likely to have been a quarry for this industry (Fig. 20).

South of Swineshead Abbey, to the east of Drayton, was Chapel Ground, clearly marked within an irregular field boundary (Fig. 21). The landuse is typified by much smaller linear field boundaries, as located in the vicinity of Guildford Drain and

Herring Rig Lane. Drayton Mill, northeast of Chapel Ground, was situated at the southern end of Abbey Lane bordering a series of enclosures collectively termed 'Town Field'.

9.4 Aerial Photograph Data

Several photographs, in the County Sites and Monuments Record and the files of the Boston District Archaeologist, depict Manwar Ings (an earthwork west of the abbey) and Abbey Farm. These photographs show the location of a cluster of soilmarks and cropmarks in close proximity to the route of the proposed development (CUCAP: 2440, 2441, 2540; Fig. 22). Centred around Baythorpe, these markings appear to show the locations of numerous droveways and enclosures that continue eastwards toward Abbey Farm. A single aerial photograph, taken by CUCAP in 1975, recorded a series of soilmarks that have been interpreted as possibly a medieval field system with surrounding enclosures situated on the route of the proposed pipeline (Fig. 2; Sw1). Alternatively, it has been suggested that these soilmarks are the remains of formal gardens (Healey *pers comm*).

9.5 Archaeological Data

A few finds of Romano-British archaeological material have been made within the parish of Swineshead, but the majority of the artefacts recovered have been dated to the medieval period.

Fieldwalking on fields to the east of Swineshead Abbey has recovered 3 sherds of Romano-British pottery (Fig. 2; Sw14). A second scatter of Romano-British pottery has also been located 800m west of the route of the proposed pipeline, during fieldwalking by the Fenland Survey (Fig. 2; Sw2). Both of these scatters were considered to be too small to indicate occupation, and are more likely to have formed as a result of manuring.

Earthworks and finds relating to a possible medieval moated site have been located within 300m of the pipeline route at Hardwick Grange (Fig. 2; Sw3). Pottery dating to the medieval and post-medieval periods has been recovered from the grounds of the Grange, together with a Romano-British flue tile.

Further south, on land to the east of Baythorpe, two hollowed-out stones (dating to the medieval period) were recorded during ditch clearing 500m west of the proposed route (Fig. 2; Sw7). The water pipeline will directly traverse an area of farmland that has produced a large collection of medieval pottery during fieldwalking to the east of Swineshead Abbey (Fig. 2; Sw4). Swineshead Abbey, founded during the 12th century, lies due west of the proposed development (Fig. 2; Sw13). In close proximity to the route is a location that has produced 20 - 30 sherds of Toynton-All-Saints and Bourne ware pottery, dated to the medieval period (Fig. 2; Sw8). Approximately 500m east of this scatter is the location of another substantial find of medieval pottery. Stonework, some of which was dressed, has also been recovered from this locality (Fig. 2; Sw5) within an area of recorded cropmarks (Fig. 2; Sw1).

South of this cluster of finds, in the area due east of Drayton, is a similar spread of artefacts that has been dated to the medieval period. An excavation at Chapel Ground in 1968 recovered human skeletons and late medieval pottery (Fig. 2; Sw6). A 19th century reference suggests that this chapel of ease belonged to the abbey and was used as a burying place. It also states that many valuable coins have been dug up here at different times and that the burying place was very near to the mill given to

the poor of Swineshead (B19/028).

Fieldwalking to the south of Chapel Ground has recovered large amounts of medieval pottery including rims, handles and body fragments (Fig. 2; Sw9-Sw12).

10. BICKER PARISH

10.1 Topography, Geology and Soils

Bicker is located approximately 11km southwest of Boston in Bicker Parish, Boston District. Situated at the westernmost limit of the Bicker Haven, Bicker lies on an area of relatively flat ground at a height of approximately 3m OD.

Local soils are the Agney series stoneless silty soils developed in marine alluvium on flat reclaimed land (Hodge *et al.* 1984, 88).

10.2 Historical Data

Referred to in the Domesday Book of AD 1086, Bicker parish had 23 salt-pans belonging to a variety of landowners. There was also a church and a priest in the parish (Foster and Longley 1976).

10.3 Cartographic Data

Stukeley's 1723 map of the Lincolnshire fens (Fig. 3) depicts several mounds, called 'salt hills' southeast of Bicker, apparently a little to the east of the proposed pipeline. The same map also shows what appears to be a large pool, called the 'salt ea', immediately southeast of Bicker village.

An early 20th century copy of a map of 1783 by Edward Hare (Sanderson-Robins 1907), depicts the areas of high ground produced during salt-making in the medieval period (Fig. 23). Turnpike Road, Green Lane and Running Post Lane are evident as thoroughfares and back-lanes that have continued in use until the present day (O.S. 1955).

Bryant's 1828 map of Lincolnshire records a windmill southeast of the village and a little west of the proposed pipeline course. An area called 'Rabbit Hills' is shown near the present Marsh Mill House, in the immediately vicinity of the pipeline route. A little to the southwest the map also depicts a group of buildings called 'Woad Houses'. These buildings, which are no longer in existence, lay just to the west of the proposed pipeline (Fig. 10).

An 1839 map covers the route of the pipeline through Bicker parish (Fig. 24). Field boundaries depicted on this map have retained an unaltered pattern until recent times (O.S. 1955). East of Bolle Hall, on the present route of the A17, the thoroughfare is described as 'Turnpike Road'. To the south, on the present course of Broad Lane, the thoroughfare is called 'Running Post Lane'. Mill Lane, located on the B1181, forms a boundary to an area described as Sea Dike Lands that follows the course of the Old Eau. The eastern extent of the mapped area is delimited by an area described as Old Enclosures in Wigtoft, and has not been planned.

Ordnance Survey maps dating from the early 20th century depict land parcelling patterns in the vicinity of Bolle Hall (Fig. 25). Agricultural production has resulted in a series of sub-rectangular and linear fields being established across the route of the proposed pipeline by the early 20th century. The present land-use pattern has changed little over the century. Green Lane still exists, and may originally have formed a back-lane to properties that now front onto the A17. A small area of woodland, or an orchard, to the southwest of Bolle Hall is no longer present. At the northwest edge of Hoffleet Stow, a small brewery (since disused) is also shown.

10.4 Aerial Photograph Data

Aerial photographs of Bicker parish held in the county Sites and Monuments Record and the files of Heritage Lincolnshire were examined. However, none relating to archaeological features along the route of the proposed development were present. An aerial photograph in the county Sites and Monuments Record depicts a complex of cropmarks of enclosures alongside trackways. However, these are located at grid reference TF198397 and are thus some distance from the proposed pipeline route.

10.5 Archaeological Data

Prehistoric remains are limited to the recovery of a single flint thumbnail scraper, dated to the Bronze Age (Appendix 2). In conjunction with a fragment of possible Romano-British pottery (recovered during fieldwalking integral to this assessment) these artefacts are the only evidence for archaeological activity, prior to the medieval period, occurring in close proximity to the proposed pipeline route as it passes through Bicker parish (Fig. 2; Bi13).

Bolle Hall, dating to the 19th century, is considered to be the ancestral home of the Bolle family, whose lineage is believed to originate during to the 12th century (Fig. 2; Bi1). Fieldwalking along the route of the proposed development has been conducted as part of the requirements of the brief set for this investigation. A map of the finds recovered displayed no distinct concentrations of artefactual material, though reasonable quantities of medieval and post-medieval pottery were recovered (Appendix 2). Further information is contained within paragraph 10.6.

Salt-mounds, produced as a by-product of medieval salt-workings are numerous (Fig. 2; Bi2-Bi12) within the parish. A watching brief of an excavation through one of the salt-mounds 400m west of the proposed water pipeline recovered stones, bricks, burnt earth and shell fragments from within the body of the mound (Fig 2; Bi2).

10.6 Fieldwalking Data

As part of the archaeological assessment of the proposed pipeline route, fieldwalking was undertaken on land between Bolle Hall and Wykes Manor Farm (Fig. 2; Bi13: Fig. 26).

The fieldwalking covered a 200m wide corridor along an approximately 2km length of the pipeline route. Finds locations were plotted using an Electronic Distance Meter (EDM), to give each artefact a 2-dimensional co-ordinate.

In summary, the distribution plans indicate that the artefacts recorded during the fieldwalking survey show no tendency towards clustering, and are unlikely to represent the material remains from *in situ* human activity. This would suggest that the majority of the finds were deposited as part of a 'manuring scatter'.

Artefacts recovered during the survey included a probable Bronze Age flint scraper and a fragment of possible Roman pottery. However, the majority of the finds date to the medieval and post-medieval periods and consist mainly of pottery sherds. Further information and a more comprehensive summary can be found at Appendix 2.

11. DONINGTON PARISH

11.1 Topography, Geology and Soils

Donington is located approximately 13km southwest of Boston within Donington parish, South Holland District,

Lincolnshire. Situated mid-way between the South Forty Foot Drain and the Risegate Eau, Donington lies on relatively flat land at a height of 3m OD.

11.2 Historical Data

Place-name evidence suggests that Donington originated during the Anglo-Saxon period. The name of the village translates as 'the *tun* (village) of *Dunn(a)'s* people' or *Duningas* meaning 'dwellers on a hill' (Ekwall 1974, 147).

It is recorded in the Domesday Book of 1086 that Donington contained 27 salt-pans (Foster and Longley 1976, 56; 68).

Documents state that Richard I (1189-1199) founded a free manorial chapel here. By 1280 ownership had been transferred to the Earl of Richmond, and the chapel was last recorded standing in 1526 within the grounds of the present Wykes Manor Farm (Fig. 2; D3) (Healey 1988).

11.3 Cartographic Data

Stukeley's 1723 map and Bryant's map of 1828 indicate that the area of Donington parish on the proposed pipeline route was mostly open land.

On the 1905 Ordnance Survey 25" map Wykes Manor Farm is shown as surrounded by a series of rectangular and sub-rectangular field boundaries that have remained unaltered throughout the century (Fig. 27). Wykes Lane has retained its name to the present day. Further east of the pipeline route at Red House, the 25" map depicts a similar pattern of land parcelling. Reclamation of the land within the area has resulted in numerous ditches and channels meandering across the locality. Earthworks to the east of Red House are likely to represent the remains of salt-mounds or previous watercourses that are now defunct. The place-names in the area are evocative of the fenland landscape: Rushy Drove, Dike Drove and Wigtoft Marsh Farm suggest the watery origins of this farmland.

11.4 Aerial Photograph Data

Aerial photographs in the county Sites and Monuments Record and the files of Heritage Lincolnshire were examined. However, none relating to the area of the proposed development were present.

11.5 Archaeological Data

Romano-British pottery and a crude sandstone mortar were found during drain clearance within 400m of the route of the proposed pipeline, due east of Wykes Manor Farm. The reference (within the South Holland District Parish File maintained by Heritage Lincolnshire) states that the finds were retrieved almost 3m below the level of the ground surface, though no grid reference or precise location is given.

Medieval pottery has been recovered from the vicinity of Wykes Manor Farm (Fig. 2; D2). Geophysical survey to the north of these buildings has located the possible presence of medieval stone structures that are likely to form part of a settlement (Fig. 2; D2) (Merrony and Johnson 1988). A 12th century manorial chapel is also believed to stand within the grounds of the present farm, as discussed previously (paragraph 11.2) (Fig. 2; D3).

Several Roman coins, brooches and a beehive quern have been found in the parish, though the locations of the findspots are unknown. The quern, in particular, probably signifies the location of a Romano-British occupation site.

Similarly from uncertain locations within

the parish are several medieval coins and post-medieval tokens.

12. QUADRING PARISH

12.1 Topography, Geology and Soils

Quadring is located approximately 13km southwest of Boston within Quadring parish, Boston District, Lincolnshire. Situated immediately east of the Bicker Haven, the village lies on relatively flat ground at a height of 3m OD.

Local soils are the Tanvats series silty, silty over clayey and clayey soils developed in marine alluvium (Hodge *et al.* 1984, 319).

12.2 Historical Data

Place-name evidence suggests that Quadring was established by the Anglo-Saxon period. Consisting of the Old English *cwead* or 'dirt' (here no doubt 'mud') and a tribal name *Haeferingas*, the village can be suggested as originally forming a tribal settlement bordering on the mudflats of the Bicker Haven estuary (Ekwall 1974, 376).

The Domesday Book of 1086 states that there were 2 salt-pans in the parish (Foster and Longley 1976, 51; 72). During the Late Saxon period the Haven started silting up, so that by the 14th century Quadring was at the heart of the salt-making industry (Hayes and Lane 1992, 37).

12.3 Cartographic Data

The earliest detailed reference relevant to the area of investigation is a map of 1776, showing field boundaries and thoroughfares within the parish (Hare 1776; Fig. 28). Strip-fields, typical features of the medieval landscape, are common within the area shown. More recent 1:25000 Ordnance Survey maps reflect a very similar pattern of land-use (O.S. 1955), though the majority of the strip fields have been combined and are no longer apparent. Watergate is a major northeast-southwest running road that leads to Quadring and remains in use at present. Judy Cross marks the site of a crossroads, mid-way between Horse Town Dam (now referred to as Mar Lode) and Sarah Gate. The main Quadring to Gosberton road is described as the Turnpike Road and has continued on this course until the present day. A significant drainage channel, referred to as the Alldike Lode, is depicted within the southwest corner of the map on land adjacent to High Tofts. This feature remains in use as a land boundary at present, and forms the baseline for several rectilinear strip-fields.

12.4 Aerial Photograph Data

Aerial photographs covering the parish of Quadring and held in the county Sites and Monuments Record and files of Heritage Lincolnshire were examined. Although certain photographs depicted archaeological remains, none relevant to the route of the proposed development recorded features of archaeological significance.

12.5 Archaeological Data

Fieldwalking completed by the Fenland Survey has located sites of Romano-British, Anglo-Saxon and medieval date within Quadring parish (Hayes and Lane 1992).

During the prehistoric period the area is likely to have been saltmarsh, an environment considered unsuitable for settlement (*ibid*, 28). Scatters of Romano-British pottery have been recovered within 500m to west and east of the proposed pipeline route (Fig. 2; Q1-Q9). These

scatters contain between 1 and 5 sherds of pottery. More substantial remains have been located 200m east of the proposed development route (Fig. 2; Q6). This site incorporates archaeological remains that have been interpreted as a possible Romano-British settlement site. A Roman road, referred to as 'Shoff Drove', (Phillips 1970, 266) 'Salters Way' and 'Bridge End Causeway' (May 1976, 49) is believed to cross the route of the pipeline in the vicinity of Washdyke Farm, north of Quadring village. It has been suggested that a minor Roman canal may follow the same route as the suspected road (Phillips 1970, 266), though the exact position is likely to have been masked by the deposition of post-Roman silts. Salters Way road begins at the Fosse Way, in the vicinity of Sixhills and heads east, crossing the line of King Street at Threekingham before passing across the Fens to Donington (May 1976, 49).

Middle and Late Saxon pottery scatters (composed of between 1 and 2 sherds of pottery) are located in close proximity to the proposed development route (Fig. 2; Q10-Q12). More substantial scatters, consisting of Late Saxon and medieval pottery fragments, are located within 100-300m of the route (Fig. 2; Q13-Q16). These locations have been interpreted as likely settlement sites.

13. GOSBERTON PARISH

13.1 Topography, Geology and Soils

Gosberton is situated approximately 14km south of Boston within Gosberton parish, South Holland District, Lincolnshire. Situated due north of the Risegate Eau, the village lies on relatively flat land at a height of 3m OD.

Local soils are the Rockcliffe series consisting of coarse and fine silty typical alluvial gley soils, developed on reclaimed stoneless marine alluvium (Hodge *et al.* 1984, 301).

13.2 Historical Data

Place-name evidence suggests that Gosberton originated during the Anglo-Saxon period. *Gosbeorht* is probably a continental personal name stemming from *Gauzpert* or *Gautberht*, with the suffix *tun* meaning village (Ekwall 1974, 201). Thus Gosberton is likely to translate from '*Gosbeorht's tun*' to 'the village of Gosbeorht'.

References in the Domesday Book state that the Bishop of Lincoln owned a salt-pan rendering 8 pence, and that Count Alan held 2 salt-pans rendering 12 pence in the parish of Gosberton (Foster and Longley 1976, 51, 70). Although this information suggests that salt-production within the parish was insignificant during the early medieval period, the 14th century is believed to have been the period during which such activity flourished as a result of the silting of the Bicker Haven.

Cressy Hall was a manor house rebuilt by Sir Henry Heron (d.1695) prior to it being burnt down and re-built again during 1792. The name of the hall derived from the Cressy family, one of whom established a market and fair here at the time of Edward I (1272-1307). Marrat refers to a chapel with a date of 1309 inscribed on the door (Marrat 1814, 211) and a stone in the west wall of the greenhouse is inscribed 'this chapel was built 1308 and repaired 1666'.

13.3 Cartographic Data

Evidence relating to the route of the pipeline was found within the Ordnance Survey 25" maps, produced during the early 20th century (O.S. 1905). Land west

of Monks Hall (Fig. 2; G1) comprised a series of large sub-rectangular field boundaries crossed by Sarah Gate and Alldike Lode (Fig. 29). This pattern of land-use is at present unaltered. A dovecote shown to the east of Monks Hall is contained by a large boundary, described as a moat.

Further south was another moated structure at Cressy Hall (Fig. 2; G6), located within 200m of the proposed development route (Fig. 30).

There is no tithe map for Gosberton parish (Kain and Oliver 1995).

13.4 Aerial Photograph Data

Several aerial photographs in the county Sites and Monuments Record depict large cropmark complexes in Gosberton parish. However, these are mostly between 2-5km west of the pipeline route and are thus of limited relevance to this investigation.

An aerial photograph in the files of Heritage Lincolnshire depicts the sinuous roots of three separate palaeochannels and their tributaries. These natural features are located due south of Gosberton Railway Station (Fig. 2; G7). Further photographic information is limited to a series of faint cropmarks located to the north of Cressy Hall (Fig. 2; G16: Fig. 31). These cropmarks appear to form a rectangular enclosure that has been sub-divided into smaller rectangular divisions.

13.5 Archaeological Data

Romano-British settlement has been located in close proximity to the route of the pipeline. A Roman coin of Constantius (AD 308-309) has been recovered approximately 800m east of the proposed water pipeline (Fig. 2; G2). Further south, 600m east of the proposed route, is a suspected Romano-British settlement site (Fig. 2; G3, G5). Fragments of animal bone, fired clay and quernstone have been recovered during systematic fieldwalking over these locations.

A possible salt-production site, located to the east of the development route, has been identified by fieldwalking (Fig. 2; G4). Fragments of animal bones, quernstones and briquetage (a distinctive type of crude pottery associated with salt-making) have been recovered from this location. Roman pottery has also been found to the south of this material, south east of Risegate (Fig. 2; G15).

Medieval activity has been recognised in proximity to the route of the proposed development. Monks' Hall, the site of a suspected moated manorhouse, is situated 800m east of the pipeline route (Fig. 2; G1). At the western limit of the pipeline corridor systematic fieldwalking has located a large scatter of 14th century pottery, animal bones and oyster shells associated with areas of darker soil; this has been interpreted as the remains of a medieval settlement (Fig. 2; G8). The proposed route passes in close proximity to a medieval moated manorhouse at Cressy Hall (Fig. 2; G6). Structures associated with this medieval complex, due east of the water-pipeline, include a medieval chapel, fishponds and a post-medieval dovecote (Fig. 2; G14, G12, G13). Nothing is known of the medieval house on the site of Cressy Hall; all that remains is a rococo cartouche above the rear entrance, dated 1695.

Outlying settlements are believed to exist to the east of Cressy Hall, located during systematic fieldwalking by the Fenland Survey. Scatters of 14th century pottery, animal bone and brickworking waste have been interpreted as the remains of a settlement (Fig. 2; G10). A second scatter

of pottery, located on the high ground of a rodden, has been interpreted as a medieval settlement situated to the north of G10 (Fig.2; G9).

Post-medieval development in the vicinity of the pipeline is minimal, though the medieval sites at Cressy Hall and Monks Hall have continued to be occupied as farm buildings until the present.

14. SURFLEET PARISH

14.1 Topography, Geology and Soils

Surfleet is located 5km north of Spalding in South Holland district. The course of the proposed pipeline passes through the western edge of the parish, approximately 3.5km west of Surfleet village. The area of proposed development is located on flat land at a height of approximately 3m OD.

Local soils are the Rockcliffe Association. These occur on reclaimed stoneless marine alluvium and consist of coarse and fine silty, typical alluvial gley soils. The main soils have a large content of silt or very fine sand, and are strongly mottled in the subsoil (Hodges *et al.* 1984, 301).

14.2 Historical Data

Place-name evidence suggests that Surfleet originated during the Anglo-Saxon period. The name *Sudflet* translates literally as 'sour stream', and is likely to have unpleasant connotations (Ekwall 1974, 453).

A reference in the Domesday Book, written in 1086, states that there were 2 salt-pans, rendering 12 pence, within the parish that belonged to Heppo the Arblaster.

14.3 Cartographic Data

The proposed pipeline route passes through the western edge of Surfleet parish. The Old Series Ordnance Survey 1 inch map of 1824 depicts the area as mostly open ground with a number of buildings along the road at Gosberton Chale (now Cheal). This map also (incorrectly) indicates that Barrowpier Hall is approximately 3km further east than it actually is (Fig. 5).

Bryant's map of 1828 presents essentially the same arrangement and also provides names to several topographic features. 'Beech Bank' is the name given to the road alongside the stream that provides the southern boundary of the parish. As this road extends eastward, to the area to be crossed by the proposed pipeline, Bryant's map records the name 'Old Bank' (Fig. 10).

Ordnance Survey provisional editions (revisions of 1903 and 1929 with additions in 1950) record a pattern of predominantly rectangular fields. The road called 'Beech Bank' on Bryant's 19th century map was re-named 'Beach Bank' by 1903.

Recent Ordnance Survey maps indicate that the largely open pattern of the landscape has been maintained to the present day.

14.4 Aerial Photograph Data

Aerial photographs of the Surfleet area held in the files of Heritage Lincolnshire were examined. However, none contained evidence of archaeological remains in the vicinity of the proposed pipeline.

14.5 Archaeological Data

A polished stone axe of prehistoric date has been found close to the pipeline route in Surfleet parish (Fig. 2; Su4).

Barrowpier Hall (Fig. 32) is the site of a medieval moated establishment, though the moat was filled in 1969. The hall also has an adjacent chapel and post-medieval pottery has been found at the hall site (Fig. 2; Su1-3).

15. PINCHBECK PARISH

15.1 Topography, Geology and Soils

Pinchbeck is located 3km north of Spalding in South Holland district. The pipeline is proposed to cross and terminate on Burtey Fen, to the northwest of the town. Land along the route of the pipeline is flat and lies at a height of approximately 3m OD.

Local soils are the Wisbech Association, formed on stoneless marine alluvium. These mainly consist of coarse, silty calcareous soils. The association is extensive in the silt fenland around The Wash. It occurs mainly along present and former river courses, and on ground reclaimed from saltings (Hodge *et al.* 1984, 362).

15.2 Historical Data

Place-name evidence suggests that Pinchbeck is likely to have originated during the Anglo-Saxon period. 'Beck' seems to have formed due to influence of the Old Scandinavian *Bekkr* or 'stream'. It is possible that the present name is really due to a metathesis of Pinkbeach. If so, then the Old English *Pinca*, meaning 'a finch' or possibly *Pink*, meaning 'a minnow'. Thus 'minnow stream' is a very possible meaning (Ekwall 1974, 367).

The Domesday Book of 1086 states that Ivo Tallebois was in possession of 4 fisheries, rendering some 1500 eels, in the parish of Pinchbeck (Foster and Longley 1984, 89).

15.3 Cartographic Data

The 1824 Ordnance Survey one-inch map depicts the area to be traversed as open land crossed by several tracks and roads. One of these, now reduced to a track less than a kilometre long, was shown on Bryant's 1828 map as a much longer route called 'Earth Lode'. The open landscape shown on the early 19th century maps has remained largely unchanged to the present day.

There is no tithe map for Pinchbeck parish (Kain and Oliver 1995).

15.4 Aerial Photograph Data

Several aerial photographs depicting archaeological remains in Pinchbeck parish are held in the county Sites and Monuments Record. One of these photographs (CUCAP RC8-EX227) depicts a star-shaped cropmark of a probable duck decoy. Of post-medieval date, this decoy (PRN20149: Fig. 2; P4: Fig. 33) is located at approximate grid reference TF205275.

The same photograph also records a complex of rectangular and linear features. Located at approximate grid reference TF 199284, these features may represent a moat and associated fishponds.

Further aerial photographs held in the Sites and Monuments Record depict a variety of cropmarks. However, the archaeological remains represented by these cropmarks are located well in excess of 1km from the proposed pipeline route.

15.5 Archaeological Data

A possible dug-out boat, perhaps of prehistoric date, has previously been found in Pinchbeck parish, though the location is

not known.

Several scatters of Roman pottery appear to signify a settlement complex. The pottery dates from the late 1st - late 4th century, though possible Iron Age pottery has also been recovered from the site (Fig. 2; P1, P2).

Cropmarks appear on a number of aerial photographs. Many of these are likely to be natural or agricultural, though some may be archaeological features. A post-medieval duck decoy (Fig. 2; P4: Fig. 33) has also been recorded on aerial photographs.

A number of post-medieval tokens have also been found in Pinchbeck parish, though the locations of the findspots are unknown.

