



ENGLISH HERITAGE

National Mapping Programme

**Hadrian's Wall NMP Project**

Bowness on Solway to Carlisle

CUMBRIA

AMIE Parent Collection UID: EHC01/010

AMIE Event UID: 1360986

Aerial Survey Report Series: AER/3/2005

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Survey Date: August 2002 – August 2003

Report Date: October 2005

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## **1 SUMMARY**

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This report reviews the results of the National Mapping Programme (NMP) for Block 1 of the Hadrian's Wall project, Bowness-on-Solway to Carlisle, mapped between August 2002 and August 2003 (Figure 1). One topic considered for research is prehistoric and Roman settlement, the latter sometimes described as 'native' or Romano British settlement. A second topic is the Roman defence system along the Cumbrian coast, described as the Solway Frontier.

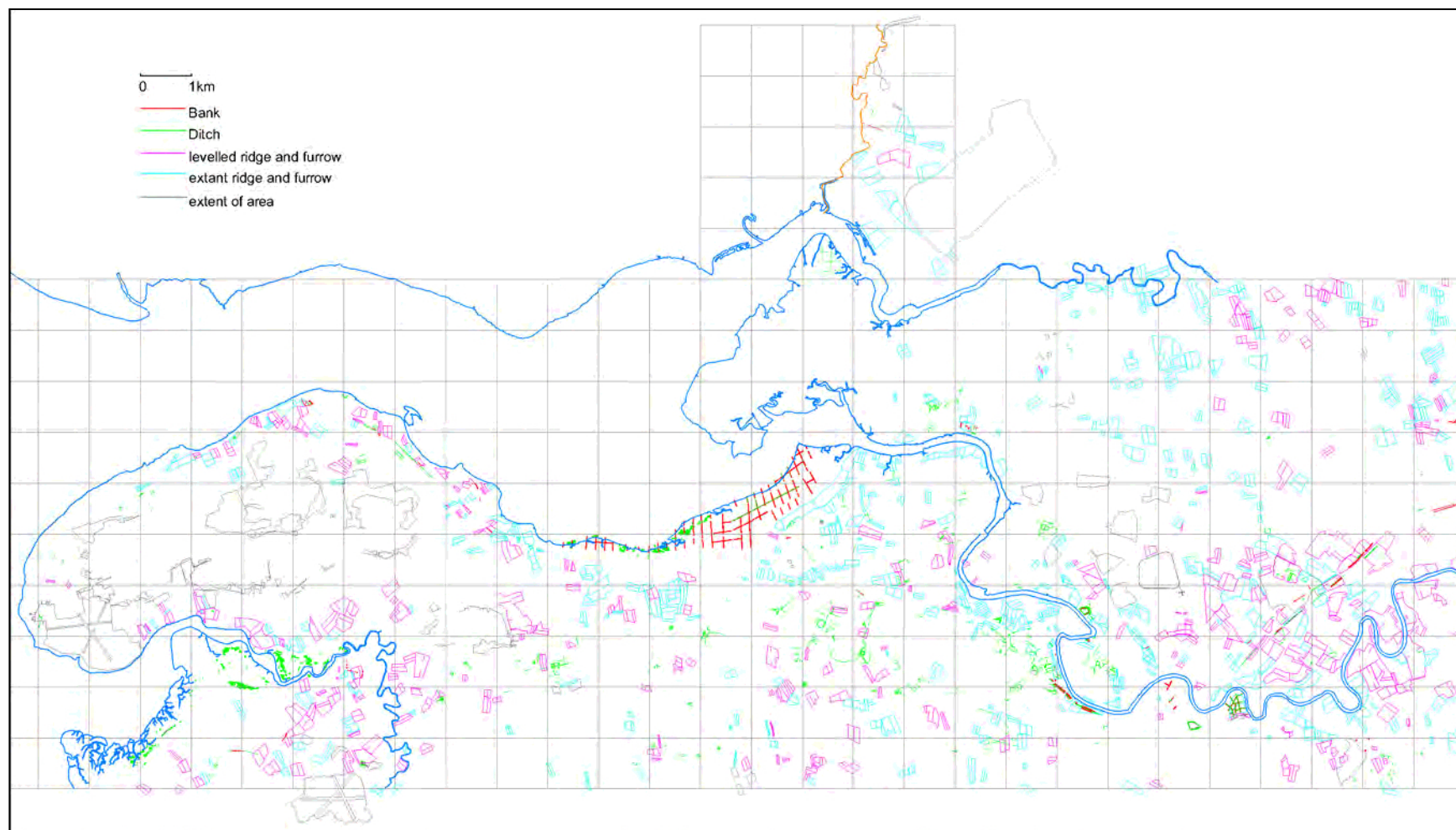


Figure 1 Archaeology mapped for Block 1 Bowness on Solway to Carlisle.

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## 2 INTRODUCTION

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### 2.1 The Physical Landscape

The area comprises 13 1:10,000 OS quarter sheets extending from Grune Point in the Solway Firth to east of Carlisle, which is primarily within the Solway Plain. The Rivers Eden and Wampool drain this low lying area south of the Solway Firth, also known as the Cumbrian Plain. There are large expanses of mudflats, peat bogs and mosses, which are interspersed with low sand and gravel ridges formed by raised beaches or periglacial eskers and drumlins. The land rarely rises above 60 metres OD. The underlying solid geology is mainly Triassic mudstones (Stanwix Shale and Keuper Marl) with a small area of Jurassic Lias occurring to the west of Carlisle (Taylor et al 1971, 71, fig 24). Devensian tills cover much of the area. A fairly detailed description of the landscape, geology, soils, climate and land use is given in Bewley (1994, 9-19, figs 2.2- 2.8).

### 3 AERIAL PHOTOGRAPH SOURCES

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#### 3.1 Sources Used

All readily available air photographs were examined from three main collections, giving a total of 4940 photographs. The National Monuments Record (NMR) was the prime source with 1437 oblique and 3008 vertical photographs (loan references: Block 1A: AP40163/0102 & Block 1B: AP50529/0203). The specialist oblique photographs held by the NMR, range in date from 1952 to 2002. The vertical photographs comprise RAF, Ordnance Survey and Meridian sorties and range in date from 1942 to 1991. An additional 209 photographs, ranging in date from 1949 to 1984, were borrowed from the Air Photograph Library of Cambridge University Unit for Landscape Modelling (ULM). The Sites and Monuments Records (SMR) Office for Cumbria had a further 284 oblique photographs which were examined.

