



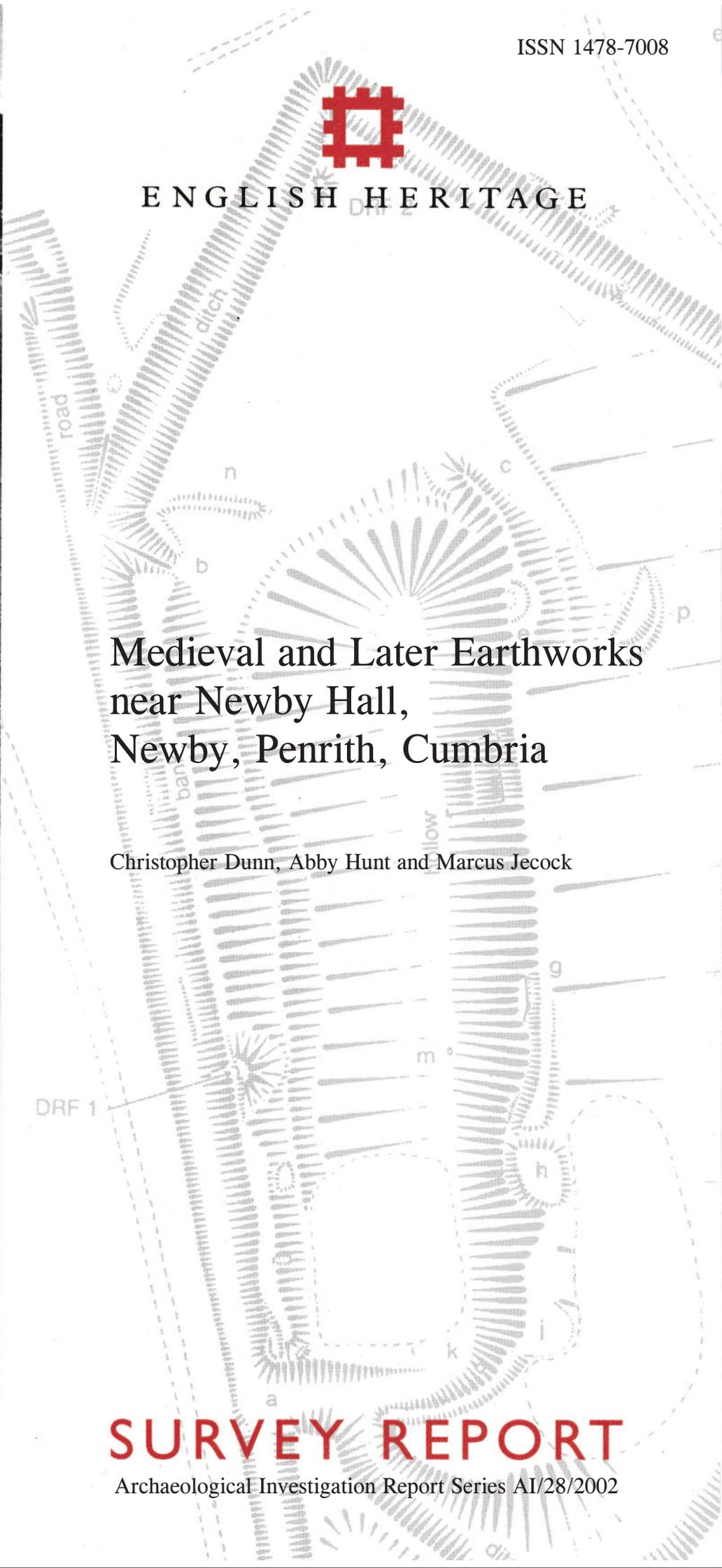
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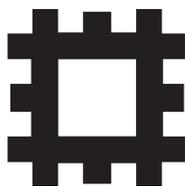
Medieval and Later Earthworks
near Newby Hall,
Newby, Penrith, Cumbria

Christopher Dunn, Abby Hunt and Marcus Jecock

SURVEY REPORT

Archaeological Investigation Report Series AI/28/2002





**Medieval and Later Earthworks
near Newby Hall,
Newby, Penrith, Cumbria**

Archaeological Investigation Report Series AI/28/2002

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Frontispiece. General view of the survey area looking north-east from the south-western part of the large field (hollow-ways and mounds in foreground, chimneys and roof-line of Newby Hall visible behind house on left)

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1. INTRODUCTION, SITE LOCATION AND SUMMARY

In October 2001 and March 2002, a team from English Heritage's (EH) Archaeological Investigation Section, based at York, surveyed and interpreted earthworks and other features in a block of land around, and to the south of, Newby Hall in Cumbria. The survey was in response to a joint request from Andrew Davison (EH Inspector of Ancient Monuments for the North-West Region) and Dr Margaret Nieke (EH Inspector for the Monuments Protection Programme, North), for an accurate interpretative survey to assist them assess the importance of the site as a whole, following claims that the earthworks represented elements within a formally designed garden landscape associated with the Hall (Weaver and Weaver 2002). The survey was carried out at a scale of 1:1000 to Level 3 standard (as defined in RCHME 1999, 3-5), backed up by less intensive documentary research confined to readily available published sources and limited search of historical archive material.

Newby Hall, a Grade II* listed building, is located at National Grid Reference (NGR) NY 5904 2125 and lies towards the western end of Newby village. The agreed area of survey comprised an approximately rectangular block of land with the Hall towards the centre of its northern edge, measuring approximately 230m east to west by 140-180m north to south overall. The block (centred at NGR NY 5903 2118) is defined by: in the north, the main village street; in the east, the eastern boundary of a walled enclosure abutting the Hall (now divided between two ownerships); in the south, the farther edge of two modern fields in a small east to west valley below the Hall; and in the west, a minor road running north to meet the village street at right angles. A small triangular-shaped parcel of scrub woodland lies sandwiched between the western of the two fields and the minor road, whilst beyond the wood's northern edge within the angle of the two roads is a public-access/recreational area with a pond just south of its centre.

The survey has found evidence for a complex palimpsest of earthworks within this block of land, including features interpretable as hollow-ways, possible pillow mounds, traces of ridge-and-furrow cultivation, terraced-ways, and remnants of enclosure boundaries. These features seem to relate more to the development of the village and past agricultural land use, than to a designed ornamental landscape.

2. GEOLOGY, TOPOGRAPHY AND LAND USE

Newby is located some 12km south-east of Penrith, between 160m and 195m above OD, in the block of elevated land that lies between the River Eden and the eastern fells of the Lake District (Fig 1). The village, sometimes referred to in the past as Newby Stones due to the nature of its situation and also to distinguish it from other villages with the same name (Nicholson and Burn 1777 Pt I, 451), extends westwards on a rising gradient from near a bend in the Newby Beck. The land behind the dwellings on the southern side of the village falls sharply away, and towards the western end of the settlement the natural slopes south of Newby Hall define a narrow valley whose northern side is steeper than that to the south. The valley forms a prominent feature in the local landscape and contains most of the earthworks surveyed for this report together with a pond at its head. A stream may once have flowed along the bottom of the valley but no earthwork evidence for this survives; the area was waterlogged in places at the time of the survey and there is evidence of drainage and buried pipes, but some of the latter are related to septic tanks associated with the houses above the valley to the north. The village is situated on rocks belonging to the Carboniferous Limestone Series overlain to the north and south by Post-Tertiary earthy gravel and till with occasional beds of gravel (Geological Survey of England and Wales 1893). Yellow clay is also visible in disturbed soil on the valley floor south-east of the Hall. The limestone is close to the surface near the western end of the village (Newby Head) where there are the remains of former limestone quarries; there are also abandoned quarries elsewhere in the township. A thin seam of coal was being worked during the early 19th century some 2.5km

