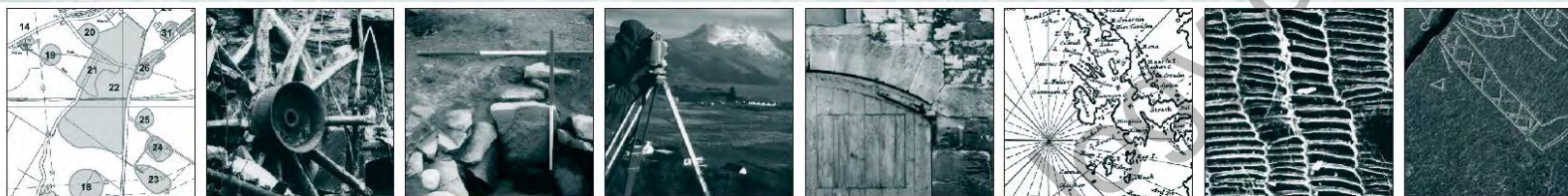


WPWP17



WYLFA POTABLE WATER PIPELINE

Archaeological Desk-based Assessment (Deposit Modelling and Impact Assessment)

for Sweco

18th August 2017

WYLFA POTABLE WATER PIPELINE

Archaeological Desk-based Assessment (Deposit Modelling and Impact Assessment)

for Sweco

18th August 2017

HA Job no.: WPWP17/02

HAS no.: 1233

NGR: SH 3750 8550 (Llyn Alaw) to
SH 3550 9250 (Wylfa)

Parish/ Community: Tref Alaw, Llantrisant &
Llanbabo, Mechell, Carreglefn
& Llanfechell, Llanbadrig,
Cemaes

Council: Isle of Anglesey

Project Manager: Mike Kimber

Author: Jen Richards

Fieldwork: Jen Richards

Graphics: Caroline Norrman and Jen Richards

Approved by: Mike Kimber

CONTENTS

1.....	INTRODUCTION.....	2
1.1	Planning Background.....	2
1.2	Site Description.....	2
1.3	Consultation.....	2
2.....	AIMS AND OBJECTIVES.....	3
3.....	METHODOLOGY.....	3
3.1	Study areas.....	3
3.2	Data sources.....	3
3.3	Identification of historic assets.....	3
3.4	Assessment of heritage significance and importance.....	4
3.5	Potential for unknown historic assets.....	5
4.....	RESULTS.....	5
4.1	Overview of the historic environment.....	5
4.2	Map Regression.....	9
4.3	Deposit Model.....	9
4.4	Aerial Photograph Analysis.....	9
4.5	Lidar Analysis.....	10
4.6	Geophysical Survey.....	10
4.7	Walkover Survey.....	10
4.8	Assessment of heritage significance.....	11
5.....	PREDICTED EFFECTS OF THE DEVELOPMENT.....	13
6.....	CONCLUSIONS.....	15
7.....	APPENDIX 1: REFERENCES.....	16
8.....	APPENDIX 2: CULTURAL HISTORIC ASSETS WITHIN THE INNER STUDY AREA.....	19
9.....	APPENDIX 3: ILLUSTRATIONS.....	22

WYLFA POTABLE WATER PIPELINE

ARCHAEOLOGICAL DESK-BASED ASSESSMENT (DEPOSIT MODELLING AND IMPACT ASSESSMENT)

Headland Archaeology was commissioned by Sweco to produce an archaeological desk-based assessment (DBA) comprising a deposit model and impact assessment of the route of a proposed water pipeline from Llyn Alaw reservoir to Wylfa Nuclear Power Station, Anglesey. This assessment has found that 18 known or potential historic assets have the potential to be affected by the construction of the pipeline through construction activity in close proximity to them. It has also found that there is potential for currently unknown historic assets, particularly of medieval or prehistoric date to be present within the development area. The nature and extent of such assets is difficult to predict and therefore the significance of any such assets cannot be determined with any confidence. Further archaeological investigation will be required to determine the significance of the identified heritage assets and areas of archaeological potential, this is likely to take the form of a targeted trial trench evaluation, the scope of which will be agreed with the Gwynedd Archaeological Planning Service.

1 INTRODUCTION

1.1 Planning Background

Headland Archaeology was commissioned by Sweco to produce an archaeological assessment of the route of a proposed water pipeline from Llyn Alaw to Wylfa Nuclear Power Station. The assessment has been carried out in accordance with a brief produced by the Gwynedd Archaeological Planning Service (GAPS) and a Written Scheme of Investigation (WSI) produced by Headland Archaeology and approved by GAPS.

1.2 Site Description

The proposed pipeline route extends for approximately 9.4km from Llyn Alaw reservoir in the south to the A5025 at a point north of Tregele near the entrance to Wylfa Nuclear Power Station in the north (Illus 1). There are approximately 1.5km of alternative routes identified within this corridor.

The route is undulating and varies between approximately 25m AOD in the north and a maximum elevation of around 103m AOD to the southwest of Carreglefn before dropping to between 40 and 50m AOD at Llyn Alaw.

Four site compounds are proposed along the route. These are located south of the Welsh Water Dwr Cymru buildings on the southern edge of Llyn Alaw; northeast of Cysgod Y Coed farm; northeast of Cromlech; and north of Tregele on the east side of the A5025.

The land is in multiple third-party ownership and is mainly in use as pasture, but a small area of arable crop was observed at Llanbabo.

1.3 Consultation

A Written Scheme of Investigation (WSI) for this assessment was agreed in accordance with a Project Design supplied by Gwynedd Archaeological Planning Service (GAPS).

Cadw responded to a consultation on the proposed pipeline (letter of 6th April 2017), they noted that there could be an impact on the setting of Scheduled Monuments and Listed Buildings within 500m of the pipeline during construction. This potential for change in the setting of assets is acknowledged however the pipeline will be entirely below ground once constructed and it is anticipated that the ground surface will be fully reinstated. Any effects on the significance of assets as a result of changes in setting will be short-lived and temporary and are capable of being fully reversed on completion of the construction phase. Such effects are therefore scoped out of the assessment.

GAPS commented on an initial draft of this assessment. The report has been updated by making changes to the levels of importance assigned to some of the assets, the interpretation of some assets and the potential need for further work, in response to these comments.

2 AIMS AND OBJECTIVES

The assessment has been carried out according to the *Standard and guidance for historic environment desk-based assessment* published by the Chartered Institute for Archaeologists (CIfA 2014), and aims to:

- Collate all available written, graphic, photographic and electronic information relevant to the development site;
- Describe the nature, extent and significance of the historic environment within the area potentially affected by the development, identifying any uncertainties in existing knowledge;
- Determine the potential impact of the proposed development; and
- Identify any requirements for further investigation that may be necessary to understand the effects of the proposed development on the historic environment.

3 METHODOLOGY

3.1 Study areas

A study area corresponding with a 1km wide corridor centred on the proposed new pipeline route has been used to gather baseline data on historic assets (Illus 1).

The assessment of construction impacts has considered the development area to comprise a 50m wide corridor along the pipeline route and alternative routes (allowing space for machine movements as well as the width of the pipe itself and allowing for micro-siting within the corridor) as well as the proposed compound areas.

3.2 Data sources

The assessment has been based on a study of all readily available documentary sources, following the CIfA Standards and Guidance (CIfA 2014). The following sources of information were referred to:

- Designation data from Cadw, provided as a digital data extract on 5th April 2017;
- Descriptions of designated historic assets provided on Cadw's Cof Cymru website - <http://cadw.gov.wales/historicenvironment/recordsv1/cof-cymru/?lang=en>
- Archaeological records and reports held by Gwynedd Archaeological Trust Historic Environment Record (GAT HER);
- Aerial photographs in the National Monuments Record Wales (NMRW) in Aberystwyth;
- Historic maps and plans held in the Anglesey Archives;
- Natural Resources Wales (NRW) Lidar data;
- Relevant internet sources including British Geological Survey data;
- Readily available published sources and unpublished archaeological reports.

A geophysical survey was carried out in March 2017 and the results, reported on separately (Harrison 2017), have informed the assessment. In addition a walkover survey was carried out on 25th and 26th April 2017. The aim of this was to confirm the nature and condition of historic assets identified during the desk-based research and geophysical survey and to identify any previously unrecorded historic assets within the study area.

3.3 Identification of historic assets

In policy terms, the historic environment is "*made up of individual historic features, archaeological sites, historic buildings and historic parks, gardens, townscape and landscapes, collectively known as historic assets*" (Planning Policy Wales (PPW) 2016). The assessment identifies all known historic assets potentially affected by the proposed development, and estimates the potential for currently unknown historic assets.

Historic assets within the Study Area are shown in Illus 2 with detailed descriptions compiled in a gazetteer (Appendix 1, Table 1), those within the development area are shown on Illus 3. Scheduled Monuments and Listed Buildings are labelled with the reference number given to them by Cadw; undesignated assets with the reference number in the Gwynedd Historic Environment Record (HER), or in the case of assets identified during the assessment with a unique identifier prefixed HA.

Stray findspots are not generally considered to be historic assets, although they are indicative of possible assets within the vicinity; an exception to this is early prehistoric flint scatters which may be the only evidence of a “site” in this period.

3.4 Assessment of heritage significance and importance

Heritage significance is the sum of the heritage values associated with it (Cadw 2011) these heritage values are: evidential, historical, aesthetic and communal. Cadw's Conservation Principles notes that assets will have different degrees of significance which determines the appropriate degree of statutory or policy protection the asset should have. This definition of significance is therefore similar to the importance of a historic asset, reflecting its statutory designation or, in the case of non-designated assets, the professional judgement of the assessor (Table 1).

Chapter 6 of Planning Policy Wales (November 2016 edition) refers to archaeological remains of national importance, and remains of local importance. Standard industry practice (for example, as laid out in Design Manual for Roads and Bridges, Vol 11 S3 Pt2 Annex 5) is to place historic assets on a more graduated scale that assists the decision-maker in assigning weight to any changes in significance that a particular proposal will cause.

The table below sets out the criteria used in this assessment to assign importance to the built and buried historic assets within the study area.

Table 1: Criteria for Assessing the Importance of Historic assets

Importance of the asset	Criteria
Very high	World Heritage Sites and other assets of equal international importance
High	Historic Landscapes, Parks and Gardens of Outstanding or Special Interest, Scheduled Monuments, Protected Wreck Sites, Registered Battlefields, Grade I and II* Listed Buildings, and undesignated historic assets of equal importance
Medium	Conservation Areas, Grade II Registered Parks and Gardens, Grade II Listed Buildings, and undesignated assets of equal importance including archaeological sites which may contribute to regional research agendas.
Low	Undesignated historic assets of lesser importance including historic assets on local lists

Grade II Listed Buildings are considered of medium importance, reflecting the lower level of importance assigned to them in the *Principles of Selection for Listed Buildings* and *Welsh Office Circular 61/96* and *1/98* (although this does not diminish the statutory weight imposed by the Planning (Listed Buildings & Conservation Areas) Act 1990 and is not to suggest that they are of any less than national importance). By extension a similar principle applies to Grade II Registered Parks and Gardens – although this is a non-statutory register, the grading principles used are the same as those applied to listed buildings¹.

Conservation Areas are classified as assets of medium importance unless their particular characteristics justify a higher level of significance. Non-designated assets are usually assigned to a low level of importance, however some non-designated assets merit a higher level of importance either because of their type, rarity or state of preservation. Professional judgement is used to assign importance to non-designated heritage assets and a clear explanation is given where higher levels of importance are ascribed. Following Annex D of the consultation draft of TAN24, a historic feature is significant only if it is “Extensive or important enough to merit attention”.

An assessment of heritage significance is given for all known historic assets that are identified as potential constraints on the development. Stray findspots are not in themselves considered to be historic assets, although they may provide evidence of potential archaeological remains in the vicinity. One exception is areas of prehistoric flint scatters which may be the only evidence of human activity of this period and following the Historic Environment (Wales) Act 2016 such sites have the potential to be designated as scheduled monuments (but a full reassessment of these sites has not yet been completed by Cadw) and as such any non-designated flint scatters are considered to be historic assets and their importance will be assessed as either low, medium, high or very high depending on their particular characteristics.

¹ <http://cadw.gov.wales/historicenvironment/protection/historiclandscapes/histparkgrdns/?lang=en>

3.5 Potential for unknown historic assets

The NMRW, SMRs and HERs do not include all historic assets, and it should not be assumed that the information they contain is a comprehensive record of the historic environment resource. The likelihood that significant undiscovered historic assets may be present within the Inner Study Area must also be considered, and this is referred to as archaeological potential. Archaeological potential is not merely a factor of the likelihood that any archaeological feature will be present within the area but is also a factor of the evidential value which any such features may hold.

Overall levels of potential can be assigned to different landscape zones, following the criteria in Table 2, while recognising that the archaeological potential of any zone will relate to particular historical periods and types of evidence. The following factors are considered in assessing archaeological potential:

- The distribution and character of known archaeological remains in the vicinity;
- The history of archaeological fieldwork and research in the surrounding area, which may give an indication of the reliability and completeness of existing records;
- Environmental factors such as geology, topography and soil quality, which would have influenced land-use in the past and can therefore be used to predict the distribution of archaeological remains;
- Land-use factors affecting the survival of archaeological remains, such as ploughing or commercial forestry planting; and
- Factors affecting the visibility of archaeological remains, which may relate to both environment and land-use, such as soils and geology (which may be more or less conducive to formation of cropmarks), arable cultivation (which has potential to show cropmarks and create surface artefact scatters), vegetation, which can conceal upstanding features, and superficial deposits such as peat and alluvium which can mask archaeological features.

Table 2: Archaeological potential

Potential	Definition
High	Undiscovered historic assets with a high level of evidential value and importance are likely to be present.
Medium	Undiscovered historic assets are likely to be present. The evidential value of currently undiscovered historic assets is most likely to be low, but it is possible that assets of medium or high evidential value and importance are present.
Low	The study area may contain undiscovered historic assets, but these are unlikely to be numerous and it is unlikely that assets with medium or high levels of evidential value / importance are present.
Negligible	The study area is highly unlikely to contain undiscovered historic assets of any level of importance.
Nil	There is no possibility of undiscovered historic assets of any level of importance existing within the study area.

4 RESULTS

4.1 Overview of the historic environment

Previous investigations

The majority of previous archaeological investigations within the study area have taken place around Wylfa in the north of the study area and have been prompted by the proposed construction of a new nuclear power station. This work has included desk-based studies (Longley 2007, Cooke et al 2012, Jacobs 2015, and Gwynedd Archaeological Trust 2011(a)), geophysical surveys (Gwynedd Archaeological Trust 2011b and 2012b and Archaeological Services WYAS 2015) and trial trenching (Gwynedd Archaeological Trust 2011c and 2012a, Wessex Archaeology 2016, Bennett 2016, Craddock-Bennett 2016, Craddock-Bennet & Bain 2016a, and 2016b).

Assessment work in advance of a proposed wind farm at Llyn Alaw in 1994 comprised a desk-top study and field reconnaissance (Davidson & Flook 1994). There have also been research projects in the area. The

prehistory of Anglesey has been comprehensively discussed by Frances Lynch in a book published in 1970 and revised in 1991 (Lynch 1991). An assessment of early medieval burial and ecclesiastical sites across Wales included sites on the island (Davidson et al 2002).

The identification by Cadw of sites at risk or in need of evaluation led to work at a number of sites in the Llanfechell area including assessment of a possible chambered tomb at Cromlech Farm and excavations in advance of the reinstatement of a fallen standing stone north of Llanfechell parish church (Smith 2013). A watching brief on renovation works at St Pabo's Church was carried out in 1996 and revealed evidence of the various construction phases of the church (Gearey 1996).

Prehistoric

The coast of Anglesey provided an important food resource for Mesolithic hunter-gatherer communities, and the relatively good soils and long growing season on Anglesey created good agricultural potential important for the earliest prehistoric farmers (Smith and Hopewell 2010). Evidence of Mesolithic settlement is rare but has been found on Anglesey, typically as flint scatters around coastal edges, such as at Aberffraw, but further evidence of the period has been found on the fringes of Llyn (lake) Alaw where three thin blade-like flint flakes (PRN 7046) were discovered (Cooke et al 2012).

The island is likely to have been densely settled during the Neolithic and Bronze Age based on the number of standing stones and megalithic tombs identified on the island (Lynch 1969). Such monuments typically occupy ridges of elevated ground and can be found on coastal edges and further inland (Cooke et al 2012). These include standing stones at Bod Deiniol (AN090), north of Llanfechell (AN080) and northwest of Llanfechell (AN030) within the study area. An earthwork at Cors-y-Bol, south of and outside of the study area, may be either a Neolithic henge monument or a Bronze Age round barrow (Davidson 1994a and 1994b). An enclosure, possibly of Bronze Age or Iron Age date has been identified on aerial photographs to the north of Llanfechell, and three probable Bronze Age ring barrows are visible as cropmarks alongside this (PRN 7362 and PRN 27534).

Neolithic chambered tombs or *Cromlech* are also found fairly frequently across Anglesey and were built by early farming communities to house the cremated remains of their dead (Cooke et al 2012). A possible Neolithic chambered tomb at Cromlech Farm (3046) was first recorded in 1802 by the Reverend John Skinner during a tour of Anglesey (Smith et al 2013b). His description and sketch showed it as an apparently intact chambered tomb. Baynes in 1936, records local memories of 'great quantities of stone being removed to form a wall'. The farm was once part of the Penrhyn Estate, and agricultural improvements are likely to have been carried out in the 19th century. Cup and ring marks were identified on the exposed rocks and the monument was surveyed and excavated in 2008 on behalf of Cadw, an exposed area of massive horizontal slabs with a loose slab leaning against it was recorded. The monument consists of a low mound in a fairly flat field in a slight declivity. The amorphous shape of the mound tended to suggest that it consisted of an underlying rock outcrop. The topsoil is quite deep, produces good grass and has been well-ploughed in the past. The farmer remembers that part of the field between the mound and the farm house was once used for growing potatoes and during the excavation plough scratches were found on a bedrock slab at the east end of the mound and dumps of small clearance stone were found on the mound.

In a field about 1.5km south-east of Cromlech Farm and 500m north of Llanfechell church is a large standing stone that had been leaning for many years. In November 2009 it was reported to have fallen over. An archaeological survey and investigation prior to re-instating the stone found that it had been originally set in a shallow pit with a packing stone that had a cup and ring mark on the underside. Recent aerial photographic survey has identified other prehistoric sites in this area, including a probable Bronze Age burial mound cemetery and a Late Bronze Age/Early Iron Age settlement (Smith et al 2013b).

Several burnt mounds have also been recorded within the wider area. These were mounds of burnt stone, usually in a horse-shoe shape surrounding a small pit with the open ends typically facing a small stream. They are thought to have been used for cooking by heating stones in a fire and using the hot stones to heat water in the pit (Davidson 1994a and 1994b). The distribution of these features on the island is mostly a result of the archaeological work on the A55 which found that they were concentrated near watercourses and in marshy areas (Cooke et al 2012). Burnt mound features were identified south of Wylfa power station through excavation of geological test pits and in geophysical survey where they appeared as strong thermoremanent anomalies (Cooke et al 2012), one such anomaly identified on higher ground may be the result of later field boundary clearance. A programme of trial trenching in advance of the proposed new nuclear power station at Wylfa, undertaken by Headland Archaeology (Craddock-Bennett & Bain 2016a and 2016b), found evidence of prehistoric activity in the form of dispersed pit features and a possible burnt mound.

A small hill-top enclosure at Carrog, Llanbadrig, Anglesey, that had been identified from a crop mark on an aerial photograph was investigated by geophysical survey and subsequently evaluated by a small excavation.

The enclosure was interpreted on typological grounds as a possible Late Bronze Age or Early Iron Age defended site. Neolithic hearths were found within the enclosure but the ditch was found to have been in use from 800 CalBC to 400 CalBC (Smith 2011 and Smith et al 2013a).

Evidence of later prehistoric activity on Anglesey is largely represented by defended enclosures and settlements typified by circular houses. The latter can be built of stone, timber or clay. Several coastal promontory forts are known from the north coast and undefended and lightly defended hut circle settlements are known to occur sporadically in northern Anglesey. Excavations in advance of a business park at Holyhead revealed a greater density of settlement than formerly realised with Neolithic, Bronze Age, Iron Age and Romano-British settlement found clustered around a wetland area (Cooke et al 2012). Defended prehistoric domestic enclosures can be seen exploiting the natural elevated environs elsewhere on Anglesey, at Fodol (PRN 24792) and at Llanfairpwllgwyngyll (PRN 24788) towards the south of the island.

The evidence from a transect across the island provided by the construction of the A55 trunk road (Hughes and Davidson forthcoming), and by recent large scale excavations on Holy Island in advance of development indicates that many hundreds more Iron Age settlements must have existed than are known (Smith and Hopewell 2010).

Roman

Anglesey was one of the last strongholds of the Britons against the Roman invasion and direct evidence of settlement in the Roman period is absent from the north coast and its hinterland. However Romano-British settlements are found elsewhere on Anglesey such as the domestic hut groups at Porth Dafarch (PRN 2754) near Trearddur bay and at Din Lligwy (PRN 2132), located to the west and east of the island respectively (Cooke et al 2012). Pottery and coins of Roman date are fairly common on Anglesey, and it can be assumed that there would have been some activity of this date within the area (Davidson 1994a and 1994b). Within the study area a copper cake (ingot PRN2071) was found west of Carreglefn. This cake was one of twenty-seven found across North Wales, eighteen on Anglesey (including one discovered west of Treglele (PRN 3063)). These cakes are ascribed to the Romano period and were originally believed to have come from the mines at Parys Mountain northeast of Llyn Alaw. However, evidence for Roman workings at Parys Mountain is mostly circumstantial and it is possible that these copper cakes originate from the mines at The Great Orme or even further afield (Cooke et al 2012).

Medieval

Early Middle Ages (400 AD to 1100 AD)

Evidence for the early Middle Ages (from the 5th century AD to the 12th century AD) on Anglesey is slight, though a church and community may have been founded during this period at Llanfechell (PRN 3051) and a 9th century cross slab at Wylfa suggests the foundation of an ecclesiastical site prior to the existing 12th century church (PRN3059; 3052). Llanbadrig is also likely to have early medieval origins as a parish, as does the parish of Llanrhwydrys (west of Llanbadrig) where there is another 12th century church (PRN3524) (Cooke et al 2012).

Excavations of the defended site at Carrog found that after the ditch had been partially backfilled, a small building radiocarbon dated to the 8-9th C Cal AD was constructed within it. (Smith 2011 and Smith et al 2013a).

Finds dating from the Early Medieval period (400 - 1066 AD) have been discovered in the surrounding area including cist burials of 6th century date found adjacent to Llechcynfarwy church, and a Viking spearhead found within Llantrisant parish (Davidson 1994a and 1994b). Further early medieval burials have recently been found east of Wylfa Power Station (Craddock-Bennet & Bain 2016b).

Late Middle Ages (1100 AD to 1485 AD)

By the 12th century the Kingdom of Gwynedd, including Anglesey, had been sub-divided into a number of regional districts called commotes (Welsh *cwmwd*). There were six commotes on Anglesey, each with a royal manorial centre (*maerdref*) which provided a focus for administration and taxation within the commote and had extensive demesne lands worked by estate bondmen. The wider landscape of the commote comprised lands held under hereditary tenure (*tir gwelyog*). *Tir gwelyog* tenure reflects the hereditary nature of the tenure and the term derives from the *gwely* (= matrimonial bed) which is a shorthand way of defining the relationship, through kinship, of smallholders, free or bond, within the subdivisions of a township (*tref*). The *tref* (township) was the principal defining land unit within the commote. In addition to the secular landholders, the Bishop of Bangor held lands throughout Anglesey, and certain churches e.g. Llanfechell held lands of their own.

The north-west corner of Anglesey (including the proposed development site) formed the commote of Talybolion. The commotal *maerdref* lay at Cemais. The demesne land here extended to over 400 ha. The hall and royal apartments are thought to have stood in the vicinity of the present farms of Neuadd Fawr and Cemaes Fawr, on the east side of the harbour. The free township of Clegyrrog (figure 3) lay to the south of

Cemais, and was held by nine *gwelyau*. The lands are largely represented by the farms of Clegygrog Blas and Clegygrog Ganol (near Carreglefn), Pentreheulyn (approximately 2km southeast of Llanfechell) and Rhosbeirio (approximately 2.3km east of Llanfechell).

Following the English conquest of Gwynedd in 1283 many aspects of the structure of society changed. Whilst the pattern of regional royal administration which applied during the twelfth and thirteenth centuries had evolved slowly, after 1283 more wide-ranging changes were put in place which were to pave the way for social and landscape change during the succeeding centuries. Lands which were formerly held by the Welsh Prince now accrued to the Crown.

From at least the 12th century the development area and that surrounding it contained the townships of Cemais, Clegygrog, Llanfechell and Llanol, and the hamlet of Bod-ddeiniol (Carr 1982). Whilst evidence for medieval settlement within the development area is known from documentary sources, it remains difficult to reconstruct the specific lands associated with former townships and hamlets. The exact location of medieval settlements is not known with certainty, though many place names remain in use. Similarly the pattern of roads and tracks, though overlain by more modern patterns, is likely to retain a medieval influence (Cooke et al 2012).

John Leland, writing at the end of the medieval period described how the lands had only recently been enclosed "in the Devonshire fashion" – i.e. with hedge banks (Carr 1982).

Because of the scarcity of Medieval domestic remains on Anglesey (it is unusual to find a house or farm building older than the 17th century) it is difficult to say how the settlements would have looked, although both consolidated (i.e. villages) and dispersed (scattered farms) patterns are to be expected (Davidson 1994a). However it is assumed that open (strip) field agriculture would have been practised, sometimes with ridge and furrow cultivation. Elements of these fields are preserved in the early estate maps, although little is now visible on the ground (Davidson 1994b).

Post-Medieval

By the 16th century AD the enclosure of the open fields with banks and ditches had begun and the sale of Crown lands during the 17th century AD created many opportunities for fragmentation and new groupings and greater consolidation of holdings in the creation of large landed estates (Cooke et al 2012). The pattern of land-holding by the estates continued into the time of the Tithe Surveys in the 1840s (Cooke et al 2012), although some properties remained as smaller landholdings. Llanfechell was a somewhat extreme example where 4% of all landowners held 70% of the total land. Amalgamation and changes to field boundaries within these estates occurred but the farm boundaries, particularly where they are concurrent with parish boundaries, remained fairly stable (Davidson 1994a and 1994b). Field boundaries within the study area are largely walls or stone-faced earth banks (in Welsh '*clawdd*' or '*cloddiau*' (plural)), although there are also "ordinary" hedges and fences in the south of the study area.

The twentieth century

The last decades of the 19th century and the early decades of the 20th century witnessed numerous changes on Anglesey caused, in part, by the desire of the new wealthy classes to own rural homes in addition to their principal homes elsewhere. Up to this time the houses had been largely occupied by the land owners and occupiers who farmed the land. One of these estate houses was Alma Hall, built in 1859 for a local carpenter turned builder / housing developer on the site of an earlier small farmstead, and used as his summer home with winters spent in Liverpool where he owned approximately 1000 properties (Mr Burrows – current owner - *pers comm*).

The parish of Carreglefn was created in 1907 (WR/422/1-4) incorporating parts of Llanbadrig and Llanbabo parishes.

During the Second World War a Chain Home radar defence station was established at Wylfa. Two tall wireless masts stood close to the cliff edge near Porth Gwartheg while a semi-circular ring of low, dome-shaped, bunker-like structures ran from Wylfa House to Porth y Pistyll. The staff complement at these stations was large and several other structures in the vicinity are also likely to be associated with the station. The purpose of a chain home station was detection of enemy aircraft by radar or, in some instances, as along the north coast of Wales, the management of shipping in the Liverpool approaches. The radar worked by 'floodlighting' the sky with pulsed radio waves. The 'echo' from obstacles in the path would be received and displayed at the base station. Very little of the chain home guard installation survives as upstanding remains today, due to the landscaping programme associated with the construction of the existing power station, although remains of red-brick and concrete from the period can be seen along the coastline to the north.

Llyn Alaw reservoir was built in 1966 to supply drinking water for the northern part of the island. It was formed by flooding an existing marsh Cors y Bol. Documents relating to the existing pipeline from the reservoir,

including correspondence with landowners along the route, are held by Anglesey Archives under accession number WDAAP/28. These documents may contain additional information relevant to this assessment but the file is closed until 2055.

4.2 Map Regression

The earliest available maps for the study area are the tithe maps for Llantrisant, Llanbabo, Llanbadrig and Llanfechell parishes. These show the main field subdivisions and some buildings. The tithe maps are also useful for plotting the historic parish boundaries, as the current parish of Llanfechell has incorporated parts of the other parishes.

The earliest detailed mapping of the study area is the first edition OS map series published in 1889. These maps show the field boundaries, place names, and indicate areas of marsh or rough ground as well as the roads between settlements and farmsteads.

