North Devon Area of Outstanding Natural Beauty NMP Project:

A National Mapping Programme Report

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and
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North Devon Area of Outstanding Natural Beauty NMP Project

A National Mapping Programme Report

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Abbreviations

AP	Aerial Photograph
ALGAO	Association of Local Government Archaeological Officers
AONB	Area of Outstanding Natural Beauty
ATC	Assault Training Centre
BGS	British Geological Survey
CC	Cornwall Council
CSV	Comma Separated Values
CUCAP	Cambridge University Committee for Aerial Photography
CUULM	Cambridge University Unit for Landscape Modelling
DAS	Devon Archaeological Society
DCC	Devon County Council
DCCHER	Devon County Council Historic Environment Record
DCCHET	Devon County Council Historic Environment Team
EA	Environment Agency
EH	English Heritage
EHA	English Heritage Archive (formerly the National Monument Record)
ENPA	Exmoor National Park Authority
GIS	Geographical Information System
HLC	Historic Landscape Characterisation
LIDAR	Light Detection And Ranging
MORPHE	Management of Research Projects in the Historic Environment
NHPCP	National Heritage Protection Commissions Programme
NHPP	National Heritage Protection Plan
NHRE	National Record for the Historic Environment
NMP	National Mapping Programme
NMR	National Monument Record (now renamed as English Heritage Archive)
OS	Ordnance Survey
PAO	Project Assurance Officer
PDF	Portable Document Format
RAF	Royal Air Force

First Edition Ordnance Survey 25 inch mapping dating to the 1880s-1890s is referred to throughout the document as ‘First Edition OS’, and similarly the 1904-1906 Second Edition Ordnance Survey 25 inch maps are referred to as ‘Second Edition OS’.

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DCC HER training, support and quality assurance was provided by Graham Tait and Ann Dick. The project was overseen by Linda Blanchard of the North Devon Coast AONB. Bill Horner provided day to day project management for DCC and interpretation advice. John Valentin was line manager for the AC archaeology NMP Team and he and Sarnia Blackmore helped produce project documentation.

Occasional interpretation advice on inter-tidal matters was given by Aiden Winder, Midge Kelly and Mike Alborough of the DCC Exe Estuary Partnership Team at Devon County Council. Dave Edgcombe provided valuable guidance in the field and local knowledge.

The project was carried out using aerial photographs loaned by the English Heritage Archive and CUCAP, as well as Environment Agency lidar imagery and photographic imagery from the Channel Coastal Observatory. Pan Government Agreement (PGA) photographs were also available to project staff and provided by EH Aerial Survey and Mapping. We are grateful to CUCAP and Bluesky International Ltd. for permitting the reproduction of their images in this report.

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1 Summary

1.1.1 The aerial photograph interpretive survey of the North Devon Coast Area of Outstanding Natural Beauty (AONB) followed National Mapping Programme (NMP) methodology. It was funded by the English Heritage National Heritage Protection Commissions Programme (NHPCP, formerly HEEP) and carried out by staff of AC Archaeology and Devon County Council Historic Environment Team (DCCHET), hosted by DCC. Work began in December 2011 and was completed in February 2013.

1.1.2 This report provides a summary of archaeological features recorded and methods used in the project.

1.1.3 The project encompasses the area of the AONB plus a small contextual area including the Taw and Torridge estuaries up to Barnstaple and Bideford amounting to 278 square km (Figure 1). Data from previous NMP projects, Cornwall NMP (Young 2007, EH project number 2710) and Exmoor NMP (Hegarty and Toms 2009, EH project number 5107) which covered small portions of the south-west and north-east of the AONB were also incorporated into the Devon Historic Environment Record (HER) as part of this project.

1.1.4 Dissemination of interim results took place during the project, during liaison group meetings and via direct input into the Devon Historic Environment Record (DCCHER), which is publicly accessible on the web vis Heritage Gateway. Essays themed on the results of the survey have been produced and will be made available on the AONB website and the potential for further projects and possible public events is being explored.

1.1.5 The general aim of the survey was “to enhance the understanding of past human settlement, by providing primary information and synthesis for all archaeological sites and landscapes visible on aerial photographs or other airborne remote sensed data. This comprehensive synthesis of the archaeological data available on aerial photographs is intended to assist research, planning, and protection of the historic environment” (Horne 2009). Relevant information identified from aerial photographs was interpreted and mapped to a consistent standard and recorded in a digital geographical information system (GIS) and the Devon Historic Environment Record (DCCHER). The project results are available through the (DCCHER), which is publicly accessible on the web.

1.1.6 The survey results inform strategic and responsive planning and land management advice through DCC and the AONB. The results are also available to the public and professionals for general research.

1.1.7 Over 1100 archaeological features were transcribed during the project, of which approximately 80% were previously unrecorded on the DCCHER and the NHRE. Of particular significance are the identification of a probable southern extension of the iconic North Devon hillfort of Clovelly Dykes, a newly recorded possible pit alignment and possible civil war earthworks. A key outcome is a greater understanding of the extent and character of the militarised landscape on the north Devon coast in the Second World War, which has an international dimension, and its relationship to the many previous phases of military control and manipulation of the landscape. An additional outcome is the better definition of the long-term effect of medieval agriculture, particularly important considering the proximity

to the rare working open field system of Braunton Great Field. The impact of large scale shifts in management and changing demands from and appreciation of the landscape can also be tracked and illustrated.

2 Introduction

2.1 Background to the Project

2.1.1 Devon County Council and Devon AONBs identified the need for systematic survey from aerial photographs to provide baseline data to enhance the understanding, and subsequent management, of the archaeological resource within the AONBs. A proposal was submitted to English Heritage National Heritage Protection Commissions team in 2010 to examine the North Devon AONB and the project was commissioned in 2011.

2.1.2 The county of Devon contains a high proportion of protected landscapes, including five AONBs. In these designation areas the local authorities have a statutory duty to have regard to the protection and enhancement of the landscape and a responsibility to prepare and adopt management plans.

2.1.3 The North Devon Area of Outstanding Natural Beauty (hereafter 'the AONB') was designated in 1960 and covers an area of approximately 171 square km of mainly coastal land extending, from the county boundary with Cornwall at its western edge, to Exmoor National Park to the east. Small areas of the AONB have been covered by previous NMP surveys of both of these areas.

2.1.4 Although predominantly coastal, in places the AONB extends inland up to a distance of nearly 5km, as at Berry Down in Berrynarbor parish.

2.1.5 The Management Strategy and Action Plan (2004) for the AONB highlighted the "Lack of knowledge of archaeological assets" as a key issue.

2.1.6 The ND AONB NMP project was carried out to English Heritage (EH) National Mapping Programme (NMP) standards (Horne 2009). NMP standards provide a systematic method for the survey and assessment of archaeological sites and landscapes using aerial photographs as the main source. This provides primary information and synthesis for all archaeological sites and landscapes visible on aerial photographs, from the Neolithic period to the twentieth century. This includes recording sites visible on aerial photographs as cropmarks, soilmarks, and earthworks and other structures, in particular those relating to twentieth century military activities. This comprehensive synthesis of archaeological information assists national and regional research and therefore informs planning decisions, and protection of the historic environment.

2.2 Project Area

2.2.1 The project area comprises an irregular shaped area covering the whole of the North Devon AONB and the Taw Estuary up river to Barnstaple. NMP standards require completion of complete OS kilometre squares and the project area includes a buffer zone around the boundary of the AONB.

2.2.2 The historically significant areas of Braunton Great Field and Braunton Marshes were included as part of this survey as they lie within the designated North Devon Heritage Coast.

2.2.3 The survey abuts the project areas of two previous NMP surveys. To the west and south the Cornwall NMP (EH project no. 2170) and North Devon Mapping Project (EH project no. 3899) and to the east the Exmoor National Park NMP (EH project no. 5107 MAIN). The Cornwall and Exmoor NMP surveys each intersected with the area of the AONB (Hegarty 2010; Young 2005; Young and Turner 2007).

2.2.4 The ND AONB NMP project area comprises 278 kilometre squares. The project area is divided into two project blocks. Block 1 comprises an area of 117 square kilometres from Hartland point to Bideford. Block 2 comprises an area of 161 square kilometres from Bideford to Combe Martin.

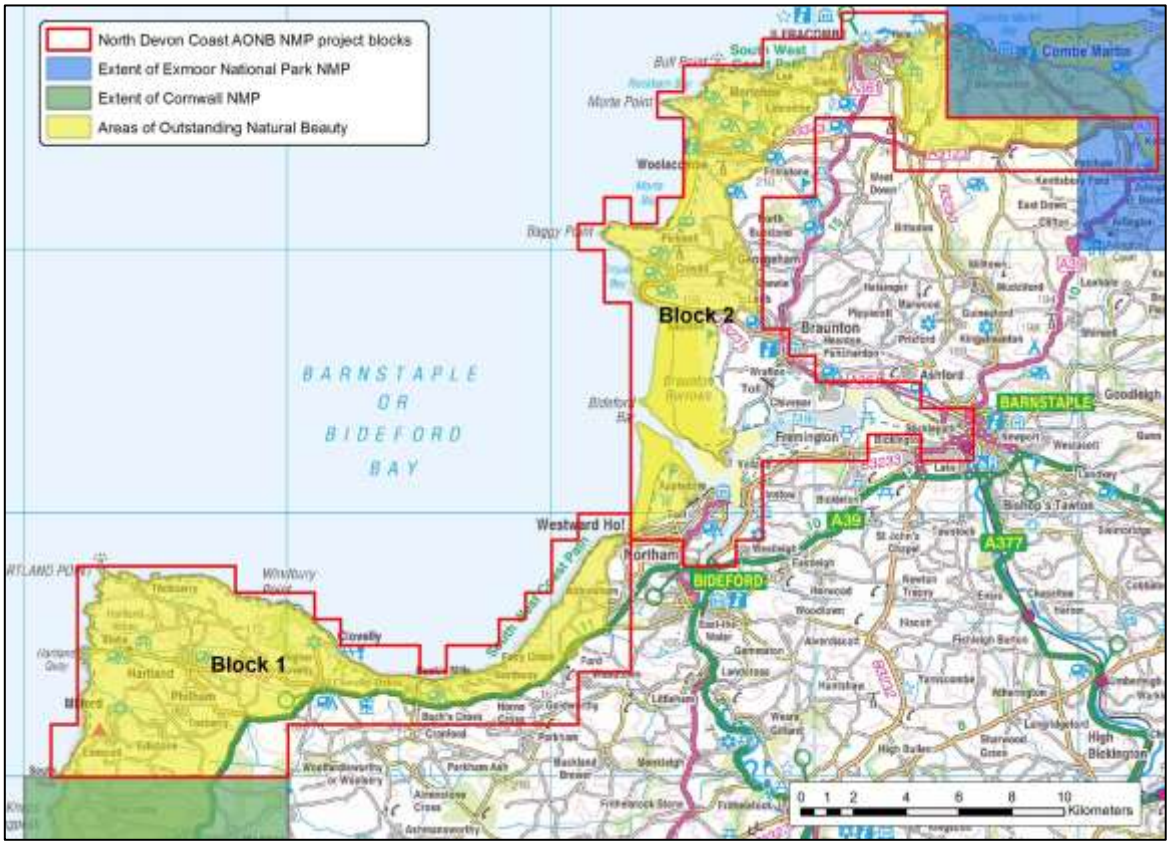


Figure 1: North Devon Coast AONB Project Area. © Crown Copyright and database right 2013. Ordnance Survey 100019783.

3 Aims and Objectives of the Survey

3.1 Aims

3.1.1 The general aim of any NMP survey can be summarised as: “to enhance the understanding of past human settlement, by providing primary information and synthesis for all archaeological sites and landscapes visible on aerial photographs or other airborne remote sensed data. This comprehensive synthesis of the archaeological data available on aerial photographs is intended to assist research, planning, and protection of the historic environment” (Horne 2009).

3.1.2 Further objectives specific to this project can be summarised as:

- To produce NMP standard digital transcriptions of the form and extent of all archaeological features visible on aerial photographs and other remote sensing data for the project area.
- To create NMP standard HER monument records for all archaeological sites visible on aerial photographs for the project area, containing: monument location; indexed monument classification; monument description and analysis; sources used.
- Publication and dissemination of the results of the project to raise awareness of the historic environment.

3.1.3 And by doing so, facilitate the aims listed below:

- To define, characterise and analyse the historic environment of the AONB
- To improve understanding and inform decisions regarding strategic planning, management and preservation of the historic environment of the AONB
- To facilitate the implementation of the AONB Management Plan
- To assist in the formulation of research objectives and strategies for the AONB
- To inform the presentation of, and increase public awareness of, the historic environment of the AONB.

4 Scope of the Survey

4.1 Geology

4.1.1 Bedrock (formerly solid) geological information has been taken from the British Geological Survey's online resources (http://mapapps.bgs.ac.uk/geologyofbritain/home.html) and Devon County Council's guide to the geology of Devon (Laming and Roch, 2009a and b; viewable at http://www.devon.gov.uk/index/environmentplanning/natural_environment/geology/geology-guide.htm).

4.1.2 The bedrock geology of the AONB and surrounding area is defined by sedimentary deposits of the Carboniferous period with some outcropping of middle and upper Devonian rocks.

4.1.3 The south and west of the AONB around Hartland Point is dominated by sandstones, shales and cherts of the Holsworthy group. This is composed of grey mudstones with abundant thin- to thick-bedded sandstones, subordinate siltstones and a few conglomerate beds. Mudstones and subordinate thin- to medium-bedded sandstones dominate the lower part and medium- to thick-bedded sandstones with subordinate mudstones and siltstones dominating the upper part. Scattered slumped units occur in the upper part. The coastal cliffs north and south of Hartland Quay (SS224246) is one of the best places in the county to see this formation.

4.1.4 To the north of the Taw-Torridge estuary the AONB is underlain by outcrops of mudstone, siltstone and slates of middle and upper Devonian date. These comprise specifically Middle Devonian Hangman Grits and Ilfracombe Slates and Upper Devonian Morte Slates, Pickwell Down Sandstones, Upcott Slates, Baggy Sandstones and Pilton Mudstones. The shoreline east and west of Combe Martin (SS578473) is a good place to see the Ilfracombe Slates and Combe Martin Beach Limestone within the Combe Martin Slates.

4.2 Soils

4.2.1 Basic soil information has been taken from Cranfield University"s Soilscapes website. The soil cover over the majority of the AONB is a mixture of 'freely draining, slightly acid loams', 'freely draining, slightly acid loams over rock', 'slowly permeable seasonally wet acid loamy and clayey soils' and 'slowly permeable wet very acid upland soils with a peaty surface'. Variation occurs around the Taw-Torridge estuary where areas of 'loamy and clayey soils of coastal flats with naturally high groundwater' and 'loamy and sandy soils with naturally high groundwater and a peaty surface' have formed Braunton Marsh and further stretches of estuarine saltmarsh banks. In contrast, the entrance to the Taw-Torridge estuary is flanked by the sand dunes of Braunton Burrows and Zulu Bank.

4.3 Agricultural Land Classifications

4.3.1 Natural England's provisional agricultural land classification (ALC) indicates that within the AONB and its surrounding area, the majority of the land is Grade 3-5, with a very small proportion of Grade 2 in the vicinity of Barnstaple. These classifications correspond closely with the soil types described above, notably the 'Slowly permeable seasonally wet acid loamy and clayey soils' and 'Freely draining slightly acid loamy soils' with Grade 3-4

agricultural land. Grade 5 agricultural land also correlates closely with the 'Slowly permeable wet very acid upland soils with a peaty surface' soil type. ALC data is viewable online at http://magic.defra.gov.uk.

4.4 Topography and Modern Land Use

4.4.1 The project area falls entirely within Natural England's National Character Area 149: The Culm (Natural England 2012).

4.4.2 The project area is mainly coastal and rural in character. Within the AONB there are a range of landscape types. Along the coast the terrain is dominated by dramatic coastal cliffs, as at Hartland and immediately to the east and west of Ilfracombe. More sheltered cliffs lie along Bideford Bay. Low-lying sand dunes form a mobile landscape at the mouth of the Taw-Torridge estuary, behind which is the reclaimed landscape of Braunton Marsh and the low-lying and historically significant Braunton Great Field. Inland the landscape is defined by the rolling hills of the Culm plateau, incised by a network of tributaries that feed into to the Taw and Torridge valleys. The landscape only exceeds an elevation of 200m in the south of Block One, around Bursdon Moor, the only unenclosed land in the project area, and in the extreme east of Block Two, around Berry Down and the fringes of Exmoor.

4.4.3 The largest settlement in the area, Barnstaple, is some 9 kilometres to the east of the AONB. Smaller settlements are mainly dispersed in character, in the form of many small villages, hamlets and farms, although it does include the larger villages of Hartland, Croyde, Woolacombe and Combe Martin. The more densely populated settlements of Bideford, Northam, Braunton and Ilfracombe are outside the designated area. Northam and Appledore expanded beyond their historic cores during the second half of the twentieth century whilst more recent settlements, such as Westward Ho! have encroached on lower lying land and dunes (Natural England 2012).

4.4.4 Further inland the area is mainly agricultural, with pasture dominating. Large woodland areas are generally restricted to the Clovelly Coast and adjacent combes. Arable farming is largely localised, but includes clusters of fields at Abbotsham, Baggy Point, Georgeham, Braunton and to the west of Ilfracombe (Collings et al 2006).

4.5 Devon Character Areas

4.5.1 The project area takes in a variety of Landscape Character Areas. These further subdivide the National Character areas and are named to characterise an area with an identity recognisable on a county scale. The summaries of each area from the DCC character area descriptions are reproduced in Appendix A.

4.6 Historic Landscape Character

4.6.1 The landscape character throughout the project area is derived largely from medieval enclosure (e.g. Barton Fields, medieval enclosure, medieval enclosure based on strip fields, Modern enclosures adapting medieval fields), although post medieval or modern enclosure is also widespread, perhaps more notably in Block 2 (Post-medieval enclosure, Postmedieval enclosure with medieval elements, modern enclosure adapting post-medieval fields, modern enclosure from rough ground, and so on). This might be a reflection of the

differing geology of the two areas; the heavier soils of Block 1 may have attracted less attention agricultural improvers in the post-medieval or modern periods, reflected perhaps in the wholesale reorganisation of field boundaries more common in Block 2.

4.7 Overview of NMP Methodology

4.7.1 The air photograph mapping and recording tasks for the AONB were undertaken by the AC archaeology NMP team based within DCC HES at County Hall, Exeter. The project followed current NMP standards and methodology with a few minor variations (Winton 2012; Hegarty 2011). A summary of the archaeological scope of the project is included at Appendix B.

4.7.2 The NMP methodology involves the systematic examination of all readily available aerial photographs and other remote sensing data, such as lidar, to compile a comprehensive synthesis of the archaeological information available on the aerial photographs. This synthetic data is incorporated into the EH Archive and DCC HER and is intended to assist research, planning, and protection of the historic environment (Horne 2009). NMP surveys typically do not include a field element, but provide valuable baseline historic environment data for further research or follow-on field investigations.

4.7.3 Comprehensive background to the NMP methodology and best-practice is available in the Strategy for the National Mapping Programme (Horne 2009) and the Management of Research in the Historic Environment (MoRPHE) Project Management Planning Note 7 Interpretation and mapping from aerial photographs and other aerial remote sensed data.

4.7.4 The methodology developed for NMP transcription and recording for projects based at DCC HES, as employed during this survey, is summarised in Appendix G.

5 Overview of the Aerial Photographs and Images

5.1 Vertical Coverage

5.1.1 The vertical APs consulted during this project are held by two main collections, the EH Archives and DCC, with a small number provided by CUCAP.

5.1.2 As part of the routine NMP process all vertical aerial photographs provided as prints with stereo pairs were examined using a hand held stereoscope to provide a three dimensional view of the landscape.

5.1.3 The project design specified that those 1940s RAF verticals thought to be held by DCCHER should be omitted from the EH Archive coversearch to minimise time pulling loans and reduce the number of prints loaned outside of the EH Archive (Hegarty 2011, 35). On this basis the EH Archives coversearch listed a total number of 4644 vertical APs for the survey area.

5.1.4 The DCC collection proved to be incomplete and a further EH Archive loan was required to supply the survey with 1940s RAF verticals missing from the DCC collection. The total number of EH Archives vertical APs to be examined was 4915. A further 87 CUCAP vertical APs were viewed making the total number of verticals viewed for the survey 5002.

5.1.5 The DCC vertical AP collection includes high level Geonex and Getmapping county wide coverage. The project design estimated coverage of 14.6 Geonex and Getmapping APs per map quartersheet, or approximately 0.5 APs per square kilometre (Hegarty 2010). In actuality the number was much higher, closer to 60 APs per map quartersheet or 2.4 APs per square kilometre. This figure should be used for estimating Geonex and Getmapping coverage for future project designs.

5.1.6 The EH Archive AP loan provided good coverage of the total survey area. The earliest were taken in August 1940 and the most recent in July 1995. The DCC Geonex collection dated to 1992-1993 and the DCC Getmapping Millennium coverage to 1999-2000. The Next Perspectives PGA vertical images were supplied as geo-referenced one kilometre square tiles, and had been taken over a number of years from 2001 to 2010.

5.1.7 The EH Archive verticals dating from 1940 to 1946 proved a particularly valuable source of information for twentieth century military sites and features, in particular the extensive Second World War Training sites based around Braunton Burrows (MDV57283). A degree of variance in quality between prints held by DCC and the EH Archive was noted requiring some duplication of effort.

5.1.8 The early 1940s EH Archive verticals, known as M-series, had great potential to provide information on the early anti-invasion defences and pre-US Army training landscapes on the North Devon Coast. Unfortunately due to the rarity of these images only high resolution photocopies were loaned to the survey which proved to be of limited use. Despite the high-resolution of the copies, these images were often only suited to allowing a determination of the presence or absence of a feature, although more often even known features are not visible. Although manipulation of the copied M-series occasionally allowed their use for transcription of large scale landscape features it remains uncertain what might have been

missed. Where greater detail was required members of the EH Aerial Survey and Mapping team kindly scanned the originals on which possible features had been identified (e.g. MDV103040 Croyde defences illustrated in Figure 14). This allowed features identified on the copies to be assessed and transcribed, but not viewed in stereo which was somewhat limiting. It is recommended that in future projects proper printed copies are somehow obtained. Visits to the EH Archives to view the originals is an alternative but would be disruptive, expensive, and would necessarily be undertaken out of sequence.

5.1.9 The bulk of the 1940s EH Archive verticals which provided information on wartime features dated to 1945 or 1946. These provided little information on the early anti-invasion defences which by this time had been largely removed, or the development of training areas in the build up to D-Day. However, they allowed great detail to be transcribed as a 'snapshot' of the very complex military landscape of the US Army Assault Training Centre at Braunton, although by this date it had passed out of use and was visibly in the process of being dismantled. The higher quality duplicate prints held by DCC HER were vital in teasing out all possible evidence for this landscape, although this resulted in some duplication of effort.

5.1.10 Much of the coastal landscape of the AONB is pastoral or non-agricultural in use, and the EH Archive verticals proved valuable in identifying previously unrecorded earthwork features in these areas, particularly those taken in the autumn to spring months. (eg strip fields MDV102302 discussed in Section 7.6). Vertical APs taken in the years following the Second World War also allowed the survey to record the loss of many of these upstanding earthworks to agricultural intensification (eg enclosure MDV102287 discussed in Section 7.7). Although non-archaeological features such as geological formations were readily identifiable as cropmarks on the PGA georeferenced vertical images, few previously unrecorded archaeological features were identified on these images. Nonetheless, their recent date allowed an assessment of monument condition to be suggested in conjunction with Channel Coastal Observatory images.

5.1.11 Very few vertical APs were flown at times of low tide and as a consequence the opportunities to identify inter-tidal structures were limited, reflected in the low number of previously unrecorded inter-tidal structures recorded by the survey. Although the survey was able to identify and accurately locate several of the previously recorded fish weirs in the Taw estuary, the very mobile estuarine sediment has potential to reveal further structures and reconnaissance targeting low tides especially following extreme weather events is recommended.

5.1.12 Several previously unrecorded plough levelled features were identified as cropmarks from EH Archive and DCC vertical sorties. Three sorties were identified as being particularly productive, and these are listed below in Table 3. The RAF sortie from 1946 proved particularly valuable as this was originally omitted from the EH Archive loan as it was thought to be held by DCC HER. Although viewing this sortie meant revisiting previously surveyed areas this proved to be a worthwhile exercise, revealing previously unrecorded cropmark enclosures such as that in Figure 94.

Sortie	DCC HER Source No.
NMR RAF/106G/UK/1631 08-JUL-1946	SDV349549
NMR RAF/58/2984 30-JUN-1959	SDV349064
DCC Geonix/122/92 259 28-JUL-1992	SDV350377

Table 1: Vertical sorties with good potential for cropmark sites in North Devon.

5.1.13 One run of 1940s RAF vertical APs, held by both DCC and the EH Archive proved very difficult to rectify. The reason why this particular sortie, listed below in Table 4, should be consistently problematic is unknown.

Sortie	DCC HER Source No.
DCC RAF/3G/TUD/UK/158 19-APR-1946	SDV349143

Table 2: Vertical sortie with persistent unexplained rectification issues.

5.1.14 The low numbers of cropmarks make quantitative analysis difficult, but qualitative analysis suggests that monuments were particularly visible as cropmarks in the Hartland area, of Crackington Formation sandstone (MDV 102463, 102087, 102288, 81328). Other areas include Berry Down, on Morte Slates (MDV 103201, 12557), around Croyde on Pilton Mudstone Formation (MDV 16955) and one drought year site on Bideford Group sandstone (MDV103182).

5.2 Specialist Oblique Coverage

5.2.1 The oblique aerial photographs consulted during this project are held in three main collections, the EH Archives, DCC HER DAPs and CUCAP.

5.2.2 The CUCAP Catalogue search returned nearly 400 oblique prints for the project area; 89 for Block 1 and 280 for Block 2. A small proportion (c.25) were mis-sited APs of locales in Cambridgeshire and were removed from the loan request. A further number had been previously examined as part of the Exmoor NMP project and were also removed. Very few were catalogued with an archaeological subject. Those that were were requested for loan. The majority of the remainder were catalogued with less descriptive subjects, such as place names e.g. Combe Martin, or with topographic or geographical subjects, e.g. Rock crops, S of Braunton Burrows, or Coastal cliffs, Welcombe Mouth to Hartland Point.

5.2.3 As the potential CUCAP loan was large the decision was made to filter the CUCAP loan requests to remove those sorties which appeared to target only topographic or geographical subjects in areas which had shown low potential from EH Archive and DCC aerial photographs. For example, many sorties in areas such as Hartland, both vertical and oblique, described their subjects simply as ‘Coastal Cliffs’ or ‘Coast’, and were excluded from loan requests. This reduced the number of prints for Block 1 loan request to under 100, allowing a portion of Block 2 to be included in the first loan.

5.2.4 Block 2 returned a great many more prints with high potential than Block 1, with a focus on Braunton Burrows, Northam Burrows and Braunton Great field; the four partial map sheets that covered these areas (SS43SW, SS43SE, SS43NW, SS43NE) comprised c.67% of the entire CUCAP loan request for Block 2. As such, it was decided that as many of the

available APs of these areas should be assessed as possible. Following a methodology similar to that outlined above, apparently topographic or geographical subjects were removed but with a bias towards retaining possibly productive APs of the Braunton Burrows, Northam Burrows and Braunton Great field areas.

5.2.5 In total 161 DAPs fall within the project area. They were largely flown between 1984 and 1999, with a small number of sorties flown in 2006 and 2008. The proportion of summer (May-September) and winter (October-April) photography is approximately 64% to 36%.

5.2.6 The density of DAPs is very low, equating to approximately 0.6 DAPs per square kilometre for the project area. In common with the CUCAP collection not all DAPs target archaeological sites or features, some recording townscapes or landscapes. All archaeological sites which are the focus of DAPs have previously been routinely accessioned into the HER. As such the NMP survey did not identify any previously unrecorded archaeological sites from the DAP collection. Nonetheless, by assessing the DAPs alongside other AP sources the NMP methodology did improve the known extent and detail of several monuments, and for the first time provided an accurate transcription of many (e.g.MDV57823 Enclosure East of Yapham Farm; Figure 2 below).

5.2.7 The number of specialist obliques loaned by the EH Archive was relatively low, amounting to 65 for Block 1 and 221 for Block 2. This equates to approximately one AP per square kilometre for the project area. The low density of specialist oblique APs reflects the underlying geological conditions, soil cover and land-use which combine to make the area of the North Devon Coast AONB not productive for crop-mark sites.

5.2.8 The earliest specialist oblique APs supplied to the survey date from the 1920s. Glass plate negatives APs of Ilfracombe and Hillsborough Hillfort (HER MDV2210 SM1002512) taken in May 1920 were supplied as digital scans whilst 1927 images from the Crawford Collection were supplied as high resolution photocopies. Although of limited use archaeologically the digital images provide good illustrative material whilst the copies of the Crawford images suffered the same drawbacks as the M-series images described above (paragraph 5.1.8). The EH Archive also supplied CUCAP APs from 1948 and 1953 which were omitted from CUCAP loan requests.

5.2.9 Due to the presence of 'local fliers' from DCC, the frequency of EH/RCHME reconnaissance has been low. Beginning in 1982 for Block 1 and 1979 for Block 2, on average 5 years elapsed between each EH/RCHME reconnaissance sortie, with the majority being flown in the summer months when winter photography might prove more beneficial in recording earthwork features.

5.2.10 Once again the distribution of EH Archive specialist oblique APs appears to target historic settlements and topographic or landscape features, with the exception of Braunton Great Field. The location of the Great Field, the settlements of Barnstaple and Ilfracombe and the Taw-Torridge estuary in Block 2 accounts for the higher number of APs in that area.

Figure 2: Enclosure near Yapham Wood, visible as earthworks in low winter light. MDV 57823. DCC DAP/HL3 22-DEC-1986. Photo © Frances Griffith, Devon County Council.

5.3 Military Oblique Coverage

5.3.1 Military oblique APs provided blanket coverage of the coastline of the project area with very little coverage of the inland areas, particularly in Block 1. In total, 77% of the military oblique coverage was focused on Block 2. 75% of the HER monument records associated with a military oblique AP source are features of modern military date (see Table 3). By and large, military oblique APs have provided only supplementary information for other types of monument record. Exceptions can be found in other modern structures such as the Angels Wings in the Clovelly estate (MDV37677) and the ruins of Heathercombe Hotel (MDV103329).

Sortie Number	Date Flown	HER Source ID	No. Associated HER Monuments	No. Non-military HER Monuments
RAF/1416/S171	01-Jun-41	SDV349742	5	0
RAF/140/S747/H56	06-Feb-42	SDV350313	8	6
RAF/140/S756/H58	*10-Feb-42*	SDV350306	4	1
RAF/106G/LA/88	31-Dec-1944	SDV349744	32	6
RAF/106G/LA/102	17-Jan-1945	SDV349749	9	0
NMR RAF/106G/LA/265	04-May-1945	SDV349916	1	0
RAF/106G/LA/267 FSO	09-May-1945	SDV349861	8	2
RAF/106G/UK/1684	08-Aug-1946	SDV349999	1	0
RAF/SOP/122	03-Mar-54	SDV349350	5	0
RAF/58/2553	29-Aug-58	SDV349117	23	9
RAF/58/2555	01-Sep-58	SDV350309	29	2
RAF/543/1017	10-Aug-1960	SDV349659	23	10
Total			148	36

Table 3: Number of HER monuments associated with Military Oblique sources.

5.3.2 Military oblique APs have provided a valuable perspective on the landscape of conflict archaeology during and immediately following the Second World War. Less than 6% of the military oblique APs in Block 1 were taken during the conflict but those taken from the late 1940s into the early 1950s provide, literally and figuratively, a unique insight in the transition of key sites. This is apparent at long-lived sites, such as Hartland Point radar station which evolved from Second World War (CHL) installation site to Cold War (GCI) site, and remains in use today as a Civil Aviation Authority radar tower (see Section 7.3).

5.3.3 Nearly 60% of military oblique APs in Block 2, over 450 APs, were taken during the Second World War, with a clear focus on contemporary activity, such as the US Army Assault Training Centre (ATC) activity at Northam Burrows, the Skern and Horsea Island. Although these images were extremely oblique and often impossible to rectify, they provided an unprecedented view of the military activity in this area and allowed the identification of new sites and HER record creation. For instance, this included anti-glider defences at Braunton Marshes, identifiable only on military oblique coverage of 1944 (see Section 7.3). The military obliques also facilitated the identification and interpretation of previously unrecorded but locally very significant and potentially unique military training landscapes in use by US forces in the build-up to D-Day (see Section 7.4).

5.4 Lidar

5.4.1 The benefits of using lidar for archaeological landscape survey have been widely recognised and summarised by EH (Crutchley and Crow 2009).

5.4.2 Environment Agency Light Detection and Ranging (lidar) data was supplied to the survey via EH as static georectified jpeg images derived from idar data. The Lidar tiles could therefore be imported directly into the DCCHES GIS and viewed and assessed in much the same way as georectified vertical aerial photographs.

5.4.3 The following bullet points clarify of the characteristics of the Lidar tiles as supplied to the survey (S. Crutchley 2013, pers.comm.,18th Feb.):

- The Lidar tiles do not contain any intrinsic information about height (or intensity or slope etc). Each pixel merely contains the RGB code that makes it a certain colour. That said, there is generally more information held within them than may at first be discernible if they are manipulated in standard image processing packages such as Photoshop etc.
- All tiles are lit from the same point 315˚ (north-west) and c.60˚ sun-angle. This fits with standard graphical conventions. As such they are representations of height information and can best be thought of as the equivalent of vertical photographs taken in low sunlight, albeit lit from an angle never seen in reality in the UK.
- All tiles are unfiltered last return data; where there has been canopy penetration we are seeing the ground surface rather than the tops of trees. However, there has been no processing to remove buildings etc. This explains why some areas of trees appear denser than others.
- All tiles are actual height; there is no height exaggeration and this is not possible.
- The tiles are colour shaded according to their height; the gradations, however, are not uniform, with the greatest variations being represented at the lower end of the scale, as is to be expected with the EA using lidar primarily for water levels.
- Tiles come in a range of resolutions from 2m (c50% of the total coverage) down to 25cm and

even 15cm for some very specific sites (e.g. Silbury Hill).

5.4.4 Bearing this in mind, the value of the static tiles to the North Devon AONB survey was felt to be limited. Few previously unrecorded features were identified from lidar data alone. The 2m resolution data was in general found to be of very little use, although in some cases where 1m resolution data was not available it could confirm the presence of an earthwork feature tentatively identified from vertical photography.

5.4.5 The potential of the1m resolution lidar data was limited in that much of the coverage was captured in the spring or summer months and post processing was not able completely 'see through the trees' in heavily wooded areas or dense scrub vegetation to produce a digital elevation model showing the ground surface. This created a degree of uncertainty as to the reliability of the lidar tiles in even lightly wooded areas, leading to the identification of one probable 'red herring' (see Section 7.12). The ability to manipulate the data might have overcome some of these problems, but this is unlikely.

5.4.6 Nonetheless, the 1m resolution data did frequently allow the accurate transcription of earthwork features previously identified on vertical aerial photographs. This proved particularly useful in those locations where extreme or unusual topography meant rectification of traditional aerial photographs was difficult, such as on steep coastal slopes, mobile dune-edge landscapes or on reclaimed land, such as Braunton or Northam Burrows. Lidar also proved efficient when transcribing small and relatively numerous earthwork features, such as pits interpreted as quarries of medieval or post-medieval origin, without the need to rectify vertical aerial photographs.

5.4.7 The incidences where the 1m lidar data was the sole source for an earthwork feature are few, confined to features such as the subtle linear remains of former field boundaries not visible on APs due to the dominant 'natural' direction of sunlight falling along the bank. The greatest value of this dataset was as supplementary source of evidence to the aerial photography. This is reflected in the low numbers of monuments associated with lidar sources (see Table 4).

Lidar Resolution	Date Captured	HER Source	No. HER Monuments
LIDAR JPGs 2m Resolution	15-Mar-2003	SDV349324	9
LIDAR JPGs 1m Resolution	03-Apr-2006	SDV349740	9
LIDAR JPGs 1m Resolution	04-Apr-2006	SDV350492	8
LIDAR JPGs 1m Resolution	03-NOV-2006 to 03-FEB-2007	SDV349850	35
LIDAR JPGs 1m Resolution	01-Apr-2007	SDV350317	25
LIDAR JPGs 1m Resolution	24-Mar-2007	SDV349139	5
LIDAR JPGs 1m Resolution	18-Apr-2007	SDV349384	1
LIDAR JPGs 1m Resolution	20-Apr-2007	SDV350479	5
LIDAR JPGs 1m Resolution	10-Feb-2008	SDV349374	11
LIDAR JPGs 1m Resolution	27-Mar-2008	SDV349398	2
LIDAR JPGs 1m Resolution	29-30 SEP-2007	SDV350308	10

Table 4: Number of HER monuments associated with EA Lidar sources.

6 Overview of the Survey Results

6.1.1 The analysis of the survey results is affected by a number of constraints which are summarised in Appendix H. Nonetheless, the survey results can be summarised as follows;

6.1.2 The NMP survey was very successful in enhancing the HER for the North Devon Coast AONB. Prior to the survey the HER recorded 3400 monuments for the survey area. This figure includes findspots and buildings, i.e. monuments not likely to be identified by the NMP methodology (see Hegarty 2011, Section 10 for a detailed breakdown of the pre-NMP survey HER). This equates to a low monument density of approximately 12.2 monuments per square kilometre.

6.1.3 The NMP survey substantially enhanced 233 extant HER records and created 886 entirely new HER monument records (see Table 5, Appendix H). This equates to a mean average of 15.7% existing HER records amended and an average increase of 36.2% in the number of HER records. New NMP records now make up 27% of all Monument records for the project area.

6.1.4 Earthwork remains dominated the survey results, closely followed by monuments ascribed a structural evidence term. This reflects the good survival of field boundary banks of medieval and post-medieval origin into the twentieth century, and the high number and dense concentration of modern military remains, largely of Second World War date, in North Devon. Statistically, sites recorded only as cropmarks comprise up a very small percentage of the overall total but make a significant contribution to our understanding of prehistoric settlement in the AONB ad its environs. Thess patterns are illustrated with selected case studies in Section 7 below.

7 Survey Results

7.1 Introduction

7.1.1 This report provides an overview of the archaeological features recorded during the survey. It is not intended as a comprehensive account of all sites and features recorded during the survey. A list of all HER monument records created or amended by the survey provided in Appendix L is intended to provide basic information for all monument records created or amended. This includes a monument name and geographic location as a 12 figure grid reference, but does not imply any right of access as most sites are on private land.

7.1.2 The overview of results in Appendix H provides a basic analysis of the trends to emerge from the survey. Highlights of the survey are discussed thematically below, each theme collating monuments from multiple periods. These case studies are focussed on previously unknown sites, sites where NMP has made a major contribution to understanding and sites of potential national importance.

7.2 Thematic Results: Military or Defensive; Pre-Second World War

7.2.1 Several noteworthy and previously recorded scheduled coastal hillforts or promontory forts interpreted as probably dating to the Iron Age are located within the survey area.

7.2.2 One of the sites transcribed by Cornwall NMP (2002) and accessioned into the HER as part of the backlog component of the project, Embury Beacon was originally identified as a promontory fort, the surviving earthwork ramparts interpreted as providing landward defences to a spur projecting out to sea. A 1997 RCHME survey (SDV325680; Fletcher and Probert, 1997) prompted a reinterpretation of the site as the remains of a multivallate fort which previously had enclosed the crest of prominent coastal headland.

7.2.3 The interpretive text of the accessioned record for Embury Beacon is somewhat skeletal. Nonetheless, the Cornwall NMP transcription records the form of internal earthwork ramparts, depicted on the Ordnance Survey First Edition 25inch map and visible on APs from the 1940s to the 1980s but since lost to coastal erosion; as much as three quarters of the original enclosure is thought to have been lost to the sea. Embury Beacon is one of 6 coastal archaeological sites targeted by the Unlocking our Coastal Heritage Project (supported by the Rural Development Project for England), which aims to improve visitor experience along the South West Coast Path. The first North Devon Coast AONB NMP site visit coincided with excavation of the site in April 2012 (North Devon AONB 2013; Sims, forthcoming; see Figure 3).

Figure 3. Embury Beacon rampart under excavation, 2012. Photograph: Stephanie Knight 2012.

7.2.4 The two roughly parallel ramparts or scarps either side of a deep ditch at Hillsborough promontory fort can be incompletely seen as earthworks on aerial photographs of the 1940s onwards (Figure 4). The poor visibility is caused by patchy scrub vegetation partly obscuring the earthworks. However, the form of the earthworks is revealed on images derived from Lidar data acquired in 2007, allowing a reasonable plan to be transcribed. This plan though is less complete and detailed than that acheived by manipulation of the raw lidar data, as demonstrated by Matt Beamish (2011), again illustrating the limitations of the 1 metre resolution static jpegs available for this survey. The scheduled area of the monument does not include the southern part of the ramparts or any of the features tentatively identified through geophysical survey, and should be redrawn in the light of this new evidence.

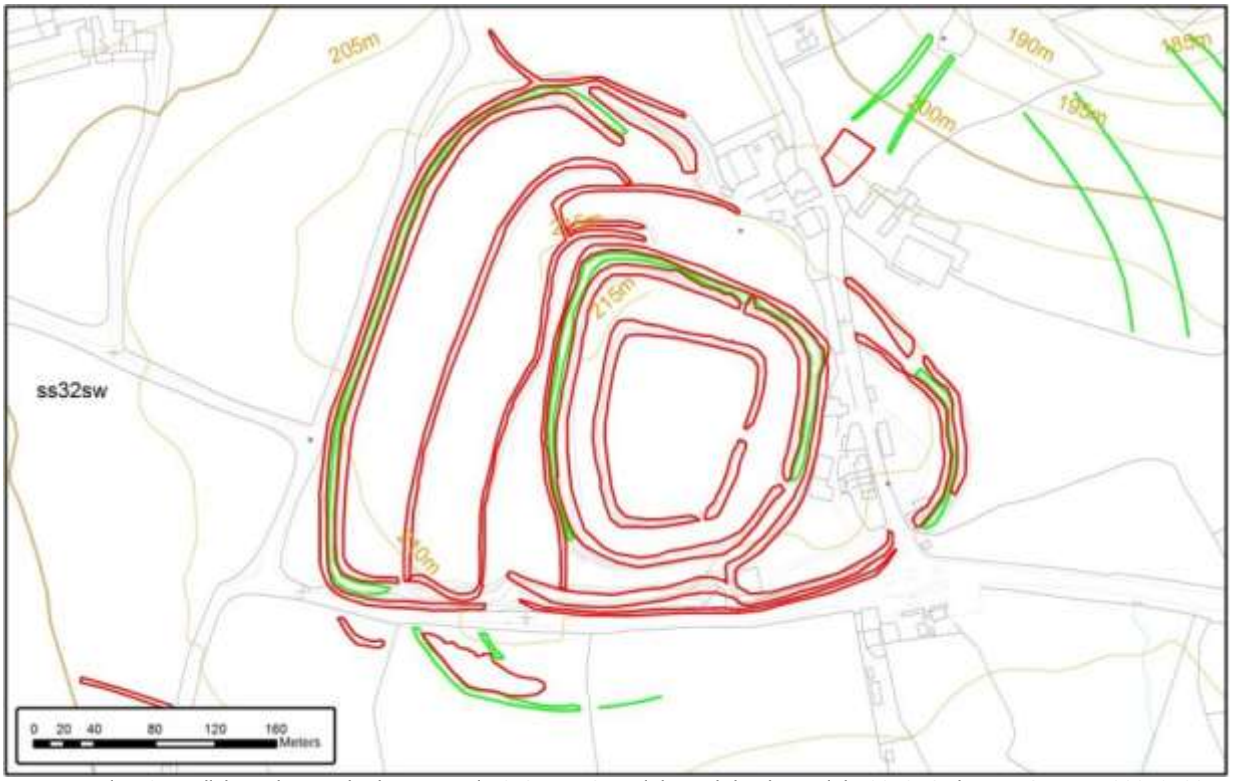
7.2.5 No other archaeological features at Hillsborough have been observed during the survey, and the possible roundhouses, ditches, postholes and pits identified in a recent geophysical survey (Dean 2011) were not visible on the available aerial photographs, again perhaps due to dense vegetation cover.

DCC RAF/106G/UK/1501 4390 13-MAY-1946. Devon County Council (DCC) RAF Aerial Photography

Interactive digital aerial photographs 1999-2000. This image is an extract from the Millennium Map team which is copyright Copyright Getmapping Plc

Figure 4. Hillsborough promontory fort, MDV2210.

7.2.6 Although grazed until the 1960s (Fiona Fyfe Associates and ULAS 2011), the ramparts had some scrub cover in the 1940s, although the interior was relatively clear of scrub or bracken at this point. Encroachment of scrub and bracken in the interior of the hillfort was clear on photographs dating to 1999-2000. The overgrowth on the ramparts has recently been tackled by volunteers and cleared by contractors as part of the Unlocking Our Coastal Heritage RDPE funded project (North Devon AONB 2013). The reintroduction of stock grazing has been suggested as a sustainable method of maintaining this site; the aerial photograph evidence, as well as numerous written and documentary sources reproduced in the management plan (Fiona Fyfe Associates and ULAS 2011), demonstrate the long history of grazing at Hillsborough and the consequences when it ceases.



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RAF/CPE/UK/1989 1002 12-APR-1947. Devon County Council (DCC) RAF Photography.


DCC CUCAP/AOP6 29-JUN-1966. © Cambridge University Collection on Aerial Photography (CUCAP).

Figure 5. Clovelly Dykes MDV169, with additional cropmarks and possible former earthwork identified during the survey to the south of the A39 road.

7.2.7 The enclosures at the well-known and iconic site of Clovelly Dykes are clearly visible as hedgebanks on aerial photographs between 1946 and 2007. The individual ditches and ramparts are less easy to define due to scrub growth, although the site is relatively clear of scrub in the 1947 aerial photographs, and the ramparts of the inner enclosure appear to have been completely stripped of scrub growth in the 1970s, perhaps even leading to some erosion. Breaches of the hedgebanks at several locations are visible between the 1950s and 1970s, indicating the creation of new or widened access points. This includes a breach at SS3091923376 created between 1959 and 1968, and another at SS3102123400 created between 1971 and 1978.

7.2.8 Three sides of a dark, roughly square cropmark are visible in the outermost enclosure at SS3094523380 on aerial photographs dating from 1946. However these correspond closely to cultivation lines and are likely to be a result of agricultural activities over wet ground. The area is visible as a dark, ill-defined cropmark in aerial photographs from 1947.

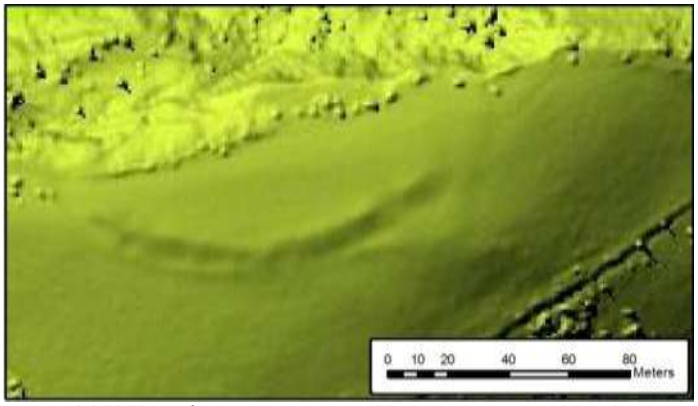
7.2.9 Interestingly, several possible banks and ditches to the south of the monument, on the other side of the road, are visible as cropmarks and earthworks on aerial photographs between 1947 and 1986. The best definition is found on oblique aerial photographs from 1966, when two ditches are visible as dark cropmarks approximately 4 metres in width, in one or perhaps two fields. Curvilinear banks are also visible on aerial photographs dating to 1968. The banks and cropmarks are in line with two of the outwork ramparts, curving to the east and roughly symmetrical with the extant ramparts on the north of the hillfort. A possible curvilinear bank circa 4 metres wide is visible as an earthwork south of the A39, in line with the most westerly bank of the hillfort, on photographs taken in 1947 and 1948. It is plausible that the bank and ditches are the remains of the original southern extent of the three outermost enclosures, which became separated from the main body of the hillfort when a road developed though the southern part, and have subsequently been levelled by ploughing. This interpretation appears to be supported by Parry writing in 1867, who states that the southern part had been ‘obliterated’ by the construction of the road. Potentially, therefore, it was possible to 'read' earthworks in the fields south of the hillfort at this date.

7.2.10 On other available aerial photographs the cropmarks are very indistinct, and a geological origin for these was initially presumed. However the well-defined cropmarks do appear to be archaeological in origin and, if so, then below ground remains are likely to survive. Further archaeological work would be needed to ascertain their character, and remote sensing such as geophysical survey might be particularly rewarding.

7.2.11 The Schedule only includes the complex north of the A39 and this should be considered for amendment, to include the cropmarks to the south which are at the highest part of the field and so particularly vulnerable to continued cultivation.

7.2.12 An unrecorded eastern extension to the hillfort has been suggested from Lidar data, not available to the survey, but no evidence of this was visible on the aerial photographs available to the survey (S. Hobbs, pers.comm.)

DCC DAP/ACF2 26-JUL-1999. Photo © Bill Horner, Devon County Council.



LIDAR SS2826 Environment Agency D0076567 24-MAR-2007. © Environment Agency copyright 2007. All rights reserved.

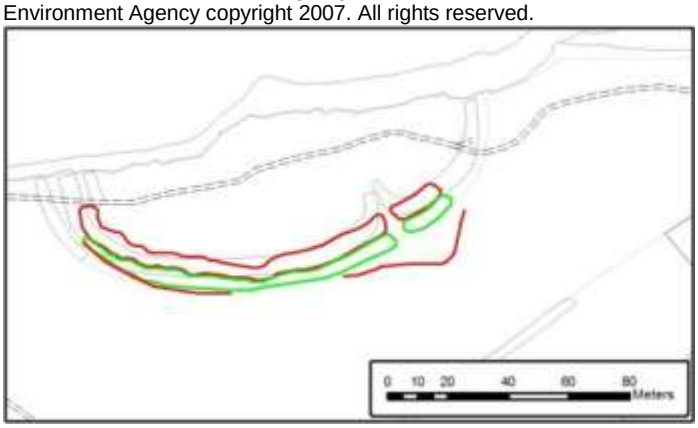


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Figure 6. Windbury hillfort, MDV 71, visible as earthworks with a possible platform on the south-east side. The South West Coast Path is visible as a possible earthwork on its eastern side on Lidar images from 2007

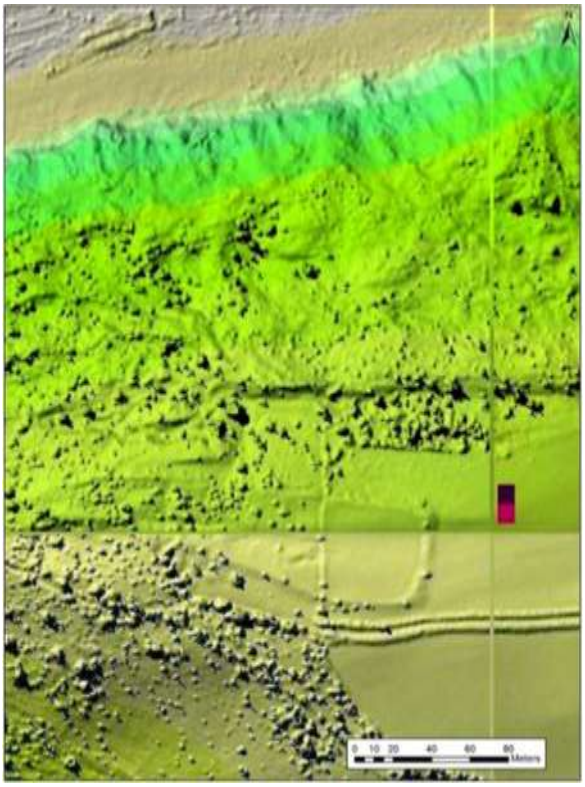
7.2.13 The curvilinear rampart and external ditch of the prehistoric Windbury enclosure are just visible as earthworks on vertical aerial photographs from 1959 to 1977, but very indistinctly. Oblique aerial photographs taken in 1999 show the ramparts more clearly, in a roughly semi-circular area of mostly lower rough vegetation. However the ramparts and a possible outer bank and platform outside the entrance are clearly visible on images derived from Lidar data captured in 2007. The rampart and ditch are irregular and may have been breached in several places, particularly on the south-west side. The earthworks are particularly unclear near the cliff edge, and it is not possible to map the degree of clifftop erosion of the presumed northern part of the monument. On the east the route of the South West Coast Path into the interior of the monument is visible as a linear hollow on aerial photographs taken in 1999 and Lidar images from 2007. This could be interpreted as evidence that erosion along this popular recreational route is now forming an earthwork of its own, but without checking on the ground it is equally possible that the images simply highlight the lower vegetation along the path, and the former National Trust archaeologist did not observe any erosion here when she last visited the site a few years ago (Shirley Blaylock, pers. comm). The number of walkers along the SWCP is not easily quantified, but it is estimated to be millions every year across the whole 630 mile length (South West Coast Path 2011). This facilitates access to and between many of the most striking archaeological sites, including the coastal forts. It is commonly understood to have originated as a

coastguard route to track and pursue smugglers, and may have older origins (Green, pers. comm.).

7.2.14 Lidar images also provided the primary source for a basic transcription confirming the form of the earthwork ramparts of a rectangular earthwork enclosure, interpreted as an Iron Age promontory fort, to the east of Buck's Mills (MDV181). The enclosure is depicted on OS maps from the First Edition onwards, including schematically on the OS Mastermap layers available to the survey. However, whilst the eastern and southern earthwork ramparts on the eastern half of the enclosure can be seen on aerial photographs of the 1940s onwards, the westernmost 80 metres is largely obscured from view by scrub vegetation and woodland.

7.2.15 Interpretation of Static jpeg images at 1m resolution derived from lidar data captured in 2007 confirms that enclosure earthworks do survive at the western extent of the enclosure, but have been impacted on by quarrying of probable modern date. The lidar evidence also supports the interpretation made by the OS Archaeology Division that two east to west linear ridges to the interior of the enclosure are likely to be geological in origin. Interestingly no clear northern earthwork rampart is visible on the lidar images, which appears to be defined by a modified natural scarp.

7.2.16 No conclusive evidence of previously unrecorded Roman or Romano-British sites was identified during the survey, although several enclosures that could have been occupied in the Roman period were observed (see section 7.7 below). However two possible sites with similarities to Roman site types were visible on aerial photographs.



LIDAR SS3523 Environment Agency D0076623-D0076624, D0076627-D0076628 24-MAR-2007. © Environment Agency copyright 2007. All rights reserved

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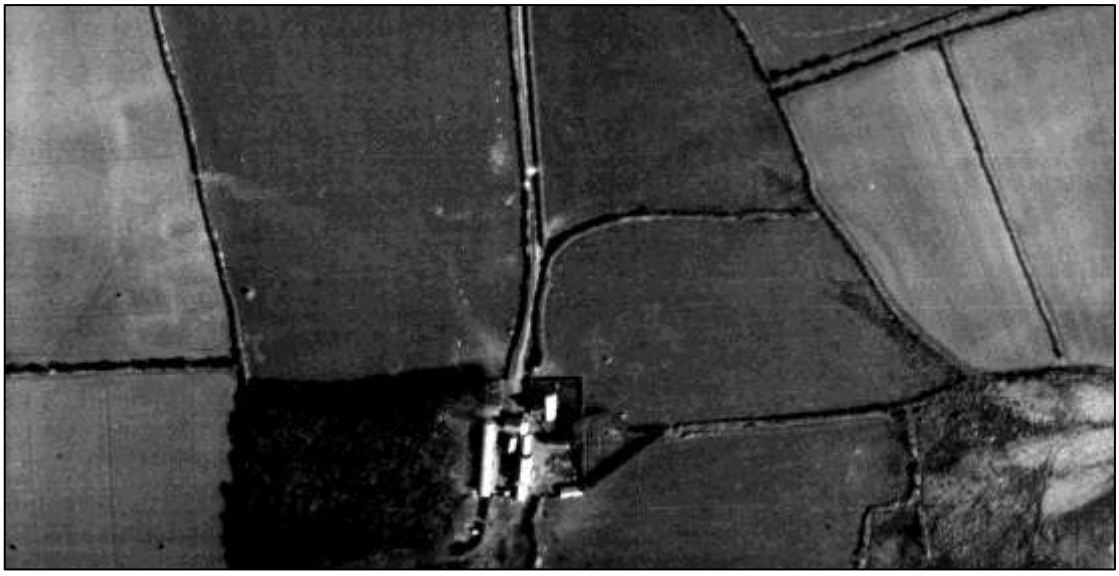
Figure 7. The Iron Age promontory fort, to the east of Buck's Mills.



DCC RAF/3G/TUD/UK/158 5075 19-APR-1946. Devon County Council (DCC) RAF Aerial Photography.

RAF/58/2984 0056 30-JUN-1959. English Heritage (RAF photography)

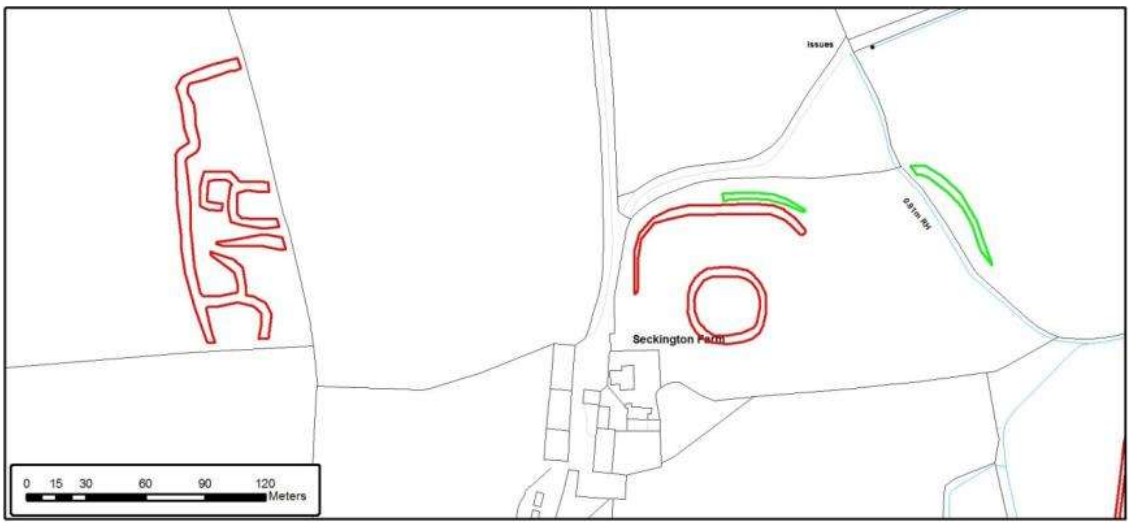


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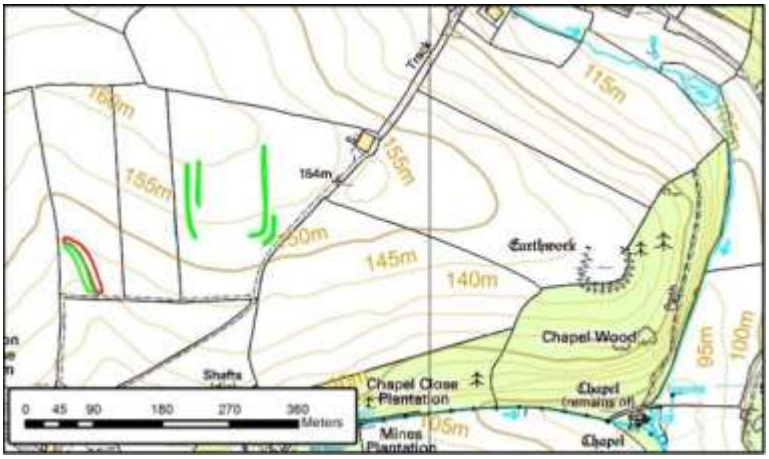
Figure 8. Seckington, possible deserted or shrunken settlement, MDV 102288 (left) and banked enclosure, MDV 102282 (right).