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
Bi1	Bicker		Bolle Hall, dating to the 19th century; reputed to have 12th century origins	TF24463781	B04/004
Bi2	Bicker	12523	Archaeological watching brief of excavation through a salt-mound.	TF236367	B04/011
Bi3	Bicker	12524	Extensive salt-working area.	TF241363	B04/012
Bi4	Bicker		Raised salt-mound up to 5m OD.	TF24493595	B04/015
Bi5	Bicker		Raised salt-mound up to 5m OD.	TF24383620	B04/016
Bi6	Bicker		Raised salt-mound up to 5m OD.	TF24413644	B04/017
Bi7	Bicker		Raised salt-mound up to 5m OD.	TF24313652	B04/018
Bi8	Bicker		Raised salt-mound up to 5m OD.	TF24323652	B04/019
Bi9	Bicker		Raised salt-mound up to 5m OD.	TF24503676	B04/020
Bi10	Bicker		Raised salt-mound up to 5m OD.	TF24323652	B04/021

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
Bi11	Bicker		Raised salt-mound up to 5m OD.	TF24253679	B04/022
Bi12	Bicker		Raised salt-mound up to 5m OD.	TF23263704	B04/024
Bi13	Bicker		Possible prehistoric, Roman, medieval and post-medieval artefacts during fieldwalking.	TF243379-TF239358	
Bi14	Bicker	12968	Place-name, possible mill site	TF241366	
Bi15	Bicker	13091	Medieval pot and saltern material	TF245366	
Br1	Brothertoft	12605	Aerial photograph interpreted as Romano-British farmstead with associated pits.	TF287456	B07/001
Br2	Brothertoft	12605	Denarius of Septimus Severus and Romano-British pottery.	TF285455	B07/002
Br3	Brothertoft	12640	Excavation of Romano-British site.	TF285456	B07/003
Br4	Brothertoft	12607	Romano-British greyware jar.	TF270454	B07/004
Br5	Brothertoft		Possible medieval earthworks including: raised platforms, hollow-ways and worked limestone fragments.	TF271464	B07/005

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
Br6	Brothertoft	12608	St. Gilbert's church, re-built using medieval masonry during the 19th century.	TF27024627	B07/006
Br7	Brothertoft	13292	Brothertoft Hall, built *c.* 1780.	TF26964639	B07/007
Br8	Brothertoft		Possible post-medieval earthworks relating to previous river channel.	TF265473	B07/009
Br9	Brothertoft		Romano-British pottery scatter.	TF265438	B07/010
Br10	Brothertoft		Romano-British pottery scatter.	TF261446	B07/011
Br11	Brothertoft		Romano-British pottery scatter.	TF262444	B07/012
Br12	Brothertoft		Romano-British pottery scatter.	TF261449	B07/014
Br13	Brothertoft		Post-medieval pottery scatter.	TF265472	B07/015
Br14	Brothertoft		Romano-British pottery sherd	TF260448	B07/016
Br15	Brothertoft		Palaeochannel	TF268438	B07/017
Br16	Brothertoft		Post-medieval ditch recorded during archaeological watching brief.	TF275458	B07/018
Br17	Brothertoft		Aerial photographs showing cropmarks, interpreted as Romano-British settlements.	TF262451	B07/019

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
Br18	Brothertoft	13349	Roman pot. Also, palaeochannel deposits and undated ditch	TF263451	B07/020
Br19	Brothertoft		Aerial photographs depicting undated enclosures and possible land-drains	TF27004663	B07/021
Br20	Brothertoft		Methodist Chapel	TF26614747	B07/026
D1	Donington	23514	Medieval pottery scatter.	TF232355	South Holland
D2	Donington	22987	Medieval pottery and stonework relating to Wykes manor house. Geophysical survey located the remains of possible buildings.	TF23103540	South Holland
D3	Donington	22988	12th century manorial or free chapel at Donington Wykes.	TF23203540	South Holland
D4	Donington	22494	Salterns	TF24463528	
D5	Donington	23513	Stone mortar	TF23113564	
D6	Donington	23515	Roman pot	TF23243561	
	Donington	U	Beehive quern	TF13NE	
	Donington	G	Coin of Hadrian	TF23NW	
	Donington	H	Roman trumpet brooch and samian pot	TF23NW	
	Donington	I	Urn full of red earth	TF23NW	

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
	Donington	20030	Post-medieval German jetton (token)	unlocated	
	Donington	20031	Roman coin	unlocated	
	Donington	20032	Coin, 1485-1509	unlocated	
	Donington	20033	Post-medieval German jetton (token)	unlocated	
	Donington	20034	Medieval coins	unlocated	
	Donington	20035	Roman coin	unlocated	
	Donington	20038	Saltmaking sites	unlocated	
	Donington	20039	Possible cemetery	unlocated	
	Donington	20040	Roman brooches	unlocated	
	Donington	20041	Coin, 1066-1087	unlocated	
F1	Frampton		Romano-British site.	TF288434	B11/002
F2	Frampton	12609	Romano-British settlement site exposed by ploughing.	TF288415	B11/006
G1	Gosberton	22455; 20077	Possible moated manor associated with Monks' Hall.	TF23653255	South Holland
G2	Gosberton	22451	Roman coin of Constantius AD 308-9.	TF237323	South Holland
G3	Gosberton	20087	Scatters of pottery and animal bone, interpreted as a possible Romano-British settlement site.	TF23113081	South Holland

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
G4	Gosberton	20088	Scatters of animal bone, quern fragments and briquetage interpreted as a possible Romano-British settlement and saltern.	TF23093105	South Holland
G5	Gosberton		Animal bone, fired clay and quern fragments interpreted as a possible Romano-British settlement site.	TF23113081	South Holland
G6	Gosberton	22452; 22453	Cressy Hall, possibly related to an earlier moated site.	TF22403047	South Holland
G7	Gosberton		Aerial photograph showing several palaeochannels.	TF224299	South Holland
G8	Gosberton	20082	14th century pottery, animal bone, oyster shells and dark soil-markings interpreted as a medieval settlement.	TF219312	South Holland
G9	Gosberton	20096	Possible medieval settlement site on the banks of a rodden.	TF22653034	South Holland

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
G10	Gosberton		14th century pottery, animal bone and brickworking waste interpreted as a possible medieval settlement.	TF22683020	South Holland
G11	Gosberton	23021	Possible site of the medieval manor of Newberry.	TF21502940	South Holland
G12	Gosberton	22477	Medieval fishponds at Cressy Hall.	TF22313051	South Holland
G13	Gosberton	22479	Post-medieval dovecote at Cressy Hall.	TF22453050	South Holland
G14	Gosberton	22454	Medieval chapel at Cressy Hall.	TF22263049	South Holland
G15	Gosberton	23500	Roman pottery	TF229294	South Holland
G16	Gosberton		Aerial photograph depicting cropmark features north of Cressy Hall.	TF224304	South Holland
G17	Gosberton	20082	Medieval hamlet of Westhorpe	TF221312	
G18	Gosberton	20086	Roman pottery scatter	TF238327	
G19	Gosberton	20094	Late Saxon pot	TF239327	
G20	Gosberton	22450	Medieval pot	TF236327	
G21	Gosberton	20084	Medieval finds	TF22653025	
G22	Gosberton	20095	Risegate railway station	TF22253022	
G23	Gosberton	20083	Medieval hamlet of Risegate	TF229302	

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
G24	Gosberton	20093	Windmill	TF22063017	
G25	Gosberton	22459	Bicker Haven	TF260330	
G26	Gosberton	22448	Salterns	TF24953270	
G27	Gosberton	22449	Medieval pot	TF241314	
G28	Gosberton	22460	Saltern sites	TF253332	
G29	Gosberton	22463	Salterns	TF25713312	
K1	Kirton	12573	Polished greenstone axe.	TF27654155	B14/002
K2	Kirton		Romano-British pottery scatter.	TF275415	B14/003
K3	Kirton	12547	Romano-British pottery scatter, jet, and a fragment of painted wall plaster overlying dark soil-marks.	TF277410	B14/006
K4	Kirton	12548	Romano-British pottery and tile overlying dark soil-marks.	TF277408	B14/007
K5	Kirton	12546	Romano-British pottery scatter.	TF27204130	B14/011
K6	Kirton	12540	Romano-British pottery and a bone toggle.	TF270416	B14/012
K7	Kirton	12544	Undated earth and gravel bank, possibly Roman.	TF270414	B14/013
K8	Kirton		Romano-British pottery scatter.	TF276415	B14/014
K9	Kirton	12538	Romano-British pottery scatter.	TF276414	B14/017

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
K10	Kirton		Amphorae, greywares and a whetstone fragment interpreted as a possible Romano-British settlement site.	TF274419	B14/039
K11	Kirton	Q	Roman pot	TF262444	
	Kirton		Seal matrix (medieval-post-medieval)	unlocated	
L1	Langriville		Romano-British pottery scatter.	TF268495	East Lindsey
L2	Langriville		Romano-British pottery scatter.	TF279477	East Lindsey
L3	Langriville		Aerial photograph depicting sub-rectangular enclosures, interpreted as a possible Romano-British settlement.	TF267490	East Lindsey
L4	Langriville		Aerial photograph showing rectangular enclosures, interpreted as a possible Romano-British settlement.	TF278488	East Lindsey
L5	Langriville	40660	Hoard of silver coins dating from 1660-1727, found in pot in 19th century.	TF265475	East Lindsey
L6	Langriville	40663	Romano-British pottery scatter.	TF26204750	East Lindsey
L7	Langriville	40664	Romano-British pot, 5 feet down	TF273475	East Lindsey

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
P1	Pinchbeck	20145	Five scatters of Roman pot, apparently settlement complex	TF20152780	
P2	Pinchbeck	20146	Possible Iron Age pot on Roman site 20145	TF20152784	
P3	Pinchbeck	20147	Undated cropmarks, mostly natural	TF204279	
P4	Pinchbeck	20149	Cropmark of possible duck decoy	TF20552750	
	Pinchbeck	H	Bourne ware pot	TF22NW	
	Pinchbeck	M	Dug-out boat	TF22NW	
	Pinchbeck	N	17th century tokens	TF22NW	
Q1	Quadring		Romano-British pottery scatter.	TF224342	South Holland
Q2	Quadring	23331	Romano-British pottery scatter.	TF229340	South Holland
Q3	Quadring	23335	Romano-British pottery scatter.	TF227336	South Holland
Q4	Quadring		Romano-British pottery scatter.	TF225335	South Holland
Q5	Quadring	23334	Romano-British pottery scatter.	TF229335	South Holland
Q6	Quadring		Scatter of pottery, interpreted as a possible Romano-British settlement site.	TF23523320	South Holland
Q7	Quadring	23329	Romano-British pottery scatter.	TF23653335	South Holland
Q8	Quadring		Romano-British pottery scatter.	TF236334	South Holland

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
Q9	Quadring	23332	Romano-British potsherd.	TF239334	South Holland
Q10	Quadring	23324	1 sherd of mid-Saxon Ipswich Ware.	TF229335	South Holland
Q11	Quadring		Mid-Saxon pottery scatter.	TF225335	South Holland
Q12	Quadring		1 sherd of Saxon pottery.	TF226341	South Holland
Q13	Quadring	23299; 23300	Scatter of late Saxon and medieval pottery, interpreted as a possible settlement site.	TF23213386	South Holland
Q14	Quadring	23277	Dense scatter of 14th-16th century pottery, interpreted as a possible settlement site.	TF23023393	South Holland
Q15	Quadring	23301;23302	Scatter of late Saxon and medieval pottery, interpreted as a possible settlement site.	TF23613398	South Holland
Q16	Quadring	23286	Scatter of medieval pottery, interpreted as a possible settlement site.	TF23903335	South Holland
Q17	Quadring		Possible location of Roman road.	TF233245	South Holland
Q18	Quadring	23298	Roman pottery scatter	TF23523386	
Su1	Surfleet	22464	Barrowpier Hall, medieval moated site	TF21522895	
Su2	Surfleet	22465	Post-medieval pot	TF21522895	

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
Su3	Surfleet	23057	Chapel at Barrowpier Hall	TF215289	
Su4	Surfleet	22468	Polished stone axe	TF22292877	
Sw1	Swineshead		Aerial photograph depicting soil-marks interpreted as possible medieval field systems and enclosures.	TF259409 *TF254406*	B19/002
Sw2	Swineshead		Romano-British pottery scatter.	TF242393	B19/008
Sw3	Swineshead	12596	Hardwick Grange moated site.	TF25484203	B19/016
Sw4	Swineshead		Large scatter of medieval pottery.	TF253408	B19/019
Sw5	Swineshead	12593	Several large dressed and decorated stones associated with medieval pottery.	TF256405	B19/027
Sw6	Swineshead	12557; 12558	Excavation of Chapel. Skeletons recovered in association with pottery dated to the 15th-16th centuries.	TF247397	B19/028
Sw7	Swineshead		2 hollowed-out stones recovered, dating to the medieval period.	TF247412	B19/033
Sw8	Swineshead		20-30 sherds of medieval and post-medieval pottery recovered.	TF251405	B19/034

Map code	Parish	County Sites and Monuments Record	Description	Grid Ref.	Boston District Files
Sw9	Swineshead	13083; 13084	Large amounts of medieval and post-medieval pottery. 1 sherd of Romano-British greyware recovered.	TF247392	B19/035
Sw10	Swineshead	12561	Medieval pottery.	TF246394	B19/036
Sw11	Swineshead		Medieval pottery sherds including rims, handles and large body fragments.	TF245392	B19/037
Sw12	Swineshead	13081	Medieval pottery.	TF24453940	B19/038
Sw13	Swineshead	00304	Swineshead Abbey.	TF249406	B19/042
Sw14	Swineshead		Romano-British pottery scatter	TF252405	
Sw15	Swineshead	12594	Medieval dagger	TF251408	
Sw16	Swineshead	12595	Medieval pottery,tiles and bones	TF254405	
Sw17	Swineshead	00401	Manwar Ings; medieval pottery	TF24354093	
Sw18	Swineshead	L	Stone 'basins'	TF247412	
Sw19	Swineshead	12556	Drayton deserted medieval village	TF245394	
Sw20	Swineshead	13078	Roman tile	TF255421	
Sw21	Swineshead	V	Roman pot (samian and mortarium stamps)	TF214411	
	Swineshead	E	Roman pot	unlocated	
	Swineshead	R	Roman coin, 253-9	unlocated	

16. Site Reconnaissance

No formal reconnaissance of the area of proposed development has been made.

17. DISCUSSION

Investigation of the area immediately surrounding the route of the pipeline has recovered evidence for numerous archaeological remains occurring in the near vicinity.

17.1 Prehistoric Archaeology

Archaeological remains dating to the prehistoric period are scarce. This deficit of information is unlikely to reflect a complete absence of occupation, as it is probable that prehistoric land surfaces occur at some depth below the present ground surface. Where prehistoric finds have been recovered it is likely that they have been dislodged from contemporary deposits by the effects of ploughing or other disturbance, perhaps in the past. Substantial settlement of the area concerned is unlikely to have developed during the prehistoric period due to the unfavourable saltmarsh environment. However, occasional forays into the marshes during seasonal hunting and gathering can be expected, and prehistoric activity cannot be discounted.

Systematic fieldwalking along a 2km stretch of the proposed pipeline route (through Bicker parish) retrieved a small thumbnail scraper dated to the Bronze Age period (Fig. 2; Bi13; Appendix 2). A second prehistoric artefact, a stone axe of probable Neolithic date, has been recovered approximately 2km east of the proposed development (Fig. 2; K1). The original location of this artefact has probably been disturbed due to the close proximity of Romano-British occupation. Overall, no definite evidence for significant exploitation and occupation of the route of the proposed development during the prehistoric period has been located.

17.2 Romano-British Archaeology

It is clear that the large-scale exploitation of the fenland landscape began during the first half of the second century AD (Salway 1966, 26). Numerous Romano-British nucleated settlements, with associated droveways and enclosures, have been recorded across the band of marine silts that the proposed development will traverse. Moreover, continuing examination of the archaeological landscape has revealed evidence for developed exploitation. Romano-British occupation has been recognised at Sutterton and Spalding (APS 1996a, 1996b) on very similar environments to those that existed along the route of the proposed development.

The nature of the Roman occupation of the fenlands is a disputed subject as only a very small percentage of the known sites have actually been properly excavated. There is a view that the Fens were developed as part of an imperially-owned estate under Hadrian (Potter 1989, 272). However, this view is contested as it ignores the contribution and emergence of the preceding Iron Age economy. The existing archaeological remains are therefore the key to any further meaningful debate on the Late pre-Roman Iron Age and the Romano-British periods.

Langriville parish contains several possible Romano-British settlements, observed as cropmarks, and scatters of pottery dating to this period. These are located north of the area of development, though Romano-British pottery has been retrieved immediately north of the River Witham (Fig. 2; L2, L7). It is probable that the

river provided a firm boundary to any Romano-British occupation site that might be represented by these artefacts. However, early maps reveal the meandering course of the river prior to canalisation and indicate that these findspots were on the original south bank of the river. This may, therefore, indicate that a Romano-British occupation site was located in the vicinity of the proposed development at Langrick Bridge.

Further southeast, at Boston West, a hamlet approximately 1.5km east of the pipeline, forms the centre of a cluster of findspots that date to the Romano-British period (Fig. 2; Br1-Br3). Aerial photography of this locality has recorded a series of rectangular and sub-rectangular cropmarks interpreted as a Romano-British farmstead (Fig. 2; Br1). Excavations revealed the remains of a small enclosed farmstead (Fig. 2; Br3) that had been occupied from the 1st to 4th centuries AD (NUEMAG 1958). The upper parts of the enclosure ditch had been sealed by a yellow silt, possibly a flood deposit. The nature of such silts suggests that Roman or earlier features are possibly masked by such deposits in the vicinity of the pipeline.

Immediately west of the pipeline, evidence for more extensive Romano-British activity has been recorded (Fig. 2; Br4, Br19). Aerial photographs have located the position of cropmarks that appear to form part of a possible rectangular enclosure, though the photographic evidence is particularly faint. The discovery of a near complete pot (Fig. 2; Br4), 1km south of these cropmarks, may reflect activity related to occupation rather than agricultural deposition due to the sound preservation of the find.

Evidence of further activity dating to the Romano-British period has been recorded south of the North Forty Foot Drain where there are cropmark of settlement surrounded by small enclosures and droveways. (Fig. 2; Br10-Br12, Br14, Br17). An archaeological evaluation of a field containing cropmarks (Fig. 2; Br14) recorded the presence of a small sand island and recovered a single sherd of Romano-British pottery (APS 1995a). Pottery scatters in the fields to the south of the evaluation may reflect manuring scatters, or may have formed as a result of occupation during a similar period as the features recorded by aerial photography (Fig. 2; Br9-Br11).

Remnant stream and river channels (palaeochannels) are common in the vicinity of Brothertoft parish and are typical features of the fenland landscape. Archaeological investigations have located two palaeochannels (APS 1994a, 1994b) in close proximity to the proposed development (Fig. 2; Br15, Br18). Peat had formed within one of these (Fig. 2; Br15), suggesting that environmental and organic material is likely to be preserved *in situ* within these features. A third palaeochannel (Fig. 2; Br3), described as a small stream, was revealed during the excavations at Limes Farm (NUEMAG 1958).

Further east, within 2km of the proposed water pipeline, soilmarks interpreted as a series of enclosures have been observed (Fig. 2; F1). Excavation revealed an enclosure ditch containing pottery dating to the 2nd to 4th centuries AD. Approximately 2km south of the excavation, a possible Roman settlement site was observed during deep ploughing (Fig. 2; F2). The continuation of this band of Romano-British occupation, sited on the light fenland silts, suggests that activity dating to this period became the earliest and most intensive exploitation of the fenland environment.

Romano-British activity forms a further cluster in the parish of Kirton, within an area that is approximately 2km east of the proposed development. occupation debris, pottery, animal bones and fragments of tile, have been recovered from these locations (Fig. 2; K2-K6, K8-10). An undated earth and gravel bank, suggested as being a Romano-British flood defence, extends over some 400m along a northwest-southeast orientation in close proximity to these dense pottery scatters (Fig. 2; K7).

There is a dearth of Romano-British material in the vicinity of the proposed development as it traverses Swineshead parish. Such a dearth of information is unlikely to reflect a complete absence of occupation. Geological boreholes sunk immediately west of Swineshead located, at a depth of *c.* 1.5m, a layer of peat that has provided absolute radiocarbon dates between the 2nd and 5th centuries AD. This is likely to indicate that Roman deposits have been sealed during post-Roman phases of flooding and deposition. Buried surfaces such as these are likely to contain well-preserved archaeological material and organic remains, as indicated by the presence of peaty deposits. A scatter of Roman pottery has been recorded immediately east of Drayton (Fig. 2; Sw2), though this is unusual considering the depth at which Romano-British deposits are likely to be sealed.

Within Bicker parish, in close proximity to the proposed route of the pipeline, Romano-British activity is scarce. This may be due to the presence of the Bicker Haven, a feature that formed a significant estuary from the prehistoric period until the 17th century. It is possible that environmental conditions negated the possibility of occupation within this area during the Romano-British period. However, it is also possible that archaeological remains may have been sealed by subsequent deposition within the estuary. A single fragment of pottery, dated tentatively to the Roman period (Fig. 2; Bi13), was recovered during fieldwalking as part of this assessment (Appendix 2) though this is unusual and may be the result of disturbance due to ploughing.

Activity dating to the Romano-British period occurs in a small cluster around the modern village of Quadring, on the southern bank of the Bicker Haven. This distribution is likely to represent the physical limits of occupation during the Romano-British period. A lack of archaeological material from this period between Swineshead and Quadring, within the boundaries of the proposed development, may reflect the position of the banks of the estuary during the 1st to 4th centuries AD. A Roman road is believed to cross the route of the pipeline in the vicinity of Washdyke Farm, north of Quadring, and may have been paralleled by a minor Roman canal (Phillips 1970, 266).

It is believed that there was a series of Romano-British settlements located on the higher ground of the roddens in Gosberton parish. There is also a possibility of a Roman protective seabank in this area (Hayes and Lane 1992, 54). Immediately east of the proposed pipeline route, a series of dense scatters of pottery and animal bone associated with quern and fired clay fragments have been identified and are likely to represent the remains of a settlement (Fig. 2; G3, G5). Briquetage fragments, associated with the production of salt, have also been recovered in close proximity (Fig. 2; G4) and are likely to represent the location of a saltern.

17.3 Saxon Archaeology

Place-name evidence would suggest Anglo-Saxon origins for the majority of settlements in close proximity to the route

of the proposed development. However, archaeological evidence for this period is still scarce, though this may reflect the nature of material remains of the period or emphasis of the fieldwork, rather than any genuine absence of occupation. Attempts have been made to locate the position of activity dating to the Anglo-Saxon period in the vicinity of Quadring and Gosberton parishes (Hayes 1988). Although the conclusions that could be drawn from the evidence gathered remain tentative, they suggest the possibility of reconstructing the settlement patterns of various Saxon tribal groupings (*ibid*, 325). More importantly, it is believed that larger, possibly nucleated, Middle and Late Saxon sites exist in the vicinity of Spalding and the higher silts to the east. The recovery of these sites should allow further definition of the tribal boundaries between the *Spaldas*, Mercia, Lindsey and East Anglia (*ibid*).

Small scatters of pottery dated to the mid-7th to mid-9th centuries AD, and containing 1-2 sherds have been located north of the modern village of Quadring (Fig. 2; Q10-Q12). These finds are unlikely to reflect the remains of occupation and are possibly a result of manuring scatters.

Larger pottery scatters, dated to the Late Saxon period and interpreted as occupation debris, have been recorded in close proximity to Church End Farm, Quadring (Fig. 2; Q13, Q15). Continuity of occupation until the medieval period is expected as the sequence of pottery is uninterrupted from the mid-9th century. Saxon occupation is undoubtedly more widespread than current records would suggest. All of the Saxon sites relevant to this assessment have only been discovered due to systematic survey within the last decade. The programme of investigation has only examined a very small area of the proposed development, in the vicinity of Gosberton and Quadring, and a much larger assemblage of material from this period can be expected to exist as yet undiscovered.

17.4 Medieval Archaeology

Remains dating to the medieval period are relatively common along the length of the proposed pipeline route. Pottery scatters resulting from manuring and occupational debris are most typical, though high status manorial and ecclesiastical sites are also present and reflect the diversity of archaeological evidence from the mid-11th to the 15th centuries.

St. Gilbert's church in Brothertoft parish, although of 19th century date, has been re-built using medieval masonry that may originate from an earlier ecclesiastical structure (Fig.2; Br6). Earthworks located to the east of the church have been interpreted as the remains of hollow-ways and raised platforms (Fig. 2; Br5). These features are closely associated with fragments of worked limestone that are likely to have originated from previous structural remains. Such evidence probably suggests that a small settlement, now deserted, existed in this locality during the medieval period, though the construction of Brothertoft Hall during the 18th century (Fig. 2; Br7) may have disturbed these remains.

Swineshead parish contains a significant amount of archaeological material dating to the medieval period, and is recognised as an important settlement that exhibits many of the features of a feudal landscape. Hardwick Grange, located northeast of the modern village of Swineshead, is a post-medieval building that stands on the site of a possible medieval moated manorhouse (Fig. 2; Sw3).

Abbey Farm, due east of Swineshead, is on

the site of Swineshead Abbey, a scheduled ancient monument (county monument number 304; English Heritage 1992, 3). Cropmarks and earthworks, interpreted as the remains of a medieval field system and enclosure ditches, surround the abbey site (Fig. 2; Sw1). Forming a series of small sub-rectangular enclosures and possible droveways, the system of cropmarks appears to extend from Simon Weir Lane, westwards to Manwar Ings. A ringwork of medieval date, Manwar Ings is also a scheduled ancient monument, county number 41 (*ibid.*). The cropmarks are probably related to the development of the Cistercian Abbey, founded during the mid-12th century and dissolved in 1536 (Fig. 2; Sw13). The proposed pipeline route traverses certain of these cropmarks immediately east of the abbey site. Post-medieval activity has disturbed human remains on separate occasions and it is therefore likely that a burial ground, probably a monastic cemetery, is located in the near vicinity. Small ponds located within the grounds of the present farm buildings are likely to be the remains of fishponds, or ratting pits used in the processing of flax.

Drayton village, situated to the southwest of Abbey Farm, is the location of a second cluster of medieval activity. Various scatters of pottery may represent occupation during this period, perhaps signifying that Drayton was a larger settlement in the medieval period (Fig. 2; Sw10-Sw12, Sw19).

Bicker and Donington parishes contain much evidence for the production of salt from the estuary of Bicker Haven. The industry was already significant when it was recorded in the Domesday Book in 1086 and can therefore be expected to have on origin at least as early as the Late Saxon period. Although no excavations of saltern mounds have been recorded within Bicker or Donington parishes, a comparative site in Quadring has been investigated (Healey 1975). The mounds consist mainly of silts, dragged from the estuary as part of a process that allowed for the removal of a dense saline solution from within the matrix of the soil. Hearths and occupation from earlier salt-making activities were sealed by the silt mound excavated at Quadring. Features recovered during the excavation were remarkably well-preserved and included the remains of a building and domestic pottery and animal bone that suggest seasonal occupation of the site (*ibid*). It is therefore possible that similar features may be located beneath the mounds existing within the parishes of Donington and Bicker.

The upper part of a saltern mound in close proximity to the route of the proposed development in Bicker (Fig. 2; Bi2) consisted of a mixture of soil, stones, fragments of brick, burnt earth and mollusc shells. In consequence, it is probable that remains of occupational debris are likely to occur within the structures of these mounds.

Complementary historical and archaeological records provide evidence for the existence of a moated manorhouse in the vicinity of Wykes Manor Farm in Donington parish (Fig. 2; D1-D3). Scatters of pottery and the remains of stonework have been located on a site that has also been the subject of geophysical survey. Traces of possible stone structures, suggested as the remains of medieval settlement, were located by the geophysical survey. Historical references to a manorial chapel, established on the site during the 12th century, provide additional information suggesting that the modern farm is the location of an earlier high-status medieval site.

Scatters of medieval pottery, located in

proximity to the route of the proposed water pipeline within the parish of Quadring, suggest that occupation dating to the 14th to 16th centuries may be present (Fig. 2; Q14, Q16). However, the evidence is not extensive.

Two medieval hamlets, Westhorpe and Risegate, are located close to the proposed pipeline route as it passes through Gosberton parish. The course of the proposed water-pipeline also passes in close proximity to the site of a medieval manorial complex at Cressy Hall, immediately east of Risegate. The complex comprised a moated manorhouse, a chapel, possible fishponds and a post-medieval dovecote (Fig. 2; G6, G12-G14). Aerial photography has recorded the presence of earthworks to the north of Cressy Hall, possibly reflecting a more extensive area of occupation than has previously been acknowledged in the vicinity of the modern farm buildings (Fig. 2; G16).

Monks Hall, situated 900m east of the proposed pipeline route, is the site of another suspected medieval manorhouse. Fragmentary earthworks associated with the property have been suggested as the remains of a medieval manor or post-medieval garden (Fig. 2; G1).

Another medieval moated manorial establishment is located at Barrowpier Hall (Fig. 2 Su1-3), close to the pipeline route as it passes through Surfleet parish.

17.5 Post-Medieval Archaeology

Archaeological remains of the post-medieval period are well documented and consist mainly of standing buildings. The canalisation of the River Witham at the northern end of the proposed development was a post-medieval action, as were the constructions of the North and South Forty Foot Drains. Close to the proposed pipeline route are several post-medieval halls, though these generally have medieval antecedents and have been considered under that period.

18. ASSESSMENT OF SIGNIFICANCE

For assessment of significance the *Secretary of State's criteria for scheduling ancient monuments* has been used (DoE 1990, Annex 4; see Appendix 3).

Period:
Remains dating to the Romano-British, Anglo-Saxon and medieval periods have been identified in close proximity to the proposed route of the pipeline. Romano-British rural settlements and saltern sites are characteristic features of this region. Although possible Anglo-Saxon settlement remains have been located, their form and function remains unknown, so that their characteristics cannot be discussed. Medieval rural occupation is characterised by small settlements, manorial complexes and ecclesiastical sites that are typical features of this period. Salt-production sites are regionally typical, and are characteristic on the silt fenlands from the Romano-British to the medieval periods.

Rarity:
Romano-British rural settlement and saltern sites are common features of the fenland landscape and their distribution has been well-documented (Phillips 1970). Anglo-Saxon settlement is rare, though the distribution of sites of this period is more likely to reflect the emphasis of archaeological fieldwork. Activity dating to the medieval period is, in general, common. However, high status manorial sites are scarce and may exhibit rare or unusual features. Additionally, the proposed pipeline passes very close to the

Abbey.

Documentation:
Historical records documenting the existence and development of Swineshead Abbey date from the mid-12th century. Such records enhance the status of this site, as they supply additional evidence of the establishment and growth of a major ecclesiastical centre. Salt-production is occasionally documented from the early medieval period and these records serve to supplement archaeological remains in providing a more general historical and economic context.

A variety of archaeological sites close to the pipeline route have been the subject of previous investigations and reports. The present document provides the first general consideration of the archaeological and historical implications of the transect of landscape subject to the proposed development.

Group value:
Romano-British activity is typified by field systems and settlement enclosures that, in complement, have moderate group value. This may be further enhanced by possible industrial remains in the form of salt-making sites.

Several of the medieval and later manorhouses are documented as having chapels, fishponds and dovecotes and, consequently, have high group value. This is enhanced through association with general settlement, agricultural and industrial activity. enclosure systems. Swineshead Abbey, and its successor domestic residence, are associated with a variety of features including a cemetery, possible field systems or gardens, and industrial activity and thus have high group value.

Survival/Condition:
Prehistoric and Romano-British remains are likely to survive in good condition beneath later deposits of marine silts. Peat deposits are known to occur as intercalated beds within these silts and it is therefore possible that organic remains may be preserved within such layers.

