

Viking CCS Pipeline

**Environmental
Statement Volume IV –
Appendix 8-3: WSI for
Archaeological
Evaluation - Revision A
(Clean)**

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ADDITIONAL NOTE: This updated version of this document (May 2024) now includes the new WSI prepared by Wessex Archaeology in March 2024 within Annx D and the new WSI prepared by Wessex Archaeology in May 2024 specifically for metal detecting, as Annex E.

1 Introduction

1.1 Project Background

- 1.1.1 This Archaeological Evaluation Strategy has been prepared by AECOM ('the Consultant') on behalf of Chrysaor Production (U.K.) Limited, a Harbour Energy group company ('the Client'). It details the aims, objectives and methods that will be applied during survey to further evaluate the archaeological resource for the Viking CCS Pipeline ('the Proposed Development'). The scope and detailed design of the archaeological evaluation will be informed by the previous phases of desk-based research, aerial photographic assessment and LiDAR analysis, and geophysical survey and determined in liaison with Historic England and the relevant local authority planning archaeologists (collectively, 'the Viking CCS Heritage Consultees').
- 1.1.2 The Viking CCS Pipeline ('the Proposed Development') comprises a new 24" (609 mm) diameter onshore pipeline of approximately 55.5 km in length, which will transport Carbon Dioxide (CO₂) from the Immingham industrial area to the Theddlethorpe area on the Lincolnshire coast, where it will connect into the existing 36" (921 mm) diameter offshore LOGGS pipeline.
- 1.1.3 The Proposed Development is an integral part of the overall Viking CCS Project, which intends to transport compressed and conditioned CO₂ received at a facility at Immingham to store in depleted gas reservoirs under the Southern North Sea. The offshore elements of the Viking CCS Project, including the transport of CO₂ through the LOGGS pipeline to the Viking gas fields under the North Sea, are subject to a separate consenting process.
- 1.1.4 The key components of the Proposed Development comprise:
- Immingham Facility;
 - Approximately 55.5 km 24 inch (") onshore steel pipeline (including cathodic protection);
 - Three Block Valve Stations;
 - Theddlethorpe Facility;
 - Existing LOGGS pipeline and isolation valve to the extent of the Order Limits at Mean Low Water Springs (MLWS);
 - Permanent access to facilities;
 - Mitigation and landscaping works;
 - Temporary construction compounds, laydown, parking and welfare facilities;
 - Temporary access points during construction.
- 1.1.5 Further details of each element of the Proposed Development are set out in Chapter 3 of the Environmental Statement (*Application Document 6.2.3*).
- 1.1.6 The Proposed Development extends across the administrative areas of Lincolnshire County Council, North Lincolnshire Council, North East Lincolnshire Council, West Lindsey District Council and East Lindsey District Council (West Lindsey District Council and East Lindsey District Council are located within the Lincolnshire County Council administrative boundary).

- 1.1.7 For the purpose of this Written Scheme of Investigation ('WSI') the archaeological evaluation site ('the Site') is defined as a corridor 100m wide representing the DCO Site Boundary for the proposed pipeline route, running from Immingham to Theddlethorpe, and areas for temporary compounds (Error! Reference source not found., Annex C).
- 1.1.8 In format and content, this WSI conforms to current good practice, as well as the Chartered Institute for Archaeologists' (CIfA) Standard and guidance for archaeological field evaluation (2020), and the Lincolnshire County Council Archaeology Handbook (Ref 22).

1.2 Roles and Responsibilities

- 1.2.1 The works specified in this WSI, including the fieldwork, archiving and reporting of the results, will be let by competitive tender to a suitably qualified and experienced Archaeological Contractor, who will be Registered as an Archaeological Organisation with the Chartered Institute for Archaeologists. The appointed Archaeological Contractor will undertake the works for the Consultant, on behalf of the Client. The Consultant will act as Principal Contractor for the archaeological evaluation.
- 1.2.2 The requirements and responsibilities of the Archaeological Contractor, the Consultant, and the Client have been set out in the relevant sections of this WSI to assist the Archaeological Contractor in the completion of the archaeological works.
- 1.2.3 Access to the Site will be arranged with relevant landowners and stakeholders prior to the works commencing. The Archaeological Contractor will be required to liaise with any other consultants or contractors undertaking survey work in the same area(s) to co-ordinate the work programmes. The Archaeological Contractor shall liaise with the Consultant and the Client to ensure that the archaeological evaluations are undertaken in accordance with an approved programme and schedule.

1.3 Consultation

- 1.3.1 Preliminary consultation with Historic England and the local authority planning archaeologists was undertaken at the Scoping stage. Comments on the historic environment Scoping Report and Preliminary Environmental Impact Report (PEIR) have been taken into account in preparing this WSI. Additional consultation has been undertaken with key stakeholders with specific focus on the historic environment, including Historic England and the archaeological advisors to East Lindsey District Council, Lincolnshire County Council, North Lincolnshire Council and North East Lincolnshire Council (collectively called the 'Viking CCS Heritage Consultees') and is ongoing as the Proposed Development progresses.

1.4 Structure of this Document

- 1.4.1 This document is structured in 16 sections, with illustrations and appendices at the end.
- Section 1 provides an outline of the Proposed Development and the purpose and development of this document, together with the roles and responsibilities of various parties in the delivery of the archaeological evaluation.
 - Section 2 describes the Site, providing topographical and geological background together with a description of the known archaeological resource and the historical development of the landscape, which the Proposed Development traverses.

- Section 3 sets out the general aims and objectives of the archaeological evaluation together with research themes from the regional research agenda (Ref 23) identified in the desk-based assessment (*ES Volume IV, Appendix 8-1: Historic Environment Desk-based Assessment (Application Document 6.4.8.1)*), which the evaluation has the potential to contribute to.
- Section 4 outlines the scope of the archaeological evaluation and the techniques proposed to be used.
- Section 5 outlines site constraints affecting how the archaeological evaluation will be undertaken.
- Section 6 details the methodology for each of the techniques proposed to be applied during the archaeological evaluation.
- Section 7 details the procedures for reporting and the content of resultant deliverables for the archaeological evaluation.
- Section 8 outlines the requirements for resourcing and programme.
- Section 9 describes the requirements for preparation of the site archive resulting from the archaeological evaluation and its deposition with a receiving museum.
- Section 10 sets out the safety, health and environment requirements including mandatory training for site staff.
- Section 11 describes the approach to technical and safety monitoring during the archaeological evaluation.
- Section 12 details the requirements for confidentiality and approach to publicity during the archaeological evaluation.
- Section 13 details the requirements relating to the copyright of resultant deliverables.
- Section 14 provides information on the arrangements for accessing the Site.
- Section 15 describes any other relevant general provisions.
- Section 16 provides a list of references used within the document.
- Annex A provides a list of relevant professional archaeological standards and guidance.
- Annex B provides a survey log arranged by field parcel, detailing what techniques are proposed and which have been completed to date.

2 Background Information

2.1 Introduction

2.1.1 The historic environment baseline for the Proposed Development has been established to date through previous phases of desk-based research, aerial photographic assessment and LiDAR analysis, and geophysical survey, as reported in the following appendices within the Environmental Statement (ES), Volume IV (Application Document 6.4):

- Appendix 8-1: Historic Environment Desk-based Assessment;
- Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis; and
- Appendix 8-3: Archaeological Geophysical Survey.

2.1.2 For the purposes of describing the Proposed Development it has been split into five sections (Sections 1 to 5) running from north to south to ensure that the baseline descriptions are relevant to the areas that the pipeline crosses. The section splits are based upon a combination of factors including geography, geology and topography which will have influenced prehistoric and historic settlement / activity patterns and the historic landscape character.

2.1.3 The five sections of the Proposed Development between the Immingham Facility and the Mean Low Water Springs (MLWS), near the former Theddlethorpe Gas Terminal (TGT) are as follows (north to south):

- Section 1 - Rosper Road (Immingham) to A180 road (including the Immingham Facility and the proposed North Compound);
- Section 2 - A180 road to A46 road (including Washingdales Lane Block Valve Station);
- Section 3 - A46 road to Pear Tree Lane (including the proposed Central Compound and Thoroughfare Block Valve Station);
- Section 4 – Pear Tree Lane to Manby Middlegate (B1200) (including Louth Road Block Valve Station); and
- Section 5 – Manby Middlegate (B1200), to Theddlethorpe and down to MLWS (Including the Theddlethorpe Facility and the proposed Southern Compound).

2.1.4 The location of the Proposed Development is shown on Figure 1.

2.2 Topography and Geology

Section 1 - Rosper Road (Immingham) to A180 road

2.2.1 Ground levels across Section 1 are generally at and below the 10m contour (contour heights are expressed above Ordnance Datum (aOD)) with slightly higher ground at the western side of the Section. Historically this coastal landscape strip mainly comprised seasonal saltmarsh grazing utilised by settlements located on the higher ground. At the start of the pipeline route the ground level is around the 5m contour and rises to the 11m contour at Habrough Road (B1210).

2.2.2 Most of the Section is underlain by superficial geological deposits comprising Glacial Till, a heterogenous mixture of clay, sand, gravel, and boulders varying widely in size and shape

(diamicton). Tidal Flat Deposits are also present which comprise a consolidated soft silty clay, with layers of sand, gravel and peat. Alluvium is also present along localised watercourse channels around Immingham. These deposits comprise soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. The bedrock geology underlying this Section is Chalk of the Burnham Chalk Formation. Comprising white, thinly-bedded chalk with common tabular and discontinuous flint bands; sporadic marl seams.

Section 2 - A180 road to A46 road

2.2.3 At the start of Section 2 the ground level is around the 9m contour, rising to the 17m contour at Roxton Farm. Between this point and Riby Road (A1173) ground levels are generally at and around the 17m contour, although they are lower in the floodplain of North Beck Drain (13m). South of Riby Road the ground levels drop onto the 15m contour where the route passes Riby Gap. West of Aylesby, the topography becomes gently undulating and rises onto the 22m contour. Between Barton Street (A18 road) and the end of the Section the ground level rises further onto the 48m contour where the pipeline route approaches the low foothills of the Lincolnshire Wolds west of Laceby.

2.2.4 The underlying superficial geology comprise mostly Glacial Till, however, Glaciofluvial Deposits of glacial origin are also present around Aylesby and between Irby Upon Humber and Laceby (sand and gravel with rare clay interbeds). Lacustrine Deposits are present around Irby Upon Humber which form small, localised pockets, commonly comprising laminated clay and silt and which may contain thin layers of organic material or sand. Alluvium is also present along localised watercourse channels, for example alongside North Beck Drain (south of Greenlands Farm) and between Irby Upon Humber and Laceby (tributaries of Laceby Beck). The solid geology is predominantly Chalk of the Burnham Chalk Formation, although chalk of the Welton Chalk Formation is present towards the southern end, generally comprising white, massive or thickly bedded chalk with common flint nodules, lacking tabular flint bands.

Section 3 - A46 road to Pear Tree Lane

2.2.5 At the start of Section 3 the ground level is around the 50m contour, but it falls gradually to the 44m contour west of Scrub Holt Farm and then falls again onto the 28m contour as the pipeline route passes the earthwork remains of a scheduled Civil War earthwork fort (northeast of Walk Farm). Between the A18 road and Waithe Beck, west and south of Barnoldby Le Beck, the ground level varies between the 28m to 41m contour, but it drops down to the 18m contour where the pipeline route crosses the broad valley of Waithe Beck, south of Waltham Road, Brigsley (B1203 road). South of Ashby cum Fenby the ground level rises to the 40m contour as the pipeline approaches and follows the alignment of the A18 but as the route crosses Whites Road and the A16 Louth Road, south of North Thoresby, the ground levels fall to the 21m contour. Between the A16 and the end of the Section at Pear Tree Lane the ground level is between the 21m and 24m contour.

2.2.6 Superficial deposits of Glacial Till covers most of this section; however, alluvium is also present along localised watercourses, including Laceby Beck, Waithe Beck and more extensively around Old Fleet Drain on the south side of Grainsby. Lacustrine and Glaciofluvial Deposits are also present within this section and form smaller localised features (Glaciofluvial Deposits are recorded around Grainsby, and north of Ludborough there are Lacustrine Deposits). Chalk bedrock of the Burnham Chalk Formation underlies the northern end of the Section, although elsewhere it is Chalk of the Welton Chalk Formation (the Welton Formation follows the orientation of the A18 between Aylesby and

Brigsley and generally comprises white, massive or thickly bedded chalk with common flint nodules, lacking tabular flint bands).

Section 4 - Pear Tree Lane to Manby Middlegate (B1200)

- 2.2.7 At the start of Section 4 between Pear Tree Lane and Louth Road the ground level is gently undulating at between the 24m to 17m contour, although lower where the route crosses the floodplain of Poulton Drain and its tributaries, west of Covenham St Mary (10m) and Yarburgh Beck / Black Dike (12m), southwest of Yarburgh. From Alvingham Road the ground level drops to the 9m contour where the route crosses the Louth Canal / Navigation and River Ludd, between Alvingham and North Cockerington. Between North Cockerington and South Cockerington the ground rises slightly onto the 13m contour, before dropping again onto the 7m contour to the east of South Cockerington, and between here and the end of the section at Manby Middlegate (B1200 road) the topography is low lying and relatively flat at between the 7m and 4m contour.
- 2.2.8 The superficial geology in this Section mostly comprises Glacial Till. Alluvium is also present along localised watercourses, including Poulton Drain catchment area (western side of Covenham St Mary), Yarburgh Beck / Black Dike and its tributaries (south of Yarburgh) and more extensively around Louth Canal and the River Ludd, to the south of Alvingham. East of South Cockerington the pipeline route crosses Pock Hill Lane and runs along the interface of an area that comprises Glacial Till and Tidal Flats Deposits. The bedrock geology in this Section comprises Chalk of the Welton Chalk Formation, although the pipeline route crosses into the Ferriby Chalk Formation to the east of Brackenborough.

Section 5 - Manby Middlegate (B1200), to Theddlethorpe and down to MLWS

- 2.2.9 Ground levels throughout Section 5 are generally flat and around the 3m to 4m contour as the pipeline route crosses the coastal fenland area.
- 2.2.10 The superficial geology covering most of this Section comprise Tidal Flat Deposits but includes, at the northern end, small areas of Glacial Till immediately south of Manby Middlegate road (B1200). The northern end of this Section is underlain by Chalk of the Welton Chalk Formation and then Chalk of the Burnham Formation from east of Walk Farm, Great Carlton to the end of the Section.