#### 3.2 Barri Jones Collection

Barri Jones had regularly flown in the locality of the project area and some of his research and photographs have been published (Higham and Jones 1975, Jones 1982, Jones and Woolliscroft 2001). Given that the project was not accessing the collection of his photography held at Manchester Museum, there was a question as to whether the project would be missing sites. 509 or 35% of the photographs borrowed from the NMR were taken by Barri Jones. An additional 76 of his photos were examined from the Cumbria SMR office.

Two exercises were carried out to try and evaluate whether the 585 Barri Jones photographs examined were representative of the sites that he had published and recorded. Firstly, a catalogue of 2 films held at Manchester University (CS180, CS182), which were not held by either the NMR or Cumbria SMR office, were checked. The catalogue provided six figure grid references, a brief description of the features and small pen pictures. The area flown was primarily on maps NY25NE and NY35NW. Almost all the locations photographed had features drawn by the project, except for two sites. The second check was to compare the published gazetteer of sites recorded from aerial photographs (Higham and Jones 1975, 29-34, fig 3) with the features mapped by the project. Again this provides a very favourable comparison in that most sites were plotted by the project. Of those sites not plotted some were described as 'parching', 'rubbish pits' or 'site nucleus' in the gazetteer (*ibid.* 29-34). These are the type of features, which depending on professional judgement, may, or may not be plotted as potential archaeology. Other sites were dismissed by the project team as non-archaeological in origin.

Given that NMP is intended as a rapid mapping process, the normal practice of accessing three main sources of photography (NMR, ULM and SMR) seems justified for the Hadrian's Wall project too.

## **4 PREHISTORIC AND ROMANO BRITISH SETTLEMENT**

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### **4.1 Background**

Collingwood (1933, 163-200) provides one of the earliest overviews of prehistoric settlement in Cumberland and it is notable that the distributions of sites and finds is scarce in the Solway Plain area. The distribution of artefacts, many of which are stray finds, has been used as a primary indicator for prehistoric settlement. Neolithic and Bronze Age stone implements and flints are common in the area compared to Bronze Age pottery and metalwork, which are scarce and Iron Age material is even scarcer (Bewley 1994, 60-63, fig 4.3, Haselgrove 2002, 51). Extensive field walking by the North West Wetlands Survey in the Cumbrian Plain (Hodgkinson et al 2000, 106-120), has done little to change this pattern, although it must be remembered this technique is geographically restricted to ploughed fields.

### **4.2 Aerial Reconnaissance**

Aerial survey undertaken primarily since 1974 has made the most significant contribution to increasing the number of known sites of potential prehistoric or later date (Higham and Jones 1975, Bewley 1994). Approaches to the study of this data from cropmark sites have primarily been in terms of morphology, chronology and distribution patterns. Dating has broadly been attributed on the basis of morphology, with curvilinear forms being dated as prehistoric and more rectilinear ones as Roman or 'Romano British' (Bewley 1994, 32-35). There is a paucity of explicit dating evidence for these sites. This was to some extent addressed by selecting sites for further investigation by field walking and selective excavation according to their varying morphological form (Blake 1960, Bewley 1986). All the sites produced Roman finds dating from the second to fourth century AD. In some cases the most pertinent dating evidence required for the curvilinear enclosures, was absent. Given that only a relatively small area of these sites was excavated there is still the possibility that they had earlier origins and were re-used in the Roman period.

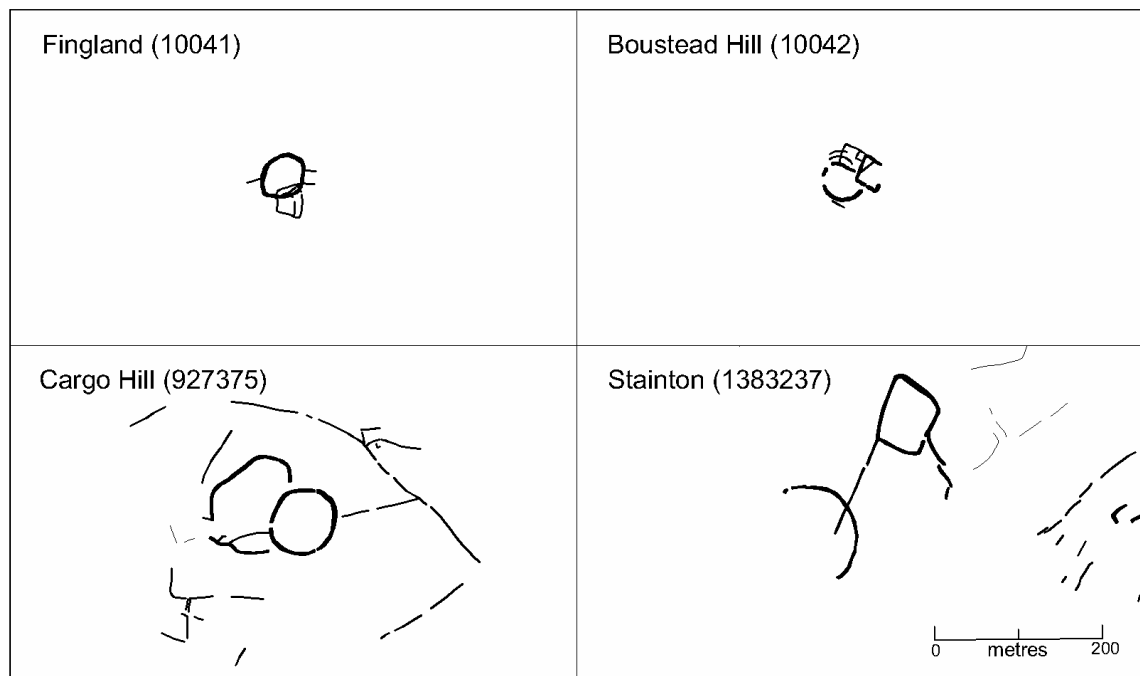
### **4.3 Results from NMP**

Reviewing the data from Block 1 mapping shows a wide range of morphological forms, all of which were visible as cropmarks. Where explicit dating was unknown, the traditional morphological based dating has been used, the curvilinear enclosures have generally been dated as prehistoric and the rectilinear ones as Iron Age/ Roman. Where sites had combinations of such features and phasing was not apparent, a broad Prehistoric/ Roman date was attributed to the whole site. The attached data tables in AutoCAD, which record the monument type, period, evidence and photo reference have been extremely useful in analysing what has been recorded by the project and examining the distribution of sites.