7.2.17 A distinctively shaped earthwork observed at Seckington, was initially discounted as twentieth century agricultural cropmarks until the two photographs illustrated in Figure 8 were directly compared. Two banks forming sub-square concentric enclosures are visible as earthworks on aerial photographs dating to 1946. The inner bank is circa 4 metres wide and forms a mostly complete circuit with a possible opening in the centre of the western side, but only the western and northern sections of the outer bank are visible, and up to 5 metres in width. The adjacent field boundary closely follows the shape of the outer bank and may be associated with it. The inner enclosure is equidistant from the bank to the north and to a field boundary to the south, which may be a continuation of the outer enclosure. A curved dark linear cropmark that is visible approximately 50 metres to the east may also be associated. Dark cropmarks that closely follow the outer edge of both enclosures are visible in the half of the field that has been cropped in 1959 aerial photographs, and could be areas of wetter ground within ditch fills, or possibly a consequence of agricultural activity such as increased fertiliser application at the limits of the cultivation area. The harvesting lines run north to south within the inner enclosure but follow the curve of the outer enclosure, suggesting perhaps that agricultural activity respected upstanding earthworks.

7.2.18 The morphology of the enclosures is consistent with interpretation of this feature as a fortlet of Roman date, and the dimensions of the enclosures, at 38 metres for the inner enclosure and 100 metres for the outer enclosure, are similar to the probable Roman signal station discovered at Ide which measures 32 by 34 metres for the internal enclosure, and approximately 90 metres for the external ditch (Griffith 1984: 17-18).

7.2.19 However, the topographic location of this site when assessed from the road is not what would be expected for a Roman fortified enclosure (Horner, pers. comm.). The field name given in the 1844 Tithe apportionment is 'Under Town', possibly suggesting a larger settlement here than is depicted on the historic mapping, although this could refer to medieval settlement as Seckington is first known from documentary sources in 1333 (Gover *et al* 1931). There is good potential for survival of slight earthworks and below-ground features and further archaeological investigation to assess the likely character and date of this feature is highly recommended.

7.2.20 The possible settlement site on the left of the photographs is discussed in Section 7.7 below, and could be a deserted settlement of medieval or post medieval date; its relationship to the double banked enclosure earthwork is unclear. The possibility that these features could be of civil war date should not be discounted without further assessment of their context, as they are sited on a spur of dry land above river crossings that could be used to approach Hartland from the east, avoiding the main road via Clovelly. See paragraph 7.7.10 below.



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NMR RAF/106G/UK/1501 3143 13-MAY-1946.
English Heritage (RAF photography).

Figure 9. Playing-card shaped cropmark, MDV 103341

7.2.21 Extremely tentative evidence of a possible Roman period enclosure on a spur of land overlooking two valleys was observed south-east of Woolacombe. A very indistinct dark cropmark, visible on aerial photographs taken in May 1946, may have formed over levelled ditches. The cropmarks appear to conform to a playing card shape 120 metres by more than 135 metres, although only parts of the east and west sides, and a short section of a possible southern return, are visible. There appear to be two concentric ditches, 3 metres wide and 14 metres apart. The shape is consistent with an interpretation as an enclosure of later prehistoric or Roman date but the limited evidence makes definite interpretation impossible, especially as the cropmarks were observed on only one run of aerial photographs. More work, such as geophysical survey, would be needed to confirm whether any buried archaeological remains are present - or survive.

7.2.22 Considerable evidence exists for conflict relating to the 1642-1651 English Civil War in North Devon and Torridge, with known battles at Torrington (MDV 55705) and Ilfracombe (MDV 78901), as well as a skirmish at Woolfardisworthy (MDV 13829). At Kingscott near Torrington (MDV 79193) four cottages, possibly split from a single farmhouse, were previously known as The Barracks and may also have a civil war association. There are documentary records of a Civil War Turnpike in Hartland (MDV 81322), and hoards or stray finds of civil war artefacts have been recorded in and around Barnstaple at Tawstock (MDV 57477), Bishop's Tawton (MDV 20000) and Barnstaple (MDV 71640).

7.2.23 Fortifications are recorded at Barnstaple (MDV12521), Ilfracombe (MDV 23294), one or possibly two at Bideford (MDV 11750 and 11751), with the castle, lookout (MDV 7107) and battery (MDV 7108) on Lundy also used in this period. However the only previously recorded civil war site within the project area that was observed on the aerial photographs was the putative fort at Appledore (MDV 11870).

DCC Geonex/78/93 159 08-JUN-1993. © Infoterra Ltd.

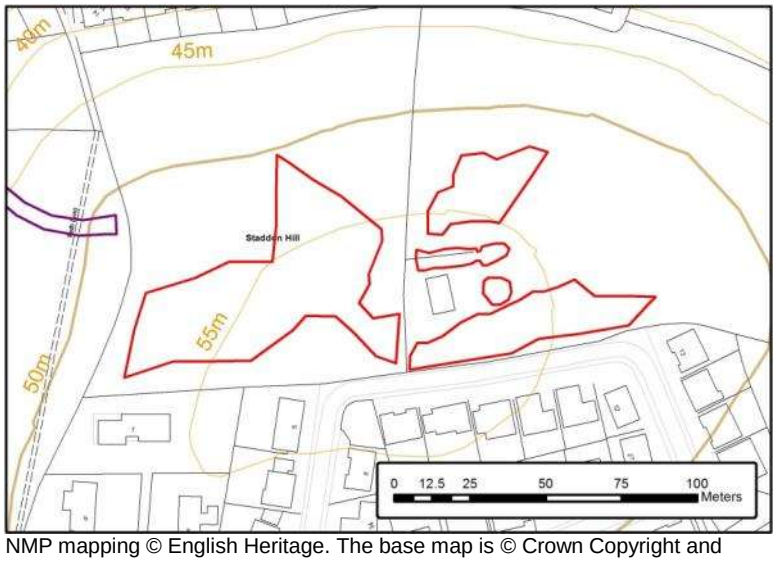

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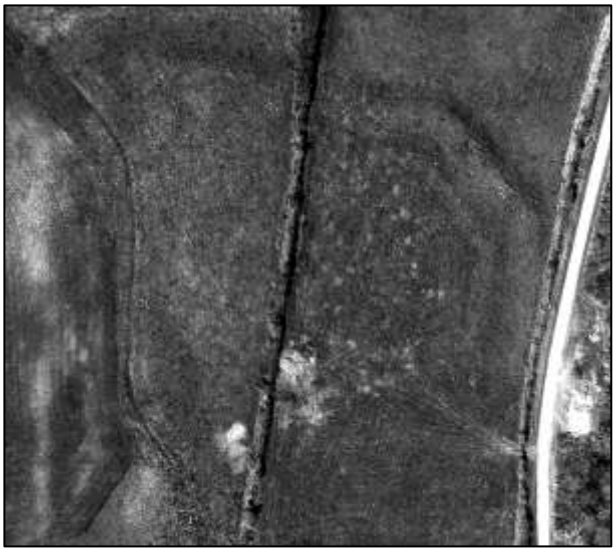
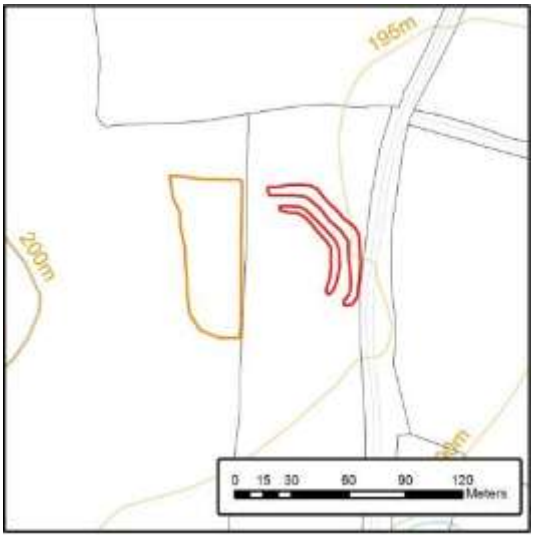
Figure 10. A possible Civil War fort in Appledore, MDV11870

7.2.24 A linear bank aligned roughly east to west and approximately 5 metres in width, and an irregularly shaped mound approximately 9 metres in diameter to the south of its east end are visible on aerial photographs between the 1940s and 2010. Artefacts of seventeenth or eighteenth century date have been recovered from the earthworks; they have been interpreted as the remains of the 1643 Civil War fort at Staddon Hill, and they are too substantial to plausibly be interpreted as the remains of a hedgebank. Although the earthworks survive they have been impacted by the construction of farm buildings as well as from recent erosion. A pale cropmark is visible on aerial photographs taken in 1993 to the east, north and west of the earthworks, approximately 175 metres from east to west. Although it is indistinct in places due to vegetation growth there are several clear edges defining triangular areas that are similar to the ground plan of bastions, particularly to the east and west of the earthworks. Carter (2009: 30) states that the fort at Staddon Hill was quadrangular with bastions at the angles, which supports an interpretation of the cropmarks as forming over the ploughed out remains of bastion ramparts. However caution must be

applied in interpretation since the cropmark is visible only on a single run of photographs. Further work is recommended to clarify the character and extent of any below ground remains; geophysical survey would be an appropriate first stage. Carter also reproduces a mid-eighteenth century map depicting a tower above Appledore, possibly in this location, but no evidence of a tower is visible on aerial photographs.



NMR MAL/71031 005 28-APR-1971. Reproduced by permission of English Heritage.



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Photograph: Stephanie Knight 2012

Figure 11. Earthwork near Clovelly, MDV102409, photographed from the south-east.

7.2.25 A previously unrecorded earthwork monument observed during the survey near Clovelly is of an unusual shape that does not have any known parallels in Devon (MDV102409; see Figure 11). A double earthwork bank is visible on aerial photographs dating to 1978 appearing to define three sides - the north-east segment - of a possibly octagonal enclosure. The outer bank appears to be steeper on its outer face than the inner and at 6 metres across is approximately twice as wide as the inner bank.

7.2.26 To the west, on the western side of an extant field boundary, a pale cropmark describes an area of raised ground defined by a narrow linear ditch on the south-west side. The ditch is visible as an open trench with numerous adjacent piles of spoil on 1940s aerial photographs

and is probably a field drain partway through installation. It mirrors the shape of the earthworks in the north-east corner, and may have been installed along the base of the south-west corner of the feature. Also visible on the 1940s aerial photographs is a dark cropmark aligned approximately east to west at the northern periphery of the earthworks, perhaps having formed over a buried ditch.

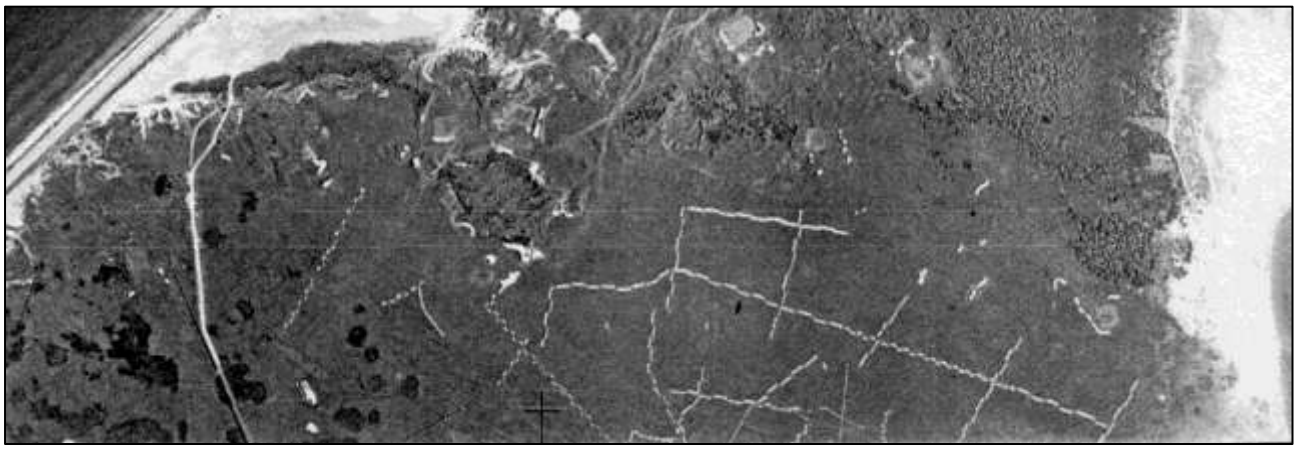
7.2.27 Although no features are depicted here on the 1840 Tithe map, a field on higher ground approximately 400 metres to the west is named 'Becka Borough', possibly suggesting a fortified earthwork in this area. 'Bloody Park' field names south of Buck's Cross, 4 kilometers to the east, relate to a Civil War skirmish; it is possible that the earthwork feature is a fortification, perhaps unfinished, of Civil War date. The cropmarks and irregular ground visible in the north-west corner form a pointed shape rather than conforming to an octagonal plan, and could potentially be the remains of a bastion, although it does not conform to common parallels of civil war date (Harrington, 2004).

7.2.28 On aerial photographs from 2007 a pale irregular cropmark is visible east of the extant field boundary, and cultivation lines define an area that conforms to the octagonal plan visible in earlier aerial photographs, suggesting that the earthworks were substantial and complete enough to be respected by modern agricultural activity. A site visit in 2012 confirmed the continued survival of the earthworks, although their shape in plan was difficult to determine from the roadside.

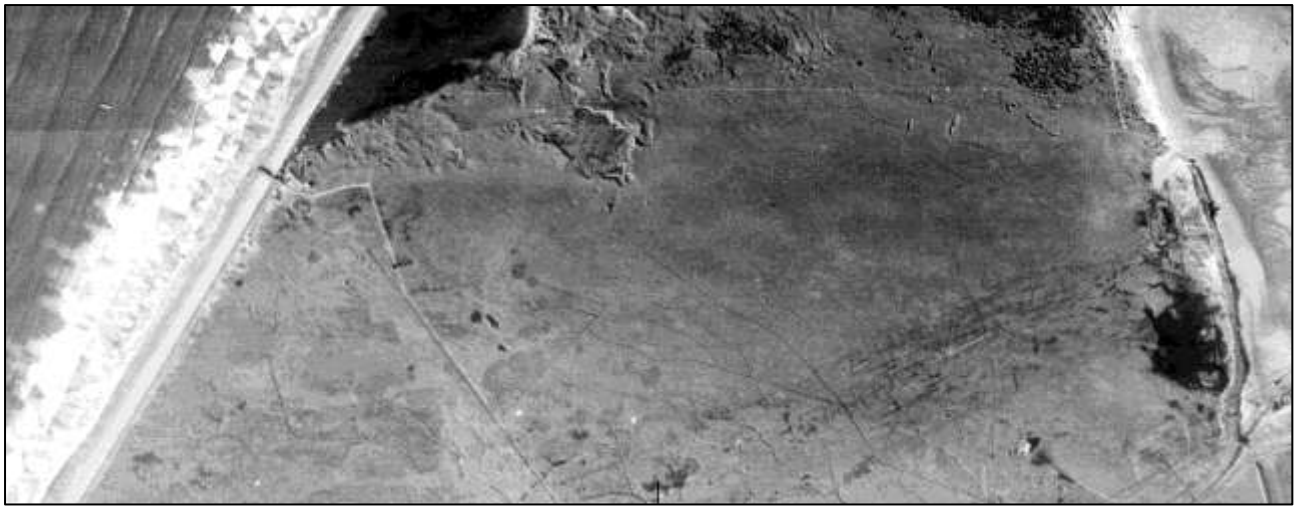
7.2.29 The location of the earthwork just off the high ground is perhaps not what would be expected for a civil war earthwork. However it may have been sited to command the road linking to crossing points over the watercourse to the east. An earthwork survey to record the exact form of the earthworks would help to establish their date and character and geophysical investigations might also help us to understand below-ground remains.

7.3 Thematic Results: Military and Defensive; Second World War Defence

7.3.1 Passive anti-invasion defences on the North-Devon coast are concentrated on the low lying and relatively level shingle beaches from Northam to Woolacombe and the reclaimed land around the mouth of the Taw-Torridge estuary.



Photograph: RAF/HLA/046 1 02-AUG-1940. English Heritage RAF Photography



Photograph: RAF/106G/UK/957 3025 30-OCT-1945. English Heritage RAF Photography

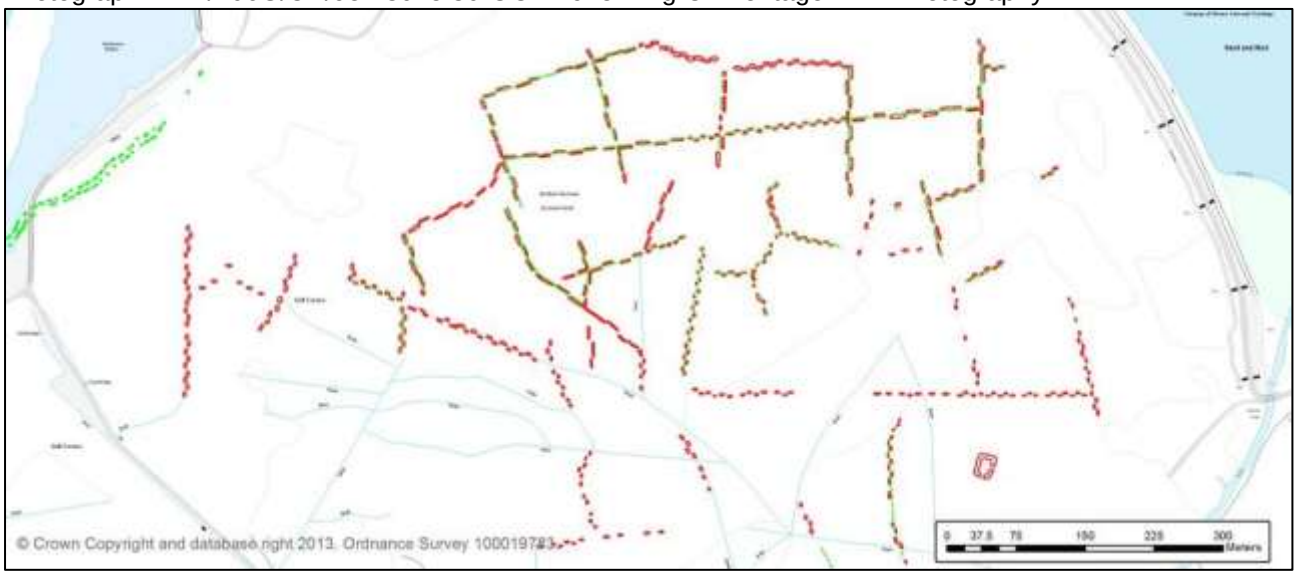


Figure 12. Top:The anti-glider earthworks are clearly visible as pale, newly cut earthworks in August 1940. Middle: By 1945 the anti-glider earthworks remain visible, although the southern edge of the system appears damaged by vehicle tracks. This section is not clearly visible on earlier sorties. Bottom: NMP transcription © English Heritage.

7.3.2 Passive anti-aircraft defences of two types have been recorded. The first is best illustrated by an extensive but irregular system of anti-glider/aircraft ditches on the southern half of Northam Burrows (Figure 12; MDV55668). The northern half of the Burrows is a narrowing spit of land covered in scrub vegetation and partly landscaped as a golf course. This portion of the Burrows was therefore unsuited to landing aircraft. The southern half however, was relatively level, over 700 metres broad and 1.5 kilometres wide. Probably due to its proximity to RAF Chivenor this area was viewed as vulnerable.

7.3.3 Earthwork anti-aircraft obstructions on the Burrows were constructed in two stages. They were substantially in place by August 1940, this early date indicating how sensitive this area was perceived to be, and further enhanced by July 1941. Covering an area of over 45 hectares of land, largely below 5m OD, the Northam Burrows anti-glider/aircraft ditches are unusual in that, with the exception of a small regular section to the north of the system, they do not follow a regular pattern (c.f. Hegarty and Newsome 2007, 58; Dickson et al 2012, 118). Instead their construction makes pragmatic use of extant landscape features by

augmenting the obstructive potential of existing drainage ditches. The construction of the obstructions is unusual, consisting of short enhanced ditches and accompanying mounds of spoil dumped in an alternating or staggered pattern to either side of the ditches, rather than the more common single continuous ditch with small circular mounds either side.

7.3.4 By 1942 the threat of invasion had passed and by 1945, when this area is next clearly visible on RAF verticals, a large swathe of the anti-glider earthworks had been levelled or damaged by vehicles crossing the Burrows between the salt-marsh known as The Skern and Pimpley Bridge. This reflects the shifting priorities of the later years of the conflict, when Northam Burrows changed from a defensive landscape to part of a wider militarised training landscape (see Section 7.4). The remains of the anti-aircraft obstructions can be seen as well-defined earthworks on images derived from lidar data and earthworks are clearly visible on the ground. A site visit in February 2013 noted damage to the earthworks, possibly evidence of metal detecting activity. Monitoring of the monument's condition and raising awareness of the damage caused by this possible activity would be beneficial.

7.3.5 The second type of passive anti-aircraft defences visible consists of structural defences, often vertical poles, and can be seen across Braunton and Velator Marshes. Tall pale poles are visible on military oblique aerial photographs taken between 1944 and 1945 (Figure 13). These were previously unrecorded on the HER and were not identifiable on any RAF verticals.

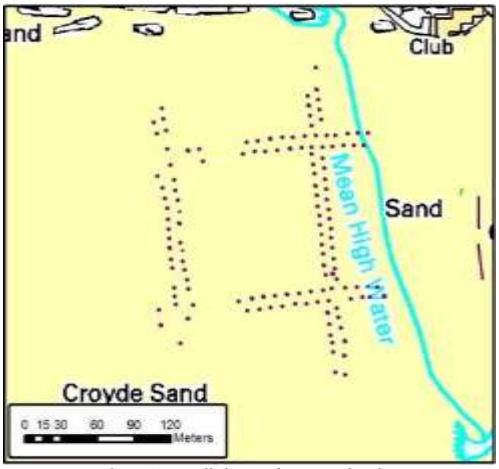
Figure 13. Anti-glider poles on Braunton Marshes in 1944, MDV 102619. NMR RAF/106G/LA/88 FPO/0057 SS4531/21 31-DEC-1944. English Heritage (RAF Photography).

7.3.6 They extend from Velator and Velator Bridge in the north, across Braunton Pill to Braunton Great Field, and south to the flood defence embankment around Horsey Island, and east to west from the River Caen to Braunton Burrows. Some are visible on the foreshore, although it is possible that these mark training areas or deep water channels rather than having a defensive function. Braunton Great Field is recorded in North Devon Defence Plans dated 1940 as a possible landing site for airborne troops that was obstructed against enemy aircraft (Walsey 1994: 190-192), and it is therefore very likely that these structures are anti-glider poles dating to the early part of the Second World War. In general they are spaced at a much greater distance than would be expected for anti-aircraft defences, at approximately 50 metres apart. However a few are visible much closer together at approximately 25 metres, and this concurs well with the spacing of 27.4 metres given for such obstructions in

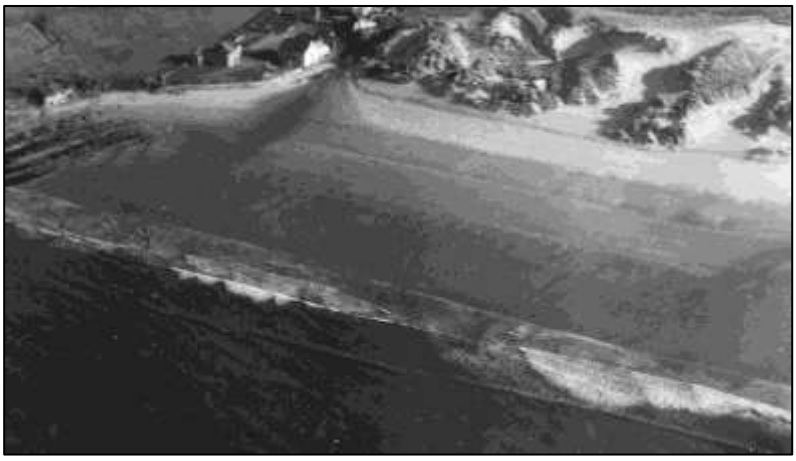
Dobinson (1996: 133). They are set into the ground mostly along field boundaries, although some are visible within the fields, and it is possible that many, including most of those in the middle of fields, had been removed for agricultural reasons after the immediate threat of airborne invasion had passed. The poles are not visible on oblique aerial photographs taken in 1946 and it is likely that they were deliberately removed soon after the war ended. Rectification of the military oblique photographs was extremely problematic and the poles have not been individually transcribed.

7.3.7 A large number of posts set in a square/chequerboard pattern on Croyde Sand and linear arrangements of posts on the beach west of Northam Burrows have also been interpreted as probable beach defences (see Figure 14 and 16 below), but it is possible they might also have served a function as anti-aircraft obstructions on these broad and level beaches.

7.3.8 The grid of posts in the intertidal zone at Croyde is visible as structures on aerial photographs taken in 1942. The grid consists of double rows of posts circa 8 metres apart, forming a pattern like a noughts and crosses grid. It covers a minimum length of 260 metres north to south and a similar dimension east to west, although the breaking waves mean that the western side is difficult to see. The posts may be made of metal girders, as at Woolacombe (see below), and are interpreted as anti-invasion defences to prevent enemy beach landings, probably also present further to the south. They were probably cleared when the U.S. Army established the Assault Training Centre here later in the Second World War. Similar beach obstacles were located at Braunton Burrows, although only indistinctly visible on aerial photographs.



NMP mapping © English Heritage. The base map is © Crown Copyright and database right 2013. Ordnance Survey 100019783.



NMR RAF/140/S747/H56 PO-3007 SS4339/3 06-FEB-1942. English Heritage (RAF Photography).

Figure 14. Anti-invasion defences at Croyde Sand, mapped from aerial photographs taken in 1942. MDV 103040. The pattern is less clear where the posts were obscured by breaking surf.

7.3.9 The remains of posts occasionally visible at Woolacombe, but not observed on available aerial photographs, appear to be aligned in a double row parallel to the shoreline (Figure 15). The photographs supplied by Mortehoe Parish Council do not show any evidence of rows perpendicular to the shore, as at Croyde, but it is possible that post remains survive below the sand, or are simply not visible on the photographs. There is potential for remains

of similar anti-invasion obstacles to survive at Croyde, Braunton and other parts of the intertidal zone around the North Devon coast, and to be occasionally exposed.

Figure 15. The remains of probable Second World War anti-invasion posts set in the sands at Woolacombe, exposed in circa 2009 and since covered back over by sand. MDV 74997. Photograph sent to the DCCHER by a member of Mortehoe Parish Council, probably taken in 2009.

7.3.10 Coastal anti-invasion defences often comprised several strands of linear defences deployed in combination forming what has been described as a 'coastal crust', the first line of defence against seaborne invasion (Foot 2006, 8). Obstacles typically included lines of scaffolding, barbed wire entanglements, minefields, anti-tank ditches and concrete anti-tank blocks or cylinders. Anti-tank ditches and concrete obstructions were not noted in any number on the North Devon coast but small areas of other linear defences were identified.

7.3.11 Beach scaffolding, often known as Admiralty Scaffolding, Obstacle 2.1 or simply as 'anti-tank scaffolding' was typically installed on the shoreline either at the half tide mark or above the high water mark (Foot 2006, 8, 21). Intended originally to prevent assault craft from landing, by 1941 this defence was adapted as an anti-tank obstacle and was installed on vulnerable beaches across much of southern England (Dickson et al 2012, 77; Dobinson 1996b).

7.3.12 Little evidence of this form of beach obstruction has been confidently identified during the survey, but structures which might be remains of or variations on this form of beach defence have been noted. At least three short rows of poles (MDV102477) have been recorded on the beach west of Sandymere at Braunton Burrows, and are visible in-situ on military oblique images from December 1944 (see Figure 16). Visible for only approximately 150 metres on a beach over 3 kilometres in length, these structures are perhaps too limited in scale to be evidence of scaffold. The structures resemble barbed wire aprons (see Figure 17) but might represent the remains of an earlier and more extensive system of linear

defences. Alternatively, they might be remains of a training aid associated with the US Army Assault Training Centre based at Woolacombe (see Section 7.4). These structures cannot be clearly seen on any other images available to the survey and illustrate the slight nature of many of the modern military features in this area.

Figure 16. Beach defences at Northam Burrows, looking west. Photograph: RAF/106G/LA/88 FSO-0009 SS/4430/007 31-DEC-44. English Heritage RAF Photography

Figure 17. Lines of barbed-wire obstacles stretch across snow-covered fields near Menin, 17 Infantry Brigade sector, 21 January 1940. Imperial War Museum. © IWM (O 878).

7.3.13 Anti-personnel or anti-tank minefields were often established in conjunction with linear beach defences, frequently located behind or inland of the structural obstructions (Foot 2006, 8). The interpretation of minefields from aerial photographs is often based upon the identification of regular patterns of circular pits in vulnerable coastal areas. Such pits are generally considered to be identifiable only shortly after the minefield had been created and following the removal of the mines, the action of the tide on the beach material concealing the mines at other times. As can be seen below, however, this is not always the case.

7.3.14 Direct evidence for minefields has been identified in only two or three locations on the North Devon coast. The most extensive forms part of the integrated coastal crust defences,

alongside barbed wire entanglements, along the one of the most extensive low-lying areas along the coastline, the beach west of Northam Burrows (MDV55666 see Figures 18 and 19). The size of the pits, approximately 2 metres in diameter, might indicate an anti-tank rather than anti-personnel minefield was installed. Unusually, the circular pits of this minefield remained visible in APs throughout the war years and a number remain visible on very recent aerial photographs as slight earthworks adjacent to Sandymere and at the northern tip of the Burrows. This high degree of preservation is probably due to the location of a significant proportion of the the minefield above the mean high water mark.

Figure 18. Northam minefield MDV55666. The probable minefield is visible as two parallel lines of circular hollows. Photograph: RAF/106G/LA/88 FSO-0043 SS/4431/019 31-DEC-44. English Heritage RAF Photography

Figure 19. Top: Anti-glider obstructions on Northam Burrows are visible to the left of the image. Barbed wire obstructions defining linear defences and small enclosures are visible as a dark line. Photograph: RAF/S171 15 01-JUN-1941. English Heritage (RAF Photography). Bottom: NMP Transcription, Minefields are green, barbed-wire structures are purple. NMP mapping © English Heritage.

Figure 20. Possible former minefields, visible in the foreground as grids of craters on the Skern at Northam Burrows, MDV 102565. The anti-glider ditches are visible in the background. NMR RAF/106G/LA/88 FSO/0007 SS4531/21 31-DEC-1944. English Heritage (RAF Photography)

7.3.15 Grids of craters are visible as earthworks around the U.S. Assault Training Centre at Broadsands and on the Skern, Northam (see Figure 20). These may have been associated with training activity, but it is possible that they were early Second World War anti-invasion defences. Minefields are known to have been planted at Braunton, and the 'danger area' marked on U.S. Army plans dating to 1944 is clearly visible on some runs of aerial photographs as extensive but broken rectangular enclosures, probably of barbed wire, along the western periphery of the dunes (see Figure 32).

7.3.16 Barbed wire obstructions, being quick to install and remodel, formed an important part of Second World War coastal defences. However, such ephemeral structures are difficult to identify with confidence from aerial photographs. Their presence can often be inferred only from a dark line across the landscape, created either by shadow or differential growth of vegetation within the obstruction, the barbed wire preventing access by grazing animals or other means of maintenance, or an accumulation of debris, most commonly seen on beach defences.

7.3.17 Such darker lines in vegetation have been interpreted as indicating two foci of defensive barbed wire entanglements on Northam Burrows. Barbed wire entanglements have also been identified as part of Second World War training landscapes and are described in Section 7.4.

7.3.18 Possible anti-invasion barbed wire entanglements are visible as narrow dark lines roughly parallel to the shoreline from Westward Ho! to the northern tip of Northam Burrows (MDV102486, see Figure 19). From the northern edge of Sandymere to the northern tip of

the Burrows the probable barbed wire can be seen to define five possible enclosures or strongpoints. The function of these enclosures is unclear but such strongpoints are a feature of early Second World War anti-invasion coastal defences, often evolving into complex patterns from 1941 to 1942 (Hegarty and Newsome 2007). The northernmost strongpoint encloses Northam Burrows coastguard lookout (MDV74325) and two or three short earthwork ditches which might be evidence for military slit trenches (MDV102487). The barbed wire is not readily discernible on later vertical aerial photographs, but its recent presence alongside a probable stock enclosure fence crossing the Burrows golf course can be inferred from a swathe of rough, uncut or ungrazed grass visible on a military oblique of December 1944 (see Figure 21).

7.3.19 The second focus of barbed wire encloses the infrastructure of RAF Northam Radar station, a Chain Home station established in 1941. The site of the radar station was not covered by the early wartime M-Series images available to the survey and the earliest images of the barbed wire entanglements date from October 1945, the year following the station's closure (Passmore and Passmore 2011). Nonetheless, in October 1945 the obstructions appear to enclose the transmitter masts and possible dummy radar station blocks. A pair of parallel dark lines running north-east across the Skern into the estuary from each transmitter enclosure is possibly evidence of obstructions intended to regulate movement at a key access point where the stream known as The Pill meets the Taw Torridge estuary at Appledore Bridge (see Figure 22 detail). This inter-tidal barbed wire defined access point is no longer visible by April 1946, after which the remaining obstructions also appear to have been removed.

Figure 21. Northam Burrows golf course under grazing, 1944. Although barbed wire cannot be seen, its route can be inferred from darker lines of vegetation, most clearly adjacent to the stock fence. Photograph: RAF/106G/LA/88 FPO-0039 SS/4431/010 31-DEC-44. English Heritage RAF Photography

RAF/106G/UK/1420 3232-3233 15-APR-1946. English Heritage RAF Photography

NMR RAF/106G/UK/957 3024-3025 30-OCT-1945. English Heritage RAF Photography

Figure 22. Barbed wire obstructions extending into the intertidal zone at the Skern, east of Northam Burrows. The shadows cast by two paired transmitter masts and a receiver tower of RAF Northam radar station are clearly visible.

Figure 23. Slit trenches on the cliff top at Woolacombe, infilled (left, MDV 103257) and open (right, MDV103263). Note the Nissen-type huts on the cliffs above the beach. NMR RAF/106G/UK/1501 3277 13-MAY-1946. English Heritage (RAF Photography).

7.3.20 Four splayed v-shaped features and two roughly circular features are visible as pale cropmarks on aerial photographs taken in the 1940s on the cliff top at Woolacombe overlooking the beach from the north (Figure 23). The the v-shaped features are 6 metres wide and 20 metres in length and the circular features circa 8 metres in diameter, and one is visible as a low flat earthwork. A plausible explanation is that these are former slit trenches used in defence of the Woolacombe area in the earlier part of the Second World War. Some seem to have been obscured by vegetation between May and July 1946 suggesting that they had been infilled and reseeded after the threat of invasion had passed and the area became used for military training in the later war years. An oral history account gathered in 2003 supports this interpretation and adds a little colour to the story: 'Trenches were dug on the top of the dunes down to the Boathouse cafe and along the cliff tops, bordered with sand bags. Machine gun posts were set up in strategic positions in the village, one opposite The Red Barn (known then as The Bungalow Café), one at the end of Springfield Road and the toilet above the beach were even pressed into service as the windows were blocked up and a seaward facing machine gun was installed!!' (woolacombegirl, 2003). It is likely that below-ground remains of two of the v-shaped cropmarks survive, but the construction of a car park may have destroyed those closer to the beach.

7.3.21 The cropmarks are similar in size and shape to six narrow slit trenches visible as open zig-zag trenches just to the east (Figure 23). These cover half a hectare in total although the segments are disjointed. At 1.5 metres in width they can be interpreted as slit trenches used for military training in the Second World War, although their location above the beach indicates that they could also have been intended for defence in the event of invasion. These are not visible after 1958 and it seems that this area was landscaped and any trace of the trenches destroyed before 1989.

7.3.22 The only Second World War airfield within the survey area, RAF Chivenor (MDV51992) occupies a low lying terrace on the northern bank of the River Taw, immediately to the south of Braunton. By 1940 the Second World War airfield had effectively absorbed the earlier civil Barnstaple Aerodrome of the Barnstaple and North Devon Flying Club. The Second World War saw an explosion of development and aerial photographs of 1940 reveal the runways under construction and many of the surrounding field boundaries recently removed. An aerial photograph of 1942, not available to the survey but reproduced in Watkins' 1995 publication on RAF Chivenor, reveals the probably short-lived camouflage recreating the removed field boundaries that was painted across the site during the early war years.

7.3.23 Only those Second World War structures and features not depicted on the current Ordnance Survey Mastermap base map and which predate 1945-1946 were transcribed, including the airfield's dispersal hards. Of the five large 150 foot (circa 46 metre) diameter dispersal areas recorded for the airfield, two have been absorbed into the modern airfield infrastructure and have been variously used as a tennis court, car park and more recently a helicopter landing pad. Most have now been replaced by a modern housing development and Chivenor Business Park. Many small structures of Second World War date but unknown function have been recorded around the perimeter of the site, a number of which survive *in situ*.

7.3.24 The airfield was also the focus of the greatest concentration of pillboxes (probably type 22 or variations thereof) recorded during the survey, with the exception of mock-up assault training structures on Braunton Burrows and Baggy Point (see Section 7.4). Seven have been recorded around the perimeter of the airfield, with concentrations on the northern, landward side, and all have been recorded individually. Most had been removed by the 1960s and only two appear to survive as structures (MDV78321, MDV51991).

7.3.25 With the exception of the RAF Chivenor's black painted wooden accommodation billets or 'lines', most of which were sold in the early 1970s (Watkins 1995), the most numerous and distinctive wartime structures to be recorded as part of the airfield have been interpreted as above ground air-raid shelters. A concentration of five or six can be seen along the northern perimeter while at least twelve more can be seen distributed among the ancillary buildings and accommodation billets or 'lines'. Two larger, roughly square earthwork and concrete features each appear to have six slit entrances on one side, and might be larger communal air raid shelters (see Figure 24).

7.3.26 The largest surviving Second World War structures on site are probably the aircraft hangars located to the east of the runways. Eight large rectangular structures in two rows of four are probably the surviving four Bellman Hangars and four Hinaidi hangars.

7.3.27 All flying from Chivenor ceased in 1994 with the exception of search and rescue helicopters and a volunteer gliding school (http://www.raf.mod.uk/stations/chivenor).

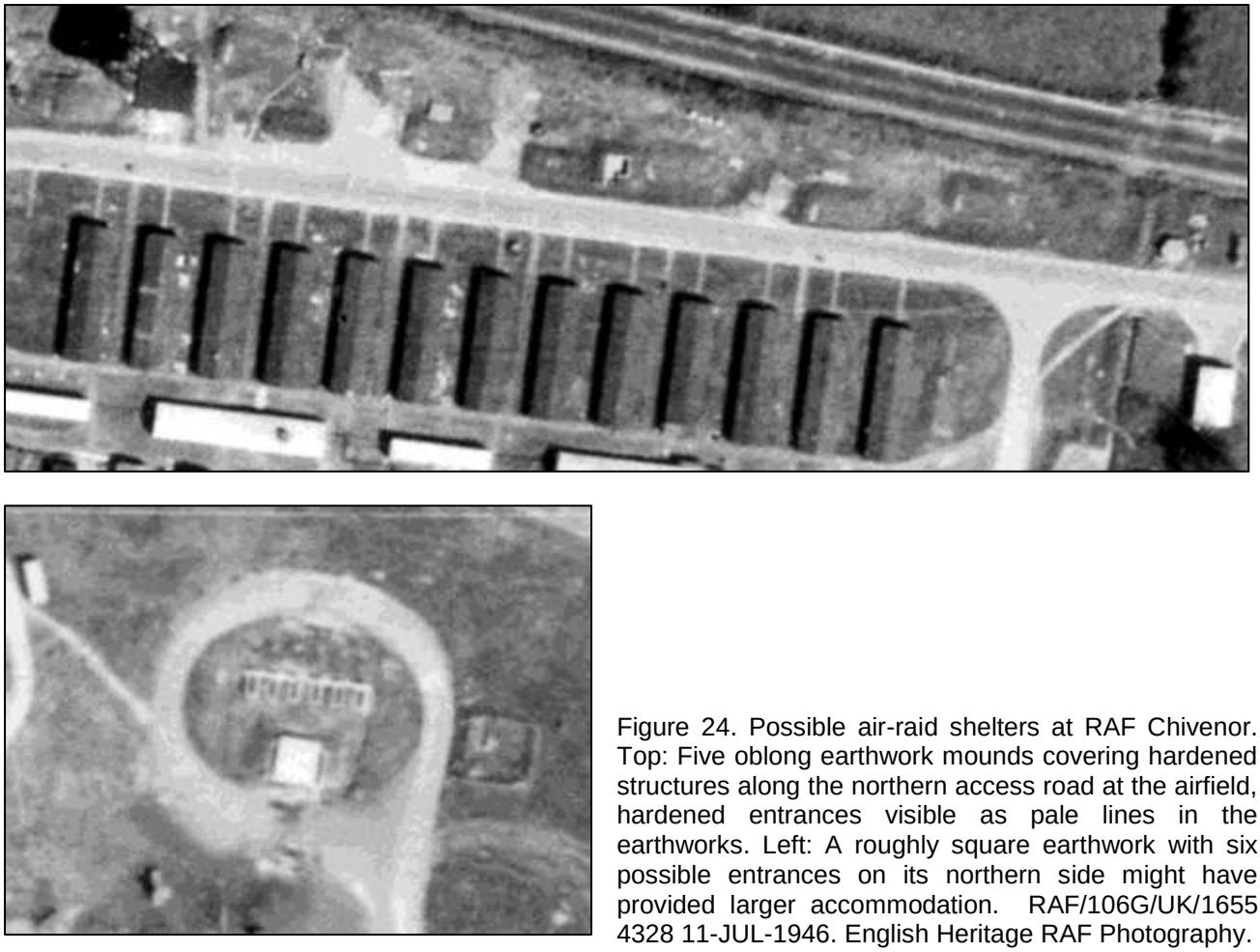


Figure 24. Possible air-raid shelters at RAF Chivenor. Top: Five oblong earthwork mounds covering hardened structures along the northern access road at the airfield, hardened entrances visible as pale lines in the earthworks. Left: A roughly square earthwork with six possible entrances on its northern side might have provided larger accommodation. RAF/106G/UK/1655 4328 11-JUL-1946. English Heritage RAF Photography.

7.3.28 A complex of earthworks and structures is visible on aerial photographs taken between 1945 and 1946 immediately adjacent to the former train line dividing Isley Marsh from agricultural land. The five main structures are similar in plan to heavy anti-aircraft artillery gun emplacements illustrated in Dobinson (1996: 117-119) and probably defended the Taw estuary, including RAF Chivenor airfield, against enemy aircraft. They are overgrown in aerial photographs taken in 1946, and are not visible on aerial photographs dating to 1956, when the field is cultivated, indicating deliberate removal. However some earthworks are visible on the site of two of the buildings in aerial photographs dating to 1980 and it is possible that slight earthworks or buried features survive. Three other rectangular structures, visible in 1940s aerial photographs adjacent to the hedge south of the battery are likely to be associated - perhaps camouflaged - huts for administration or domestic purposes. Four rectangular features in the south-east corner of the field may also be associated buildings, but it is possible they are of agricultural origin. A dark linear mark aligned north-west to south-east from the central structure to these structures may be a cropmark forming over a communications trench or perhaps just a track. Two of these buildings had been removed by 1956 and the third by 1980.

Figure 25. Anti-aircraft battery at Isley Marsh, visible as earthworks and structures in 1945 (detail bottom left), MDV102603. Pale marks are visible along one of the channels on the top right of the image (detail bottom right) and are discussed below, MDV102939. RAF/106G/UK/132 5123-5124 14-FEB-1945. English Heritage (RAF Photography)

7.3.29 Approximately 400 metres to the north-east of this complex, on the south side of an embankment on Home Farm Marsh, eight pale irregular features in a rough crescent shape are visible on aerial photographs between 1945 and 1946. The features are between 3 and 6 metres in length and 3 and 5 metres in width, and their layout and number are broadly consistent with Second World War anti-aircraft batteries known as Diver sites on the east coast of England, which can be found in marsh or reclaimed land for example at Beachy Head, Sutton Hoo and Foulness (Winton, pers comm.). Diver sites were constructed on the east coast of Engand, to combat attacks from the German flying bomb (Dobinson 1996), and plans of the sites include 8 platforms in a crescent formation. It would therefore be highly unusual to find a Diver-type site in North Devon and this interpretation is extremely tentative. The features are not visible on later available aerial photographs, but some remains that could help to clarify the character of these features may survive within the

Marsh. It is possible that the features are associated with the heavy anti-aircraft artillery site to the south-west, but a non-archaeological origin may be more likely.

Figure 26. Instow emergency battery, MDV 39540. NMR RAF/543/1017 PSFO-0182 SS4731/6 10-AUG-1960. English Heritage (RAF Photography)

7.3.30 The form of the previously documented emergency coastal battery site at Instow is clearly illustrated by oblique aerial photographs taken in 1960 (Figure 26). The battery is recorded as having been operational from October 1941, and in use until at least February 1942. It is visible as a complex of buildings on aerial photographs from 1945 to the 1960s. The two emplacements linked by typical enclosed corridors 3 metres wide, with a rectangular building incorporated at the point where these meet on the seaward side and a circular building, perhaps a defence post, attached to the landward side. An additional building close behind the southern emplacement appears rectangular on the 1940s aerial photographs but examination of 1960s aerial photographs suggest it is in fact L-shaped and this may be a store or a shelter. The emplacements are flanked by a sea wall, which appears to have a splayed opening at the southern emplacement presumably to improve the view and range into the estuary. Aerial photograph evidence suggests that the buildings had been mostly removed, or covered over, before 1970. However some structural material was visible on a site visit in 1994 and the line of one of the corridors is visible as an earthwork or partially buried structure on aerial photographs taken in 2010. A pale parch mark is also visible on the location of one of the emplacements, perhaps having formed over a structure or compacted ground. It is feasible therefore that substantial remains may survive below the ground surface.

7.3.31 In addition to a site identified by unverified sources as a small early radar station at Baxworthy (http://www.hartlandforum.co.uk/archivesproject/T53.htm; MDV102248) the HER records for three Second World War radar stations have been substantially enhanced by the survey. These are RAF Hartland RAF (MDV52951), RAF Northam (MDV102455) and RAF Wrafton (MDV54163).

7.3.32 RAF Hartland Point (MDV52951) is the only site of the three to have a post-war role. Established as a Chain Home Low (CHL) station in October 1940 and remaining in use as a Chain Home Extra Low (CHEL) station after 1942. Of the twelve permanent Second World

War radar stations to be established in Devon, only three were retained after the war to be upgraded in the early 1950s as part of the Rotor programme; Hartland was the only site on the north Devon coast (Passmore and Passmore 2011). The Second World War Chain Home Low station was substantially demolished to make way for the Cold War GCI (Ground Controlled Interception) station and only the concrete footings of the Cold War guardroom, technical block and radar array plinths can now be seen in the fields to the south-east of the current Civil Aviation Authority (CAA) radar tower, built on this site (Passmore and Passmore 2008, 36-43).

RAF/106G/UK/1631 4063 08-JUL-1946. English Heritage. RAF Photography.

North Devon AONB

RAF/58/1378 0014-0015 10-MAR-1954 English Heritage. AF Photography.

Figure 27. RAF Hartland Point. Anti-clockwise from top left: CHL station in 1945 (MDV52951); Cold War GCI station under construction (MDV80116); CAA tower, present day.

7.3.33 RAF Northam (MDV102455, see Figure 22), was established as a Chain Home site on the southern edge of Northam Burrows by early 1941. The development of the site is described in detail by Passmore and Passmore, 2008, and will not be repeated here other than to say that it is noted that the station housed a detachment of an RAF regiment to provide defence (Passmore and Passmore 2008, 58); this detachment may have been responsible for installing the barbed wire defensive infrastructure visible at the site and described in paragraph 9.3.19. The station was an extensive West Coast CH station, comprising earth covered transmitter blocks, two separate fenced complexes containing steel transmitter masts and earth covered receiver blocks with associated timber towers. The station was put on a care and maintenance basis (Stage 1) in 1944 but never resumed service.

7.3.34 The station infrastructure survives well and is arguably the best preserved radar site in Devon with many structures visible on Northam Burrows and on private land, but visible from the adjacent road (Passmore and Passmore 2011b).

7.3.35 The survey has accurately located and transcribed all parts of this extensive site, including some slighter components, such as the aerial halyard bases of the transmitter masts which survive in situ. It has also recorded previously unlocated elements which no longer survive, such as a possible standby mast (MDV102456) and probable transmitter block to the east of the former site (MDV102522), and the associated domestic complex to the south (MDV102453), improving the context and known extent of this site.

7.3.36 RAF Wrafton (MDV54163), designated station 13G and a child of the nearby RAF Chivernor airfield, was installed as a GCI station in 1941. Though earmarked for post-war trials the site was closed in 1946 and remained unused until the site was disposed of in 1958 (Passmore and Passmore 2008, 74-78). The aerial photographs can confirm that the principal radar mast, located to the south of Gallowell Lane, has been removed by 1953, but otherwise the site appears to remain relatively intact until the late 1960s after which the surviving radar station structures are converted into accommodation or incorporated into a holiday park.

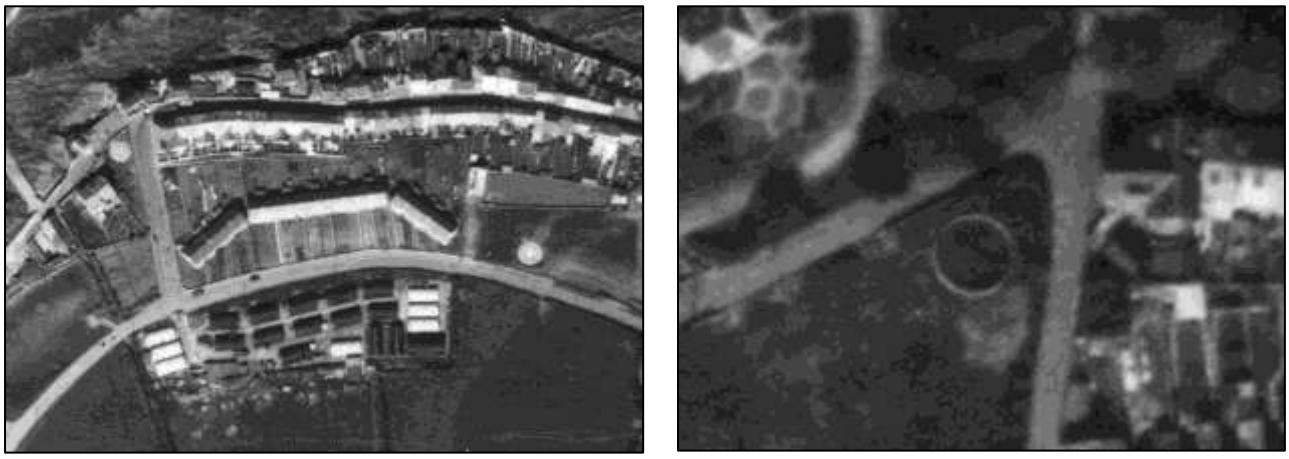


Figure 28. Emergency Water Tanks visible as pale circular structures to the north-east and north-west of the military camp at Appledore, MDV 102531 & 102533, and a water-filled example further to the east, MDV 102536. NMR RAF/106G/1420 3235 15-APR-1946. English Heritage (RAF Photography).

7.3.37 Two circular structures of approximately 9 metres diameter, visible on aerial photographs taken in 1946 near the military camp at Appledore, are interpreted as temporary water tanks, known as EWS (Emergency Water Supply) reservoirs, many of which were constructed throughout the country during the Second World War (Carpenter 2008: 45-47). Normally used in areas where water supply was disrupted due to air raids, in this instance the tanks may have been located close to the possible target of Appledore shipyards, providing a water supply to the fishing fleet and dock workers (Horner, pers.comm). They may have been set into the ground and appear to be empty of water in 1946. Not visible in aerial photographs taken in 1953 they were presumably removed soon after the war.

7.3.38 In total 22 EWS reservoirs were recorded during the survey. The majority were in urban contexts, where water supplies would have been at most risk of disruption. Five were observed each at Ilfracombe (MDV103127, MDV103131-3, MDV103143) and Barnstaple (MDV102956-60), although the survey covered only the historic core of the settlement and more might have been located in the fringes of the town. Three were recorded in both the environs of Braunton (MDV102616-18), four at Appledore (MDV102533, MDV102531 MDV102536, MDV102541) and three in the smaller settlement at Instow (MDV102593, MDV102579, MDV102577). A single example (MDV102805) was recorded at Northam. The high density of the reservoirs reflects the vulnerable location of these settlements close to military targets, potential landing areas and shipyards.

7.4 Thematic Results: Military and Defensive; Second World War Training

7.4.1 After the threat of invasion in the early part of the war had passed, it appears that beach defences were largely removed prior to the establishment of the U.S. Assault Training Centre (ATC) for Operation Overlord (D-Day) which covered a large area of the coast around Woolacombe (Bass 2005) and was operational between September 1943 and April 1944. It is no surprise that parts of the landscape appear from aerial photographs to have been transformed by the short-lived but sizeable influx of American troops and equipment. The area continued in use by the military for many years and Braunton Burrows remains important for Ministry of Defence training exercises.

7.4.2 Several significant areas of Second Word War military activity are apparent from aerial photography. The dune system of Braunton Burrows is a well known focus, but the survey has greatly enhanced the HER for this area and particularly for the intertidal areas of the Skern, Northam (MDV 102555), and Broadsands, between Crow Point and Horsey Island south of the dunes (MDV 102705), where previously very little had been recorded. A large proportion of the visible features are ephemeral structures and earthworks, and their removal or relocation is traceable through aerial photographs, but it is likely that remains of many are still present within the sands.

7.4.3 The U. S. Army plans of Braunton Burrows depict the locations of roads, individual ‘training aids’ and designated training areas. Many of the features are illustrated in Bass (2005), with a description of their use and current condition, but this report focuses on features that were previously unrecorded on the HER, or those where the survey has added significantly to their interpretation.

Figure 29. Explosions in the intertidal zone off Northam Burrows in 1944, part of military training exercises. RAF/106G/LA/88 FPO/0016 SS4531/21 31-DEC-1944. English Heritage (RAF photography).

7.4.4 Although many had been previously recorded a significant proportion of the records contained very little detail, and the survey was able to add information on extent, associated structures such as barbed wire, information on use such as the number, size and direction of craters, the type of materials, and to identify different types or styles of training structures. Additional structures not marked on the plans were also identified, although it was not always possible to establish their exact function. The coverage of aerial photographs of this area was extremely good in the 1940s, and this meant that a lot of detail could be recorded. Even small latrine structures were visible on some photographs.

7.4.5 Allied military activity brought an international flavour to North Devon in the Second World War. As described below the US Army ATC on Braunton Burrows and the surrounding area endeavoured to replicate the coastal defences allied troops would encounter in Normandy during D-Day.

7.4.6 The survey was able to locate many components of this training landscape identified by Bass (2005) such as the multiple rows of mock-up anti-tank obstacles, including scaffold and anti-tank ditch (MDV57292; Figure 31 I; Figure 36), the slow dismantling of which was also apparent in the post war years. This was arrayed to the north and south of a rifle range possibly created during prior to the establishment of the ATC in the early years of the Second World War by British troops, several firing platforms of which still survive as low earthworks (MDV57291; Figure 31 K).

7.4.7 Most of the 'training aids' depicted on U.S Army plans were mock pillboxes, constructed to familiarise troops with attacking this particular type of site and its surrounding defences. In

the south of the Burrows pillbox complexes 74059, 57349, 73990 and 102638 are good examples of how NMP has added to understanding; the training aids here comprise a central pillbox surrounded by a roughly circular barbed wire curtain typically 45 metres distant whilst further north they appear to have a double line of barbed wire 20-30 and 40-50 metres away with probable minefield on the approach. It is not clear whether this is a result of a different phase of training, or a contemporary variation in continental pillbox type.

7.4.8 To illustrate this, Figure 32 (left) depicts a small structure MDV 77540 circa 3.5 metres square and visible on aerial photographs taken in 1945. The structure seems to have been enclosed, at least on the east south and west, by an irregularly laid out curvilinear fence or barbed wire obstruction approximately 45 metres from the structure. This is one of three similar structures in the near proximity and is probably Training Aid 26 as depicted on U.S. Army plans of the Second World War military training area. It is likely to be a dummy pillbox and barbed wire curtain used to practise breaching barbed wire entanglements. The similarly shaped Range 19 nearby (MDV102500) is described by Bass (2005) as being used to teach and practice breaching barbed wire entanglements. A row of probable anti-tank obstacles to the south and west may be associated or could be part of a different obstacle. The structure was not visible on later available aerial photographs and is likely to have been demolished or obscured by shifting dunes in the immediate post-war period. Aerial photographs dating to 2001 show extensive ponds in the area, apparently created by large scale groundworks such as those undertaken for habitat restoration, and it is not clear whether or to what extent military remains were impacted by this activity.

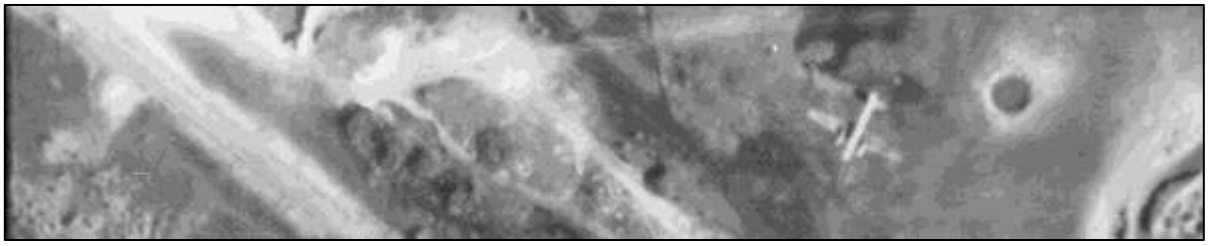


Figure 30. The eastern edge of Braunton Burrows, depicting the ‘American Road’ (left) and a crater on the right, with a low flying aircraft visible. RAF/106G/LA/132 5001 14-FEB-1945. English Heritage (RAF photography).