2.3 Historical and Archaeological Background

- 2.3.1 The following description of the archaeological and historical resource within the Site is based upon an assessment of the baseline within a 500m wide study area either side of the DCO Site Boundary, as reported in Appendix 8-1 of the Environmental Statement (ES) (*ES Volume IV, Appendix 8-1: Cultural Heritage Desk Based Assessment (Application Document 6.4.8.1)*). Asset reference numbers refer to the relevant local authority Historic Environment Record archaeology datasets, or National Heritage List for England (NHLE) list numbers where relevant; APS references are those used in *ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis (Application Document 6.4.8.2)*.

Section 1– Rosper Road (Immingham) to A180 Road

Prehistoric (up to AD43) and Roman (AD43-450) periods

- 2.3.2 Archaeological evidence shows that the Humber estuary has been a key trade and communication route between the North Sea and the Pennines, and to the Midlands (River Trent), since prehistoric times. Important palaeo-environmental and archaeological evidence preserved within wetland locations includes Bronze Age boats and fish traps.

There is also evidence of early settlement on higher, drier land, while the lower wetlands provided fishing and fowling as well as summer grazing for the surrounding settlements.

- 2.3.3 Research on the Humber wetlands has suggested that, at the beginning of the Holocene, the onset of warmer conditions led to the establishment of dense vegetation cover over undulating boulder clay. At the same time kettle-holes and poorly draining hollows would have allowed the formation of a series of organic peaty sediments, and fluctuating sea levels would have led to increasing sedimentation through the process of alluviation and the formation of marshlands (Ref 24; Ref 28; Ref 32). The Humber continued to have great importance throughout the Roman and medieval periods for trade and communication and it is possible that on the north bank of the estuary drainage of the marshes began as long ago as the second century AD.
- 2.3.4 Prehistoric flintwork (waste material and tools), of Late Mesolithic to Early Bronze Age date, has been found during archaeological investigations close to the DCO Site Boundary (surface artefact collection and excavations) (MNL3927, MLS19799, MLS1615, MLS1614, MLS19831, MLS19832, MLS19834) and within the DCO Site Boundary (MLS21544). There are other findspots of prehistoric flintwork (waste flakes and cores) in the wider area, south of Station Road (MLS19726).
- 2.3.5 Archaeological evaluation at the Humber Refinery, c.300m northeast of the DCO Site Boundary, has recorded evidence of Bronze Age activity and a late prehistoric and Roman settlement with associated evidence for salt-making and iron smelting (MLS21553, MLS21554, MLS21555, MLS21556). Charcoal from a ditch has been radiocarbon dated to the Early Bronze Age and, sealed beneath 0.4m of alluvial clay, a charcoal-rich deposit (burnt stone and charcoal) was radiocarbon dated to the Late Bronze Age. A spread of burnt material which lay over a possible buried soil was also sealed beneath the alluvium which produced a Middle Bronze Age date. The Iron Age (and early Roman occupation) appears to occupy the driest ground, towards the west of the investigated area. Many of the features coincided with geophysical anomalies (possibly representing Iron Age enclosure ditches) and it is possible that salt making was carried out on the wetter ground to the east.
- 2.3.6 Although undated deposits interpreted as the buried shoreline were recorded east of Rosper Road during archaeological evaluations in 2004 and 2005, trenches in 2004 recorded 1m of alluvium over a peaty deposit and alluvium over deposits of mid-late Iron Age date. In 2005 alluvium which sealed an organic deposit was recorded beneath subsoil within the DCO Site Boundary (MLS20141). Also, a system of creeks which were detected by geophysical survey are likely to mark a former high-water position.
- 2.3.7 Close to the northern end of the DCO Site Boundary an archaeological trial trench evaluation in 2016 at Rosper Road identified multiperiod activity, including several Iron Age ditches (MLS20103, MLS20422, MLS20424). An earlier excavation either side of Rosper Road, that was carried out between 2000 to 2002 adjacent to the Conoco Refinery, suggested that the original early Iron Age settlement was located on the lower ground near to a former creek on the shore of the River Humber. There then appears, on the basis of the pottery sequence, to have been a hiatus in the mid- to late Iron Age. The subsequent late Iron Age and Romano-British settlement, representing possibly a small farmstead, developed on higher ground further north on the palaeo-shoreline. This was centred around a driveway and a pattern of enclosures (MLS1614, MLS20078), including within the DCO Site Boundary (MLS19771). Further evidence for Iron Age occupation was found west of Rosper Road, within the DCO Site Boundary, during trial trenching in 2010, related to the A160-A180 road improvements, where two Iron Age ditches were recorded (MLS22428).

- 2.3.8 Trial trench evaluation carried out in April 2023 for the proposed Humber Zero carbon capture scheme, within the northern extent of the DCO Site Boundary at the proposed pipeline offtake facility at Immingham, has recorded evidence of prehistoric activity and Iron Age / Romano-British occupation along the edge of the former buried shoreline (Ref 34; Ref 27)). The evaluation formed part of a programme of works, following a geophysical survey and a geoarchaeological borehole survey. A total of 32 trenches were excavated, which identified three areas of archaeological activity at the northwest, northeast and southeast corners of the trenched area, centring on the slightly higher ground within the site. Trenching at the northwestern corner of the evaluation area revealed several ditches containing Romano-British pottery and animal bone, however, the earliest evidence of activity came from a small number of pits found beside a possible palaeochannel which produced late Mesolithic / early Neolithic lithic fragments. At the northeastern corner an alignment of postholes and several small boundary or enclosure ditches were recorded. A concentration of features at the southeastern corner, dated mostly to the Iron Age / Romano-British period, included a large multiphase curvilinear ditch within a possible enclosure, and a series of small ditches possibly associated with a contemporary field system.
- 2.3.9 In the central part of the evaluation area geoarchaeological boreholes (11 drilled boreholes to a maximum depth of c.6m below ground level) were used to identify areas of archaeological potential by characterising the probable nature and depth of sub-surface deposits (ibid). The deposit sequence recorded included Pleistocene glacial till found between approximately -0.5m and 3m OD; the lower elevations traverse the evaluation site from the northeastern boundary, forming a relict coastal inlet which was found to be infilled with intertidal deposits. It is likely that this inlet was open in the Mesolithic to Neolithic periods but has been gradually infilled during the Holocene by alluvium or warp (flooding) deposits which were found across the site. Made ground of up to approximately 1.4m in thickness was also recorded.
- 2.3.10 There are several cropmark features of possible Iron Age date, including west of Habrough Road where a linear feature is visible (MLS20077) and a series of three possible enclosures (MLS20780). From the same general area, a late Iron Age enclosure, which was also visible on aerial photographs, was identified by geophysical survey and trial trenching (MLS1611).
- 2.3.11 Late Roman ditches were also recorded north of Marsh Lane (c.100 m north of the DCO Site Boundary) during trial trenching in 2012 and 2013. These are likely to represent a continuation of the small farmstead recorded on the west side of Rosper Road (MLS22743).
- 2.3.12 At East End Farm (c.130 m west of the DCO Site Boundary) archaeological geophysical survey has detected a trackway and a complex series of rectangular ditches flanking the trackway. Evidence also included a walled building. The complex could represent a series of small Romano-British farmsteads, a single large farm, or perhaps even be of military or ritual origin (MLS20152). Metal detection in the same area also recovered Roman coins and metalwork.
- 2.3.13 A driveway and enclosure of possible Roman date are visible on aerial photographs next to Ulceby Road and the woodland known as Sinks Covert (MLS8765).
- 2.3.14 South of East End Farm, and c.75m west of the DCO Site Boundary, archaeological geophysical survey detected the buried remains of a Roman enclosure, northeast of Glebe Farm, which is also associated with Roman coins and pottery (MNL820).
- 2.3.15 A sherd of possible imitation Samian pottery has been found within the DCO Site Boundary (MNL1508).

- 2.3.16 Late Iron Age pottery and Roman pottery was found west of Habrough Road during excavations (MLS19829, MLS19830). A large hoard of Roman coins was also discovered by a metal-detectorist in the same area (MLS16344).
- 2.3.17 In the wider area a high-status Roman settlement and industrial site was found at Mauxhall Farm / Stallingborough Interchange (MNL4490, MNL4763). Here trial trenching revealed a substantial settlement belonging to two main phases (1st to 2nd centuries and 3rd centuries) followed by the site's abandonment. The presence of a stone building appears to mark this site out as different from other settlements along the edge of the tidal flats. It has been suggested that it may have functioned as a possible estate centre from which other sites were managed.

Early medieval (450-1066) and medieval (1066-1500)

- 2.3.18 Evidence of early medieval and medieval occupation tends to be concentrated within and close to the historic settlements that the pipeline route passes, however, the surrounding area also contains evidence for activity and occupation as a result of shifting settlement patterns and landscape changes. Within much of the study area the majority of the evidence is represented by former cultivation features, and it is likely that some of these also continued in use until enclosure in the post-medieval period.
- 2.3.19 Immingham is mentioned in the Domesday Book, the Lindsey Survey (c.1115) and the Early Yorkshire Charters (1100-15), and it formed a small cluster of settlements with place names indicating early Anglo-Saxon settlement (MNL287). The form of the settlement appears to have been a chain of farmsteads or hamlets laid out along a pair of parallel roads, with a denser core around the parish church. Archaeological trial trenching has recovered early medieval pottery and also pottery of 13th to 14th century and post-medieval date. Alluvial layers also show that the area was prone to flooding and that in some places, which were most vulnerable, seasonal farming activities were undertaken.
- 2.3.20 Habrough is also mentioned in various historic documents (Domesday, the Lindsey Survey (c.1115), Assize Rolls (1202), the Valuation of Norwich (1254) and Pipe Rolls (1197)) (MNL205). Originally the parish included a large, detached section of coastal marshland, Habrough Marsh (now a part of Immingham). The village was comprised of two settlement cores with dispersed occupation between them. The eastern core contains the church and at least one moated manorial site. It appears to have been laid out along a single road and the western core contains post-medieval Newsham Farm (settlement appears to have formed around a small grid like system of roads without an obvious topographic influence).
- 2.3.21 Settlement evidence has been identified within and surrounding Immingham. The scheduled Manor Farm medieval moated site is located in North Killingholme and was occupied into the post-medieval period (NHLE1008044, NHLE1346854, NHLE1214980). A possible area of medieval settlement is located within the DCO Site Boundary, northeast of Houlton's Covert, (evidenced by a fieldname which may correspond to the small close shown on Russell's pre-enclosure map of Killingholme, on the edge of Summergates) (MLS19827). The possible remains of a shrunken medieval village have been found at South Killingholme (MLS1613), c.270m north of the DCO Site Boundary, comprising a rectilinear enclosure, ditches and ridge and furrow (visible on aerial photographs, but now largely built over, although elements of the site may survive). A possible medieval moated site was found during an archaeological evaluation and excavation west of Luxmore Farm (complex of ditches and pits that respected Immingham Road) (MNL2373). A series of linear earthwork features (drainage systems, trackways and enclosures) at Homestead Park, Immingham (MNL284) (c.486m southeast of the DCO Site Boundary) also suggest medieval settlement

in the wider area where waterlogged deposits of possible late medieval origin were recorded during monitoring in 1994.

2.3.22 There is evidence of extensive ridge and furrow cultivation in the area, of likely medieval to post-medieval date, associated with areas of historic settlement activity. The remains are visible on aerial photographs at several locations within or close to the DCO Site Boundary, including at Habrough (MNL2234), South Killingholme (MLS10748, MLS20104) and at Immingham (MNL2238 and which extends into Section 2). Several findspots of medieval pottery may also be connected to activity associated with cultivation or occupation (MLS20275), including within the DCO Site Boundary (MNL1507).

Post-medieval (1500-1900) and modern (post-1900)

2.3.23 From the 17th century, coastal reclamation, drainage and enclosure had a significant impact on the rural landscape. Flood defences were built to protect the developing towns and industrial areas and warping was introduced by the Dutch in the 18th century. Later, Parliamentary enclosures produced the landscape of regular, geometric fields, mostly enclosed by dikes, with associated large brick-built isolated farmsteads and excavation of brick pits for the extraction of Pleistocene clays.

2.3.24 The pipeline route passes several extant or demolished post-medieval and later farms / farmsteads, including Glebe Farm (MNL1818); Church Farm, Habrough (MNL2302); Luxmore Farm, Habrough Road (MNL2449); Elm Tree Farm, South Killingholme (MLS25002); Willows Farm, Immingham (MNL2451); and also several rural dwellings (NHLE1161631, NHLE1215113, NHLE1161630 / MNL288, NHLE1161587 and MNL2311). These reflect the former agricultural character and rural industries of the area prior to the development of Immingham Docks and the subsequent expansion of Immingham. Within the DCO Site Boundary is the site of a demolished post mill that is located along Mill Lane, Immingham (MNL4349).

2.3.25 Immingham Dock was established by the Humber Commercial Railway and Dock Company in association with the Great Central Railway (Humber Commercial Railway and Dock Act of 1904, and subsequent amendments). Construction of Immingham Docks began in 1906 and was completed by 1912. Initially the dock exported coal from the coalfields of Derbyshire and Yorkshire via the Humber Commercial Railway (Grimsby District Light Railway was used for contractors' traffic and later for carrying passengers / dock workers) (Grace's Guide, 2020). A temporary settlement, or workers village, was established at Immingham (Humberville) comprising of a series of corrugated tin huts (known as Tin Town) for the dock construction workers (NHLE1391349). An extensive complex of railway lines and sidings were integrated into Immingham dock (London and North Eastern Railway - Immingham Dock Branch) (MNL3039). The Humber Commercial Railway line constructed in 1912 linked the eastern jetty at Immingham Dock with the main Grimsby - New Holland line at Ulceby (MLS21326).

2.3.26 From the 16th and 17th centuries onwards, defensive structures were constructed to protect the coastline from attack and the threat of invasion. The importance of defence continued into the late-19th century (coastal artillery battery and minefield control centre built at Paull Point on the north bank of the estuary) and was followed by a 20th century World War 1 acoustic mirror near Kilnsea and two forts at the estuary mouth.

2.3.27 During World War 1 Immingham Docks was a base for British D-class submarines. Following the end of World War 1 trade declined (as it did elsewhere along the east coast), including demand for shipping services and new ships. World War 2, however, revived its prospects but, together with other ports along the east coast such as Hull, it became the target of

bombing raids. During World War 2 Immingham Docks became a naval base and headquarters for the Royal Navy. A series of anti-aircraft batteries and bombing decoys were built to protect the docks and nearby military airfields from attack. There are several known World War 2 military installations which are outside of the DCO Site Boundary, including heavy anti-aircraft battery installations at Immingham (MNL1523) and next to Sinks Covert (MLS17455); a searchlight emplacement at North Killingholme (MLS26168) and levelled anti-aircraft obstructions at Immingham (MLS21322). A possible bomb crater has been identified on aerial photographs at South Killingholme (MLS26149); and in the wider area are former barrage balloon sites (MNL4651, MNL4684, MNL4675), and other military buildings and installations (MNL4644, MNL4689).