Sites occurring on the surface of the fenland silts are likely to have been damaged by the effects of intensive agricultural production, in conjunction with the development of major drainage works during the post-medieval period. Continuity of occupation on high status medieval sites into the post-medieval period will have caused some loss and disturbance of earlier remains.

Salt-production sites may survive in a good state of preservation beneath later silt-mounds, produced during later phases of salt-making.

The presence of a high water-table would suggest that it is like that organic and environmental remains may be preserved *in situ* within deeper archaeological features such as pits and ditches.

Fragility/Vulnerability:
Any development is likely to impact the investigation area, possibly into natural strata. Consequently, any and all archaeological deposits present along the pipeline route are extremely vulnerable. Any prehistoric deposits in the area are likely to remain relatively secure due to greater burial depth.

Diversity:
Moderately high period diversity is provided by the remains of Saxon and medieval settlements in close proximity. Romano-British activity is also present in the area but tends to be mutually exclusive from archaeological remains dated to the

Saxon and medieval periods.

Functional diversity is high with general settlement and agricultural evidence of Romano-British and later date; high status medieval manorial and ecclesiastical sites; and industrial activity (salt-making) of various dates.

Potential:
Although prehistoric remains may occur on, or in the vicinity of, the pipeline, potential is low that associated deposits will be disturbed by the development.

Potential is moderately high that Romano-British activity is located in close proximity to the development, particularly in Brothertoft and Quadring parishes.

There is moderate potential that activity dating to the Saxon period occurs on the pipeline course in Quadring parish. However, the present distribution pattern for this period is biased. Consequently, the potential for Saxon remains along the rest of the development route is uncertain, though place-name evidence would suggest that it is moderately high.

Medieval archaeological remains, consisting of industrial, domestic and ecclesiastical sites are known to exist on the route of the proposed development.

Due to the low-lying nature of the topography, within a recently waterlogged environment, there is a high potential for the survival of organic remains and environmental evidence. The Bicker Haven existed as an important estuary until the 16th century and deposits formed within this channel are therefore likely to hold material preserved in anaerobic (waterlogged) conditions.

18.1 Site Importance

In summary, the criteria for assessment have established that Romano-British settlement and saltern sites are locally important, and can be expected to augment the understanding of the origins and development of local settlement. Saxon sites are locally rare, and little is understood of their distribution or importance. However, such sites can be expected to further enhance the knowledge of economic and cultural activity for this period, and are thus regionally important.

Medieval remains located in proximity to the development are typical of those expected for this period. Manorial sites are not uncommon, but are likely to exhibit diverse evidence of high status activity and are therefore likely to be of regional importance. Ecclesiastical activity, as represented by Swineshead Abbey, is typical but nationally rare. Industrial activity, in the form of salt-making sites, is common though is particularly regionally and topographically specific and is, in consequence, regionally important.

19. OPTIONS FOR FURTHER WORK

In consideration of the results of the assessment, several options for further work suggest themselves as most worthy of attention.

19.1 Rescue Priorities

Preservation of the archaeological deposits intact is, perhaps, the foremost rescue priority. In consideration of the nature of the development involved, priority should be given to preservation by record of any and all archaeological deposits that may be destroyed by the proposed development. Archaeological remains on the pipeline course that are of particularly high rescue

priority are the features associated with Swineshead Abbey and evident as cropmarks. Saltern mounds on the route of the pipeline as it passes through Bicker and Donington parishes are also of high rescue priority.

19.2 Research Priorities

Definition of the location and density of archaeological remains on the site is necessary for establishing research possibilities. Under appropriate site conditions, fieldwalking and/or geophysical survey may be used as tools towards defining the density of archaeological remains present in various parts of the pipeline route.

Patterns of Romano-British occupation in the area, and geomorphological restrictions to such settlement, are not clearly understood. Consequently, any further archaeological investigations in the area should have regard for establishing the nature and location of settlements of the period, together with the topographic parameters in which it occurs.

Similarly, the location and nature of Saxon activity along the pipeline route is poorly understood. Moreover, what is known is clearly biased in distribution; virtually all finds of this date have been made in Quadring and Gosberton parishes where previous research focussed on the period. Consequently, any further archaeological investigations should have regard for establishing the genuine distribution pattern of settlements of the period throughout the region.

A monastery was reputedly established at Swineshead by AD 675. The location of this is unknown though it is reasonable to assume that the site, or its proximity, was adopted by the later abbey. The abbey site may, in consequence, possess very high potential for researching the origin and development of ecclesiastical foundations from the Middle Saxon period through to the major period of monastic establishment in the 11th and 12th centuries.

The abbey can also be expected to have had a variety of associated features, including a cemetery. However, the locations of such aspects of the ecclesiastical establishment are not known and determination of the arrangement of the abbey precinct and associations is a high research priority. Additionally, it is not clear whether the earthwork and cropmark features that surround the abbey are associated with the ecclesiastical establishment or the later house on the site. Consequently, research to elucidate these relationships is of moderately high priority.

Medieval manorial establishments occur at a number of locations close to the pipeline route. Several of these comprise diverse features and, as a result, have moderately high research value.

Salt-making sites are abundant in the area of Bicker Haven, though few have been examined. Consequently, the area possesses high research potential for determining methods of salt-making, and also the developments of those techniques through time.

Due to the proximity of relict channels, palaeoenvironmental remains may survive by virtue of waterlogging. Consideration should be given to the investigation of such organic evidence for all archaeological periods represented.

20. CONCLUSIONS

The desk-top assessment has indicated that the area of land traversed by the route of the proposed water-pipeline contains

remains of Romano-British, Saxon and medieval activity.

Locally important Romano-British remains are common in the vicinity of the pipeline and are most prevalent at Langrick Bridge, Hubbert's Bridge and Quadring. Occupation during this period is likely to occur as small farmstead settlements and enclosures linked by droveways. Industrial activity, such as salt-production, may also occur. Marine transgressions are likely to have sealed (as yet undiscovered) Romano-British deposits in the vicinity of the Bicker Haven.

Place-name evidence suggests that many of the settlements in proximity to the development route originated in the Anglo-Saxon period (AD 450-650). Although physical evidence of such settlement is absent from the pipeline course, this may be due to the nature of the evidence, rather than genuine absence. Archaeological remains of this period may therefore occur across areas that appear to have been unoccupied.

Regionally significant Middle and Late Saxon archaeological remains are scarce in the vicinity of the pipeline, though possible Late Saxon settlement sites have been located due east of Quadring. Moreover, the extent and nature of the activity in these periods is unknown, though the rarity of such remains is more likely to reflect limited fieldwork, rather than any genuine lack of activity during this period.

Medieval activity (1066-1500 AD) is located in several clusters along the route of the water pipeline, in the vicinity of Brothertoft Hall, Swineshead Abbey, the Bicker Haven, Quadring and Risegate. A range of activity has been identified, including settlements, manorial establishments, industrial areas and ecclesiastical sites. Nationally important remains at Swineshead Abbey and regionally significant industrial remains at Bicker are likely to be impinged upon by the proposed development. Manorial remains of regional importance at Cressy Hall, near Risegate, may also be affected by the pipeline.

Post-medieval activity is moderately common within the locality of the development. Cartographic evidence indicates that the proposed course of the pipeline has been largely open land throughout the post-medieval period. In consequence, archaeological deposits present in the area are expected to survive in generally good condition, though intensive agricultural use of the land may have damaged archaeological remains that lie close to the surface. Drainage schemes, implemented during this period, are likely to have affected the water table of the locality. It is therefore probable that a gradual decline in the quality of the archaeological resource is to be expected within this region for the foreseeable future.

21. ACKNOWLEDGEMENTS

Archaeological Project Services wish to acknowledge the assistance of Mr B. Wadsworth who commissioned the assessment on behalf of Anglian Water Services Ltd. This report was edited by Gary Taylor, who co-ordinated the work and provided additional archival research. Paul Matthew, Denise Buckley and David Hopkins produced the illustrations. Hilary Healey kindly provided assistance on several aspects of this report and identified the fieldwalking finds. The fieldwalking survey was supervised by Dale Trimble. Access to the Lincolnshire County Sites and Monuments Record was kindly provided by Mark Bennet and Sarah Grundy. Steve Membery, the Community

Archaeologist for Boston District, kindly permitted access to the relevant parish archaeological files.

22. REFERENCES

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23. ABBREVIATIONS

APS refers to unpublished reports produced by Archaeological Project Services

Numbers prefixed by 'B' are the reference codes used by the Community Archaeologist for Boston District Council.

CBA refers to publications by the Council for British Archaeology.

CUCAP refers to aerial photographs belonging to the Cambridge University Collection of Aerial Photographs.

DoE refers to publications by the Department of the Environment.

NUEMAG refers to Nottingham University Extra-Mural Archaeology Group.

O.S. refers to Ordnance Survey publications.

Numbers prefixed by 'PRN' are the reference codes used by the Sites and Monuments Record.

RGS refers to publications for the Royal Geographical Series.

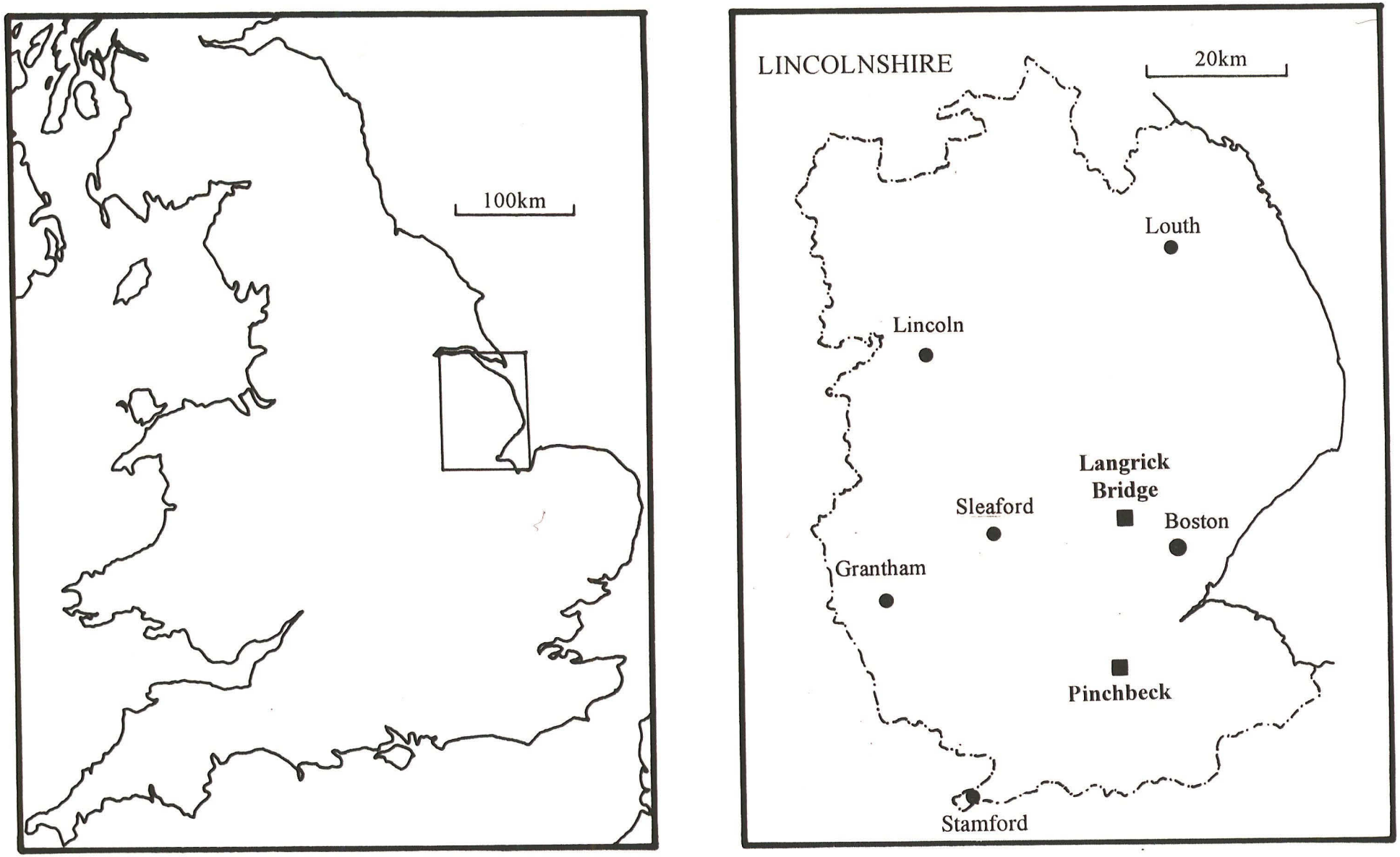

Figure 1 General Location Plan

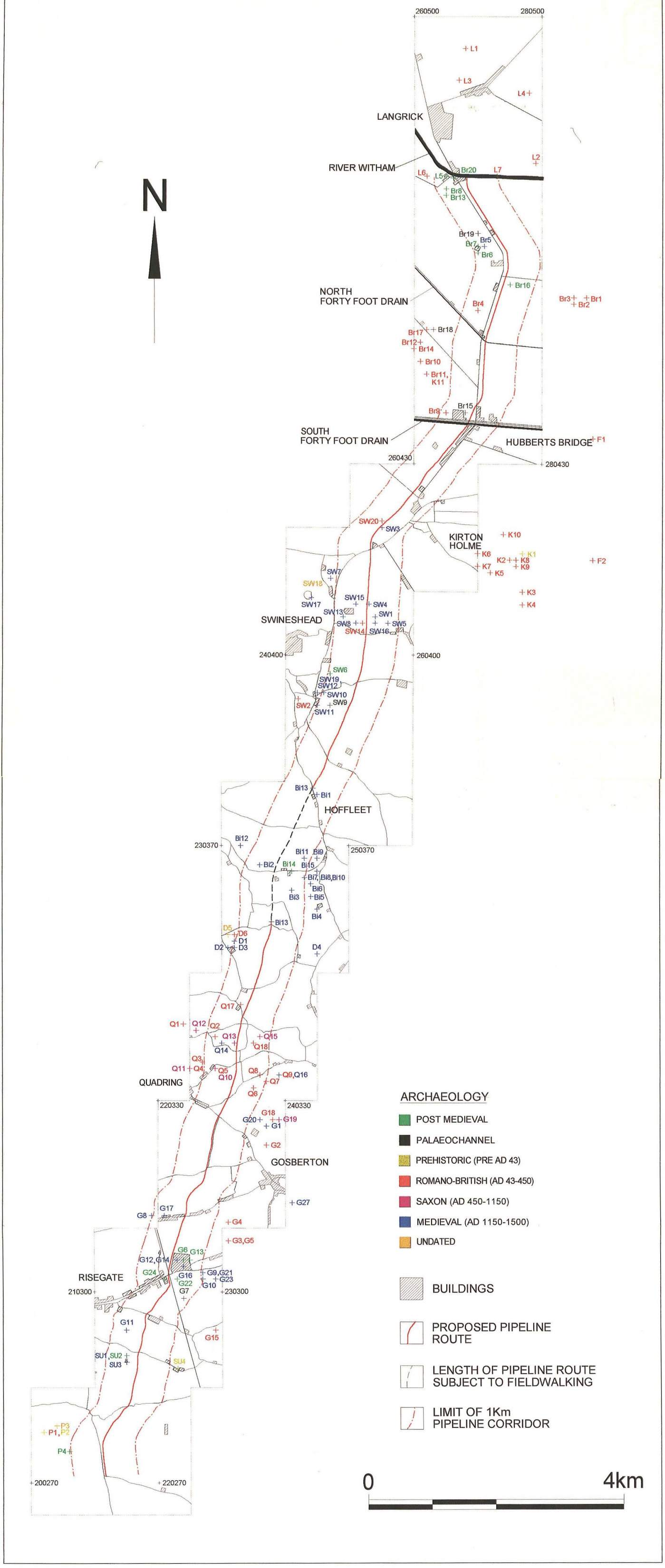

Figure 2 Location of Archaeological Sites along Pipeline Route

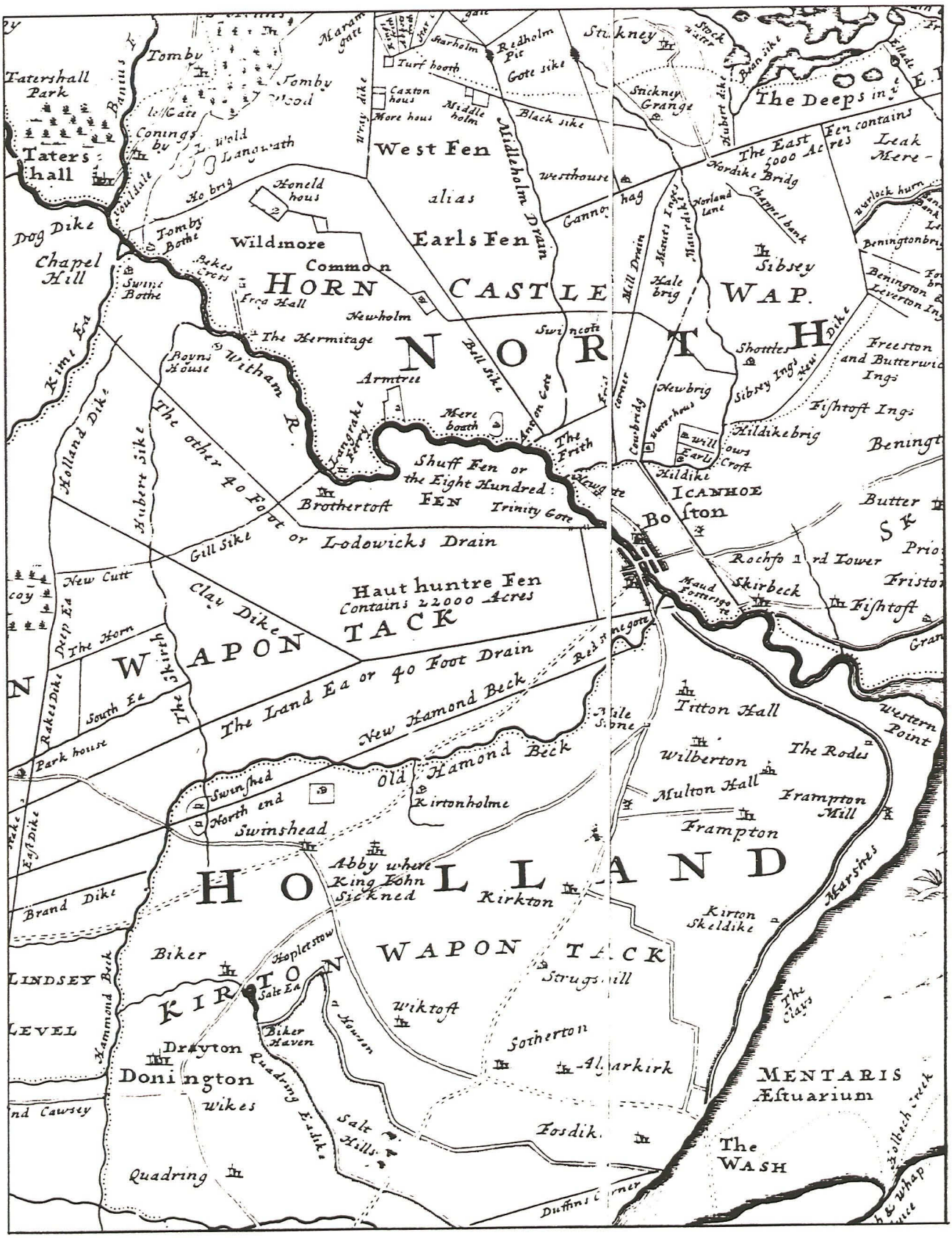

Figure 3 Extract from Stukeley's map of 1723 showing northern extent of proposed pipeline route (note meandering course of river)

Figure 4 Extract from 1824 Ordnance Survey map showing northern extent of proposed pipeline route (note canalised course of river)

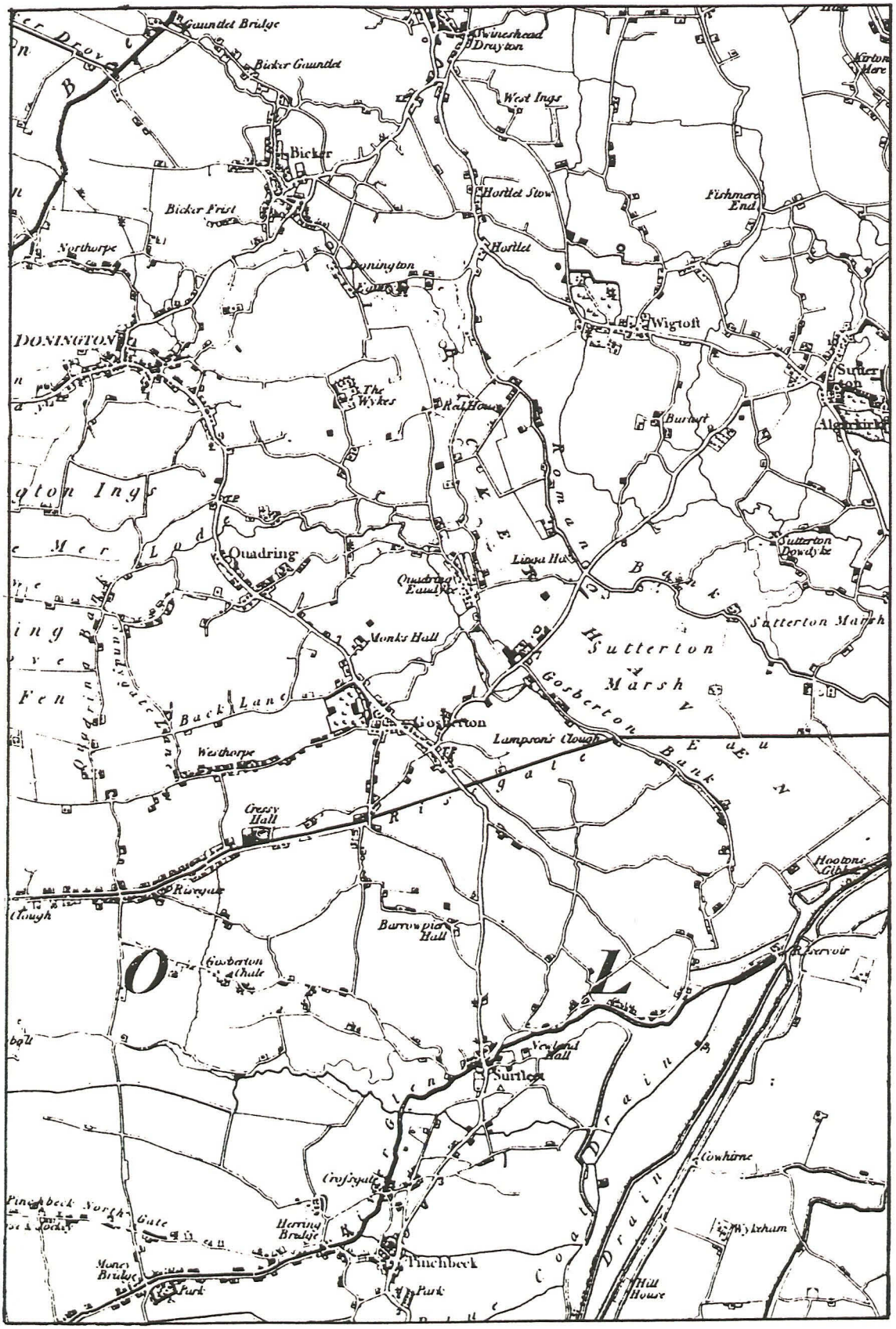

Figure 5 Extract from Ordnance Survey map of 1824 showing southern extent of proposed pipeline route

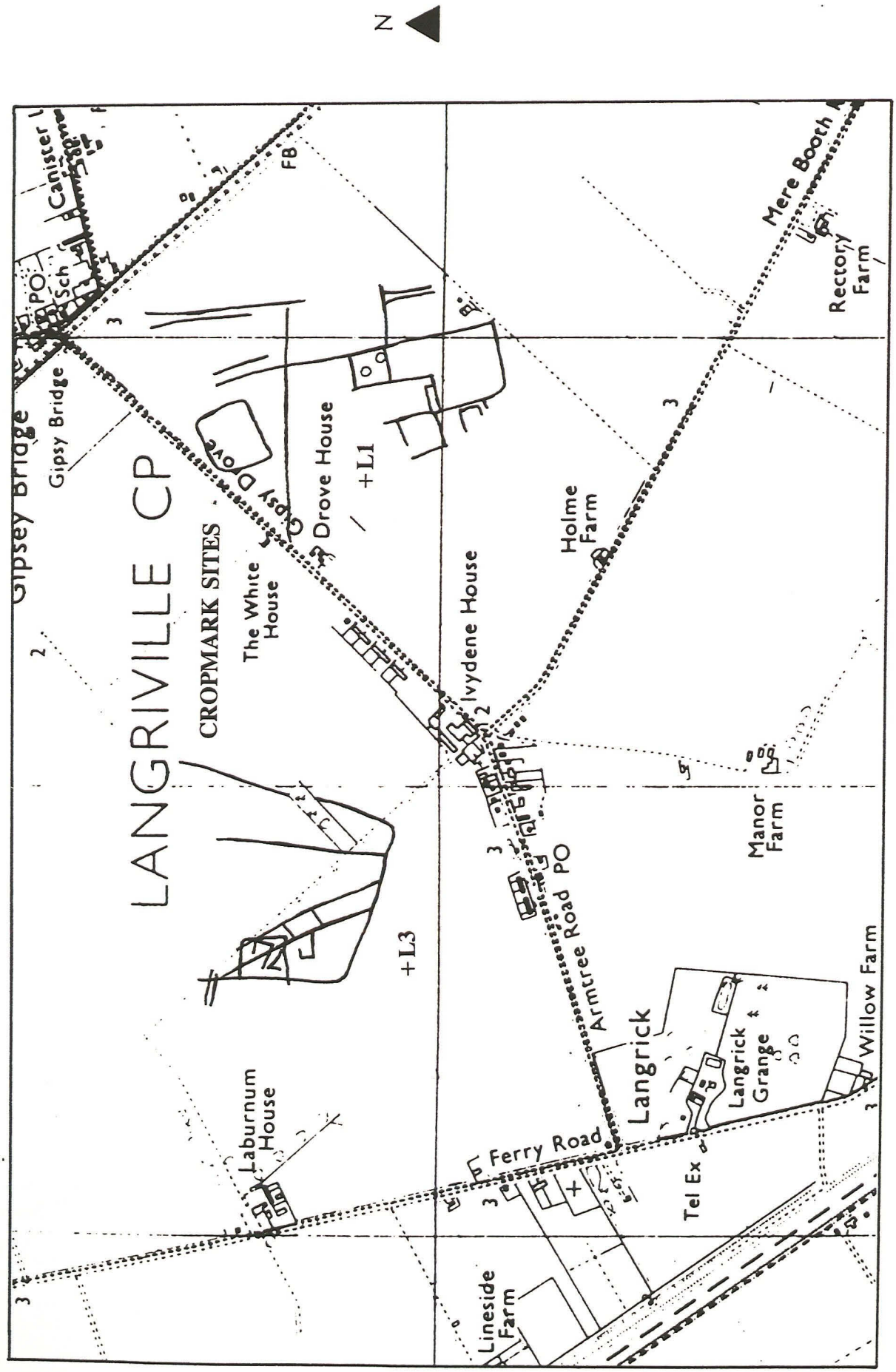

Figure 6: Extract showing the position of recorded cropmarks northeast of Langrick (O.S. 1983).