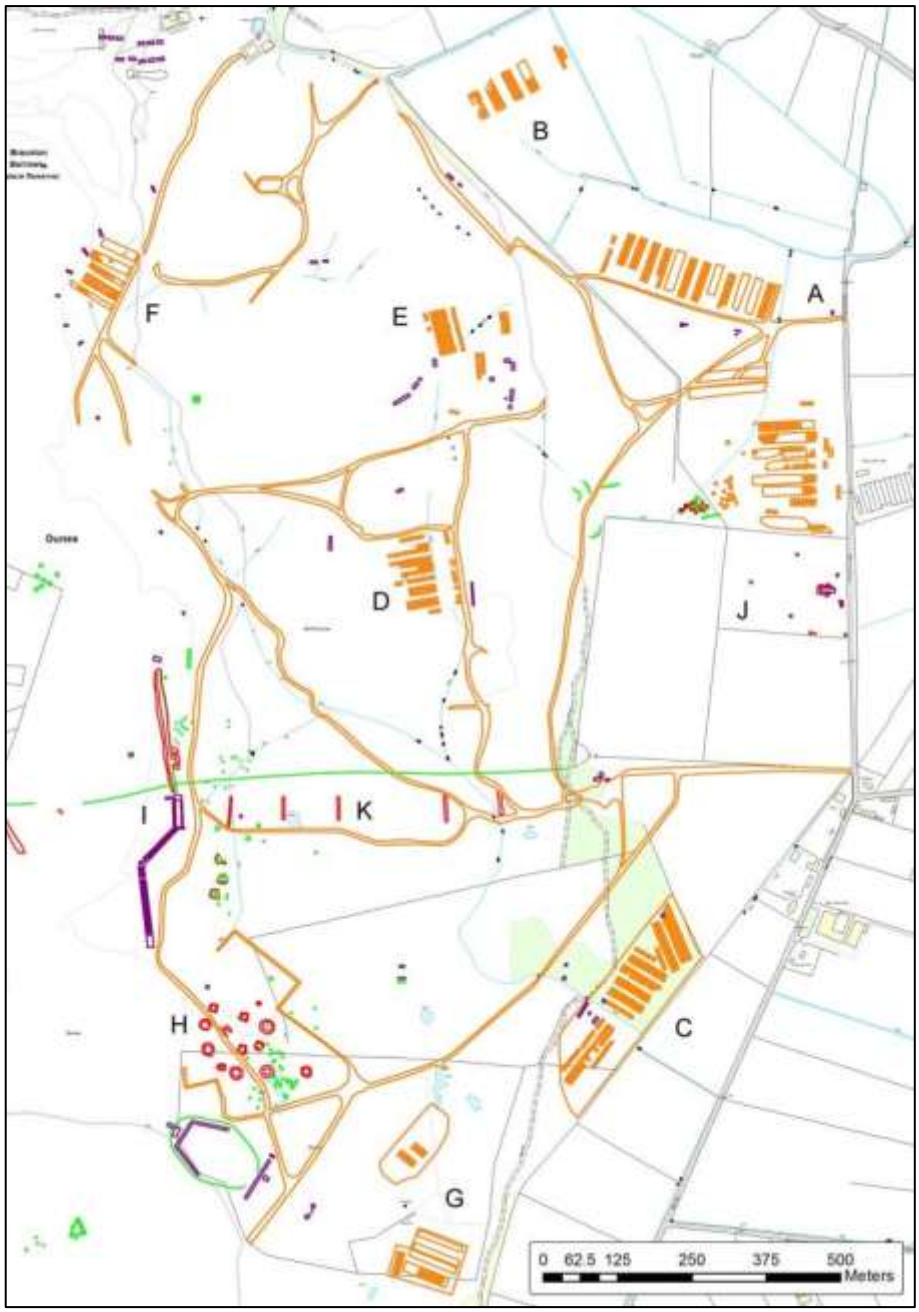
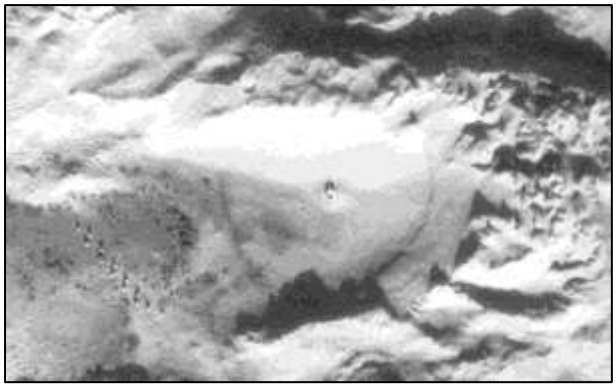
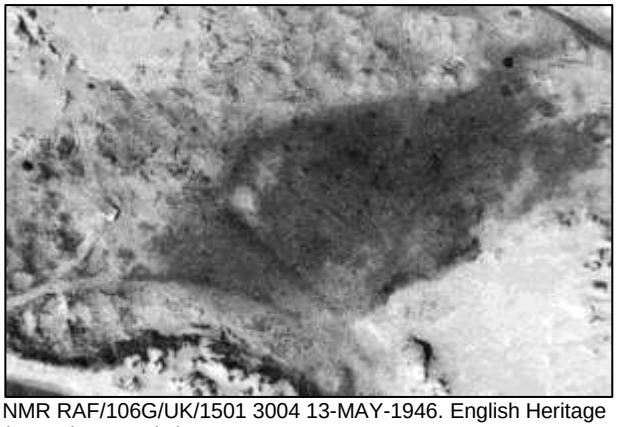


Figure 31. Military camps or 'Tent Cities' and other notable US Army ATC installations on the northern part of Braunton Burrows. Only those sections of trackway not depicted on the current OS Mastermap base map were transcribed.

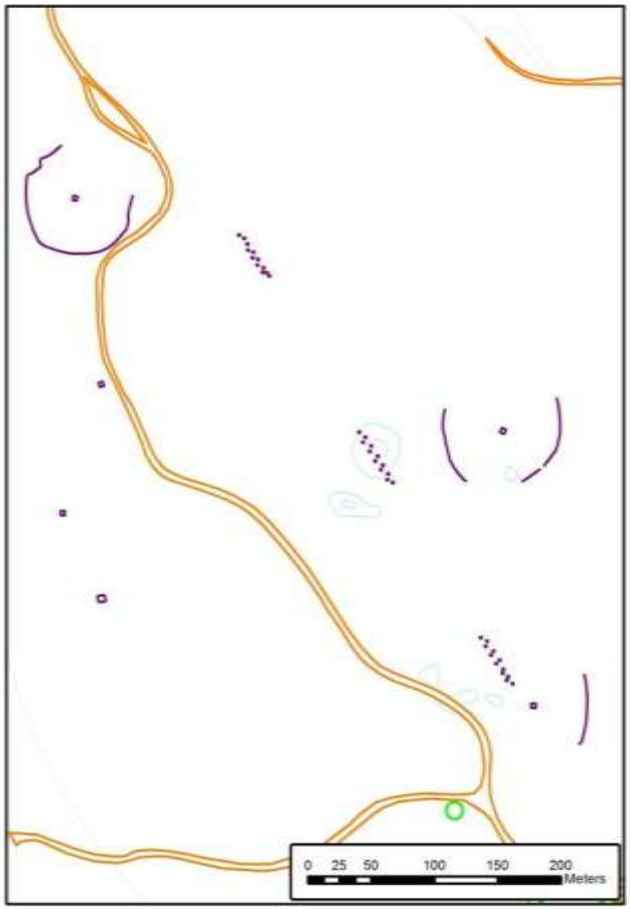
A: MDV52986
B: MDV52987
C: MDV57317
D: MDV57314
E: MDV57312
F: MDV57303
G: MDV102707
H: MDV57289
I: MDV57292
J: MDV52989
K: MDV57291



NMR RAF/106G/LA/102 5015 17-JAN-1945. English Heritage (RAF photography).



NMR RAF/106G/UK/1501 3004 13-MAY-1946. English Heritage (RAF photography).



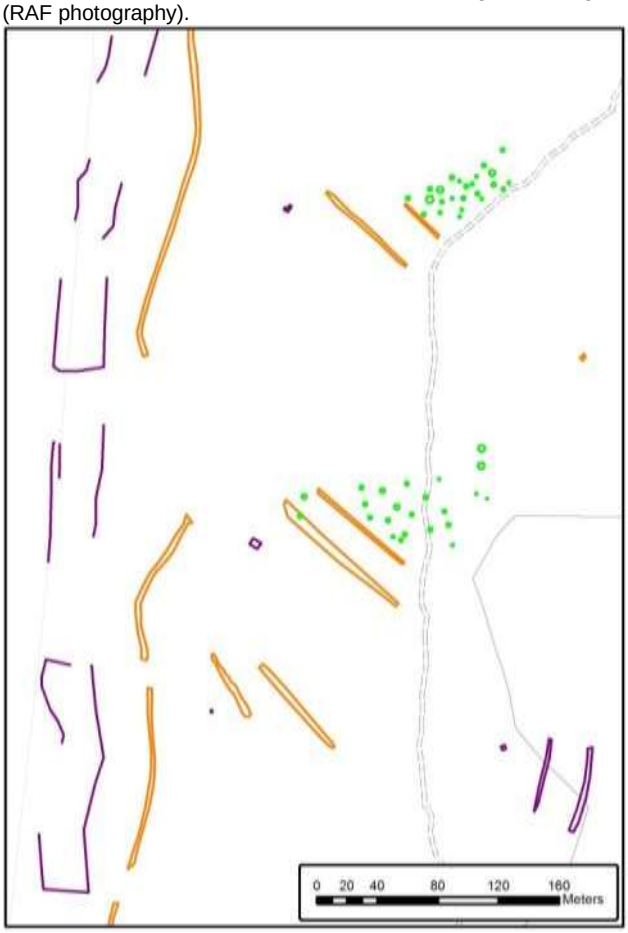


Figure 32. Military training structures on Braunton Burrows. Left: pillbox training aid MDV77540 with circular barbed wire curtain, the map illustrates the relationship between them and to the rows of anti-tank obstacles and road network. Right: pillbox training aid MDV 74059 with double barbed wire obstacle and craters, the map illustrates its relationship to similar complexes and to the road network on the west (seaward) side. The area outlined in purple corresponds to the 'danger area' marked on U.S. Army plans, probably the remains of a minefield from genuine anti-invasion defences in the early part of the war.

7.4.9 In contrast a small rectangular structure MDV 74059 circa 6 metres by 4 metres in size is visible on aerial photographs of May 1946 (Figure 32 right). The structure is likely to be a mock-up German pillbox and part of Training Aid 40. Two ephemeral parallel curvilinear structures 30 and 50 metres north-east of the structure and up to 100 metres in length may be barbed wire obstructions. A cluster of craters to the north east and over the linear features may have been created during training exercises that included live firing, or more

likely perhaps to have mimicked the anti-personnel mines around the pillboxes that the soldiers would later face on the Normandy beaches. The structures are not readily identifiable on later available aerial photographs and were probably demolished or obscured by shifting sand dunes following the war.

7.4.10 Other pillboxes, for instance at Barracane Beach, Woolacombe (MDV 103280, MDV 102282) and Croyde (MDV 103041), were also recorded during the project.

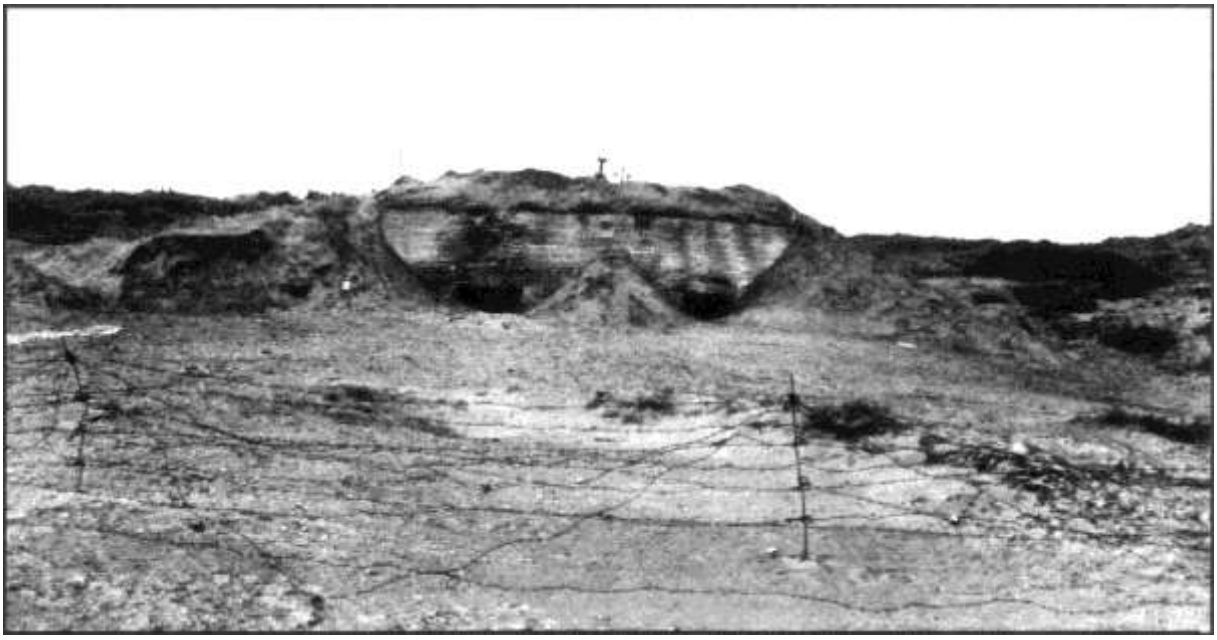
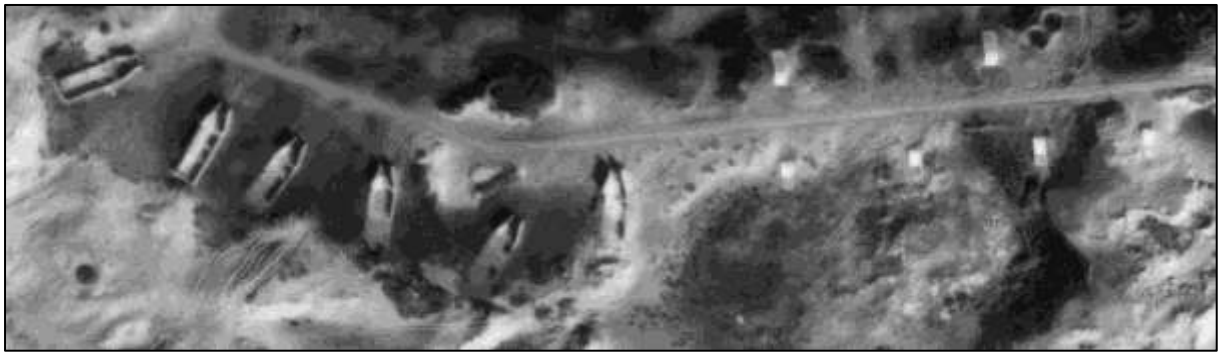


Figure 33. A mock pillbox at Woolacombe with barbed wire curtain, photographed in 1944 by a U.S. Army photographer. Photograph from Spirits of the Sand, Field Edition (2005: 5), by kind permission of Richard Bass.

7.4.11 Some of the most iconic and striking military features on the dunes are the landing craft mockups marked on U.S. Army plans. These are visible as sub-rectangular structures on the south of D lane on aerial photographs from 1945 to 2010 (Figure 34). At approximately 35 by 10 metres in plan, with tapered ramped openings to the north flanked by walling, they are consistent in size and shape with Landing Craft Tank (LCTs) mark 5 and mark 6. Used to practise amphibious landings of vehicles for Operation Overlord in 1944, they appear fairly complete in January 1945, with side and end structures of uncertain materials. However by February 1945 the rear sections of the four easternmost had been removed or have collapsed and the sides had all gone by 1952 leaving just the flanking tapered concrete walls at the fronts of the four easternmost structures upstanding to their full height. Use of the site by vehicles suggested by tracks visible on the photographs may have contributed to the collapse. The front superstructure of the easternmost LCT mockup appears to have collapsed between the 1960s and 1980s, but the other three seem to have retained theirs, which are still visible as structures on aerial photographs taken in 2010. The bases of all six appear to have split longitudinally between the 1960s and the 1990s, possibly a result of root action, as scrub growth established across the site. Lidar images

from data captured in 2006-2007 confirm that the remains of all six platforms survive and details of their condition in 2009 are given in the parent HER record MDV57287.

7.4.12 Aerial photographs illustrate the change from heavy use of these monumental structures to their decay and overgrowth by vegetation, but they remain poignant and atmospheric reminders of the thousands of troops who passed through the training centre on their way to D-Day.



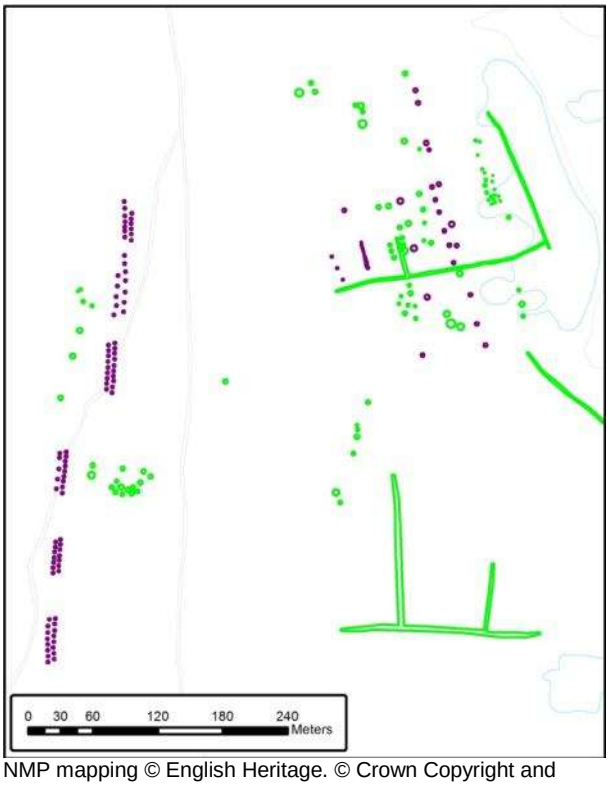
NMR RAF/106G/LA/132 5001 14-FEB-1945. English Heritage (RAF photography).

NMR RAF/106G/91420 3237 15-APR-1946. English Heritage (RAF photography)

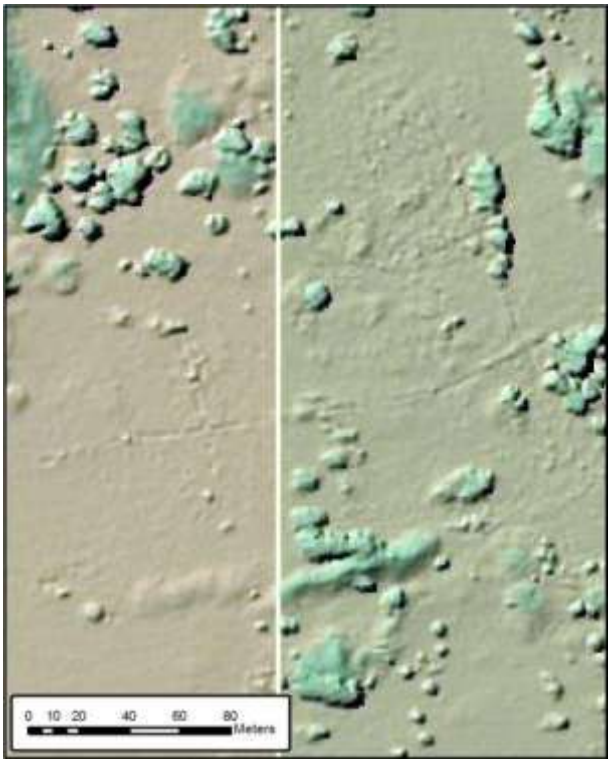
Photographs: Stephanie Knight 2008

Figure 34. Landing Craft Mock Ups on Braunton Burrows, MDV 102678, in 1945 and 2008. The central image shows actual landing craft in the intertidal zone at Instow in 1946.

7.4.13 Many of the other training sites were also visible as earthworks and structures on aerial photographs, for example the irregular ditch and bank MDV102633, probably part of the Engineer Demolition Range. Some of these are illustrated by Wasley, with images of soldiers undertaking training exercises to breach this type of obstacle (Wasley 1994, 132).



NMP mapping © English Heritage. © Crown Copyright and database right 2013. Ordnance Survey 100019783.



Lidar SS4534NE & SS4634NW Environment Agency D0072690 & D0072723 03-NOV-2006 to 03-FEB-2007 © Environment Agency copyright 2006-7. All rights reserved.

Figure 35. Remains of the Infantry Demolition Range on Braunton Burrows, MDV 102641, with anti-tank obstacles to the west, MDV 57294 (left). Lidar detail of demolition range earthworks in 2006-2007 (right).

7.4.14 Another probable demolition range is visible as a network of linear earthwork ditches, banks and pits on aerial photographs from 1945 and on images derived from Lidar data captured in 2006-2007 (Figure 35). A segmented wall and three lines of structures parallel to the wall are present, perpendicular to one of the ditches and parallel to another conjoining ditch. The pits are circular, between 1 and 6 metres in diameter, and many are also aligned approximately north to south, suggesting that they could be the sites of former structures that have been removed by explosives, or mark the former locations of mines. The visible extent of the wall is circa 25 metres long and 1.5 metres wide; it is unevenly segmented and this may also have been a result of explosives. The small structures could be dragon's teeth anti-tank blocks; troops at Braunton Burrows were trained in the demolition of these using explosives. At approximately 120 metres long the parallel rows of features could be mock anti-invasion defences intended to emulate anti-tank ditches. It is likely that these features are the remains of the Infantry Demolition Range marked on U.S Army plans of the period, and that three nearby linear ditch complexes of a co-axial form are additional ranges that were replaced by subsequent complexes or simply have not survived as well. The ditches and many of the craters are very likely to survive, although the structures are not visible on available aerial photographs after the 1940s and may have collapsed or been demolished by post-war military activity.

7.4.15 A complex of thirteen roughly circular and square earthwork emplacements, annotated H on Figure 31, was not depicted on the US Army plan of the ATC. Their overall plan is reminiscent of the arrangement of German Heavy Anti-Aircraft Artillery Batteries on the

Channel Islands (see Figure 37). This complex was therefore tentatively interpreted as a mock-up Heavy Anti-Aircraft Artillery German Battery constructed to train troops in the capture of such emplacements.

7.4.16 It has been suggested that, despite not containing any evidence of hardened structures, this site in fact replicated the German coastal battery at St Martin de Varreville behind Utah Beach in Normandy, the capture of which was an objective of the US Army 101st Airborne Division—the "Screaming Eagles". It may have been the 'special area' turned over to the 101st "in the nature of a rehearsal" mentioned in an ATC memo of April 1944 (R. Bass 2013, pers.comm.,18th Feb.).

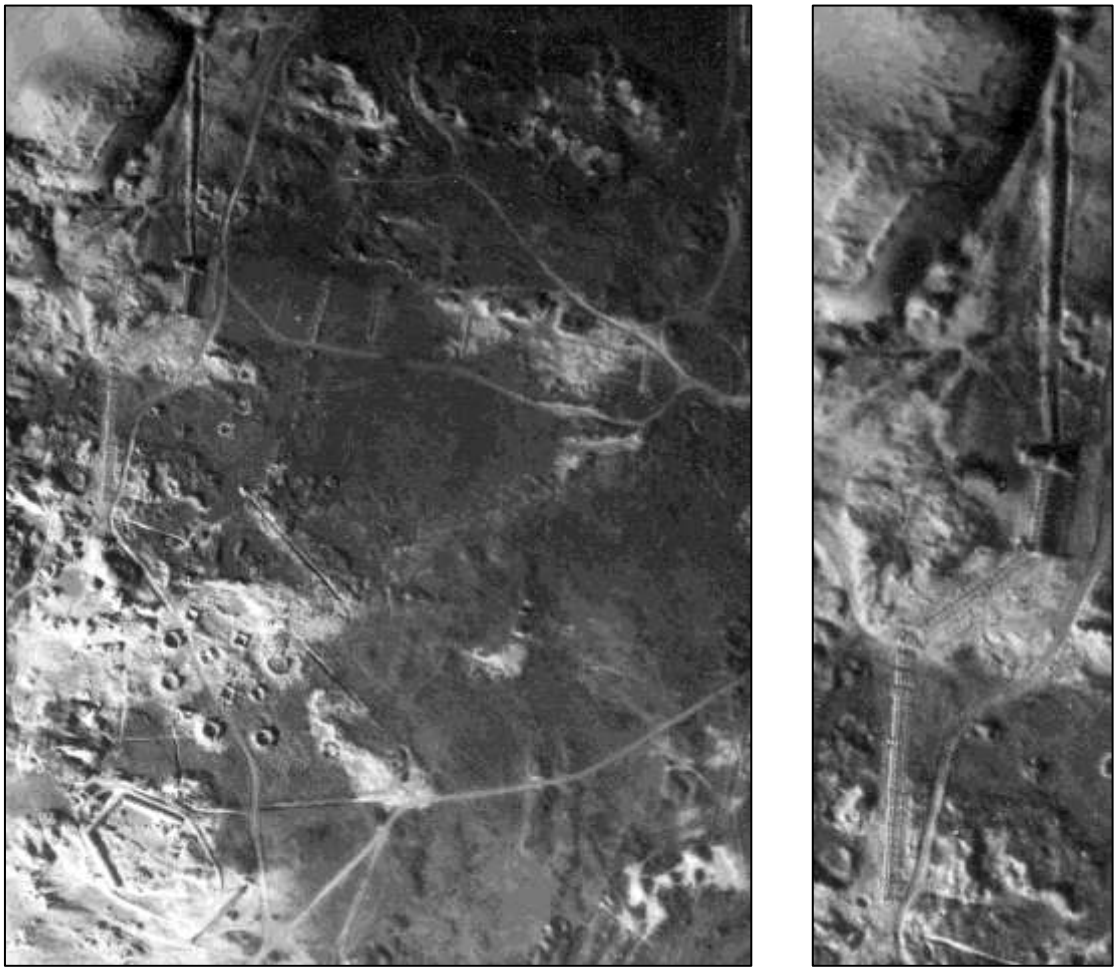
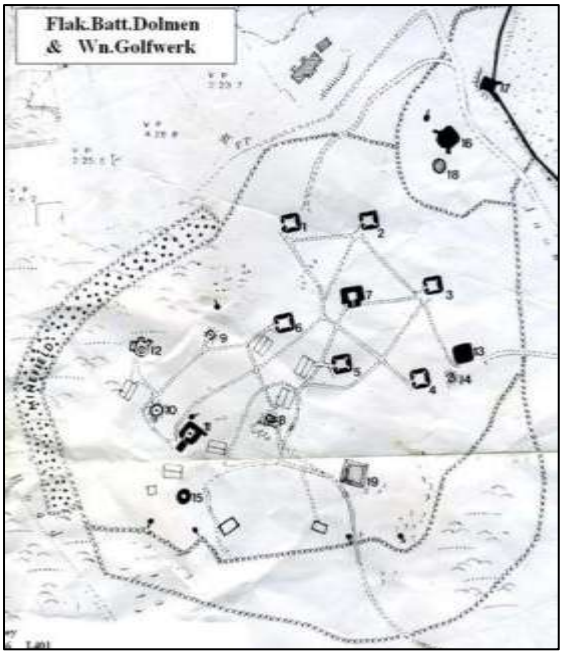


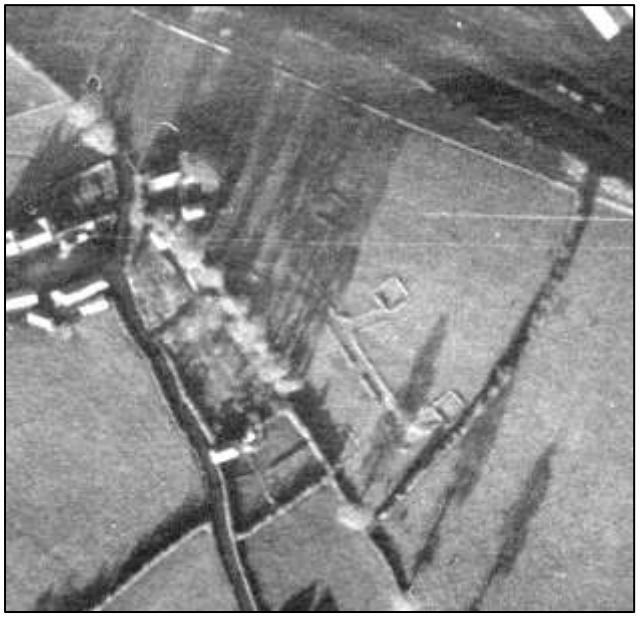
Figure 36. Extensive earthworks including mock-up anti-invasion defences on the US Army ATC, Braunton Burrows (left). Detail of mock beach scaffolding and mock anti-tank ditch (right). RAF/106G/UK/957 4023 30-OCT-1945. English Heritage RAF Photography

RAF/106G/UK/957 4023 30-OCT-1945. English Heritage RAF Photography



© Festung Guernsey/Guernsey Fortifications 1940-1945.

Figure 37. Unidentified earthworks on the on the US Army ATC (left). German Heavy Anti-Aircraft Dolmen battery on Guernsey (right).



RAF106G-UK-957 3007 30-OCT-1945. English Heritage RAF Photography

RAF/106G/UK/1420 3416-7 15-APR-1946. English Heritage RAF Photography

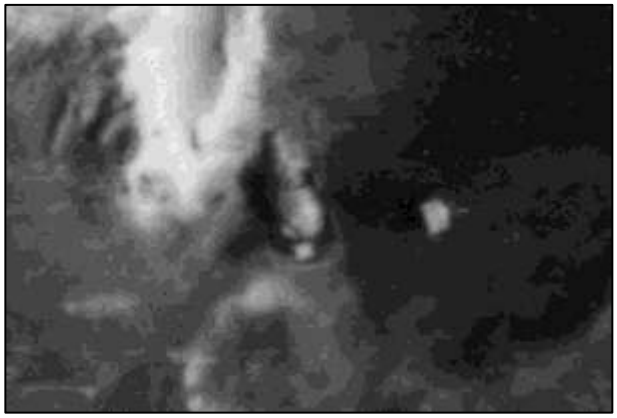
Figure 38. A possible US Army half heavy anti-aircraft artillery (AAA) gun site near Barnstaple (MDV57480).

7.4.17 A second unusual air-defence site has been recorded on the south bank of the Taw, at Sticklepath, Barnstaple. Four rectangular emplacements roughly ten metres square are arrayed around a central reveted or embanked trackway, circa 150 metres long. By October 1945, the date this site is first visible on the available aerial photographs, no structures are visible within the emplacements or in the surrounding area, but the emplacements and track are defined by upstanding embanked earthworks (Figure 38, left).

By April 1946 an effort has been made to deliberately level the site (Figure 38, right) although the outline of the site remains apparent as low earthworks for some years.

7.4.18 This site would be unusual for a British heavy anti-aircraft artillery site (HAA) and Roger JC Thomas suggests that it might be a U.S. Army heavy anti-aircraft artillery (AAA) gun site associated with the Assault Training Centre at Braunton Burrows and Woolacombe. Full batteries of this type consist of eight guns, as at East Blockhouse Battery, Angle, Pembrokeshire and it might be that the Sticklepath site is a half battery, installed to provide a training site for American troops stationed in the area at the Woolacombe/Braunton Burrows ATC. Many such sites were moved to the south coast just before D-Day as part of the Diver deployments (pers. comm. Roger JC Thomas) which might account the absence of site infrastructure. However, Richard Bass feels this is unlikely, stating that the main US Army anti-aircraft were located in the vicinity of Braunton Camp (Figure 50), although the survey did not record any evidence of such emplacements (R. Bass 2013, pers.comm.,18th Feb.).

NMR RAF/106G/LA/102 5015 17-JAN-1945. English Heritage (RAF photography).



NMR RAF/106G/LA/132 5001 14-FEB-1945. English Heritage (RAF photography).

Figure 39. Two examples of the numerous previously unrecorded sites on Braunton Burrows, MDV102638 (left) and MDV 102682 (right)

7.4.19 Several further sites do not correlate directly to sites marked on the U.S. Army plans, and may have been amendments or new sites constructed as a result of new intelligence. For instance, the sub-square probable barbed wire enclosure is visible as an indistinct dark structure, of circa 45 by 50 metres in plan, on aerial photographs dating to 1945 (Figure 39 left). Internally a circuit of craters approximately 7 metres from the enclosure boundary are visible as circular earthworks between 1.5 and 4 metres in diameter. The exact function of the enclosure is not known but it is highly likely to be a component of the U.S. military training camp and therefore to have a Second World War date.

7.4.20 Although the enclosure itself is not visible after the 1940s, suggesting removal of the superstructure, the craters are visible as earthworks on aerial photographs until 1956. After this they become scrub-filled and are visible as circles of dark vegetation on aerial photographs dating to 1967. On later aerial photographs well-established scrub is visible in

this location, although not in the wider vicinity where shallow ridges suggest mechanical scrub removal or ground preparation has taken place to encourage habitat restoration. Earthworks may survive beneath the vegetation cover.

7.4.21 Another previously unrecorded and enigmatic site is illustrated in Figure 39 (right). A sub-rectangular fence enclosing an area of roughly 25 by 12 metres, within which an irregularly shaped building is located, is visible on aerial photographs taken in the 1940s. The building appears to have rounded sides or sand or earthwork blast protection, and an entrance at the south-west and north-east sides. Its maximum dimensions are 20 by 8 metres, and a smaller structure measuring approximately 5 by 3 metres is also visible circa 20 metres to the south-east. Approximately 60 metres to the south-west is a linear earthwork feature aligned north to south which appears to be a track, 80 metres in length and 4 metres wide. The function of these features is not known; they are not marked, but are close to an area numbered 96, on U.S. Army plans, and have been interpreted as Second World War date military buildings, perhaps associated with the training area or perhaps the decoy airfield established in the earlier part of the war. The building and enclosure are not visible on aerial photographs dating to 1952, and had presumably been obscured by sand. Intruigingly Richard Bass recalls locating this site in the early 1990s, at which time it survived as red-brick walls reduced to ground level (R. Bass 2013, pers.comm.,18th Feb.). Bass also suggests the remains were suggestive of RAF construction, perhaps indicating association with RAF Wrafton radar station, approximately 2 kilometres to the north-east. The site of the building is scrub covered on aerial photographs from 2001, but immediately to the east narrow parallel linear earthworks may have been caused by mechanical scrub ripping or ground preparation, and have potentially been impacted by invasive groundworks. The linear feature however is visible as an earthwork ditch on images derived from Lidar data captured in 2006-2007, and could possibly extend further to the south.

7.4.22 Broadsands to Crow Point was a strong focus for military activity into the 1950s, and some interesting features are visible on the aerial photographs covering this area. Replica Normandy beach defences, numerous other structures, pits and tracks are visible on aerial photographs dating from 1945 to 1946, but only a few are visible on later aerial photographs taken in the 1950s, and only a very few manifest in a recognisable form above the ground surface in 2010. Detail of the individual features is available in the HER, although sometimes it was not always possible to identify exact locations, for example for the anti-invasion blocks with embedded poles visible on the foreshore on oblique aerial photographs of 1945. The area continued in military use after the Second World War, and some of these later features are described in Section 7.5.

Figure 40. Earthworks associated with military training at Broadsands, MDV 102723NMR RAF/106GG/LA221 5004 15-APR-1945. English Heritage (RAF photography).

7.4.23 Numerous sites where specific activities could not be closely defined were recorded. For example Figure 40 shows two groups of earthworks visible on the foreshore at Broadsands on aerial photographs taken in 1945. A group of circular pits, just over 1 metre in diameter and in a rough grid of four by six rows is located immediately to the west of a six parallel linear ditches, each approximately a metre in width. The exact cause or function of the ditches is uncertain but the pits are likely to be the result of exploded mines, possibly from early Second World War anti-invasion defences but more likely to be associated with U.S. Army training activities for Operation Overlord. The earthworks are not visible on later available aerial photographs, presumably having been levelled by natural processes.

Figure 41. Possible beach scaffolding, or possibly replica German beach obstacles MDV 102729 (top right), and anti-tank obstacles MDV 102728 (bottom left) on Broadsands. NMR RAF/106G/LA/267 FPO/0011 SS4632/7 09-MAY-1945. English Heritage (RAF photography).

7.4.24 In other cases interpretation is more straightforward. Two scaffold structures, circa 8 by 3 metres and 24 by 2 metres in plan, roughly 5.5 metres square, are visible on aerial photographs between 1944 and 1946 (Figure 41, right). They are closely parallel to the channel and rather than being a remnant of beach scaffolding used in coastal defence, they are more likely to have been used during military training, perhaps mock 'ship's sides' for U.S. troops to practice descent into landing craft. A photograph of troops next to a scaffold published by Bass could be this same structure. They are not visible on later available aerial photographs, although some remains may survive buried or embedded in the sand; a seabed obstruction has been reported by fishermen in the vicinity.

7.4.25 Nearby (on the left of the photograph, Figure 41) a row of 14 small structures, less than 1 metre across, are visible on aerial photographs dating to 1945 and 1946. They are likely to be anti-tank obstacles used for military training by the U.S. Army. They are not visible on

later aerial photographs and are likely to have been removed or covered by sand. They are probably too small to be the obstacle to shipping recorded by the U.K. Hydrographic Office in the vicinity.

7.4.26 Numerous other structures and earthworks were observed in this area on aerial photographs taken during and immediately after the Second World War. Only some are illustrated and discussed here, but many others such as barbed wire enclosures, concrete anti-tank obstacles and explosion damaged walling are recorded in the HER. Similar rows of obstacles at Instow are likely to have been used for training activities; Figure 42 shows these in the intertidal zone.

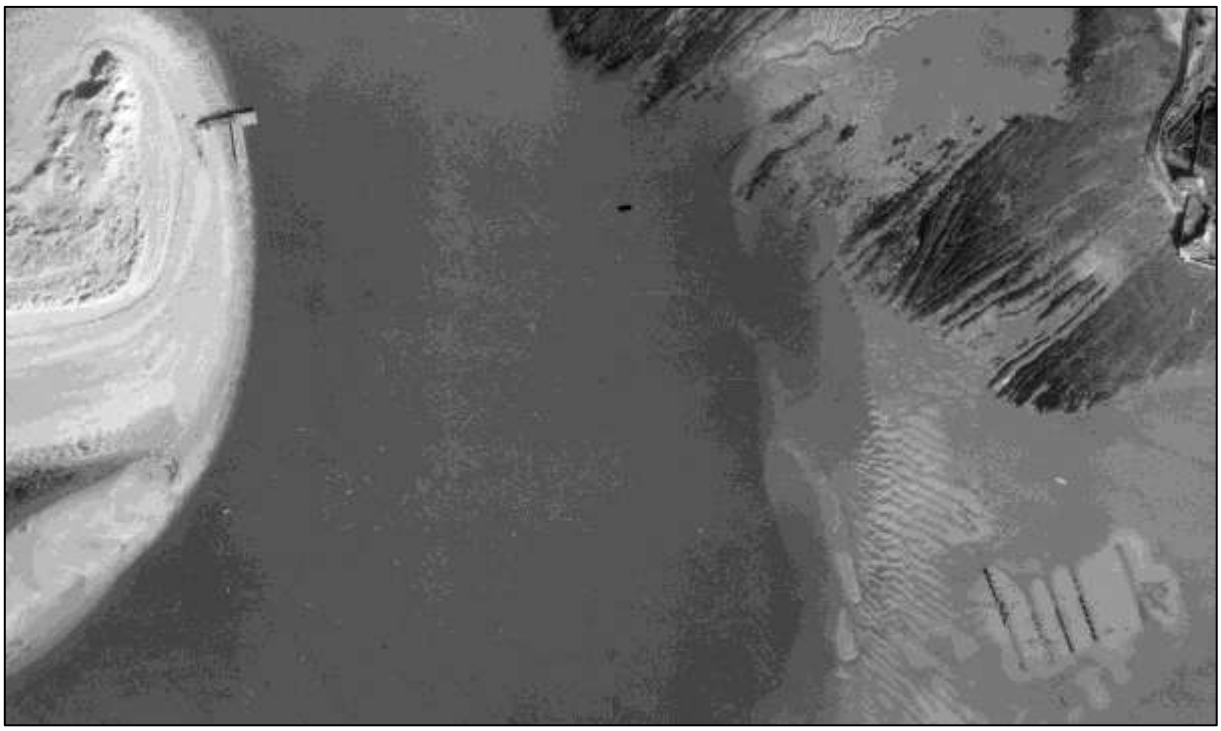


Figure 42. Crow Point (left) with jetty, MDV 102743, and training obstacles at Instow (bottom right), MDV 102587. The emergency battery MDV 39540 is just visible top right. NMR RAF/106G/LA/102 5001 17-JAN-1945. English Heritage (RAF Photography).

NMR RAF/106G/LA/221 5029 15-APR-1945. English Heritage (RAF Photography).

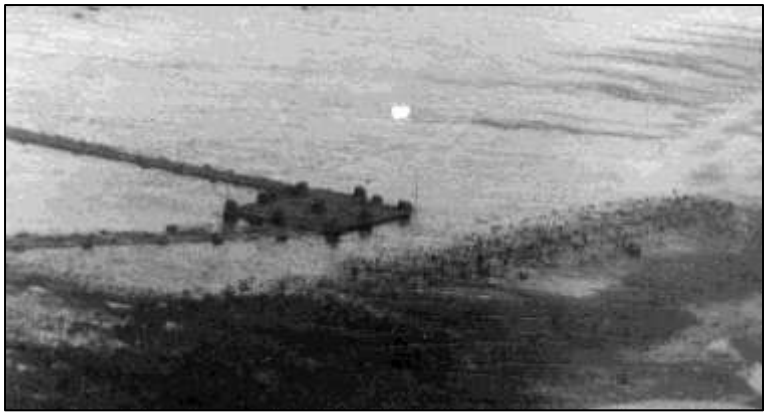
Next Perspectives PGA Tile ref: SS4631 & SS4632 22-MAY-2001. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™. NMP mapping © English Heritage.

Figure 43. Assembly Area for embarkation exercises at the Assault Training Centre at Braunton Burrows, MDV 102736 (top); the same area in 2001, demonstrating the extent of coastal change (bottom).

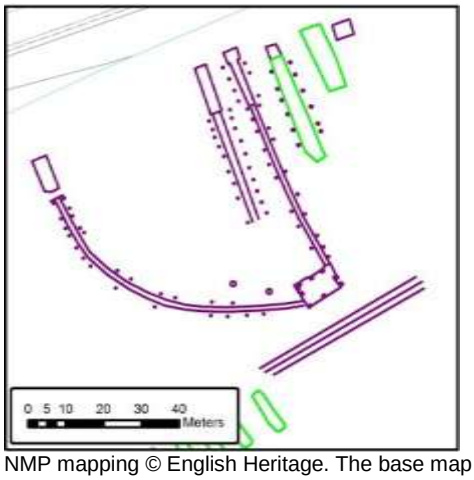
7.4.27 Crow Point was used for embarkation for waterborne landing training and two main areas contain structures visible on aerial photographs that can be interpreted as directly associated with this type of exercise. A T-shaped structure is visible on the foreshore on aerial photographs taken in January 1945. The two elements are between 40 and 50 metres in length and circa 10 metres wide and could be a grounded barge noted in this location (Bass 2005: 30). It is not visible in aerial photographs taken in February 1945, and was presumably removed once no longer required.

7.4.28 Sections of earthwork trackway, several structures and poles of visible on aerial photographs of 1945 are likely to be components of the Assembly Area for embarkation exercises within the U.S. Army's Second World War Assault Training Centre, depicted on an unattributed plan (Bass 2005: 23-24). The complex covers approximately 200 metres at Crow Point. It appears that the structures were already partially removed or dismantled by April 1945 and much of the area has since been lost to coastal erosion. However some structures are still visible on aerial photographs taken in 2010 and sections of earthwork may also survive.

7.4.29 Several components can be distinguished in Figure 43 (top). The flat parallel concrete structures (top centre) may be an alternative embarkation point (MDV 102734), the pale probable concrete platform bottom left (MDV 102738) was probably a hut base for the beach office from which operations were controlled, as described in Bass (2005: 23), and the two small dark narrow structures on the dunes (MDV 102741) correspond to the locations of latrines marked on a restricted map reproduced by Bass (2005; 24). It is encouraging to be able to identify and map these sites but with the recognition that many may already have been lost to the sea.



NMR RAF/106G/LA/88 FPO/0052 SS4531/21 31-DEC-1944. English Heritage (RAF Photography).



NMP mapping © English Heritage. The base map is © Crown Copyright and database right 2013. Ordnance Survey 100019783.

Figure 44. Platform with barbed wire structure MDV 102710 in the intertidal zone at Broadsands.

7.4.30 Another possible embarkation point is visible as a structure on Broad Sands. A platform, circa 7 by 10 metres, linked to three rectangular platforms further up the shore by a double line of what appear to be concrete slabs, is visible on aerial photographs taken in 1944-1945 (Figure 44). An additional two or three similar features are visible to the east, but with a rectangular depression on the seaward side, suggesting that a roadway or platform may have been removed. The roadways are flanked by small structures, possibly lights. On the

south-east of these features is an ephemeral structure 4 by 50 metres, with three rows of posts longitudinally, perpendicular to the shore. This is a barbed wire entanglement mimicking the beach obstructions found in Normandy, used by the U.S. Army during training for Operation Overlord, and the roadways may have been to enable vehicle access to this area. The structures appear to have been removed by 1946 but the sites of the platforms are visible as shallow rectangular earthwork pits. These have probably been levelled by natural processes since as they are not visible on later available aerial photographs.

NMR RAF/106G/LA/267 FPO/0011 SS4632/7 09-MAY-1945. English Heritage (RAF photography).

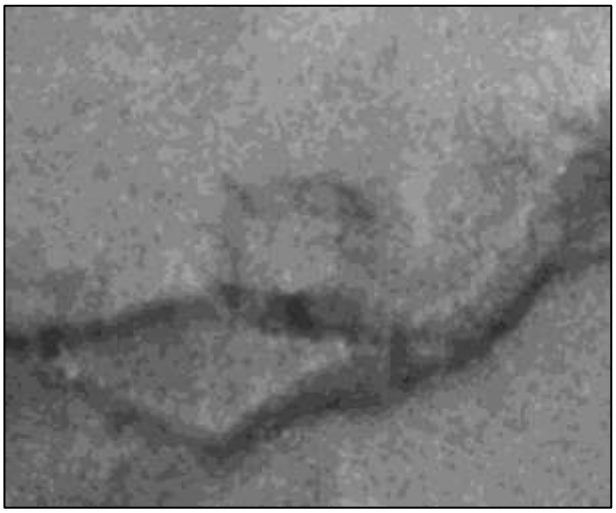
Figure 45. Mock anti-invasion defences known as 'Czech hedgehogs' or 'Horned Skullys' at Broadsands (top), MDV 102731, and their genuine counterparts on the beach at Pas de Calais under inspection by Field Marshall Rommel in April 1944, in an Armed Forces propaganda photograph, held by the German Federal Archives.

7.4.31 Particularly interesting to see are the mock German defences including the anti-tank obstacles in Figure 45 that are visible across a large area of the foreshore on aerial photographs between 1944 and 1946. The main concentration is a rough grid, circa 75 by 45 metres, of structures that can be identified as ‘Czech Hedgehogs’, obstructions constructed of metal girders, with an area of scattered concrete 'coffins' to the west. Both types were used on the Normandy beaches and the structures at Braunton were used by the U.S. Army in the Second World War to practise beach landings for Operation Overlord.

7.4.32 Associated features, such as a four post platform, are visible on some of the oblique aerial photographs taken in 1944, although their exact function is not known. The transcribed locations are a snapshot dating to January 1945, but the structures appear to have been rearranged between 1945 and 1946 resulting in two defined clusters, indicating that their positions were not fixed. They are not visible on later available aerial photographs and are likely to have been removed soon after the war, although some remains may be buried within the sand.

7.4.33 Robert Capa’s famous photographs of American troops on Omaha Beach on 6th June 1944 include several where ‘Czech Hedgehog’ beach obstacles are visible, being used by soldiers to shelter from machine-gun fire (Magnum Photos 2012: PAR121454).

7.4.34 Much activity, including more Czech Hedgehogs, could be traced on aerial photographs of the intertidal area known as the Skern at Northam. Explosions, possible firing ranges and targets, lines of possible barbed wire, minefields and other difficult to identify structures were visible on some extremely oblique and difficult to rectify military aerial photographs (see Figure 29 at start of section). These all testify to intensive wartime activity in this now calm and apparently ‘natural’ area, and many concrete anti-tank obstacles are still visible. Some stand proud of the surface and others are well embedded in the sand of the intertidal zone, whilst others appear to have been painted white and relocated for use as markers on Northam Burrows (Figure 46).



NMR RAF/540/1141 F21 0058 06-JUN-1953. English Heritage (RAF photography).

NMR RAF/106G/LA/88 FSO/0018 SS4531/21 31-DEC-1944. English Heritage (RAF Photography).

Photographs: Stephanie Knight

Figure 46. Second World War structures on the Skern, scaffold (top left) in 1953, MDV 102557, possible target (top right) in 1944, MDV 102569, and some of the anti-tank obstacles in 2013 (below), MDV 102564.

7.4.35 One more readily identifiable, and long lasting feature is the scaffold structure in the northern area of the Skern, roughly 5.5 metres square, visible on aerial photographs in the 1940s and 1950s (Figure 46). It is sited within a small channel and rather than being a remnant of beach scaffolding used in coastal defence, it is more likely to have been used during military training, perhaps for troops to practice descent into landing craft during the latter part of the Second World War. An indication of the structure is visible as a dark vegetation mark on aerial photographs up to at least the 1980s suggesting that some remains may survive buried in the sand. Similar structures (see Figure 47 below) appear to have been removed soon after the war.

7.4.36 A barrel shaped feature, lying on its long side and with a cross marked on one end is visible on the Skern on several aerial photographs taken in 1944 (Figure 46, right), possibly with additional similar features in the background. It is interpreted as a Second World War target. The structure is not visible on later aerial photographs and was presumably removed soon after the end of the war. It was not possible to accurately rectify and transcribe this and some other features from some of this run of photographs and the HER location for this site is approximate.

Figure 47. Craters in the foreground and in the background two probable military training structures, one possible scaffold or obstacle top right (MDV 102571) and a possible anti-tank obstruction top left (MDV 102568). RAF/106G/LA/88 FSO/0007 SS4531/21 31-DE C-1944. English Heritage (RAF Photography).

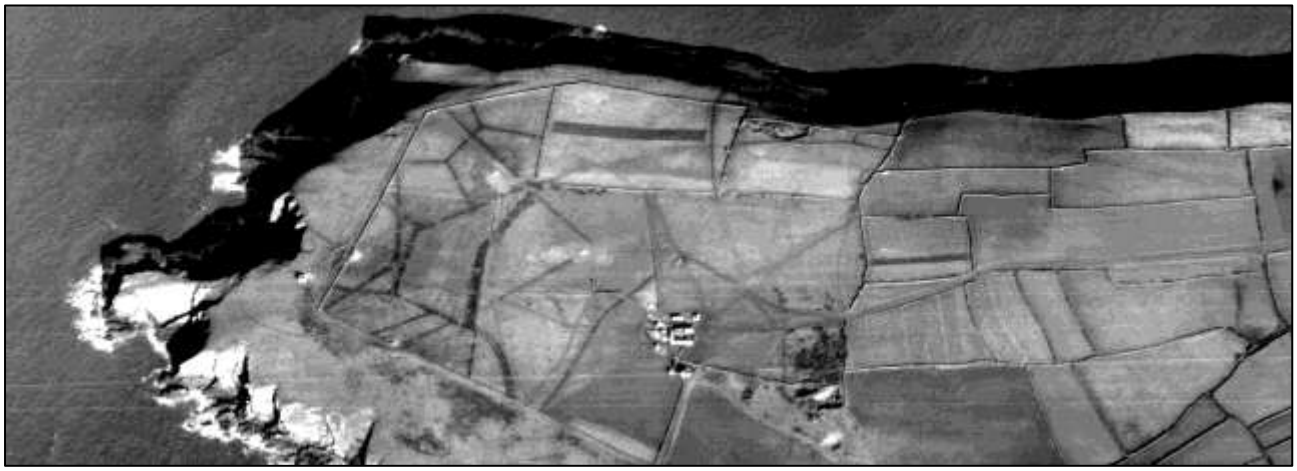
7.4.37 Area F of the ATC training area comprised a small, self-contained assault range between Croydhoe Farm and the sea cliffs at Baggy Point, intended to simulate the conditions assault companies with supporting tanks would face in assaulting well defended rocky coastlines (Bass 1996). To this end, the training area comprised mock-up anti-invasion defences, including 'hardened' structures such as ten mock-up pillbox structures, an observation building and a troop shelter. In fact, the structures bear no resemblance to German fortifications (pers. comm. Roger J C Thomas). All visible structures were individually recorded, including three which were demolished by the National Trust who own the land by 1964 (Bass 2005, 91-94).

7.4.38 The added value of the NMP transcription can be seen in the record of more ephemeral evidence of the Assault Training Centre, which adds to the understanding of how this site operated and the impact it had on the landscape. Figure 48 illustrates the site in February 1945. A temporary military track approached the site of Croydhoe Farm from the east, cutting a swathe up to ten metres wide through the field boundaries, most of which now have been reinstated. To the west of the farm a complex pattern of barbed wire entanglements was still apparent in the dark lines of vegetation which cross the site, amongst which dense patterns of craters can be seen. The craters are concentrated in the area of the densest barbed wire obstructions, around Training Aids F1 to F3, and were probably created by live mortar fire. All evidence of the barbed wire has been removed and craters infilled by May 1946.

7.4.39 The infrastructure required to support this phenomenal training effort was, as can be expected, substantial, dominating the landscape as seen through the 1940s aerial photographs. The road network across Braunton Burrows (partly shown in Figure 31) was extensive and in some areas the metal rods forming the basis of the route are still visible. Around Braunton and the wider area the former locations of numerous temporary military camps, known as 'tent cities' due to their large size (Wasley 1994: 130) were visible as cropmarks highlighting the lines of removed tents in the immediate post-war period (Figure 31, Figure 49).

7.4.40 A more permanent campsite constructed for training troops is described below. Bass (2005: 6) describes a permanent camp 'just outside Braunton' … '505 Nissen huts for quarters,

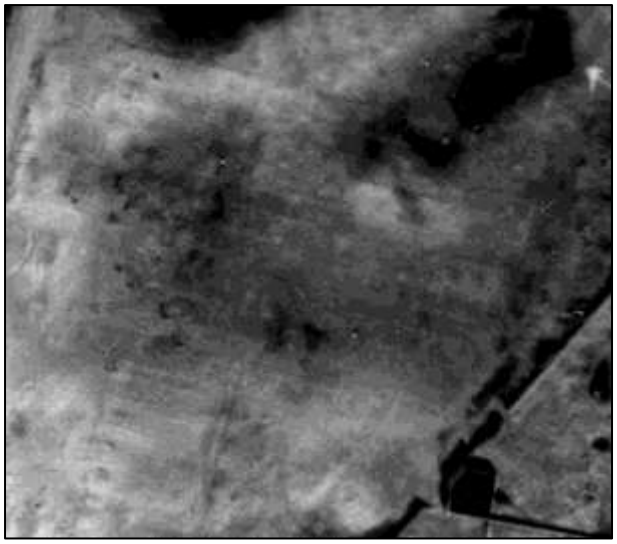
dispensaries, showers, ablutions and mess halls to comprise a camp capable of housing 4250 men. We laid 5000 feet of sewer line and 8700 feet of water line.'



RAF/106G/LA/132 5009 14-FEB-1945. English Heritage RAF Photography

Figure 48. Area F of the US Army ATC. Baggy Point. Craters and the layout of barbed wire obstructions visible in 1945 (above). Training Aid 7F, photographed on April 3rd 2003 (left) Photograph: Roger J C Thomas.

7.4.41 Covering over 32 hectares between Braunton village and Braunton Burrows, Braunton camp is the most extensive semi-permanent Second World War military camp recorded during the survey (Figure 50). Built by US Engineering forces between the summer and winter of 1943, the camp was intended to provide accommodation for over 4000 troops training at the nearby Assault Training Centre (Bass 1996; 2005). The camp is illustrated here to contrast with the more temporary 'tent cities' that housed troops on the Burrows themselves, the evidence for which is summarised above.



RAF/106G/LA/132 5001 14-FEB-1945. English Heritage (RAF photography).

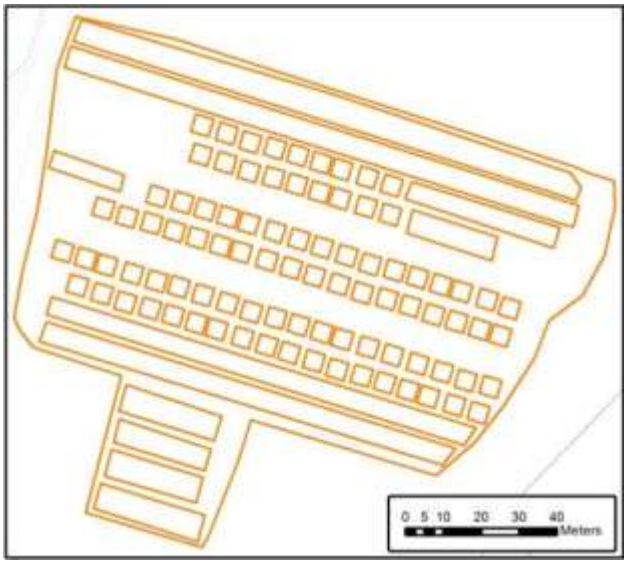


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Figure 49. One of many temporary military camps or 'tent cities' recorded on Braunton Burrows (MDV102685)

7.4.42 Although some evidence for tented accommodation can be seen within the camp, it was composed primarily of over 500 Nissen or Quonset huts arranged in rows or pairs along the perimeters of the fields occupied by the camp, and accessed by either hardened concrete roads or narrow tracks or footpaths. The decommissioning of the camp and removal of structures was underway by 1949 but progressed slowly and with little obvious impact by the early 1950s. By the late 1960s however, only two hut structures remained visible, the remainder marked by occasional surviving hardstanding. By 1989 all visible evidence of the camp had been removed and the site of the camp now lies under a modern housing estate, although some lengths of wartime concrete road are alleged to survive.

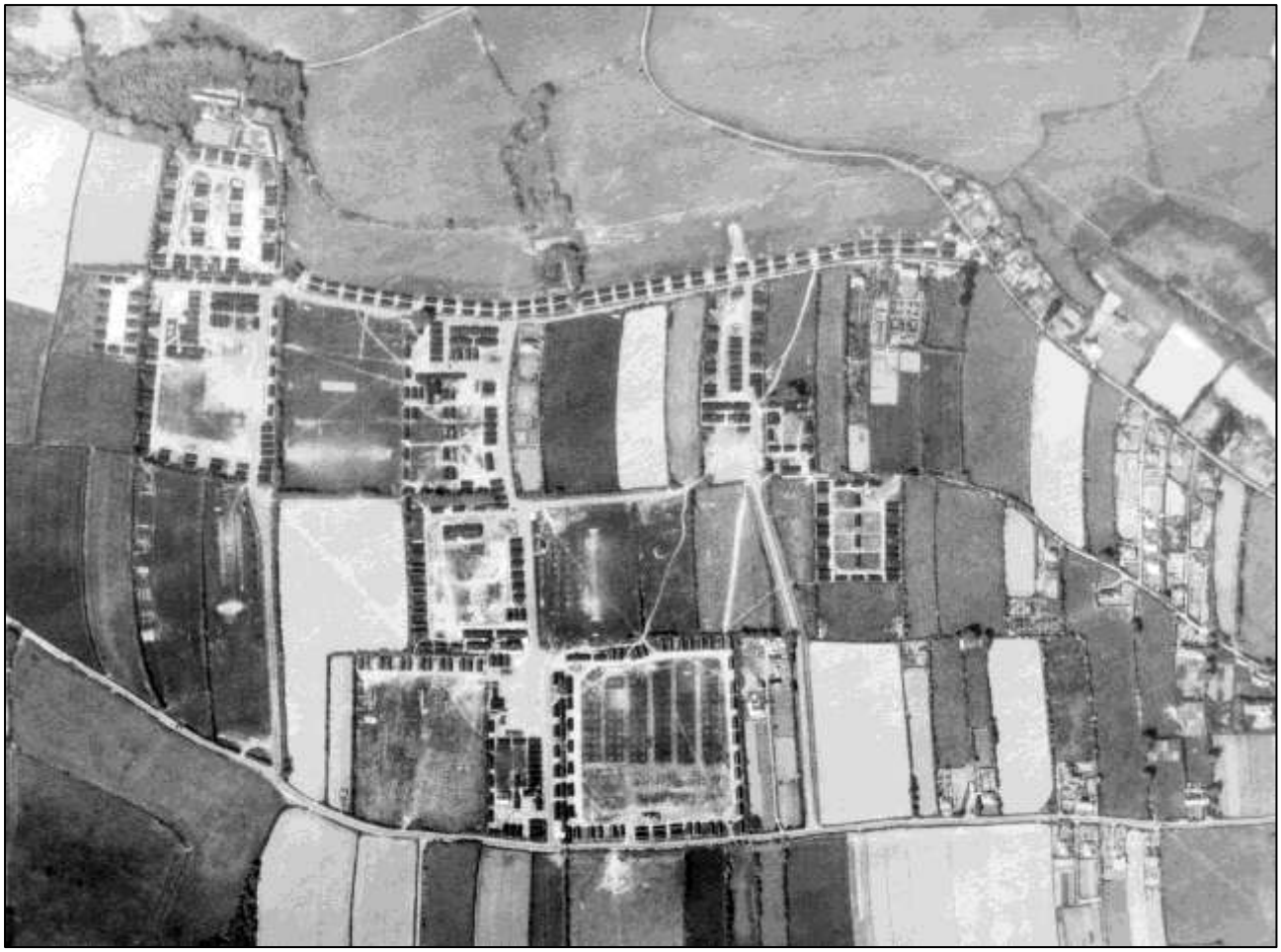


Figure 50. Braunton Camp, the largest permanent encampment built to serve the US Army ATC. RAF106GUK1501 3009 13-MAY-1946. English Heritage RAF Photography

Figure 51. Requisitioned holiday camp at Croyde, MDV 57320, with original buildings and Nissen-type huts. RAF/106G/UK/1684 PSFO-0001 SS4338/15 08-AUG-1946. English Heritage (RAF photography).

