

Chapter 7: Earthwork surveys

by Leo Heatley

Surveys were carried out in order to record three historic earthworks that were to be unavoidably destroyed by the Improvements. The earthworks comprised the boundary between the parishes of Lidlington and Marston Moretaine, an area of ridge and furrow at Lower Shelton, and the boundary between the parishes of Wootton and Kempston.

The surveys were carried out using a Leica GX1230 SmartRover GPS. The data was downloaded and processed using LEICA Geo Office 4.0

before being exported into AutoCAD 2004. ArcGIS 9.3 was used to produce a surface model, enabling the survey area to be viewed 'three dimensionally'. A contour plot of each surveyed area was added with contour intervals of 0.1m and 0.2m, derived from the surface model. The contour plot was imported into CAD to aid the completion of a hachure plan of the earthworks. Interpolating a line across the surface model enabled profiles to be created.

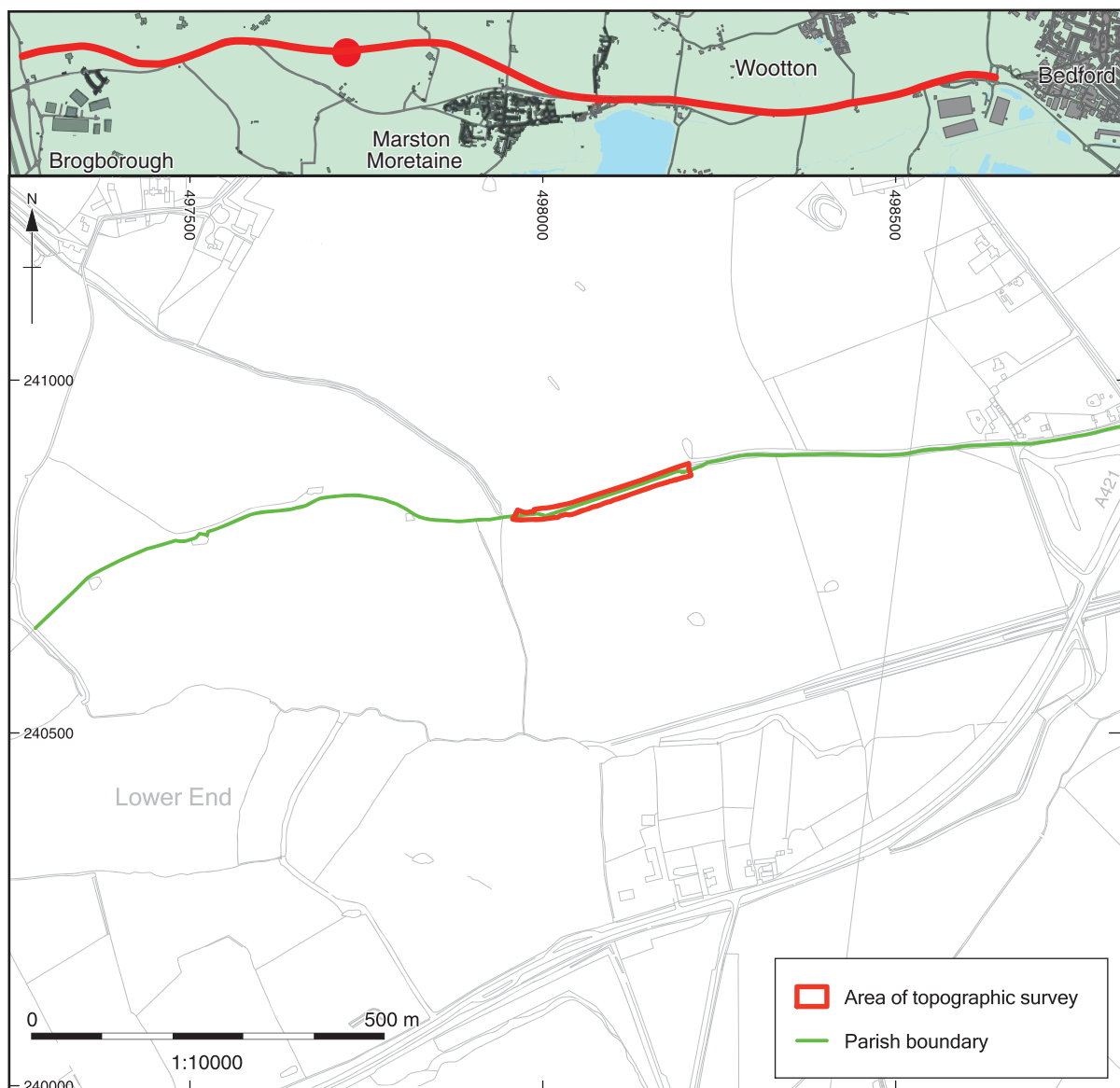


Fig. 7.1 Parish boundary between Lidlington and Marston Moretaine, location of survey area. (© Crown copyright. All rights reserved. Licence no. 100005569)



Fig. 7.2 Parish boundary between Lidlington and Marston Moretaine, general view



Fig. 7.3 Parish boundary between Lidlington and Marston Moretaine, view of the eastern end of the survey area

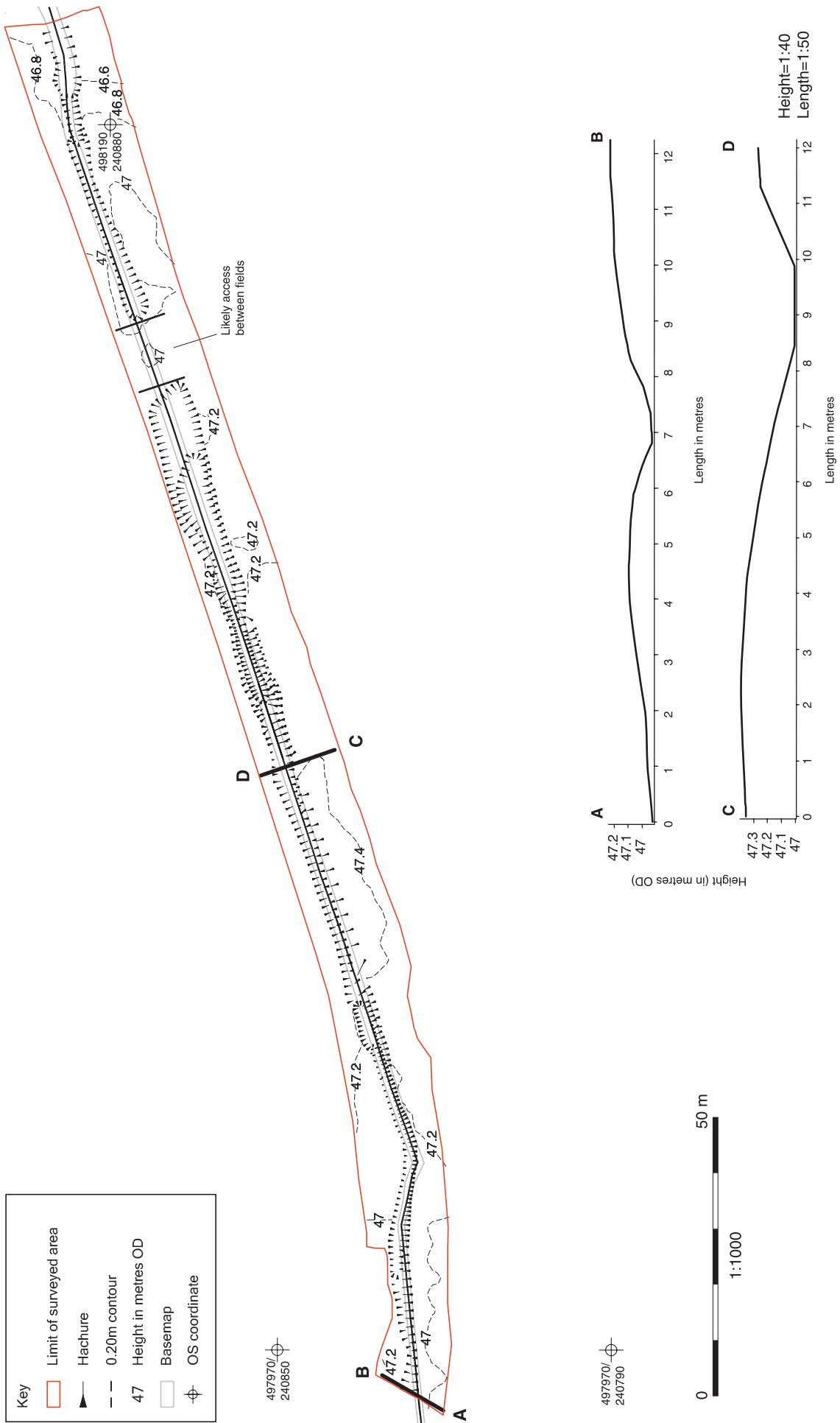


Fig. 7.4 Parish boundary between Lidlington and Marston Moretaine, hachure plan and profiles

