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LINDSEY ARCHAEOLOGICAL SERVICES

## **Bracebridge Heath - Canwick Mains Replacement Scheme**

### **Mains Laying in Bracebridge Heath**

*NGR: SK 980 665 - SK 987 680  
Site Code: BHC 98  
LCNCC Museum Accn. No. 137.98*

### **Archaeological Watching Brief**

**Report prepared for Anglian Water Services Ltd**

**by G. Tann**

CROXLEY  
heritage

**LAS Report No. 413  
April 2000**

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Lancashire County Council  
Archaeology Section  
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# Bracebridge Heath - Canwick Mains Replacement Scheme

## Mains Laying in Bracebridge Heath

### Archaeological Watching Brief

NGR: SK 980 665 - SK 987 680

Site Code: BHC 98

LCNCC Museum Accn. No. 137.98

#### Summary

*Monitoring of trenching for a new water main identified road metalling from the Roman Ermine Street passing through Bracebridge Heath. The work confirmed the alignment of the road where it diverges from the A607 Grantham Road, but was unable to locate it much further north. No road metalling was seen below the A15 Sleaford Road within the extent of this scheme, and it remains unclear whether the Roman road identified closer to Waddington airbase on a previous project enters Lincoln on the same course or whether it follows a straight alignment diverging east of Sleaford Road. An area of ground suspected to have formed part of a World War II airbase or depot was found to the west of Sleaford Road within a housing estate. No other features of interest were recorded.*

#### Introduction

Lindsey Archaeological Services (LAS) was commissioned by Anglian Water Services Ltd in May 1998 to conduct an archaeological watching brief during the laying of a replacement water main in Bracebridge Heath (Fig. 1). The works formed part of a more extensive scheme which included Canwick. Monitoring of the Bracebridge Heath section had been requested by the County Archaeological Officer in a letter to the Conservation Section of Anglian Water Services Ltd, dated 27th April 1998.

The trenching was monitored intermittently by Geoff Tann between 2nd June 1998 and 30th March 1999. This mains-laying project was initially conducted by up to five teams of contractors, but in early September 1998 this workforce was reduced, and the project duration was extended longer than anticipated. Monitoring attempted to inspect all lengths of trench within the specified streets while they were open, but this became impossible to maintain. A total of 57 visits were made.

This report should be read in conjunction with LAS reports on pipe-laying schemes at Waddington, and from Bracebridge Heath to Dunston (Tann1999; Tann, Armour-Chelu and Williams 2000). Two separate trenches were opened along Grantham Road, one as part of the Bracebridge Heath to Dunston scheme, and one as part of the Bracebridge Heath to Canwick scheme. The observations from both trenches were similar and all information from Grantham Road is presented in this report.

#### Archaeological Background

The A607 Grantham Road partly follows the route of the Roman road Ermine Street, with its associated ditches, banks and road metalling. The alignment of this Roman road (as indicated by the Ordnance Survey) is also crossed by Red Hall Avenue, Red Hall Farm Lane, and Kennedy Road.

Previous archaeological work had found associated Roman burials at the Waddington/Bracebridge Heath parish boundary east of Grantham Road and further remains were anticipated. A trench across the A15 Sleaford Road between Bracebridge Heath and Waddington airbase for another mains-laying scheme revealed a gravel metalled surface on a limestone bedding, and this road is now believed to overlie a Roman road (Tann, Armour-Chelu and Williams 2000). It was hoped that further information about this road could be obtained. There was also particular interest in specific locations within Bracebridge Heath, including the junction of Grantham Road and Sleaford Road, the parish boundary on Canwick Avenue, and within the housing estates either side of Grantham Road.

### **The Watching Brief**

The length of pipeline in this scheme identified as being of potential archaeological interest was about 3.6km along the A15 and A607, and a further 2.6km on side roads. Observations were given consecutive numbers by LAS for recording purposes (starting at 20); the position of each observation noted in the report is shown on Fig. 2. Locations and descriptions of all observations are provided in Appendix 1, and their numbers are shown in bold in the following account.

#### **Grantham Road (Fig. 2)**

If the Roman road alignment through Waddington airbase, labelled as Ermine Street by the Ordnance Survey, is projected to the north, it passes the archaeological excavation site south of 173 Grantham Road where the western ditch of the Roman road was identified (Tann, Armour-Chelu and Williams 2000). The eastern ditch was not definitely established, but was tentatively recognised 14m further east. The position of the road was identified from fine gravel deposits found within the fills of the roadside ditch and adjacent features. The road itself had been entirely removed by ploughing at this point, but metalling had washed into the ditches during silting. A continuation of the eastern side of that course meets the eastern pavement of the modern Grantham Road where a track leads to allotments, 35m south of Heath Road. The present road has completely diverged from the Roman course south of 163 Grantham Road.

The new water main trenches were laid along the eastern edge of the carriageway. Trenching for the new water main was closely watched from just south of 120 Grantham Road in case more inhumations or cremations were present west of the Roman road. In this position **36**, about 60m west of the Roman road, a sequence of the present road overlying a medieval forerunner, above limestone bedrock was anticipated. The presence of a 0.02m thick layer of fine gravel, beneath the asphalt foundation and above a 0.35m thick layer of crushed limestone, was puzzling because of its similarity with the Roman road. The existing road here is 0.7m higher than the former ground level (marked by a thick layer of brown clay loam) and 1.2m above the limestone bedrock (Pls. 1 and 2).

Outside 171 Grantham Road, 80m NE of **36**, the foundation of the existing road was recorded in greater detail **34**. Below 0.5m of tarmac surface was a 0.14m thick layer of gravel, about 30mm diameter, forming three lenses in places. Below the gravel was a 0.06m thick layer of limestone dust,



covering a second layer of gravel 0.17m thick. This covered 0.5m of limestone dust and fine stone rubble, which overlay the brown clay loam recorded at other locations. The sequence here suggests a deliberately raised road which has been surfaced with gravel at intervals, and which developed into the modern road.

It is assumed that Grantham Road (formerly called Broad Way, and recently demonstrated at Waddington village to overlie a seventh-century cemetery) may have been constructed using very similar materials to Ermine Street, but this observation introduces the need for caution. The trench was positioned close to the modern road edge, and may have been within a much more recent widening of the medieval road. There is no certainty that gravel metalling overlying a crushed limestone bedding indicates that a road in this vicinity is of Roman date. There is the slight possibility that **36** exposed a minor Roman track leading west from Ermine Street to the known settlement site west of Grantham Road, but this is unlikely. No gravel metalling was seen 30m north of that observation, at **35**, but the modern road there was raised a similar height above the brown clay loam former ground surface (Pls. 3 and 4).

The most southerly tentative evidence for Ermine Street was 60m south of Heath Road **31**, south of the allotment track (Pls. 5, 6 and 7). The tarmac road sealed 0.45m of gravel, and beneath the gravel was a 0.3m thick bedding of crushed limestone. At the base of the trench was at least 0.45m of brown clay loam. The greater thickness of gravel here coincides with the projected western edge of the Roman road. One possible interpretation is that here the fill of the western Roman road ditch was revealed, and that the limestone and gravel represent either slumped material from the road, or a widening of the Roman carriageway across its original flanking ditch. Similar indications of the road being constructed over a backfilled ditch were recorded near 149 Grantham Road **30**, and 133 Grantham Road **29**; in both instances the tarmac covered about 0.2m of gravel, bedded on 0.2m-0.27m of crushed limestone, with over 0.9m of brown loam below which might represent the eastern ditch (Pls. 8 and 9).

At the junction of Heath Road with Grantham Road **37**, a north-south aligned ditch was seen below the modern road, with an upcast bank to the east (Fig. 3). This was interpreted as the eastern ditch flanking Ermine Street. The ditch here was at least 4.5m wide, with its base over 1.3m below the road surface. The road junction is on a slope here, with Grantham Road on the Roman raised carriageway or *agger*, and Heath Road on the former ground level (Pl. 10). The steepness of the slope has been reduced by modern raising of the west end of Heath Road.