Four curvilinear enclosures were attributed a prehistoric date on their morphology (Figure 2). Three, located at Boustead Hill, Fingland and Cargo Hill, occur in association with rectilinear enclosures, which were ascribed a Roman date or Iron Age/ Roman date. The site at Boustead Hill was excavated (Bewley 1986, 19-40) and that at Fingland (II) was field walked (Higham & Jones 1975, 32, Frere 1983, 292). There was no confirmation of dating for the curvilinear enclosures, however the 'U' shape profile found at Boustead Hill was suggestive of pre-Roman origins. The 'V' shaped profile



ditch and pottery finds date the rectilinear enclosure at Boustead Hill to the Roman period. Field walking at Fingland (II) produced a piece of volcanic tuff, identified as possibly Group VI Langdale tuff. This suggests the gravel ridge, on which the site is located, was used during the Neolithic, but does not necessarily date the curvilinear enclosure. Roman pottery from mid second to late third century and a quern were also recovered from field walking. Of the two sites investigated at Boustead Hill and Fingland, the morphology of the enclosures, excavation and phosphate survey suggest they are of multi-period occupation. These data suggest the settlements were engaged in farming activities, which may have become more specialised in the Roman period (Bewley 1986, 33). This can presumably be extrapolated to include the site at Cargo Hill, which has a similar form and topographic location. The fourth curvilinear enclosure at Stainton has no associated features, but has rectilinear enclosures close-by, which are of a different phase (Figure 2). Although incomplete, its size of 120 metres diameter, distinguishes it from the rest of the curvilinear enclosures recorded in the project area, which are smaller, ranging between 50 and 85 metres across.



*Figure 2 Curvilinear enclosures of possible prehistoric date.*

Two further sites within the project area have been excavated, one south of Copt Hill (Grew 1981, 325-7) and the other at Oughterby (Bewley 1986, 25-40). The latter is a single ditched, irregular curvilinear enclosure, with an entrance on its east side. Its shape has also been described as 'sub-square', which reflects the somewhat flattened appearance of the sides. Roman pottery dates the site from 120 AD to the late third century. Internal structures constructed of stone were exposed, but their function is uncertain. This site has also been interpreted as a farmstead. The second enclosure at Copt Hill is multiple ditched and has associated boundary ditches. Excavation revealed the enclosure was first occupied in the Antonine period, abandoned in the third century but re-occupied in the fourth century. It has been described as a 'native' site (Grew 1981, 325-7). Other features such as linear ditches with a causeway, gate, streets and a building were revealed, but were undated. In addition there are two sites recorded by the project which can be grouped with the above sites. They

are single ditched enclosures with flattened sides, forming an almost 'D' shape. They both have rectilinear enclosures associated with them (Figure 3).

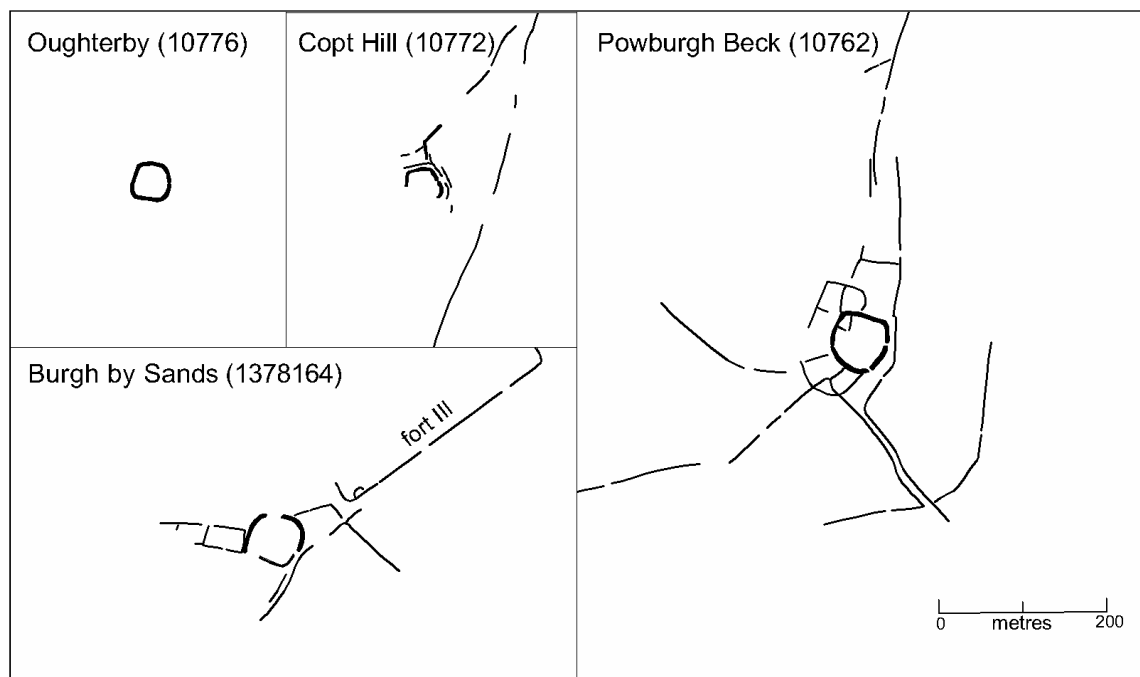


Figure 3 'D' shaped enclosures of possible Roman date.

One site lies in close proximity to the Burgh by Sands Roman fort III and a possible round house lies within the ditched enclosure of the fort. Another round house close to the fort, but not visible on air photographs, was excavated but produced no dating evidence. The close proximity of these features to the fort raises the question of their chronology. The fort is dated to the first half of the second century. If these sites follow the same pattern of occupation as the excavated sites described above, then one could assume the fort was out of use when the enclosures were established. Besides the curvilinear and 'D' shaped enclosures there are other rectilinear and curvilinear enclosures forming nucleated groups, which also have boundary ditches and trackways extending from them (Figure 4).