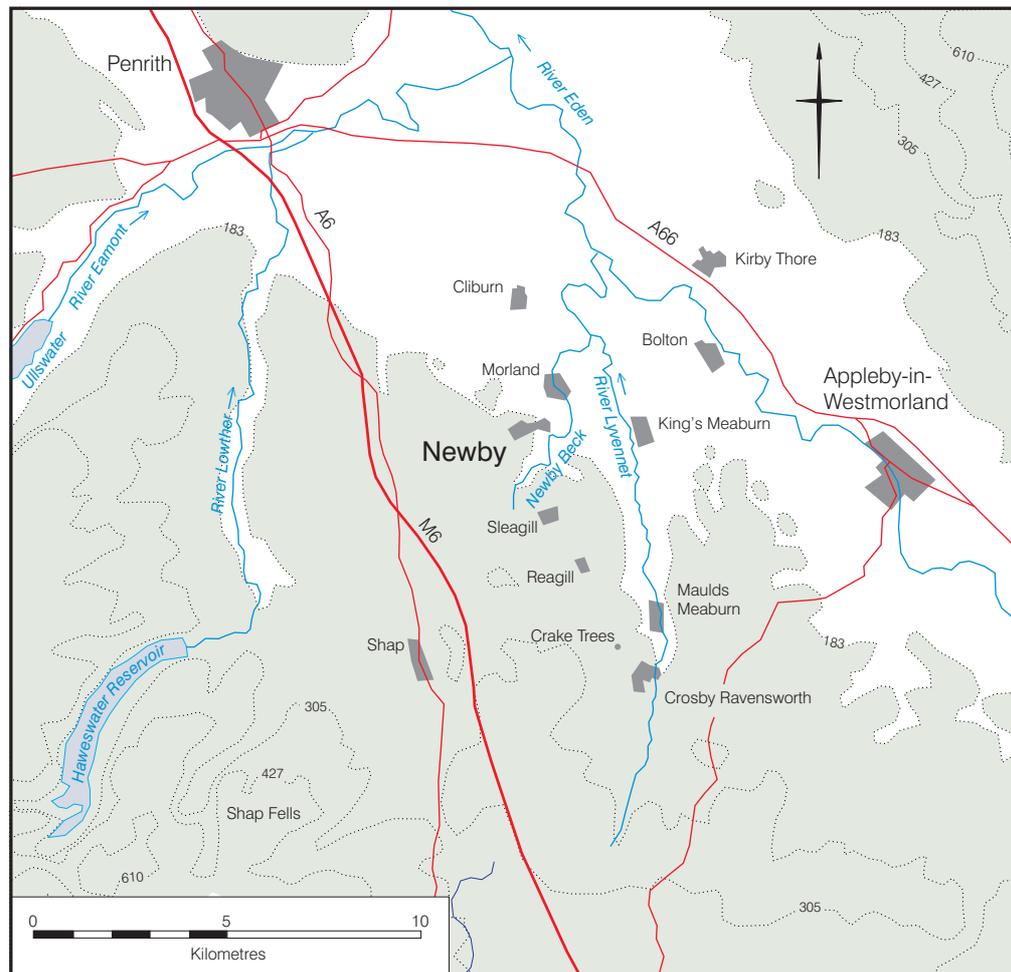


Figure 1.
General location
diagram

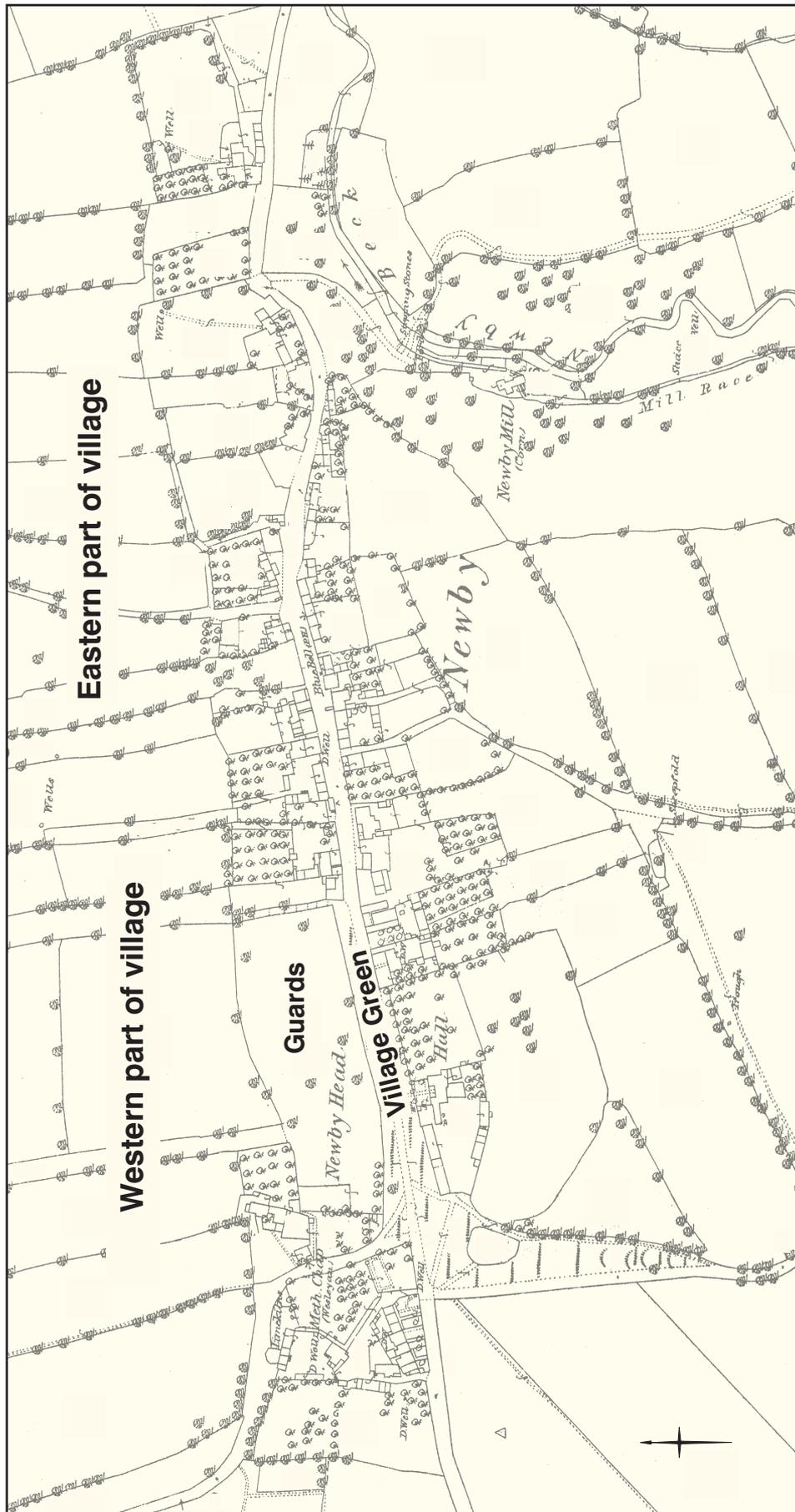


Figure 2.
 Reduced extract from the
 first edition OS map,
 surveyed at 1:2500 scale
 in 1859 (reproduced from
 the 1861 Ordnance survey
 map with labels added)

south-west of Newby in the Towcett/Dendra Bank part of the township for burning in local limekilns (Parson and White 1829, 597).

A rapid inspection of the topography and form of Newby (Fig 2) suggests that it is likely to be made up of at least two principal settlement elements. The village is based on a main street orientated almost east to west, which forms a logical route between the lower land to the east and the higher and perhaps more marginal land to the west - presumably once the location of common pasture. The dwellings in the eastern half of the village are set quite close to and on both sides of the main street. In contrast, the western part of Newby is wider and has been laid out on either side of a long, narrow green. The latter is divided into two almost equal parts by the main street whose route follows its main axis. Settlement along the northern side of the green has suffered from severe shrinkage in the past, which had certainly occurred well before the 19th century. Here, in a meadow called 'Guards' on an early 19th-century estate map (CRO (C) D/Lons/L5/Plans/Newby), are the earthwork remains of former properties which originally extended northwards from the edge of the green and terminated against a back lane (all clearly visible on aerial photographs held in the National Monuments Record (NMR) (Air Photos Library 1761/9 and 13)); fragmentary traces of this last feature also occur behind the properties further east. Newby Hall stands on the south side of the green, with, to the west, its former farm buildings that have in recent years been converted into dwellings (Newby Court), and to the east, the walled enclosure. It seems possible that the western part of the village could have originated as a planned extension to an earlier settlement nucleus set nearer to the beck and now represented by the eastern part of Newby. The village does not have a church; the latter is in Morland village, about 1.3km north-east of Newby.

The fields within the survey area south of the Hall are under pasture and used for horse grazing. The narrow wooded area to the west contains deciduous trees - chiefly ash - with an under storey of holly, blackthorn, hawthorn, and ivy. Rough grassland surrounds the pond in the public area and the southern side of the green is kept mown. The lower two-thirds of the walled enclosure east of the Hall is also horse pasture while the upper third next to the Hall, contains lawn, flower beds and a gravelled area for vehicular access.

3. A BRIEF DOCUMENTARY HISTORY OF THE VILLAGE

This section is not designed to give an exhaustive history of the village but is merely an attempt to provide useful background information derived largely from easily accessible documentary and published sources. The exact origins of Newby are unknown, although the place name indicates a new settlement. The initial settlement may date to after the Norman conquest of the region in the late 11th century and the earliest documentary sources indicate that the de Newby family held land here in the late 12th century (Perriam and Robinson 1998, 298). According to a 12th-century charter, Ketell gave lands in Newby to St. Leonard's Hospital in York (Ragg 1909, 237). In 1518-19, Richard Vernon of Nether Haddon, Derbyshire held of the king 16 messuages and 300 acres of land in Newby Township (Whellan 1860, 803). His son George Vernon sold these possessions to Richard Nevinson, yeoman of Kemplees, during the reign of Queen Mary. The Nevinsons, whose residence was Newby Hall, held the manor for several generations. During the latter part of the 17th century, John and Elizabeth Nevinson, who were the owners at that time, embarked on a major scheme of improvements to the house and its entrance (Weaver and Weaver 2002, 15). On the death of Stanwix Nevinson in 1772, the property passed to his widow Julia, daughter of John Gaskarth of Hutton Hall, Penrith (Rigg 1912, 122). Stanwix's will made in 1767 left, amongst other things, his 'capital house at Newby [i.e. the Hall] ... together with the gardens usually occupied with the same' to Julia (CRO (C) P 1772). A number of the tenants at Newby also had gardens at this time judging by references in the manorial court books (CRO(C) D/Lons/L5/2/17/12 and D/Lons/L5/2/17/13), although these may have been no more than vegetable plots. In 1774 Julia married John Howard, later 15th Earl of Suffolk, and the Nevinson estates passed by marriage to the Howards who sold their Newby holding to the Lowthers in 1805. Under the Lowthers it was a tenanted farm and in the late 1820s the Hall was occupied by Richard Winter, farmer (Parson and White 1829, 597). Latterly it was a hotel (CRO (K) WDX 871/4) but is now a private residence once again.

4. PREVIOUS RESEARCH

The RCHME (1936, 185) included Newby in its Westmorland Inventory. The Newby entry includes a plan and short description of the Hall together with brief details of a number of cottages and houses, largely of 17th-century date. The Hall had previously been described by M W Taylor (1892, 103-105) in his book about manorial halls in Westmorland and Cumberland, and by RM Rigg in an article (Rigg 1912); it is also included by D R Perriam and J Robinson (1998, 298) in their gazetteer of fortified buildings of Cumbria.

In 1982 an excavation was carried out by the Lancaster Archaeology Unit, prior to the building of a bungalow (Kickery View), in the south-east corner of the field called 'Guards' (see Section 2 above) opposite Newby Hall and a little to the east. A small, stone building, visible as an earthwork towards one end of a definable toft, was excavated. It had slightly rounded corners and had been laid out approximately parallel to the main street. Its walls survived to a height of three to four courses under the turf and were founded directly on the limestone pavement. There was a hint that this building might have contained two rooms (the western one possibly for habitation and the other for animals) either side of a central passage. The finds consisted almost entirely of medieval pottery (Rachel Newman, pers comm).