The sightings at **30** and **29**, which suggested that the eastern ditch of the Roman road was below the side of the modern road, indicate that the Roman road alignment is not centred on Grantham Road for more than a few metres either side of the Heath Road junction. The evidence is of the Roman road gradually crossing towards the west before the two alignments diverge completely beside the reservoir/pumping station. At the junction of Bentley Drive **27**, the gravel metalled surfaces of the old

road were only present in the centre of the modern carriageway, removed by modern services to the west. On the eastern edge of the road, no gravel was visible in the pipe trench until the junction of St. John's Road **81**, although the sequence just south of the junction with St. John's Road **26** suggested that stone rubble was present over a soil-filled feature. This could possibly represent post-medieval material extending Grantham Road over the Roman ditch.

Outside the entrance to the reservoir/pumping station, a trench on the western side of the road **24** showed that the post-medieval road had been laid on the exposed gravel surface of Ermine Street (Pls. 11 and 12). Most of the early road here had been removed by recent service trenches.

As anticipated, Ermine Street continued to the north where Grantham Road turned to the NE. To the south of 81 Grantham Road **22**, the 0.35m thick tarmac road was constructed on 0.3m of limestone rubble, covering brown clay loam. It was unclear whether this was on the fill of the Roman eastern ditch or whether this was ground to the east. As bedrock was found 0.6m below the surface 70m to the NE at **21**, it is probable that **22** lay over the ditch.

At 20 Grantham Road **20**, a spread of gravel was seen below the tarmac in the centre of the road. On the eastern side of the road, only limestone rubble was present. This sighting was interpreted as a gravel surface of a medieval or later form of Grantham Road, since widened to the east. No deposits of any interest were seen in trenches excavated at the junction of Grantham Road and Sleaford Road/London Road near the John Bull public house.

#### **Jensen Road (Fig. 2)**

Trenching was monitored along Jensen Road, west of Grantham Road, in case any remains associated with the known Roman settlement SW of the estate were revealed.

At the east end of the road, at the junction with Grantham Road **73**, the modern road and its foundation covered a 0.3m thick layer of loam, with slightly darker loam to beneath the trench base. At 70 Jensen Road **78**, bedrock was reached 1m below the surface. The depth of material indicates that this point encountered an archaeological feature, probably the western ditch of the Roman road.

Limestone bedrock was not at a uniform level below the road, varying between 0.45m and 0.55m. Between 34-40 Jensen Road **75**, three 2m wide features were seen, cut to beneath the trench base and filled with soil and 15% limestone. These were thought to be too deep to be medieval plough furrows, but no dating evidence was present.

#### **Kennedy Road (Fig. 4)**

Monitoring of trenching along Kennedy Road from Ridge View Road revealed nothing of interest west of Home Close. In front of Kennedy Lodge **63** a broad ditch was exposed, with pitched limestone rubble to the east (Fig. 5). This was definitely Ermine Street, and it was confirmed to lie on the course



indicated by the Ordnance Survey (Pls. 13 and 14). Unfortunately, the pipe trench section across the Roman road was not at 90°, and the measurements of width are not those of a cross-section through it. Land to the west, in the rear garden of 44 Grantham Road, is at a considerably lower level, and seems to be within a former limestone quarry. This quarry may have extended across the present position of Kennedy Road, as backfill material of brick rubble was found filling a deep feature which had removed the eastern side of the road ditch.

#### **Red Hall Farm Lane (Fig. 4)**

The next expected opportunity to see Ermine Street to the north of Kennedy Road in the trenches for the new main was along Red Hall Farm Lane, where a footpath is thought to follow the course of the Roman road (Pl. 15). Beside the footpath **57**, a series of existing service trenches had removed any sign of road metalling or roadside ditches. Other observations along this lane were inconclusive, partly because no solid bedrock was encountered. It was unclear whether this marked a change in the natural deposits or whether all this area had been disturbed in the past to depths over 1.2m.

At the eastern end of the lane, at the junction with London Road **54**, bedrock was seen at 1.3m below the modern road (Pl. 16). This might be evidence for a roadside ditch beside a Roman precursor of Sleaford Road.

The ground level of the lane dropped marked to the west of the electricity substation east of the footpath **56**. Although this was suspected to indicate a ditch (potentially on either side of the Roman road) no trace was found. Gravel seen below the lane at the rear of 4 Red Hall Drive **55**, may have been localised post-medieval metalling of the lane. A slight peak in the lane is visible to the west of No. 23 **61**, but this is much further west than the projected alignment and is probably the result of the lane crossing a feature such as a medieval field bank.

#### **Red Hall Drive (Fig. 4)**

Observations in this modern housing estate were inconclusive, but the indications of deeper soil deposits along the projected alignment of the Roman road can be interpreted as fill of one or more backfilled roadside ditch. No evidence for road metalling was found, and the limestone rubble could not be identified as road foundation material. This loss of the metalled carriageway coincides with an estate layout that was apparently unconstricted by land boundaries relating to the Roman road; this may be evidence that post-Roman land use in this area removed the tradition of a right of way.

An indication of the depth of undisturbed natural deposits to the east of the Roman road was garnered 50m east of the projected line, beside 5 Red Hall Drive **45**. The bedrock here was 0.5m below the modern road surface, reducing to 0.2m at **44**, outside No. 2. Immediately to the west at **46**, the sequence became much less clear, with very mixed deposits of clay loam with limestone rubble. Across the public footpath **47** following the line of Ermine Street, the path overlay brown loam, with bedrock at about 0.8m deep on the west side of the path **48** where the trench exposed it (Pls. 17 and

18). The width of this brown loam was about 10m, too wide to be the fill of the expected ditch if the trench crossed it at 90°. Another opportunity was taken to look for the road ditch in a trench about 30m to the north, outside 2 Churchill Avenue **52**. Here the sequence was much simpler, with the modern tarmac road with 0.09m thick stone bedding layer overlying brown loam at least 0.7m thick. The brown loam was seen in a number of holes dug across the road, and seemed to be fill of a ditch.

A post-medieval feature of unknown nature was seen between 30 and 38 Red Hall Drive **51**. Beneath the make-up for the estate road was a 0.12m thick layer of black soil with brick fragments, overlying 0.12m of disturbed limestone. The layer either represents demolition rubble or brickyard waste, introduced as hardcore to level a depression.

#### **London Road** (Figs. 4 and 6)

The northern end of the monitored works was at about 400m north of the junction with Canwick Avenue **80**, and the new main was laid along the western edge of the road. There was no trace of Roman road metalling or a recognisable roadside ditch anywhere within the monitored stretch of London Road.

At the junction of Stanley Crescent **62**, the foundation for the estate road covered a layer of 0.15m thick limestone slabs. These were not thought to be older than the estate road, but their function remains unknown. All deposits in this area were disturbed, and a local resident suggested that this had been the site of a reservoir prior to construction of the houses.

#### **Davy's Lane** (Fig. 7)

The tarmac surface of this lane had been constructed on a thick deposit of crushed brick **67**, which extended below the trench base (Pls. 19 and 20). It is possible that the new trench was completely within the backfill of an earlier broad service trench, but Davy's Lane may be constructed over a backfilled stone quarry pit, using brickyard waste.

#### **Sleaford Road** (Fig. 7)

During installation of a watermain between Bracebridge Heath and Dunston in 1998, a compacted metalled road surface and flanking ditches were found beneath the A15 Sleaford Road about 700m SE of Bracebridge Heath, 450m NW of the Waddington airbase (Tann, Armour-Chelu and Williams 2000). As was cautioned above, there is no certainty that gravel metalling overlying a crushed limestone bedding indicates that a road in this vicinity is of Roman date. Although there is no dating evidence for the suggested Roman road below Sleaford Road, the sequence of raised carriageway between flanking ditches is a characteristic of Roman long-distance roads, and the metalling recorded there was in successive compacted layers.