Lidlington/Marston Moretaine parish boundary

The survey comprised a 255m length of the boundary between the historic parishes of Lidlington and Marston Moretaine. The survey area was located c 1km south-west of the modern village of Marston Moretaine in an area of agricultural land, where, at the time of the survey, the earthwork still defined the boundary between two fields (Fig 7.1). The boundary was defined by a ditch within which grew a species-rich hedgerow (Fig. 7.2), although at the eastern end of the survey area the hedgerow had been grubbed out and the ditch was consequently more readily visible (Fig. 7.3). Where the hedge survived it hampered access to the ditch and made surveying difficult, with the result that measurements could only be taken at irregular intervals. Nevertheless, it was possible to take enough readings to record the alignment and form of the ditch (Fig. 7.4).

The ground elevation gradually rose to a level of 47.51m OD in the central part of the survey area before steadily falling away, forming a natural ridge. The profiles (A-B and C-D) indicate the varying width and depth of the boundary ditch. In profile A-B the ditch was approximately 2.5m wide and 0.15m deep, whereas profile C-D shows that at that point the ditch was approximately 5.5m wide and 0.25m deep. The edges to the ditch were not uniform, something that can be attributed to the disturbance caused by the tree line and hedgerow growing either within it or along its sides. Some segments of the ditch were deeper than others and gaps in the ditch were evident, including a possible entrance through the earthwork near the eastern end of the survey area. It was not possible to be certain whether this entrance was an original feature or a later modification to provide access between the fields on either side.