7.4.43 Another phenomenon was the use of pre-existing holiday camps as accommodation for military personnel and refugees. Croyde holiday camp is visible on aerial photographs in 1941 and 1942 as a complex of buildings with pitched roofs around the edges of five quadrilateral enclosures. Staff of the National Association of Local Government Officers, or

NALGO, were evacuated hear in 1940 (Bass 1996) but had little visible impact on the fabric of the camp. From 1943 NALGO shared the camp with the U.S. Army, which had requisistioned the camp for troop accomodation during training exercises for Operation Overlord. By 1945 the camp had been greatly extended by numerous Nissen-type huts. The camp in this year included 36 curved roofed huts in a field to the west of the camp, numbered 437 on the 1880s-1890s OS mapping, and 22 curved roofed huts mainly in pairs in a narrow strip of land to the east numbered 434 on the same Ordnance Survey map. Small complexes of 7 and 3 huts are visible within two of the quads. The huts are of a relatively standard size, consistent with an interpretation as Nissen huts, at circa 5 metres in width and 11 or 22 metres in length. This distinguishes them from the holiday camp buildings, most of which are smaller and only 4 metres in width. A trackway leading from the camp to the training area on the beach, as depicted on U.S. Army plans, is visible on the north side of the complex.

7.4.44 The Nissen-type huts were removed between 1946 and 1953, leaving parchmarks or cropmarks on the grass visible on aerial photographs in the summer of that year. Examination of aerial photographs from 2001 shows the holiday camp buildings to be mainly unchanged, although the quadrilateral structure has been replaced by a car park. By 2007 several groups of buildings had been replaced, including those around the square immediately to the north of the car park, and the north to south aligned row of buildings, although the other original holiday camp buildings appear to be extant.

7.4.45 The survey has recorded more intangible evidence of the Second World War's impact on North Devon. During the conflict North Devon became an unlikely hub of cosmopolitan continental culture. This arose from the influx into the area of several thousand Jewish refugees from Austria, Germany and Czechoslovakia who had been fleeing to Britain in increasing numbers since 1938 (Fry 2005).

7.4.46 From its inception in 1939, the Auxiliary Military Pioneer Corps, later known as the Pioneer Corps, recruited from throughout the world, including those German speaking refugees not deemed to be a security risk. The Pioneer Corps performed a range of tasks in all theatres of war. Though initially non-combatant, its roles included important work such as guarding aerodromes, clearing bomb damage, building coastal defences, etc. Pioneer corps forces were admitted to combat forces from the summer of 1943.

7.4.47 From May 1940 until D-Day Hilltop Camp, a holiday park on the western fringe of Ilfracombe became a centre for forming Pioneer Corps companies, providing training and temporary accommodation to the newly formed units. Over two years several thousand refugees formed fifteen companies of the corps who went on to be despatched all over the country and beyond, serving in a wide variety of roles. Very few signs of the Pioneer Corps presence are visible on the aerial photographs available to the survey, but the impact on the town and wider area of this changed demographic was significant. By May 2001 the holiday camp had been redeveloped as housing.

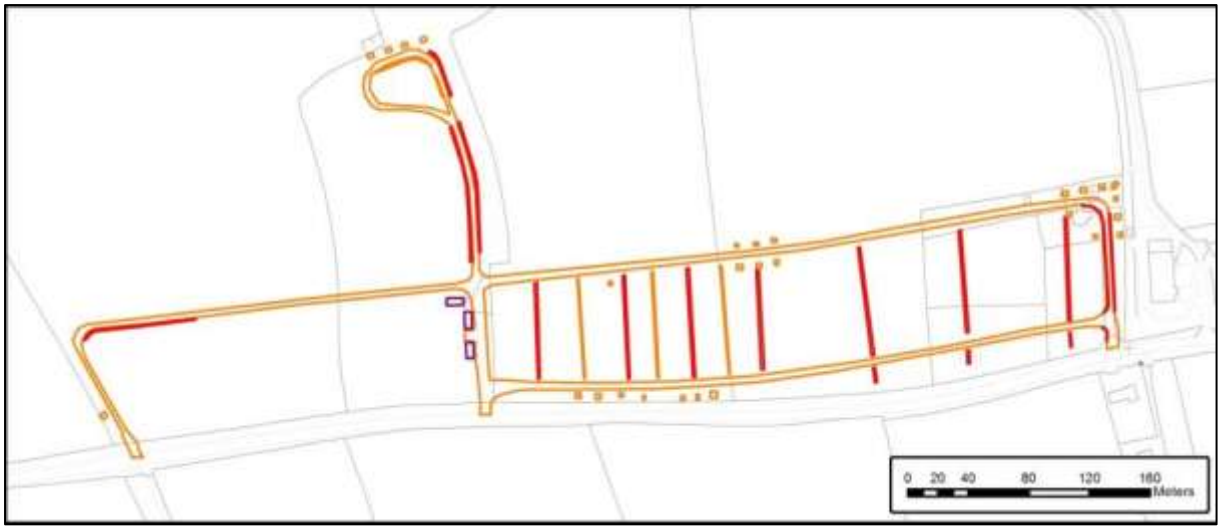
7.4.48 Administration centres were also required and nine structures at Woolacombe, visible on aerial photographs taken in the 1940s, are likely to be temporary huts erected during the

Second World War (MDV103262, Figure 23, left). A group of four comprised structures measuring circa 20 metres by 7 metres each, another group of 3 measure 13 by 5 metres each, with a similarly sized building located next to a larger construction measuring 32 by 10 metres. The latter may be the recreation hall mentioned as part of the US Army infrastructure in an oral history account gathered in 2003 and as a large aircraft hangar dating to 1943 by Gunn (1999), whilst the former groups are consistent in size with Nissen huts. Gunn also says the administration centre for the catering department was housed in Nissen huts in front of the old Hartland Hotel, which may be the current Hartland House. The four smallest huts were removed between May and July 1946, although their bases are clearly visible on aerial photographs. The remainder had all been removed by 1958 when a car park is visible on the site of the military complex.

7.4.49 Purpose built accommodation and works sites at Instow and Appledore are visible as complexes of Nissen-type huts, compounds and buildings (MDV50888, MDV102580). The quantity of equipment required also had an effect on the landscape, with several extensive sites in the vicinity of Mortehoe Station identified as military storage or redistribution centres.

7.4.50 The remains of one of these military sites is visible on aerial photographs between 1946 and 1948 as a complex of embanked tracks, three probable concrete hut platforms and numerous linear banks and probable cropmark tent bases (Figure 52). The trackways form a circuit through and around the edges of four fields, mostly close to the road but with a loop to the north. Four sections of hedgebank had been removed for the trackway.

7.4.51 The rectangular structures, measuring approximately 11 by 5 metres, are located adjacent to the track in the centre of the complex, and are likely to be the bases for Nissen hut type temporary buildings. Numerous pale roughly square cropmarks are located along the track in the east and north of the complex, and are likely to be the site of tents that had caused compaction. Similar cropmarks are just visible arranged along the north to south aligned linear banks and narrow trackways in the two fields on the east of the complex. They are probably the remains of US Army tents during the Second World War, one of several such sites in this area (see also MDV103142 and MDV103378). However in this instance they are too indistinct to map and have not been transcribed. Gunn (1999) states that many fields in the area were used as 'stores dumps' and these may have been for storage rather than accommodation.



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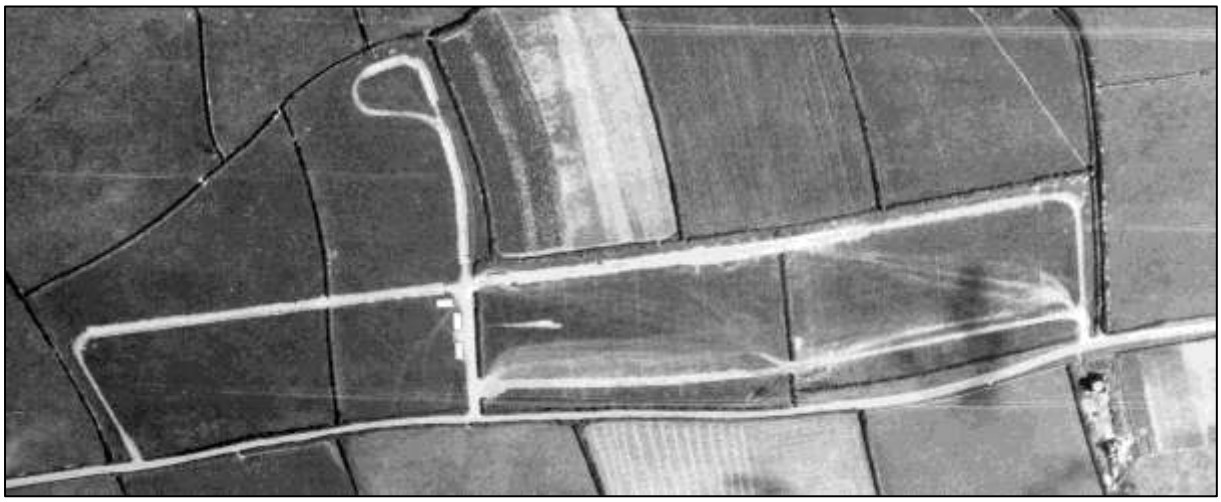


RAF/106G/UK/1655 4030 11-JUL-1946. English Heritage (RAF photography).

Figure 52. Probable military depot near Mortehoe Station, MDV103378

7.4.52 Between May and July 1946 sections of bank along the track appear to have been spread out, perhaps sections of the wire mesh or metalled roadways described by Gunn (1999) recently removed. The tracks were still visible as earthworks and the platforms are visible as structures in aerial photographs until 1948. However by 1989 the land had been ploughed and no evidence of the camp was visible on aerial photographs; the hedgebanks in this area had also been removed and were visible only as pale linear cropmarks.

7.4.53 One substantial US Army establishment in North Devon was constructed for use *following* D-Day. Fremington Camp (MDV 59361) was constructed by the Ministry of Works and Planning as a US Army hospital intended for the rehabilitation of troops returning from action. Completed by March 1943 the site was dominated by a minimum of twenty seven ward buildings connected by tracks and covered walkways. Between most ward buildings an area of hardstanding or foundation was visible on the aerial photographs, indicating that additional smaller buildings had been constructed in these locations, and had been removed by 1945. It is recorded that the capacity of the camp was increased from 750 to

834 beds before it became operational and it is possible the small areas of hard standing are remains of temporary ward structures.

7.4.54 A number of earthwork pits and banked features of unknown function were recorded on 1945 aerial photographs along the north-eastern perimeter of the camp. It is probable that physical exercise had an important therapeutic function as part of the rehabilitation of troops returning from Europe. It is possible these earthworks were a precursor to the assault course which was later constructed just to the west. Physical activity in the form of sport was clearly considered an integral part of the hospital as three baseball diamonds and a possible American Football pitch were laid out in the field immediately to the north of the camp (to the left of Figure 53).

7.4.55 Many of the hospital buildings have now been demolished and the majority of those which survive are facing demolition as part of a planned redevelopment of the site for housing.

Figure 53. Fremington Camp, a US Army hospital built in advance of D-Day. Note the baseball diamonds to the north of the camp (centre left). RAF/106G/LA/132 5066 14-FEB-45. English Heritage (RAF photography).

7.4.56 At the very start of the project some small pale features were observed from aerial photographs of the Hartland area as possible structures on hedgebanks. They were assumed to be agricultural and not recorded, and appear to have since been removed. Later in the project consultation of reference material highlighted the possible importance of these features; Wasley (1994, 150) states that small wooden huts were erected during the Second World War over hedgerows in the Torrington area, for storage of artillery shells. It is possible that the features south of Hartland were this type of construction and used for ammunitions storage. The features were visible on the 1940s RAF aerial photographs so should be recognisable on the digital interactive layers held by DCC and could be recorded in the HER *ad hoc* when chanced upon by the Historic Environment Team.

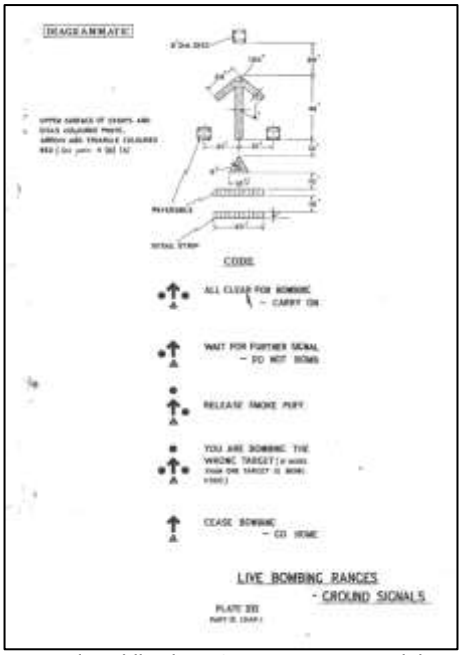
Figure 54. Triangular floating bombing practise targets in Ilfracombe harbour (left). Detail of the beached targets. RAF/106G/UK/1501 4391-2 13-MAY-1946. English Heritage RAF Photography

7.4.57 A complex of mobile maritime training structures beached in Ilfracombe harbour hint at an unusual and normally not visible episode of military training, possibly associated with the bombing range marker illustrated in paragraph 10.4.58.

7.4.58 The five triangular structures visible on aerial photographs of 1946, illustrated in Figure 54, have been identified as rafts constructed from wood and cork bales, atop of which were set central poles upon which a circular wicker ball was mounted (MDV103129). Local accounts indicate that the rafts were painted bright yellow and the ball, which itself was the target, was painted black (Gunn 1999). During the early years of the Second World War, two RAF launches which were moored at Ilfracombe harbour partly for rescue purposes, towed the triangular rafts to open water to be used as targets for bombing practise, possibly for anti-submarine training aircraft (Gunn 1999; www.bbc.co.uk).

7.4.59 Potentially associated with the bombing targets at Ilfracombe harbour, a previously recorded arrow shaped concrete structure has been identified as Second World War Practice Bombing Range Ground Signal apparatus (See Figure 55). Situated on coastal steep slopes overlooking the coastline at Putsborough Sand, the circa 25 metre long concrete arrow and associated reflective apparatus would have been used to signal instructions to high altitude bombers on their approach to the bombing range (Pers. comm. Roger JC Thomas). The structures associated with the arrow comprised reversible reflective signal discs to allow a range of codes to be communicated to aircraft, conveying a range of specific instructions (See Figure 55, top-right). The associated structures had been removed by 1964 but the arrow remains visible, although slightly reduced in length.

Photograph: RAF/140/S756/H58 PO-3001 SS4440/1 10-FEB-1942. English Heritage RAF Photography



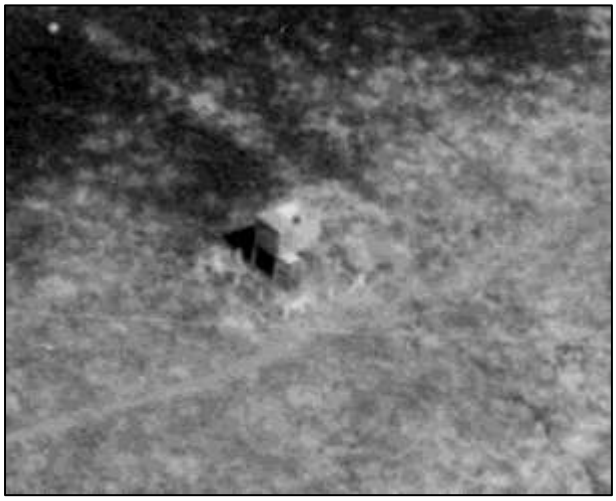
From: Air Publication 1245, Armament Training Manual, Part IV, Chapter 1, Air Firing and Bombing Ranges, February 1940. Roger JC Thomas pes.comm

Next Perspectives PGA Tile Ref: SS4440 04-MAY-2007. Images supplied to English Heritage by Next Perspectives through the Pan-Government Agreement.

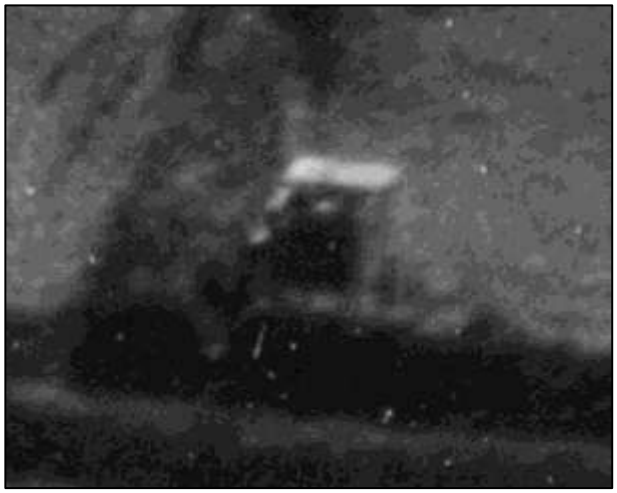
Figure 55. A practice Bombing Range Ground Signal on the steep slopes overlooking the coastline at Putsborough Sand. Clockwise from top-left: The arrow and associated signalling apparatus and structures, 1942; Signal combinations as set out in contemporary training manuals; the much reduced concrete remains in 2007.

7.5 Thematic Results: Military and Defensive; The Cold War

7.5.1 A Royal Observer Corps Type B Orlit post for aircraft observation during the Cold War is visible on aerial photographs between 1957 and 1969 (Figure 56). It is circa 2 by 3 metres in plan and raised on four posts, mostly unroofed with the exception of approximately 1 metre on the west side for the shelter and store, and sited within a rectangular enclosure measuring circa 6 by 7 metres. It is not visible on 1940s aerial photographs, and appears to have been removed between 1969 and 2001, presumably having been replaced during the 1960s by the Royal Observer Corps underground monitoring post just to the east, which is recorded as opening in December 1961 and closed in September 1991 (Subterrannea Brittanica, 2001).

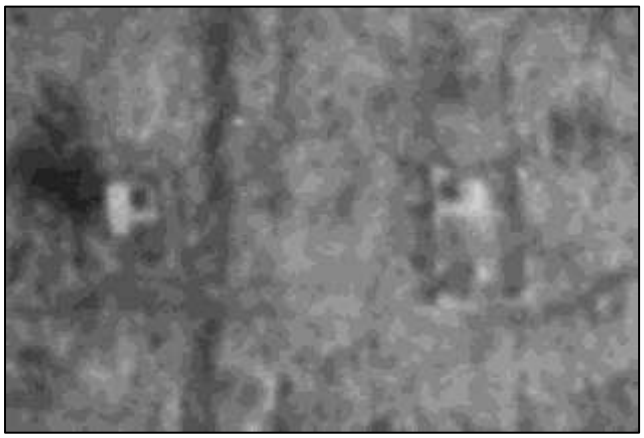


NMR RAF/58/2205 F22 0080-0081 05-JUL-1957. English Heritage (RAF Photography).



NMR RAF/58/2555 PSFO-P1-0418 SS4338/12 01-SEP-1958. English Heritage (RAF Photography).

Figure 56. Royal Observer Corps Elevated Orlit post on Saunton Down (left) in 1957, MDV 103029, and Woolacombe (right) in 1958, MDV72371.



NMR RAF/543/2821 F64 0224 27-APR-1964
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Photograph by kind permission of Nick Catford, Subterranea Britannica.

Figure 57. Royal Observer Corps underground monitoring post on Saunton Down in 1964 (with elevated Orlit on the left) and a ground shot taken by Nick Catford in 2000. MDV 103028.

7.5.2 The underground monitoring post (MDV 103028), for measuring fallout in the event of a nuclear attack, is visible as an earthwork and structure on aerial photographs taken between 1964 and 2001. In the 1960s a low mound was visible within a rectangular enclosure circa 7 by 10 metres in size, and the surface hatch and vent were just discernible.

By 2001 the area had become obscured by scrub vegetation but a grey surface feature was still visible and probably part of this Cold War structure, which appears to have survived well within a small compound when visited in 2000 (Figure 57; Subterrannea Brittanica 2001).

7.5.3 An earlier but similar ROC post was observed at Woolacombe (MDV72371), although the aerial photograph coverage was not as good or clear and the structure could only properly be recognised through stereo viewing. Dobinson (1996: 206) records it as opening in December 1952 with an elevated Orlit, an underground post put in place by February 1962, and the site closed in October 1968. Aerial photograph evidence concurs with this, a probable raised Orlit post visible in 1964. No above-ground remains are visible on later available aerial photographs but surviving below-ground remains are suggested by a dark rectangular enclosure cropmark on aerial photographs taken in 1989. The transcription is approximate as errors during rectification were unavoidably high.

7.5.4 Several buildings and structures relating to the VHF/UHF Fixer station associated with Hartland Point ROTOR site are visible on aerial photographs from 1954. Roger JC Thomas of English Heritage asserts that the two buildings and a mast visible within a fenced complex on the left of Figure 58 are the transmitter block and generator, and another building and mast 650 metres to the south east is the receiver block. An additional building is visible at the transmitter site in aerial photographs dating to 1978, and both of these buildings, although not the mast, were seen to be extant on a site visit in 2012 (Figure 59). The receiver buildings are not visible on aerial photographs from 1999 although a pale cropmark visible on photographs dating to 2007 indicate that some building rubble or foundation material remains. The line of posts between the two sites is visible from 1954 and was confirmed as extant on the site visit. The complex is associated with two Fixer buildings to the west.

Figure 58. A complex of radar buildings at Baxworthy, MDV 102234, including two buildings in the foreground, transmitter block centre left (detailed below left), and receiver block top right (detailed below right). Between them posts are visible across Baxworthy Moor. In the centre foreground built into the hedgebank is brick structure MDV 102248, described below. NMR RAF/SOP/122 PSFO-0007 SS2922/1 3-MAR-1954. English Heritage (RAF Photography).

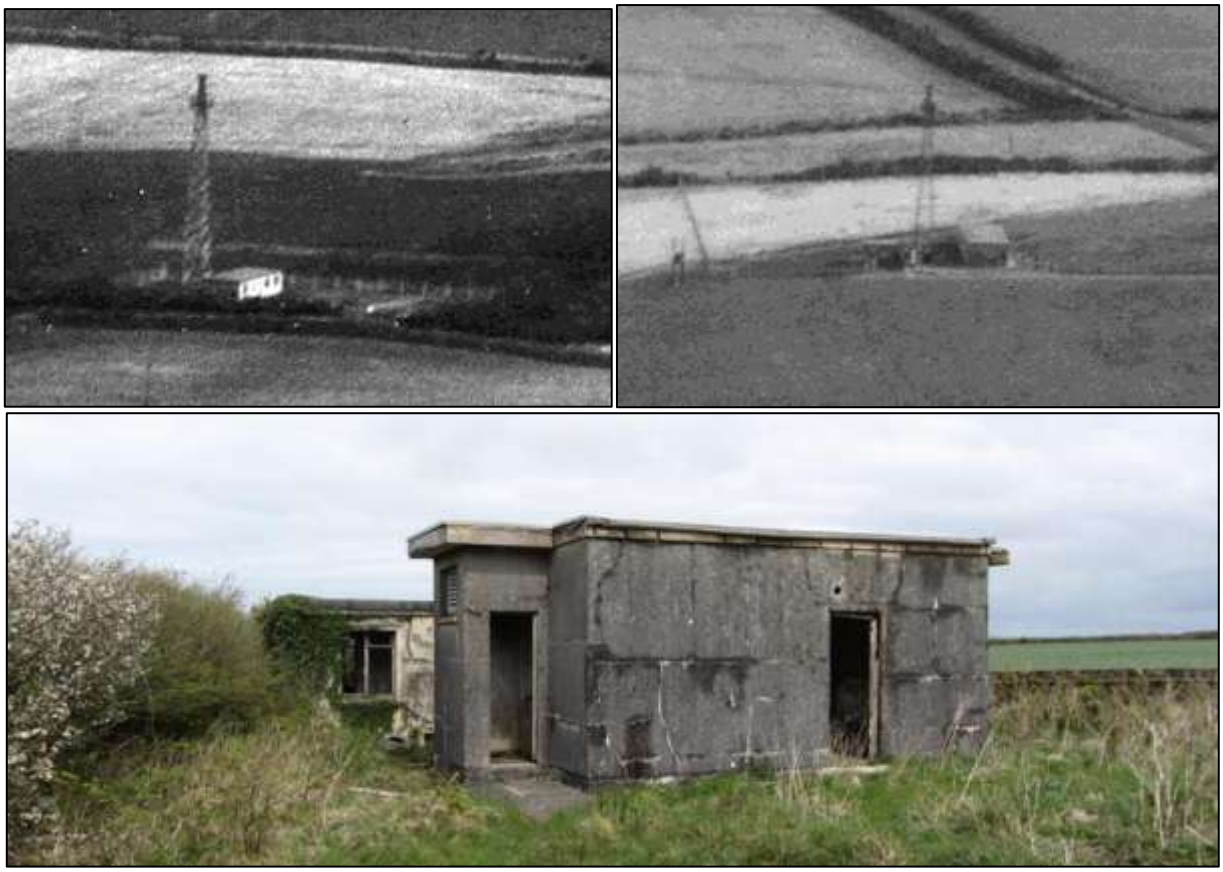
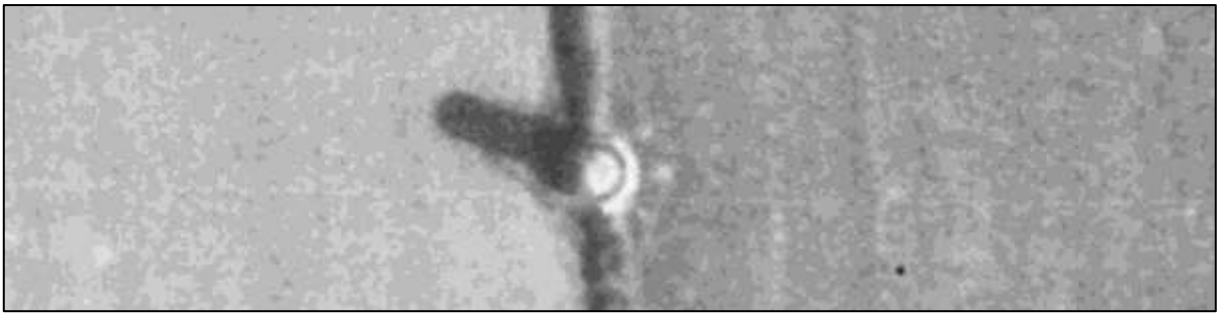


Figure 59. The transmitter block with original 1950s building in the background and additional building in the foreground. Photograph: Stephanie Knight

7.5.5 A possible Second World War precursor to the 1950s radar site at Baxworthy is the unusual octagonal brick structure in Figure 60, built into a hedgebank away from a road. This initially appeared to be an oddly sited pillbox, but a shadow cast in one run of 1946 aerial photographs indicates that it was much taller than most pillboxes. Eight possible tethering points around the structure are visible on aerial photographs taken in summer 1946 and support the interpretation that the structure was surmounted with a mast. The Hartland Forum website states that this structure is the remains of an aerial for a 1939 WWII radar station at Baxworthy (Hartland Forum, 2012: T53). More work is required to place this site in its wider context and Hobbs states that “there are still ex-RAF personnel living locally who manned the Hartland stations” (Hobbs, pers comm.)’.

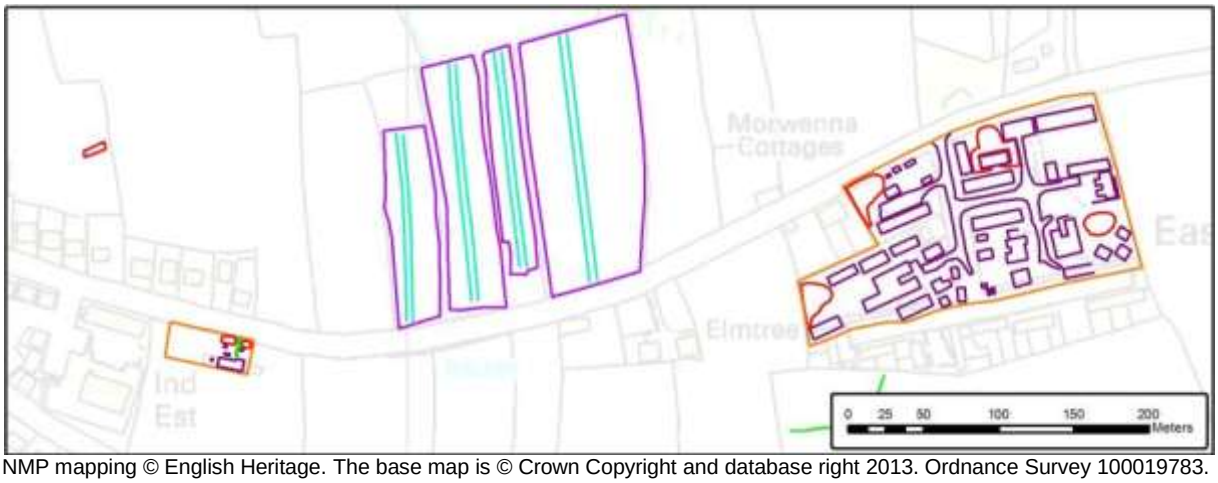
7.5.6 The building was viewed from the road and found to stand to a height of at least 2 metres in 2012, and although its roof was partially lost before 1978 and completely gone by 1999, an interior wall is visible on 2007 aerial photographs.



DCC RAF/3G/TUD/UK/158 5072-5073 19-APR-1946. Devon County Council (DCC) RAF Photography.

Photograph: Stephanie Knight 2012

Figure 60. Possible Second World War radar mast structure at Baxworthy, MDV 102248.



NMP mapping © English Heritage. The base map is © Crown Copyright and database right 2013. Ordnance Survey 100019783.

NMR RAF/58/2553 PT2 PSFO-P2-0158 SS2826/3 29-AUG-1958. English Heritage (RAF Photography).

Figure 61. The large domestic site complex for Hartland radar station (right), and a pale building within a compound and possibly associated with the site (far left).

7.5.7 Detail on the buildings and layout was added to the fairly skeletal record for the domestic site for Hartland Radar Station (Figure 61). Some of the buildings appeared to be only partly constructed in 1954 and earthwork mounds suggest that the site was relatively new and had not yet been landscaped. A possible mast base of four square low structures, next to a large square, shallow (possibly water filled) structure, are distinctive elements. The development then disuse of the site can also be tracked through aerial photographs; domestic housing was visible immediately to the south of the site on aerial photographs taken in 1977, concrete bases of some of the buildings are visible on aerial photographs taken in 1992, the superstructures having been removed, and the surrounding disturbed earth is red in colour indicating that the rubble had been levelled. Some scrub and grass cover is visible within the cleared areas on aerial photographs dating to 1999. The extant buildings visible on the 1999 photographs were viewed on a site visit in April 2012, when the site was found to be overgrown and subject to some flytipping and graffiti (Figure 62). Whilst some of the buildings were derelict, others including the open fronted military transport facility building seemed to be sound, with fixtures and fittings still present. Other buildings have been adapted to alternative uses.

Figure 62. Standing remains of the domestic site for Hartland Radar station, MDV72114, including fixtures and fittings and recent graffiti. Photographs: Stephanie Knight

Photograph: Dave Edgcombe c 2007 Photograph: Stephanie Knight 2012

Figure 63. Site of a probable military structure associated with the domestic radar site at Hartland, MDV102104, derelict in approximately 2007 (left) and demolished before 2012 to make way for a housing development (right).

7.5.8 A rectangular structure separate from the main domestic site was initially thought to be an agricultural building but several factors appeared to support the interpretation this was not the case. The pitched roofed structure was sited within a rectangular enclosure set back

approximately 15 metres from the road. Like the Hartland radar station domestic site it was first visible on aerial photographs dating to 1954, when two ridge tents are visible between the building and the road, one either side of the driveway to the building, and the entrance to the driveway is flanked by two earth mounds, possibly spoil created during construction awaiting removal or levelling. Three small pale earthwork features are visible 2 to 3 metres from the west and north of the building, and these may be structures or temporary dumps of material. Although ruinous in 2007, the building had features such as glazed windows that have similarities with extant buildings at the Hartland radar station domestic site, 400 metres to the east. It was felt it was possible that the building and tents were a precursor to, or part of, this larger domestic site for which Dobinson gives a source date of 25 April 1953. Dobinson also gives an earlier source date of 18 July 1952 for a domestic site at SS268241, the field immediately to the west of the building, which could in fact refer to the complex in which this building is housed.

7.5.9 Information provided by Stephen Nobbs of the Hartland Archive indicates that this site in fact comprised two agricultural structures constructed from salvaged military structural components in the 1950s (Hobbs, pers. Comm) and used as intensive deep litter chicken units.

7.5.10 Although visible as a slightly extended building on aerial photographs until 2007, it was derelict by the time it was demolished in 2010 or 2011 to make way for a housing development, and no remains survive so it is difficult to verify its construction or former use.

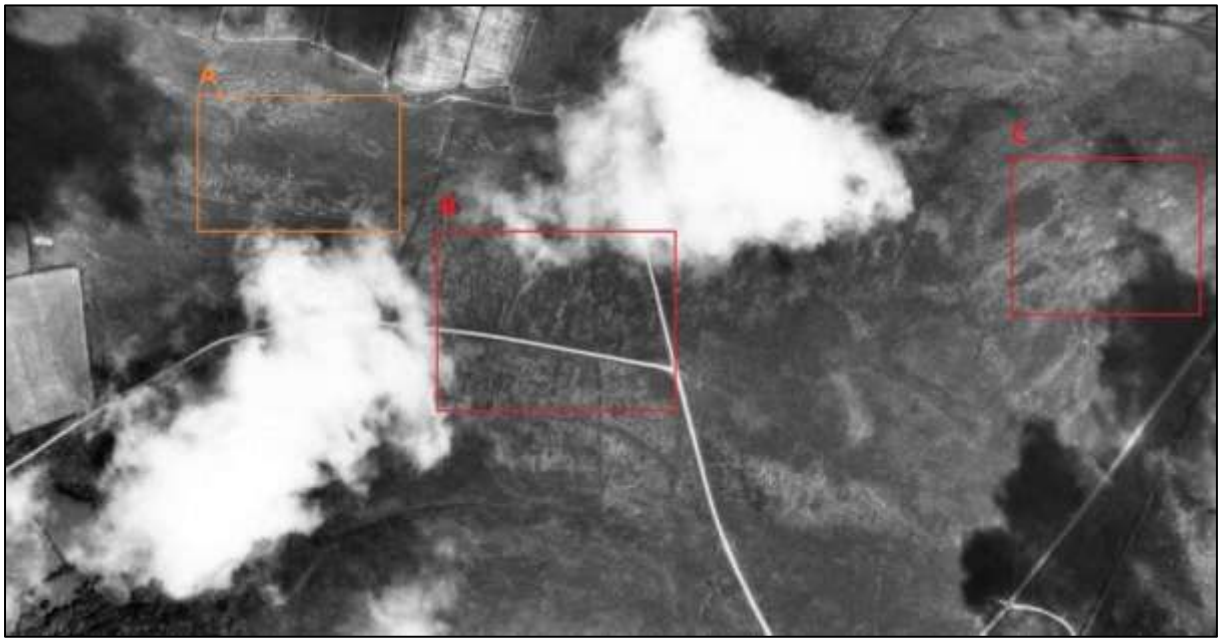
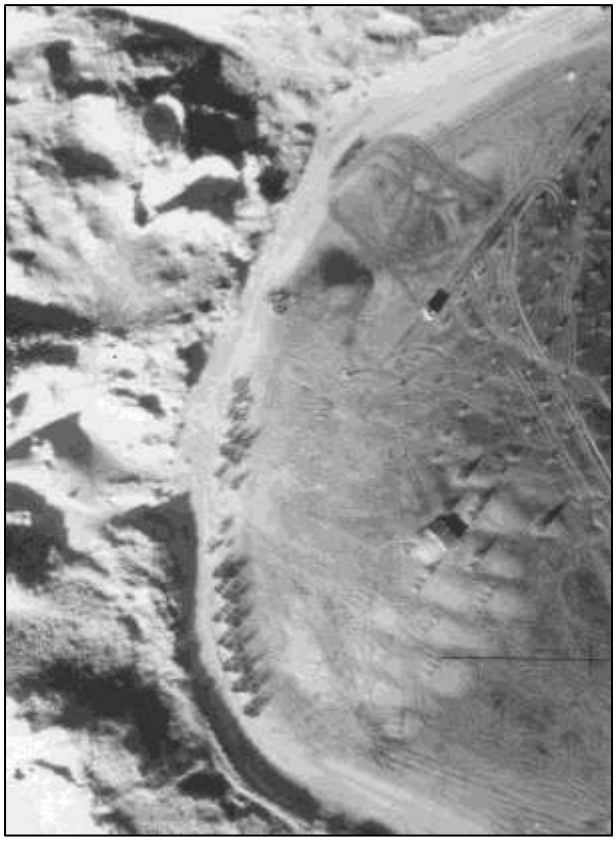


Figure 64. Bursdon Moor in 1959, with areas discussed in the text outlined in orange (A) and red (B and C). NMR RAF/58/2984 F22 0031 30-JUN-1959. English Heritage (RAF Photography).

Figure 65. Direction arrow visible within a group of four Bronze Age barrows on Bursdon Moor, MDV 102324. NMR RAF/58/2984 F22 0031 30-JUN-1959. English Heritage (RAF Photography).

7.5.11 A large arrow with a cross bar pointing north, 14 by 9 metres in size, is sited within one of the two scheduled barrow groups on Bursdon Moor and visible on aerial photographs taken in 1959 (Figure 65). The arrow is very visible and may have been made of concrete, perhaps whitewashed, but is indistinct on aerial photographs taken in 1978 and therefore probably no longer in use. Although resembling a WWII bombing range target marker (Thomas pers.comm.), this feature post-dates the Second World War as it is not visible on 1946 aerial photographs, which show the underlying ridge and furrow earthworks clearly. Neither are there any visible bomb craters. However it is likely to be a military feature, probably associated with the Cold War, to provide direction to aircraft, possibly to keep on course for radar calibration (Horner, pers. comm.) or provide orientation towards a bombing range and training area in the Bristol Channel (Passmore, pers. comm.).



NMR RAF/540/1949 5032 24-NOV-1952. English Heritage (RAF Photography).

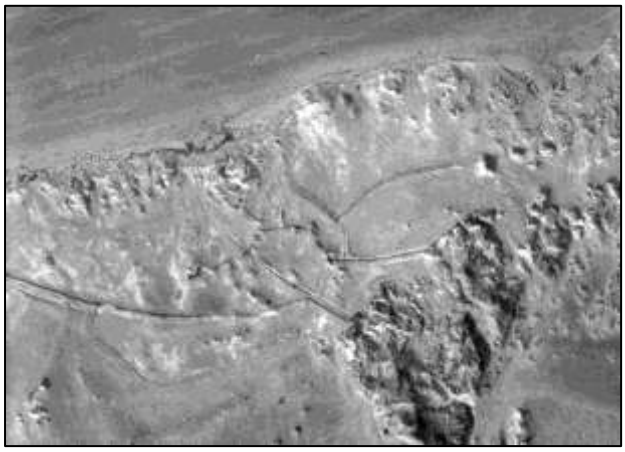
NMR RAF 540/1768 0026 03-JAN-1956. English Heritage (RAF Photography).

Figure 66. Masts apparently in the process of being distributed or removed from the intertidal zone at Broad Sands in 1952, and replaced by a large barge or platform in 1956. MDV 102705.

7.5.12 Continued use of Broad Sands at the southern part of Braunton Burrows was in evidence on aerial photographs taken in the 1950s (Figure 66). A complex of structures in the intertidal zone, comprising a rectangular temporary covered structure circa 15 by 7 metres was surrounded by an extensive grid of what appear to be masts, spaced at intervals of circa 12 metres, 7 rows deep and 250 metres long. A group of similar mast-like structures at the side of the dunes was apparently awaiting placement or removal. Several vehicles and trailers are visible and the complex is apparently in the process of construction or removal, with large rectangular containers and numerous trackways. The function of this complex is uncertain but it may be associated with military testing and relatively short lived; none of the structures are visible in aerial photographs taken in 1954. A rectangular barge or platform 10 by 45 metres with possible sloping entrances at each short end was visible in aerial photographs from 1956, but removed by 1963. Again it is not clear what this structure was but it demonstrates the active post-war use of this area, presumably for military purposes.

7.5.13 Military exercises also continued on the dune system of Braunton Burrows (Figure 67), and probable practise trenches are clearly visible as earthworks in the 1950s. Contemporary ephemeral activity, such as clusters of tents and vehicles, demonstrate more directly the continuing military use of the dunes. Other features are visible on aerial photography up to the present day; the tracks are particularly enduring, although their exact route alters in

some places, as vehicle use is a strong component of present-day military training on the dunes.



NMR RAF/540/1266 F22 0073 08-MAR-1954. English Heritage (RAF Photography).

Photograph: Stephanie Knight

NMR RAF/58/2205 F21 0061 05-JUL-1957. English Heritage (RAF Photography).

Figure 67. Tents, vehicles and post-WWII trenches on Braunton Burrows, evidence of continued military training in the 1950s. Military training continues in 2008, creating unvegetated areas and trackways.

7.6 Thematic Results: Farming and Agriculture

7.6.1 Evidence for prehistoric agriculture is confined to a single monument. A composite picture has been built up from aerial photographs from 1947, 1964 and 2007 (Figure 68 A-C) of an extensive field system extending over roughly 17 hectares of a narrow east to west orientated hilltop or ridge between Outer Narracott Farm and Stapleton Farm, approximately 5 kilometres to the south-east of Ilfracombe. The east-west aligned ridge is defined by the Sterridge Valley to the north and combes of tributaries to Colam Stream to the south.

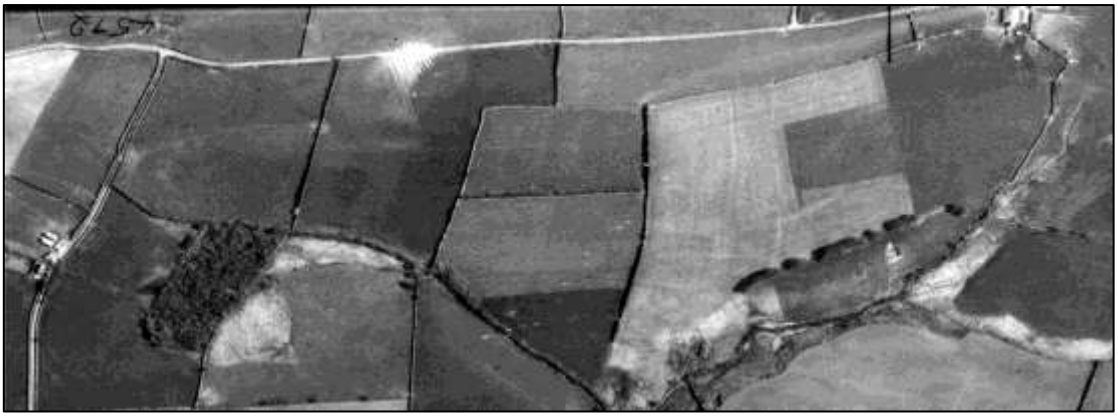
7.6.2 The absence of any evidence of agriculture depicted on the 1840 tithe map for Berrynarbor and the proximity of several relict strip fields of probable medieval date initially led to a preliminary interpretation of a medieval date for the abandonment of this field system and later incorporation into a remodelled post-medieval field pattern. However, closer

consideration of the evidence supported the conclusion that the relict pattern bore very little relation to the surviving, if fragmentary medieval field pattern in this area.

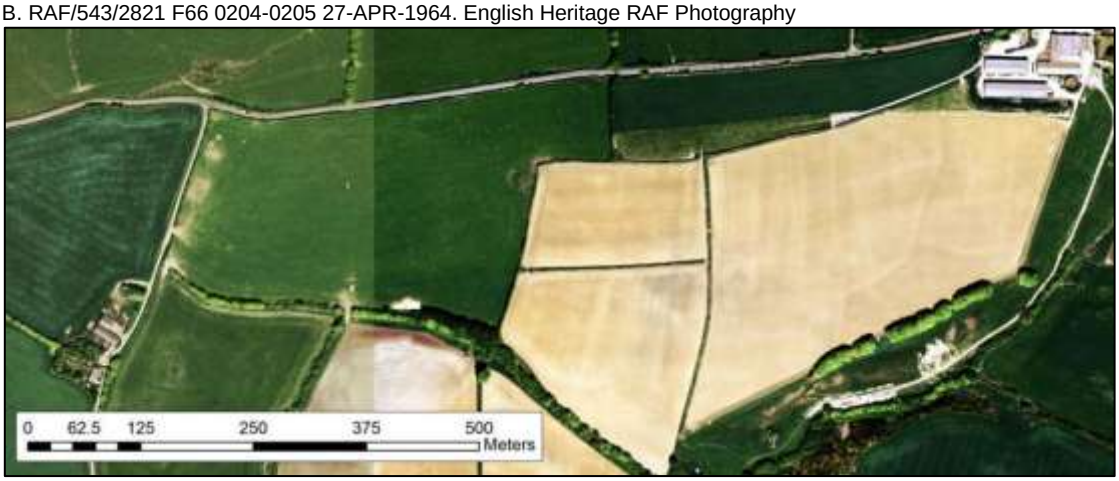
7.6.3 Instead a later prehistoric date is suggested, the somewhat fragmentary earthworks and cropmarks forming a dense pattern of irregularly brick-shaped fields with a predominantly north-south orientated axis. Little context by way of artefactual evidence exists in the HER to support this interpretation. However, the relict field pattern could perhaps be contemporary with the Scheduled hilltop enclosure north-east of Outer Narracott Farm at North Hill Cleave, the outer earthwork banks of which are located less than 200 metres north-west of the western end of the relict field system (SM 1019024; MDV5651). It is interesting to note that Rippon *et al* cite this enclosure as one of several examples supporting the generalisation that in the South-West "many [of these] late prehistoric and Romano-British enclosures which show up as cropmarks and earthworks, do not appear to be associated with field systems" (Rippon *et al* 2006, 34).

7.6.4 It has been suggested the east-west spur on which the relict fields are located defines part of an ancient ridgeway route that connected the west and north coasts with the high moor to the east (Walls, 2000b). As seen in similar field patterns recorded from the air in coastal locations in Cornwall, this field system would be well placed for intensive arable cultivation and the transhumance of livestock to neighbouring uplands in the summer months, in this instance, Exmoor (www.historic-cornwall.org.uk).

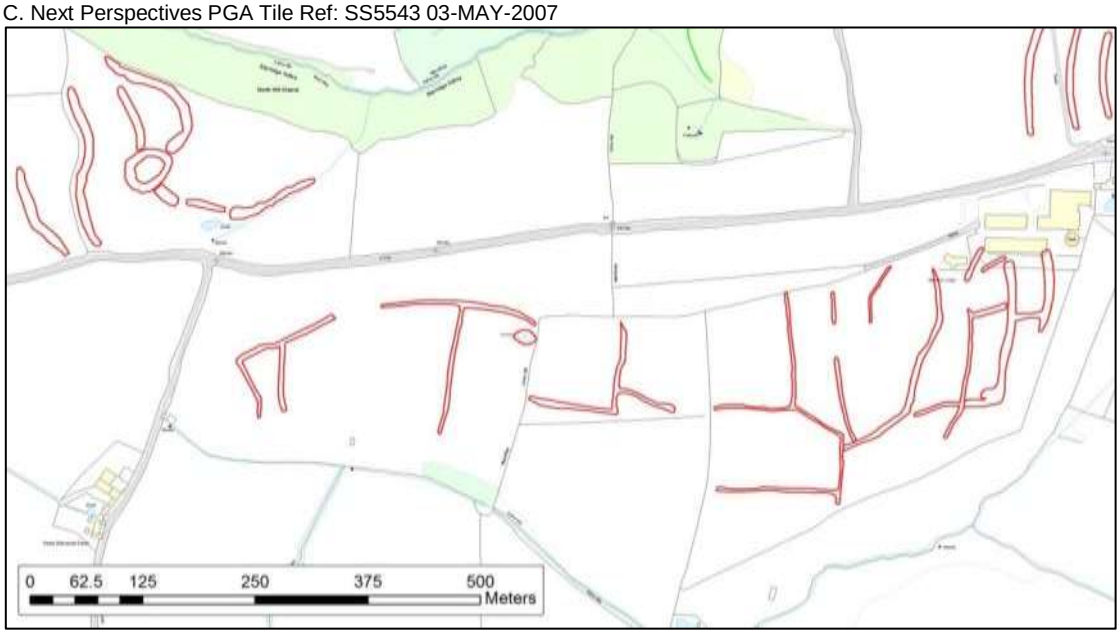
A. RAF/CPE/UK/1980 3112-3113 11-APR-1947. English Heritage RAF Photography



B. RAF/543/2821 F66 0204-0205 27-APR-1964. English Heritage RAF Photography



C. Next Perspectives PGA Tile Ref: SS5543 03-MAY-2007



D. NMP mapping © English Heritage.The base map is © Crown Copyright and database right 2013. Ordnance Survey 100019783.

Figure 68. A-D. A possible later prehistoric field system between Outer Narracott Farm and Stapleton Farm, near Ilfracombe.

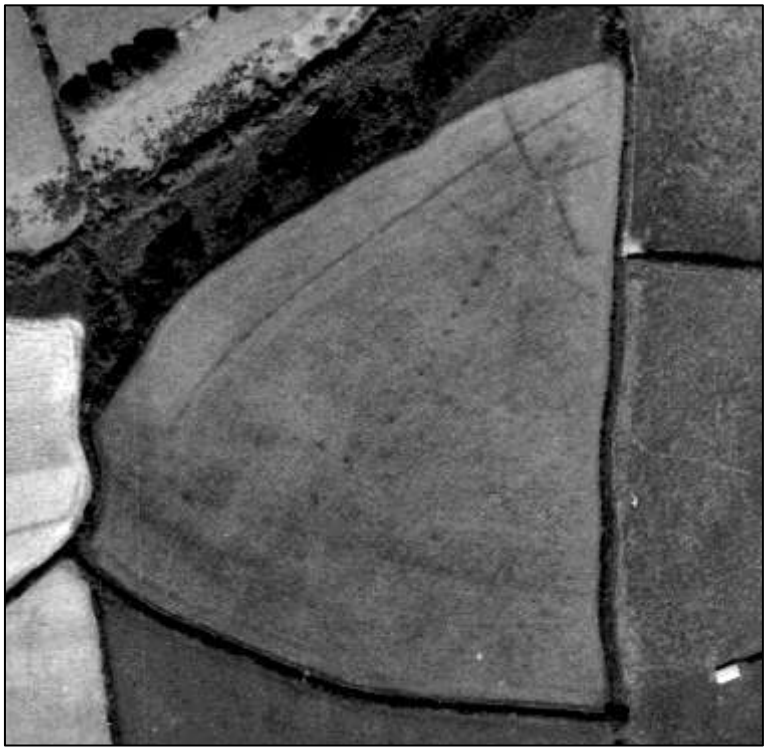


Figure 69. A possible pit alignment of later prehistoric date, visible as cropmarks only in the summer of the drought year of 1976. MAL/76048 222 25-JUN-1976. © ADAS UK Ltd.

7.6.5 An intriguing feature of possible later prehistoric date was identified as cropmarks from aerial photographs of the drought year of 1976 (MDV103248; Figure 69). At least sixteen roughly circular or oval cropmarks, interpreted as probably forming over pits measuring between three and four metres in diameter and spaced between seven and nine metres apart can be seen defining a linear alignment approximately 130 metres in length.

7.6.6 The possible pit alignment is in an unusual position, cresting the brow of a low hill and aligned almost parallel to a narrow north-facing combe. The possible pits are also rather more widely spaced than might be expected. It also appears to cross the perimeter of two conjoined ditched rectilinear cropmark enclosures. On morphological grounds the enclosures have been recorded as probably later prehistoric in date.

7.6.7 Excavated examples of pit alignments from the Nene and Ouse valleys have been confidently dated to least the early Iron Age but little evidence of post settings within the pits has been identified (Cunliffe 2005, 431-432). They have instead been interpreted as providing some kind of symbolic or conceptual division of agricultural land, perhaps pastoral territories, but without preventing movement between territories (Cunliffe 2005, 309; 431-432). The relationship between the pits and enclosures can only be determined through field investigation.

7.6.8 The existence of open field agriculture in medieval Devon was first recognised in the mid-twentieth century (Finberg 1949; 1969) and Braunton Great Field is now widely recognised as one of the finest surviving examples of a medieval open field in Britain and as such is of

national importance (Turner 2007, 34-35). However, it has proved difficult to ascribe any form of statutory protection to this almost unique and complex landscape, in part because it remains an actively farmed fieldscape.

7.6.9 The original extent of the open field and the surrounding strip field system has been greatly encroached upon by the expansion of Braunton village, largely since the Second World War. It is noted that the number of strips was reduced from 200 in 1951 to 86 in 1999 (Collings et al, 2006), a process of encroachment which is continuing today albeit more slowly, with permission recently granted for new agricultural building within the area defined in the local plan as part of the Great Field (Pers. comm. Knight and Reed). Information on the North Devon District Council planning Decision can be found here: northdevon.gov.uk; the local plan map showing the area of the application to be in the protected part of the great field can be seen here: www.northdevon.gov.uk.

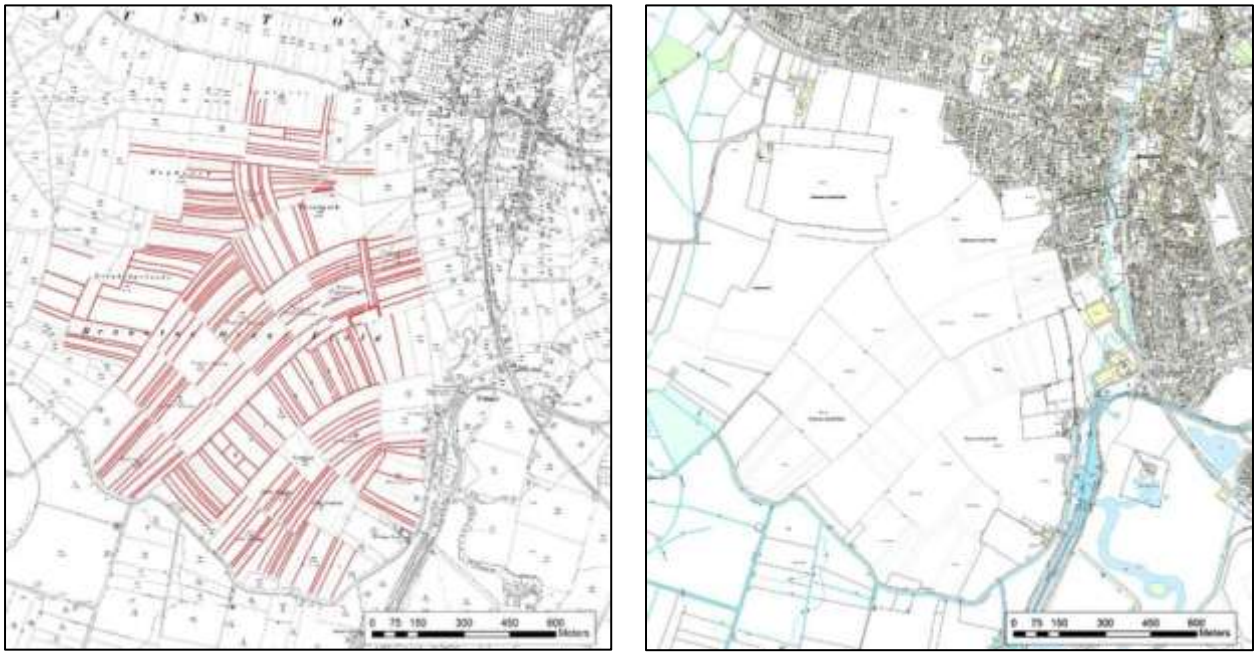
7.6.10 The boundaries of the Great Field strips have historically been marked by low earthwork or turf banks known locally as "landsherds" and "launchers", often no more than 0.3 metres wide and tall, many of which survive *in situ* today (Turner 2007, 35). The scope of the survey was amended in December 2011 to record all visible earthwork evidence of the open field landsherds and if possible, to record evidence of strip agglomeration over time.

7.6.11 Unfortunately the subtle earthworks proved too slight to be identifiable on vertical aerial photography viewed stereoscopically. Nonetheless, the individual strips or groups of strips remain separately farmed and can often be distinguished from neighbouring strips by differing crops. Using the differing crop tones a schematic plan of the strips extant in 1946-1947 was derived from two RAF vertical sorties with the intention of providing a baseline from which to allow both the loss of Great Field strips since the publication of the Ordnance Survey second edition map of 1904, and the amalgamation of Great Field strips since 1940s to be assessed (Figure 70).

7.6.12 Previously unrecorded evidence of medieval strip-field cultivation, possibly the remains of an open field system, has been recorded as relict earthwork banks on a steep north-facing coastal slope to the north-west of Gilscott Farm (MDV102302; Figure 71). First recorded as Ghilscote in 1250, Gilscott survived to the late 18th century as three tenements. The form of this hamlet, laid out around a central green, is still apparent on the 1837 Tithe map for Alwington (Collings et al, 2006). By this date however, the surrounding field pattern had almost achieved the form visible today, although its medieval origin remained apparent in the curvilinear form of the remaining field boundary banks.

7.6.13 It should perhaps be unsurprising that a persistent medieval settlement should be associated with an extensive strip-field field system. Both the survival of the earthworks into the mid-twentieth century and the fact they remained unrecognised until now may be explained by their location; the relict boundaries descend a coastal slope from an elevation of 150 metres aOD at Gilscott Farm to nearly 25 metres aOD above the coastal cliffs, an incline of approximately 1 in 6. At some point in the post-medieval period the steeper slopes had fallen out of use, indicated by the depiction of much of this area as rough ground on the Ordnance Survey first edition 25inch map of 1886.

7.6.14 The slope remains largely under scrub on aerial photographs of 1946 but the relict boundaries are clearly visible as earthworks. By 1999 they have been almost completely levelled. Nonetheless, PGA aerial photography of 2002 and lidar images acquired in 2008 reveal that a small number survive as low earthworks in areas of dense scrub, particularly towards the north-eastern edge of the field system.