Undated Assets

2.3.28 The pipeline route passes several undated cropmark sites including a possible square enclosure (now beneath the Immingham CHP Plant, MLS21321) and an undated linear feature, west of Rosper Road (MLS21315); and outside the DCO Site Boundary, south of Ulceby Road (MLS20124, MLS1608, MLS1609, MLS20781, MLS8766, MLS25944, MLS1610, MLS21317). A series of linear geophysical anomalies at East End Farm, South Killingholme that are also undated (MLS20273, MLS20274) have been identified from archaeological geophysical survey.

Section 2 – A180 Road to A46 Road

Prehistoric (to AD43) and Roman (AD42-450)

2.3.29 There is no evidence of significant prehistoric activity within this Section of the pipeline route. In the wider area to the west of the pipeline route there is evidence of Neolithic and Bronze Age burial activity. Southwest of Riby Grove Farm are the remains of a Neolithic long barrow and a Bronze Age round barrow (NHLE1018838) that are located on a spur of land overlooking several dry valleys. Prehistoric flintwork has been found outside of the DCO Site Boundary but only in small quantities or as a single findspot (MNL4760, MNL3924, MNL3922, MNL3923).

2.3.30 Barton Street forms the parish boundary between several settlements and has been identified as a possible late Iron Age routeway that continued in use into historic times (MNL2583 / MLI116141 and also crosses Section 3).

2.3.31 Evidence for a possible Roman settlement have been found within the DCO Site Boundary southeast of Greenlands Farm, Stallingborough (MNL2689). The site appears to occupy an area of higher ground and comprises a complex of small enclosures alongside a trackway. Pottery from the site included possible Iron Age and early medieval material, suggesting the site may have earlier origins and was occupied into the post-Roman period. The discovery of fragments of Roman brick and tile in Stallingborough are possible indicators of Romano-British settlement / occupation (MNL3920, MNL3921). There is also a scatter of findspots of Roman material (pottery and metalwork) that indicate a possible more extensive Roman presence in the area (MNL1906, MNL3925, MNL3926, MNL834).

Early medieval (450-1066) and medieval (1066-1500)

2.3.32 The pipeline route passes close to several historic settlements that have their origins in the early medieval and medieval periods. Aylesby is mentioned in Domesday (1086) and the Lindsey Survey (c.1202) and the village is probably a later Saxon foundation (occupation focused on Barton Street) (MNL125). Evidence of Anglo-Scandinavian occupation has been recorded (pottery and other finds) in the village which suggests occupation from at least the 10th century.

- 2.3.33 Stallingborough is mentioned in Domesday, the Lindsey Survey (c.1115), the British Museum Charters (c.1130), the Episcopal Registers (1233) and the Valuation of Norwich (1254). Along with Healing, Immingham and a lost settlement called Lopingham, it forms a small cluster of settlements with place names indicating early Anglo-Saxon settlement (MNL371). The medieval village was originally located on the edge of the salt marsh that has since been almost totally reclaimed. A low hill formed an early settlement focus, and this elevated position was used for the church and the principal manor house of the village. Recorded as a designated 'creek' port during the post-medieval period, archaeological investigations (geophysical survey, monitoring, trial trenching and excavation) have found evidence for Late Saxon and medieval occupation.
- 2.3.34 Irby upon Humber is mentioned in Domesday, the Lindsey Survey (c.1115) and the Assize Rolls (1202). The medieval settlement developed on patches of high ground around a riverless valley. It formed around a sub-rectangular road, with others radiating away from it, with no particular focus for dense settlement (MNL67).
- 2.3.35 There is evidence of early medieval occupation in the wider area at Riby where a substantial middle Saxon settlement, comprising field and enclosure ditches and elements of probable post-built and sunken buildings, has been investigated (Riby Crossroads) (MLI52885). The site is associated with an extensive pattern of cropmarks. At Riby Park a small 7th century Anglo-Saxon cemetery was discovered in 1915 (MLI50022) along with Anglo-Saxon pottery (MLI50023). Southeast of Riby Church, investigations within the Walled Garden have also recorded evidence of Roman, early medieval and medieval activity (MLI125879, MLI125880, MLI125881, MLI125882). At Laceby (north of Barton House), another Anglo-Saxon inhumation cemetery was found during sand and gravel extraction in 1934 and 1936-1939 (MNL295), but this is located in the wider area.
- 2.3.36 A sherd of possible Saxo-Norman pottery is also recorded north of Greenlands Farm, Immingham (MNL4199).
- 2.3.37 There are several smaller historic settlements within this Section. Roxton is mentioned in historic documents (including the Book of Fees, 1242, in the 1334 tax list, and it is marked on the Yarborough Estate map). Earthwork remains of the deserted medieval settlement at Roxton have largely been levelled but are visible as soil and cropmarks, including within the DCO Site Boundary (part of an extensive area covering c.15 hectares) (MNL286). At Stallingborough, part of the deserted medieval settlement, together with the earthworks of a post-medieval manor house and associated formal gardens, are located next to the parish church (NHLE1020423). At nearby Little London three areas, which are separated by roads and earthworks, are largely contiguous with the earthworks at Stallingborough; and features along the south bank of North Beck Drain may represent a series of moated enclosures and fishponds. Investigation of some of the features has revealed building platforms, chalk foundations, tile, and Roman, medieval to post-medieval pottery and other material (animal bones, oyster shell, nails and a coin of Henry IV) (MNL382).
- 2.3.38 Medieval moated sites are also recorded in the wider area, including the scheduled Healing Hall (NHLE1010947), at Roxton Farm (MNL283) and possibly also south of Manor Farm, Aylesby (MNL120).
- 2.3.39 There are cropmark remains of medieval / post-medieval ridge and furrow surrounding several of the historic villages and settlements, including at Stallingborough (MNL2235) and at Aylesby (MNL2225), which cross into the DCO Site Boundary.
- 2.3.40 Post-medieval (1500-1900) and modern (post 1900)

- 2.3.41 The pipeline route passes several gravel and chalk extraction pits, of post-medieval to modern date, that are shown on OS maps from the end of the 19th century (MNL1565, MNL1569), including two that are within the DCO Site Boundary (MNL1566, MNL2175).
- 2.3.42 There are numerous farmsteads and dwellings of post-medieval to modern date that the pipeline passes that reflect the farming and rural character of the area within the wider study area. These include Roxton Farm, Immingham (MNL1881); Stallingborough Grange (MNL1893); Healing Wells Farm (NHLE1346977 / MNL241); Manor Farm, Aylesby (MNL1609); Church Farm, Riby (NHLE1308735 / MLI96869); Church Farmhouse, Riby (NHLE1359822 / MLI97067); The Crofts, Laceby (MNL4254); and Greenland's Farm, which is located just outside of the DCO Site Boundary (MNL1895).
- 2.3.43 Riby Park (MLI92320) was built over the deserted medieval settlement of Riby and was laid out around the Church of St Edmund. The Park is recorded on both the OS 1st edition maps (1887-9) and 2nd edition maps (1902-6).
- 2.3.44 The north end of the pipeline route crosses the Manchester, Sheffield and Lincoln Railway – Cleethorpes to Barton railway line, that opened in 1848 (Cleethorpes extension added around 1863, part of a trans Pennine route from Manchester via Sheffield) (MNL1302). The site of a former railway siding, alongside Roxton Road, is within the DCO Site Boundary and is shown on the OS maps of 1887-9 (MNL2960) (associated with Roxton Siding Signal Box, MNL2820).
- 2.3.45 The pipeline passes several historic roads of post-medieval date (marked on OS maps of 1887-9), although some are also likely to have medieval origins, including Riby Road, Stallingborough (MNL3502); Keelby Road, Stallingborough (probably documented in the reign of Henry III as 'Kelebigate') (MNL3505); Beach Holt Lane, Aylesby (MNL3476); and Nooking Lane, Aylesby (also documented in 1840) (MNL3477).
- 2.3.46 The pipeline route passes a number of modern refuse disposal sites in Aylesby (MNL1031) and Laceby (MNL1020), and landfill sites in Aylesby (MNL1068, MNL1069, MNL1070). A part of the former Aylesby Park is also within the DCO Site Boundary which is shown on OS maps of 1907-10 (southwest side of Aylesby, next to Manor House Farm) (MNL3157).
- 2.3.47 Several World War 2 military installations are recorded at the northern end of the Section, but outside of the DCO Site Boundary, that belong to the defensive arrangements for Immingham Docks. These include the Heavy Anti-Aircraft Battery H37 at Immingham Grange (MNL1524) (although possibly never built) and a pair of designated World War 2 heavy anti-aircraft batteries at Stallingborough (NHLE1403222 / MNL1525), which in 1946 became a Nucleus Force Battery headquarters. A group of closely spaced circular or sub-circular earthworks at Healing Wells Farm, identified on aerial photographs from the 1940s, possibly represent the site of a World War 2 searchlight battery (MNL4346). There is also a 1960s underground Royal Observer Corps monitoring post at Stallingborough (NHLE1403218 / MNL1900).

Undated assets

- 2.3.48 The pipeline route passes several undated cropmark sites, including a small enclosure and field boundaries of possible medieval to post-medieval date that is within the DCO Site Boundary (200 m southwest of Barton Street) (MNL123). Undated ditches, pits and a possible palaeochannel have been identified during a geophysical survey at Immingham (MNL3915) and similar features were recorded within the DCO Site Boundary at Stallingborough (MNL3914). In the wider area an undated cropmark south of Gatehouse Farm, Stallingborough (MNL1234) was not located during construction work for a linear

pipeline scheme in 1996 (although a large deposit of organic sediment was recorded during archaeological investigations close to the site).

Section 3 – A46 road to Pear Tree Lane, Covenham St Bartholomew

Prehistoric (to AD43) and Roman (AD43-450)

- 2.3.49 Evidence of prehistoric activity comes from findspots and cropmarks along this Section of the pipeline route. Small amounts of prehistoric flintwork comprising tools and waste material have been recovered at Irby Upon Humber (MNL1213), Holton le Clay (MLI41238), Ashby cum Fenby (MNL2110, MNL2111) and near Grainsby (MLI41215). Neolithic flints (two flint scrapers and numerous flint flakes, including a human tooth) were discovered in Hatcliffe, located in discrete patches that possibly reflect disturbed buried features (MNL2081).
- 2.3.50 There is a possible prehistoric burial mound at Waltham that is visible as a subcircular cropmark on aerial photographs (MNL2554); and beyond the wider area there is a scheduled Bronze Age round barrow cemetery at Tetney (visible as low earthworks and cropmarks) (NHLE1469975).
- 2.3.51 Topographic features such as hilltops and areas of higher ground may have been attractive to early settlers. A spring located on Welbeck Hill, west of Barnoldby le Beck, is marked on OS maps of 1887-9. but may have been used in the prehistoric period (MNL1570). Similarly, Laceby Beck may have been a valuable resource from the prehistoric period (connecting Wellbeck Spring in the south with the River Freshney in the north) (MNL4273) and also Waithe Beck (MNL4344).
- 2.3.52 A possible late prehistoric or Roman enclosure, with an opening to the east and a small enclosure at the northwest corner, has been identified from aerial photographs at Ludborough (MLI98689). Another possible late prehistoric farmstead, with an associated field system, has been identified from cropmarks, west of North Thoresby, and beyond the wider area (MLI87920). Iron Age pottery from a ditch at Ashby cum Fenby is possibly indicative of late Iron Age activity in the area (MNL4398).
- 2.3.53 There is evidence for more extensive Romano-British occupation and settlement within this Section of the pipeline route. A possible Roman villa is visible as a cropmark to the west of Barnoldby le Beck (MNL850). Finds recovered from the site include a wide range of material such as brickwork, stone roof tile, a flint core and flakes, worked stone masonry, painted plaster, ceramic roof tile, possible tessera, possible hypocaust tiles, animal bone, stonework with paint and a large number of grey-ware sherds. At Irby upon Humber a dark soil on the south side of Welbeck Hill has produced Roman finds (abundant animal bone, burnt material and Roman pottery) (MNL1952). The presence of early medieval pottery at the same site suggests that occupation may have extended into later periods. Surface artefact collection, archaeological geophysical survey and archaeological excavations of a cropmark site have revealed evidence of a Romano-British settlement at Hatcliffe (MNL211).
- 2.3.54 Southwest of Hatcliffe Mill another Roman settlement is suggested by possible building platforms, that are visible on aerial photographs, alongside an old road (MNL208) with abundant Roman pottery from an adjacent field. In Ashby cum Fenby a Romano-British pit or ditch was uncovered during a watching brief in 1995 (MNL2370). Roman material has also been found near Ashby Hill, west of Ashby cum Fenby (MNL96) and Roman coins (together with early medieval and medieval material) has been reported by the Portable Antiquity Scheme near Ashby cum Fenby. An extensive Romano-British field system, covering approximately 12 acres that is associated with a possible vineyard, is visible on aerial photographs at North Thoresby (MLI41207). Pottery that is associated with dark

soilmarks at Grainsby may indicate the presence of kilns and a buried cultivation system (MLI41216).

- 2.3.55 Several cropmark features that have been detected in this Section, but which are undated, could represent evidence for occupation in the prehistoric and Roman periods.

