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Chester Crane Camp, Ord, near Berwick-Upon-Tweed, Northumberland: Archaeological Field Survey of a Promontory Fort

David Went and Rebecca Pullen

Discovery, Innovation and Science in the Historic Environment

Research Report Series no. 94-2022

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NGR: NT 96744 51491

ISSN 2059-4453 (Online)

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SUMMARY
Chester Crane Camp, also known by a variety of alternative names including Canny Burn, Canny Bank and Canny Shiel, is a prehistoric bivallate promontory fort on the south bank of the River Tweed, 3.5km west of Berwick. It occupies a tongue of land defined to the north by the steep river cliff of the Tweed and to the west and south-west by the deeply downcut valley of the Canny Burn, a minor tributary of the Tweed; a double arc of banks and ditches cut off the neck of the promontory, protecting against approach across level ground from the east and south. Medieval/early post-medieval ridge-and-furrow ploughing, that covers every part of the monument's interior and also extends between the ramparts, has led some previous authorities to speculate that the enclosure's origin lies in the medieval period; others have interpreted the site as of Roman date. New earthwork and geophysical surveys, undertaken by volunteers working with Historic England and Wessex Archaeology during winter 2021-22, have now provided more compelling evidence for the site's interpretation as a late prehistoric promontory fort, modified – probably on several occasions – by its prehistoric builders, and certainly much altered by the activities of medieval and later farmers.

CONTRIBUTORS
The earthwork survey was supervised by David Went, Marcus Jecock and Rebecca Pullen of Historic England's Archaeological Investigation Team. It was carried out by Union Chain Bridge project volunteers Malcolm Thomas, Mark Douglas, Pauline Hogarth, Shirley Clarke, Hazel Prentice, Eric Wood, Caroline Lawrenson, Josie McChrystal, Neil Woodcock and Heather Waldron. The volunteer group was organised by Carol Whinnom and Becki Cooper of Berwick Museum and Art Gallery, aided by Matt Storey from Northumberland County Council, Chris Swales and Ben Saunders of Wessex Archaeology. The geophysical survey fieldwork was organised and undertaken by Andrés Pérez Arana and Jo Instone-Brewer, and the data was processed and interpreted by Brett Howard, all of Wessex Archaeology. Drone photography was carried out by David Went, and drone lidar survey by Jack Fox-Leverick of Wessex Archaeology. This report was researched, written and illustrated by David Went and Rebecca Pullen, except for Fig. 1 which was prepared by Sharon Soutar. All photography is by the authors unless otherwise stated. Marcus Jecock provided valuable comments on earlier drafts, and the final report was reviewed by Sarah Newsome.

ACKNOWLEDGEMENTS
The authors would like to thank the principal landowner, Mr Simon Gray, for permission to conduct the survey and for practical assistance with access, on-site shelter and facilities, and Mr Sandy Lang for access to the western edge of the site. Thanks are due to the Union Chain Bridge partnership (Northumberland County Council, Scottish Borders Council, Museums Northumberland and the Friends of the Union Chain Bridge) and their sponsors for instigating and supporting this training project and associated research. The authors are grateful to Tim Gates for permission to reproduce his aerial photograph showing the Groat Haugh promontory fort as cropmarks. Perhaps most importantly, the survey team would like to acknowledge the hard work, local knowledge and infectious enthusiasm of the project volunteers (noted above) for their assistance and engagement on site.

ARCHIVE LOCATION

The digital archive for all Historic England derived data for this project will be deposited with the Historic England Archive, Swindon. The report can be downloaded from the Historic England Research Report Series database and that of Archaeological Data Services, York, and a digital copy has been submitted to the Northumberland Historic Environment Record, as well as a with key local record offices and public libraries. The investigation has been registered under OASIS id: nmr1-513572.

DATE OF SURVEY

The earthwork, drone and geophysical surveys took place in late October and early November 2021. A field check of the draft survey plan took place 15 March 2022 alongside some minor surveyed additions.

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Cover image: Drone-captured photograph looking to the north-west across the western side of the site toward the River Tweed, with volunteers engaged in earthwork and geophysical survey [2 November 2021 © Historic England]

CONTENTS

ILLUSTRATIONS

1. INTRODUCTION

Earthwork and geophysical surveys were carried out at Chester Crane Camp – a late prehistoric promontory fort – near Berwick-upon-Tweed, in November 2021 and March 2022 as part of a volunteer project connected to the renovation of the Union Chain Bridge, which is located further up the river, approximately 3km to the west.

The bridge – which straddles the border between England and Scotland – was built by Captain Samuel Brown RN (Royal Navy) for the Berwick and North Durham Turnpike Trust in 1820 and is reputed to be the earliest vehicular suspension bridge still in regular use. Its significance, both in terms of design and influence on later engineers, is recognised by its Grade-I listed building status on the English side of the border (NHLE 1042214) and Grade-A designation in Scotland (HES LB13645).

The bridge has seen strengthening work and repairs on several previous occasions, notably in 1903 and 1974, but as it approached its bi-centennial year the need for a more extensive restoration was apparent. A major conservation project began in 2020 and is now reaching completion. During this time the entire bridge deck and suspension system was dismantled prior to conservation and reassembly while the anchorages on either bank were strengthened. This project, supported by the National Lottery Heritage Fund and a consortium of local partners and national heritage agencies, has included a programme of educational outreach, public engagement and volunteer opportunities. As part of this, Wessex Archaeology were commissioned in 2020 to provide a programme of instruction in archaeological and historic research looking at the wider landscape in which the bridge sits; they were assisted in this by landscape archaeologists from Historic England's Archaeological Investigation team. As an inevitable consequence of the coronavirus (COVID-19) pandemic in March of that year the intended face-to-face programme was switched to on-line tuition, making best use of digital information available from county and national records. It was not until some 18 months later, in November 2021, that circumstances allowed for a return to safe outdoor meetings and fieldwork.

Following discussions and reconnaissance, two sites on the English side of the border were selected as suitable subjects for survey training: Chester Crane Camp (just over 3km due east of the chain bridge) and the Horncliffe 'fortlet' (about 1km to the south of the bridge) (Fig. 1). Both sites are protected as scheduled monuments (NHLE 1006495 and 1006435), but neither had previously been subject to any detailed research or investigation. The conditions of the two sites – earthworks under permanent pasture at Chester Crane and a level, ploughed field that occasionally reveals cropmarks of buried features at Horncliffe – offered good opportunities to explore a range of complementary non-intrusive archaeological investigation techniques, comprising detailed earthwork analysis, digital terrain mapping and geophysical survey. Full details of the suvey methods and equipment and be found towards the end of this report, in Section 8.

The promontory fort known as Chester Crane Camp sits atop the steep-sided river cliff on the southern bank of the Tweed and is defined by a double arc of prominent banks set between the river and its tributary the Canny Burn and enclosing a roughly triangular parcel of land. A pronounced pattern of ridge and furrow covers every part of this interior and also extends between the banks; this, taken alongside the morphology of the main enclosing features, has led to some speculation that the enclosure's origin lies in the medieval rather than the later prehistoric period (e.g. Jobey 1965, 59). Some earlier authors attributed the site to Roman construction (e.g. Raine 1852, ii) hence the somewhat misleading 'Chester' element of the site's name. This lack of certainty is reflected by the present minimal scheduled monument entry for the site, which has not been revised since the designation was enacted in 1962.

The archaeological survey of the Chester Crane earthworks reported here, also draws on information from a detailed gradiometer survey undertaken by Wessex Archaeology (Wessex Archaeology 2022). Together, these latest investigations have provided strong evidence for the site's identification as a late prehistoric promontory fort, remodelled on several occasions by its prehistoric builders, and modified subsequently by medieval and later cultivation.

It should be noted that the name Chester Crane Camp has not been consistently applied throughout the site's history. The site has variously been referred to as Chester Crane Camp, Chester Knows or knolls,[1] Canny Burn Camp, Canny Bank Camp and Canny Shiel fort. Chester Crane Camp is, however, the name under which it is officially scheduled today and is the name used throughout this report. Section 3.3 below includes a more detailed discussion of how the name of the site has changed over time. Hereafter this report will primarily refer to the site as Chester Crane, or 'the fort'.

Table 1. Concordance for monument records relating to Chester Crane Camp:

Site	Location NGR (OS GB)	NHLE (scheduling)	NRHE (former NMR)	Northumberland HER	Hillforts Atlas (Lock & Ralston 2017)
Chester Crane Camp	NT 96745 51481	1006495 (Legacy UID: ND 350)	4216 (Legacy UID: NT 95 SE 19)	N2442	EN08585

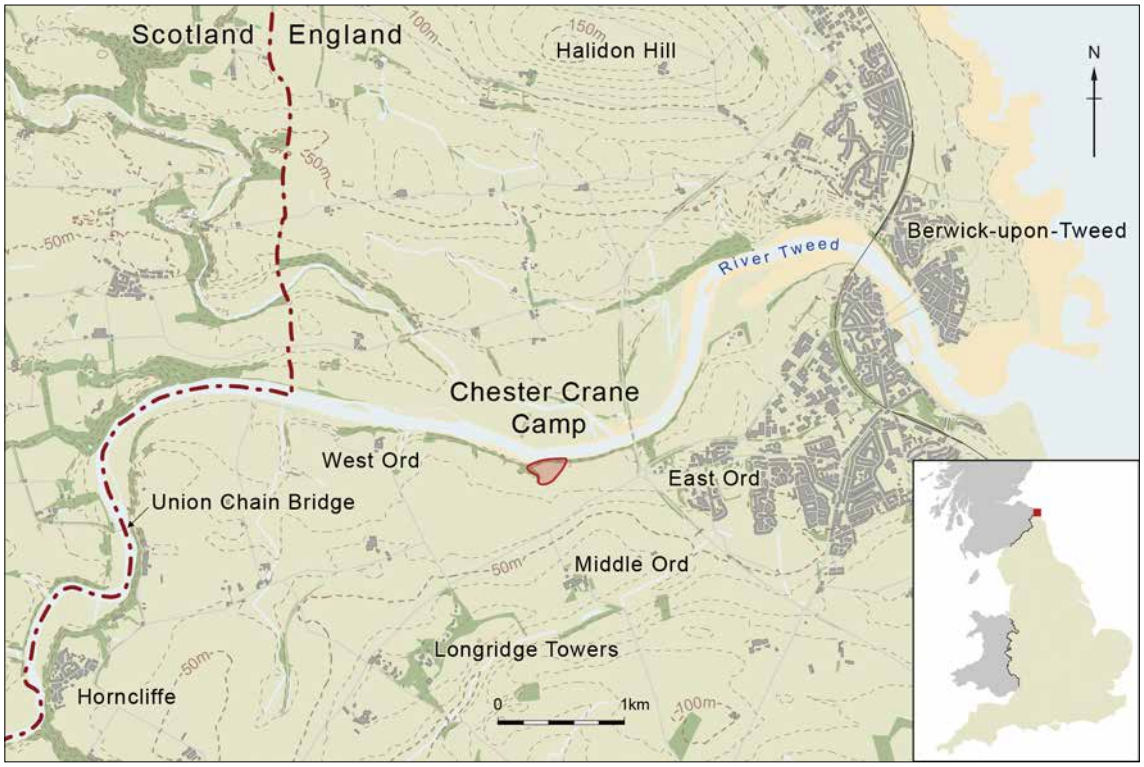

Figure 1: Location map

Figure 2: Aerial view of Chester Crane Camp, with the steeply wooded river cliff to the north (left) and beside it the extent of ridge and furrow ploughing that survived prior to more recent reversion to arable cultivation. [© Historic England Archive, 20686/007 11-SEP-2007]

2. LANDSCAPE SETTING

2.1 Geology and land use

Chester Crane promontory fort occupies a position some 25m above the south bank of the Tweed, at 25-30m above Ordnance Datum (aOD). Here the solid geology comprises sandstone, siltstone and Dolomitic limestone of the Ballagan Formation, laid down in riverine environments in the Carboniferous Period. This solid geology is overlain by Quaternary glacial till (BGS 2022), giving slightly acid loamy and clayey soils with impeded drainage and moderate to high fertility, suitable for grassland or arable cultivation (CSAI 2022). The lower reaches of the Tweed are characterised by a deeply entrenched river channel, flowing beneath sections of steep-sided sandstone cliffs and flanked by post-glacial terraces of sand and gravel till. At this point the river is still tidal.

Today the site is primarily used for grazing sheep. It has been under permanent pasture since the fort was scheduled in the 1960s, and probably for a considerable time prior to that. However, both it and the fields surrounding the fort were extensively cultivated in the medieval/early post-medieval period before being put down to pasture, as evidenced by upstanding broad ridge and furrow within the interior of the monument and ploughed-out former furlongs beyond the ramparts (*see* Section 4.2). Aerial photographs suggest that the fields to the west of the site reverted to arable before or during the 1950s, while the large field immediately south and east of Chester Crane fort was returned to arable more recently but only after 2007 (Fig. 2, and *see* Fig. 11).

The site is bisected by a public footpath running east-west along the top of the river cliff, between a kissing-gate at the north-east corner and a simple timber stile at the fort's western apex. From the stile, steps lead down the steep west bank of the Canny Burn to its confluence with the Tweed. This public right of way is shown on all Ordnance Survey maps from the first editions – 25-inch map surveyed in 1857 (OS 1893) and 6-inch surveyed in 1860 (OS 1866) – through to the present (Fig. 3). It may have originated in connection with access to the fishing shiels that line both banks of the river (*see* Section 4.4). The route is still used and enjoyed by walkers today.

2.2 The fort in its local setting

The term 'hillfort' used in the scheduling description is a broad one, covering a wide variety of archaeological sites. The earthworks defining Chester Crane suggest it belongs to a sub-set of the form – the promontory fort – the relevance of which is discussed in greater detail below, where alternative terminology used by other researchers will also be presented (*see* Sections 3 and 6.2).

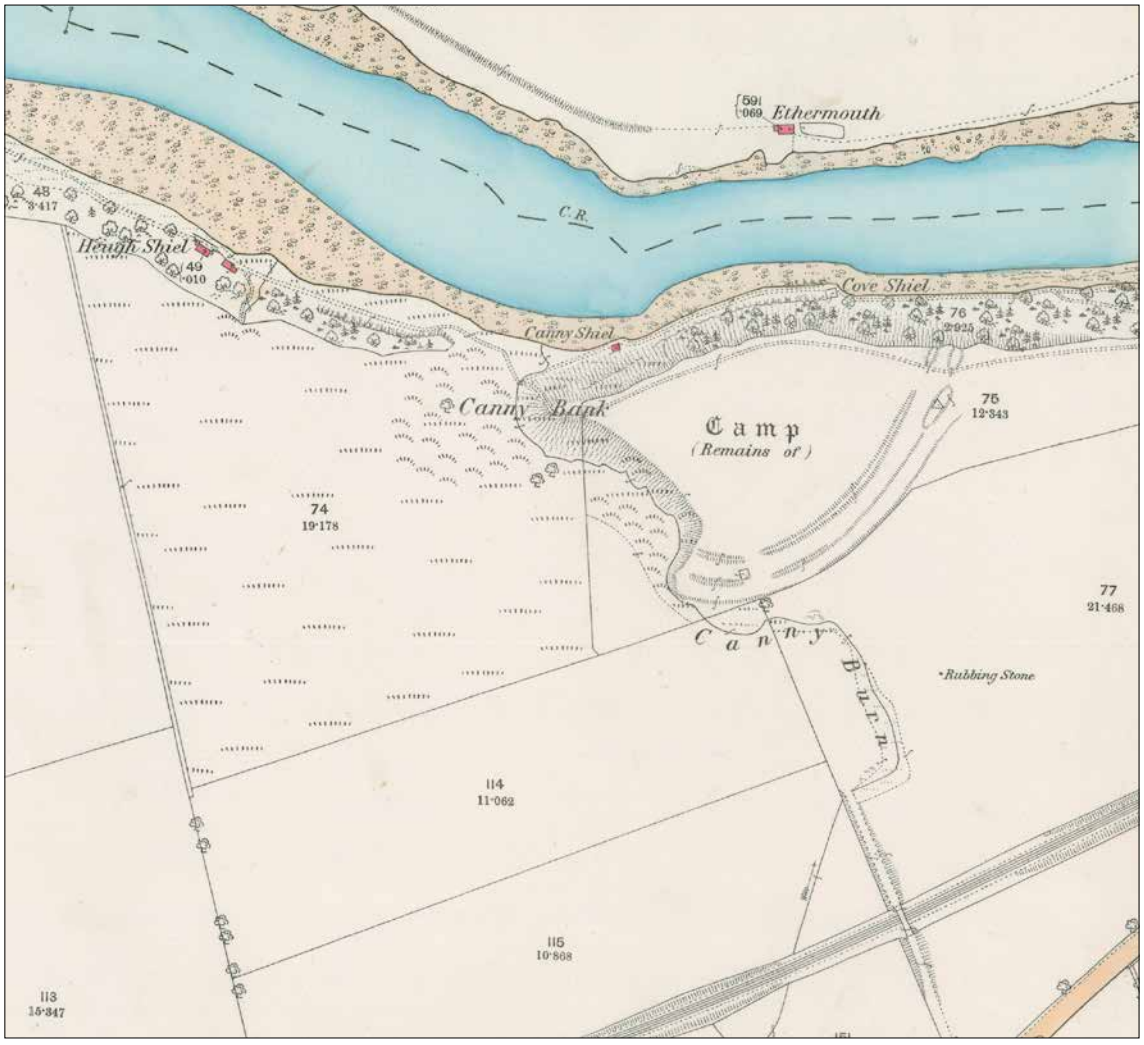

Figure 3: Extract from the OS 1st edition 25-inch map published in 1893 (surveyed 1857) showing Chester Crane Camp and the Canny Burn. Not to scale. [Reproduced with permission of National Library of Scotland]

The interior of the fort is bordered to the north by a precipitous sandstone cliff which falls some 25m to the tidal River Tweed, and to the south-west by the sharply down-cut valley of the Canny Burn. To the south-east the fort is defined by a sweep of banks and ditches joining these two natural defences, defining a triangular area of about 1.6ha measuring approximately 160m from north to south by 210m east to west.