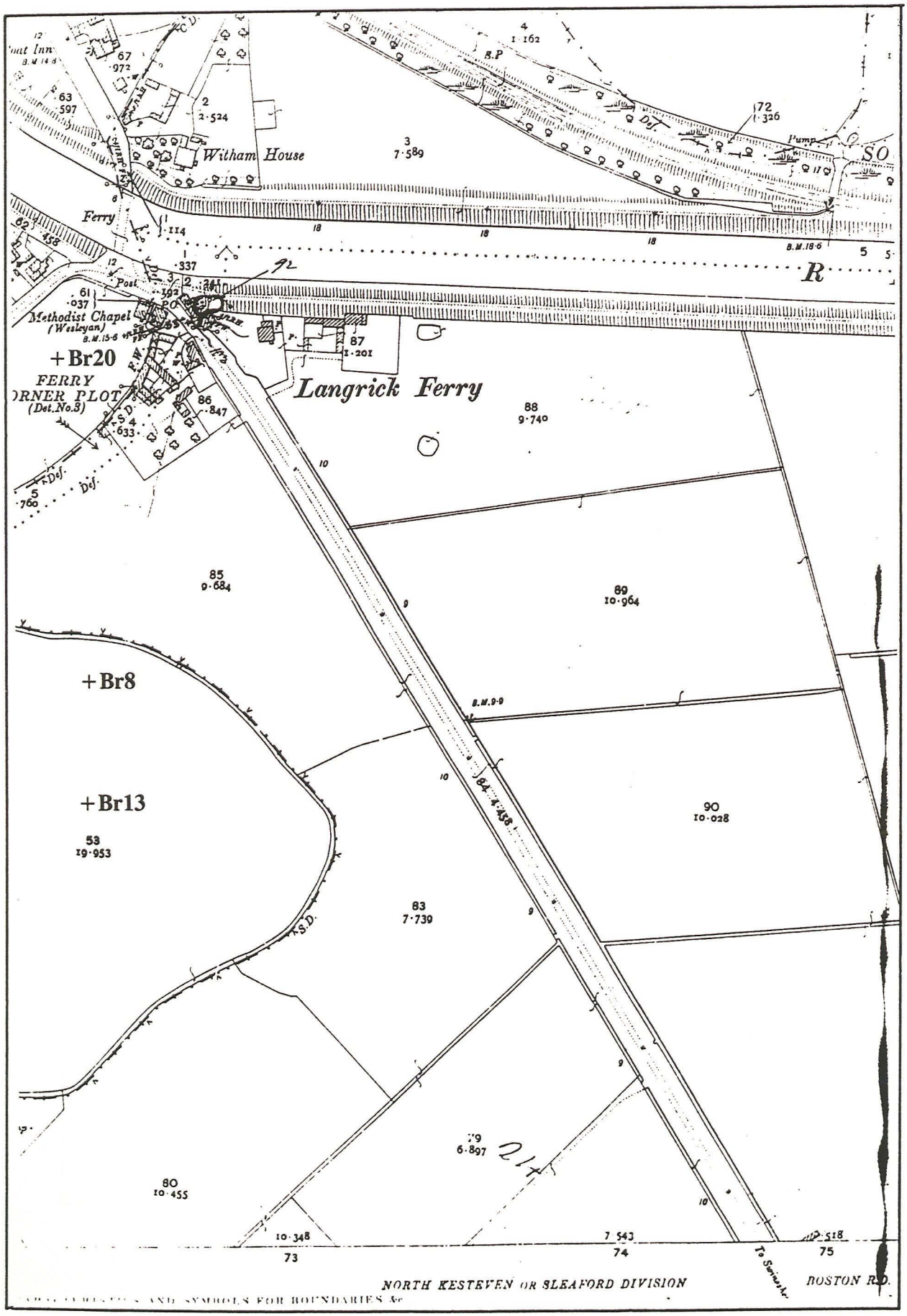

Figure 7 Extract from Ordnance Survey map of 1905 showing Langrick Ferry (note curvilinear boundaries reflecting original course of river)

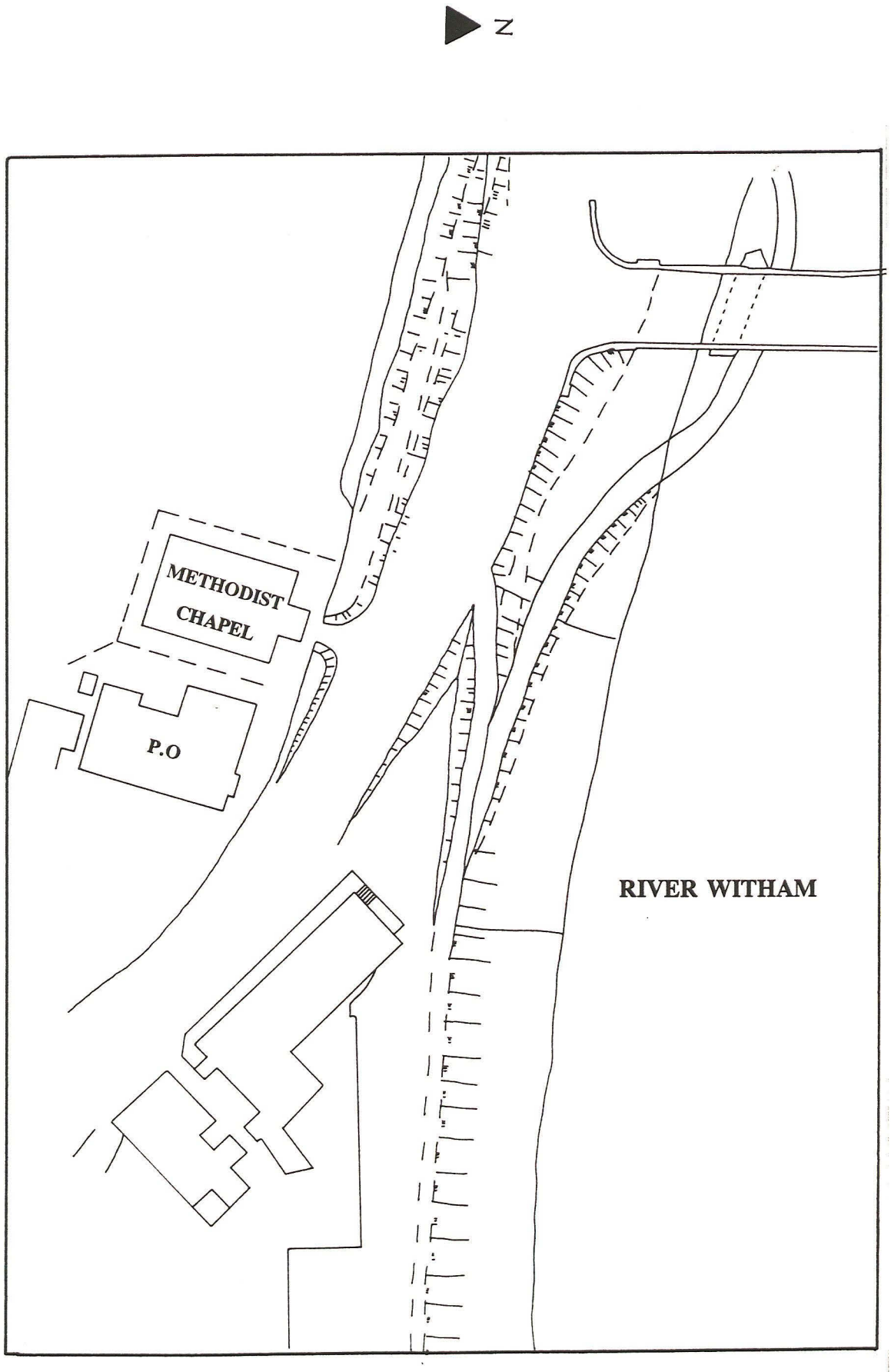

Figure 8 Extract from construction plans for Langrick Bridge, 1906

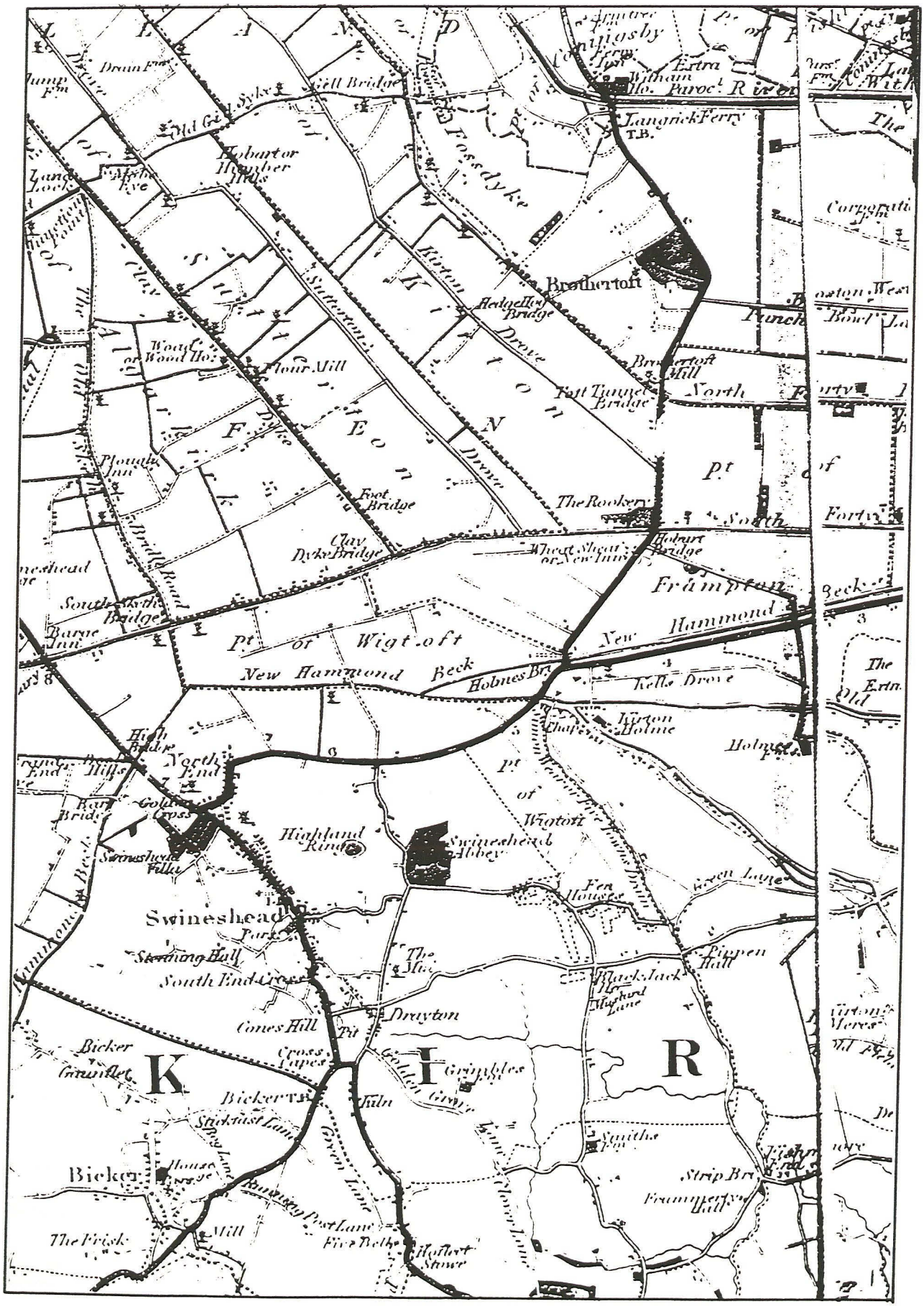

Figure 9 Extract from Bryant's map of 1828 showing northern extent of proposed pipeline route (note mill, due north of Drayton)

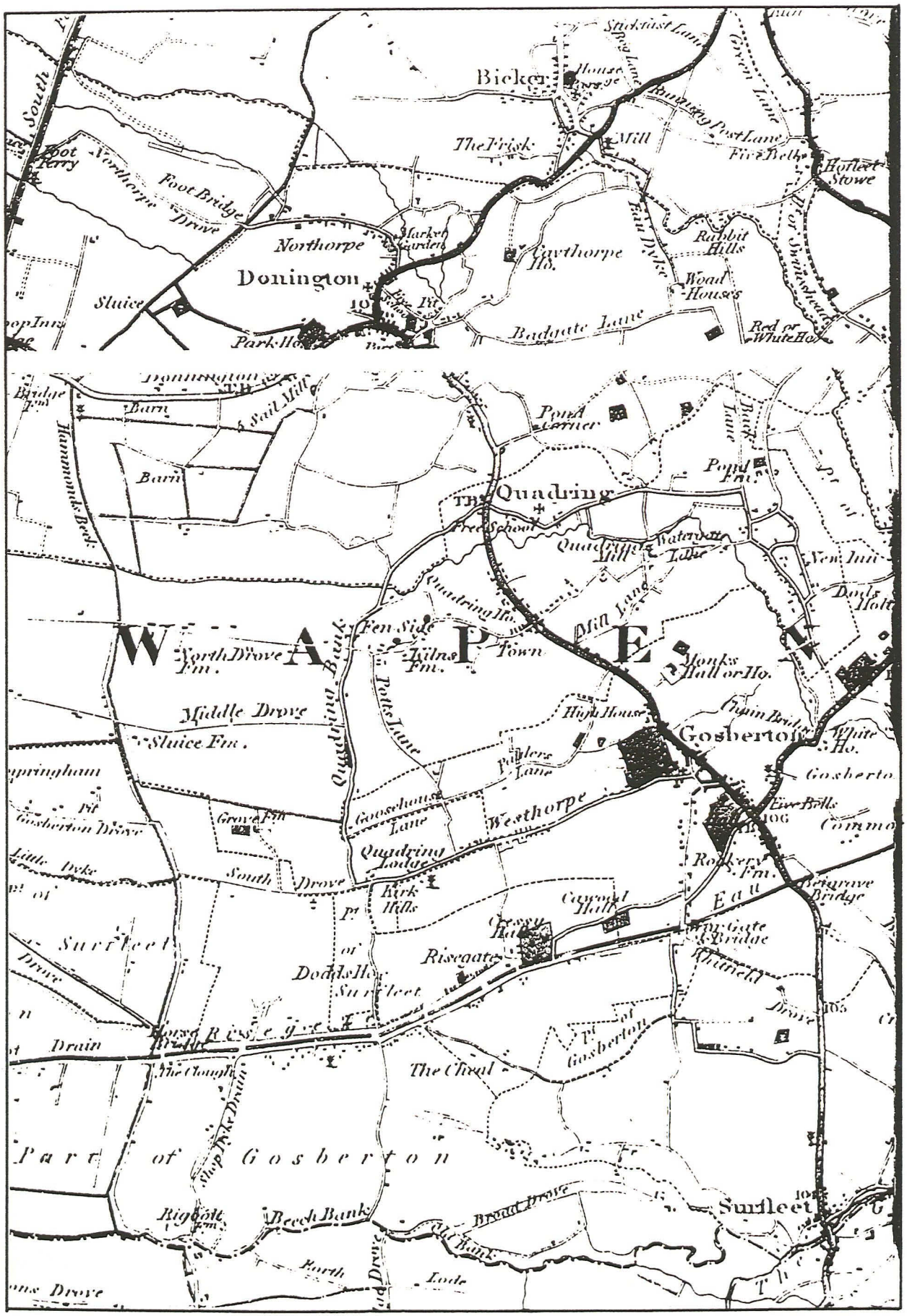

Figure 10: Extract showing the southern extent of the proposed route during the 19th century (Bryant 1828).

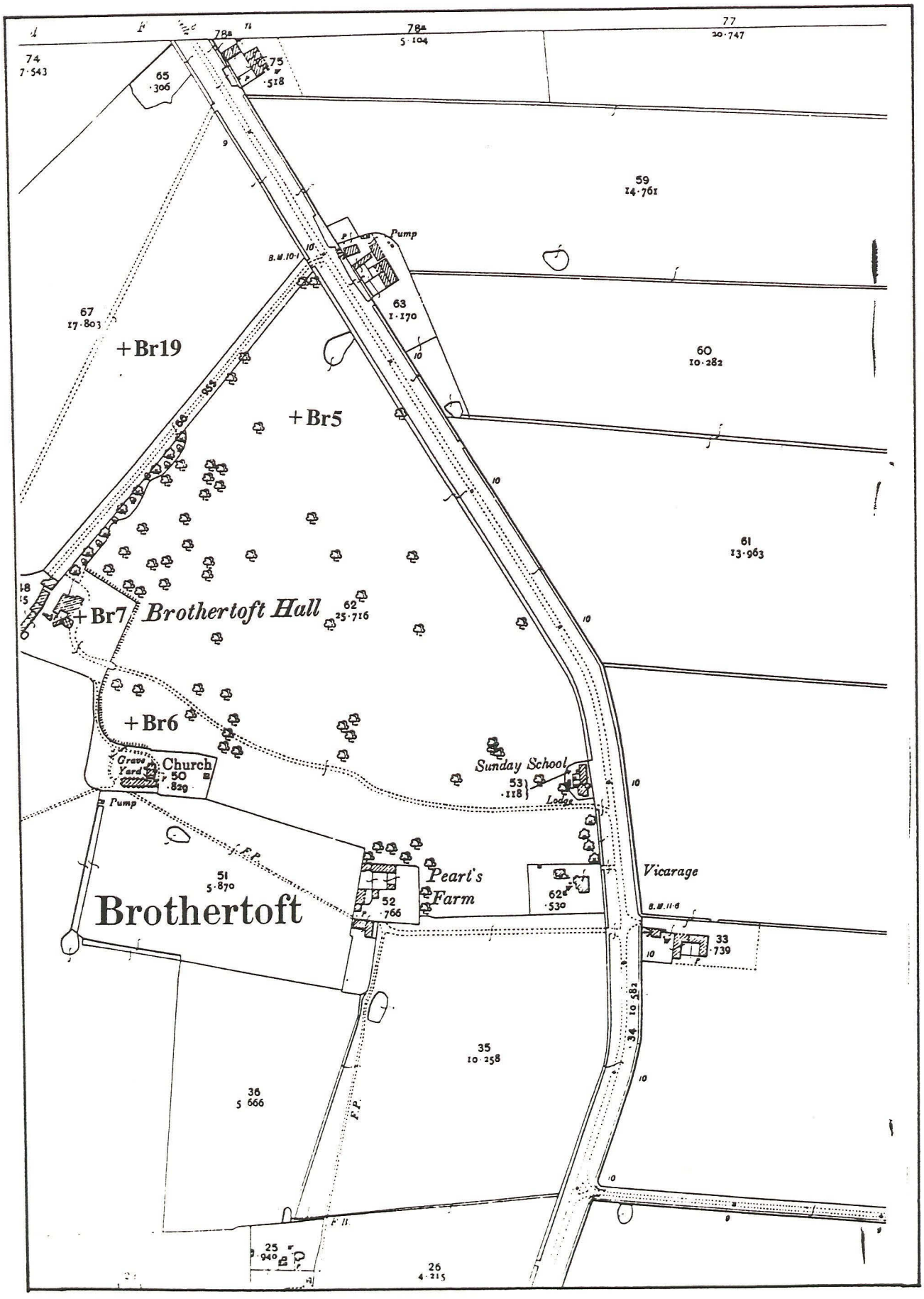

Figure 11 Extract from Ordnance Survey map of 1905 showing Brothertoft Hall. Note the open ground to the east, the possible site of a deserted medieval village

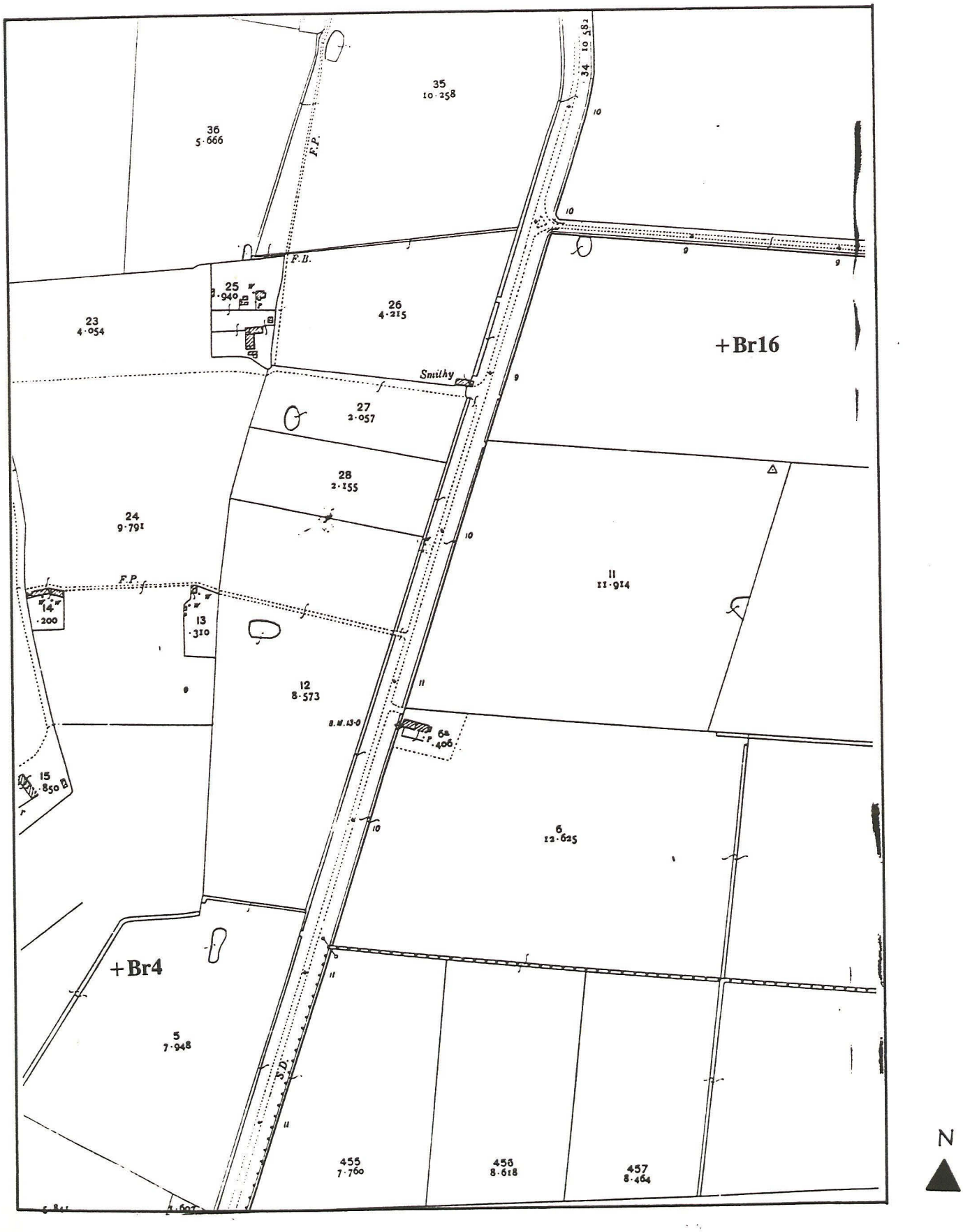

Figure 12 Extract from Ordnance Survey map of 1905 showing proposed route to south of Brothertoft Hall, along Langrick road

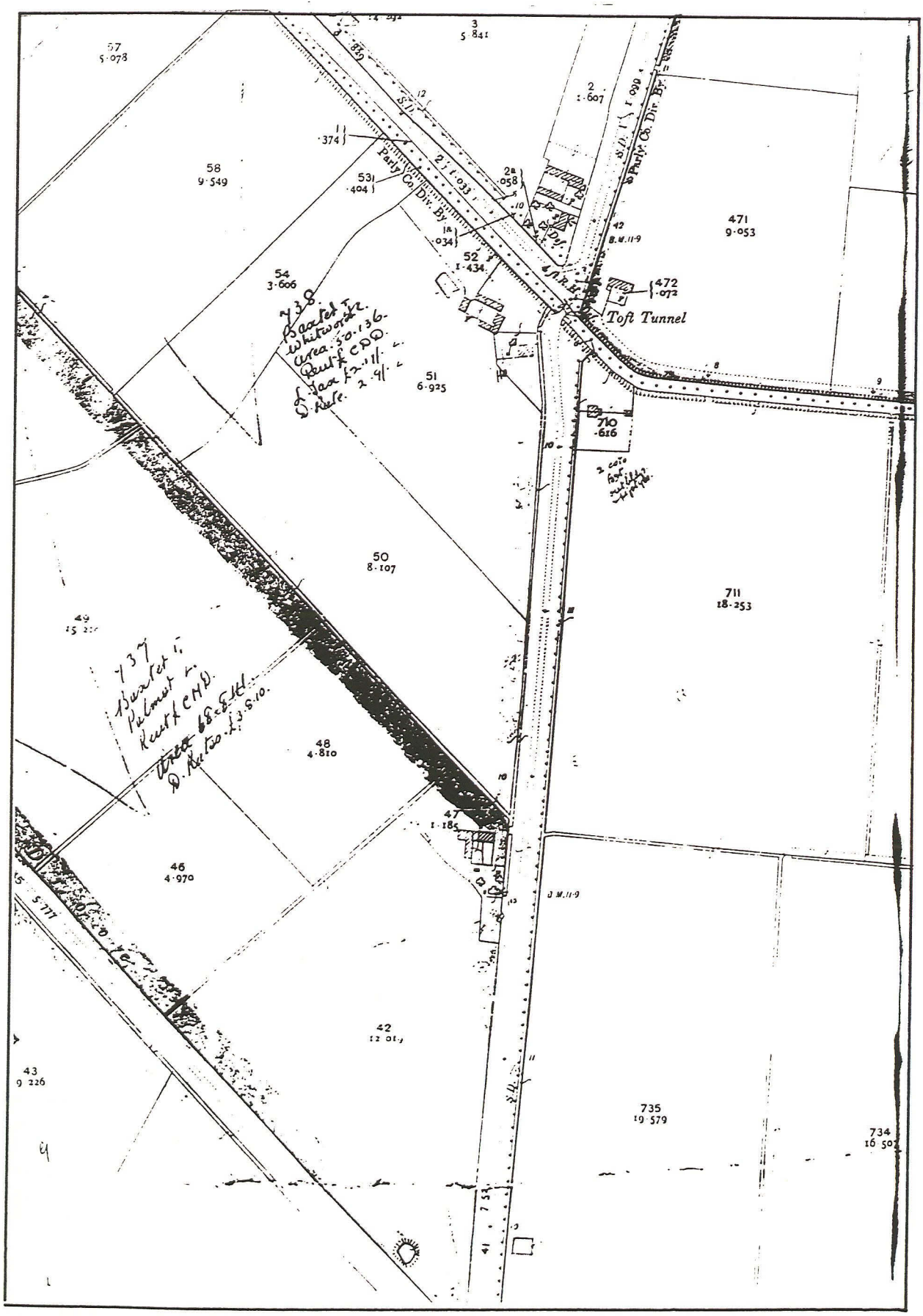

Figure 13 Extract from Ordnance Survey map of 1905 showing proposed route in vicinity of Toft Tunnel and the North Forty Foot Drain