Early medieval (450-1066) and medieval (1066-1500)

- 2.3.56 The pipeline route passes several historic settlements that have their origins in the early medieval and medieval periods, however, not all settlements prospered, and there are a number of shrunken and deserted settlements. Irby upon Humber (whose historic core lies within the wider area, MNL67) is mentioned in Domesday, the Lindsey Survey (c.1115AD) and the Assize Rolls (1202AD) and likely has early medieval origins. It developed on patches of high ground around a river-less valley and the settlement formed around a sub-rectangular road, with others radiating away from it, but it appears that there was no particular focus for dense settlement, instead it contained small clusters of houses and farmsteads, separated from each other by relatively small distances.
- 2.3.57 Barnoldby le Beck also has early medieval origins and is mentioned in historical sources (Domesday (1086), the Lindsey Survey (c.1115), and the Index to the Charters and Rolls (1202)). Part of its historic core is within the DCO Site Boundary (MNL137). In the post-medieval period, it was de-populated and emparked. A cluster of farmsteads and cottages is shown around the parish church at the end of the 19th century, suggesting that in the medieval period there was a dense nucleated core with a tight grid like pattern of roads. Crofts arranged along a possible road, suggestive of planned settlement, are documented around 250 m south of the church. Two large areas of parkland were established around the 18th to 19th centuries 'Manor House' and 'Oakland House' (also known as 'Woodlands' and 'The Grange') which may have involved some re-organisation of the settlement. Remains dating to the 13th and 14th centuries have been recorded during archaeological investigations and there are earthworks representing the former medieval extent of settlement to the south of Main Road and Waltham Road (building platforms, paddocks and trackways).
- 2.3.58 Brigsley is mentioned in Domesday (1086), the Lindsey Survey (c.1115), the Assize Rolls (1202) and the Index to Charters and Rolls in the British Museum (1202). The settlement is formed within a rough grid-based road system of three north-south roads and two east-west roads with the parish church roughly central (MNL2250). Areas of historic settlement earthworks survive, including a hollow-way to the east of the church which represents an abandoned road. To the east of the hollow-way is a post-medieval manorial site, around which appear to be the earthworks of medieval building platforms and house plots now covered by woodland. Archaeological investigations in Brigsley have uncovered evidence dated to the early medieval to medieval periods (ditches containing Ipswich ware and Northern Maxey Ware) (MNL2320).
- 2.3.59 The settlement of Holton le Clay is first documented in the Domesday Book and is subsequently documented throughout the medieval period (MLI80552). The remains of parts of the medieval settlement are visible on aerial photographs. There is evidence to suggest that the origins of the village lie in the late Anglo-Saxon period, if not earlier. Saxon graves were found during excavations at the church and finds dating from the mid- to late Saxon period were also recovered. Archaeological investigations elsewhere in the village have produced late Saxon and medieval pottery and medieval and post-medieval features.
- 2.3.60 Ashby cum Fenby is also mentioned in Domesday (1086), the Lindsey Survey (c.1115) and the Curia Regis Rolls (1205). Archaeological investigations have found evidence of 9th to

15th century occupation (MNL2113, MNL3102), including areas that are within the DCO Site Boundary (MNL2249, MNL98). Aerial photographs and historic documents suggest that the settlement comprised dwellings interspersed with garths, paddocks and crofts. From at least the 19th century the settlement spread to the south of the manor and church. The area around the medieval manor was converted into parkland and formal gardens during the post-medieval period.

- 2.3.61 Hawerby is an historic settlement known to have existed since the early medieval period (MNL233). The former settlement pattern is of house platforms and crofts, arranged along a single central road, with the church and rectory to the west and a small country house with its associated farmstead to the north.
- 2.3.62 The pipeline route passes close to an Anglo-Saxon cemetery on Welbeck Hill (MNL64) that spread along a gravel spur projecting from the hilltop. This was investigated in 1962 and 1979 and a total of 72 inhumation and 5 cremation burials were recorded in three areas: north-south along the hill crest, east-west on the hill's western slope and a deposit of cremations on the eastern slope. Finds recovered from the burials indicate a likely date for the burials from the mid-5th century to the 6th century and it is likely that the cemetery went out of use in the late 6th or early 7th centuries. It is possible that the cemetery has not been fully excavated. A soil mark area to the northeast of the cemetery could represent either contemporary settlement or possibly a pyre associated with the cremations found in the cemetery (MNL71).
- 2.3.63 There is evidence of medieval settlement and cultivation across this Section with a cluster in and around the settlements that had their origins in the early medieval period. Southwest of North Thoresby, traces of the deserted medieval settlement of Autby (MLI41208) have been identified in the northwest corner of Autby Park (MLI41209). The scheduled remains of the deserted medieval village of Beesby [NHLE1003553] are located on the edge of the wider area, north of Cadeby Hall (northwest of Ludborough), and to the south of Cadeby Hall are the remains of the deserted medieval village of North Cadeby (NHLE1003611).
- 2.3.64 Beyond the wider area are the remains of Waithe deserted medieval village (located alongside the A16 road (MLI41233) and the shrunken medieval settlement of Grainsby, which extends either side of Grainsby Lane (MLI41222).
- 2.3.65 Several medieval moated sites are scattered across the Section, including east of Manor House, Irby upon Humber (MNL2511), where a square enclosure is flanked and respected by ridge and furrow; and at Ashby cum Fenby where there is a moated site and other possibly associated features which are crossed by the DCO Site Boundary at Hall Farm (MNL411). At Barnoldby le Beck an L-shaped fishpond which is marked on OS maps of 1887-9 is potentially the remains of another moated site (MNL1590); and at Ludborough, the Manor Moated site [673] has several earthworks including a rectangular enclosure likely to represent the site of the former manor house.
- 2.3.66 Aerial photography has identified several areas of medieval / post-medieval ridge and furrow throughout this Section. At Barnoldby le Beck extensive ridge and furrow earthworks almost surround the village core and are preserved in the two landscape parks to the south of the village, including within the DCO Site Boundary (MNL2228). Ridge and furrow are also recorded at Welbeck Hill, northwest of Barnoldby le Beck, also within the DCO Site Boundary (MNL2237). At Brigsby, numerous disparate areas of ridge and furrow earthworks (MNL2230) suggest that these remains are part of more extensive cultivation systems (a geophysical survey identified linear features which might be the remains of ridge and furrow along with other field boundaries). In Ashby cum Fenby there are also extensive earthwork

remains of ridge and furrow cultivation features visible on aerial photographs from the late 1940s (MNL2224) [APS_24, APS_25, APS_27, APS_28, APS_30] (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis (Application Document 6.4.8.2)*). Ridge and furrow cultivation features are also recorded at Laceby (MNL2243), Hatcliffe (MNL2236), Grainsby Grange (MLI98651, MLI98650) [APS_23], Hawerby (MNL2226) and northeast of Ludborough (MLI125503) and at Cold Harbour Farm (Ludborough Parish) where cropmarked features are visible partially within and next to the DCO Site Boundary [APS_18].

Post-medieval (1500-1900) and modern (post-1900)

- 2.3.67 Southeast of Irby upon Humber and below Welbeck Hill is a scheduled Civil War earthwork fort that is located c.75m west of the DCO Site Boundary (NHLE1007735, MNL62) [APS_33] (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis*). The 17th century fort comprises a rectangular earthen rampart, with projecting bastions at each of its four corners, an enclosing ditch, and a counterscarp bank. It is sited on high ground close to the road from the Humber to Boston and Kings Lynn (Barton Street, A18) and within easy reach of the road from Newark to the Humber via Gainsborough (Grimsby Road, A46). It is possible that remains associated with the Civil War fort may extend into the DCO Site Boundary.
- 2.3.68 A post-medieval field boundary that is partially within the DCO Site Boundary is visible on satellite imagery between Barnoldby le Beck Park and Waithe Beck [APS_29] and another field boundary that is broadly aligned along the axis of the DCO Site Boundary is visible also as a cropmark feature at Ashby cum Fenby [APS_26].
- 2.3.69 The OS maps of 1887-9 show two areas of parkland on the south side of Barnoldby le Beck with a northern boundary along Main Road and Waltham Road (MNL1588, MNL1589) and at Hawerby cum Beesby. Part of Hawerby Park is close to the DCO Site Boundary (MNL1870), it surrounds St Michael's Church and is also shown on OS maps of 1887-9. Further south there is a large area of dispersed trees, occasionally in groups, indicative of a landscape park (shown on the OS maps of 1887-9) (MNL3935), possibly an extension of Cadeby Park or parkland for Beesby House, which lies at the centre of the landscape. The parkland is still extant in areas where scheduled medieval earthworks are present (NHLE1003553). Early 20th century OS maps (between 1906-10) also depict an area of parkland at Oaklands, Laceby (MNL3156) and, southwest of North Thoresby, part of Autby Park, which is marked on OS maps of 1956, lies within the DCO Site Boundary (MLI41209).
- 2.3.70 The pipeline route passes several demolished post-medieval buildings and farmsteads, including two that are close to the DCO Site Boundary at Barnoldby le Beck (MNL1571) and Asby cum Fenby (MNL1555).
- 2.3.71 The pipeline route passes several gravel and chalk extraction pits, that are marked on OS maps from the end of the 19th century, at Irby upon Humber (MNL1922, MNL1925), Barnoldby le Beck (MNL1587), Beelsby (MNL1593), Hatcliffe (MNL1838, MNL1840) and Ashby cum Fenby (MNL1547).
- 2.3.72 The pipeline passes several historic roads of post-medieval date (marked on OS maps of 1887-9), although some are also likely to have medieval origins, including Old Main Road, Irby upon Humber (MNL3534) (the road from the village eastwards was part of the turnpike trust of 1765); Main Road, Barnoldby le Beck (MNL3447); Main Road, Beelsby (MNL3542); Brigsley Road, Ashby cum Fenby (MNL3448) (part of the turnpike trust of 1765); Ashby Lane, Ashby cum Fenby (MNL3450); Thoroughfare Lane, Ashby cum Fenby (MNL3455)

(the section around Thoroughfare Farm (formerly Sykes Farm), is shown as a trackway rather than a formal road); and Hawerby Road (MNL3562).

2.3.73 A series of hedgerows crossed by section 3 of the pipeline are marked on tithe maps and may be regarded as important under the historic criteria set out in the Hedgerow Regulations (*ES Volume IV, Appendix 8-1: Cultural Heritage Desk-based Assessment*) as forming part of a field system pre-dating the Enclosure Acts [H20 – H30] (see *ES Volume IV, Appendix 8-1: Cultural Heritage Desk-based Assessment, Annex C (Application Document 6.4.8.1)*).

2.3.74 A World War 2 searchlight battery and possible command post are visible on aerial photographs at Ashby cum Fenby (MNL2223).

Undated assets

2.3.75 The pipeline route passes several undated cropmark features (enclosures and linear features) which could belong to any period (prehistoric to modern), including at Irby upon Humber (faint cropmarks indicating a possible sub-rectangular enclosure and trackway, MNL409) and at Waltham (cropmark of a possible undated small enclosure, MNL2544; and linear features, MNL2555).

Section 4 – Pear Tree Lane to B1200 road, Grimoldby

Prehistoric (to AD43) and Roman (AD43-450)

2.3.76 This Section of the pipeline route crosses the edge of the low-lying Mablethorpe Outmarsh in an area where there are few known heritage assets of prehistoric or Roman date. There are no find spots of prehistoric date, although beyond the wider area prehistoric flintwork has been found at South Cockerington (MLI81617, MLI43242). Possible Bronze Age barrows (MLI82192) and prehistoric enclosures are recorded at Keddington (MLI87925, MLI87928) Aerial photographs have also revealed a probable Bronze Age barrow at Alvingham (MLI82175).

2.3.77 A possible Iron Age ‘banjo’ enclosure is visible as a cropmark feature partially within the DCO Site Boundary to the south of Louth Canal (Keddington Parish) [APS_12] (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis (Application Document 6.4.8.2)*).

Early medieval (450-1066) and medieval (1066-1500)

2.3.78 The historic settlements of Covenham St Bartholomew, Covenham St Mary, Yarburgh, North End, Alvingham, North Cockerington, South Cockerington and Grimoldby were likely founded in the early medieval or medieval periods. All are documented since the medieval period and are often associated with ridge and furrow and other settlement related features (crofts, tofts and former field boundaries and lanes), which extend beyond the historic cores, and which are visible on aerial photographs; for example, at Covenham St Bartholomew (MLI87811), Covenham St Mary (MLI87807, MLI87808) and Yarburgh (MLI87851).

2.3.79 The scheduled earthworks and buried remains of the deserted medieval village of Brackenborough are located c.1 km west of the DCO Site Boundary (NHLE1003616).

2.3.80 The historic settlement at North Cockerington, whose area extends into the DCO Site Boundary (MLI83365), is first documented in Domesday. Medieval settlement remains (trackway, ponds, enclosures, ridge and furrow, field boundary, boundary bank and crofts) are visible as cropmarks and earthworks around the present village. Archaeological watching briefs have recorded evidence of medieval and later occupation which are likely associated with the earthworks and cropmarks. Features associated with the settlement

were visible from the detailed assessment of aerial photographs, but the remains lie to the north of Red Leas Lane and outside of the DCO Site Boundary [APS_10] (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis (Application Document 6.4.8.2)*).

- 2.3.81 Between Meadow Lane and Red Lease Lane, on the south side of North Cockerington, there is a scheduled medieval moated site (NHLE1004988, MLI43595).
- 2.3.82 South Cockerington is first documented in Domesday, and it probably has its origins in the Anglo-Saxon period (MLI43243). The regular road layout is possibly the result of deliberate planning. Earthworks associated with medieval settlement (crofts and trackways) have been identified and archaeological watching briefs have recorded evidence of medieval occupation.
- 2.3.83 Keddington is also first recorded in the Domesday book and is listed as being owned by the Bishop of Durham and Rainer of Brimeux. Based on the size of the settlement and the etymology of the name it is likely that the settlement originated in the early Anglo-Saxon period. A medieval earthwork moat, enclosures and ditches are recorded near the village (MLI88730), as are earthworks of ridge and furrow visible on aerial photographs (MLI98757) [APS_12].
- 2.3.84 Areas of medieval / post-medieval ridge and furrow have been identified within and surrounding the historic settlements (also often extending beyond the wider area, for example, at Alvingham (MLI5866, MLI116055). The features are visible on aerial photographs and have been identified by archaeological geophysical survey and earthwork survey at Alvingham (MLI87867), North Cockerington (MLI87881, MLI87883, MLI87887, MLI87886) [APS_9], South Cockerington (MLI88026, MLI88027, MLI99468) [APS_8], Keddington (MLI99449) and Grimoldby (MLI97316). The cropmarked remains of ridge and furrow are also visible on satellite imagery within the DCO Site Boundary at Grove Farm (Utterby Parish) [APS_16] and at Grange Farm (Brackenborough with Little Grimsby Parish) [APS_15].
- 2.3.85 The earthwork remains of a large post-medieval mill mound are visible at North Cockerington (MLI41375) next to an area of ridge and furrow (the mound was originally identified as a tumulus on early OS maps).