The 20th century OS maps show the expansion of the main settlements, as well as field boundary changes in the 19th and 20th centuries. A farmstead is shown on the 1st edition OS map in the area west of the pumping station for the reservoir (HA2). It is named Ty-bach (Little House) and the farmhouse is still named on the 1975 map and in existence in 1980, although its surrounding enclosure is not mapped after 1975. A small farmstead opposite Llanbabo church (HA13) is also named on the 1st edition OS map as Ty-n-Ilan (Church House).

It is unclear whether the Tithe Maps record all the boundaries present at the time or just the principal divisions, but by the 1st edition OS map the farms of the study area were subdivided with mostly straight field boundaries.

4.3 Deposit Model

The British Geological Survey records the solid geology of the study area as a mixture of undifferentiated Ordovician Rocks (interbedded mudstone and sandstone as well as interbedded sandstone and conglomerate) which formed in shallow seas during the Ordovician period (444 to 488 million years ago), Mica Schist and Psammite of the Harbour Group, Schist of the Gwna Group and Psammite and Pelite of the South Stack Formation which formed as sedimentary rocks in deep seas between 488 and 635 million years ago and were later altered by low-grade metamorphism.

The area also has outcrops of Church Bay Tuffs and Skerries Grits that resulted from eruptions of magma in the Cambrian and Ediacaran periods (488 to 635 million years ago). A larger band of Church Bay Tuffs and Skerries Grits is recorded between Cemlyn and Llanfechell. There are also intrusions of Felsite igneous rocks of unknown date to the west of Carreglefn.

The solid geological deposits are overlain by Diamictic Till of the Devensian period with localised areas of clay, silt, sand and gravel alluvial deposits close to watercourses.

There have been limited detailed geological investigations of the study area. The British Geological Survey records that a transect of boreholes was carried out in advance of a 400kv power line which crosses the northern end of the study area on an approximately northwest-southeast alignment. The borehole records are confidential and were not available at the time of this assessment.

The only available borehole record for the study area was at Llwyn-yr-Arth in 2014, where soils were recorded at a depth of up to 0.45m below ground level, overlying stony clay to 3m below ground level, clay to 4m below ground level and weathered mudstone beneath this to a depth of approximately 70m below ground level.

The lack of data means that it is not possible to model the geological deposits to predict the soil cover across the study area. However it is likely that the archaeological horizon is in general at a depth of less than 0.45m below ground level and in places may be much shallower as evidenced by the site walkover survey which confirmed that there are exposed outcrops of bedrock along the proposed pipeline route, in particular around Carreglefn.

4.4 Aerial Photograph Analysis

Methodology

Historic aerial photos held by RCHAMW were examined on 7th April 2017. A full list of the photographs examined is included in Appendix 1. Photographs which showed possible cropmark sites within the development area were obtained as copies and digitised in GIS to allow geo-referencing of the image to confirm the location and extent of cropmarks in relation to the development area.

Results

The oblique photographs held by RCHAMW were found to be of sites recorded in the GATHER, providing some additional information on the extent of these historic assets not contained within the spatial data available from GAT. None of these sites were located within the inner study area however and the oblique photographs were not transcribed.

One area of possible cropmarks within the study area was observed on vertical aerial photographs taken in 1945 (RAF 106G/UK/655 Frame 3314) but this appears to be of geological origin rather than archaeological.

4.5 Lidar Analysis

Methodology

Lidar Digital Terrain Model (DTM) and Digital Surface Model (DSM) datasets were obtained from Natural Resources Wales (NRW) for the study area. The best available resolution for the study area was 1m, however there was only partial coverage of the study area available. The LIDAR datasets were examined and earthworks visible on the images were plotted in ArcGIS and compared with historic mapping and the geophysical survey results to aid in interpretation.

Results

Most earthworks identified in the Lidar coverage correspond with field boundaries or watercourses on current mapping. Twenty-two linear features visible in the LIDAR correspond with former field boundaries, indicating a low level of boundary loss in the 20th century. No other earthworks of likely archaeological origin have been identified.

The limited coverage of the Lidar datasets means that there are information gaps within the study area where further earthworks may be present. The resolution of the available data means that smaller earthwork features may not be visible, creating another information gap. The majority of the identified features were readily identifiable from historic mapping, or had been previously identified from aerial photograph analysis or site visits by the RCHAMW. It is considered unlikely that there would be additional features within the areas not covered by Lidar that would not be visible by other methods.

4.6 Geophysical Survey

A detailed magnetometer survey was carried out of the inner study area in March 2017. A full report on this has been produced (Harrison 2017) but in summary the survey has identified linear anomalies suggestive of former field systems in two distinct areas; to the immediate south and east of Llyn Alaw (HA1 and HA3), and within a single field in the north of the scheme (HA12). The field systems are not depicted on any available historical maps and are therefore likely to be post-medieval or earlier in origin. The site of a 19th century farmstead (Tybach) was visible as a geophysical anomaly (HA2).

Localised clusters of high magnitude anomalies, perhaps being due to burnt mounds, have also been located adjacent to streams at sites across scheme (HA4, HA9, HA10 and HA11). In addition, two further isolated areas of archaeological potential have been identified including linear features and enclosures at Llanbabo (HA6, HA7 and HA8) and a possible small enclosure near to Llyn Alaw (HA5).

Anomalies caused by modern field boundaries, drainage and modern cultivation have been identified across the southern and northern parts of the scheme whilst anomalies caused by near-surface geological variation occur throughout, but are particularly prevalent across the more rugged central section where bands of igneous intrusions are recorded and outcropping is common.

4.7 Walkover Survey

Methodology

The study area was visited on 25th and 26th April 2017. Historic assets previously identified through the desk-based research and from the geophysical survey were visited to confirm their location and other information about them. The locations and extents of historic assets that were identified during the walkover survey were plotted using a hand-held GPS, the assets were photographed using a digital camera, and details about them were recorded in a notebook and later digitised in an Excel spreadsheet.

Results

The walkover survey found that most of the area is under semi-improved or improved pasture, which is likely to have restricted the potential for cropmark sites to be identified on aerial photographs. The walkover survey also confirmed that the majority of field boundaries were formed of hedges, usually incorporating gorse plants and often reinforced with modern stock fencing. Several possible clawdd field boundaries (Illus 4) were identified, all corresponding with historic boundaries identified during the map regression.

The locations of previously recorded historic assets were confirmed during the walkover survey. In addition to the field boundaries one previously unrecorded historic asset was identified during the walkover. A small ruined building opposite Llanbabo church was observed (Illus 5) and is considered to be a historic asset of low importance (HA13). It is not shown on the tithe map but two small buildings appear in this area on the 1889 25" to 1 mile OS map as a property named Ty'n-Ilan (referring to an association with the church) and the place name is still recorded on current mapping.

No features identified during the geophysical survey were visible during the walkover survey, indicating that all these anomalies survive only as below ground features.

4.8 Assessment of heritage significance

Known historic assets within the development area

Historic assets identified within the development area are listed in Table 3.

The pipeline route crosses three parish boundaries. The boundary between Llantrisant and Llanbabo (HA14) within the development area is marked by a road flanked by hedges, the boundary between Llanbabo and Llanbadrig by a stream and the boundary between Llanbadrig and Llanfechell parishes survives as hedgerows. The hedgerows flanking the road that forms the boundary between Llantrisant and Llanbabo (HA14) are therefore considered to be "important" under Schedule II of the Hedgerow Regulations and as such are considered to be of medium importance as historic assets. They have historical and communal value as the historic parish boundaries and they also have evidential value as they will contain some evidence of their construction and date.

The pipeline route passes through the site of a farmstead known as Ty-bach, this is recorded on 19th century mapping but was demolished in the late 20th century (HA2), two areas of geophysical anomalies (HA1 and HA3) may represent enclosures associated with this farmstead, they are not shown on historic mapping however and may relate to an earlier settlement in the vicinity of the farmhouse.

The pipeline route passes within 25m of the site of Capel Deinon (2070) in Tref Alaw. The medieval chapel stood adjacent to the house of Bod Dieniol, Llanfechell about a mile southwest of Llanbabo church. Four cist burials are reported to have been found at Boddeiniol Farm, their precise locations are not known and the extent of the cemetery is uncertain. The geophysical survey identified a rectilinear enclosure (HA5) which could be a square ditch barrow (Ashley Batten *pers comm*), this and the nearby linear features also visible in the geophysical survey could relate to the medieval cemetery.

A possible burnt mound feature (HA10) lies between the proposed pipeline route and an alternative route southwest of Llanfechell, a number of other possible burnt mounds have also been identified in the geophysical survey.

The route also passes within 25m of the Ebenezer Welsh Chapel, Llanfechell (7758) which dates to 1862 and has an attached manse to the northeast and a large cemetery to the southwest and northwest of the chapel, with the oldest dated tombstones closest to the chapel. It is unlikely that there are burials outwith the cemetery wall.

An area of "squatter type" encroachment dating from the 19th century is located within the development area west of Carreglefn (17150).

None of the known or probable heritage assets are designated, and most are considered to be of low importance as per the criteria in Table 1. It is unlikely that any of these known or probable sites would be considered to be of national (i.e. high) importance, however several do have evidential value that could contribute to regional research agendas – for example the enclosure HA5; and the prehistoric or medieval enclosure HA7 and linears HA8 – meriting consideration as medium importance assets.

Table 3: Historic assets within the Inner Study Area

Reference no.	Asset name	Period	Significance (heritage values)	Importance
2070	Capel Deiniol, Site of, Llanfechell	Medieval	Evidential, communal, historical	Low
17150	Mynydd Mechell Character Area, Mechell	19 th century	Evidential, communal, historical	Low
7758	Ebenezer Welsh Chapel, Llanfechell	Post-medieval	Evidential, architectural, historical, communal	Low
HA1	Linears visible in geophysical survey	Possibly medieval	Evidential	Low
HA2	Ty-bach farmstead	19 th century	Evidential	Low
HA3	Linears visible in geophysical survey	Possibly medieval	Evidential	Low
HA4	Possible burnt mounds 1 and 2	Prehistoric	Evidential	Low
HA5	Enclosure visible in geophysical survey	Possibly Prehistoric but could be a medieval cemetery associated with Capel Deiniol	Evidential, possibly historical	Medium
HA6	Enclosure visible in geophysical survey	Possibly medieval	Evidential	Low
HA7	Enclosure visible in geophysical survey	Possibly medieval or prehistoric	Evidential	Medium
HA8	Linears visible in geophysical survey	Possibly medieval	Evidential	Medium
HA9	Possible burnt mound 3	Prehistoric	Evidential	Low
HA10	Possible burnt mound 4	Prehistoric	Evidential	Low
HA11	Possible burnt mounds 5 and 6	Prehistoric	Evidential	Low
HA12	Enclosures visible in geophysical survey	Possibly medieval	Evidential	Low
HA14	Parish boundary between Llantrisant and Llanbabo	Medieval / post-medieval	Evidential, historical, communal	Medium
HA15	Parish boundary between Llanbabo and Llanbadrig	Medieval / post-medieval	Evidential, historical, communal	Medium
HA16	Parish boundary between Llanbadrig and Llanfechell	Medieval / post-medieval	Evidential, historical, communal	Medium
HA17	Historic boundary	Late medieval / Post-medieval	Evidential, historical, communal	Medium
HA18	Historic boundary	Late medieval / Post-medieval	Evidential, historical, communal	Medium
HA19	Historic boundary	Late medieval / Post-medieval	Evidential, historical, communal	Medium
HA20	Historic boundary	Late medieval / Post-medieval	Evidential, historical, communal	Medium

HA21	Historic boundary	Late medieval / Post-medieval	Evidential, historical, communal	Medium
HA22	Historic boundary	Late medieval / Post-medieval	Evidential, historical, communal	Medium
HA23	Historic boundary	Late medieval / Post-medieval	Evidential, historical, communal	Medium

Archaeological potential of the development area

In addition to the identified heritage assets described above, there are other areas of geophysical anomalies which may relate to archaeological features. These include an area between HA4 and HA5 where there is potential for activity on the sheltered side of the rocky outcrops. The field south of HA20 has the potential to be the site of a precursor to St Pabo's church due to its topography and the place name of Bryn Eglwys, the geophysical anomalies in this field may relate to archaeological features.

The limited previously recorded archaeological remains within the development area is likely to reflect a comparative lack of previous systematic archaeological investigation in this area. Previous work in the wider area has shown that some types of archaeological sites are only detectable through intrusive investigation (trial trenching). In particular medieval remains on the island (such as the burials discovered east of Wylfa) do not result in strong geophysical responses, and the pastoral land use of most of the study area means that the area is not conducive to cropmark evidence.

The archaeological potential of the pipeline corridor as a whole is therefore considered to be medium. It is very likely that currently unrecorded archaeological remains of more than low importance will be present within the development area, however the extent and importance of any such remains cannot be predicted with any certainty with the currently available evidence. Areas of higher archaeological potential have been identified – the area around Bod-ddeiniol may contain burials of medieval date associated with the former chapel at this location. The evidential value of these burials would be of medium to high importance and the archaeological potential in this location is therefore considered to be high.

There are known to be post-medieval field boundaries across the site but it is unlikely that additional post-medieval archaeological features will be present within the site. There is potential for archaeological features of medieval date to be present within the site, in the vicinity of Capel Deiniol there is potential for burials, whilst elsewhere any medieval remains are likely to relate to agricultural activity or field divisions.

There is potential for Roman remains within the pipeline route as stray finds have been recorded within the study area, however there is no known settlement of Roman date within the study area. Similarly there is potential for late prehistoric remains as there is known to have been settlement on the island at this time although there is no evidence from within the study area, this may be largely due to the lack of investigation.

There is considered to be a high likelihood of encountering burnt mounds close to watercourses within the pipeline route and some possible burnt mounds have been identified in the geophysical survey and detailed above. The area west of Llanfechell is also considered to have potential for burnt mounds.

The area east of Llanfechell standing stone (AM030) has potential for other Bronze Age archaeological sites including settlement sites, as evidenced by cropmarks (PRN 7362 and PRN 27534) outside the area of potential impact. Although this area has been ploughed and there are no earthwork features or obvious geological anomalies, there is potential for discrete cut archaeological features to survive below ground outwith the area of identified cropmarks. If any below ground remains are present and are associated with the Scheduled standing stone they would be considered to be of at least medium and possibly high importance depending on their date, form and state of preservation.

5 PREDICTED EFFECTS OF THE DEVELOPMENT

General

The construction of the proposed pipeline will require a topsoil strip of up to 25m, narrowing to up to 15m where boundary and road crossings are required. Temporary fencing will be erected to each side of this easement corridor. Two pipe trenches separated by 3m will be excavated at one side of this easement, with the remainder of the space used for vehicle movements and in the 25m wide sections for topsoil and subsoil stock-piling.

The main compound area (approximately one hectare in area) will be comprised of offices / welfare / materials storage area located off the A5025 to the north of the village of Tregele. Additional storage areas / welfare locations (approximately 0.1 – 1.0 hectares in area) will be located along the pipeline route, in principle these additional storage areas / welfare locations will be located at approximately 3km intervals along the route, including a storage / welfare area adjacent to Alaw WTW. Both the main compound and the storage areas will be surrounded with Heras type fencing and stripped of topsoil which will be stored alongside the perimeter of the compound. Suitable hard-surface (layer of compacted hard-core material) will be placed across the compound with a geotextile layer to separate the hard-core material from the underlying soil

Preferred pipeline route

Excavation of the pipeline route at the southern end (including topsoil stripping for the working area) will impact on the site of Ty-bach farmhouse (HA2) and on an area of enclosures to the west of the farmhouse (HA3) which may also be associated with it or an earlier settlement in this area. The impacts to these assets would result in a reduction of their evidential value but is unlikely to result in total loss of this value. The harm could be mitigated through a programme of archaeological investigation and recording during the construction phase.

The pipeline route includes possible burnt mound features (HA4, HA9, HA10 and HA11) which would be impacted by construction activities (excavation of the pipeline and topsoil stripping of the working area). The impacts could result in total loss of the evidential value of these assets but this could be avoided or reduced by siting the pipeline to avoid the areas of identified geophysical anomalies identified in Illus 3. Specifically an alternative route shown on Illus 3 would avoid impacts to HA4, siting the pipeline at HA9 approximately 10m further west would avoid impacts to this feature but could extend the pipeline into an area not covered by the geophysical survey, HA10 would only be impacted by the topsoil strip – the currently proposed pipeline itself avoids this feature – and a narrower area of strip would avoid impacts, avoiding impacts on HA11 would require moving the pipe beyond the area currently surveyed. Any remaining areas of impact after micro-siting the pipeline, or if the pipe cannot be relocated, could be mitigated through a programme of archaeological investigation and recording during the construction phase.

Excavation and topsoil stripping in the vicinity of the site of Capel Deiniol near Bod-ddeiniol farm (2070) has the potential to impact on burials associated with the medieval chapel if they extend into the development area. The impacts on potential burials associated with the medieval chapel cannot currently be defined as the precise location and extent of the cemetery is not known, but could result in considerable loss of evidential value. Only trial trenching is likely to be an effective method of investigating this further to inform the need for mitigation as features such as burials do not produce strong geophysical anomalies, nor are they expected to be visible as cropmarks or earthwork features.

The pipeline route also passes a circular enclosure north of Bod-ddeiniol farm (HA5) which is of unknown date but is potentially part of the cemetery associated with the medieval church. Topsoil stripping for the pipeline working area may impact on this feature and any potential associated remains resulting in a loss of some evidential value, but the currently proposed route of the pipeline within the route corridor would avoid this feature. Using a less wide easement in this area would avoid impacts to this feature, alternatively any harm through topsoil stripping could be mitigated through a programme of archaeological investigation and recording during the construction phase.

Three areas of enclosures and linear features (HA6, HA7 and HA8), possibly associated with earlier settlement on the site of the Grade II listed Fferam-gyd farmhouse (24963) will be affected by excavation of the pipeline and topsoil stripping of the working area. This is likely to result in localised loss of evidential value which could be mitigated through a programme of archaeological investigation and recording during the construction phase.

The route passes an area of possible “squatter type” settlement on Mynydd Mechell (17150) identified in the HER from historic mapping, and would impact on any below ground remains that may survive of this 19th century activity resulting in a localised loss of evidential value. No features relating to this were identified in the assessment and it is considered unlikely that any impacts will occur.

The proposed route passes within 15m of the Ebenezer chapel (7758) in Llanfechell, the pipeline excavations will be no closer than 7m from the chapel (SWECO *pers comm*) and a maximum of 2m in depth meaning that it will be outside the angle of influence on the foundations of the building, avoiding potential accidental impacts on this building. Following ground investigations, detailed working methods will be developed and included within the contractor's method statement to ensure that any potential impacts resulting from vibration are appropriately mitigated.

The northern end of the pipeline has the potential to impact on an area of enclosures identified in the geophysical survey and partially corresponding with field boundaries shown on the first edition OS map (HA12). This would result in localised loss of evidential value which could be mitigated through a programme of archaeological investigation and recording during construction.

The proposed pipeline route crosses three historic parish boundaries and several other farm boundaries which survive as hedges. Excavation for the new pipeline has the potential to impact on these landscape features and remove some of their evidential value as a result of removing sections of the clawdd. However, their removal under archaeological supervision would enable the evidential value of these features to be investigated and reported upon. They could then be reinstated above the pipe, avoiding any permanent effects on the historic landscape character of area.

Llyn Alaw compound

Construction of the site compound at the southern end of the site has the potential to impact on an area of linear features (HA1) which may be enclosures associated with the former farm at Ty-bach (HA2). The impacts to these assets would result in a reduction of their evidential value but is unlikely to result in total loss of this value. The harm could be mitigated through a programme of archaeological investigation and recording during the construction phase.

Cysgod Y Coed compound

There are no known historic assets that would be affected by the compound east of Cysgod Y Coed farm.

Cromlech compound

The compound area to the east of Cromlech farm lies close to a watercourse and near to an area of possible burnt mound features identified in the geophysical survey (HA11). There is potential that this compound area may contain further burnt mound features or associated remains. Stripping of the compound area would result in some loss of evidential value of any such features. This could be mitigated through a programme of archaeological investigation and recording during the construction phase.

Wylfa/Tregele compound

The northern-most compound area has the potential to impact on an area of enclosures identified in the geophysical survey and partially corresponding with field boundaries shown on the first edition OS map (HA12).

Llwyn-Yr-Arth compound

A compound storage area south of Llwyn-Yr-Arth farm contains no known heritage assets.

Bryniau-duon compound

A compound/storage area north of Bryniau-duon on the west side of Brynddu Road southeast of Llanfechell also contains no known heritage assets, but is outside the area surveyed by geophysics and the walkover survey did not extend to this area.

Consideration of alternative routes

An alternative route for the pipeline by the outfall for the Llyn Alaw reservoir would avoid an area of possible burnt mounds (HA4) identified in the geophysical survey. There is potential for this alternative route to disturb other currently unidentified features but the existing track to the treatment works which this alternative section of pipeline follows is likely to have already caused disturbance in this area.

An alternative route close to Drum passes through an area that was not suitable for geophysical survey or walkover. There is a greater risk that this part of the route contains currently unidentified archaeological features compared to the risk within the proposed route.

Two alternative routes west of Llanfechell are possible. Neither contain any currently known historic assets. The western most is slightly longer, leading to a slightly increased risk of currently unrecorded assets being discovered.

6 CONCLUSIONS

Geophysical survey, desk-based research and walkover survey have been carried out along with examination of LIDAR and aerial photographs to identify archaeological sites and areas of archaeological potential that may be affected by the proposed new pipeline.

Construction of the pipeline, including topsoil stripping for site compounds and areas for vehicle movements during construction as well as excavation for the pipeline, has the potential to impact on historic assets of archaeological interest (evidential value), including six possible burnt mounds, a possible prehistoric circular enclosure, a post-medieval farmstead and areas of enclosures of possible medieval or early post-medieval date. There is also potential for burials associated with a medieval chapel at Bod-ddeiniol to be disturbed by construction activity, although the extent of the cemetery is not known. Construction of the pipeline will also

result in the temporary removal of sections of historic boundary resulting in a localised impact on the evidential value of these features.

The extent of a possible medieval cemetery near Bod-ddeiniol farm is not known but may extend into the development area. Targeted areas of intrusive archaeological investigation will be required to further understand the archaeological potential of the proposed pipeline route and to identify the impacts of the development. These areas would include the southern end of the pipeline route targeting HA1-4; HA5 to confirm the nature of this geophysical anomaly and whether it relates to the medieval chapel; HA7 to identify the date of this feature; and the area east of the standing stones at Llanfechell (AN030) to confirm whether any associated remains are present here.

The exact scope of the archaeological evaluation will be agreed with the Gwynedd Archaeological Planning Service.

7 APPENDIX 1: REFERENCES

Bibliographic

Archaeological Services WYAS, 2015. *Wylfa Newydd Proposed New Nuclear Power Station Anglesey: Geophysical Survey, Report no. 2720.*

Bennett I 2016 *Land at Dalar Hir; Archaeological Trial Trenching, Headland Archaeology, unpublished report HAS no.1214, PRN 44838*

Cadw 2011 *Conservation principles for the sustainable management of the historic environment in Wales*

Carr, A. D. 1982 *Medieval Anglesey*

ClfA 2014 *Standard and Guidance for historic environment desk-based assessment (updated Jan 2017).*
<http://www.archaeologists.net/codes/ifa>

Cooke, R., Davidson, J. & Hopewell, D., 2012, *Proposed Nuclear Power Station, Wylfa, Ynys Môn; Archaeological Baseline Assessment Report 1.0, GAT Report No. 999*

Craddock-Bennett, L. & Bain, K. 2016a *Wylfa Newydd Proposed New Nuclear Power Station, Archaeological Trial Trenching (Task 1): Preliminary Report*

Craddock-Bennett, L. & Bain, K. 2016b *Wylfa Newydd Proposed New Nuclear Power Station, Archaeological Trial Trenching (Task 2): Preliminary Report*

Craddock-Bennett, L. 2016 *Wylfa Newydd Proposed New Nuclear Power Station, Archaeological Trial Trenching (Task 3): Preliminary Report*

Davidson, A. & Flook, H., 1994, *Proposed Wind Farm, Llyn Alaw, Anglesey, GAT Report No. 100*

Davidson, A., Hopewell, D., Kenney, J. & Longley, D., 2002, *Early Medieval Burial and Ecclesiastical Sites 2001-2002, GAT Report No. 451*

Gwynedd Archaeological Trust 2011(a) *Proposed Nuclear Power Station at Wylfa, Anglesey, North Wales. Archaeological Assessment (Areva). Bangor, Report 967*

Gwynedd Archaeological Trust 2011(b) *Proposed Nuclear Power Station, Wylfa, Ynys Môn. Archaeological Evaluation: Targeted Geophysics. Bangor, Report 987*

Gwynedd Archaeological Trust 2011(c) *Proposed Nuclear Power Station Wylfa, Ynys Môn. Archaeological Watching Brief: Ground Investigation Works. Bangor, Report 994*

Gwynedd Archaeological Trust 2012(a) *Proposed Nuclear Power Station Wylfa, Ynys Môn Archaeological Evaluation: Trial Trenching. Bangor, Report 1015*

Gwynedd Archaeological Trust 2012(b) *Proposed Nuclear Power Station, Wylfa, Anglesey. Archaeological Evaluation: Geophysical Survey, Interim Report. Bangor, Report 1019*

Geary, K., 1996, *Llanbabo Church, Anglesey: Watching Brief, GAT Report No. 225*

Harrison, D. 2017 *Wylfa Potable Water Pipeline, Anglesey: Geophysical Survey*

Jacobs 2015 *Wylfa Newydd Proposed New Nuclear Power Station. Cultural Heritage Desk-Based Survey, Report WN03.03.01-S5-PAC-REP-00016.*

Longley, D. 2007 *Archaeological Baseline Assessment of Land at Wylfa Nuclear Power Station, Anglesey, GAT Report No. 670*

Smith, G., 2013, *Llanfechell: A Prehistoric Funerary and Ritual Landscape in North Anglesey. Excavations at Cromlech Farm and Carrog Farm*, GAT Report No. 1173

Smith, G. 2011 *Evaluation Excavation At A Prehistoric Hill-Top Enclosure At Carrog, Llanbadrig, Anglesey*; GAT Report No 946

Smith, G. with Caseldine, A, Griffiths, C, Hopewell, D, Jenkins, D, Lynch, F, Madgwick R and Peck I. 2013a *Early Neolithic Settlement And An Early Iron Age Hill Top Enclosure At Carrog, Llanbadrig, Anglesey* GAT Report No 1148

Smith, G. with Caseldine, A, Griffiths, C, Hopewell, D, Jenkins, D, Lynch, F, Peck I. and Stern, B. 2013b *Llanfechell: A Prehistoric Funerary And Ritual Landscape In North Anglesey: Excavations at Cromlech Farm and Carrog Farm*

Smith, G. and Hopewell, D. 2010 *The Ancient Landscape of Mon Archaeology Survey Project* GAT Report No 858

Welsh Government 2016 *Draft Technical Advice Note 24: The Historic Environment*

Wessex Archaeology 2016 *Wylfa Newydd, Isle of Anglesey Archaeological Trial Trenching*, Ref 11940.59 v4.0

Cartographic

Ordnance Survey Map Sheets II.7, II.11, II.15, VI.3, VI.4, VI.8, VI.7, VI.11 and VI.12 1889, 1900 and 1924 editions

Anglesey Archives Original Documents

WDAAP/28 – documents about laying water main 1967-1971 (closed until 2055)

WR/422/1-4 OS maps of new parish of Carreglefn created 1907

Llanfechell Tithe Map

Llanbabo Tithe Map

Llanddausant Tithe Map

Llanflewyn Tithe Map

Llanrhwydrys Tithe Map

Llantrisant Tithe Map

Aerial Photographs held by RCHAMW

RAF Verticals

Sortie	Frame Number	Date	Easting	Northing
106G/UK/655	4294	13/08/1945	237810	385582
106G/UK/655	4295	13/08/1945	238549	385999
106G/UK/655	4296	13/08/1945	238870	386504
106G/UK/655	3278	13/08/1945	238091	385211
106G/UK/655	3279	13/08/1945	235677	385638
106G/UK/655	3280	13/08/1945	236322	386243
106G/UK/655	3281	13/08/1945	236656	386654
106G/UK/655	3282	13/08/1945	237476	387052
106G/UK/655	3283	13/08/1945	237928	387703
106G/UK/655	3284	13/08/1945	238388	388214
106G/UK/655	3285	13/08/1945	239015	388818
106G/UK/655	3310	13/08/1945	238928	387278
106G/UK/655	3311	13/08/1945	238706	386795
106G/UK/655	3312	13/08/1945	238152	386601
106G/UK/655	3313	13/08/1945	237566	386544
106G/UK/655	3314	13/08/1945	237230	386088
106G/UK/655	3315	13/08/1945	236824	385811
106G/UK/655	3316	13/08/1945	236563	385420
106G/UK/655	3317	13/08/1945	235931	385229