In the early 1990s, as part of RCHME's Air Photo Primary Recording Project, air photographs of Newby were examined by Jane Stone who recorded two separate groups of tofts (with possible house platforms) and their corresponding crofts. These are located at NGR NY 5909 2134 (in the field called 'Guards') and at NGR NY 5955 2140 (above the bend in Newby Beck near the eastern end of the village). Evidence of ridge-and-furrow cultivation surrounding the settlement was also observed (NMR Number: NY 52 SE 20). In 2001 Ken Robinson assessed Newby, as part of EH's Monuments Protection Programme (MPP).

Recently John and Margaret Weaver have undertaken research into the history and setting of Newby Hall. They have concluded that the walled enclosure on the eastern side of the Hall is the remains of a walled garden, which may date to 1685, a time when the Nevinsons were carrying out major improvements to the house (see Section 3 above). They also consider that some of the earthworks (which they interpret as two raised walks, a possible water feature and a water channel) in the valley and on its southern slopes are the remains of a planned landscape, possibly of early 18th-century origin, associated with the Hall (Weaver and Weaver 2002).

During April 2002, GSB Prospection carried out a geophysical survey of the eastern two thirds of the walled enclosure for EH, using gradiometer and resistivity methods. Parallel linear anomalies, on a north-west to south-west axis that could relate either to former ridge-and-furrow or to drainage ditches belonging to a sewerage system, dominated the gradiometer data. The resistance survey produced rather a different picture with evidence of a rectilinear network of low-resistance linear anomalies, some of which do not share the same orientation as the gradiometer features. It was considered possible that while the resistance anomalies could relate to planting beds within a formal garden or orchard, they could also have a more recent origin (GSB Prospection 2002).

5. DESCRIPTION AND INTERPRETATION OF THE FIELD REMAINS

5.1 Introduction

The majority of the earthworks (Fig 3) that fall within the survey area are located in a pair of fields in and on the sides of the valley south of the Hall (these fields, together with the other parcels of land mentioned in this section, are shown in Fig 4). The smaller of the two is a recent creation made by fencing off the eastern part of the larger field. From now on in this report they will be referred to respectively as the large field and the small field. An examination of the cartographic evidence indicates that there have been a number of other changes to the fields and their boundaries in this area. The angular south-western part of the large field was once a separate entity in its own right and on an early 19th-century estate map (dated to 1805 by Weaver and Weaver (2002, 17)) was labelled 'Hovel' (CRO (C) D/Lons/L5/Plans/Newby). The same map indicates that the rest of the large field and the southern part of the small field formed a single unit then called 'Well Garth'. Unlike 'Hovel', 'Well Garth' was mentioned specifically in the 1767 will of Stanwix Nevinson, where it is included as one of 'several lands' which were to be left to his widow. The map also indicates that the walled enclosure (whose interior contains slight earthworks), situated east of the Hall, has been reduced in size because during the early 19th century the boundaries of the enclosure extended further south and enclosed what is now the northern part of the small field. According to the Tithe Award 'Hovel' was pasture and 'Well Garth' a meadow (CRO (K) WDRC/8/155) (Fig 5). Hollow-ways, similar to those that are present in the south-western part of the large field, survive in the wooded area that lies immediately beyond the western boundary of this field; a linear mound in the public area (containing a pond), at the northern end of the woodland, may be related to them. At the time of the Tithe Award, what is now the wooded area was waste used as pasture (CRO (K) WDRC/8/155). Slight earthworks on the southern side of the village green were also recorded as part of the EH survey.

The earthworks fall into a number of well-defined types or groupings and these will be used below as headings to give order to the descriptive account. To some extent these divisions also reflect the chronological development (albeit relative) of the site. Letters/numbers have been used to identify individual features and these labels have been included in Fig 9.

5.2 Hollow-ways

Nine definite and possible hollow-ways were recorded during the EH survey (HW1 to HW9). They appear to fall into two chronologically distinct groups.

5.2.1 The main group

Part of the north-facing slope of the valley that lies both within the south-western angle of the large field (formerly 'Hovel') and also in the narrow wooded area is deeply furrowed by a series of former tracks that have created prominent hollow-ways; at least seven are present here (HW1 to HW7). They diverge from the southernmost corners of the large field and wooded area, which lie on the lip of the valley. Beyond the latter, their projected route is continued by the line of the minor road that provides a link between the western end of Newby village (Newby Head) and Sleagill to the south (Fig 1). Their courses down the slope are slightly curved -

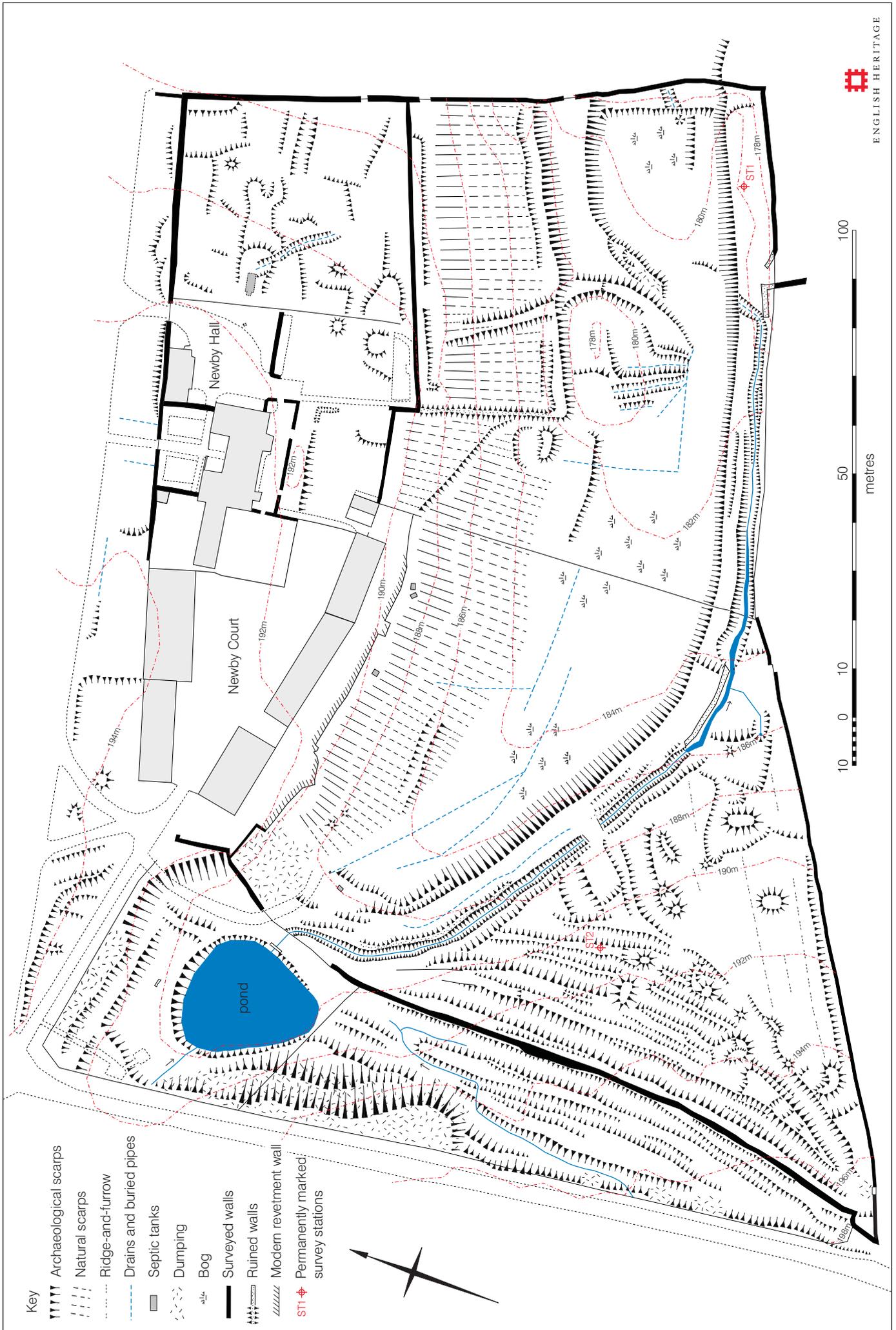


Figure 3. English Heritage plan of the earthworks near Newby Hall at 1:1000 scale