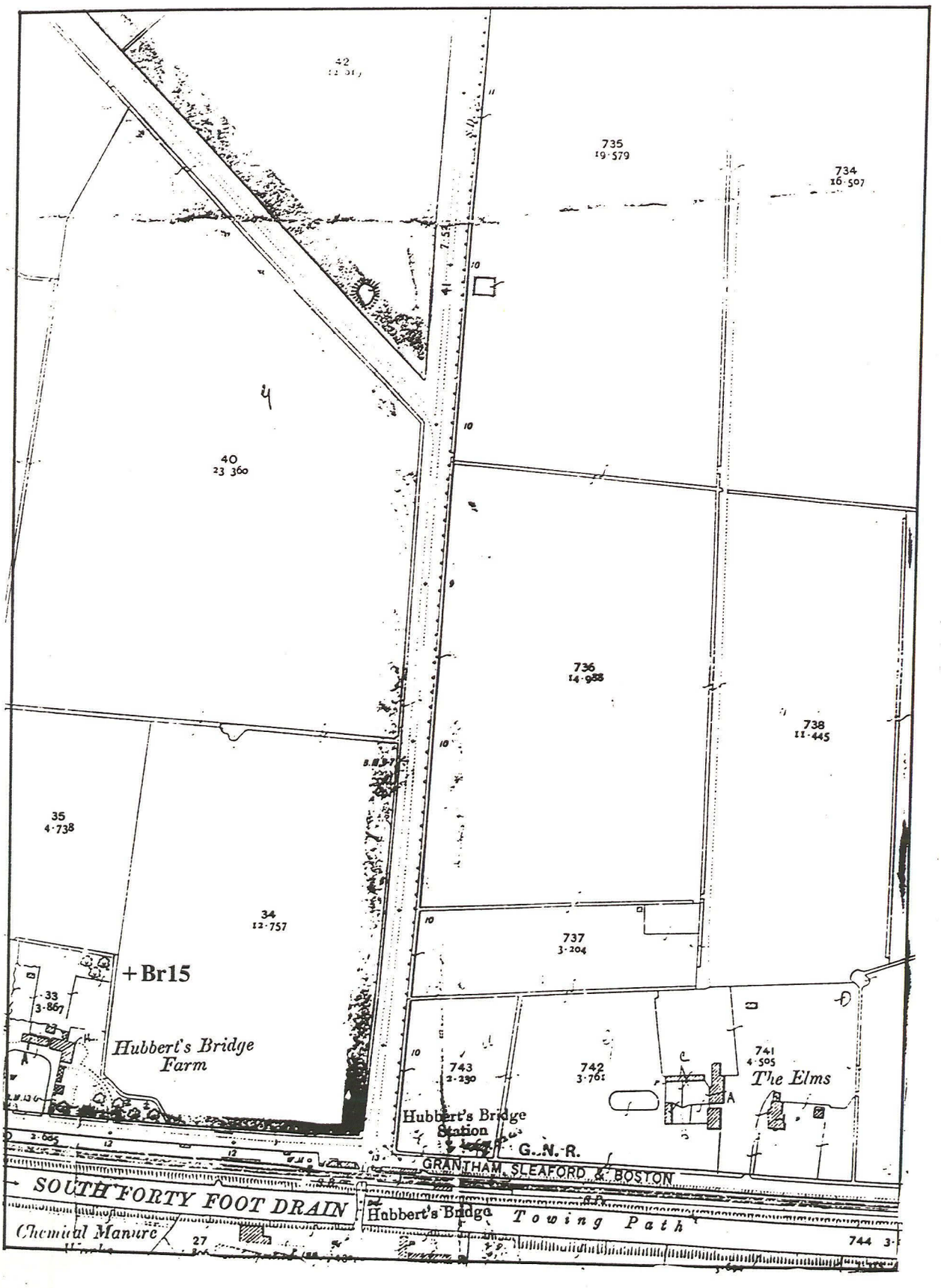

Figure 14 Extract from Ordnance Survey map of 1905 showing Hubbert's Bridge

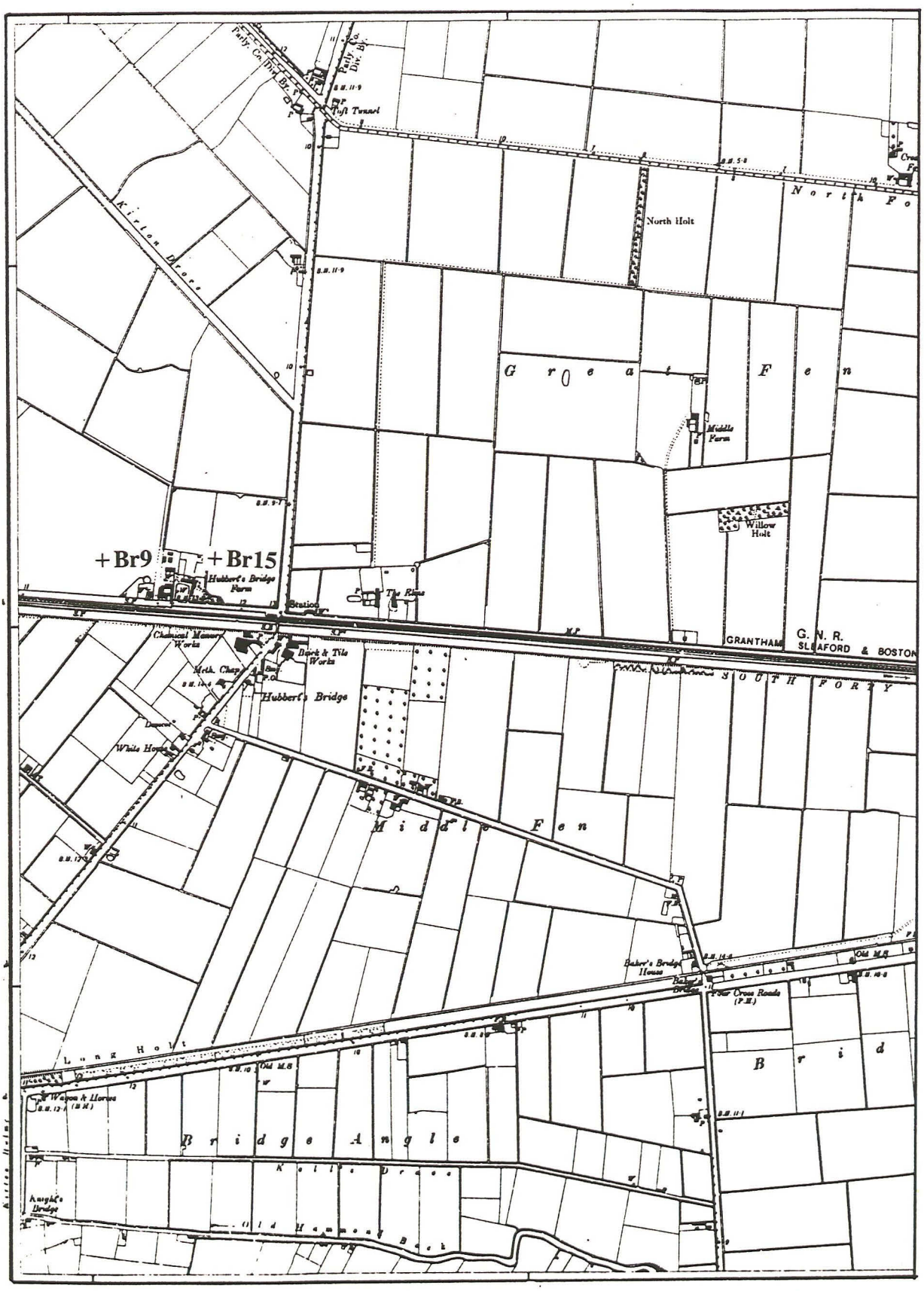

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Figure 15 Extract from Ordnance Survey map of 1906 showing Hubbert's Bridge. Note chemical manure works, brick and tile works and Methodist Chapel in vicinity of South Forty Foot Drain

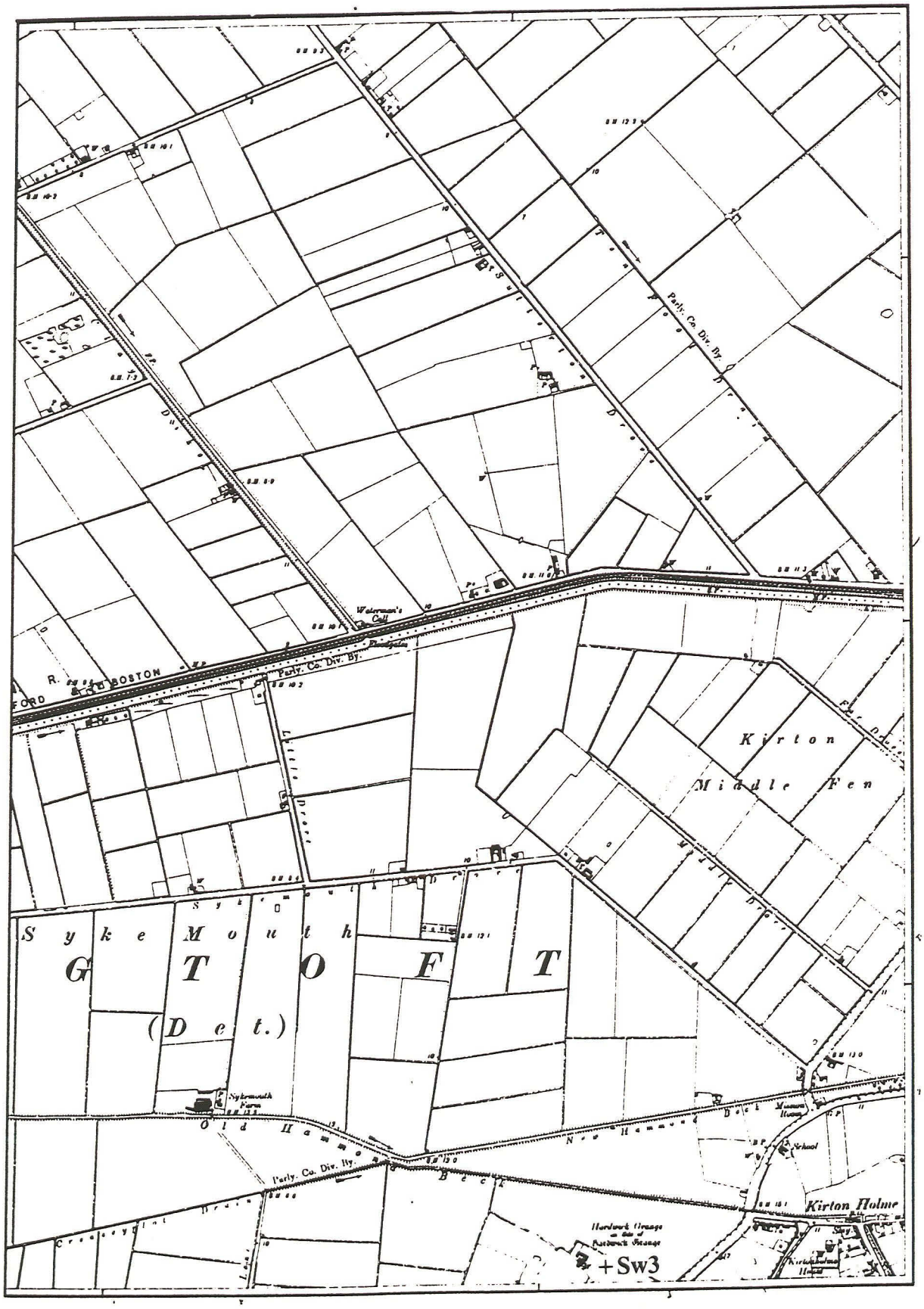


Figure 16 Extract from Ordnance Survey map of 1906 showing South Forty Foot Drain and Hardwick Grange (bottom centre)

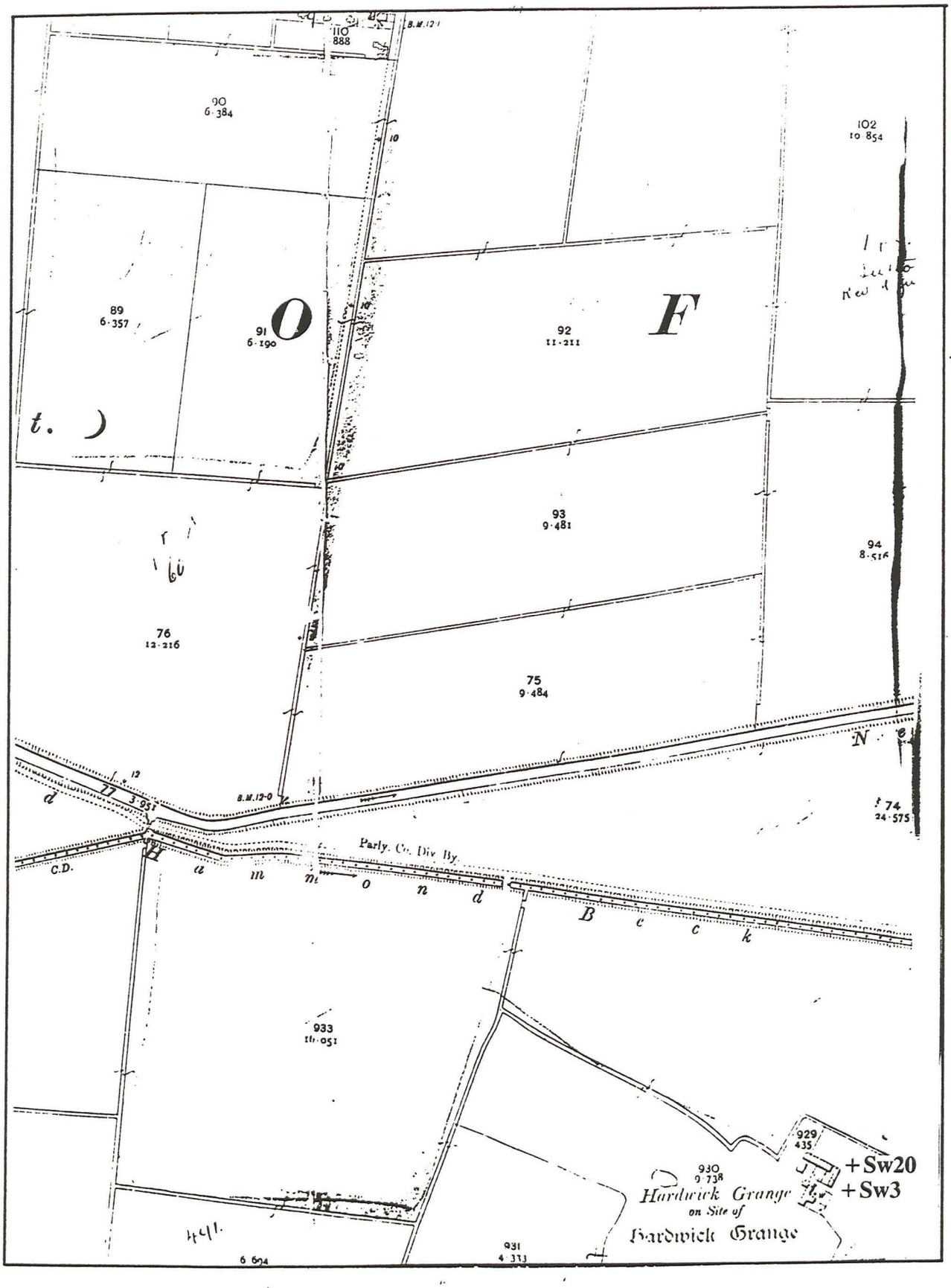


Figure 17 Extract from Ordnance Survey map of 1905 showing Hardwick Grange. Note position of Old and New Hammond Becks

Figure 18: Extract showing Hardwick Old Inclosures, due south of Hardwick Grange (Hare 1774).

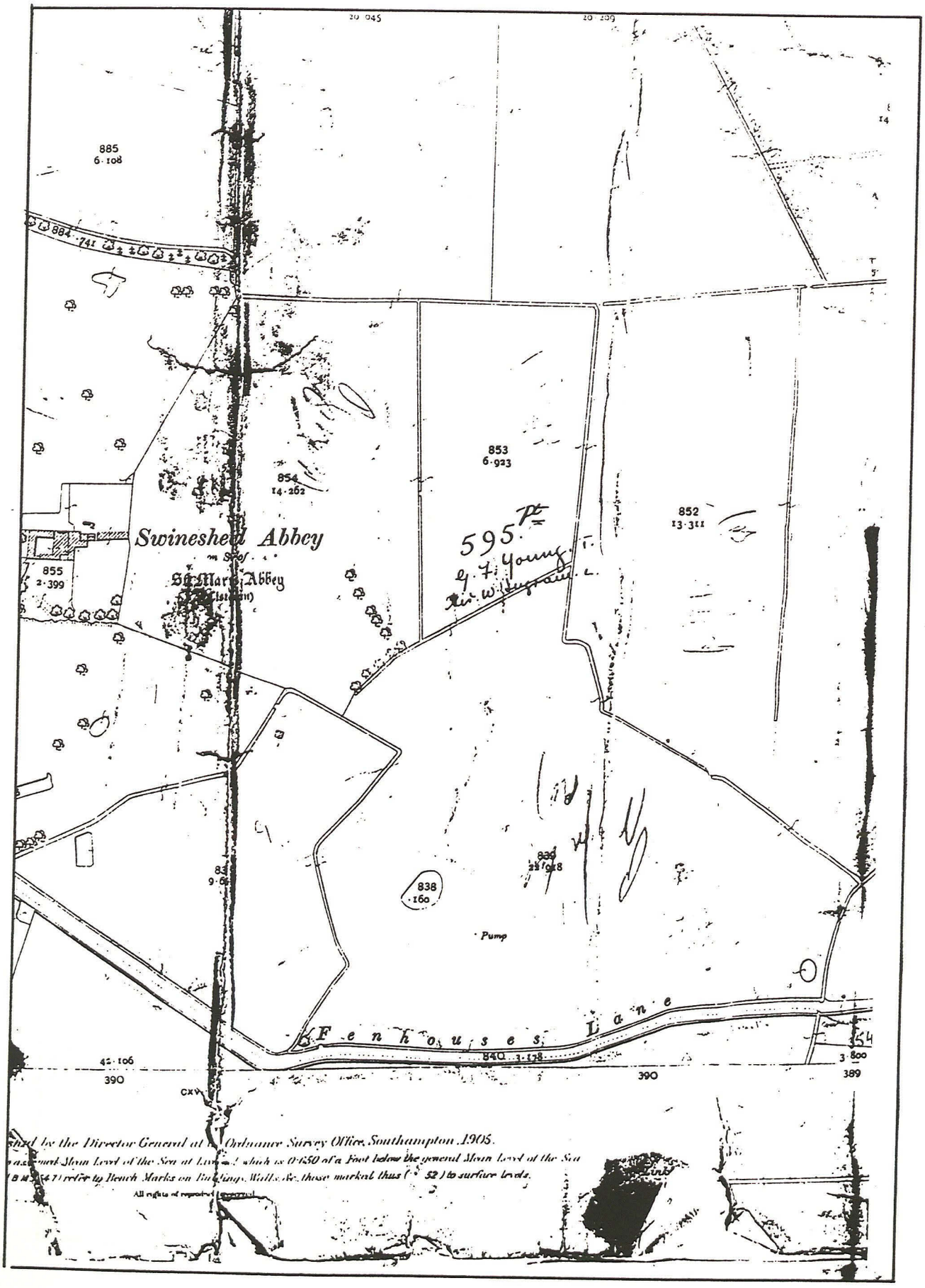


Figure 19 Extract from Ordnance Survey map of 1905 showing Swineshead Abbey

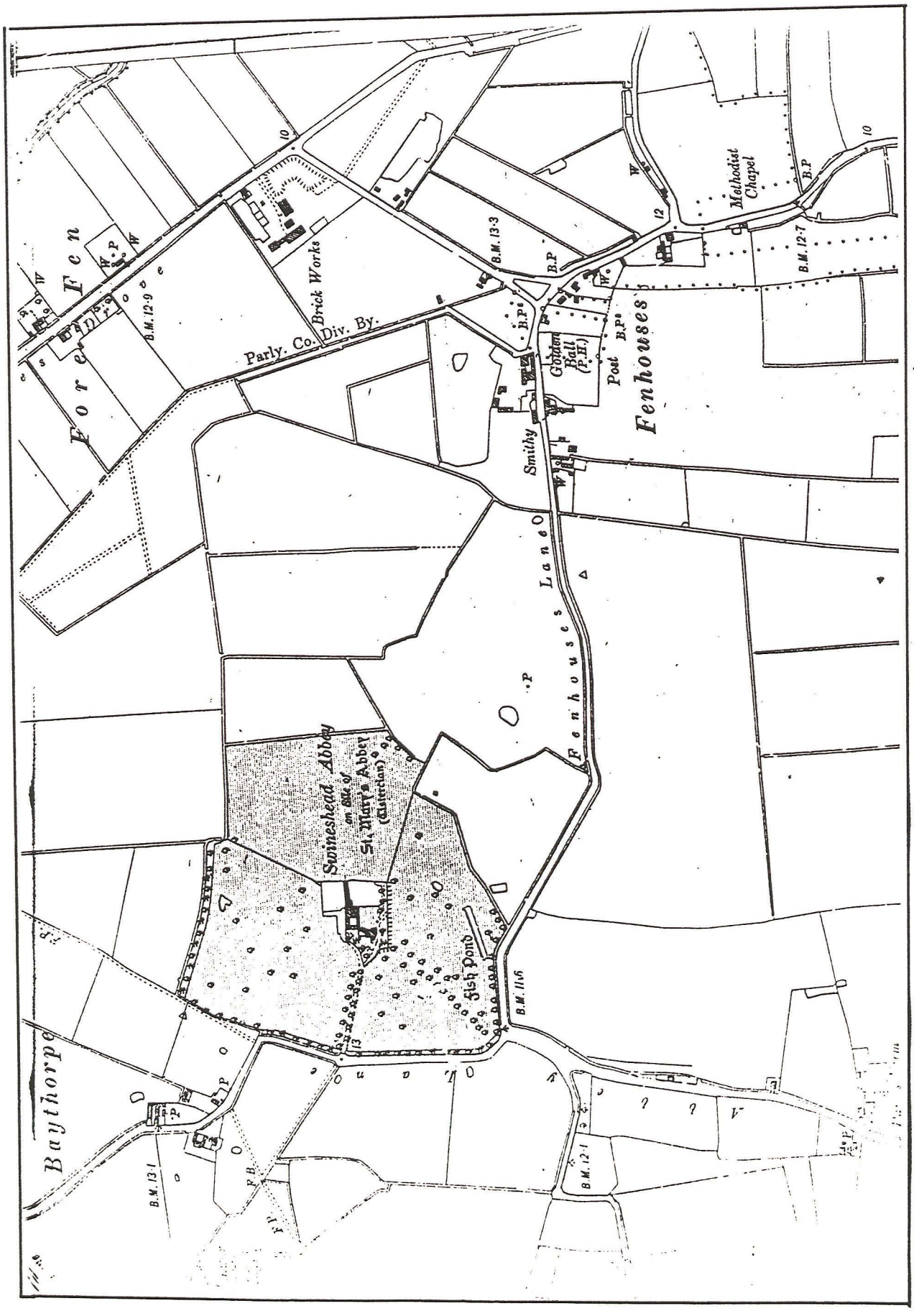


Figure 20 Extract from Ordnance Survey map of 1906 showing Swineshead Abbey. Note smithy and brick works to east

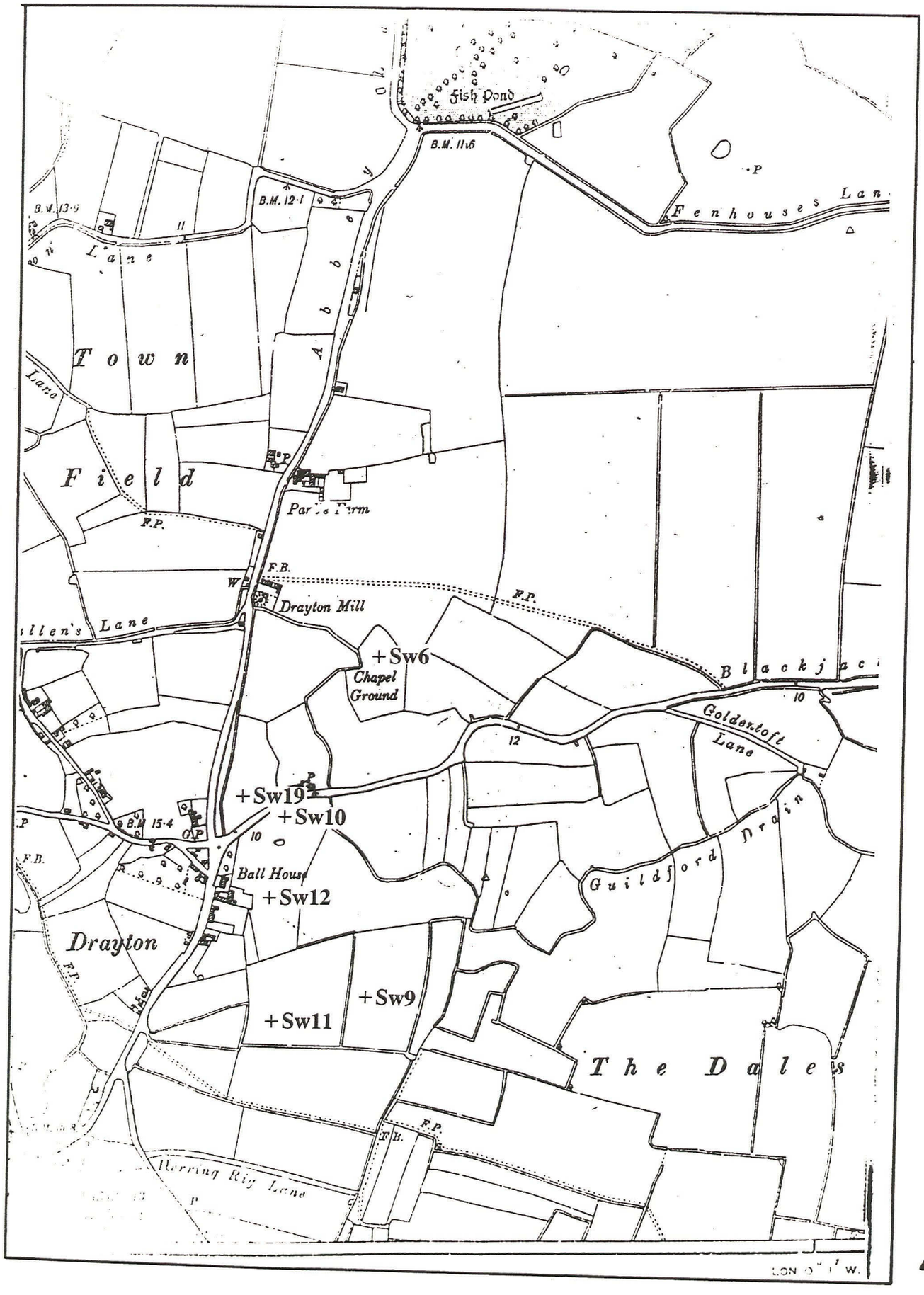


Figure 21 Extract from Ordnance Survey map of 1906 showing land south of Swineshead Abbey. Note location of Drayton Mill and Chapel Ground

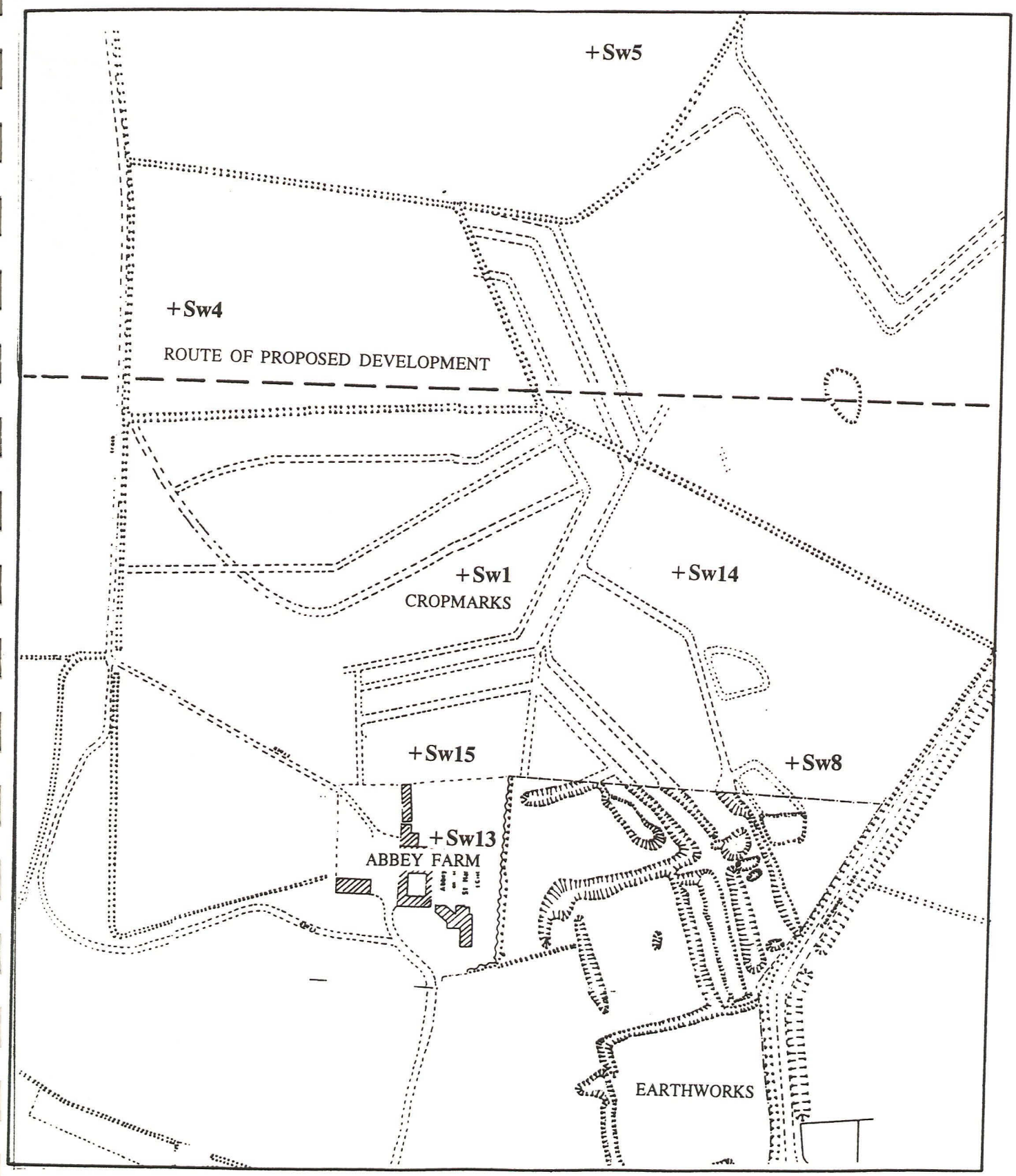


Figure 22 Plan of proposed pipeline route to east of Swineshead Abbey, showing earthworks (hachured) and cropmarks (dashed)