What is notable about all of these sites is their position in the landscape, located on drier sandy and gravel ridges above the wetter mosses and bogs. Sites occur singly on small knolls, or are strung out along the longer ridges. Some of the enclosures are linked by sinuous linear ditches, which may be functioning as boundaries and/ or trackways. They are especially evident around Burgh by Sands fort I, but the explicit chronological relationship of the fort and trackway, which lies to the north, is not apparent from the air photo evidence. East of Burgh by Sands fort, at the summit of Copt Hill, lies a group of rectilinear enclosures with two 'D' shape enclosures sites further to the south (Figure 5). There is an assumption in this context that the boundary ditches or trackways are perhaps contemporary with the enclosures, which would place them in a date range from the second to the fourth century AD. Excavations at Copt Hill revealed the nature of the ditches as 'V' shape and flat bottomed, but unfortunately there was no explicit dating evidence. These trackways may have parallels elsewhere, for example at Old Carlisle, Wigton, where it is noted that farmsteads are linked to the Roman fort and vicus by roads and trackways (Higham and Jones 1975, Plate IIIC, Higham

and Jones 1985, 60, 74). Blake (1960, 12) has suggested that native settlement in north Cumberland is sited close to Roman forts and roads to take advantage of opportunities of trade, supplying food to the Roman army. Although there is an apparent coincidence of 'native' sites around the forts at Burgh by Sands, this may simply reflect the exploitation of the sandy ridges for settlement and the siting of Roman forts on high terrain.

The Roman road from Kirkbride to Carlisle is recorded from air photographs at Kirkbride fort. Its conjectured route (Bellhouse 1982, 47) following the high ground along Fingland Rigg, has not been confirmed by the NMP mapping. Jones' (Jones and Woolliscroft 2001, 68) original interpretation of the air photographs, which identified a fort and road at Fingland Rigg, was reassessed. The NMP mapping clearly shows that this site is a complex of enclosures flanking a substantial trackway (Figure 4). It has been attributed an Iron Age/ Roman date and it is debatable whether the trackway would constitute a Roman road. Jones (Jones and Wooliscroft 2001, 67-69, figs 36 and 37) also suggested that the single linear ditches running along Farhill and Fingland Rigg were Roman military defence ditches, which formed part of the western Stanegate. The NMP mapping has shown that in a wider landscape context the ditches at Farhill (Figure 4) are associated with native settlement. At Fingland Rigg a ditch adjacent to an oval enclosure (*ibid* 69, fig 36) has been interpreted as a possible Medieval or post medieval field boundary by the project, rather than Roman in date.

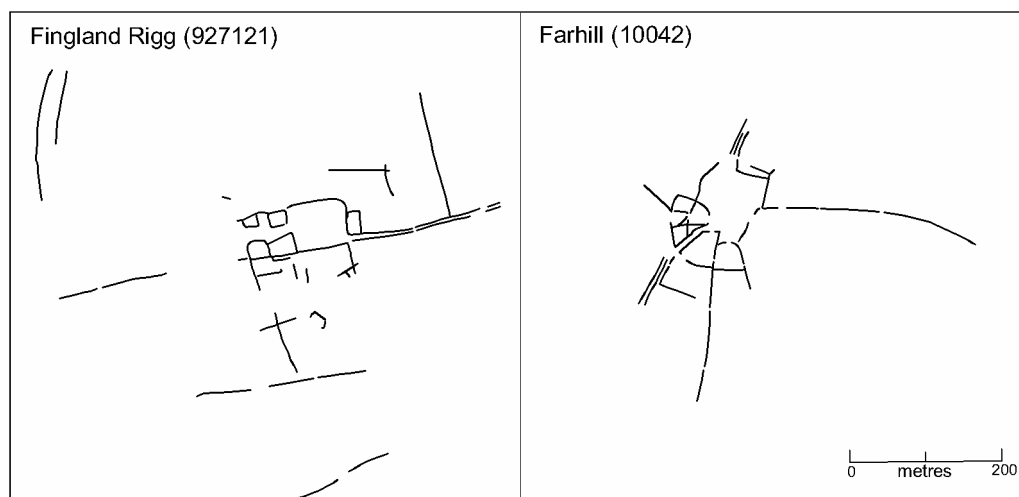


Figure 4 Settlement with associated linear boundaries and trackways of possible Iron Age or Roman date.

As well as the long boundary ditches or trackways linking sites, there are other more fragmentary ditches. Beyond the project area at Holme Abbey, ditches have been recorded, which seem to divide the landscape into small blocks of between 6-10 hectares area, and these sometimes divide areas of wet and dry land, with longer ditches running cross-ridge (Higham and Jones 1985, 72, fig 33). The pattern of small blocks is not discernible within the dispersed fragmentary boundaries recorded by the NMP mapping. However, what is apparent is that the fragmentary ditches occur both north and south of Hadrian's Wall and the Vallum and may pre-date the Roman military defences. North-west of Carlisle, the NMP mapping shows the pattern of boundary ditches is more complex. There are overlapping phases and some evidence of a more regular, small scale field system (Figure 6).