Second Edition Ordnance Survey 25 inch map, 1904 © Crown copyright and Landmark Information Group Ltd

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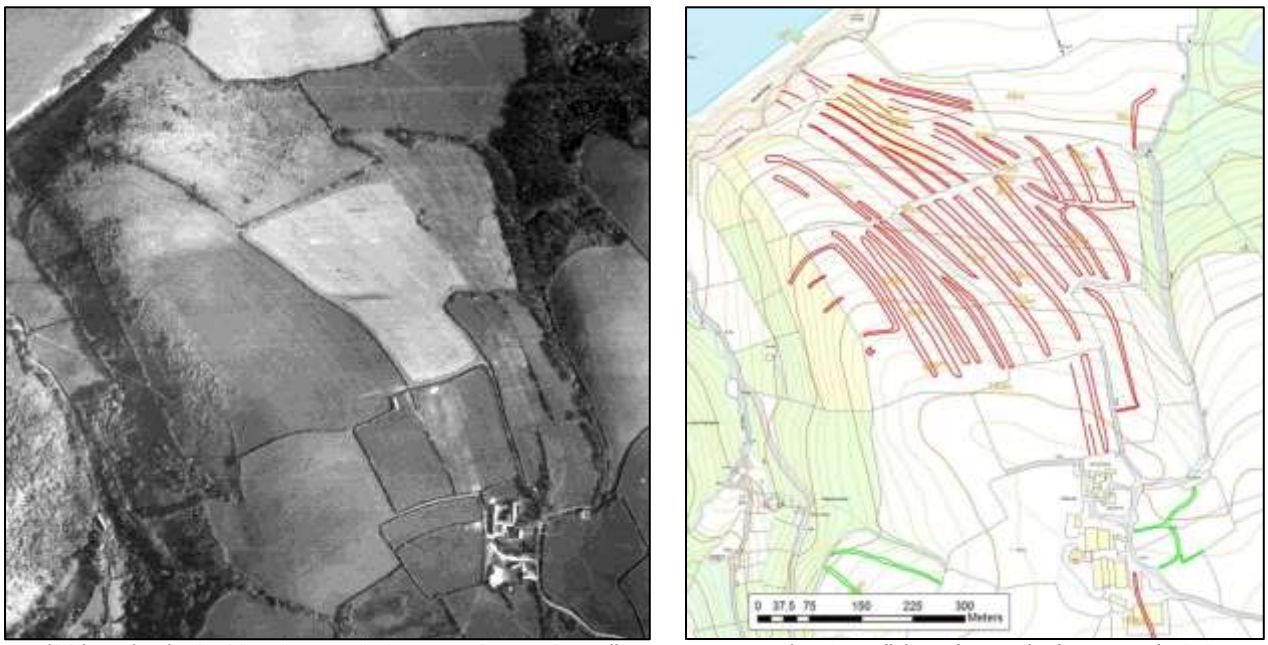
Figure 70. Mapping of Braunton Great Field's strip fields in 1945-6 (left) and the field today (right)



RAF/3G/TUD/UK/158 5035 19-APR-1946. Devon County Council. RAF Photography.

NMP mapping © English Heritage. The base map is © Crown Copyright and database right 2013. Ordnance Survey 100019783.

Figure 71. Possible evidence for medieval open field cultivation near Gilscott Farm (MDV102302)

7.6.15 A second, less extensive area of relict strip-field earthworks is visible at Shelfin Cleave, Ilfracombe parish (MDV103136; Figure 71, bottom right). The subtle curvilinear earthwork

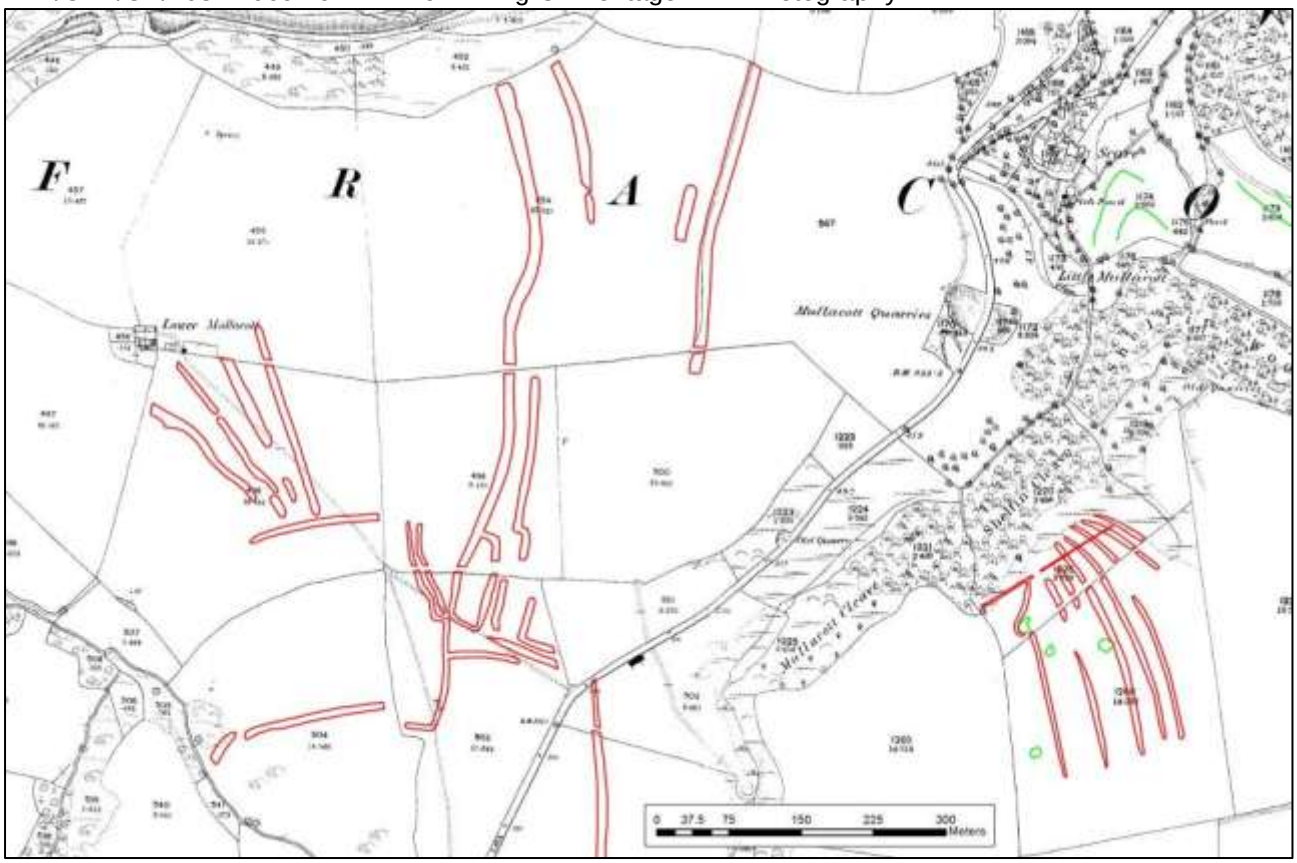
banks are visible only due to the low light conditions on aerial photographs of May 1947, crossing the contours of a gentle north-facing slope, overlooking the steeper slopes of a sharply incised combe. The surrounding area has been characterised by HLC as comprising rough ground and post-medieval enclosure, the relict banks bearing no relation to the extant, very regular boundaries. Nonetheless, the older pattern of curved enclosure is reflected in the extant Barton Field enclosure boundary surviving immediately to the east, from which it has probably been enclosed. It is possible this relict field system is associated with the newly identified possible deserted settlement at Mullacott (MDV103139) approximately 500 metres to the west (see Section 7.7), but is perhaps more likely to be associated with Great Shelfin Farm 300 metres to the south-west. Recent fieldwork in the holdings of Great Shelfin Farm revealed sub-surface evidence of former boundary ditches from which was recovered pottery broadly datable to 1200-1450, supporting the interpretation that the relict boundary banks illustrated here were part of a wider pre-inclosure medieval agricultural landscape (Hughes, 2009).

7.6.16 Subtle curvilinear earthwork banks visible on aerial photographs of 1947 to the north and east of Ettiford Farm, are interpreted as further evidence of enclosure based on strip field cultivation of probable medieval origin (Figure 73). The earthworks, interpreted as remains of earthwork strip field baulks, are aligned cross-contour on the lower slopes of a combe and on the summit of high land north of the farm. The curve of the bank is slightly more pronounced on the steeper combe slopes. The banks are spaced on average approximately 20 metres apart, although some are circa 10 metres apart. Only one of the banks corresponds to a field boundary depicted on the 1840 Tithe map; the others had therefore probably passed out of use some considerable time prior to 1840, although the extant fields here are characterised as medieval enclosures. It is notable that although some are sited on the high ground, the strip fields do not coincide with the location of the nearby barrows; it is possible that medieval cultivation had levelled any burial mounds on the south side of the hilltop. The banks are visible as cropmarks between the 1980s and in 2001, and may have been substantially lowered or levelled.

7.6.17 It is interesting that barrows are visible to the north and west of the strip field areas. This could indicate that the earthworks from medieval agriculture masked or destroyed earlier earthwork features. This effect is noted for areas of ridge and furrow and reclaimed areas in the Severn Estuary (Crowther & Dickson 2008: 37). However it is possible in this instance that medieval farmers respected or even avoided the barrows.

7.6.18 The steep slopes in North Devon have historically been cultivated, even where they are today left as rough ground. Earthwork lynchets of probable medieval date have long been known at Gawlish and Saunton, and these fit well into the historic field pattern that is such a feature both of North Devon and particularly the AONB. NMP survey has been able to add to the number of earthworks and extend the known area of these features.

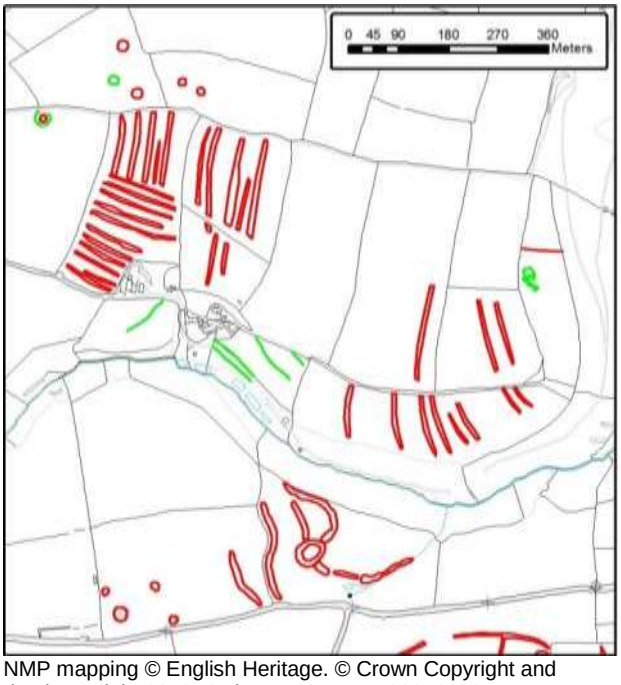
RAF/CPE/UK/2082 4069 19-MAY-1947. English Heritage RAF Photography



First Edition Ordnance Survey 25 inch map, 1889 © Crown copyright and Landmark Information Group Ltd

Figure 72. Possible evidence for medieval open field cultivation near Shelfin Cleave Farm (MDV103136), overlain on the OS First Edition map for clarity

NMR RAF/CPE/UK/2082 3065 19-MAY-1947. English Heritage (RAF photography).



NMP mapping © English Heritage. © Crown Copyright and database right 2013. Ordnance Survey 100019783.

NMR OS/89114 685 04-MAY-1989. © Crown copyright. Ordnance Survey

Figure 73. Medieval Strip Fields, visible as earthworks in 1947 and cropmarks in 1989, MDV 103151. A Scheduled hilltop enclosure (MDV 5651) is clearly visible bottom centre in the 1947 photograph, with its unscheduled offshoot to the west. Note also the newly recorded levelled barrow cemetery transcribed top left (MDV 103149), compared to the barrows visible in 1947 as pale marks bottom left (MDV2194), which survive as earthworks (see Section 7.8)

7.6.19 Several well-defined north-facing terraces at Gawlish Cliff are visible on oblique and vertical aerial photographs from 1946, and are particularly clear on a Devon Aerial Photograph from 1986 (Figure 74, left). A low, wide curvilinear bank runs eastward from the eastern end of

the uppermost terrace and may be an enhanced natural feature. Broad indistinct linear ridges extend from the terraces into the field immediately to the west. These are probably geological in origin, although it is possible that they have also been enhanced by cultivation practices. This may also be the case for a possible lynchet to the south next to Gawlish Cottage. All the features described are visible on lidar images dating to 2007.

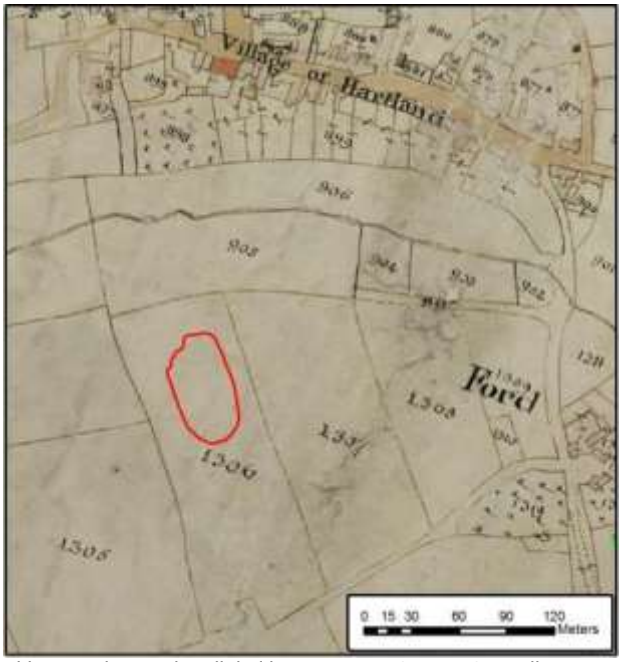
7.6.20 A series of earthwork lynchets are visible on the hillside above Saunton Sands on aerial photographs from 1942 and on images derived from Lidar information captured in 2006-2007 (Figure 74, right). The linear earthworks are probable medieval agricultural terraces and extend circa 400 metres east to west along the contour, and up to 120 metres north to south up the slope. Five lynchets are clearly visible, between 5 and 10 metres in width separated by slopes between 7 and 14 metres wide. Two further possible narrow lynchets to the north could be geological formations, since they are similar in form to smooth linear ridges to the west, but if so it is likely that they have also been enhanced by soil movement caused by medieval cultivation. The ridges are clearly visible on Lidar images from 2006-2007, although scrub, which started to form here during the 1950s, obscures the eastern, western and northern extents.

DCC DAP/HL 7 22-DEC-1986. Photo © Frances Griffith, Devon County Council.

NMR OS/69012 012 05-MAR-1969. © Crown copyright. Ordnance Survey.

Figure 74. Cultivation terraces at Gawlish, MDV 21499, and Saunton, (MDV563)

NMR RAF/58/2984 F22 0038 30-JUN-1959. English Heritage (RAF photography)



Tithe map interactive digital layer, Devon County Council.

Figure 75. Oval cropmark close to Hartland Abbey, MDV 102087, immediately west of a field named 'Easter Coney Park' on the Tithe Map

7.6.21 In terms of specialisation in farming, evidence for several possible rabbit warren earthworks have been recorded. A possible former warren mound is visible as a pale oval cropmark on aerial photographs taken in 1959 (Figure 75). The pale cropmark has one well-defined edge and two slightly darker linear cropmarks visible on an aerial photograph from 1946 may indicate the location of flanking ditches defining the long sides of the mound, but were unfortunately too indistinct to transcribe.

7.6.22 The cropmark is sited on higher ground south of Hartland and the field immediately to the east was named 'Easter Coney Park' on the 1842 Tithe map and apportionment. If the oval cropmark is the remains of a warren mound, this feature is likely to have gone out of use and perhaps been levelled before the mid-nineteenth century.

7.6.23 Three earthwork features possibly associated with warrening have also been transcribed at the coastal landscape of The Warren associated with Hartland Abbey. A small oval mound depicted on the Ordnance Survey second edition 25 inch map has been previously interpreted as a possible pillow mound (MDV81252; Figure 76C, element a.) Static jpeg images derived from Environment Agency lidar data revealed that this feature survived as a low earthwork in 2007.

7.6.24 Approximately 250 metres to the north, a linear feature visible as a pale north-east to south-west aligned cropmark has been tentatively interpreted as a former pillow mound and added to the HER (MDV81219; Figure 76C element b). The cropmark is approximately 55 metres long and roughly 5 metres wide, surrounded on three sides by a darker cropmark 2-3 metres wide interpreted as forming over an enclosing ditch.

7.6.25 Approximately 45 metres to the south-east of the oval pillow mound, a low curvilinear earthwork feature is visible on static jpeg images derived from Environment Agency lidar

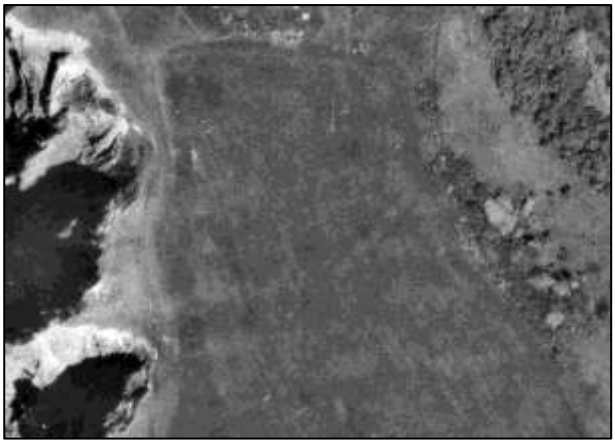
data (MDV 81252; see Figure 76C, element c. At nearly 200 metres in length and up to 12 metres wide this is a substantial landscape feature. It is not uncommon for established warrens to contain pillow mound earthworks of a variety of shapes and sizes (Williamson 2007, 50; Fig. 17; 92, Fig 45) and it is possible this earthwork is also the remains of a former pillow mound. Recent geophysical survey on the Warren carried out by the University of Exeter on behalf of The Hartland Society identified this earthwork as one of a number of linear features on the Warren and interpreted it as, at least partly, the possible remains of a former field boundary. Further field investigation is required to ascertain the form and function of this feature as part of a former complex landscape (Cunningham, 2009).

7.6.26 The history, development and operation of water meadows have been examined in detail by a number of recent volumes (Cook and Williamson 2007, Taylor et al 2006) and will not be repeated in detail here. To summarise, a water meadow is an area of grassland where the quality and quantity of the crop is artificially increased by various irrigation methods, both to produce hay for winter fodder and to provide an early crop of pasture for grazing young stock.

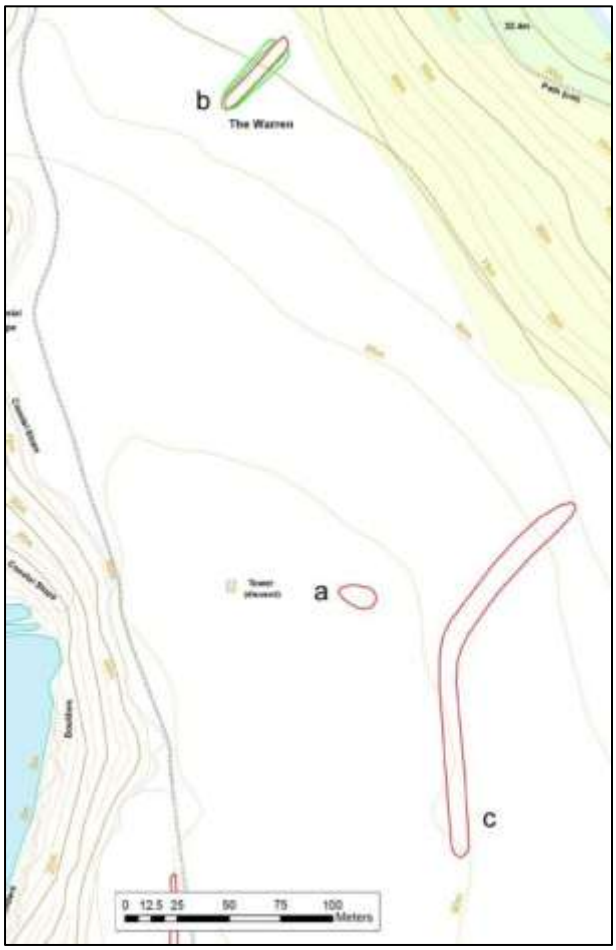
7.6.27 Arguably the simplest form of water meadow are found of hill or valley sides and are known variously as catchwork irrigation systems, catchwater meadows, catch-meadows or field gutter systems. At their most basic, catchworks, as they will be referred to here, can comprise a single water channel running along a valley side. When irrigation was required, this channel was dammed causing the water to over-top the gutter and flow down the valley slope. More often a series of parallel gutters or ditches were constructed below the top water channel, often called the carriage-gutter or headmain, to more evenly distribute the water. They were most used during the ‘hungry-gap’ of the late winter-early spring.

7.6.28 Catchworks were the single most numerous class of feature to be recorded during the Exmoor National Park NMP survey, with over 650 previously unrecorded systems noted, equating to almost a third of the total new record count (Hegarty and Toms 2009, 66). Due to this very high occurrence it was anticipated at the project design stage that this class of monument would also be well represented during the North Devon AONB NMP survey (Hegarty 2011, 18).

A. DCC RAF/3G/TUD/UK/158 5059 19-APR-1946.



B. OS/77023 017 19-MAY-1977. © Crown copyright. Ordnance Survey



C. NMP mapping © English Heritage. The base map is © Crown Copyright and database right 2013. Ordnance Survey 100019783

D. LIDAR SS2224 Environment Agency D0076495 24-MAR-2007 © Environment Agency copyright 2007. All rights reserved

Figure 76. Possible warren or field boundary earthworks at The Warren, Hartland

7.6.29 In actuality the North Devon Coast AONB NMP added a total of 43 previously unrecorded catchworks to the DCC HER, less than 4% of the total new record count. In addition, unlike neighbouring Exmoor where the catchworks were almost ubiquitous, their distribution throughout the AONB survey area is not uniform, instead being concentrated in Greater Exmoor area (see Figure 77). The majority are recorded in the map quartersheets SS54NW, SS54SW and SS54SE. It is possible this pattern represents a western extension

of a very localised and long-lived Exmoor tradition of catchwork irrigation, perhaps reflecting the influence of the 'improving' estates which further imposed catchworks on the uplands in the nineteenth century (Hegarty and Toms 2009; Hegarty and Wilson-North forthcoming).

7.6.30 However, it is more likely to reflect local variations in geology, soils and topography. The dense distribution of catchworks peters out on the western edge of the transition from middle Devonian to Upper Devonian geologies. Although possibly significant, this alone cannot account for the variation as a similar density continues southwards over the upper Devonian rocks in the remainder of the Exmoor National Park NMP project area.

7.6.31 The south and west of the survey area also comprises a higher proportion of less fertile and poorly drained soils than the north and east. However, variations in topography and water supply are probably a more defining factor; the numerous springs and very sharply incised combes seen on the Exmoor fringe are less apparent in the more rolling landscape of the Culm plateau seen throughout much of the North Devon Coast AONB NMP survey area.

7.6.32 In general the catchworks recorded during the AONB survey appear to be smaller in extent and of simpler layout than those visible further to the east, with very few noted as possibly operating as integrated systems (Hegarty and Toms 2009, 64;Cook and Williamson 2007). The most westerly possible catchworks recorded during the survey are both located close to the coastal village of Clovelly (MDV 102425, MDV 102398). Although relatively extensive, at approximately 110 and 215 metres long, both were very simple examples consisting of only a single headmain.

7.6.33 More complex examples recorded on the fringes of Exmoor are often partly depicted on the Ordnance Survey first edition 25inch map. For instance, at Higher Trayne Farm two gutters were partially depicted although not annotated to the north of the farmstead, with the vast majority of the extensive 4 hectare system not shown (see Figure 78). In instances such as this, the entirety of the water meadow was transcribed for clarity.

7.6.34 Although probably no longer in use, the catchworks at Higher and Lower Trayne Farms (MDV103104, MDV103105) are among a small number of catchworks which remain visible as earthworks on the most recent images available to the survey, approximately a third of the total recorded. Many appear to be disused and subject to erosion from livestock, agricultural vehicles or damage from farm expansion or development. An unusual example was recorded from static jpeg images derived from lidar data of 2007 as earthworks within Steart Wood (MDV 102261). This possible catchwork might survive as two earthwork gutters due to its inaccessible location, although possibly with some damage from reuse as footpaths within the woodland. These are, however exceptions to the rule. In general, the survival of these relatively subtle earthwork features is poor with many levelled in the post-war years.

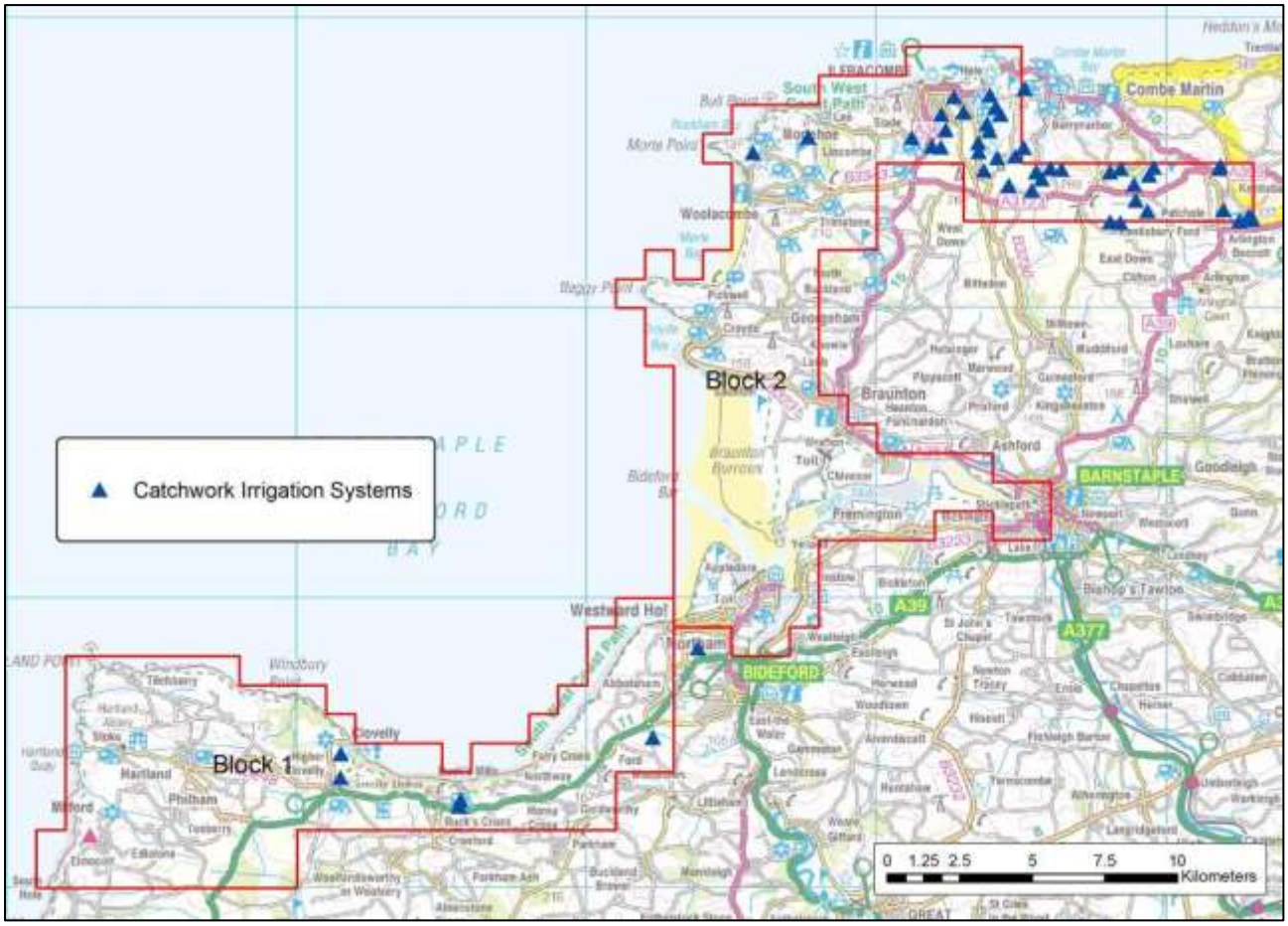
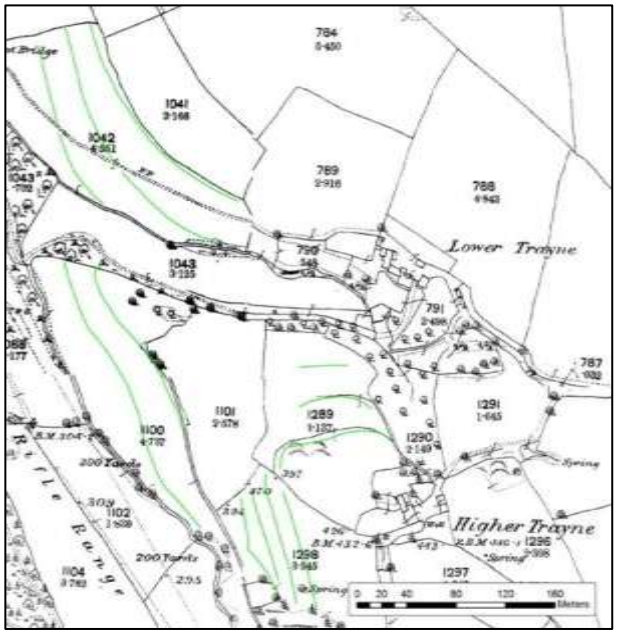


Figure 77. The distribution of catch work water meadows recorded during the survey. © Crown Copyright and database right 2013. Ordnance Survey 100019783

RAF/106G/UK/1655 4130 11-JUL-1946. English Heritage RAF Photography.



NMP mapping © English Heritage. First Edition Ordnance Survey 25 inch map, 1891 © Crown copyright and Landmark Information Group Ltd.

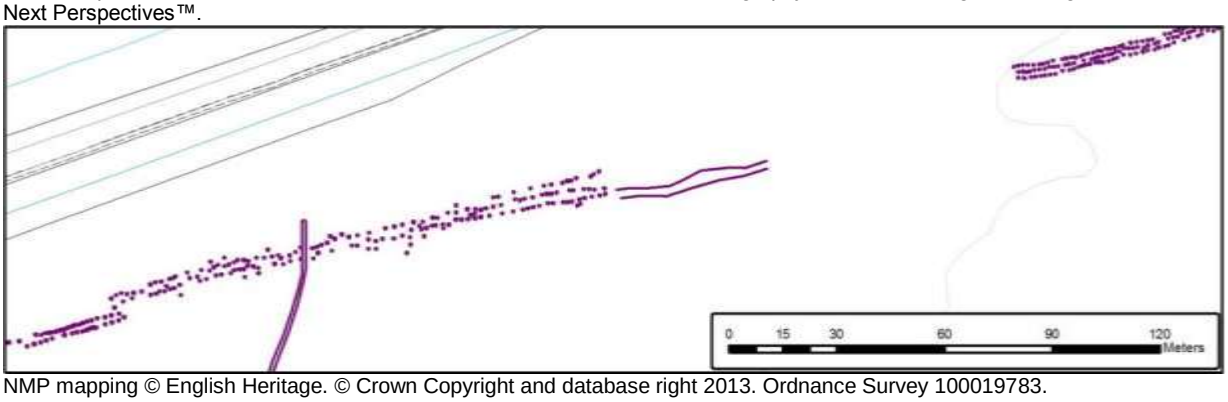
Figure 78. An extensive catch work water meadow recorded at Lower Trayne Farm. The system is partly depicted on the OS First Edition 25 inch map (right)

7.6.35 The nineteenth century demand for ‘improvement’ of agriculturally productive land also led to the reclamation of Horsey Island and Braunton Marshes, with its distinctive stone built linhays. Extensive parallel rows of structures are visible in the inter-tidal zone, roughly parallel to the shore at between 40 to 70 metres east and south of Horsey Island sea wall, on aerial photographs taken between 2001 and 2010. They are illustrated in Figure 79 and Figure 80 and also visible in relation to the reclaimed land and fish weir in Figure 108. Three or in some cases four rows are visible, spaced approximately a metre apart, in three main sections of up to 200 metres in length. Fewer of the structures are visible on the earlier run of aerial photographs, which suggested that their increased visibility resulted from erosion of the foreshore in recent years.

7.6.36 As they closely follow the course of the sea wall around Horsey Island it was initially assumed that they were contemporary with, or post-date this mid-nineteenth century embankment. They are similar in layout to the structures on the opposite side of the estuary, and were tentatively interpreted as revetting associated with the seawall, although they also resembled structures associated with the fishing industry, such as oyster racks. The uncertainty of interpretation meant that this area was a priority for the second site visit, which was proven to be worthwhile; these were found to be crab tiles, placed on the surface and consisting of tan coloured sections of guttering and darker ridge tiles. This explains why some of the rows were very pale in appearance and why others, presumably longer established, were dark and covered in seaweed. Although these features transpired to be related to marine rather than terrestrial activity, the current embankments of the reclaimed land were clearly visible on aerial photographs, as were the many areas of active erosion where the stone revetting had been lost. In general the embankments were not transcribed, since they are depicted on the historic mapping.

Next Perspectives PGA Tile Ref: SS4733-SS4833 22-MAY-2001. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

Next Perspectives PGA Tile Ref: SS4733-SS4833 08-APR-2010. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

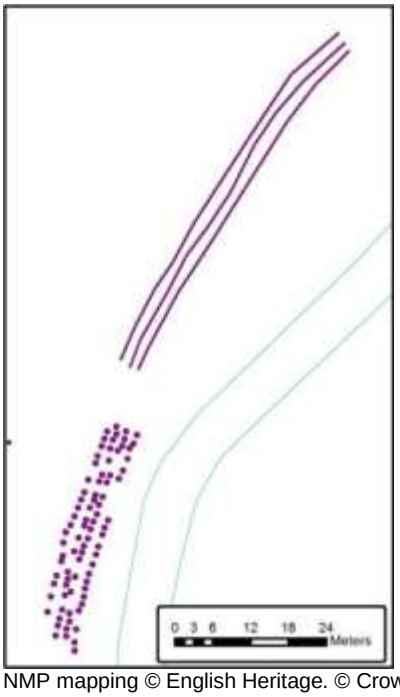


NMP mapping © English Heritage. © Crown Copyright and database right 2013. Ordnance Survey 100019783.

Figure 79. Rows of structures in the intertidal zone around Horsey Island, MDV 102613, originally thought to be possible revetting from post-medieval land reclamation. The rows appear to become more extensive between 2001 and 2010.

Next Perspectives PGA Tile Ref: SS4833 22-MAY-2001. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

Next Perspectives PGA Tile Ref: SS4833 08-APR-2010. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.



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Photographs: Stephanie Knight

Figure 80. Structures in the intertidal zone around Horsey Island, MDV 102613, originally considered as possible early revetting from post-medieval land reclamation, but proven to be crab tiles when visited in 2013. The rows of structures appear to become more extensive between 2001 and 2010.

7.6.37 A particular feature of the western part of the AONB, rich in culm grassland, are extensive earthwork remains of narrow ridge and furrow. These have been interpreted as evidence of deep ploughing to encourage drainage. This method of agricultural improvement was widespread across the western part of the project area, on large areas of open land but equally prevalent in small enclosed fields of probable medieval origin.

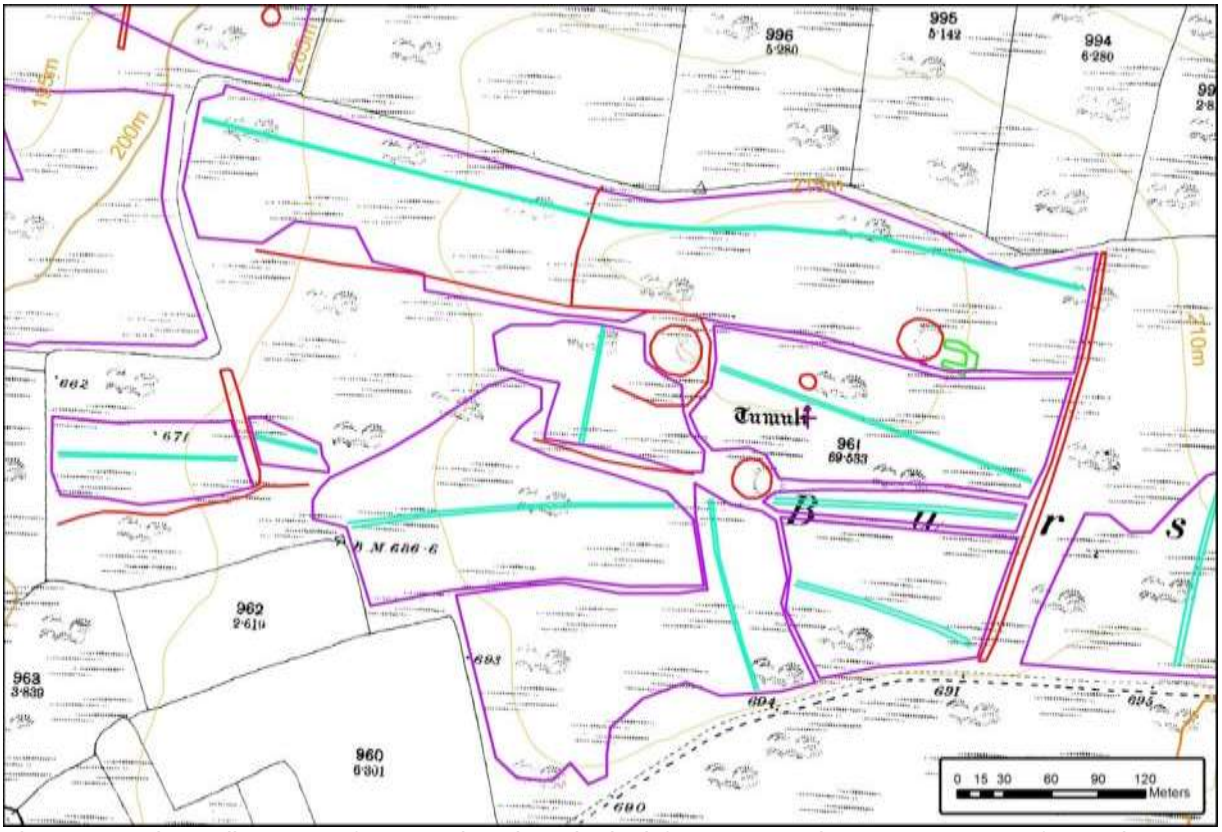


Figure 81. The palimpsest of mapped archaeological features on the western part of Bursdon Moor: Four Scheduled Bronze Age barrows; medieval or post-medieval field boundary banks apparently respecting these; modern narrow ridge and furrow (MDV 102323) that respects only some of the barrows; a probable peat cutting pit and twentieth century military direction arrow (see Section 7.5 for a description of the latter). NMP mapping © English Heritage. First Edition Ordnance Survey 25 inch map, 1891 © Crown copyright and Landmark Information Group Ltd. Contour data © Crown Copyright and database right 2013. Ordnance Survey 100019783.


Figure 82. Narrow ridge and furrow, some respecting the barrows, on the eastern half of Bursdon Moor in 1946. DCC RAF/3G/TUD/UK/158 5183 19-APR-1946. Devon County Council (DCC) RAF photography.

7.6.38 Narrow ridge and furrow earthworks are visible across Bursdon Moor on aerial photographs from 1946 onwards. The ridge and furrow is spaced at intervals of between 1.5 metres and 5 metres, the separate parcels being varied in alignment, although always cross-contour. The earthworks therefore would have enhanced drainage, in an attempt to improve the land for agricultural productivity in the modern period. The earthworks avoid the barrow mounds and most of the relict field boundaries but may pre-date much of the peat cutting, which seems to be partly aligned on the direction of the ridges. A site visit in 2012 confirmed the continued survival of widespread ridge and furrow earthworks and many of them held standing water confirming that they no longer fulfil their original function.

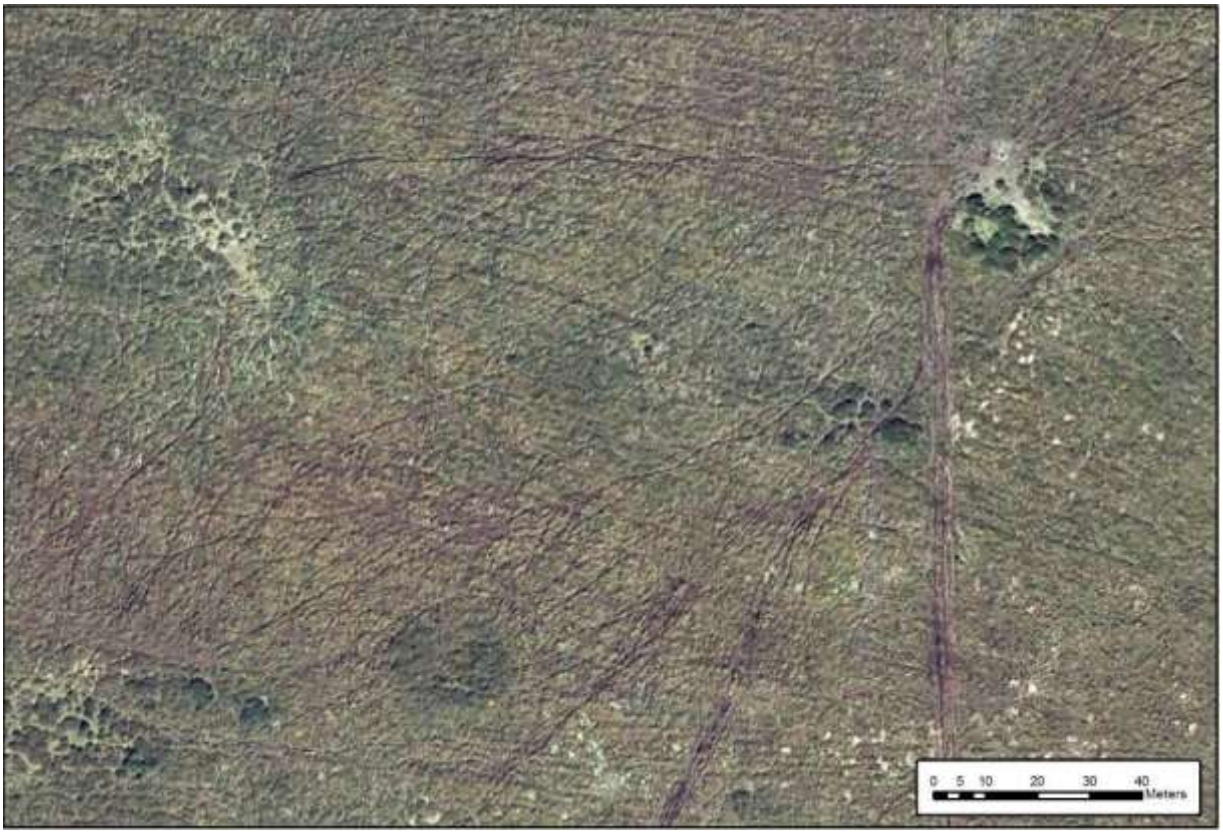


Figure 83. Detail of the Scheduled barrow group, Bursdon Moor, MDV 109, 110, 111, 12410, showing scrub cover and a water trough installed on the edge of the barrow top right, resulting in erosion and poaching. Next Perspectives PGA Tile Ref: SS2620 22-AUG-2007. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

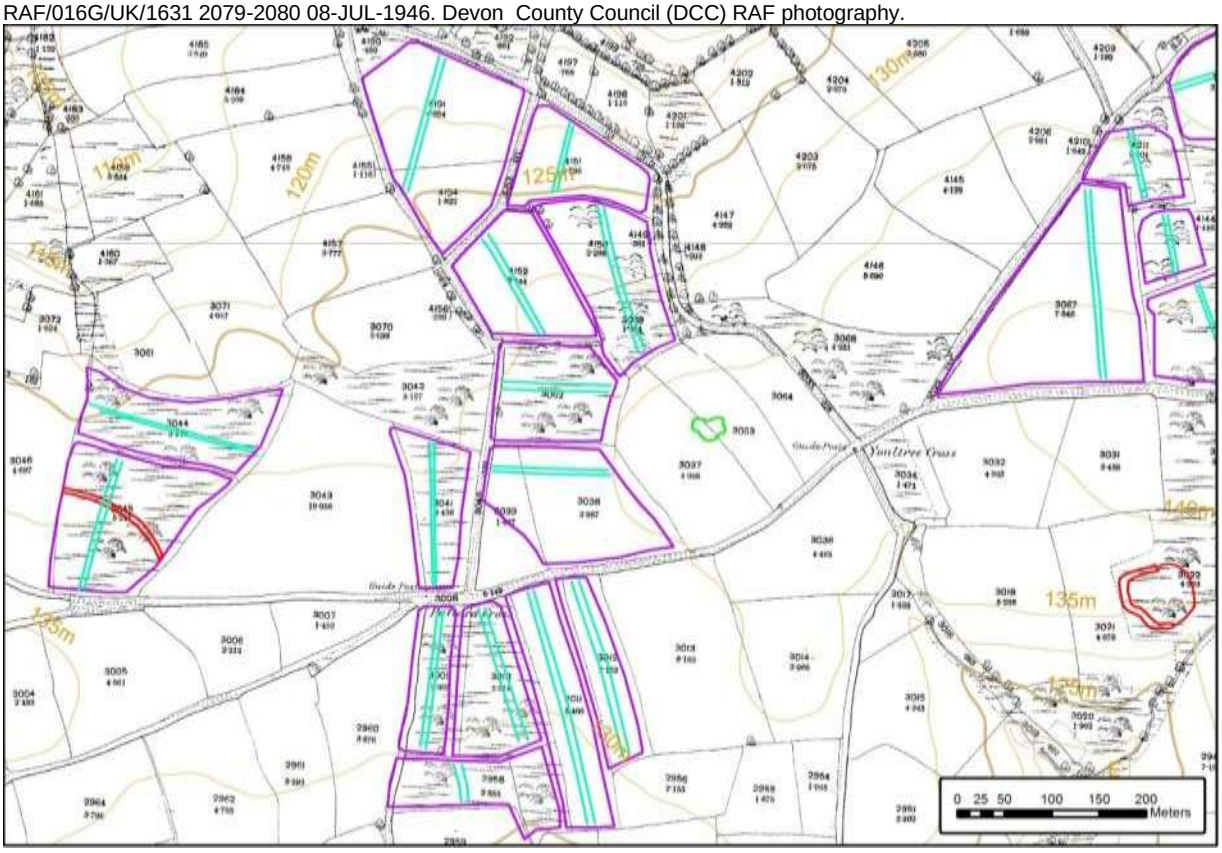
7.6.39 Very recent activity on Bursdon Moor has again altered this landscape. The scrub has been removed from the barrows since 2007 (Figure 84) and a water trough installed on the edge of one of the barrows (top right), has been removed under Environmental Stewardship. The NMP site visit was timed to coincide with the removal of the trough and images are reproduced below (Figure 85). Traditional grazing and burning has been encouraged to sustain and improve the condition of the culm grassland here (South West Farmer 2008).

Figure 84. The water trough on the barrow when visited in 2008, with some poaching starting to occur. Photograph: Stephanie Knight, 2008

Figure 85. The water trough immediately before (left) and after (right) removal under archaeological supervision. Photographs: Stephanie Knight, 2012

Figure 86. The narrow ridge and furrow on Bursdon Moor is clearly visible as water-filled linear earthworks (left) on the north of the barrow which is now free of scrub growth (right) in 2012, after the relocation of the water trough. Photograph: Cain Hegarty, 2012

RAF/016G/UK/1631 2079-2080 08-JUL-1946. Devon County Council (DCC) RAF photography.

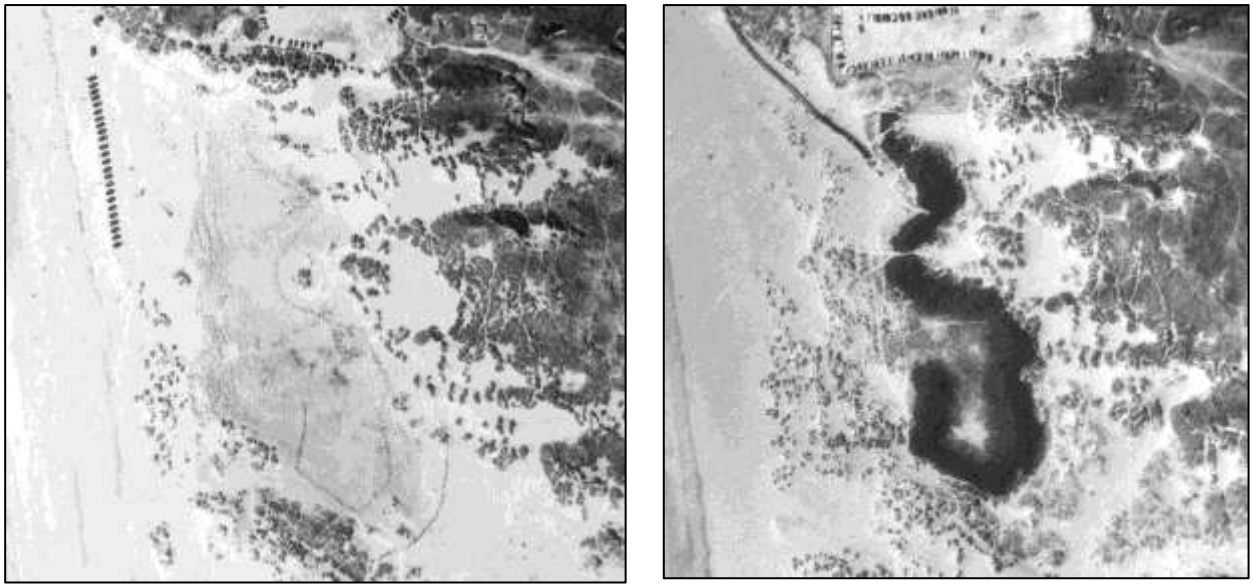


NMP mapping © English Heritage.First Edition Ordnance Survey 25 inch map, 1891 © Crown copyright and Landmark Information Group Ltd. Contour data © Crown Copyright and database right 2013. Ordnance Survey 100019783.

Figure 87. Numerous small fields around Pattard's Cross with narrow ridge and furrow earthworks visible in 1946, e.g. MDV 18283, and distribution of rough ground in 1891

7.6.40 The area north of Hartland, illustrated in Figure 87 demonstrates the patchwork of fields deep ploughed to improve drainage. Narrow ridge and furrow, typically spaced at between 4 and 8 metres apart, and aligned roughly cross-contour, is visible as earthworks in irregularly-shaped fields on aerial photographs of the 1940s. Many of the earthworks - but by no means all or exclusively - are concentrated on areas depicted as rough ground in the First Edition OS maps, presumably poor draining land that was ploughed up during or perhaps before the war years. Many of the ridges are clearly visible into the 1970s, but very few in enclosed land can be seen to survive as earthworks today.

Figure 88. Significant areas of the Burrows appear to have been planted up with vegetation in the 1950s (top right; centre-centre left). NMR RAF/58/2205 F21 0060 05-JUL-1957. English Heritage (RAF photography)



RAF/58/2205 F22 0050 05-JUL-1957. English Heritage (RAF photography).

MAL/63603 115816 11-JUN-1963

Figure 89. Planting of stabilising vegetation near Saunton in the 1950s (left) and established in 1963 (right)

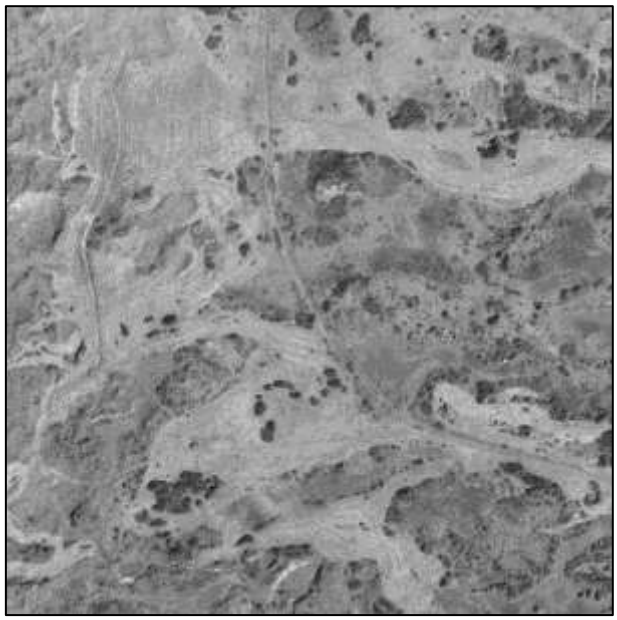


Figure 90. Large areas of scarified or scrub ripped land on Braunton Burrows in the 1980s. NMR OS/89115 295 04-MAY-1989. © Crown Copyright. Ordnance Survey.

7.6.41 A more recent phenomenon that can have a significant impact on the landscape is large scale habitat restoration works and recreation of particular types of land cover. Braunton is a particularly interesting example, where military use has continued from the 1940s to the present day, but other management trends have been somewhat polarised. For instance, 1950s and 1960s aerial photographs appear to show large areas that have been recently planted up, presumably to stabilise the dune systems (Figure 89); up to 6% of the dune system is recorded as having been planted with marram (Pye *et al* 2007). In the 1980s extensive areas of the Burrows appear to have then been stripped of scrub, leaving narrow parallel scars across the ground surface (Figure 90). By 2001, the aerial photographs appear to show evidence of 'scrape' creation, the movement of large volumes of sand to

create, enhance or reinstate wet ‘slacks’ to encourage particular habitats. In some cases these scrapes coincide with the locations of Second World War remains, and it is likely that they have impacted on the military heritage of the Burrows (Figure 91-92).

Figure 91. New scrapes on Braunton Burrows, Doughnut Slack, in 2001. The overlying NMP transcriptions suggest potential damage to military sites MDV 77540 (pillbox and barbed wire training aid), and MDV 102646 (anti-tank obstacle). Next Perspectives PGA Tile Ref: SS4533 22-MAY-2001. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

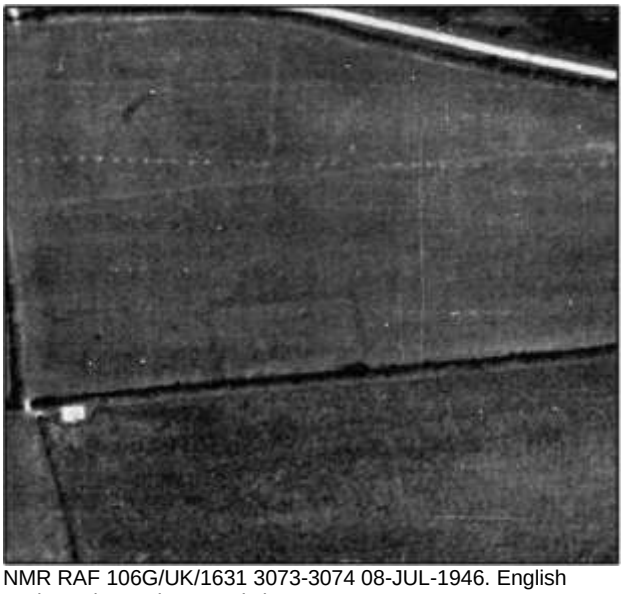
Figure 92. Recent scrapes on Braunton Burrows, demonstrating the scale of impact. Photographs: Stephanie Knight 2008.

7.7 Thematic Results: Settlement

7.7.1 Relatively few sites were recorded as cropmarks during the survey. However, a small but significant number of previously unrecorded ditch defined cropmark enclosures of later prehistoric or Romano-British typology were observed.

7.7.2 A roughly square ditched enclosure, circa 50 metres across with 2.5 metre wide ditches, is visible as a dark cropmark on aerial photographs taken between 1946 and 2007 at Gorran’s Down, Hartland (MDV102463; Figure 93). Curvilinear ditches adjoining the north-eastern part of the enclosure, and a linear ditch running north from the approximate centre of the northern side, are also visible. Typologically the enclosure could be interpreted as an Iron Age or Romano-British farming settlement perhaps with a surrounding field system. No entrance way is visible, although the remains of a more recent field boundary bank overlies the enclosure and bisects the north from the southern half. The field boundary was extant in

1946 and the different crops in the two fields resulted in only the northern part manifesting as a cropmark at this time. Both the northern and southern parts of the enclosure are visible on aerial photographs taken in 1999-2000, when the field boundary had been removed and the field was under a single crop. There is good potential for below ground remains to survive, although the siting at the top of a slope means that archaeological remains are particularly vulnerable to plough damage. Fragmentary evidence of an associated prehistoric field system has been recorded on the high ground to the east (MDV 102462).



NMR RAF 106G/UK/1631 3073-3074 08-JUL-1946. English Heritage (RAF photography)

Interactive digital aerial photographs 1999-2000. This image is an extract from the Millennium Map team which is copyright Getmapping plc.

Figure 93. Sub-rectangular enclosure east of Gorrans Down, MDV102463.

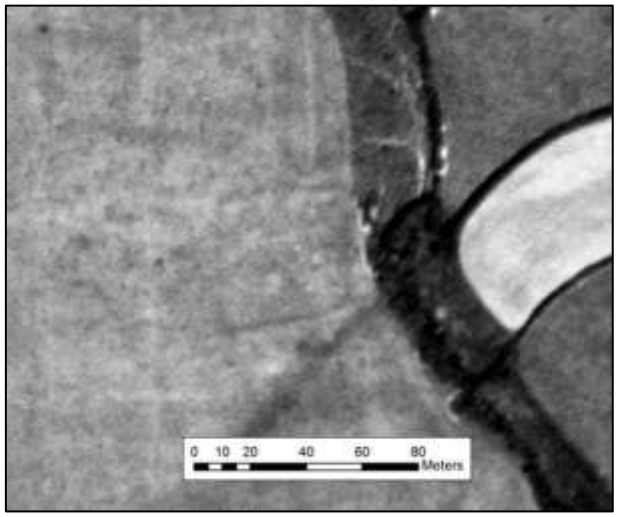


Figure 94. A sub-square ditched enclosure visible as a cropmark on Milford Common. NMR RAF/106G/UK/1631 3081-2 8-JUL-1946

7.7.3 A morphologically similar roughly square ditched enclosure of possibly later prehistoric date is visible as a cropmark on the same sortie of aerial photographs of July 1946 on Milford Common, just over four kilometres to the west (MDV102421 Figure 94). This enclosure is also of similar dimensions to the Gorran's Down enclosure, measuring nearly 50 metres across with cropmarks defining a ditched boundary between 2 metres and 4 metres wide. It

is also very similar to the central enclosure of a cropmark double or triple ditched enclosure recorded to the south of Combe Martin at Stoneditch Hill during the Exmoor National Park NMP survey (NRHE 1459874; MDV81013; Hegarty and Toms 2009,61). But as noted in relation to the Stoneditch Hill site, small square or rectilinear enclosures comprise a high proportion of cropmark sites in Devon, whereas earthwork sites tend to be oval or curvilinear in form (Griffith 1994,93; Riley and Wilson-North 2001,70). This pattern may continue to be borne out in relation to a complex of three oval enclosures described below.

7.7.4 No evidence of internal features or field systems associated with MDV102421 can be seen. The cropmark is not visible on later aerial photographs available to the survey, emphasising the value of this particular run of 1946 images to the survey.

7.7.5 A possible sub-circular enclosure is recorded on Milford Common, visible again only on the same sortie some approximately 300 metres to the south (MDV102420). This enclosure is more ephemeral in appearance and needs further investigation, perhaps by geophysical survey.