Post-medieval (1500-1900) and modern (post-1900)

- 2.3.86 The pipeline route crosses the historic Louth Navigation (MLI86587) between Alvingham and North Cockerington. Construction of the canal began in 1767 and linked inland Louth with coastal Tetney. A small inland port developed at Louth and the canal remained open until the 20th century (canal closed to navigation in 1924). Several designated (listed grade II) historic canal locks of red brick and ashlar limestone construction, are present within the wider area, including Ticklepenny Lock TF 351889 (NHLE1063048) and Willows Lock TF 352892 (NHLE1063049) at Keddington; Alvingham Lock and inverted syphon (NHLE1063080, MLI89033) and Salter Fen Lock at Alvingham (NHLE1063081, MLI89034).
- 2.3.87 The pipeline route passes several demolished post-medieval buildings and farmstead including two that are within the DCO Site Boundary at South Cockerington (MLI117795) and at Grimoldby (MLI117829).
- 2.3.88 A series of hedgerows, crossed by Section 4 of the pipeline route, are marked on tithe maps and may be regarded as important, under the historic criteria set out in the Hedgerow Regulations, as forming part of a field system pre-dating the Enclosure Acts [H31 – H34]

(see *ES Volume IV, Appendix 8-1: Cultural Heritage Desk-based Assessment, Appendix C (Application Document 6.4.8.1)*).

- 2.3.89 The pipeline route crosses a demolished railway line, of post-medieval to modern date (Great North Railway, Mablethorpe Branch line, marked on OS maps from 1888: Lincolnshire Sheet XLVIII.SE), northeast of Eastfield Farm, Grimoldby, which is visible as a soilmark (Google Earth images) (part of the same line is also visible at Theddlethorpe All Saints).
- 2.3.90 There are two World War 2 anti-aircraft obstructions at Grimoldby which are part of a larger network of similar features constructed to deter an invading landing force (MLI88037, MLI88040).

Undated assets

- 2.3.91 The pipeline route passes several undated enclosures visible as cropmarks at North Cockerington (possible moated site) (MLI42854), near South Cockerington (MLI88024), including one that is close to the DCO Site Boundary (MLI88025); and at Grimoldby (MLI88041). An undated (possible prehistoric) rectilinear enclosure is visible on aerial photographs and lies partially within the DCO Site Boundary, north of Louth Canal (Alvingham Parish) [APS_13] (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis*).

Section 5 – B1200 road, Grimoldby to MLWS, near TGT

Prehistoric (to AD43) and Roman (AD43-450)

- 2.3.92 This Section of the pipeline route is located on the low-lying Mablethorpe Outmarsh area where there are few known heritage assets of prehistoric or Roman date. A prehistoric flint scraper (MLI87326) was found between Two Mile Bank and Pyewipe Farm during archaeological monitoring for the Maltby le Marsh to Manby Replacement Water Main.
- 2.3.93 An archaeological watching brief near Walk Farm, Great Carlton, has recorded evidence of a Romano-British field system and occupation remains (MLI87322) [APS_02] (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis*), suggesting the possible presence of a nearby settlement (ditches, gully, hearth, pit and pottery) and possible industrial activity. A sherd of Roman pottery was found during archaeological monitoring at Gayton le Marsh (MLI87325).

Early medieval (450-1066) and medieval (1066-1500)

- 2.3.94 There is extensive evidence for medieval settlement and cultivation within this Section of the pipeline route. Northeast of Great Carlton the route passes the remains of a medieval field system and settlement at Walk Farm (MLI42821) [APS_02], where remains sit on slightly higher ground above the neighbouring enclosed fen that forms the marshland parish (features visible on aerial photographs include crofts, tofts, building platforms, a moat, ridge and furrow and a linear boundary feature). An archaeological geophysical survey (2003) identified a series of archaeological anomalies, including linear and rectilinear features (possibly representing field systems and/ enclosures) and several pit-like features (represented by burning or possible domestic dumping). During a subsequent archaeological watching brief (Maltby le Marsh to Manby Replacement Water Main), ridge and furrow was recorded, and a sherd of medieval pottery was recovered. Next to the medieval settlement a boundary earthwork is also visible on aerial photographs (MLI88280). There is also an undated earthwork north of Walk Farm that could be part of the settlement (MLI88283).

- 2.3.95 An area of historic settlement is documented at Theddlethorpe All Saints (MLI88255), which is mentioned in Domesday, and remains of the settlement have been identified on aerial photographs (enclosures and a moat). Pottery from Theddlethorpe All Saints suggests possible early medieval / medieval occupation west of Mablethorpe Road (MLI80941) and also near Railway Farm (MLI80945). A possible late Saxon / medieval farmstead (MLI80963) has been recorded next to Station Road. A medieval moated site known as 'Keleshall' was found in 1956 along Grove Road (MLI41411). Between Slates Farm and Will Row, on the western side of Theddlethorpe All Saints, more remains of likely medieval settlement have been found (cropmark and earthwork remains of tofts and a trackway visible on aerial photographs next to the Great Eau) (MLI88207). Also, north of Will Row and alongside the Great Eau, there are more cropmarks and earthwork features (including the remains of tofts) (MLI88214) [APS_06] (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis*).
- 2.3.96 At Theddlethorpe St Helen there is evidence of medieval settlement and cultivation (tofts and ridge and furrow). The remains have been identified either side of A1031 Mablethorpe Road and extending as far south as Carlton House (MLI98809) [APS_05], and also within the DCO Site Boundary next to Dicote House (cropmark and earthwork remains of enclosures and tofts) (MLI98811).
- 2.3.97 Areas of medieval / post-medieval ridge and furrow have been found associated with the evidence of settlement activity, including at Pyewipe Farm, Gayton (MLI84714) and within the DCO Site Boundary either side of Station Road (MLI80946) [APS_06]. Cultivation earthworks are also recorded at Theddlethorpe All Saints, alongside Highgate and east of Highgate Farm, (MLI88216) and either side of Station Road. Other areas of more extensive ridge and furrow are also present at Theddlethorpe St Helen (MLI98954) and either side of Mablethorpe Road, (MLI88266, MLI98722, MLI88264), including within or close to the DCO Site Boundary (MLI80943, MLI98724) [APS_06]. West of Mablethorpe Road there are other linear and pit-like features (recorded during archaeological monitoring) that are undated, but which could belong to this period (MLI80940, MLI80942, MLI80944).
- 2.3.98 Medieval pottery has been found at Gayton le Marsh, during surface artefact collection for a linear scheme (MLI84716, MLI84718, MLI84724), and a medieval candlestick was found during drainage work on the edge of Long Eau at Dowsey Fen (MLI41309). These could be related to the medieval settlement near Walk Farm. Several pieces of medieval pottery were also recovered during an archaeological watching brief close to the Theddlethorpe Gas Terminal (MLI80938).
- 2.3.99 The pipeline crosses a probable medieval salters' route (MLI82703) that follows the parish boundaries between Gayton le Marsh and Great Carlton and corresponds to an earthwork (Two Mile Bank) that is recorded on the 1st edition OS map of 1888.

Post-medieval (1500-1900) and modern (post-1900)

- 2.3.100 A post-medieval field boundary that is partially within the DCO Site Boundary is visible on satellite imagery north of Walk Farm (Great Carlton Parish) [APS_04].
- 2.3.101 This Section of the pipeline route contains several demolished farms / farmsteads of post medieval to modern date (all within the wider area), including at Saltfleetby (MLI117784, MLI117785, MLI117786), Manby (MLI118194), Gayton le Marsh (MLI118412), Theddlethorpe All Saints (MLI118152) and at Mablethorpe and Sutton (MLI118366). The site of a post-medieval to modern tower mill lies close to the DCO Site Boundary at Theddlethorpe St Helen (MLI85787).

2.3.102 A series of hedgerows, crossed by Section 5 of the pipeline route, are marked on tithe maps and may be regarded as important under the historic criteria, set out in the Hedgerow Regulations as forming part of a field system pre-dating the Enclosure Acts, on Great Carlton parish tithe map [H35] ('Willow Row Bank') and in Gayton le Marsh parish (1839 tithe map) [H36 – H38] (see *ES Volume IV, Appendix 8-1: Cultural Heritage Desk-based Assessment, Annex C (Application Document 6.4.8.1)*).

2.3.103 The pipeline route crosses a demolished railway line of post-medieval to modern date at Theddlethorpe All Saints (Great North Railway, Mablethorpe Branch line, marked on OS maps from 1888: Lincolnshire Sheet XLIX.SE & XLIXA.SW), which is visible as a soilmark.

2.3.104 There are several World War 2 aircraft obstruction sites which are visible on aerial photographs towards the eastern end of the Section, including at Theddlethorpe All Saints (MLI88212), within the DCO Site Boundary (MLI88213) and at Theddlethorpe St Helen (MLI88267). These are part of a larger group of former coastal defence installations that are situated in the wider area, including pillbox and gun emplacements (MLI43272); anti-aircraft pillboxes (MLI125949, MLI125950); and the possible site of a World War 2 store (MLI43393).

Undated

2.3.105 The pipeline route passes undated linear cropmark features at Theddlethorpe All Saints, on the eastern side of the Great Eau (MLI88208, MLI88209), and close to the centre of the village (MLI88217) where there are two enclosures at Theddlethorpe St Helen (MLI88265, MLI98810).

2.4 Geophysical Survey

2.4.1 Geophysical survey of the Site is ongoing. The results of the geophysical survey have been used to inform the approach to archaeological evaluation detailed in this WSI at the time of writing. The interpretation plots of the results of the geophysical survey are shown on Error! Reference source not found., Annex C.

2.5 Aerial Photographic Assessment and LiDAR Analysis

2.5.1 A specialist aerial photographic assessment and LiDAR analysis has been completed (APS, 2023) (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis (Application Document 6.4.8.2)*). Cropmarks identified for targeted trial trenching include (APS references provided below are those used in *ES Volume IV Appendix 8-2 (Application Document 6.4.8.2)*):

- APS_21 (Section 3) - An undated (possibly prehistoric) cropmarked enclosure;
- APS_20 (Section 3) - An area of undated (possibly prehistoric) cropmarked enclosures and medieval / post-medieval field boundaries;
- APS_19 (Section 3) - An undated (possibly prehistoric) cropmarked enclosure; and
- APS_17 (Section 3) - An undated (possible prehistoric) cropmarked enclosure.

3 Aims and Objectives

3.1 Aims

3.1.1 The aims of the archaeological investigation are to provide further information on the archaeological resource within the DCO Site Boundary and to inform the baseline evidence for and detailed design of the Proposed Development.

3.1.2 The general objectives of the archaeological investigation are to:

- assess the potential for the presence/absence of surviving archaeological remains;
- assess the location, nature, extent, date, condition, state of preservation, significance and complexity of any archaeological remains;
- assess the likely range, quality, and quantity of artefactual and environmental evidence present;
- inform the strategy for any required mitigation via recording, preservation and/or management of identified assets;
- interpret the archaeology of the Proposed Development within its local, regional and national archaeological context; and,
- assess the potential that any remains may have in addressing research questions set out in the East Midlands Historic Environment Research Framework (Available online at: <https://researchframeworks.org/emherf/>) (Ref 10).

3.1.3 The presence or absence, nature and significance of archaeological deposits identified during the archaeological evaluation will be utilised to guide the detailed design of the Proposed Development and to inform the requirement for and scope of any archaeological mitigation that may be required.

3.2 Objectives

3.2.1 More specific objectives of the investigation are:

- To make a record, through measured earthwork survey, of extant ridge and furrow present in fields that will be subject to archaeological evaluation trenching;
- To assess, through metal detecting, survey areas adjacent to the Civil War fortification and the Welbeck Hill Anglo-Saxon cemetery site to inform the potential for evidence relating to these sites to extend in the DCO Site Boundary; and
- To investigate, through a programme of geoarchaeological investigation, the archaeological and palaeoenvironment potential of deeper deposits at:
 - South Killingholme / Immingham (Section 1), where there is a former prehistoric shoreline.
 - North Beck Drain (Section 1), where there is a possible palaeochannel evident in the geophysical survey results.
 - Laceby Beck (Section 3), where there is a potential for alluvial deposits and where trenchless techniques will be utilised to install the pipeline that will require entry and exit pits;

- Waithe Beck (Section 3), where trenchless techniques will be utilised to install the pipeline that will require entry and exit pits;
- River Lud/Louth Canal, Alvingham (Section 4), where there is alluvium along the valley floor and where trenchless techniques will be utilised to install the pipeline that will require entry and exit pits;
- Grayfleet Drain, South Cockerington (Section 4), where there is alluvium along the valley floor and where trenchless techniques will be utilised to install the pipeline that will require entry and exit pits;
- The Lincolnshire Outmarsh (Section 5), where there are a series of former roddons and tributary channels.

3.3 Research Themes

3.3.1 Information collated for the desk based assessment (*ES Volume IV, Appendix 8-1: Cultural Heritage Desk Based Assessment (Application Document 6.4.8.1)*), the results of the aerial photographic assessment and LiDAR analysis (APS, 2023) (*ES Volume IV, Appendix 8-2: Aerial Photographic Assessment and LiDAR Analysis (Application Document 6.4.8.2)*), and interpretation of the geophysical survey results (AOC, 2023) to date indicates several archaeological areas of interest along the route. The character of these archaeological areas of interest are indicative of potential prehistoric, Roman and possibly Medieval agriculture and settlement. In addition the presence of industrial activity relating to these periods cannot be ruled out. Based on this the archaeological research questions from the regional research agenda (Ref 23) identified in the desk-based assessment (*ES Volume IV, Appendix 8-1: Cultural Heritage Desk-based Assessment*) that the Site may have the potential to contribute to, the archaeological evaluation has the potential to contribute to the following:

Table 1: Mesolithic (c. 9500 to c.4000 BC)

Research question	Updated Research Agenda section ref.	Research Objective
How were sites distributed across low-lying and upland areas, and in particular how many sites might be concealed beneath alluvium, colluvium and other masking deposits or beneath the sea?	Spatial distribution of activity: 2.2.2	2B, 2C, 2D, 2G, 2I
What can analyses of palaeochannel fills and other deposits with potential for preserved pollen, charcoal and other organic remains contribute to studies of the earliest stages of woodland clearance and plant domestication?	Environmental change and food procurement strategies: 2.6.1	2A, 2H, 2I
How can we maximise the potential of palaeochannels or coastal peats and other organically rich deposits as sources of data on Early Holocene landscapes and changes in subsistence strategies and diet?	Environmental change and food procurement strategies: 2.6.2	2A, 2H, 2I

Table 2: Neolithic and Early to Middle Bronze Age (c. 4,000 to c.1150 BC)

Research question	Updated Research Agenda section ref.	Research Objective
How may the region's remarkable variety of upland, lowland and coastal landscapes be surveyed in ways that would permit recognition of significant intra-regional variations in land use?	Exploitation of landscape zones: 3.4.1	3D, 3E
Can we identify locations with a high potential for elucidating variations in arable, pasture and woodland cover between ecological zones (e.g., palaeochannels)?	Exploitation of landscape zones: 3.4.2	3D, 3E, 3I
Can we further refine our knowledge of the selective use of particular landscapes for ritual, agriculture and other activities?	Exploitation of landscape zones: 3.4.3	3E, 3F, 3G
Can we obtain a clearer understanding of temporal and spatial variability in the duration of settlement activity?	Settlement patterns: 3.5.2	3A