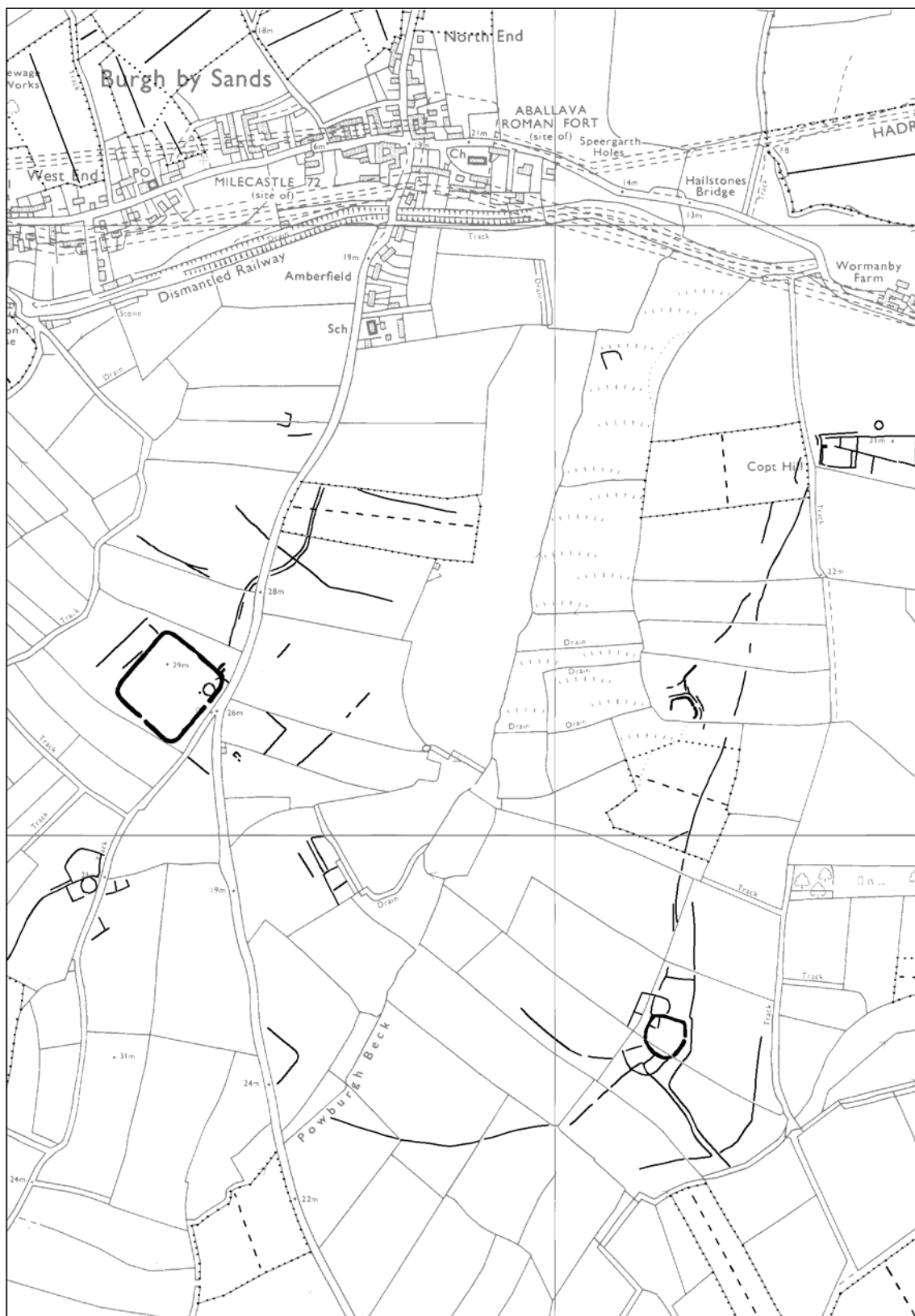


Figure 5 Burgh by Sands forts and surrounding landscape (scale 1:10,000)

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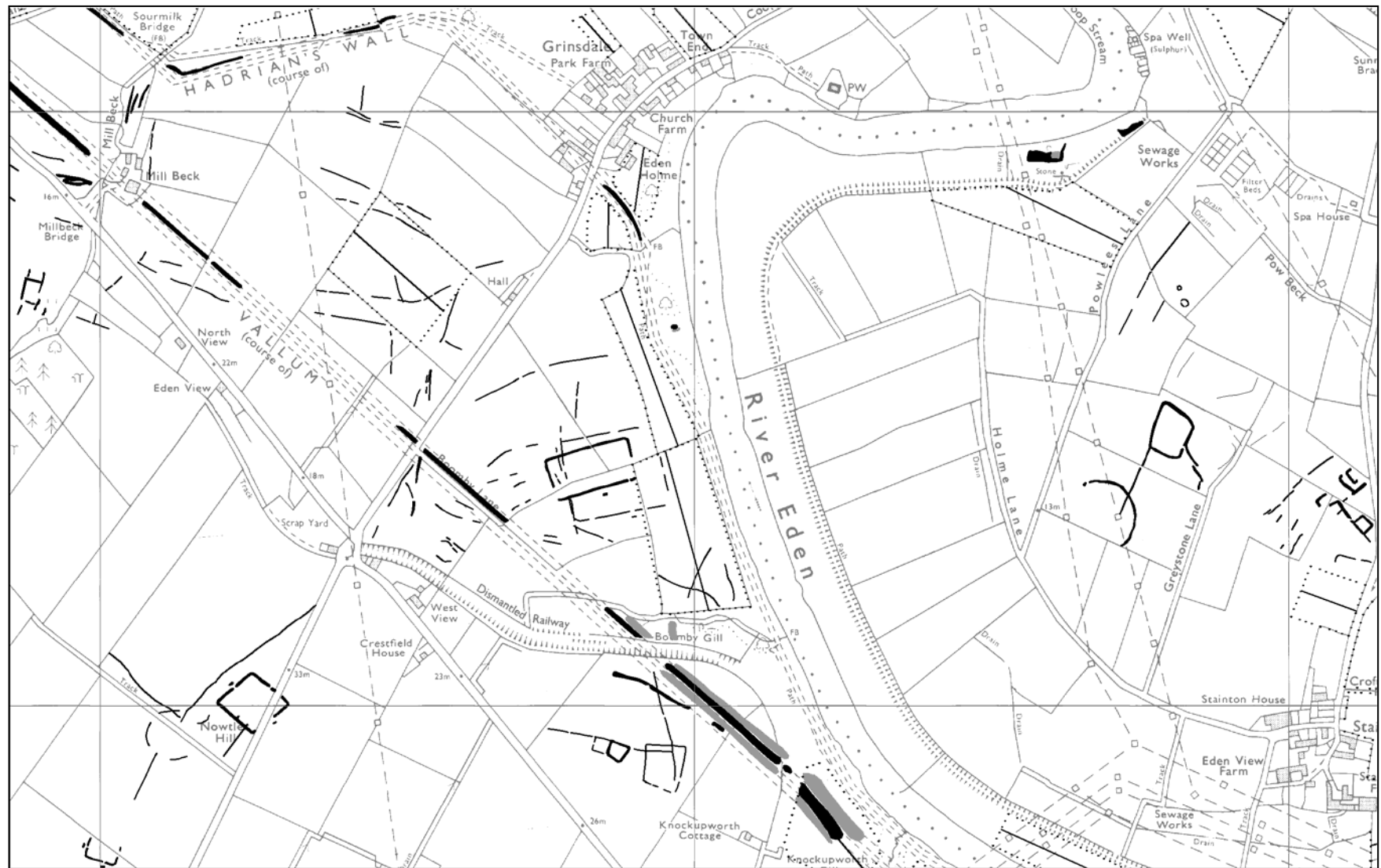


Figure 6 Landscape north-west of Carlisle showing features that possibly pre-date Hadrian's Wall and vallum (scale 1:10,000)

It is uncertain if these relate to the Iron Age landscape and hillfort (see below) or to the Roman period, when there may have been more intensive agricultural regimes supplying Carlisle, which was a *civitas* capital.

