THE BLACKDOWN HILLS AONB AND EAST DEVON RIVER CATCHMENTS NATIONAL MAPPING PROGRAMME SURVEY
HISTORIC ENGLAND PROJECT NUMBER 7209

PHASE 1
INTERIM REPORT

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AC archaeology

The Blackdown Hills AONB
and
East Devon River Catchments
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The Blackdown Hills AONB and East Devon River Catchments National Mapping Programme Survey

A National Mapping Programme Report

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1 Summary, Background & Methodology

1.1 Summary

This document is an interim report for Phase 1 of the National Mapping Programme (NMP) standard interpretive aerial photograph survey of the Blackdown Hills Area of Outstanding Natural Beauty (AONB). The Phase 1 survey area is illustrated in Figure 1.

It takes the form of an illustrated report to provide a statement of project progress and a very brief review of the archaeological highlights and themes to emerge from Phase 1 of the survey.

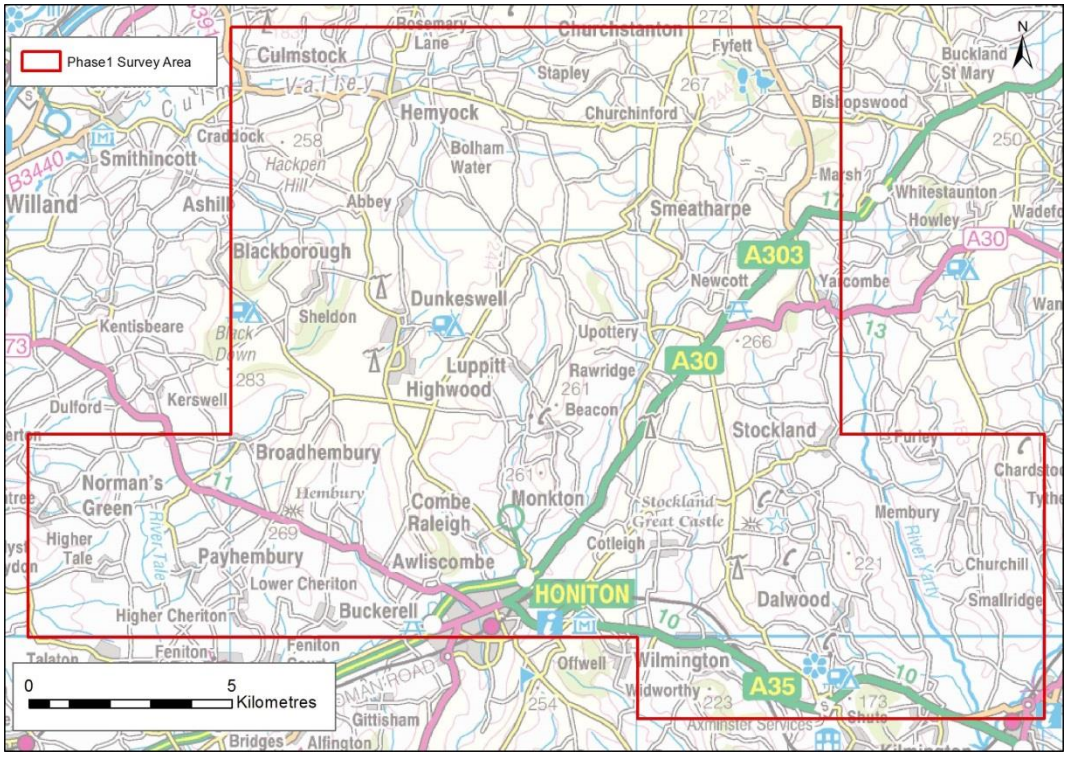


Figure 1: The Blackdown Hills AONB and East Devon River Catchments Phase 1 survey area. © Crown Copyright and database right 2016. Ordnance Survey 100019783.

1.2 Background to the Project

This survey takes as its starting point the Blackdown Hills AONB. The AONB covers 370 square kilometres (143 square miles) of gently sloping plateau, steeply inclined escarpment and wooded river valleys straddling the Somerset and Devon border. This archaeologically understudied designated landscape presents compelling research opportunities.

The historic environment of the AONB is vulnerable to threats arising from resource protection initiatives, notably water quality and flood risk amelioration options under Countryside Stewardship (CS) schemes and related programmes arising from the Water Frameworks Directive.

In 2014 small scale improvements to the A30/A303 were announced as part of the Government's Road Investment Strategy 2015-220. The RIS 2015-220

acknowledged that any larger works on the A30/A303 would have an impact as this major route to the South-West passes directly through the heart of the AONB's protected landscape. Such improvement works were subsequently proposed for the Monkton area by Devon County Council. Several controversial 'Route Options' were presented at public consultation, each with potentially significant impact on both natural and historic assets.

The public consultation closed in September and the preferred option for the improvements around Monkton was approved by DCC Cabinet in December 2016.

The total project covers an area of 546 square kilometres divided into two phases of approximately 295 square kilometres (Phase 1) and 251 square kilometres (Phase 2) (see Figure 2).

The survey is being be carried out by AC archaeology's NMP team based within the offices of the Devon County Council Historic Environment Team (DCCHET) at County Hall, Exeter.

1.3 NMP Methodology

The project followed current NMP standards and methodology with a few minor variations arising from the use of GIS as mapping software (Winton 2016; Hegarty 2015). The archaeological scope of the project is outlined in the Project Design (Hegarty 2015) and will not be repeated here.

The NMP methodology involves the systematic examination of all readily available aerial photographs and other remote sensing data such as lidar, (also known as Airborne Laser Scanning or ALS), to compile a comprehensive synthesis of the archaeological information available on the aerial photographs. This synthetic data is incorporated directly into the DCC Historic Environment Record (HER) to make it instantly available to assist research, planning matters and protection of the historic environment, and accessible by the public via Heritage Gateway and DCCs Environment Viewer. In line with standard NMP surveys, this project does not include a systematic field element, but provides valuable baseline historic environment data for further research or follow-on field investigations.

Further 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.

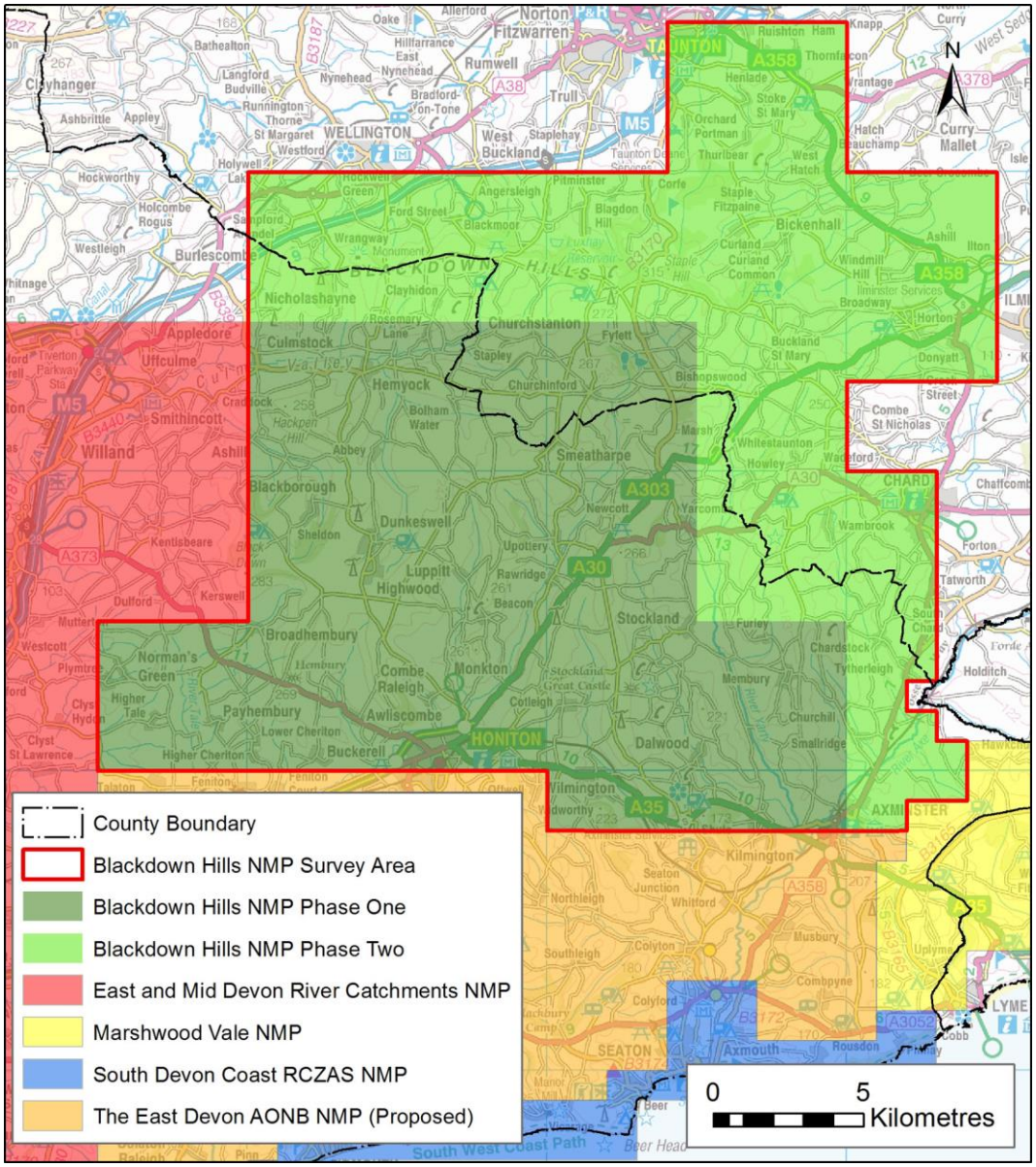


Figure 2: Phase 1 and Phase 2 survey area in relation to previous National Mapping Programme Surveys. © Crown Copyright and database right 2016. Ordnance Survey 100019783.

2 Progress and Constraints on the Survey

2.1 Progress

All transcription and recording tasks for phase 1 of the Survey are complete at the time of report submittal. Approximately 92% of Phase 1 falls within Devon, the remainder in Somerset.

2.2 Constraints on the Survey

Completion of Phase 1 was delayed by factors external to the survey. These can be summarised as:

- delays in the completion of the bespoke lidar survey commissioned for the survey
- the need to meet the time sensitive requirements of the A30-A303 road improvement public consultation

The need to meet the Historic Environment requirements of the pubic consultation necessitated initiation of the survey without the new lidar data. Delayed delivery of the lidar data necessitated revisiting the already surveyed areas to update the results in light of new detail revealed by this data.

The impact of this upon the project's progress was significant and will be detailed in the End of Project Review report.

3 Overview of the Survey Results

3.1 Interim Analysis/Interpretation of Results

Approximately 94% of the Phase 1 survey (circa 271 square km) area falls within Devon and have been recorded on the DCC HBSMR HER. The remaining 8 % (circa 24 square km) fall within Somerset and have been recorded on the South West Heritage Trust HEROS HER. Due to the very partial nature of the dataset for Somerset, the quantification below is derived only from the Devon HER and is for illustrative and summary purposes only.

2804 monuments with the project source (SDV359463) are recorded in the DCC HER, although monument and evidence double indexing has resulted in a total of 3815 records being returned for the purpose of analysis (see table 1). Numerous additional records will have been affected by the survey (e.g. duplicates deleted; relationships created), but these less substantive changes are excluded from this analysis.

Of the 2804 records, 90% were created by the survey team. The remainder are amended pre-existing records, for which the survey added to and refined the information already held in the HER. There are now 7181 monuments in the Phase 1 project area. New NMP records comprise over a third of these, an increase of approximately 54%. Records created or substantially amended by NMP comprise 39% of the total.

An average of approximately 10 records per square kilometre were created or amended during the survey, although some areas with full lidar coverage were particularly dense at 17-19 records created or amended per square kilometre (map quarter sheets ST20NW and SY29NE). Two of the lowest density map quarter sheets, at 5-7 monuments per square kilometre (ST11SE and ST10NE), were probably under-represented due to low or absent lidar coverage. Other map quarter sheets, such as ST00SE, ST10NW and ST20SW, also demonstrated monument density at the lower end of the scale, at 7-8 per square kilometre, despite good lidar coverage, suggesting that other factors are at play. There seems to be a positive correlation between monument density and mudstone geology, with fewer features recorded in areas with sandstone bedrock. It is likely that a combination of good lidar coverage and mudstone geology have the greatest influence on the density of monuments identified and recorded through NMP in this landscape.

3.2 Emerging Themes

3.2.1 Assessment by Top Term

Several dominant themes noted during the survey are demonstrated by the analysis of the records (Chart 1). The prevalence of extractive pits is reflected by the high proportion of monuments categorised as 'industrial'. Orchard banks, former field systems and to a lesser extent watermeadows are frequently observed in parts of the project area, reflected by the high proportion of monuments categorised as relating to 'agriculture and subsistence', and also to 'gardens parks and urban spaces' (orchards represented by orchard banks). A range of features is categorised within 'monument <by form>', but the majority of these 836 entries are medieval and post-medieval field boundaries.

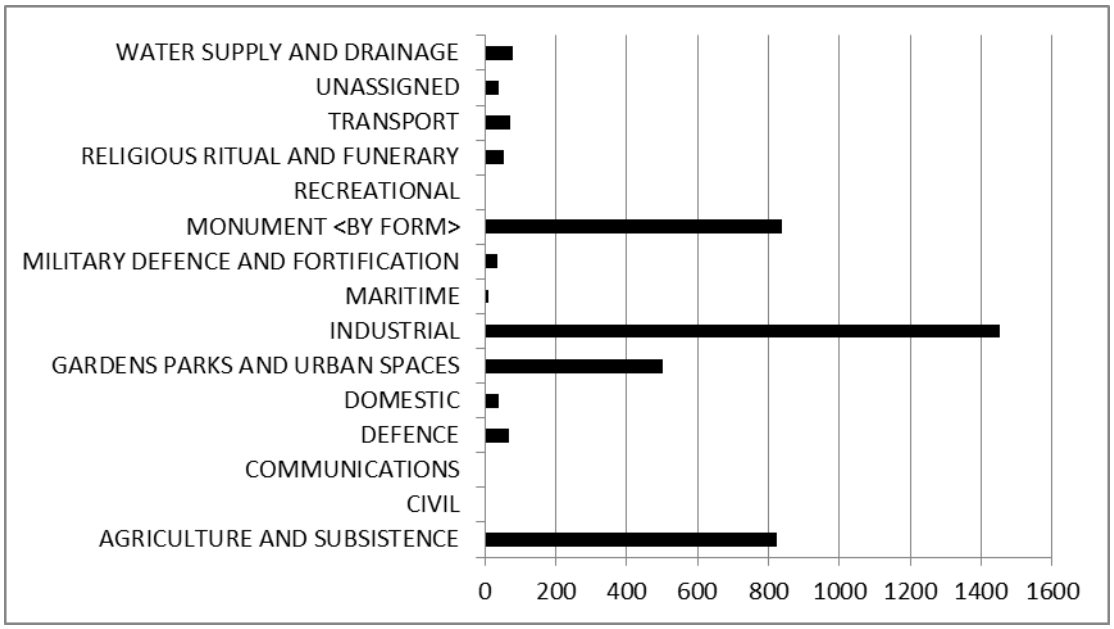


Chart 1: Monuments categorised by top term. A number of duplicate records will have been automatically generated during export from the HER, where a monument has more than one possible top term. The unassigned category comprises mainly non-archaeological features.

The dominance of this fairly limited range of monument types overwhelms a number of less obvious themes, although some of these can be picked out from the most frequently recorded monument types (Table 1). They include military sites of later prehistoric, Roman, medieval and Second World War date, medieval or post-medieval settlement, and religious, ceremonial or funerary sites. These are contextualised in the examples in Section 4 below.