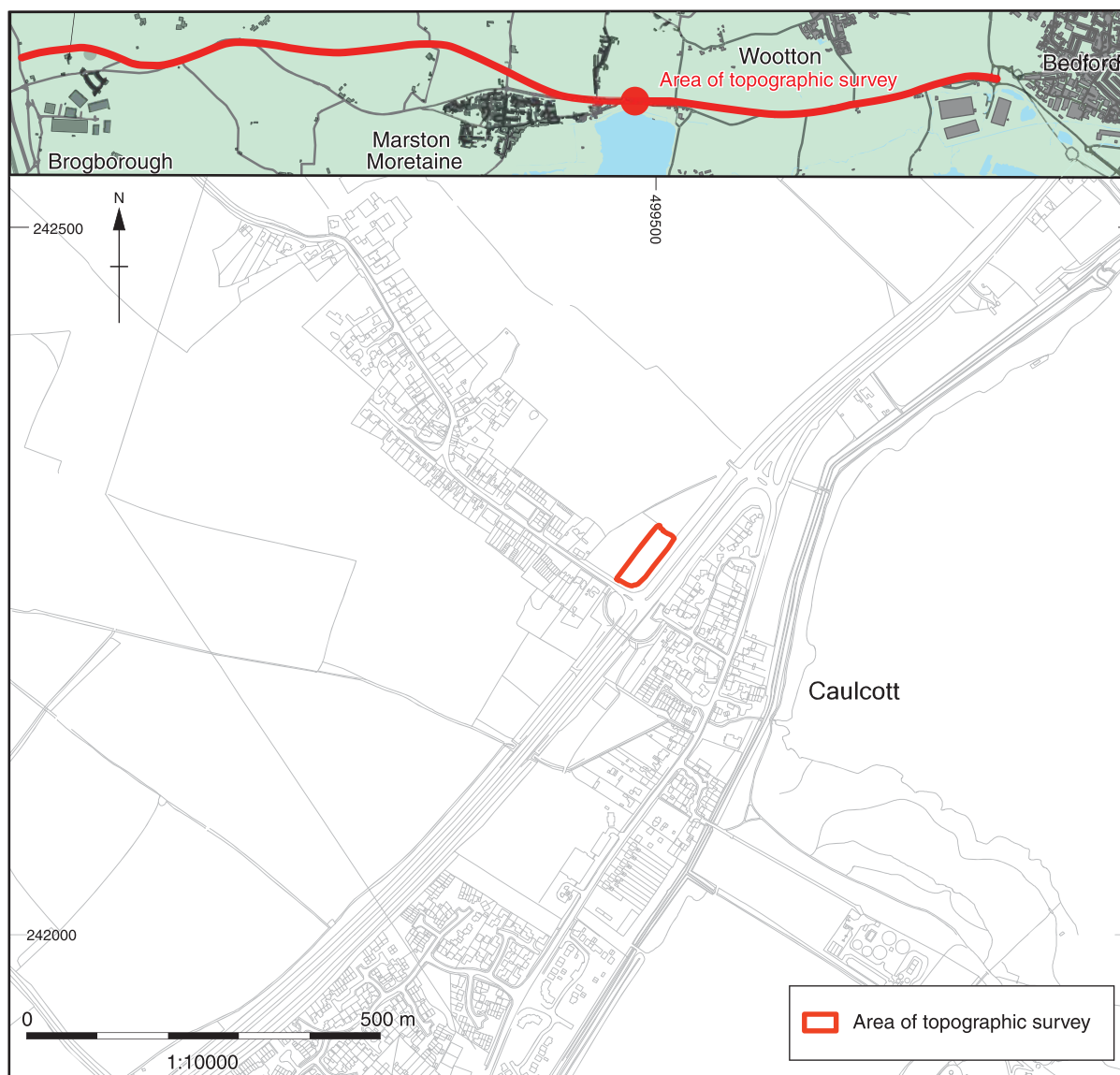
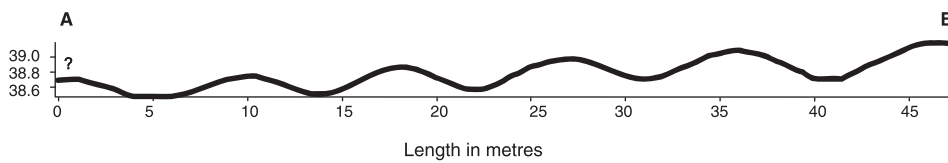
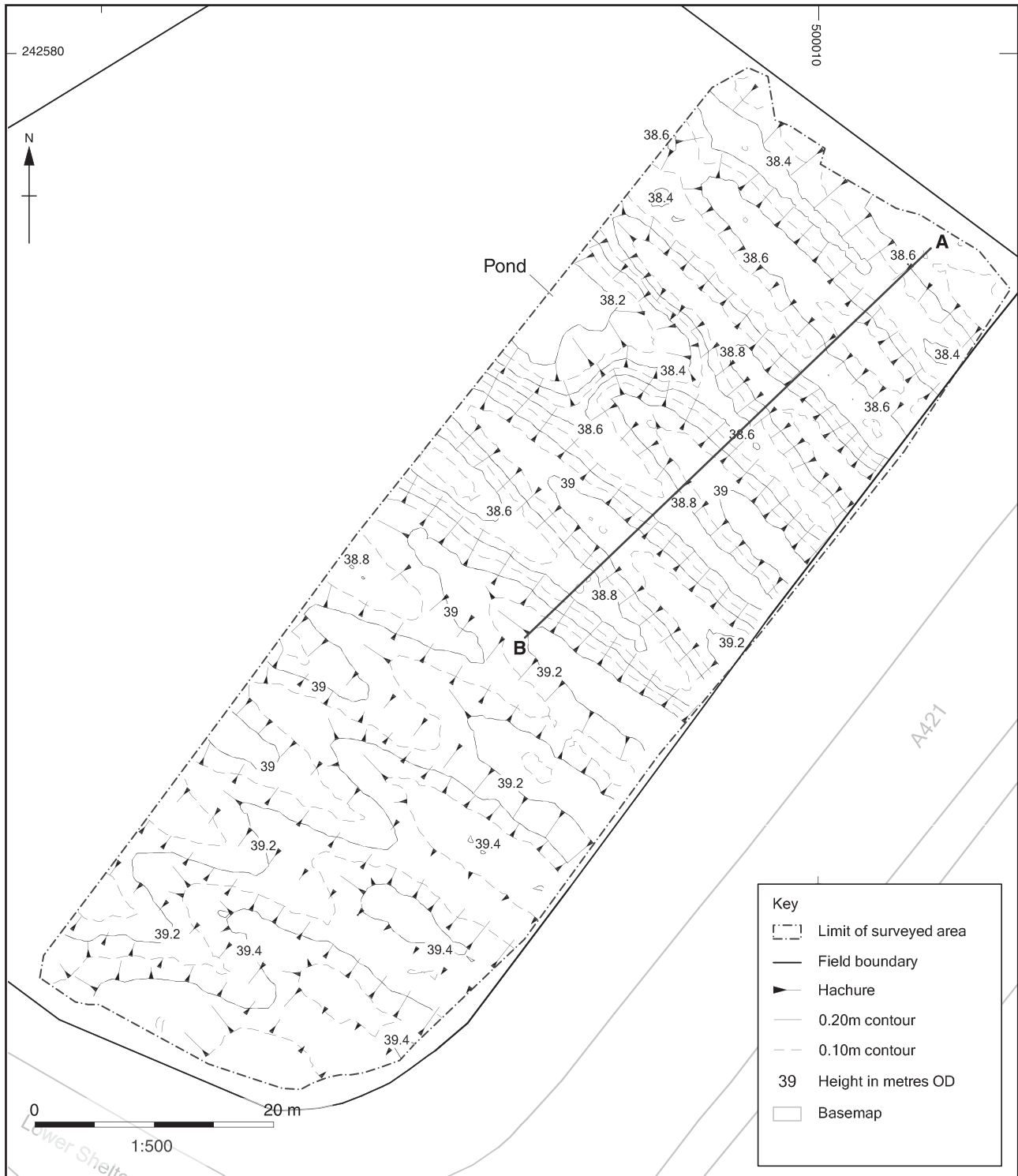


