making sense of heritage

NHPP Project 6982:
National Importance Programme Pilot Projects

Early Mesolithic Wetland Sites in the Middle Kennet Valley

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NHPP Project 6982: National Importance Programme Pilot Projects

MAIN 7032: Mesolithic Sites in the Middle Kennet Valley

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Summary

This study proposes a methodology for defining, recording and weighing the significance of non-designated heritage assets of archaeological interest that fall without the criteria of section 61.7 of the *Ancient Monuments and Archaeological Areas Act 1979* but which have the potential to be demonstrably of equivalent significance to scheduled monuments.

This pilot study uses a series of known and partly-known Mesolithic sites in the Kennet valley to test a methodology which uses a predictive model of significance alongside a series of wider areas of interest, the results of which can then be weighed against a set of criteria relating to national importance.

The wider area of interest can be broadly defined as an area representing part of (or containing) a large-scale Mesolithic landscape, comprised of a number of smaller sites which, as a whole, meets the criteria for nationally important scatters.

The creation of a wider area of interest attempts to overcome the lack of readily identifiable boundaries in the data by defining an initial area which is evidently not reflective of any Mesolithic site 'boundary', but which instead seeks to define an area in which clearly defined archaeological remains and archaeological potential exist.

The methodology is found to be effective for lowland sites on the valley floor, but to be less useful when applied to upland sites.

The case studies show differing results. As anticipated, the study suggests that the potential to map wetland sites is far greater than the potential to map upland sites, particularly within the Study Area itself. In part this is due to the nature of the upland sites themselves which, while not only being sparse, usually take the form of chance findspots or fieldwalked areas, often located in areas that have seen agricultural use. Evidence for large Mesolithic landscape areas simply does not exist in uplands of the study area; in contrast, the wetland sites display evidence of a continuous Mesolithic landscape across a much wider area, at times suggesting continuous use of these landscapes throughout the Early Mesolithic and possibly beyond.

In terms of the case study area, it is concluded that initial assessment sof significance should be undertaken by the HER, as the holders of the most comprehensive datasets, and as the body most likely to benefit from the resulting models in their role of advising the local planning authority on the potential impacts of development and/or extraction proposals. Additionally, but crucially, the HER would be the logical location of the information generated by the assessments of significance, and the most appropriate maintainer of a list of the results of those assessments.

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The wider areas of interest were created, the report was written and the figures produced by Richard Milwain, with input from Erica Gittins and Matt Leivers. The project was managed for Wessex Archaeology by Matt Leivers.

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1 BACKGROUND

1.1 Call for proposals

1.1.1 English Heritage (EH) issued a funding call for NHPP Project 6982: National Importance Programme Pilot Projects in May 2014. This fell under NHPP (EH 2011) Measure 5: Protection of Significance and specifically National Importance Programme Pilot Projects (Activity 5A2).

1.1.2 The Call for Proposals (EH 2014) was stimulated by an acknowledgment that nationally important sites without structures or clear boundaries could be less well served by the current designatory system than those with visible monuments. However, how to resolve this problem remains unclear. It was considered that a pragmatic way of considering the widely varying requirements and issues surrounding such sites involved the undertaking of pilot studies that considered a range of chronologies and site types.

1.1.3 It is of note that embedded within the National Policy Planning Framework is the principle that planning should conserve heritage assets in a manner appropriate to their significance and that “non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets”. The difficulty first comes in defining, recording and weighing the significance of such sites.

1.2 Project background

1.2.1 The present study provides an investigation of how the significance of Mesolithic sites of national importance is assessed and how they are mapped, with direct reference to a section of the Middle Kennet Valley in West Berkshire. The often-ephemeral nature of archaeological and environmental traces of Mesolithic activity can create problems when gauging significance against recognised criteria, while also causing difficulties in defining sites and their extents. By addressing the question of national importance at a local level, this study explores opportunities to protect a number of important sites at potential risk from impacts such as gravel extraction and water table changes.

1.2.2 As highlighted in the Thames and Solent Research Framework for Berkshire (Chisham 2006), the Lower and Middle Kennet Valley contains one of the greatest concentrations of Early Mesolithic hunter-gatherer sites in Britain (**Figure 1**) (e.g. Ellis *et al.* 2003; Ford 1992; Froom 1963a-c, 1965, 1970, 1972a-b, 1976; Froom *et al.* 1993; Healy *et al.* 1992; Wymer 1958, 1959, 1960, 1962, 1963). Closely associated sediments include thick Late Glacial transitional and Early Holocene floodplain deposits containing a high quality palaeoenvironmental record for the period of 11,500-9,500 cal BP (Barnett 2009).

1.2.3 Comprehensive fieldwalking and lithic distribution studies have been undertaken by Stephen Allen (see also Ford 1992), which adds to the existing body of data generated by

the Kennet Valley Fieldwalking Survey (Lobb and Rose 1996). There is also continuing data collection and research into Mesolithic activity in the Kennet Valley by the University of Reading, Wessex Archaeology and other organisations and individuals, some of which is, as yet, unpublished. This includes extensive coring and examination of exposures at Thatcham Reedbeds (Wymer 1958-1963; Chisham 2004; Barnett 2009) and Woolhampton (Collins 1994; Chisham 2004) and in the environs of Ufton Green (Allen and Allen 1997; Chisham 2004).

1.2.4 Due to the non-visible and ephemeral nature of sites and remains of the Mesolithic period in the lowlands (including those concentrated in the Middle Kennet valley), local planning authorities can find it problematic to define and explain the significance of this archaeological resource to developers and the aggregate industry and so to protect it appropriately. Some archaeologically important areas of the Kennet valley have already been subject to extensive quarrying activity, including peat digging, marl digging and extensive aggregate (gravel) extraction. The latter has taken place on a wide scale in the 20th century, notably between Newbury and the western edge of Reading. Reserves between Newbury and Thatcham are largely worked out, although a substantial potential holding exists at Chamberhouse Farm (Wessex Archaeology 1998) immediately south of - and on the opposite terrace to - the nationally important Thatcham sites, which may well contain sites of comparable importance.

1.2.5 Recent gravel workings have been concentrated to the south of Woolhampton, around Beenham and Aldermaston and to the south and west of Theale. It is unclear where extraction will be located in the future, but indications are that future sites will be focused east of Newbury/Thatcham. Protecting the Area of Outstanding Nature Beauty (AONB) from major extraction does appear to be a key part of the emerging policy, which protects areas west of Newbury. However, indications are that extraction will continue in the Lower and Middle Kennet Valley for the foreseeable future. West Berkshire Council are currently in the process of producing a new Minerals and Waste Development Plan Document.

1.2.6 In addition to the physical impact of extraction, associated significant lowering of water tables can be highly detrimental to the preservation of archaeological and environmental evidence located outside the extraction footprint, as well as to the nature conservation interest of these areas. Other impacts on such sites include dumping of quarry spoil, while at Thatcham Reedbeds there is a disused local authority tip on part of the archaeologically sensitive area, and quarry upcast elsewhere. It is however apparent that the Site of Special Scientific Interest (SSSI) status of part of the Thatcham site known as the reedbeds has allowed preservation of high quality early Holocene floodplain sequences (Chisham 2004; Barnett 2009) directly associated with Early Mesolithic sites. This is despite past quarrying at the site, as the reedbed has deliberately been kept wet and relatively undisturbed for nature conservation purposes (see Bell *et al.* 2006). Similarly, much of the area of the Wawcott Mesolithic sites has been protected from development and dewatering, in this case in the interests of game and fishing rights. Arable agriculture also poses some threat to sites at the edge of the floodplain, as do activities associated with flood risk management such as dredging.

1.3 Defining the Study Area

1.3.1 The present Study Area (**Figure 1**) is centred upon the study area used during EH 6633 *Tracing their Steps: Predictive Mapping of Upper Palaeolithic and Mesolithic Archaeology – A Case Study of the Middle Kennet Valley*, itself centred upon a 30km stretch of the Kennet Valley between Avington in the west and Ufton Green in the east. An additional 5km buffer has been added to the earlier study area; this has subsequently been clipped at the West Berkshire border.

1.3.2 Consequently, the Middle Kennet Valley remains the focus of the present study, allowing those datasets generated through EH 6633 to be included within the present study where appropriate. The 5km buffer also allows for the inclusion of some adjacent upland areas, in an attempt to provide a contrast with the archaeologically rich valley.

1.4 Data sources

1.4.1 Archaeological data within the Study Area was sourced from the West Berkshire HER (http://info.westberks.gov.uk/index.aspx?articleid=27685), the Palaeolithic and Mesolithic Lithic Artefact (PaMELA) database (http://archaeologydataservice.ac.uk/archives/view/pamela_2014/) and from Froom's work within the area (Froom 2012). This resulted in a dataset similar to that used in EH 6633, with the addition of those sites located within the additional buffered area.

1.4.2 Other complimentary datasets imported from EH 6633 included the archaeological and palaeoenvironmental potential layers generated to highlight areas of Mesolithic potential (**Figure 2**). These layers highlight areas of 'highest', and 'high' potential, although for the purposes of the current study only the highest potential layers have been used. The potential layers were generated at a 50m resolution, reflecting the elevation data it was produced from. These datasets provide a further layer of evidence that can be used to help confirm areas of significant Mesolithic archaeological and palaeoenvironmental potential, while also highlighting those areas that, despite a lack of archaeological investigation, are likely to contain Mesolithic deposits which provide an extension of known Mesolithic landscapes. The data is therefore useful in confirming areas of Mesolithic activity, alongside helping to form boundaries.

1.4.3 Additional datasets were also obtained from Natural England, including Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs) and Regionally Important Geological Sites (RIGSs) (**Figure 3**). These datasets provide a means of establishing those areas already subject to varying degrees of nature conservation protection. The Kennet itself is protected in the Middle Valley area as a result of its status as a SSSI, while further SSSIs cover additional portions of wetland in the Thatcham and Wawcott areas. As such, these complimentary designated areas have also been factored in, a suggestion made in EH's *Scheduling Selection Guide: Sites of Early Human Activity* (EH 2012, 13).

2 AIMS AND OBJECTIVES

2.1 Aims

2.1.1 The primary aim of the project was to explore issues surrounding the identification of nationally important early prehistoric wetland sites and landscapes. Although focussed on a study area in the middle Kennet Valley, it is intended that the findings from detailed consideration of these sites will be more widely applicable to other Mesolithic lowland landscapes. This primary aim is broken down into a series of key objectives below.

2.2 Objectives

Summary

2.2.1 The specific objectives of the project can be defined as follows:

O1 To explore how we can define, record and map sites or collections of sites where there are few clear structures or boundaries, using known wetland , wetland edge and, for contrast, upland case study sites;

O2 To explore the role of the (in this case West Berkshire) HER in this process;

O3 To develop example methodologies for the process of recording and defining such sites;

O4 To consider who is best placed to identify and weigh the significance of individual early prehistoric sites or wider landscapes with a common activity and chronology;

O5 To identify the keys risks and sensitivities within the case study area;

O6 To explore whether the current designatory and planning system affords a suitable level of protection for early prehistoric wetland sites and where additional or replacement systems may be of use.

3 DEFINING NATIONAL IMPORTANCE

3.1.1 Before attempting to map the sites it is important to consider how the concept of national importance can be defined. This has been done in a number of ways: the most important criteria are set out in Annex 1 of the *Principles of Selection for Scheduled Monuments* (Department for Culture, Media and Sport 2013). Any nationally important site under consideration for scheduling is required to meet the following criteria:

- *Period;*
- *Rarity;*
- *Documentation/finds (e.g. previous investigations);*
- *Group value;*
- *Survival/condition;*
- *Fragility/vulnerability;*
- *Diversity ("a combination of high quality features" or "a single important attribute"); and*
- *Potential,*

3.1.2 Also notable is the requirement for a site of national importance under consideration for scheduling to have an associated 'structure', as outlined in section 61.7 of the *Ancient Monuments and Archaeological Areas Act 1979*. Here, a monument is defined as follows:

- *Any building, structure or work, whether above or below the surface of the land, and any cave or excavation;*
- *Any site comprising the remains of any such building, structure or work or of any cave or excavation;*
- *Any site comprising, or comprising the remains of, any vehicle, vessel, aircraft or other movable structure or part thereof which neither constitutes nor forms part of any work which is a monument within [the area defined in first bullet point].*

3.1.3 Structural remains of Mesolithic date are rare. This inevitably leads to the question of how else Mesolithic sites of national importance may be defined, and so at this point it becomes necessary to consider EH's *Managing Lithic Scatters* (EH 2000) and *Designation Scheduling Selection Guide: Sites of Early Human Activity* (EH 2012), in which additional criteria relevant to Mesolithic sites (i.e. for sites often without associated structures but still with the potential to hold national importance) are set out.