	AERIAL PHOTOGRAPHIC EVIDENCE	BOTANICAL FEATURE	CARTOGRAPHIC EVIDENCE	CONJECTURAL EVIDENCE	CROPMARK	DEMOLISHED BUILDING	DEMOLISHED STRUCTURE	DOCUMENTARY EVIDENCE	EARTHWORK	EXCAVATED FEATURE	EXTANT BUILDING	EXTANT STRUCTURE	LEVELLED EARTHWORK	NATURAL FEATURE	PLACENAME EVIDENCE	RUINED BUILDING	RUINED STRUCTURE	SITE OF	SOILMARK	STRUCTURE	SUB SURFACE DEPOSIT	Total
EXTRACTIVE PIT			40		14				1052				32						4			1142
FIELD BOUNDARY	1		16		53				534				24						1			629
ORCHARD	1	1	102		2				362				132									600
CATCH MEADOW			2	2	2				139				54									199
MARL PIT			16					1	88													105
CLAY PIT			2						73													75
NATURAL FEATURE					9				57					3								69
GRAVEL PIT			7						50													57
TRACKWAY			3		2				36				1							1		43
ENCLOSURE	1		1		10				26				2									40
CULTIVATION MARKS	2				1				31				3									37
BARROW	1				3				27				2		3							36
FIELD SYSTEM			1		4				23				3									31
SAND PIT			6	1					19				1									27
NON ANTIQUITY					14				9				1	1								25
DISPERSED SITE							6		5				6							7		24
BUILDING PLATFORM			2						20				1									23
QUARRY			4						16				1							2		23
DESERTED SETTLEMENT			3						19													22
CULTIVATION TERRACE	1				1				17				1									20
IRONSTONE MINE					2				15				1						1			19
NARROW RIDGE AND FURROW									16				2									18
ROAD			4		4				10													18
SPOIL HEAP									17				1									18
WATER TANK							5		4				4							4		17
DRAINAGE DITCH									15													15
PILLBOX	4						2	1				1						1		6		15
ROUND BARROW					7				5				2									14
AIR RAID SHELTER							3		3	1			3							3		13
EARTHWORK									8				3		1						1	13
MOUND					1				12													13
ANTI TANK BLOCK							1											6		5		12
DRAIN			1						10				1									12
RECTILINEAR ENCLOSURE	1				7				4													12
CHALK PIT			3						8													11
MINE									11													11
WATER CHANNEL									11													11
HOLLOW WAY									9				1									10
LIME WORKS			1						9													10
POND			6						3											1		10
Other	7		24		38	7	12	1	174	1	1	2	13			1	1	3		31		316
Total	19	1	244	3	174	7	29	3	2947	2	1	3	295	4	4	1	1	10	6	60	1	3815

Table 1: Most frequently recorded monument types and evidence. 'Other' combines the remainder of the monument types recorded during the project (numbering 316).

3.2.2 Assessment by Date

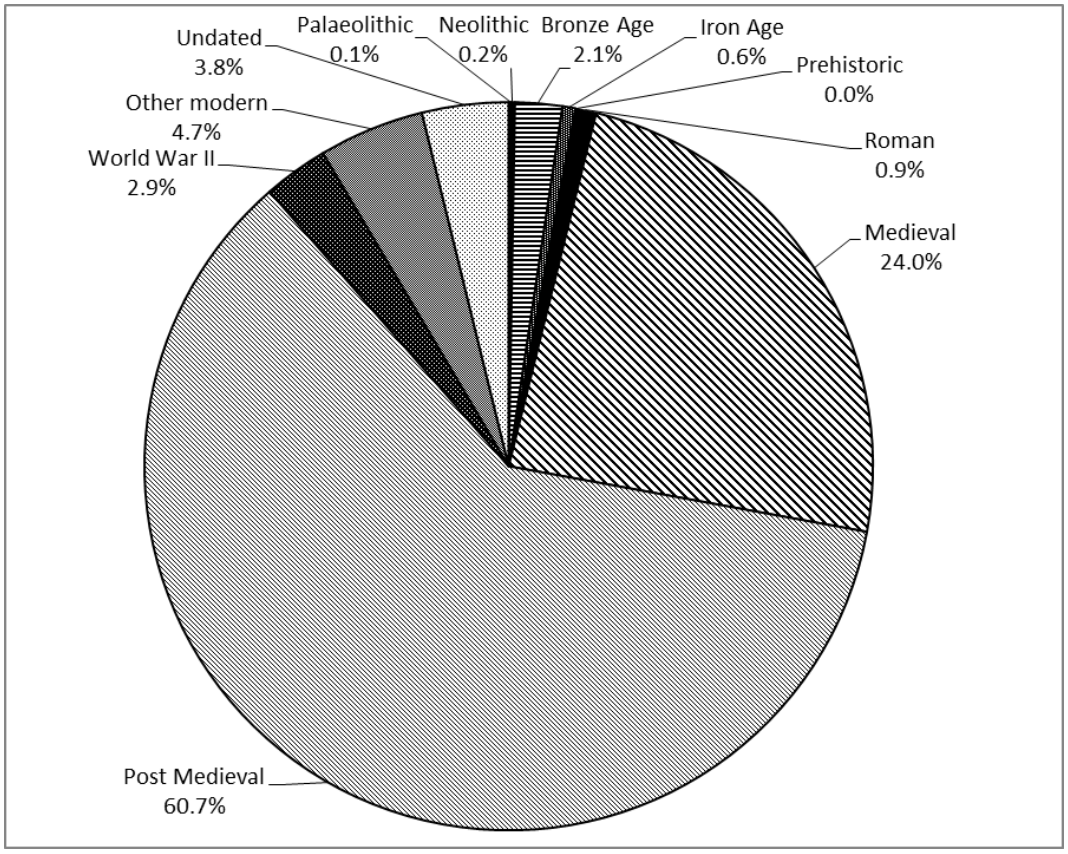


Chart 2: Monuments by period; the 'from' date has been used, so later periods may be under-represented, for instance an enclosure dated from the Bronze Age to the Iron Age will be categorised here as Bronze Age. Figures rounded to the nearest full number.

A high proportion of the project monument records were interpreted as being of probable post-medieval date (Chart 2). This was due partly to the prevalence of agricultural features such as orchard banks and water meadows, but primarily to the dominance of extractive pits, although some could be suggested to be of earlier origin (see Section 4.3). Former field boundaries interpreted as probably medieval origin on morphological and Historic Landscape Character, account for many of the medieval features, which comprise nearly a quarter of the monuments recorded during the survey, although a number of deserted settlements and several motte and bailey enclosures were also recorded (see Section 4.3.1 and Section 4.41).

Features interpreted as dating to the Second World War comprised 3% of the recorded monuments, and this includes the airfields and part of the Taunton Stop Line (see Section 4.41). Monuments of prehistoric date also comprise 3% of the recorded monument types, this low proportion perhaps reflecting the upland nature of the project area and the good survival and visibility of later earthwork features (see Section 4.6).

The number of Roman monuments is low but the sites themselves are potentially significant (see Section 4.4.2).

Undated records include features to which it was not possible to assign a likely period and features previously recorded as archaeological but that the survey has interpreted as natural in origin. Previously recorded monuments did not always have a date assigned to them, so double indexing of these during re-interpretation is probably the origin of many of the 'undated' values.

3.2.3 Assessment by Survival

In common with the pattern observed during the adjacent East and Mid Devon River Catchments project, earthworks comprise a high proportion of features observed on the Blackdown Hills (Table 2). Earthwork survival is good, with only 9% of features recorded as levelled during the timespan covered by the photographic evidence. Structures and buildings are not well represented at circa 1%, and most have been demolished; many of these were 20th century military remains.

Evidence type	Incidence	Percentage
CROPMARK	174	5
DEMOLISHED BUILDING	7	<1
DEMOLISHED STRUCTURE	29	<1
EARTHWORK	2947	77
EXTANT BUILDING	1	<1
EXTANT STRUCTURE	3	<1
LEVELLED EARTHWORK	295	8
NATURAL FEATURE	5	<1
RUINED BUILDING	1	<1
RUINED STRUCTURE	1	<1
SOILMARK	6	<1
STRUCTURE	60	2
Pre-existing term	286	7
Total	3815	100

Table 2: Broad categories of evidence type recorded. Evidence types not used during the survey, but already attached to pre-existing records amended by the survey, are combined here as 'pre-existing term'.

3.2.4 Assessment of Sources Used

Lidar imagery was the main source used for transcription, although other sources informed many interpretations. A fuller assessment will be made in the final report, but a sample checked for this phase (polygons recorded by one member of the team) shows that almost three quarters of transcriptions were made using lidar imagery. A fifth used RAF hard copy verticals (mostly sorties RAF/CPE/UK/1974 11-Apr-1947 and RAF/CPE/UK/2431 22-Jan-48), then in descending order the resources used for the remaining 7% of transcriptions were: Ordnance Survey vertical aerial photographs, APGB digital imagery, Devon County Council GetMapping vertical aerial photographs, Google Earth digital imagery, and Aerofilms or NMR obliques.

4 Illustrated Selected Highlights

4.1 Summary

This report provides an illustrated overview of the archaeological themes to emerge from Phase 1 of the survey. These themes are informed in part by the monument Top Term Categories discussed above and in part the project team's assessment of individual monument significance.

The document is intended as an interim report, not a comprehensive account of the survey's results to date. Due to the very partial nature of the dataset for Somerset, all statistics and map figures are derived from the Devon HER and are for illustrative purposes only. If more detail is required prior to project completion and production of the full final survey report, all monument records created or amended by the survey in Devon are available on the DCCHER via Heritage Gateway, and for Somerset via the HER, accessible online.

Highlights of the survey are discussed thematically below. Each thematic topic will be illustrated with a single case study. The case studies may include sites typical of a theme as well as exceptions, previously unknown sites, examples where the survey has made a major contribution to the understanding or interpretation of the historic landscape and sites potentially of national importance.

4.2 Industrial

4.2.1 Large Scale Extractive Industries

Studies of extractive activity on the Blackdown Hills have conventionally focussed on two mining industries; whetstone mining focused on Blackborough to the west of the Blackdowns, in particular the large scale 18th to 20th century activity, and iron ore extraction of Roman to later-medieval date, with a similar concentration towards the western scarp.

The importance and impact of the whetstone industry on its immediate landscape and local community may be illustrated by the naming of the area the '*Scythestone hills'* by Snell in 1904 (Snell reference by Edwards, 2011); the industry has more recently been summarised by Stanes (1993).

The Blackdowns Environmentally Sensitive Area (ESA) Aerial Photograph Survey derived partial plots of whetstone and (iron extraction) earthwork remains from 1940s RAF vertical photography, but this rapid survey was hindered by dense tree cover (Horner, pers. comm. 12th March 2017). The effectiveness of the NMP methodology in recording the physical remains of this industry was demonstrated in the Blackborough area by Hegarty, Knight and Sims (2016) as part of the East and Mid Devon River Catchments NMP survey, which took in the western edge of the Blackdown Hills AONB. This has continued as part of this survey, amending and extending 4 existing whetstone mine monument records and recording 6 new discoveries; each record comprised evidence for numerous individual mine galleries. See Figure 24 for an example of whetstone mine earthwork survival. The distribution of this site type is illustrated in Figure 4.

Prior to the East and Mid Devon River Catchments NMP survey, periodic investigations had built up a picture, albeit somewhat incomplete, of iron ore extraction on the Blackdown Hills, dating partially levelled pits on North Hill to the Roman or post-Roman/early medieval period (Griffith & Weddell 1996). Similar open cast pits form a strong component of the historic industrial character of the Roman High Weald in Sussex, Kent and Surrey (Cleere & Crossley 1985; Stapleton 1986; High Weald AONB, n.d.; Figure 100). NMP survey has proved effective at identifying these industrial remains and consolidating the previously fragmentary records into more coherent landscape scale units, as far as the limited ingress to the Blackdown Hills permitted (Hegarty, Knight and Sims, 2016). Assessment of bespoke lidar data acquired for two target areas in the Phase 1 survey area, including the western scarp, has resulted in the recognition that this monument type can survive as very subtle earthwork remains not identifiable on aerial photography, with nearly 20 new discoveries added to the HER, including records that enhance and consolidate almost 30 more existing records (e.g. MDV110229). The distribution of this site type is illustrated in Figure 4.

A fuller assessment of the impact of the NMP surveys on our understanding of both these industries will be deferred until completion of Phase 2 when the full dataset for the Blackdown Hills is available.

4.2.2 Farm-Scale extraction: Chalk, Clay, Sand, Gravel and Marl

The interim survey results illustrate that smaller scale extraction, such as for marl, sand and gravel, arguably had a more enduring effect on the character of the AONB's landscape.

Smaller or farm-scale extractive features are typically visible on aerial photographs or lidar derived images as earthwork pits under pasture or tree cover, or less frequently as cropmarks of levelled pits. Such features have been perceived as of little archaeological interest but are, as will be demonstrated, a neglected area of study in understanding the evolution of the AONB's landscape character.

Relict extractive features were frequently depicted on historic maps, such as the Ordnance Survey First Edition 25 inch map, typically labelled with an identifying prefix to indicate their status and probable former function, such as 'Old Gravel Pit' etc, although as evidence of function this might not always be reliable. In line with NMP standards any pits so depicted were not recorded as part of this survey unless additional data was recorded, as set out in the Project Design (Hegarty 2016). The most frequently named extractive pits were chalk, clay, gravel and marl pits, with sand pits less frequently annotated (see Chart 3). Pits of different function were often depicted on historic maps in close proximity, sand pits adjacent to marl pits, for example, illustrating the complexity of local geology and the difficulty of ascribing a function to pits from earthwork evidence alone.

It is also likely that only the largest and most agriculturally disruptive – and thereby enduring - pits were recorded by the OS in this way, with many more subtle relict earthworks probably remaining unmarked.

Some simple patterns can be identified and basic associations made between extractive pits and allied industries.

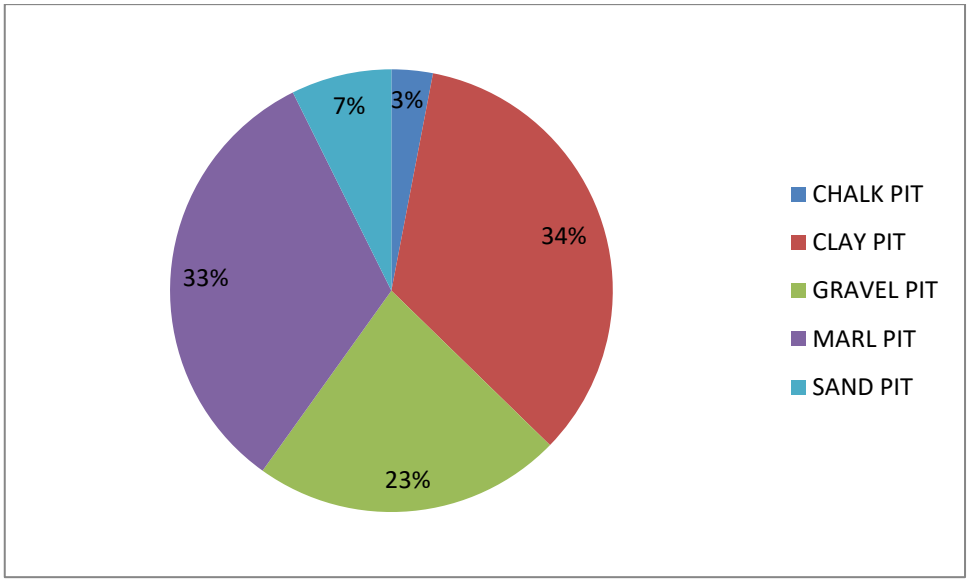


Chart 3: The proportion of named extractive pits recorded on the DCC HER within the Phase 1 survey area.

Chalk

The distribution of chalk pits is constrained by the limited chalk deposits found within the survey area (see Figure 4); 17 were previously identified on the HER from historic map evidence and only a further 8 possible chalk pits have been identified by the survey. In total these constitute less than 3% of the identified extractive pits within the survey area. Forty one limekilns were previously recorded on the HER in close proximity to the densest concentration of chalk pits, supporting the interpretation that the chalk was excavated and processed for agricultural lime locally.