Fig. 7.5 Ridge and furrow at Lower Shelton, location of survey area. (© Crown copyright. All rights reserved. Licence no. 100005569)



Height=1:100
Length=1:400

Fig. 7.6 Ridge and furrow at Lower Shelton, hachure plan

Ridge and furrow earthworks at Lower Shelton

An area of ridge and furrow earthworks located in a pasture field at the south-eastern end of the village of Lower Shelton was surveyed (Fig. 7.5). Although the results of both the geophysical survey and the excavations along the route have demonstrated that such cultivation was wide-spread, it has been levelled in most locations by more recent ploughing, and survival as earthworks is rare.

The total area of the survey was c 0.28ha. The earthworks ran roughly NW-SE, and extended beyond the area of the survey to both north-west and south-east (Fig. 7.6). The earthworks measured 8-9m wide and up to c 0.4m high from top of ridge to base of furrow. The ridges were slightly better

defined in the north-eastern half of the survey area than the south-western, the ridges having more prominent slopes. In addition to this difference in preservation, the alignment of the earthworks in the two halves of the survey area diverged somewhat. It may not be entirely coincidental that the land sloped from the south-east to the north-west, but as this difference in height from one end of the survey area to the other was only c 0.85m, the impact that it had was likely to be minimal.

The ridge and furrow earthworks were truncated in the northern part of the survey area by a hollow that measured 18.3m wide and 0.45m deep (Fig. 7.6). The nature of this feature was uncertain, but it may have been a pond associated with the subsequent use of the field as pasture.