3.1.4 In *Managing Lithic Scatters* (EH 2000, 7) and *Designation Scheduling Selection Guide: Sites of Early Human Activity* (EH 2012, 12), a flint scatter is considered to have particular importance if three or four of the following criteria are fulfilled:

- *Clear boundaries have been defined;*
- *Artefact quality from a recent collection episode suggests that deposits have only recently been disturbed;*
- *Additional evidence suggests the presence of buried structural remains;*
- *There is evidence for part of the site not having been disturbed at all;*
- *A scatter has been dated or interpreted with confidence;*
- *Artefacts suggest diversity within the scatter.*

3.1.5 Clearly, sites defined and mapped for the current project would be required to meet such criteria; as potentially nationally important sites have been defined through the course of this study then these criteria have been returned to.

4 DEFINING MESOLITHIC SITES

4.1 How can we define Mesolithic sites?

4.1.1 The often ephemeral nature of Mesolithic sites can make them difficult to define spatially. Structures are very rare; beyond this, evidence in the form of hearths, stratified flint scatters and associated faunal and floral remains provide a means of establishing those areas where notable Mesolithic activity occurred.

4.1.2 How sites are defined depends on the data available. Questions of scale, the positional accuracy of data, the locations of structures and the presence of other features and remains all play a role in how a Mesolithic 'site' may be defined. Before attempting to map the extents of Mesolithic sites within the Study Area, it is useful to explore other examples.

4.2 Looking at scheduled Mesolithic sites

4.2.1 There are no scheduled Mesolithic sites within the Study Area. Although small in number, examples of scheduled Mesolithic sites occur across England and further examples in Scotland provide additional opportunities to investigate how Mesolithic sites have been defined (**Figure 4**). Additional multi-period scheduled sites with Mesolithic sequences also exist – a notable example is Hengistbury Head in Dorset (List Entry 1002367) – although for the purposes of the present study only those sites with primarily Mesolithic remains are considered, as a means of providing a temporal point of comparison.

4.2.2 Within close proximity of the Study Area is the site of Moor Farm, at Bray Wick near Maidenhead, Berkshire (List Entry 1006974), which was scheduled following its excavation. Other notable examples include the sites at Star Carr in North Yorkshire (List Entry 1401425), Culver Well on Portland in Dorset (List Entry 1002406) and, in Scotland, at Morton in Fife (Historic Scotland Index Number 7641) and on Oronsay in the Inner Hebrides (Historic Scotland Index Numbers 6288 and 6289).

4.2.3 These sites occur in both wetland and coastal environments (Morton, now lying 2km inland, was immediately adjacent to the sea at the time of its use). Of particular importance as a point of comparison to the present study is the internationally renowned site of Star Carr, only recently scheduled (in December 2011) despite the wealth of archaeological remains recovered over the past half century and more, and its position as

a site of considerable archaeological potential thanks to the site conditions (which also happen to be worsening over time).

4.2.4 The extent of scheduling at Star Carr has been defined using a range of evidence, as can be seen in the associated Advice Report (EH 2011) which states that "the extent of the monument has been defined by fieldwalking and test excavation" and has been "designed to include all of the known Mesolithic period remains…containing Clark's excavations…together with an additional margin of a minimum of 5m" (EH 2011, 7). Palaeogeography has also been considered, with the scheduled area partly defined through the use of data which plots the Mesolithic land surface and "designed to include everything within 30m (on southern side) of the 23.75m Mesolithic surface contour" (*ibid.*).

4.2.5 Even with these factors included, it is considered "possible that further *in situ* Mesolithic remains survive immediately to the north…however, there is currently insufficient evidence of surviving Mesolithic deposits to justify any area to the north of the Hertford within the scheduling" (EH 2011, 7).

4.2.6 In Dorset, the site at Culver Well has been partly defined by the presence of adjacent modern features, most noticeably the Portland Bill Road and a number of field boundaries, alongside the present-day high water mark. The northern site is known to extend south under the Portland Bill Road, although this extension lies beyond the scheduled area. Features uncovered at the site include hearths, pits, midden deposits and a floor of limestone slabs (Palmer 1976).

4.2.7 In Scotland, at Morton, a small but significant excavated site to the south of Tayport, Fife was largely defined by the position of the present-day 10m contour, reflecting the location of an island on which the site stood. The scheduled area excludes an area of historic quarrying, as evidenced through the investigation of mid-19th century Ordnance Survey mapping.

4.2.8 As a final consideration, the scheduled shell midden sites on Oronsay (scheduled as two sites, one of which includes the remains of two middens) have also been explored. The site comprising two shell middens (Historic Scotland Index Number 6288) covers an oval area measuring approximately 100m by 60m; the scheduled area is designed to include the middens and an area around in which associated remains survive. The northern site (Historic Scotland Index Number 6289) is circular in plan and measures 40m in diameter, an area again including the midden and a buffer area catering for any associated remains.

4.2.9 This brief study of a number of scheduled English and Scottish Mesolithic sites highlights several factors that have been considered in the mapping of these nationally important sites for the purposes of scheduling. Key repeating themes, all taken into account through the course of the present study, include:

- *Consideration of present-day and recent activity which may adversely affect deposits;*
- *Locations of known features;*
- *The use of present-day contours relating to modelled Mesolithic land surfaces;*
- *Buffer zones used to protect associated areas of archaeological potential; and*
- *Consideration of site conditions, particularly concerns regarding fragility and vulnerability.*

4.3 Considering areas of potential

4.3.1 A central component of the work undertaken for EH 6633 was the creation of a predictive model, in which areas of archaeological and palaeoenvironmental potential of Upper Palaeolithic and, predominantly, Mesolithic date were defined. The factors considered in the creation of the potential model included those both conducive and detrimental to Mesolithic activity and occupation in the Middle Kennet Valley; these can categorised as follows:

- *Proximity to water;*
- *Floodplain elevation and topographic highs;*
- *Topographic traits (e.g. slope);*
- *Stratigraphic indicators;*
- *Extraction and development;*
- *Effects of drainage and oxidation; and*
- *The Kennet Navigation and the Kennet and Avon Canal.*

4.3.2 Each 50m cell within the EH 6633 study area was assigned a value determined by its spatial relationship with the above factors. A combined score of 18 out of 20 and above resulted in a cell being assigned as of the highest potential. Those areas of highest potential considered within the present study can therefore be seen to possess a range of factors suitable to Mesolithic activity and occupation.

4.3.3 The potential model has been included in the investigation of the Middle Kennet sites in the present study in an attempt to explore its potential when attempting to define the spatial extent of sites and landscapes. By using the extent of highest potential within the model as a 'sharp' boundary, attempts have been made to remove some of the fuzziness associated with those sites without clearly definable edges.

4.3.4 At this stage it is important to note that the opportunity to consider areas of archaeological and palaeoenvironmental potential simply does not exist in most cases; the sites outlined in section 5.2, for example, have not been subject to this approach. In contrast, the Middle Kennet Valley has benefitted from a wealth of archaeological investigation, resulting in the creation of a potential model, itself the product of a significant research project. The data has been included as a means of illustrating the potential that such datasets have in helping to establish areas of significance. As similar models are created in other areas of the country then such datasets will form a useful tool when attempting to establish the extents of Mesolithic landscapes and areas of significance.

4.4 A question of scale: a Mesolithic landscape or a series of sites?

4.4.1 As seen in section 3.1.1, 'group value' is a key consideration when judging the national importance of a site. Star Carr, for example, is seen to be "enhanced via a group value with a large number of smaller, less complex, but broadly contemporary sites identified elsewhere around the shores of the former Lake Flixton" (EH 2011, 2); the site at Culver Well can be seen to consist of two sites – a shell midden and an open site with hearths and possible structures; while the Oronsay middens also occur in close proximity to one another.

4.4.2 As outlined in section 1.2, a number of areas within the Study Area have been the subject of considerable archaeological investigation over a long period of time. The Thatcham area has been the subject of a number of excavations, alongside fieldwalking and

evaluation at Chamberhouse Farm to the south while, further to the west, the Wawcott area has seen over 50 years' worth of investigations, in the form of both fieldwalking and excavation, principally by Froom.

4.4.3 Perhaps unexpectedly for such an archaeologically-rich and intensively investigated region, this has resulted in the discovery of sites across a wide local area. As the archaeological record has grown it has become increasingly reasonable to suggest that a number of these sites form parts of a larger Mesolithic landscape, as opposed to an increasing number of discrete sites.

4.4.4 Recent gravel extraction and (in the case of Thatcham) the sewage treatment works notwithstanding, the Mesolithic landscapes at Thatcham and Wawcott remain largely uninterrupted by recent development. However, even where recent development has impacted upon the Mesolithic landscape, such as in the area of Newbury north of the River Kennet, evidence of those continuous landscapes can still be seen. The Mesolithic site at Victoria Park, for example, appears to relate to well-preserved evidence in nearby areas, such as at Faraday Road, where *c.* 2000 pieces of burnt flint, butchered animal bone and other evidence were recovered approximately 0.45m below the current ground level (Ellis *et al.* 2003).

4.4.5 The close proximity of many of the sites to one another can be seen in **Figure 5**. Distances to the nearest site (Euclidean distances only) were calculated for all sites within the dataset; the resulting mean distance to the nearest site is 350m. This figure was kept in mind when establishing the extents of the Mesolithic landscapes in the area (see section 5.2).

5 METHODOLOGY: DEFINING THE SPATIAL EXTENT OF SITES

5.1 Exploring how to define the spatial extent of Mesolithic sites

5.1.1 The present study directly addresses three themes found in the Call for Proposals (EH 2014), namely:

- *Explore what the mechanisms might be for identifying, recording and mapping sites considered to be of national importance;*
- *Explore how sites which cannot legally be scheduled under the terms of the 1979 Act, 'sites without structure' can be identified and mapped; and*
- *How to define boundaries for large landscape-scale sites containing many monuments in rural contexts.*

5.1.2 It is clear that the Middle Kennet Valley provides a wealth of relevant evidence which can be used to address such questions. With the dataset of sites in place; a consideration of scheduled examples; potential modelling; the Middle Kennet Valley as a series of Mesolithic landscapes; and the possible role of nature conservation areas in mind, the following section investigates how we may define the extent of sites within the Study Area.

5.2 Creating a wider area of interest

5.2.1 The creation of a wider area of interest (**Figures 6; 7a-b**) attempts to overcome the lack of readily identifiable boundaries in the data by defining an initial area which is evidently not reflective of any Mesolithic site 'boundary', but which instead seeks to define an area in which clearly defined archaeological remains and archaeological potential exist. Such an approach can often be seen in the scheduled examples, the boundaries of which are often in part formed by the extents of recent land use.

5.2.2 In this study, the wider area of interest can be broadly defined as an area representing part of (or containing) a large-scale Mesolithic landscape, comprised of a number of smaller sites which, as a whole, meets the criteria for nationally important scatters.

5.2.3 A useful first step in defining a wider area of interest is the buffering of a dataset of known site locations (i.e. the data outlined in section 1.4) by the average distance between sites, in this case by buffering all dataset points by the observed mean nearest site value of 350 metres. Attempts were initially made to find statistically significant cluster distances within the data using Ripley's K Function (Multi-Distance Spatial Cluster Analysis in ArcGIS; Esri 2014), but clustering was apparent at all distances. Despite this problem, this may be a useful means of helping to define areas in other cases. Clearly, any attempt to buffer by an observed mean distance, or through the use of a spatial statistics tool, would require the creation of a dataset of contemporary sites within a buffered area. Here, the study benefits from the creation of a dataset taking into account sites located within the Study Area. Such an area should be considered on an ad-hoc basis, but should allow the site or landscape in question to be better understood in its wider context.

5.2.4 The buffered areas can then be dissolved, creating a series of groups; following this, they can be bounded using one of a number of methods (convex hull, envelopes and minimum bounded rectangles being three examples). The wider areas of interest can then be found within these bounded areas; they may be defined by areas of modern development (housing, industrial, roads, railways), present-day river courses or, where available and where other forms of delineating are not useful, potential modelling data (in this study by investigating those areas of highest archaeological and palaeoenvironmental potential).