Within the Phase 1 survey area 3 earthworks were previously recorded from historic map evidence as 'Old Chalk Pit' on mudstone geology (MDV35111, MDV35332-MDV35333). It is possible that this reflects local chalk deposits or the lime-rich nature of marl, but is perhaps more likely to indicate historic mis-recording of relict earthworks.

Gravel

Whilst almost a quarter of the extractive pit earthworks recorded on the HER from historic map evidence was identified as 'Old Gravel Pits', very little information exists regarding the historic extraction of this resource on the Blackdown Hills (Prudden, 2003). The recorded pits appear to cluster at the interface of the Triassic mudstone and pebblebed deposits and the overlying Cretaceous sandstones and gravels, both potentially rich gravel resources (see Figure 4; Laming and Roche, n.d; Roche, n.d.). This distribution was perhaps in part influenced by access to this resource facilitated by geological 'mass movement' landslip events. However, exploitation appears to have remained small scale with most gravel pits depicted on the OS First Edition map identified as 'Old', i.e.

disused; it is probable that use remained at the local scale, perhaps bolstered in the 18th and 19th centuries by improvements to the turnpike road network (Kanefsky 1999) and the laying out of new roads associated with the Inclosure Acts that enclosed many former commons/turbaries on the Blackdown Hills plateaux. This is a subject that could warrant further study.

Clay Pits

Earthworks identified as clay pits were the largest class of extractive pit recorded on the HER from the historic map evidence. Concentrations were noted south of Hemyock along the combes of Madford River, Bolham River and a tributary to River Culm, with a denser grouping noted in the Otter valley near Upottery (see Figure 4). The former group was situated on the clays of Mercia Mudstone groups and the latter largely on the Branscombe Mudstone formations.

It seems probable that these concentrations reflect the exploitation of specific resources for particular industries, namely pottery production sites recorded nearby at Hemyock and Honiton, accessible via direct communications routes. Recent ceramic petrology is providing evidence for medieval to post-medieval pottery production in the Phase 1 Survey area, such as Hemyock and Pitt Farm Culmstock, with additional sites in the Phase 2 area potentially raising expectations for survey results in the areas of Wrangway and Donyatt; Black Burnished Ware might also have been produced in the western side of the Blackdown Hills, pushing a possible origin for some extractive pits back into the Romano-British period (Horner, 2017, comment 12 March).

North of Honiton in Upottery parish, the significance of this industry locally is reflected in enduring place names such as Claypits Farm and the nearby Clayplits Covert, within which several extractive pits were indeed recorded by the survey.

Marl Pits

Earthworks identified as marl pits comprise the second largest group of extractive pit recorded on the HER from the historic map evidence but as will be seen, this might be an underrepresentation of their true distribution.

‘Marl’ is the name given to a mix of clay and calcium carbonate formed by the erosion of bedrock, typically limestone, although the quantities of these component parts can vary. This has probably led to the term being applied to a range of soils that have historically been used as a form of soil improver, and also possibly misapplied to pits made for other purposes.

Marling mixed the heavy alkaline clays with lighter, more acidic and less fertile sandy soils, with the aim of reducing acidity and improving moisture retention; it was both a chemical and hydrological soil improver. It has been suggested that Pliny indicates that marling was practised in parts of Britain and Gaul in the first century AD, reflecting an earlier prehistoric tradition (Ambrosoli 1997, 242). However, marling probably began in earnest in Britain in the medieval period,

perhaps under monastic influence, the term deriving from the Old French *marle*, itself perhaps from Pliny's *marga* (Grigson 2009). In the post-medieval period the cutting of marl pits was probably stimulated by increasing food prices, and in other regions reached a peak between the 16th and 18th centuries (Upton-by-Chester Local History Group).

It is likely that the use of marl pits followed a similar trajectory on the Blackdown Hills. In reference to arable cultivation in the eastern heaths Williamson (2002, 69) suggested that marl pits might correspond with land enclosed in the 18th century. There does not appear to be a corresponding close association between marling and inclosure of the Blackdown hills plateaux; as Ryder points out in her study of 6 parishes in the western Blackdown Hills, enclosure on the Blackdowns was late and piecemeal in character and many marl pits in her study area had probably been disused for some time by the time the Tithe Survey took place in the mid-19th century (Ryder 2013, 58-59).

The distribution of extractive pit earthworks recorded as 'Old Marl Pits' on the HER from historic map evidence corresponds closely with the extent of Mudstone groups recorded by the British Geological Survey (see Figure 4). Mudstones are solid geological layers composed of very small clay particles that often weather to clay; the Mercia Mudstone groups that dominate the slopes below the plateau in the western Blackdown Hills were previously known as Keuper Marl (Laming and Roche, nd).

The clay content of mudstones also makes it suitable for the distinctive west-country construction technique known as cob building. Cob mix ideally contains approximately equal proportions of clay and silt, sand and fine gravel, which is mixed with water and straw to form a malleable building material. This mix is then built up in courses, typically sitting on a masonry plinth (https://www.devonearthbuilding.com/faq.htm). Laming and Roche (nd) state that "where harder rocks were not available, mudstone was dug from numerous marl pits and used for traditional Devon cob construction in houses and farm buildings". If this reflects common usage, the term marl might have been applied more widely than only to pits dug for agricultural improvement.

Extractive Pits

As summarised above (see Section 2.2) a bespoke lidar survey was commissioned for the survey targeting both areas of high archaeological potential and the strategic objectives of the survey, i.e. the A30-A303 corridor. In conjunction with the available Environment Agency composite lidar data, near blanket coverage was accessible for the Phase 1 survey area.

Appropriately visualised, this data allowed the identification of very subtle earthwork features that were often not visible on traditional aerial photographs. This greatly increased the number of shallow or small pits and pits otherwise obscured, for instance by tree cover, recorded by the survey (see Figure 3).

Interpretation as extractive pits was supported by comparison with the earthwork remains of those pits depicted on, and recorded from, historic map data. As stated above, identifying a function for pits recorded from earthwork evidence alone is problematical, often based on the underlying geological conditions or proximity to pits identified on the available historic map sources. Where supporting data was scarce, many pits identified as earthworks were indexed simply as 'extractive pit'.

Such disused pits are the most frequently recorded type of feature in this survey to date (see Section 3.1): in excess of 1000 previously unrecorded pits have been added to the HER within the Phase 1 area alone, the majority of which were not depicted in any way on the 19th century maps available to the survey. The proportion of extractive pits to other identified pits recorded on the HER is illustrated in Chart 4.

As can be seen from Figure 4, the distribution of the functionally un-ascribed extractive pits complements that of both the previously recorded gravel pits and marl pits. It therefore seems probable that this group includes both types of pit. However, many are situated close to the centre of fields or away from road access points, which might argue against the extraction of a product that would require subsequent transport for use, i.e. gravel, and for a product for immediate topical application, such as marl. In combination with the possibility that a range of pits might have fallen under the broad umbrella, it is possible that the majority of previously unrecorded and unnamed relict pits identified by the survey were classed by those who made them as 'marl' pits. Their absence from the maps and record might be because they have not been considered as an industry in the traditional sense, but their ubiquity must imply a degree if importance to local agricultural practice.

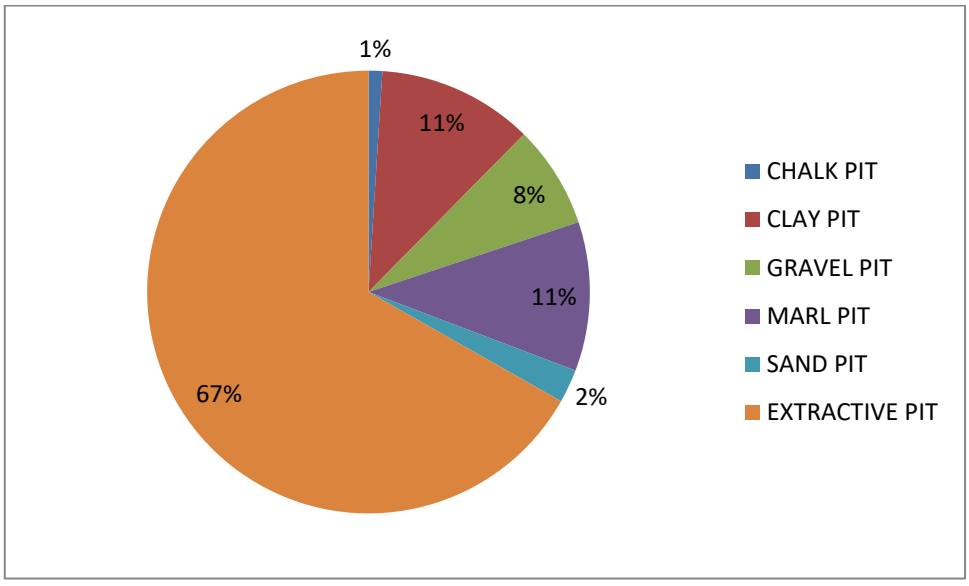


Chart 3: The proportion of previously unrecorded extractive pits identified by the Phase 1 survey compared to functionally identified pits.

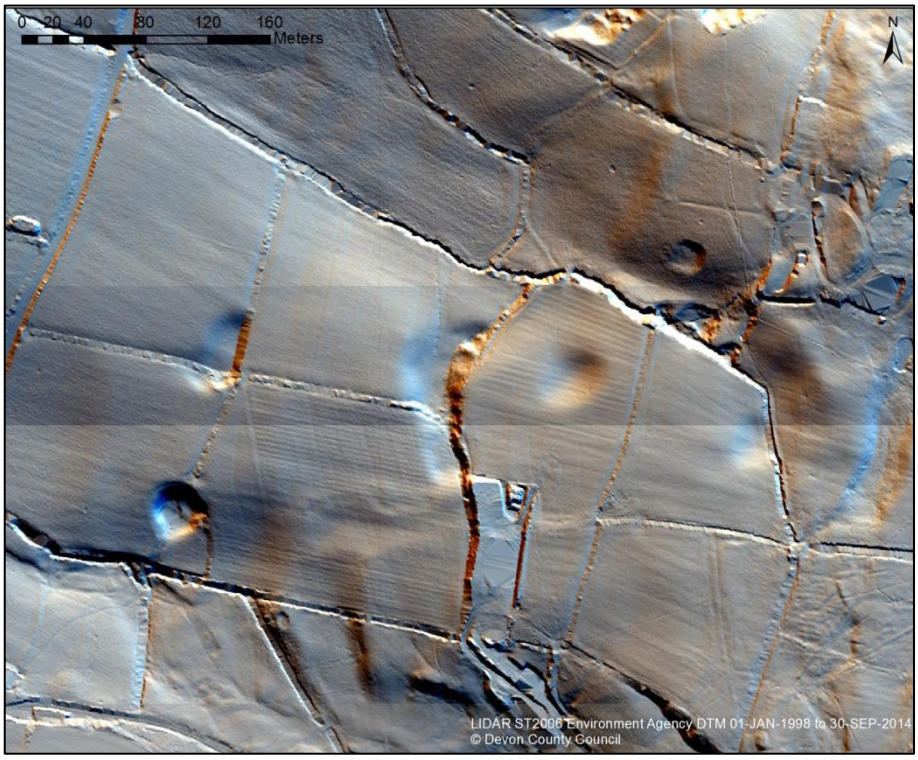


Figure 3: A lidar derived image demonstrating the clarity, subtlety and number of extractive pit earthworks visible on lidar data that have no explicit historic map evidence, in this instance in the landscape to the east of Rawridge, Upottery. LIDAR ST2006 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014. © Devon County Council.

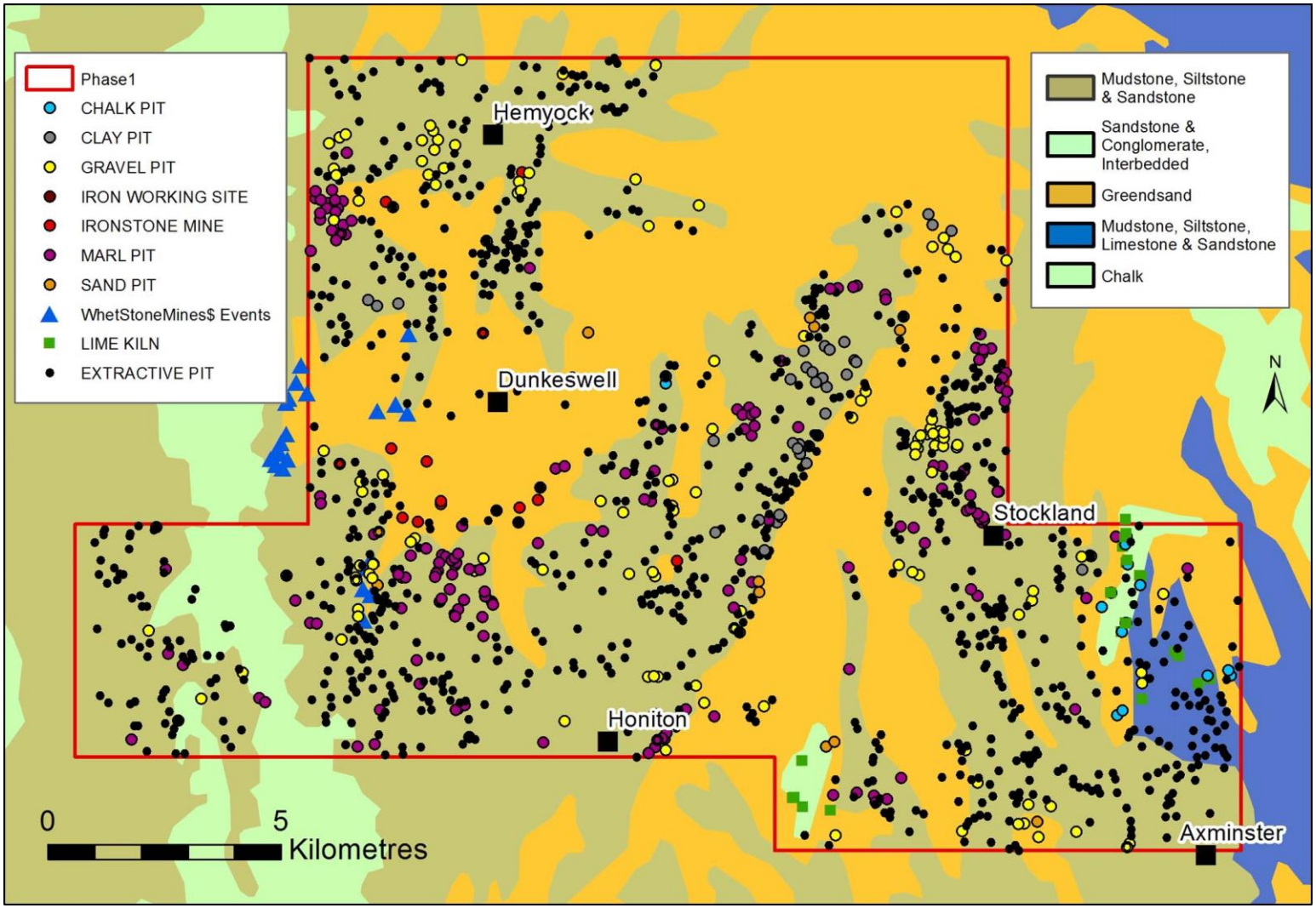


Figure 4: All extractive pits and associated industrial sites recorded on the DCC HER in the Phase 1 Survey Area.

Dating Marl Pits

In most cases, the visible earthworks did not correspond with any pit depicted or named on the OS First Edition 25 inch map or parish Tithe Map, providing (unless early 20th century in origin) a mid- to late-19th century *terminus ante quem* for the pit's disuse. Less frequently, but often enough to be significant, the visible earthwork fell within a plot for which the Tithe Apportionment would list a 'Pit' element in the field name. A pastoral or arable land use for a 'pit' plot might indicate that the pit had substantially levelled to a degree prior to the Tithe Survey, thereby enabling the agricultural use across the whole plot (for instance, MDV11824, an arable plot named Pitt Close).