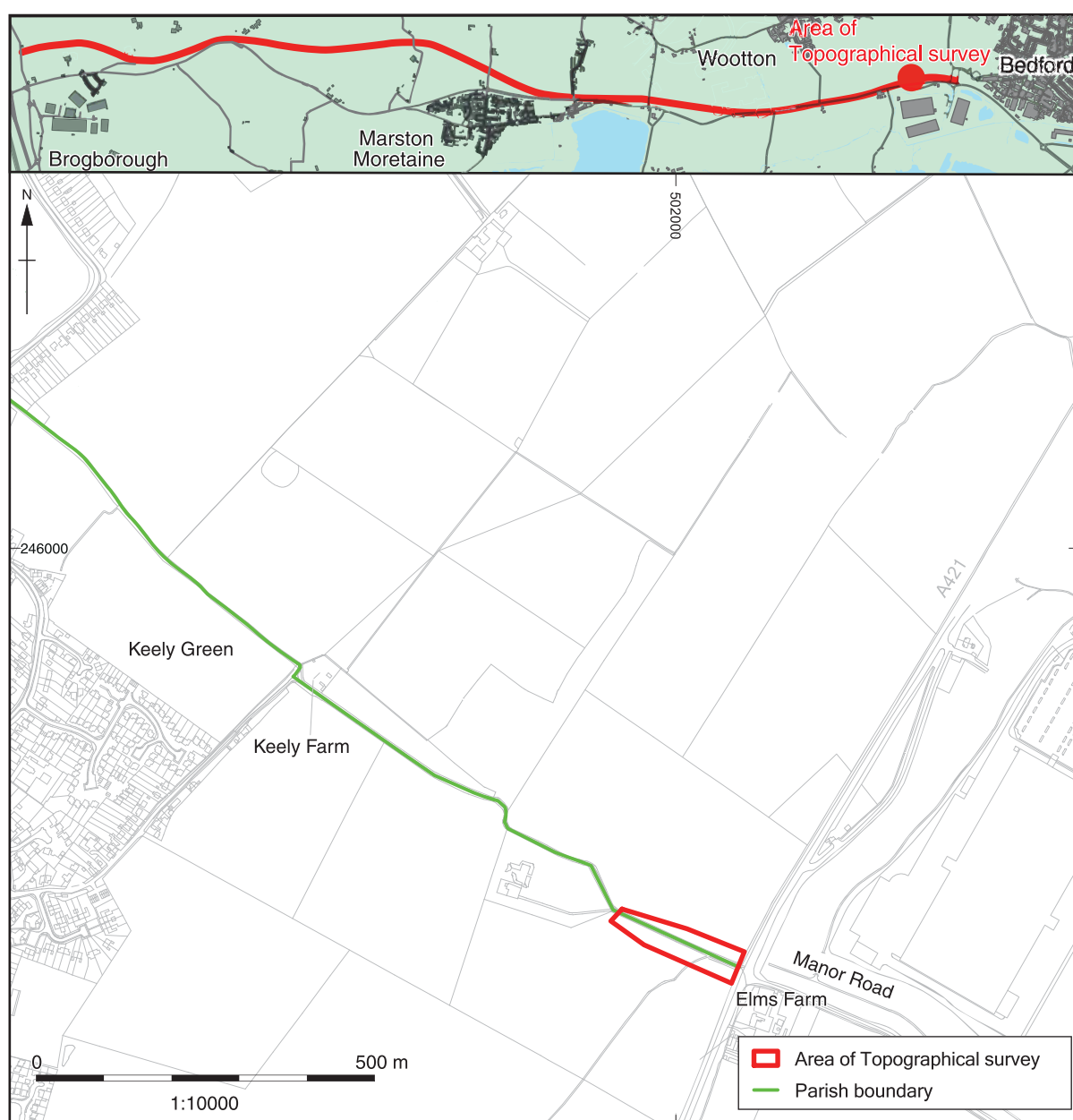


Fig. 7.7 Parish boundary between Wootton and Kempston, location of survey area. (© Crown copyright. All rights reserved. Licence no. 100005569)



Fig. 7.8 Parish boundary between Wootton and Kempston, hachure plan

Wootton/Kempston parish boundary

A survey was carried out to record part of the boundary between the historic parishes of Wootton and Kempston that would be destroyed by the Improvements. The boundary was preserved in the alignment of a bridleway that extended north-west from the carriageway of the existing A421 to Keeley Farm, where it crossed the Portway – a medieval route between Wootton and Bedford – before continuing in the direction of Wood End (Fig. 7.7). The survey encompassed a

section of the boundary measuring 190m in length (Fig. 7.8). The boundary was indistinguishable in the survey results and consequently it would appear that this part of the boundary was defined only by the alignment of the bridleway, with no associated earthwork. At the south-eastern end of the survey area a drainage ditch extended alongside the bridleway for a distance of 40m before turning south-westward across the adjacent field (Fig. 7.8), but this appeared to be a modern feature and not directly associated with the parish boundary.