All trenches observed to the SE of Main Avenue **64** contained a similar sequence which could represent fill of a roadside ditch (Pls. 21 and 22). The modern tarmac surface, 0.3m thick, was



bedded on 0.25m of limestone chips. This rested on 0.05m of crushed limestone, with over 0.6m of loam with infrequent limestone rubble at the trench base.

During the Mains Replacement Scheme, nothing representing a Roman road carriageway was seen along Sleaford Road in Bracebridge Heath, and the line of the road through the settlement may not be that of the modern road. If the Roman road diverged to the east, some trace would have been expected along Canwick Avenue.

#### **Canwick Avenue (Fig. 8)**

The Bracebridge Heath/Canwick parish junction crosses Canwick Avenue east of the former St. John's Hospital site, and this point **40** was selected as of particular archaeological interest by the County Archaeologist. The trenching of this particular section was conducted between monitoring visits but nothing was reported. To the immediate east and west, only foundation material for Canwick Avenue was seen, heavily disturbed by existing service trenches (Pl. 23). Only two features unrelated to the existing road were observed along Canwick Avenue. At the eastern end of the road **38**, where the road turns a sharp bend towards Mill Lodge, a farm track leads off to the south towards Canwick Manor Farm. Here the 0.7m thick modern road sealed a 0.3m thick layer of gravel, over 0.2m of brown loam. Limestone bedrock was 1.2m below the road surface. The observation was interpreted as a medieval or later metalled track continuing the line of the existing track (towards Canwick village), and pre-dating Canwick Avenue.

22m east of the track to Canwick Cottage, a 2.5m wide feature **39** was seen only in the southern face of the trench (which was positioned on the northern edge of the road). The base of the feature was over 1.2m deeper than the road, and had apparently been cut into the bedrock. This may represent a tree-hole, or an artificial feature of unknown function.

#### **Western Avenue (Fig. 7)**

The pipe trench showed that the modern estate road overlies a concrete road foundation **79**, with the ground below disturbed. This could be evidence of wartime landuse associated with the former aircraft hangars east of Sleaford Road.

### **Conclusion**

The watching brief found that most of the monitored ground had been considerably disturbed in the past when other services had been installed. This had already removed archaeological information, and the effect of this project was much less damaging than could have been expected from such an intensive scheme close to Roman roads.

Although the project produced no new findspots, it allowed clarification and confirmation of the position of the carriageway of Ermine Street, and produced a body of data which may become more

meaningful after other interventions in the area. The project has raised a number of questions which further targeted work in the future might resolve:

- Better information about the date and construction of the post-Roman Grantham Road would be useful, and allow the distinction between the Roman and later phases to be made
- Close definition of the Roman carriageway and flanking ditches would be useful, especially within the parts of Bracebridge Heath where the road does not seem to have been truncated by ploughing
- The position of the road across Red Hall Farm Lane and Red Hall Drive remains to be established
- The course of the eastern Roman road through Bracebridge Heath is still uncertain, although the lack of sightings elsewhere indicates that it may be below Sleaford Road despite the alignment not being straight

### **Acknowledgements**

LAS is grateful to Anglian Water Services Ltd, and their contractors Morrisons, for their help. The course of the Roman road south of Waddington airbase was discussed at length with Dr. Alan Vince in an attempt to explain its apparent absence in all the monitored trenches within this scheme. A geophysical survey of a small piece of ground on South Common was undertaken by Colin Palmer-Brown (Pre-Construct Archaeology) at no cost to this project, but this was unable to shed further light. Their interest in this problem was appreciated.

Illustrations were prepared by Mick McDaid and Naomi Field. The report was collated and produced by Jane Frost and Naomi Field.

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17th March 2000

### **References**

- Tann, G. 1999 *Waddington Replacements: Grantham Road Water Main, Archaeological Watching Brief*. LAS Report No. 351, April 1999.
- Tann, G., Armour-Chelu, R., and Williams, M. 2000 *Dunston Nitrate Blending Scheme: Archaeological Monitoring and Excavations during groundworks for a water pipeline through Bracebridge Heath, Waddington and Dunston, Lincs*. LAS Report No. 359. March 2000.

### **Archive Summary**

Photographs (colour prints, LAS film nos. 98/23/6, 22-25,28-29; 98/67/0, 4,5; 98/69/1-3; 98/80/1,2; 98/87/13,14; 98/89/8-15; 98/90/12-14; 98/112/15,17-33; 98/116/9,10; 98/119/4-9; 98/128/33,34; 99/14/16-24; 99/15/13-15; 99/17/24-26; 99/18/10-14,28-37; 99/30/0-6) including those used in this report

Annotated Anglian Water Services plans  
Correspondence  
Field notes/sketches



**APPENDIX 1**

**BHC 98 List of Observations**



## BHC 98 List of Observations

Obs. No.	Location	Description	Interpretation/Comments
20	20 Grantham Road	gravel seen in centre of road below tarmac, but only limestone present on east side of road.	Gravel may be medieval or later road metalling layer, with east edge of road now wider than in antiquity.
21	71 Grantham Road	0.2m tarmac, over 0.4m loam, with limestone bedrock below.	
22	81 Grantham Road	tarmac 0.35m, over 0.3m limestone, over brown loam.	Post-Roman road, built over either Roman roadside ditch or undeveloped land.
23	opposite reservoir, Grantham Road	base of gravel metalling 0.4m, base of crushed rock 0.6m. No rock visible in soil below.	Approaching southern edge of Roman road.
24	Entrance to reservoir, Grantham Road	Trench 2.4m from north verge. 0.3m tarmac, 0.01m post-medieval grey soil and gravel, 0.15m Roman gravel metalling, 0.15m crushed rock, 0.4m mixed soil and rock, over red brown soil at trench base.	Reuse of Roman road surface.
25	North side of reservoir entrance, Grantham Road	thin peak of surviving limestone rubble surviving under verge between pavement and modern road.	Roman road foundation, badly damaged by modern service trenches.
26	84 Grantham Road	0.22m tarmac, 0.05m stone chips, over 0.07m gravel, and 0.22m limestone rubble. Mixed rock and soil 1.5m below modern road surface.	Roman road below modern road.
26	99 Grantham Road	0.23m tarmac, 0.32m rock bedding; 0.15m soil, over 0.15m limestone rubble, over a further 0.37m soil, with limestone at 1.22m below surface.	Probably Roman road, but without gravel metalling; possibly just to east of the carriageway.
27	107 Grantham Road	Roman road only visible in centre of modern road.	Alignment of Ermine Street diverging from modern road. Partly disturbed by modern trenches.
28	125 Grantham Road	0.2m tarmac, 0.1m gravel, crushed limestone 0.25m, with brown loam underneath.	Gravel may be of Roman road.
29	133 Grantham Road	0.2m tarmac, 0.2m gravel, 0.2m limestone rubble, with brown loam beneath to at least 1.5m below modern road surface.	Possible evidence for Roman road being extended to west over original roadside ditch; ditch depth over 0.9m.