5.2.5 As suggested in section 5.2.2, these wider areas of interest should contain a series of sites which, as a group, fulfil the criteria for national importance. At this stage, sites within the area could be considered as having 'group value', reflecting a large-scale Mesolithic landscape.

5.2.6 Following the creation of a wider area of interest, additional buffers may be added as a means of accounting for errors; a 5m buffer was used in the scheduling of Star Carr, a buffer which also takes into account any possible digitising discrepancies during data capture (boundaries here have been digitised using 1:10000 data; the 5m buffer therefore takes account of the spatial resolution of the data (EH 2004)).

5.3 Refining the area

5.3.1 A wider area of interest may contain areas in which it can be reasonably assumed that nationally important features no longer exist, or exist in truncated forms. Examples of this can include buildings, roads and railways (and associated infrastructure) and areas of past and present mineral workings, such as gravel extraction. Such features are stripped from the wider area of interest at this stage.

5.3.2 Designated nature conservation sites may also be considered at this stage. It should be noted that "while management for natural and historic environment conservation is generally complimentary, there are possible areas of contention…where natural environment values may not be compatible with the preservation of archaeologically important deposits" (EH 2012, 13). In the case of the Middle Kennet Valley it is reasonable to argue that natural and historic environment conservation management is indeed complimentary.

5.3.3 Smaller, key areas can be discretely defined if necessary. They represent areas of the highest importance – i.e. have known archaeological and palaeoenvironmental remains,

highest levels of potential (through previous investigations and modelling where appropriate), are well documented and possess group value. Refinement of the area therefore results in both the initial wider area of national importance and a series of key sites.

5.4 A step-by-step guide to defining wider areas of interest

5.4.1 The methodology involved in the creation of these wider areas of interest is one that can be undertaken by any regular GIS user (**Figure 6**), including most HER officers (see section 6.2). The tools required are standard for both proprietary and open source GIS software packages; the majority of HER officers now have access to such software.

5.4.2 Similarly, the data used in the process is also readily available. The core HER data would of course be obtained from the HER database itself, while additional datasets used in the creation of these areas, such as nature conservation areas (from Natural England), the Palaeolithic and Mesolithic Lithic Artefact (PaMELA) database (via the ADS) and Ordnance Survey mapping, are in the public domain.

Step 1

5.4.3 Evidence gained through both archaeological and non-archaeological investigations will initially help to highlight those areas of significance. Evidence of concentrated Mesolithic activity is likely to come through the HER itself, and can be supplemented by additional datasets, as described above.

5.4.4 The example shown in **Figure 6** shows known Mesolithic activity as points, overlain on a model illustrating areas of highest Mesolithic potential. The points in the dataset are buffered using a basic buffer tool, grouping the larger dataset into a series of landscapes; here, the buffer distance is the average distance between points, with the resulting grouping for the Thatcham area including all known Mesolithic activity in the Thatcham Reed Beds-Chamberhouse Farm area.

Step 2

5.4.5 The buffered area created in Step 1 can be bounded in a number of ways, and it is from this bounded area that the wider area of interest is created. The bounding area can be created using a number of similar tools; ‘convex hull’ and ‘minimum bounding rectangle’ tools are both widely available and provide a simple means of ensuring that adjacent areas of potential are also captured.

Step 3

5.4.6 A wider area of interest can then be created, its boundaries not extending beyond the bounding area created in Step 2, as this lies beyond the known Mesolithic landscape. The boundary of the wider area of interest is defined by areas which are likely to have truncated Mesolithic deposits; in the example shown in Figure 6 the area does not extend into housing, nor does it include the railway line. Other potential boundaries include rivers, canals and channels. Nature conservation areas are considered and included if likely to aid in the protection of a nationally important landscape.

Step 4

5.4.7 The wider area of interest may still contain areas which are likely to have affected Mesolithic deposits, examples being the presence of buildings and areas of past and present mineral extraction. These are removed at this stage.

Step 5

5.4.8 While Step 4 strips the wider area of interest of modern intrusions, it may still be useful to further refine the area. Smaller, key areas can be defined by forming parcels which take into account areas of clear archaeological evidence; here, these areas are supplemented by the use of the EH6633 potential model. These refined areas can be defined using a variety of sources, including consideration of the palaeolandscape (a 'Mesolithic contour' may have been defined, for example), areas of high potential (where a potential model has been used) and the edge of the wider area of interest.

5.4.9 Buffers are added to the final extents to account for positional errors in the original data sources, scale of capture etc. The buffer distance depends upon the scale of these factors.

5.5 Case Study 1: Thatcham

5.5.1 Well-stratified archaeological deposits can be seen to cover a wide area in the Thatcham area. The initial stage is to define an uninterrupted area; it has been considered important to include the Thatcham Reed Beds area and, further to the south, the Chamberhouse Farm area. Excavations and surface collection in this wider area have frequently resulted in the recovery of high densities of Mesolithic flints, palaeoenvironmental remains and evidence of features such as hearths. Absolute dates have been acquired through radiocarbon dating at a number of sites.

5.5.2 This wider area is bounded to the north by housing developments and Lower Way; to the west by Prince Hold Road and the eastern boundary of mineral extraction to the south of Lower Way Farm; to the south by the River Kennet and to the east by the bridge on Chamberhouse Mill Lane. The area is intersected by the railway line, which has been excluded.

5.5.3 This wider area of interest includes a number of standing buildings; these were also removed from the area. The wider area of interest also included areas which had seen mineral extraction. Although the potential for deposits still exists within these areas, these were also removed, such as in the example of Morton in Scotland (**Figure 8**).

5.5.4 As can be seen above, landscapes such as that at Thatcham form a continuous sequence, the limits of which can only really be defined by recent development, at which point the potential for intrusion into deposits becomes much greater. Even taking recent land use into account, the wider area of interest covers a considerable area (approximately 3km by 1km). Looking at the criteria for national importance it is also difficult in certain locations to sufficiently meet the criteria at this scale. This provides an opportunity to attempt to 'split' the wider area of interest into smaller sites of importance.

Chamberhouse Farm

5.5.5 The site as seen in **Figure 8** is defined in part by the present-day 65m contour. As discussed in section 4.2, contours have helped define sites in England (at Star Carr, where the 23.75m contour was used) and Scotland (at Morton, where the scheduled area approximately follows the 10m contour). The land north of the 65m contour includes those

main lithic scatters considered to hold the highest potential, alongside those other trenches in which Mesolithic material was recovered. The northern boundary follows the course of a small channel and associated drain. In addition, areas of highest Mesolithic potential account for a large portion of this site.

5.5.6 Wessex Archaeology's 1998 evaluation at the site highlighted two lithic clusters in the north-east considered to represent the area of highest potential (Wessex Archaeology 1998, 27). The evaluation also highlighted a number of other factors which contribute to the importance of the Chamberhouse Farm site:

- *"…the overwhelming majority of flintwork [in mint condition] was recovered from stratified contexts" (Wessex Archaeology 1998, 10);*
- *"…almost all of the flintwork can be assigned to the early Mesolithic period, c. 9,200BP. The material can be readily paralleled from nearby sites on the edge of the Kennet floodplain such as Thatcham (Wymer 1962) and Greenham Dairy Farm/Faraday Road" (Wessex Archaeology 1998, 11);*
- *"…the bones from the Mesolithic layers at Chamberhouse Farm are in very good condition, although fragmentary. Of the 50 bone fragments from this period 18 (36%) are identifiable to species or family which suggests that further excavation has the potential to yield a large number of identifiable bones from the Mesolithic period. Well dated Mesolithic bone assemblages are rare and further work may furnish unique information on animal exploitation of this period" (Wessex Archaeology 1998, 27); and*
- *"…location next to a former tributary stream of the main channel has been identified. The site can be seen as a continuation of the late glacial/early Mesolithic landscape known from previous sites excavated upstream along the northern banks of the Kennet" (Wessex Archaeology 1998, 27).*

5.5.7 It has, therefore, been considered vital to include this area with the Chamberhouse Farm key area.

Thatcham Reed Beds

5.5.8 The Thatcham Reed Beds area has seen much intrusion through both gravel workings and a sewage treatment works. Despite this, areas of importance, uninterrupted by these developments, can still be seen to exist, including an area which includes Peake and Crawford's excavations, Wymer's Thatcham I and portions of Wymer's Thatcham III. Evidence of dense concentrations of flints, alongside other evidence in the form of areas of burning, have all been recovered from the Thatcham Reed Beds area.

5.5.9 Deposits associated with this key area of interest have also been shown to extend north into the area now occupied by the Newbury Sewage Treatment Works (Healy *et al.* 1992). The potential for the Mesolithic landscape to extend into this area would appear to be high, and this is further highlighted by the presence of cells of highest archaeological and palaeoenvironmental potential within this area.

5.5.10 In this particular example this approach would also help to provide protection to those deposits located between the sewage treatment works and the SSSI to the south.

Referring back to the criteria

5.5.11 With the key areas defined it is necessary to return to the criteria for national importance of sites (as outlined in section 3.1.1):

Criteria	**Evidence**	
	Chamberhouse Farm	**Thatcham Reed Beds**
Period	Confirmed Mesolithic.	Confirmed Mesolithic.
Rarity	Rare: stratified remains; well-dated bone assemblage.	Rare: stratified remains; hearths; palaeoenvironmental remains.
Documentation/finds	Wessex Archaeology evaluation (1998).	History of investigation within and immediately adjacent to the area.
Group value	Forms part of the wider Thatcham Mesolithic landscape.	Forms part of the wider Thatcham Mesolithic landscape.
Survival/condition	Known stratified remains in the area. Areas remain untouched.	Known stratified remains in area. Areas remain untouched.
Fragility/vulnerability	Water table and gravels.	Gravels.
Diversity	Evidence of animal exploitation.	Apparently used over time.
Potential	Highest potential; known remains in area.	Highest potential; known remains in area.

5.5.12 The criteria for nationally important flint scatters also require addressing (3.1.4.):

Criteria	**Evidence**	
	Chamberhouse Farm	**Thatcham Reed Beds**
Sufficient information to define a boundary?	Contour at 65m.	Extensive deposits have been shown to exist within and adjacent to the defined area (north, south and east). Site defined by areas of modern development, extraction.
Quality of the lithic artefacts and/or presence of less durable artefacts suggest only recent disturbance?	Recovered flints 'mint'.	Excavation has revealed stratified remains in the area.
Buried structural remains?	No evidence.	Associated hearths, although no clear structural remains.
Evidence for part of the site being undisturbed?	Evaluation trenches showed areas of high potential (*in situ*). Recovery of flints in mint condition also highlights potential. Much of the area not ploughed.	The site lies outside of previous areas of gravel extraction, and south of the sewage treatment works.
Confident dating?	Typologically defined.	Radiocarbon dates have been obtained. Typologically defined.

Diversity within the scatter (repeated occupation over a long time; evidence for particular tasks)?	Faunal remains also recovered *in situ*. "Home base sites visited time after time or even ones in continuous use through the early Holocene are indicated" (Chisham 2006).	"Home base sites visited time after time or even ones in continuous use through the early Holocene are indicated" (Chisham 2006). Charred hazelnuts at Sewage Works (Healy *et al.* 1992).

5.6 Case Study 2: Wawcott

5.6.1 A long stretch of land beside the River Kennet has been subject to much fieldwalking and occasional excavation by Froom (Froom 2012). A number of fieldwalked sites lie to the east of Wawcott Farm, while the excavated site of Wawcott I lies to the west of the farm. Fieldwalking in this area has recovered flints from a number of sites; the area to the east in the bend of the river has seen excavation as well.

5.6.2 The deposit model recognises this area as being of great archaeological and palaeoenvironmental potential. Highest palaeoenvironmental potential in particular lies in the east of the Wawcott area. Highest archaeological potential accounts for most of the western half of the area, alongside sections of highest archaeological potential.

5.6.3 The wider area of interest has been defined using both the extent of the railway line and a number of channels to the south, and by those areas of highest archaeological and palaeoenvironmental potential to the north. Without making use of the potential model dataset it is difficult in the case of Wawcott to establish a northern border to the site. As such, the wider area of interest is bounded to the north by the northernmost extent of highest archaeological potential.

5.6.4 A small number of buildings and areas of past mineral extraction lie within the area; these have been stripped out.