The fort is thus well-drained on two sides while its occupants would at the same time have had ready access to a constant supply of fresh water from the Canny Burn (which rises from a spring some 300m to the south-west). The burn still flowed the full length of its valley before 1849 when the nearby railway was built across it (*see* Fig. 3), but was thereafter culverted and the upper reaches of the valley infilled (Fig. 4). The fort therefore lies within easy reach of abundant natural resources including water, fertile soils, fishing – and perhaps fowling – along the river as well as occupying a position of some prominence in the locality protected by steep natural

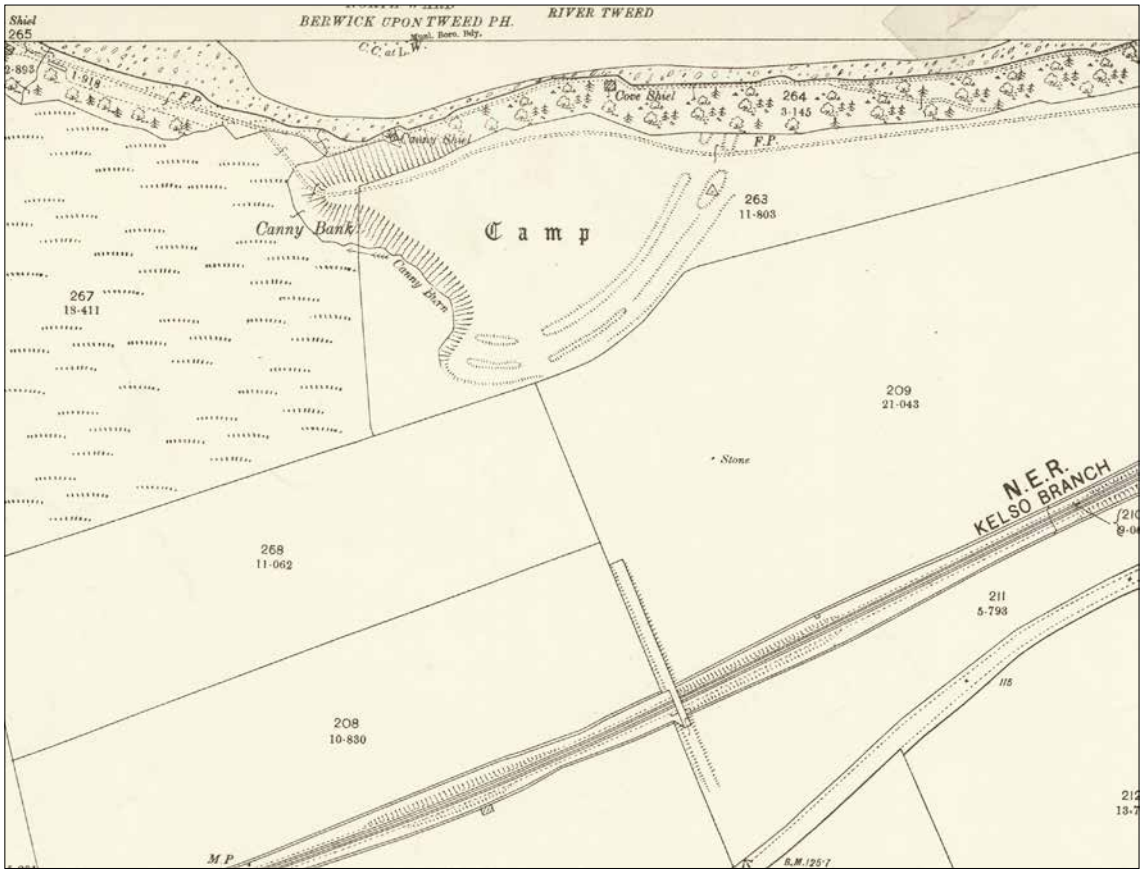

Figure 4: Extract from the OS 25-inch map published in 1898 (revised 1897), showing Chester Crane Camp with the upper (southern) reaches of the Canny Burn now buried below ground. Not to scale. [Reproduced with permission of National Library of Scotland]

Figure 5: View across the Tweed to the sheer-sided river cliff on the south bank. Chester Crane Camp occupies the level area east (left) of the narrow Canny Burn gorge. March 2022. [© Historic England]

defences on two sides. Its position, approximately 500m west of where Whiteadder Water flows in to the Tweed on the opposite bank, gives it views across not one but two watercourses and their confluence. Such a position could have afforded excellent opportunity for communications: by water via the easily navigable course of the Tweed with access to its tidal river foreshore, and along the swathe of level ground which runs along the top of the Tweed river cliff to east and west. As well as proving useful access to the inhabitants of the fort, the Canny Burn valley could also have been a point of vulnerability. Constructing a fort in this position may have primarily been a defensive response, designed to guard this important point of ready access up from the Tweed.

Chester Crane fort is not directly overlooked. The ground to its south is quite level, rising slowly over several hundred metres from about 25-30m (aOD) before ascending more sharply to the spring line now occupied by the farms at Middle Ord and Ord Mains and the heights of Murton High Crag (80m aOD) beyond. To the north, across the river, the views are extensive. There is no cliff on the north side of the Tweed, such that the southern river cliff dominates the wide alluvial plain which extends between the Tweed and the Whiteadder Water and perhaps 0.5km beyond, rising steadily thereafter to the summit of Halidon Hill (163m aOD) some 3km further north (Fig. 5, and *see* Fig. 1).

The land immediately north of Chester Crane, extending a further 2km beyond Halidon Hill (incidentally, where the Scots failed to displace Edward III's English army from Berwick in 1333), is the Liberty of Berwick, acknowledged in James I's charter of 1604. Here the Scottish border is set back from the river to follow the Liberty's western and northern bounds (Menuge and Dewar 2009, 16-19 including figure 17). Further to the west, however, the Tweed has served as the border between Scotland and England since the Middle Ages (this includes where the river is now crossed by the Union Chain Bridge). The Tweed may have provided a similar territorial division in much earlier times.

The corridor of the River Tweed, along with the higher ground overlooking it, preserves a large number of sites interpreted as later prehistoric forts, enclosures and settlements, some surviving as upstanding earthworks and others known only from cropmarks or soilmarks visible on aerial photographs. For example, the nearest site of seemingly similar location and construction is the cropmark of a semi-circle of three broad ditches arranged concentrically to enclose the section of river cliff immediately above the eastern (English) abutment of the Union Chain Bridge, near Loanhead, some 3.2km west of Chester Crane (Fig. 6). Other sites sharing some similar characteristics of location and/or form are recorded on both sides of the river and on the intermediate slopes rising from either side of the valley, putting Chester Crane in the heart of a busy later prehistoric landscape. The regional context of the fort is explored further in the Discussion (Section 6).

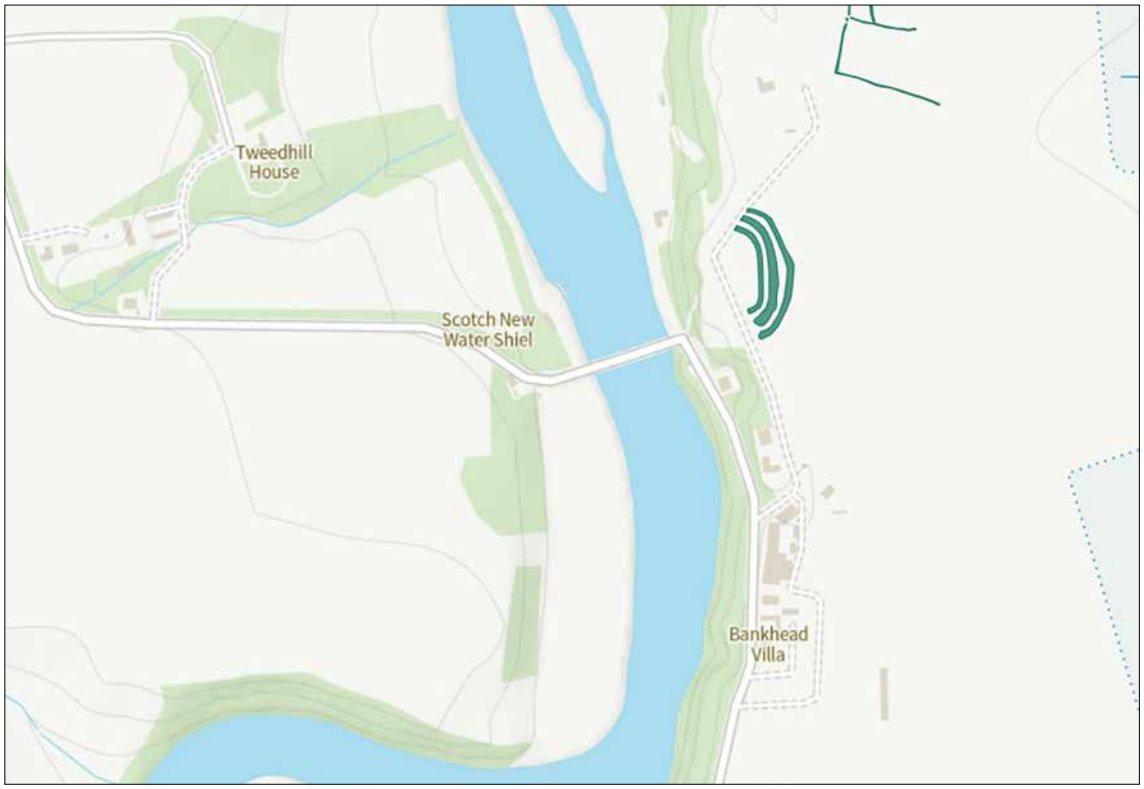

Figure 6: Extract from Historic England's online Aerial Archaeology Mapping Explorer, showing the Loanhead site as mapped from cropmarks. [© Crown Copyright and database right 2022. All rights reserved. Ordnance Survey Licence number 100024900 © Historic England]

3. DOCUMENTARY HISTORY

3.1 Antiquarian and previous archaeological research

The first specific mention of the fort at Chester Crane appears in the entry for the village of East Ord in a local directory of 1828:

> 'The space between it [East Ord] and the Tweed consists of rich meadows and cornfields ... Near the bank of the river are the remains of an extensive encampment, defended by a ditch and ramparts of earth, after the manner of the ancient British Fortifications. Many broken fragments of spears, armour, &c. have been found here' (Parson and White 1828, 344).

Aside from the suggestion of a prehistoric origin, it is particularly interesting to note the mention of spears and armour. No corroborating record of this discovery has yet been found and it remains unclear where this information originated.

A more detailed account of the fort and its possible origins is to be found a quarter of a century later in Reverend James Raine's *History and Antiquities of North Durham*. In his introductory section on the general history of the county, Raine presents a case for the east branch of the Roman military road commonly called the 'Devil's Causeway', crossing the Tweed a short distance upstream from Berwick. He goes on to suggest that '...the strong fortification on the southern bank of the river, in the township of West Orde [*sic*], of which there are even at present day such striking remains...' must have been constructed by and for the population responsible for this major river crossing (Raine 1852, ii). In a footnote, he states that the site is known by local people as 'Chester Knows' or knolls (ibid., footnote b), and provides a reasonably accurate description of the main earthworks (Fig. 7). He allows that some of the aspects less characteristic of a typical Roman camp might be the result of later actions of early medieval date ('the Saxons or the Danes'). No mention is made of the highly prominent medieval plough ridges that fill the entire enclosure, probably as Raine deemed them irrelevant to his argument, but possibly also because grassed-over ridge-and-furrow ploughing was commonplace in this part of Northumberland at the time of writing and he thought it simply not worthy of comment.

Raine's assumption that the fort was Roman was picked up by a number of later commentators. For example, a reference in a newspaper article announcing the forthcoming sale of the Middle Ord house and estate in April 1926 ends by declaring that: 'The estate was in the Grey family for generations. In one of the pasture fields there has undoubtedly been a Roman Camp and anyone keen on excavating will no doubt find antiquities of great value. The pasture is stated to be the finest old pasture in Northumberland' (*The Berwickshire News* 1926a). The descent of the Middle Ord Estate through the Grey family is discussed further below (Section 3.2).

[b] The plot of ground inclosed measures about three acres. Its present shape is triangular; but the Tweed, which forms its northern boundary, running rapidly along beneath a precipice a hundred feet high, has probably, in the lapse of years, incroached upon its shape and extent. This side of the triangle measures about 227 yards. On the west, the boundary is a little streamlet in a deep ravine much choked by weeds. The bank here, which extends about 140 yards, is steep and high. The other side of the triangle, which measures 226 yards in length, consists of a ridge of earth even at present five feet in elevation, protected on the side of the land by a deep ditch 21 yards in width, from which the soil of the mound has been raised. There has been apparently an entrance at each end of this line of earthen work, in either case protected by contiguous mounds of earth thrown up in the middle of the foss, one on each side of the two passages. The mounds at the east end of the line are large; those on the west are more worn down by time. It may be alleged that these mounds, and the general character of the fortification, are not the usual indications of a Roman encampment; but it must be remembered that the Romans, where they found their favourite ground, a lingula of land near two waters, did not always adhere to their usual rules of castrametation, but humoured the site; and with respect to the two breaches in the rampart, and the protecting mounds, they may be the work of a subsequent people—of the Saxons or the Danes. If Richard of Cirencester is to be believed (I confess my faith in him is much shaken by the scepticism of my brother of Northumberland), there was a station on the Tweed, on the line of Watling Street, "and where else," triumphantly asks my late correspondent on this subject, the late John Smart of Trewhitt, Esq. who was a great believer in Richard, "is it to be found?" I attach more importance to the evidence afforded by the fact, that the camp is called "Chester Knows," or knolls, by the people of the neighbourhood. I know of no instance in the north of England where the word "chester" is applied to any place of strength which is not of Roman origin.

Figure 7: The full description of Chester Crane Camp ('Chester Knows') in Raine's expanded footnote published in 1852 in his History and Antiquities of North Durham. [copyright expired]

Figure 8: Photograph looking north-east towards the north-east entrance, with the inner rampart in the centre foreground and outer to its right, taken by E. C. Waight in May 1967. [© Historic England Archive, OS55/F204/6]

In 1965, an alternative interpretation of the fort was published in an Appendix at the end of an academic article summarising probable Iron Age hillforts and defended settlements in Northumberland. In this piece, George Jobey purposefully omitted the site at 'Canny Shiels' (i.e. Chester Crane) from his list because a wide berm (the flat space between a bank and ditch) and a flat-bottomed ditch with two mounds astride the north-eastern entrance banks were, to his mind, uncharacteristic of later prehistoric forts in the region and were more reminiscent of a medieval site (Jobey 1965, 59). Jobey's reasons for ascribing Chester Crane a medieval origin are examined in more detail in the Discussion at the end of this report (Section 6).

Eric C. Waight of the Ordnance Survey Archaeology Division is perhaps the last archaeologist to have visited the site and made direct observations (Fig. 8). In May 1967, he reported the site as well-preserved and generally as described by Jobey. For the same reasons noted by Jobey, Waight points out that the nature of the remains at Chester Crane are more substantial than those normally classified in this area as prehistoric. However, he also considered that the fort's siting, in a position of some natural strength, suggests a possible classification as a promontory fort (Historic England Archive, OS Antiquity Model Card for NT 95 SE 19; NRHE 4216).

The fort at Chester Crane has also featured in wider area and thematic studies which have examined the accounts of these early authorities in tandem with recently acquired aerial imagery.

The site fell within the scope of the Till-Tweed Catchment Aggregates and Archaeology Project 2002-2010, which sought to synthesise geoarchaeological and paleoenvironmental evidence with archaeological and historical study of the landscape (Waddington and Passmore 2010). An important component of this study was the use of air photographs to identify and map the visible archaeological evidence either side of the two rivers, although for the Tweed this only covered land on the English side of the border (Deegan 2003; Gates and Deegan 2009). The resultant aerial transcription for Chester Crane shows the paired banks and outer ditch within a sea of sub-rectangular parcels of medieval and post-medieval ridge-and-furrow ploughing (Fig. 9). The project categorised the site as one among a notable string of 'riverine forts', potentially of Iron Age date, which perhaps formed a defended corridor along the lower Tweed (Passmore and Waddington 2012, 242-3, figure 7.15). Most of these sites were visible only as crop or soil marks, often presenting as multi-ditched enclosures (Deegan 2003, 13).