Obs. No.	Location	Description	Interpretation/Comments
30	149 Grantham Road	0.28m tarmac, 0.17m gravel, 0.27m crushed limestone, 0.88m+ brown sandy loam.	Possible evidence for Roman road being extended to west over original roadside ditch; ditch depth about 0.9m.
31	Grantham Road, 20m south of track to allotments	0.4m tarmac, 0.45m gravel, 0.3m crushed limestone, overlying at least 0.45m brown loam.	Possible evidence for Roman road being extended to west over original roadside ditch; ditch depth about 0.9m.
32	163 Grantham Road	0.45m tarmac, 0.3m gravel in concrete, 0.35m crushed limestone, 0.3m+ brown loam.	
33	Waddington / Bracebridge Heath parish boundary, Grantham Road	0.35m tarmac, 0.3m gravel in concrete, 0.3m crushed limestone, 0.25m+ brown loam.	
34	171 Grantham Road	0.5m tarmac, 0.14m fine gravel (0.03m diameter, up to 3 layers), 0.06m fine limestone dust, 0.17m fine gravel (single layer), 0.5m stone dust and thin layers of limestone rubble, overlying brown loam.	
35	120 Grantham Road	0.28m tarmac, 0.2m hardcore, 0.3m compact yellow/brown loam, with at least 0.5m brown clay loam below.	?in western ditch of Roman road.
36	20m south of 120 Grantham Road	0.35m tarmac, 0.02m gravel, 0.35m crushed limestone, 0.5m dark brown loam, limestone bedrock.	west of Ermine Street; this should represent unaltered ground beneath the post-Roman road.
37	Heath Road junction with Grantham Road; 1 Heath Road	see Fig. 3	Eastern ditch and bank of Ermine Street.
38	E end of Canwick Ave	modern road 0.7m thick, over 0.3m gravel and 0.2m brown loam. Limestone at 1.2m.	Gravel of older farm track/road. Road raised on bend.
39	Hillcrest, Canwick Ave.	2.5m wide feature, over 1.2m deep. Cut through rock. Sealed by cream-coloured ?mortar layer.	22m east of farm track. Possible tree hole. Only seen on south face of trench.

Obs. No.	Location	Description	Interpretation/Comments
40	Hillcrest, Canwick Ave. to 25m east of parish boundary, Canwick Ave.	tarmac 0.28m thick, over 0.12m grey stone chips. 0.05m of cream ?mortar or limestone dust, over 0.35m brown loam. Loose limestone at 0.8m, with some loam.	
40	20m east of Lichfield Road, Canwick Ave.	western limit of soil below road foundation.	Buried topsoil/subsoil to east removed by road construction or earlier service trenches.
41	28 Canwick Ave.	large limestone rubble present (c. 0.4m deep) between asphalt foundation of modern road and underlying brown loam.	Rubble (possibly re-used) used to raise verge prior to widening of carriageway.
42	16 Canwick Ave.	road foundation to 0.7m, over 0.2m brown clay loam. Loose limestone bedrock below.	Edge of road raised on north side to remove natural slope.
43	east side of 1 Red Hall Drive	modern road overlies mixed deposit of limestone rubble and soil, over thicker deposit of soil.	
44	2 Red Hall Drive	rock 0.2m deep.	
45	5 Red Hall Drive	rock 0.5m deep.	
46	8 Red Hall Drive	3.5m wide extent of mixed rock with soil beneath the modern road, to east of loam deposit. West of the mixed deposit is a 5m wide area of loam with roots, with another mixed deposit to the NE in front of No. 6.	Sequence unclear and confused.D37
47	10 Red Hall Drive	path overlies brown loam deposit. This loam extends across full width of public footpath to west, and to 1m east of No. 10. Total extent about 10m.	?Roman road ditch
48	Red Hall Drive, west side of Ermine Street footpath	bedrock at 0.8m deep, overlain by brown loam.	
49	18-20 Red Hall Drive	tarmac path overlies stone chips to 0.25m deep; 0.3m mixed soil and rock, over bedrock.	
50	22 Red Hall Drive	long east-west trench. Tarmac path and stone chips to 0.16m, over 0.55m soil with some limestone rubble, over bedrock.	



Obs. No.	Location	Description	Interpretation/Comments
51	30-38 Red Hall Drive	0.18m tarmac and stone bedding, 0.12m mixed black soil with brick fragments, 0.12m disturbed limestone, with limestone and clean yellow loam at 0.42m below surface.	
52	2 Churchill Ave.	0.09m tarmac, over 0.09m stone, over at least 0.7m brown loam. Brown loam extends across width of road.	Roman road ditch?
53	5 The Link		
54	east end of Red Hall Farm Lane	limestone present at 1.3m below modern road.	
55	Red Hall Farm Lane, rear of 4 Red Hall Drive	0.3m tarmac, 0.35m gravel and limestone brash, overlying clay with limestone brash to trench base at 1.15m below surface.	Gravel suggests Roman road, but about 65m further east than expected. Gravel may be metalling of post-medieval lane.
56	sub station, Red Hall Farm Lane	ground drops to west.	
57	footpath on ?course of Ermine Street, Red Hall Farm Lane	all trenches/holes disturbed by existing services.	
59	Saranac, Red Hall Farm Lane	modern tarmac overlies dark brown soil with black ?ash to 0.5m deep. Beneath this is 0.4m light brown loam over limestone rubble.	
60	Hothfield, Red Hall Farm Lane	modern road overlies brown loam containing infrequent limestone.	
61	23 Red Hall Farm Lane	lane rises to slight peak at western side of No. 23.	
62	Stanley Crescent/London Rd junction	0.15m tarmac, over 0.33m concrete and stone road foundation. 0.15m flat limestone slabs, overlying brown clay loam.	Slabs probably not of antiquity.
63	Kennedy Road	Full width of Roman road, with southern ditch disturbed by post medieval quarry.	
63	Kennedy Lodge, Kennedy Road		Western ditch of Ermine Street.
64	32 Sleaford Road to 45m north of Sycamore Grove	0.3 tarmac, 0.25m stone chips, 0.05m crushed limestone, 0.6m+ red/brown loam with infrequent limestone pieces.	No trace of Roman road or ditch.

Obs. No.	Location	Description	Interpretation/Comments
65	south end of Sleaford Road		
66	Roman road, Sleaford Road	Gravel metalling seen north of RAF base, 1998	
67	Davy's Lane	modern road constructed on thick deposit of crushed brick.	?backfilled feature, possibly using brickworks waste.
71	Junction of Lancia Crescent/Bentley Drive	0.12m tarmac, 0.38m limestone bedding, 0.35m dark brown loam, 0.15m+ mixed soil with limestone.	
72	15-17 Lancia Crescent	Underlying deposits very mixed.	?Modern disturbance.
73	East end of Jensen Road	0.4m tarmac/bedding for modern road, overlies 0.3m light brown silt loam, with brown loam below.	?Western ditch of Ermine Street.
74	24 Jensen Road	Modern road and bedding directly overlies limestone bedrock at 0.55m below surface.	
75	34-40 Jensen Road	Series of 2m wide features cut to below trench base; filled with 85% brown loam with 15% limestone. One located at No. 34, then another, 17m to south, and a third 21m further south.	Unlikely to be plough furrows (over 0.5m deep). No obvious function and undated.
76	42 Jensen Road	0.2m tarmac and road bedding, 0.2m black soil, 0.12m brown loam, with mixed rock and loam below.	?Modern road built over former topsoil layer or backfill of former field ditch.
77	64 Jensen Road	0.2m tarmac, 0.28m brown loam, overlying limestone bedrock.	
78	70 Jensen Road	0.06m tarmac, 0.35m limestone bedding, 0.5m dark brown loam, limestone bedrock 1m below road surface.	
79	Western Avenue	modern road overlies concrete road foundation. Ground beneath has been disturbed.	Possible site of World War II airbase runway or road.
80	Fernleigh Avenue	modern road overlies limestone bedrock.	
81	30 Kennedy Road (SE of observation 63)	1.5m wide extent of fine sand loam between limestone bedrock.	Disturbance of unknown date/origin; recent disturbance in close vicinity.