Where field name evidence was absent, a date range was interpreted where possible from associations or relationships to historic field boundaries. In most cases this was an indirect or inferred relationship. A small number of examples allowed a more direct, if still relative, interpretation to be made. For instance, an oval extractive pit to the west of Dalwood Village (MDV115397, ST 2464 0039) has, in the opinion of the survey team, influenced the course of the field boundary immediately to the east, formerly the boundary with an orchard (see Figure 5). A less regularly shaped pit south west of Rose Farm, Stockland parish (MDV115382, ST 2405 0222) had also influenced the course of the field boundary immediately to its west that diverts around the earthwork. Perhaps more significantly, the east end of the pit is overlain by the curvilinear relict earthwork bank of a former field boundary, probably of medieval origin (see Figure 6). Although these examples fall within a wider field pattern of curvilinear boundaries characterised by HLC as of medieval origin, the exaggerated deviation of the boundaries is not typical of the surrounding field patterns. In such cases an early medieval origin for the initiation of extractive activity seems feasible, with enclosure subsequently accommodating the pits, or their expansion.

In other instances a date range can be inferred. Large earthworks identified locally as marl pits are recorded within Roundball Wood, south of Honiton and beyond the survey area (SY 1581 9913). Assessment of tree growth within the pits has supported an interpretation that marl was "last dug here at least two or three centuries ago" (Honiton Town Council, 2009). The frequency of marling may also provide an indication of the longevity of an individual earthwork. Marling is regarded in much 'improving' 19th century literature as a long term – if not 'once and for all' - soil improver, often contrasted against the quick results of liming. Concomitantly infrequent application is recommended, with figures of 12 to 50 years cited, i.e. once a generation or less (Jeffery 2008).

It is difficult to ascribe a period of origin from such information, particularly as some sources state that marling after the medieval period was inconsistent, 'limited and revivalist' (Upton Local History Group; Matthew 1993, 103). Nonetheless, some simple conclusions can be drawn, i.e. that small pits, such as make up the majority of those identified by the survey might be evidence of single marling events and larger pits probably indicate a longer period of use. Accounts of marling in Cheshire describe it as a very intensive activity undertaken by 5 or 6

men as part of the agricultural year, usually taking a fortnight (Upton Local History Group). For the very largest pits recorded by the survey, such as those identified north of Wilmington, Widworthy parish (MDV115678, ST 2110 0023), extending over nearly 4 hectares, a fortnight's work every 12 to 50 years implies a very long period of use (see Figure 7).

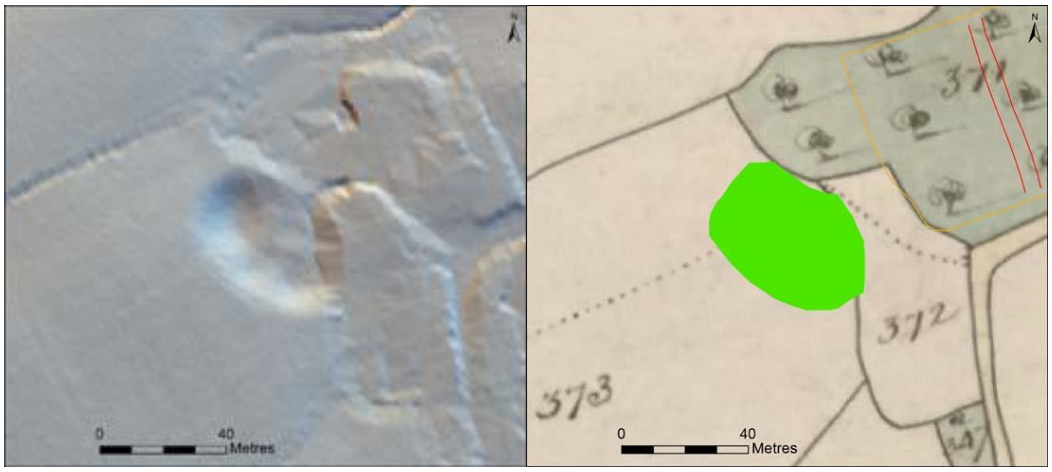


Figure 5: An extractive pit west of Dalwood Village (MDV115397, ST 2464 0039). Left, hillshade image image derived from DTM lidar data (LIDAR ST2400 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014, © Devon County Council). Right: extract from the Tithe Map for Dalwood.

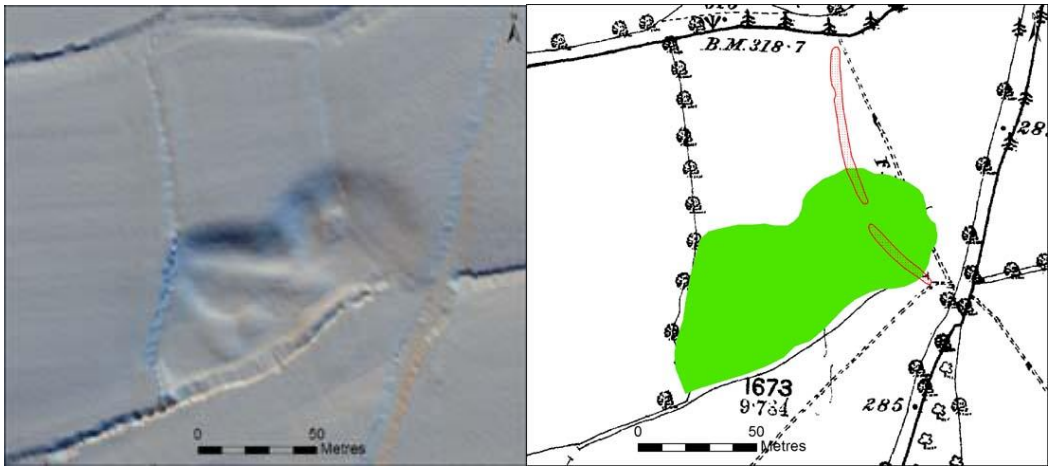
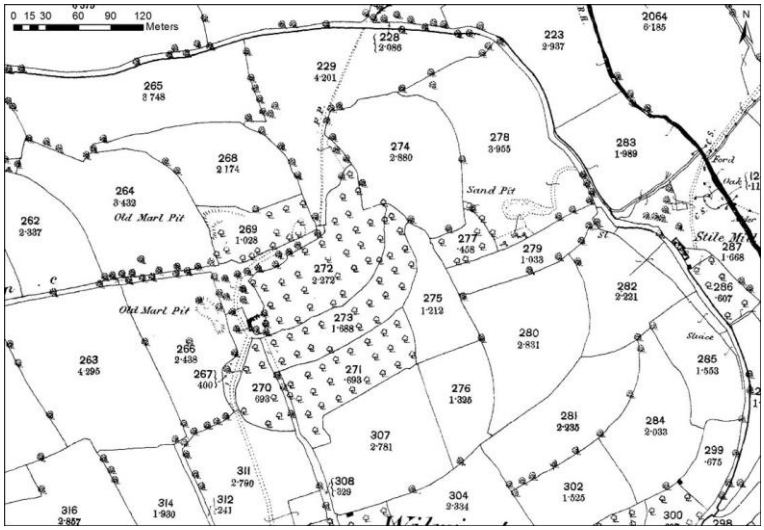


Figure 6: An extractive pit west of Rose Farm, Stockland parish (MDV115382, ST 2405 0222). Left, hillshade image image derived from DTM lidar data (LIDAR ST2402 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014, © Devon County Council). Right: extract from the OS First Edition map.



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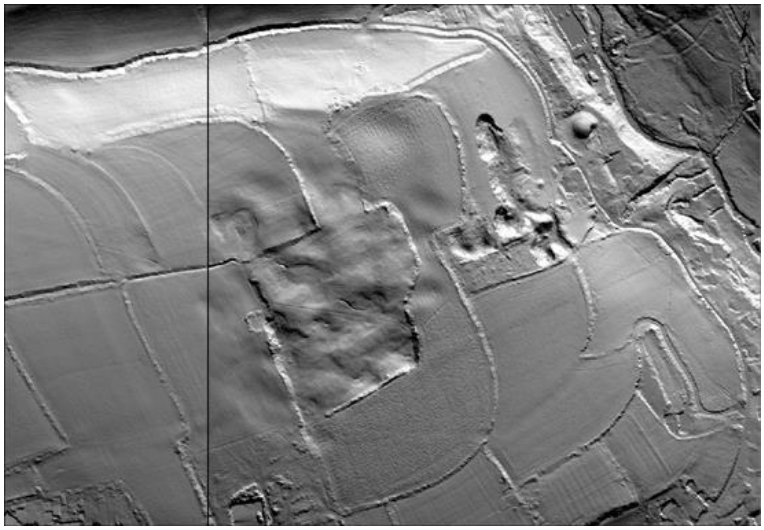

LIDAR ST2103 Bluesky International DTM 30-APR-2016. © Devon County Council.

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Figure 7: Former extractive pits north of Wilmington, Widworthy parish, possibly incorporating both marl pits and sand pits (MDV115678 & 115680, ST211002). Note the proximity of Old Marl Pits and Sand pits on the OS First Edition Map and subsequent use as orchards.

4.3 Agriculture

4.3.1 An agricultural landscape

With the exception of monuments recorded under the 'monument <by form>' Top Term, monuments under the 'Agriculture and Subsistence' Top term form the second largest group identified by the survey after 'Industrial' features. Field boundaries are the second most numerous monument type after extractive pits, with catch meadows the fourth. The significance of these results will be assessed in the final project report. The case study below will examine the evidence for the third most numerous monument type identified, earthworks associated with orchards and other woodland, and how it relates to the extractive features described above.

4.3.2 Orchards, other Woodland and Landscape Character

In a continuation from the neighbouring and preceding East and Mid-Devon River Catchments NMP Survey, a major agricultural, or perhaps more accurately arboricultural, theme to emerge from the survey is the number and scale of earthwork banks associated with historic orchards identified by the survey.

Orchards were almost ubiquitous across the survey area, depicted at almost every farm on the OS First Edition 25 inch map and listed in the parish Tithe Apportionments. However the historic map data and earthwork evidence did not always correspond. The characteristic landscape evidence for former orchards identified by the survey is predominantly linear earthwork banks, on which fruit trees, predominantly apple for cider, were planted. The banks were often visible as earthworks on 1940s aerial photography, sometimes within extant orchards but often not, and a high proportion remained identifiable as earthworks on the most recent lidar derived images. They were generally aligned cross-contour, probably to aid drainage, but will also have increased the depth of soil for planting, particularly on poorer soils (Crowther, Dickson & Truscoe, 2008; Hegarty, Knight and Sims, 2016). The geological distribution of the visible banks has not been analysed in detail for this interim report, although a simple distribution plot reveals concentrations of visible earthworks to be densest on the poorly draining mudstones, as might be expected if drainage is a consideration (see Figure 8).

Drainage cannot be the only reason for the creation of orchard banks. As seen in Figure 8, these earthworks were also recorded on the more freely draining greensand soils, albeit in smaller numbers. Perhaps increased soil depth for planting was another reason; Marshall believed that the 'richest deepest soils' were chosen for west Devon orchards because the shallower soils were 'unfit for fruit trees', and described the 18th century method of banking up using 'fresh earth and sea sand' before planting (1796, 217-218). Within living memory, scrapings from roads and trackways, called 'waydrift' in parts of Devon, were piled onto the banks (Colin Pady pers. comm.). This mixture of manure, silt and sand served the same function as mulching using vegetation - with application of river sand to correct over-nourishment - also described by Marshall (1796, 220-221). The redistribution of these road scrapings might also partly account for the

spread of wildflower seeds from roadside verges across many Devonian orchards.

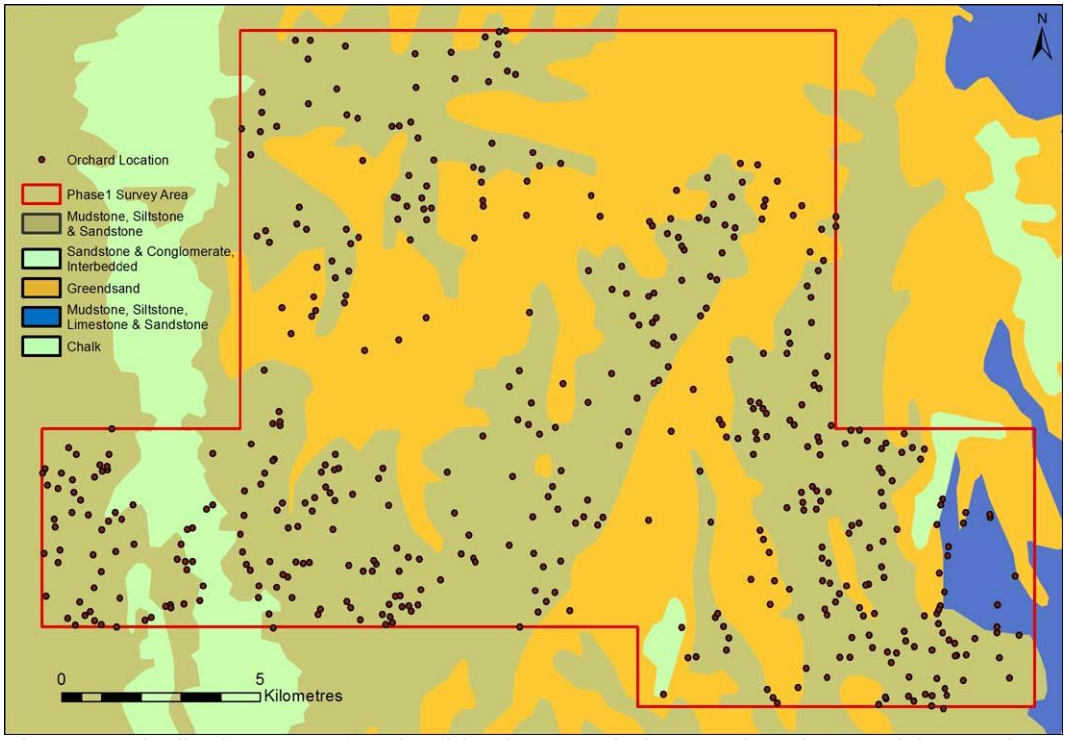


Figure 8: Distribution map of orchard banks recorded as earthworks, overlying geology. Contains British Geological Survey materials © NERC 2015. Interpreted primarily as drainage features, the orchard banks are most numerous on the less well draining soils and may have not been required at the many orchards located on Greensand geology (not shown in this figure) although as can be seen here, this relationship is not exclusive.

Orchards remained a significant part of the rural economy of Devon into the late 18th and early 19th centuries and were incorporated into regional assessments by agricultural improvers, such as Marshall (Rural Economy of the west of England, 1796) and Vancouver (General View of the Agriculture of the County of Devon, for the Board of Agriculture, 1808).

Marshall (1796) observed the use of banks in orchard planting, with measurements of between 4 and 6 yards between the earthworks and Vancouver stated “A statute rod, namely five yards and a half may be taken as the ordinary distance between the plants!” (Vancouver 1808, 219). These observations fit broadly with the NMP results, with bank width of circa 3.5 to 4m typical, although some significantly wider and narrower banks have been recorded, with spacing of the parallel earthworks ranging typically 5 to 6m.

Although a high proportion of the orchard bank monument records created by the survey are indexed with earthwork evidence, the surviving earthworks often represent only a vestige of their former extent. Farm subsidies contributed to extremely high levels of orchard loss in the second part of the 20th century, with many former orchards also encroached upon by or entirely lost to farmyard expansion or housing development in village locations (see Figure 14).