Chester Crane was also looked at by the 'Atlas of Hillforts of Britain and Ireland' project, recently published as both an online database and a monograph (Lock and Ralston 2017; 2019; 2022). The project examined more than 4,000 sites and sought to identify those which could be classed as hillforts based on three key criteria: landscape prominence, the scale of the enclosing works, and the size of enclosed area. This is a remarkably useful work for analysing hillforts as a

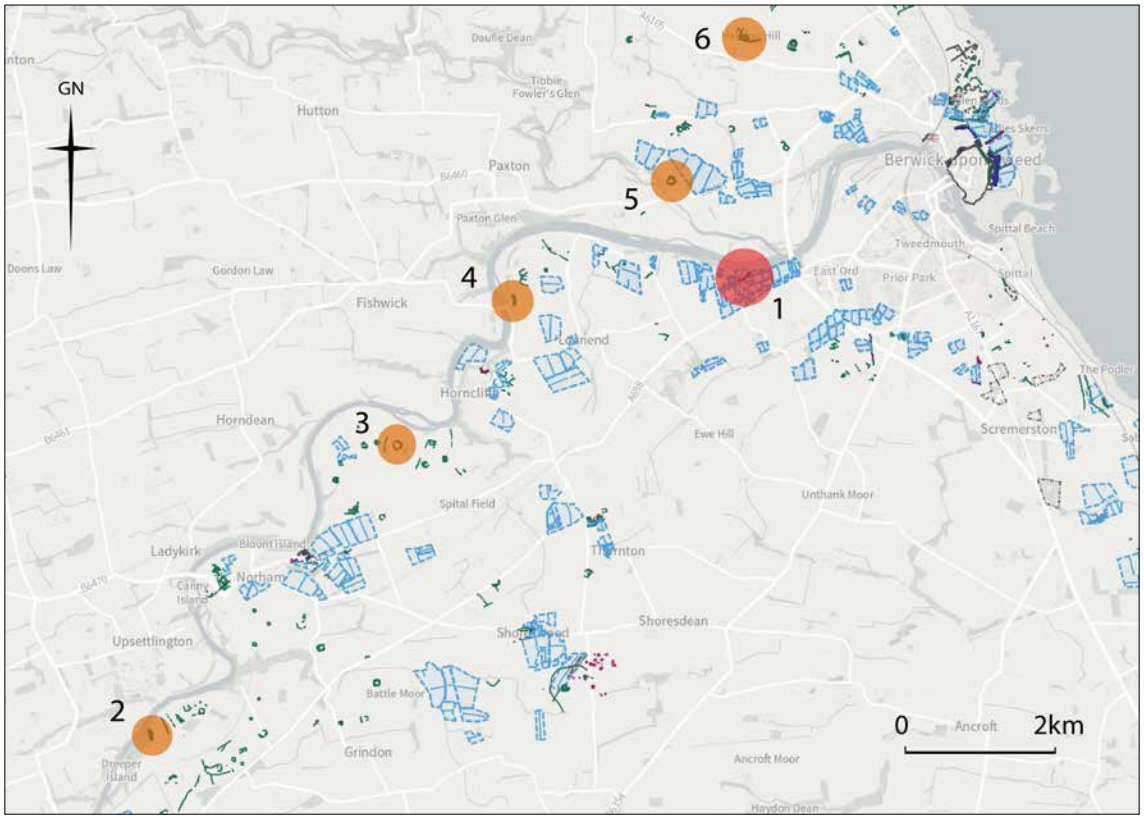

Figure 9: Extract from Historic England's online Aerial Archaeology Mapping Explorer, showing the Till-Tweed aerial mapping data between Norham and Berwick, and sites mentioned in the text: 1 Chester Crane; 2 Groat Haugh, 3 Green Hill, 4 Loanhead, 5 Whiteadder Bridge, 6 Haildon Hill. [© Crown Copyright and database right 2022. All rights reserved. Ordnance Survey Licence number 100024900 © Historic England]

monument class, although as with any desk-based study, and certainly one of such gargantuan scale, errors and generalisations have inevitably crept in, as the authors freely acknowledge. For example, the Atlas incorrectly categorises current land use at Chester Crane as arable rather than pasture (Lock and Ralston 2017; Lock and Ralston 2022, Map Table 3.1 in the supplementary online Resources).

The Chester Crane entry in the Atlas database is shown in the text box below; note the area recorded (1.7ha) is that of the 'habitable space' which is the internal space within the banks but excluding them; the full extent of the monument as surveyed during the 2021-22 fieldwork is closer to 3ha. Further discussion of varying issues and decisions surrounding monument type classification for this site and other promontory enclosures or forts of similar form is given in the Discussion (Section 6).

Inset 1. Extracts from the entry for Chester Crane in the Hillforts Atlas online database (Lock and Ralston 2017):

EN0585 Chester Crane Camp (Canny Shiel)

To the NW of Middle Ord overlooking the River Tweed, and [*sic*] enclosure described as a possible promontory fort or medieval enclosure of 1.7ha but better described as occupying a cliff-edge. It comprises two sections of bank separated by an 8m wide berm with an outer flat-bottomed ditch which creates an irregular V-shaped enclosure, with a slight bend in the River Tweed forming the northern side. No internal features are recorded. An entrance lies in the NE with a mound either side. A further break is depicted on OS maps in the S. No internal features are known. The site is unexcavated and undated. Although described as a 'camp' on the 1885 OS map it is suggested that the alternative name of Canny Shiel might suggest a medieval shieling, although 'shiel' is used frequently in the vicinity of the enclosure.

Condition: Extant *Land Use:* Arable [*sic*]

Landscape:
Hillfort Type:
A possible former hillfort lying on a N-facing slope at 32m OD overlooking the River Tweed. Partial Contour Fort.

Topographic Position: Cliff/Plateau-edge/Scarp; Lowland
Dominant Topographic Feature: Hillslope
Aspect: Level

Dating Evidence: Unknown

Interior features:
No features recorded; under rig and furrow cultivation.

Water Source: Canny Burn follows the ramparts to the W.
Surface: No known features.

Entrances:
Simple gap entrance in NE. A further gap is depicted on OS maps in the S.

Total breaks through the ramparts: 2
Entrance 1 (Northeast): Simple Gap

Enclosing works:
Two sections of bank separated by an 8m wide berm and with an outer flat-bottomed ditch which form an irregular V-shape.

Total Enclosed Area: 1.7ha
Number of Ramparts: 2 (in SE and SW quadrants only)
Current Morphology: Partial Bivallate.
Surface Evidence: Earthen Bank; Berm
Ditches: 1

3.2 History of land holding

The earliest document that shows the area of the fort is an annotated sketch plan dating from around the 1730s showing and listing lands along the River Tweed in East Ord, Middle Ord and West Ord (NRO 00304/10). The drawing seems to relate to fishing positions or rights on the Ord estates, and contains no indication of the fort itself.

A family tree diagram for the Grey family of Milfield, published in *A History of Northumberland, volume 12*, indicates that land at Middle Ord was purchased in 1788 by John Grey, described as 'of Heton, parish of Norham' (Dodds 1926, 565). The estate then remained in the family until at least the 1926 publication date of this family tree; the Greys of Middle Ord were also closely related to Greys recorded living at nearby West Ord in the 18th century and at Milfield Hill near Wooler (Grey 2022).[2] That the Middle Ord estate included the field(s) containing the Chester Crane fort is shown by the local tithe map and award of 1847/8 which additionally records that the fort and the high ground immediately surrounding it were then owned by George Grey and occupied by Alice Burn, and were seemingly linked with Middle Ord house, built in 1788 (NHLE 1276558), and farm. The thin strip of river bank directly below the site was listed as 'Murton East Backhill', owned and occupied by George Grey (TNA refs IR 29/11/201 and IR 30/11/201). The fields immediately west of Chester Crane fort – including the field later called 'Canny Bank' (*see* below) – were also in the ownership of George Grey but were occupied by a John Grey, presumably his first cousin who is shown on the family tree as holding land at neighbouring West Ord (Dodds 1926, 565). The tithe map itself shows only properties and field parcels, it does not depict Chester Crane fort in any way.

Brief notices published in local newspapers during 1834 include requests that no shooting or coursing should take place on the estates of Middle Ord, West Ord or Lowhouse without written permission from Mr Grey (or else 'poachers will be rigorously prosecuted'), as well as notices confirming that George Grey of Middle Ord held a game certificate for that year (*The Berwick Advertiser* 1834a; 1834b). Further newspaper snippets name the Greys and mention hare-coursing across the lands of Middle Ord in 1904 ending with a kill by beagles at 'the Camps' (perhaps referring to the Chester Crane field), and advertise the letting of shooting rights across the Middle Ord Estate in 1915. These confirm that the land here continued to be held by the Grey family and indicates that parts of the estate were subject to game rights as well as grazing leases for many decades (*The Berwickshire News* 1904; *The Berwick Advertiser* 1915).

After some 138 years in the ownership of the Greys, Middle Ord was sold to Messrs Scott, farmers, in 1925, although the house appears to have been occupied by a Mrs Dixon-Johnson (*The Scotsman* 1925; *The Berwickshire News* 1926a). One year later, in April 1926, Captain Dixon-Johnson[3] of Croft-in-Teesdale, married to Christian Elfreda ('Freddy') Grey, purchased Middle Ord; his family held the

estate until at least 1933 when it was put on the market but failed to sell (*The Berwickshire News* 1926b; *The Berwick Advertiser* 1933; Grey 2022). While the estate has seemingly changed hands a few times, it has primarily stayed in the Grey family; the Dixon-Johnsons, who owned the land through parts of the 20th century (including when the site was first scheduled, *see* Section 3.3), were related by marriage to the Greys of Ord (Dodds 1926, 565; Grey 2022).

Field names

Beyond ownership details, 19th- century local newspaper advertisements also provide useful information about field names on the Middle Ord estate, and these reflect the local recognition of the ancient earthworks. Numerous advertisements from the 1840s through to at least 1897 announce the annual renewal of grazing tenancies on the Middle Ord estate. These 'Grass Parks' were marketed as 'rich old pastures' implying the ridge and furrow in them had not been ploughed for some considerable time previously. But of particular interest to the current discussion is the fact that the auction listings often include field names and acreage. While the exact names change over time the existence of the earthwork fort is recognisable in the naming of pasture fields attributed to the Middle Ord estate throughout, first indicated using 'Camp' and later by identification as 'Chester Crane'.

The earliest adverts refer to 'Camp East Side' and 'Camp West Side', as shown by one such in the *Berwick Advertiser* 21 March 1846 (transcribed in FBDMA 2004, 12) with the east field seemingly that containing the fort, and the west being the adjacent field immediately the other side of the Canny Burn. By 1862-3, these field names have been shortened to simply 'East Camps' and 'West Camps' (*Berwick Journal* 1862; *The Berwick Advertiser* 1863). In both cases the area of pasture ascribed to each field is largely the same as it is today when compared with the most closely-dated equivalent Ordnance Survey maps: 13¼ acres for East Camps and 17¼ acres for West Camps (roughly 5ha and 7.8ha respectively).

Notices in *The Berwick Advertiser* and other local newspapers published from 1870 through to 1897 no longer have the 'Camps' field names listed amongst those let for grazing in the Middle Ord holdings, but instead record a field named 'Chester Crane' and another called 'Canny Bank' which seem to be roughly equivalent in size (e.g. *The Berwick Advertiser* 1870; 1880; 1897). Occurrence of the Chester Crane name must relate to the name 'Chester Knows' used by Raine in 1852 (*see* Section 3.1).

Figure 10: West-facing elevation of the truncated, masonry arch, accommodation bridge south of Chester Crane Camp, which used to provide access to the fields containing and surrounding the earthworks by carrying farm vehicles over the, now disused, Kelso to Tweedmouth branch railway line. [© Historic England]

Recent landscape change

The Kelso to Tweedmouth branch railway line, opened in 1849 and ran 200m to the south of the fort. It is shown fully operational on the 1st edition OS maps (*see* Figs 3 and 4). The line, which was single track, closed to all traffic in March 1968 following an earlier reduction in passenger services; the track was lifted shortly afterwards together with all steel and cast-iron bridge decks (Disused Stations 2022; Register of Closed Railways 2022). The stone arch accommodation bridge south of Canny Bank, however, was left in place, having originally been built to preserve a pre-existing right of access between fields and preserve a link across a landholding split in two by the railway. It is a well-made bridge in local rough-faced sandstone, with buttressed abutments retaining an earth and rubble core, recently exposed by the removal of the southern approach ramp, which has taken place within the past decade (Fig. 10). The bridge's position may also have had a bearing on the worn entrance through the fort's southern side (*see* Section 4.1). While unrelated to the earlier enclosure itself, the access bridge forms part of the continued story of the field plot that developed around the footprint of the promontory fort and contributes to the visual character of the site's wider setting.

Aerial photographs held in the Historic England Archive chart changes to the fort and the surrounding area across a period from October 1948 to September 2007 (*see* Section 9.1 for details of the most useful examples). Subsequent satellite imagery and lidar data bring this record up to the present.

Chester Crane is captured in the background of a black and white oblique aerial image taken of Longridge Towers by Aerofilms Ltd in 1948. The photograph shows

Figure 11: Extract from OS vertical aerial photograph showing Chester Crane Camp (top left) and the crisp patterns of multi-phase ridge and furrow ploughing extending across the fields immediately east and south-east (right). [© Crown copyright. Ordnance Survey, os_00965_v_2408 06-APR-2000]

intermittent trees along the top of the field bank that outlines and accentuates a significant stretch of the fort's outer ditch scarp, indicating a grown-out hedged bank of some longevity. RAF black-and-white vertical photographs taken in the 1950s and 1960s also record the fort in its immediate context. Fields to the south and south-east of the camp are corrugated with a dense pattern of ridge and furrow under pasture, while those to the west and south-west have reverted back to arable. The steep scarp that drops down to the Canny Burn and forms the western edge to the promontory appears to have been much less densely vegetated then than it is today.

From the 1980s to the 2000s, other vertical photographs taken by the OS record the same area after the railway line had been closed and the rails lifted. Photographs taken in September 1983 appear to show some differential moisture retention across the interior of the fort, with the western third appearing much paler in colour. This coincides roughly with where one of the more pronounced plough ridges seems to create a step or lynchet in the interior today (*see* Sections 4.1 and 4.2). The extensive and crisp complex of ridge and furrowing ploughing across the fields east and south-east of the camp was still extant and is captured particularly well in images from April 2000 (Fig. 11). Oblique photographs taken by English Heritage in 2007 record the site and the surrounding landscape in much the same condition, but in colour (*see* Fig. 2).

3.3 Designation history and site name

The site was formally scheduled in January 1962 under the provisions of the Ancient Monuments Act of 1931, negotiations having taken place by letter with the landowners since October of the previous year (Historic England Archive, Registry file AA11136/1).

The original Ancient Monument (A.M.7) proposal form dated 1961 refers to the site as 'Canny Burn Camp', and gives the following description:

> 'Sub-triangular hillfort, the north side defended by a precipitous 50ft drop to the River Tweed, the S.W. by the Canny Burn. The S.W. and S.E sides are defined by a double rampart and ditch, surviving in places to a height of 6ft.'

However, the typed name 'Canny Bank' is crossed out on the file cover and the A.M.7 form and replaced with the hand-written name 'Chester Crane'. The reason for this becomes clear from the correspondence in the file. In response to notification, Mr C. L. Dixon-Johnson of Middle Ord (husband of the owner Mrs M. D. Dixon-Johnson), replied with a request that the site be called Chester Crane as that was the name of the field as recorded on enclosure deeds from at least 1848 and was how his grandmother had referred to it throughout her long life (this corroborates with field names reproduced in newspaper advertisements, *see* Section 3.2). The Ministry accepted this request, altered the monument title, and also wrote to inform the OS of the name under which the site was scheduled. The OS acknowledged the letter but do not appear to have taken any action as a result (Historic England Archive, Registry file AA11136/1).

The 1947 edition of the OS 6-inch map used by the Ministry to identify the monument at the time of scheduling placed the name 'Canny Bank' alongside the word 'Camp' (the latter printed in gothic script to indicate an antiquity) in the centre of the enclosure (Fig. 12). This arrangement was unchanged from editions of the 6-inch map dating back to 1922, although earlier as well as later editions (including the 25-inch map published in 1924) position the term 'Canny Bank' more definitively to indicate the tip of the promontory, or perhaps the steep descent into the burn gorge (*see* Figs 3 and 4).

A. H. A. Hogg, writing in 1947 and George Jobey, in 1965, identify the site using the term 'Canny Shiel' in reference to the salmon-fishing shelter on the shoreline immediately below, which has been mapped since the 1850s and remains to this day as a roofless shell (Hogg 1947, 152; Jobey 1965, 59) (*see* Section 4.4). Waight subsequently considered that the nearby shiel name element *might* just support Jobey's suggestion of a medieval origin for the fort site:

> 'There is no obvious indication of the purpose of this earthwork, though the occurrence of the name Canny Shiel (i.e. Shieling) suggests a Md. [medieval] association' (field investigator E. C. Waight, 18/05/1967, OS Antiquity Model for NT95 SE 19).