The Figures and Plates



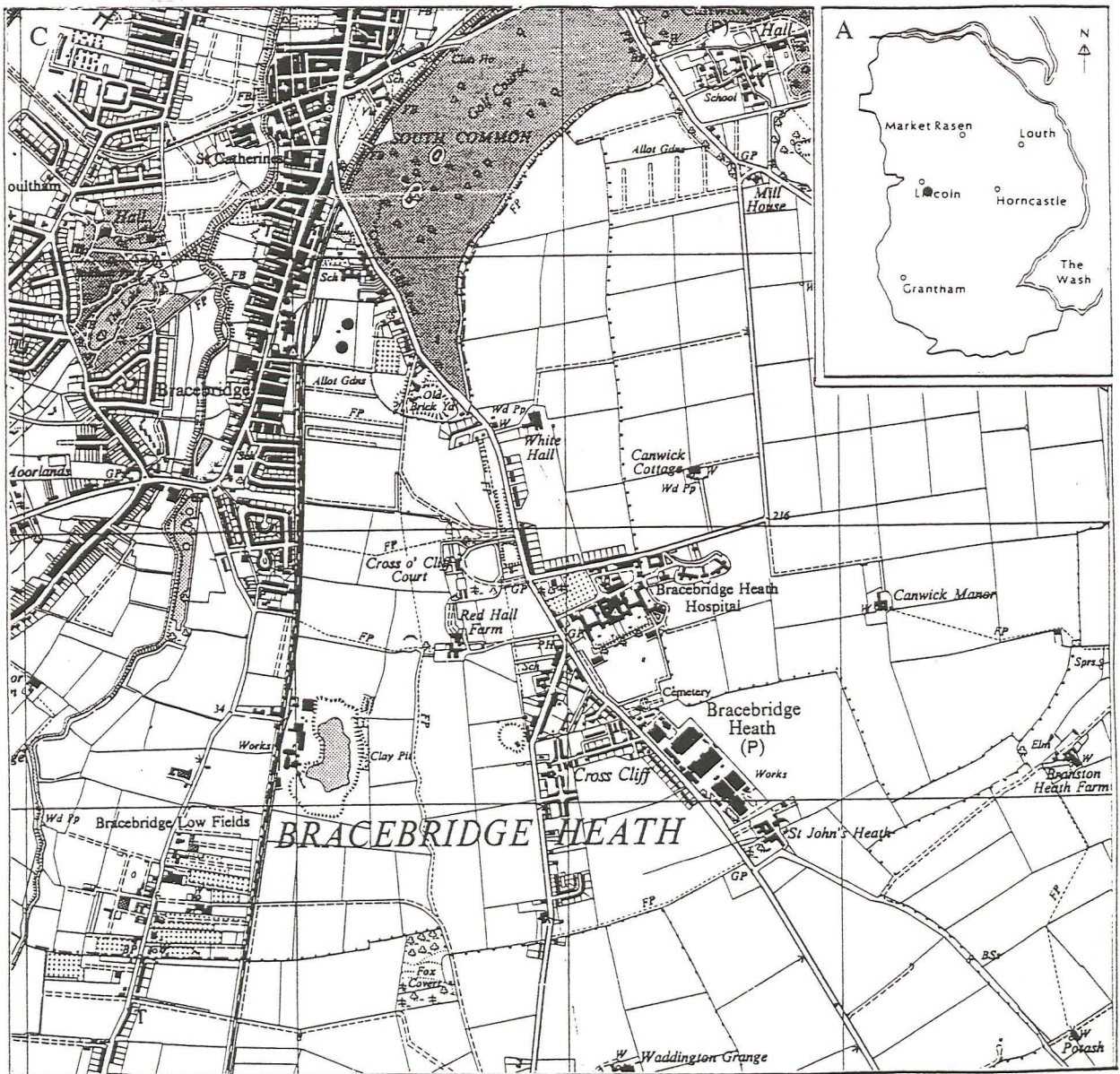
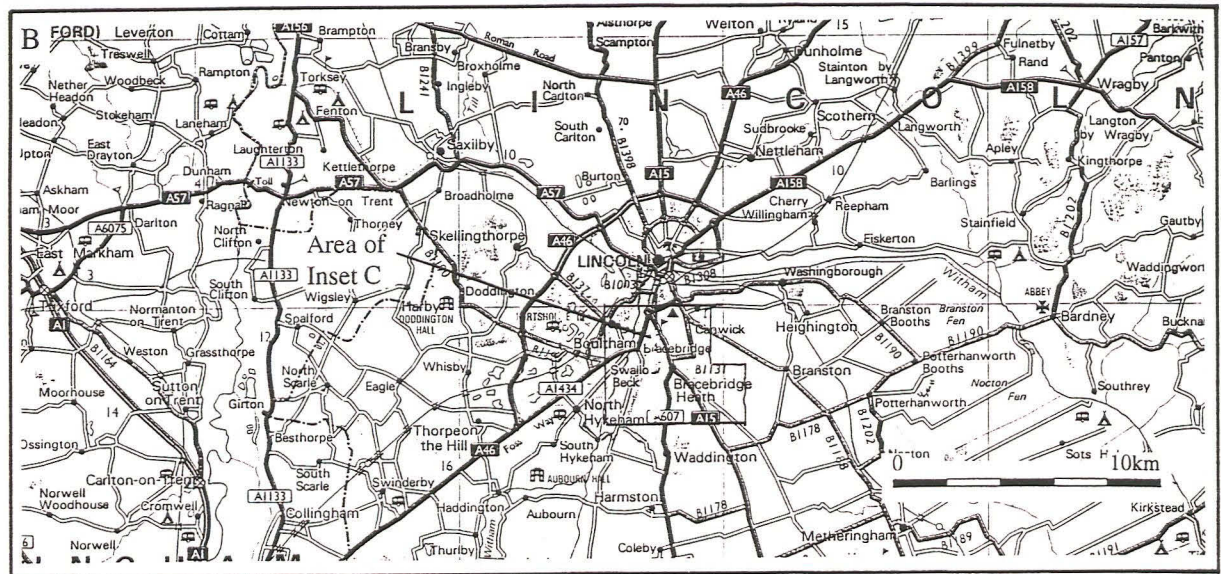


Fig. 1 Location of Bracebridge Heath (c based on the 1953 Ordnance Survey 1:25,000 map Sheet SK 96. © Crown Copyright, reproduced with the permission of the Controller of HMSO. LAS Licence No. AL 50424A).