At the time of the Tithe survey most orchards in Axminster parish are thought to have been roughly an acre and a quarter in area (circa 0.5ha) with a few up to 5

acres (circa 2ha) in size (Axminster Heritage). Across the wider survey area, comparison with the parish Tithe Maps supports the interpretation that the original area of former orchards varied more dramatically, with earthworks recorded by the survey ranging in area from plots of less than 500 square metres (e.g. MDV116764) to over 4 hectares (e.g. MDV114974), although the latter probably comprised contiguous orchard plots.

In modern commercial arboriculture, planting rotation for fruit production is considered good practice to avoid specific apple replant disease. Whilst rotation may have been practiced in the past, historic map evidence demonstrates some orchards were very long-lived in Devon. At Buckland Priory in West Devon one orchard was 'said to be the oldest in the country…about two hundred years old' (Marshall 1796, 214). The continuing success of these enduring orchards has been credited to the Devonshire practise of planting replacements between the (widely spaced) older failing trees, thus 'keeping the same ground in a state of orchard, in perpetuity' (Marshall 1796, 218).

However, Marshall may have been writing about a declining industry; cider production may have peaked in the earlier 18th century, as Vancouver wrote in 1808, *"… from the frequency of planting young trees where the old ones have failed, a barrenness in many of the orchards has ensued."* (Vancouver 1808, 243). However, as many orchards depicted on the Tithe Maps survived into the 20th century, the degree of decline is debatable.

Significantly, in light of the underrepresented extractive activities touched upon in Section 4.2.2, he continues "*It is usual in the marly parts of this country to appropriate for orchards the large excavations formerly made in digging marl: here the apple trees are protected from most winds, and continue to flourish and bear longer than in less secure situations*" (ibid). This passage is noteworthy in that it provides a relative sequence of landuse in the Blackdown Hills and confirms the observations of this and previous NMP surveys in Devon. As suggested in Hegarty, Knight and Sims 2016, and demonstrated in Figure 7 above, the relict earthworks of former extractive pits were utilised as orchards in the 19th century, the plots depicted as such on the OS First Edition 25 inch map.

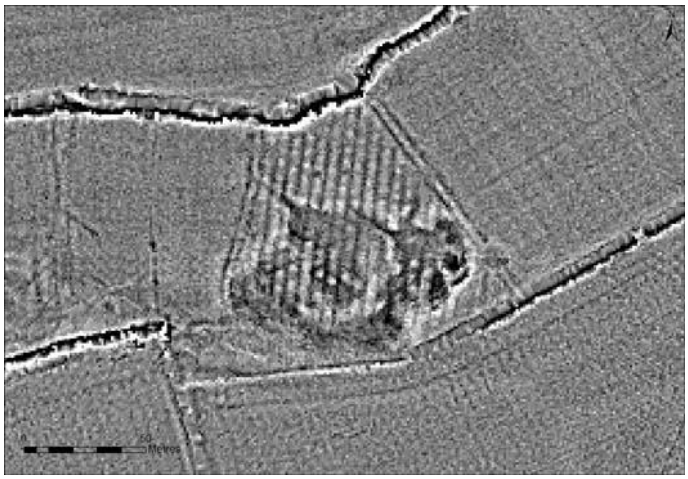
This pattern had been previously noted by Ryder on a small scale, within her study of 6 parishes in the western Blackdowns, in which she noted that "*by the time of the Tithe Survey many marl pits were redundant with several former quarries utilised as orchards or copses*" (2013, 59). However, assessment of lidar data as part of the NMP survey has necessitated a reconsideration of the scale of the 'landscape recycling' process, and its potential impact on landscape character.

The lidar data demonstrated that not only did the remains of tree planting banks – evidence of traditional orchard planting - survive often as very subtle earthworks around and within relict pits, but that many extant orchards and other small woods had been established within, and obscured from view, the remains of disused pits (see Figures 10 to 15 below), although place name evidence sometimes provided a hint of this former incarnation (in particular see Figure 12 and 13). Many were much larger than the partially levelled disused pits

described above in Section 4.2.2, supporting Vancouver's statement that '*large excavations formerly made in digging marl'* were preferentially utilised for woodland (Vancouver 1808, 243).

This confirms that many of the small woods, copses and orchards that are so characteristic of the AONB landscape probably have their origins in the decline of the marling industry in the 18th and 19th centuries.

Next Perspectives APGB Imagery ST2302-ST2303 22-MAY-2010. RGB Aerial Photography – ©Bluesky International/Getmapping PLC.



LIDAR ST2302-ST2303 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014. © Devon County Council.

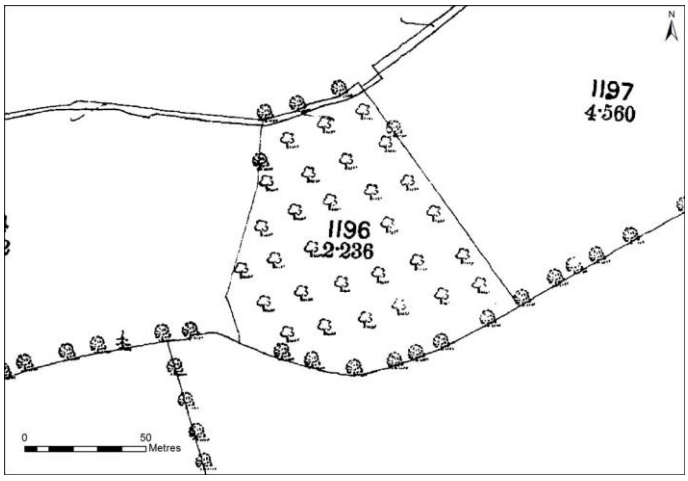


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Figure 9: The characteristic tree planting banks of a Devonian orchard were visible as earthworks overlying a former extractive pit, east of Shore Bottom, Stockland parish. (Pit, MDV115464; Orchard MDV115430: ST23760299).

Figure 10: Woodland established within pits north of Little Snodwell Farm, Stockwell parish. (MDV115790, ST21750346). The Tithe Apportionment lists the plot as 'brake', indicating cultivation might have previously been attempted, i.e. the ground 'broken'. Next Perspectives APGB Imagery ST2103 22-MAY-2010. RGB Aerial Photography – ©Bluesky International/Getmapping PLC. LIDAR ST2103 Bluesky International DTM 30-APR-2016. © Devon County Council.

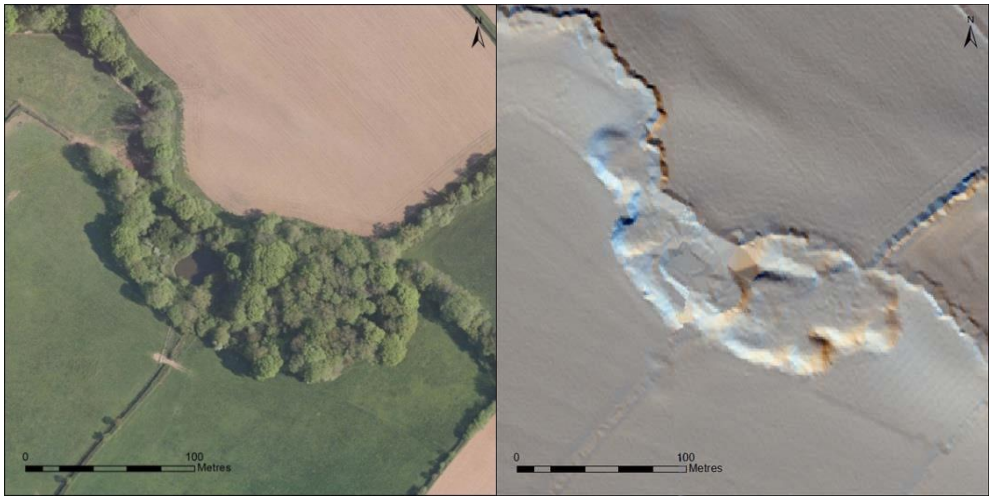


Figure 11: Coppice and orchards within former pits at Broadleaze Copse, Payhembury Parish (MDV117414, ST10030347). Orchard banks are visible as earthworks within and adjacent to the pit on aerial photographs of 1950. Next Perspectives APGB Imagery ST1003 22-MAY-2010. RGB Aerial Photography – ©Bluesky International/Getmapping PLC. LIDAR ST1003 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014. © Devon County Council.

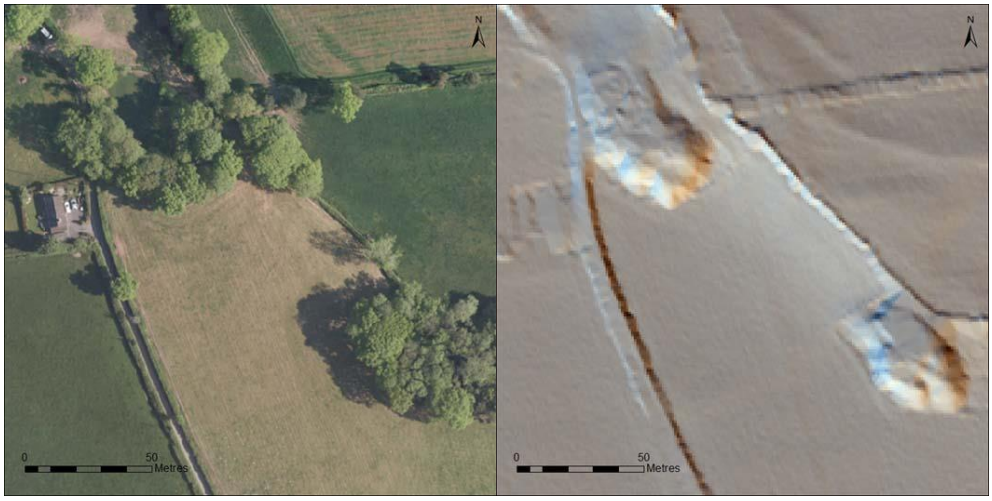


Figure 12: Orchard and plantation established in former pits. The Tithe Apportionment names the plantation plot as ‘Pitt’ and the orchard as Pit Orchard. (MDV117412, ST10690358) Next Perspectives APGB Imagery ST1003 22-MAY-2010. RGB Aerial Photography – ©Bluesky International/Getmapping PLC. LIDAR ST1003 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014. © Devon County Council.

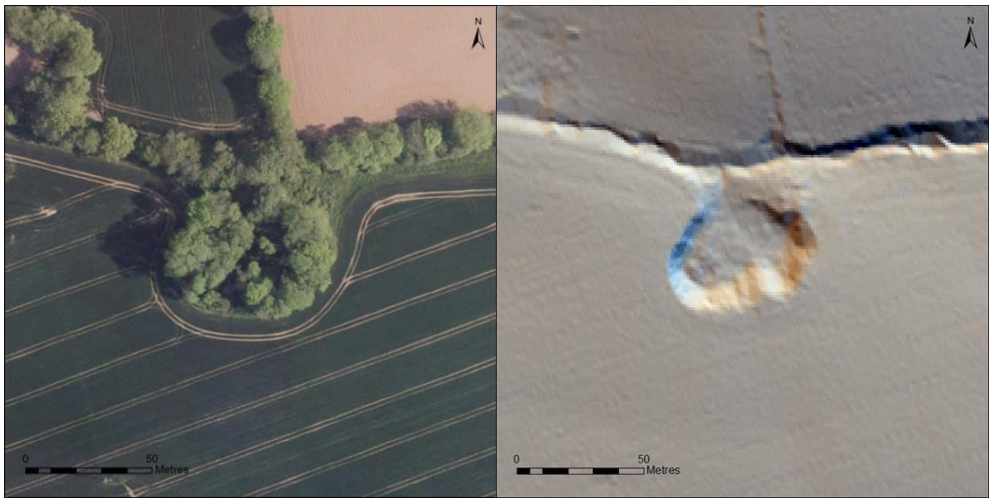


Figure 13: Named as ‘Weeks’s Pit’ on the OS First Edition map, the pit plot was listed as a Plantation on the Tithe Apportionment for Broadhembury. The plots west and south of the plot were named ‘Pit Close’. (MDV117099, ST10250419). Next Perspectives APGB Imagery ST104 22-MAY-2010. RGB Aerial Photography – ©Bluesky International/Getmapping PLC. LIDAR ST1004 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014. © Devon County Council.

Figure 14: Plot 287 was listed as an orchard on the Tithe map for Awliscombe, and symbolised as an orchard and ponds on the OS First Edition map. The pit in which it was established is clearly visible on lidar derived images. Pit and orchard now form a domestic garden. (MDV117921, ST11840283). Next Perspectives APGB Imagery ST1102 22-MAY-2010. RGB Aerial Photography – ©Bluesky International/Getmapping PLC. LIDAR ST1102 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014. © Devon County Council.

Figure 15: Only the presence of the central of the three visible pits to the north-east of Combehayes Farm, Awliscombe parish, was indicated on the Tithe Map. Copses are depicted within all three on the OS First Edition map (MDV117892, ST12030183). Next Perspectives APGB Imagery ST1201 22-MAY-2010. RGB Aerial Photography – ©Bluesky International/Getmapping PLC. LIDAR ST1101-ST1201 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014. © Devon County Council.

4.4 Military Defence and Fortification

4.4.1 A Defensive Landscape

The plateau and steep sided scarps of the Blackdown Hills have been exploited for defensive or military use from the Iron Age to the 20th century, and possibly from the Neolithic period.

The survey has created or amended 75 monument records indexed under HER Top Terms related to Defence or Military Defence and fortification. The distribution and broad date periods of these monuments are illustrated in Figure 16.

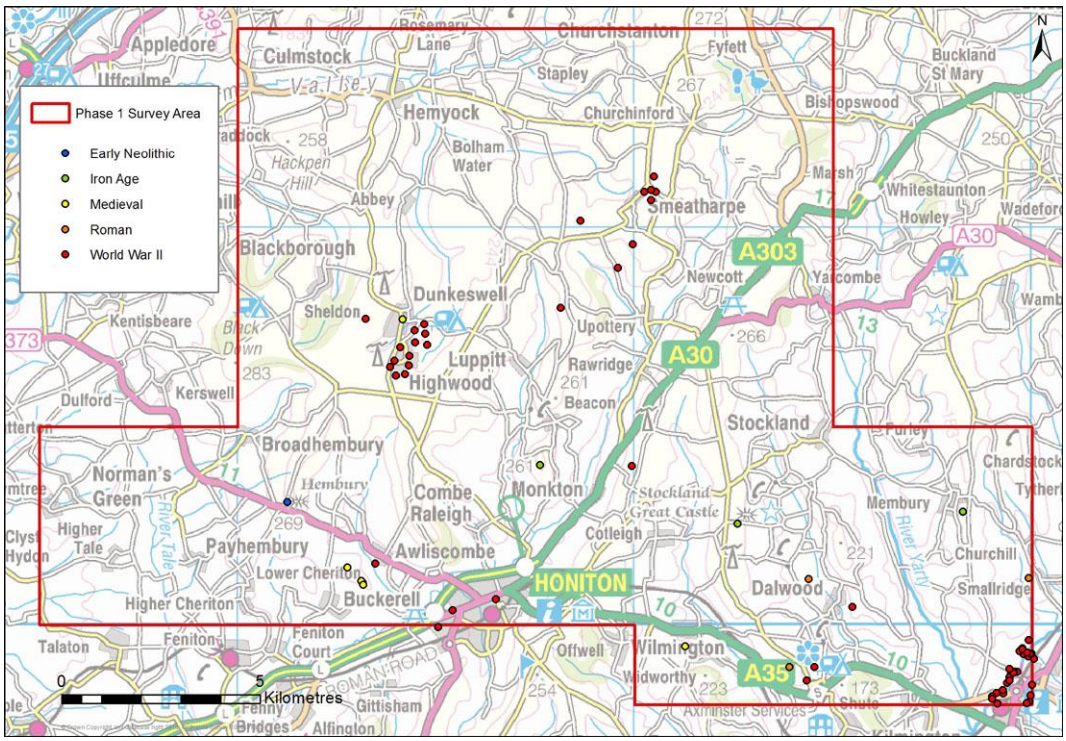


Figure 16: Distribution and broad date of all monuments recorded or amended by Phase 1 of the survey interpreted as military or defensive in function. © Crown Copyright and database right 2016. Ordnance Survey 100019783.