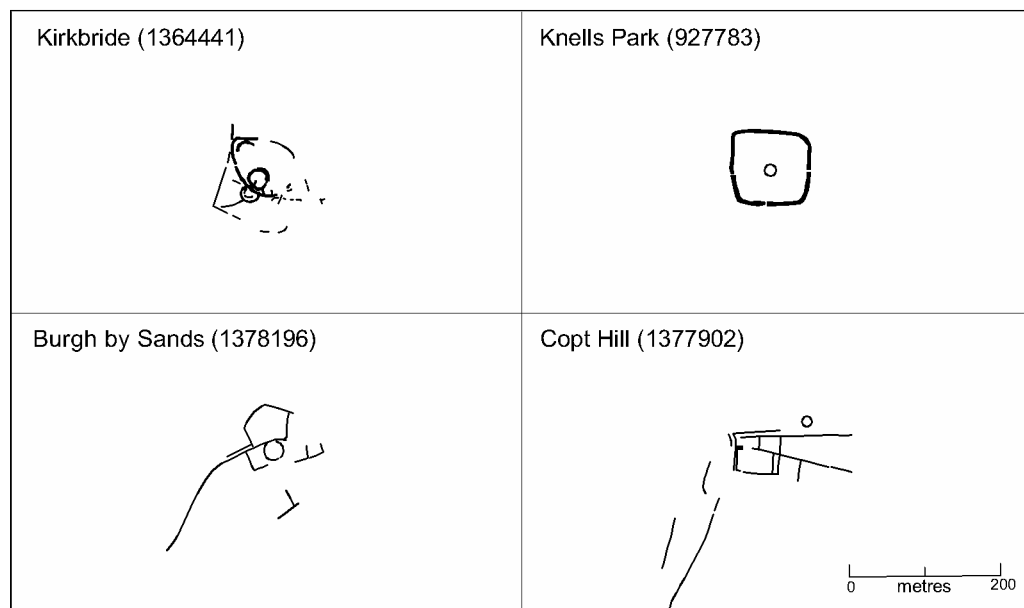


Figure 7 Contexts with circular enclosures interpreted as roundhouses.

Within the NMP mapping it is clear that there are Iron Age monument forms, and several enclosures have round houses associated with them (Figure 7). The square enclosure at Knells Park, which has a central round house, is unusual for the Block 1 project area. The oval site, north of Kirkbride disused airfield, in the River Wampool valley, possibly has a parallel at Wolsty Hall (Blake 1960, 7 Plate VII). At the latter site an oval enclosure was excavated and thought to have pre-Roman origins, as it contained a round house, but no dating evidence was found. A larger circular enclosure, which possibly also parallels those at Kirkbride, contained Hadrianic pottery. Excavations, mainly in and around Carlisle, have positively dated round houses, settlements and field systems to the Iron Age. Of the sites recorded for the project, round houses occur with rectilinear enclosures, but it is uncertain whether they pre-date or are contemporary with them. There are two circular enclosures, located near Fingland Rigg, which have been excavated and interpreted as Roman settlements (Richardson 1977, 51-59, Bewley 1994, 34). The site west of Fingland Rigg was dated to the early fourth century AD. Subsequent re-excavation of this site produced evidence of second century Roman military phases, when the site possibly functioned as a Roman watch tower. Its form and dating has been compared to another watch tower excavated at Easton (Frere 1984, 281, Higham and Jones 1985, 27-28, fig 12).

The project has recorded one multi-vallate enclosure, visible as a cropmark. It lies in an elevated position on the north bank of the River Eden at Skew Bank, north of Hadrian's Wall (Figure 8). Its position and circuit of defensive banks and ditches is suggestive of an Iron Age hillfort. The occurrence of such sites is rare within the south Solway Plain, compared to the north Solway Plain (Higham and Jones 1985, 79, fig 36). There is one

other hillfort at Swarthy Hill, overlooking the Irish Sea, which was also discovered by aerial reconnaissance as a cropmark. It was excavated and dated to the Iron Age (Bewley 1994, 34). Other 'hilltop' sites within the project area have revealed earlier origins, as at Durranhill, east of Carlisle, where a palisaded enclosure was excavated and produced prehistoric and Iron Age pottery from internal structures (Hirst 1998, 4-5). Further detailed post excavation analysis and radiocarbon dating may provide dating for the palisaded enclosure. There is also evidence that this site was re-used in the Roman period. One unusual feature mapped by the project is a segmented boundary ditch, which has tentatively been attributed a prehistoric date.



Figure 8 Multi-vallate 'hillfort' at Skew Bank.

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#### 4.4 Conclusions for Prehistoric and Romano British Settlement

The Hadrian's Wall NMP project is mapping a transect, from the west to the east coast of England along the line of the Roman military defences, restricted to a corridor of between 10-15 kilometers wide. One of the objectives was to place Hadrian's Wall within its wider landscape context of both Roman military archaeology and native settlement. The mapping. The use of the latter, not included in previous surveys, has been useful in mapping features such as the linear boundaries, which has broadened their wider landscape distribution. Previous studies in the Solway Plain had already identified the range of morphological variation within sites and their distribution. Analysis of the Block 1 data, in terms of morphology and excavated dating evidence, has suggested the more flattened curvilinear or 'D' shaped enclosures are of Roman date compared to the more circular ones, which although undated, are possibly prehistoric. The mapping has also shown the complexity of phasing of some sites and their wider landscape context of associated linear boundaries and potential field systems. A Iron Age/ Roman date was attributed to many sites mapped by the project, especially if they displayed forms, like round houses, which reflect an Iron Age tradition. No dating evidence for these has been forthcoming and most excavated contexts have produced Roman dating.

NMP mapping normally encompasses an entire county, which can be divided into landscape zones, but in the case of the Hadrian's Wall project, this wider landscape perspective of the Solway Plain is somewhat truncated. However, when Block 6A is

mapped it will provide an opportunity to record more of the sites in the Solway Plain, for example along the River Waver. It would seem there is further morphological variation within sites still to encounter. Blake (1960, 12-13) suggested that the defensive nature of some sites may be attributed to the decline in Roman defences in some parts of the Solway Plain. This is one further point to consider as mapping is completed for Block 6A and a comparison with sites in Block 1 can be made.