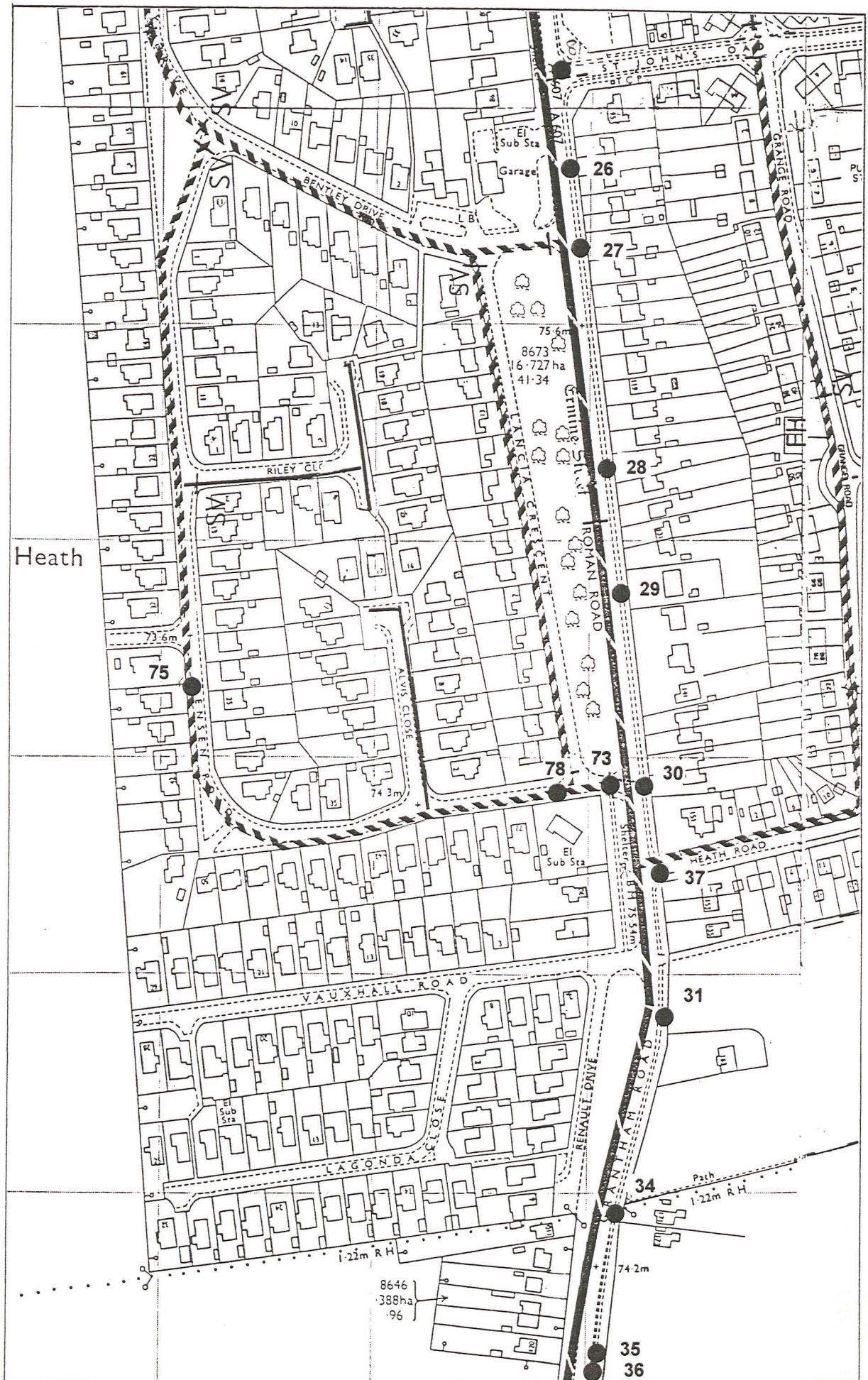
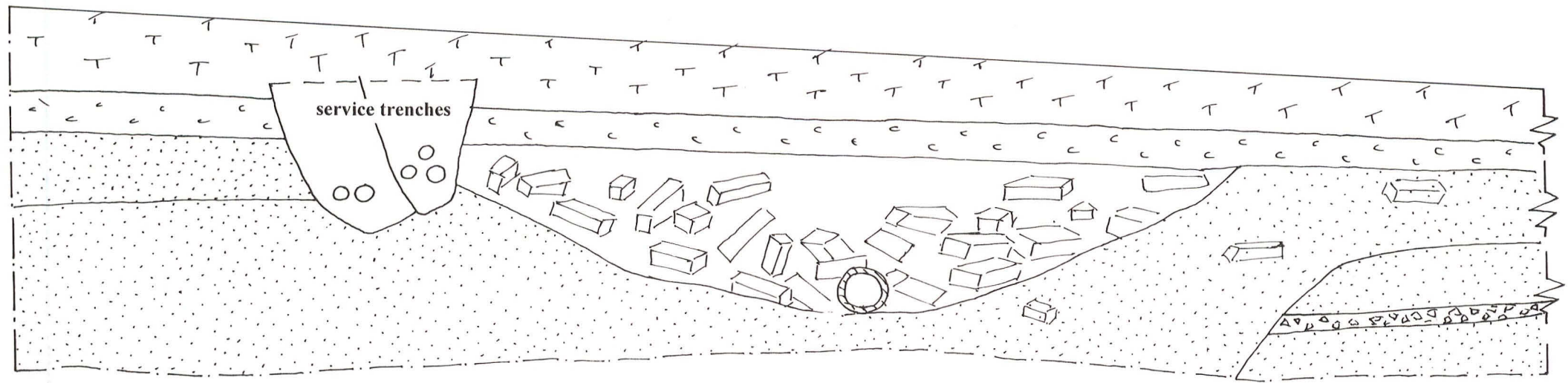






Fig. 2 Location of observations noted in the text: Grantham Road and Jensen Road (based on the 1:2,500 plan supplied by Anglian Water Services Ltd. © Crown Copyright, reproduced with the permission of the Controller of HMSO. LAS Licence No. AL 50424A).



W

E



-  Tarmac and stone bedding
-  Concrete
-  Brown Loam
-  Brick
-  Limestone chips

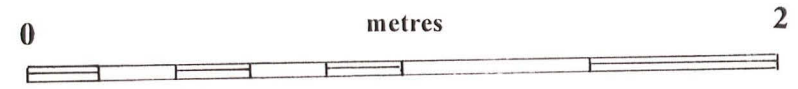
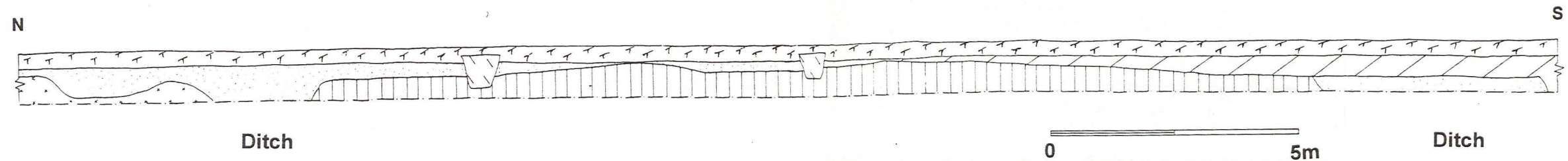


Fig. 3 Section across part of the eastern ditch of Ermine Street, seen at the junction of Heath Road and Grantham Road 37 (McDaid, after Tann).









- |  |                          |  |                   |
|--|--------------------------|--|-------------------|
|  | Tarmac and stone bedding |  | Brick             |
|  | Concrete                 |  | Roman road        |
|  | Brown Loam               |  | Natural limestone |
|  | Electricity cable trench |  |                   |

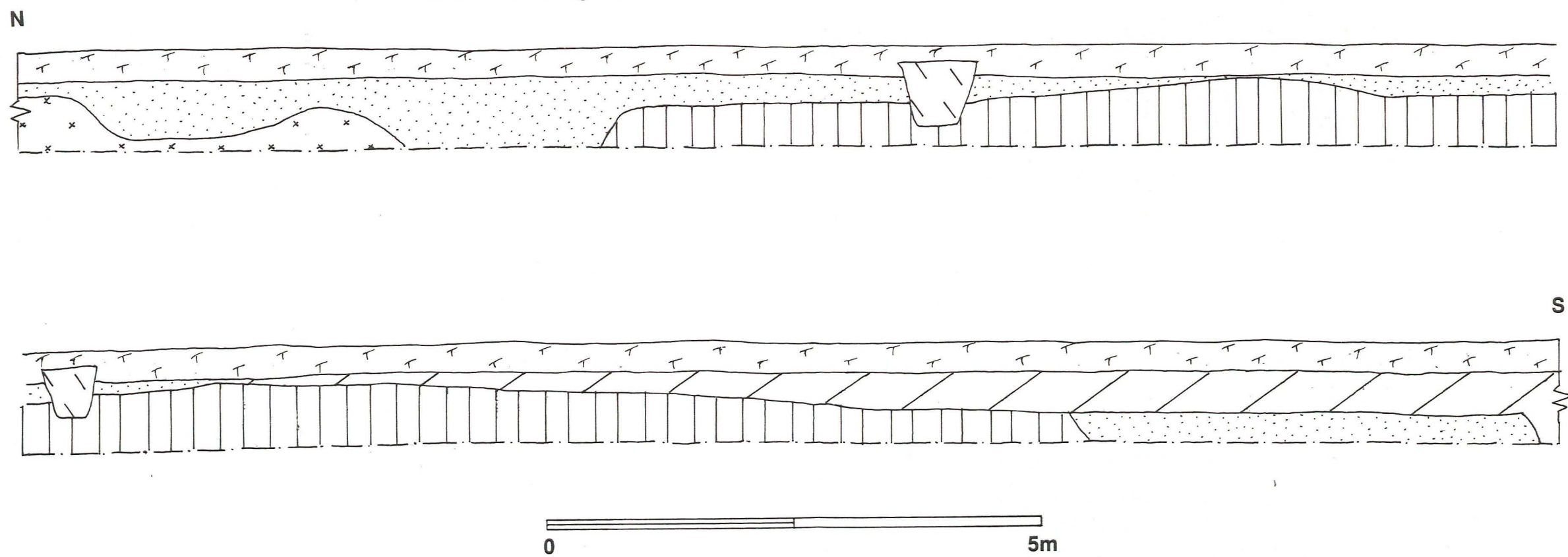


Fig. 5 a) Section across Ermine Street, as seen in the pipe trench at Kennedy Road 63 (McDaid, after Tann). b) Detail of section.