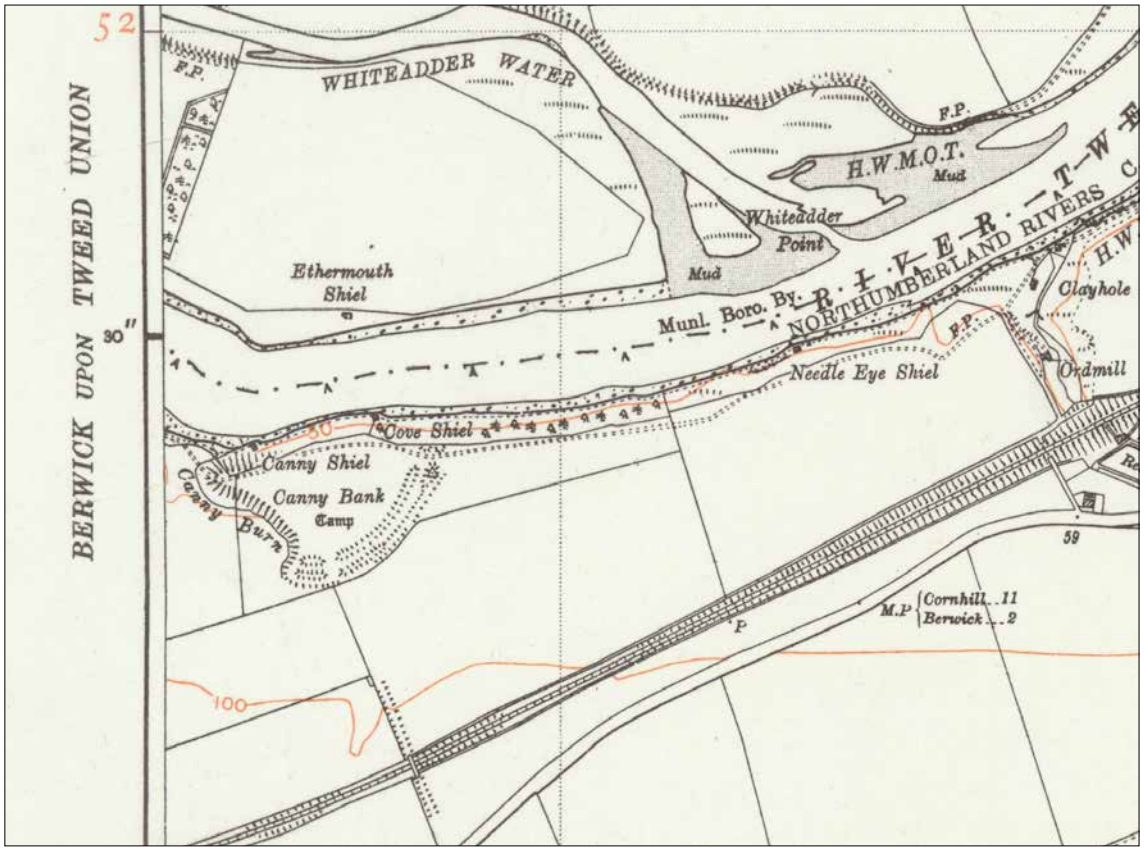

Figure 12: Extract from the OS 6-inch map published in 1947 (revised 1938) showing the label 'Canny Bank' in the centre of the camp. Not to scale. [Reproduced with permission of National Library of Scotland]

Although more recent studies have on occasion perpetuated use of this name, for instance the Till-Tweed Project (Passmore and Waddington 2009, 359), the fort has never been known locally as Canny Shiel. Its proximity to the fishing shiel of the same name – one of two ruinous structures immediately below the site, among many others dotted along both sides of the tidal river – has caused some confusion, given that that the term 'shiel' or 'shieling' is commonly used elsewhere to indicate a medieval stock enclosure. The Northumberland HER, for example, includes a suggestion that there may have been medieval shielings in the vicinity of Murton deserted medieval village, 'as suggested by the place-name Canny Shiel at Chester Crane camp' (Northumberland HER N1383).

4. EARTHWORK DESCRIPTION AND INTERPRETATION

The survey of Chester Crane Camp covered an area of approximately 3 hectares. Features and relationships evident in the earthworks of the promontory fort are described below. To aid orientation, key elements mentioned in the text have been allocated numbers in square-brackets which relate to labelled features on the main survey drawing in Section 10 at the rear of the report (*see* Figs 34 and 35).

4.1 The fort

The fort is roughly triangular in plan. There is now no evidence of ramparts (constructed banks) along the north and south-west sides which instead are defined by a steep river-cliff and downcut tributary valley. (It is of course entirely possible there was formerly something like a timber stockade here of which there is now no visible trace). To the south-east, however, where the approach to the fort is across level ground, two sets of rampart and ditch run in broad concentric arcs between the Canny Burn and the Tweed river-cliff (Fig. 13). The main entrance in to the fort appears to have been towards the north-east end of this arc [1], close to the river cliff, although it seems likely there was also a second, less substantial, entrance [2] at the very west end of the ramparts immediately above the head of the valley of the Canny Burn (designed perhaps to allow the occupants ready access up from/down to the burn and the Tweed). At the south edge of the fort, a large break in both ramparts [3] about 33m back from this western entrance appears best explained as a more recent bust-through, perhaps created in the medieval/early post-medieval period to allow farmers ready access to the fort interior with ploughs and draught animals, for the interior is entirely covered in ridge-and-furrow ploughing, now grassed-over and given to pasture. This ploughing has heavily influenced the form of the ramparts and ditches as they exist on the ground today. Towards the centre of the interior, a step in the ground level, descending to the west, coincides with one of the more well-formed ridges; this may indicate an underlying feature, perhaps the bank of an earlier, smaller, fort or enclosure, or perhaps a constructed sub-division of the full fort.

Banks, ditches and entrances

The middle section of the inner rampart [4] is extremely regular in size: ranging between 1m and 1.4m in height and between 6m and 8.5m in width over its entire length, with a flat top and crisp, uniform slopes throughout (Fig. 14). However, this regularity is the result of strip ploughing that is visible to either side (discussed in greater detail in Section 4.2), which has cut in to and sharpened up the sides and base of the rampart, and may even have reduced its height. The detached, western section of inner rampart [5], overlooking the burn, provides an indication of its likely former scale and appearance prior to the effects of ploughing. This detached section has an outward fall of about 2m over a distance of 5m and, although the interior face has been pulled down and spread by the heads of further ploughed

Figure 13: Low level oblique aerial photograph of Chester Crane Camp promontory fort from the south-east, November 2021. [David Went © Historic England]

Figure 14: View along the south-eastern boundary of the fort from the south-west, with the middle section of the inner rampart to the centre. November 2021. [© Historic England]

ridges, it is still possible to estimate its original overall width at about 13m. The broad gap [3] separating [4] and [5] is not original (*see* below). The gap between the westernmost inner bank terminal and the burn could, however, define an original entrance [2]. The low plough ridge running alongside the burn and towards this gap is not sufficient to have removed all traces of the earlier ramparts had they existed here, and the matching positions of the two westernmost inner and outer rampart terminals suggests a formal passage here, linked perhaps to the more accessible section of the burn.

A second major break in the inner rampart, at the north-eastern end of the arc [1], appears to define a more prominent original entrance to the enclosure. The main inner bank [4] terminates neatly in a gentle rounded tip, in line with the termination of the outer bank, leaving a gap of approximately 12m between it and the opposing terminal [6] where the inner bank resumes its course toward the river cliff. Cliff erosion appears to have left very little of bank [6] – just the terminal itself, which survives to some 0.6m high and 10m wide. The position of the cliff top does not appear to have changed dramatically since it was first mapped at a detailed scale in the late 19th century (*see* Fig. 3), but it is possible cliff recession has been more rapid in the past and that a considerable length of rampart has been lost.

A gentle slope into the interior between the inner bank terminals at the north-eastern entrance [1], has been accentuated by later ploughing, but appears geological in origin and might suggest that the bank itself was sited to take advantage of a slight natural step, further examples of which can be seen across the interior where they have a bearing on the pattern of cultivation ridges and perhaps earlier features (*see* Section 4.2).

The main, middle, stretch of the outer bank [7] has been impacted by later ploughing to a far greater degree than the inner work. Proof of its former stature is visible in the surviving unploughed sections at either end [8 and 9], but over the greater part of its length it has been severely reduced and over-ploughed, transforming it in to what is in effect a plough ridge 5 to 7m wide and 0.4 to 0.6m high, with a slight suggestion of a more solid core. Material displaced from the rampart has infilled the ditches to either side, so much so they are now both level ground effectively flush with the reduced rampart, and the space they once occupied used for two further lines of ridged cultivation.

As seen in the inner western arc [5], the western terminal of the outer rampart [8] has similarly survived the worse effects of later ploughing to give a better impression of its original scale and mass. Here the bank measures some 8m across and 0.8 to 1m high, with a more pronounced outer scarp descending to a narrow (around 5m-wide), level berm that flanks the outer edge of the rampart and runs alongside the gradual break of slope that marks the top of the curving valley side of the Canny Burn (where it previously continued to rise to the south-east before the upper reaches were piped underground). As mentioned above in relation to the inner terminals, this pronounced outer bank scarp with its well-formed western terminal further supports the suggestion that there was an original entrance

Figure 15: The eroded inner (north) side of the western outer rampart section, showing the exposure of stone. March 2022. [© Historic England]

alongside the burn. This segment of bank [8] is covered by a hawthorn thicket – possibly an outgrown former hedgeline – beneath which the earth has been laid bare by shade, root action and sheltering sheep. Within the clayey, loamy soil of the bank a ragged line of stone blocks is partly exposed on the north side, none larger than 0.2m by 0.3m. This has the appearance of a stone wall, either the foot of a medieval/post-medieval field boundary that once followed the line of the rampart, or just possibly one face of an earlier stone rampart now buried within the extant earthen dump rampart (Fig. 15). Rounded river stones may have been packed in the core of this wall, though similar cobbles are widely found throughout the bank matrix.

The southern gap [3] between the outer bank segments [7 and 8] is clearly secondary, as a series of small scarps and a slight mound indicate residual elements of the bank, the outer ditch and the inner face of the inner ditch. Given the sweep of ridges across the enclosure and between the banks, it seems more than likely that this break was forced through the perimeter to afford an easy access for the plough teams. It was then, perhaps, maintained in more recent times as the main approach continuing the line of the access route leading north from the mid-19th-century railway bridge and also providing close entry to the small square pen that once stood nearby (*see* Fig. 3).

The north-eastern terminal of the middle section of the outer rampart [9] stands some 2.5m above the interior and 3.4m above the present base of the largely

Figure 16: The north-eastern terminal of the outer rampart to the south of the north-east entrance, viewed from the north. Stone protrusions were observed about 0.5m above the base of the mound (near the 2m ranging pole and roughly level with the third increment from the base). March 2022. [© Historic England]

infilled outer ditch, and is by far the most impressive element of the Chester Crane site (Fig. 16). A few large stone blocks are exposed by slope erosion on its northern scarp, although it is not clear, as with those to the west [**8**], whether these relate to a structural core buried within the rampart. At 20m in width it is clearly a considerable enlargement on the general run of the outer bank, and it may be assumed that increased height, as well as width (and perhaps stone content), dissuaded later farmers from taking the trouble to level and plough this section along with the rest of the arc. The splayed outward expansion of the outer ditch at this point is probably the result of the quarrying necessary to raise the mass of the terminal. This may represent the aggrandisement of an existing entrance (by enlargement of both terminals, [**9**] and [**10**]), or a new entrance cut through a hitherto continuous section of the defences. In the former case, the earlier ditch should survive buried below the expanded terminal. In the latter case, the buried ditch would straddle the entire entrance. Unfortunately, the gradiometer survey results are inconclusive on these points, and the answers will have to await further investigations.

The opposite outer terminal [**10**] is similarly massive in relative terms (2m high and 14m in width) but, as with the inner north terminal [**6**], it is clearly truncated by the retreating edge of the river cliff. The slight hollow immediately east of the bank appears to be a remnant of the outer ditch picking up again after the entrance causeway (Fig. 17, and *see* Fig. 34).

The outer ditch has also been partly infilled by ploughing, but less so than the inner ditch; a plough ridge is visible in its level floor. For the greater part of its circuit,

Figure 17: Project volunteers standing in the principal north-east entrance to the fort, viewed from the south. March 2022. [© Historic England]

Figure 18: View along the crisp outer (south-east) face of the infilled outer ditch, viewed from the north-east, with the near-levelled outer rampart (right) and the taller inner rampart visible behind it. November 2021. [© Historic England]

the ditch's outer face is marked by a steep scarp [11], up to 1.8m high (Fig. 18). There are suggestions of a slight outer counterscarp bank toward the north-eastern end of the ditch close to its northern terminal, although this may be the product of later ploughing. A narrow, well-defined field bank [12], 0.4m wide and 0.3m high, runs along the top of the ditch's outer scarp from just east of the broken-through

entrance for about 80m before veering away to the east. This corresponds to a field boundary shown on the 1st edition OS map of 1866, and still present on post-war editions up to 1987 (*see* Section 4.3).

4.2 Ridge and furrow

The pattern of ridge-and-furrow cultivation contained within the banks is the most striking feature of the Chester Crane enclosure, especially so when viewed from the air or on lidar (*see* Figs 2, 11, 13, 34 to 37). The fan-like pattern of ridges covers every part of the interior, as well as overwriting the ditches and the outer bank as described above.

Until comparatively recent times the fort was also surrounded by an extensive pattern of furlongs (co-oriented groups of ridges or 'lands') extending right across the land associated with Middle and West Ord Farms, between the Tweed and the Berwick-to-Longridge road, now the A698. The vast majority of these ridges, recorded in aerial photography as discussed above, have been largely flattened by arable reversion and mechanised ploughing, but traces can still be detected from the air and on the ground in very low slanting light and some significant ridges remained in living memory (Eric Wood, UCB project volunteer, pers. comm. November 2021) (*see* Section 3.2). The lidar and photogrammetric surveys carried out for this report revealed slight traces of this pattern including a single ridge parallel to and outwith the outer ditch (between [**12**] and [**13**]), and several ridges outside the enclosure running toward and along the river cliff and fort entrance to the east (*see* Figs 35 to 37). These are, or were, substantial ridges, generally 6 to 8m wide and describing the curved or reverse 'S'-shaped course required to turn an ox team at the end of each run. Ploughing in such a fashion is normally ascribed to the medieval period, although once established such patterns can endure over a considerable length of time, perhaps as late as the 18th century.

Ploughing within the fort's interior was evidently constrained by the existing earthworks and the available space between the Tweed cliff and the Canny Burn. The plough seems to have entered the fort from the south where the enclosure banks are broken through, and from where the ridges radiate toward the Tweed. The ridges across the interior range from 5.5m to 7m in width, but whereas in some places this variation could be interpreted as modifications to an earlier scheme, here it is more easily explained as a pragmatic response to an awkward location. Where the ridges reach into the diminished space between the river and the burn it would have been impossible to work a full ox team. Ploughing with a pair of oxen or even a single animal must have sufficed here, and the very short westernmost ridges may even have been hand-dug.

The cultivation pattern within the fort provides another insight into the extent of ground lost to cliff falls. The entire furlong within the fort is oriented toward the river, stopping 5 to 6m short of the fence line which marks the top of the cliff. The process of turning the plough would have resulted in the amassing of mounds or

Figure 19: Plough ridges running up to the top edge of the steep river cliff (left), showing the distinctive step in the underlying ground level (centre), viewed from the west (scale 1m). November 2021. [© Historic England]

'heads' at the end of each ridge, in appearance rather like the heads on matchsticks. These were sometimes left as isolated mounds and occasionally used for rick stands, but more commonly the row of heads was ploughed together to create a headland – essentially another ridge, set at a right angle to the furlong. This process is evident at Chester Crane where a single headland is visible running parallel with the cliff merging the heads of the ten ridges east of the point of the promontory. A separate headland combines the heads of the next seven ridges, accompanied by traces of a third, parallel, headland running nearer the cliff edge. The spaces between these headlands and the cliff edge is now far too narrow for the turning arc of the ox-drawn plough working up and down the main furlong, indicating a significant measure of cliff collapse over the years since ploughing ceased. The duplication of the headland to the east, however, suggests that a retreat from the eroding cliff edge may have begun during the period of active cultivation. These two headlands end at a particularly well-defined ridge [**14**] which crosses the centre of the fort interior to terminate in the only isolated head alongside the river cliff. This ridge coincides with a noticeable fall in ground level of about 0.8m from east to west, raising the possibility that it overlies an earlier feature, perhaps the bank of an earlier and much smaller fort or enclosure, or alternatively a constructed sub-division of the full interior, contemporary with the construction or use of the promontory fort (Fig. 19). These possibilities are discussed further below in the light of the geophysical survey evidence (Sections 5 and 6).

There is no evidence of a headland being ploughed in order to close the furlong's western edge alongside the Canny Burn. Here, presumably, the ox team would have met the top of the slope at a shallow angle and been easily turned into the interior of the fort.

4.3 Later features

As previously mentioned, the well-formed earthwork of a remnant field bank runs atop a significant stretch of the central section of the outer bank [**12**]. Now entirely cleared of vegetation, and levelled by cultivation where it used to bisect the large field east of the fort, historic air photographs taken in 1948 and 1951 show the distinctive dog-legged boundary crowned by a line of interspersed medium-sized trees, suggestive of a grown-out hedged bank (Historic England Archive: Aerofilms EAW019699 and RAF 540-611-RP-3312).