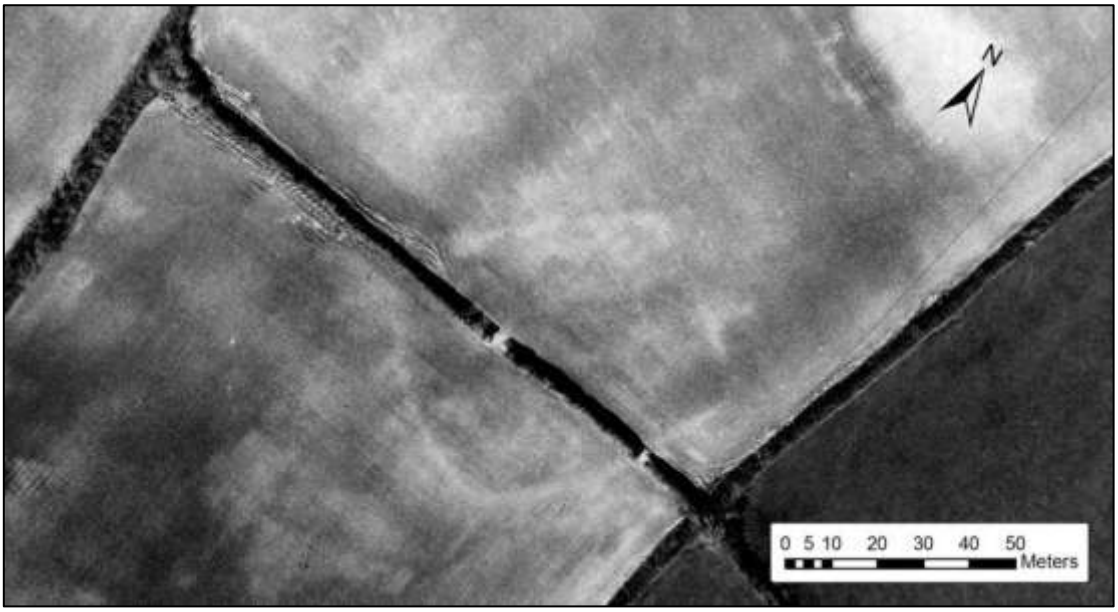


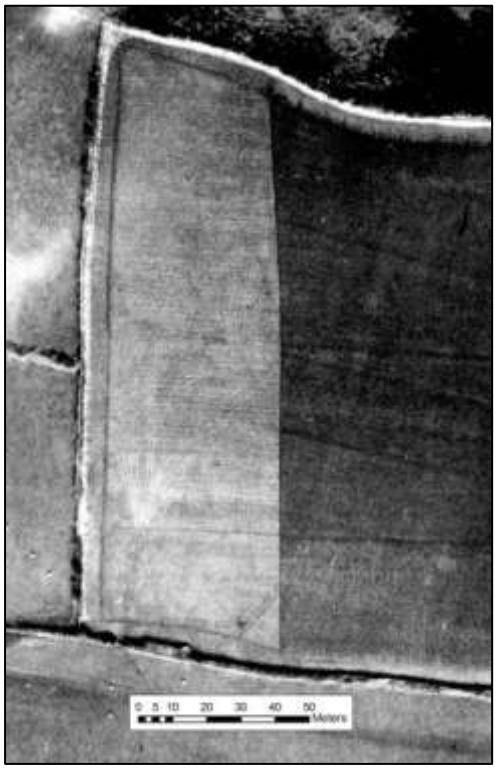
Figure 95. A sub-square ditched enclosure visible as a cropmark to the west of Winscott. MAL/71027 145 27-APR-1971. © Devon County Council.

7.7.6 A further similarly sized rectilinear ditched enclosure is visible as a somewhat fragmentary germination mark or cropmark on aerial photographs of April 1971 to the west of Winscott, Alwington (MDV102358; Figure 95). To 1971 the site of the cropmark is bisected by an east-west field boundary of probable post-medieval date. This boundary is removed by 1992 revealing the cropmark continuing under the line of the former boundary, although the southern portion of the enclosure cropmark is less clearly visible. The boundary removal may be indicative of increasing intensification of arable practice which might have implications for the condition of the monument.

7.7.7 Morphologically more irregularly shaped enclosures are represented by a previously unrecorded possibly double ditch and bank defined enclosure to the south of Georgeham (MDV102576). Visible as a faint cropmark or germination mark on aerial photographs of 1954 the cropmark becomes less clear as the enclosure falls under an area of different crop

cover to the east (the image in Figure 96 is enhanced for clarity). The potential for below ground survival is reasonable but the enclosure's location on a steep north-west facing slope and the effects of incremental year on year arable cultivation mean the potential for increased damage to this feature are high.

7.7.8 The newly recorded monument forms part of a small but potentially significant group of three curvilinear enclosures of similar size interpreted as being of probable later prehistoric date, each located on a spur or crest overlooking the a steep combe and the confluence of two streams to the north, to the south-east of Croyde. The two westernmost, previously recorded enclosures (MDV16955, MDV16053; Figure 97, A and B), are both visible as earthworks fitting the pattern described in paragraph 7.7.3.



RAF/540/1266 F22 0059 08-MAR-1954

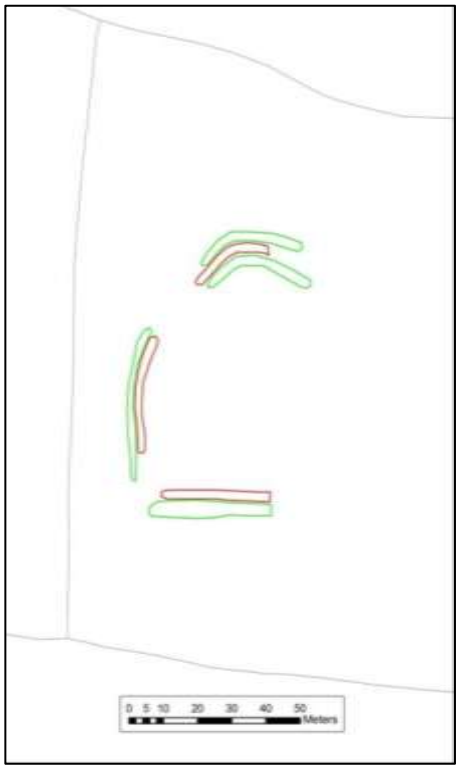


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Figure 96. A sub-oval double-ditched enclosure visible as cropmarks to the south of Georgeham (MDV102576)

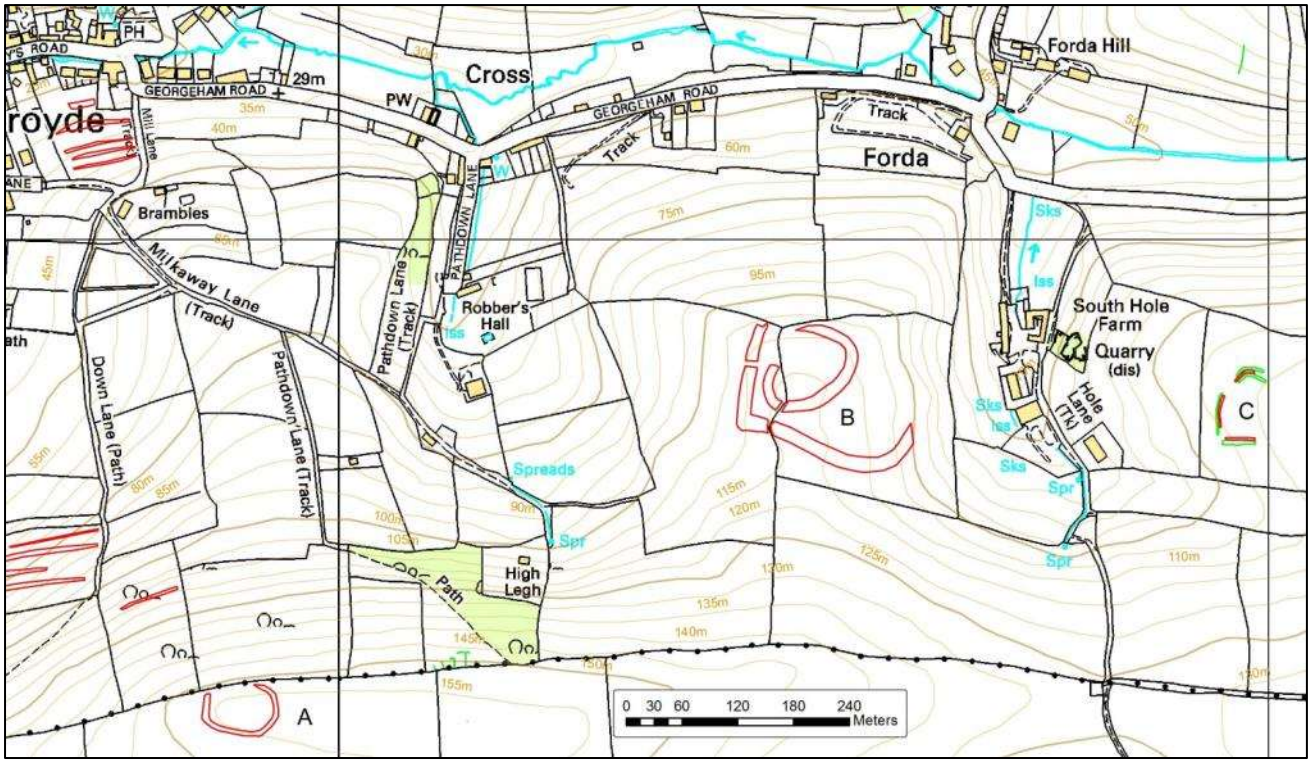


Figure 97. A small group of curvilinear enclosures of similar size interpreted as being of probable later prehistoric date, overlooking the confluence of two streams to the north (A. MDV16955; B. MDV16053; C.MDV102576). NMP mapping © English Heritage. Contour data © Crown Copyright and database right 2013. Ordnance Survey 100019783.

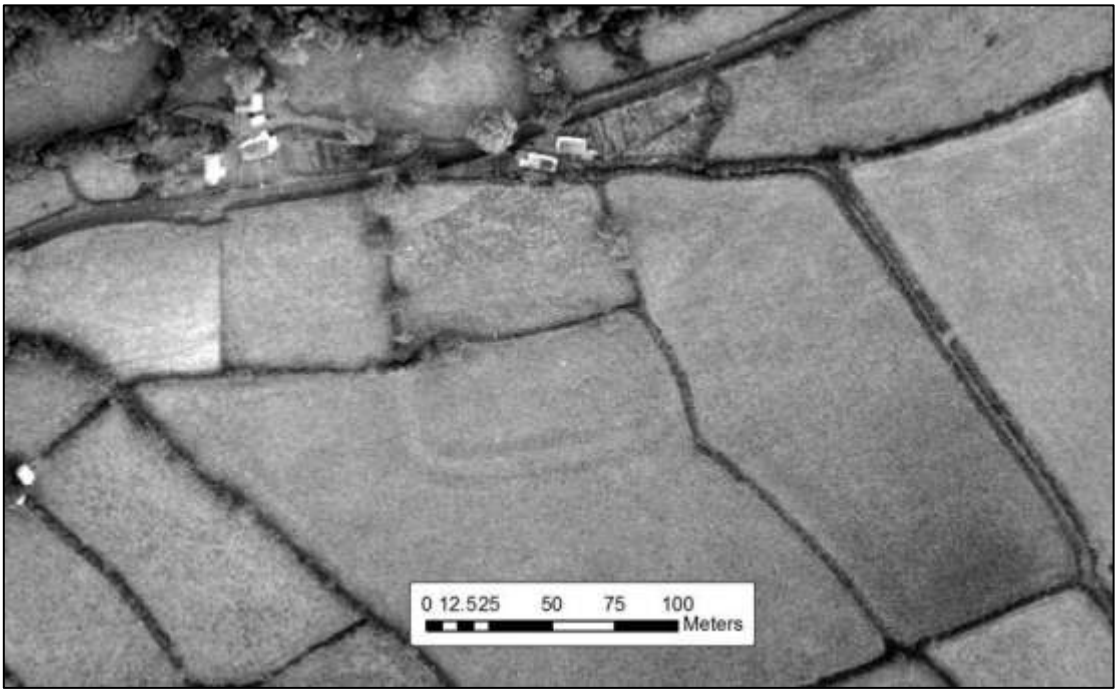


Figure 98. Visible as an earthwork bank and ditch defined enclosure in 1966, this site (MDV102287) was largely levelled by 1979. MDV102287. MAL/66058 058 14-OCT-1966. MAL© Reserved.

7.7.9 Earthwork archaeological monuments can have an enduring influence on the form of the historic field pattern. This can be illustrated by the form of a newly identified double banked oval enclosure of probable later prehistoric date, recorded on a steep north-facing combe

slope overlooking the valley floor at the confluence of the River Yeo and a tributary flowing from the south (MDV102287). Although visible as an earthwork on aerial photographs of the 1940s this sizeable earthwork was largely obscured by scrub vegetation until the 1960s. It is most clearly visible in the 1966 image reproduced in Figure 98 where the substantial nature of the earthworks and its influence on the development of the surrounding field pattern is apparent. The formerly substantial enclosure has been largely levelled by modern agricultural activity since 1979 although very slight earthworks remain visible on aerial photographs of 2002.

7.7.10 Of probable later date is the possible deserted village at Seckington, visible as a network of irregular pale linear cropmarks between 4 and 6 metres wide along the western edge of the field on aerial photographs taken in 1946 (Figure 8 in Section 7.2 above). In plan they resemble the infields and possibly building enclosures of a deserted farmstead or farmsteads, within an outer boundary enclosure. Although less clear, the outer boundary is partly visible as a pale cropmark on 1959 aerial photographs, confirming that the cropmarks visible on earlier photographs are not just surface agricultural features. Seckington is first known from documentary sources in 1333, and the cropmarks may have formed over the remains of boundary banks of a medieval settlement of which Seckington farm to the east is the successor or lone survivor. In aerial photographs from 1999 very pale areas are visible in this part of a large field with otherwise reddish-brown soil, which suggests that below-ground features were being actively impacted by ploughing.

7.7.11 The survey has added further valuable detail to the understanding of later settlement change in the survey area. For example the survey has accurately transcribed the site of the previously recorded nineteenth century desertion of Dadworthy (MDV81183), a farmstead with medieval origins and depicted on the 1844 Tithe map for Hartland.

7.7.12 The survey has also identified much larger scale, previously unrecorded settlement change. This is best illustrated by evidence of settlement desertion, contraction or fragmentation recorded at the possible deserted farmstead or shrunken hamlet of Mullacott, in Ilfracombe (MDV103139). Known as Molacota at Domesday, 'mullecoth' in 1242, 'mollecote' in 1303 and 'mellecote' in 1485 (Gover, Mawer and Stenton 1969), the identity of the medieval Mullacott was ascribed in the DCC HER to the farm now known as Higher Mullacott Farm (MDV103139). The survival of Lower Mullacott Farm nearly 700 metres to the north-west provides compelling place-name evidence for the fragmentation of an earlier settlement but the post-medieval landscape of dead-straight hedges gives little indication of the location or form of such an earlier, medieval settlement (see Figure 72 in section 7.6 and Figure 99 below).

7.7.13 The current Mullacott Farm is a modern imposition on the post-medieval landscape, created at some point between the publication of the OS 1904 and 1932 25 inch maps. An extensive web of low earthwork banks recorded from vertical aerial photographs of 1947 and static jpeg images derived from lidar data captured in 2006 reveals a tantalising fragment of the pre-inclosure landscape.

7.7.14 Sinuous and curvilinear field boundary banks and lynchets extend over more than 40 hectares of rolling hilltop between the sharply incised combes of West Wilder Brook and a tributary to the East Wilder Brook. At the centre of this relict landscape, on a small terrace just below the crest of the hill, a concentration of earthwork banks define a nexus of possible trackways focussed on a rectilinear enclosure. This is interpreted as the nucleus of a possible deserted settlement, possibly the Molacota of Domesday or a 'Middle Mullacott' farm forming a dispersed settlement group with Higher and Lower Mullacott Farms, its holdings probably absorbed by them during a period of post-medieval settlement contraction and inclosure. The relict earthworks are not clearly visible on any later aerial photographs available to the survey but can be seen to survive as subtle earthworks on digital images derived from Lidar data acquired in 2006.

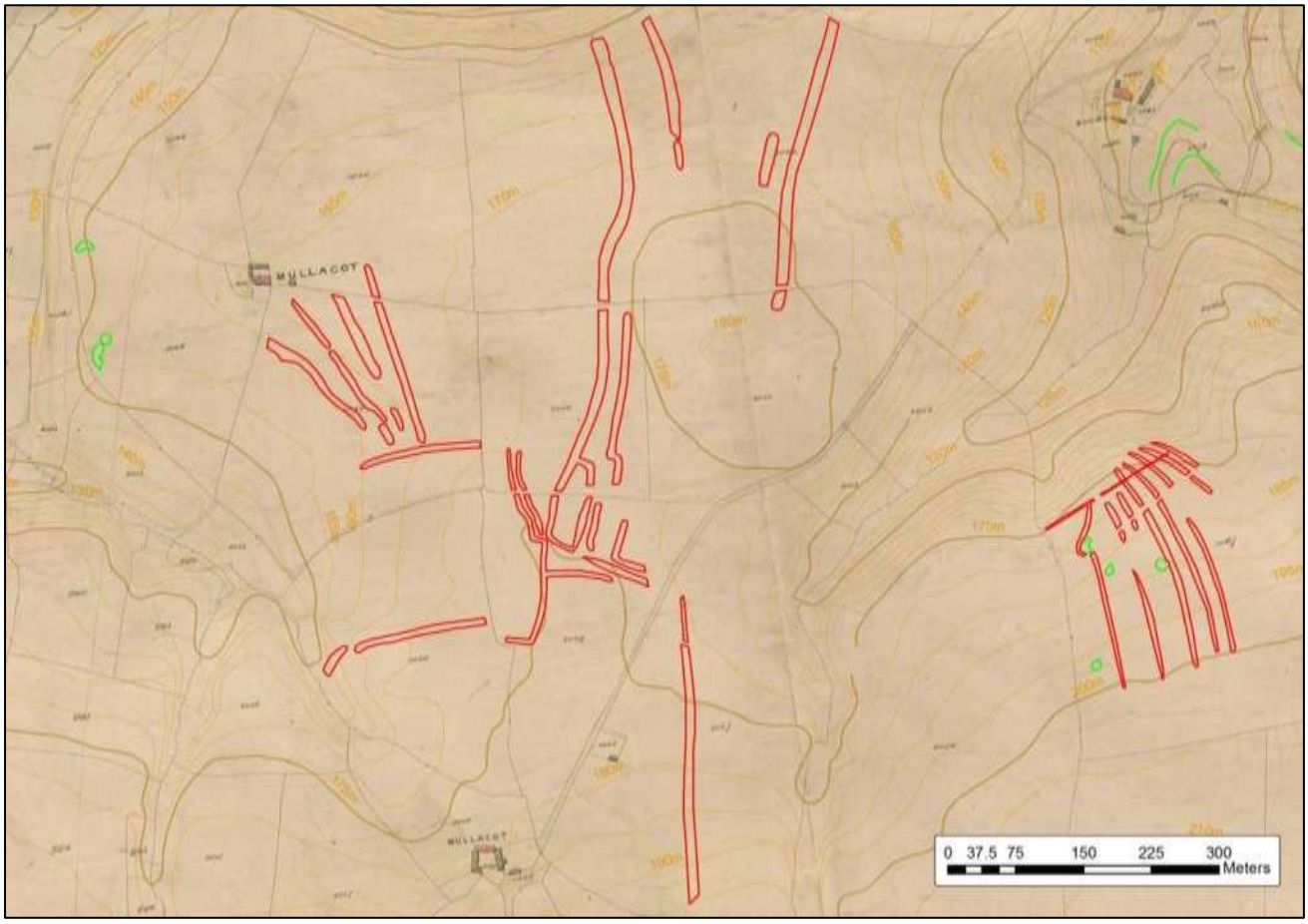


Figure 99. Is this Middle Mullacott Farm? NMP transcription overlain on the 1840 Tithe Map for Ilfracombe and OS Contour data. NMP mapping © English Heritage. Contour data © Crown Copyright and database right 2013. Ordnance Survey 100019783.

7.7.15 Seasonal occupation is inferred from the numerous flint scatters along the North Devon Coast, and although no aerial photographic evidence of prehistoric seasonal exploitation was observed, or expected to be visible, one photograph might be suggestive of seasonal itinerant working several millennia later (see Figure 100), although an alternative explanation as holiday accommodation has also been suggested (Hobbs, pers. comm).

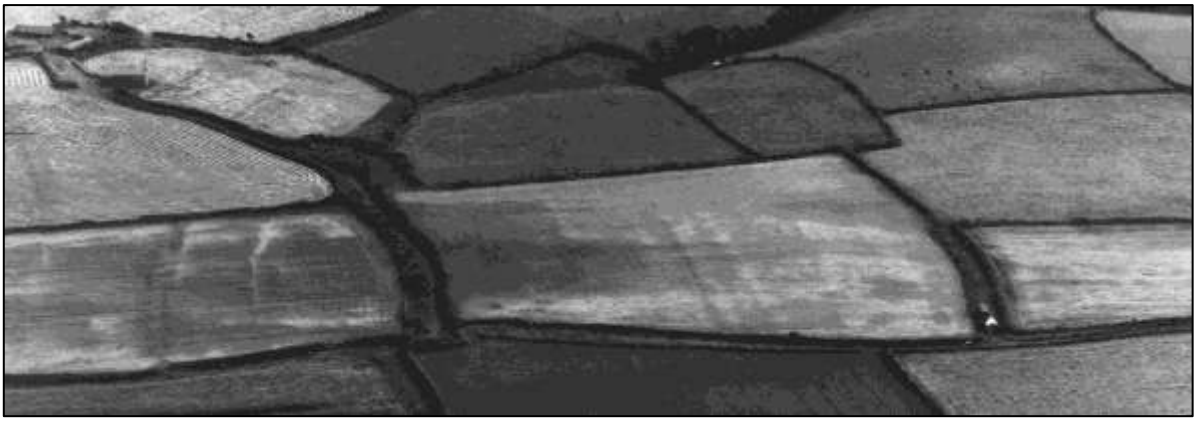
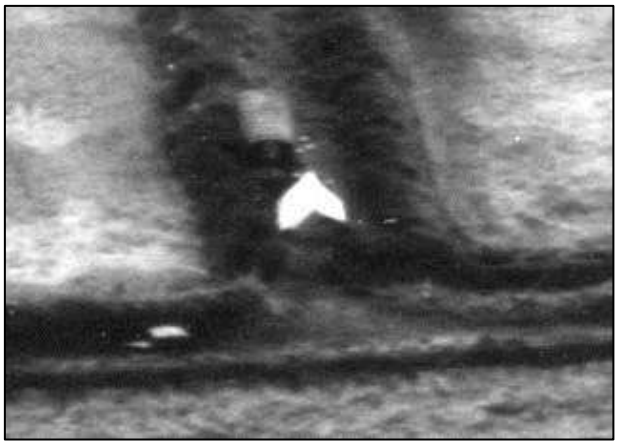


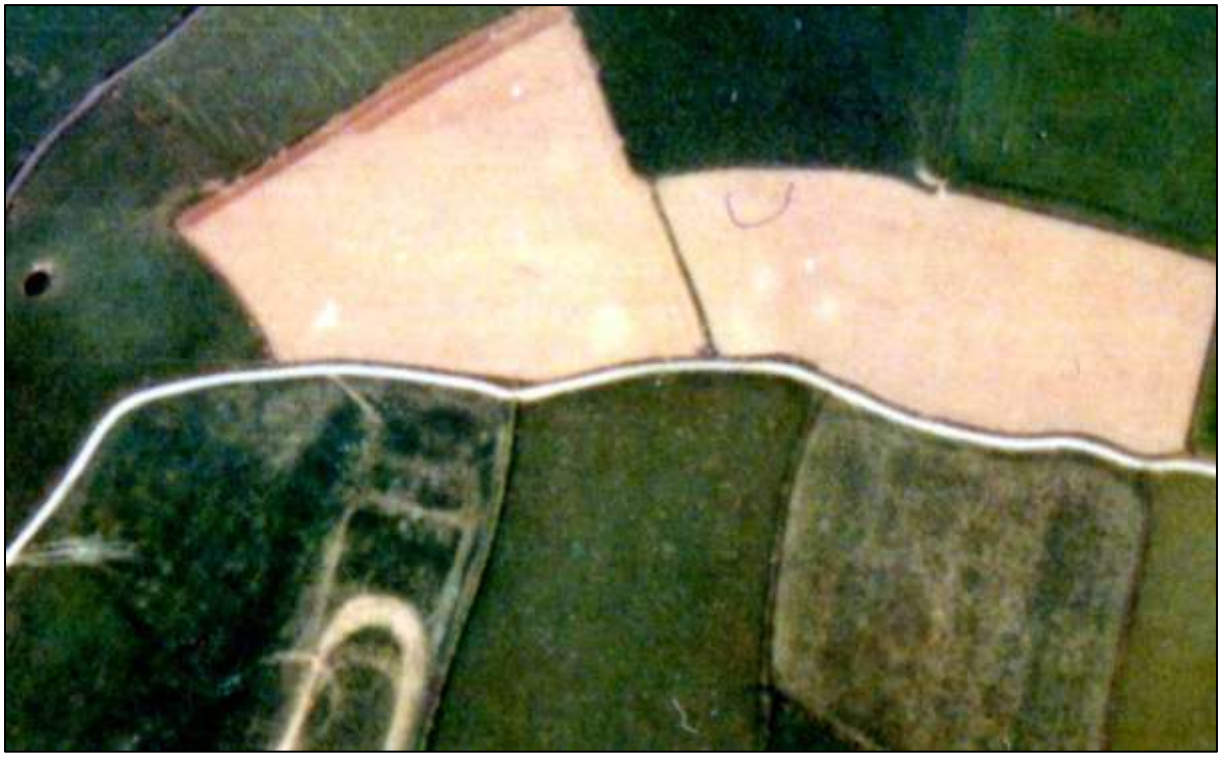
Figure 100. Caravan and tent (bottom right) near Gawlish (top left) in summer 1958; could this be evidence for seasonal farm workers or holiday accommodation? Detail of the caravan and tent below, with a car on the road. NMR RAF/2553 0179-0180 29-AUG-1958. English Heritage (RAF Photography).



7.8 Thematic Results: Ceremonial and Funerary

7.8.1 Disappointingly, no evidence of the stone row at Yelland was noted (MDV 5507), now thought to be subsumed within the marsh, but observed on site visits until at least 1969. The aerial photographic coverage of this area at low tide was limited, and there were no specialist aerial photographs of this location that had targeted the site at low tide or after extreme weather events.

7.8.2 As well as the barrow groups and individual barrows known on the high ground in the south-west and far east of the project area, for example the Bursdon / Welsford area and Berry Down, previously unrecorded isolated barrows and barrow groups were identified through the project. This improves the knowledge base and enhances understanding of the distribution of monumental prehistoric burial sites in North Devon, where they already form one of the most numerous and recognisable archaeological links to the past.



DCC Geonex/52/92 015 19-MAY-1992. © Infoterra Ltd.

Next Perspectives PGA Tile: SS5444 22-MAY-2001. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

Figure 101. Barrow Cemetery near Ettiford Farm, MDV103149, visible as pale circular soilmarks in the red fields. A previously recorded barrow centre left is visible as a dark ring ditch in 1992 and an earthwork mound in 2001. Note the oval track in the 1992 photograph (bottom left) is still just visible in 2001.

7.8.3 Near Ettiford Farm, four mounds, circa 15 to 17 metres in diameter are visible as pale soilmarks and cropmarks on the hill north of Ettiford Farm on aerial photographs between 1992 and 1993. They are likely to be ploughed out Bronze Age burial mounds and may be associated with the three barrows to the south. An additional earthwork mound previously interpreted as a barrow when observed in the field may be an additional barrow or one of

the four visible as soilmarks. They are not visible on earlier aerial photographs, and it is possible that an episode of deeper ploughing had brought the fabric of the mound to the surface. Remains are however likely to survive below ground and two very indistinct cropmarks are visible on aerial photographs taken in 2001.

7.8.4 The understanding of even very well-known monuments, such as the Scheduled ring cairn on Welsford Moor, has also been enhanced by the survey. In this case the impact of agriculture in the past 70 years is clearly traceable. The ring-shaped earthwork banks are clearly visible on aerial photographs between 1946 and 2007, and were viewed on a site visit in 2012. No stonework was visible and this could perhaps be better termed a ring barrow. It is sited between two linear ridges that run east to west for a considerable distance, which are presumably caused by rock outcrops, and this siting may be intentional. Numerous anthropogenic impacts can be inferred from the cartographic and aerial photographic record, including: the bisection of the monument by a field boundary before 1844; pre-1946 deep ploughing that created ridges and furrows aligned north to south across at least the southern and eastern parts of the banks; the excavation of a deep drainage ditch (and possibly a metalled track) on the western side of the boundary between 1959 and 1978; plough 'clipping' of the edges of the earthwork between 1978 and 2007; possible ploughing or harvesting of the eastern section in 1999 and 2001; and installation of a water trough on the eastern earthworks after 2007.

Figure 102. Ringwork on Welsford Moor in 2012, MDV 108, with centre covered by rushes on the west of the field boundary (right) and poached with a water trough placed on the earthwork on the east (left). Photographs: Stephanie Knight

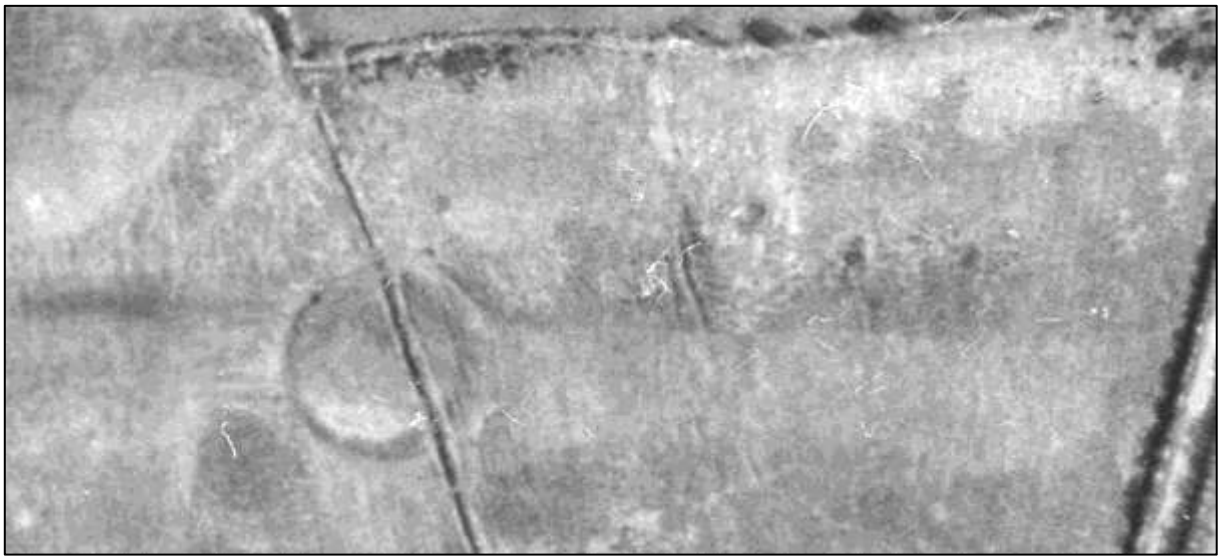
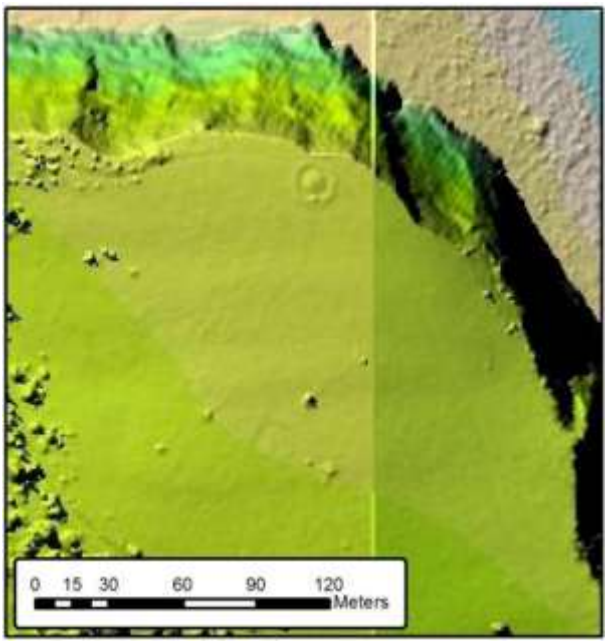
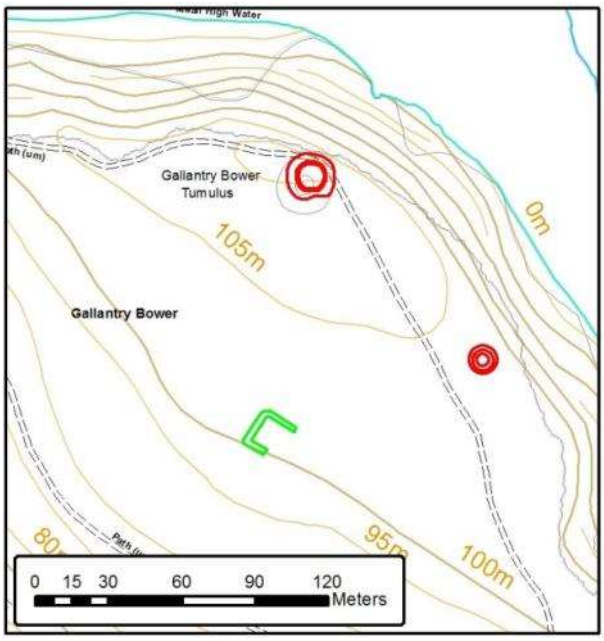


Figure 103. Ringwork on Welsford Moor in 1946, showing impact from ploughing. To its north-east a higher barrow (MDV 107) is avoided by the plough on its western side, but a possible pit is visible in the top of the mound. DCC RAF/3G/TUD/UK/158 5121 19-APR-1946. Devon County Council (DCC) RAF photography.

7.8.5 Other sites are more difficult to define. An intriguing feature is visible on images derived from Lidar data collected in 2007 (Figure 104). Typologically it resembles the earthwork remains of the western part of a trapezoidal ditched enclosure, and at 17 metres north to south its size is consistent with Iron Age square barrow enclosures (English Heritage 1989). It is close to two known round barrows at Gallantry Bower, in a commanding location close to the summit of the hill on which the barrow named Gallantry Bower is sited. Square barrows are typically found in the north or sometimes east of England. However similar examples have been found in France and one in Dorset (Darvill, 1987: 158) so there is a chance that this could be Devon's first. Since this feature was not observed on any of the available aerial photographs, caution must be applied in interpretation, but it is quite possible that earthwork remains were obscured by tree and scrub growth, which appear to vary in density over the years. A site visit is recommended in the first instance to assess whether further archaeological work would be likely to verify and clarify the likely date and character of this feature.



LIDAR SS3026SW Environment Agency D0076589 24-MAR-2007 © Environment Agency copyright 2006. All rights reserved.



NMP mapping © English Heritage. © Crown Copyright and database right 2013. Ordnance Survey 100019783.

Figure 104. Possible sub-square ditched enclosure near two round barrows at Gallantry Bower, MDV 102340.

7.8.6 Another unusual feature, although one that is easier to define, is the low maze-like surface structure of probable stone or concrete slabs or blocks immediately to the west of the obelisk in Tapeley Park. It is not visible on aerial photographs taken in 1999, and some of the central stones are scattered in the wider vicinity in 2001 (Figure 105, top), suggesting that the maze was under construction or awaiting repair, and it may have been a project to mark the millennium. In 2010 the structure appears to be complete (Figure 105, bottom). In geographic situation and especially pattern it very closely resembles the Troy Town maze on the Isles of Scilly (Johns, Larn & Tapper, 2004: 140), which dates to the eighteenth century or earlier from which inspiration for the site may have been taken. However the modern monument at Tapeley is much larger at 22 by 20 metres, with stones probably up to half a metre in size rather than beach pebbles, and may more closely compare in size to Scandinavian labyrinths noted by Johns et al (op. cit.). This recent parkland feature, like many archaeological features, is difficult to categorise; its primary purpose may be symbolic, recreational or aimed at the tourist industry, and as with archaeological sites, is probably a mixture of several. The Tapeley Park website mentions that the labyrinth was 'built of fragments from the granite obelisk on the monument obliterated by a thunderbolt in 1931, the largest lumps found 275 metres away in woods below' (Tapeley Park, n.d.). The labyrinth was not transcribed but has been recorded in the DCCHER to avoid possible confusion in the future.

Next Perspectives PGA Tile ref: SS4729 22-MAY-2001. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

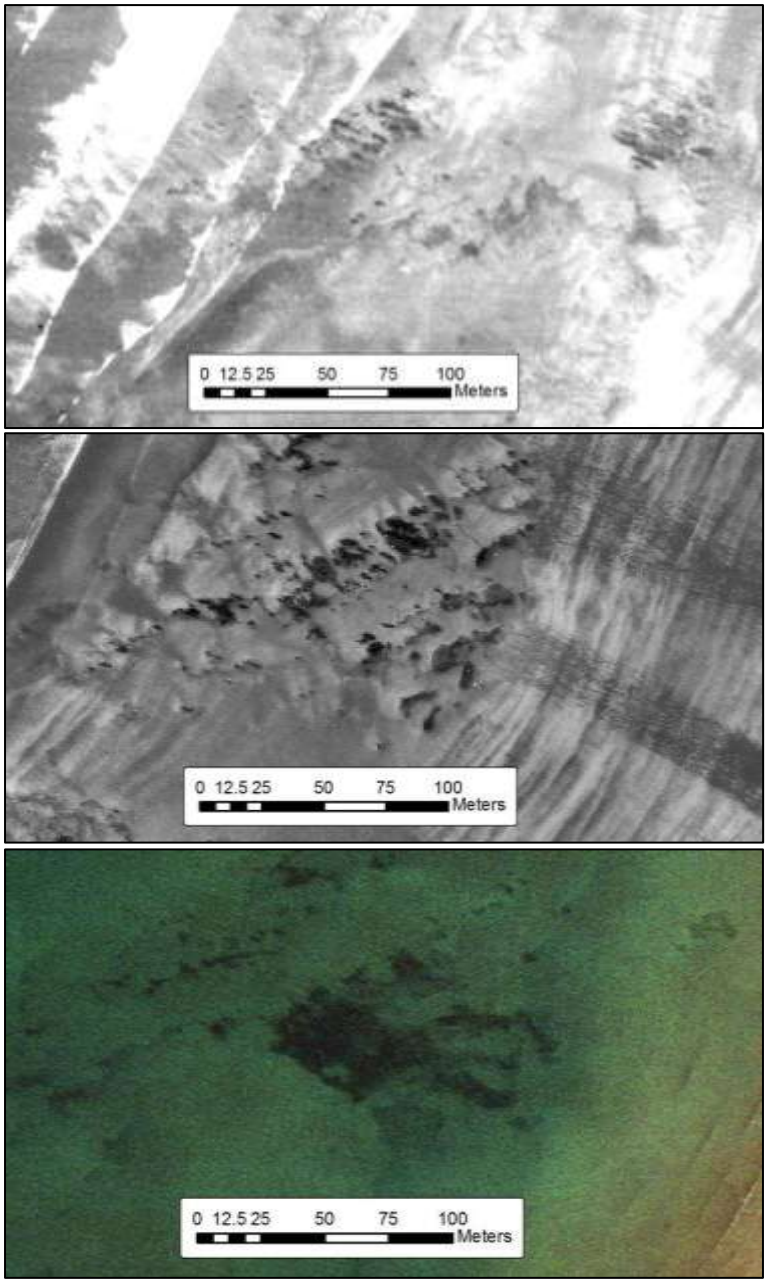
NMR SS4729/019 NMR 27260/41 05-JUL-2010 © English Heritage.

Figure 105. Modern Maze at Tapeley Park, possibly under construction in 2001 (a) and intact in 2010 (b), MDV 102771

7.9 Thematic Results: Marine

7.9.1 The importance of the submerged forest (MDV44568) and marine peat deposits (MDV 50845) at Westward Ho! has been recognised since the mid-nineteenth century. Mesolithic artefacts, Neolithic timber structures and faunal remains of the Roman period have all been found in association with the organic deposits, which have been well studied, sampled and surveyed.

7.9.2 The inter-tidal and therefore infrequently visible nature of the deposits has however combined with the dynamic nature of the beach material to result in poorly located and somewhat fragmentary geographical data being recorded on the HER. The changeable nature of the beach material and variable visibility of the organic deposits is illustrated in Figure 106. The survey has attempted to transcribe the extent of the peat deposits from aerial photographs whenever visible (MDV102445). By mapping primarily from aerial photographs dating from the 1940s to 2007, three main concentrations of organic material have been identified and this overarching data which will hopefully prove useful to future surveys.



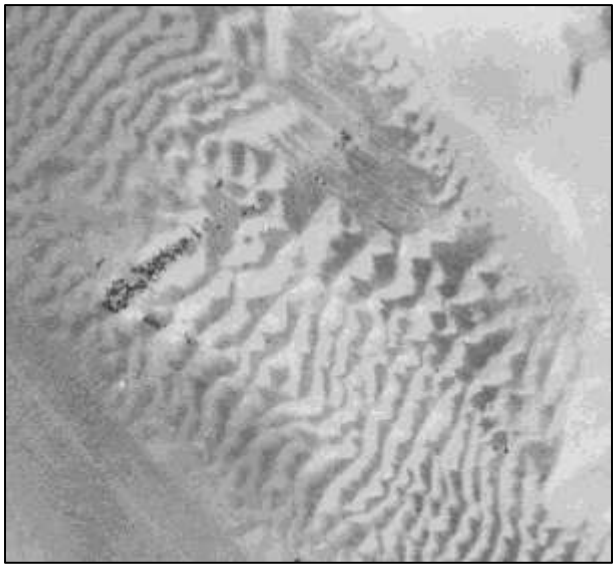
RAF/106G/UK/1420 4230 15-APR-1946. English Heritage RAF Photography.

OS/75144 052 24-MAY-1975. © Crown Copyright and database right 2013. Ordnance Survey 100019783.

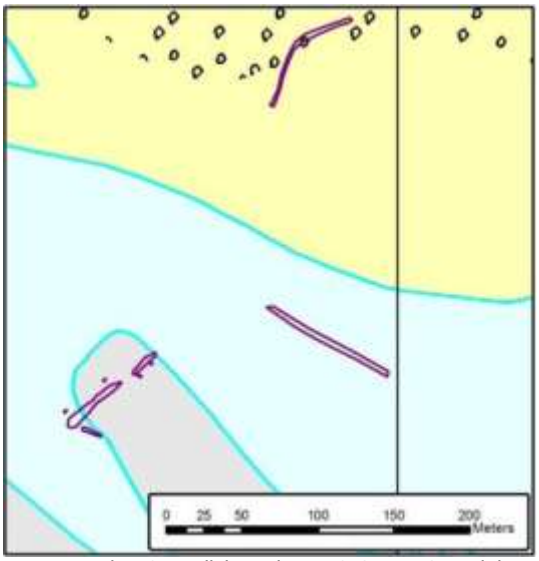
Interactive digital aerial photographs 1999-2000. This image is an extract from the Millennium Map team which is copyright Getmapping plc.

Figure 106. Organic deposits at Westward Ho! showing different levels of visibility from year to year.

7.9.3 Several fish traps are known to have existed at Crow Point, a dynamic intertidal environment at the convergence of the Taw and Torridge estuaries, being named and depicted on historic mapping (Preece 2005). These had not been located on the HER with any precision and were represented as several monument points. Possible fish trap structures identified from aerial photographs could not generally be ascribed with any confidence to any particular documented fish weir, and transcription was problematic as several of the structures were visible on very oblique photographs and a lack of control points was an issue. However the mapping now shows the location of the structures with a fair degree of accuracy and the associated records suggest the likely name of the weir, if known.



NMR OS/75144 115 24-MAY-1975. © Crown Copyright. Ordnance Survey. © Crown Copyright and database right 2013. Ordnance Survey 100019783.

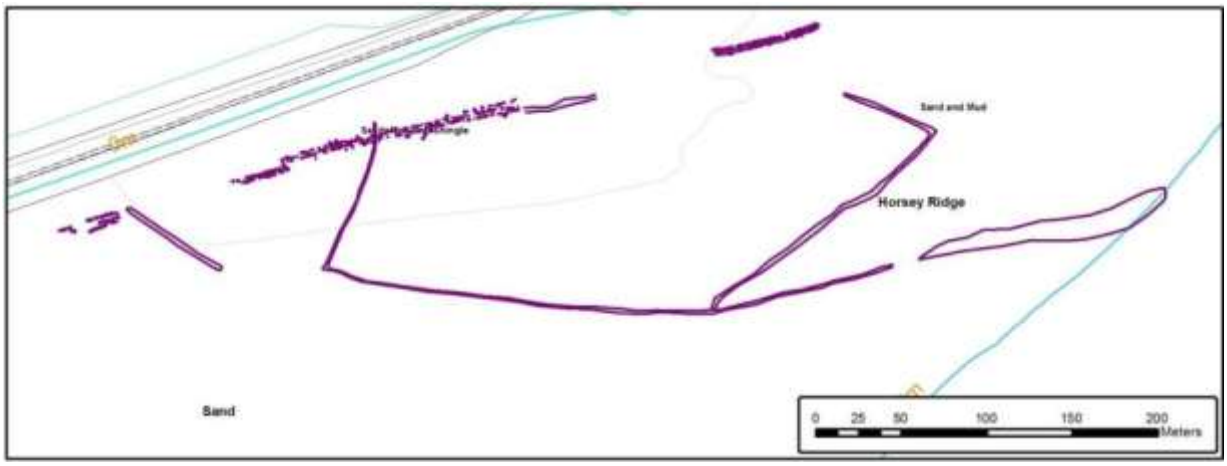


NMP mapping © English Heritage. © Crown Copyright and database right 2013. Ordnance Survey 100019783.

Figure 107. Fish trap at Crow Point in 1975, MDV 102756 (left), and shown in proximity to two others, MDV 102757 and MDV 102755 (right).

7.9.4 This probable fish weir is visible as a V-shaped structure on aerial photographs between 1944 and 1975. Numerous posts are visible within two low banked linear structures with a maximum length of 70 metres and width of 6 metres, set at an angle of approximately 60 degrees to each other. The ‘point‘ faces west, although the ‘eye’ of the weir itself is not visible. The structure is on approximately the same alignment as Crow Weir marked on nineteenth century maps, but it appears to be sited further into the channel and could be the documented sixteenth to nineteenth century VV-shaped Charleshook Weir (Preece 2005), if not a completely different weir structure. It is not visible on later available aerial photographs, and may have become buried by sand since the 1970s.

7.9.5 Some of the fish traps at Crow Point and Horsey Island probably have a post-medieval, if not medieval origin, but precise dating using aerial photograph evidence is problematic. A substantial fish trap named 'Horsey Weir' on the first edition OS mapping is intermittently visible on aerial photographs, with parts becoming exposed or obscured by sand. Figure 108 demonstrates how little is now visible compared to 1960. This has hindered efforts by local groups to survey the structures on the ground (Preece 2005), but enough was visible between 1999 and 2003 for Preece to record the survival of wooden posts and wattles and rubble infill in places. Aerial photograph survey has allowed the full extent of this and other similar intertidal structures to be relatively accurately mapped from the full range of available sources. This allows the relationship between them and with the reclaimed land to be better understood, but has not been able to add any detail regarding phasing or materials.



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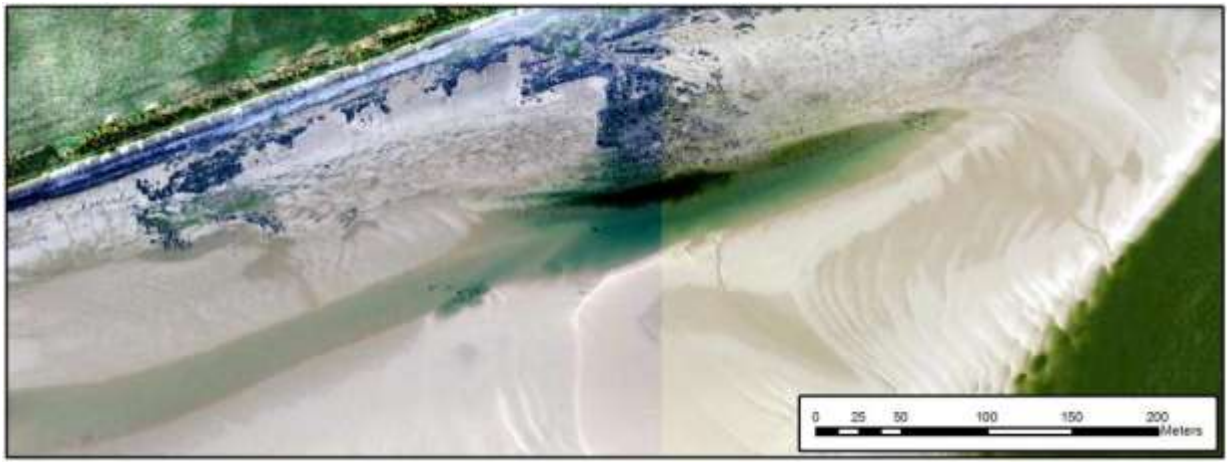


Next Perspectives PGA Tile Ref: SS4833 08-APR-2010. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

Figure 108. Fish trap off Horsey Island in 1960 and 2010 (MDV 66207)

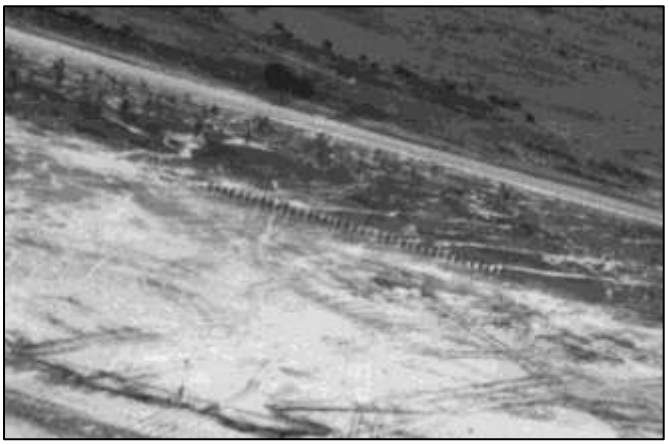
NMR RAF/543/1017 PSFO-0131-2 10-AUG-1960. English Heritage (RAF Photography).

7.9.6 The large structure illustrated above has its point or ‘eye’ at the east and is approximately 500 metres in length and a maximum of 240 metres in width. The smaller v-shaped structure abutting it is oriented in the opposite direction and suggests that it was a reverse weir designed to prevent trapped fish from escaping when the tide turned. The southern

arm of the larger structure is not generally visible on available aerial photographs after the 1940s, suggesting postwar abandonment. However it does not seem to have been removed or eroded away as it is partly visible, including the tops of upright posts, in aerial photographs from 1960; the accretion of sand partly covering the structure may have contributed to its disuse. Both the eastern and western points are visible in the lower parts of the channel on aerial photographs dating to 2010 and on a site visit in 2013, and it is likely that the rest of the structure survives below the sand.

7.9.7 Other possible fish traps were seen as scouring in the sand rather than posts or stone structures, but could not be identified with any certainty. In common with the Severn Estuary survey, there were relatively few historic aerial photographs taken at a tide low enough to establish a pattern of exposure or survival (Crowther and Dickson 2008: 226)

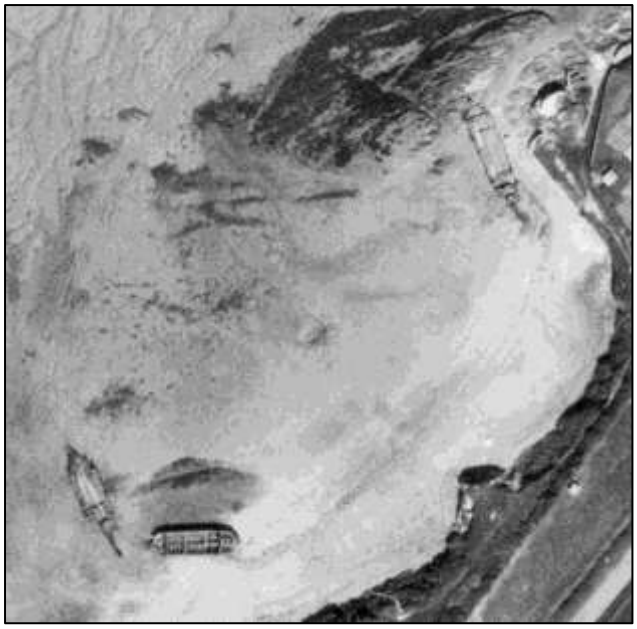
Next Perspectives PGA Tile Ref: SS4530 04-MAY-2007. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.



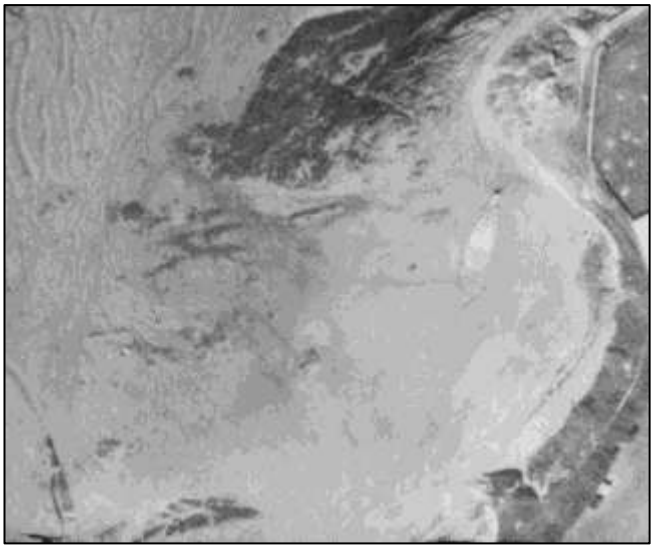
NMR RAF/106G/LA/88 FPO/0002-003 SS4531/22 31-DEC-1944 English Heritage (RAF Photography).

Figure 109. Possible oyster racks on the Skern, Northam. MDV 102560.

7.9.8 A complex of posts, approximately 50 metres long and 5 metres wide, is visible as a structure on aerial photographs between 1944 and 2007 (Figure 109). The posts are arranged in a grid pattern spaced 1.5 metres apart in four rows, and aligned parallel to the shoreline approximately north-west to south-east. Although they could be interpreted as military training structures from the oblique aerial photographs, the grid pattern suggests that the posts are part of an oyster rack (Kelly pers. comm.) predating the mid twentieth century. Although substantial remains appear to survive (Figure 46), the south end of the structure may have been eroded or covered over to a greater extent than the northern part. With the exception of the modern crab tiles described in paragraph 7.6.3, across the project area less evidence of such intertidal structures was seen than might have been expected and this possible oyster rack is not securely identified.



NMR RAF/58/1133 F21 0023 28-MAY-1953. English Heritage (RAF Photography).



NMR RAF/58/2205 F21 0075 05-JUL-1957. English Heritage (RAF Photography).

Figure 110. Hulks on the Skern near Appledore in the 1950s, MDV102548 (bottom left) and MDV 102545 (top right).

7.9.9 A hulk, 27 metres long by 6.5 metres wide, is visible on the foreshore of the Skern between Appledore and Northam Burrows on aerial photographs between the 1950s and 2007 (Figure 110). MDV 102545 seems to have shifted approximately 25 metres to the south and realigned between 1953 and 1957. It was flush with the surface of the sand in aerial photographs taken in 1960, and remains visible in approximately the latter position in Lidar images dating to 2006-2007. This movement of hulks is noted by Crowther and Dickson for the Severn Estuary (2008: 87), in common with the North Devon AONB survey, they also found that known hulks were often not visible on the available aerial photographs, and that new hulks were discovered.

7.9.10 An additional two hulks, or more probably two sections of a single ship, are visible to the south west, standing proud of the sand in 1953. It is likely that they are the remains of a vessel temporarily located in the Skern during salvage, although some buried remains may survive. One part seems to have shifted slightly between 1953 and 1957, moving approximately 20 metres to the north, but the vessel is not distinguishable in later available aerial photographs. The predominantly submerged remains of a possible hulk were visible in this approximate location in 2013, but it was not possible to ascertain if they related to this or a different vessel.

7.9.11 Carter (Carter 2009: 172) states that Henry Hinks ran a breaker’s yard, utilising the Skern for breaking up vessels and that the remains of the schooner 'Goldseeker' built in 1873 and the Thames barge 'Shamrock' built in 1899 are sometimes visible. He does not give any specific references or dates but it is possible that the hulks visible on aerial photographs are one or both of these.

NMR OS/79010 009 16-APR-1979
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NMR SS4629-1 NMR 23508-17 17-MAY-2004. © English Heritage

Figure 111. Three hulks on the foreshore at Shipyard Beach on the River Torridge in 1979 and 2004, MDV 53867.

7.9.12 Three hulks at Boathyde are visible partly buried in sand in the intertidal zone on aerial photographs between 1975 and 2010 (Figure 111). They are not visible on earlier available aerial photographs but are clear on aerial photographs taken in the 1970s, suggesting perhaps that they had been brought to this location after the Second World War. The hulks are likely to be of nineteenth century vessels recorded by Milne in 1991. They appear to be gradually covering over with sand and are less visible on aerial photographs taken in 2010.

NMR MAL/61065 167 01-JUL-1965.
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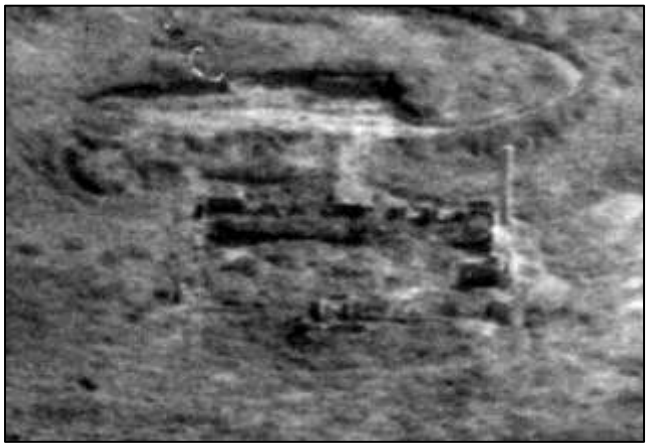
Next Perspectives PGA Tile Ref: SS4628 08-APR-2010. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

Figure 112. Three or four hulks on the foreshore on the River Torridge in 1965 and 2010, (MDV53865).

7.9.13 In contrast, these three hulks further to the south an upstream (Figure 112) are visible on aerial photographs between 1965 and 2010, ranging in width from 5 to 6 metres and in length from 15 to 28 metres. In 1965 only two keelsons were visible, with most detail obscured by sand, but by 2010 the ribs and three keelsons were visible. No trace of the hulks was seen on aerial photographs taken in the 1940s, indicating that erosion of the

foreshore has been significant and is ongoing, resulting in increased exposure of the hulks. The stern or keel of a fourth may be visible in outline. They are likely to be the four nineteenth century vessels documented and visited in the 1990s. Other possible hulks were observed at Crow Point (MDV 102746).

7.10 Thematic Results: Recreation



NMR RAF/P58/2555 PSFO-P1 0377 SS4541/3 01-SEP-1958. English Heritage (RAF Photography).

Photograph supplied by Jonathan Fairhurst. Reproduced courtesy of R.L. Knight, date unknown.

Figure 113. Former hotel at Putsborough, MDV 103329; ruinous in 1958 (left) and extant in an undated photograph (right), the distinctive chimney stack visible in both.