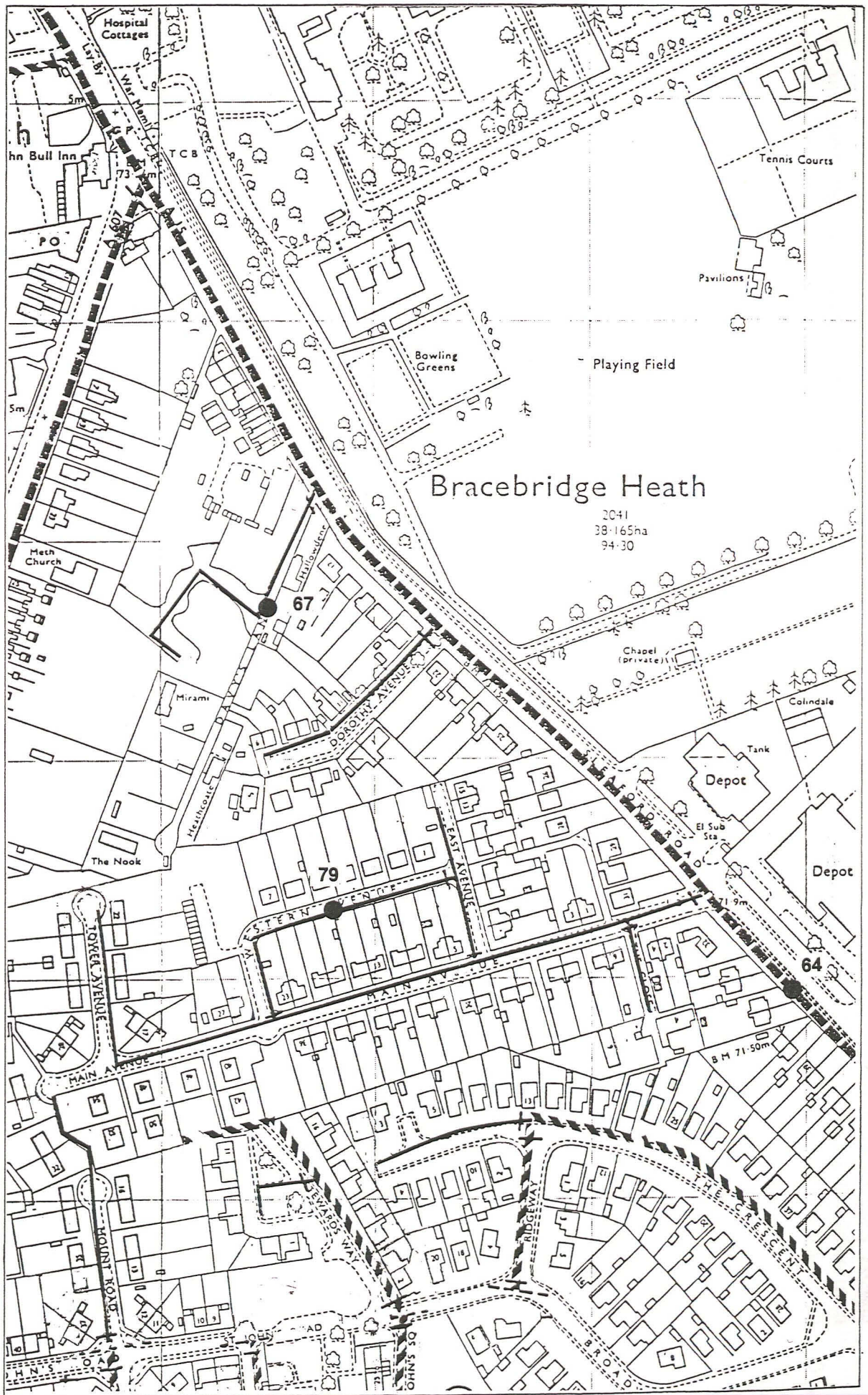


Fig. 6 Location of observations noted in the text: London Road (based on the 1:2,500 plan supplied by Anglian Water Services Ltd. © Crown Copyright, reproduced with the permission of the Controller of HMSO. LAS Licence No. AL 50424A).