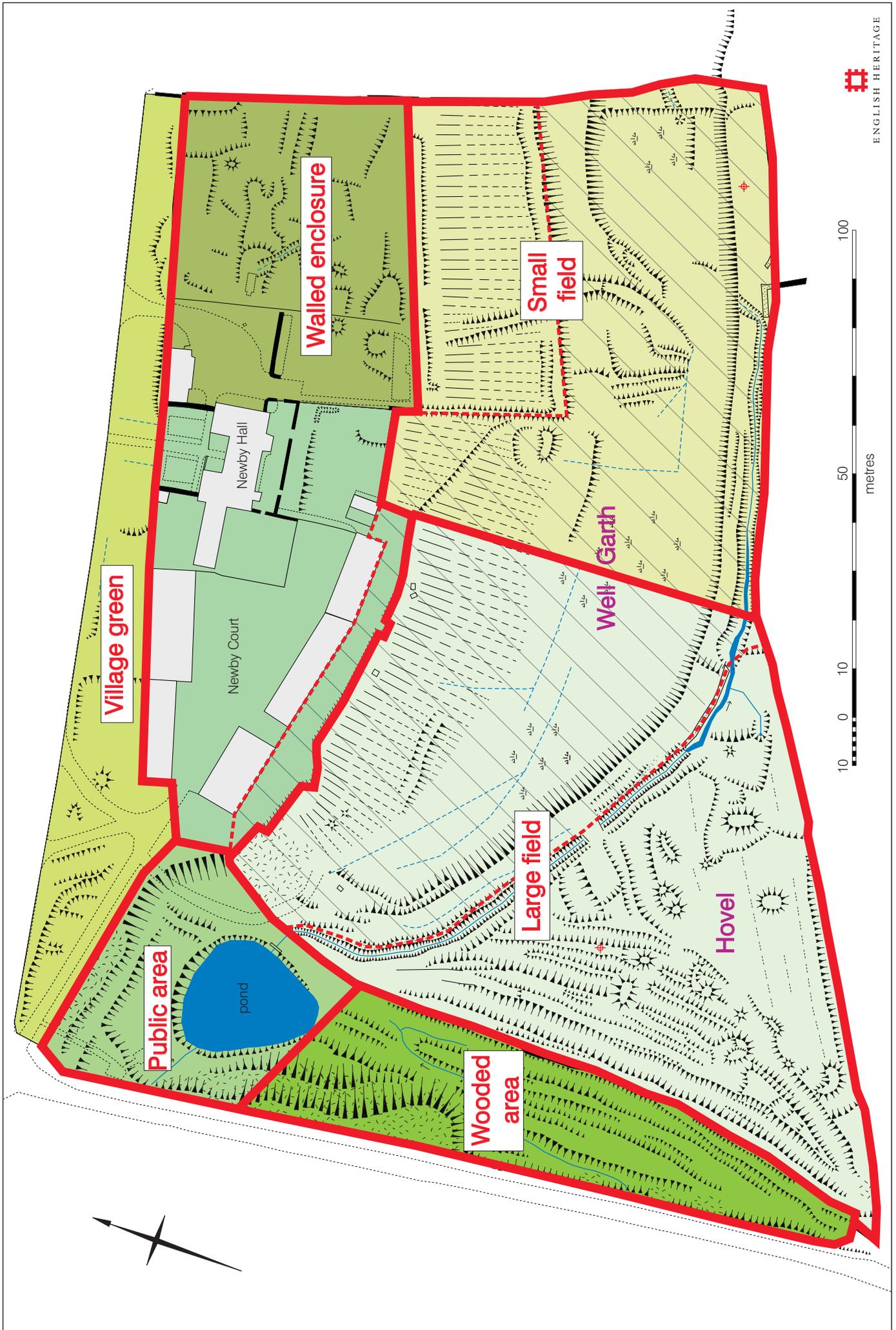


Figure 4. Plan showing fields and areas referred to in the report ('Well Garth' hatched and extent based on an early 19th-century estate map (CRO (C) D/Lons/L5/Plans/Newby))

Figure 5.
Extract from the
Tithe Map of 1839
showing the west end
of Newby (taken from
CRO(K)WDRC/8/155)



particularly true of those situated to the east - and near the bottom of the valley they peter out where the land becomes waterlogged. Some are quite narrow and may have been for pack horses or horse-drawn sledges, whereas HW4 and HW5 are broader and their level bottoms suggest that they would also have been suitable for wheeled vehicles.

Originally the tracks must have crossed the floor of the valley and ascended its northern side, presumably to a junction with the western end of Newby's main street and the precursor of the current road, which leads north-west out of Newby Head. A terraced-way (TW2) and possibly the pond have largely destroyed evidence for the continuation of this route beyond the hollow-ways. However, although the natural slope to the north above the latter has been disturbed and obscured by dumping, a 0.5m high linear mound, together with scarps on the adjacent part of the village green, may be the remnants of this route.

Individual hollow-ways are usually separated by narrow spines of land, although the one separating HW3 from HW4 is much broader and almost banana-like in plan being narrow at both ends and wider (about 7m across) at its centre. This feature has been interpreted as an ornamental raised walk by Weaver and Weaver (2002, 17), but this is unlikely given its shape. In addition, its upper surface is not level and is crossed or followed in a number of places by very low scarps, about 0.2m high. Of these, an east-facing linear scarp shares the same orientation as the major axis of HW4 and is only 2m from the edge of the latter suggesting that it may be up-cast from cleaning out this hollow-way when it was still functional. Slight scarps near the eastern edge of this spine could also relate to similar activities associated with HW3. Another possibility is that some of these scarps belong to yet another track, but one that had a short life and so never developed into a deep hollow-way. HW4 and HW5 are the most prominent and well-formed suggesting that they are relatively late in the sequence of hollow-ways here and their maximum depths are respectively 1.3m and 1.5m. The former must have been disused by the time the west wall of the large field (formerly that of 'Hovel') was built and it is tempting to see HW5 as its replacement.

This last hollow-way was the site of a foot path on the first edition County Series 25” Ordnance Survey map (hereafter referred to as first edition OS map) surveyed in 1859 (Ordnance Survey 1861). The depiction of this path is perpetuated on later editions of the map (Ordnance Survey 1898; 1916).

Some of the hollow-ways in the south-western part of the large field are overlain by a number of later mounds (see Section 5.4.2 below) whose construction has damaged them and created gaps in their courses. Modern dumping has encroached on HW7, the westernmost hollow-way in the wooded area. In places the bottoms of the hollow-ways are boggy, this is due in large part to surface water draining into them from the top of the valley and also from the modern road to Sleagill. In one place a modern road drain has been cut through the side of HW7. Near the large modern dump, a cut drain takes the water across the spine separating HW7 from HW6 and then into HW5 where it disappears underground but must lead into the adjacent pond. Traces of another open drain are also visible in the bottom of HW5 south of where the water from HW7 enters. Relatively recent wheel ruts associated with the digging of these drains survive on top of the spine (near its northern end) that divides HW5 from HW6.

5.2.2 Possible other hollow-ways (HW8 - HW9)

Two short but broad linear hollows are situated immediately east of the main group of hollow-ways described in the previous section. They are both about 0.7m deep. While they could be the products of erosion, their sides are fairly regular in plan and they seem to continue the line (in a north-easterly direction towards the lower part of Newby village) of the upper sections of some of the hollow-ways in the main group. It is quite likely, therefore, that HW8 and HW9 are also the remnants of hollow-ways. They appear to be earlier in date than the main group because their projected courses towards the south-west have been blocked by at least HW1. There is now no visible evidence on the valley floor for the possible tracks which created them although a short length of a broad terraced-way (TW1 - see Section 5.5.1 below) just above the valley bottom in the small field, could mark the continuation of their route on to the northern side of the valley.

5.3 Ridge-and-furrow cultivation

Fragmentary remains of ridge-and-furrow cultivation are present in the large field in the area formerly occupied by the south-eastern half of ‘Hovel’. The ridges are very denuded and measure no more than 0.25m high and are orientated south-west to north-east; in areas where more than one ridge survives, they are spaced about 4m to 5m apart. Their relationship to the hollow-ways is not clear but they too are overlain or truncated by some of the later mounds (see Section 5.4.2 below) and must, therefore, predate the latter. Their degraded condition suggests that they are in fact, considerably earlier than the mounds.

5.4 The rabbit warren

The identification of possible pillow mounds, and the very substantial nature of the stone field walls, suggests that at some stage former ‘Hovel’ may have functioned as a small rabbit warren. The following description deals first with the walls, then with the mounds and lastly with a ramp.

5.4.1 The boundaries

Map evidence (Fig 2) indicates that former 'Hovel' was bounded on three sides to form an enclosure, approximately triangular in plan. The western and south-eastern walls still survive as part of the boundaries of the large field; the western wall is particularly substantial. The boundary defining the third (north-eastern) side of former 'Hovel' has been removed although traces of it (BF1) are still visible along the rear (south-western edge) of a prominent terraced-way (TW2) described below in Section 5.5.2. This boundary was also a stone wall although for much of its length it is now little more than an intermittent and low stony bank (north face about 0.3m high) and its south face (a revetment wall in places) forms one side of a field drain. Its south-east end survives as a short length of ruined walling which still stands up to four courses high; its faces are about 0.8m apart.

As the western wall comes up to the south-western corner of the large field, it suddenly bends out towards the west and then turns south again to make a junction with the south-eastern wall, thus creating a small trapezoidal recess in the corner of the field. This feature is also depicted on the 1916 edition of the OS map (Ordnance Survey 1916). Weaver and Weaver (2002, 17) have suggested that there may have been a building or shelter here, but archaeological and cartographic evidence rather suggests that the recess may be largely the result of alterations to the field boundaries in this part of former 'Hovel'. Field walls form three sides of the recess and the fourth (eastern) consists of a step-like, stony scarp (BF2), 0.2m high. This east-facing scarp is the remains of an earlier course of the western wall - the latter once joined the south-eastern wall some 5m north-east of the present field corner and this earlier arrangement is shown on the first edition OS map surveyed in 1859 (Fig 2). At that time most of the land which was later to be occupied by the recess, lay outside the western wall in the corner of the field which abutted former 'Hovel' on the south.

A blocked rectangular opening that clearly penetrated the full width of the west wall of the recess is visible some 0.5m north of the present corner of the large field. It is 0.6m high and 0.5m wide and its base is at ground level while a stone lintel crosses its top. This feature is very similar to the hog-holes (also called sheep-creeps, which allow sheep to pass from one field to another) which are common in Cumbrian field walls, but this one opens on to a road which may make such an identification unlikely. Alternatively, it may have been constructed to facilitate drainage of surface water from the road into former 'Hovel' (but why so large?), or was connected with rabbit catching.