## 5 THE SOLWAY FRONTIER

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### 5.1 Background

Collingwood (1978, 33, 259-265) described the defences of the Cumberland coast from Bowness-on-Solway to St Bees Head. The defences formed a series of regularly spaced milefortlets and towers interspersed with forts. The pattern and spacing of these mirrored that found on Hadrian's Wall; the milefortlets, constructed of turf and timber, equate to milecastles and the stone towers to the Wall turrets. The linear barrier of the Wall, ditch and Vallum were not part of these coastal defences. The system can be divided into two parts and it is the section from Bowness-on-Solway to the north shore of Moricambe, described as the Solway Frontier, that lies within Block 1 of the project area. The second section from Skinburness to Maryport will form part of Block 6 mapping. Bellhouse (1989) reviewed and updated the study of these Cumberland coast defences and provides an extensive bibliography on the subject. He highlights some of the problems over the interpretation of some of the data that has been presented by Jones (1976, 1982, Higham and Jones 1975). Jones suggested that a defence system dependant on isolated towers and milefortlets would be inherently weak and that there was some evidence for a more integrated system. This evidence came from air photographs, geophysical survey and selective excavation of the linear ditches that were thought to link the sites (Jones 1982, 283-297, fig 1).

### 5.2 NMP and Other Data

Only some of the sections of linear ditches recorded by Barri Jones from air photographs have been confirmed by the NMP mapping (Figure 9). This evaluation was made on the photography available to the project. Jones rarely published details, apart from the year flown, of the photography he used, therefore there was no way of confirming that the project has seen the same photography. In some cases, for example, west of Pasture House, the ditches located in the vicinity of Tower 3B and 3A (Jones 1982, 287) were dismissed as drains by the project. North of Cardurnock, between milefortlet 5 and milefortlet 4 at Herd Hill, Jones (1975, 20-22, 1976, 240-242) records substantial sections of ditch for over a kilometer in length. The complex background geology of raised beach and dune deposits, north of Cardurnock, is clearly visible on air photographs and makes the interpretation of linear features difficult. From the photography made available to the project, it was considered that the linear features north of Cardurnock were geological in origin. However, some fragmentary ditches were mapped by the project in this section, but they are possibly field boundaries rather than Roman defensive ditches.

At Biglands to the north-east of milefortlet 1, two parallel ditches, which lie 40 metres apart, were mapped by the project. A piece of Severn Valley Ware pottery, dating from early/mid second to late second century was recovered from an excavation of one ditch. The ditches almost align with the back and front of the milefortlet and in this context may be seen as delineating a military strip, between which the fortifications were built. Excavations north of Cardurnock revealed a palisade and parallel ditches lying 30.5 metres apart (Jones 1976,

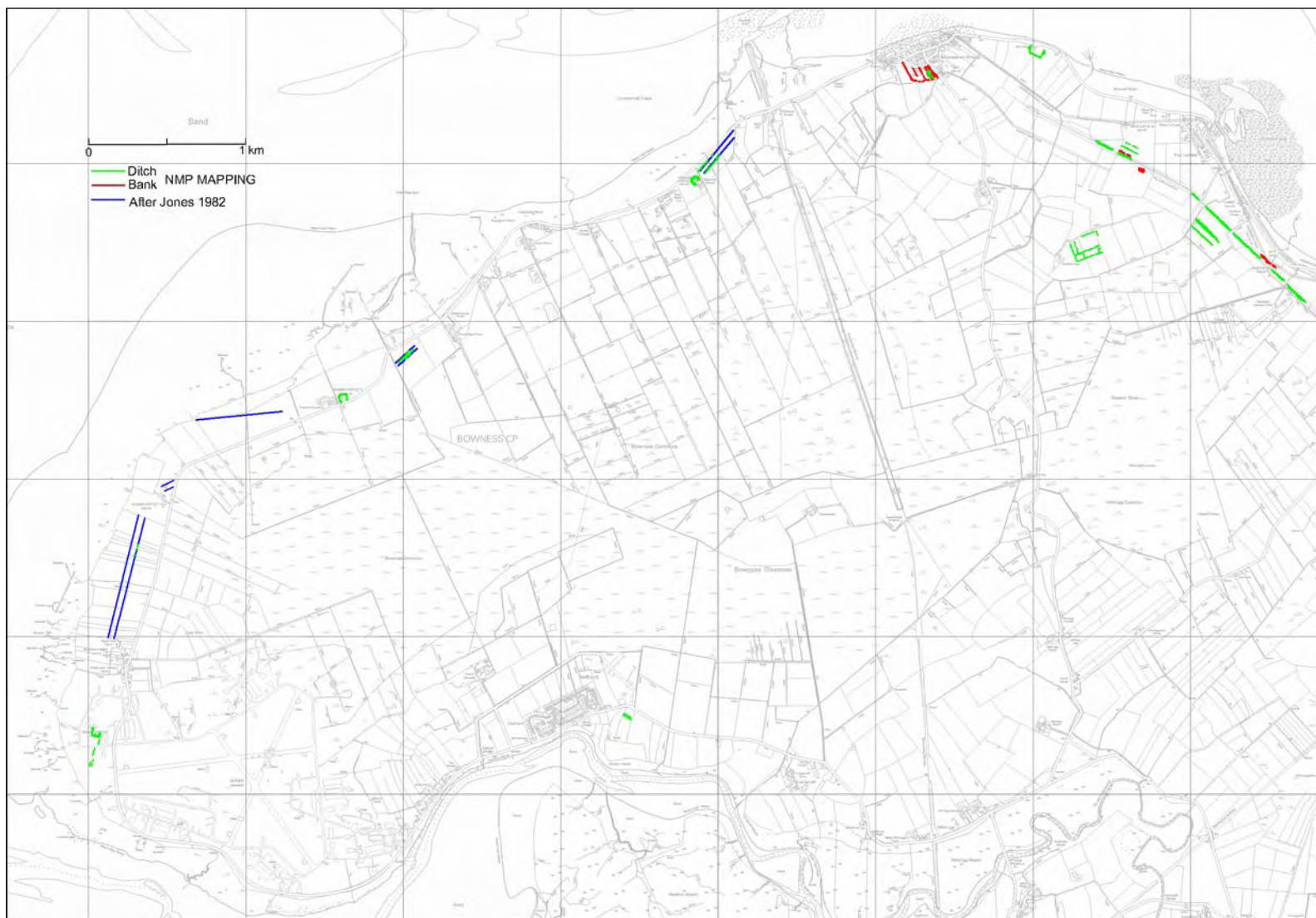
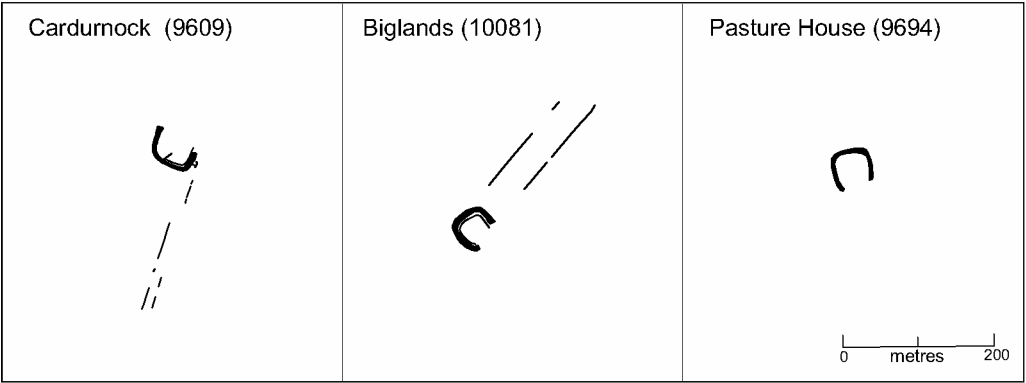