The western end of the outer ditch, flanking the ragged, broken-through entrance on the south side of the fort, is marked on its southern side by a single standing stone [**13**], 1.4m tall, surrounded on three sides by a small concentration of rubble with a scooped hollow against its south-west face (Fig. 20). At first sight this appears to be a roughly-cut gate post, but it bears no marks for a hinge or latch, and no gateway is shown in this part of the mapped field boundary. A more likely explanation is that this is a scratching post for cattle or other grazing stock. Just such an object, labelled 'Rubbing Stone', is shown on the 1st edition 25-inch OS map, surveyed in 1857, located in the open field about 100m to the south-east (*see* Fig. 3). The mapped stone is no longer present in that field – which is now active arable anyway – and so it is reasonable to conclude that the stone now standing at the edge of the outer ditch is same thing, relocated at an unknown date. The stone's worn angles and slightly polished south-west face are certainly in keeping with prolonged use by livestock. The surrounding rubble may include packing at the base of the stone, but is more probably from field clearance, again placed here away from machinery.

A small square structure, probably a pen, is shown on the 1st editions of the 6-inch and 25-inch OS maps, sitting within the southern break slightly overlying the eastern ends of the two detached sections of rampart [**5** and **8**]. The more detailed 25-inch map depicts it as three-sided, with an open front to the east shown by small hachures indicating an apron scarp at the front for a small platform terraced into the bank terminal at its rear south-west corner (*see* Fig. 3). It is not shown on the revised maps published at the end of the 19th century. This may have been a quite insubstantial pen, or the ground here has been altered by subsequent stock movement through the gap, but no trace of this structure was identified by the earthwork or geophysical survey. Large quantities of rubble concentrated in the stream channel immediately to the south might include wall material from the stock-pen but are more probably related to the removal of a nearby drystone wall, the foundations of which lie below the hedgerow just outside the southern break through the banks.

A modern footpath, the route unchanged since it was marked on the 1st-edition OS maps (perhaps an earlier right of way originating in connection with access to the fishing shiels along the riverbank below), runs along the northern side of the site, between a kissing gate just beyond the east entrance and a timber stile across

Figure 20: The standing stone and rubble located at the western end of the main arc of the outer rampart (scale 1m). March 2022. [© Historic England]

the fence at the western tip. From here the path descends the precipitous slope into the Canny Burn gorge by steep wooden steps (Fig. 21), and then continues westward along the shore line. Where the path was recorded during the survey of the fort's interior, it can be seen sometimes converging with narrow gullies representing buried field drains crossing the furrows and issuing through a number of sharp depressions in the lip of the river cliff. A tenancy advertisement posted in 1865 notes that the old grass lands of Middle Ord 'have nearly all been drained' (*Newcastle Courant* 1865), this might perhaps correlate with some of the later narrow drainage features recorded here.

Other minor worn trackways were recorded which are not marked on any map, particularly around the southern opening through the enclosure banks and along the western edge where it skirts the top of the Canny Burn gulley.

4.4 Fishing shiels

Outside of the survey area, on the riverbank directly beneath Chester Crane fort, just above the mean high water mark some 45m east of where the burn opens into the Tweed, are the remains of Canny Shiel, a small stone-built fishing hut, one of many constructed to take advantage of the local salmon stock (Fig. 22). The building, indicated on the earthwork plan (*see* Fig. 34) and depicted on all OS map editions, is now in a ruinous state and comprises a square, single cell with its

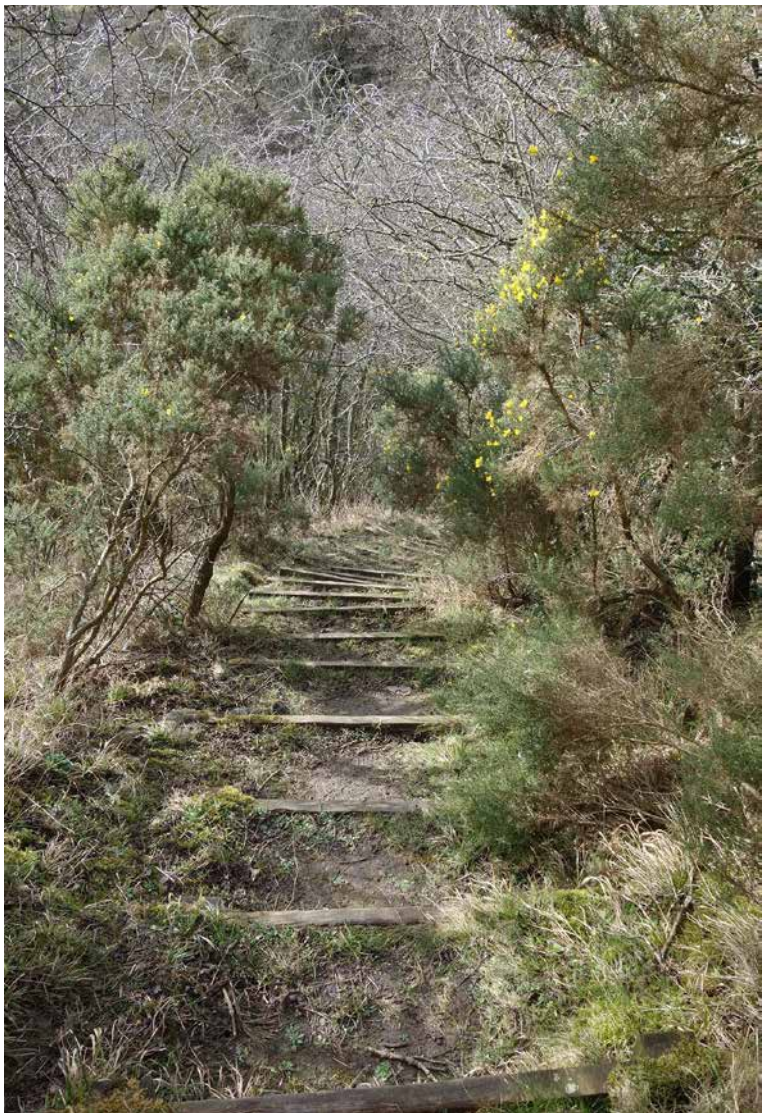

Figure 21: The steep steps descending from the tip of the promontory at the western corner of the fort toward the Canny Burn, the Tweed and Canny Shiel. March 2022 [© Historic England]

rear (south) wall terraced directly into the hillside. It is constructed of sandstone blocks laid in irregular courses, with a small fireplace in the rear wall and at least one ground-floor window (Fig. 23). Some internal buttressing may have been added to help counter pressure from the adjoining river cliff. The roof has long since collapsed but heaped building materials inside suggest that it was previously topped with ceramic tiles. Likewise, internal remnants suggest that it previously had walls covered by a thin plaster skim, and that it may have had a second floor or loft, possibly for sleeping or for dry storage. At the high watermark along the short stretch of foreshore between the burn and the shiel, there are intermittent remains of a low dry-stone revetment wall, perhaps to keep access to the shiel from the west clear from debris eroding down the river cliff (Fig. 24). Close to this is an area of paving, presumably utilising slabs from the natural stone bedding where it outcrops at shore level and probably maintained to keep a path to the shiel relatively firm underfoot and free from esturaine mud (Fig. 25).

Figure 22: The ruins of Canny Shiel on the south bank of the Tweed, from the west. March 2022. [© Historic England]

Figure 23: The north front wall and interior of the ruined Canny Shiel. March 2022. [© Historic England]

Figure 24: (above left) Short stretches of dry-stone revetment wall at the highwater line on the south bank of the River Tweed, immediately west of Canny Shiel. March 2022. [© Historic England]

Figure 25: (above right) Possible stone slab paving at the highwater line on the south bank of the River Tweed, west of Canny Shiel. March 2022. [© Historic England]

A further 140m east of Canny Shiel is another of these structures – Cove Shiel – still located directly beneath the north side of Chester Crane fort. Foreshore erosion and overgrown vegetation meant that the position of this second shiel was not visited during the field survey, and so the structure (if any remains) was not observed. The positions of both Canny Shiel and Cove Shiel, taken from OS mapping data, have been indicated on the main survey drawing (*see* Fig 34).

Far from being unusual, many fishing shiels in various states (some ruinous, others restored and converted) survive regularly spaced along either side of this stretch of the Tweed. They can be seen clearly drawn and generally named – like 'Canny Shiel' and 'Cove Shiel' – on historic Ordnance Survey maps from the earliest 19th-century editions well into the 20th century (e.g. *see* Figs 3, 4 and 12). These small buildings provided seasonal lodgings and space for equipment for fishermen, and sometimes a raised viewing platform ('fording box'). They tell an evocative story about the importance of salmon fishing and the control of fishing rights along the Tweed from Berwick to Norham. Extant examples may date from the early 18th century or perhaps earlier (Menuge and Dewar 2009, 50-58). They are a strong reminder of the river's rich salmon stock, as well as of its suitability for easy launching and landing of small boats, both factors that would have been as attractive to the builders of the Chester Crane fort as they were to local fishing communities in more recent centuries.

5. GEOPHYSICAL SURVEY RESULTS

A standalone report presenting the detailed method and results of the gradiometer surveys at Chester Crane, as well as at the possible fortlet or enclosure at nearby Horncliffe, has been prepared separately and should be consulted for a fuller account of the findings (Wessex Archaeology 2022). The principal findings of the Chester Crane geophysical survey are described and considered below for useful comparison with the earthwork survey results. The greyscale plot of the gradiometer results and accompanying interpretation drawing are reproduced below as Figures 26 and 27, and a summary of the methodology is provided in Section 8.2.

The gradiometer survey covered the entire area of the interior of the enclosure and perimeter earthworks, with the exception of the north-eastern and south-western terminals of the outer bank, which were inaccessible due to dense hawthorn tickets. A small area between the inner and outer bank terminals to the south-west was also excluded due to the location of a temporary tent erected there to give shelter to the volunteers and equipment.

In essence, the bulk of the geophysical results are largely a reflection of the visible earthworks. They are dominated by the radiating pattern of ridge and furrow cultivation and the sweep of the inner and outer banks. Despite the masking effects of this later ploughing, the greater prominence of the two enclosing banks shows very clearly and is quite distinct from the lesser signatures of the cultivation ridges alongside and nearby.

The southern break in the banks (referred to as the south-west entrance in Wessex Archaeology's report), as previously noted from the earthwork evidence, is a ragged gap retaining fragments of infilled ditch and levelled banks lacking a clear passage through. The north-eastern entrance is slightly more coherent, although even here the possibility of buried elements straddling the gap cannot be ruled out.

Across the interior the pattern of ridge and furrow cultivation appears to change between smooth sweeping ridges to the east and more angular ridges to the west, but as noted above this may be in response to the confined space (i.e. needing to create tighter arcs for shorter ridges) rather than any division of tenure or ploughing practice. In places the thin dark lines of buried field drains can be seen, largely set within the earlier furrows.

The most intriguing discoveries lie beneath the ridges in the western part of the interior (*see* Fig. 27, features 4103 to 4106). As mentioned above (Section 4.2) there is a noticeable step down across the centre of the enclosure from east to west. While this could be geological in origin conflated with a substantial plough ridge, the buried ditch in this area (4103, shown in green on Fig. 27) seems to support the alternative suggestion that an earlier boundary underlies the cultivation ridges here, either defining a smaller fort or subdividing the main enclosure.

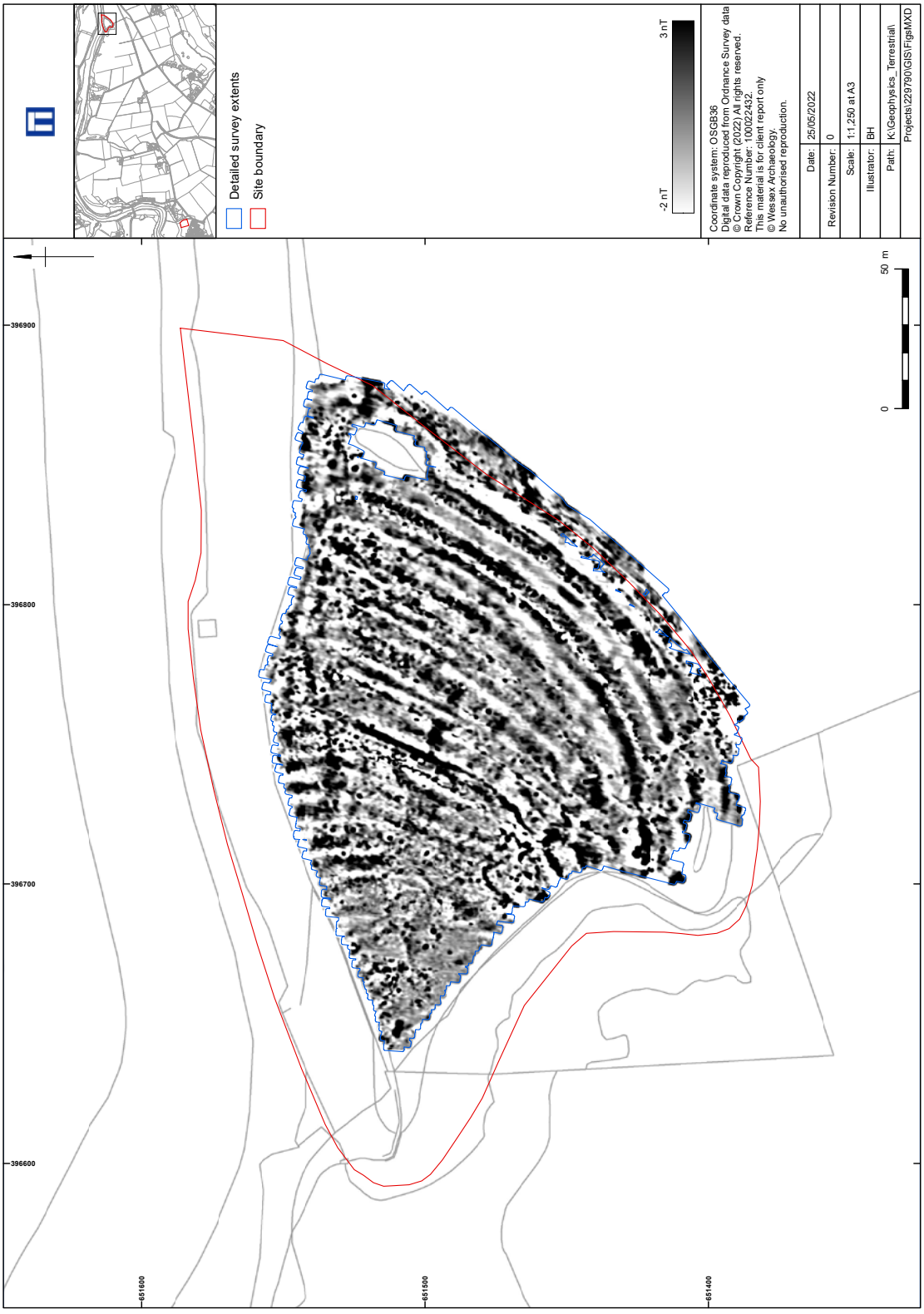

Figure 26: Gradiometer survey results: greyscale plot. Chester Crane Camp. Reproduced with permission from Wessex Archaeology 2022, figure 4.

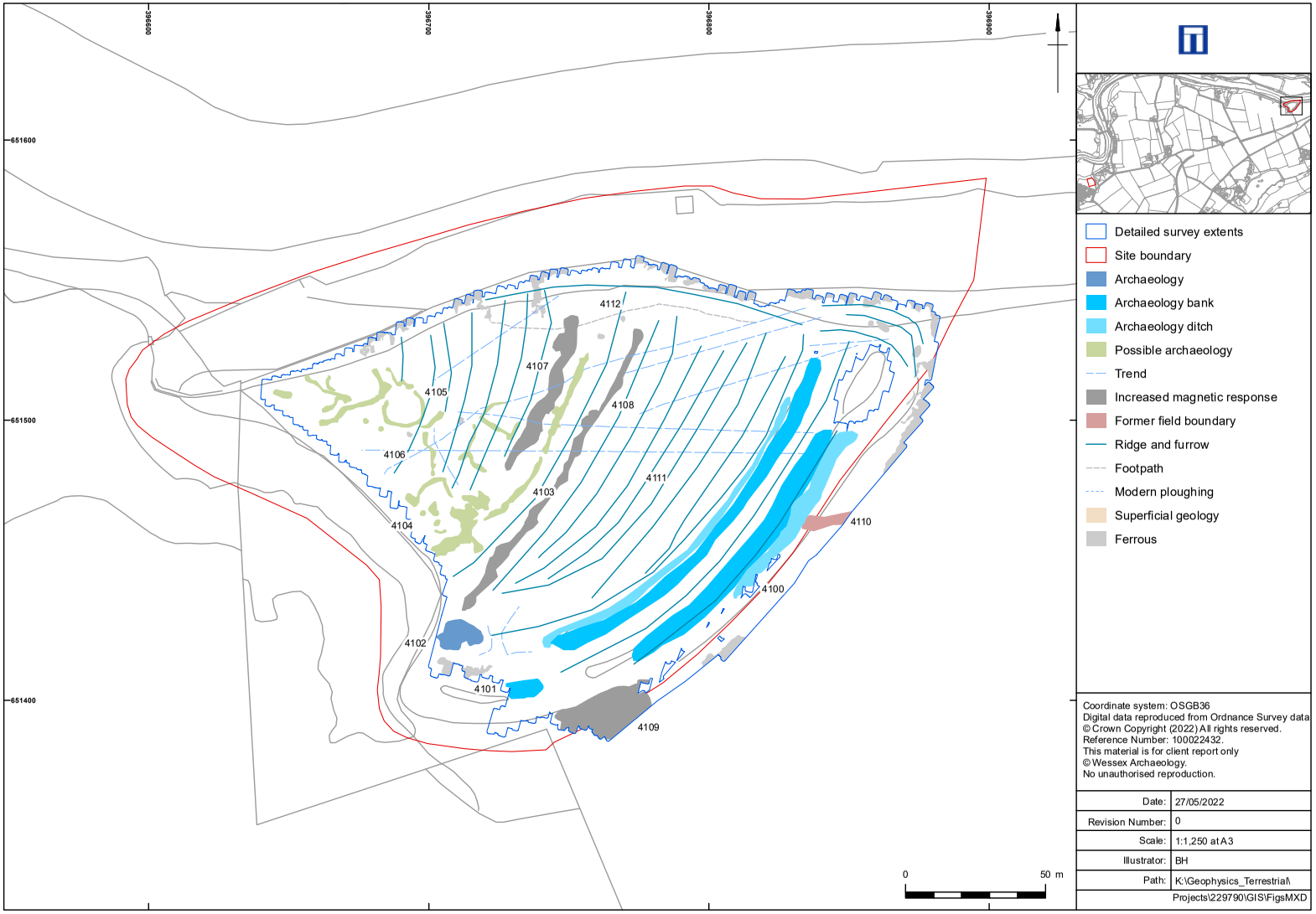

Figure 27: Gradiometer survey results: interpretation. Chester Crane Camp. Reproduced with permission from Wessex Archaeology 2022, figure 5.