Prehistoric monuments include four hillforts; Hembury (MDV1853), Dumpdon (MDV1877), Stockland Great Castle (MDV1913) and Membury Castle (MDV1930). New detail has been added to our understanding of earthwork survival at Stockland Great Castle.

The survey has enhanced the interpretation of 4 sites as the remains of motte and bailey castles of post-conquest to 12th or 13th century date. Previously interpreted as a hill slope enclosure of prehistoric date, the NMP survey supports place name and excavation evidence in the interpretation of a bank and ditch defined promontory enclosure at Dunkeswell as a possible small castle (MDV1525, ST14140769). Similarly, mounds at either end of a ridge known as Buckerell and Bushy Knap, Awliscombe parish, had previously been interpreted as barrows, park features, outposts of Hembury Hillfort or simply natural knolls (MDV1848, ST12740146; MDV117867, ST13150103); lidar data supports their

interpretation, as per the DCC/Exeter University Community Landscape Project earthwork survey, as successive motte and baileys, possibly of early post-conquest date (Hawken, N.D.a and b).

A small fortified enclosure at Widworthy Park had previously been recorded as a possible Saxon burh or evidence of 19th landscaping (MDV15339, ST21269946); the interpretation of earthwork boundary banks and ditches from lidar derived images as a possible bailey might support an alternative interpretation of the site as a 12th century motte.

Over 80% of the monument records indexed under Military Defence and fortification Top Terms related to Second World War sites. The proportion of wartime monuments records created or amended by the survey is illustrated in Chart 5.

These are predominantly concentrated on or around the airfields at Smeatharpe, known as Upottery (MDV47202, ST18621017), and Dunkeswell (MDV45090, ST13220771), and their associated dispersed domestic accommodation. Initially built in 1942 for RAF Coastal Command, Dunkeswell was soon the main command airfield for the US Navy Air Fleet Wing. A third, Second World War airfield, Culmhead, is located at Trickey Warren on the edge of the Phase 1 Survey area in Somerset.

Other defensive elements are concentrated in the south-east corner of the survey area, and comprise numerous earthwork and structural defensive components of the Taunton Stop Line along the banks of the River Axe, at Axminster, such as pillboxes, anti-tank ditches and obstacles and roadblocks, many of which survive in-situ.

Figure 17: Pillbox and railway line obstructions of Second World War date, part of the Taunton Stop Line, just beyond the survey area south of Bow Bridge, Axminster (MDV50876 and MDV50885, circa SY 290 980). Photographs: S. Knight 2017.

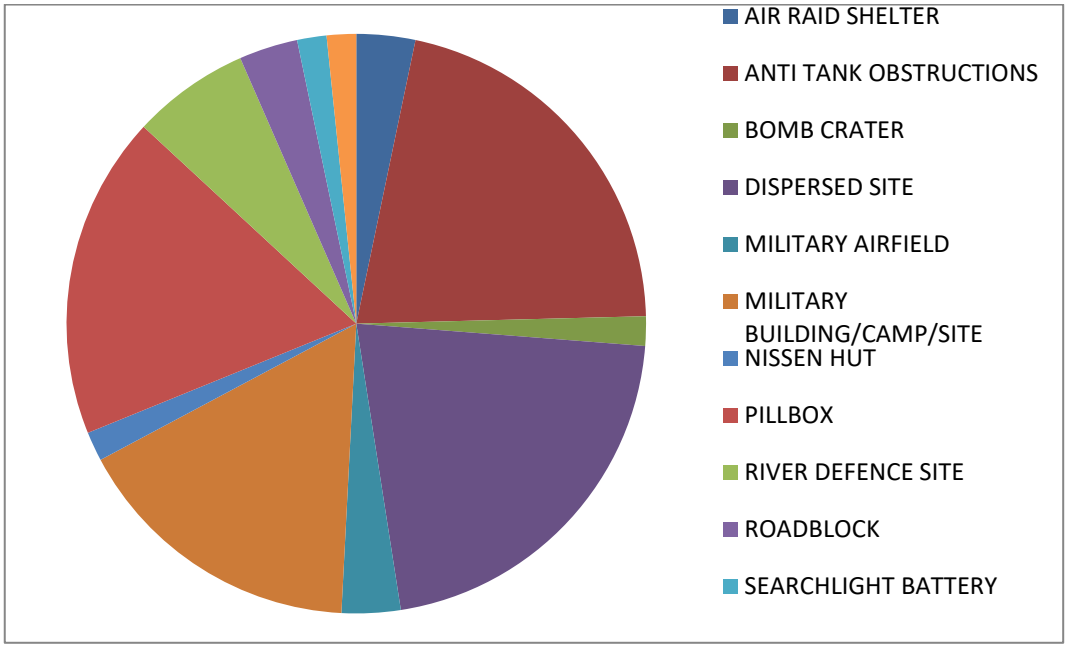


Chart 4: Types and proportions of Second World War features recorded and amended by Phase 1 of the survey.

4.4.2 Defence and Fortification: Roman

Potentially the most significant monuments classified as defensive in character by the survey date potentially to the Roman period.

Over 60 monuments of Roman date (i.e. AD43-AD409) were recorded on the HER at Phase 1 completion. The distribution and broad character of the monuments (derived from the HER Top Type index) is illustrated in Figure 19.

Prior to the survey, a single monument had been ascribed a Roman military or defensive character within the Phase 1 survey area, the mid-1st century Roman military occupation of the Iron Age Hembury Hillfort, (MDV1854, ST11240310: Todd, M. 2007). Several substantial post-built timber structures were identified at Hembury, including a probable *fabrica*, at which iron ore excavated from the extraction sites on the Blackdown Hills was worked.

Almost 10% of the potentially Roman monuments within the survey area are newly recorded. Three, or approximately 5% of the total, have been interpreted as possible forts, fortlets or camps of Roman date.

Two of the possible camps (MDV118446, SY238989; MDV115825, ST299012) were situated on elevated ridges with commanding views over the panorama to the south, one in close proximity to evidence of a Roman road. Each was identified from cropmark evidence on a single run of aerial photographic sources.

The third monument (MDV115454, ST244012) was more atypical in situation and evidence, located on the lower slopes of a combe just over 200 metres from a watercourse, causing early doubts about the appropriateness of a Roman military interpretation. Significantly, however, it survives as a rectilinear enclosure defined for much of its circuit by a low earthwork bank and a possible shallow ditch,

visible on aerial photographs of the 1940s onwards. At approximately 115 by 80 metres in size, it falls comfortably within the range of smaller Roman camps.

A degree of caution is required in the interpretation of this site; the south-eastern corner of enclosure was possibly overlapped by the western edge of a former farmstead as depicted on the Tithe Map for Stockland parish, accounting for the disturbed ground surface visible in this area on the lidar derived images. It is therefore possible that the visible earthworks represent an earlier farmstead. However, the relict earthworks appear to display little association with or continuity from the surrounding historic field pattern and are of very different character to other settlements in the vicinity.

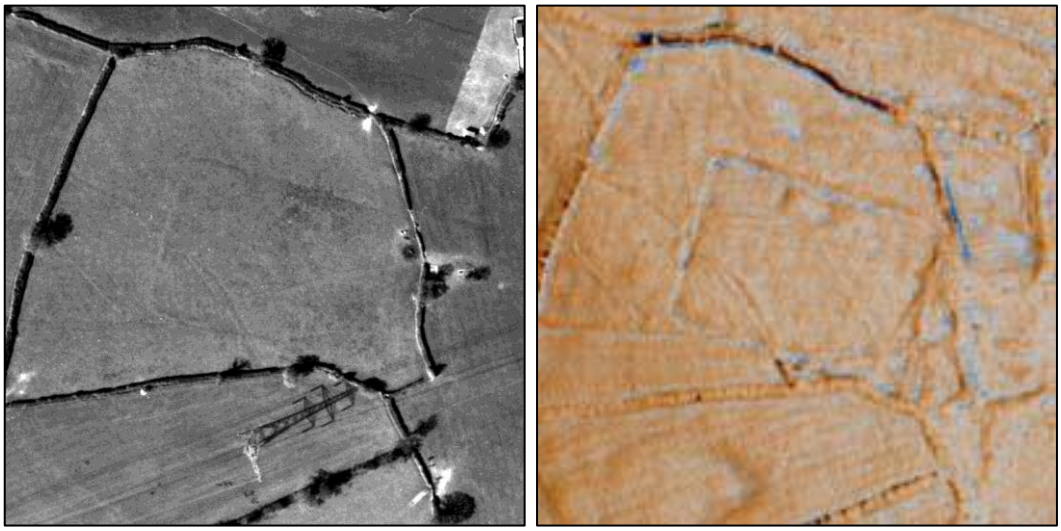


Figure 18: A bank and ditch defined rectangular enclosure in Dalwood parish, interpreted as the remains of a possible small fort of Roman date (MDV115454, ST244012). Left: OS/96569 V 98 08-MAY-1996 © Crown copyright. Ordnance Survey. Right LIDAR ST2401 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014, visualisation © João Fonte.

All of the possible camps are located to the south-east of the Phase 1 survey area, on the gentler, lower slopes of the Blackdown Hills, north and west of Axminster, close to or overlooking tributaries of the River Axe. They are also within 3.5 kilometres of the suggested course of the Axminster to Honiton Roman road (MDV118468: Toller 2014). This might support the interpretation that the camps were advantageously positioned for both accessing communications infrastructure and for controlling access to the iron resources of the Blackdown Hills.

Supplementary investigation of sites MDV115454 and MDV115825 is currently in preparation, in the form of magnetometry geophysical survey funded by Devon County Council Historic Environment Section and the Blackdown Hills AONB Partnership. The results of these surveys will be available in Phase 2 of the survey and will inform a fuller assessment of these sites, to be incorporated into the final survey report.

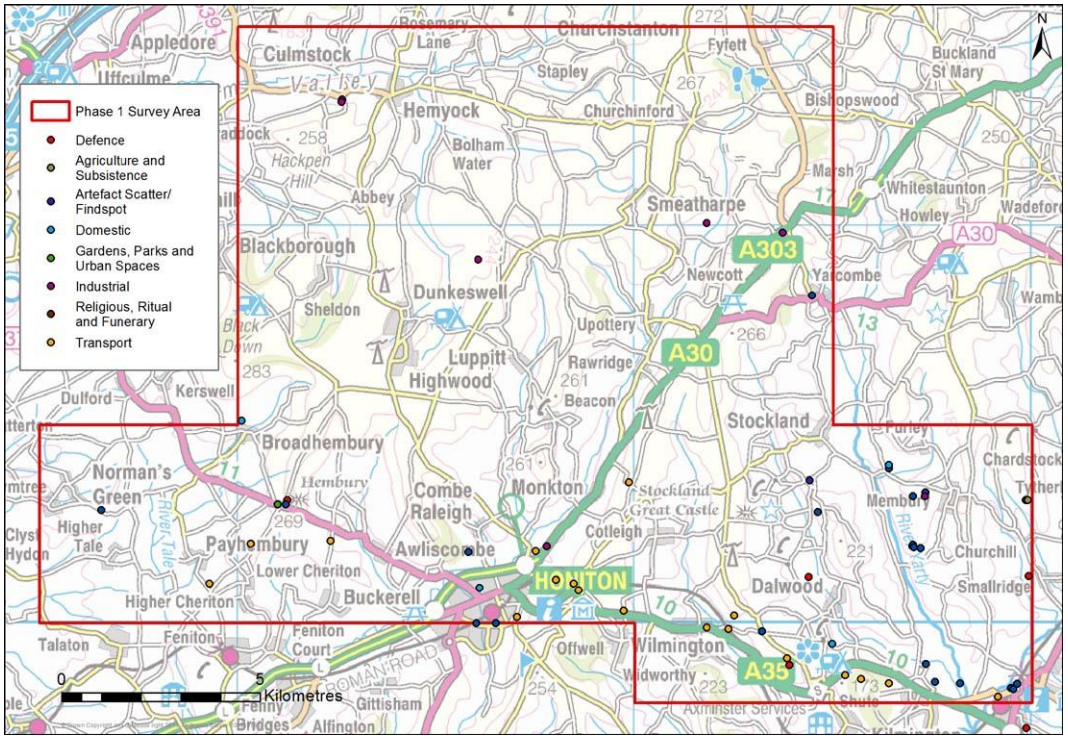


Figure 19: The distribution and broad character of known monuments of Roman date within the Phase 1 survey area. The location of the Roman Fort at Woodbury Farm, Axminster is shown immediately south-east of the survey area. © Crown Copyright and database right 2016. Ordnance Survey 100019783.

4.5 Settlement

The rural landscape and settlement pattern in Devon has historically been contrasted with the arable producing landscapes of the Midlands Zone, characterisation of the historic landscape typically informed by agricultural regimes and topography (Ryder 2013, 6-7). Settlement models typically focussing on dispersed versus nucleated paradigms have placed rural Devon firmly within the dispersed settlement group, authors such as Rackham placing much of Devon in the 'Highland Zone', with the remainder, largely in East Devon along the border with Somerset characterised as 'Ancient Countryside', consisting of hamlets and small towns, rather than villages (Rackham 1986; Ryder 2013).

Of course, the picture is more complex than this would suggest, and variations in the trajectory of settlement patterns on an intra-county level have been identified by numerous studies (summarised in Ryder 2013). The Blackdown Hills have been identified as a distinctive landscape, one of several possible *pays* in Devon, its character influenced by a degree of topographically induced isolation from East Devon. In general terms, the Blackdown Hills have also been identified as possibly *defining* the boundary between a more dispersed settlement tradition to the west and one more nucleated in pattern to the east (Ryder 2013, 7; Roberts and Wrathmell 2000, 7; Rippon 2012).

It is unsurprising therefore that within the area of the Blackdown Hills itself, recent work has identified high levels of variation in the dominant settlement pattern, with nucleated and dispersed settlements intermixed to varying degree on a parish by parish basis (Ryder 2013, 102-110).

Nonetheless, the enduring and essentially medieval settlement pattern means that beyond a very limited number of deserted settlements, such as Jacobs City in Clayhidon parish (MDV45372, ST176165, in the Phase 2 survey area) and the City of Ford in Yarcombe (MDV11591, ST22671064), both of which potentially originated as post-enclosure squatter villages (Ryder 2013, 108-109), prior to the survey archaeological evidence for former settlement was scarce.

Figure 20 illustrates the distribution of sites interpreted during Phase 1 of the survey as possible evidence of former settlement, identified largely from earthwork evidence visible on lidar derived images. Approximately three quarters of the monuments comprise features visible as earthworks and interpreted as evidence for previously unrecorded deserted settlements. Although a relatively small sample, a clear bias towards to the north and west of the Phase 1 survey area is apparent. These are largely isolated sites, not associated with or adjacent to an extant settlement, and might correspond with the pattern identified by Ryder that dispersed settlement becomes predominant towards the north of the Blackdown Hills, notably in Clayhidon and Hemyock (Ryder 2013, 109-110). In contrast two thirds of the evidence for settlement shrinkage is newly recorded, and although a much smaller sub-set of data, is more aligned to the south of the survey area, and is demonstrably associated with small hamlets, at Wolverstone and Heathstock.