5.4.2 The mounds (MD1 to MD14)

The interior of former 'Hovel' contains a number of mounds some of which, as has been shown earlier in this report, clearly post-date the ridge-and-furrow cultivation and the hollow-ways that fall within the enclosed area. In all fourteen are present and are of varying shapes and sizes. Some are small and approximately circular, while others are much larger being oval or sub-rectangular in plan. There is even a small cigar-shaped mound, MD3, while MD9 consists of an oval platform with a small mound at each end of its long axis. The small mounds on average are 3m across and 0.4m high whereas the large ones range from 0.7m to just over 1m in height. Of the latter, MD12 is the most substantial and measures 9m by 5.5m in plan. A square depression in its eastern side, clearly a fairly recent disturbance, indicates that it is constructed of earth. This material was probably derived from the immediate vicinity

of the mound and its removal may account for the large, shallow depression of irregular outline that surrounds MD12 on the west and north. In addition, this feature helps to direct surface water away from the mound and down the slope. The other large mounds appear to have been constructed in a similar fashion. The heaping up of material for MD1, for example, has created a ditch-like feature (0.4m deep) on its south-western side while the construction of MD5 has cut into the spine separating hollow-ways HW3 and HW4. Hollow-ways and spines were similarly damaged when MD6 to MD8 were made. Perhaps the hollow-ways were perceived as being useful for drainage, which is why some of the mounds were built over them. A number of the mounds show evidence of old disturbance, in the case of MD14 this has created a shallow depression on its top whereas MD6 has been left with a tail-like projection and MD1 is now kidney-shaped. Mounds MD7 to MD9 have a linear arrangement along the valley side just above the point where the natural slope steepens considerably - this positioning may have helped prevent the mounds from becoming waterlogged. The purpose of the small mounds is not immediately clear but the large mounds may well be former pillow mounds for rabbits.

5.4.3 The ramp

The north end of the spine that separates hollow-ways HW3 and HW4 has traces of a cobbled ramp, edged on both sides by larger stones, rising up on to it. It may be significant that this occurs where the ground is particularly boggy. Perhaps this was near the original entrance into former 'Hovel' with the stones being laid to provide drier and firmer access. It is not clear from the field evidence if the cobbling and the use of this area as a possible rabbit warren were contemporaneous.

5.5 The terraced-ways

Two terraced-ways were recorded during the EH survey. One (TW1) lies on the northern side of the valley in the eastern part of the small field and the other (TW2) lies to the south on the other side of the valley.

5.5.1 Terraced-way TW1

This is situated just above the valley floor and consists of a short length of broad terrace, about 6m wide, edged by single south-facing scarps on both the north and the south. The one at the south stands approximately 0.9m above the valley floor while the northern scarp is part of a former boundary feature (see BF8 in Section 5.7.1 below). TW1 may once have continued further west and have linked up with possible hollow-ways HW8 and HW9 (see Section 5.2.2 above). It may also have extended in an easterly direction because there are boundaries behind some of the properties on the southern side of the village that are close to its projected line. A farm gate now gives access to the eastern end of the terrace.

5.5.2 Terraced-way TW2

TW2 is the most prominent earthwork to be recorded at Newby (Fig 6). It consists of a broad, terrace whose western half in the large field has been laid out chiefly across the lower, north-facing slope of the narrow valley south of Newby Hall. In this field its top may have been slightly disturbed in recent years by the insertion of a water pipe. If this were correct then it would explain why what looks like a back-filled narrow trench is visible in places. The eastern part of TW2 lies within the small field

where it is located close to and parallel with the southern boundary. Formerly this boundary consisted of a wall although, apart from some footings, this no longer survives along the western two-thirds of the boundary where it has been replaced by a fence.



*Figure 6.
View of terraced-way
TW2 looking east
from the large field*

The section of TW2 in the large field

The north-western end of TW2 has been disturbed, partly through access into the field but also by pipe trenches and an inspection chamber (probably connected with sewerage disposal). There has also been much recent dumping of building materials on the northern side of the valley that has obscured any evidence for its continuation up the slope. Enough survives though to indicate that in this area TW2 was orientated almost north to south. It also appears to have continued the projected line of some of the hollow-ways, described above in Section 5.2.1, across the head of the valley. However, it must be later in date than these earthworks because once the southern side of the valley is reached, TW2 changes direction and swings to the south-east clearly cutting across the projected routes of the easternmost hollow-ways. It forms a particularly striking feature from this change in direction to the boundary with the small field. Its upper surface measures about 6m across and a long, steep scarp (up to 1.6m high) falls away from its north-eastern edge towards the valley floor. An intermittent and low stony bank, together with some walling to the south-east, is visible along the south-western edge of TW2's top and is the remains of the north-eastern boundary (BF1) of former 'Hovel' (see Section 5.4.1 above). A few old standard ash trees are present on its line. The narrow channel of an open drain (DN1) is situated immediately in front (south-west) of this former boundary; it has been dug along the perimeter of TW2 to carry surplus water away from the pond situated just beyond the northern end of the wooded area (see Section 5.6.1 below). The bottom of the drain is about 0.7m below the top of the terraced-way. In one place a short length of the drain has recently been filled in (and the water piped) in order to improve farm access into the south-western part of the large field. It is just possible that at some time TW2's north-east edge was also followed by a field

boundary long since removed. This may be the reason for the slight south-west facing scarp (BF3), about 0.3m high, which is visible behind this edge just over half way along TW2 towards the south-east. Some 13m before the boundary with the small field is reached the top of the terraced-way is crossed by a prominent east-facing scarp (BF4) and after this point the character of TW2 changes quite markedly. This cross scarp seems to be near the approximate position of the easternmost corner of former 'Hovel' as shown on the first edition OS map (Fig 2). At the time of this map the corner was near the southern edge of TW2 but perhaps it and the boundaries which form it had once extended to the north-east edge of TW2, hence BF4.

The section of TW2 in the small field

By the time the small field is entered the upper surface of TW2 has narrowed to about 3m to 4m in width and its orientation has changed to one that is now west-south-west to east-north-east. The southern part of the valley also opens up here and what to the west has been the latter's north-facing southern slope, now turns to the south (faces east) and away from the survey area (Fig 7). As a consequence of this TW2 is no longer terraced into the hillside but occupies much flatter land and has more the appearance of a raised feature. To some extent this is a false impression caused by a still prominent main scarp falling away from its northern edge and standing about 1.2 m high (maximum) above the valley floor, and by the channel of the open drain, DN1. The western part of this channel is quite wide and up to 1m deep which helps to over-emphasise TW2 in relation to the immediate topography to the south. As the course of the drain proceeds eastwards the channel becomes less dominant and just over half way across the field it ends where the water is presumably piped under TW2 (hence the shallow linear depression across the top of the latter) and across the bottom of the valley. After this point the top of TW2 is about 6m wide again (assuming that the southern wall of the small field defines its edge on this side although there is very little difference in the height of the land on either side of the wall), suggesting that the narrowing further west may have been caused by the insertion of the drain. The latter must, therefore, be later in date than TW2 and not constructed at the same time as



Figure 7.
The local topography
of the area surveyed
at Newby

suggested by Weaver and Weaver (2002, 17). From here to the corner of the field the only feature which really defines or indicates the presence of TW2 is the scarp which slopes away from its northern edge. Near this corner some of the scarp seems to bend northwards and defines the eastern edge of a wet area (see Section 5.6.2 below) but the rest of it carries on, although less pronounced, into the adjacent field. Slight irregularities on the ground and kinks in the paddock boundaries beyond this field may mean that originally TW2 continued further east.

Returning to the western end of TW2, the remnants of a former field boundary along the northern edge of its top may be the reason for a short, low scarp (BF5) set a short distance back from the main scarp falling to the valley floor. BF5 is first visible about 18m back from the fence that separates the small field from the large field. The removal of a possible boundary from along the top of the main scarp could have contributed to the present rather sharp and prominent appearance of the latter.

5.6 Water features

In addition to the various drains, modern pipe trenches and septic tanks described or referred to elsewhere in this report, a pond and a particularly wet area are considered to warrant individual descriptions. With regard to the drains and pipe trenches these were, on occasions, difficult to follow and record in the valley bottom. This was due to the fact that much of the land here was waterlogged at the time of the EH survey and its surface had been severely churned up by horses.

5.6.1 The pond

The principal water feature is the pond in the public area at the western end of the village. According to information on two estate maps - one possibly of 1817 (CRO (C) D/Lons/L5/Plans/Newby) - and the Tithe Map there has been a pond here from at least the early 19th century. It was also shown on the first and subsequent editions of the OS map (Ordnance Survey 1861; 1898; 1916). In the Newby Tithe Map Apportionment the pond and its immediate environs were described as a 'Public Watering Place' (CRO (K) WDRC/8/155), no doubt a true reflection of its origin and function. According to local information the pond had largely become a boggy area by the end of the 20th century when it was refurbished to celebrate the millennium. This explains why its current shape is slightly different to that shown by earlier cartographic sources. A small island, about 3m across, has been created in its western part, but due to the depth of the water this was not surveyed by EH. Wooden and stone seats have also been positioned on the valley side above the pond to the north.

The pond is situated at the head of the narrow valley whose sides have been extended towards the pond on the north and west by dumping. Water now enters the pond at the south and north-west via drains with surplus water leaving it on the east. The latter does not discharge into the valley bottom immediately below the pond but is led away by an open drain (DN1) along the southern side of the valley. DN1 has been laid out above the valley floor and follows the southern edge of the terraced-way (TW2). It does not come on to the bottom of the valley until the eastern part of the small field is reached (see Section 5.5.2 above). This rather circuitous route may have been adopted in order to prevent the valley bottom south and south-west of Newby Hall becoming too waterlogged. This route also allows DN1 to collect surface water flowing down some of the earlier hollow-ways (HW1 to HW4) in the south-western part of the large field together with the water rising from the spring in

the eastern corner of former 'Hovel'. It would, therefore, appear to be part of the local land drainage system.