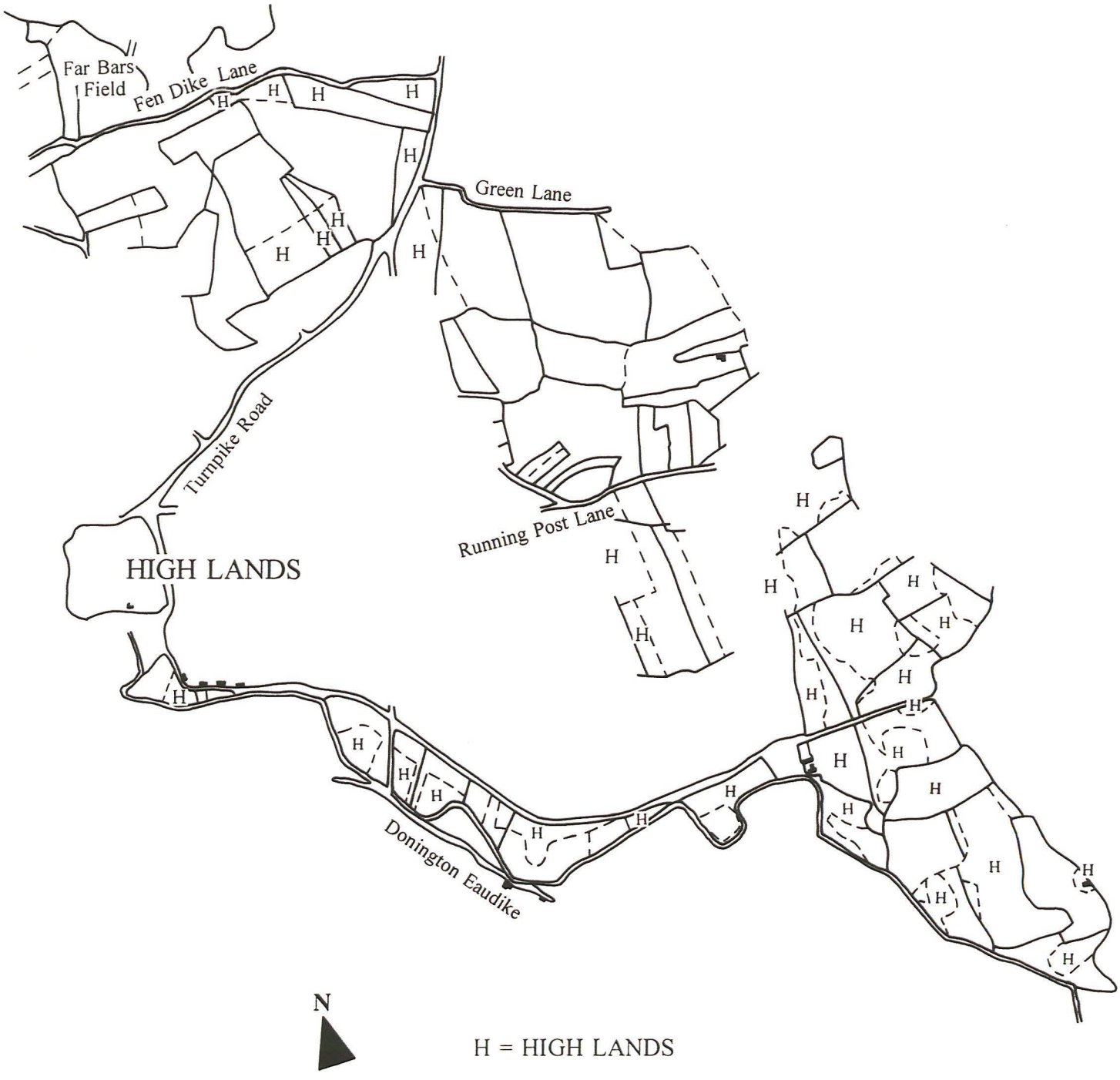


Figure 23 Extract from Hare's Plan of the Low Lands in Bicker, 1783

Figure 24 Extract from 1839 Map of Bicker, showing area to the west of Bolle Hall

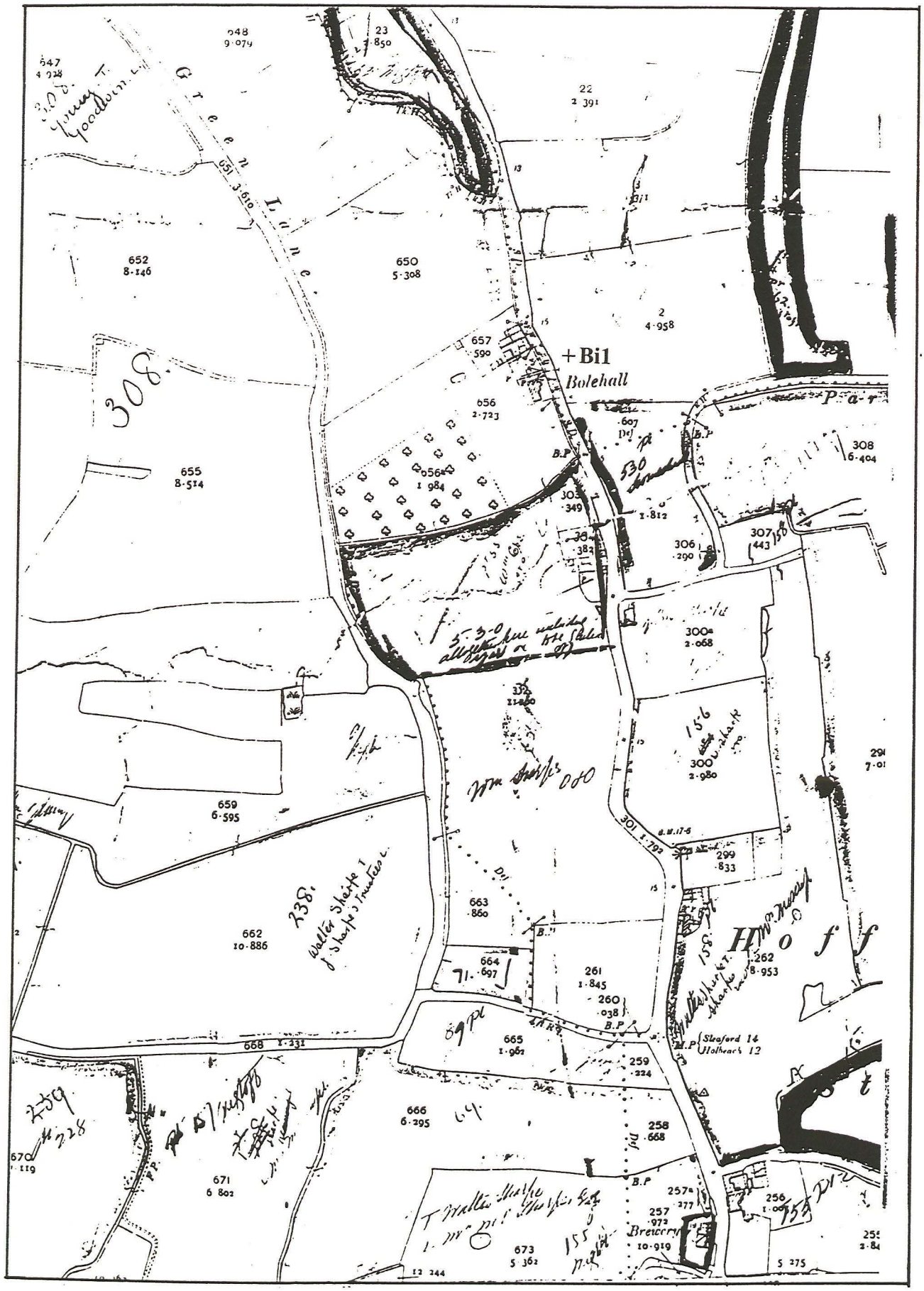


Figure 25 Extract from Ordnance Survey map of 1905, showing area around Bolle Hall

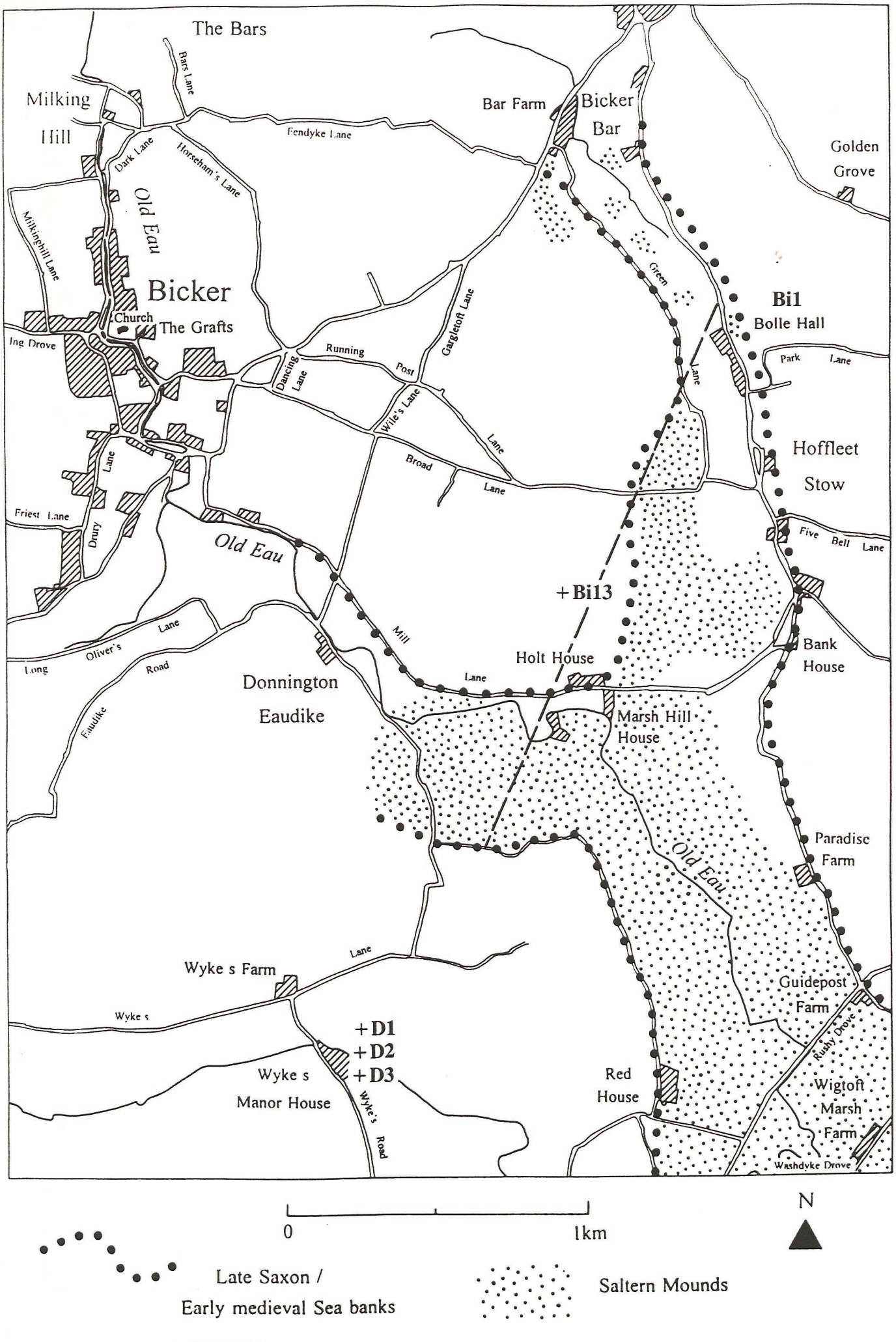


Figure 26 Route of fieldwalking, showing location of salt-mounds and sea banks

Figure 27 Extract from Ordnance Survey map of 1905, showing area to east of Wykes Manor Farm

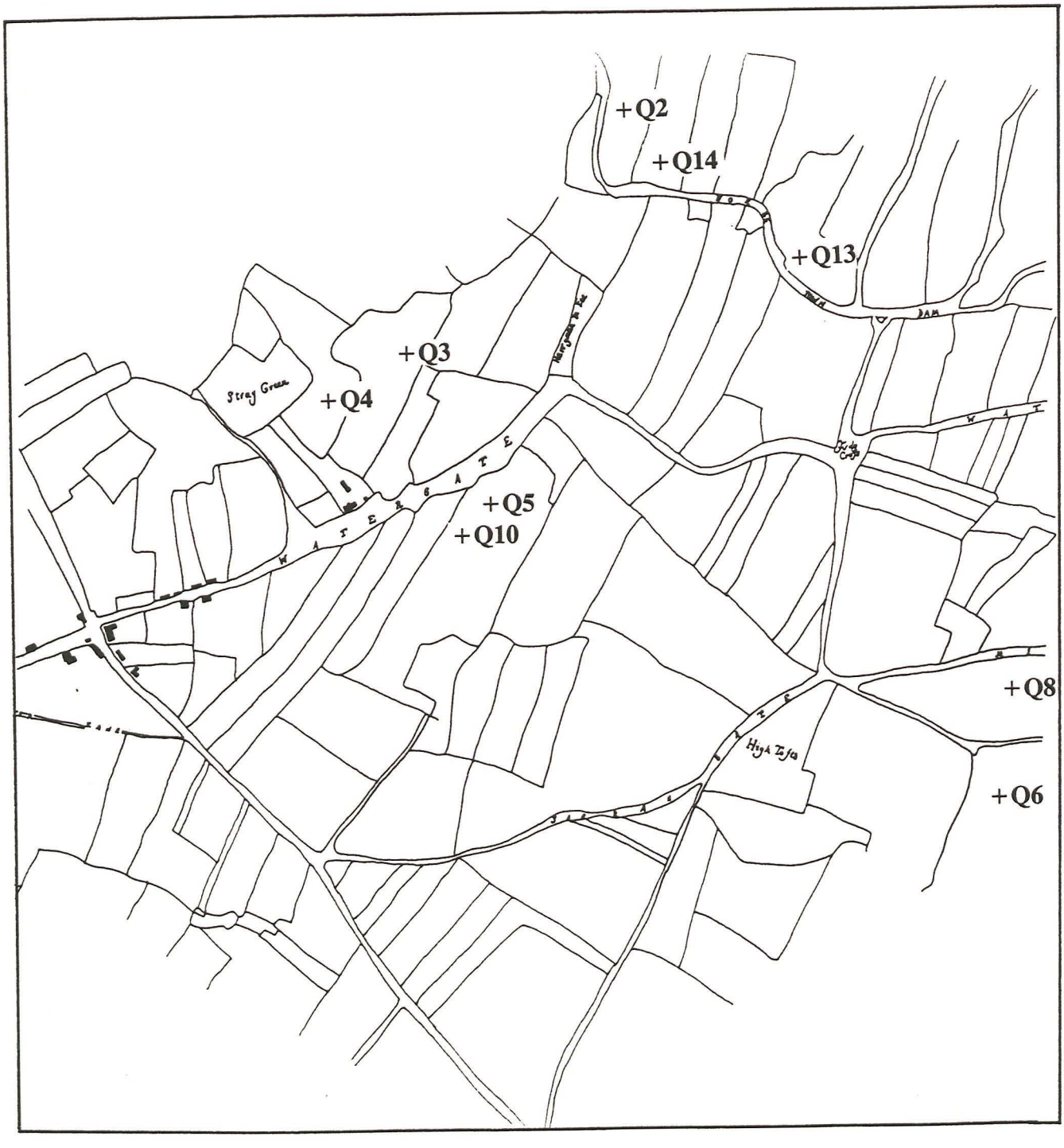


Figure 28 Extract from Hare's 1776 plan showing land to the east of Quadring

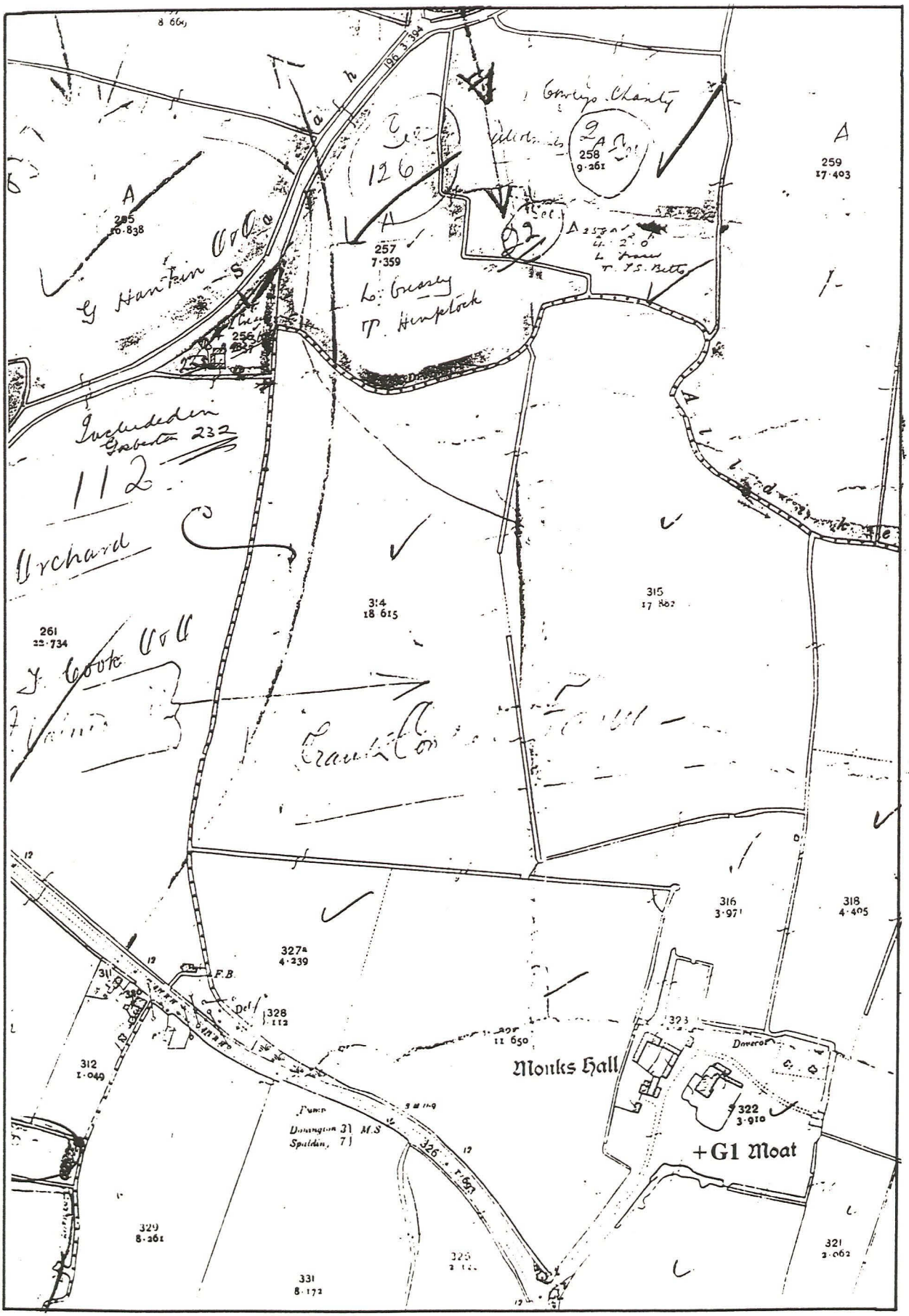


Figure 29 Extract from Ordnance Survey map of 1905, showing Monks Hall, situated between Quadring and Gosberton

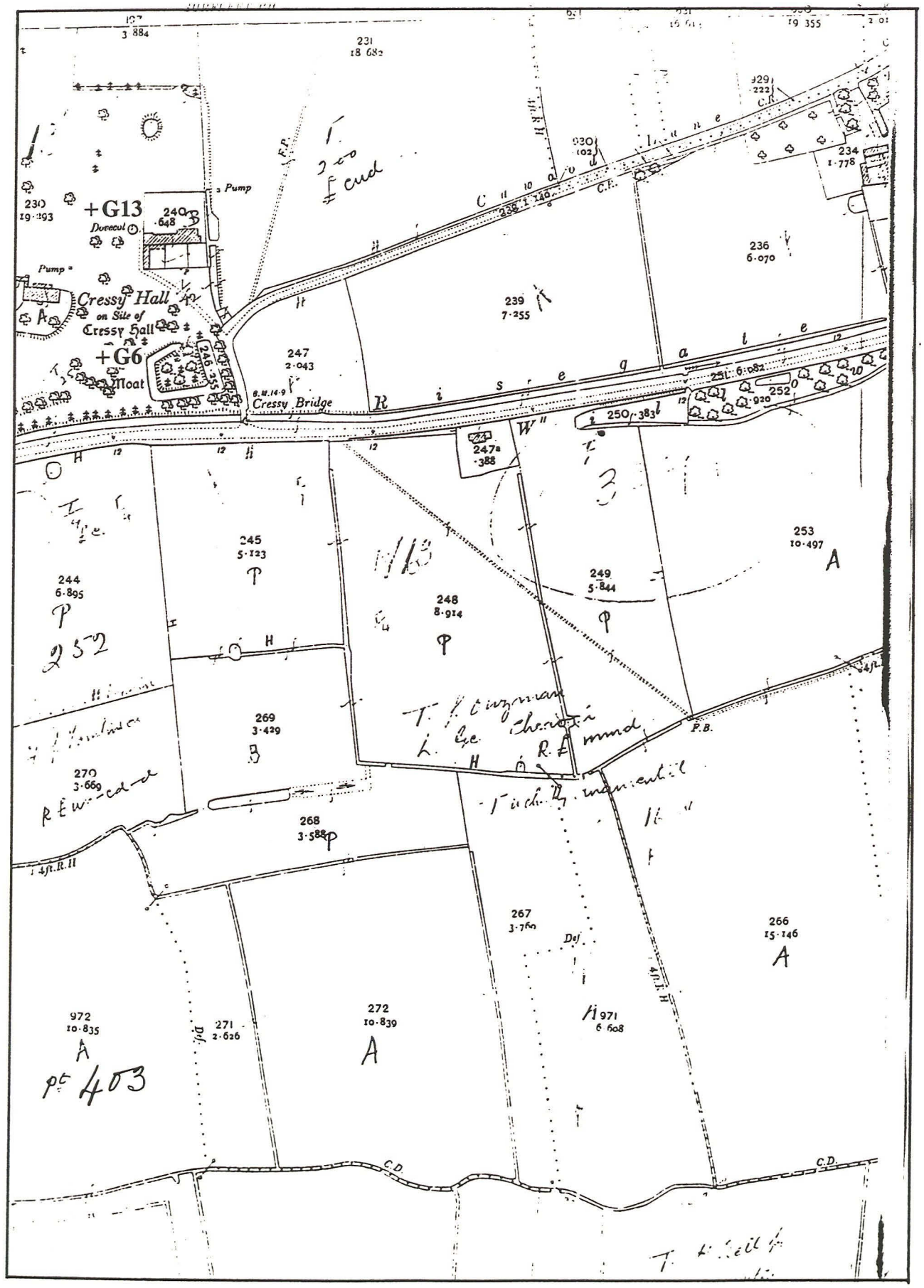


Figure 30 Extract from Ordnance Survey map of 1905, showing earthworks around Cressy Hall

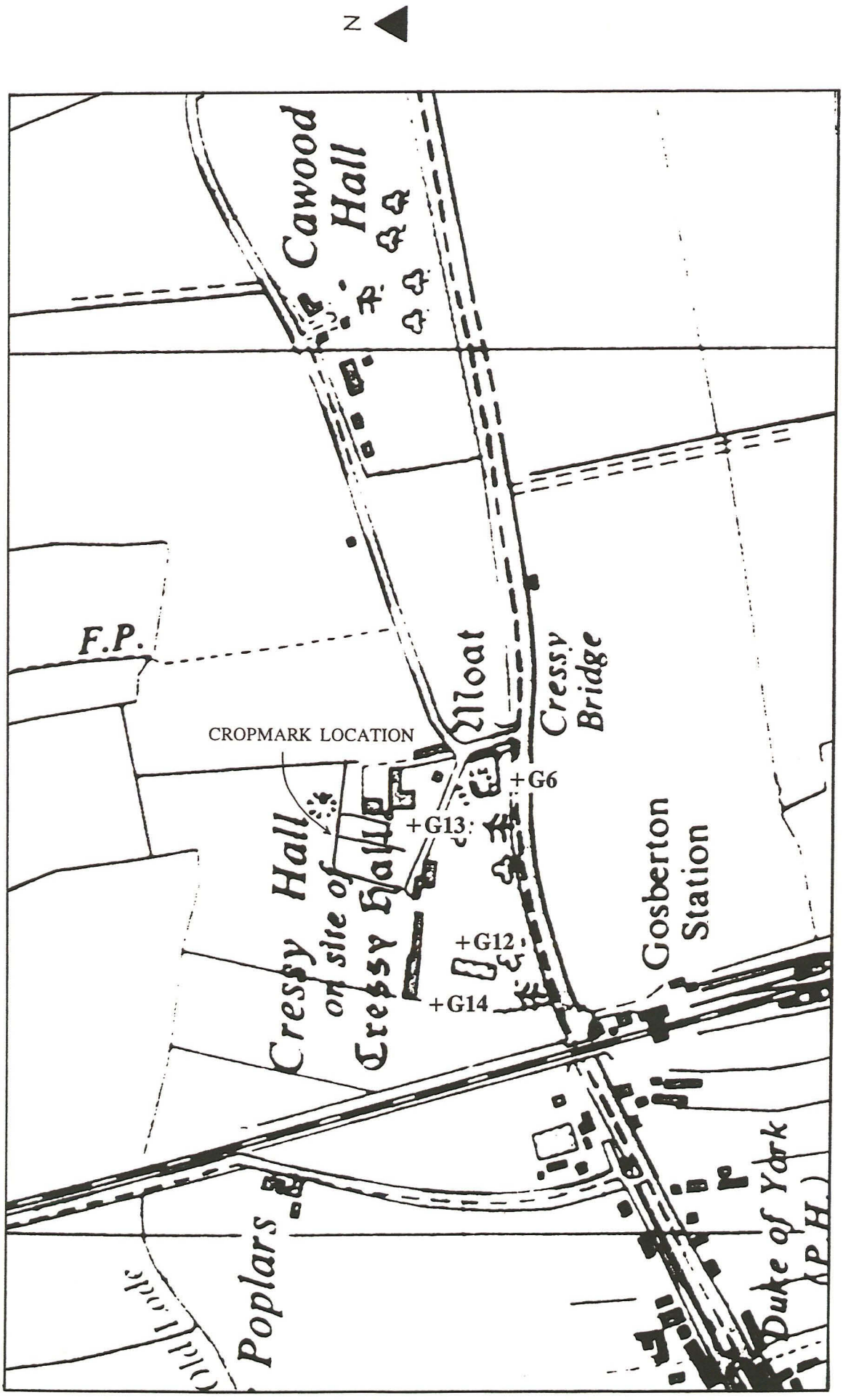


Figure 31 Extract from Ordnance Survey map of 1955, showing site of Cressy Hall

Figure 32 Extract from Ordnance Survey map of 1906, showing Barrowpier Hall

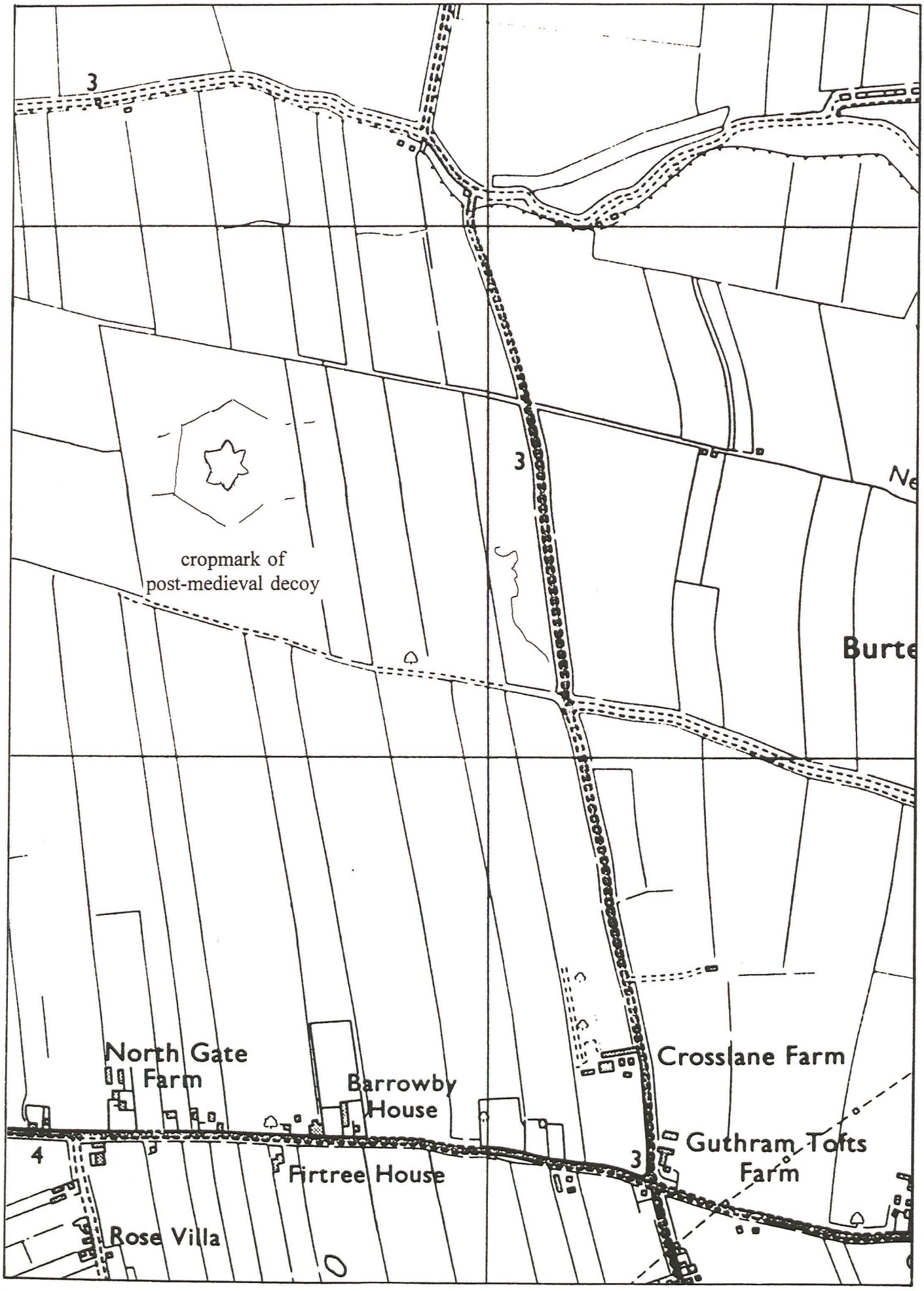


Figure 33 Extract from Ordnance Survey map of 1980, showing cropmark of post-medieval decoy