There are indications of associated ditches to the west of 4103 forming a series of irregular enclosures, the most prominent of which, 4104 (at the south end of 4103), measures approximately 25m north-to-south and currently 20m east-to-west, having possibly lost its western side to erosion along the Canny Burn. This report can only concur with Wessex Archaeology's suggestion that these features may relates to animal husbandry.

Directly north of 4104, a cluster of anomalies suggest the outline of a near circular ditch some 15m in diameter (4106) which lies immediately to the east of a similar but slightly smaller (13m) penannular ditch open to the north-west (4105). Both may represent the drip- or wall-gullies of round houses, although geological disturbance and the effects of later cultivation render these interpretations far from certain.

Further possible pits are scattered around these features, and a much larger pit-like anomaly, 10m across, is located close to the tip of the promontory. Stronger, but more irregular signatures are clustered alongside the top edge of the Canny Burn's gorge (*see* Fig. 26), but it is unclear if they relate to pits or dumps of dense material. In part these could indicate some earlier heads of ridges, overlain by the evolution of the cultivation pattern.

The strong ferrous disturbances might relate to pieces of buried ironwork of any period. The larger area of increased magnetic response recorded to the south (4109) is likely to be an indication of a broad spread of buried stone, perhaps from the demolition of the small former stock-pen near the southern 'entrance' (*see* Fig. 3) and adjacent stone walls, or from field clearance, concentrated in an otherwise damp corner of the field that is used as the main modern vehicular entrance to the site. The two linear magnetic responses (4107 and 4108) may reflect the concentration of materials within cultivation furrows, such as the introduction of later drains, though the possibility of earlier archaeological explanations cannot be ruled out.

In the main, the geophysical survey results reflect those of the earthwork survey, but with the tantalising addition of the anomalies identified within the western interior that hint at possible occupation features beneath the plough ridges, perhaps contemporary with the fort's original construction and use. Wessex Archaeology (2022, iii, 7) interpret the way that the curve of the plough ridges largely matches that of the enclosure banks and ditches as 'suggesting some contemporaneity between the features.' On that point, however, this report would suggest instead that this indicates that the ploughing regimes were almost certainly convened to respect the pre-existing, and potentially much earlier, earthworks, rather than being products of the same period of use and activity. It would have been much easier for those farming this field to fit their ploughing pattern around the substantial earthworks rather than to expend unnecessary effort to level or alter the substantial

banks and ditch. The enclosure banks could have been adopted as convenient boundaries between plots or fields and may well have been utilised as higher and drier lands in their own right.

It is possible that the site might benefit from additional geophysical examination in future, for instance a ground-penetrating radar (GPR) survey concentrated in the interior of the enclosure.

6. DISCUSSION

The earthwork and geophysical surveys are largely in agreement. In its final form Chester Crane was a bivallate promontory fort utilising a naturally defensible position with useful links to the River Tweed as well as controlling access to it via the Canny Burn valley. There are hints of an earlier constructional phase, slight indications of internal divisions and other occupation features, and somewhat clearer visible evidence for the alteration of entranceways. Questions about the fort's date and how it may have functioned in the landscape can, however, only be addressed at present though consideration of the wider context.

6.1 Regional context

Raine's presumption of a Roman origin (1852, ii) – primarily a reflection of the classical preoccupation of his time and education – lacks any credible evidence; but it is nonetheless influential in terms of the abiding name of the site. If tested by excavation, it is possible that the site could prove to be Roman-Iron Age rather than earlier in origin, but it was not, by any definition, a Roman fort or *castre*, such as to truly merit the name Chester.

Jobey's suggestion that the earthworks are a medieval defensive construction is doubtful. In a brief appendix at the end of his paper he excludes Chester Crane from the list of hillforts and defended settlements of 'Iron Age type' in Northumberland:

> '...there is the "promontory fort" above the Tweed at Canny Shiels (NT: 967515). Its wide berm, reminiscent of the medieval earthwork at Lintalee, Roxburgh, and its flat-bottomed ditch with two large mounds astride the north-east entrance, is quite out of keeping with the normal defensive system of Iron Age forts in the area' (Jobey 1965, 59).

Certainly, the known defended sites along the Tweed corridor in this area appear quite different to Chester Crane, but there is notable variation throughout the class. Many are sub-circular in form with two or three concentric defences and a pair of entrance breaks, or else they have two or three arcs of defence enclosing a section of river cliff or the end of a ridge of higher ground (*see* below). When précised like this they are perhaps not so dissimilar. Is the real difference between Chester Crane fort and other local defensible prehistoric sites more a result of preservation? At Chester Crane the banks have escaped being totally flattened through later ploughing but the ditches have probably been 'filled' by the same processes of cultivation. These ditches may not have always been 'flat-bottomed' as Jobey describes, but without investigation by auger, ground penetrating radar or excavation it is impossible to determine their original shape or depth.

Elsewhere in the lower Tweed valley, most sites that might be of similar date and function have lost all physical surface expression as a result of land improvement.

Where these can still be traced as cropmarks the evidence inevitably highlights the breadth of the ditches, and sometimes evidence for associated palisades, but cannot provide any indication of former upstanding earthen defences. This loss of earthworks is by no means a recent phenomenon:

> '...of British camps and earth-works the remains are numerous, especially upon the line of the river [Tweed], although the plough or the operations of time are daily diminishing the prominence of their ridges and wearing down their lines...' (Raine 1852, i)

As highlighted by Jobey (1965, 59), the survey plan of the site at Lintalee,[4] reproduced in the county inventory for archaeology in Roxburgh, is reminiscent of the layout at Chester Crane. The Lintalee earthworks comprise a pair of concentric banks cutting off the nose of a promontory, the inner one being notably taller and broader, with a level area between the two and a single outer ditch beyond. The width of the banks and ditches and the spaces between them are similar to those recorded at Chester Crane, with an outer ditch recorded as 7m to 8m wide and 0.9m deep, an outer bank averaging 9m wide and standing up to 1.5m tall and an inner bank some 15m wide and 4.5m high, with no apparent ditch between these two ramparts (RCHAMS 1956, 221-2). A photograph taken around 1940 looking south-west along the gap between the two banks at Lintalee does appear to show earthworks broadly similar in scale to those at Chester Crane, but the lack of a ditch between the banks at Lintalee remains a significant difference.[5]

While the enclosing features are not dissimilar, the area of enclosed level ground within the defences at Lintalee is barely half that of Chester Crane. The earthworks were reputedly erected in the summer of 1317 by Sir James Douglas when he built a 'fair manner' here, and where subsequently he ambushed and defeated English forces (ibid.). However, it is entirely plausible that some prehistoric demarcation of the promontory may have existed before more impressive enclosing works were built in the 14th century.

Northumberland and the Scottish borders contain some of the richest evidence for later prehistoric settlement and monument-building in Britain, with hillforts and equivalent sites being typically smaller in scale than those in other parts of the country, particularly southern England. Indeed, sites in this region most commonly fall within the OS's 'small' category of under 3 acres (1.21ha), which actually make up considerably more than half of all Iron Age hillforts recorded for Britain (Harding 2012, 1-4, 8-11; Rivet 1961; OS 1962; Lock and Ralston 2022, 101-12). The enclosed or internal ('habitable') space at Chester Crane is a little larger at around 1.6 to 1.7ha, which puts it within the OS's 'medium' category of between 3 and 15 acres (1.22 to 6.07ha).

The recent and more in-depth studies of the *Atlas of Hillforts* project have in some ways superseded the OS size categories, by providing fresh opportunity to revisit the issue. For instance, while useful and enduring, the OS categories had focused on 'southern Britain' excluding much of Northern England (Lock and

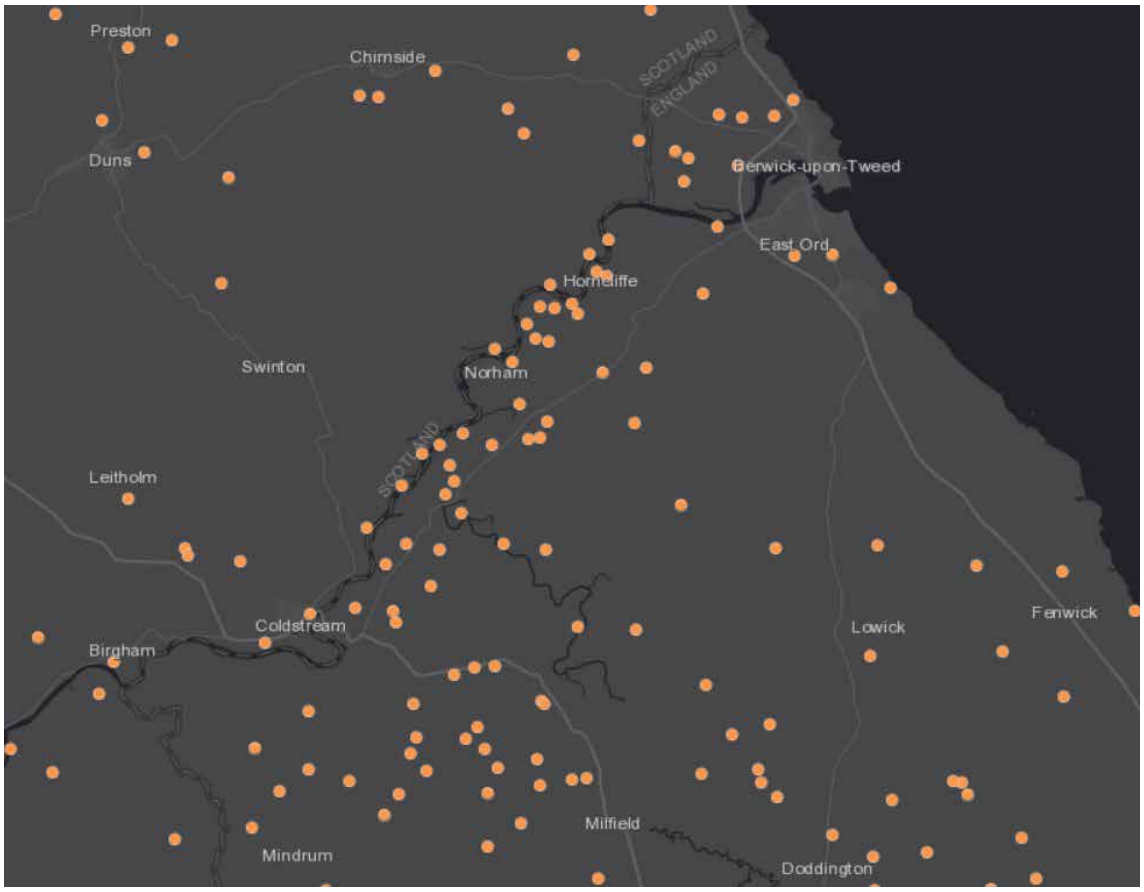

Figure 28: The line of the Tweed highlighted by the greater density of sites recorded by the *Atlas of Hillforts* between Berwick and Coldstream. [After Lock and Ralston 2017, reproduced under a Creative Commons Attribution-ShareAlike 4.0 International License]

Ralston 2022, 101-118). Chester Crane falls in to the *Atlas's* class of hillforts which enclose between 1 and 4.99ha, of which they calculated there are 762 examples (22.7% of their total observed population of forts). By far the densest concentration of sites in this group was recorded in Northumberland and greater south-east Scotland, a region bisected by the River Tweed. The same region also has a marked concentration of even smaller sites enclosing just 0.5 to 0.99ha (Lock and Ralston 2022, 30-31, 101-118, 124-7).

Fortified enclosures on sections of river cliff, like at Chester Crane, are particularly common along the Tweed, as are examples carefully sited on higher ground nearby to directly overlook the valley, such that the line of the river can be clearly identified in plots of their known national distribution, including the *Atlas of Hillforts* (Lock and Ralston 2017) (Fig. 28, and *see* Fig. 9). However, the form and survival of these monuments vary considerably within the cluster and the present lack of dating and functional information recovered through excavation makes it near impossible to state with confidence whether the clustering is real (and to explain why), or whether it is a product of unknowingly collating sites of different periods.

> 'The lower Tweed is remarkable in having a string of forts positioned along its river cliffs on both its southern and northern banks so as to form a defended river corridor. On the southern (English) side of the river this includes the sites at Canny Shiel [Chester Crane Camp], Union Bridge and Groathaugh, whilst on the northern (Scottish) side further sites are known (Fig. 7.15).' (Passmore and Waddington 2012, 242)

As noted by Passmore and Waddington (2012, 242) there are numerous late prehistoric or Romano-British enclosures within the Tweed corridor, predominantly of small scale and simple form. Most of these were identified through aerial mapping from historic photographs as part of the Till-Tweed archaeological recording project. Multi-ditched and palisaded enclosures were high in occurrence, while sites making use of naturally defended positions or topographic advantage were less common but still well represented (Deegan 2003, 13; Gates and Deegan 2009, 142-9). The mapping also highlighted the fact that very few have surviving earthworks, and of those that do none is as pronounced as the extant ramparts at Chester Crane. The small promontory fort at Green Hill,[6] midway between Horncliffe and Norham, retains physical remnants of the ditch that arc around the west and north to isolate the eastern end of a ridge. An oval enclosure just south of the brow of Halidon Hill has a circuit of bank surviving between a broad outer and narrower inner ditch, with entrance breaks to the south-west and south-east.[7] At Norham itself, 7km south-west of Chester Crane, there has been some suggestion following analytical earthwork survey that the 12th-century castle might be situated within an earlier, pre-medieval fortification, implied by the extant remains of a possible Iron Age rampart on the east side of the promontory, to the south of the modern road (Pearson and Ainsworth 2002). Subsequent archaeological evaluation of a small part of this earthwork concluded that the constructional form of the bank, as well as a single radiocarbon sample, pointed to a post medieval or modern date for the feature (Brightman and Waddington 2013). As noted above, sites surviving purely as cropmarks are far more common.

In terms of riverine promontory forts, the closest local equivalent to Chester Crane Camp seems to be located some 3.2km west, near Loanend. Here the cropmarks of a triple-arc of roughly concentric ditches is positioned immediately above the eastern abutment of the Union Chain Bridge on the eastern (English) side of the Tweed.[8] The ditches are quite broad measuring between 4m and 10m wide (with the middle ditch being the widest), and they are spaced between 5m and 10m apart (*see* Fig. 6). The enclosed area is much smaller than at Chester Crane, measuring approximately 0.35ha. Some 7km further upstream near Groat Haugh, another site in a similar topographical position to Chester Crane has been mapped from cropmarks which indicate a multivallate enclosure hugging the river cliff, with the outfall of a drain or stream demarking its south-west side (Fig. 29).[9] The Groat Haugh promontory fort has four concentric ditches, with two narrow concentric linear features recorded between the outer three ditches interpreted as palisade trenches (Gates and Deegan 2009, 147-8 and figure 4.15). The offset breaks in the ditches appear to suggest a simple first phase as a single-ditch enclosure, followed

Figure 29: Oblique aerial photograph of the multivallate promontory fort at Groat Haugh showing as cropmarks above the River Tweed, viewed from the west, July 1996. [Photo by Tim Gates © Copyright Reserved]

Figure 30: Extract from Historic England's online Aerial Archaeology Mapping Explorer, showing Groat Haugh promontory fort as mapped from cropmarks. [© Crown Copyright and database right 2022. All rights reserved. Ordnance Survey Licence number 100024900 © Historic England]

by the later addition of three more concentric outer circuits and a revised, more southerly, position for the main entrance (Fig. 30).