5.6.5 Three readily identifiable key areas stand out, each containing areas which have seen some degree of excavation. A further key area of highest archaeological potential in the west contains a number of sites suggested through fieldwalking (alongside Wawcott 1). This area lies in contrast to the other three, being a key area identified through archaeological and palaeoenvironmental potential and fieldwalking rather than excavated evidence. Although the potential for Mesolithic archaeology associated with the wider Wawcott Mesolithic landscape is high in the western half of the wider area interest, evidence of stratified remains are sparse beyond Wawcott 1. High potential also lies to the south of the present river course, although due to the lack of confirmed Mesolithic activity in the area it has not been included as a key area.

5.6.6 Sites having seen excavation in these areas include:

Froom site number	**Notable features**
Wawcott 1	Included a hearth (later Mesolithic date) and pits.
Wawcott 3	Included pits.
Wawcott 4	Included a hearth and possible fish trap; fragmentary organic remains.
Wawcott 9	A site located through fieldwalking.

Wawcott 11	Field-walked and trial trenched.
Wawcott 12 (possible Late Upper Palaeolithic origins)	Damaged by agriculture.
Wawcott 13	Discovered through field collection and trial trenched.
Wawcott 15	Trial excavation indicated thin soil layer severely damaged by agriculture. Over 1,500 waste flakes from surface of the field.
Wawcott 23	Apparently sealed beneath 50cm or more of alluvial deposits. Organics remains and hearths both present. Excavations in July-August 1971 recovered approximately 12,000 pieces of worked flint.
Wawcott 26	Field-walked and trial trenched.

5.6.7 The following section examines these key areas in more detail (**Figure 9**).

Wawcott (West)

5.6.8 The western Wawcott area includes the excavated site of Wawcott 1 alongside a number of fieldwalked sites and stretches from Station Road in the west to the path of the Little Wawcott road in the east. It is bounded to the south by the present course of the River Kennet, beyond which evidence through investigation is lacking. Interrogation of the potential model suggests that areas of the highest archaeological potential lie within this area; this area helps define the northern boundary of this key area. Buildings associated with Barton Holt and Wawcott Farm have been removed from the area.

Wawcott (Central)

5.6.9 The central area at Wawcott is centred upon three sites – Froom's Wawcott 3, Wawcott 4 and Wawcott 26 – and is bounded to the north by the extent of highest archaeological potential. This key area is bounded to the west by a division (based upon the potential model) between the excavated Wawcott 3 and the field-walked sites to the west (again aided by the potential model), and to the east by the extent of potential along Board Lane. The area is of the highest archaeological potential, according to the model. Highest palaeoenvironmental potential also exists within the area.

Wawcott (East)

5.6.10 A number of sites, several having been subject to trenching, form a discrete unit to the east of the River Kennet, bounded in the north to include the northernmost extent of highest archaeological and palaeoenvironmental potential. Cokes Plantation forms a boundary to the east, as do further areas of highest archaeological potential, while a channel forms a boundary to the south.

Wawcott (South)

5.6.11 A number of sites form a discrete unit to the north of the railway line. The area is bounded to the west by the Kennet Valley Alderwoods SSSI and SAC, to the south by the railway line and the path of a channel of the River Kennet, to the east by the River Kennet itself and to the north by an artificial channel. Several sites within the area have been subject to

trenching. Furthermore, areas of highest archaeological potential lie within the area. Highest palaeoenvironmental potential also exists within the area.

Referring back to the criteria

5.6.12 With the key areas defined it is necessary to return to the criteria for national importance of sites (as outlined in section 3.1.1):

Criteria	**Evidence**			
	West	**Central**	**East**	**South**
Period	Radiocarbon date from Wawcott 1 (albeit later Mesolithic). Other fieldwalked sites typologically dated.	Typologically dated.	Typologically dated.	Typologically dated (Wawcott 12 long blades hint at an early date in places).
Rarity	Organic remains recovered from Wawcott 1.	Excavations at Wawcott 4 uncovered a hearth and possible fish trap, alongside fragmentary organic remains.	Evidence for Mesolithic land use across area. Main body of evidence at Wawcott 27 possibly below plough depth.	Organic remains and hearths were recovered from Wawcott 23.
Documentation/ finds	Excavations at Wawcott 1. Other fieldwalked sites published.	Wawcott 3 excavated. Trial trenching at Wawcott 4 and Wawcott 26.	Wawcott 15 trial trenched.	Excavations at Wawcott 23. Other sites trial trenched and fieldwalked.
Group value	Part of a wider Mesolithic landscape.	Part of a wider Mesolithic landscape.	Part of a wider Mesolithic landscape.	Part of a wider Mesolithic landscape.
Survival/ condition	Occasional evidence of plough damage at sites across the Wawcott landscape.	Occasional evidence of plough damage at sites across the Wawcott landscape.	Occasional evidence of plough damage at sites across the Wawcott landscape.	Occasional evidence of plough damage at sites across the Wawcott landscape.
Fragility/ vulnerability	Potential water table issues along the River Kennet.	Potential water table issues along the River Kennet.	Potential water table issues along the River Kennet.	Potential water table issues along the River Kennet.
Diversity	Later Mesolithic radiocarbon date from Wawcott 1 suggests long	Possible fish trap at Wawcott 4 highlights activity in the	Suggested long-term use of area.	Long blade tradition at Wawcott 12 hints at long-term land use.

	term use.	wetland environment.		
Potential	Highest archaeological potential.	Highest archaeological and palaeo-environmental potential.	Highest archaeological and palaeo-environmental potential.	Highest archaeological and palaeo-environmental potential.

5.6.13 The criteria for nationally important flint scatters also require addressing (3.1.4.):

Criteria	**Evidence**			
	West	**Central**	**East**	**South**
Sufficient information to define a boundary?	Area requires the use of the potential model to create the northern boundary.	Area requires the use of the potential model to create the northern boundary.	Area requires the use of the potential model to create the northern boundary.	A discrete part of the Wawcott Mesolithic landscape defined by the presence of later land use.
Quality of the lithic artefacts and/or presence of less durable artefacts suggest only recent disturbance?	Organic remains recovered.	Organic remains recovered.	Main body of evidence at Wawcott 27 possibly below plough depth.	Organic remains recovered.
Buried structural remains?	Wawcott 1 revealed pits, but no clear structural remains.	Wawcott 3 revealed pits, but no clear structural remains.	No structural remains.	No clear structural remains, although hearths were discovered at Wawcott 23.
Evidence for part of the site being undisturbed?	Occasional evidence of plough damage at sites across the Wawcott landscape.	Occasional evidence of plough damage at sites across the Wawcott landscape.	Occasional evidence of plough damage at sites across the Wawcott landscape.	Occasional evidence of plough damage at sites across the Wawcott landscape.
Confident dating?	Typologically dated. Radiocarbon date from Wawcott 1.	Typologically dated.	Typologically dated.	Typologically dated.
Diversity within the scatter (repeated occupation over a long time; evidence for particular tasks)?	Long-term use hinted at through radiocarbon date at Wawcott 1.	Possible fish-trap at Wawcott 4 highlights particular tasks in a wetland environment.	Suggested long-term use of area.	Long blade tradition at Wawcott 12 hints at early use of the Wawcott area.

5.7 Case Study 3: Ufton Green

5.7.1 The Ufton Green area has been subject to a number of investigations over recent decades, the results of many of which are now in the process of being integrated ahead of publication. Stratified deposits were excavated by Allen and Allen (1997) following the identification and collection of a flint scatter. The excavation investigated a 1m x 2m area, in which stratified flints were sealed approximately 0.27m below the current ground level. The area has also been investigated through research carried out by the University of Reading.

5.7.2 Unlike at Thatcham and Wawcott, the creation of a wider area of interest was not possible at Ufton Green. Due to the confined location of archaeological investigation in comparison to Thatcham and Wawcott the buffer by average distance approach proved less useful here (this did, however, provide an opportunity to test the method at an even more localised level). At Ufton Green, the buffered area extended north of the River Kennet by means of the presence of stray finds and excavated flints to the north of the railway line.

5.7.3 Within this buffered and bounded zone, the wider area of interest has been delineated using the road to the north-east, a cut of the River Kennet to the north and west and a channel to the south. Allen and Allen's site lies within this area, as do those areas subject to work undertaken by the University of Reading. The area defined therefore includes the location of the roe deer butchery site alongside areas of known stratified archaeological and palaeoenvironmental remains. A cell of highest archaeological potential is also located within the area, further illustrating the archaeological potential of the defined area.

5.7.4 The wider area of interest here is a distinct entity in its own right, unable to be further subdivided as at Thatcham and Wawcott. A comparison of the site against the importance criteria is therefore required for this area alone.

Referring back to the criteria

5.7.5 With the key areas defined it is necessary to return to the criteria for national importance of sites (as outlined in section 3.1.1):

Criteria	**Evidence**
Period	Typologically dated.
Rarity	Stratified remains.
Documentation/finds	Investigation over the past two decades. Allen and Allen (1997) report. The results of further investigations (those carried out by the University of Reading) are due to be published.
Group value	Little evidence of Mesolithic activity outside of the wider area of interest at Ufton Green, although evidence of Mesolithic activity exists c.350m to the north.
Survival/condition	Stratified remains.
Fragility/vulnerability	Potential water table vulnerability closer to the River Kennet.
Diversity	Evidence of butchery.
Potential	Highest potential within the area.

5.7.6 The criteria for nationally important flint scatters also require addressing (3.1.4.):

Criteria	Evidence
Sufficient information to define a boundary?	The boundary is defined through recent developments.
Quality of the lithic artefacts and/or presence of less durable artefacts suggest only recent disturbance?	Palaeoenvironmental remains and stratified lithics.
Buried structural remains?	No clear evidence of buried structural remains.
Evidence for part of the site being undisturbed?	Investigations have unearthed stratified remains.
Confident dating?	Typologically dated.
Diversity within the scatter (repeated occupation over a long time; evidence for particular tasks)?	Evidence for particular tasks includes butchery.

5.8 Case Study 4: attempting to map upland sites

5.8.1 The case studies above relate to wetland locations, with the extent of each landscape often measuring hundreds of metres across, at a minimum. The valley landscapes have a wealth of evidence to draw from; the issue in these examples is where to draw the line. This section attempts to apply the same methodology to those sites located away from the valley.

5.8.2 An immediate problem lies in the relative paucity of sites within the adjacent upland areas of the valley. Despite the Hampshire Downs lying immediately to the south and the Berkshire Downs lying immediately to the north (these and similar chalk landscapes have provided evidence of significant Mesolithic activity in other areas of central southern England), the number of recorded sites are small; the rarity of upland chalk sites within the Study Area has been noted by a number of archaeologists, as outlined by Chisham (2002, 2).

5.8.3 That is not to say that examples of comparatively upland activity do not occur; flint cores and scrapers were recovered as stray finds from Church Farm, Enborne (Underhill 1946, 52), a site which lies approximately 20m above the present valley. Fieldwalking also resulted in the recovery of flints in the Folly Hill area to the north of Hungerford (Froom 1972b).

5.8.4 However, these examples are still not conducive to mapping (**Figure 10**); they lie outside of areas of high archaeological and palaeoenvironmental potential as predicted in the potential model, are unstratified and, as such, have no associated structural remains – the data simply does not exist to be able to extend any site beyond a search area. They also lie in isolation from other recorded sites.

6 CONCLUSIONS

6.1 Methodology

A comparison of the methodology between sites (O1 and O3)

6.1.1 The case studies outlined in section 5 have shown differing results. As anticipated, the study suggests that the potential to map wetland sites is far greater than the potential to

map upland sites, particularly within the Study Area itself. In part this is due to the nature of the upland sites themselves which, while not only being sparse, usually take the form of chance findspots or fieldwalked areas, often located in areas that have seen agricultural use. Evidence for large Mesolithic landscape areas simply does not exist in uplands of the study area; in contrast, the wetland sites display evidence of a continuous Mesolithic landscape across a much wider area, at times suggesting continuous use of these landscapes throughout the Early Mesolithic and possibly beyond.

6.1.2 The following table highlights the differences between the case study areas:

	Thatcham	**Wawcott**	**Ufton Green**	**Upland sites**
Wider area definable?	Yes	Yes	No	No
Can recent developments, extraction etc. be accounted for?	Yes	Yes	None in area	No
Have nature conservation designations been considered?	Yes	Yes	None in area	No
Does the area contain excavated sites?	Yes	Yes	Yes	No
Does the area contain the highest potential, according to the potential model?	Yes	Yes	Yes	No
Was the wider area of interest refined?	Yes	Yes	N/A	N/A

6.1.3 As shown above, the Thatcham and Wawcott areas have been defined using a wide range of available evidence. Ufton Green also makes use of a wide range of evidence, although the lack of evidence immediately surrounding the site does not allow a large scale landscape, in the manner of Thatcham and Wawcott, to be created. The mapping of upland sites does not hold up well in the table.