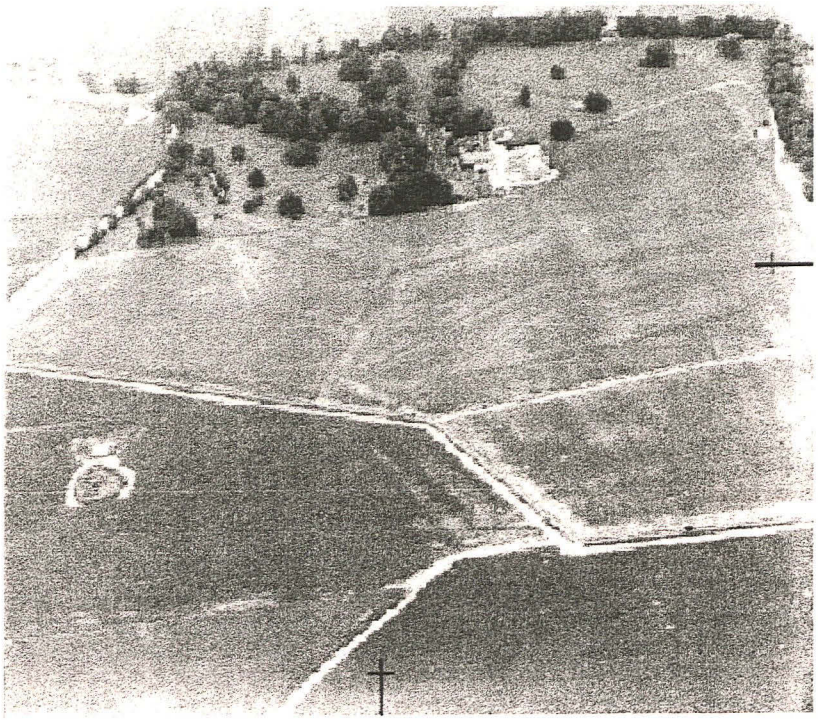


Plate 1 : Showing cropmarks of possible medieval enclosures to the east of Swineshead Abbey

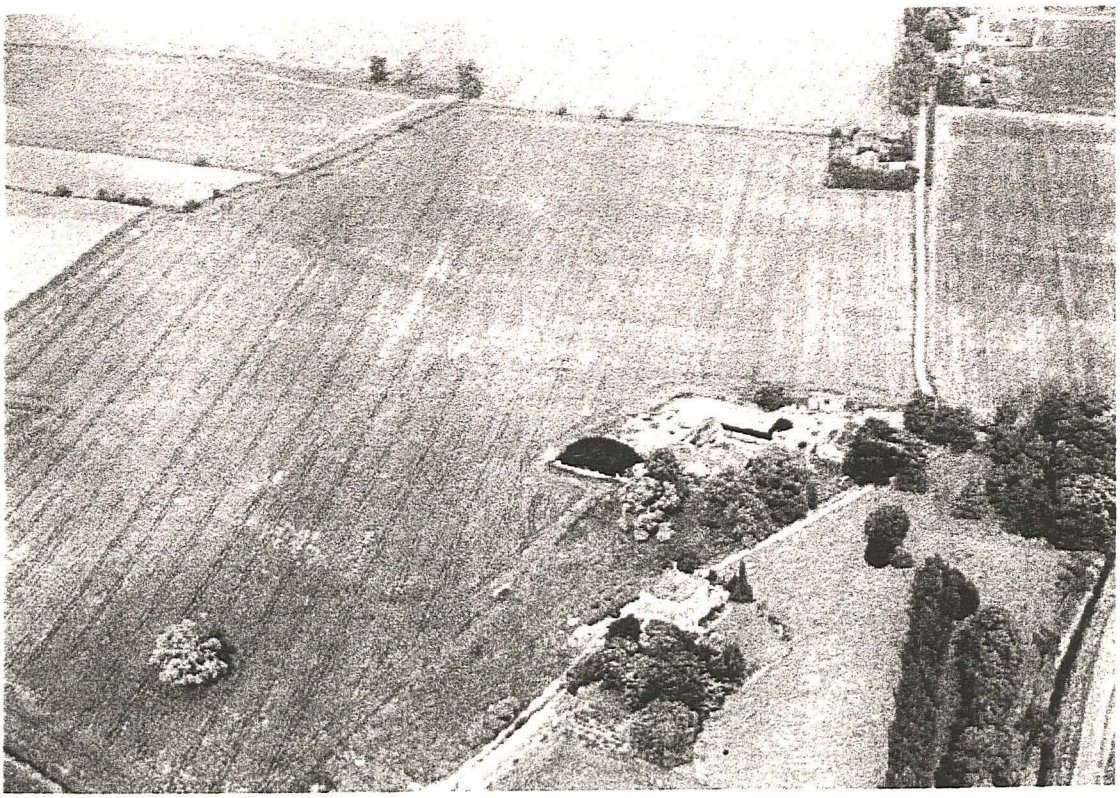


Plate 2 : Showing cropmarks of a possible medieval manorial site, to the north of Cressy Hall

BRIEF FOR AN

ARCHAEOLOGICAL FIELD EVALUATION,

SCHEME: Witham to Risegate - New Mains

DATE: 13/01/97

This brief produced by

Jim Bonnor, Assistant Archaeological Officer,
Lincolnshire County Council on behalf of Anglian Water

The brief is valid only for six months from the last day of the month given above. Any specifications produced in response to this brief will have a similar period of validity.

Any comments on this brief should be addressed to the author at the address given below.

LINCOLNSHIRE COUNTY COUNCIL ENVIRONMENTAL SERVICES DIRECTORATE
Planning and Development Group

1. Summary

1.1 This document is the brief for archaeological work to be undertaken on the line of a new proposed water pipeline scheme between Langrick Bridge on the River Witham and Risegate in Pinchbeck by Anglian Water. It sets out the requirements for a desk-top assessment and field evaluation to be carried out for the area which should help to define the character and extent of the archaeological remains. Evaluation offers an efficient and effective way of retrieving such information.

1.2 **PLEASE NOTE - the timetable for the use of the results from this work is extremely short. No specification is required. On receipt of the brief those tendering should contact Bill Wadsworth at Anglian Water with their quote.**

2. Site location and description

2.1 The proposal is for a new mains pipeline to be laid between Langrick Bridge on the River Witham in the parish of Brothertoft in the Boston District (NGR TF268474) to Burty Fen south of Risegate in the parish of Pinchbeck, South Holland District (NGR TF 211262).

2.2 The new mains will consist of a 800mm pipe, 20000m long. The pipe will be laid by Open Cut with a working width of 20m, the width of stripped topsoil being 18m, and the depth of cover 0.9m.

2.3 It is also planned to construct a new pumping station at the northern end of the line at Langrick Bridge.

3. Planning background

3.1 This brief is set in response to a consultation received by the Lincolnshire County Archaeology Office. There is only a small window of time left in which to examine changes to the route of the line and at a meeting of Anglian Water and the Assistant Archaeological Officer the strategy detailed below was agreed.

4. Archaeological background

4.1 The site has had a basic appraisal against the Lincolnshire SMR which has identified a number of sites of archaeological interest along the route. It is noted that the line of the route contains many more sites than are recorded in the SMR. Other records for this area in particular are held by the Community Archaeologist for Boston. Aerial photographic evidence will also be significant.

4.2 The most significant site was that of Swineshead Abbey, a scheduled ancient monument. This matter has been raised with Anglian Water and the matter is in hand.

4.3 Sites already identified as significant are a Roman period site at Langrick Bridge close to where the pumping station is planned and the salterns along the Bicker Haven.

5. Objectives of an archaeological evaluation

5.1 The purpose of the archaeological evaluation should be to gather sufficient information to establish the presence/absence, extent, condition, character, quality and date of any

archaeological features, structures, deposits, artefacts or ecofacts.

5.2 In particular the DTA will seek to target resources during the construction of the pipeline while the fieldwork is intended to provide early warning for the movement of a section of the line if required.

6. Requirements for work

6.1 It is intended that a Desk-Top assessment of the entire route and fieldwork phases on two sections will be carried out in parallel with priority being given to the fieldwork. **In order that the results should be used to influence the line of the pipeline then the results of the fieldwork must be relayed to Anglian Water by 27th January at the latest.** The DTA results should follow as quickly as possible.

7. Stage of works and techniques

7.1 The fieldwork is targeted at two areas:

7.1.1 At Langrick bridge (see plan) two 2m x 2m test pits will be excavated by hand to establish the presence of any archaeological features which may be affected by the proposed pumping station. Close liaison should take place with Mr B. Wadsworth for this section of the project.

7.1.2 The area of salterns along the Bicker Haven will be field walked to establish the presence of any unidentified sites and if there would, therefore, be any benefit in moving the line of the pipeline. The area to be walked will consist of a 200m wide corridor from the A17 at Bolle Hall cottage (TF24433795) to Wykes Lane at TF23813578.

7.2 The DTA will target a 1km corridor along the pipeline route.

8. Methods

8.1 The standards for the Desk-top Assessment are detailed in the **draft *Manual of Archaeological Practice*** produced by the Lincolnshire County Council Archaeology Section (the Manual). The sources which should be consulted can be found in appendix 5.

8.2 Field walking will be carried out on 30m transects..

8.3 The methodology which it is expected will be followed for the fieldwork is outlined in the Manual, section 10

8.4 The requirements of the recording system to be used are set out in section 11 of the Manual.

8.5 The requirements for artefact handling are set out in section 12 of the Manual.

9. Post-fieldwork programme

9.1 After completion of the final fieldwork phase of the project the following procedures should be undertaken:

9.1.1 that a site archive is produced and should be deposited with the receiving museum (see 11. below)

9.1.2 a full report is produced and deposited with the appropriate bodies, see 10.1 below.

10. Reporting requirements

10.1 As soon as possible after the fieldwork stage an interim report of the findings should be sent out. The results should then be included in the final report produced after the completion of the DTA.The requirements of the final report are detailed in section 14 of the Manual.

10.2 A short note should be prepared for publication in the Archaeological Notes of the county journal Lincolnshire History and Archaeology.

11. Archive Deposition

11.1 Arrangements must be made with the landowner(s) and/or developers and an appropriate museum for the deposition of the object and paper archive. If the receiving museum is to be the City and County Museum, Lincoln then the archive should be produced in the form outlined in that museum's document 'Conditions for the Acceptance of Project Archives', see address below.

12. Monitoring arrangements

12.1 Curatorial responsibility for this project lies with the Archaeological Officer of Lincolnshire County Council. He should be given at least seven days notice, in writing, of the proposed date of commencement of site work and may exercise his prerogative of monitoring fieldwork.

13. Additional information

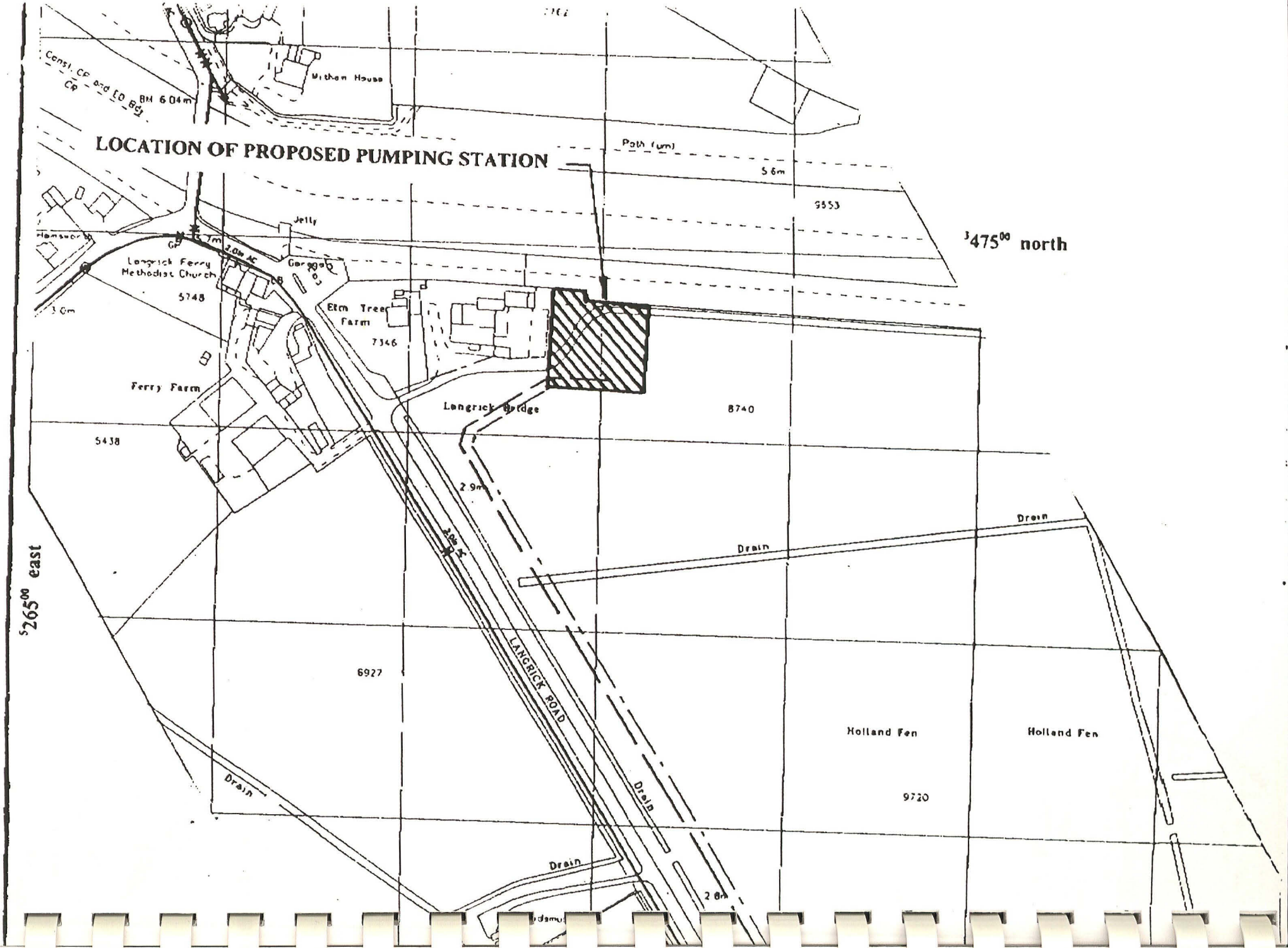
13.1 This document attempts to define the best practice expected of an archaeological evaluation but cannot fully anticipate the conditions that will be encountered as work progresses. If requirements of the brief cannot be met they should only be excluded after attainment of the written approval of the Archaeological Officer of Lincolnshire County Council.

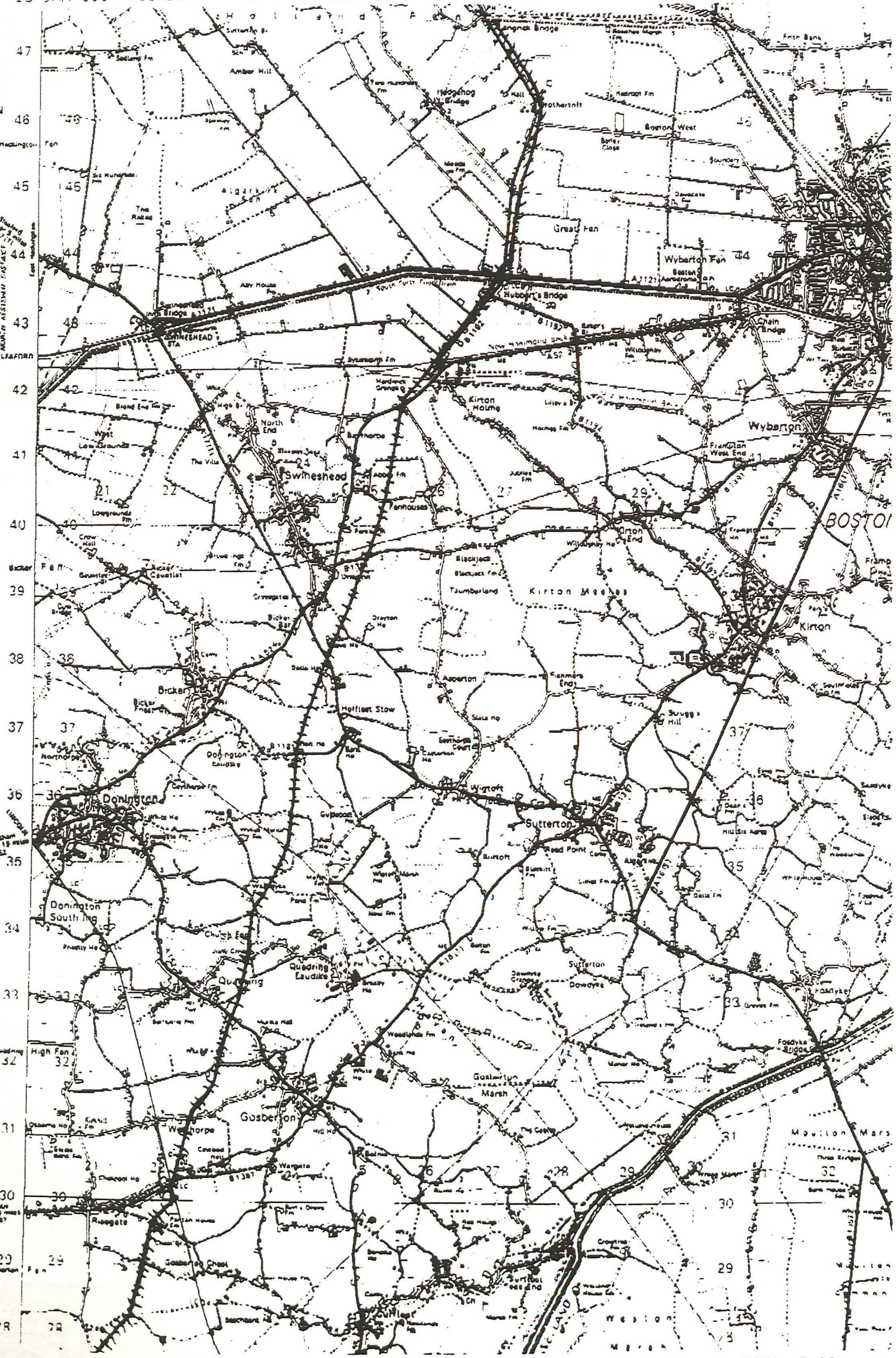
13.2 Contact addresses:

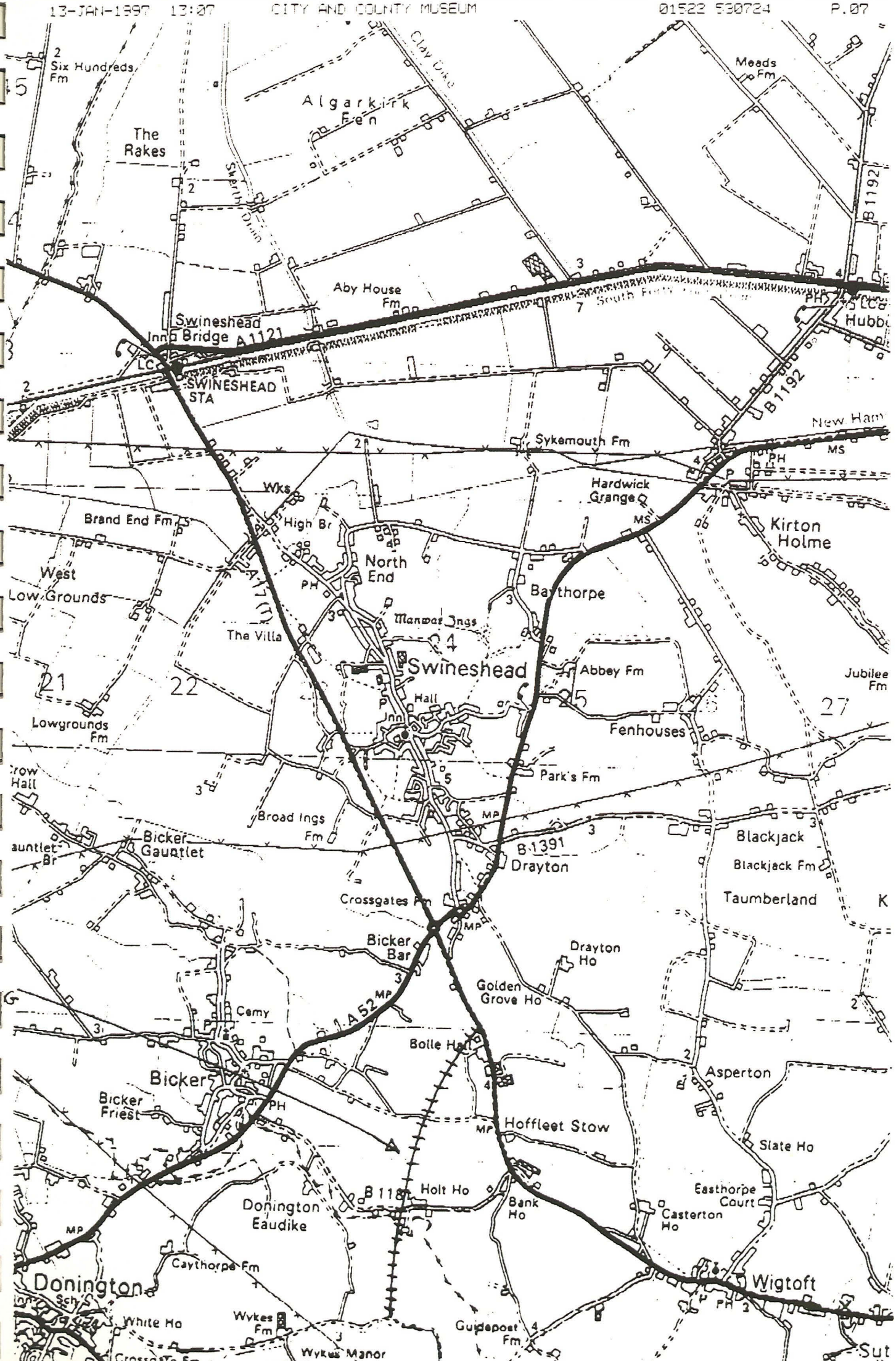
Mr B. Wadsworth
Anglian Water
Endurance House
Chivers Way
Histon
Cambs. CB4 4ZY Tel:01223 372611 Fax: 372166

Mr S Catney
Archaeological Officer
Lincolnshire County Council
12 Friars Lane
LINCOLN
LN2 5AL Tel: 01522 575292 or Fax: 01522 530724

Mr T Page
City and County Museum
12 Friars Lane
LINCOLN
LN2 5AL Tel: 01522 530401 or Fax: 01522 530724




Lat
53° N
Holland Fen
Amber Hill
Hedgehog Bridge
Brothertoft
Boston West
Algarkirk Fen
Great Fen
Wyberton Fen
Boston Aerodrome
Swineshead Bridge
Swineshead Sta
Hubbert's Bridge
Chain Bridge
Kirton Holme
Wyberton
Frampton West End
North End
Swineshead
Fenhouses
BOSTON
Kirton End
Bicker Fen
Bicker Gauntlet
Kirton Meeres
Kirton
Bicker
Hoffleet Stow
Northorpe
Donington
Wigtoft
Sutterton
Donington South Ing
Quadring
Quadring Eaudike
Sutterton Dowdyke
Fosdyke
Fosdyke Bridge
Gosberton Marsh
Gosberton
Westhorpe
Risegate
Gosberton Cheal
Surfleet
Moulton Marsh
Weston Marsh


Six Hundreds Fm
The Rakes
Algarkirk Fen
Clay Dike
Meads Fm
B1192
Aby House Fm
Swineshead Inn Bridge
A1121
LC
SWINESHEAD STA
Sykemouth Fm
New Ham
Hardwick Grange
Kirton Holme
Brand End Fm
High Br
North End
West Low Grounds
A17(T)
Barthorpe
Manwar Ings
The Villa
Swineshead
Abbey Fm
Jubilee Fm
Hall
Lowgrounds Fm
Fenhouses
Park's Fm
Broad Ings Fm
Bicker Gauntlet
B1391
Drayton
Blackjack
Blackjack Fm
Taumberland
Crossgates Fm
Bicker Bar
Drayton Ho
Golden Grove Ho
A52
Cemy
Bolle Hall
Asperton
Bicker
Bicker Friest
Hoffleet Stow
Slate Ho
B1180
Holt Ho
Bank Ho
Easthorpe Court
Casterton Ho
Donington Eaudike
Caythorpe Fm
Donington
Wigtoft
White Ho
Wykes Fm
Guidepost Fm
Wykes Manor
Crossgate Fm

APPENDIX 2

BICKER - FIELDWALKING ON PROPOSED WATER PIPELINE ROUTE

By Hilary Healey and Gary Taylor

CATEGORIES

P Prehistoric
R Roman, 50-400 AD
M Medieval, 900-1600 AD
PM Post-medieval, 1600AD-present

ITEM	DESCRIPTION	DATE	CATEGORY
1	stoneware pottery	18th-20th cent	PM
2	natural flint		
3	cinder (coal)		
4	Stamford ware	11th-12th century	M
5	white-glazed ceramic	19th-20th century	PM
6	stoneware pottery	18-19th century	PM
7	clay pipe	19th century	PM
8	flint-possible artefact; drain; blue and white transfer-printed pottery	?prehistoric; 20th century; 19th-20th century	P; PM; PM
9	5 pieces brick/tile; burnt clay	18th-20th century; ?	PM; ?
10	3 pieces flower pot; 2 pieces drain pipe	20th century; 19th-20th century	PM; PM
11	Stamford ware	11th-13th century	M
12	Bourne ware	13th-14th century	M
13	Lincoln ware	13-14th century	M
14	tile	?18th-20th century	PM
15	clay pipe	17th century	PM
16	white-glazed earthenware	19th-20th century	PM
17	clay pipe	19th century	PM
18	early medieval pottery	?13th century	M