106G/UK/655	4323	13/08/1945	238978	388987
106G/UK/655	4324	13/08/1945	238633	388788
106G/UK/655	4325	13/08/1945	238213	388517
106G/UK/655	4326	13/08/1945	237777	388174
106G/UK/655	4327	13/08/1945	237354	387951
106G/UK/655	4328	13/08/1945	236643	387729
106G/UK/655	4329	13/08/1945	236288	387380
106G/UK/655	4330	13/08/1945	235934	387045
106G/UK/655	4331	13/08/1945	235543	386691
106G/UK/655	4332	13/08/1945	235165	386571
106G/UK/655	4333	13/08/1945	234572	386223
106G/UK/655	4384	13/08/1945	234804	388856
106G/UK/655	4385	13/08/1945	235395	389402
106G/UK/655	4386	13/08/1945	236106	389821
106G/UK/655	4387	13/08/1945	236601	390243
106G/UK/655	4388	13/08/1945	237149	390711
106G/UK/655	4389	13/08/1945	237802	391089
106G/UK/655	4390	13/08/1945	238397	391786
106G/UK/655	4391	13/08/1945	238890	392252
106G/UK/655	3367	13/08/1945	234571	390578
106G/UK/655	3368	13/08/1945	235075	390979
106G/UK/655	3369	13/08/1945	235564	391391
106G/UK/655	3370	13/08/1945	236167	391842
106G/UK/655	3371	13/08/1945	236757	392324
106G/UK/655	3372	13/08/1945	237226	392900
106G/UK/655	3383	13/08/1945	236881	392783
106G/UK/655	3384	13/08/1945	236465	392246
106G/UK/655	3385	13/08/1945	235969	392128
106G/UK/655	3386	13/08/1945	235482	391679
106G/UK/655	3387	13/08/1945	235171	391258
106G/UK/655	3388	13/08/1945	234523	390970
106G/UK/655	3018	20/11/1948	236460	391750
106G/UK/655	3019	20/11/1948	235730	391760
106G/UK/655	3020	20/11/1948	235110	391620
106G/UK/655	4088	11/05/1951	239070	385310

RAF Obliques

Film	Frame	NGR
89-CS	609	SH384910
89-CS	614	SH350914
895037	4	SH384910
895037	6	SH350914
90-CS	786	SH3593
90-CS	787	SH364917
90-CS	788	SH350914
90-CS	789	SH350914
90-CS	790	SH350914
90-CS	791	SH350914
90-CS	792	SH386907
90-CS	793	SH386907
90-CS	794	SH386907
90-CS	795	SH383915
905063	10	SH350914
905063	11	SH385910
905063	12	SH386907
905063	14	SH383915
905063	15	SH386907
905063	16	SH383915
905063	9	SH364917

96-CS	1562	SH368857
96-CS	1565	SH384910
96-CS	1566	SH372921
96-CS	1567	SH372921
96-CS	1568	SH370916
965124	44	SH368857
965124	47	SH376883
965124	48	SH384910
965124	49	SH384912
965124	50	SH372921
965124	51	SH372921
965124	52	SH370916
965124	53	SH363918
99-CS	66	SH385914
99-CS	68	SH346898
99-CS	69	SH371878
99-CS	70	SH371878
99-CS	71	SH371878
99-CS	72	SH376883
99-CS	73	SH385852
99-CS	74	SH385852
99-CS	75	SH385852
99-CS	76	SH368857
993502	11	SH364916
993502	12	SH370916
993502	18	SH376883
993502	19	SH368857
993502	41	SH385914

8 APPENDIX 2: CULTURAL HISTORIC ASSETS WITHIN THE INNER STUDY AREA

Table 1: Gazetteer of historic assets within the study area

Reference	Name	Grade	Easting	Northing
AN030	Standing Stones	Scheduled Monument	236397	391686
AN080	Standing Stone 410m North of Church	Scheduled Monument	236992	391639
AN090	Glan-Alaw Standing Stone	Scheduled Monument	236833	385734
5354	Church of St Pabo	Grade II* Listed Building	237805	386773
5383	Church of St Mechell	Grade II* Listed Building	236942	391273
5386	2 Crown Terrace	Grade II Listed Building	236955	391236
24963	Fferam-gyd	Grade II Listed Building	237844	387040
25164	Y Stryd	Grade II Listed Building	238319	389090
25165	Ty Newydd	Grade II Listed Building	238322	389101
25167	War Memorial	Grade II Listed Building	236937	391227
25168	3 Crown Terrace	Grade II Listed Building	236950	391226
25169	4 Crown Terrace	Grade II Listed Building	236945	391216

25177	Hen Bont	Grade II Listed Building	238320	389096
1734	Site of Fulling Mill, Llanfechell		236800	391300
2065	St. Pabo's Church, W of Llyn Alaw		237806	386774
2066	Standing Stone, Glan Alaw, W of Bod-deiniol		236833	385738
2070	Capel Deiniol, Site of, Llanfechell		237200	385700
2071	Copper Cake, Findspot, Carreglefn		238000	389000
2074	Natural Feature, Bod Deiniol		237020	385830
2750	Llanol Inscribed Stone, Former Site of, Llanbabo		237620	388420
3046	Burial Chamber, Possible, Cromlech, Llanfechell		236046	392003
3047	Standing Stones, Llanfechell		236400	391680
3048	Standing Stone N of Church, Llanfechell		236990	391640
3051	St. Mechell's Church, Llanfechell		236940	391270
3069	Maen Arthur Standing Stone, Possible, Mynydd Mechell		236840	390250
5634	Platform House, S of Salbri Farm		237400	387500
5872	Enclosure, SE of Llanol		237700	388260
6940	Parish Church, Llanbabo		237806	386774
6993	Llanfechell Parish Church, Mechell		236940	391270
7696	Bethlehem, Mechell		238320	389150
7758	Ebenezer Welsh Independent Chapel, Llanfechell		236510	390920
7762	Capel Libanus, Llanfechell		236895	391232
7763	Bethania Methodist Chapel, Treglele		235770	392480
11070	Llanfechell, Mechell		236900	391200
11073	Crown Terrace, Llanfechell		236950	391226
17150	Mynydd Mechell Character Area, Mechell		237872	389308
36582	Cae'r Brenhin, Site of, Treglele		235450	393150
36603	Tyddyn Du and Pen y Groes Isaf, Treglele		235420	392890
36605	Lodge, Simdda Wen		235499	393131
36606	Pen Lon, Treglele		235780	392960
36609	Tyddyn Goronwy, Cemaes		235830	393250
36613	Council Depot, Treglele		235300	392910
55725	Enclosure, E of Fferam Gyd		237920	388100
61077	Penrallt, Treglele		235346	392591
61096	Ysgubor Ddegwm, Treglele		235472	392592
61097	Trackway, Penrallt		235474	392606
61098	Trackway, Site of, Tyddyn Du		235553	392969
61107	Field Drains, N of the Firs		235275	393063
61109	Structures, Remains of, Wylfa		235530	393240
61127	Field Boundary, Possible, N of Nant-y-gof		235950	393040
61140	Pit, Site of, N of Treglele		235571	392885

61141	Field Boundary, Site of, N of The Firs		235456	392977
62456	Llanfechell, Conservation Area	Conservation Area	236908	391247
HA1	Linears visible in geophysical survey			
HA2	Ty-bach farmstead			
HA3	Linears visible in geophysical survey			
HA4	burnt mounds 1 and 2			
HA5	Enclosure visible in geophysical survey			
HA6	Enclosure visible in geophysical survey			
HA7	Enclosure visible in geophysical survey			
HA8	Linears visible in geophysical survey			
HA9	burnt mound 3			
HA10	burnt mound 4			
HA11	burnt mounds 5 and 6			
HA12	Enclosures visible in geophysical survey			
HA13	Ty'n-lan farmstead			
HA14	Parish boundary between Llantrisant and Llanbabo			
HA15	Parish boundary between Llanbabo and Llanbadrig			
HA16	Parish boundary between Llanbadrig and Llanfechell			
HA17	Historic boundary			
HA18	Historic boundary			
HA19	Historic boundary			
HA20	Historic boundary			
HA21	Historic boundary			
HA22	Historic boundary			
HA23	Historic boundary			

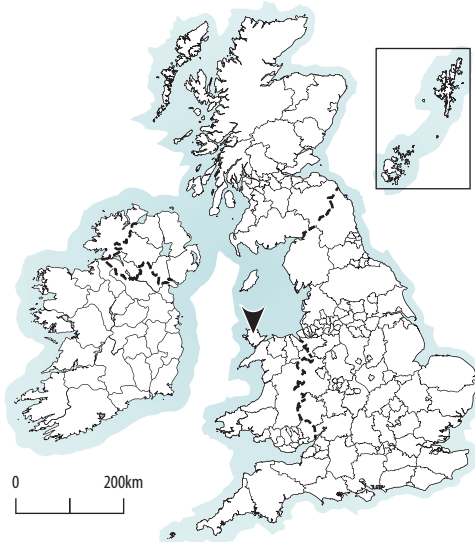
10 APPENDIX 3: ILLUSTRATIONS

www.headlandarchaeology.com/

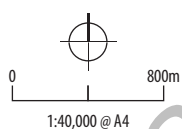
WPWP/02

Wylfa Potable Water Supply

Isle of Anglesey



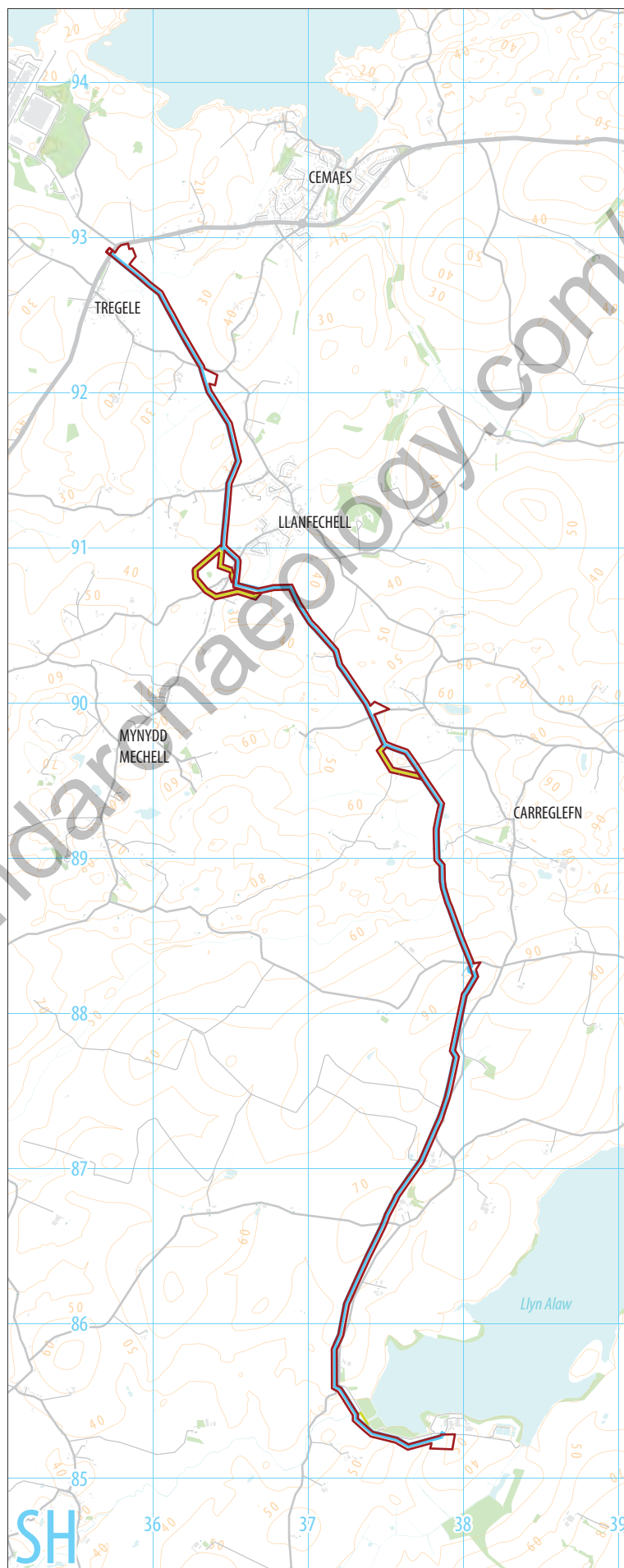
- inner study area
- proposed water main
- alternative route



MIDLANDS & WEST

Unit 1, Clearview Court, Twyford Road
Hereford HR2 6JR
01432 364 901
www.headlandarchaeology.com

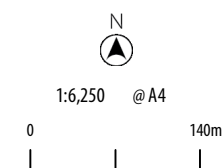
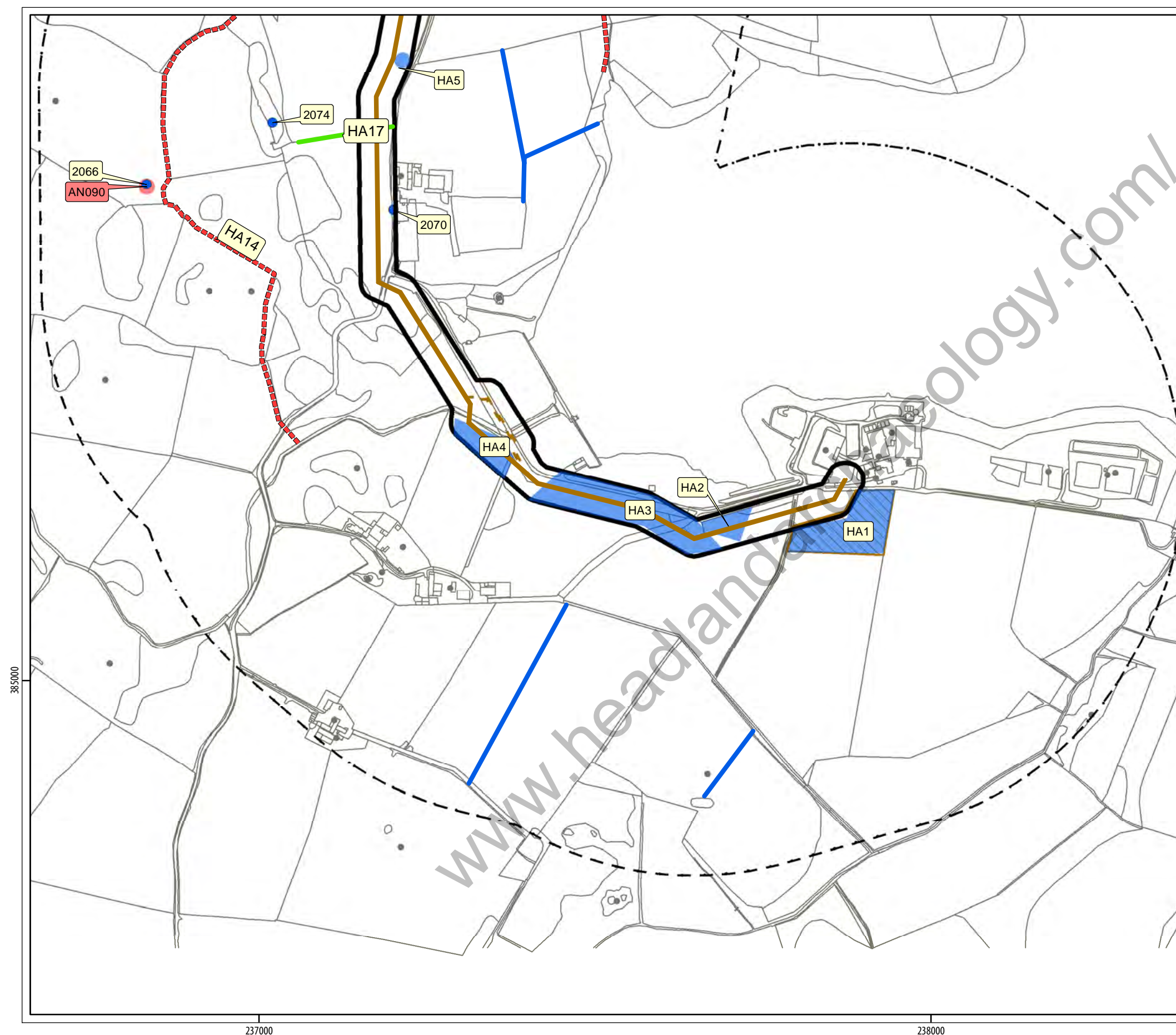
ILLUS 1 Site location

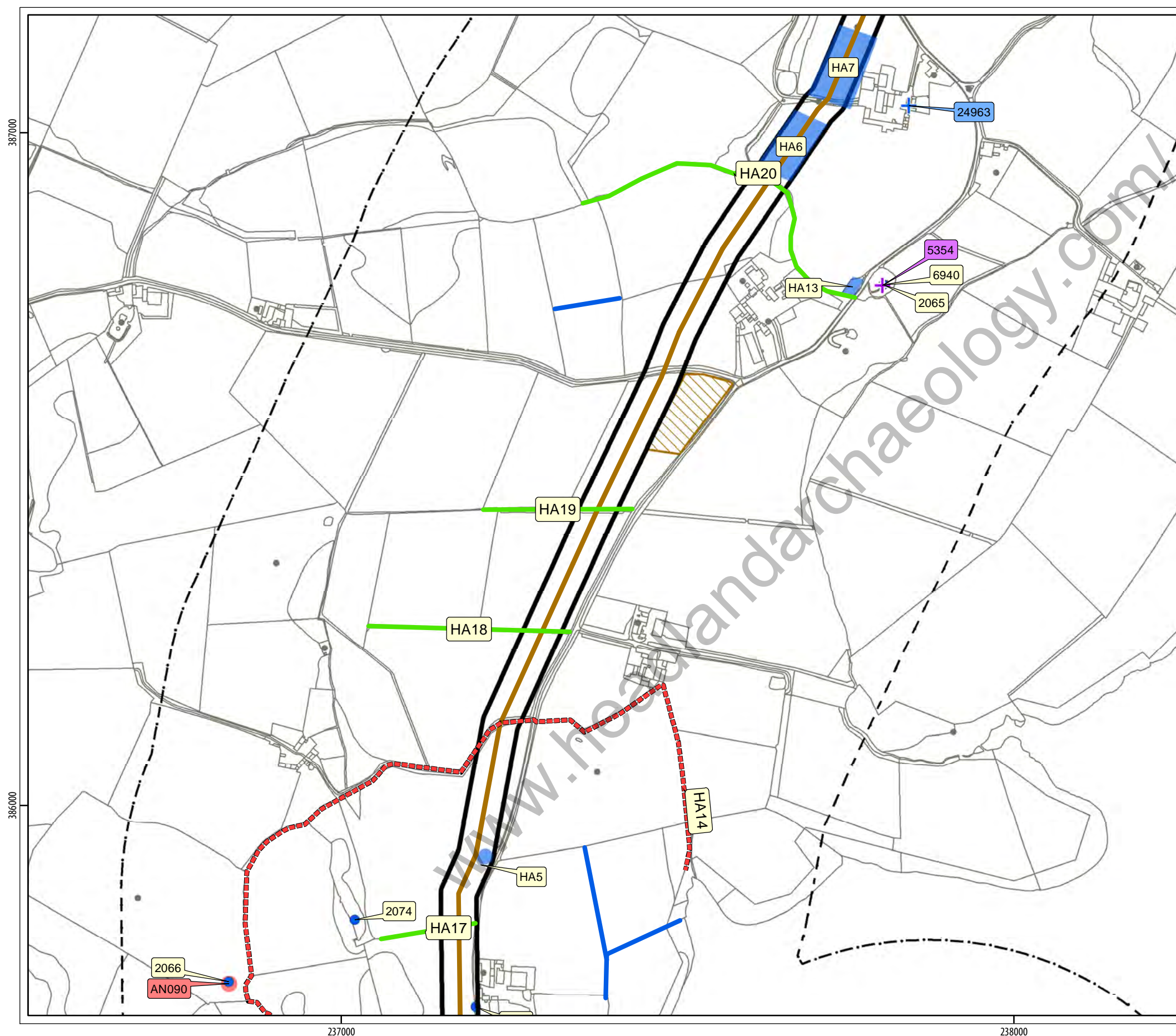


Contains OS data © Crown copyright and database right 2017

KEY

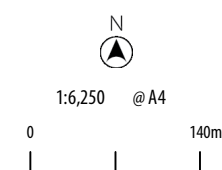
- Historically important hedgerow
- Historic asset in National Monuments Record
- Lost field boundaries
- - - Historic parish boundary
- Proposed Route
- Historic asset identified during assessment
- Inner Study Area
- + Grade II* listed building
- + Grade II listed building
- Historic asset
- Alternative Routes
- Scheduled Monument
- - - Extent of Study area
- Compounds





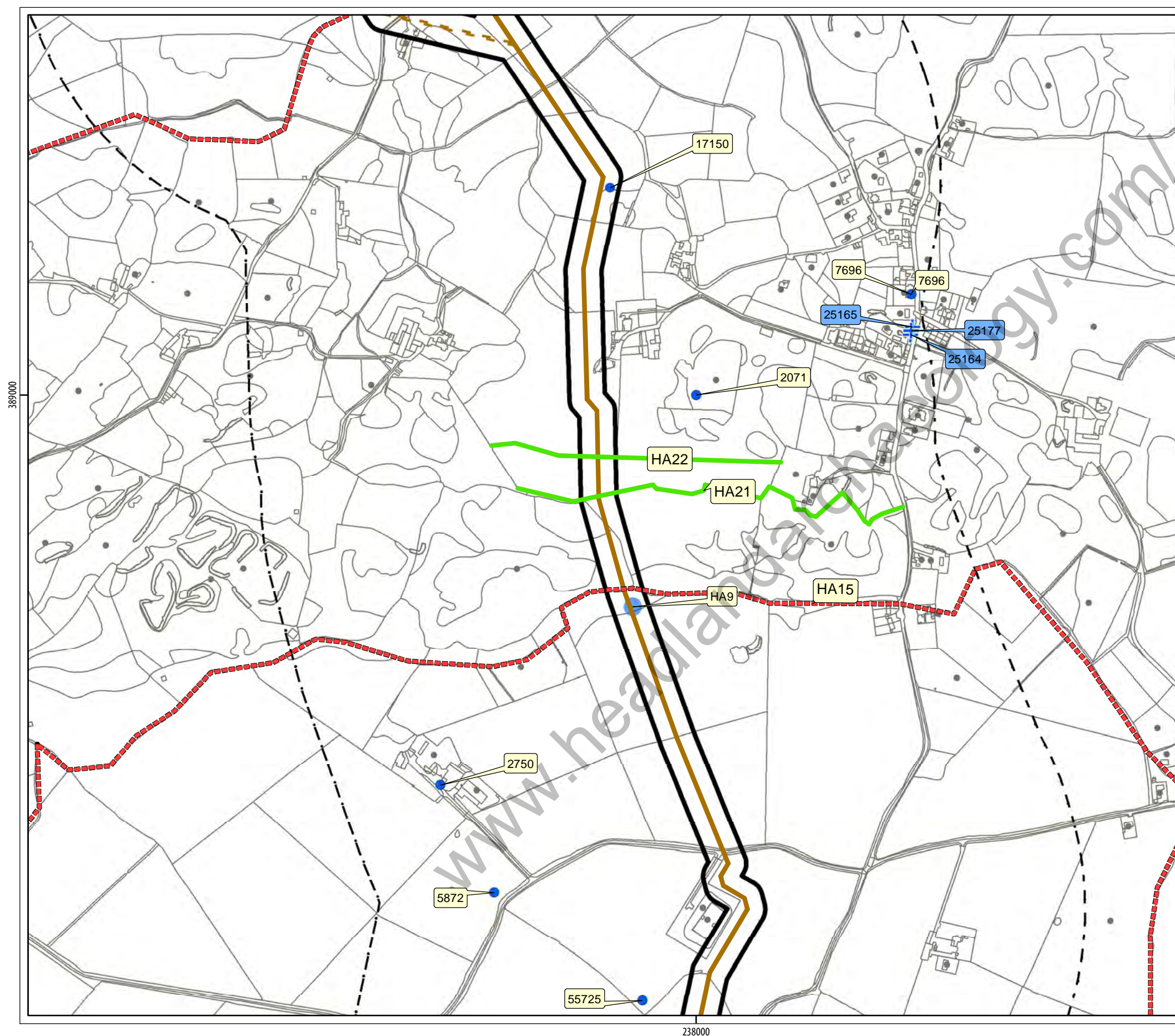
KEY

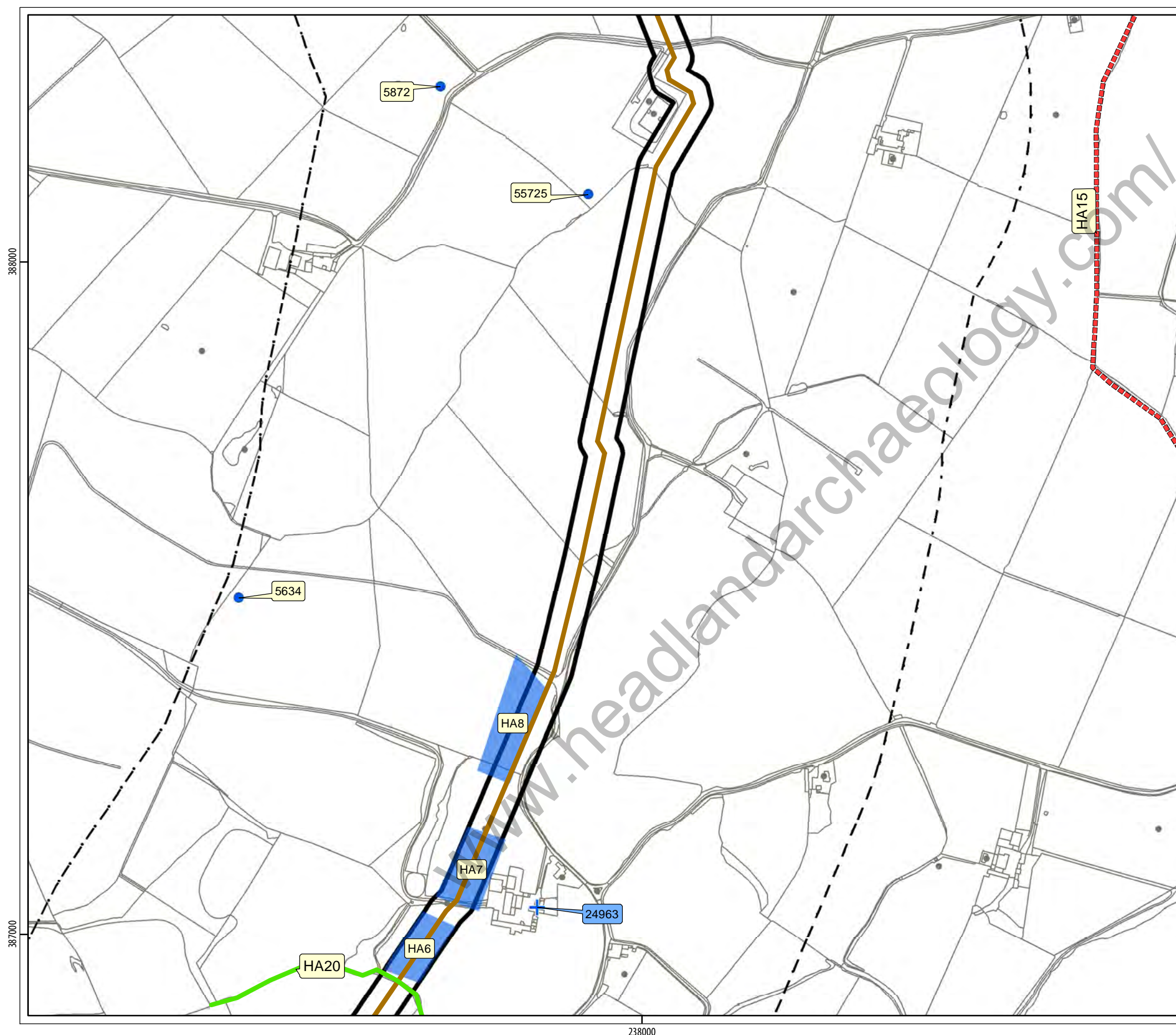
- Historically important hedgerow
- Historic asset in National Monuments Record
- Lost field boundaries
- Historic parish boundary
- Proposed Route
- Historic asset identified during assessment
- Inner Study Area
- + Grade II* listed building
- + Grade II listed building
- Historic asset
- Alternative Routes
- Scheduled Monument
- Extent of Study area
- Compounds