Figure 9 The Solway Frontier defence system.

242). Although Bellhouse (1989, 18) casts aspersions on the interpretation of some of these features. Further excavation along various sections of the Solway frontier revealed details of the defence structures and their complex phasing, but no dating evidence was secured. The ditches, which vary between a 'V' or 'U' shape profile, were sometimes accompanied by palisade trenches and cobbled surfaces. The latter was interpreted as a patrol track or coastal road, but given that the width is only 1.6 metres wide, then track would be a more appropriate interpretation than a 'coastal road'. However, the NMP mapping has recorded a Roman road, which is 12 metres wide and with some evidence of slight metalling. It runs southwest from milefortlet 5 at Cardurnock and presumably is heading for the Moricambe foreshore, where according to Jones (1982, 286) it was possible to ford the estuary to Skinburness. The defensive ditches do occur singly and this may indicate that the parallel double ditches cannot be conjectured to encompass all the Cardurnock Peninsula. Where soils were sandy, only a palisade was found and there was no accompanying ditch (Jones 1985, 32). This led to the suggestion that there may be two phases of coastal defence, where a single palisade and associated features preceded the system of milefortlets and towers (Jones 1982, 292). There was evidence that the latter had wooden precursors to the stone towers.



*Figure 10 Milefortlets of the Solway Frontier.*

The NMP mapping has recorded 3 milefortlets, at Pasture House, Biglands, Cardurnock and all three seem to have a similar structure (Figure 10). The broad ditched, sub-square enclosures have an internal palisade ditch. Biglands and Pasture House measure 50 metres across and that at Cardurnock is larger being 60 metres across. Excavations at Cardurnock (Potter 1977, 149-183) have revealed the internal structures of turf ramparts, timber lookout towers and both timber and stone buildings. Three phases were identified, starting soon after AD 128 to at least AD 369. The site was apparently not occupied in the third century. At Biglands, three periods of occupation were identified all within the second century (Potter 1977, 149-183). This provides one of the very few dating sequences for the Solway Frontier system. Between the series of milefortlets, stone towers are positioned. Excavation and geophysical survey have confirmed the location of some towers, but others remain conjectural. The NMP mapping only managed to record Tower 2B at Campfield, where it is clearly visible as a cropmark, with associated linear ditches. One narrow ditch flanks the tower and appears to be a different phase, but is interpreted as a defence ditch.

It has an unusual 'zig-zag' on one section of the ditch. There is also a broader feature, which lies to the north-west and is almost parallel to the narrower ditch, but there is some uncertainty about its interpretation (Bellhouse 1989, 14, fig 4). The subtle earthworks of other levelled towers were identified during field survey done by the RCHME Cumberland Coast Project, but proved difficult to detect on air photographs.

### **5.3 Conclusion for the Solway Frontier**

Jones proposed a cordon of parallel double ditches encompassing the Cardurnock peninsula and forming part of the Solway frontier defence system of milefortlets and towers. The NMP mapping has confirmed only one section of parallel ditches north-east of Biglands. The project has also recorded similar parallel ditches along Hadrian's Wall, south of the Vallum, between Bowness-on-Solway and Drumburgh forts. Although, in this context of the Wall, the interpretation of these ditches was a little uncertain. They lie 43 metres apart, which is very similar to the 40 metres distance between the ditches recorded at Biglands. Both sections of ditch therefore may be part of a phase of the Roman defences of the Wall, not previously recognised, and terminating at Biglands, which is the first of the milefortlets of the Solway Frontier. A conjectured extension to Hadrian's Wall westward, beyond the fort at Bowness-on-Solway, was suggested by MacLauchlan (1858), but not confirmed on the ground by field survey. These double ditches may indeed be evidence of a form of frontier defence associated with the Wall, that extended to Biglands milefortlet. For the rest of Cardurnock Peninsula, the form of the Roman defences were various combinations of palisade, single ditch and track linking the milefortlets and towers.

## 6 FUTURE RESEARCH AND RECOMMENDATIONS

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- Dating evidence from excavations for 'native' settlement is scarce, but where available, has indicated a range from the second to fourth centuries AD. Further NMP mapping needs to maintain an overview of dating evidence, particularly for pre-Roman sites.
- The range of morphology within settlement sites has been noted for Block 1. Future mapping should review any new forms, particularly for Block 6A, where it has been suggested more diverse morphological forms exist.
- Evidence for the Solway Frontier defence system is fragmentary from aerial photographs and future reconnaissance should target its conjectured route.
- Geophysical survey has successfully revealed a number of sites in the Solway Plain area. Extending this technique to locate further stretches of linear defence ditches may give positive results. Targeting areas to the west of Biglands House and milefortlet 1, may ascertain if the parallel defence ditches do extend further west into the Cardurnock peninsula. Targeting sections flanking Hadrian's Wall and the Vallum, from Bowness fort to Port Carlisle, may indicate if these defensive ditches were a phase of the Hadrian's Wall defences.

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