19	unglazed earthenware	19th century	PM
20	black-glazed earthenware	18th-20th century	PM
21	Midland Purple type pottery	18th century	PM
22	oyster shell		
23	heavily burnt modern pot	18th-20th century	PM
24	clay pipe	18th century	PM
25	stoneware inkwell	18th-20th century	PM
26	black-glazed earthenware	18th-20th century	PM
27	2 pieces clay pipe	19th century	PM
28	white-glazed pottery	19th-20th century	PM
29	glass bottle neck	19th-20th century	PM
30	Stamford ware	10th-13th century	M
31	glass screw top bottle neck	20th century	PM
32	clay pipe	19th century	PM
33	Stamford ware; white-glazed pottery; clay pipe; 2 pieces clay pipe	10th-13th century; 18th-19th century; 19th century; 17th century	M; PM; PM; PM
34	Bourne ware pottery	13th century	M
35	Staffordshire slipware	18th century	PM
36	clay pipe	17th-18th century	PM
37	clay pipe	17th-18th century	PM
38	Stamford ware	11th-12th century	M
39	clay pipe	17th century	PM
40	Midland Purple pottery	18th century	PM
41	?rabbit bone		
42	clay pipe	17th-18th century	PM
43	Lincoln/Toynton pottery	14th century	M
44	clay pipe	18th century	PM
45	Midland Purple type pottery	18th century	PM
46	Stamford ware	11th-12th century	M
47	Midland Yellow pottery	17th-18th century	PM

48	black-glazed pottery; brown-glazed earthenware	18th-19th century; 18th-19th century	PM; PM
49	tile/brick	19th-20th century	PM
50	oyster shell		
51	burnt clay		
52	'willow pattern' pottery	19th century	PM
53	black-glazed earthenware	18th-20th century	PM
54	Bourne ware pottery	13th-14th century	M
55	4 pieces brick/tile	18th-20th century	PM
56	field drain	19th-20th century	PM
57	field drain	19th-20th century	PM
58	field drain	19th-20th century	PM
59	burnt clay		
60	iron object-?agricultural machinery		
61	brick	19th-20th century	PM
62	'willow pattern' pottery	19th century	PM
63	Bourne ware	13th-14th century	M
64	white-glazed pottery	18th-20th century	
65	flint artefact- Bronze Age scraper	2000-700 BC	P
66	plant pot	19th-20th century	PM
67	?drain pipe	20th century	PM
68	2 pieces brick/tile	19th-20th century	PM
70	black-glazed earthenware	18th-20th century	PM
71	2 pieces Bourne ware pottery	13th-14th century	M
72	3 pieces tile	19th-20th century	PM
73	Bourne ware	14th century	M
74	Bourne ware; flint, natural	13th-14th century;	M;
75	?Bourne ware pottery	13th-14th century	M
76	green glass	19th-20th century	PM
77	Potterhanworth type ware	13th-14th century	M

78	black-glazed earthenware; coal	18th-20th century	PM
79	tile	19th-20th century	PM
80	Toynton type ware; cinder	14th century;	M;
81	black-glazed earthenware; clay pipe	18th-20th century; 19th century	PM; PM
82	cinder; coal		
83	Bourne ware; white glazed pottery; 2 cinders	13th-14th century; 18th-20th century;	M; PM;
84	? Bourne ware; tile; 2 cinders	13th-14th century; 19th-20th century;	M; PM;
85	cinder (from saltmaking)		
86	Toynton type ware	14th century	M
87	Toynton ware	14th century	M
88	black-glazed earthenware	18th-20th century	PM
89	Stamford ware; black-glazed earthenware	10th-13th century; 18th-20th century	M; PM
90	Bourne ware; tile; 2 cinders; flint, natural	13th-14th century; 19th-20th century;	M; PM;
91	black-glazed earthenware	18th-20th century	PM
92	Bourne D ware	16th-17th century	M/PM
93	stoneware	18th-19th century	PM
94	Bourne ware; cinder	13th-14th century;	M;
95	black-glazed earthenware	18th-20th century	PM
96	tile	19th-20th century	PM
97	Staffordshire slipware	18th century	PM
98	2 pieces Bourne ware	13th-14th century	M
99	white glazed pottery	19th-20th century	PM
100	white glazed pottery	19th-20th century	PM

101	blue and white transfer printed pottery	19th-20th century	PM
102	Bourne type ware	13th-14th century	M
103	shelly ware ?Potterhanworth	13th-14th century	M
104	stoneware bottle/jar	17th century	PM
105	brown-glazed earthenware	18th-20th century	PM
106	Toynton ware pottery	14th century	M
107	sheep tooth		
108	stoneware	17th-18th century	PM
109	white glazed pottery	18th-20th century	PM
110	flint, natural		
111	field drain	19th-20th century	PM
112	stoneware	18th-20th century	PM
114	black-glazed earthenware	18th-20th century	PM
115	stoneware	18th century	PM
116	white glazed pottery	19th-20th century	PM
117	white glazed pottery	19th-20th century	PM
118	Bourne ware; Toynton ware; stoneware	13th-14th century; 14th century; 19th-20th century	M; M; PM
119	field drain	19th-20th century	PM
120	blue and white transfer printed pottery	18th-19th century	PM
121	Stamford ware	10th-13th century	M
122	white glazed pottery; moulded glass; drain; brick; burnt clay- hearth	19th-20th century; 19th-20th century; 19th-20th century; 18th-20th century;	PM; PM; PM; PM;
123	4 pieces tile; olive-green glass; burnt clay- hearth/hand made brick	19th-20th century; 19th-20th century;	PM; PM;
124	black-glazed earthenware; white glazed pottery; brick (handmade)	18th-20th century; 19th-20th century; 17th-19th century	PM; PM; PM

125	black-glazed earthenware; blue and white transfer printed pottery; brick/tile; 2 pieces burnt clay, 1 from a hearth	18th-20th century; 18th-19th century; 18th-20th century;	PM; PM; PM;
127	2 pieces brick; granite	18th-20th century;	PM;
128	brick	18th-20th century	PM
129	slag; granite		
130	developed Stamford ware	13th century	M
131	sandy fabric, footring		?R/M
132	black-glazed earthenware	18th-20th century	PM
133	Nottingham ware	13th-14th century	M
134	sheep tooth		
135	iron slag		
136	black-glazed earthenware	18th-20th century	PM
137	field drain	19th-20th century	PM
138	white glazed pottery	19th-20th century	PM
139	black-glazed earthenware	18th-20th century	PM
140	stoneware	19th century	PM
141	tile	19th-20th century	PM
142	Bourne ware pottery	13th-14th century	M
143	Bourne ware	13th-14th century	M
144	field drain	19th-20th century	PM
145	Bourne ware	13th-14th century	M
146	stoneware	18th-19th century	PM
147	pressed asbestos	20th century	PM
148	3 pieces Bourne ware; coke; slag	13th-14th century; 19th-20th century;	M; PM
149	2 pieces Bourne ware; 2 pieces slag; flint, natural	13th-14th century;	M;

150	3 pieces Bourne ware; black-glazed earthenware; tile	13th-14th century; 18th-20th century; 18th-20th century	M; PM; PM
151	2 pieces Bourne ware; tile; brick; clinker	13th-14th century; 18th-20th century; 18th-20th century;	M; PM; PM;
152	Bourne ware; black-glazed earthenware; limestone	13th-14th century; 18th-20th century;	M; PM;
153	Bourne ware; flint, natural	13th-14th century;	M;
154	Bourne ware; 2 pieces field drain; brick	13th-14th century; 19th-20th century; 18th-20th century	M; PM; PM
155	flint, natural		
156	black-glazed earthenware	18th-20th century	PM
157	2 pieces brick/tile	18th-20th century	PM
158	cattle bone		
159	horse tooth		
160	unidentified pottery	17th-18th century	PM
161	mottled ware	18th century	PM
162	limestone		
163	field drain	19th-20th century	PM
164	flint, natural		
165	clay pipe	19th century	PM
166	Bourne ware; pressed asbestos	13th-14th century; 20th century	M; PM
167	2 pieces Bourne ware; flint, natural	13th-14th century;	M;
168	Bourne ware; slag, modern; flint, natural	13th-14th century; 19th-20th century;	M; PM;
169	field drain	19th-20th century	PM
170	field drain	19th-20th century	PM
171	cattle tooth		

172	Toynton type pottery	14th century	M
173	field drain	19th-20th century	PM
174	brown-glazed earthenware; jet, cut/carved	18th-20th century;	PM;
175	black-glazed earthenware	18th-20th century	PM
176	Bourne ware	12th-13th century	M
177	Bourne ware	13th-14th century	M
178	black-glazed earthenware	18th-20th century	PM
179	?Bourne ware pottery	13th-14th century	M
180	Bourne ware pottery; field drain	12th-13th century; 19th-20th century	M; PM
181	Bourne ware pottery	13th-14th century	M
182	tile	18th-20th century	PM
183	drain pipe	19th-20th century	PM
184	Toynton ware	14th century	M
185	brown-glazed earthenware; burnt glass	18th-20th century; 18th-20th century	PM; PM
186	tile	18th-20th century	PM
187	Bourne ware	13th-14th century	M
188	?Bourne ware	?13th-14th century	M
189	brick/tile	19th-20th century	PM
190	2 pieces Bourne ware	13th-14th century	M
191	burnt glass bottle top	19th-20th century	PM
192	tile	18th-20th century	PM
193	brick/field drain	19th-20th century	PM
194	Bourne ware; tile/brick; flint, natural	13th-14th century; 18th-20th century;	M; PM;
195	Bourne ware	13th-14th century	M
196	Bourne ware	13th-14th century	M
197	2 pieces Bourne ware	13th-14th century	M
198	3 pieces slag		
199	black-glazed earthenware	18th-20th century	PM

200	Bourne ware pottery	13th-14th century	M
201	black-glazed earthenware	18th-20th century	PM
202	Toynton type ware	14th century	M
203	Bourne ware	13th-14th century	M
204	Bourne ware	13th-14th century	M
205	black-glazed earthenware	18th-20th century	PM
206	?Toynton type pottery	14th century	M
207	?Bourne ware	?13th-14th century	M
208	Bourne D ware	16th-17th century	M/PM
209	2 pieces tile	18th-20th century	PM
210	2 pieces tile	18th-20th century	PM
211	Bourne ware pottery	13th-14th century	M
212	stoneware pottery	18th-19th century	PM
213	china doll fragment?	17th-19th century	PM
214	Toynton type ware	14th century	M
215	Bourne ware pottery; brick/tile	13th-14th century; 19th-20th century	M; PM
216	Bourne ware pottery	13th-14th century	M
217	Bourne ware pottery	13th-14th century	M
218	Bourne D ware pottery	16th-17th century	M/PM
219	2 pieces Bourne ware pottery	13th-14th century	M
220	black-glazed earthenware	18th-20th century	PM
221	field drain/tile	19th-20th century	PM
222	willow pattern pottery	19th century	PM
223	black-glazed earthenware; clay pipe	18th-20th century; 19th century	PM; PM
224	field drain	19th-20th century	PM
225	Bourne D ware pottery	16th-17th century	M/PM
226	black-glazed earthenware	18th-20th century	PM
227	brick	19th-20th century	PM
228	tile/field drain	19th-20th century	PM
229	Toynton ware pottery	14th century	M

230	medieval pottery	13th-15th century	M
231	medieval pottery	13th-15th century	M
232	Bourne D ware pottery	16th-17th century	M/PM
233	Bourne D ware pottery	16th-17th century	M/PM
234	field drain	19th-20th century	PM
235	field drain	19th-20th century	PM
236		19th-20th century	PM
237	field drain		
238	field drain	19th-20th century	PM
239	field drain	19th-20th century	PM
240	field drain	19th-20th century	PM
241	brick	19th-20th century	PM
242	plant pot	20th century	PM
243	Bourne ware	13th-14th century	M
244	tile	19th-20th century	PM
245	Toynton ware	14th century	M
246	field drain; slag	19th-20th century;	PM
247	field drain	19th-20th century	PM

The clay pipe fragments are dated on the basis of bore diameter, which gradually got narrower through time. Although a date estimate is made for each individual piece, this may be subject to some error if the piece is atypical for the period. Nonetheless, all clay pipe fragments are categorised post-medieval in date.

The discovery of two pieces of granite may be of note. Large pieces of this material have previously been found in Bicker Haven, perhaps brought in as ballast on boats docking in the area during the medieval period. These pieces of the stone have been identified used as possible padstones in a medieval salt-making establishment in the area (H Healey, pers comm) However, the importance of the material perhaps should not be over-stressed as it is also used as hardcore in field gateways and entrances.

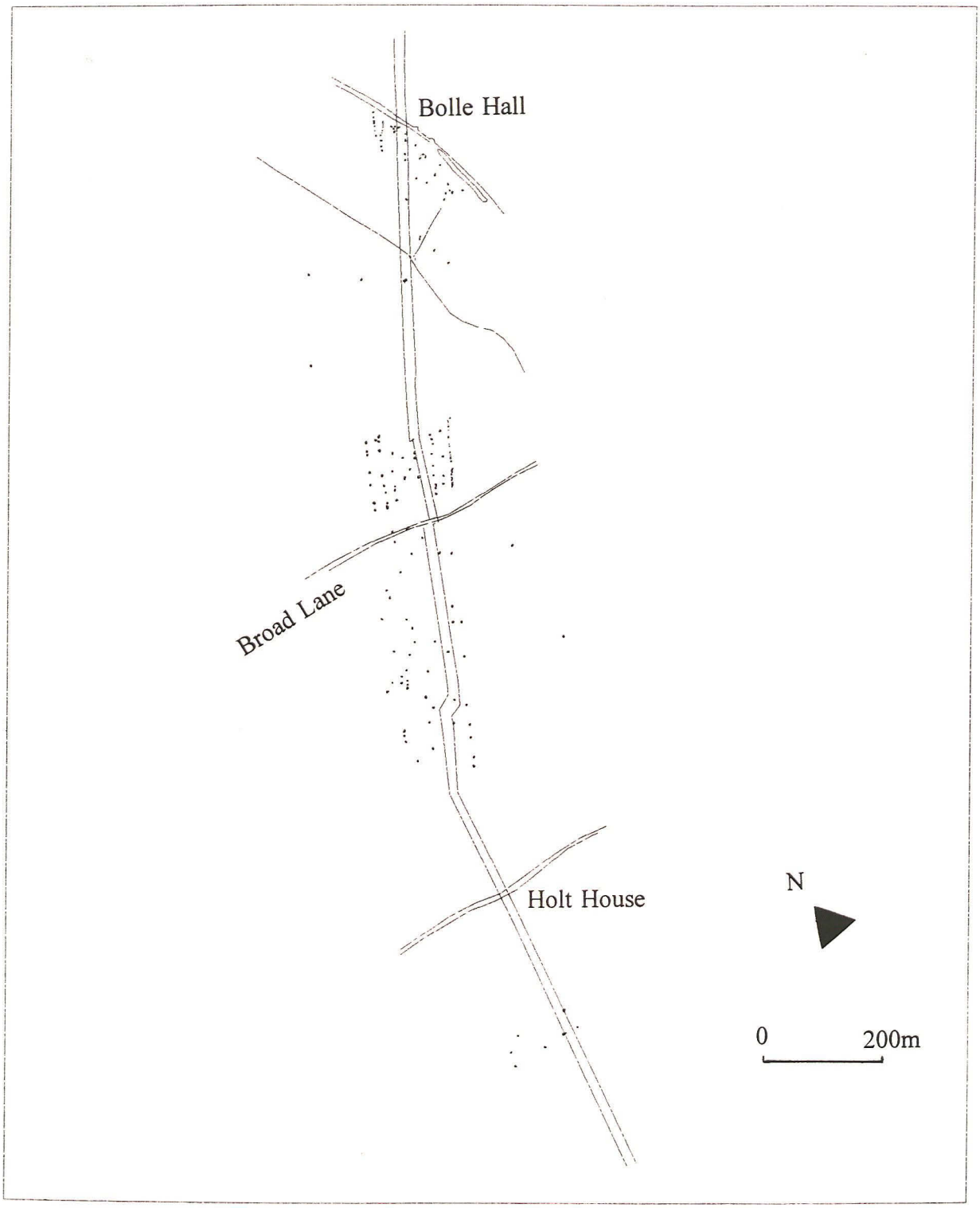
The recovery of a least one prehistoric artefact is unusual in this area. Previous investigations in the general vicinity have shown that the Bronze Age land surface is up to 7m below the present ground level, far beyond the level of disturbance that may be caused by ploughing or laying field drains (T Lane, pers comm). Consequently, unless there has been some particularly deep intrusions into the ground that may have brought the prehistoric artefacts to the surface, it is perhaps more likely that they have been introduced to the area from

elsewhere.

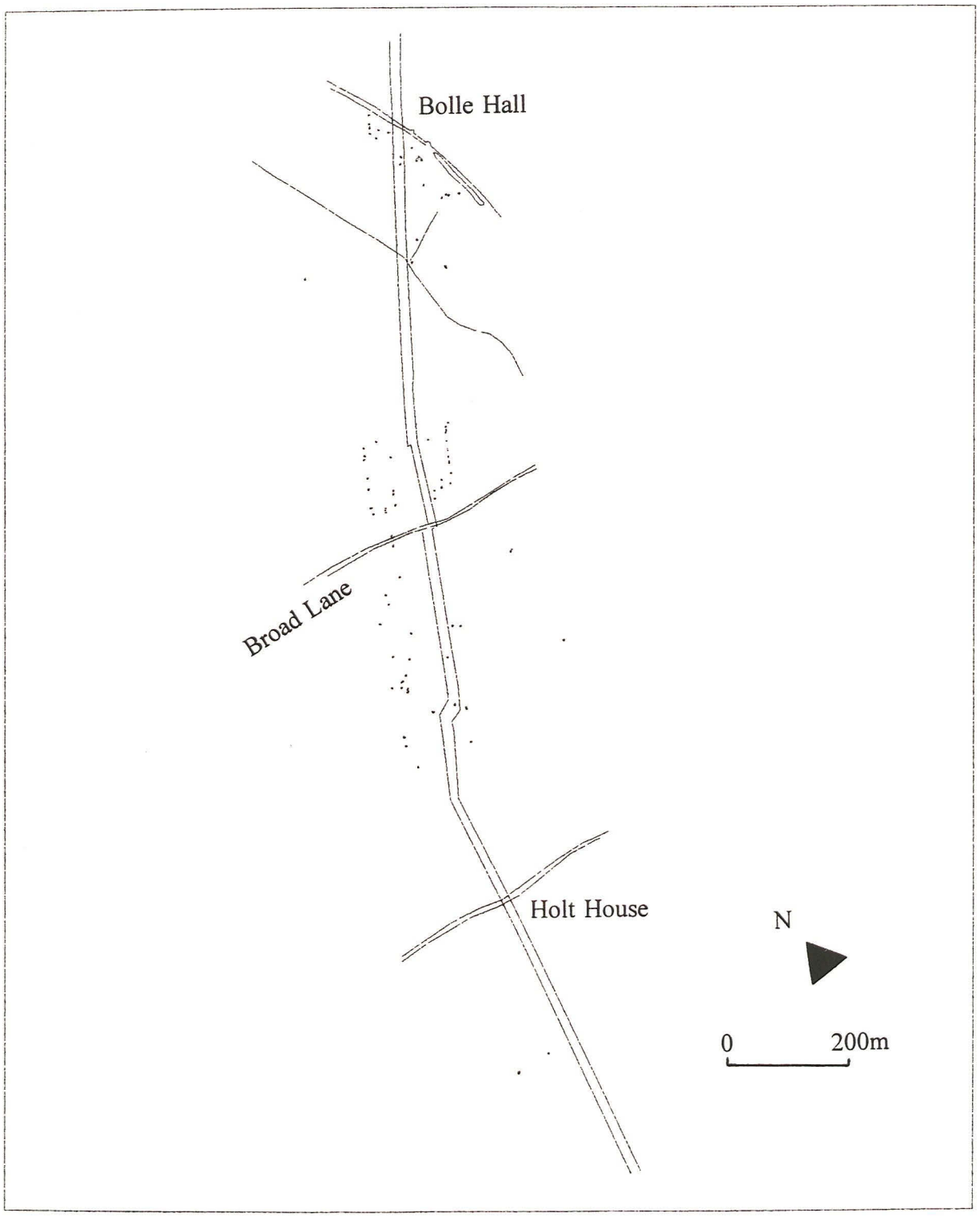
A fragment of pottery in an unidentified sandy fabric and possessing a footring was recovered. Although the fabric was not recognised and could be Roman or medieval in date, the presence of a footring is more of a Roman trait, such features generally not being reintroduced until the post-medieval period. However, the piece is the only recovered possible Roman artefact.

There are no distinctly evident concentrations of artefacts of either medieval or post-medieval date. Artefacts of both periods are more numerous in the area around Bolle Hall, at the northern limit of the fieldwalked area and also where the proposed pipeline route crosses Broad Lane, though at both locations the visibility was particularly good. However, in the absence of any distinct concentrations it is probable that most of the artefactual material was deposited on the fields as a component of manuring scatter.

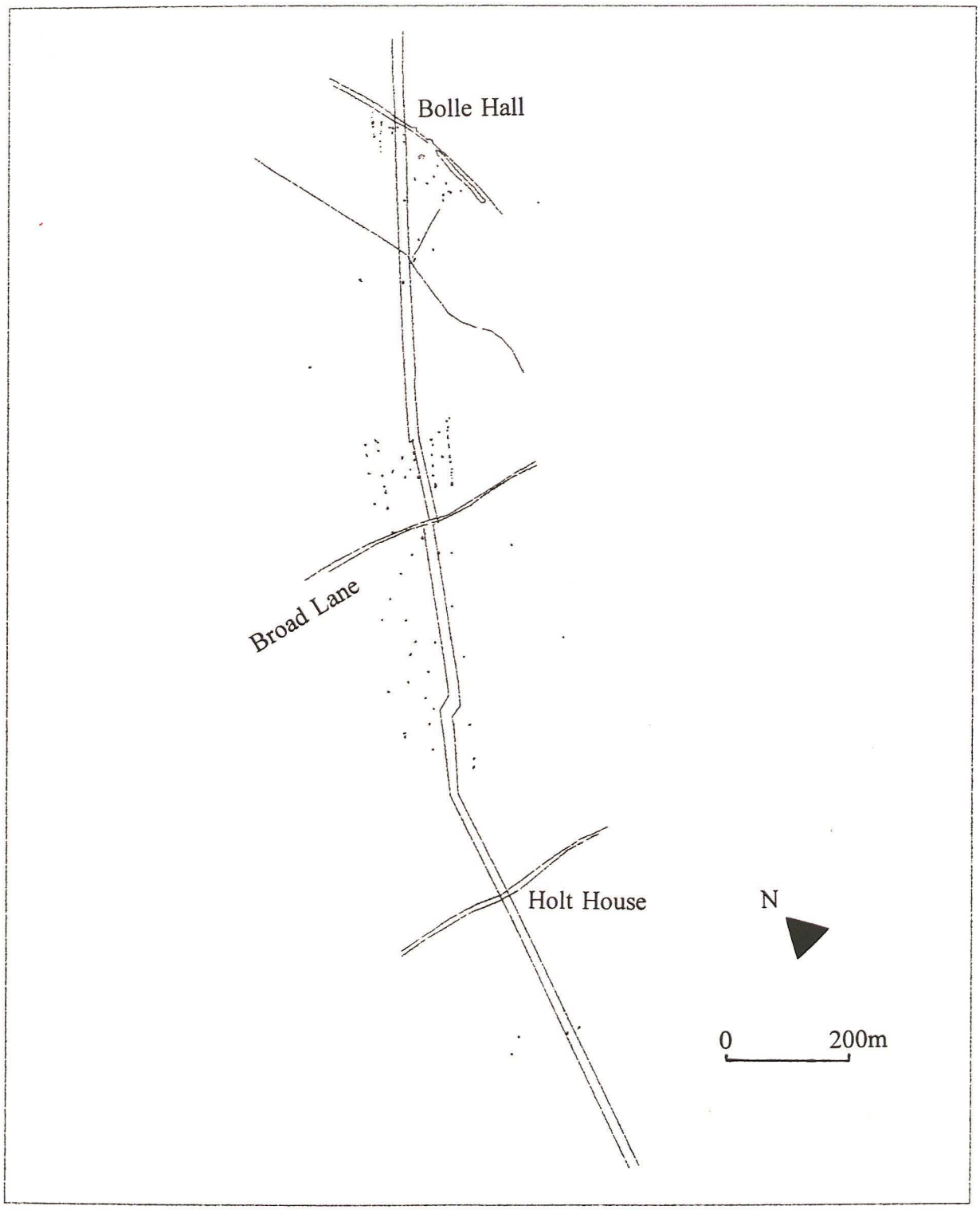
The extract of the Ordnance Survey map shows the area around Bicker with the proposed pipeline route (dotted line). The locations of Late Saxon-early medieval sea banks are depicted as heavy dashed lines. The locations of saltern mounds are depicted by finer dashed lines. The salt-making industry represented by these mounds gradually moved seaward through time, following the retreating coastline. South of Holt House the saltern mounds are so numerous that there is no way around them. Although the mounds are only waste heaps (mainly of silt) they could overlie hearths (as previous discoveries have shown).



Plot of Medieval & Post Medieval Finds
Along Route of Pipeline



Plot of Medieval Finds
Along Route of Pipeline



Plot of Post Medieval Finds
Along Route of Pipeline

APPENDIX 3

Secretary of State's criteria for scheduling Ancient Monuments - Extract from *Archaeology and Planning* DoE Planning Policy Guidance note 16, November 1990

The following criteria (which are not in any order of ranking), are used for assessing the national importance of an ancient monument and considering whether scheduling is appropriate. The criteria should not however be regarded as definitive; rather they are indicators which contribute to a wider judgement based on the individual circumstances of a case.

i *Period*: all types of monuments that characterise a category or period should be considered for preservation.

ii *Rarity*: there are some monument categories which in certain periods are so scarce that all surviving examples which retain some archaeological potential should be preserved. In general, however, a selection must be made which portrays the typical and commonplace as well as the rare. This process should take account of all aspects of the distribution of a particular class of monument, both in a national and regional context.

iii *Documentation*: the significance of a monument may be enhanced by the existence of records of previous investigation or, in the case of more recent monuments, by the supporting evidence of contemporary written records.

iv *Group value*: the value of a single monument (such as a field system) may be greatly enhanced by its association with related contemporary monuments (such as a settlement or cemetery) or with monuments of different periods. In some cases, it is preferable to protect the complete group of monuments, including associated and adjacent land, rather than to protect isolated monuments within the group.

v *Survival/Condition*: the survival of a monument's archaeological potential both above and below ground is a particularly important consideration and should be assessed in relation to its present condition and surviving features.

vi *Fragility/Vulnerability*: highly important archaeological evidence from some field monuments can be destroyed by a single ploughing or unsympathetic treatment; vulnerable monuments of this nature would particularly benefit from the statutory protection that scheduling confers. There are also existing standing structures of particular form or complexity whose value can again be severely reduced by neglect or careless treatment and which are similarly well suited by scheduled monument protection, even if these structures are already listed buildings.

vii *Diversity*: some monuments may be selected for scheduling because they possess a combination of high quality features, others because of a single important attribute.

viii *Potential*: on occasion, the nature of the evidence cannot be specified precisely but it may still be possible to document reasons anticipating its existence and importance and so to demonstrate the justification for scheduling. This is usually confined to sites rather than upstanding monuments.

APPENDIX 4

Glossary

Anaerobic	Conditions of preservation that rely upon a deficit of oxygen and a surplus of water.
Anglo-Saxon	Pertaining to the early part of the Saxon period and dating from approximately AD 450-650.
Bronze Age	Part of the prehistoric era characterised by the introduction and use of bronze for tools and weapons. In Britain this period dates from approximately 2000-700 BC.
Cropmark	A mark that is produced by the effect of underlying archaeological features influencing the growth of a particular crop.
Geophysical Survey	Essentially non-invasive methods of examining below the ground surface by measuring deviations in the physical properties and characteristics of the earth. Techniques include magnetometery survey and resistivity survey.
Droveway	Area between two parallel ditches that was designed specifically for the corralling of livestock.
Enclosure	Area bounded by a ditch along the majority of its perimeter.
Hollow-way	Sunken feature resulting from the degradation and erosion of a frequently used routeway.
Iron Age	Part of the prehistoric era characterised by the introduction and use of iron for tools and weapons. In Britain this period dates from approximately 700 BC - AD 50.
Medieval	The Middle Ages, dating from approximately AD 1066-1500.
Natural	Undisturbed deposit(s) of soil or rock which have accumulated without the influence of human activity.
Neolithic	The 'New Stone Age' period, part of the prehistoric era, dating from approximately 4000-2000 BC.
Post-medieval	The period following the Middle Ages, dating from approximately AD 1500-1800.
Prehistoric	The period of human history prior to the introduction of writing. In Britain the prehistoric period lasts from the first evidence of human occupation about 500,000 BC, until the Roman invasion in the middle of the 1st century AD.
Romano-British	Pertaining to the period dating from AD 43-410 when the Romans occupied Britain.