5.6.2 The waterlogged area in the small field

It has been suggested (Weaver and Weaver 2002, 14 and 17) that there may once have been a pond or lake on the floor of the valley in the south-eastern part of the small field which was indeed waterlogged at the time of the EH survey. This area (WA1) certainly possesses an approximately sub-rectangular shape which, apart from on the west, is delineated by scarps. However, two of these are slopes belonging to other monuments (terraced-ways TW1 (north) and TW2 (south)) rather than earthworks related specifically to the creation of a pond. The eastern side of the alleged pond is a scarp that comes off TW2 and has a straight course across the valley floor and joins TW1; it is steep, faces west and clay is visible on its surface. This scarp is certainly related to activity on the valley floor, but it is unlikely to be the remains of a dam because it is only about 0.5m high and there is no corresponding drop in height beyond it to the east. Indeed its appearance is rather that of a cut scarp caused by the removal of material to the west. The lack of any proper closing scarp or termination further west on the valley floor also militates against there having been a major water feature in this area (relatively late dumping may have created the scarps at the north-western corner of WA1). A more likely explanation for the boggy nature of this area may be that as this part of the valley is a natural gathering place for water, some of the ground has been lowered to facilitate water collection for piping away by land drains. A small, stony depression, together with a shallow linear hollow (DN2) between the boggy area and the east wall of the small field, is evidence of this drainage. Drainage of the valley floor has certainly been a major concern judging by the number of land drains visible; some have left prominent earthworks such as the group arranged in a herringbone pattern a short distance west of WA1, near two large sycamore standards. This method of drainage was not practised widely until the 19th century (Taylor 1975, 149-50).

5.7 The walled enclosure east of Newby Hall

The EH survey has shown through an examination of the current walls, together with the recognition of early boundary features in the small field, that the walled enclosure was once more extensive. The boundary features survive as earthworks and represent the limits of the enclosure on the south before the area enclosed was reduced by approximately one third around the middle of the 19th century (see below). These earthworks equate well with boundaries depicted on two early 19th-century maps and even illustrate changes to the position of part of the southern boundary, which had occurred in the time between the production of these maps. Bee-boles survive in its north wall. The surface of the interior of the present enclosure slopes eastwards away from the Hall and is irregular due to the presence of slight earthworks.

5.7.1 Walls and boundary features

Walls bound the enclosure on the north, east and south; those to the north and east are substantial and the height of the former, where it faces the road, is about 2m high. The recently planted coniferous hedge that is now the western boundary merely reflects the current unequal division of the enclosure between two different landowners. Cartographic sources indicate that the western boundary once extended right up to the Hall, incorporating the latter's eastern wall in its line (Ordnance

Survey 1861; 1898; 1916). Little of this earlier boundary survives apart from the short wall (WL1) which extends northwards from near the north-east corner of the Hall, and the even shorter length of wall (WL2) in the dog-leg on the boundary which separates the Hall's present garden on the south from the small field. The end of this wall in the small field is rather ragged and its core is clearly visible as a result of truncation further south. The current southern wall of the enclosure is also a later insertion. Map evidence indicates that this wall was built between 1839 (Tithe Map) and 1859 (survey for the first edition OS map) (Figs 5 and 2). A straight joint is visible where this wall meets the remnants of the earlier western boundary (WL2) of the enclosure. Horses crossing the northern part of the small field from a farm gateway are actively eroding the ground and this is probably the origin of the stony scarp that is parallel to and immediately in front of the present southern boundary. This scarp is interrupted by a gap towards the west, which is due to the presence of a mature ash standard and its partly exposed root system.

The early south-western and southern limits of the enclosure, as shown on an estate map dated to 1805 by the Weavers (Weaver and Weaver 2002, 17), are represented on the ground by a low stony bank (BF6) and linear scarps (BF7 and BF8). The enclosure is labelled 'Orchard' on this map (CRO (C) D/Lons/L5/Plans/Newby). BF6 is 0.3m high and continues the line down the valley side of WL2; wall footings are visible where the bank has been eroded at its north end by horses. BF7 is a prominent south-facing scarp with a maximum height of about 0.8m and has slight scarps behind it. BF8 is very similar but its principal scarp has a greater length and stands up to 1.1m in height.

It may be significant that where BF7 and BF8 join to form the continuous boundary of the estate map, there is a slight kink in their course to the north of which is a very low and spread bank (maximum height about 0.25m) orientated nearly south-east to north-west (BF9). It is possible that BF8 and BF9 once formed two sides of an even earlier enclosure and that they were later utilised (in the case of BF8) or became redundant (in this instance BF9) when the walled enclosure was established.

By the time the Tithe Map of 1839 was prepared (CRO (K) WDRC/8/155), the position of the eastern part of the southern boundary of the enclosure had already changed. While BF6 and BF7 were still elements of the perimeter, BF8 does not appear on this map. It had been replaced by a new boundary, partly extending on to the valley bottom, whose course had a marked, angular change in direction towards the west. On the ground part of this former boundary (west of the change in direction) survives as a tongue of higher land (BF10), about 0.6m high and extending south from the eastern end of BF7. Further east, the boundary is no longer obvious on the ground although part of the southern side of TW1 may reflect its former presence. In the Newby Tithe Map Apportionment the enclosure was described as a 'Garth', used as a meadow. The partial revision of the boundary may have been associated with this change in land use (from being an orchard - see above), perhaps due to a need to facilitate easier access on to the wetter valley floor (i.e. 'Well Garth' which was also a meadow at this time). Although it was no longer functional when the first edition OS map was produced, a short stretch of this boundary was still shown on this map to the east (Fig 2).

5.7.2 The bee-boles

Two well-preserved bee-boles, about 1.87m apart (centre to centre), are present in the south face of the north wall of the enclosure on the western side of the Hall's

vehicular entrance. Both consist of square recesses whose bases are 0.85m above ground level; single slabs have been used for lintels and bottoms. The western bole (BE1) (Fig 8) measures 0.55m across and penetrates 0.55m into the thickness of the wall while its neighbour (BE2) is 0.5m across and its depth of penetration is 0.45m.



*Figure 8.
The westernmost
bee-hole (BE1)
from the south*

The blocked entrance to another bee-hole (BE3) could be the explanation for a feature visible in the south face of the same wall, on the eastern side and down-slope of the vehicular entrance. It is 0.1m above ground level and measures 0.35m in width and about 0.5m in height; a crude stone lintel crosses its top. However, unlike the bee-boles to the west, this feature is closer to the ground, is rectangular rather than square in plan and has been filled with blocking material. This may mean that it is not a recess but rather the remains of an opening extending through the full width of the wall. If this were the case then its blocked other end should be visible in the north face of the latter, but any detail here is concealed under a dense covering of ivy.

5.7.3 Earthworks within the walled enclosure

The surface of the ground within the enclosure, east of the coniferous hedge, superficially looks fairly smooth - possibly an indication of relatively recent re-seeding or deliberate levelling. On closer inspection, however, the ground is uneven with many slight scarps, some of which may have been created by this 'smoothing' activity. None of the features recorded during the EH survey seem to be formal garden features and the most prominent appear to be of fairly recent origin. Parts of the interior, especially towards the south-east corner of the enclosure, were very muddy at the time of the survey due to the soft ground having been churned up by horses - in certain places this made earthwork recognition and survey impossible.

The most obvious feature is a disused septic tank situated south of the coniferous hedge and towards the northern part of the enclosure. It is surrounded, except on the west, by a raised area that must be up-cast from constructing the tank. An associated drain is probably the reason for the shallow ditch-like feature leading away from the

tank on the south-east. A slightly elevated and irregular tongue-like feature, approximately 0.25m high, extends on the east for about 14m from the up-cast mound; its origin and function are uncertain.

Further south there is another tongue-like feature near the end of the coniferous hedge. In a few places bricks and broken concrete slabs protrude through its surface, indicating that it is probably just dumped material; this may also be the explanation for the low mounds in the lawn immediately to the west on the other side of the hedge. There is also dumped material in the north-east corner of the enclosure.

There are several short, linear scarps that have a general east to west orientation. Again it is not clear what they represent but near the eastern boundary of the enclosure and about half way along, three seem to define a shallow trough with a low ridge, about 0.25m high, on its northern side. It is possible that these features are either the remains of ridge-and-furrow cultivation or the remnants of tree-planting ridges, perhaps belonging to the time when the enclosure was an orchard (CRO (C) D/Lons/L5/Plans/Newby).

5.8 Miscellaneous earthworks

A kidney-shaped mound terraced into the south-facing slope of the valley, immediately west of the junction of boundary features BF6 and BF7, is, according to local information, an animal burial. Also present on this side of the valley are two short tracks descending the natural slope (TR1 and TR2); they appear to be minor features although the eastern part of TR1 may be respecting boundary feature BF6.

The EH survey also included the southern side of the village green in front of the Hall and its former yard. A number of slight earthworks were recorded some of which clearly relate to pipe trenches while others may be the result of dumping (such as the earthworks immediately outside the northern boundary of the walled enclosure and east of the vehicular entrance).