6.1.4 It is clear that the creation of a wider area of interest is greatly influenced by scale. The wealth of information in the Thatcham and Wawcott areas, creating a useful average distance between sites to work with, has greatly aided the creation of useful wider areas, which could then be further refined. This method may not prove so useful in areas were the archaeological record is less clustered.

6.1.5 The project study has also shown that a potential model should not be used in isolation, but is still useful in addressing cases where boundaries cannot be defined in relation to present day landmarks.

Recommended evidence and sources (O1 and O2)

6.1.6 A number of the key forms of evidence have been used in the creation of the areas, along with data sources and mapping scales. These include:

- *Evidence through excavation;*
- *Evidence through fieldwalking;*
- *Dating evidence;*
- *Site extents; points obtained through HER, PaMeLa dataset, other datasets;*
- *Extent of buildings (defined using OS 1:10000 mapping);*
- *Extent of past and present extraction (defined using OS 1:10000 mapping);*
- *Extent of roads, railway lines etc. (defined using OS 1:10000 mapping);*
- *Other conservation designations – SSSIs, SACs etc;*
- *Potential model;*
- *Contour/elevation data.*

6.1.7 The study has been able to make use of these sources with varying levels of success. The large amount of evidence available at Thatcham and Wawcott provided opportunities to consider all of these datasets. Ufton Green was also successful in integrating many of these datasets. It has also proved possible to define these sites within the present landscape, with perhaps the exception of the northern boundary of Wawcott, which follows the extent of highest potential within the area.

6.2 Weighing the significance of Mesolithic Sites

6.2.1 The methodology proposed here for the definition and weighing of significance of Mesolithic sites (and groups of sites) relies on the manipulation of data drawn from numerous sources. Within the case study area, these data came primarily from the West Berkshire HER (O2), but were enhanced using other publicly-available sources and also the results of as-yet unpublished research and excavation.

6.2.2 The question of who (or what body) is best placed to weigh the significance of individual Mesolithic sites or landscapes remains (O4). In terms of the case study area, it is clear that – within the methodology proposed here - the initial assessment of significance should be undertaken by the HER, as the holders of the most comprehensive datasets, and as the body most likely to benefit from the resulting models in their role of advising the local planning authority on the potential impacts of development and/or extraction proposals. Additionally, but crucially, the HER would be the logical location of the information generated by the assessments of significance, and the most appropriate maintainer of a list of the results of those assessments.

6.3 Is ‘National Importance’ an appropriate level of recognition?

6.3.1 The key to this issue appears to be whether or not the identification of a site being of national importance (O6) brings with it any additional level of statutory protection.

6.3.2 Paragraph 139 of the National Planning Policy Framework ('non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets') implies that this is in fact the case.

6.3.3 If so, then the recognition of a site as nationally important should be sufficient for its protection.

6.3.4 If not, then some other form of designation is required, whether that be the alteration of the Ancient Monuments and Archaeological Areas Act to allow the designation through scheduling of sites without structures, or otherwise.

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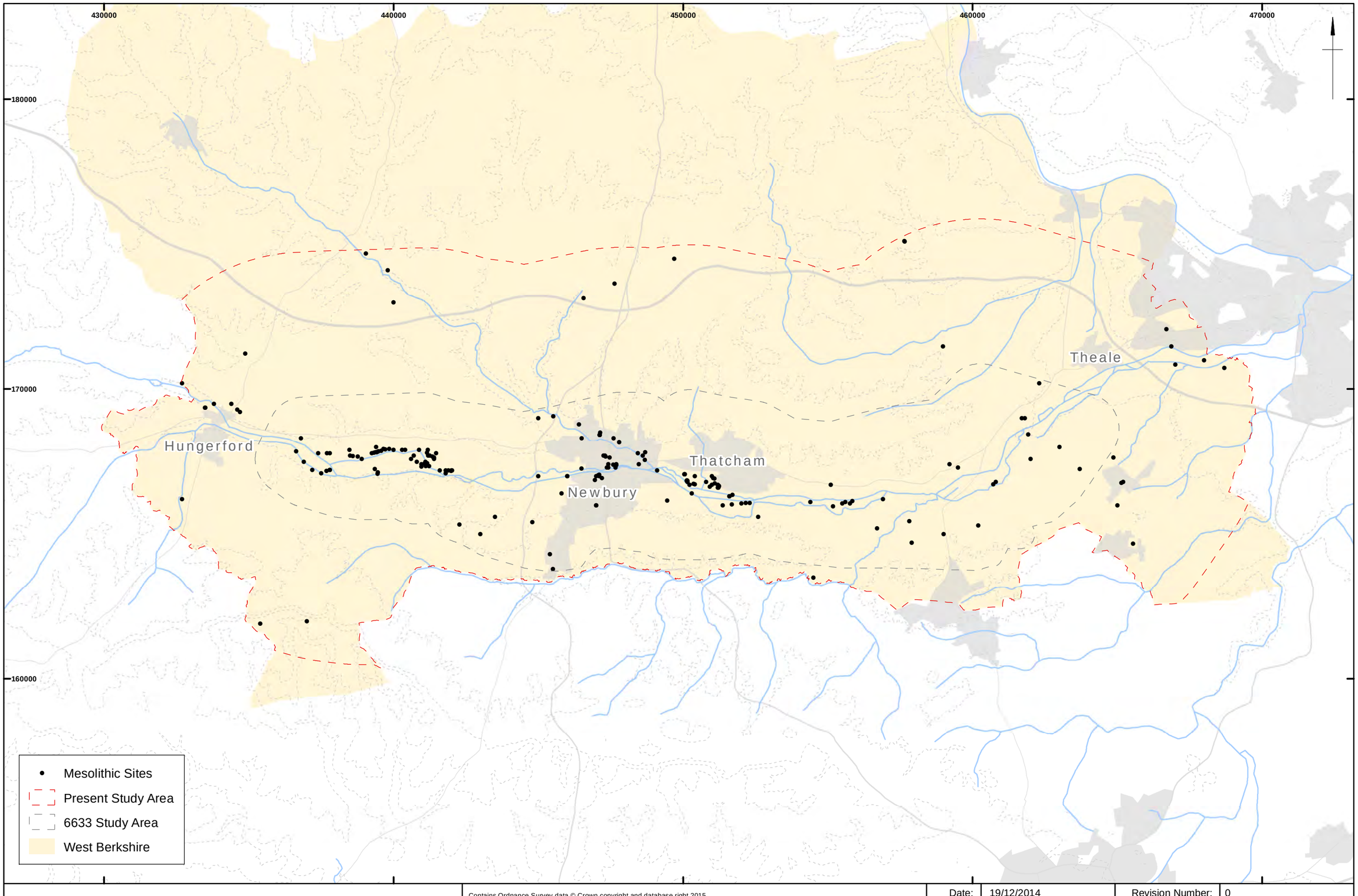
7.2 Legislation

Ancient Monuments and Archaeological Areas Act 1979



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Mesolithic Sites within the Study Area

Figure 1

430000
440000
450000
460000
470000
180000
170000
160000
Hungerford
Newbury
Thatcham
Theale
Thatcham in detail
Present Study Area
6633 Study Area
Highest Archaeological and Palaeoenvrionmental Potential
Highest Archaeological Potential
West Berkshire
0
10
km

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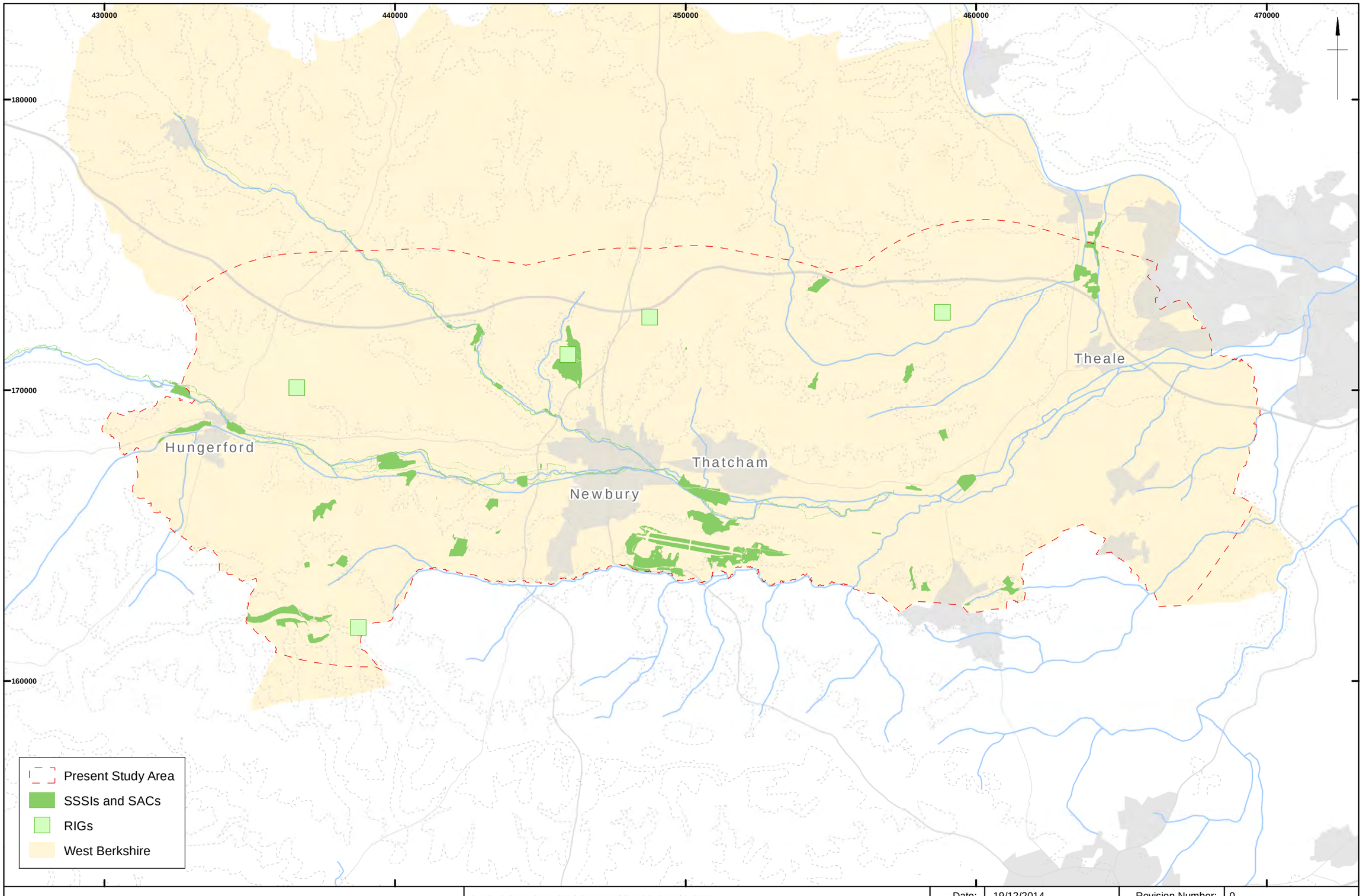
Archaeological and Palaeoenvironmental Potential