On the other side of Tweed near Whiteadder Bridge, located some 1.5km to the north-west of Chester Crane, there are cropmarks indicating the presence of a sub-circular or D-shaped double-ditched enclosure measuring 83m by 73m and enclosing an area of 0.48ha.[10] It comprises a wide outer ditch and a narrower inner ditch which may be a palisade trench, with visible entrance gaps in the ditches in the south-east and south-west. While quite different in form to Chester Crane, the two enclosed sites sit at a similar height, and if broadly contemporary and depending on tree cover, they were probably intervisible at one point. Cropmarks for a very similar double-ditched enclosure, only this time with the narrower ditch being the outer one, were recorded on the high knoll about another 1km to the north, now occupied by Baldersbury Hill Farm (*see* Fig. 9).[11]

Further afield, sites of similar setting and morphology exist in cliff-edge locations across Britain. For example, the modest bivallate site of Castell Pyr in Carmartenshire[12] encloses a roughly triangular promontory above the confluence of the Teifi river and a minor tributary in a notably similar arrangement to Chester Crane (Fforde-Johnston 1976, 143, 146, figure 74). However, here the banks are wider than at Chester Crane at nearer 20 to 25m, with a clear outer ditch but little in the way of a ditch between the banks, with only slight indication at the north end.

6.2 The monument type (terminology and classification)

Academic discussion of terms and means of classification for hillfort enclosures and their sub-categories has a long and on-going history, too nuanced for inclusion here, but it has been well documented by other scholars (e.g. Fforde-Johnston 1976; Harding 2012; Lock and Ralston 2022).

For reasons outlined below, the current report classes the site at Chester Crane as a small, bivallate, inland promontory fort. Despite being at a relatively low elevation, at only 25-30m aOD compared to more 'classic' Northumberland forts such as those distributed across the Cheviots Hills, it nonetheless takes full advantage of its strategic position. In this case, having land falling away on two sides (north and west), with the remaining south-east side being demarcated by a constructed boundary. Its relative prominence comes from its situation atop the steep river cliff overlooking land across the Tweed to the north, as well as from its control of the adjacent incised route along the burn, and from its clear visibility from the ridge of higher ground to its south. This accords well, for example, with Allcroft's (1908, 12) classification of 'fortresses partly inaccessible by reason of precipices, cliffs or water, additionally defended by artificial works, usually known as promontory forts.'

While Chester Crane evidently encloses a promontory, it does not enclose a rise or hilltop, nor does cut off an area with especially restricted access, such as the narrow neck of a distinct spur. Perhaps for this reason, the recent *Atlas of Hillforts Project*

Inset 2. Selected 'Hillfort Type' definitions transcribed from Hillforts Atlas Project's online resources (Lock and Ralston 2017):

- **Contour Fort** – The most common type of fort, defined by the enclosing works approximately following a contour to retain roughly the same altitude around a hilltop. Number in the Atlas = 1607 (47.9% of confirmed sites).
- **Partial Contour Fort** – A variant of the common contour fort where one or more sectors of the enclosing circuit/s deviate radically from the chosen contour, generally to go down slope. Number in the Atlas = 339 (10.1% of confirmed sites). *Note: The differences between contour and partial contour forts should not be exaggerated and in many cases the course of the circuit simply reflects a line following the principal natural breaks in slope in the topography of a hilltop. The definition is thus in most cases merely descriptive and for most of the maps in the Atlas these two groups are treated as a single category.*
- **Promontory Fort** – These are sites set on promontories e.g. between a river valley and that of an affluent [tributary], and in which the principal line or lines of enclosure are drawn across the easiest access. Artificial enclosing works may frequently be absent on the sides which are more difficult to access. Can be either an inland promontory or set on the coastal edge. Number in the Atlas = 963 (28.7% of confirmed sites).

Figure 31: The neat flat-topped inner rampart (left) and adjacent plough ridges across the interior, viewed from the north-east. November 2021. [© Historic England]

categorised Chester Crane Camp (indexed as EN0585) into its 'partial contour fort' list (*see* definitions below) (Lock and Ralston 2017; Lock and Ralston 2022, 82-3 and Map Tables 3.6 and 3.8 in the online supplementary Resources). Classification as a partial contour fort seems fairly arbitrary given that the site's enclosing features are only formed by a purposely constructed boundary for part of its perimeter, and nor do they define a particular contour. This somewhat ill-fitting categorisation may simply be a mistake: a legacy of the rapid desk-based methodology that had to be used in order to undertake such a vast thematic study.

In contrast, the Till-Tweed landscape project took a simple and more setting-based approach when presenting groupings of fort types, choosing to classify them according to their topographic location rather than their form. This is reflective of the wider study, which had a strong focus on geoarchaeology and on exploring relationships between landform and different types of site within the catchments of the Rivers Tweed and Till. Where discussed, Chester Crane (which they call 'Canny Shiel') was categorised as one of a number of 'riverine forts', distinguishing these from others grouped as either 'hillforts' or as 'low-lying forts' (Passmore and Waddington 2012, 243).

6.3 Later use of the site

No evidence exists to shed light on exactly when the site ceased to function as an enclosed or defended settlement/farmstead, or to indicate any subsequent use of the site before it was converted for cultivation. The first clear phase in the 'afterlife' of the monument is represented by the distinct pattern of ridge and furrow ploughing across the interior and within the spaces formerly occupied by broad enclosing ditches. The scale and sinuosity of the plough ridges is suggestive of a medieval, or certainly pre-18th century, cultivation regime.

One can ponder why the inner bank was retained when the entirety of the fort's interior and the space between the banks was subjected to such intense cultivation. Surely levelling of the inner bank could have made this easier and further expanded the cultivatable area. Perhaps the earthen banks hide substantial stone cores or walling that proved troublesome to plough and difficult to move (fragments of protruding stonework were observed in two places during the survey), or perhaps the paired banks were useful for containing livestock when the fort's interior was left fallow? Likewise, the enclosure banks could have been adopted as convenient boundaries between plots or fields and may well have been utilised as higher and drier lands in their own right.

Whatever the reason, given that most other sites presumed to be of similar date and form in the local area survive only as cropmarks, the effect has been to preserve a remarkable legacy at Chester Crane. While the plough pattern across the interior of the site will have masked and erased any upstanding internal features from the original fort, it is also possible, conversely, that the soil built up in ridges and added to the enclosure ditches may protect buried archaeological evidence relating to its original purpose.

7. CONCLUSION

Based on the evidence collected and discussed in this report, Chester Crane Camp represents a fairly typical inland, riverine, promontory fort of later prehistoric date, most probably Iron Age. The fort is primarily defined by a bivallate bank and ditch arrangement, but with the possibility that earlier phases of stone wall or timber palisade may have been superseded by the earthen banks. Potential indications of an internal spatial division, or a smaller initial phase, as well as possible subsurface remains of internal features towards the western apex, imply that buried archaeological evidence could shed further light on the early phases of the site's use and modificaton. While few sites survive this well as earthworks in this part of Northumberland, a number of close equivalents are known from cropmark evidence along both banks of the Rivers Tweed and Till. The site was most probably an enclosed or defended settlement, very intentionally established in a position that offered fertile land, clear views out into the wider landscape, direct access to the river for transport and fishing, and perhaps strategic control of who could use this stretch of the Tweed alongwith access to and from it via the Canny Burn valley.

The survey and investigation conducted with the Union Chain Bridge Project volunteers has provided the first dedicated and detailed consideration of the archaeological remains at Chester Crane Camp. Even so, there is still much that is unknown or unproven about the site. While present interpretations are based on a good body of comparative and contextual information about the morphology and position of the site, and further supported by the results of the gradiometer survey, no precise scientific dating or diagnostic evidence is available to confirm when the primary phases of construction and use took place.

Further research could shed light on some on these gaps in knowledge. Some or all the following enquiries might be worthy of exploration:

Field-based

- Ground-penetrating radar (GPR) survey across the interior of the fort and along the infilled ditches. While this would not guarantee any better results than the gradiometer survey, it might reveal internal features buried beneath the later plough ridges or give a better sense of the scale of the semi-buried enclosing ditches.
- A small programme of targeted extraction of auger cores to assess depths and deposits, perhaps along the line of the two enclosure ditches and in the western interior where the gradiometer survey suggested the presence of archaeological features.
- Likewise, targeted excavation could reveal details about the extent and nature of the in-filled enclosure ditches or about potential internal features in the western interior.

Desk-based

- The reference to the 'ancient British Fortifications' at Chester Crane and the notion that 'many broken fragments of spears, armour, &c. have been found here' is an intriguing statement (Parson and White 1828, 344) (*see* Section 3.1). While it could be derived or misconceived from local hearsay, or could even be entirely spurious, it might be worthy of brief investigation. Conversation with local landowners might reveal local knowledge of artefacts found at or near the site (especially as research shows that land to have predominantly been held by one family for more than two centuries). Likewise, speaking to local museums about their collections might shed further light on the matter.
- Within the collections of Northumberland Archives' there are Sales Catalogues relating to the Middle Ord Estate from 1881, 1921, 1933, and 1992.[13] There may be additional records of this nature held in the archive. It was beyond the scope of this project to view these records, but it is possible that they may contain information relating to the land occupied by Chester Crane Camp.
- Likewise, study of the presumably fairly extensive documentary records of the Grey Family who held estate of Middle Ord might produce further information pertaining to the site of Chester Crane, perhaps even relating to the tantalising suggestion that fragments of armour and weapons may have been found there in the early 18th century or before.

8. METHOD STATEMENT

8.1 Earthwork survey

The analytical earthwork survey was undertaken to Level 3 standard (Historic England 2017) across an area measuring approximately 3ha. Fieldwork was carried out by Historic England's Landscape Archaeology team with assistance from the Union Chain Bridge Project's volunteers, on 1-5 November 2021 with final checks made on 15 March 2022. Recording was undertaken by direct observation blending a hand-drawn graphical method (tape-and-offset) with the use of survey-grade Global Navigation Satellite System (GNSS) equipment. These results were later combined with additional drone-captured elements. All detail was collected with a view to a final drawing reproduction scale of 1:1000.

Tape-and-offset survey was concentrated on the central sweep of the fort's banks and ditches (Fig. 32). Following established best practice (Historic England 2018a) measurements were taken from baselines placed broadly in line with the principal earthworks and plotted on to polyester drawing film in the field at a larger 1:500 scale, better suited to teaching purposes. Ordnance Survey (OS) National Grid coordinates of the main taped lines were recorded using the Trimble R10 GNSS equipment calibrated using a Virtual Reference Station (VRS) to achieve real-time kinematic (RTK) survey within 0.025m and 0.04m accuracy in the horizontal and vertical planes. Elsewhere, the GNSS equipment was used directly to record the tops and bottoms of slopes and other features difficult to survey using graphical techniques without putting in a network of ground control points, again following established survey practice (Historic England 2016). The greater part of the hachured earthwork drawing (*see* Fig. 34) was created in AutoCAD Map 3D software using scanned and positioned images of the hand-drawn graphical survey sheets as well as the direct digital input from the GNSS equipment. GNSS survey also captured peripheral 'hard' details such as fence lines and field drains.

Other significant aspects of the plan – notably the positions of cultivation ridges and the morphology of the earthworks at the overgrown north-eastern and southern arcs of the defences – were captured from drone-acquired photogrammetry and lidar. Photogrammetry was captured on 19 October 2021, using a DJI Mavic 2 Pro drone controlled by DroneDeploy proprietary survey software and deploying a Hasselblatt RGB sensor. A mosaic of overlapping vertical photographs was recorded from 45m above ground level, with six ground targets established by GNSS providing locational control and positional accuracy of 0.02m in the horizontal plane and 0.035m in the vertical (*see* Fig. 36). The photographs were processed in Agisoft Metashape to create a seamless orthomosaic photograph and a digital surface model (DSM) which was manipulated in Relief Visualisation Toolbox (RVT) software to reveal three-dimensional (3D) topographical attributes of height and slope (*see* Fig. 37).

Figure 32: Volunteers engaged in graphical survey of the south eastern perimeter features, using the tape and offset method. November 2021. [© Historic England]

Further topographical detail was provided by the lidar survey flown by Wessex Archaeology on 4 November 2021, using a DJI M300 drone and an L1 Zenmuse lidar sensor. The raw data were processed in DJI Terra and topographic models generated to a comparable accuracy (*see* Fig. 35).

The resulting models were added to the AutoCAD file where the visualisations were used to 'trace' the tops and bottoms of slopes to depict features which could not be surveyed in the field due to limitations of time and accessibility. The lidar, with its capacity to strip away the bulk of vegetation by filtering last-pulse sensor returns, was of particular use for recording the profile of the scrub-covered banks towards the northern and southern extent of the site (Historic England 2018b).

These traced lines were checked for accuracy in the field and the relative weights of slopes assessed alongside their relationships to other recorded features before being added to the hachured plan. A reference plan is included in this report, distinguishing between those earthworks derived from the aerial models and those drawn from direct observation from the ground (*see* Fig. 38).

The final hachured survey drawing was then produced in Adobe Illustrator software (*see* Fig. 34).

Figure 33: Wessex Archaeology's cart-mounted gradiometer in use at Chester Crane Camp, November 2022. [© Historic England]

8.2 Geophysical survey

The gradiometer survey was carried out by Wessex Archaeology's terrestrial geophysics team on 1-2 November 2021, with assistance from the Union Chain Bridge Project's volunteers. Weather and field conditions were dry and ground conditions conducive to survey. An overall area of about 2.4ha was surveyed, but the steeply descending ground bounding the north and west of the site as well as dense vegetation around parts of the perimeter and atop some of the earthworks meant that data collection was not possible in some areas of the site.

Survey work was undertaken using a cart-based gradiometer system comprising four SenSys FGM650/3 magnetic gradiometers spaced at 1m-intervals and mounted on a non-magnetic cart with an integrated Leica Captivate RTK GNSS instrument to determine the positional accuracy of the survey (Fig. 33). Data were collected with an effective sensitivity of ±8 μT over ±1000 nT range at a rate of 100 Hz, producing intervals of 0.02m along transects spaced 4m apart. Corrections from a network of reference stations operated by the OS and Leica Geosystems provided the survey with positional accuracy with a precision of 0.02m in real-time. All work conformed to best practice produced by the Chartered Institute for Archaeologists (CIfA 2014) and the European Archaeologiae Consilium (Schmidt et al. 2015).

The resulting geophysical data were subjected to minimal correction processes, comprising a 'Destripe' function (to correct for any variation between the sensors) and an interpolation used to grid the data and then discard duplicated data where transects overlapped.

The results have been described and discussed briefly in Section 5 of this report, alongside copies of the final greyscale plot of the gradiometer results and accompanying interpretation drawing, reproduced as Figures 26 and 27.

A standalone report presenting the full and detailed method and results of the gradiometer surveys at Chester Crane fort, and at the Horncliffe fortlet cropmark site, has been prepared and is available under separate cover (Wessex Archaeology 2022).

9. ENDNOTES

1 This should not be confused with sites of similar name and interpretation from the nearby eastern Scottish borderlands, as recorded in the RCAHMS County Inventories for Roxburgh: 'Chester Knowe - No. 252' a ridge-fort near Hawick (RCAHMS 1956a, 18, 144-5); 'Chesterknowe - No. 53' a small ovoid site in Bowden Parish, near Selkirk (RCAHMS 1956a, 70); 'Chester Knowe - No. 607' a small fort near Gattonside (RCAHMS 1956b, 306, 321).

2 Grey 2022: The Grey family of the Milfield Estate, and linked with the Middle Ord Estate and with West Ord, have been extensively researched by Claire Grey, with the preliminary findings of her studies made available via her website: 'The Grey Family of Milfield Hill' http://milfieldgreys.co.uk/index.html.

3 Note this is misspelt as Dixon-Johnston in the 20 April 1926 edition of The Berwickshire News.

4 Lintalee earthwork: Canmore monument ID 56878; Site number NT61NW 12.

5 Lintalee earthworks photographed c.1940: Canmore catalogue reference SC 1270505.

6 Green Hill: NRHE 4009; HER N2208; Hillforts Atlas EN0552.

7 Haildon Hill: NHLE 1003657; NRHE 4227; HER N2445; Hillforts Atlas EN0501.

8 Loanend (Union Chain Bridge): NRHE 4310; HER N2416; Hillforts Atlas EN0553.

9 Groat Haugh: NRHE 1340336; Hillforts Atlas EN0584.

10 Whiteadder Bridge: NRHE 4272; HER N2462; Hillforts Atlas EN0502.

11 Baldesbury Hill: NRHE 1384297; HER N2485; Hillforts Atlas EN4226.

12 Castell Pyr: Coflein NPRN 303791; Hillforts Atlas WA2195.

13 An online catalogue search of the holdings of Northumberland Archives, held at Woodhorn and at Berwick Record Office, returned a number of sales particulars for the Estate of Middle Ord from: 1881 (NRO 03419/A/4/36 and NRO 03419/A/6/1), 1921 (NRO 03419/A/14/10)), 1933 (NRO 03419/A/18/191 and BRO 0001/58) and 1992 (NRO 07792/1/302).