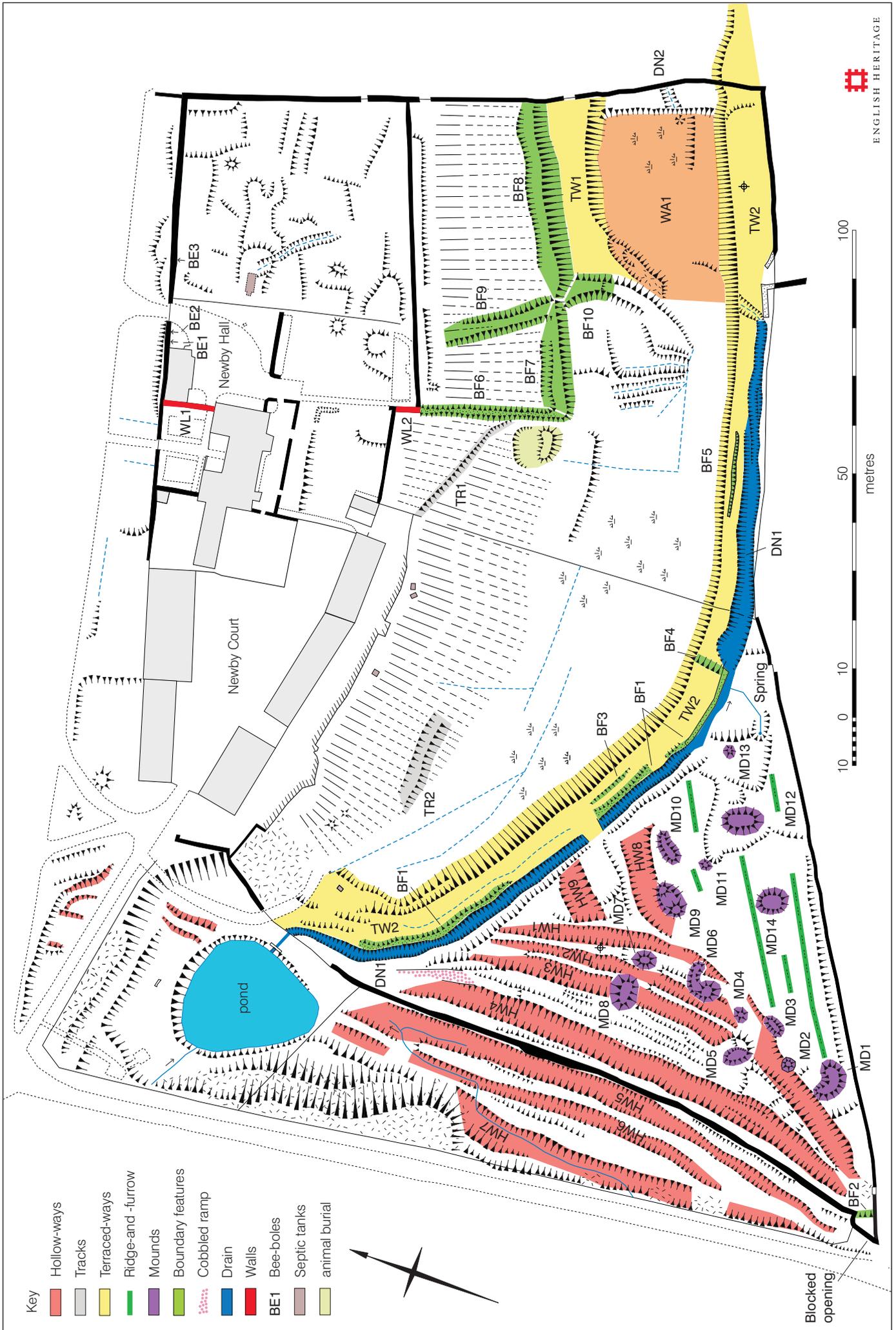


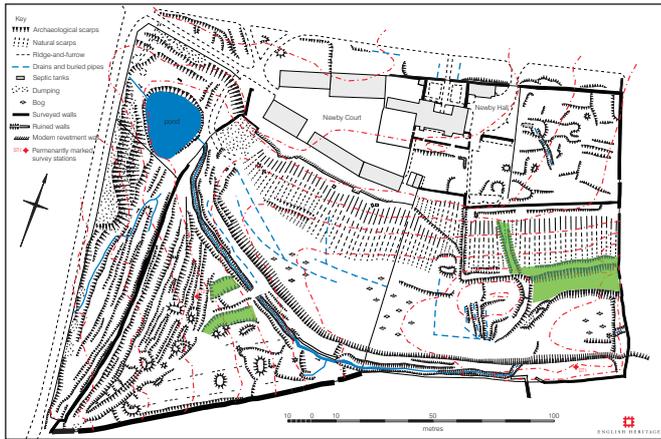
Figure 9. Interpretive diagram showing the archaeological features described in the report

6. DISCUSSION

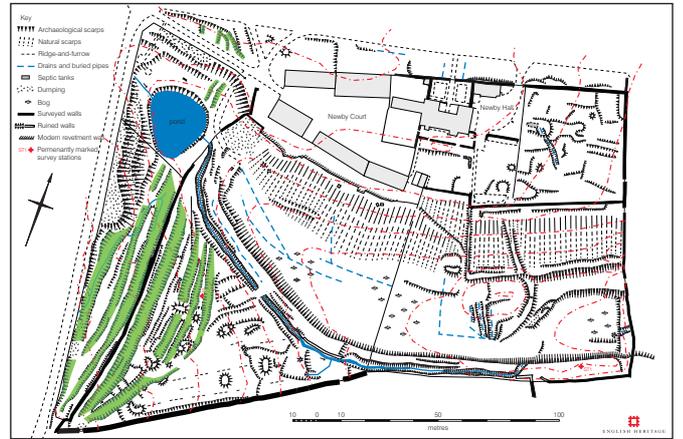
One of the problems with a survey such as this is that only a single area of a surviving and apparently extensive village landscape has been surveyed and investigated in detail. The lack of a similarly detailed knowledge for the rest of the settlement means that it is often difficult to understand and relate what has been found to the overall morphology and developmental history of the village. As a result, some of the suggestions and interpretations put forward in this section are by necessity of a very tentative nature. A very crude attempt has been made in Fig 10 to try and put the principal features into phases. This is a speculative exercise based largely on relative chronology, hence the lack of dates until the final phases, and is included simply to help navigate the reader through the rest of this section. No doubt a more informed overview would be obtained if the other areas of earthworks at Newby (see Section 4 above) received the same level of investigation. Research by Brian Roberts into a number of villages in the Eden Valley has clearly demonstrated the value and importance of settlement studies in this area of Cumbria (Roberts 1993; 1996).

Some of the earliest earthworks recorded by the EH survey appear to be the hollow-ways in former 'Hovel' and possibly some of those to the west in the wooded area (see Section 5.2 above). The number of hollow-ways present indicate that they must have formed over a period of time and represent a succession; perhaps as a track became too boggy or rutted, traffic moved out of it and started to create a new one beside it. Their form and multiplicity can be paralleled among hollow-way groups which have been recorded elsewhere, such as in the Derbyshire Peak District where the former RCHME recorded large numbers on the gritstone moors (for background information about this survey and NMR numbers see Ainsworth 2001). Some of the Newby hollow-ways are probably of medieval origin and their proximity to the modern road that links Newby Head, Sleagill and Reagill suggests that they relate to an earlier version of this route which may once have continued southwards to Crosby Ravensworth. Part of this extended route could account for at least one of the hollow-ways recently recorded on the hillside above the ruins of the medieval and later house at Crake Trees, between Crosby Ravensworth and Reagill (Dunn *et al* 2000). In Section 5.2.2 above, it was argued that the first hollow-ways in this part of Newby could have been HW8 and HW9 (which may have linked with terraced-way TW1). These diverge from the main hollow-way group and may once have provided access to the eastern part of the village. It was suggested above in Section 2 that Newby seems to consist of two principal settlement elements with the earliest possibly being the one to the east. If this is correct then the expansion of the village to the west, and the creation of the green, is likely to have led to a major revision of the communication pattern with subsequent hollow-ways (the main group) developing along a route that now linked with the western end of Newby village (Newby Head).

Terraced-way TW2 is laid out across the projected routes of some of the hollow-ways indicating that it must be later in date (see Section 5.5.2 above) - by how much is impossible to determine from field evidence alone. It is a striking and rather curious feature whose exact function and origin are now difficult to ascertain. It may, however, be significant that its southerly edge is closely associated with current or former field boundaries. Indeed it has been noted above (see Section 5.5.2) that short, slight scarps (BF3 and BF5) near its northernmost edge could be the remnants of other former field boundaries which have long since been removed (perhaps replaced by those to the south). It is possible, therefore, that TW2 has partly evolved as a lynchet behind a former boundary. Another possibility is that the southern half of Newby mirrored the northern half of the village and had a back lane and that this is



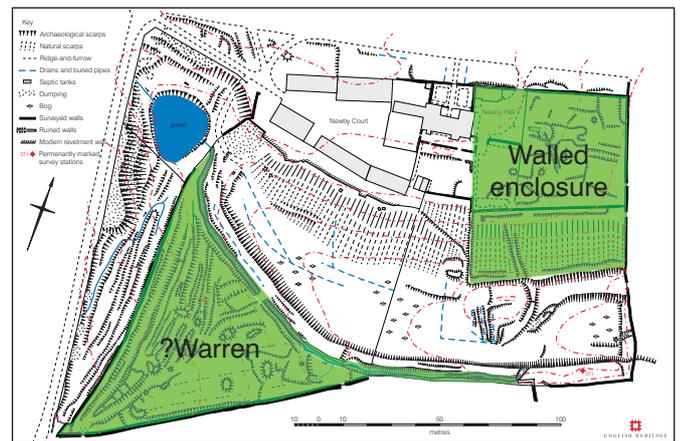
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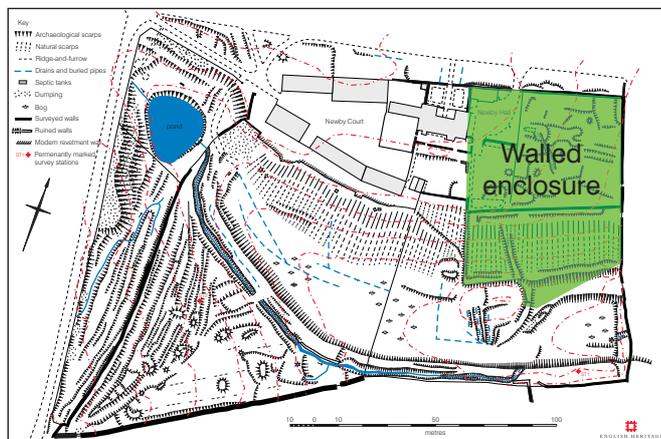
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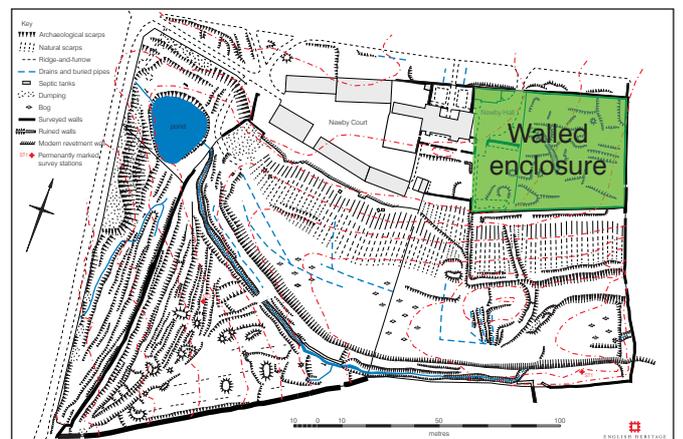
III