Table 3: Late Bronze Age and Iron Age (c. 1150 BC to AD 43)

Research question	Updated Research Agenda section ref.	Research Objective
How can we expand our knowledge of first millennium BC activity in areas with a poor record of settlement?	Site visibility, prospection and landscape exploration: 4.2.3	4C, 4I
Why are sites of this period comparatively rare in the archaeological record?	Late Bronze Age & Early Iron Age settlement: 4.3.1	4A, 4B, 4C, 4I
Can we shed further light upon the development of field and boundary systems?	Field systems and major linear boundaries: 4.6.1	4C, 4F
What roles may wet, and other natural locations have performed and how might these have changed over time?	Ritual & structured deposition & religion: 4.7.2	4H, 4J

Table 4: Romano-British (AD 43 to c. 410)

Research question	Updated Research Agenda section ref.	Research Objective
How did the Conquest impact upon rural settlements and landscapes?	Rural settlement patterns and landscapes: 5.4.1	5C, 5H, 5I
How did rural settlements relate to each other and to towns and military sites, and how may this have varied regionally and over time?	Rural settlement patterns and landscapes: 5.4.3	5B, 5C, 5H, 5I
How did field and boundary systems relate to earlier systems of land allotment, and how did these boundary networks develop over time?	Rural settlement patterns and landscapes: 5.4.4	5C, 5H, 5I
What patterns can be discerned in the location of settlements in the landscape?	Rural settlement patterns and landscapes: 5.4.5	5H, 5I
To what extent may communication routes have been influenced by Late Iron Age settlement patterns and routes of movement?	Roads and waterways: 5.7.3	5G, 5I, 5J

Table 5: Early Medieval (c. AD 410 to 1066)

Research question	Updated Research Agenda section ref.	Research Objective
Can we identify social / political boundaries (e.g., surviving linear earthworks and natural barriers) and / or estate centres?	Demography and the identification of social groups: 6.1.7	6F, 6G, 6I
Can 'sub-Roman' or 'British' cemeteries and cemeteries dating from the late seventh to ninth centuries be identified?	Ritual and belief: 6.2.2	6B
Can we elucidate the production and distribution of Early Medieval salt?	Industry, trade and the emergence of a monetary system: 6.6.3	6H

Table 6: Medieval (1066 to 1485)

Research question	Updated Research Agenda section ref.	Research Objective
How can we shed further light upon the origin and development of dispersed hamlets and farms in champion and pastoral areas?	Rural settlement: 7.2.2	7E, 7I
Can we clarify further the processes of settlement desertion and shrinkage, especially within zones of dispersed settlement?	Rural settlement: 7.2.4	7E, 7F
How best may we enhance study of the origins and development of early land reclamation and drainage?	The agrarian landscape and food-producing economy: 7.7.6	7E

Table 7: Post-medieval (1485 to 1750)

Research question	Updated Research Agenda section ref.	Research Objective
How did water management and land drainage change the landscape during this period?	Agricultural landscapes and the food-producing economy: 8.3.2	8E
How can we refine our knowledge of Civil War defences and siege works?	Battlefields and fortifications: 8.7.2	8J

Table 8: Modern (1750 to present)

Research question	Updated Research Agenda section ref.	Research Objective
What survives of country estates, parks and gardens, how are they distributed, and how should they be classified?	Estates, parks, gardens and woodlands: 9.5.2	9H
How did Parliamentary enclosure and other agricultural improvements (e.g., water management) impact upon the rural landscape?	Agriculture: 9.6.2	9G

- 3.3.2 The trial trench evaluation provides opportunities to obtain further information on the varied use of the landscape, geographically across the DCO Site Boundary and chronologically through time; and has the potential to contribute to our understanding of human use and interaction with the landscape.
- 3.3.3 With regard to additional new research topics related to landscape evolution on the Outmarsh proposed by Green (Green, forthcoming), the archaeological evaluation provides the opportunity for borehole/auger and geoarchaeological surveys to add to the knowledge of landscape evolution over time.

4 Scope of Archaeological Works

4.1 Approach

- 4.1.1 The scope and detailed design of the archaeological evaluation have been informed by the previous phases of desk-based research (*ES Volume IV, Appendix 8-1 (Application Document 6.4.8.1)*), aerial photographic assessment and LiDAR analysis (*ES Volume IV, Appendix 8-2 (Application Document 6.4.8.2)*), and geophysical survey (*ES Volume IV, Appendix 8-3 (Application Document 6.4.8.3)*) and determined in liaison with the Viking CCS Heritage Consultees.
- 4.1.2 For the purposes of the archaeological evaluation the Site has been divided into fields, each field has been given an alphanumeric identifier providing its field number/parish/local authority (e.g. 9SoKNli is field nine in South Killingholme in North Lincolnshire). To avoid confusion, field numbers follow a continuous sequence running from north to south of the Site. A log of all fields, the evaluation undertaken to date, and proposed is provided in Annex B.
- 4.1.3 The archaeological evaluation strategy will comprise four principal approaches, building on the previous stages of research, aerial photograph assessment and LiDAR analysis, and non-intrusive geophysical survey:
- earthwork survey;
 - metal detector survey;
 - archaeological trial trenching; and
 - geoarchaeological investigation.

4.2 Earthwork Survey

- 4.2.1 The earthwork survey programme will record extant ridge and furrow earthworks present in fields that will be subject to evaluation trenching: the earthwork recording will be completed in individual fields prior to trial trenching taking place. The fields to be surveyed are 21ImmNEL, 44StaNEL (Section 1), and 227TASLiC to 230 TASLiC Section (5) (Annex B).

4.3 Metal Detector survey

- 4.3.1 The metal detector survey programme will assess areas adjacent to the Civil War fortification and the Welbeck Hill Anglo-Saxon cemetery site. The metal detector survey will be carried out in fields 70IrbNEL to 77BLBNEL (Section 2) (Annex A) prior to trial trenching taking place.

4.4 Archaeological Trial Trenching

- 4.4.1 The trial trenching programme will investigate the full extent of the DCO Site Boundary (within which the pipeline will be routed) that will be directly impacted by the Proposed Development works, including:
- sections of the pipeline that will be installed using open-cut trenching methods; Block Valve Stations at Washingdales Lane, Thoroughfare and Louth Road;

- working areas, site welfare and car parking areas where previous phases of desk-based research, aerial photographic assessment and LiDAR analysis (and geophysical survey suggest archaeological remains may be at risk due to compaction (see 4.7 below);
- temporary and permanent access routes;
- electrical connections; and
- temporary construction compounds and laydown areas.

4.4.2 Within the DCO Site Boundary, the trial trenching will target particular anomalies that are identified in the geophysical surveys, particular cropmarked features identified by the Aerial Photographic Assessment and LiDAR Analysis, and particular archaeological high-risk areas. These are:

- areas of apparent high archaeological potential or sensitivity based on current information from the desk-based assessment, geophysical survey and aerial photography assessment and LiDAR analysis; and
- areas beyond the standard pipeline working width (typically 30m but up to 50m for trenchless crossings) where construction activities may impact sensitive archaeological remains due to compaction, including:
 - compound locations and laydown areas;
 - HDD stringing areas; and
 - block valve working areas.

4.4.3 The confidence level in respect of the results of geophysical survey can vary depending on the nature of the geology, recent activities on the land and nature of the archaeology. For the purposes of evaluation of the land within the DCO Site Boundary the confidence levels in the results of the geophysical survey have been assigned to three categories, namely:

- Green – high confidence;
- Amber – moderate confidence; and
- Red – low confidence.

4.4.4 For example, in green areas where archaeology is shown the trenching strategy takes a focused, targeted approach. Green areas with no archaeological anomalies are not trenched. In amber areas trenches are targeted on anomalies and are also located to test 'blank' areas. For red areas a more general overall sample is set out.

Sections of the pipeline that will be installed through auger bore or HDD are not proposed to be trial trenched as there will be no impact.

4.4.5 **Figure 3** (Annex C) shows the indicative location of trial trenches with the interpretation of geophysical survey results available at the time of writing.

4.4.6 **Figure 4** (Annex C) shows the indicative location of trial trenches with the aerial photographic assessment and LiDAR analysis. The location of trial trenches will be revised as further geophysical results are obtained. The final location of trial trenches will be determined following PAS128 D-B survey (see Section 10 of this WSI) and identification of local site constraints in liaison with landowners and occupiers. The final trench locations will be agreed with the Consultant and the Viking CCS Heritage Consultees and presented in the Archaeological Contractor's Site Specific WSI.

4.5 Geoarchaeological Investigation

4.5.1 The geoarchaeological investigation programme will focus on the distribution, archaeological and palaeoenvironment potential of Holocene alluvial floodplain, estuarine and tidal deposits through targeted borehole and/or window sampling transects at the following locations:

- South Killingholme / Immingham (Section 1), where there is a former shoreline (Fields 3SoKNLi, 5SoKNLi, 6SoKNLi, 7SoKNLi, 10ImmNEL, 11ImmNEL and 13ImmNEL) (Annex B);
- North Beck Drain (Section 1), where a possible palaeochannel is evident in the geophysics results (Fields 18SKiNLI to 022ImmNEL) (Annex B);
- Laceby Beck (Section 3), where there is a potential for alluvial deposits and where the pipeline is likely to be HDD with exit/entry pits. (Fields 75IrbNEL and 76IrbNEL) (Annex B);
- Waithe Beck (Section 3), where there is a potential for alluvial deposits and where the pipeline is likely to be HDD with exit/entry pits (Fields 86BLBNEL to 88AcFNEL) (Annex B);
- River Lud/Louth Canal, Alvingham (Section 4), where there is alluvium along the valley floor and where the pipeline is likely to be HDD with exit/entry pits (Fields 166AlvLiC to 168NCoLiC) (Annex B);
- Grayfleet Drain, South Cockerington (Section 4), where there is alluvium along the valley floor and where the pipeline is likely to be HDD with exit/entry pits (Fields 186SCoLiC and 187GriLiC) (Annex B); and
- the Lincolnshire Outmarsh (Section 5), where there are a series of former roddons and tributary channels (Fields 193ManLiC, 195ManLiC to 240TASLiC and 243MStLiC to 245MstLiC) (Annex B).

5 Site Constraints

5.1 Overview

- 5.1.1 Site Constraints are mapped on Figure 6.
- 5.1.2 The Principal Contractor will operate a permit system for all work to ensure control measures have been considered and implemented in relation to site constraints.
- 5.1.3 A review of the Statutory Utility plans indicates that the Site is crossed or aligned with various services comprising gas mains, powerlines, water / wastewater mains and telecommunication cabling. These have the potential to constrain the extent of the evaluation in the areas affected (other utilities are present along field boundaries and alongside highway boundaries). The Archaeological Contractor shall obtain an updated utilities search (PAS128 D). The Archaeological Contractor shall undertake an initial site inspection (PAS128 C) to supplement the information obtained from the updated utilities search (PAS128 D) prior to mobilisation to Site and will review and adjust intrusive works accordingly.
- 5.1.4 Prior to commencement of intrusive works on the Site the Archaeological Contractor shall undertake a PAS128 B survey.

5.2 Site Access, Vegetation Clearance

- 5.2.1 The archaeological evaluation will be carried out on arable farmland and small amounts of managed pasture and as such there is no requirement to cut back scrub or grassy sward prior to the start of the fieldwork. The archaeological evaluation will be preceded by a site inspection along the working area to assess ground conditions, to identify survey constraints, such as verification and location of utilities as per PAS128 C survey, and to confirm the area of data capture within each of the land ownership title plots. The site inspection will be carried out by the Archaeological Contractor in accordance with a timetable approved with the Consultant and agreed with the Client, the lands liaison team and the relevant landowner and tenant(s).

5.3 Site Mobilisation

- 5.3.1 The Archaeological Contractor will be responsible for establishing and decommissioning their own temporary site welfare facilities as necessary (compound, welfare facilities etc). If temporary site welfare facilities are proposed on Site their location, access routes, ground protection measures and security arrangements will be agreed prior to the start of the evaluation, in consultation with the Client, the lands liaison team and the relevant landowner. Temporary site facilities will be located to ensure that there is no impact on archaeological earthworks or buried remains.
- 5.3.2 The Archaeological Contractor shall keep a photographic record at each location where temporary welfare facilities are proposed, both prior to mobilisation and after demobilisation.

6 Methodology

6.1 Standards

- 6.1.1 This WSI takes account of the guidance provided by the Chartered Institute for Archaeologists' *Code of Conduct* (2022) and *Standard and Guidance for Archaeological Field Evaluation* (CIfA, 2020a), the relevant policies as set out in the Lincolnshire County Council Archaeology Handbook (2019), and other current and relevant good practice and standards and guidance (refer to Annex A).
- 6.1.2 The archaeological works will be carried out in accordance with this WSI and any further instructions from the Consultant. No variation from or changes to the evaluation strategy will occur except by prior agreement with the Consultant and in liaison with the Viking CCS Heritage Consultees.
- 6.1.3 Prior to the commencement of fieldwork, the Archaeological Contractor will familiarise themselves with the results of previous phases of work at the site, including the Geophysical Survey (AOC, 2023) and the Aerial Photographic Assessment and LiDAR Analysis (Air Photo Services, 2023), as well as this Archaeological Evaluation Strategy.

6.2 Site Specific Written Scheme of Investigation

- 6.2.1 The Archaeological Contractor will produce a Site-Specific Written Scheme of Investigation (SSWSI) setting out detailed proposals for each phase of the archaeological evaluation. The SSWSI will include:
- summary and introduction to the proposed investigation;
 - summary of the evaluation aims and objectives;
 - fieldwork methodology;
 - a list and drawing showing each fieldwork area (which may broadly correspond to the current field pattern), including the location and extent of proposed earthwork survey and metal detector survey, trial trench and borehole locations relative to previous geophysical survey results and features identified by the aerial photographic assessment and LiDAR analysis, as relevant, including a written rationale for each survey / trench / borehole location;
 - provisional structure for the technical report and publication and dissemination proposals;
 - provisional programme for the evaluation; and
 - staffing and responsibilities (including sub-contractors and/or specialists).
- 6.2.2 The SSWSI will be developed for archaeological purposes and will be separate to the Archaeological Contractor's Risk Assessment and Method Statement (RAMS). The SSWSI will be agreed with the Consultant and the Viking CCS Heritage Consultees.