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11. SURVEY PLANS

This final section presents the final earthwork survey drawing for the Chester Crane Camp promontory fort, along with drone-acquired lidar and orthomosaic photography for the area of investigation, and a digital surface model (DSM). All are reproduced at 1:1000 scale on A3 Landscape sheets, as follows:

Figure 34: Analytical and interpretative earthwork plan of Chester Crane Camp

Figure 35: Digital terrain model (DTM) derived from drone-acquired lidar

Figure 36: Orthomosaic photographic image of Chester Crane Camp derived from drone-acquired photography

Figure 37: Digital surface model (DSM) of Chester Crane Camp derived from drone-acquired photography

Figure 38: Reference plan distinguishing between those earthworks measured and drawn from direct observation and those derived from the drone-captured digital elevation models

Historic England

Chester Crane Camp
Ord
Berwick-upon-Tweed
Northumberland

NGR: NT 96744 51491

Surveyed:
Nov 2021 & Mar 2022,
by DW, MJ, RP and Union Chain Bridge Project volunteers

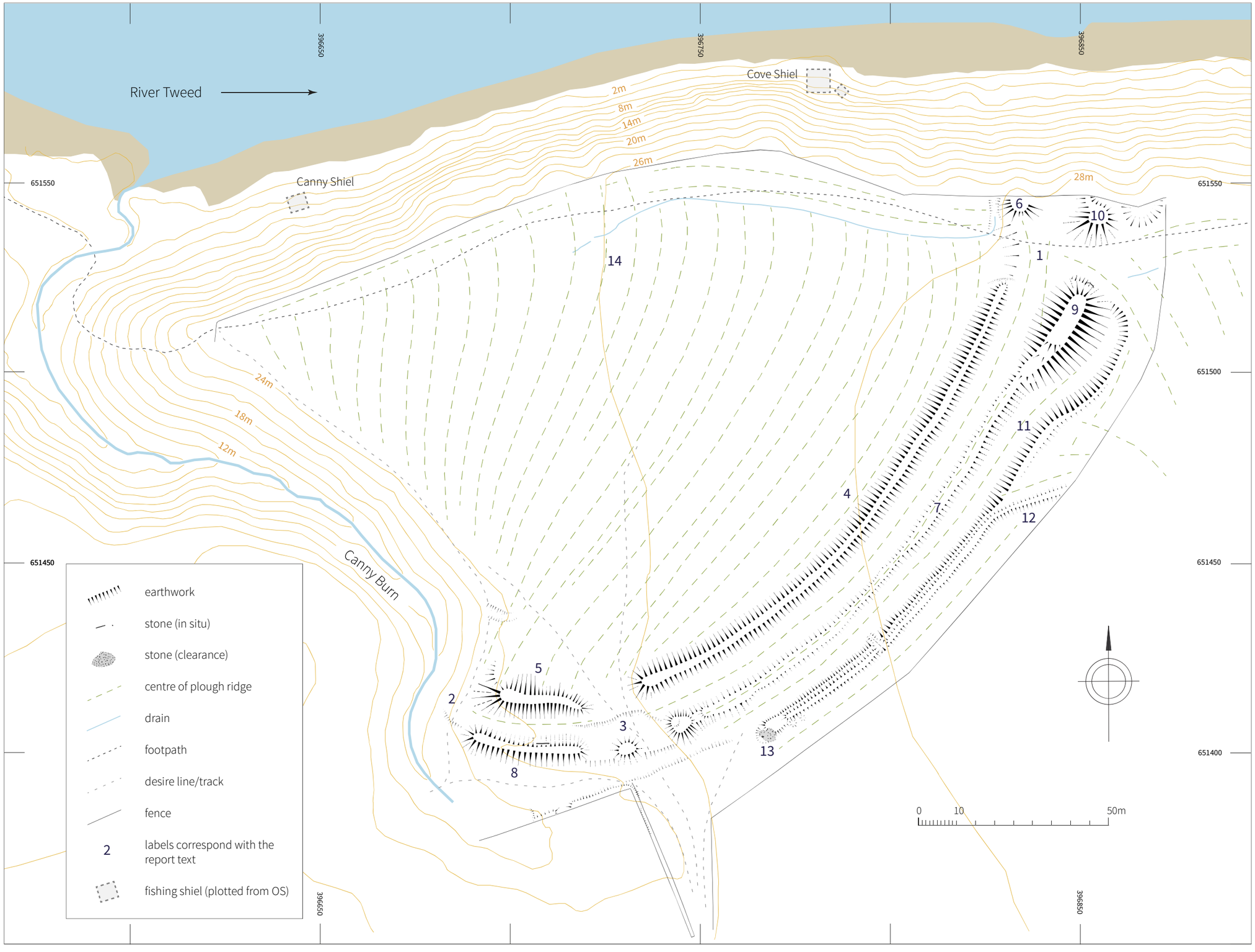

Figure 34:
Analytical and interpretative earthwork plan of Chester Crane Camp drawn from direct measurements and transcribed from drone-captured aerial (lidar) imagery, verified and enhanced by observation on the ground.
Reproduced at a scale of 1:1000 on A3, from an original survey scale of 1:500 on the hand-drawn sections.
[© Historic England]

Historic England

Chester Crane Camp
Ord
Berwick-upon-Tweed
Northumberland

NGR: NT 96744 51491

Data capture:
Drone-acquired lidar,
4 Nov 2021,
Wessex Archaeology.

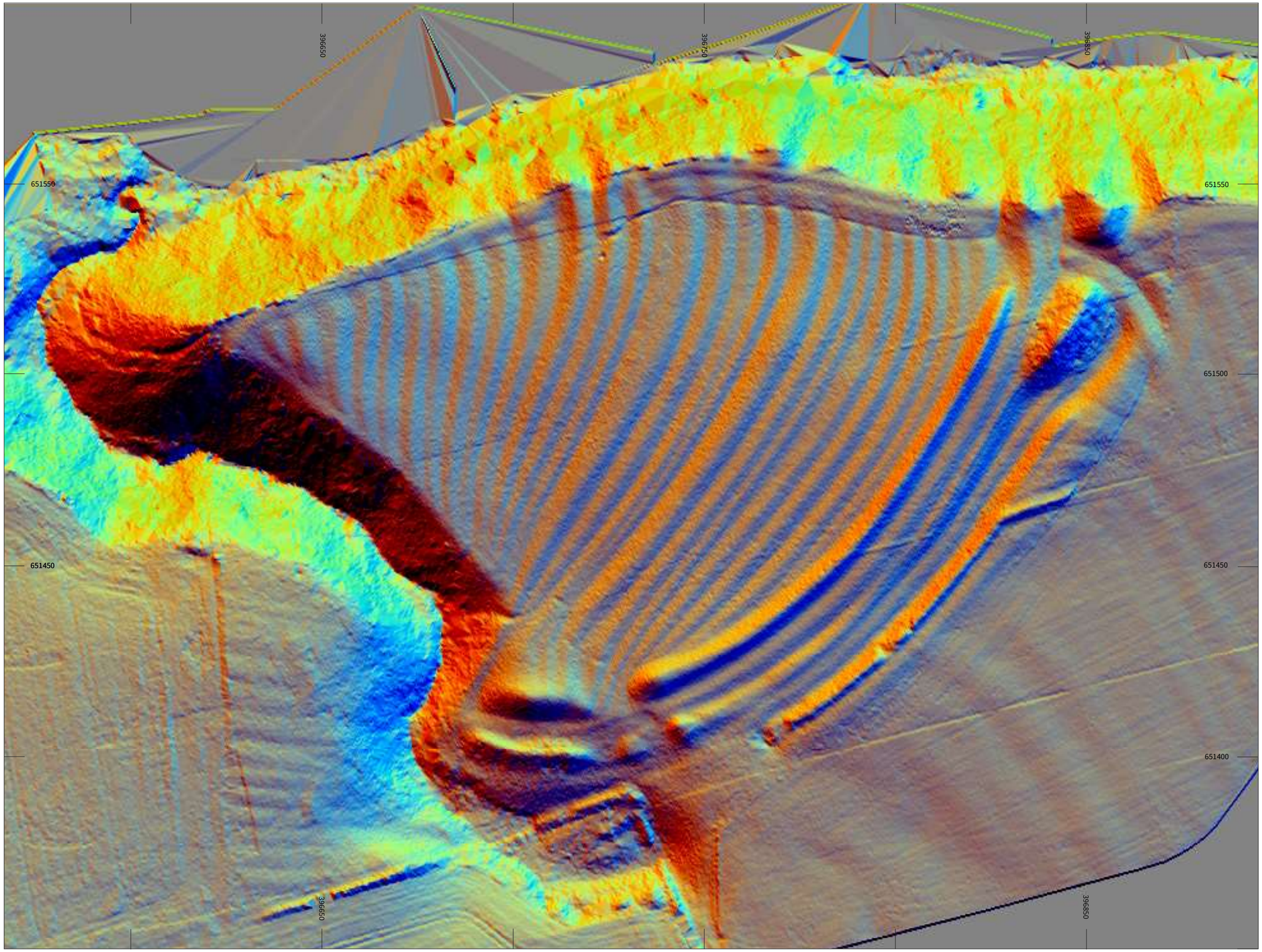

Figure 35:
Digital terrain model (DTM) derived from drone-acquired lidar created by Wessex Archaeology.
Reproduced at a scale of 1:1000 on A3.
[© Historic England and Wessex Archaeology]

Historic England

Chester Crane Camp
Ord
Berwick-upon-Tweed
Northumberland

NGR: NT 96744 51491

Data capture:
Drone-acquired
photogrammetry
19 Oct 2021,
Historic England.

Figure 36:
Orthomosaic photographic image of Chester Crane Camp derived from drone-acquired photography, dated October 2021. Reproduced at a scale of 1:1000 on A3. [© Historic England. See Section 8.1 for processing details]

Historic England

Chester Crane Camp
Ord
Berwick-upon-Tweed
Northumberland

NGR: NT 96744 51491

Data capture:
Drone-acquired
photography,
19 Oct 2021,
Historic England.

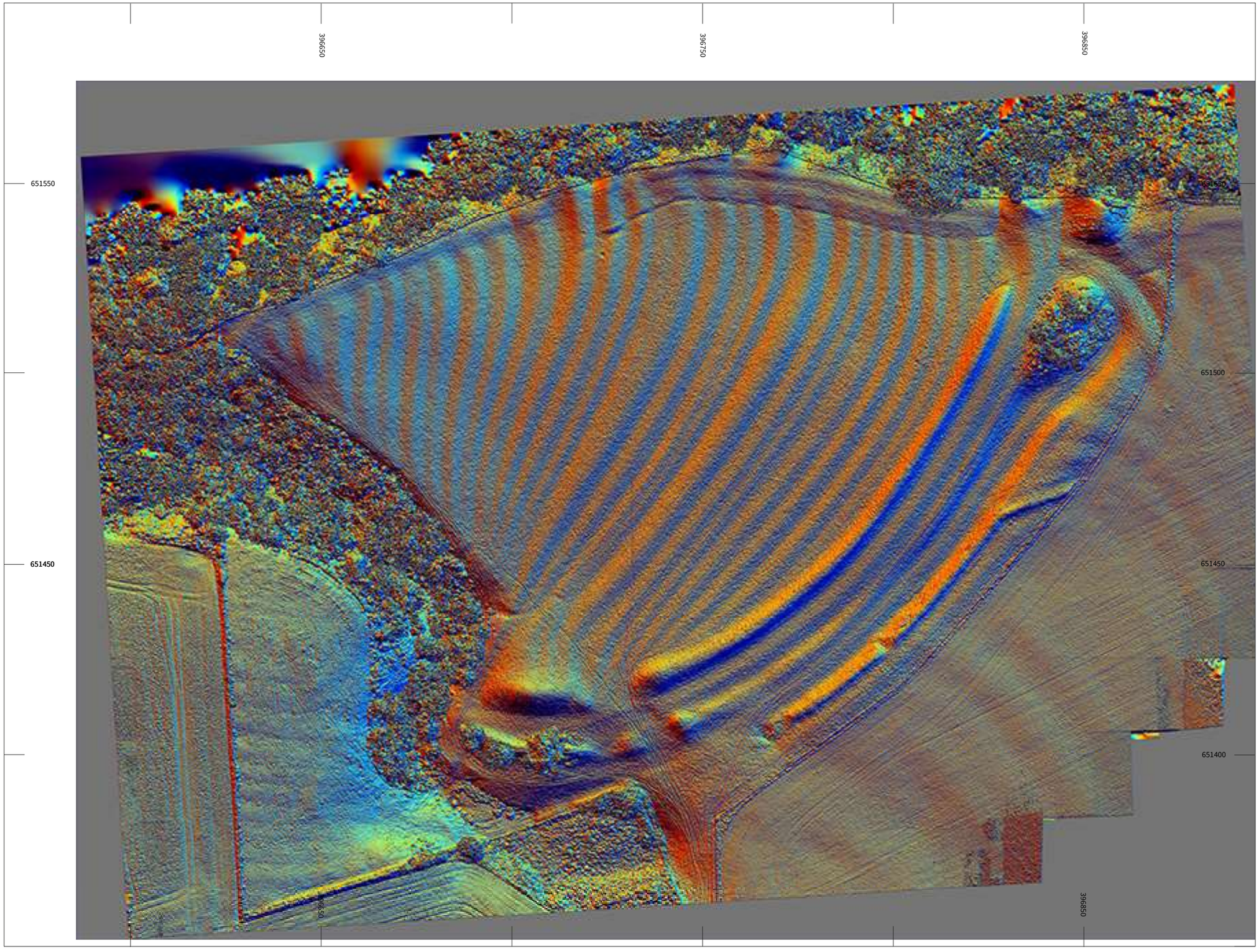

Figure 37:
Digital Surface Model (DSM) of Chester Crane Camp derived from drone-acquired photography, dated October 2021. Reproduced at a scale of 1:1000 on A3. [© Historic England. See Section 8.1 for processing details]

Historic England

Chester Crane Camp
Ord
Berwick-upon-Tweed
Northumberland

NGR: NT 96744 51491

Surveyed:
Nov 2021 & Mar 2022,
by DW, MJ, RP and Union Chain Bridge Project volunteers

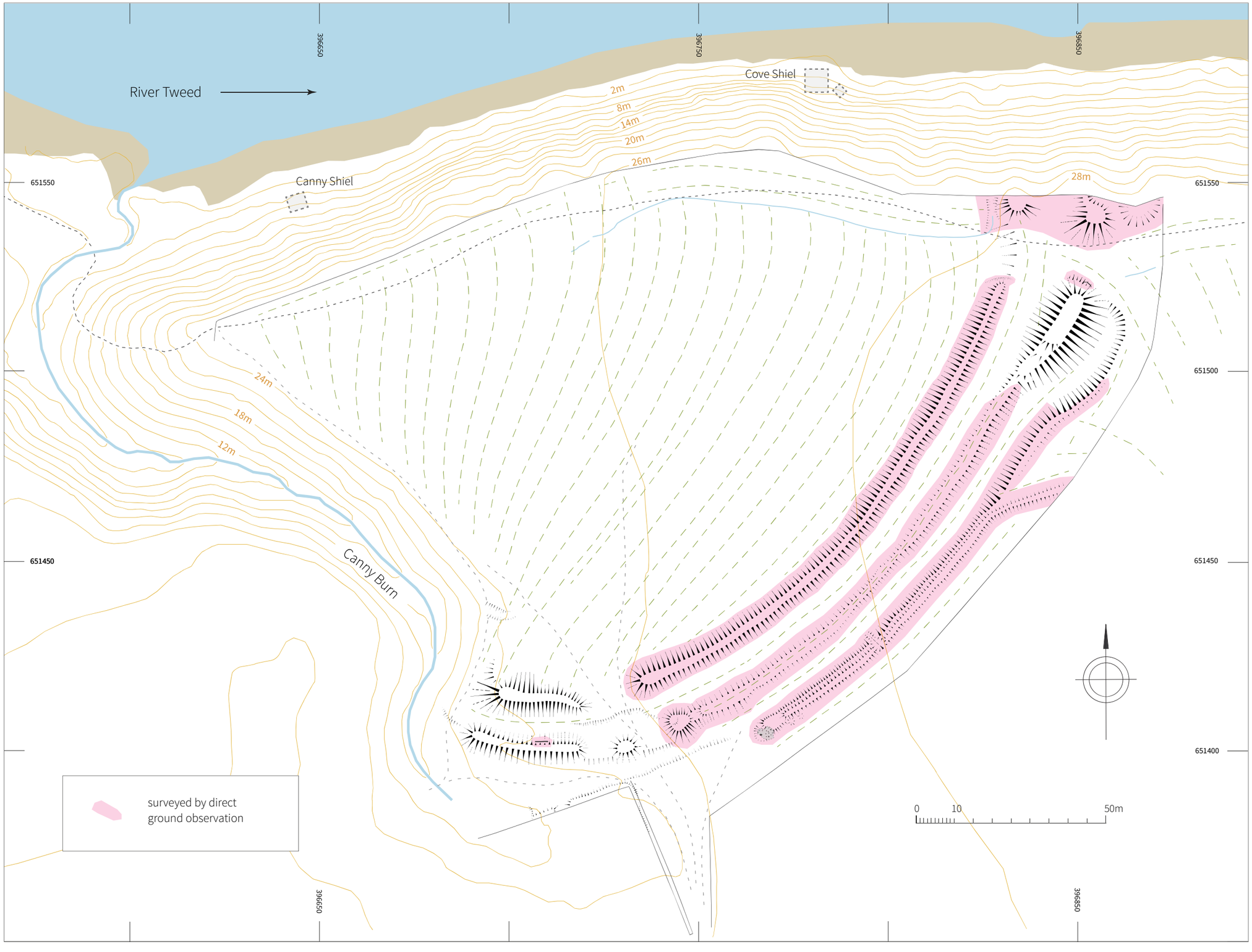

Figure 38:
Reference plan distinguishing between those earthworks measured and drawn from direct observation (highlighted in pink), and those derived from digital models produced from drone-captured photography. Reproduced at 1:1000 on A3.
See Section 8.1 for methodology details.
[© Historic England]

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ISSN 2398-3841 (Print)
ISSN 2059-4453 (Online)