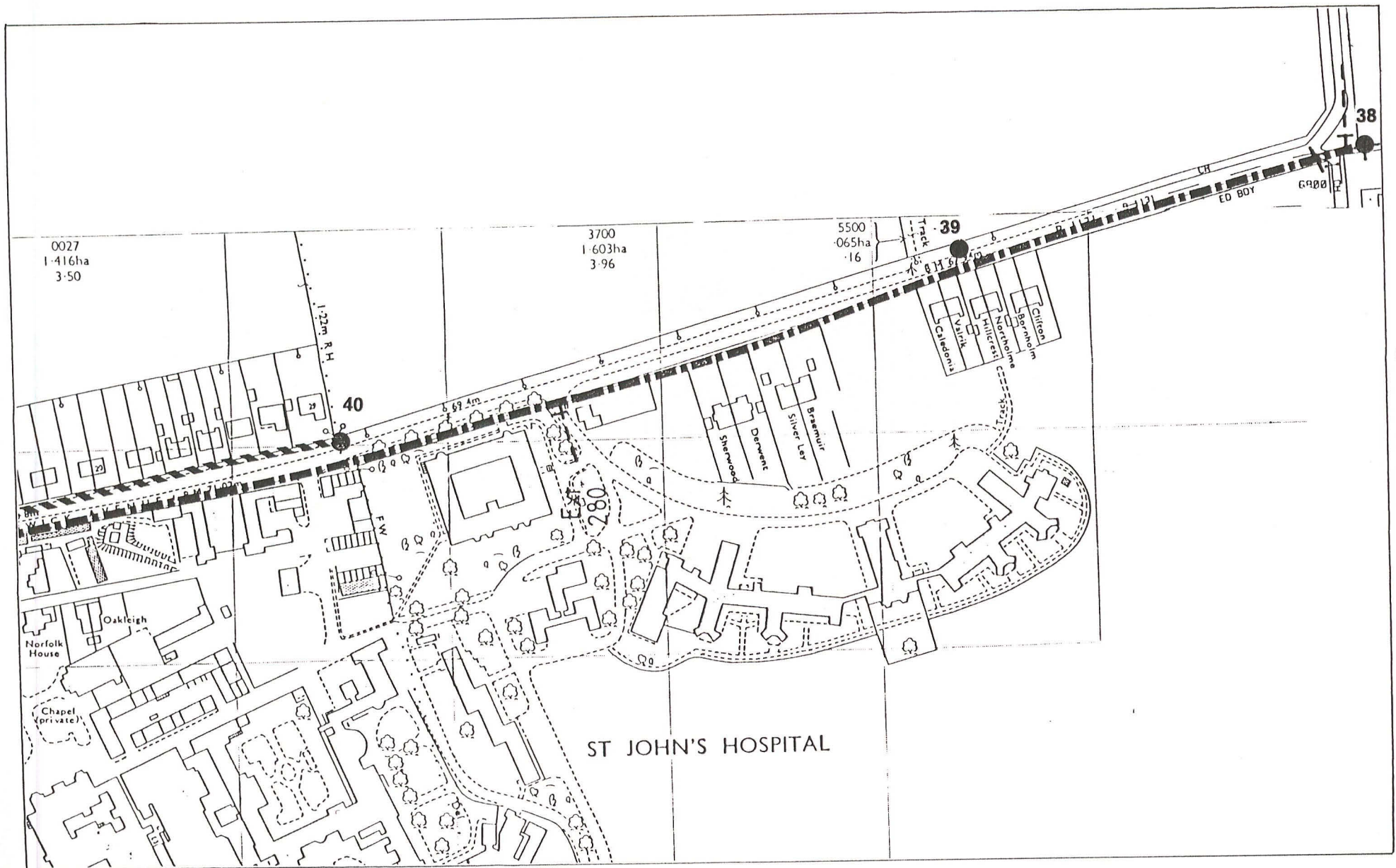


Fig. 7 Location of observations noted in the text: Sleford Road, Davy's Lane and Western Avenue (based on the 1:2,500 plan supplied by Anglian Water Services Ltd. © Crown Copyright, reproduced with the permission of the Controller of HMSO. LAS Licence No. AL 50424A).





Fig. 8 Location of observations noted in the text: Canwick Avenue (based on the 1:2,500 plan supplied by Anglian Water Services Ltd. © Crown Copyright, reproduced with the permission of the Controller of HMSO. LAS Licence No. AL 50424A).





PI. 1 Trenching in Grantham Road at the northern edge of Waddington parish 36 (looking south).

P' 2 Deposits seen below Grantham Road at 36, probably representing only a medieval and later road. Note the thin gravel band immediately under the tarmac, and the weathered limestone at the trench base.







Pl. 3 Grantham Road changes alignment to join Ermine Street (beyond the green van). In the foreground 35, the medieval or later road contains gravel metalling above the crushed limestone bedding. The brown loam (an early topsoil or subsoil) overlies weathered limestone bedrock.

Pl. 4 Detail of deposits below Grantham Road at 35.

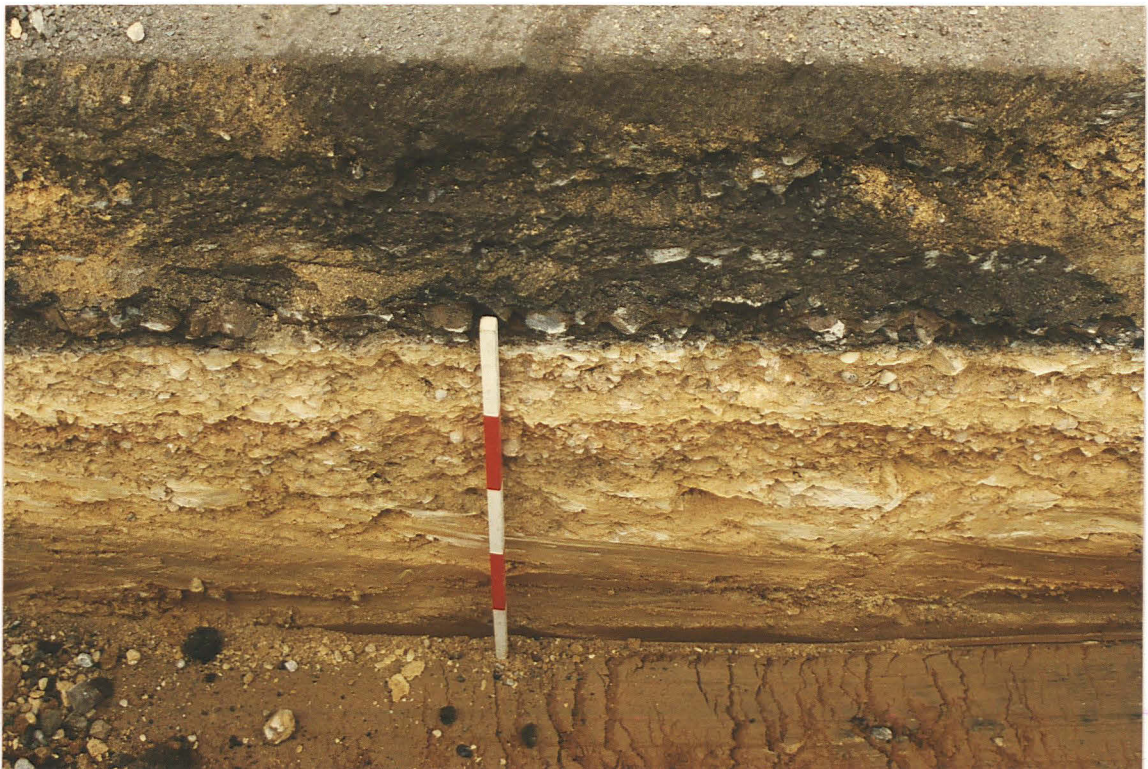






Pl. 5 Gravel metalling thought to represent Ermine Street below Grantham Road at 31 (looking north, scale divisions 0.2m).

Pl. 6 Detail of the thick gravel metalling surfaces 31, representing Ermine Street.







Pl. 7 To the north of Vauxhall Road (right) the modern road overlies the Roman Ermine Street (looking SW).

Pl. 8 Gravel metalling in the centre of Grantham Road 30, at the junction of Jensen Road (looking west).







PI. 9 The dark clay loam beneath Grantham Road at 29 appears to be a backfilled roadside ditch, but note the gravel road metalling immediately below the tarmac.

PI. 10 At the junction of Grantham Road and Heath Road 37, evidence for the eastern roadside ditch of Ermine Street was recorded (looking north).







PI. 11 Ermine Street continues north where Grantham Road diverges beside the Bracebridge Heath reservoir 24 (looking SW).

PI. 12 Gravel metalling and limestone block bedding under Grantham Road outside the reservoir 24.







Pl. 13 Kennedy Road 63, looking NW. The footpath marking the line of Ermine Street is in front of the wood fence. The approximate edges of the Roman carriageway are marked by the flat barriers across the path.

Pl. 14 Deposits exposed in the trench face, Kennedy Road 63 (looking NW). The brown soil fill of the eastern Roman roadside ditch is visible in the foreground, with the rubble road foundation behind it.







Pl. 15 Red Hall Farm Lane (looking west). The footpath crosses on the presumed line of Ermine Street 57, but no evidence of the road was seen in the pipe trenches. Note the drop in ground level of the lane.

Pl. 16 Clay loam above limestone at the junction of Red Hall Farm Lane and London Road 54, overlain by the modern road.







Pl. 17 Evidence of Ermine Street in Red Hall Drive 46-47 was also elusive. The footpath (far right) marks the presumed course, but no gravel metalling or certain road foundation was seen either side (looking SW).

Pl. 18 To the west of the footpath, a thick clay loam deposit 48 may represent a roadside ditch (looking SW).







Pl. 19 Crushed brick below the tarmac surface of Davy's Lane 67 (looking south).

Pl. 20 Detail of the crushed brick and underlying deposits in Davy's lane 67.







Pl. 21 Moling access holes, Sleaford Road 64 (looking SE).

Pl. 22 Thick layer of clay loam beneath the road foundation, Sleaford Road 64.  
The loam may be fill of a Roman roadside ditch.







PI. 23 Along the southern edge of Canwick Avenue 40, the widened road overlay a band of brown clay loam above weathered bedrock (looking west, scale divisions 0.1m).