KEY

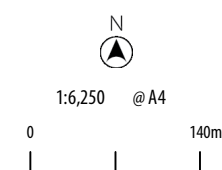
- Historically important hedgerow
- Historic asset in National Monuments Record
- Lost field boundaries
- - - Historic parish boundary
- Proposed Route
- Historic asset identified during assessment
- Inner Study Area
- + Grade II* listed building
- + Grade II listed building
- Historic asset
- - - Alternative Routes
- - - Scheduled Monument
- - - Extent of Study area
- ▭ Compounds





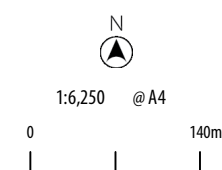
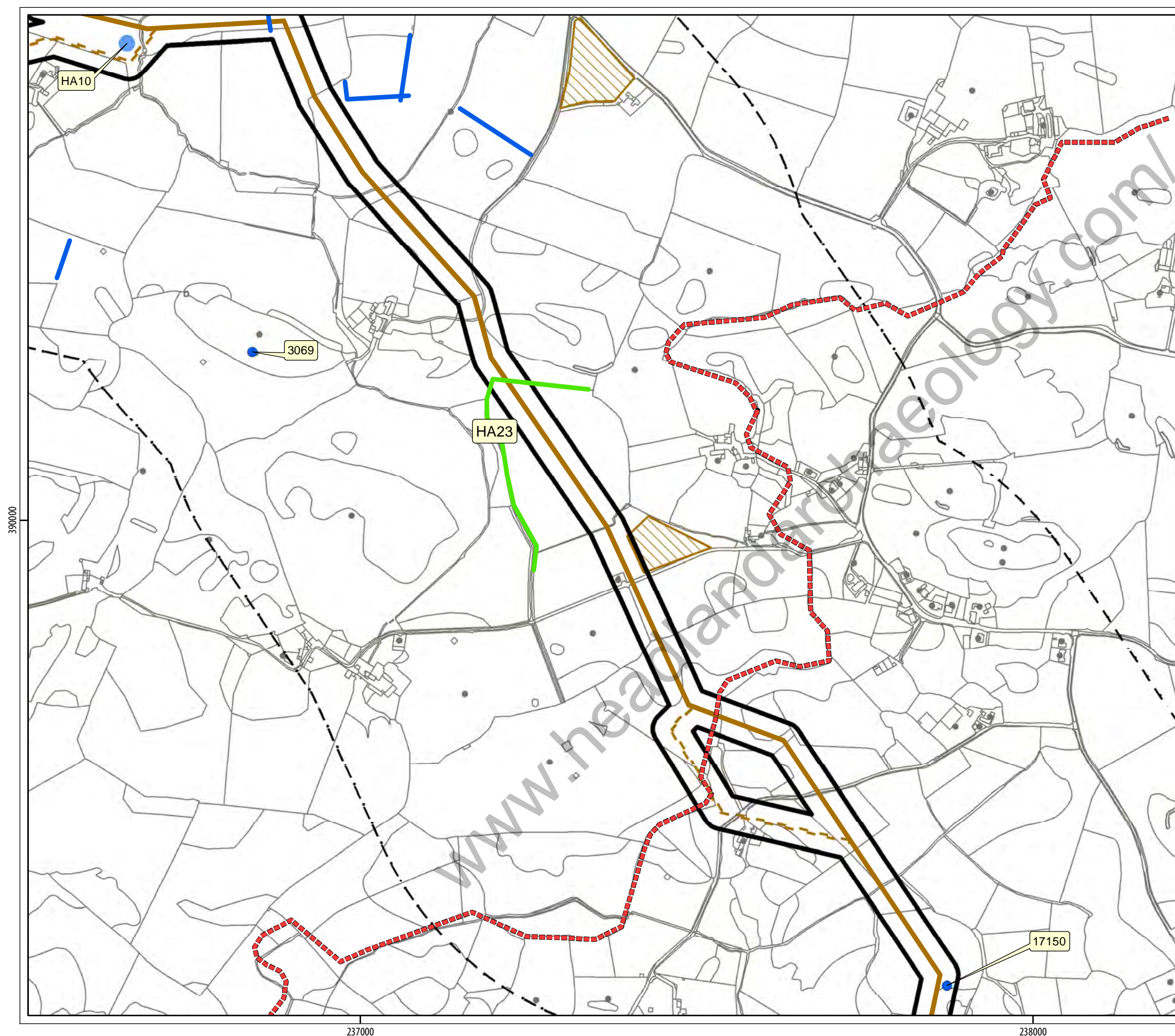
KEY

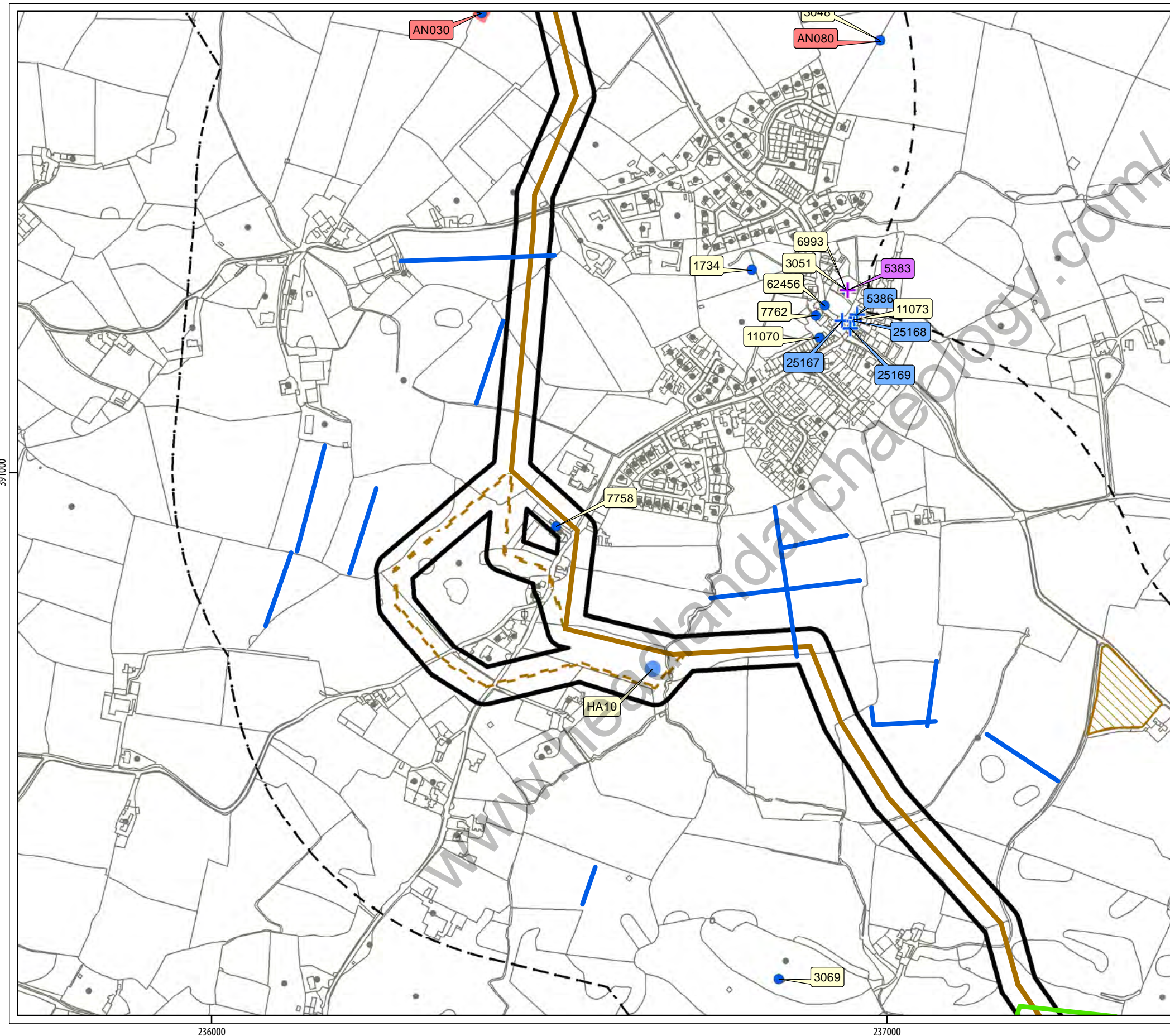
- Historically important hedgerow
- Historic asset in National Monuments Record
- Lost field boundaries
- - - Historic parish boundary
- Proposed Route
- Historic asset identified during assessment
- Inner Study Area
- + Grade II* listed building
- + Grade II listed building
- Historic asset
- Alternative Routes
- Scheduled Monument
- . - Extent of Study area
- Compounds



KEY

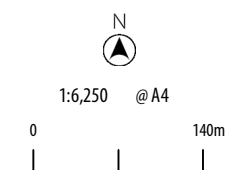
- Historically important hedgerow
- Historic asset in National Monuments Record
- Lost field boundaries
- - - Historic parish boundary
- Proposed Route
- Historic asset identified during assessment
- Inner Study Area
- + Grade II* listed building
- + Grade II listed building
- Historic asset
- - - Alternative Routes
- - - Scheduled Monument
- Extent of Study area
- Compounds





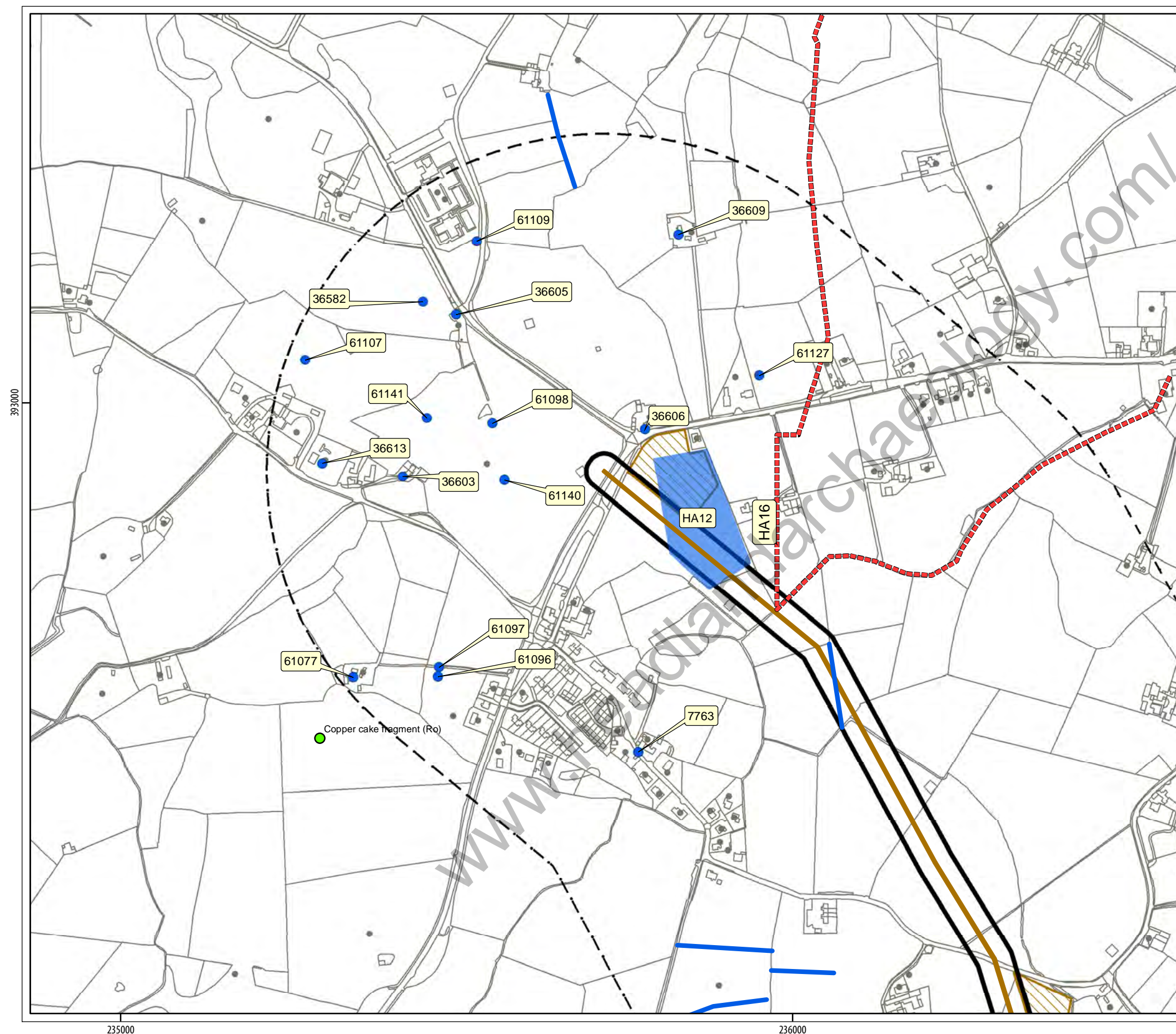
KEY

- Historically important hedgerow
- Historic asset in National Monuments Record
- Lost field boundaries
- Historic parish boundary
- Proposed Route
- Historic asset identified during assessment
- Inner Study Area
- + Grade II* listed building
- + Grade II listed building
- Historic asset
- Alternative Routes
- ▭ Scheduled Monument
- Extent of Study area
- ▭ Compounds



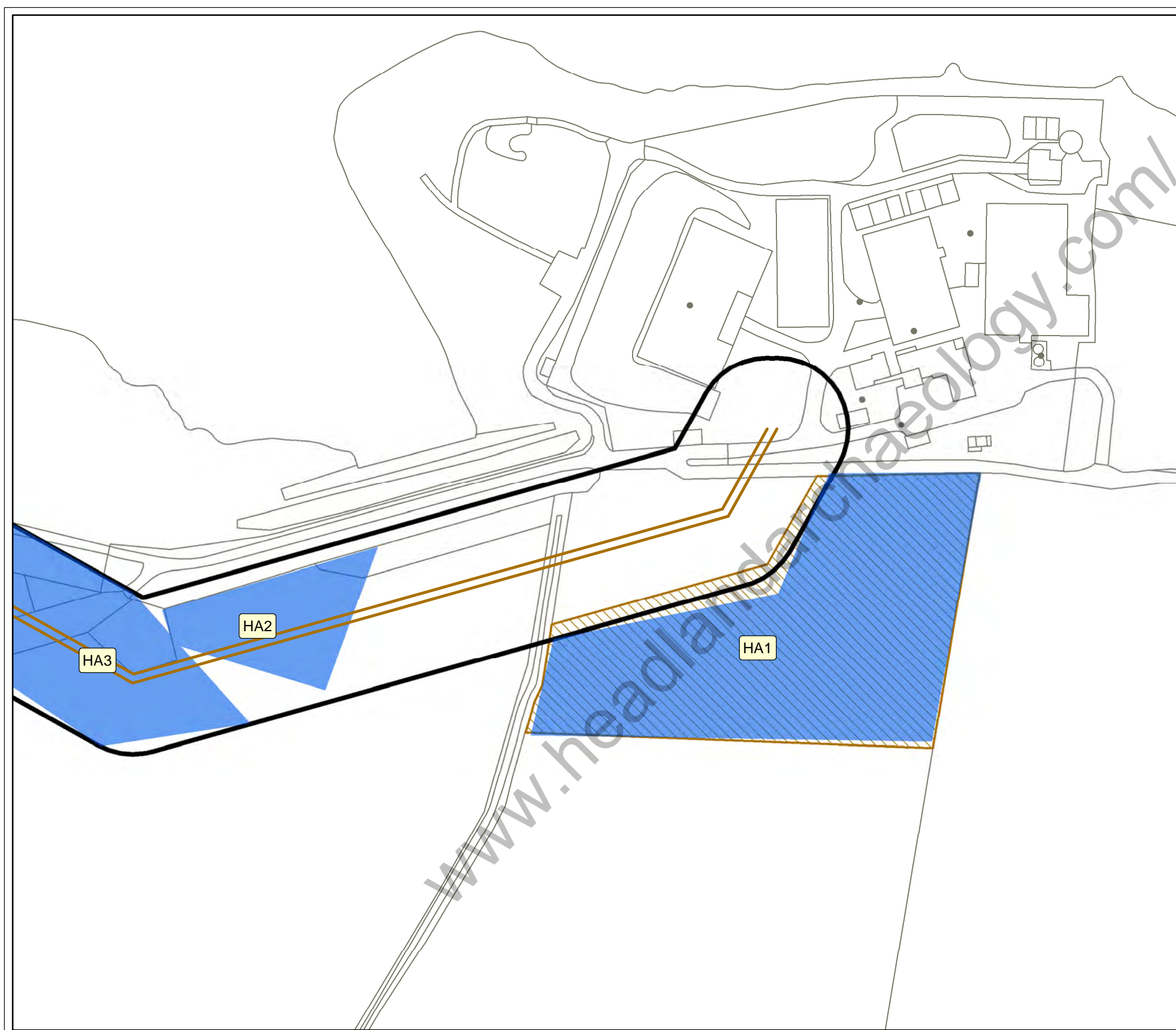
KEY

- Historically important hedgerow
- Historic asset in National Monuments Record
- Lost field boundaries
- - - Historic parish boundary
- Proposed Route
- Historic asset identified during assessment
- Inner Study Area
- + Grade II* listed building
- + Grade II listed building
- Historic asset
- Alternative Routes
- - - Scheduled Monument
- - - Extent of Study area
- Compounds

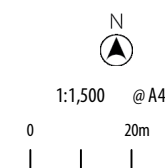


KEY

- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds

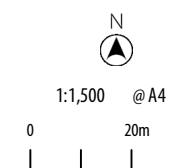
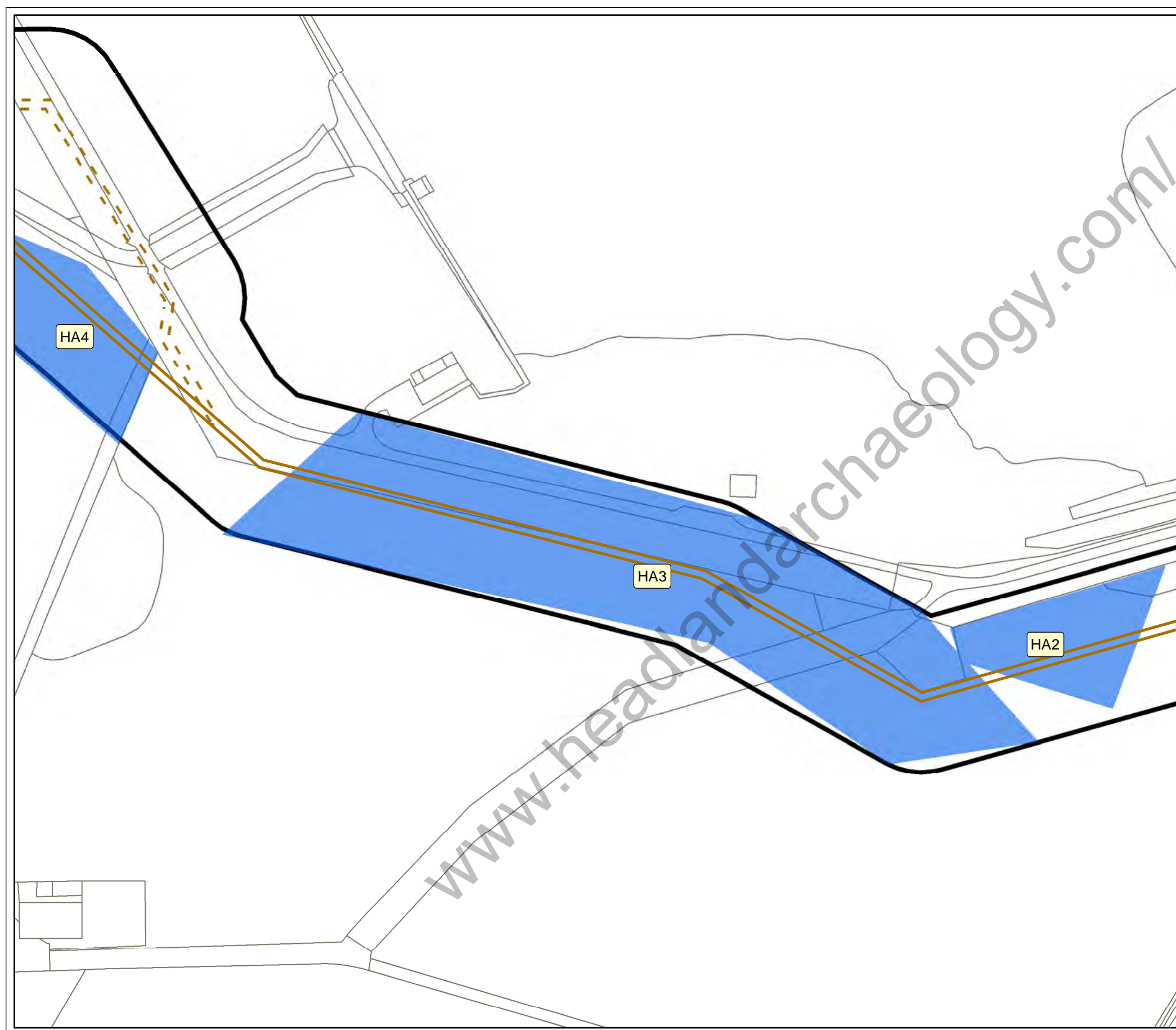


238000



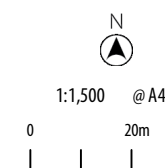
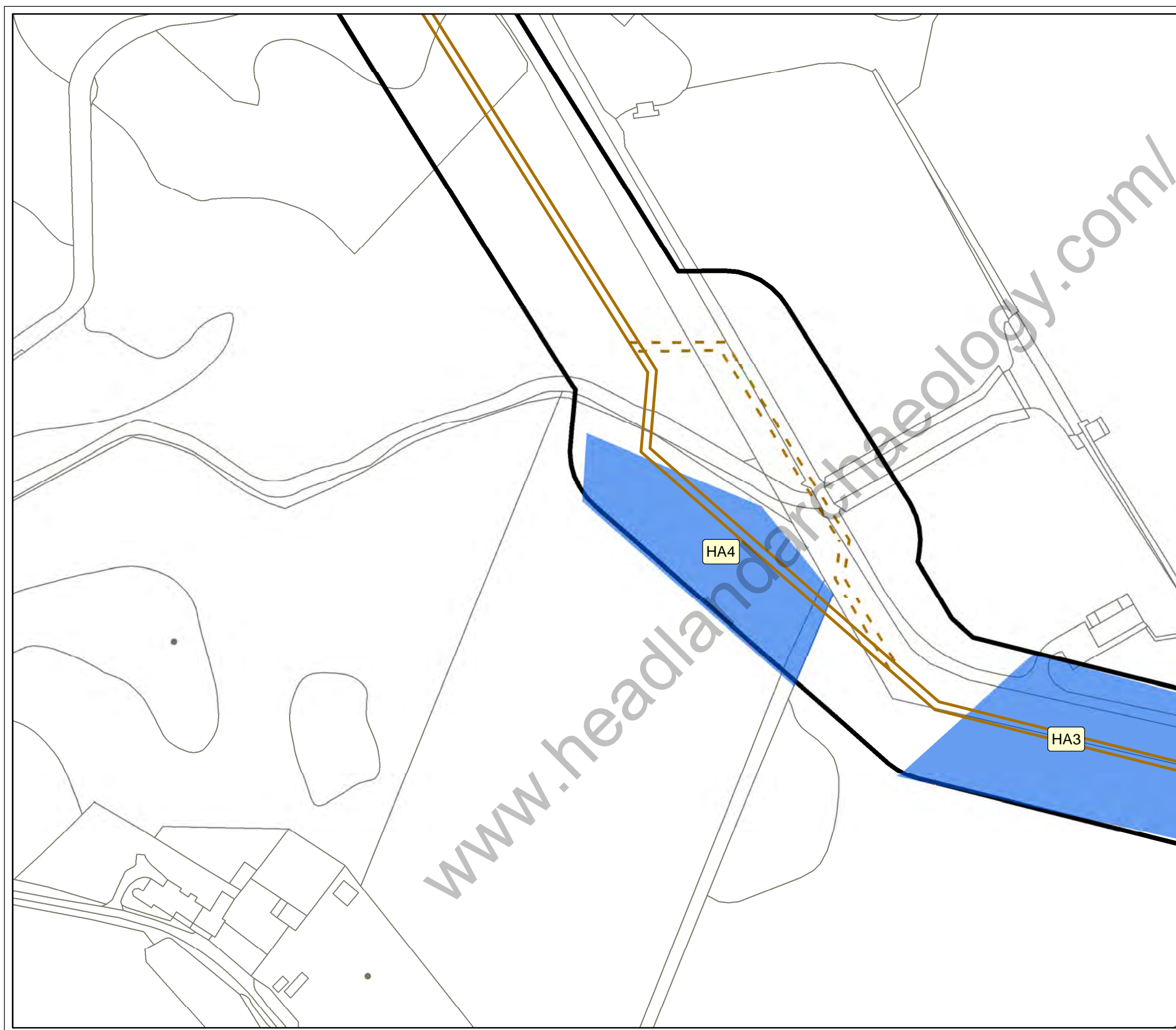
KEY

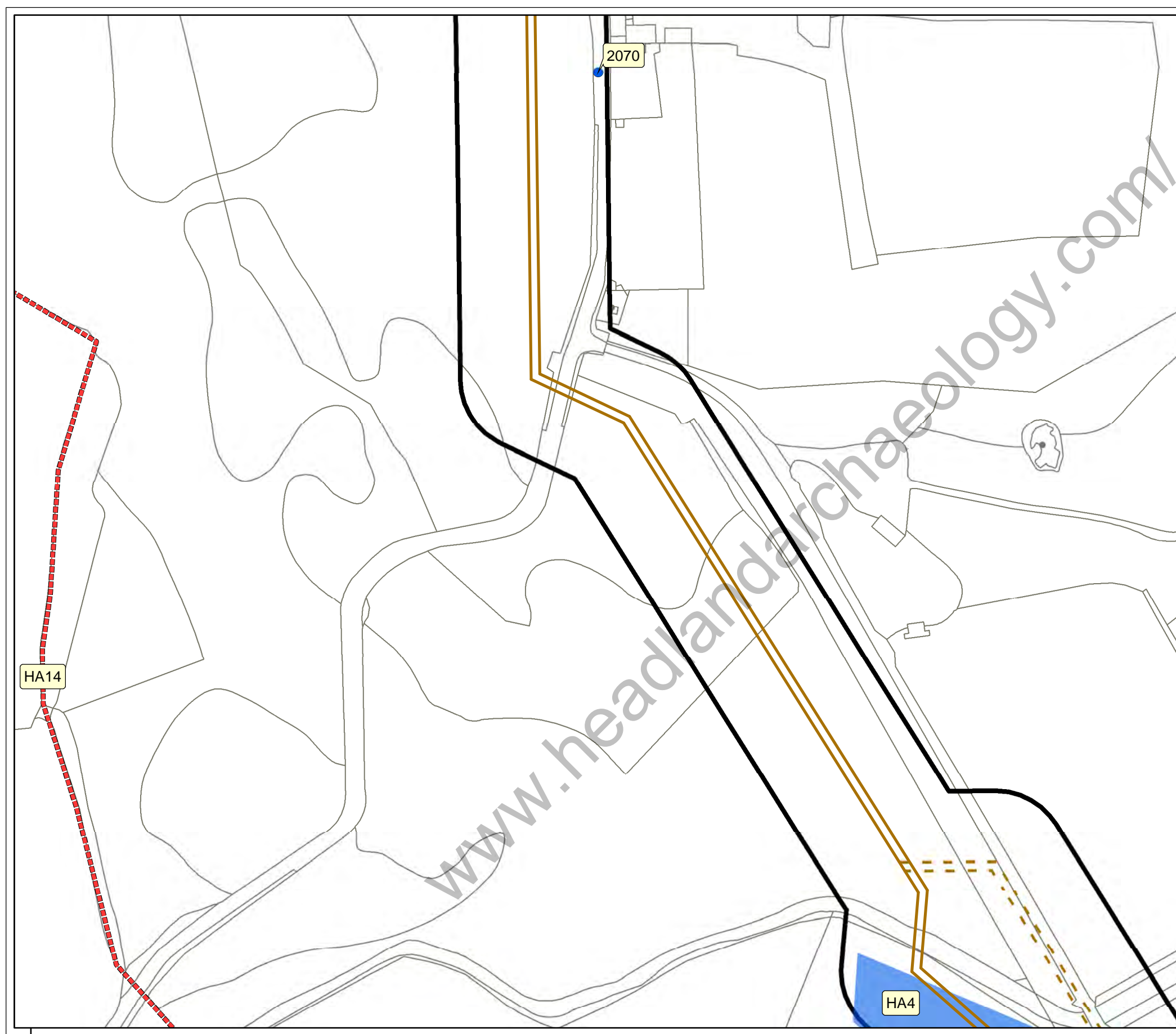
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds



KEY

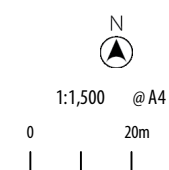
- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds

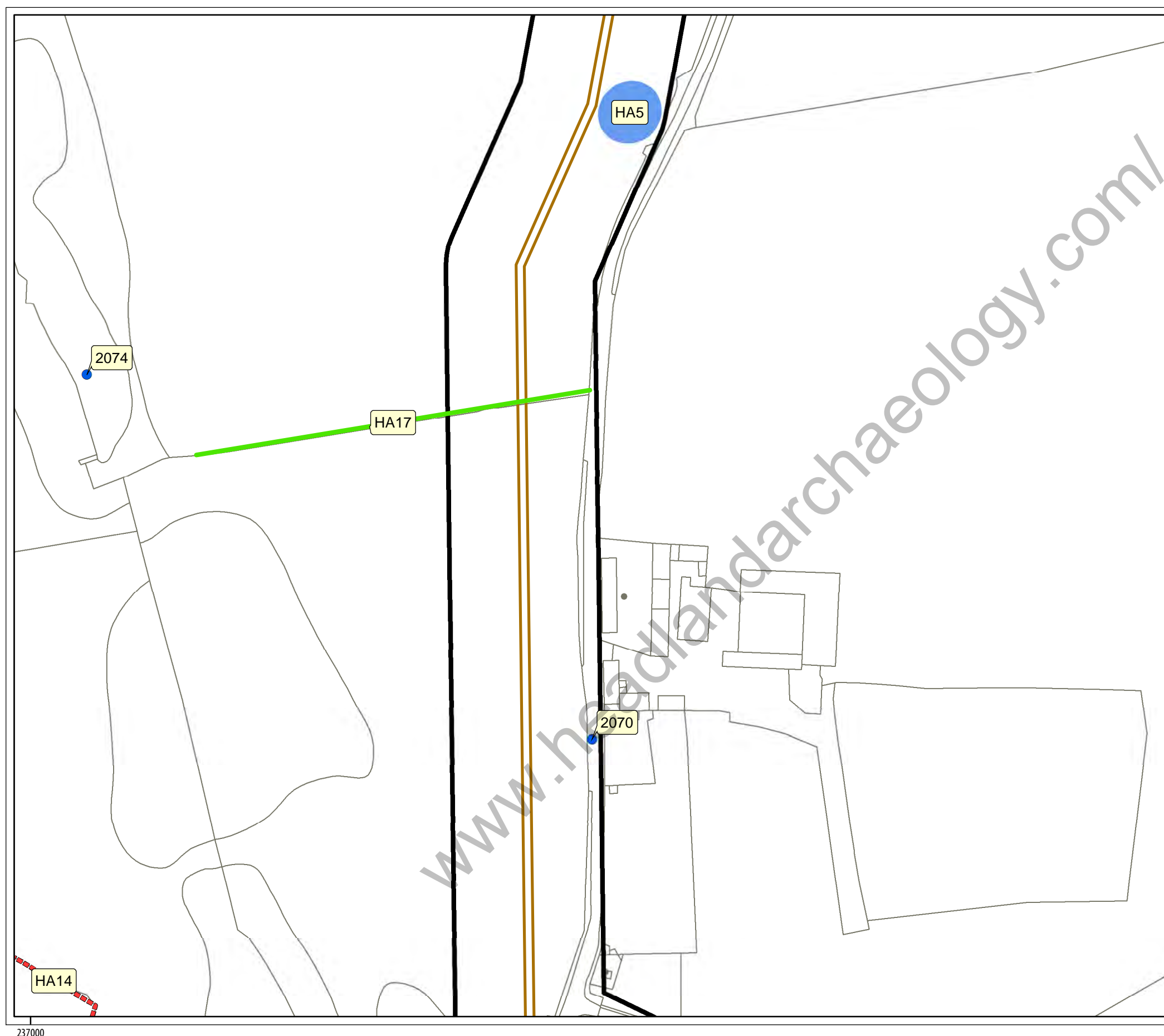




KEY

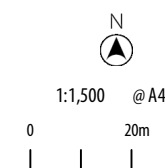
- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds

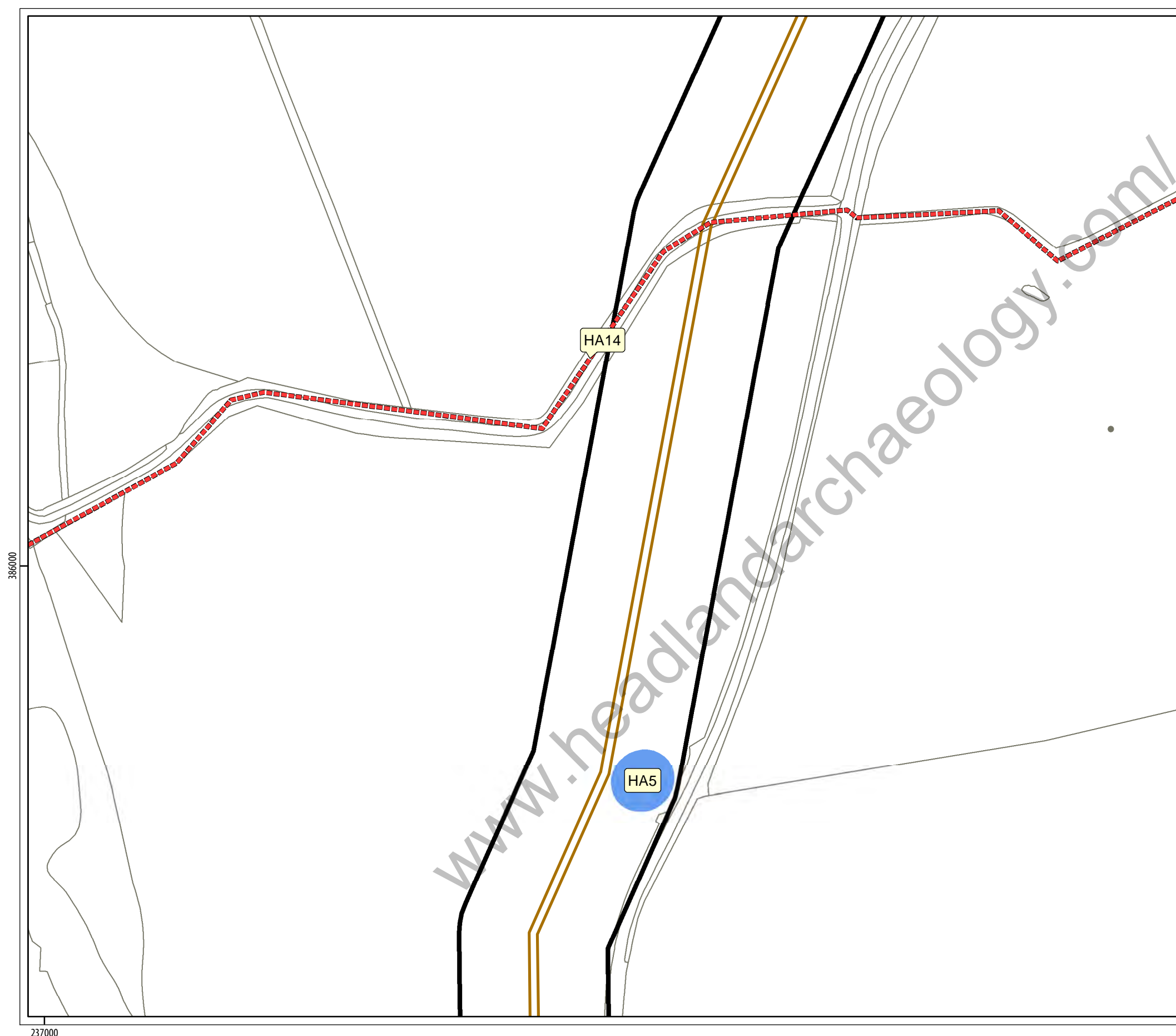




KEY

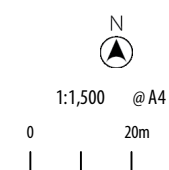
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds





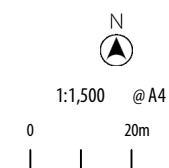
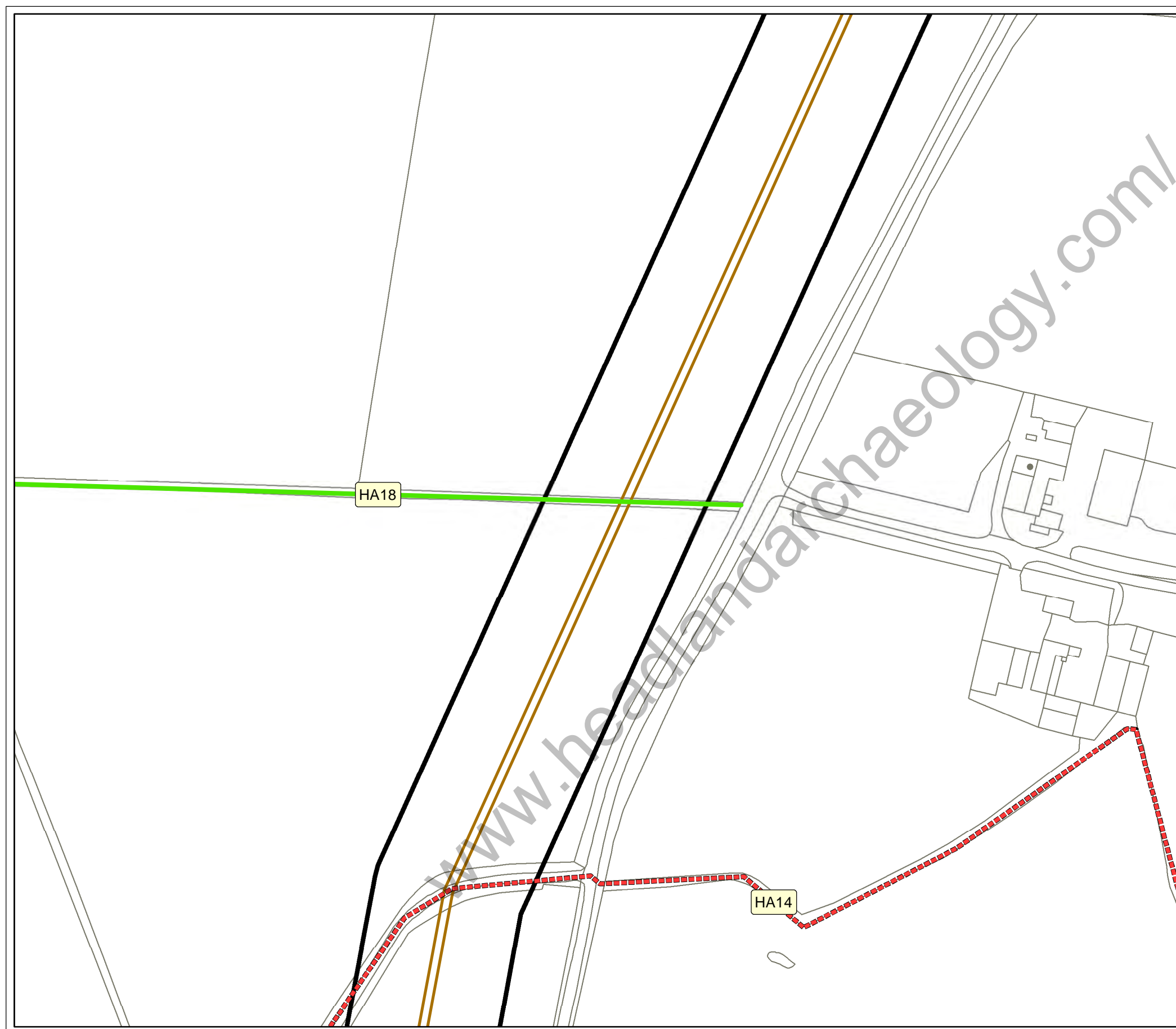
KEY

- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds



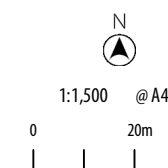
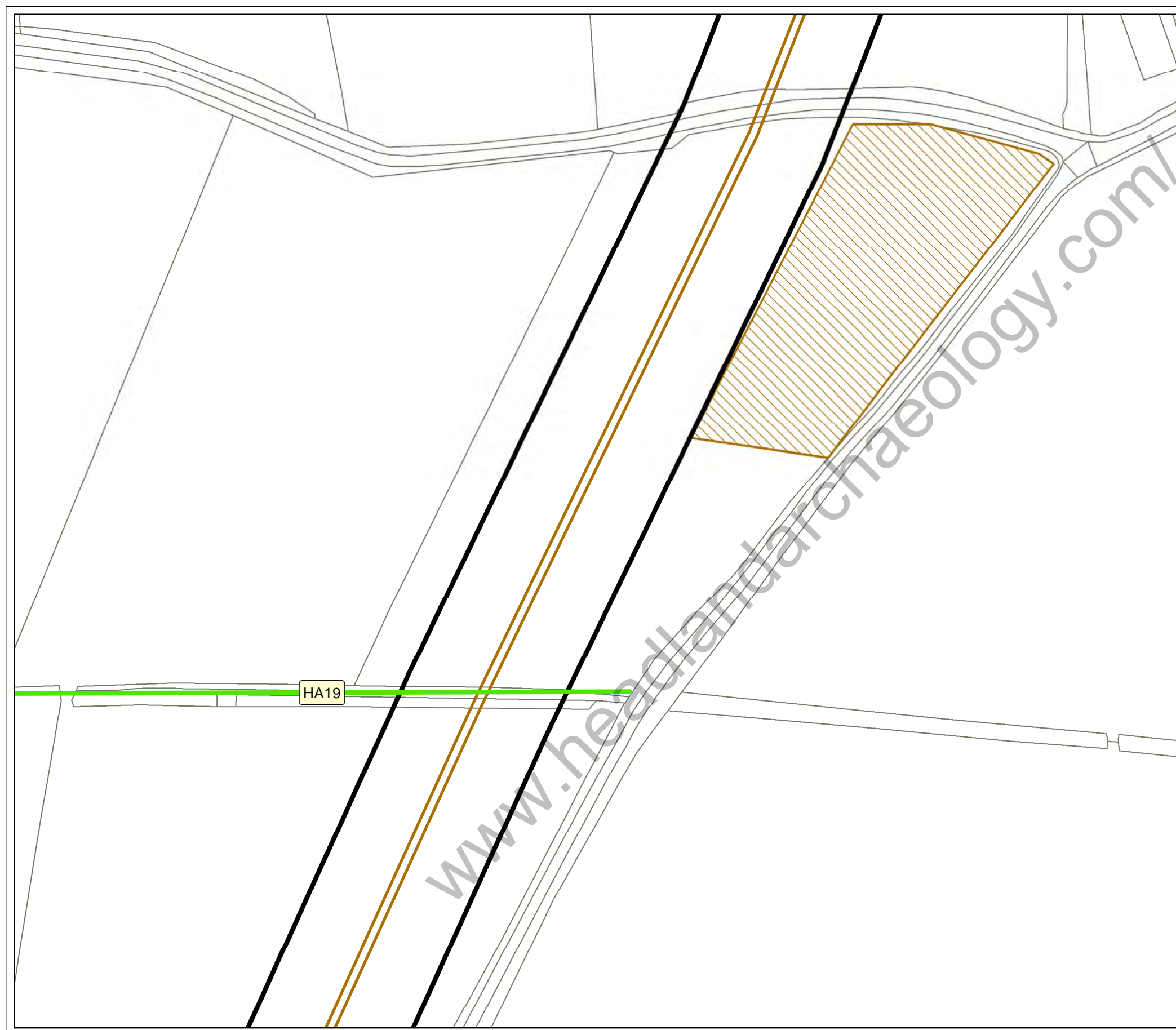
KEY

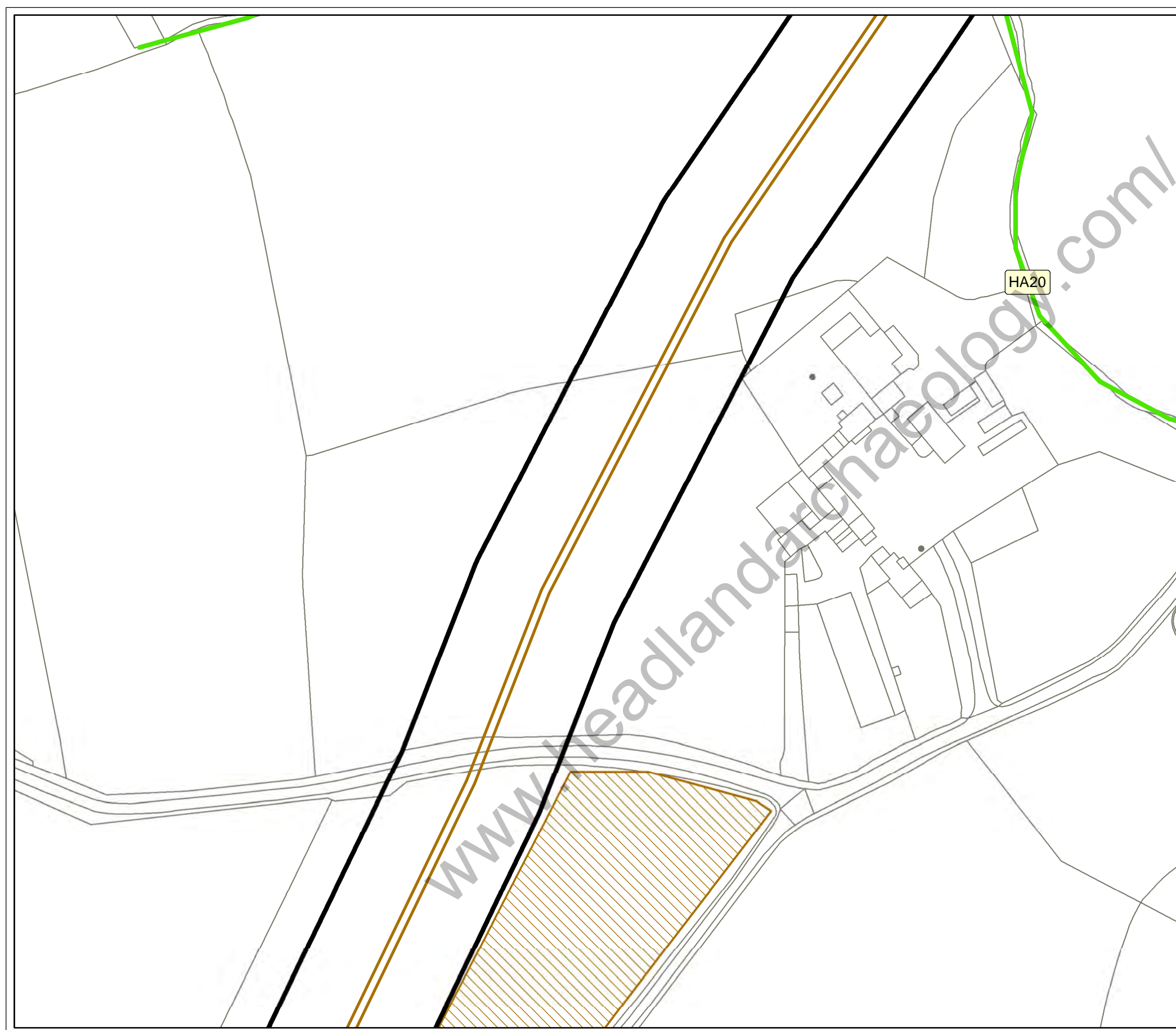
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds



KEY

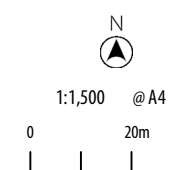
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds





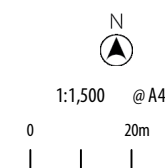
KEY

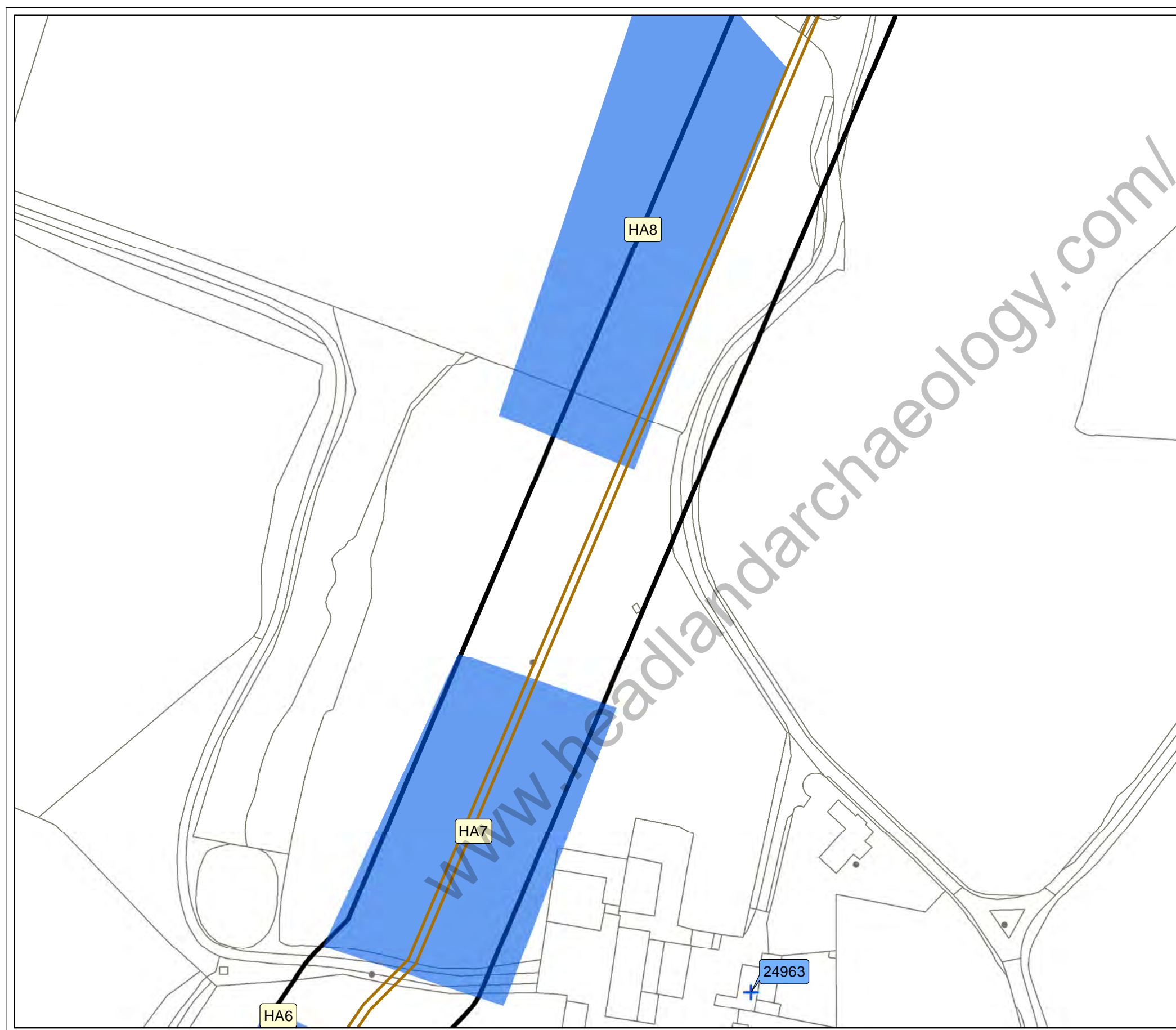
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds



KEY

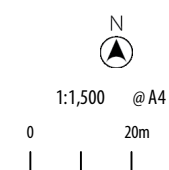
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds





KEY









- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds

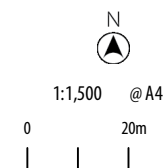




238000

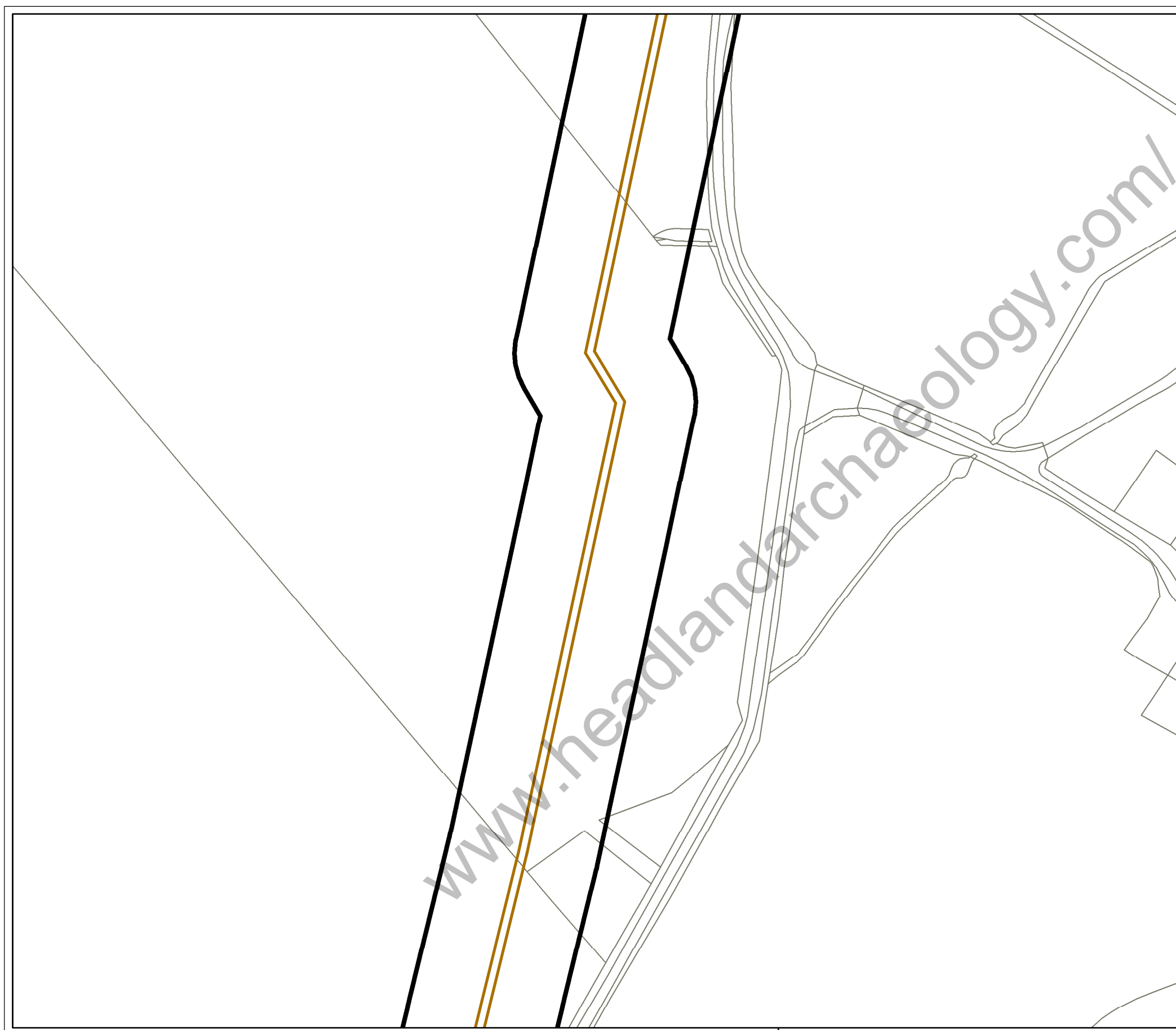
KEY

-  Historically important hedgerow
-  Historic parish boundary
-  Proposed Route
-  Historic asset identified in assessment
-  Inner Study Area
-  Historic asset
-  Alternative Routes
-  Compounds