IV



V



VI

Figure 10. Phase diagram of the principle features recorded by the EH survey (Phase I and some of Phase II probably medieval, Phase V walled enclosure based on the Tithe Map of 1839 and Phase VI on the first edition OS map surveyed 1859)

part of it (for information about the northern back lane see Section 2 above). This would certainly help to explain why the main scarp of TW2 continues in an easterly direction beyond the small field and also the change in direction at the north-west where TW2 turns towards the western end of the village. It is, however, set well back from the rear of the settlement but this may be no more than an avoidance of the boggy floor and steep northern side of the valley. If TW1 was also part of a back lane (perhaps pre-dating TW2 and going with the postulated earlier eastern element of the village) then TW2 may have been its successor. If TW2 was walled on both sides, it could even have served as a drift-way for taking farm animals from the eastern part of Newby through enclosed land to common grazing. It has also been suggested that this was an ornamental walk related to Newby Hall (Weaver and Weaver 2002, 17-18), but if this was its function, it is surprising that it continues east of the small field and has residual banks from former field boundaries on its top. These features contribute to a general feeling that the origin and subsequent history of TW2 is much more likely to be rooted in the local agricultural and settlement landscape.

As a result of the EH survey, it has been suggested that former 'Hovel' (see Section 5.4 above) may have been a small rabbit warren. From field evidence alone it is impossible to deduce if this was the reason for its creation or merely one of its subsequent uses. Its north-eastern boundary (BF1) lay at the south-western edge of TW2's top and its inner side was followed by an open drain (DN1), which transports surplus water away from the pond. The impression gained during survey was that the drain represents a later insertion into the terraced way (see Section 5.5.2 above). In places BF1 appears to act as a revetment for DN1 which may mean that at least this side of former 'Hovel' is similarly later than TW2 in origin. The area enclosed by the boundaries of former 'Hovel' took in part of a parcel of ridge-and-furrow cultivation (see Section 5.3 above) and also many of the hollow-ways described above in Sections 5.2.1 and 5.2.2. Much of the interior was thus very irregular which, together with the land having a tendency to become waterlogged (there is also an active spring in the eastern corner of former 'Hovel'), probably meant that it was viewed as being of low agricultural potential and thus suitable for a warren. It is interesting that Holt (1795, 175), writing about agriculture in the adjoining county of Lancashire, claimed 'that neither cows nor sheep will produce so great a profit as rabbits will afford, on that land which is suitable for them'. The triangular shape of former 'Hovel' may actually have helped with rabbit catching with at least one of the corners acting like a pipe in a duck decoy, into which rabbits could be driven, contained and trapped. It is tempting to see the southernmost corner, where there is both a trapezoidal recess and a constructed hole through the wall, functioning in this way (see Section 5.4.1 above). However, perhaps against this idea is the fact that cartographic evidence suggests that the present corner is relatively late in date because it was not depicted in this form until the 1916 edition of the OS map (Ordnance Survey 1916). Rabbit burrowing or rabbit catching may be the reason why the possible pillow mounds all exhibit signs of disturbance (see Section 5.4.2 above).

With reference to the water features, it is unclear when the pond in the public area was created. It was certainly in existence by the early 19th century (see Section 5.6.1 above). It seems to lie across the projected paths of hollow-ways HW6 and HW7 suggesting that it is later, unless of course they changed direction on reaching WF1 and skirted it on the east as was apparently the case with the foot path which followed HW5 (Ordnance Survey 1861). The drain taking the surplus water away from it on the east also appears to post-date TW2.

The EH survey and review of the cartographic evidence has demonstrated that the walled enclosure and Hall certainly seem to go together, especially as the east wall of the latter was on the line of the enclosure's original western boundary (see Section 5.7.1 above). Little information can be gained from the surviving earthworks as to what this relationship entailed and how it was articulated on the ground. The documentary and cartographic sources consulted for this report that give information about former land-use date back only as far as the early 19th century. However, maps of this period indicate that at this time the walled enclosure was more extensive and included a section of the steep, northern slope of the valley within its bounds. It is possible that part of this slope once lay within a village close (now surviving as boundary features BF8 and BF9) that was later overlain by the walled enclosure. Sometime around the middle of the 19th century, contraction of the area enclosed took place with the building of the present southern boundary along the upper edge of the valley (see Section 5.7.1 above). The bee-boles are an interesting architectural survival in their own right. By the late 18th century, in Cumberland at least, the keeping of domesticated bees was common everywhere (Denyer 1991, 109). As well as providing beeswax and honey, they were important as pollinators. According to Denyer they fed off orchard-tree flowers in the spring and then in early summer moved to the white clover of the hay meadows. In August the hives were taken to higher ground for the heather and during autumn were brought back and placed in bee-boles near the farmhouses (Denyer 1991, 109-10). Extant bee-boles are not uncommon in this area - several were observed by the EH investigators in the south-facing inner wall of a small rectangular walled enclosure in a field on the east side of the A6 road, north of Shap village.

7. SURVEY METHODOLOGY

The survey was carried out within OS National Grid co-ordinates, using a combination of instrumental (differential GPS and theodolite) and graphical survey techniques.

A permanently-marked survey base station (station 1) was established on site, and a Trimble dual-frequency Global Positioning System (GPS) receiver set up over it in order to bring in European Terrestrial Referencing System (ETRS89) latitude/longitude co-ordinates via the OS active station GPS network. At the same time as the base station was logging the satellite data necessary to make the calculation, a second 'roving' receiver was taken around the site and used to record the positions of points of hard detail and a number of temporary survey markers via differential GPS survey, accurate to within 0.02m horizontally and 0.05m vertically. Four further survey stations were also established on site at this stage (stations 2-5), and their positions recorded to sub-centimetric accuracy. Each was subsequently occupied with a Leica TC805 total station theodolite, which was used to observe additional hard detail and temporary survey markers situated within the densely wooded area at the western edge of the site. At this stage, permission had not been gained to include the eastern part of the walled enclosure within the survey, and accordingly the position of station 2 was permanently marked in order to provide a fixed reference orientation from station 1, to enable the survey to be extended should permission later be forthcoming, as indeed was the case. A sixth (temporary) station was established at this second stage of survey within the walled enclosure, intervisible with both stations 1 and 2, and extra hard detail added via the TC805; a seventh (temporary) station was also established at this time on the roadside verge north of the enclosure as a spur from station 6, in order to pick up additional detail on Newby Hall itself.

All GPS data were processed using Trimble Geomatics Office (TGO) software and the OS National GPS network website in order to convert it to OS National Grid values, and transferred to an AutoCAD .dwg file via KeyTERRA-FIRMA (KTF) software in order to incorporate line and point code information; all theodolite data were processed using KTF, and added to the .dwg file. A scale plot of the file was then taken into the field and archaeological detail added by standard graphical techniques of taped baseline and offset.

Details of, and information for relocating, the two permanently marked survey stations are attached as Appendix 2 below.

The buildings and walls, which make up the Newby Court area, were not surveyed in the field. Their positions and outlines are derived from Land-Line data and is reproduced with permission of the Ordnance Survey under licence number GD03085G.

8. ACKNOWLEDGEMENTS

Survey control was established by Christopher Dunn and Marcus Jecock during October 2000 and by Christopher Dunn and Abby Hunt in March 2002. Christopher Dunn and Abby Hunt carried out the graphical survey of the earthworks. The report was researched by Christopher Dunn, aided by Abby Hunt, and written by Christopher Dunn with Marcus Jecock providing the section on Survey Methodology. Abby Hunt and Marcus Jecock commented on the text. Philip Sinton produced the drawn figures and undertook the desktop publishing. The digital photographs used in this report were working images taken by Abby Hunt and Marcus Jecock and are retained at EH York. Thanks are also due to Margaret Nieke and Ken Robinson for supplying information (including copies of articles) from their files.

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APPENDIX 1: Table of NMR numbers linked to this survey

SITE NAME	COUNTY	DISTRICT	PARISH
Newby Hall and environs	Cumbria	Eden	Newby

Description	Nat. Grid Ref.	NMR Number	Unique Identifier
Newby Hall	NY 5904 2125	NY 52 SE 8	12114
Hollow-ways, terraced-ways, possible pillow mounds, boundary features and bee-boles	NY 5903 2118	NY 52 SE 23	1361270

APPENDIX 2: Co-ordinates of permanently marked survey stations

Two of the seven survey stations used by EH were permanently marked, and can be re-occupied - with the permission of the landowner - if excavation or further survey work is contemplated at or near the site. The two stations are intervisible, and capable of reoccupation with either theodolite or GPS equipment. Their plan positions appear on Fig 3, and can be re-located on the ground by scaling off distances from other (hard) detail on the diagram, or more accurate measurements obtained by consulting the archived electronic copy of the survey diagram.

Station 1. 0.5m aluminium ground anchor, with an inverted pyramidal head and domed alloy stud, the top of which is buried *c* 0.1m down close to the south-east corner of the small field.

OS NG: Easting 359,136.137m

Northing 521,170.346m

Elevation 176.979m

ETRS89: Latitude 54° 35' 02.68199" N

Longitude 2° 38' 01.65285" W

Height 229.147m

Station 2. 0.5m aluminium ground anchor, with an inverted pyramidal head and domed alloy stud, the top of which is buried *c* 0.1m down in the approximate centre of former 'Hovel'.

OS NG: Easting 358,979.227m

Northing 521,144.470m

Elevation 190.637m