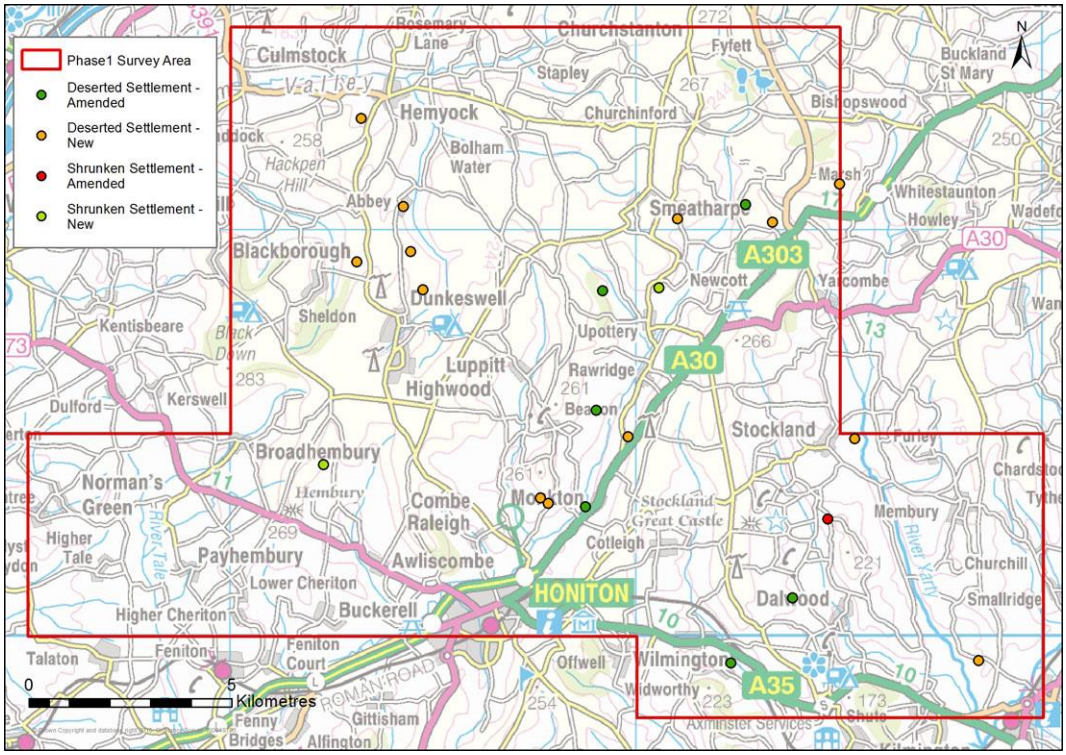
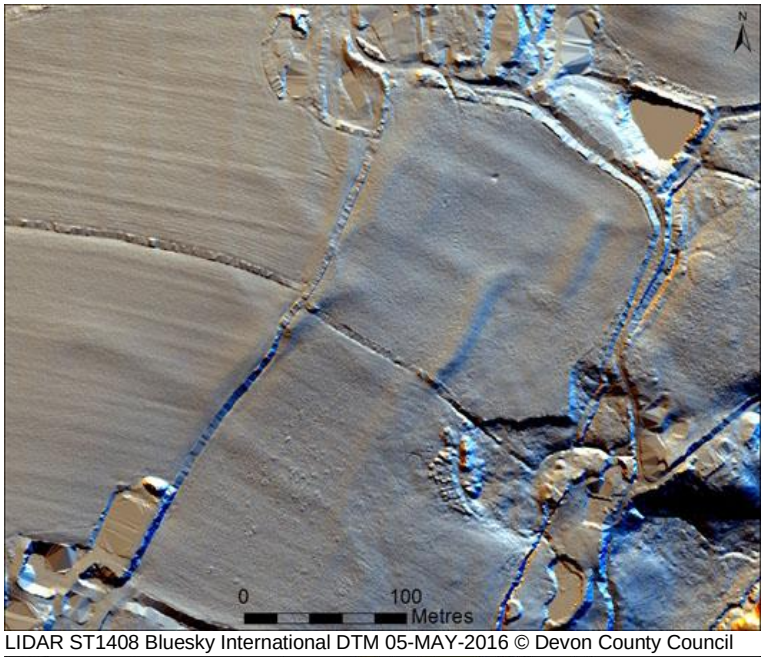


Figure 20: The distribution of sites interpreted as evidence for settlement desertion or shrinkage in Phase 1 of the survey. © Crown Copyright and database right 2016. Ordnance Survey 100019783.

Two noteworthy possible desertions have been identified that might demonstrate associations with the former Cistercian Abbey at Dunkeswell (MDV118008, ST14720853). Spread earthwork banks defining rectilinear enclosures south of Bowerhayes Farm, Dunkeswell, have been interpreted as the possible 'undivided closes' and possible former building plots of an Abbey Grange at Bowerhayes, noted by Fox (1972, 79; see Figure 21). Immediately to the south of the former Abbey precinct, north of Dunkeswell village, substantial rectilinear terraces separated by possible sunken paths or tracks were visible as earthworks on lidar derived images (see Figure 22). The terraces have been tentatively interpreted as former building plots, possibly previously part of the Abbey's estate (MDV116043, ST14241059).



LIDAR ST1408 Bluesky International DTM 05-MAY-2016 © Devon County Council

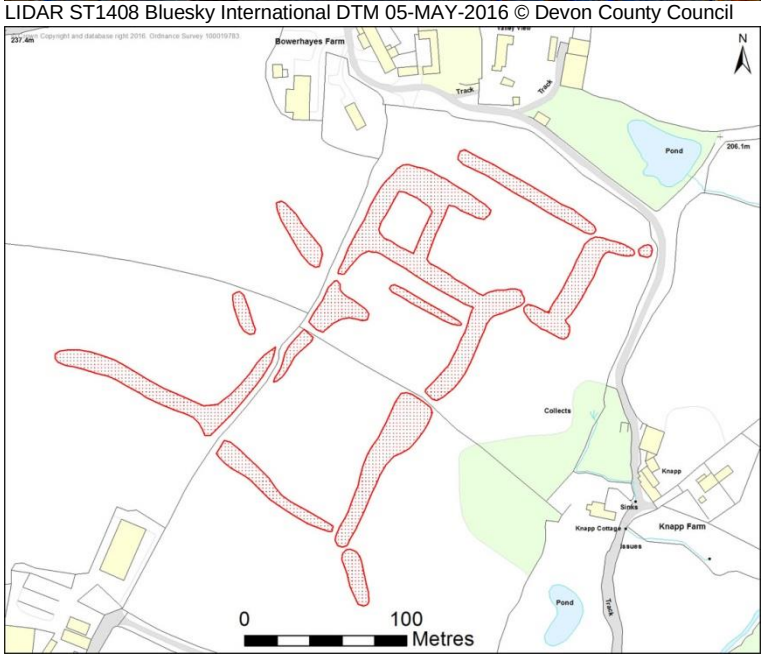


Figure 21: Rectilinear enclosures south of Bowerhayes Farm, Dunkeswell, possible site of a Grange of Dunkeswell Abbey.

LIDAR ST1410 Bluesky International DTM 05-MAY-2016. © Devon County Council

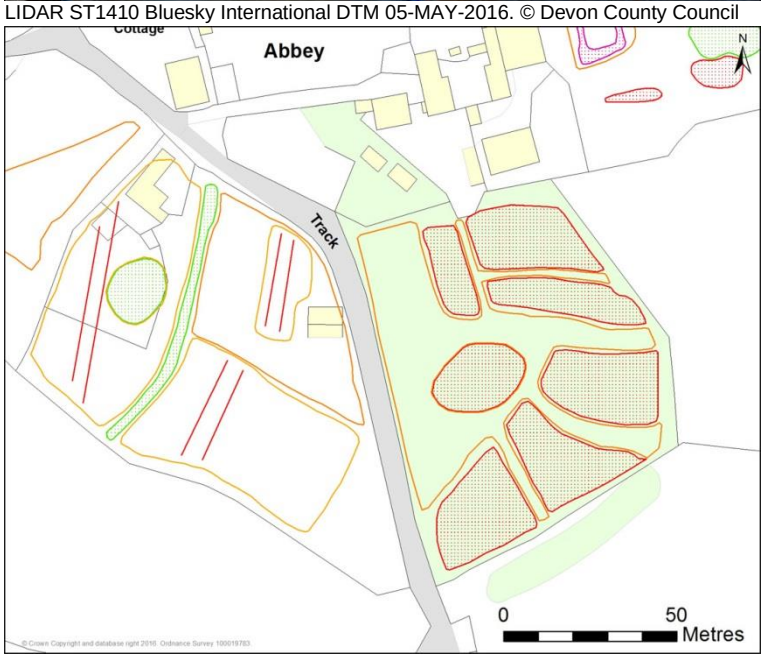


Figure 22: Earthwork platforms or terraces immediately south of Dunkeswell Abbey. The plots either side of the track were depicted as orchards on the OS First Edition map, the banks of which can be seen to the west of the track. An orchard would be an appropriate re-use of a former settlement site.

4.6 Religious, Ritual and Funerary

Over 50 monuments of religious, ritual or funerary character were recorded or had existing monument records amended as part of the Phase 1 survey. The distribution and interpretive ascribed dates are illustrated in Figure 23.

The majority, over 90%, were interpreted as the earthwork remains or cropmark evidence for barrows of probable Bronze Age date. Of these, 71% were new to the HER. As can be seen in Figure 24; these are largely concentrated on the Upper Greensand plateau, with notable concentrations in the vicinity of previously recorded barrow monuments. This may reflect differential monument survival on the plateau, largely unenclosed until Enclosure Acts of the 19th century.

Her records for two monuments of religious character and medieval date were amended or created by the survey; the site of a possible Grange associated with Dunkeswell Abbey, described above in Section 4.5 in relation to settlement desertion, and a number of features at the site of Dunkeswell Abbey itself (MDV1890, ST14281070). This included a range of buildings visible as cropmarks within the abbey complex (see Figure 25); Brooking-Rowe, writing in 1877, reported that the foundations of the church and some important buildings might be traced in dry summers by the grass above being 'more quickly scorched'. The survey recorded the plan of the east range on a levelled earthwork terrace from cropmarks visible on specialist oblique aerial photographs taken over 100 years later. To the east, a cluster of broadly rectilinear earthwork platforms between 6m to 15m in length probably mark the location of an additional range of previously unrecorded structures within the monastic precinct.

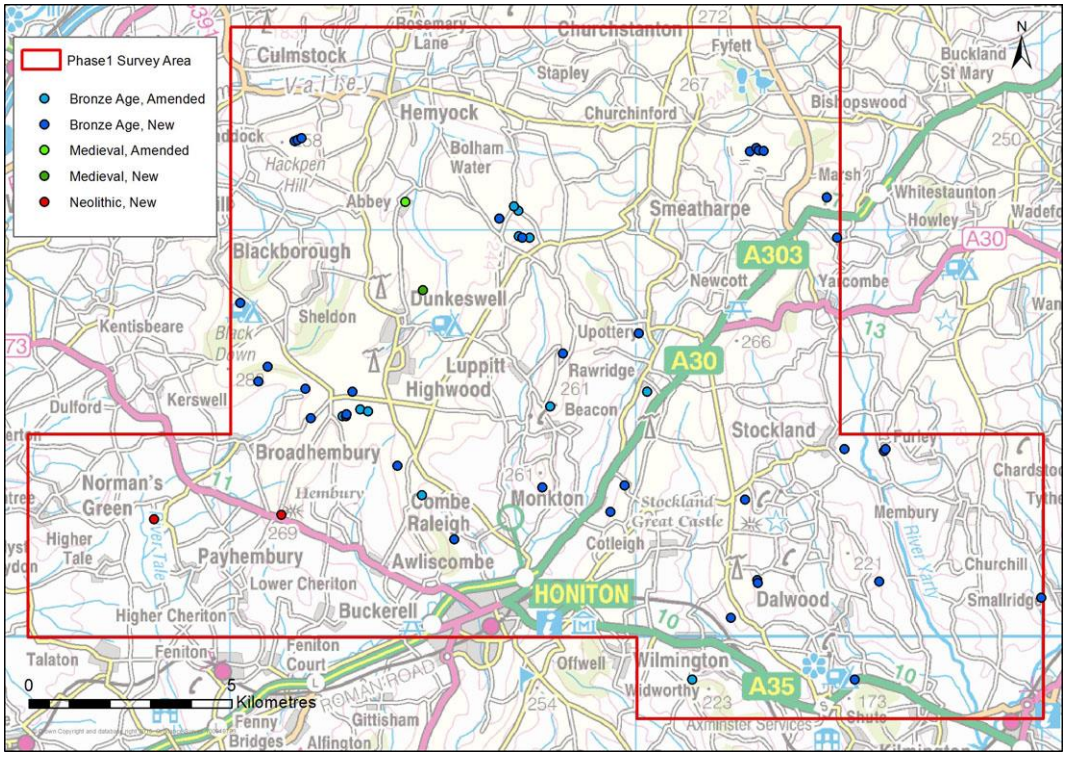


Figure 23: Distribution plot of monuments identified by the survey and interpreted as being of religious, ritual or funerary character.

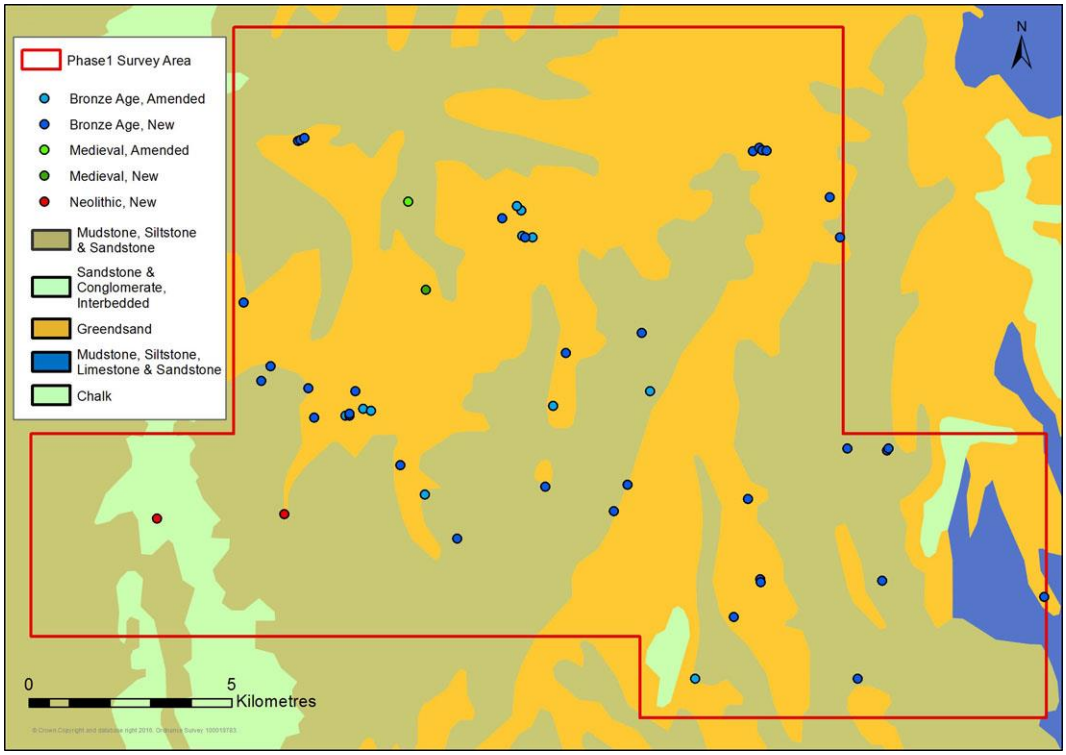


Figure 24: Distribution plot of monuments identified by the survey and interpreted as being of religious, ritual or funerary character, overlain on a simplified bedrock geology map. The monuments, largely identified as earthwork remains on lidar derived images, show a strong but not exclusive concentration on the Greensand plateau.

Figure 25: The plan of the east range of monastic buildings at Dunkeswell Abbey is revealed by cropmarks. DAP 6876/10/25-JUL-1989 (OZ) © Devon County Council.