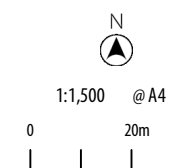


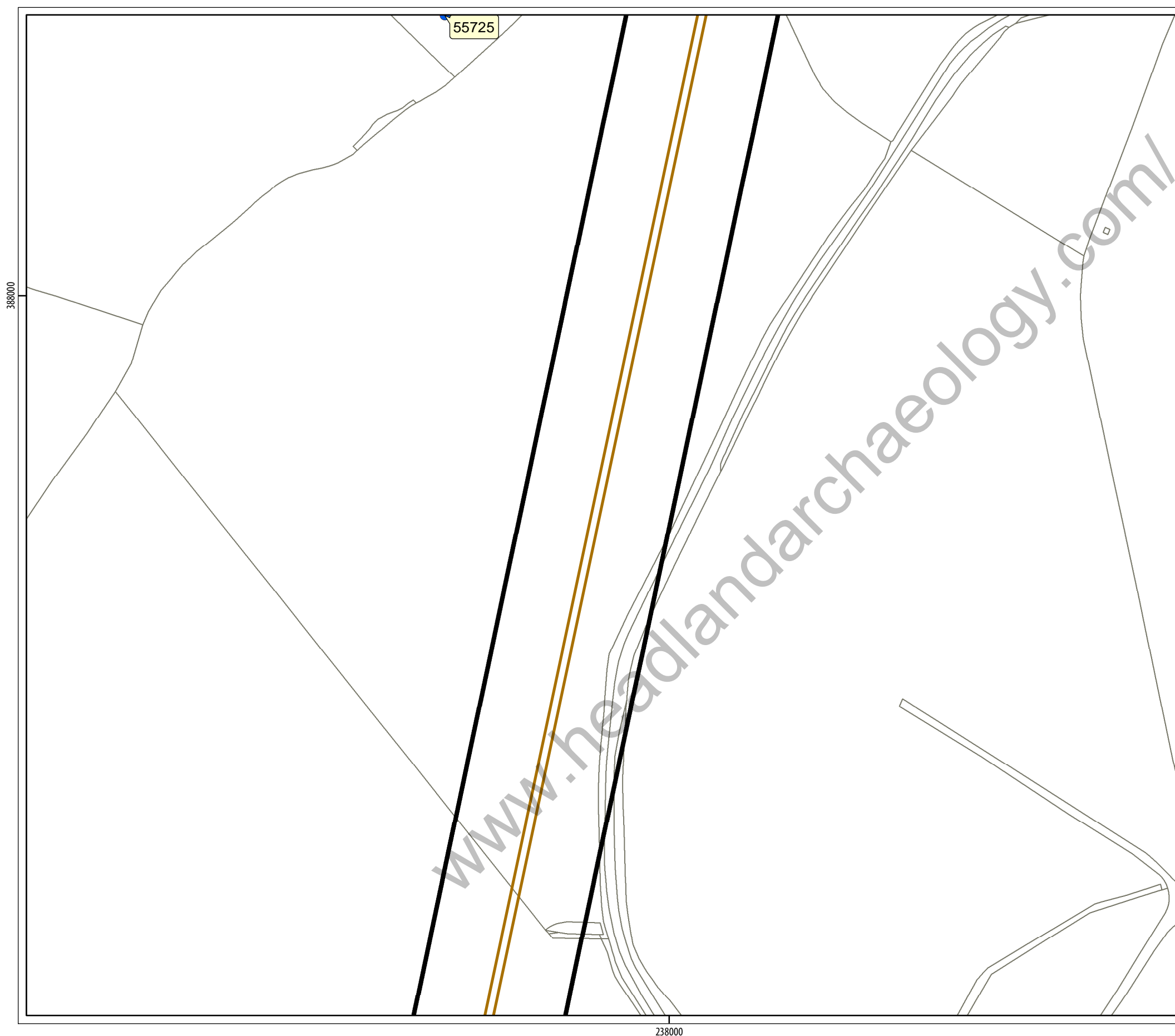
KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



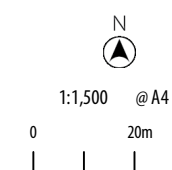
238000





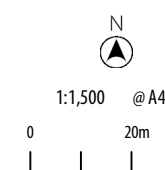
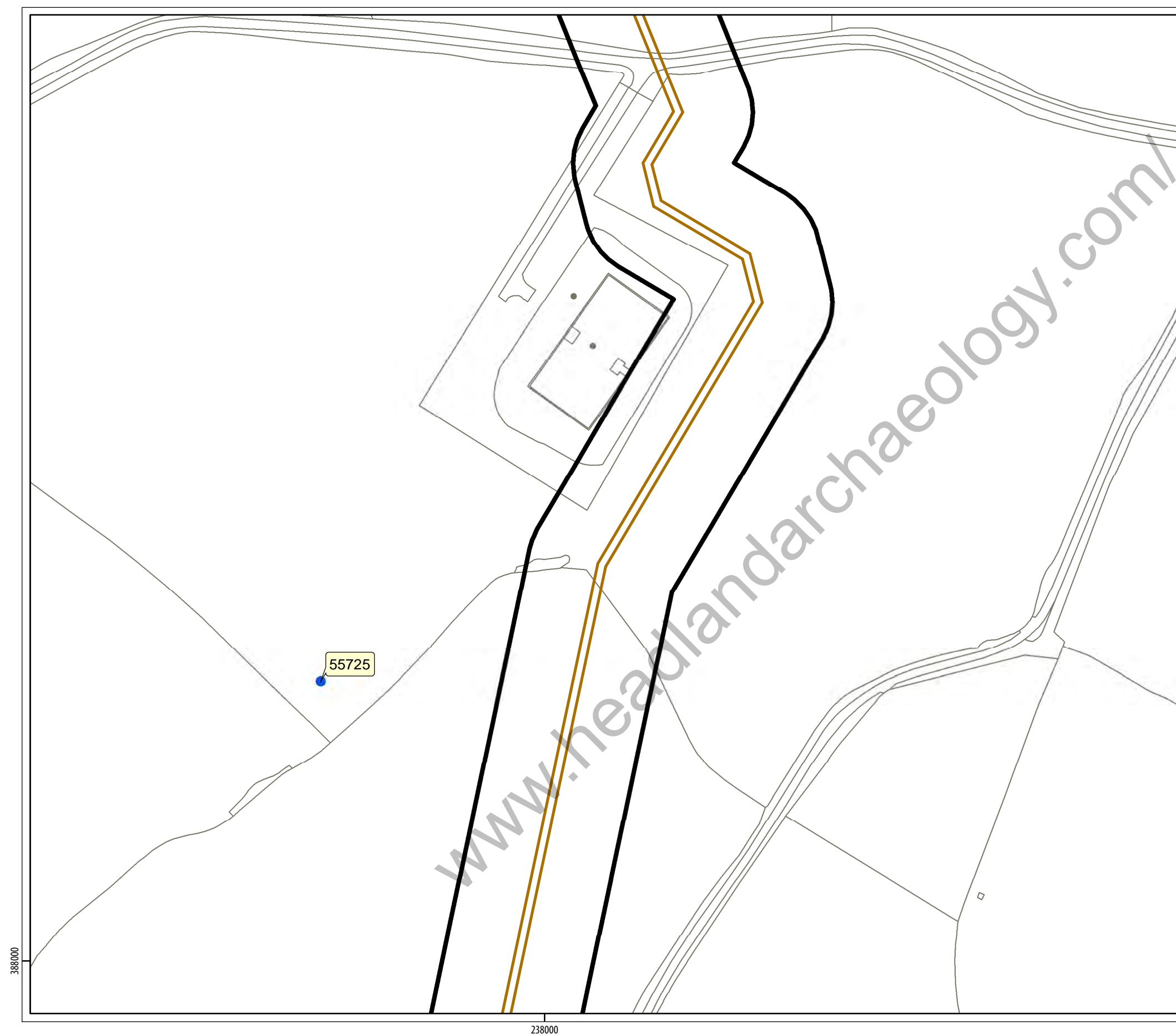
KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



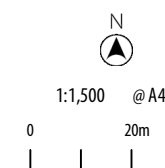
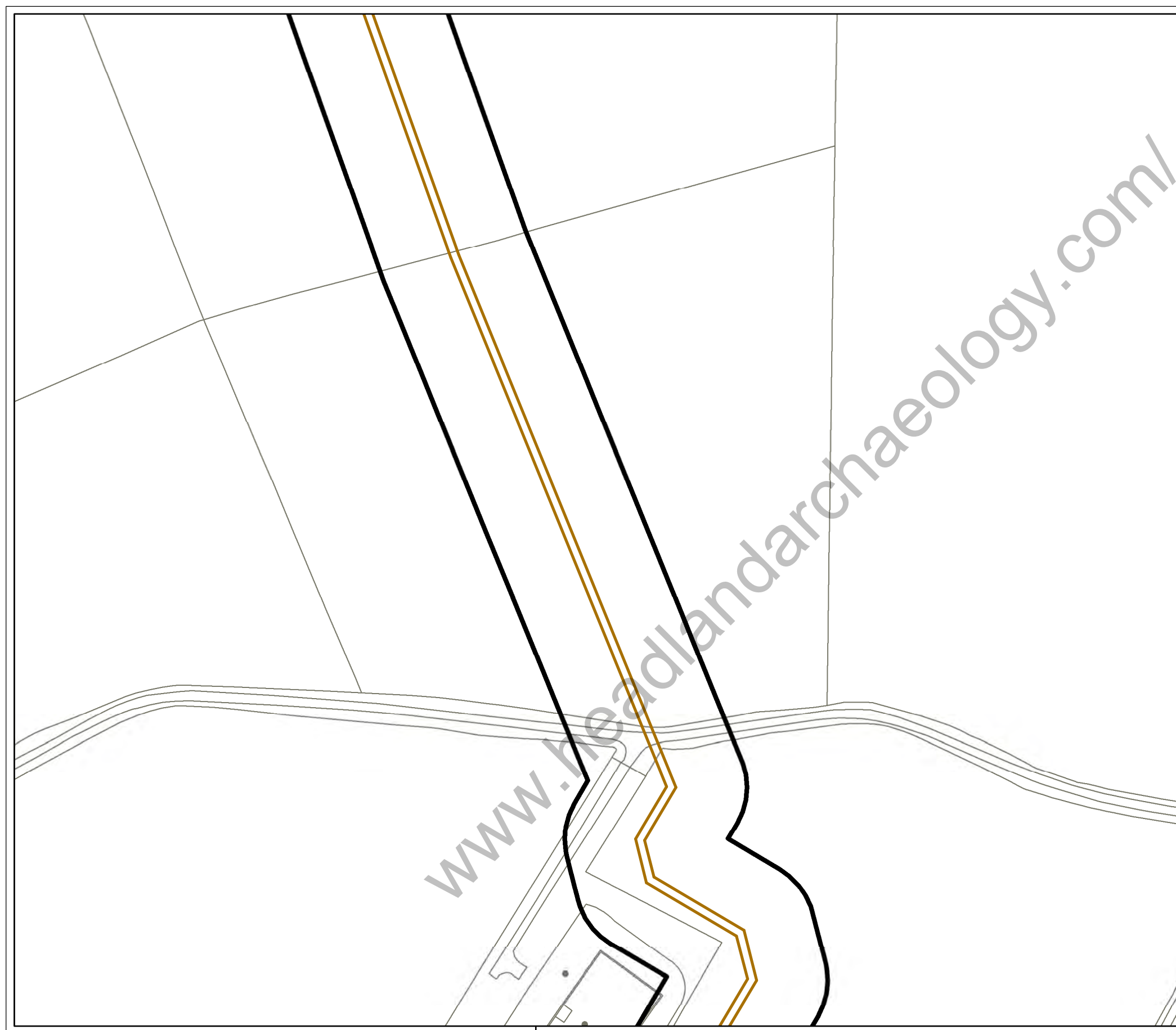
KEY

- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds

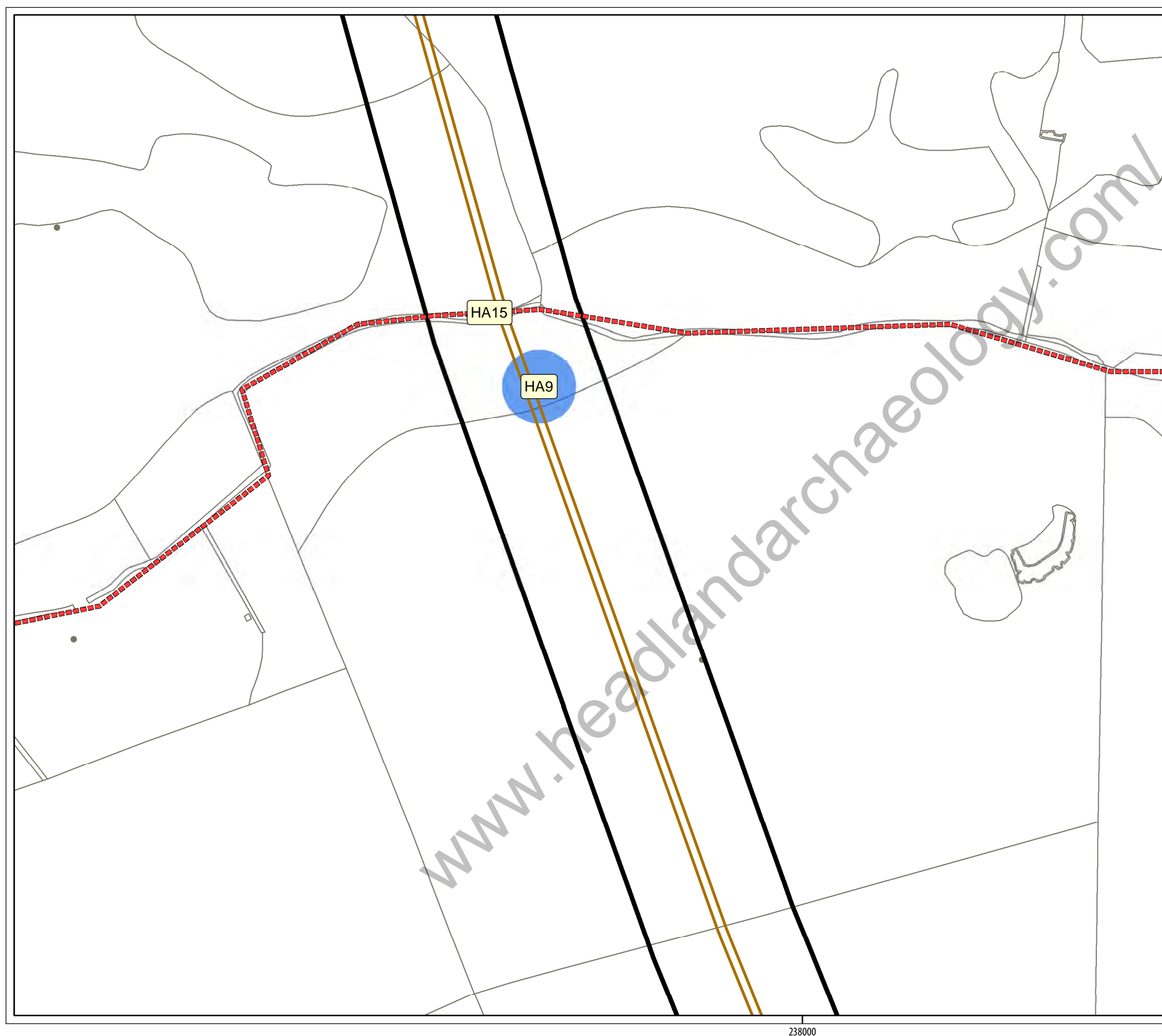


KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds

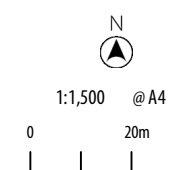


238000

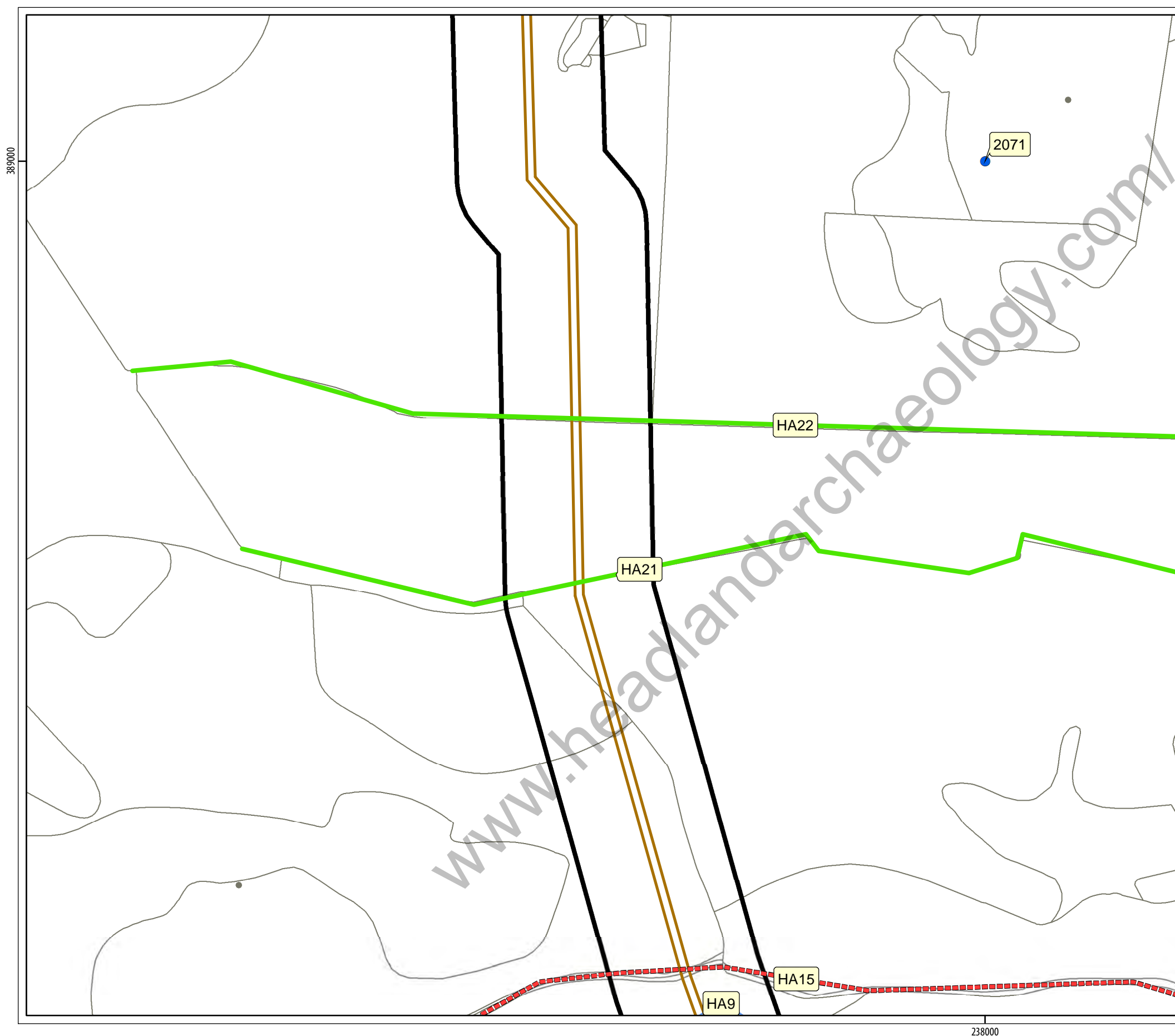


KEY

- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds

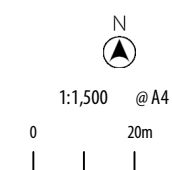


238000



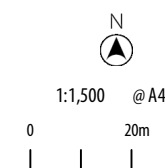
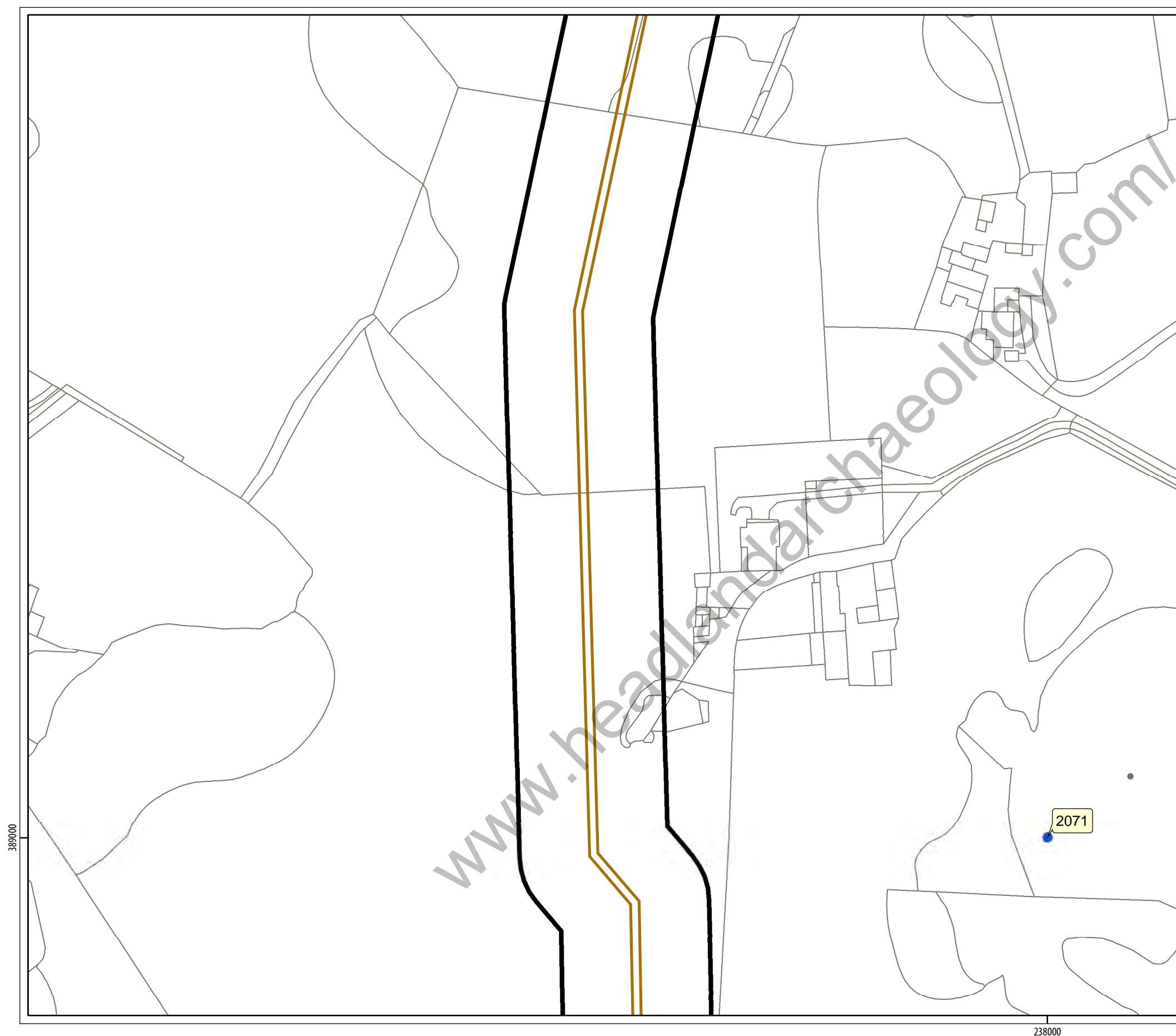
KEY

- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds



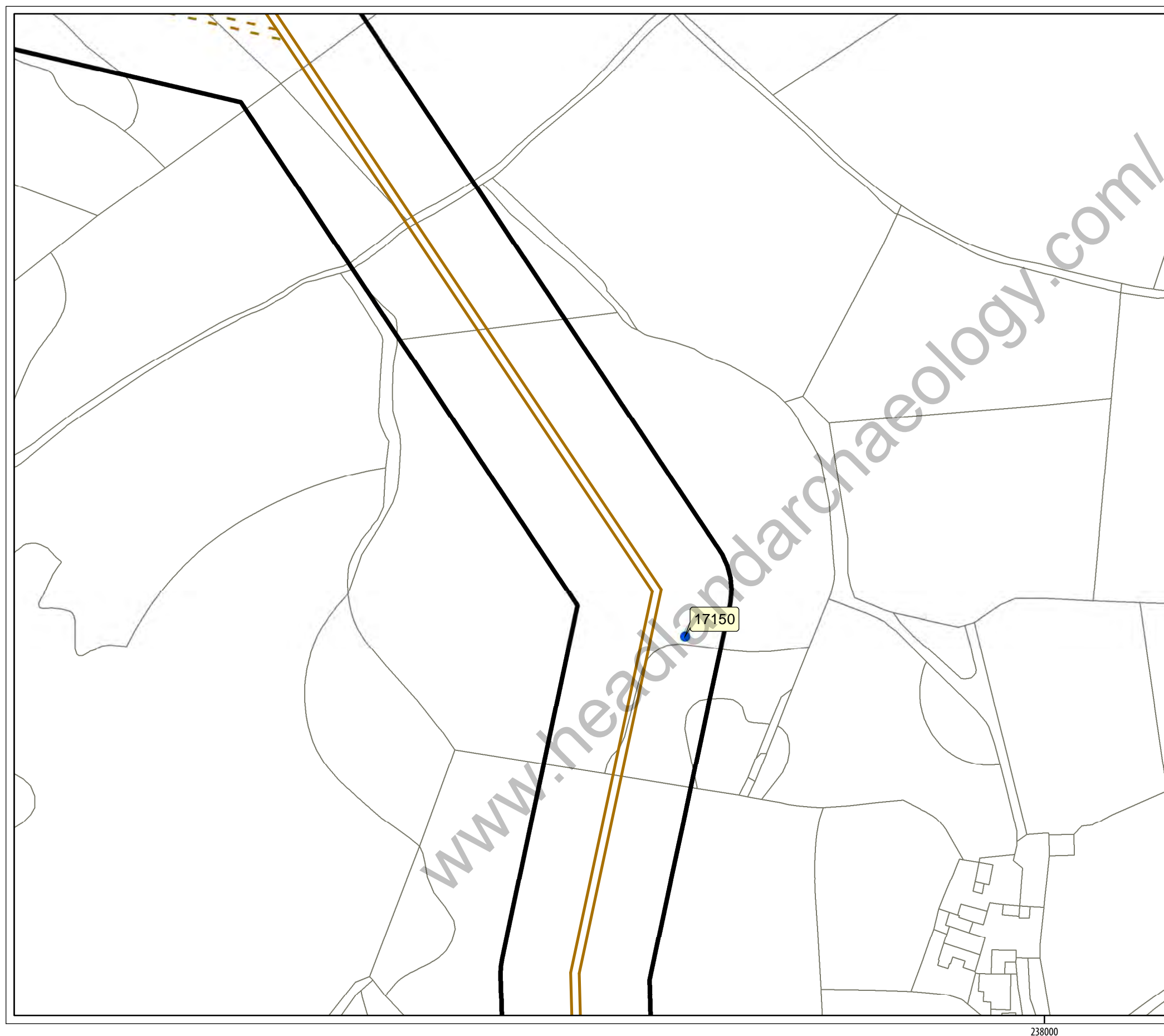
KEY

- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds

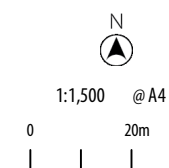


KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



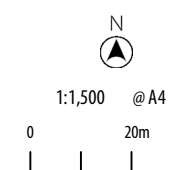
238000





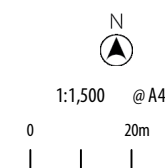
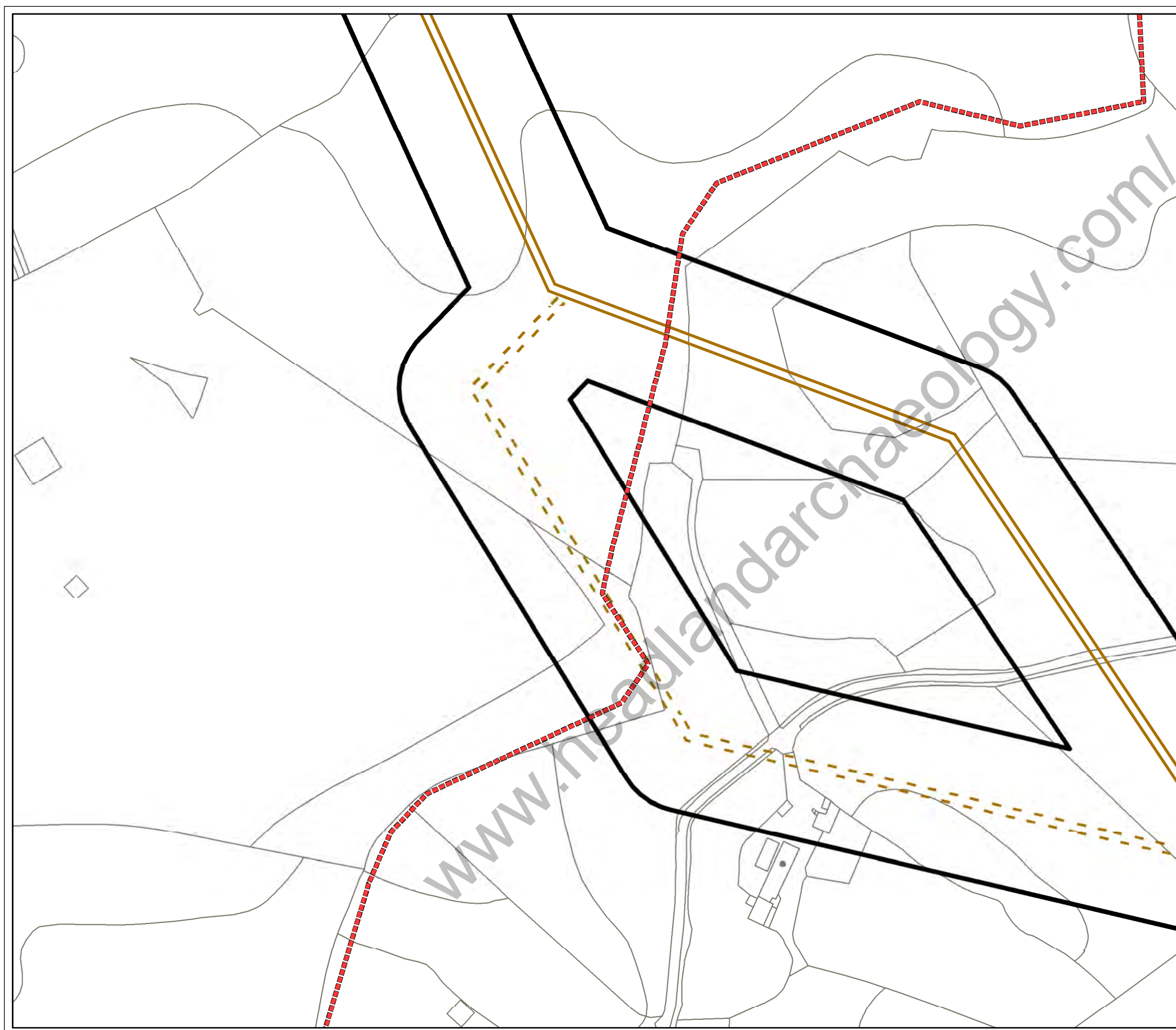
KEY