6.3 Earthwork Survey

- 6.3.1 The earthwork survey shall be carried out in line with the guidance provided in Metric Survey Specifications for Cultural Heritage (3rd ed.) (Ref 15), and Understanding the Archaeology of Landscapes (2nd Edition) (Ref 19).

- 6.3.2 The survey shall be undertaken to Level 2 (ibid), and shall consist of a written description, and a metrically accurate interpretative site plan supplemented by a photographic record. The earthwork survey shall provide as complete as possible a record and interpretation of the surviving features.
- 6.3.3 The survey shall be carried out using either a total station theodolite or a GPS, or combination of the two (accurate to $\pm 0.01\text{m}$ relative to established control).
- 6.3.4 The survey shall record as a minimum the inner and outer edges and entrance positions of any wall, building or structure; and the top, bottom and break of slope for all earthwork features. For ridge and furrow the centreline of each furrow shall be surveyed. Additional 3D points shall be recorded to enable the generation of accurate contours or digital terrain/ground models as necessary. Additional detail (fences, hedges and modern ditches etc.) shall be recorded to provide a check on the detail depicted by the Ordnance Survey.
- 6.3.5 Data from the survey shall be downloaded from the data-logger into a separate computer at appropriate intervals, and at least daily, to ensure security of the data.
- 6.3.6 A written descriptive and interpretative account of the remains, accompanied by a sketch plan shall be recorded on pro-forma recording sheets during the survey. This field record shall include:
- the type (classification) of the archaeological field monument being investigated, and its period;
 - the location of the site;
 - the name of the compiler, the date of the investigation and reason(s) for the survey, with details of site ownership and present land use;
 - a summary of the salient features;
 - a concise description of the site, including information on plan, form, dimensions and area, function, age, developmental sequence and past land use; and
 - consideration of the topographical setting of the earthworks and their relationship to other sites and landscapes, and to historic buildings in the immediate vicinity.
- 6.3.7 A photographic record shall be made of the earthworks at each site and their surroundings to illustrate their broader context and their place in the landscape. Photographs shall be taken using a high-resolution digital camera with a minimum resolution of 24 megapixels (Ref 17).
- 6.3.8 Care shall be taken to ensure that all photographs are well exposed in good natural light and, where possible, that advantage is taken of variations in light conditions that may enhance the definition of the sites against their surroundings. A record shall be kept of the subject, orientation, the date taken and any other relevant information. Photographs shall include landscape setting as well as detailed images of individual features.

6.4 Metal Detecting Survey

- 6.4.1 The metal detecting survey will be undertaken by experienced metal detectorists following a methodology recommended by the Battlefields Trust (Ref 1) and the Code of Practice for Responsible Metal Detecting in England & Wales (Ref 26). For the survey, modern metal detecting equipment shall be used, and the survey will be undertaken in all metal mode, with both pulse induction and VLF detectors.

- 6.4.2 The Archaeological Contractor shall appoint a nominated Survey Coordinator, who will have the necessary archaeological experience and expertise to ensure the best results from metal detector operators in the field and the efficient reporting of the results. The nominated Survey Coordinator shall be responsible for maintaining a register of detector users involved in the survey, providing appropriate site access and to ensure good practice in survey and recording methodology. They will also ensure that appropriate arrangements are made for identification, conservation, security of the finds and ultimately their incorporation into the overall project finds database. They shall also ensure that all detector users are fully briefed to ensure that they adhere to the principles set out in the written agreement and have completed all health and safety inductions and training necessary to work on the site.
- 6.4.3 In each area for metal detecting the soil chemistry will be established for the topsoil and the subsoil in several locations in order that the potential for survival of metal artefacts, especially ferrous artefacts, can be assessed prior to the start of the survey.
- 6.4.4 Initially, a non-intensive metal detection survey will be completed at the locations identified in the scope of works (Section 4 of this WSI). Depending on the results and subject to instruction by the Consultant this may be followed by intensive metal detecting survey to target specific hotspots identified from the non-intensive survey, in order to clarify the extent, character and complexity of the artefact distribution.

Non-intensive survey areas

- 6.4.5 These areas will be scanned using 10m line transects laid out on two orthogonal axes.

Intensive survey areas

- 6.4.6 The Archaeological Contractor shall only carry out an intensive metal detecting survey with the prior written approval of the Consultant.
- 6.4.7 These areas will be detected using 2m line transects laid out on two orthogonal axes consistent with the preceding non-intensive survey in order that the survey identifies possible artefacts lying at different angles according to the orientation of the transects.
- 6.4.8 Each artefact will be three dimensionally recorded using survey grade equipment to an accuracy of $\pm 0.01\text{m}$ relative to established control (Historic England, 2016) and individually bagged (metal targets may be initially flagged and labelled before recovery but no flags will be left out overnight). All obviously modern items such as modern food and drink waste, foil, aluminium items, modern screws and bolts, wire nails, barbed wire, cast iron, titanium or nickel items, modern fencing pickets, modern buttons will be discarded (as recorded in the Archaeological Contractor's finds disposal policy).
- 6.4.9 Only metal objects that are within the depth of ploughing shall be recovered. The amount of ground disturbance shall be minimised by using suitable tools and by reinstating any small holes.
- 6.4.10 The Archaeological Contractor shall ensure that recovered metal objects are provisionally identified by an appropriate specialist on the next working day and conserved in accordance with the Archaeological Contractor's finds policy (objects may also require x-ray to confirm their identification (Historic England, 2006)). The metal objects shall be indexed and will form part of the overall evaluation assemblage and finds database.
- 6.4.11 If the Archaeological Contractor appoints external metal detector users for all or part of the survey they must agree to abide by the relevant Policies, Methods/Guidelines and Agreements of the Archaeological Contractor to undertake metal detector surveys. In these

circumstances the Archaeological Contractor shall ensure that the work is regulated by formal written agreements between the organisation and the nominated detectorists to ensure that all work is carried out in accordance with a set of principles agreed at the outset of the project and detailed in the Archaeological Contractor's SSWSI.

- 6.4.12 The overall results of metal detecting shall be presented in a specialist technical report prepared by the Archaeological Contractor (see Section 7 of this WSI). A series of interim statements will also be produced following the completion of each stage of work within a survey area (non-intensive or intensive survey) (to be produced within two working days). Each statement shall briefly summarise what has been found and any recommendations for extending the survey or to advance to intensive metal-detecting.

6.5 Archaeological Trial Trenching

Machine Excavation

- 6.5.1 The Consultant will agree access for the works and associated resources with the Client and their lands liaison team. As the DCO Site Boundary constitutes multiple landowners this will be conducted for each working area and a timetable will be devised to reflect this. The Archaeological Contractor will be advised of the arrangements by the Consultant prior to entering the DCO Site Boundary for the Proposed Development.
- 6.5.2 The Archaeological Contractor shall make a photographic record of survey areas prior to commencement of work and on completion of work.
- 6.5.3 The Archaeological Contractor shall be responsible for identifying any buried or overhead services. No excavation will commence without a PAS128 Type B utilities survey having been completed and a Permit to Dig issued by the Principal Contractor. This should include confirmation that the locations of any services are marked on site, along with any environmental or ecological constraints and corresponding buffer zones, and that any additional demarcation or safety measures required to ensure that each area is safe are in place prior to commencement of site work.
- 6.5.4 The Archaeological Contractor will also ensure that everyone involved in the works is aware of safe digging practices and emergency procedures. The Archaeological Contractor's Project Manager for the works will enforce these procedures and ensure that all staff are inducted regarding the site Health and Safety Plan and Risk Assessment prior to commencing works on site. Any services that are disturbed during excavation shall be immediately notified to the utility company owner(s), and restored by the Archaeological Contractor, at their own cost, to the utility company's requirements and specifications.
- 6.5.5 Trenches should be positioned to an accuracy of $\pm 0.1\text{m}$ using survey-grade GPS (Ref 16) or equivalent metric-survey equipment. The Consultant will provide the Archaeological Contractor with the trench locations (Ordnance Survey grid co-ordinates of the trench corners or a digital drawing of the trench locations on an Ordnance Survey basemap).
- 6.5.6 The extent of the trial trenches will be clearly demarcated to ensure that persons or plant cannot inadvertently traverse across the area of investigation whilst archaeological works are in progress. Trenches (including adjacent spoil heaps) will be demarcated by the Archaeological Contractor in line with the requirements of their RAMS. Fencing and other demarcation will be regularly inspected and maintained by the Archaeological Contractor until works in the area have been completed.

- 6.5.7 The trial trenches will be opened under direct archaeological supervision using an appropriate mechanical excavator fitted with a toothless ditching bucket.
- 6.5.8 The excavation of all trenches will be carried out in such a manner that avoids undue damage to the Site. The sides of each trench will, as far as possible, be even and vertical with no significant undercutting.
- 6.5.9 The excavation will proceed under direct archaeological supervision, in level spits, until either the top of the first archaeological horizon or undisturbed natural deposits are encountered. Archaeological trial trenches that exceed a safe working limit (site specific, but generally in excess of 0.5m in depth) will be subject to an updated RAMS and permit to dig provided by the Principal Contractor to ensure the stability of the sides of the trenches. Should the trench uncover unstable ground (for example, loosely backfilled cellar infill material), the full width and depth of material will not be excavated; a sondage will be inserted through the material, by machine, to establish the depth of the made ground. Particular attention should be paid to achieving a clean and well-defined horizon with the machine. Under no circumstances should the machine be used to cut arbitrary trenches down to natural deposits. All trenches are to be the stated dimensions at their base. The surface achieved through machine excavation will be inspected for archaeological remains. The mechanical excavator will not traverse any stripped areas.
- 6.5.10 The machined surface will be cleaned by hand, where required, to enable the definition of archaeological remains. Following cleaning, all archaeological deposits and remains will be planned to enable the selection of features and deposits for sample excavation.
- 6.5.11 The Archaeological Contractor will be responsible for ensuring a safe and appropriate mode of entry into and out of each trench.
- 6.5.12 The Archaeological Contractor will ensure that petrol or diesel-powered equipment such as generators, compressors or pumps are not sited on, or near to, the edge of an excavation unless fumes can be ducted away or the area can be ventilated.
- 6.5.13 A competent person must inspect trenches:
- at the start of each working day prior to work commencing, and during the working day, as appropriate;
 - after any event likely to have affected the strength, stability or integrity of the trenches; and
 - after any accidental fall of earth or other material.
- 6.5.14 The Archaeological Contractor will leave the site tidy and in a workmanlike condition and remove all materials brought onto the site.
- 6.5.15 Excavated material will be retained on site and stockpiled adjacent to trenches with the topsoil and subsoil separated at a safe distance from each trench edge. Excavated material will be prevented from entering any drainage system or water course. The Archaeological Contractor must ensure that the edges of the trenches are protected against falling materials and collapsing sides. This must be done in accordance with HSE recommendations. Toe boards will be provided where necessary.

Hand Excavation

- 6.5.16 Any archaeological deposits / features that are identified will be hand excavated in an archaeologically controlled and stratigraphic manner, in order to meet the aims and

objectives of the trial trench evaluation. The complete stratigraphic sequence, down to naturally occurring deposits, will be investigated and the work will investigate and record all inter-relationships between features / deposits. Areas without archaeological features will be recorded as sterile. The stratigraphy of all trenches will be recorded, even where no archaeological deposits have been identified.

6.5.17 The following sampling strategies will be utilised as a minimum:

- all features will be investigated – discrete features will be half-sectioned in the first instance; linear features will be sampled a minimum of 20% along their length (each sample section to be not less than 1m), or a minimum of a 1m sample section, if the feature is less than 5m long. Deposits at junctions or intersections between linear features will be sufficiently excavated for the relationship between components to be established;
- structures will be sampled sufficiently to define their form, extent, character, date, stratigraphic complexity and their associated deposits to achieve the objectives of the investigation; and
- where possible / feasible, no archaeological deposits should be entirely removed, unless this is unavoidable. Excavation must be undertaken with a view to avoiding damage to any features or deposits which appear to be worthy of preservation *in situ*.

Recording

6.5.18 The perimeter of each trench, and all identified archaeological remains within the trench, will be recorded in plan using metric survey-grade equipment (or its equivalent) (Historic England, 2015) and overlain onto the Ordnance Survey National Grid using digital map data.

6.5.19 A full written, drawn and photographic record will be made even where no archaeological features are identified. Hand drawn plans and sections of features will be produced at an appropriate scale (normally 1:20 for plans and 1:10 for sections). At least one long section of each trench will be drawn at not less than 1:50, but only after the features / deposits within the trench have been sample excavated. All plans and sections will include spot heights relative to Ordnance Datum in metres, correct to two decimal places.

6.5.20 Colour transparency and monochrome negative photographs will be taken at a minimum format of 35mm. Digital photography will be used to supplement the archive at a minimum of 10 megapixels resolution. In addition to records of archaeological features, a number of general site photographs will also be taken prior to, during and after the works have been completed. Particular attention should be paid to obtaining shots suitable for displays, exhibitions and other publicity.

Backfilling

6.5.21 The trial trenches will not be reinstated without the prior approval of the Consultant, in agreement with the relevant Viking CCS Heritage Consultees, although in exceptional circumstances backfilling will be permitted on health and safety grounds. The trenches will only be backfilled by machine when conditions are appropriate and with direct archaeological supervision. Arisings will be returned strictly in the correct sequence and will be compacted by 'tracking in' with the mechanical excavator.

6.5.22 Where services and drains are encountered during the archaeological works these will be left *in situ* and retained on a suitable raised earth baulk. At the end of the investigation, they will be carefully covered with soil arisings from the excavations and consolidated using hand tools to avoid damage during the backfilling process.

6.5.23 In the event that land drains are broken during the evaluation the location of the break will be recorded to $\pm 0.1\text{m}$ using survey-grade GPS. The landowner will be consulted by the Principal Contractor prior to any reinstatement of a broken land drain to confirm the land owner's preferred method of reinstatement.

Artefact Recovery

6.5.24 All artefacts are to be retained for processing and analysis except for clearly modern material, which may be noted and discarded. All 'significant finds' will be recorded three dimensionally. If artefact scatters are encountered these should be recorded three dimensionally. Bulk finds will be collected by context. Finds will be stored in appropriate controlled conditions. If necessary, an accredited conservator will visit the site to undertake 'first aid' conservation treatment or provide specialist advice.

6.5.25 All hand excavated spoil will be scanned for ferrous and non-ferrous metal artefacts using a metal detector capable of making this discrimination, operated by an experienced metal detector user employed by the Archaeological Contractor. Modern artefacts are to be noted but not retained (19th century material and earlier are to be retained).

6.5.26 All artefacts that are retained will be collected, stabilized, conserved, stored, and processed in accordance with standard methodologies and national guidelines (refer to Annex B). The Archaeological Contractor's Method Statement will provide an indicative artefact collection policy.