Figure 2



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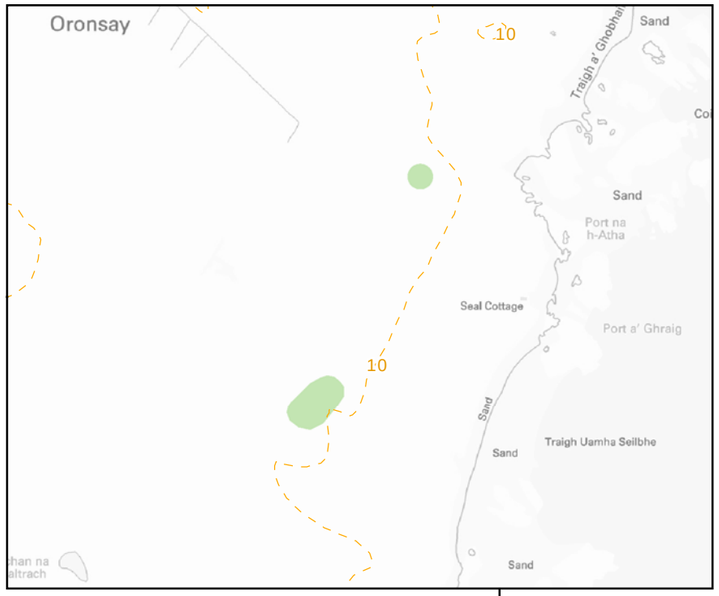
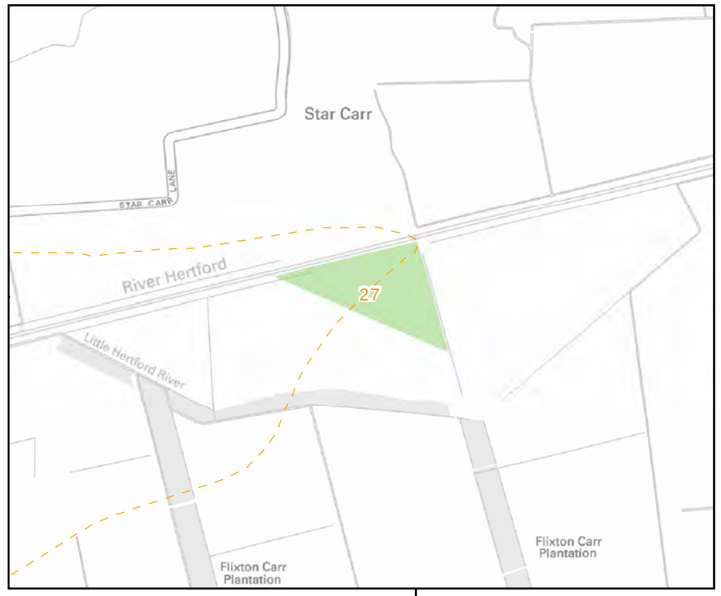
Nature Conservation Designations within the Study Area

Figure 3

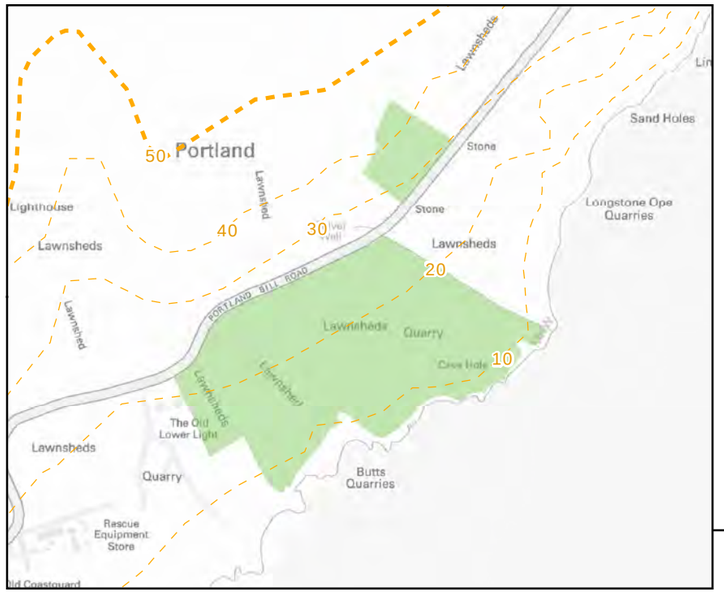


Oronsay

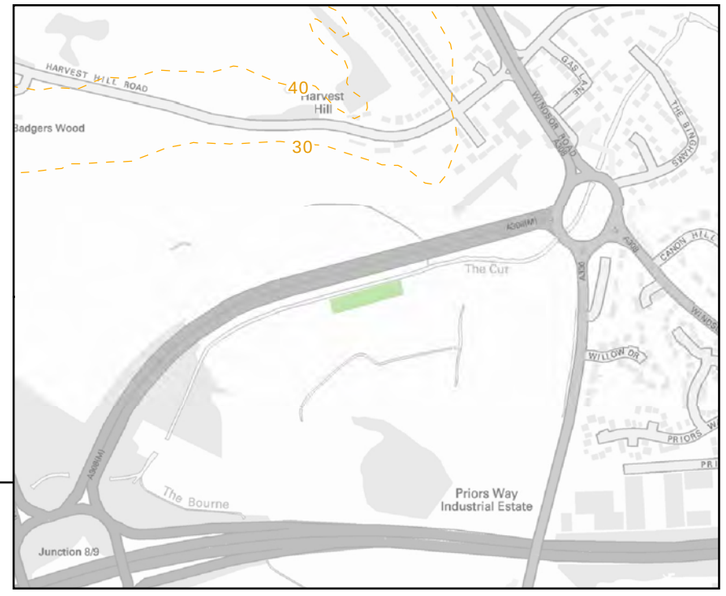
Morton



Star Carr



Culver Well



Moor Farm

Mesolithic Scheduled Monument

0 500 m

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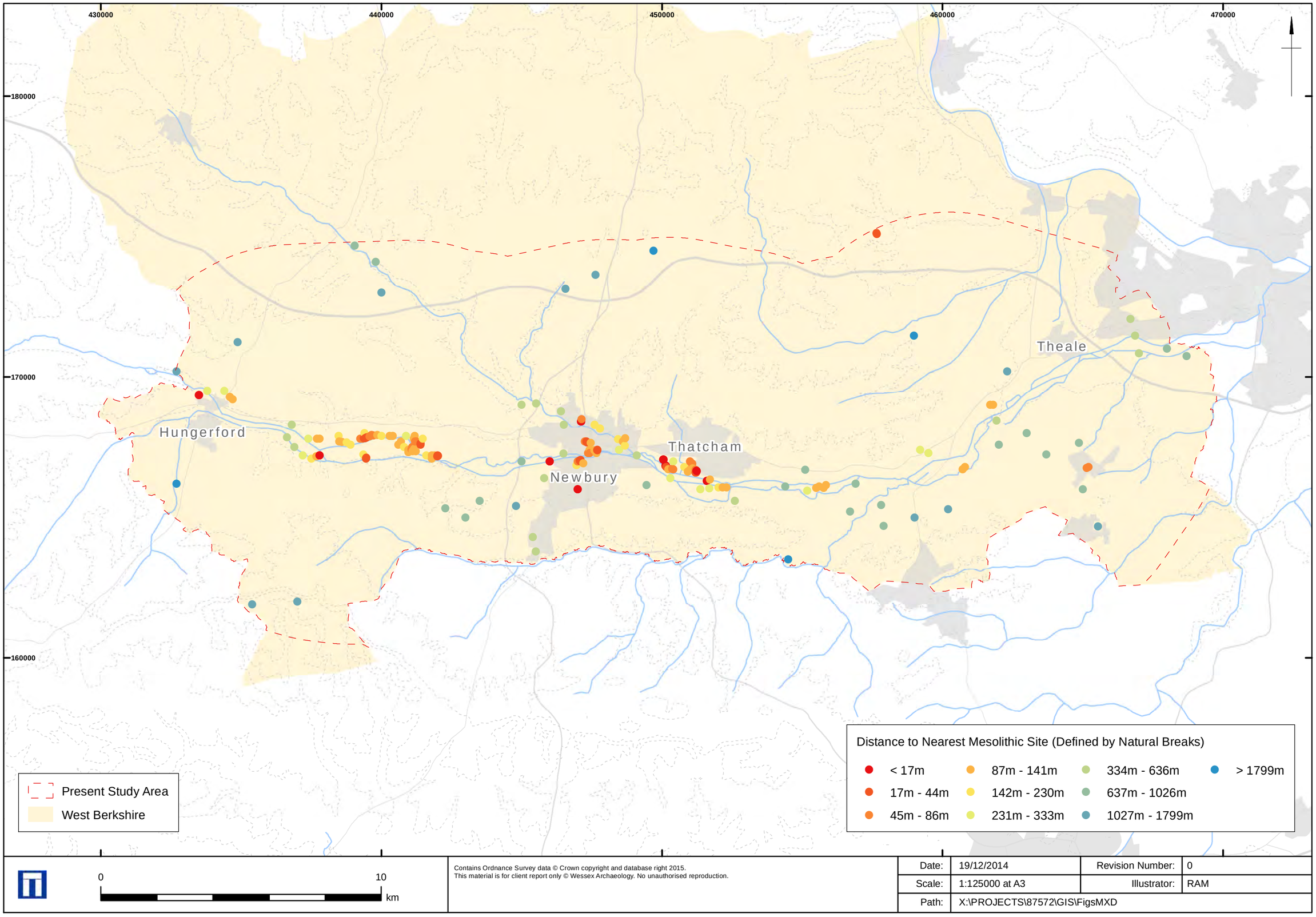
Scheduled Mesolithic Sites

Figure 4



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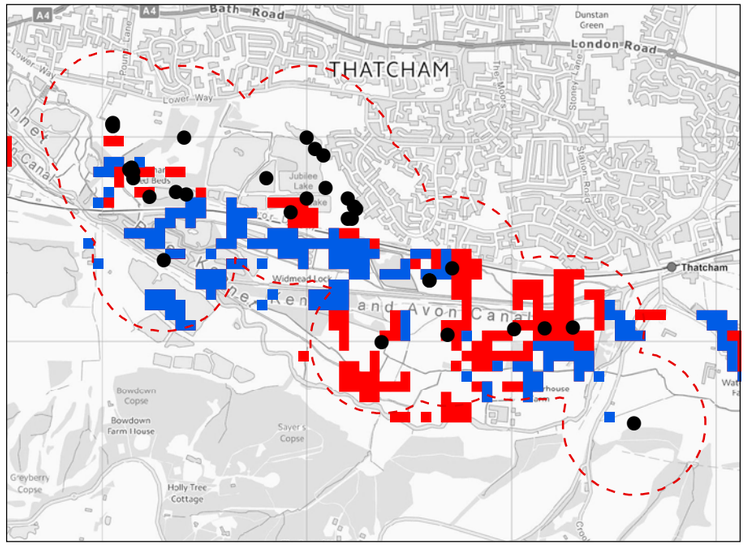
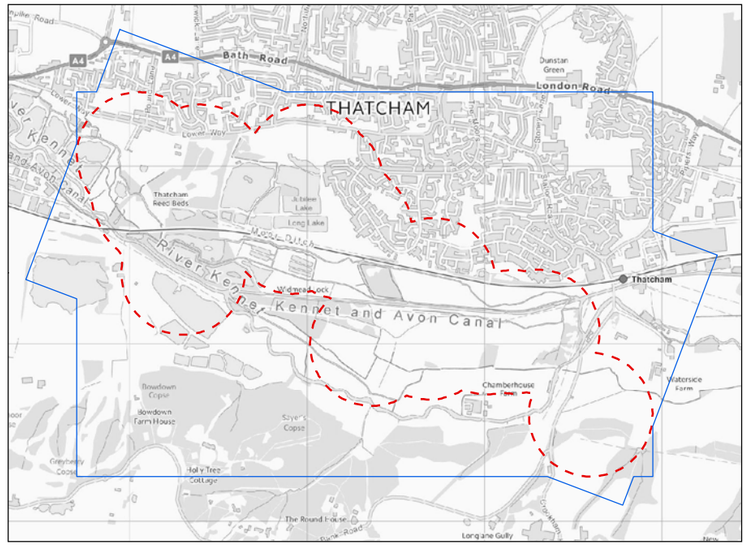
Near Analysis of Mesolithic Sites within the Study Area

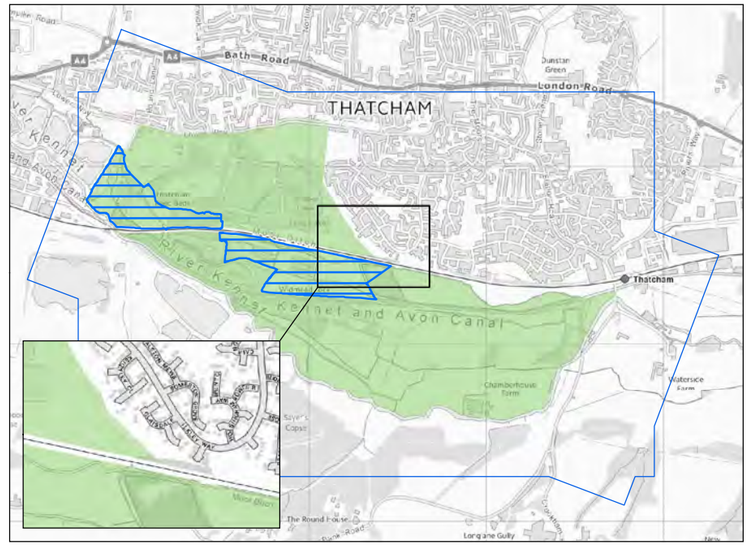
Figure 5



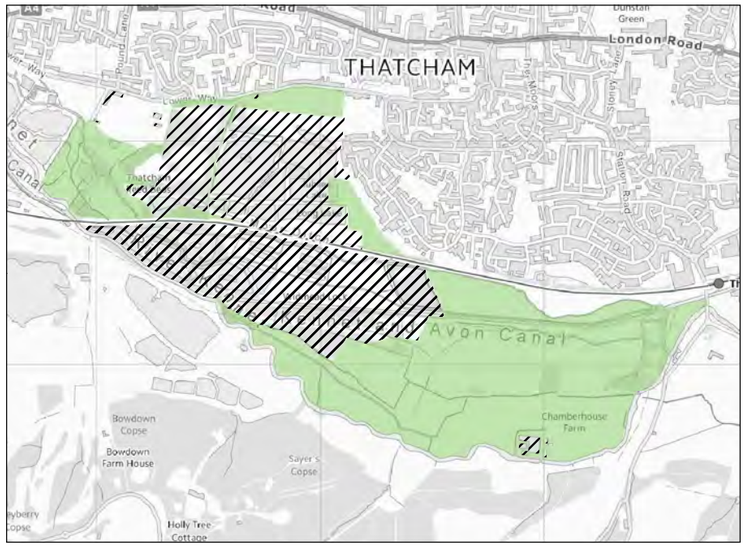
Step 1: The map is centerd on an area of concentrated Mesolithic activity. Points depicting the locations of known Mesolithic archaeology are buffered, grouping the points into a 'Mesolithic landscape', detached from adjacent areas of Mesolithic activity. The dataset is supplemented by the inclusion of a model showing high levels of Mesolithic archaeological (red) and archaeological *and* palaeoenvironmental (blue) potential.