4.6.1 Neolithic Religious, Ritual or Funerary monuments

Arguably the most significant discoveries of religious, ritual or funerary character are those interpreted as potentially of Neolithic date. Cropmarks of an elongated rectilinear ditched enclosure with rounded corners were visible near Luton village, on aerial photographs of 1989, located within and close to the confluence of the River Tale and a stream from the east (MDV118372, ST08100291). The enclosure is tentatively interpreted as evidence of a levelled long barrow or mortuary enclosure of probably Neolithic date, one of only 9 recorded in Devon. Only 5 are recorded on the Somerset HER. At approximately 50 by 8 metres in size, the visible cropmark is nearly as long and wide as an example at Broadnymett, North Tawton, (MDV17627) and very similar in size to a site near Nether Exe Barton (MDV57143). Other recorded possible sites in Devon are significantly longer (e.g. MDV111027) whilst Somerset examples tend to be broader at circa 20 to 25 metres wide (e.g. SCC HER 12040, ST763507; 28392, ST36185; 54823, ST450304).

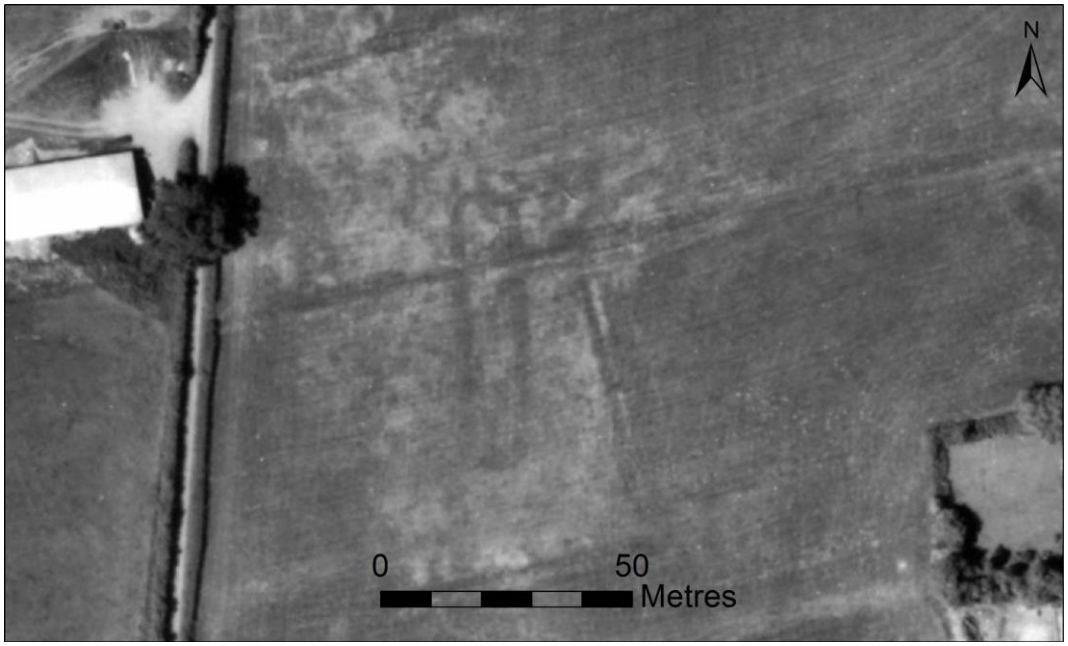


Figure 26: Cropmarks of a ditch enclosing a possible levelled long barrow or mortuary enclosure of Neolithic date near Luton village, Broadhembury (MDV118372, ST08100291). OS/89276 V 325 14-JUL-1989 © Crown copyright.

The characteristic interrupted ditches of a Neolithic causewayed enclosure had been identified at the southern tip of the multivallate earthworks of Hembury Fort during excavations in the early 20th century (MDV112692, ST11240302: Liddell, D.M., 1935). The site is one of only four causewayed enclosures known in Devon and Oswald, Dyer and Barber (2001) listed only 66 known nationally. A search of Historic England's Pastscape currently lists 125 records (accessed 20/02/2017). This remains a rare monument type. It is likely that causewayed enclosures had complex functions that evolved over time, and as Oswald, Dyer and Barber state, "While evidence [for function] is not plentiful, theories based upon it can be diametrically opposed" (131-132). However, the evidence does support the

interpretation that their function probably incorporated a ceremonial or symbolic role (*ibid.* 120-132).

No evidence of the interrupted ditches at Hembury was identified during the survey. Roughly 50m to the south, however, a broad but shallow curvilinear ditch was clearly visible as an earthwork on images derived from lidar data (Figure 27). Although not precisely on the same alignment, and more continuous in form than the interrupted ditches, this subtle earthwork ditch has been interpreted as a possible central component of the causewayed enclosure complex.

Alternatively it is possible, and no less significant, that the possible inner ditch may belong to a separate phase of activity. A similar but more completely recorded continuous enclosure identified within the causewayed enclosure at Dallington in Northamptonshire has been interpreted as a possible henge enclosure of Late Neolithic date and might provide a parallel for the inner ditch at Hembury (*ibid.* 135 and Figure 3.4.).

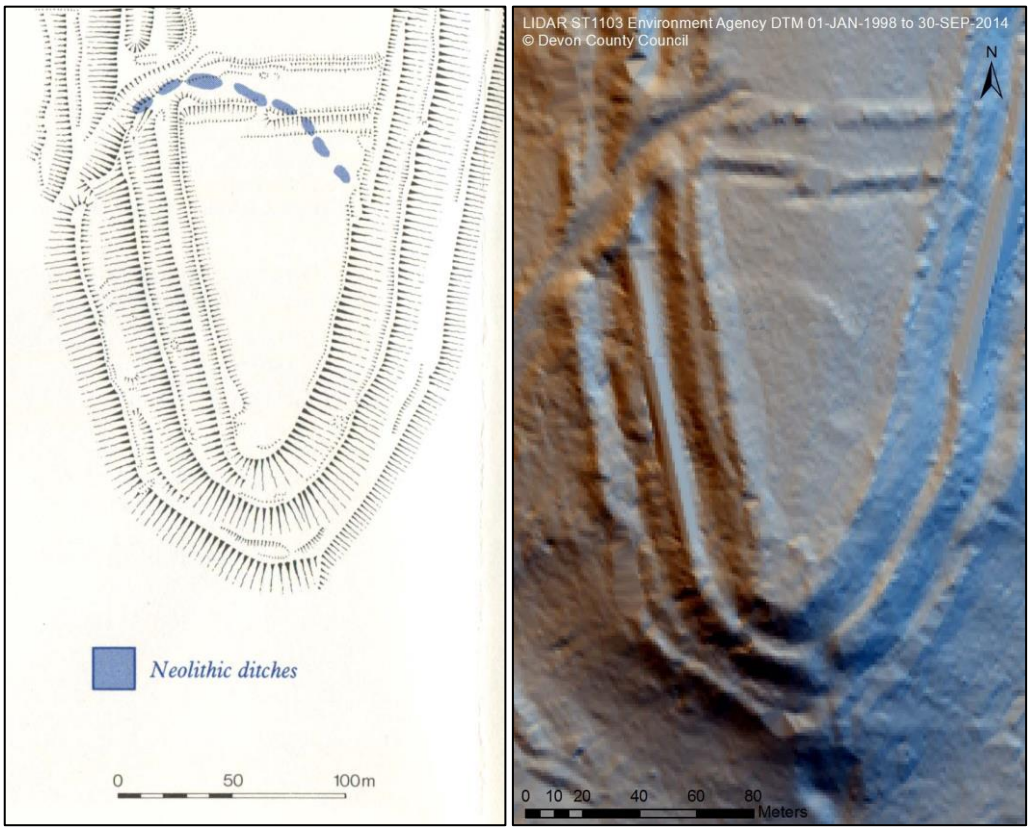


Figure 27: Top left: Location of the Neolithic causewayed enclosure ditches at Hembury Hillfort. © Devon Archaeological Society. Top right: Lidar derived hillshade image illustrating shallow curvilinear ditch within the circuit of the causewayed enclosure. Note slight earthwork evidence of whetstone mining galleries on the south-west tip of the hillfort ramparts. LIDAR ST1102 Environment Agency DTM 01-JAN-1998 to 30-SEP-2014. © Devon County Council.

5 Heritage Protection: Interim Statement

As the survey progresses a list is maintained of sites of potential national significance or previously designation monuments that might benefit from re-evaluation. The Phase 1 list with interpreters' comments is included as a table in Appendix A. It includes:

- Previously unrecorded sites that warrant assessment for heritage protection consideration, either individually or due to group value.
- Previously recorded sites enhanced by the NMP survey and considered be of potentially national significance and worthy of assessment for heritage protection consideration;
- Scheduled monuments where the NMP survey results warrant reassessment and possible amendment of the scheduled area;

The list is included here for information only; it is proposed that supporting information for each monument be supplied to the Historic England in the form of aerial photographic or lidar images noted during the survey, on completion of Phase 2 of the survey accompanying a list of brief recommendations.

6 Interim Conclusions

The Blackdown Hills AONB and East Devon River Catchments National Mapping Programme has increased the DCC HER record count for the Phase 1 survey area by approximately 54%.

The survey has enhanced our understanding of the historic environment in this under-researched designated landscape, with a focus on areas subject to infrastructure development and environmental conservation and agricultural pressures, as outlined in the project design (Hegarty 2015).

The Phase 1 results can be summarised under five main themes. Significant discoveries and enhancements to the HER have been made under each theme. The greatest impact of the survey has possibly been under:

Theme 1: Extending the known distribution of earthwork evidence for extractive activities dating from the Roman period to the 19th century;

Theme 2: Enhancing our understanding of how smaller scale extractive features identified under Theme 1 were utilised in an agricultural or arboricultural context once they passed out of use, thereby influencing the subsequent landscape character of the AONB;

Theme 3: Potentially extending the known distribution of Roman camps on the southern edge of the Blackdown Hills, with implications for future research in the role of the Roman military in relation to the iron industry across this protected landscape.

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APPENDIX A: Sites Suggested for Heritage Protection Consideration

Name	Priority	MonID: MDV	SM no.	Notes	Figure No. *
Possible Fort north-east of Higher Corry Farm, Stockland	High	115454	N/A	A rectangular ditch and bank defined enclosure with rounded corners. Internally the enclosed area measures circa 111 by 75 metres, or roughly 0.9 hectares. It is tentatively interpreted as a Fort of Roman date. It is suggested that detailed consideration for heritage protection awaits the results of planned geophysical investigation.	
Motte and Bailey at Castle Hill, Widworthy Park	High	15339	1017477	A possible outer bailey is indicated by wide earthwork banks and ditch; the extent of the scheduled area is recommended for reassessment.	N/A
Medieval motte and bailey at Buckerell Knap, Buckerell parish	Medium	1848	N/A	Much debated features; EA Lidar supports interpretation of mound and surrounding platforms as a small, possibly early post-conquest motte and bailey.	N/A
Motte and bailey at Bushy Knap, Buckerell parish	Medium	117867	N/A	Much debated features; EA Lidar supports interpretation of mound and surrounding platforms as a small, possibly early post-conquest motte and bailey. NMP created new parent record for mound (11509) and platforms (75239).	N/A
Dunkeswell Abbey	Medium	1890	1009303	Extend the scheduled area to the east to include additional earthworks identified by the survey.	

Name	Priority	MonID: MDV	SM no.	Notes	Figure No. *
Whetstone mines north of Hembury Hill Farm, Payhembury parish	Medium	50051-3, 117163	N/A	Remains of a significant local industry. These remains need to be considered in the wider context of this industry across the Blackdown Hills; see Hegarty, Knight and Sims 2016, Appendix A.	N/A
Bowl barrow 310m south of Widworthy Barton, Widworthy	Medium	11191	1017475	The Scheduled area (listing number 1017475) appears to be based on the OS mapping which is circa 3 metres offset from the feature as shown on the 2016 lidar information. It may be worth revisiting to accurately map the exact extent and consider altering the Scheduled area.	N/A
Possible barrows on Hartridge, south-east of Hillend Farm, Luppitt parish	Medium	116576	N/A	Visible as cropmarks only on single run of images.	N/A

* Images will be supplied to Historic England for those monuments not illustrated in this or the final survey report.

APPENDIX B: Sites Suggested for Further Work

Name	MonID	Site Visit	Geophysical Survey	Palaeoenvironmental Survey	Analytical Field Survey	Aerial Survey	Oral History	Excavation
Earthwork Enclosure, northwest of Twistgates Farm	114908	✓	✓					
Earthwork Enclosure, southeast of Rookery Farm, Upottery	48357		✓					
Possible Deserted Medieval Settlement and Associated Field Boundaries, southwest of Baxters Farm, Upottery	116488	✓						
Mound, possibly a Barrow, east of Knoll, Stockland	115205	✓	✓					
Rectilinear Cropmarks at Honiton Community College	114779		✓					
Enclosure Boundaries North West of Cheney's Farm	114979	✓	✓					✓
Earthwork Boundaries in Combe Wood, Combe Raleigh	114992	✓						✓
Medieval Field System North of Shaugh Farm, Luppitt Parish	115139		✓		✓			
Mound on Dumpdon Hill	115103		✓		✓			
Earthwork Hollows North of Whitehall Farm	115172		✓		✓			
Possible Barrows west of Osmore Farm, Membury	115237		✓			✓		
Possible Circular Enclosure south of Osmore Farm, Membury	115258		✓					
Possible Fort north-east of Higher Corry Farm, Stockland	115454	✓	✓		✓			
Possible Roman Fortlet north-west of Smallridge, All Saints	115825		✓			✓	✓	
Possible Extractive Workings, along Lickham Bottom, Hemyock	115831	✓						
Possible Extractive Workings along Owleycombe Common, Culmstock and Hemyock Parishes	115815	✓						
Enclosure north east of Burrow Hill Farm, Hemyock	47489	✓	✓					
Possible Opencast Mining Pits, northeast of Burrow Hill Farm, Hemyock	115858	✓						

Name	MonID	Site Visit	Geophysical Survey	Palaeoenvironmental Survey	Analytical Field Survey	Aerial Survey	Oral History	Excavation
Possible Prehistoric Barrow on Hackpen Hill, Hemyock	115862	✓						
Possible Prehistoric Barrow on Hackpen Hill, Hemyock	115863	✓						
Possible Prehistoric Barrow on Hackpen Hill, Hemyock	115864	✓						
Earthworks associated with a Possible Former Settlement and Road, at Regency House, Hemyock	115865	✓	✓					
Possible Extractive Workings, south of Haydon Farm, Uffculme	115885	✓						
Dunkeswell Abbey	1890	✓	✓					
Earthworks of a Possible Former Settlement, Dunkeswell Abbey	116043	✓						
Field boundaries and possible former settlement, south-east of Fair Oak Farm, Upottery parish	47684	✓	✓					
Possible barrows on Hartridge, south-east of Hillend Farm, Luppitt parish	116576		✓					
Possible Barrow west of Smallridge, All Saints	116613	✓	✓					
Possible Barrow south-west of Limers Cross, Dunkeswell parish	117310		✓					
Enclosure at Devon and Somerset Gliding Club, Broadhembury	117572	✓						
Earthwork mounds, east of Devon and Somerset Gliding Club, Broadhembury	117578	✓						
Possible former settlement, Bowerhayes Farm, Dunkeswell	118008		✓					
Possible barrow, east of Westerhope Farm, Dunkeswell	117622	✓						
Possible former medieval settlement site and field boundaries to the northeast of Shutes Farm, Sheldon and Dunkeswell parishes.	118113	✓						

Name	MonID	Site Visit	Geophysical Survey	Palaeoenvironmental Survey	Analytical Field Survey	Aerial Survey	Oral History	Excavation
Ridge and Furrow, from Stentwood Farm to Shutes Farm, Dunkeswell	118115	✓						
Rectilinear Enclosure north-west of Studhayes, Kilmington	117792		✓			✓		
Oval cropmark enclosure east of Payhembury village	118239		✓					
Mortuary enclosure or Long Barrow at Luton village, Broadhembury	118372		✓					
Possible ditched enclosure south of Clyst William Farm, Plymtree parish	118374	✓	✓					
Possible Roman Fortlet South of Burrow Corner, Shute	118446	✓	✓					
Possible Extractive Earthworks or Natural Features on Dalwood Hill	118684	✓	✓					
Military Sites near Dickens's Marsh, Dalwood	118569 118575	✓					✓	

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