7.10.1 Previously unrecorded on the DCCHER and not depicted on the first or second edition Ordnance Survey mapping, a ruinous building was observed on aerial photographs from 1946 (Figure 113, left). Located close to a quarry complex, an industrial function was initially considered. However an AONB Facebook appeal by Linda Blanchard, former AONB manager, resulted in several comments identifying the site as a former hotel or school that had burned down before 1959, and one source gave 1941 as the date of the fire, when the hotel was in use by a girl's school evacuated into North Devon. It was variously named as the Heathercombe or Heatherlea/Heatherleigh Hotel, and one source stated that the cause of the fire could be traced to a cooking pot of blackberry and apple jam.

7.10.2 Several sources agreed that one person lost their life in this tragedy, a teacher or cook who was said to have returned to collect personal belongings. Although unverified and with some inconsistencies, these stories bring the site to life and the value of such online appeals to distil local traditions and memories surrounding certain sites is demonstrated by the response.

7.10.3 An undated ground photograph (Figure 113, right) was uploaded, showing the extant building, the appearance of which is consistent with an interpretation as a hotel and seems to confirm the interpretation that this was its original function. The image gives a good view of the distinctive corner chimney stack, which is visible on aerial photographs until 1958, but the remains are now completely obscured by scrub.

7.10.4 The Facebook appeal allowed further information to be located from other internet sources; a local newspaper article describes the site as Heathercombe Hotel, with details of its use

as a girls' school during the Second World War (This is North Devon, 2009). The BBC People's War website describes it as 'Heatherlea' Hotel requisitioned in the early part of the Second World War, with troops quarantined there with German Measles. This second source reiterates 'Heatherlea was burnt to the ground in 1941 resulting in the death of one person, the cook who foolishly went back for her treasured possessions' (Woolacombegirl, 2003).

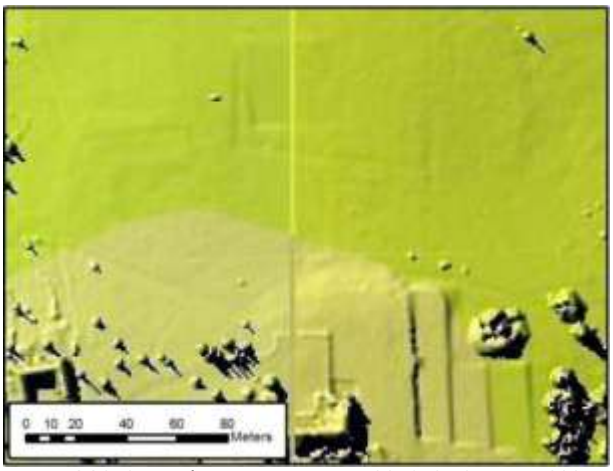
Figure 114. Open air pool at Appledore filled with water in 1946. MDV 102538. The parish church is visible to the south-west. NMR RAF/106G/1420 3235 15-APR-1946. English Heritage (RAF Photography).

7.10.5 A different type of recreational feature associated with British seaside holidays is the 'boating pool', an example of which was recorded on the shore near Appledore Quay, visible on aerial photographs between 1945 and 1989 (Figure 114). This rectangular structure, approximately 20 metres by 30 metres in diameter, is visible on aerial photographs between 1945 and 1989. It appears to have a stepped internal face, a base that sloped seawards to the east and a possible drainage channel through the eastern side, although it is not clear whether the pool was rock cut or built up. It is not depicted on Ordnance Survey maps published at some point between 1930 and 1939, but was probably built in the 1930s before the war. The structure is recorded by Carter (2009) as an unsuccessful seawater swimming pool that was briefly reused in the 1950s as a trial mussel bed, used by children as a boating pond, and finally developed for car parking in 1990. A photograph of children floating toy boats on the pond confirms that this is the same structure. The structure has slightly indistinct edges on aerial photographs dating to 1989, suggesting a lack of maintenance or disintegration of the fabric, and aerial photographs from 1992 confirm that it has been developed as a car park. There are no visible traces of the structure remaining and, in this respect, Appledore follows the national pattern of open air swimming pools becoming disused and demolished in the later twentieth century (Smith 2005).

7.10.6 In addition to Tapeley Park, another distinctive designed landscape is that of Clovelly, where extant ornamental structures and possible relict earthworks are visible on the

sources used in the survey. It is possible to trace some of the recent history of Clovelly Court itself through aerial photographs, on which the wing destroyed by fire in the 1940s is visible first as a roofless shell in 1946 than as a levelled area by 1958. One source states that the fire was accidentally caused by troops on 29th December 1943 (Walsey 1994:142), once more linking to the overarching military theme that dominates the recent history of this area.

7.10.7 Immediately to the north a platform, approximately 35 metres square, within a larger triangular terrace cut into the hillside, is visible as an earthwork on aerial photographs from 1946 and on images derived from Lidar data captured in 2007. It may be a garden feature, or possibly a platform for an earlier building, associated with Clovelly Court, sited approximately 150 metres to the south. No buildings or boundaries are depicted in this location on the 1840 Tithe map and it is probable that the platform pre-dates the mid-nineteenth century. The terraced earthworks to the east of the Court are clearly visible on both sources.



LIDAR SS3125 Environment Agency D0076584 24-MAR-2007


DCC RAF/3G/TUD/UK/158 5045-5046 19-APR-1946.
Devon County Council (DCC) RAF Aerial Photograph.

Figure 115. Clovelly garden earthworks visible on images derived from Lidar data flown in 2007, and on aerial photographs taken in 1946, MDV 102367.

7.10.8 With its distinctive roof structure, the nineteenth century Listed Building known as the Angel's Wings is visible nestled in trees on aerial photographs between the 1940s and 1950s. Its location does not match that on the listing description, which is assumed to be inaccurate.

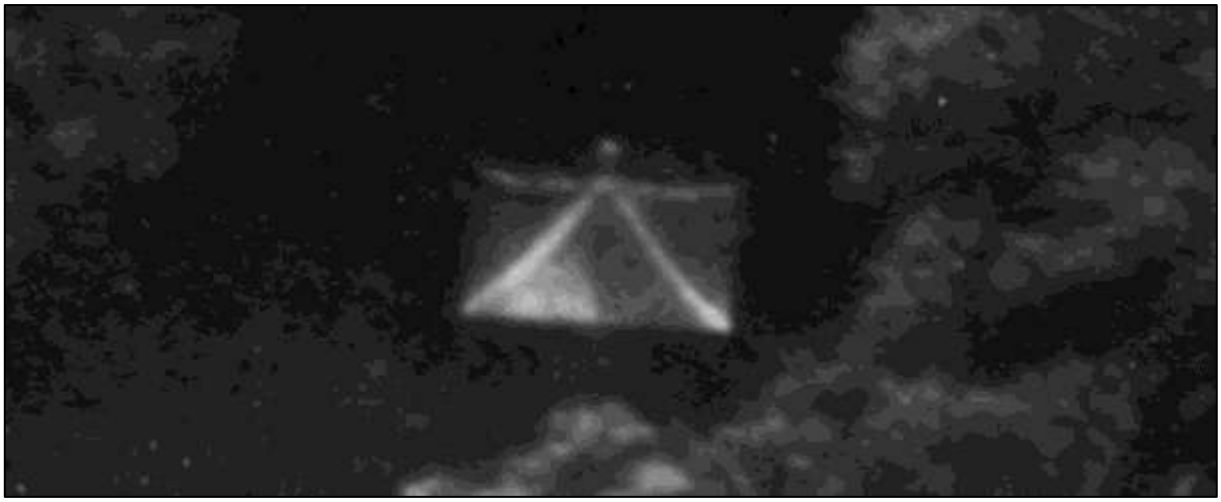


Figure 116. Angels Wings in the designed landscape of Clovelly (MDV 102345)

7.10.9 Recreational facilities for the military in the Second World War are also in evidence in the project area; at Woolacombe 'Nissan [sic] huts were extended above the beach and a huge recreation hall was erected with 15ft by 20ft roll back steel doors, polished wood floor and a stage with two dressing rooms at the back ' (woolacombegirl, 2003). This may be one of the structures visible in Figure 23 but removed soon after the war.

7.10.10 In other instances, pre-existing holiday camps were used by the military during the Second World War, for instance the camp at Croyde and Hilltop Camp used by the Pioneer Corps discussed in section 7.4, again demonstrating the dominance of military heritage across the themes identified during the survey.

Figure 117. The golf links visible between minefield and anti-glider obstructions on Northam Burrows. RAF/543/1017 PSFO-0122 SS4330/2 10-AUG-1960. English Heritage. RAF Photography.

7.10.11 Founded in 1864 The Royal North Devon Golf Club links at Northam Burrows is the oldest golf course in the country (www.royalnorthdevongolfclub.co.uk). As illustrated in Figure 117, play continued in the post war years in the shadow of minefields and anti-aircraft obstructions.

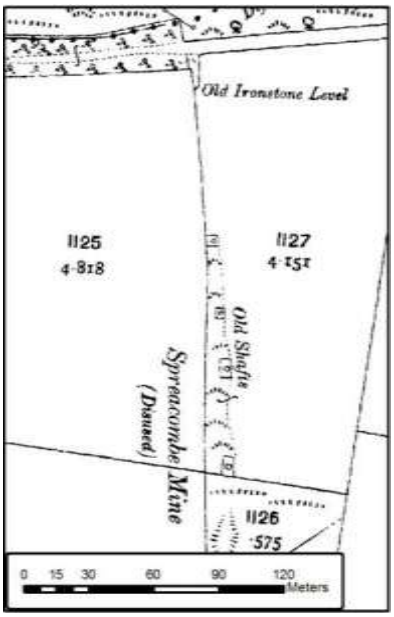
7.10.12 Other ventures have proved less successful. Sixteen earthwork platforms of oval or square shape between 15 to 20 metres in diameter have been recorded across a coastal hilltop to the north-west of Higher Warcombe, west of Ilfracombe. The shape, distribution and size of the earthwork platforms have resulted in their being interpreted as the remains of a former golf course, one which failed or fell out of use prior to the Second World War (MDV103056; Figure 118). Many of the platforms survive as earthworks, albeit in eroded or obscured condition, but few are clearly visible on recent aerial photographs. Fortunately many remain identifiable on interactive images derived from Lidar data acquired in 2007.

Figure 118. Earthwork evidence for a failed golf course. RAFCPEUK2082 4075 19-MAY-1947. English Heritage. RAF Photography.

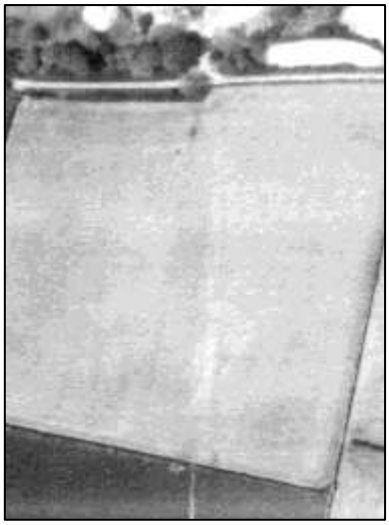
7.10.13 The South West Coast Path is a major recreational route which runs through the project area. The impact of this route is briefly discussed in section 7.2 in relation to Windbury hillfort.

7.11 Thematic Results: Industry

7.11.1 Little evidence for mining was seen on the aerial photographs, even around Combe Martin where evidence of silver and lead extraction is recorded from the 13th century and where earthwork evidence might be expected (Claughton, 1992). One known site is Spreacombe Iron Mine, marked on historic and modern Ordnance Survey mapping. Four of the shafts are visible as dark rectangular cropmarks approximately 2 by 3 metres in width on aerial photographs taken in 1946, indicating cultivation over the shafts, and as earthworks in 2010 (Figure 119). They were not transcribed as they are already mapped by the Ordnance Survey, but it is interesting to note the change in form and management.



First Edition Ordnance Survey 25 inch map, 1890 © Crown copyright and Landmark Information Group Ltd



NMR RAF/106G/UK/1501 3143-3144 13-MAY-1946. English Heritage (RAF Photography).

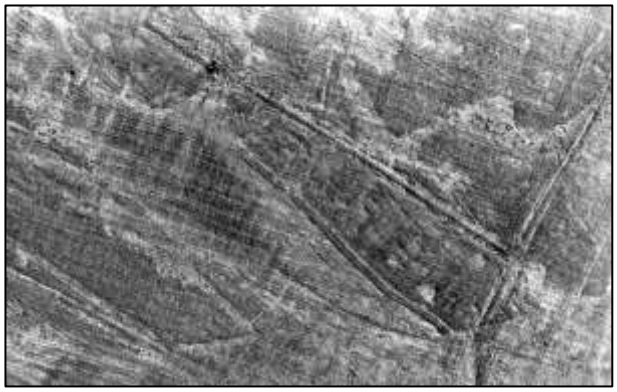
Next Perspectives PGA Tile Ref: SS4741 08-APR-2010. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

Figure 119. Shafts at Spreacombe Mine depicted on historic mapping, visible as cropmarks in the 1940s and as earthworks in 2010. MDV 16959.

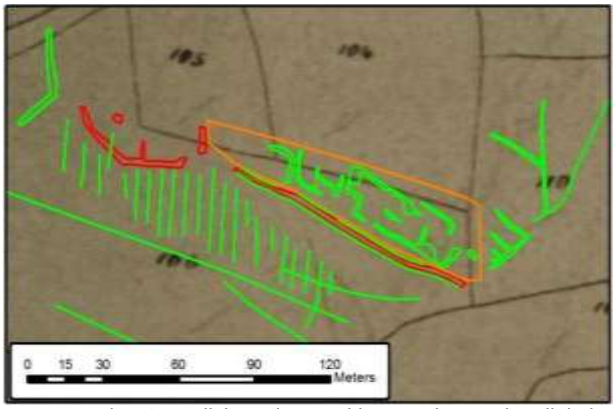
7.11.2 Another possible industrial site near Bideford is visible as a cropmark complex on aerial photographs taken during July 1975 in drought conditions. The form of the remains is difficult to distinguish at first, but on close inspection it is possible to make out several linear negative cropmarks that appear to have formed over banks that are depicted on the 1841 Tithe map, the shorter crops here indicating stress from water deprivation. An additional substantial negative cropmark aligned approximately east to west is not depicted on the Tithe map, and appears to form the southern boundary of a complex of positive cropmarks. These are likely to have formed over ditches or pits which retained more water allowing longer crop growth, and cover approximately one hectare. Further positive cropmarks are located to the east, the complex having apparently been bisected by a north to south aligned field boundary depicted on the Tithe map and therefore predating the mid nineteenth century. The cropmark complex extends as far north as another field boundary depicted on the Tithe map which could be medieval in origin.

7.11.3 The layout of the cropmarks is difficult to define, making interpretation problematic, but they appear to have a broadly rectilinear formation. One possible interpretation is that they formed over the levelled remains of extraction pits and spoil heaps; post-medieval and modern culm and anthracite mining has been well documented by Claughton (2009) in this area. Additional positive narrow linear cropmarks are visible in the wider area, including parallel linears to the south regularly spaced at circa 5 metres apart; some of these may be associated with the main cropmark complex, but others appear to cut across it and it is more likely that they have formed over modern drains or plough marks. Only the substantial linear banks were visible as cropmarks on aerial photographs taken in 1978 and no features have been observed in this location on other available aerial photographs. However it is

possible that below-ground remains survive and could manifest as cropmarks in another drought event.



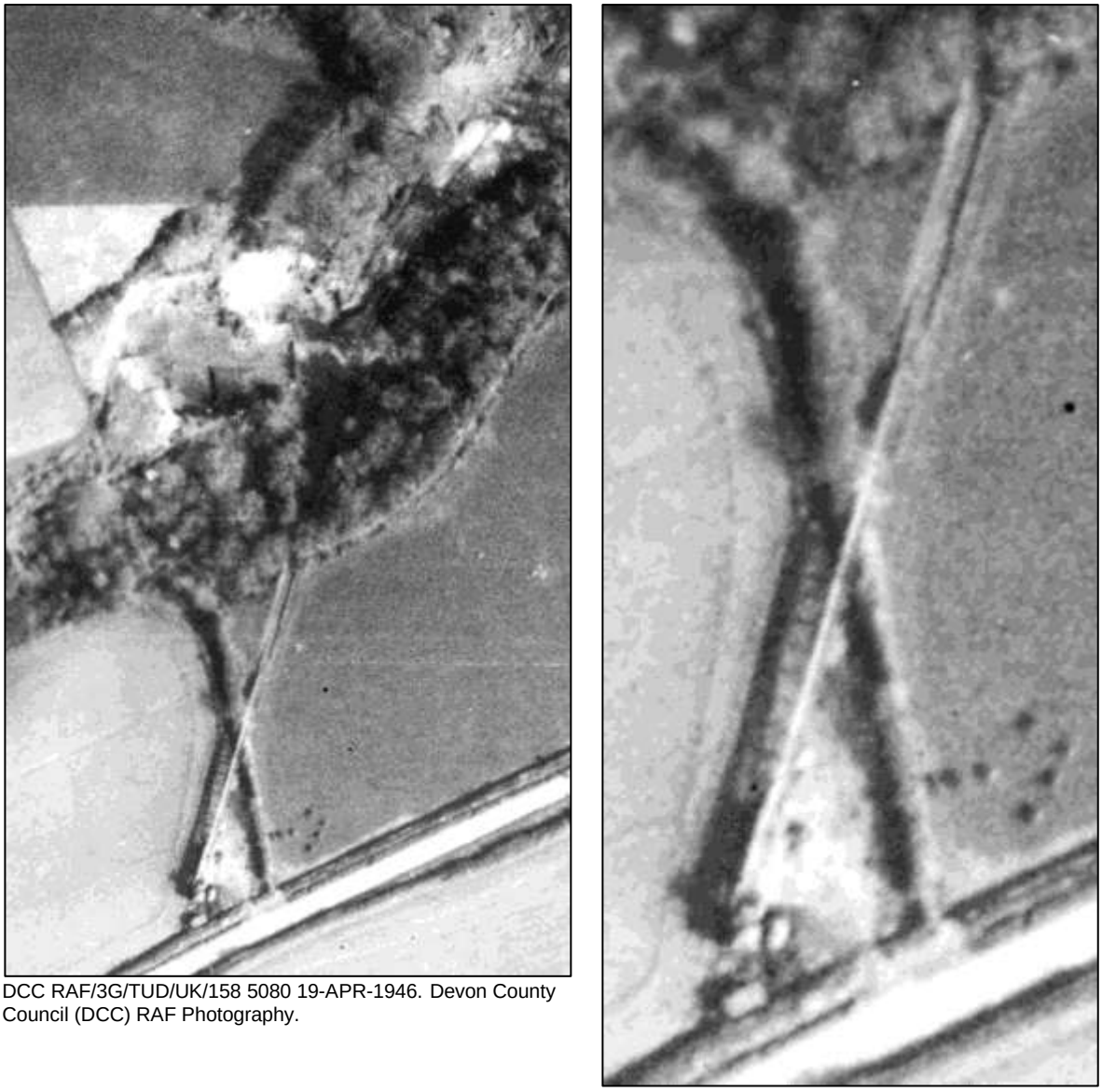
CUCAP BUN 066 18-JUL-1975. © Cambridge University Collection on Aerial Photography (CUCAP).



NMP mapping © English Heritage. Tithe map interactive digital layer, Devon County Council.

Figure 120. Possible industrial site visible as cropmarks at Westleigh, MDV 103182.

7.11.4 Widespread but small scale quarrying was noted and identified during the survey, and in general was only transcribed as recorded if not depicted on the OS First Edition Map or the feature was in some other way of interest. At one site near the settlement with the noteworthy name of Burnstone, interesting evidence of transport infrastructure was observed. A linear incline is visible on aerial photographs taken in the 1940s as an earthwork cut into the hillside on the north-east and an elevated structure to the south-west, with an area of disturbed ground at its southern end near the road. Earthworks and possibly a track bed are likely to have extended further down the hillside to the north, and this feature is interpreted as a modern incline serving the nearby twentieth century quarry. In the 1970s aerial photographs no structural remains are visible, but irregular earthwork mounds are visible close to the road in aerial photographs taken in 2007. The northern part of the complex is tree covered, but earthworks and structural remains may survive within the woodland. Lime kilns are known around the North Devon coast, so it is tempting to suggest that this material quarried here was limestone, the incline necessary to meet demand for agricultural lime in the wartime push for food production. However British Geological Survey maps show this area to be sandstone surrounded by mudstone and siltstone, and Hobbs states that this quarry supplied stone for road building (Hobbs, pers. comm.).



DCC RAF/3G/TUD/UK/158 5080 19-APR-1946. Devon County Council (DCC) RAF Photography.

Figure 121. Burnstone quarry complex with incline, (detail right; MDV102435).

7.11.5 The location of lime kilns on the coast indicates that much of the supply of materials was seaborne. At East Yelland Marsh an interesting small industrial complex with transport infrastructure was destroyed in the mid twentieth century by the much larger coal fired power station, complete with its own jetty for the receipt of fuel.

7.11.6 Several south-west facing earthwork hollows or scoops of varying size have been recorded incised into the cliff face above the coastal cliffs near Brownspear Point, Hartland (MDV102205). The two north-westernmost earthworks are schematically depicted on the Ordnance Survey first edition 25inch map (see Figure 122 top-left), indicating that they are at least late 19th century in date. As shown in Figure 122 top-right, four or five are clearly visible on static jpeg images derived from lidar data acquired in 2007.

7.11.7 The earthworks have been tentatively interpreted as quarries, potentially of medieval origin, used for small scale stone production for local industries such as dry stone walling which has a long history in the area. Indeed, the National Trust recently submitted a planning

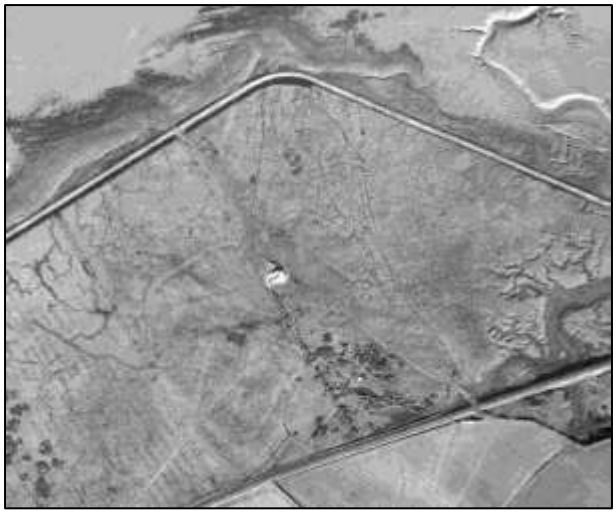
application to reopen a historic quarry for traditional stone building materials (S. Knight pers. comm.)

First Edition Ordnance Survey 25 inch map, 1886 © Crown copyright and Landmark Information Group Ltd

LIDAR SS2323 Environment Agency D0076493 24-MAR-2007. © Environment Agency copyright 2007. All rights reserved

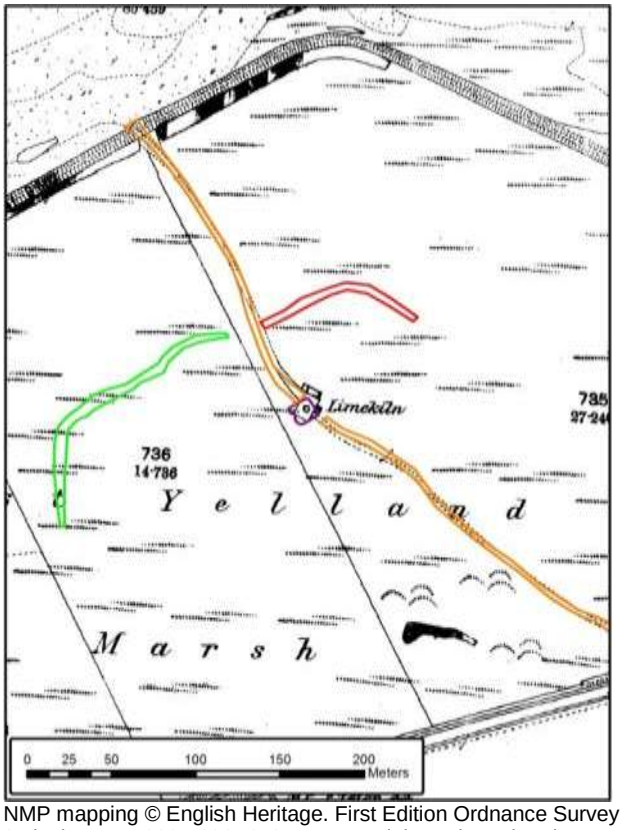
Drystone walling on NT land at Mortehoe. Photograph: Stephanie Knight.

Figure 122. Possible stone quarries at Brownspear Point (MDV102205) and a drystone wall, typical of the area..



NMR RAF/106G/LA/132 5123 14-FEB-1945. English Heritage (RAF Photography).

Next Perspectives PGA Tile Ref: SS4832 08-APR-2010. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.



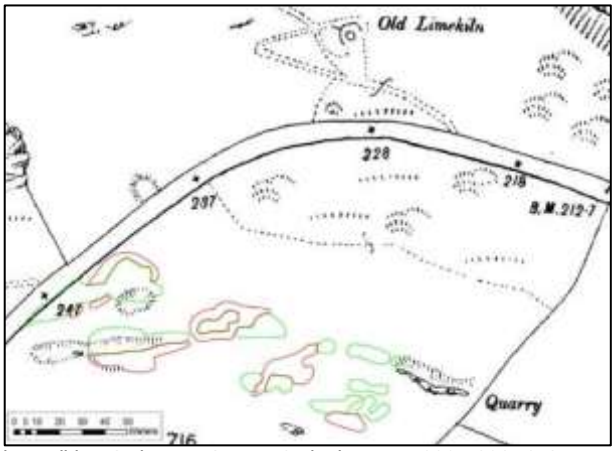
NMP mapping © English Heritage. First Edition Ordnance Survey 25 inch map, 1889-1890 © Crown copyright and Landmark Information Group Ltd.

Figure 123. East Yelland lime kiln, with elevated trackway and possible earlier bank to the north visible in 1945, MDV 102607. The site was developed in the postwar period for the East Yelland Power Station (MDV 62888), visible on the left of the image taken in 2010.

7.11.8 The routeway leading to the post-medieval or modern limekiln marked on nineteenth century mapping is visible as an earthwork on aerial photographs between 1945 and 1946, but is not visible on aerial photographs taken in 1963, when the site is covered with spoil from the nearby power station at East Yelland Marsh (Figure 123). It is aligned approximately north-west to south-east for 450 metres across the marsh to the shore, with the kiln roughly in the centre. The track is slightly sunken by use in the middle, and widens from 2.5 metres to 8 metres at each end where it rises to cross the seawall embankment and the railway line. On the south of the railway two structures may form a wall either side of a gateway. The track is raised on the north side of the kiln structure to form a ramp to allow wheeled vehicles access to the kiln pot, and on the south side of the kiln the track is at ground level. This layout indicates a process of importing coal and limestone by sea and onward transport of the lime product overland. Although no trace of the earthwork is visible

on aerial photographs from the 1960s, it is possible that remains survive below current ground level beneath the more recent spoil.

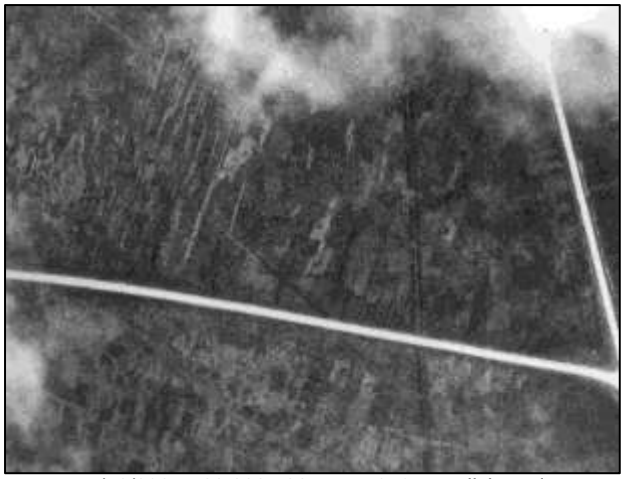
7.11.9 Earthwork pits and mounds at the north-eastern end of Ilfracombe golf course (MDV69973; Figure 124) are interpreted as probably quarries or extractive pits and spoil heaps associated with a former limekiln roughly 100 metres to the north, depicted and annotated as 'Old Limekiln' on the Ordnance Survey First Edition 25 inch map (MDV21758). Some of the larger pits are depicted on the Ordnance Survey First Edition map and in general, only those features not depicted have been transcribed as part of the survey. An exception is those features which have been affected by landscaping associated with the golf course, such as the pits truncated by the construction of a teeing platform. The former limekiln appears, on the basis of the map evidence, to be directly associated with quarries to the north of the adjacent road, in particular those annotated on the OS First Edition as 'Tom Norman's Hole'. However, it is probable that the excavations now under the golf course were following beds of limestone which continued south within the Combe Martin slate beds.



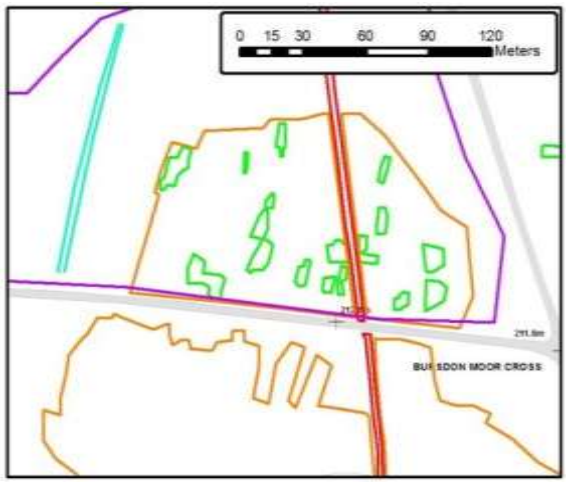
First Edition Ordnance Survey 25 inch map, 1889-1890 © Crown copyright and Landmark Information Group Ltd.

Next Perspectives PGA Tile Ref: SS5448 03-MAY-2007. Images supplied to English Heritage by Next Perspectives through the Pan-Government Agreement

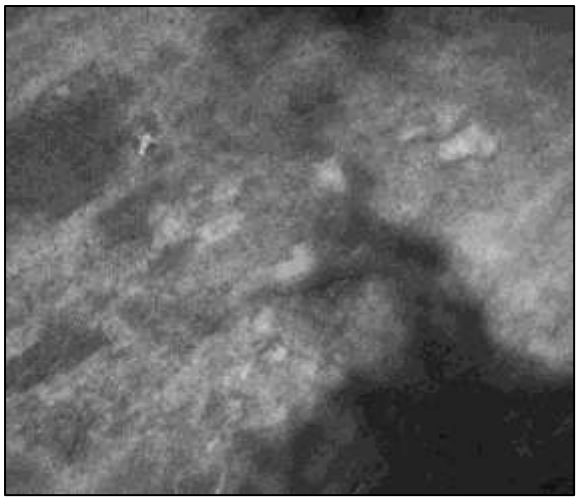
Figure 124. Possible lime extraction pits now located on what is now Ilfracombe golf course.



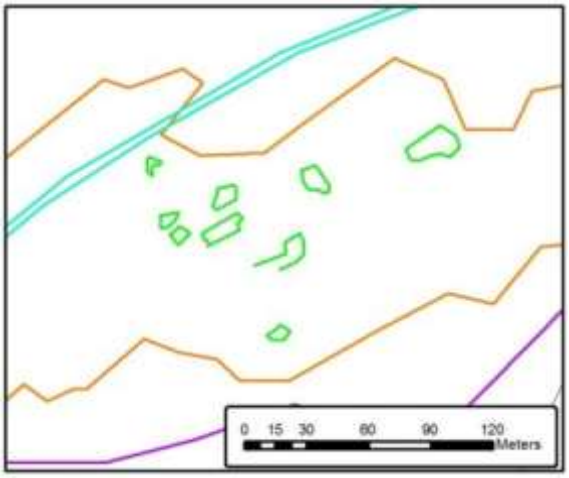
NMR RAF/58/2984 F22 0031 30-JUN-1959. English Heritage (RAF Photography).



NMP mapping © English Heritage. © Crown Copyright and database right 2013. Ordnance Survey 100019783.



NMR RAF/58/2984 F22 0031 30-JUN-1959 English Heritage (RAF Photography).



NMP mapping © English Heritage. © Crown Copyright and database right 2013. Ordnance Survey 100019783.

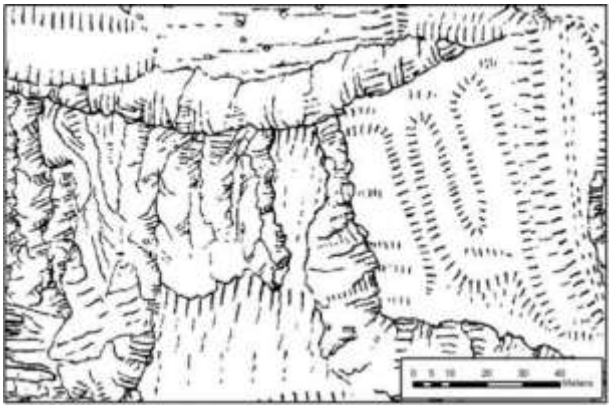
Figure 125. Peat cutting evidence on Bursdon Moor, visible as a complex (B, above) and as individual pits (C, below) on aerial photographs taken in 1959 (MDV102325).

7.11.10 A different type of extraction, more piecemeal and fragmentary, is in evidence at Bursdon Moor. The impact of probable peat cutting activity adds to the complex history of land use here. At least three main areas of peat cutting are visible as cropmarks of differential vegetation growth forming over irregular pits, visible on aerial photographs from 1946 to 2001. On the west of the moor the pits seem to be aligned along the narrow ridge and furrow that covers the moor (Figure 125 top), and presumably follow the lines of the furrows and therefore post-date modern deep ploughing for drainage (see Section 7.6). Some outlying pits (Figure 125 bottom) are visible as negative earthworks in 1959 but not later aerial photographs; the edges of the pits are much less distinct on aerial photographs from 1978, as the vegetation growth increased. It is however possible thatsubtle earthworks may survive below the vegetation cover. Extensive peat cutting has been identified on Exmoor to the east (Hegarty & Toms 2009), but no other moorland areas were observed within the AONB.

7.12 Thematic Results: Geology, Anomalies and Deceptive features

7.12.1 In the south of the AONB, an area mapped in the Cornwall NMP project, a record of possible earthwork enclosure or quarrying on the cliff edge at Welcombe was created as part of the backlog, MDV 103446. These are depicted with hachures on the First Edition OS mapping and recorded as possible earthwork banks from aerial photographs taken in 1988, but their alignment matches that of the outcropping rock stratigraphy to the west, and it is possible that they are of geological origin.

2006-2007 Aerial Photography, Bluesky and Infoterra.© GeoPerspectives



First Edition Ordnance Survey 25 inch map, 1891 © Crown copyright and Landmark Information Group Ltd.

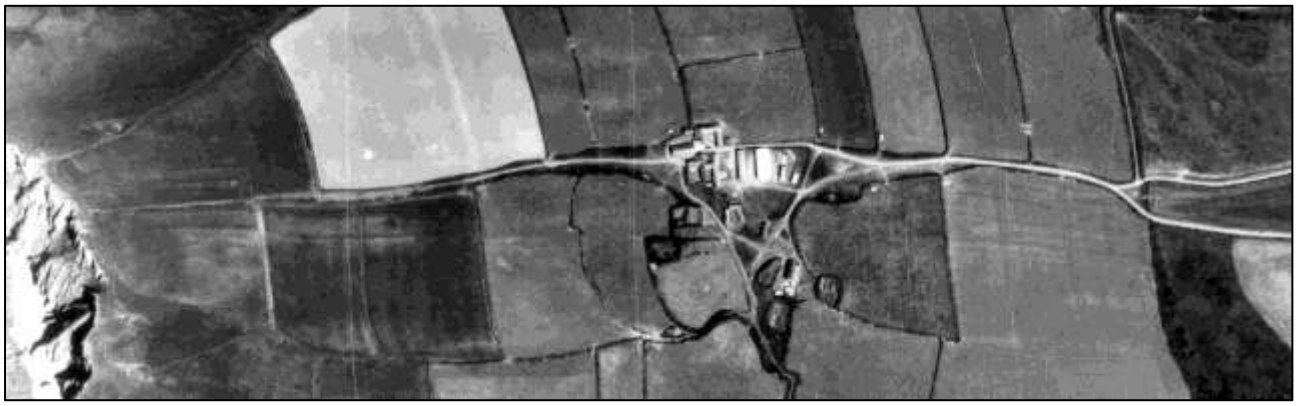
Figure 126.Earthworks or geological formations at Welcombe, MDV103446.

7.12.2 Some areas of the AONB had different types of deceptive geological formations. At Bideford a large number of mounds were observed that at first glance appeared to potentially be anthropogenic in origin, an interpretation that appeared all the more likely as there are records of barrows in the area (for example MDV 5548). However closer inspection and consideration of their large size and smooth almost globular shape suggests that in fact they are far more likely to be geological features, but they are noted here for future reference.

7.12.3 Parallel linear ridges in the Hartland area, aligned approximately east to west, were another potential source of confusion, particularly where they coincided with earthwork lynchets, for example around Gawlish. These could be distinguished from true earthworks fairly readily where close to the cliff edge, where it was obvious that they continued as ridges of harder rock protruding from the side. Inland, it was possible to distinguish them by their large scale and often amorphous extents, although they did often confuse the visible pattern of probable archaeological features.

7.12.4 Similar east to west geological formations were visible to the east and west of Blegberry Farm, also in Hartland Parish, as parallel linear cropmarks (Figure 127). The cropmarks were persistent features in the landscape, appearing on aerial photographs from the 1940s onwards. The geological nature of the linear cropmarks was apparent, clearly overlain as they were by the archaeological cropmarks of the strip-field system associated with the potentially medieval settlement at Blegberry. However, it is conceivable they could be

mistaken for trackways or extensive boundary ditches in association with such a historic settlement.



NMR RAF/58/2984 F21 0125-0126 30-JUN-1959. English Heritage. RAF Photography

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Figure 127. Geological cropmarks to the east and west of Blegberry Farm Hartland Parish.

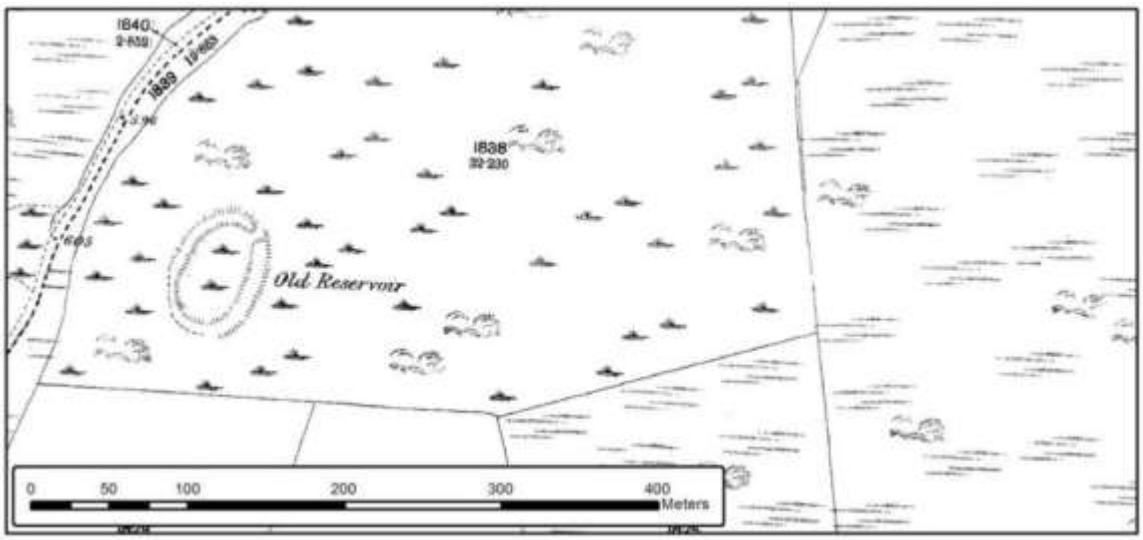
7.12.5 Some distinctive oval or curvilinear features were recorded in the west of the AONB on former moorland now planted up for forestry. One of these features (MDV19847) had been recorded in the DCCHER as an 'old reservoir' annotated and depicted on the First and Second Edition Ordnance Survey mapping although no details of form or survival were given (Figure 128 top). Earthwork banks with a gap on the north-east and south-west ends appear to have enclosed an oval area which presumably held the water.

7.12.6 Another, similar feature was visible as substantial earthworks approximately 400 metres to the east (MDV102329). This had not been recorded in the HER but could have worked on the principle of accumulating water from higher land between two converging banks. The earthworks appear to be constructed but other less well defined possible earthworks indistinctly visible on aerial photographs just to the north (Figure 128 middle) and further to the east resembles natural formations. These are on land of similar height and landuse, and probably similar geology, and it is possible that they are natural features, some of which had been modified. Further reservoir earthworks may have been - or are still - present in this area, albeit obscured by tree cover since at least the 1970s (Figure 128 bottom). No parallels have been identified for these features, which may be particular to this area rich in culm grassland, where water management and agricultural productivity have had a close

relationship and more research to clarify the date and function of these features is recommended.

7.12.7 Caution was always applied when interpreting Lidar data. Numerous possible earthwork features were visible on the Lidar tiles and this was often very useful for confirming the presence or survival of a feature suspected from earlier aerial photographs. Where no sign of a feature had been observed on earlier aerial photographs, however, interpretation was necessarily tentative. In some cases, particularly in wooded or heavily scrubbed up areas, it is quite possible that vegetation had obscured a feature from view, as is the case for the possible enclosure near Clovelly, described above.

7.12.8 Conversely, it was clear in some cases that superficially convincing anomalies were caused by non-archaeological features. For example, Figure 129 (left) shows a Lidar image from data captured in 2006, resembling a circular banked enclosure with a central point or mound. No earthworks were visible in this location on the available twentieth century aerial photographs, but a mature tree in this location is clearly visible on later aerial photographs (Figure 129, right). The central point may therefore have resulted from the dense trunk of the tree, and the surrounding ring from the increased density of leaves on the curve of the canopy, producing higher last returns in these areas. It is clear from the image that the surrounding structures and trees have not been stripped out in this instance and the leaves will have been dense at the time of the survey in August. The anomaly is similar to an example given by Simon Crutchley on a training course on *Archaeological Survey Using Lidar*, which ran at Oxford University Department for Continuing Education in 2012.



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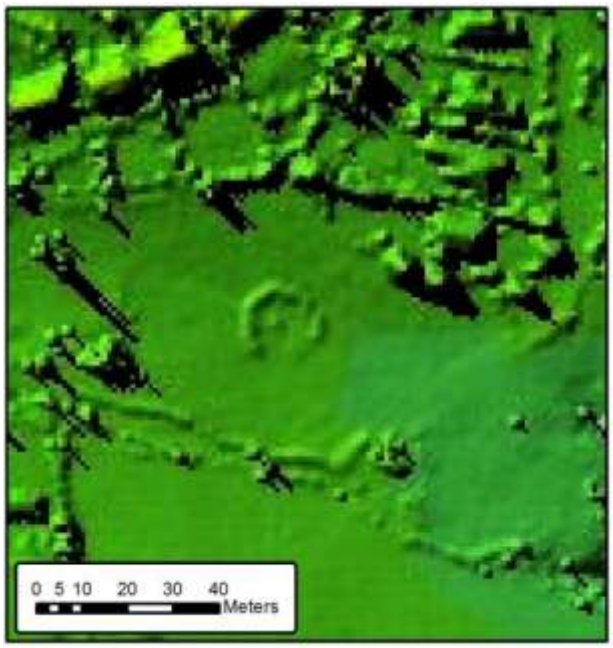
DCC RAF/3G/TUD/UK/158 5182 19-APR-1946. Devon County Council (DCC) RAF Photography.

NMP mapping © English Heritage. Next Perspectives PGA Tile Ref: SS2720 22-AUG-2007. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

Figure 128. Old Reservoir depicted on the First Edition OS mapping (a) on Summerwell Moor, visible as earthworks on aerial photographs taken in 1946 (b), and under forestry in 2007 (c). MDV 102329.



Lidar SS4428 Environment Agency D0059358 03-APR-2006 © Environment Agency copyright 2006. All rights reserved.

Next Perspectives PGA Tile ref: SS4528 04-MAY-2007. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

Figure 129. A circular anomaly in Northam, visible on Lidar images (a) as a feature resembling a banked enclosure, is probably caused by the differential density of the tree visible in this location on aerial photographs taken in 2007 (b).

7.13 Thematic Results: Locally distinctive Features

7.13.1 During the course of the project several sub-circular enclosures were observed in the south of the AONB. These were not mapped as they were defined by field boundaries still extant on the 1940s aerial photographs, and were marked on historic mapping, often with a road curving around them. In many cases most of the boundaries still survive, but the sub-circular shape of the enclosure is less obvious now due to development and expansion of settlements. Examples can be seen at Mead and Pilham and bear a resemblance to the small enclosures known as ‘rounds’ in Cornwall.

Figure 130. Horse engine houses in Croyde in the 1950s (one bottom left and two far right). These circular appendages were built onto barns to house a horse whim for threshing. This small concentration is visible and apparently still in use, or at least roofed, in 1953, but none are now extant. NMR RAF/58/1133 F22 0001 28-MAY-1953. English Heritage (RAF Photography).

7.13.2 Complex small infield enclosures were noted from 1940s aerial photographs in the area around Mortehoe station, apparently carefully compartmentalised. Initially a military purpose was considered, due to the proximity of these farms to military depots and camps, but it is perhaps more likely that they were market gardens.

Figure 131. Possible market gardens, Mortehoe. NMR RAF/106G/UK/1501 3281 13-MAY-1946.

7.14 A managed landscape

7.14.1 A recurring theme through the project was that of managed change, with cycles of evolving landuse. Braunton Burrows is a good example, with its history of large scale post-war re-vegetation of the dune system, only to be reversed from the 1980s by extensive scrub clearance and scraping to recreate open wet slacks. Grazing has recently been reintroduced here to manage the land more sustainably. Similarly Hillsborough and Northam Burrows were clearly grazed during the mid twentieth century but have since scrubbed up significantly, obscuring the archaeological features. Northam is currently grazed by sheep, but reintroducing grazing at Hillsborough could reverse the trend in this location too.

7.14.2 At Bursdon Moor a whole history of landuse is visible through the lens of the aerial photographer. The earliest visible evidence of human management are the barrows, which seem to have been part of a funerary landscape, respected by later field boundaries from more intensive use of the land for agriculture, perhaps in the medieval period. Later phases of agricultural improvement did not respect the monuments, although they were still substantial, and narrow ridge and furrow of probable modern date is visible across some of the mounds. Subsequently peat cutting had a further impact, although not a direct one on the barrows, and in recent years concerted efforts have been made to promote and sustain traditional management here through grazing and burning. This included another impact on the barrows, the insertion of a cattle water trough over one of the barrow ditches – itself even more recently reversed through Environmental Stewardship to protect the barrows from further damage from poaching of the ground.

7.14.3 The widespread evidence for medieval agriculture, in the form of relict and cropmark strip field boundaries, also attests to a reversal, or perhaps a cyclical, trend in management; many of the complexes of fields identified and recorded during the survey are now in land that is of low productivity and so uncultivated. This pattern is not unexpected, since those

former strip fields in more productive and therefore cultivated areas are likely to have been completely ploughed away, but the earthwork sites attest to the exploitation of far more marginal lands during the medieval period. The surviving Braunton Great Field is one of the sites that has endured since the medieval period, although even this it is under threat of continued loss of strips and landshare ends from modern agricultural practice.

8 Heritage Protection

8.1.1 The project team consulted the English Heritage South West Designation Team. Following discussions a list of sites with potential national significance was prepared

8.1.2 This list with a summary of the issues is reproduced in Appendix J and includes known sites of national significance where designation should be considered or the scheduled area amended in light of the NMP survey results, and previously unrecorded sites. However this list will not be exhaustive and should be taken as a starting point only, as it will only include monuments visible on aerial photographs and the suggested sites have not been considered against the criteria for designation.

8.1.3 Several of the important, threatened sites are large area landscape features and/or complex in composition, presenting challenges for management and designation. Examples include Braunton Great Field, a coherent medieval farming landscape which remains in active cultivation but is in multiple ownership, and the modern military training landscape at Braunton Burrows, comprising numerous component monuments in varying degrees of preservation. Such sites may be suitable for consideration as rural conservation areas or perhaps Heritage Partnership Agreements.

9 Recommendations

9.1 General recommendations

9.1.1 During the project a number of records identified sites where further archaeological work could potentially be particularly productive, either in enhancing knowledge of well-known sites or in establishing the character of newly recorded sites.

9.1.2 A list of these sites with comments was maintained and is reproduced in Appendix J. It is important to remember that this list is not exhaustive and should be considered a starting point only. Inclusion on the list does not indicate that the features are necessarily under threat or are a particularly high priority for research.

9.1.3 Contacting landowners to inform them about potentially significant and newly recorded sites could be a worthwhile exercise, particularly those illustrated above.

9.2 Recommendations for Aerial Reconnaissance

9.2.1 The high ground around the AONB has good potential for earthwork and cropmark enclosures and barrows to be identified through remote survey, aerial reconnaissance or related surveys

9.2.2 The intertidal zone of the Taw/Torridge estuary was only infrequently visible at low tide on the air photo resource available to the survey. It is recommended that this area is targeted at low tide in future aerial reconnaissance.

10 Summary and Recommendations

10.1 Summary

10.1.1 Despite facing a number of challenges during its execution, outlined in detail in Hegarty, 2013, the North Devon Coast AONB NMP survey has met the aim for NMP outlined in paragraph 3.1.1 and in doing so, has met the objectives and contributed towards the further aims set out in paragraph 3.1.2.

10.1.2 The results of the survey have been characterised under thirteen themes, outlined in Section 7. These can be summarised as follows.

10.1.3 Evidence for possible prehistoric agriculture is largely confined to high ground to the west of Exmoor, with potentially significant but ephemeral cropmark remains of a pit alignment hinting at previously unseen evidence for later prehistoric land division.

10.1.4 Evidence of medieval farming landscapes is particularly predominant around Braunton Great Field, with numerous pockets of relict systems throughout survey area. Scattered remains of individual relict strip-field boundaries support the evidence of HLC indicating that these open fields were potentially more widespread prior to post-medieval inclosure.

10.1.5 Post-medieval agricultural improvement visible as ploughing for drainage is concentrated in the west of the survey area, on the Culm areas at Hartland. The only indication of peat cutting is also visible on the higher ground in this area. Improvement for agriculture by reclamation can be seen in the estuarine zone, particularly at Horsey Island, whereas the anticipated widespread evidence of farm scale improvement by water meadow irrigation was not noted, catchworks instead being concentrated in the environs of Exmoor.

10.1.6 More recent large scale management changes were noted across the AONB, in many cases reverting the work of earlier landscape initiatives.

10.1.7 The longevity of settlement seen elsewhere in Devon is likely to also be true of the survey area, with evidence settlement abandonment being rare. The geology, soils and dominant landuse meant cropmark sites were scarce, but scattered cropmark enclosures of probable later prehistoric date, mostly of rectilinear shape and similar size, were noted on the mixed soils of the Hartland area. This can be contrasted to the curvilinear, earthwork enclosures more common in the north and east of the project area. Limited earthwork evidence for deserted or shrunken settlements of medieval and post-medieval date was noted, again largely to the east of the project area.

10.1.8 Previously unrecorded ceremonial or mortuary prehistoric sites were poorly represented. Disappointingly the stone row at Yelland was not visible. However, known barrow sites of probable Bronze Age were visible around the high moorland at Bursdon and along the coastal fringe at Clovelly and Berry Down, although in many instances known barrow mounds were not visible on the available aerial photographs, perhaps due to the semi-natural character of parts of the landscape, and the generally low height of the earthworks. A probable previously unrecorded barrow cemetery was also recorded near Ettiford Farm. A modern take on the ceremonial landscape was recorded at Tapeley Park.

10.1.9 The survey made a significant contribution to improving the understanding of fish traps, hulks and oyster beds recorded in the Taw/Torridge estuary on the HER, but further inter-tidal structural remains were rare. By mapping the visible extent of submerged peat deposits at Westward Ho! the survey data will hopefully assist future studies of this important prehistoric drowned landscape.

10.1.10 The secluded landscape of the North Devon coast has long been a draw for tourists and those seeking relaxation. The survey has recorded a number of facets of this geography of recreation from across the social spectrum, from designed landscapes at Clovelly and Tapeley estates, to failed golf courses, ruined hotels and the decline of more egalitarian holiday camps and open air bathing and boating pools.

10.1.11 Significant evidence of industrial activity was anticipated, particularly in the east of the project area around Combe Martin, an area with a rich history of mining (Claughton, 1992). In fact the evidence was scattered and probably local or even domestic in scale. Possible exceptions were noted along the coast in association with limekilns; although more extensive, much of this is now lost to modern development.

10.1.12 A minor theme was the anthropogenic enhancement of geological features, such as the terracing at Gawlish and possibly Welcombe, and the intriguing possible reservoirs indicating water management strategies based around enhanced natural hollows on the culm.

10.1.13 By far the most extensive theme to emerge was focused on the Second World War, in particular training in advance of D-Day at Woolacombe and Braunton Burrows. Many of the existing records in this area were derived from documentary evidence. In addition to identifying numerous previously unrecorded military remains, the NMP methodology allowed many of these existing monuments in this nationally important area to be accurately located probably for the first time, important when the previously poorly located historic environment assets in this area are vulnerable to damage from habitat creation initiatives. Mapping the conformation of individual features allows their use, diversity and the relationships between them to be better comprehended.

10.1.14 Recommendations have been made for follow-up archaeological work on individual sites. A list of sites regard as suitable for consideration for designation and changes to working practise has also been collated and is presented in Appendix K.

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12 Project Archive

The project's documentary and drawn archive will be deposited at the EH Archive, The Engine House, Fire Fly Avenue, Swindon, SN2 2EH. The contents of the archive are as listed below:

1. A project file containing the project design.
2. This project report in digital format (Word, accessible PDF).
3. The transcription data in ArcGIS geodatabase format and as ESRI Shapefile.
4. HER Monument Polygon data in ArcGIS geodatabase format and as ESRI Shapefile.

All monument records will be supplied to English Heritage when a data exchange mechanism is established for the National Record of the Historic Environment

All project data is available for consultation via the Devon HER at the offices of the Historic Environment Service, Devon County Council, County Hall, Topsham Road, Exeter, EX2 4QD, and online via Heritage Gateway.

Appendix A: Devon Character Areas

12.1.1 Hartland Peninsula.

In the Hartland Peninsula, complex geology, combined with centuries of pounding by the full force of the Atlantic waves, has produced some of the most dramatic seascapes and coastal scenery in Devon. The cliffs are high and rugged, with zig-zag faults and folds. Wave-cut platforms and spectacular coastal waterfalls are also distinctive features of this jagged, exposed and windswept coastline, with the profile of Lundy visible in the open seascape. Coastal heathland on the cliff tops produces vivid and changing colours for much of the year. Inland, the area contains an open, flat, elevated plateau of agricultural land, which contrasts with the twisting, wooded and secretive combes that are cut into the plateau at its coastal edge. Dramatic sunsets over the sea add to the drama of the area.
http://www.devon.gov.uk/index/environmentplanning/natural_environment/landscape/devon-character-areas/dca-torridge/dca-29.htm

12.1.2 Bideford Bay Coast.

Deep combes cloaked in oak woodland wind inland from the wooded cliffs, with carpets of bluebells in spring. Streams rush down the valleys, and ferns thrive in the dark, damp conditions. The woodland paths, with their glimpsed views of the sea, have a sense of intimacy, secrecy and peace. Narrow lanes with high, fern-covered banks provide access to the sheltered combe villages of Bucks Mills and Clovelly, the latter with its picturesque harbour and whitewashed houses. On higher land behind and between the combes is a lush landscape with a rolling patchwork of fields, a peaceful settled feel, and views of the woodlands and the sea. There are open sea views across Bideford Bay towards the Taw-Torridge estuary, with Lundy a distinctive feature on the horizon.
http://www.devon.gov.uk/index/environmentplanning/natural_environment/landscape/devon-character-areas/dca-torridge/dca-3.htm

12.1.3 Taw Torridge Estuary Mouth.

This is a flat, sky-dominated landscape with strong sensory characteristics. The habitats within the mosaic (dunes, beach, saltmarsh, mudflats and farmland) each have unique qualities of pattern, colour and texture which are juxtaposed in different combinations. The salty smell of mudflats and the sea are ever-present, as are the calls of birds. Within the dunes, the landscape feels disorientating, and has a strong sense of enclosure, isolation and wilderness. This contrasts with the open views towards the surrounding settlements, and the time-depth associated with the strip fields at Braunton. The estuary settlements have a strong maritime character, with historic quays and impressive bridges
http://www.devon.gov.uk/index/environmentplanning/natural_environment/landscape/devon-character-areas/dca-north-devon/dca-56.htm

12.1.4 The North Devon Downs.

This is a simple, agricultural landscape dominated by the sky within an open, westerly aspect. The smooth hills have rounded profiles, and are covered by a patchwork of large, regular fields. Views are long and wide, sometimes with glimpses of the sea or estuary as a backdrop. The steep valleys which punctuate the downland run like wooded ribbons across the landscape, contrasting with the farmland in their rich colours and textures. These valleys have a secluded and secretive character. They are very tranquil, the only sounds often being birds and running water; and their sunken lanes have a timeless quality.
http://www.devon.gov.uk/index/environmentplanning/natural_environment/landscape/devon-character-areas/dca-north-devon/dca-42.htm

12.1.5 North Devon High Coast.

This is an area of spectacular seascapes, with a rugged, jagged coastline containing a series of rocky headlands and small coves with grey shingle beaches. The western part of the area has a remote and ancient feel, with extensive areas of colourful coastal heath and grassland containing prehistoric standing stones. The area around Ilfracombe is more developed, its imposing Victorian architecture telling the story of its rise as holiday destination. The enclosed, wooded coastal combes (each with its own unique character) cut through rolling, agricultural downland to the sea. Trees are prominent features which soften the windswept landscape of the open downland below the ridge tops.
http://www.devon.gov.uk/index/environmentplanning/natural_environment/landscape/devon-character-areas/dca-north-devon/dca-43.htm

Appendix B: Archaeological Scope of the Project

The NMP Sphere of Interest is defined as all archaeological features visible on aerial photographs as cropmarks, soilmarks, parchmarks or earthworks, and some structures. The earliest sites recognised on aerial photographs usually date from the Neolithic onwards. NMP projects therefore record all archaeological features visible on aerial photographs with a date range from the Neolithic to the twentieth century.

The primary level of survey involved in the NMP requires some selectivity in mapping and recording, particularly for the more recent periods. Guidelines for the most commonly encountered examples of such variations to the Sphere of Interest are detailed below and any variance from this should be defined in the project design. NMP mapping is designed to be viewed against an OS map, and therefore will not usually record non-archaeological features depicted on the base map such as buildings / field walls / hedges / canals / railways. In some contexts some categories of site, such as standing buildings, may be recorded, for example in industrial or military complexes. (see below).

The project database will record which elements of any particular archaeological site survive or have been levelled and/or destroyed.

Previous surveys

Where a previous survey (of cropmarks or earthworks) has resulted in the production of a plan it is necessary to assess the sources used and the quality of the resultant plan. To minimise the work necessary for NMP purposes such surveys should, where possible, be accepted and merely updated from any additional sources available to the NMP surveyor. Where an existing survey has been done to a higher specification and larger scale than NMP, this can be used as the basis for a simplified plan appropriate to the NMP project specification.