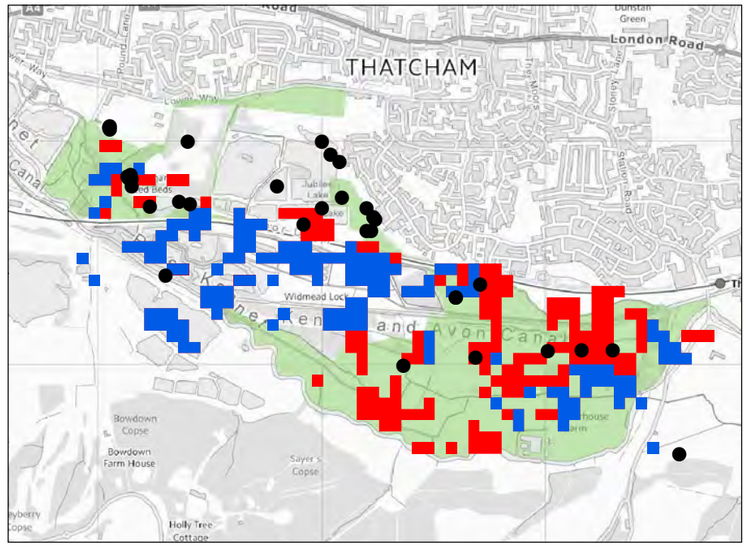
Step 2: The buffered area (dashed red line) is bounded by applying a bounding tool. The example here shows the combined result of applying a convex hull to the buffered area, alongside various bounding rectangles.



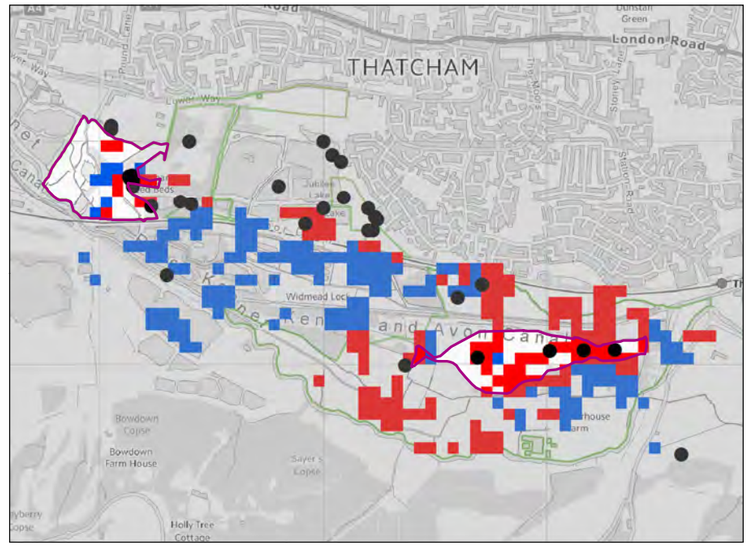
Step 3: The wider area of interest can then be created. The extents are defined by the presence of potentially destructive developments such as housing and railway lines. Designated nature conservation areas, such as SSSIs and SACs (blue lines) can also be considered and included within the area.



Step 4: Other developments which have potentially disturbed Mesolithic deposits may lie within the wider area of interest, including buildings and areas of mineral extraction (black diagonal lines). These are removed at this stage.



Step 5a: Further refinements to the area can be made at this stage. Key areas are defined through the presence of clear archaeological evidence and high archaeological potential (defined here through the use of a potential model).



Step 5b: This results in the original wider area of interest and the smaller key areas (outlined in purple), if required.

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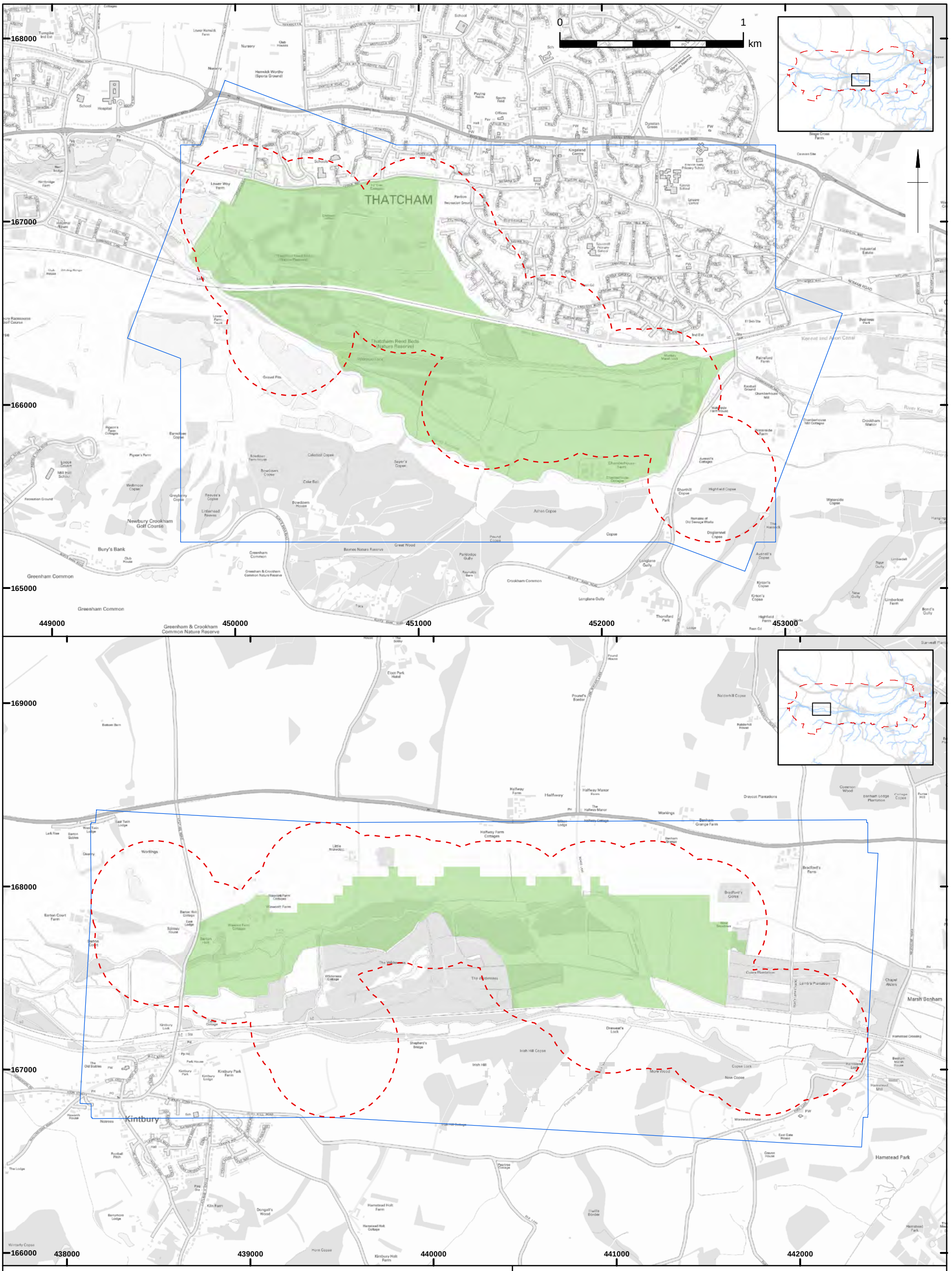

Dataset Average Distance Buffer

Combined Bounding Area

Wider Area of Interest

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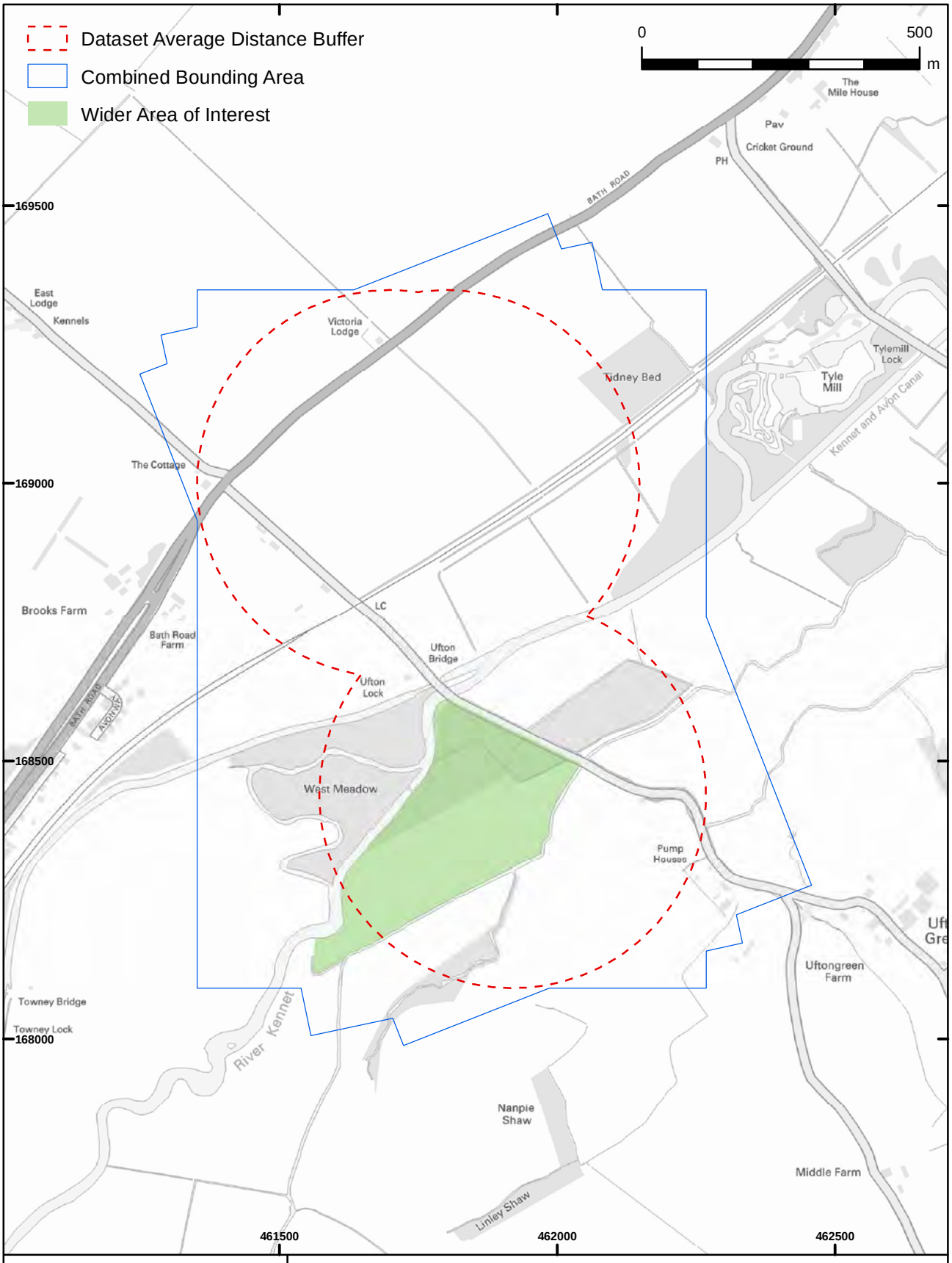
Creating Wider Areas of Interest: Thatcham (Top) and Wawcott (Bottom)