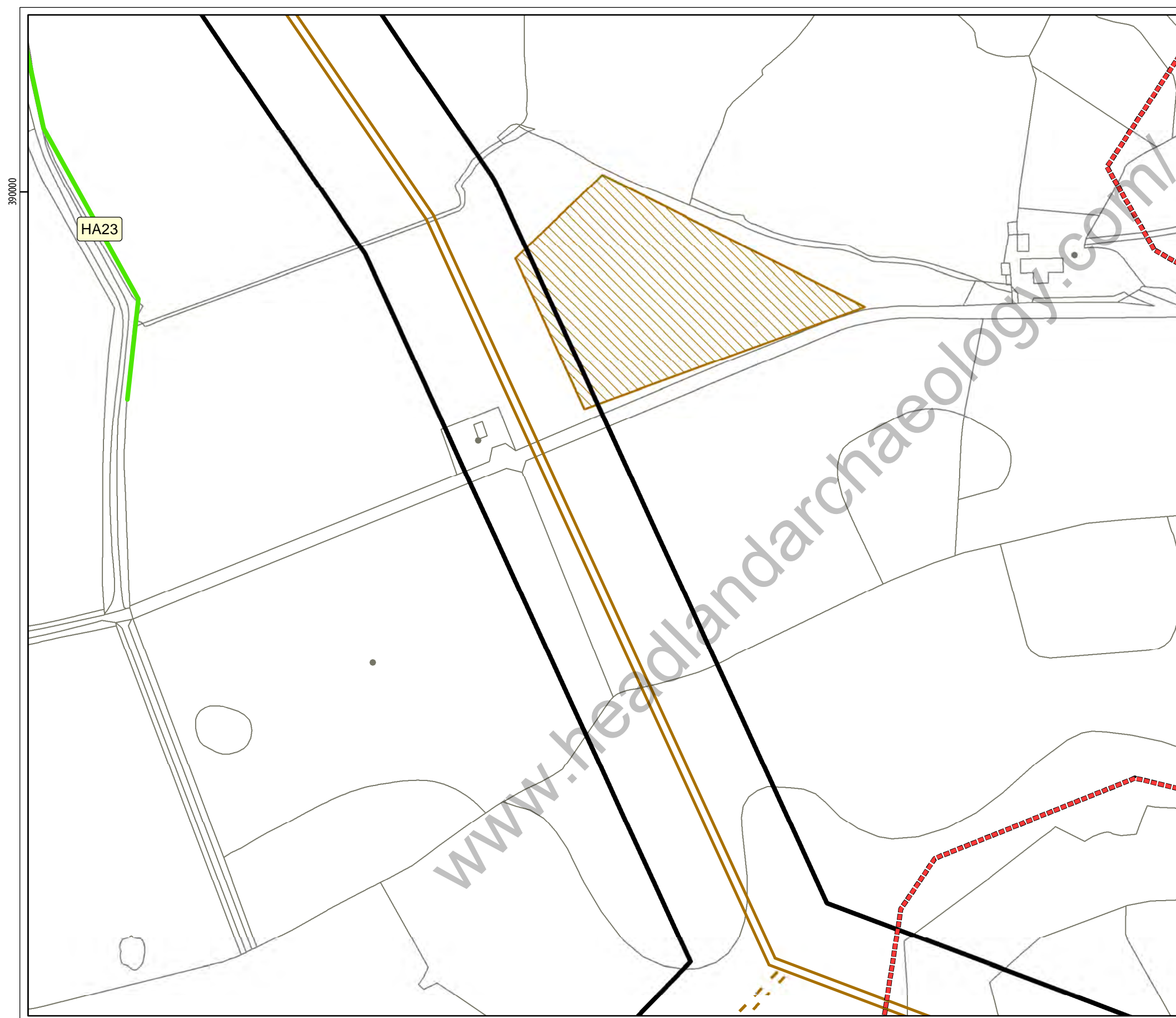
- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



KEY

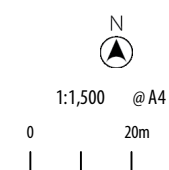
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds





KEY

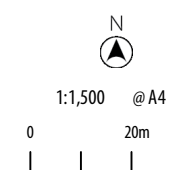
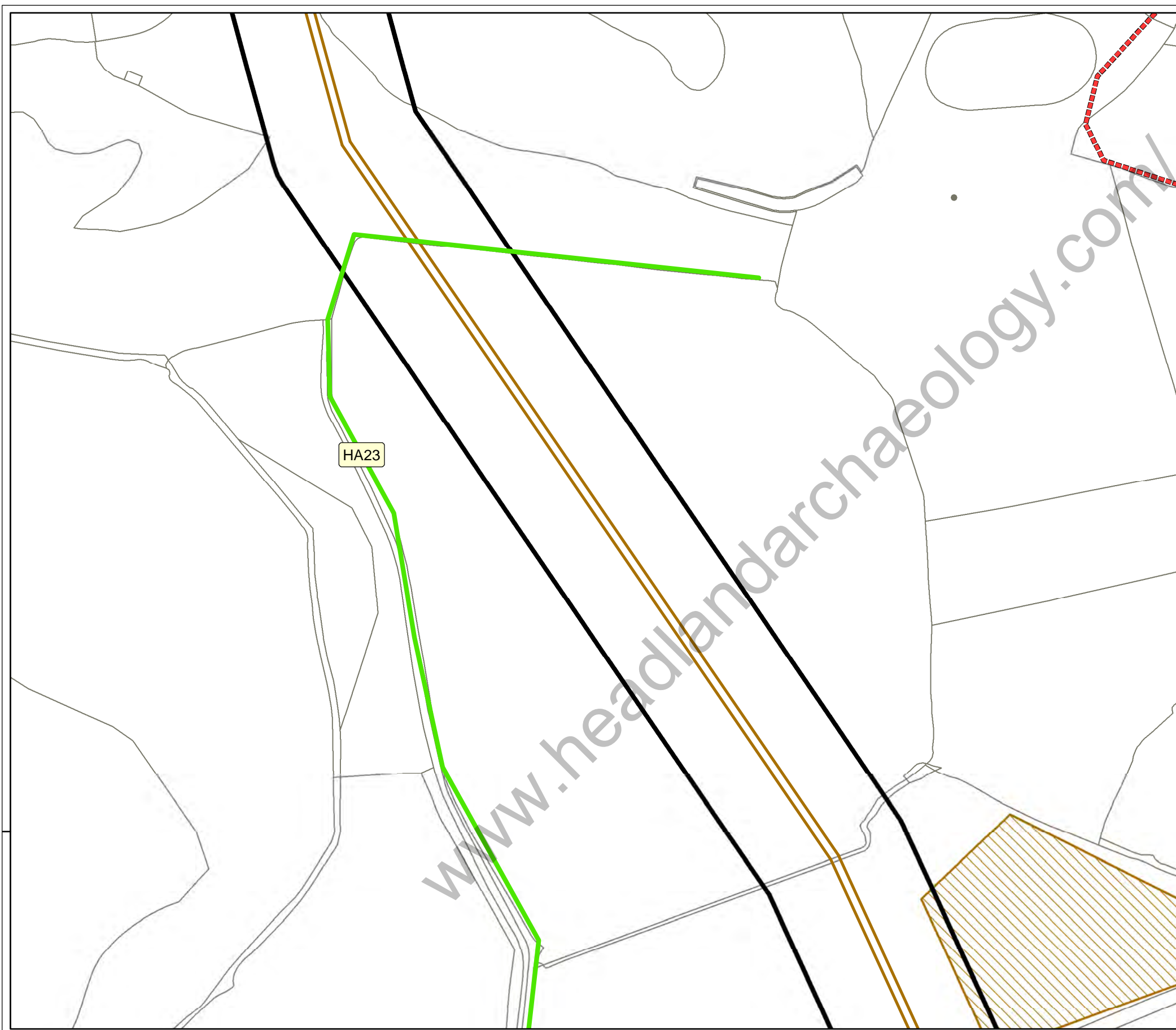
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds

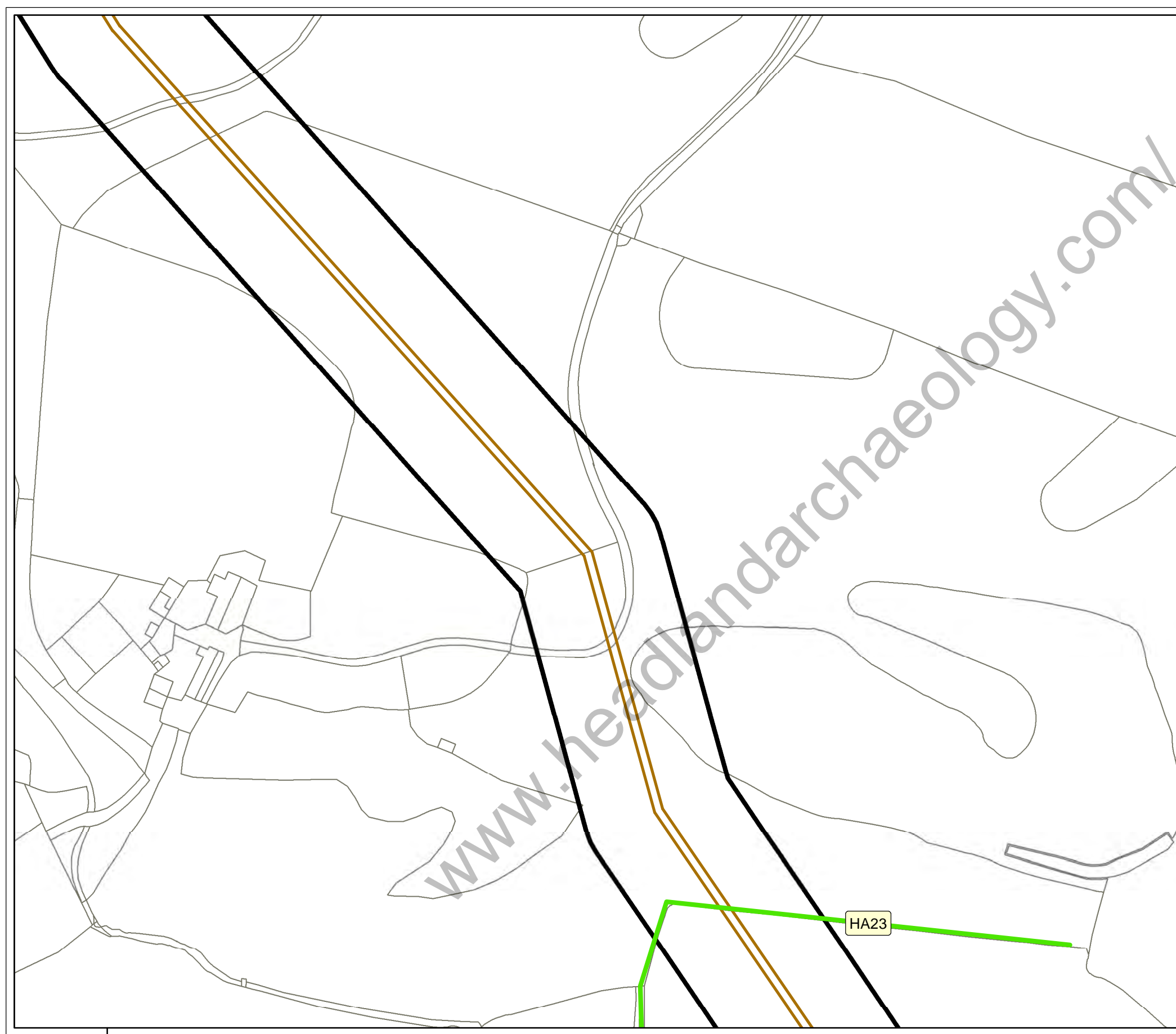


KEY

- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds

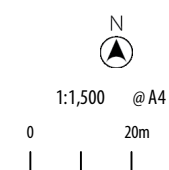
390000



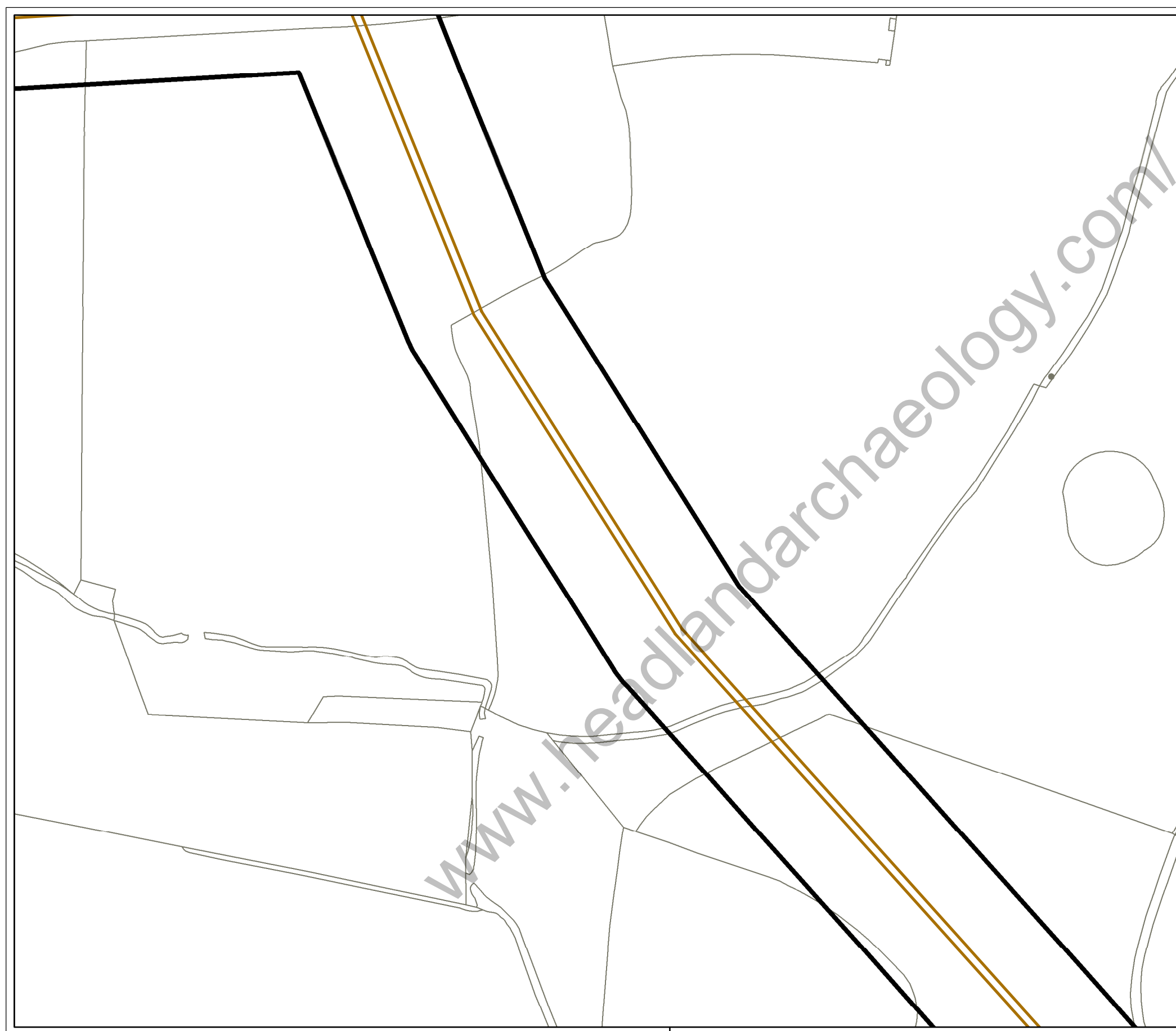


KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds

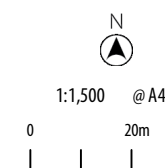


237000



KEY

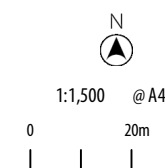
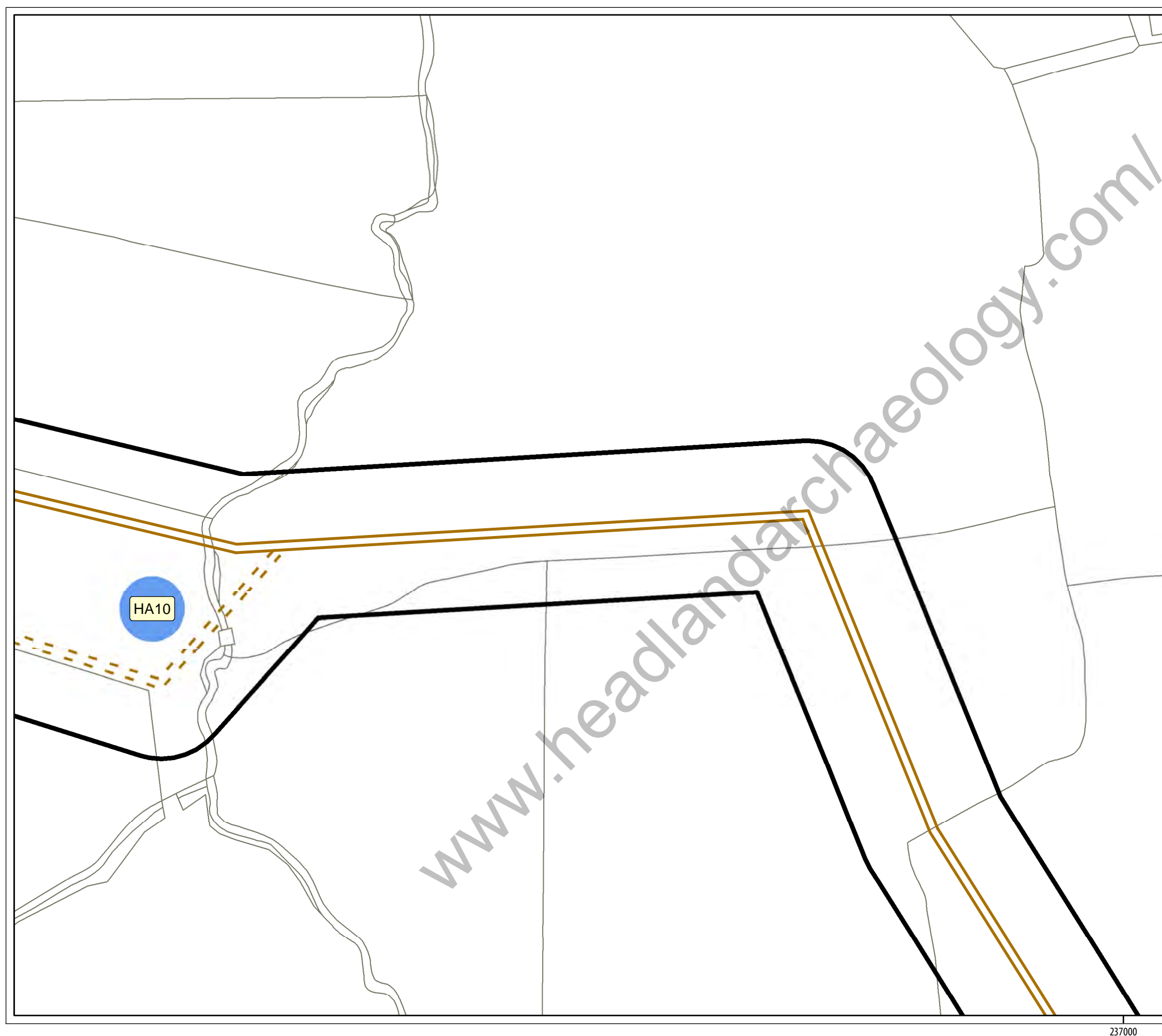
- Historically important hedgerow
- Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds



237000

KEY

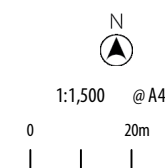
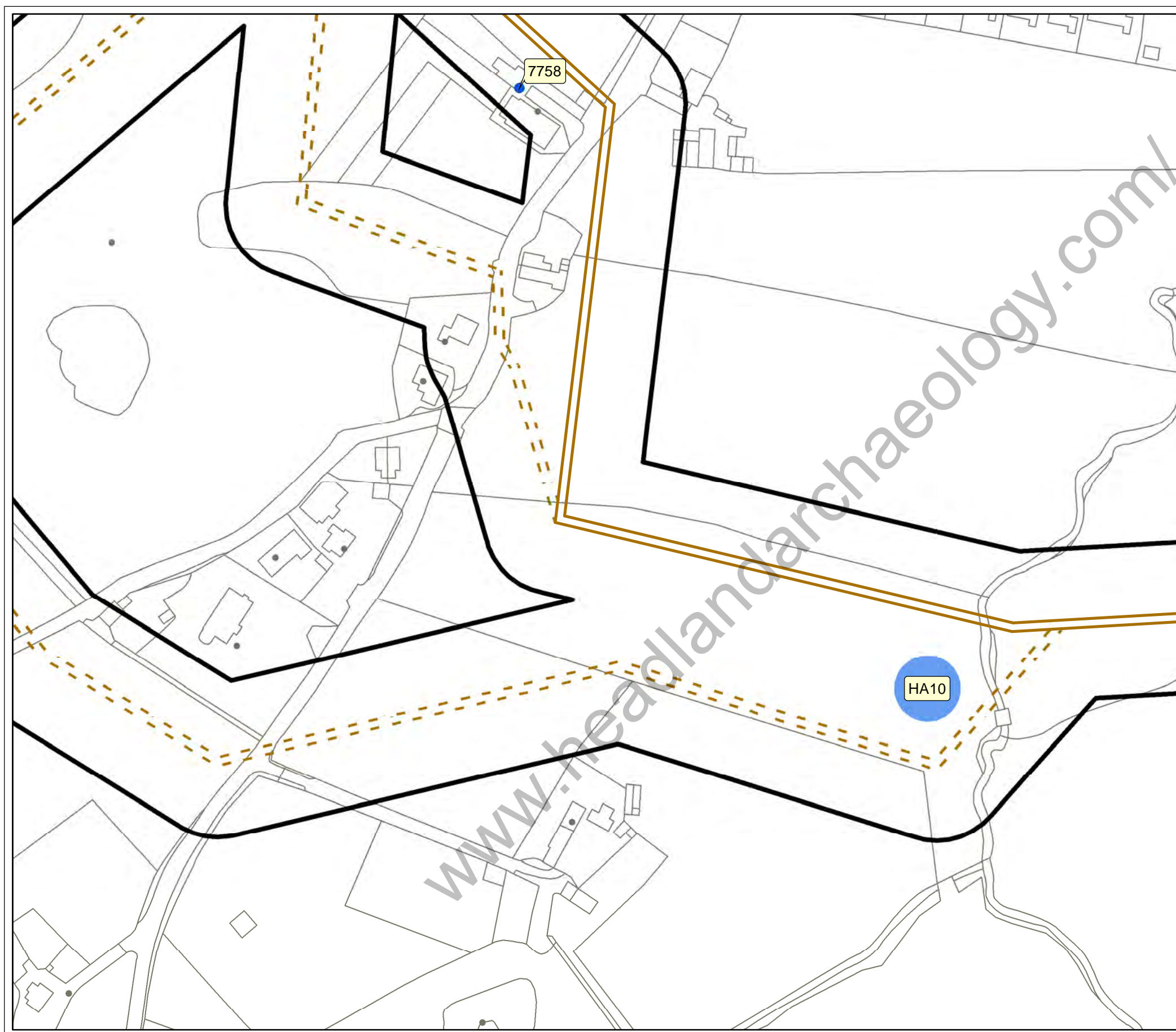
- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



237000

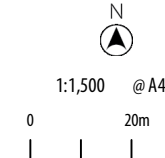
KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



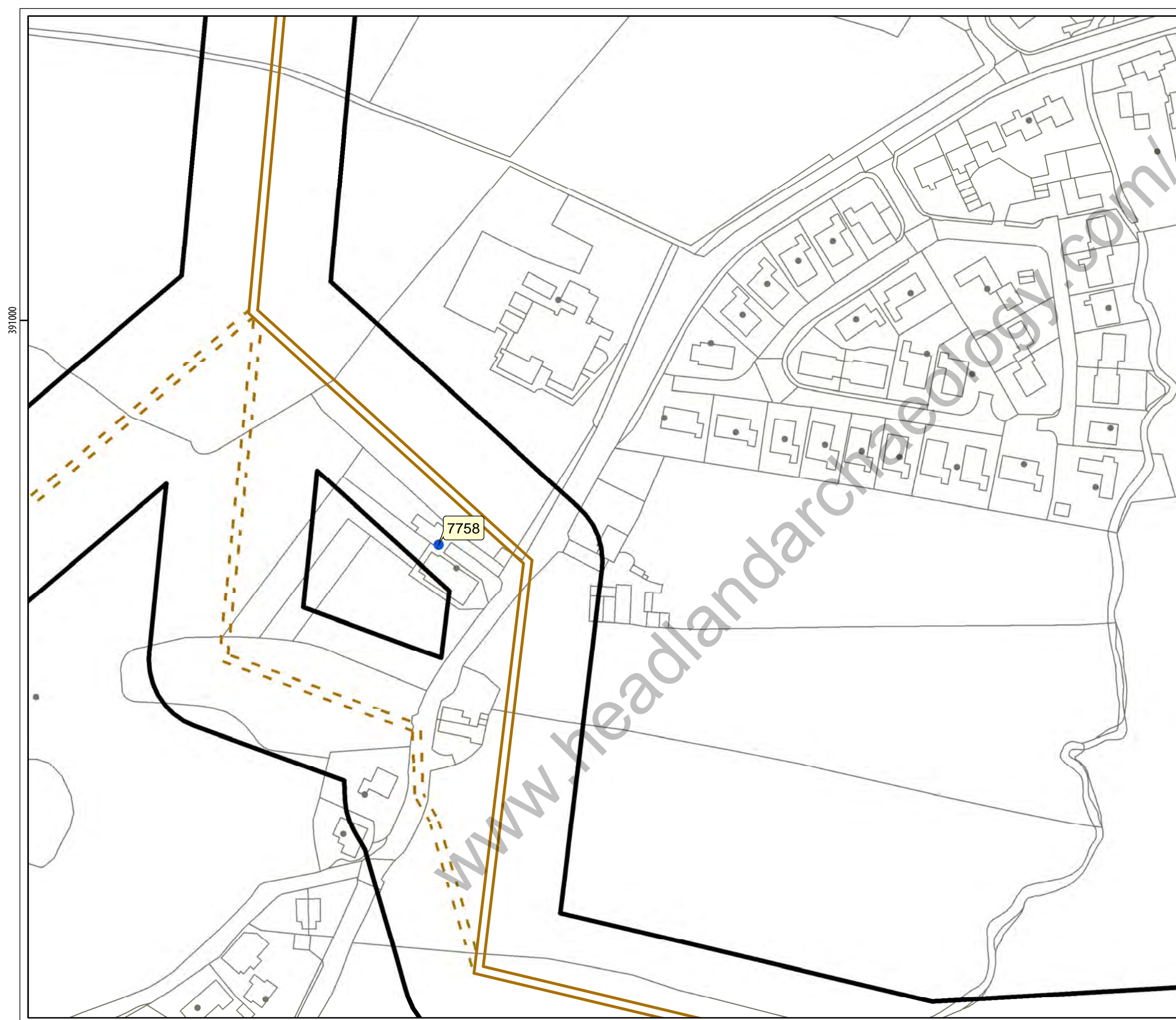
KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



KEY

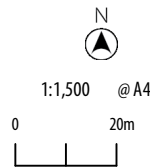
- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds





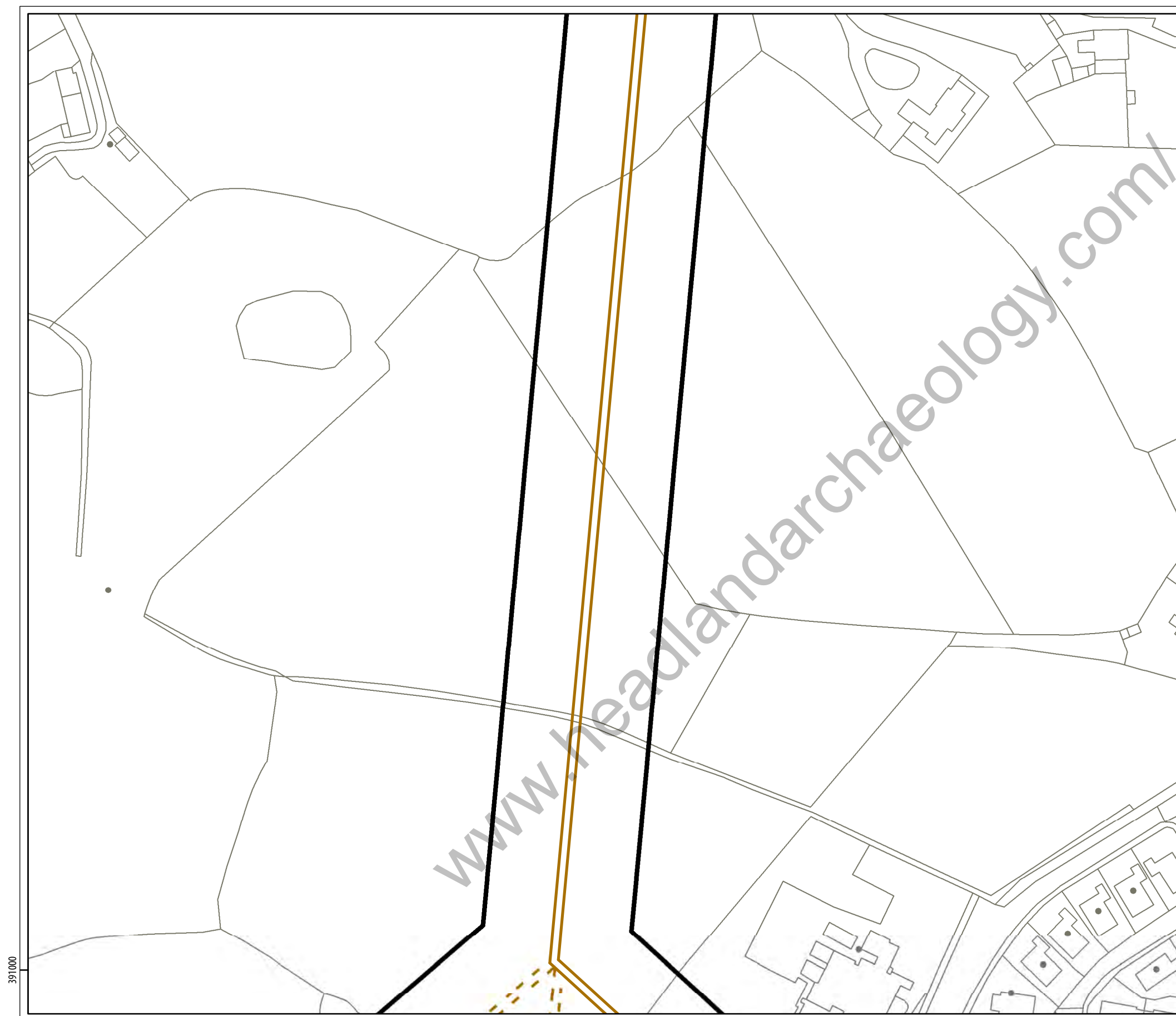
KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds



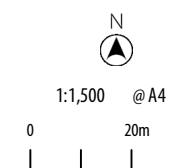
KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



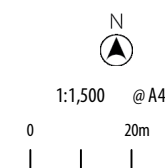
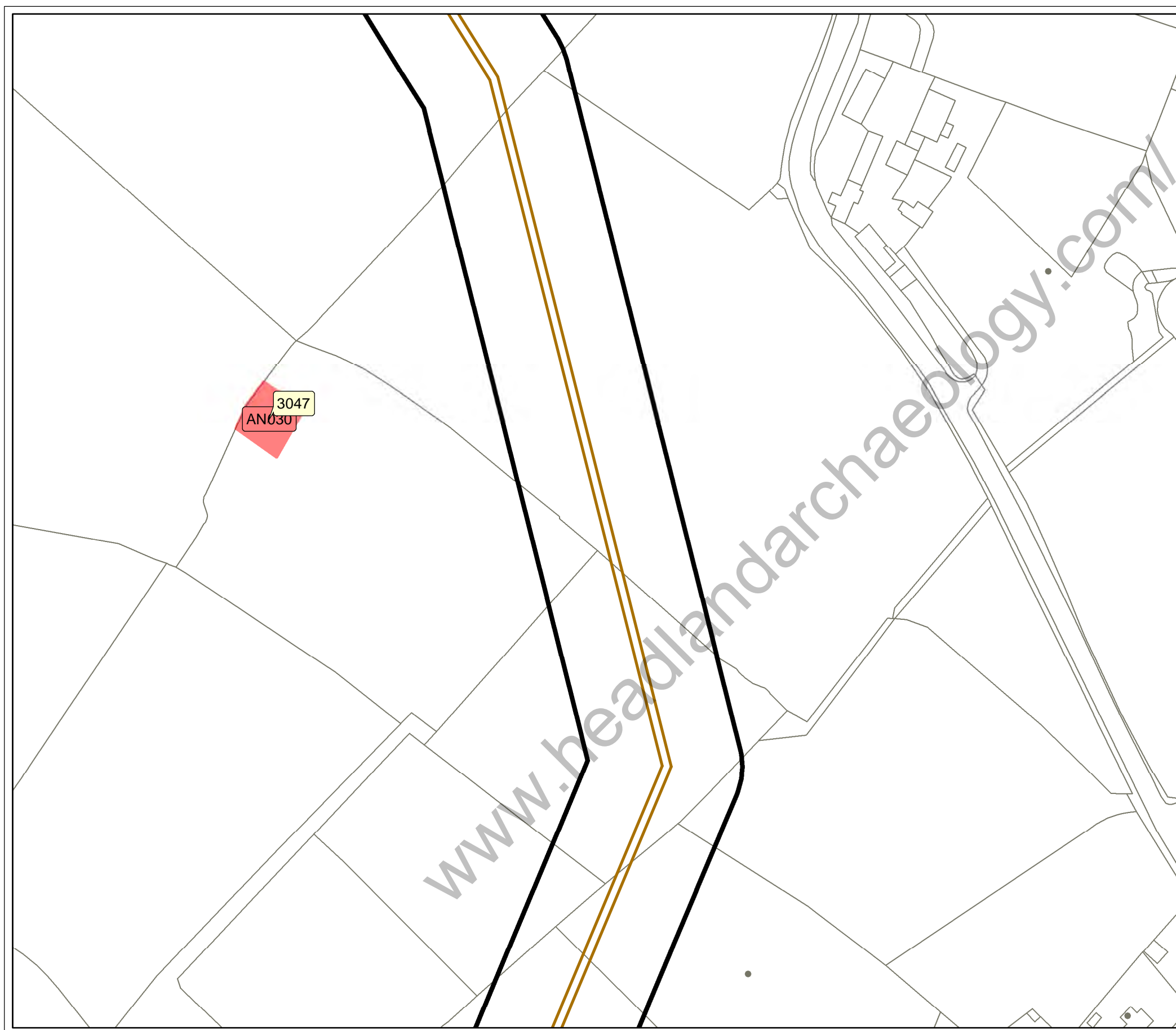
KEY

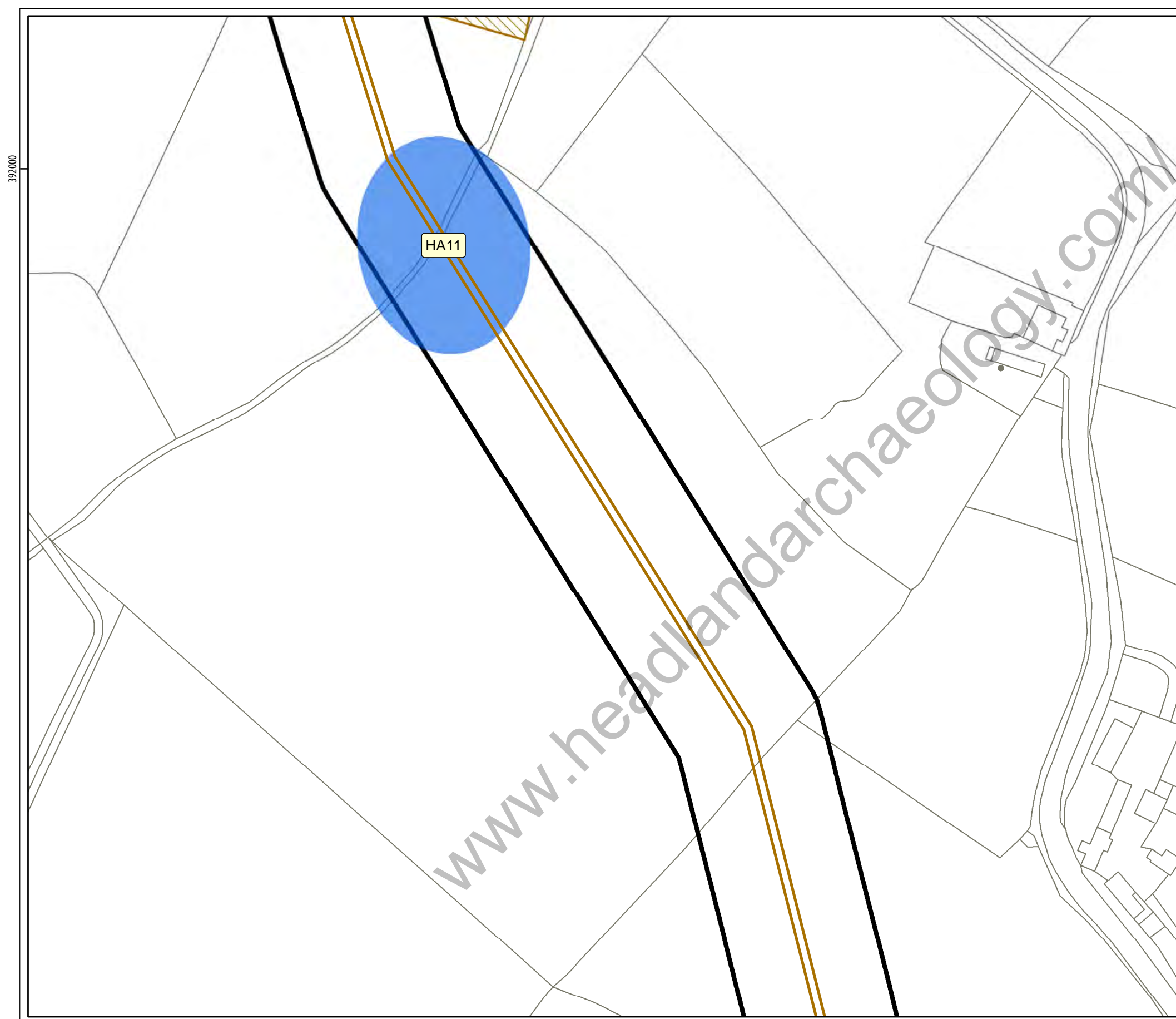
- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



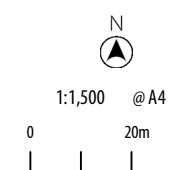
KEY

- Historically important hedgerow
- ▬ Historic parish boundary
- Proposed Route
- ▬ Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds



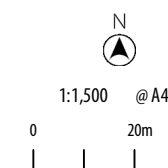
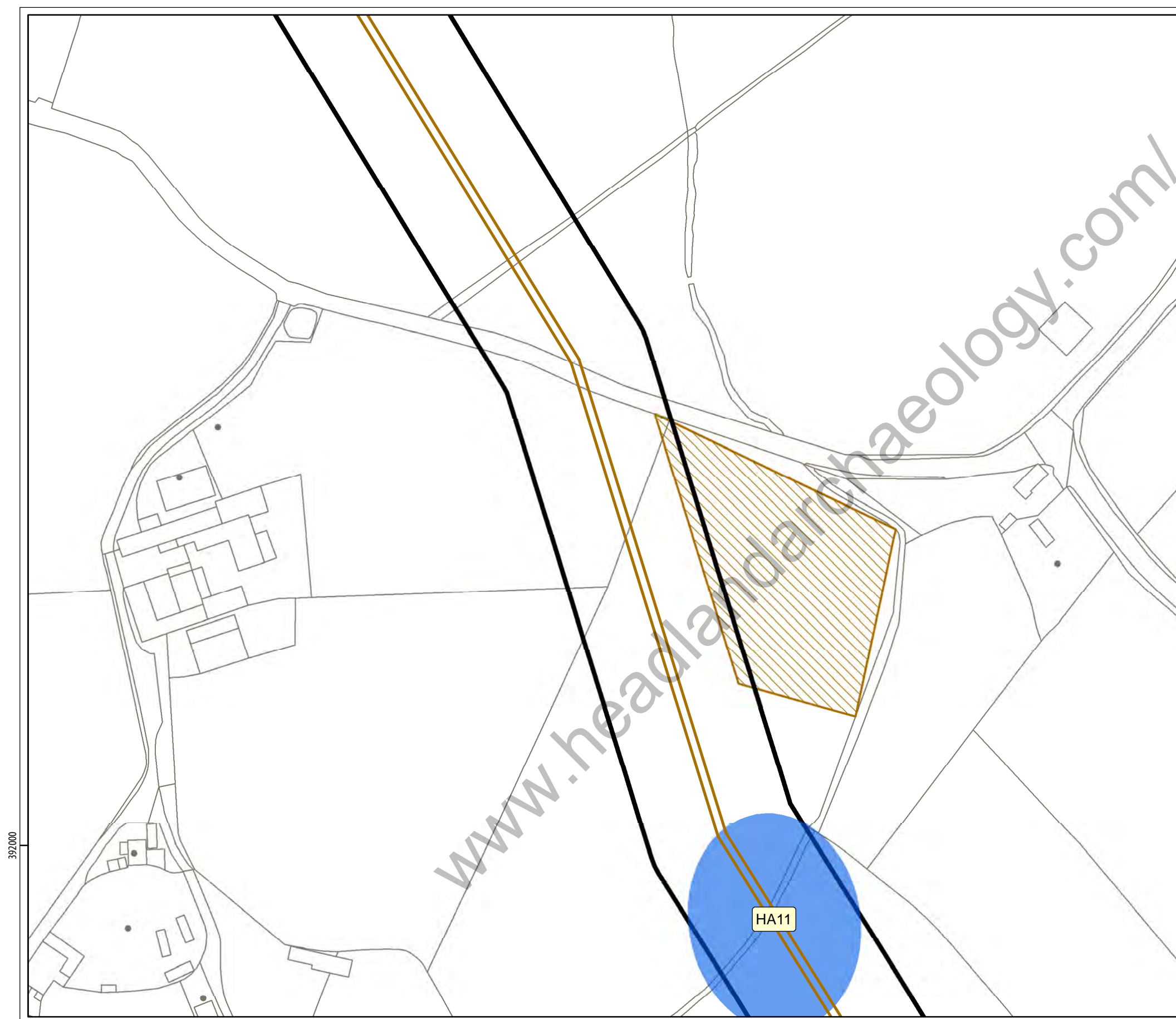


- KEY
- Historically important hedgerow
 - - - Historic parish boundary
 - Proposed Route
 - Historic asset identified in assessment
 - Inner Study Area
 - Historic asset
 - Alternative Routes
 - Compounds



KEY

- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - - Alternative Routes
- Compounds

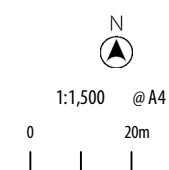


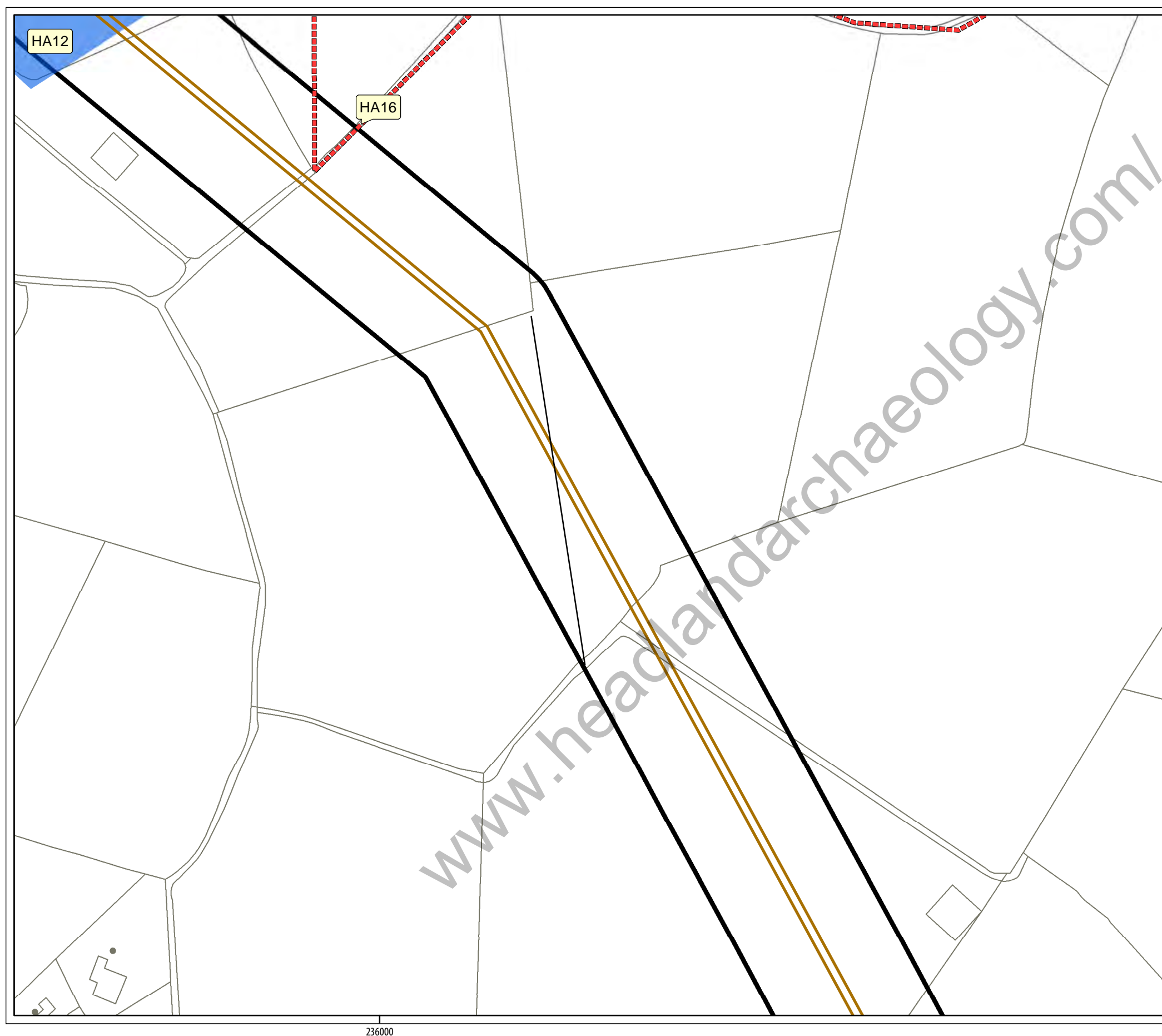
KEY

- Historically important hedgerow
- - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- - Alternative Routes
- Compounds



236000

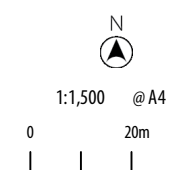


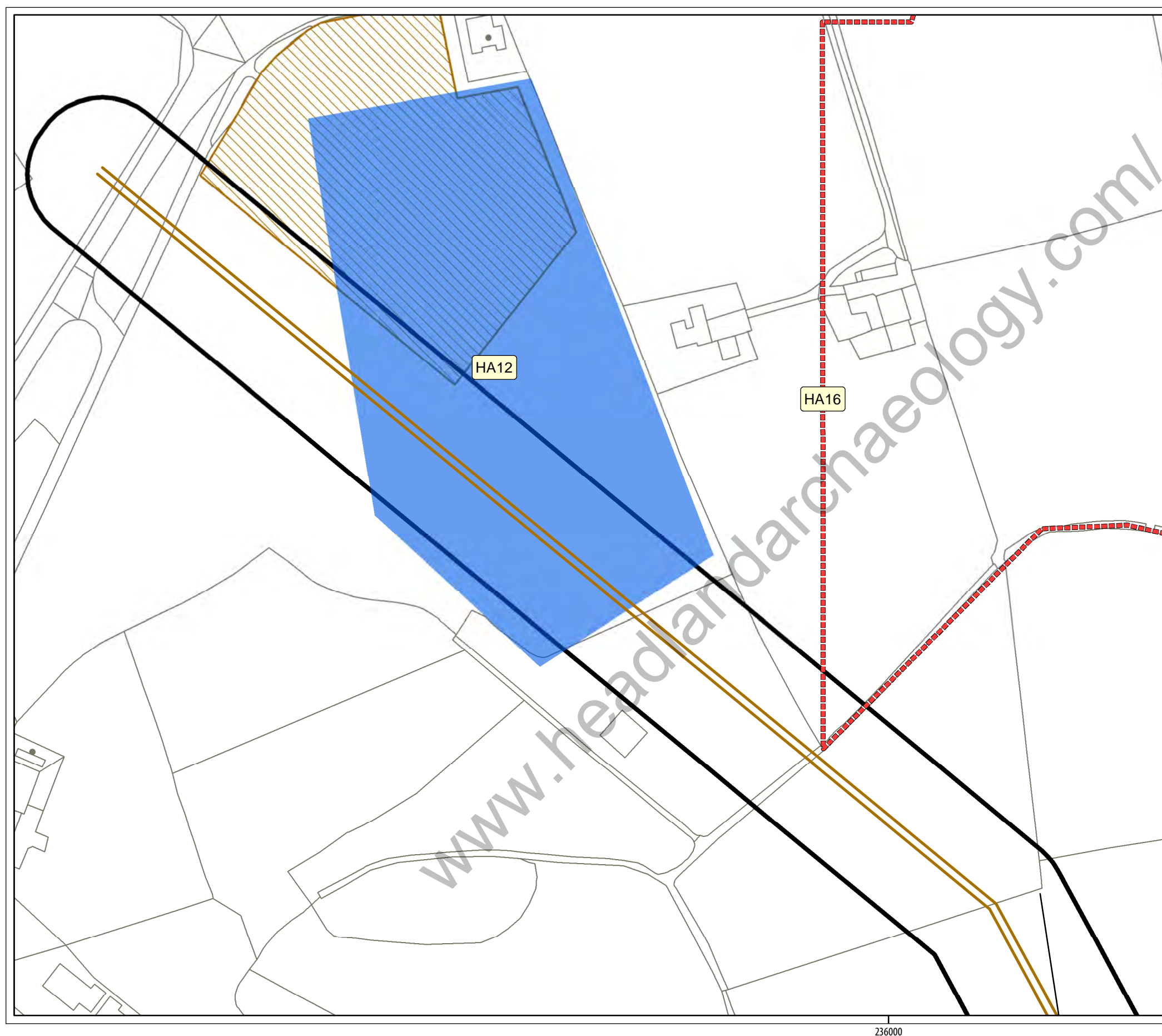


236000

KEY

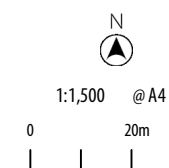
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds





KEY

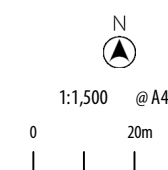
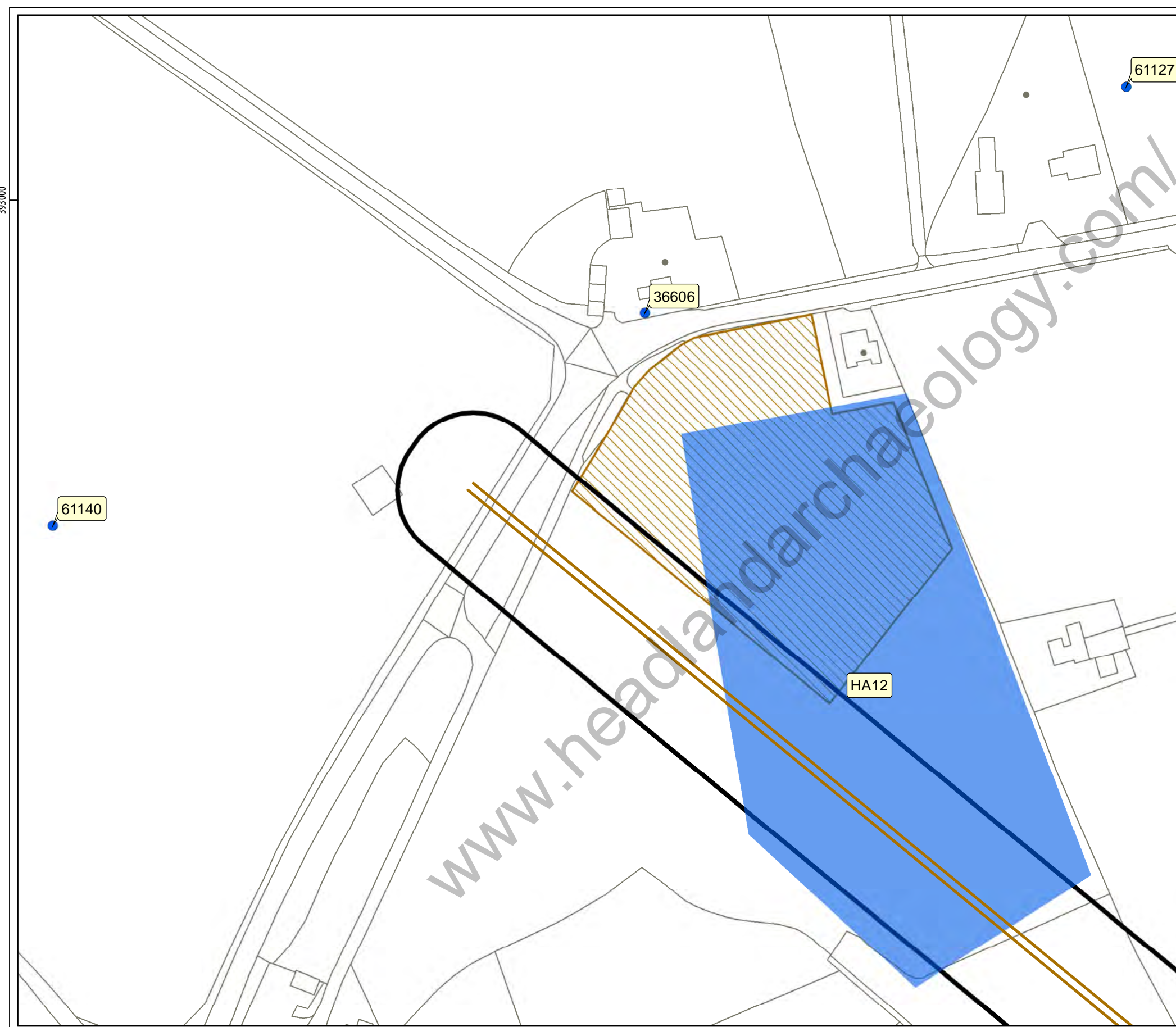
- Historically important hedgerow
- - - Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds



236000

KEY

- Historically important hedgerow
- Historic parish boundary
- Proposed Route
- Historic asset identified in assessment
- Inner Study Area
- Historic asset
- Alternative Routes
- Compounds





Illus 4: View of typical clawdd boundary reinforced with stock fencing



Illus 5: Ruined building (Ty-n-Ilan) opposite Llanbabo church

www.headlandarchaeology.com/



**HEADLAND
ARCHAEOLOGY**

© 2016 by Headland Archaeology (UK) Ltd

SOUTH & EAST

Headland Archaeology
Building 68C, Wrest Park, Silsoe
Bedfordshire MK45 4HS

01525 861 578

southandeast@headlandarchaeology.com

MIDLANDS & WEST

Headland Archaeology
Unit 1, Clearview Court, Twyford Road
Hereford HR2 6JR

01432 364 901

midlandsandwest@headlandarchaeology.com

NORTH

Headland Archaeology
Unit 16, Hillside, Beeston Road
Leeds LS11 8ND

0113 387 6430

north@headlandarchaeology.com

SCOTLAND

Headland Archaeology
13 Jane Street
Edinburgh EH6 5HE

0131 467 7705

scotland@headlandarchaeology.com

www.headlandarchaeology.com