If an existing survey does not reach NMP standards, the area should be re-mapped from aerial photographs. However, if it has relied on sources unavailable to the NMP surveyor then professional judgement will be necessary to decide whether to include specific features, which it is not possible to verify or discount. Normally a textual reference in the monument record to such features is sufficient. Where it is not possible to verify a pre-existing survey, for example, when trees mask the site, it should not normally be mapped, although on occasion it may be necessary to provide a textual record.
Plans resulting from excavation and geophysical survey of sites visible on aerial photographs should be treated in the same manner as those from field and aerial survey and used to aid mapping and interpretation.

Cropmarks, parchmarks, soilmarks

All sub-surface archaeological remains are recorded when visible as cropmarks, parchmarks or soilmarks.

Cropmarks and parchmarks. Different colours and tones, and sometimes height differences, in crops can reveal the presence of buried archaeological features. Where this occurs in grass it is called a parchmark. Marks formed in a similar way may also reveal details of geology and agricultural history.

Soilmarks. Different colours and tones in bare soil can reveal the presence of an archaeological feature. The main factors affecting visibility are the type of material present and relative moisture levels. The clearest marks are from freshly ploughed fields when the top of the buried archaeological deposit is brought to the surface by the plough, but with substantial features a diffuse effect may survive in the plough soil for many years and it is possible that moisture effects may be transmitted through the plough soil. Marks seen in bare fields formed in a similar way may also reveal details of geology and agricultural history.

Earthworks
Map and record all archaeological earthworks visible on aerial photographs. This includes features visible as earthworks on early photographs, which have been levelled and archaeological features marked on the OS maps that are within the NMP sphere of interest.

Buildings and Structures
Map and record all foundations of buildings visible as cropmarks, soilmarks, parchmarks, earthworks or ruined stonework. Standing roofed or unroofed buildings are usually more appropriately recorded by other methods, so will not normally be mapped. The exceptions are in specific archaeological contexts (e.g. industrial and military complexes and country houses), or when associated with other cropmark and earthwork features. If buildings have been demolished since the photography, then it may be appropriate to map them, in order to make an association explicit. Alternatively, they may be recorded solely in the text record.
Map and record other structures (designed originally without a roof) not depicted on the OS base, particularly 20th century military structures. Structures depicted by the Ordnance Survey (e.g. sheepfolds and shooting butts) can be mapped if considered to be of archaeological significance to the project. (See below for more detail, section 9.10 20th century military features).
Other stone, concrete, metal and timber structures that are within the NMP sphere of interest may also be mapped (e.g. timber circles).

Ridge and Furrow
Record all medieval and post medieval ridge and furrow, regardless of preservation, according to NMP conventions. The unit of record for ridge and furrow has varied in the past but wherever possible the archaeological context of the remains should remain the basis for recording strategy. The record may relate to a medieval township/parish if known, or a modern Civil Parish, or a discrete archaeologically significant area. The text should include brief comment on preservation and visibility over the area mapped as well as any archaeological assessment. Prehistoric cord rig should also be mapped.

Post Medieval Field Boundaries
Exclude post medieval field boundaries, whether seen as cropmarks, earthworks, or still extant, with the exception of circumstances when they may be of particular archaeological significance (e.g. when field systems are not mapped by the Ordnance Survey).

Parkland, Landscape Parks, Gardens and Country Houses
The English Heritage Register of Parks and Gardens includes parks and gardens of special historic interest. Early vertical photographs often show Country Houses in their landscape settings which have often undergone significant change or may even have disappeared entirely. Map all man made garden or landscape features, but not major landscaping. If appropriate map and/or record former Country Houses either completely or partially demolished within the date range of the available aerial photographs. Make or amend a monument record if the house is adequately depicted by the Ordnance Survey. In some cases it may be appropriate to depict and record features normally outside the scope of NMP such as tree avenues. Map and record all vestigial earlier features preserved within parkland and gardens (e.g. prehistoric features or medieval deer parks).
Treat significant parks and gardens in an urban context (originally or since engulfed) in the same manner.
Modern or 20th century parks and gardens are not normally recorded unless they are relevant to the project specification, for example in military contexts.

Industrial Features and Extraction
The aim of NMP is to provide a rapid, basic level, comprehensive survey of the extent and character of industrial remains in a landscape context. The scope for industrial recording is immense and some data already exists within national databases, local specialist recording groups and literature. Assess this at the project design stage to formulate a strategy for the level of detail to be mapped. For regions with a significant 18th-19th century industrial archaeological component, first edition

Ordnance Survey maps often provide essential aids to interpretation. Only map or record 20th century industrial remains when of particular archaeological interest, or when associated with earlier features. Urban industrial areas should generally be excluded from NMP recording.
Mapping and recording of industrial features should focus on groups of features (i.e. complexes with extraction, spoil, buildings and transport features) and should distinguish only the main features and industrial processes. Depiction should use appropriate NMP conventions dependent on the size and extent of features, highlighting and mapping the main features within the complex. Map roofed or unroofed buildings, when they are associated with industrial complexes.
The mapping and recording of extractive features (quarries, pits, mines, peat working etc) should follow the same guidelines as those above for industrial features, with the exception of widespread and common small-scale extraction of resources for immediately local use (e.g. chalk pits, marl pits, and minor or modern stone quarries and gravel extraction). Any variation from this should be agreed and specified in the project design. Where possible, at sites where extraction and processing are closely associated (e.g. lime quarries and associated lime kilns, clay pits and associated brick works), a single monument record should be used to explain the relationships between the various elements of the site.

Transport
Major transport features (i.e. disused canals and main railways) were included in the Ordnance Survey Archaeology Division sphere of interest, appear on various editions of OS maps, and were subsequently recorded in AMIE; they should not be mapped unless considered to be archaeologically significant in the context of the project. Smaller features (e.g. local tramways), which were outside the Ordnance Survey sphere of interest, should normally be mapped and recorded, especially in the context of associated features.

20th Century Military Features
NMP military recording includes First and Second World War as well as Cold War features. Data in national and local heritage databases, local specialist recording groups and literature, should be assessed at the project design stage and a strategy must be included for the level of detail to be mapped. The aim of NMP should be to provide a rapid, basic level, comprehensive survey of the extent and character of the major military remains of the 20th century. Military structures (originally designed without a roof) and roofed, or unroofed, military buildings, particularly when associated with other mapped features, are therefore usually mapped, especially when they have been removed or destroyed. Where an extensive site is already mapped by the OS use a minimalist approach for NMP mapping.
Normally NMP mapping of military sites should aim to be a “snapshot” of the main features of the site in 1945 or 1946. Significant changes to the site recorded on aerial photographs during the war should be briefly described in the monument record. Military structures to be mapped include outlines of extensive features such as airfield perimeter and runways, camp perimeters as well as significant buildings and earthwork structures, and all ephemeral features such as barbed wire, lines of tank cubes, etc. The NMP monument record for military sites should highlight the best source photographs and briefly describe the main elements, or unusual features, and any major changes to the site.

Coastal Archaeology
The coastal zone comprises inshore waters, the intertidal zone, the seashore and river estuaries and is recognised by English Heritage as under-represented in the archaeological record (English Heritage 1998, 2.1). In coastal areas covered by NMP, recording will continue to identify features within the intertidal zone and to depict them using appropriate conventions. Wrecks are mapped using a simple plan outline and minimum textual recording. Record any movement of features in the inter-tidal zone and whether covered over with mud or sand.

Urban areas
Major conurbations (Greater London, Manchester, and Birmingham) are currently a low priority for NMP projects. Smaller urban centres (e.g. Lincoln, Carlisle, and York) are included within NMP

project areas. Elements of the urban landscape (e.g. factories, housing, transport termini), and particularly 20th century development, will not normally be mapped. However, they may be mapped in exceptional cases, for example where there is a direct association with features being mapped outside the urban area.
In areas built up in the twentieth century, historic aerial photographs (most are from the 1940s onwards) may record archaeological features, or aspects of the landscape not recorded on historic maps. All archaeological features visible on aerial photographs of the pre-urban landscape are mapped and recorded. Where there are no archaeological features the historic photographs may illustrate landscape change relevant to the historic environment in a project area and can be useful for report writing.
For Rapid Coastal Zone Assessment Survey projects recording may be limited to the seaward side of a line 100m above mean high water rather than the usual full OS 1 km sq required by NMP.

Natural features
Exclude all natural features which are geological or geomorphological in origin. If there is risk of confusion in contexts with other archaeological features, then the natural features should be mentioned in the text record; they should not be mapped. In exceptional landscape areas some natural features may need to be mapped to fully understand the archaeology (e.g. Fenland areas).

Appendix C: List of AP Sources

The following AP collections were consulted for the North Devon AONB NMP survey.

English Heritage
Archive Services
The Engine House
Fire Fly Avenue
Swindon
SN2 2EH
Tel: 01793 414600
Email: archive@english-heritage.org.uk

Cambridge University Collection of Aerial Photography (CUCAP)
CUCAP Library,
Department of Geography,
University of Cambridge,
Downing Place,
Cambridge CB2 3EN
Tel: 01223 764 377
http://www.geog.cam.ac.uk/cucap/

Devon County Council Historic Environment Team
Lucombe House
County Hall
Topsham Road
Exeter
EX2 4QW
Tel: 01392 382246
http://www.devon.gov.uk/environment/

Appendix D: Map Layer Content and Transcription Conventions

ArcView layers are divided into polygon or line object feature classes. The NMP survey transcription was organised in the following layers.

No non-standard layers were required. Standard Ridge and Furrow layers were not required.

LAYER NAME	LAYER FORMAT (LINE/ POLYGON)	COLOUR	DESCRIPTION	
BANK	Polygon	Red	Use to outline banks, platforms, mounds and spoil heaps.	
DITCH	Polygon Or Line	Green	Use to outline cut features such as ditches, ponds, pits or hollow ways.	
EXTENT_OF_FEATURE	Polygon	Orange	Use to depict the extent of large area features such as airfields, military camps, or major extraction.	
MONUMENT_POLYGON	Polygon	Cyan	Use to indicate the extent of the monument record as defined in the NRHE or HER database.	
STRUCTURE	Polygon	Purple	Use to outline structures including stone, concrete, metal and timber constructions e.g. buildings, Nissen huts, tents, radio masts, camouflaged airfields, wrecks, fish traps, etc.	

Appendix E: Object Data Tables

Object data was attached to each transcribed feature in ArcGIS. This recorded basic interpretative information and consisted of seven fields, either free text fields to be manually entered, pull-down menus offering pre-set options, or fields to be populated from the HER either on completion of the survey or at regular points to be determined throughout the survey.

Field	Format	Description/Options
Layer	Pulldown list	Cropmark, Earthwork, Levelled Earthwork, Structure, Demolished Structure
HERMonID	Free text field	Manually input
Period	Populated from HER	Interpretive archaeological period
Type	Populated from HER	Monument type
Evidence	Pulldown	Cropmark, Earthwork, Levelled Earthwork, Structure, Demolished Structure
Photo	Free text field	NMP format AP reference
Comment	Free text field	Any comments the interpreter feels necessary

Appendix F: NMP methodology: use of HBSMR and ArcGIS

By Graham Tait

The NMP methodology used by this project ensured that the NMP data was directly recorded into the Historic Environment Record for the local area (Devon HER). Integrating the NMP data directly with the HER allowed the information to straight-away inform planning and land management, helping to safeguard Devon's historic environment.

It also saved much time, effort and cost associated with accessioning the NMP data into the HER (both technically importing data as well as manually correlating data), and ensured that the NMP could make full use of the data, resources and professional staff knowledge of the HER.

NMP recording for this project was undertaken using the GIS software ArcGIS (from ESRI) and the HER software HBSMR (from exeGesIS). This proved to be an adaptable and practical method of recording, and allowed easy use of data from the Devon HER during the project, as well as providing a straightforward and timely method of ensuring that this NMP data was recording in the Devon HER.

Transcription

Transcriptions were recorded in ArcGIS. This was carried out as set out in the project methodology, and as advised by 'Standards for National Mapping Programme projects' (Winton, 2012).

Transcription database
A transcription database was set up. This was set up as an 'ESRI Personal Geodatabase' (although any geodatabase could be set up to record this information).This geodatabase made use of 'domains' to allow rules about how the data can be edited. These rules allowed for 'coded values' that ensured that only one of a certain category of attributes could be record (i.e. selected from a pick-list).

The geodatabase was created with the following domains and coded values:

Domain: Evidence

Code	Description
CROPMARK	CROPMARK
EARTHWORK	EARTHWORK
LEVELLED EARTHWORK	LEVELLED EARTHWORK
STRUCTURE	STRUCTURE
DEMOLISHED STRUCTURE	DEMOLISHED STRUCTURE

Domain: LayerLine

Code	Description
BANK	BANK
DITCH	DITCH
RIDGE_AND_FURROW_ALIGNMENT	RIDGE_AND_FURROW_ALIGNMENT
STRUCTURE	STRUCTURE
IMPROVEMENT_RIDGE_AND_FURROW	IMPROVEMENT_RIDGE_AND_FURROW

Domain: LayerPolygon

Code	Description
BANK	BANK
DITCH	DITCH
EXTENT_OF_FEATURE	EXTENT_OF_FEATURE
RIDGE_AND_FURROW_AREA	RIDGE_AND_FURROW_AREA
STRUCTURE	STRUCTURE
IMPROVEMENT_RIDGE_AND_FURROW	IMPROVEMENT_RIDGE_AND_FURROW

(All domains had the following domain properties: Field Type: Text. Domain Type: Coded Values. Split Policy: Duplicate. Merge policy: Default Value.)

Feature classes
Within this database, there were two feature classes (layers). These were:

- Transcription Lines (named NDtrans_line)
- Transcription Polygons (named NDtrans_poly)

These both had the following fields (all of 'text' type):

- Layer (the domain for this layer was LayerLine or LayerPolygon as appropriate)
- HERMonID
- Period
- Type
- Evidence (the domain for this layer was Evidence)
- Photo
- Comment
- NMRMonID

As two people (Cain Hegarty and Stephanie Knight) were recording transcriptions at the same time, it was decided that they would use two identical databases (and feature classes), and the data could be merged into one database at the end of the project. This allowed a simple method of multi-user editing.

Using the transcription geodatabases

The transcriptions were then created using these feature classes. This meant that for all transcription lines or polygons, attributes were created in three ways:

Coded values / pick-lists
The fields 'Layer' and 'Evidence' were completed using pick-lists. This provided a fast and accurate method of completing these fields.

Manual Input

Other fields such as 'HERMonID', 'Photo' and 'Comment' (where appropriate) were completed manually.

Populated from HER

Fields such as 'Period', Type' and 'NMRMonID' were not completed on this layer, but were populated from the HER database (HBSMR) at the end of the project, and these fields completed within the transcription layer as a batch process.
As this data was only recorded once (within HBSMR) and then exported to the transcription data at the end of the project, time could be saved in recording this information and no double-indexing took place.
The field 'Evidence' was not completed in this way, as different transcriptions for the same monument may have had different evidence types and this needed to be recorded within the transcription layer.

NMP annotations

Annotations were extensively used throughout the NMP process to record features and photographs. These were recorded on a text graphics layer of the map document (.mxd file). To assist with being able to easily switch these text graphics on or off, these were assigned to a new Annotation group, and the 'N Devon AONB NMP project blocks' layer was set as its 'Associated Layer'. This meant that the text graphics were displayed when the associated layer was displayed.
In order to ensure that the text graphics did not cause the map document (.mxd) to run slowly, the text graphics were then saved at the end of each map sheet and deleted from the map document. These were saved by converting the graphics to an annotation feature class. However, there is a limit (256 characters) on the size of these annotations, so all text graphics were kept to less than this size.

Monuments

Monuments were created within HBSMR and the monuments polygon layer in the GIS as set out in the project methodology, as advised by 'Standards for National Mapping Programme projects' (Winton, 2012) and the Devon HER recording guidelines. This included the following key fields of data:

- Record Type
- Name
- Summary
- Monument Type(s)
- Location (Parish, District)
- Relevant sources:

- These sources always included the project report (Report - Survey: Hegarty, C. + Knight, S., 2011 - 2012, North Devon Coast Area of Outstanding Natural Beauty National Mapping Programme Project) along with who compiled it and the date of compilation. It also included the relevant other sources, as set out in the methodology.

HBSMR conforms to the 'MIDAS Heritage' standard. 'MIDAS Heritage' is a British cultural heritage standard for recording information on buildings, archaeological sites, etc. and states that Monuments (Heritage Assets), Events (Investigative Activities) and Sources (Information Sources) should be recorded separately and related together. The method used by Devon HER uses HBSMR to explicitly record each relevant source (for example a photograph or a personal comment) along with a description of the monument from that source. Devon HER uses a mode within HBSMR that allows each descriptive part of text about the monument to be directly related to a specific source. This ensures that all descriptive text is related to a particular source, so users of the data have more certainty over the provenance of the descriptive text as well as providing an easier way to export the data.

All monuments had a monument polygon created. This linked to the HER monument record, and took the form of a polygon showing the spatial extent of the monument.

Appendix G: NMP Methodology

The following section summarises the methodology developed by AC archaeology and DCC HES for the North Devon AONB NMP project. It may be reviewed for future projects based at DCC HES. A detailed description of the project specific methodology can be found in the Project Design (Hegarty 2011).

The air photograph mapping and recording tasks for the AONB were undertaken by the AC archaeology NMP team based within DCC HES at County Hall, Exeter. The project followed current NMP standards and methodology with a few minor variations (Winton 2012; Hegarty 2011). A summary of the archaeological scope of the project is described in Appendix B.

The aerial photographs assessed include vertical, military oblique and specialist oblique aerial photographs available from the English Heritage Archives, formerly the National Monuments Record (NMR), vertical and specialist oblique aerial photographs held by the Cambridge University Collection of Aerial Photography (CUCAP) and vertical and specialist oblique aerial photographs held by the DCC HER. The latter includes a large collection of specialist oblique aerial photographs making up the Devon Air Photograph (DAP) collection. Orthorectified vertical photographs supplied to EH by Next Perspectives™ through the Pan Government Agreement (PGA) as 1sq km tiles in TIFF format were also supplied to the survey and routinely examined. A list of the AP sources consulted and relevant contact details can be found in Appendix C

The survey also routinely assessed a range of historic map sources in digital format, via the DCC HER GIS. This included the Ordnance Survey first to fourth edition 25in maps and tithe maps for Devon. As the project began the tithe maps were viewed via an online map-viewer (http://www.devon.gov.uk/tithemaps.htm) and later as a georeferenced GIS layer, albeit containing some gaps. The tithe apportionments were not checked as a matter of course but were consulted in cases where field name evidence might aid interpretation.

Oblique and vertical photographs were scanned and digital transformations of the archaeological features visible on the photographs were produced using the specialist AERIAL 5.30 software. Digital copies of current OS 1:2500 Mastermap® vector base maps were used for control information and as a base for mapping directly into the DCCHER ArcView GIS. All digital transformations are therefore within a level of accuracy within 5m to true ground position, but typically less than 2.0m to the base map. Rectified images, georeferenced orthophotography and georeferenced raster jpegs drived from lidar data were imported into the DCCHER GIS where all interpreted archaeological features were mapped.

Archaeological features were digitally transcribed according to a nationally agreed layer structure and, where possible, using agreed line and colour conventions as specified by Aerial Survey and Investigation (English Heritage 2011). These are set out in Appendix D. A monument polygon was created for each new monument and existing monument polygons amended. The layer structure used by this project followed EH NMP standards, including non-standard layers for areas with extensive military remains. One exception to this is in the depiction of Platforms and Slopes. As this project was transcribed entirely within ArcView and not AutoCAD, as per standard NMP practice, it was not appropriate to employ the standard T-hachure convention to depict platforms or scarps; instead these were depicted on the Bank or Ditch layer as seemed appropriate to the interpreter, consistency and ease of understanding being achieved through frequent comparisons.

Object data was attached to each transcribed feature, recording basic interpretative information and consists of four fields; period, type, form, and photo as well as a comment field. Depending on the object data field this was either manually input or derived from the HER record. The format of the object data is summarised in Appendix E and the AC/DCC methodology for NMP in ArcView and the DCC HER is summarised in Appendix F. Simon Crutchley of the EH Aerial Investigation & Mapping team visited during September 2012 to observe how this worked in practise.

HER monument recording took place, following training, directly into the DCCHER, where new monument records were created and existing records amended as required. This database automatically generates UID numbers and all recording was input data to core fields directly

mappable to those described in the NMP Standards and Guidelines (English Heritage 2012), enabling monument indexing to be carried out to NMP and ALGAO standards, including fields for cross referencing to existing NMR records. All HER monument recording is therefore to NMP standards.

Those monument records arising from the Cornwall NMP and Exmoor National Park NMP surveys were accessioned into the DCC HER as part of the project. The methodology developed for this task is outlined in the Morphe End-of-Project report.

Due to circumstances beyond the control of the NMP team or DCCHES the survey experienced a number of issues which impacted on the project methodology and timescale. These are summarised in the Morphe End-of-Project report.

Project Specific themes

Several project specific themes were identified in the project design (Hegarty 2011, 18). These included catchmeadow or catchwork watermeadows and modern military remains.

The project scope was expanded in December 2011 to include recording any evidence of the impact of Modern Military manoeuvres on Braunton Burrows and earthwork evidence of open field baulks or landsherds on Braunton Great Field and, if possible, map evidence of strip agglomeration over time. The evidence of modern military training on the dune system at Braunton is summarised in Section 7.4 and the recording of Braunton Great Field in Section 7.6.

The project scope was expanded in January 2012 to include evidence for post-medieval ridge narrow ridge and furrow, interpreted as evidence for agricultural improvement. It was felt this information would be valuable in informing land management in the AONB.

The extent of the deep ploughing for agricultural improvement proved to be much more extensive than anticipated. It is difficult to quantify with any precision but transcribing these features significantly increased the timescale of the survey. This was especially the case as the sortie on which the evidence was most clearly visible was also unusually difficult to rectify (see section 5.1.13), the distribution of ridge and furrow was scattered and often extensive, requiring rectification of a very large number of these APs. To improve progress, and to provide consistency with the Cornwall NMP transcription layers immediately south of the project area, the universal transcription of this feature type was suspended in favour of recording only when its impact significantly affected previously unimproved or unenclosed land, such as commons or moorland, or when impacting on archaeological sensitive landscapes or features.

Improvement ridge and furrow was recorded for QS SS22NE, SS22NW, SS22SW, SS32SE and part of SS22SE (northernmost 3km). Assessment of just transcription time for the southern 2km of SS22SE showed that transcribing all R&F for agricultural improvement would increase the recording time by a third. The extent of modern improvement of culm lands could be well understood from the trial area and for the rest of the project area only ridge and furrow on open, unimproved (often common) land was recorded (sketched).

The narrow ridge and furrow is visible on the DCC 1940s RAF digital continuous aerial photograph layer, and this source alone is generally indicative enough to ascertain the distribution and orientation of this type of earthwork remains in any particular area.

Significance

Running lists of sites to consider for designation, priority sites for further work and good runs for cropmarks were maintained throughout the second part of the project. A list of HER monument records created and substantially amended (defined as records with which the NMP project source had been associated) was also established after it became clear that HBSMR queries could not easily distinguish between records that had been significantly altered and those changed only superficially (e.g. linked to).

Site Visits

Two site visits were scheduled to take place during the survey. The first scheduled site visit took place in April 2012, focussing on new, unusual or interesting sites identified during Block 1 survey. The project team were accompanied by Dave Edgcombe, AONB Project Officer, who was able to easily locate (and park close to!) the various sites identified by the team as priorities, enabling more sites to be visited than would have been possible without this local knowledge. The visits were extremely informative in terms of ground truthing as well as condition assessment, and the most relevant are discussed and illustrated in the results section below.

The team also scheduled this visit to coincide with two relevant land management and research events that the DCCHET has been closely involved with. These were the Higher Level Stewardship funded restoration works to relocate a water trough from a damaging location on one of the Scheduled barrows at Bursdon Moor, and the excavation at Embury Beacon, part of the RDPE funded 'Unlocking our Coastal Heritage' project. This had a remit to investigate the remains of this spectacularly located coastal hillfort that is steadily succumbing to coastal erosion, to enhance visitor experience of the South West Coast Path.

The second site visit was due to take place towards the end of Block 2. In the event though this had to be abandoned due to severe floods in North Devon during the latter part of November and December 2012 and then disruption from snow and more localised flooding in January 2013.

The project team carried out the second site visit following the completion of the survey in early March 2013. The visit focused on the Second World War and Cold War remains at Woolacombe/Saunton and Northam Burrows and confirmed the survival of inter-tidal Second World War remains at the Skern. Some unusual structures interpreted as potential structures eroding out of the flood defence bank around the reclaimed Horsey Island proved to be modern crab tiles. This information has now been entered into the HER.

NMP Backlog Data Entry

Data from previous NMP projects (Cornwall 2170) and Exmoor (5107 MAIN) which covered small portions of the AONB was also incorporated into the Devon County Council (DCC) Historic Environment Record (HER) as part of this project.

This followed the process outlined below, but differed for each of the two areas due to the different nature of the resources available.

- Importing the previous mapping into the DCCHER GIS.
- The creation or amendment of monument polygons.
- The creation or amendment of HER monument records.

Accessioning Exmoor National Park NMP data

Areas of the AONB covering parts of Berrynarbour and Combe Martin parishes were surveyed during the Exmoor National Park NMP project.

Monument record data was generally accessed from Pastscape as this was quicker than cross referencing NGRs and UIDs between the several tables and documents supplied by English Heritage. The spatial information taken from the ENPA shape files held by DCC that had been submitted to DCC in 2009.

Several issues with using Pastscape and the English Heritage Monument Reports were identified, mainly the frequent incidence of missing sources. This was compounded by the layout of Pastscape and the English Heritage Monument Report, which places the source references at the end of the description rather than retaining them within the text at the appropriate location. This frequently meant it was difficult or in some cases impossible to ascertain to which source the text was referring. This was clarified in the text where appropriate and slowed the process of data input.

Each monument created or amended was linked to the source record SDV350587 for the ENPA NMP project (see appendix G). Any additional interpretative comments made by SK were entered under source SDV 350734.

Accessioning Cornwall NMP data

Areas of the AONB covering parts of Welcombe and part of Hartland parishes were surveyed during the Cornwall NMP project.

MORPHE data was supplied by Simon Crutchley in database format (PRI table that included the MORPHE number, monument form, date, and central NGR) and notes (a .txt file including MORPHE number e.g. DE.121.7.1, monument type, form of the monument, central NGR and summary text). The information in the .pri table was exported to a .csv file and points displayed in GIS to assist location of the features.

The only available source for any aerial photograph reference was the attribute data attached to shape files of the polygons and lines, presumably converted from CAD. It is worth briefly noting here that these spatial objects caused some problems in ArcView, affecting the display of monument polygons, and in numerous cases the NMP polygons could not be copied into monument polygons (having the 'wrong geometry'). Exporting maps to pdf format was also problematic when these layers were displayed.

As well as Form and Comment, the attribute table included the field 'Photo' which held a single sortie reference, and another two fields for Date. One of these had 01.07.2002 entered in all rows, presumably the date the spatial objects were accessioned to the EHA. The other Date field is assumed to be the date of the aerial photograph that the transcription had been taken from, since the values in all cases matched the known dates of the sorties in the 'Photo' field. However a small proportion of features did not have an aerial photograph reference at all.

A particular problem encountered during accessioning was that the attribute data for the shape files did not include a unique identifier. This means that in some cases where the spatial objects were widely dispersed it was not possible to identify which, if any, MORPHE record a particular spatial object was attached to. In these cases the spatial objects were assigned a new HER record.

A less fundamental problem was that in a few cases the form of the monuments as recorded in the spatial attributes and in the MORPH data did not match, and this discrepancy was explained in the descriptive text.

Each monument was linked to a source record created for the Cornwall NMP project SDV350748 (Appendix H). Where additional comment or explanation was required this was entered under a different source, 'Backlog element of North Devon AONB NMP project' SDV350734, and other sources were added as appropriate (e.g. Tithe map, etc).

However most of the records were extremely skeletal with very limited interpretation, due to the paucity of available information, see for example monument MDV103541 in Appendix I.

For future NMP backlog projects accessioning MORPH data it is recommended that a single table is provided by EH that combines the three main sources (PRI table, text file and shape file attributes), and includes the MORPH number, monument type, date, form, aerial photograph reference and date and the long text. This would drastically reduce the amount of time required to locate and record all the relevant information. A sample of each of the three sources is given in the Morphe End-of-Project report.

The time estimate in the project design of 20 minutes per record was broadly correct for the actual data entry process. However additional time was required for set up and to locate and cross reference the relevant data, and to import it in a usable format into GIS.

Dissemination

This project report will be made available on the English Heritage website.

A project liaison group of stakeholders was established to ensure that the project met its aims and objectives to the satisfaction of those receiving the data produced. The liaison group met twice during the project, at County Hall in Exeter. The first in January 2012 communicated the aims/objectives of the survey. The second in November 2012 had very useful discussions on the initial results of the survey and resulted in the identification of the ruins of an unusual building close to a quarry (see Section 7.10 below). The members of the liaison group are detailed in Appendix I.

The NMP transcriptions are available to view at the DCC HER and the HER monument records arising from the NMP survey are available online via Heritage Gateway.

The North Devon AONB has provided resources to facilitate limited further dissemination. This will comprise a number of thematic essays summarising themes arising from the NMP survey. These could include:

- Defended landscape
- 'Mock' landscapes / International landscape
- Farmed landscapes
- Ceremonial landscapes
- Marine landscape
- Recreational landscapes
- Industrial landscapes
- Geological landscape

Other dissemination projects under consideration include participation in meetings of local societies or interactive displays/events, hopefully in conjunction with the AONB, who have recently appointed a new manager. No outside organisations have been formally approached as yet but a particularly relevant event could be that planned to coincide with the 70th anniversary of the establishment of the U.S. Army Assault Training Centre on 1st September 1943. http://www.assaulttrainingcenter.com/ANNIVERSARY.html.

Appendix H: Analysis of the Survey Results

Constraints and Methods

The Devon HER was migrated from a bespoke in-house database to an ExeGesIS HBSMR system during the first half of the survey. Following the migration it was realised that many HER monuments no longer displayed a creation date or author in the audit trail. No particular pattern has yet been identified and this issue seems to affect monuments created prior to as well as during the NMP project. This issue is being investigated by the DCCHER team and ExeGesIS but is unlikely to be resolved before this survey report is completed.

The main repercussion for the NMP survey is that it is not possible to query the HER for records created between specified dates i.e. it is not possible to confidently identify which HER records predate the NMP survey and have been amended and which are new.

In addition, the HBSMR default filter for 'modified' HER monument records cannot accurately distinguish between those records which have been substantially amended by members of the NMP team and those which have been only superficially modified, for instance associated with another monument as a 'child' or 'parent' record.

Fortunately the NMP team kept an accurate record on the Map Note Sheets of numbers of created and substantially amended HER records as a matter of course, i.e. those which were associated with a project specific source record. All records associated with this source have been either created or substantially amended by the NMP team and can be isolated using a bespoke query.

Interrogation of these records by form and period has been undertaken for all records created or substantially amended by the NMP survey, but beyond basic project statistics it has not been possible to further analyse the results summarised below as 'new' or 'amended' categories. The monument records with lower monument numbers, below MDV80116, are often pre-existing monument records that have been amended, but not exclusively since the switch to HBSMR resulted in a degree of renumbering.

The vast majority of the HER monument records associated with this source (approximately 80%) are 'new'. Although it is not possible to readily quantify the different composition of the new and amended records it is felt that the newly recorded sites and features represent a continuation of the existing pattern, with the possible exception of prehistoric funerary monuments such as barrows, of which a lower proportion were newly identified.

Summary Analysis

The NMP survey substantially enhanced 233 extant HER records and created 886 entirely new HER monument records (see Table 7). This equates to a mean average of 15.7% existing HER records amended and an average increase of 36.2% in the number of HER records. New NMP records now make up 27% of all Monument records for the project area.

Map No.	Map Area (sq km)	% of Map	Existing Records	Amended Records	New Records	Total Records	% Increase
SS22NE	13	52	56	4	46	102	82.1
SS22NW	9	36	124	5	29	153	23.4
SS22SE	25	100	100	19	76	176	76
SS22SW	17	68	133	4	62	195	46.6
SS32NW	3	12	33	6	16	49	48.8
SS32NE	3	12	5	0	4	9	80.0
SS32SW	15	60	217	11	44	261	20.3
SS32SE	14	56	131	4	48	179	36.6
SS42NW	15	60	206	9	68	274	33.0
SS42NE	5	20	88	9	14	102	15.9
SS42SW	5	20	31	1	22	53	71.0
SS43NW	12	48	142	21	45	187	31.7
SS43NE	18	72	329	34	45	374	13.7
SS43SW	10	40	67	18	24	91	35.8
SS43SE	21	84	404	41	115	519	28.5
SS44NW	1	4	13	2	4	17	30.8
SS44NE	12	48	106	4	9	115	8.5
SS44SW	6	24	74	9	13	87	17.6
SS44SE	21	84	109	5	63	172	57.8
SS53SW	12	48	120	5	18	138	15.0
SS53SE	2	8	437	1	6	443	1.4
SS54NW	19	76	277	5	39	316	14.1
SS54SW	4	16	45	12	23	68	51.1
SS54SE	10	40	85	7	36	121	42.4
SS64SW	6	24	68	4	16	84	23.5
Total			3400	240	885	4285	Average 36.2%

Table 5: New and Amended HER monument records by map quartersheet.

This is well below the national average of an increase of more than 50%,and in some cases as high as 70% (Horne 2009, 7; www.english-heritage.org.uk/national-mapping-programme). The low overall average and the variation in increase across to maps (which range in increases of less than 2% to over 80%) accurately reflects the varied landscape, geological and topographic conditions across the survey area (see Section 4.1 and 4.4). The previous archaeological surveys of the North Devon AONB (Collings *et al* 2006; Bass 2005, Passmore 2009) may also have contributed to this phenomenon. These surveys included a relatively large number of sites known only from documentary evidence or surface debris that had been entered as point data and skeletal information onto the HER, together with the very many sites that had been accessioned to the HER from the U.S. Army plans as points with skeletal evidence. The proportion of new and existing HER

monuments is illustrated by map quartersheet in chart 1 and proportion of amended and existing HER monuments is illustrated by map quartersheet in chart 2.

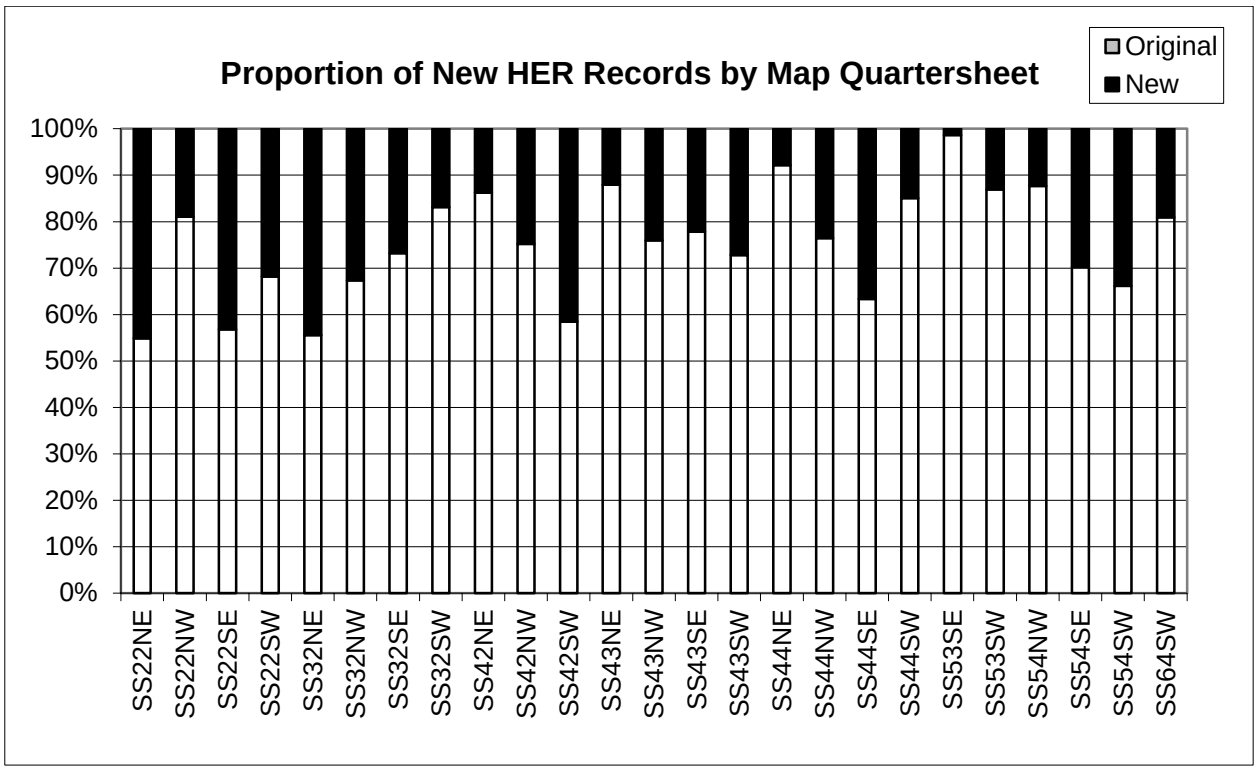

Chart 1: Proportion of new and existing HER monuments by map quartersheet.

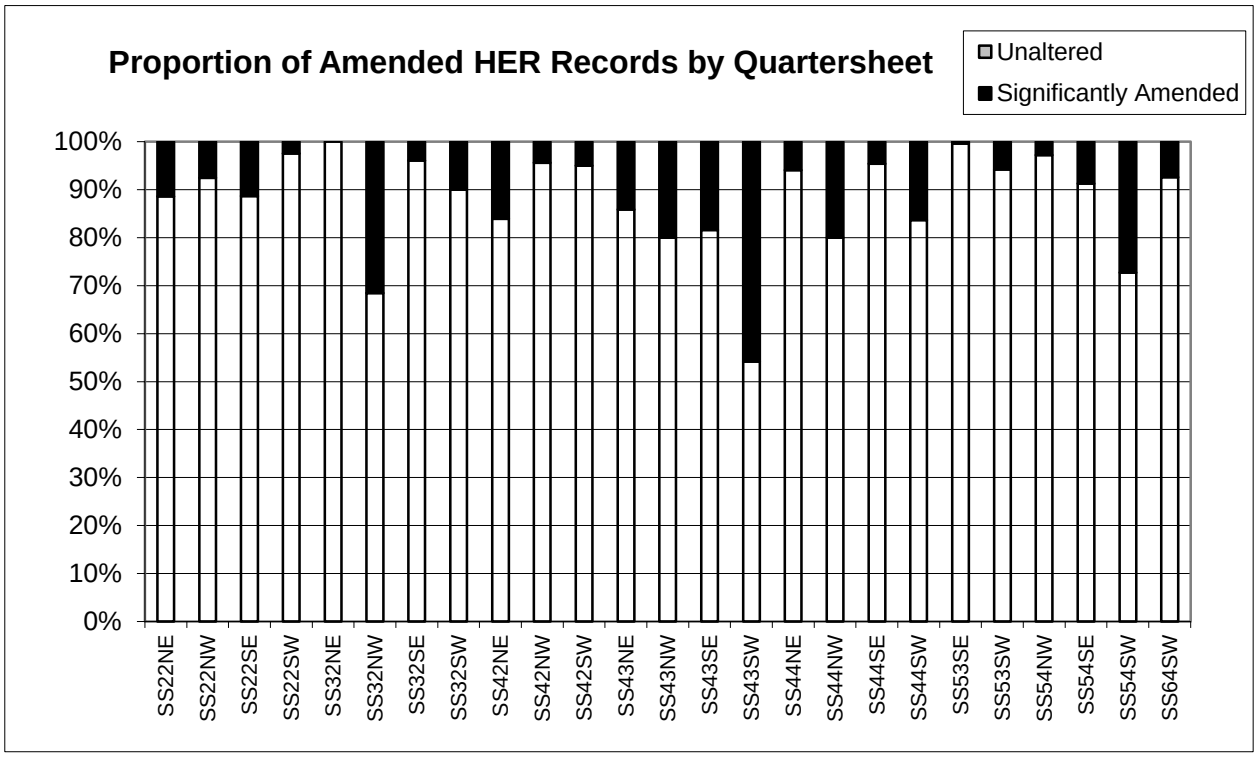

Chart 2: Proportion of amended and existing HER monuments by map quartersheet.

The new total of 4286 HER monuments equates to a monument density of approximately 15.4 monuments per square kilometre.

Earthworks (including Earthwork, Levelled Earthwork) were the most commonly recorded form of evidence, ascribed to 51% of all project monument records. Approximately 28% of all project monument records were ascribed a structural evidence term (including structure, extant structure, ruined structure, vessel structure, demolished structure). The high number of monuments with a structural component reflects the dominance of modern military activity and good level of survival with within the survey area. Roughly 20% of all project monument records were ascribed cropmark as evidence term (cropmark, soilmark), but this is felt to be an over-representation as HER monuments have been indexed with multiple evidence terms, particularly field boundaries visible as earthworks and cropmarks or soilmarks. Approximately 1% of project monument records were ascribed 'other' evidence terms other (natural feature, enhance natural feature, uncertain evidence). Nonetheless, the proportions illustrated in Chart 3 reflect the mixed nature of the evidence observed during the survey.

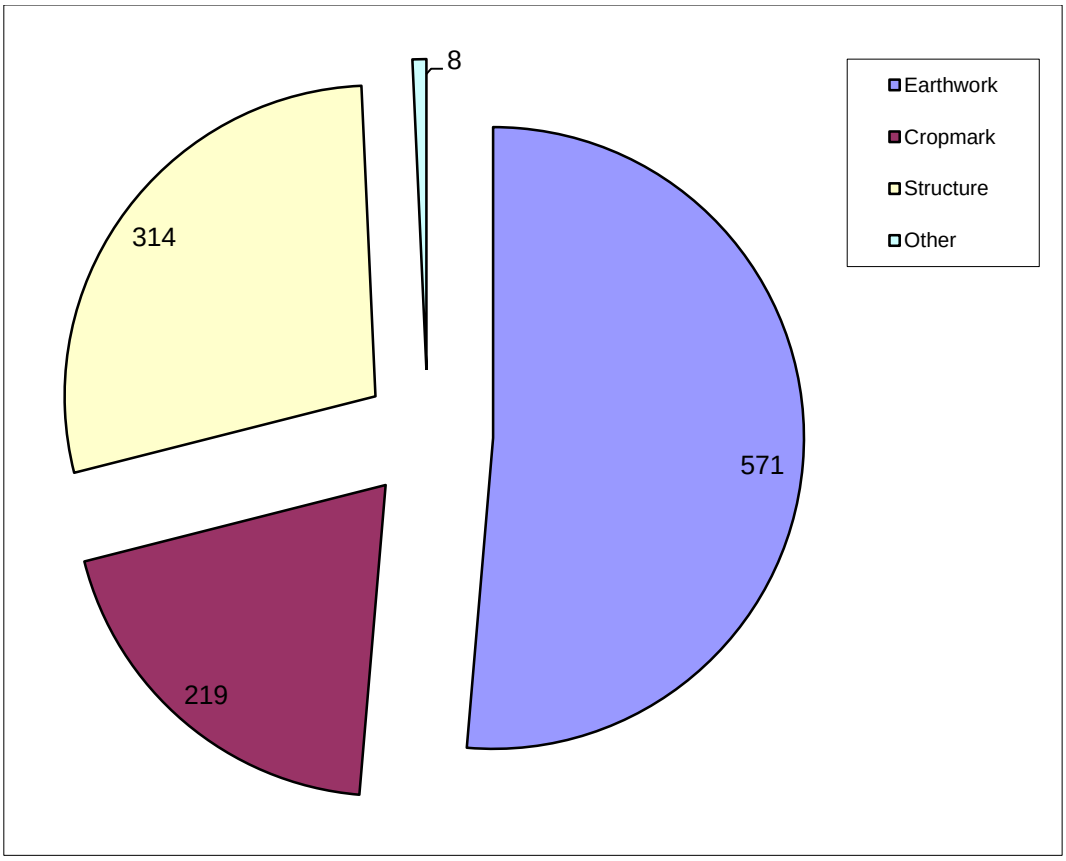

Chart 3: Number and relative proportion of new and amended HER monuments by indexed evidence type.

A high proportion of the HER records created or amended during the survey are indexed to two or more archaeological periods, for instance 'Iron Age' to 'Roman' or 'medieval' to '19th Century'. Tabulating the number of HER project monument records created by a single period would therefore over-simplify the dataset to an unacceptable degree resulting in potentially misleading results. To assess the composition of project monument records by archaeological period, the data has been tabulated by the earliest indexed period and latest indexed period and illustrated in Chart 4.

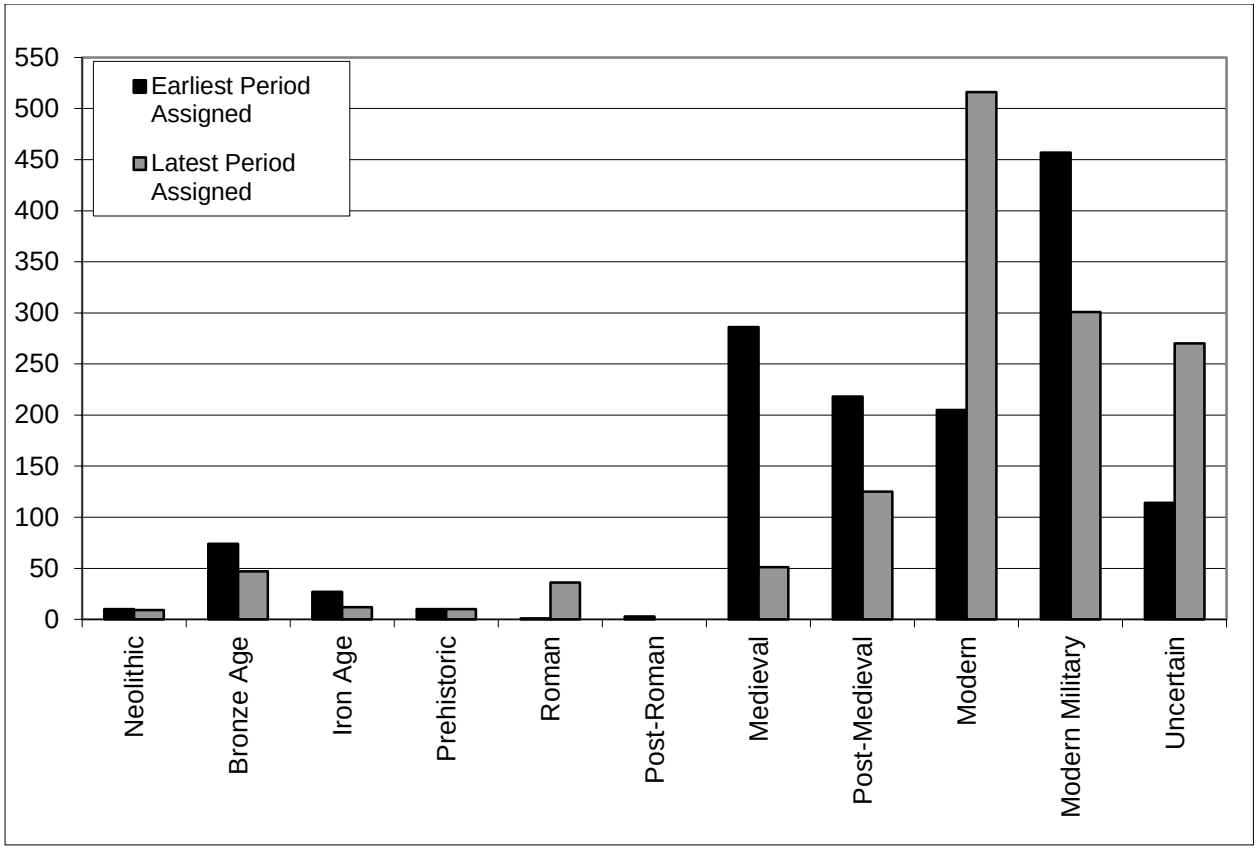

Chart 4: New and amended HER monuments tabulated by the earliest indexed period and latest indexed period.

Assuming the interpreted earliest period indexed equates to the origin of the monument, features of modern military date are the most numerous, followed by features of medieval and post-medieval date. The interpretive nature of the NMP methodology means the number of HER monuments ascribed an 'unknown' date should be minimised.

The 25 Monument Types most frequently recorded or amended during the survey, counting only those with more than 10 incidences in the HER, are illustrated in Chart 5. An assessment of the figures confirms that whilst modern military features are indeed the most numerous, field boundaries are the most numerous single monument type and field boundaries of probable medieval date the most numerous monument type interpreted to a single period. The peak in incidence of monuments with a latest assigned period of 'modern' date reflects the number of field boundaries of medieval origin that may have continued in use until the modern period. Quarries, narrow ridge and furrow, watermeadows and barrows are also well represented, contributing to the relatively high numbers of monuments of post-medieval, modern and, to a lesser extent, Bronze Age date.

The archaeology of those areas of the Cornwall NMP (project no. 2170) and Exmoor National Park NMP (project no. 5107) surveys which intersect with the North Devon Coast AONB has been discussed in the relevant NMP survey reports and is not covered in any detail here (Young 2007; Hegarty and Toms 2009). However, where relevant, reference has been made to these components of the North Devon Coast AONB NMP survey. The number of new and amended HER records for the Exmoor and Cornwall NMP surveys accessioned to the DCC HER are listed in Table 8.

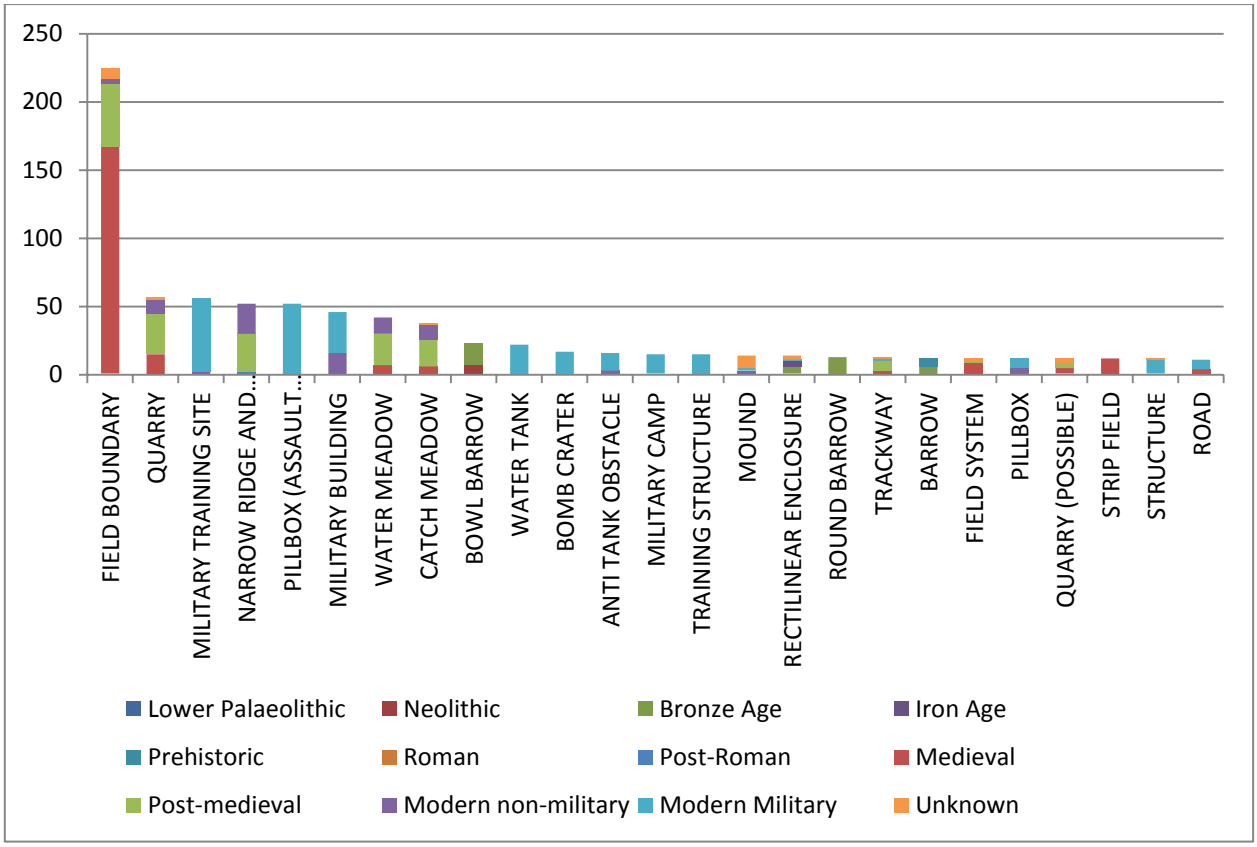

Chart 5: Numbers of the 25 most common monument types by period.

	New	Amended	Total
ENPA	32	0	32
Cornwall	101	8	109
Total	133	8	141

Table 6: Number of new and amended Cornwall NMP and Exmoor National Park NMP monuments accessioned into the DCC HER.

Appendix I: Liaison Group Members

Organisation	Liaison Group member
North Devon AONB	Linda Blanchard
DCC	Bill Horner
DCC	Graham Tait
DCC	Ann Dick
EH	Phil McMahon
EH	Veryan Heal
EH	Nick Russell
DCC/ Devon Archaeology Society	Frances Griffith
Devon Archaeology Society	Eileen Wilkes
North Devon Archaeology Society	Alison Mills

Appendix J: Sites Suggested for Heritage Protection Consideration

Name	Priority	MonID	SM	Landscape	LB	Wreck	Notes
Braunton Great Field	High	199		1			Proposals for Scheduling have been rejected by EH in the past. However local planning policies and agri-environment schemes are currently not adequate to either reward farmers for good management or to prevent development in the immediate area of the Great Field, and statutory protection is highly recommended. NMP shows how significant the loss of the medieval strips has been in the last century. Without action this trend is liable to continue and this very rare example of a working open field system of medieval origin is at high risk of significant degradation or loss.
Braunton Burrows	High	57283 & 102678		1	1		There are numerous competing demands on Braunton Burrows from military training activity, habitat creation, grazing management, and recreation as well as natural processes. NMP shows the extent of impact from large scale dune vegtation planting in the 1950s and the extensive late 20th/early 21st century scrub clearance or scrape creation. The buried and upstanding structural remains are striking, evocative and of international importance; statutory protection is highly recommended in order to confirm their significance and assist in weighing up the importance and vulnerability of environmental resources during discussions of holistic land managment.
Clovelly Dykes	High	169	1				The probable extension of banks and ditches into the area south of the Scheduled area and the road is inferred from cropmarks visible on aerial photographs from several different years. Substantial below-ground remains may survive within buried ditches, and are a high priority for protective management as the field appears to be regularly cultivated and ongoing damage from agricultural operations is likely. The addition of this field into protective management such as arable reversion under Higher Level Stewardship should be pursued, and would be supported by revising the scheduling area in light of the new NMP data.

Lynchets at Saunton Down	High	563	1	1			Medieval strip field boundaries in this part of North Devon attest to extensive and intensive farming of the landscape in the medieval period, incuding areas now considered to be unproductive and managed as rough ground. The lynchets at Saunton are highly visible remains with good potential for ehancing public understanding, and clearly demonstrate the former exploitation of land now considered to be unproductive. Other relict strip field systems as well as the working open field at Braunton add to group value.
Braunton Marshes	Medium	17027		1			The historic landscape of Braunton Marshes is highly distinctive, with numerous stone built linhays, some of which have beenr estoored recentlly, wiith others now ruinous. There is good potential for enhancing public understanding of land reclamation and coastal erosion and change. The area is the subject of discussions about managed retreat and pertinent to current issues of climate change and sustainability. Designation would ensure that the educational and recreational value of this landscape is duly considered in management discussions and decisions.
Radar sites at Northam Burrows	Medium	55665	1	1	1		NMP survey showed a variety of structural remains surviving at Northam, including earth covered buildings, some of which have been exposed, and mast bases??. Some appear to be in relatively good condition, whilst others have been removed. They cover an extensive area and have group value together with the WWII anti-glider trenches, as well as being highly visible and accessible. They tie into the overarching theme of military defensive and training activity on the North Devon Coast in the Second World War.
Fishtrap	Medium	66207			1		The fishtraps on the Skern have been the focus of activity by local groups and some surveys have been made that indicate their relatively good survival. Their value is increased by the several consecutive constructions and it is likely that more remains lie buried within the sands, which NMP survey has revealed as realtively dynamic. Their date is hard to determine but it is possible that some could have a medieval origin.
Hulks at Boathyde	Low	53867				1	The hulks at Boathyde form an interesting and visible group and may be worthy of designation. (check criteria with Ann D)

Hilltop enclosure	High	5651	1				Substantial banks are visible as earthworks on aerial photographs located in the field to the west of the scheduled area, and are likely to be an integral part of the probable prehistoric hilltop enclosure. The scheduled area should be amended to include these for reasons of consistency and integrated management and protection.
Barrow cemetery	Medium	103149	1				Three or four previously unrecorded ploughed down mounds identified through the NMP survey are likely to be part of a barrow cemetery and associated with other barrows in the vicinity. This area can therefore be proposed as a significant ceremonial or memorial site in the Bronze Age. The barrows may have been subject to deeper ploughing in the past few decades and their location at the top of a slope means they are particulatly susceptible to plough damage and erosion. Scheduling would help to ensure that their group interest is recognised and assist in negotiations to protect below ground remains.
Hillsborough promontory fort	High	2210	1				The scheduled area does not currently include the parts of the ramparts in the south of the site visible on images dervived from recent lidar interpretation (Beamish 2011) - this area is particularly interesting since recent geophysical survey has identified possible below-ground features such as roundhouses here (Dean 2011).

Appendix K: Sites Suggested for Further Work

Name	MonID	Site visit	Geophysical Survey	Topographic Survey	Palaeoenvironmentaln vestigation	Arable reversion
Possible civil war cropmark, Appledore	11870		1			
Possible civil war earthwork, near Clovelly	102409		1	1		
Clovelly Dykes, cropmarks to south	169		1			1
Enclosure cropmark east of Cheristow	81295		1			
Possible deserted settlement earthworks, Welsford	81328		1	1		
Possible deserted settlement cropmark, Seckington	102288		1			
Possible seawall structures at Horsey Island	102613	1				
Possible defended enclosure cropmark, Seckington	102282		1			
Direction arrow, Bursdon Moor	102324	1				
Fremington stone row & possible ditched enclosure	5207 102611				1	
Enclosure earthwork near Yapham Farm	57823		1			
Enclosure earthwork, Gallantry Bower	102340	1				
House platform earthwork or garden feature, Clovelly Court	102367	1		1		
Enclosure cropmark, Gorrans Down	102463		1			1
Possible deserted settlement earthworks, Buck's Barton	102442		1			
Possible rabbit warren mound, Hartland	102087		1			
Enclosure parchmark, Down House Cottages	16955		1			
Possible hilltop enclosure cropmark, Instow	102582		1			
Enclosure earthwork, Down House Cottages	16955		1			1
Barrow cemetery, Hore Down Gate	103174		1			
Barrow cemetery soilmarks, Ettiford Farm	103149		1			
Medieval enclosure earthworks and cropmarks, Little Stowford	12557		1			
Mining cropmarks, Westleigh	103182		1			
Enclosure earthwork, Little Roadway Farm	103354	1	1			
Sq cropmark enclosure, Milford Common	102421		1			
Circ cropmark enclosure, Milford Common	102420		1			
Rectilinear cropmark west of Winscott, Alwington	102358		1			1
Cropmark enclosure South Hole Farm	102576		1			1
Levelled earthwork enclosure east of Parkham Cross	102287	1	1	1		
Deserted settlement of Mullatcott	103139		1	1		
Pit alignment/cropmark enclosures	103248		1			1

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