Figure 7a



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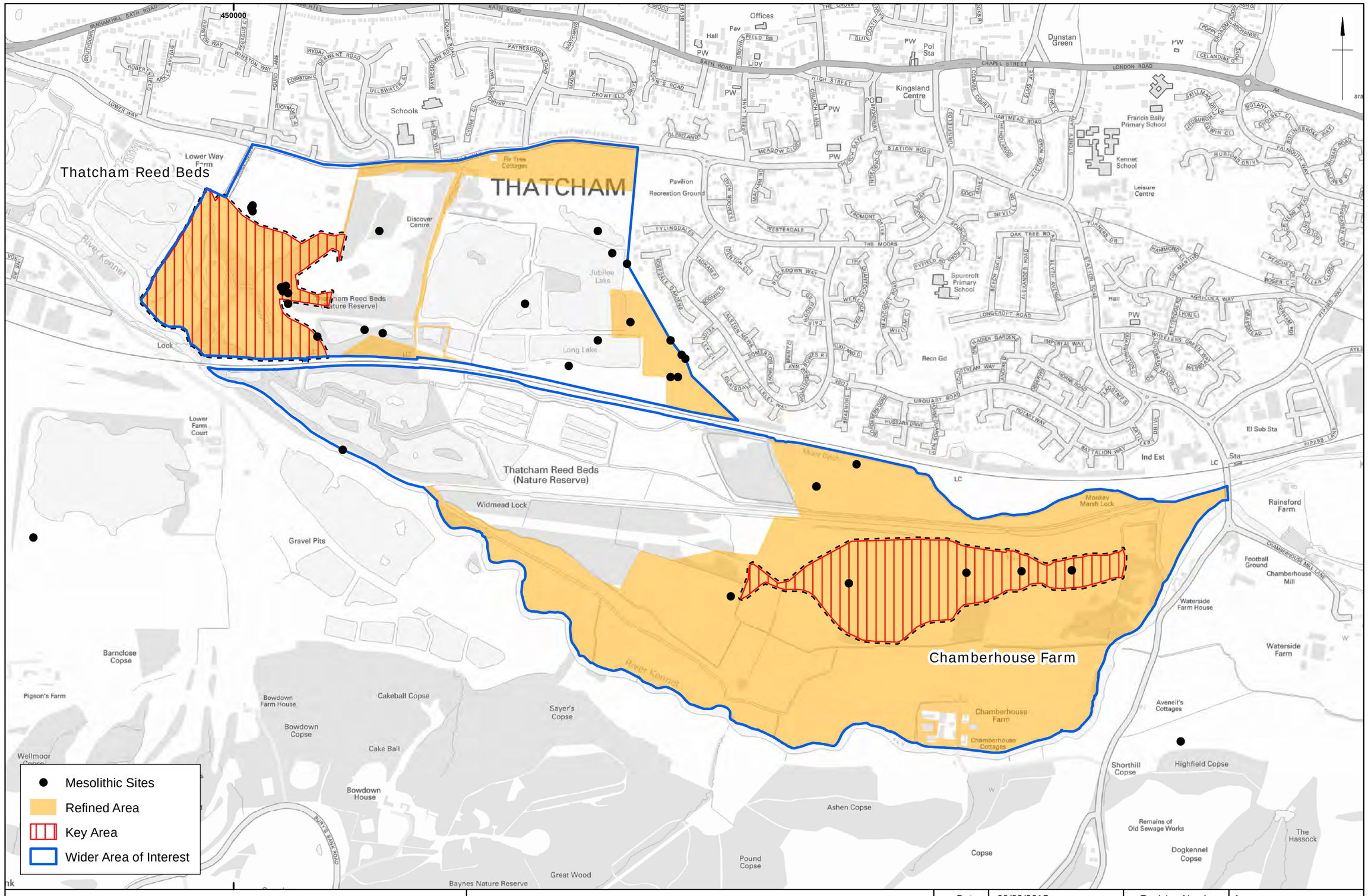
Creating Wider Areas of Interest: Ufton Green

Figure 7b



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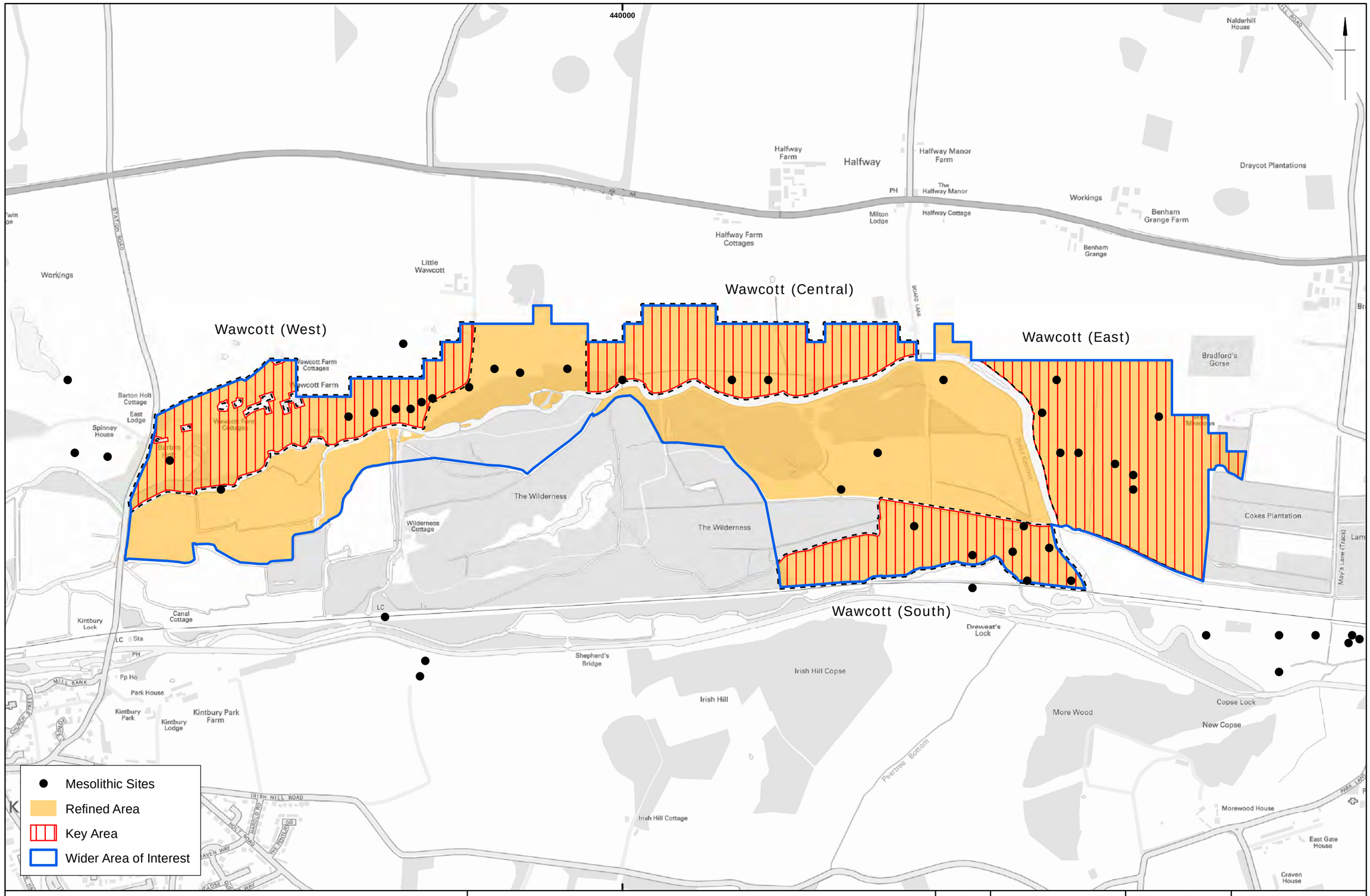
Refined Wider Area of Interest and Key Areas (Thatcham)

Figure 8



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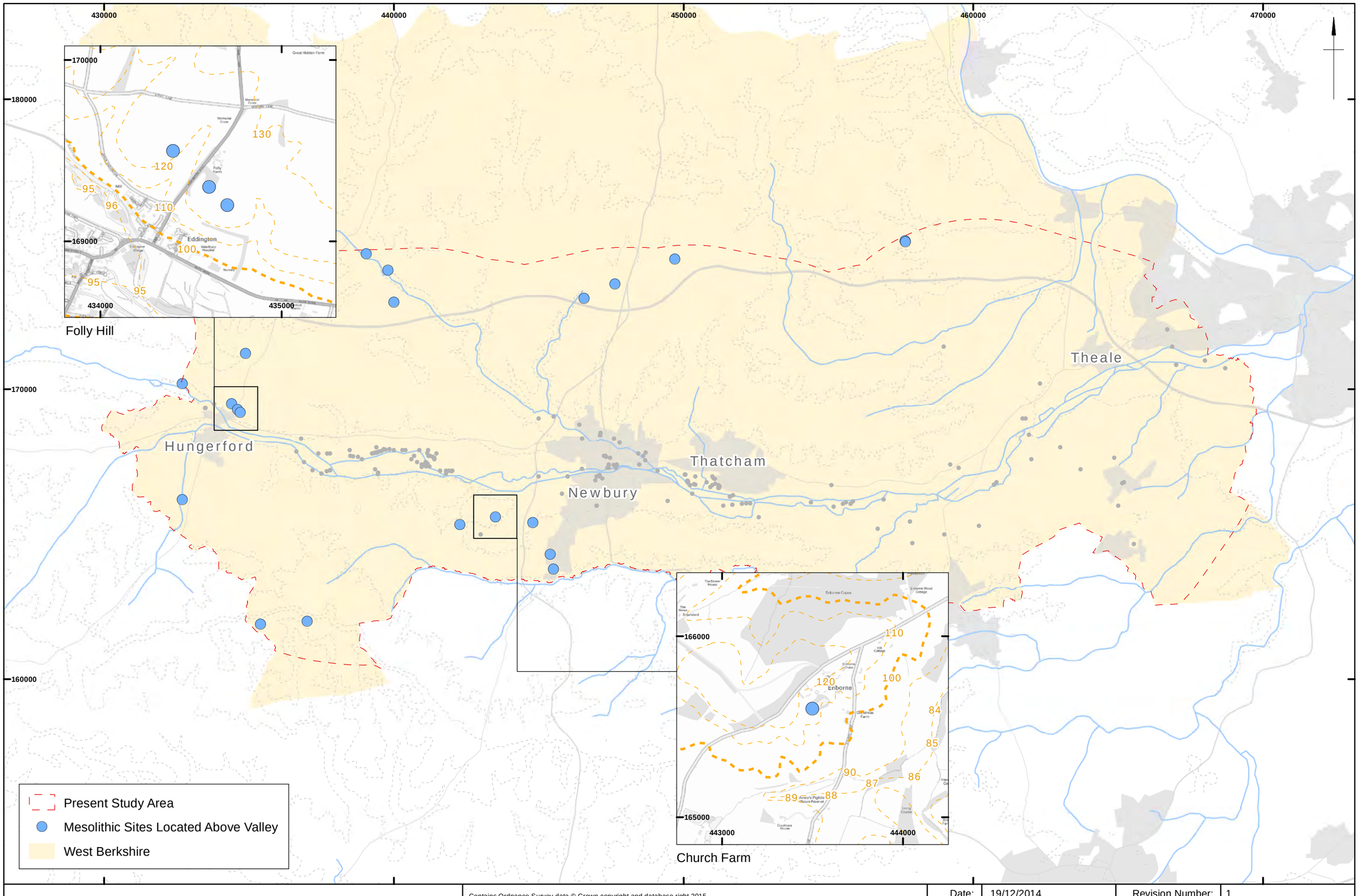
Refined Wider Area of Interest and Key Areas (Wawcott)

Figure 9



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Upland Mesolithic Sites within the Study Area

Figure 10

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