6.5.27 Artefacts will be stored in appropriate materials and conditions and monitored to minimise further deterioration.

Environmental Sampling

6.5.28 Sampling will be carried out in consultation with the Consultant, and the Historic England Regional Science Advisor.

6.5.29 The Archaeological Contractor's WSI will outline an appropriate environmental sampling strategy, which contributes to the aims and objectives of the evaluation. Bulk samples must be taken from securely stratified deposits, and the sampling procedures must follow current methodologies (refer to Annex B). If appropriate, the Historic England Regional Science Advisor will be notified of the commencement of the works (or at each phase of the works) and will be consulted regarding the sampling strategy proposed by the Archaeological Contractor.

6.5.30 The overall sampling regime will include the types of deposit sample described below:

- Bulk-sieved Sample (BS): Sample size will depend upon the context / feature size but should be up to 40-60 litres in size (if the context size allows). These samples are taken for the recovery of charcoal, burnt seeds, bone and artefacts. Samples will be processed by flotation, on site where possible, with 1mm and 500micron sieves on a rack to collect the carbonised washover. The retents and flots will then be dried, sorted and assessed to advise of the potential for further analysis.
- General Biological Analysis (GBA): A 10 litre sample size will be used (if the context size allows). These samples will be processed in the laboratory, to recover macrofossils and microscopic remains such as pollen and insects, and to assess the potential for deposits to preserve organic remains.

6.5.31 Samples will be taken for scientific dating to support the aims and objectives of the evaluation. Material removed from site will be stored in appropriate controlled environments.

6.5.32 The sampling programme shall assess the potential for palaeo-environmental remains in support of the aims and objectives of the archaeological investigation. Samples shall be taken as routine from securely stratified deposits irrespective of their apparent 'organic' content as judged in the field or the presence of datable material. Recommendations for analysis of samples and palaeoenvironmental evidence will be included in the fieldwork assessment report.

6.5.33 If industrial activity of any scale is detected, industrial samples and process residues will also be collected. Separate samples (c. 10ml) will be collected for micro-slags (hammerscale and spherical droplets).

Human Remains

6.5.34 Should human remains be discovered during the course of the excavations the remains will be covered and protected and left *in situ* in the first instance, in accordance with current good practice. The removal of human remains will only take place in accordance with a licence from the Ministry of Justice and under the appropriate Environmental Health Regulations and the Burial Act 1857 (Ref 6). In the event of the discovery of human remains the Archaeological Contractor will notify the Consultant immediately, who will contact the relevant local authority planning archaeologist to establish whether it is necessary to contact the office of H.M. Coroner.

Treasure

6.5.35 Any artefacts which are recovered that fall within the scope of the Treasure Act 1996, Treasure (Designation) Order 2002 and Treasure (Designation) (Amendment) Order 2023 No. 404, will be reported to the Consultant and H.M. Coroner immediately. The Archaeological Contractor will ensure that the Treasure regulations are enforced and that all the relevant parties are kept informed. In addition, the Archaeological Contractor shall maintain a list of finds that have been collected that fall under the Treasure Act and related legislation and this list shall be included in the fieldwork report.

6.5.36 Artefacts that are classified as 'treasure' will be removed to a safe place. Where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken by the Archaeological Contractor to protect the finds from damage or unauthorised removal.

Finds Processing

6.5.37 Initial processing of finds (and, if appropriate, other samples) will be carried out concurrently with the fieldwork. The processing of finds will be finished shortly after completion of the investigations. The finds will be retained (according to the collection policy), washed, marked, bagged and logged on a MS Access or GIS database (or equivalent), together with their locations (if applicable) according to the National Grid (eastings, northings) and Ordnance Datum (height), accurate to 2 decimal places.

6.5.38 The finds assemblage will be treated, labelled and stored in accordance with the appropriate Historic England (formerly English Heritage) guidance documents and the Institute of Conservation guidelines (refer to Annex B). At all times the Archaeological Contractor shall ensure that the processing of the assemblage is in accordance with the requirements of the recipient repository or Museum.

6.5.39 If appropriate, each category of find or each material type will be examined by a suitably qualified archaeologist or specialist and the results incorporated into the report.

Specialist Assessment

- 6.5.40 The Archaeological Contractor will include the list of staff they will use for specialist assessment within their Method Statement.
- 6.5.41 The stratigraphic information, artefacts, soil samples and residues will be assessed for their potential and value for further analysis and study. The material will be quantified (counted and weighed). Specialists will undertake a rapid scan of all excavated material. An assessment will be made of each artefact type.
- 6.5.42 Materials considered vulnerable to deterioration should be selected for stabilisation after specialist recording. Where intervention is necessary, consideration will be given to possible investigative procedures (e.g., glass composition studies, residues on pottery, and mineral preserved organic material). Allowance will be made for preliminary conservation and stabilisation of all objects and a written assessment of long-term conservation and storage needs produced. Once assessed, all material will be packed and stored in optimum conditions, in accordance with Watkinson and Neal (Ref 33), ClfA (2020b) (Ref 8) and Museums and Galleries (1992).
- 6.5.43 All finds will be cleaned, marked and labelled as appropriate prior to assessment. For ceramic assemblages any recognised local pottery reference collections and relevant fabric codes will be used.

6.6 Geoarchaeology

- 6.6.1 The Archaeological Contractor's geoarchaeologist will review available information geotechnical and geoarchaeological information for the Site and immediate surroundings, in particular Land on the Edge: The Landscape Evolution of the Lincolnshire Coastline (Ref 11), in order to identify the number, location and type of boreholes to be undertaken in each area identified for geoarchaeological investigation (see para 4.11). This information will be detailed in the Archaeological Contractor's WSI (see para 6.4 and 6.5) and will be agreed with the Consultant and the Viking CCS Heritage Consultees.
- 6.6.2 The position of each borehole location will be accurately set out by the Archaeological Contractor and tied into the Ordnance Survey National Grid and Ordnance Survey datum. The control points used to locate these points relative to base mapping and/ absolute position on the Earth's surface will be located to survey-grade accuracy ($\pm 0.1\text{m}$).
- 6.6.3 The Archaeological Contractor shall have responsibility for locational accuracy throughout the site work. Each borehole will be mechanically drilled by a specialist drilling rig contractor appointed by the Archaeological Contractor using a tracked terrier rig.
- 6.6.4 The Archaeological Contractor's geoarchaeologist shall determine the drilled diameter of the borehole in consultation with the specialist drilling rig contractor (either 150mm, 200mm or 300mm diameter).
- 6.6.5 The Archaeological Contractor shall be responsible for identifying any buried or overhead services. No excavation will commence without a PAS128 Type B utilities survey having been completed and a Permit to Dig issued by the Principal Contractor. This should include confirmation that the locations of any services are marked on site, along with any environmental or ecological constraints and corresponding buffer zones, and that any additional demarcation or safety measures required to ensure that each area is safe are in place prior to commencement of site work.

6.6.6 The Archaeological Contractor will also ensure that everyone involved in the works is aware of safe digging practices and emergency procedures. The Archaeological Contractor's Project Manager for the works will enforce these procedures and ensure that all staff are inducted regarding the site Health and Safety Plan and Risk Assessment prior to commencing works on site. Any services that are disturbed during excavation shall be immediately notified to the utility company owner(s), and restored by the Archaeological Contractor, at their own cost, to the utility company's requirements and specifications.

Hand excavated starter pits

6.6.7 Hand excavated starter pits (excavated dimensions c. 0.50m x 0.50m) at each borehole location will be opened by the rigger team under the constant supervision of the geoarchaeologist. If any archaeological remains are present, they shall be investigated (excavated and recorded) by the geoarchaeologist prior to the start of the drilling work.

Boreholes

6.6.8 The purpose of the geoarchaeological work is to investigate the nature and extent of buried archaeological and geological deposits and alluvial sediments which could be impacted by the Scheme.

6.6.9 The main aim of palaeoenvironmental assessment will be to establish the date of deposits and the presence/absence of key palaeoenvironmental indicators, in order to identify the potential of further work to contribute data towards key research objectives.

6.6.10 The borehole survey will be undertaken in accordance with the Chartered Institute for Archaeologists (CIfA) Code of Conduct (CIfA, 2021) and Standard and guidance for archaeological field evaluation (CIfA, 2020), and the relevant national guidance produced by Historic England, including Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sample and Recovery to Post-excavation (Ref 14), Geoarchaeology: using Earth Sciences to understand the archaeological record (Ref 18), and Deposit modelling and archaeology: guidance for mapping buried deposits (Ref 21).

6.6.11 The Archaeological Contractor will consult with their specialist drilling rig contractor during the preparation of the site-specific Risk Assessment and Method Statement (RAMS) regarding safe working practices, such as work within the vicinity of watercourses, utilities, active highway boundaries, contaminated soils and excavations.

6.6.12 Soil core sample holes will be re-instated with bentonite (or equivalent inert material) to protect the groundwater, minimise contamination pathways and/or address any other residual hazards. Should a significant obstruction be encountered before reaching the target depth an additional hole shall be drilled, at a distance of at least 1.0m from the survey point, at the discretion of the Archaeological Contractor. Should the additional core encounter an obstruction of a similar nature the circumstances shall be recorded, and the excavation ceased. Such additional cores will be assigned the same unique number as the original core along with a suffix (e.g., A, B, etc for each additional drilling attempt).

Monitoring and recording

6.6.13 The geoarchaeologist supervising the work will be familiar with the geology of the Scheme area or have experience of similar geological contexts. The geoarchaeologist will liaise with the rig crew to ensure that the methods used to recover the material are sufficient to support palaeoenvironmental sampling and sampling for scientific dating where required, to address project specific research questions.

6.6.14 The geoarchaeologist undertaking the investigation will attend the works at each borehole location. They will record archaeological remains (if present in starter pits) and the deposit sequence from the drilled cores (ground surface to the base of the sequence). The results of the investigation will be used to illustrate the main trends in the deposit sequence (depth and distribution of main depositional units by means of schematic cross-sections), and if appropriate surface and thickness plots (e.g., thickness of alluvium and organic sediments). The geoarchaeologist will work with the rig crew to assess the deposits in the field.

Assessment of cores

6.6.15 The geoarchaeologist shall be present during drilling operations at each borehole until they are content that geological deposits (laminated clays) are reached, or 13m depth is achieved.

6.6.16 Cores will be longitudinally split and opened to allow recording in the field, with selected cores also retained for later laboratory description and sampling. Additional core sequences may be recovered in opaque black liners for optically stimulated luminescence dating (OSL / IRSL) dating, where it will contribute to the aims and objectives of the evaluation.

6.6.17 Cores retrieved for laboratory description and assessment will be re-sealed for transport back to the Archaeological Contractors geoarchaeology laboratory.

6.6.18 Prior to sub-sampling, cores will be cleaned and recorded using standard sedimentological descriptions including Munsell colour, texture, structure and nature of boundaries. A full written, drawn and photographic record will be made of each core even where no archaeological deposits are identified. Cores will be recorded on pro-forma logs. Hand drawn sections (and plans where relevant) of the deposit sequence will be produced at an appropriate scale. All plans and sections will include spot heights relative to Ordnance Datum in metres, correct to two decimal places. Cores recovered for OSL / IRSL dating recovered in opaque black liners and opened, described and sub-sampled under red-light conditions.

6.6.19 Photographs will record site activities, the deposit sequence and sample locations.

6.6.20 The strategy and methods for sampling will follow the relevant guidance set out in the Archaeological Contractor's in-house standard procedure for environmental sampling and scientific dating. Sampling of vertical deposit sequences will follow the Archaeological Contractor's in-house guidelines for geoarchaeological sampling, in line with the procedures and principles for environmental sampling and scientific dating produced by Historic England (Historic England, 2015). The Archaeological Contractor will ensure a co-ordinated approach to specialist assessment. The geoarchaeologist will closely guide any staff undertaking sampling, interpretation and assessment. The samples will be recorded on the Archaeological Contractor's standard environmental and sample recording form.

6.6.21 Samples will be processed, sorted, identified and subject to an initial interpretation as soon as it is practically feasible and within the timescales to be determined between the Archaeological Contractor and the Client following the completion of the fieldwork (including preparation of the preliminary technical fieldwork report).

Specialist sub-samples

6.6.22 Recommendations for palaeoenvironmental assessment and scientific dating will be made following fieldwork and the description / interpretation of deposits in the preliminary technical fieldwork report (see 7.6.3 and 7.6.4). The range and type of samples that will be taken forward to assessment will be tailored to the deposit type, initially to determine the date of

deposits and preservation. The range of specialist samples and corresponding deposits are outlined in Table 9. If opportunities emerge for additional techniques during the course of the works, the need for and scope will be discussed between the relevant specialists and included in the preliminary technical fieldwork report.

Table 9: Potential palaeoenvironmental and dating samples from deposits / features

Deposit / feature type	Sample type	Scientific dating potential	Palaeoenvironmental samples
Buried soils and occupation deposits	Boreholes, kubiena, bulk samples, column samples	OSL, IRSL, 14C	Plant macros, snails, insects, pollen, non-pollen palynomorphs (NPP), micro-charcoal, phytoliths, micromorphology, geochemistry
Peat / organic rich sediment	Boreholes, monoliths	14C	Plant macros, pollen, NPP, micro-charcoal, snails, insects, microflora, tephra
Palaeochannels	Boreholes, monoliths, column samples	OSL, IRSL, 14C	Plant macros, pollen, NPP, micro-charcoal, snails, insects, microflora, tephra
Solution features	Boreholes, column samples, kubiena, bulk samples	OSL, IRSL, 14C	Plant macros, pollen, NPP, micro-charcoal, snails, insects, sedimentary ancient DNA (sedaDNA)

Deposit modelling

- 6.6.23 The preparation of a local or site-specific deposit model will contribute to the future understanding of the past cultural landscape and its evolution and will be undertaken in line with Historic England guidance on deposit modelling (Ref 21).
- 6.6.24 The deposit model will be developed by the Archaeological Contractor using all available data from previous investigations where available. It will include a rigorous approach to review the quality of the data, including standardisation, identification of any anomalies and missing information. Consideration will be given for inclusion of other relevant data sources into deposit models where appropriate, including geophysical data and stratigraphic data from excavations. The deposit model will also inform the proposal for scientific dating. It will be tailored to the site, including the extent of deposits and spatial availability of data, including cross-sections (lateral transects and 3D fence diagrams), thickness plots and digital elevation models (DEMs).

6.7 Digital Data

- 6.7.1 The Archaeological Contractor shall ensure that digital data generated as a result of the evaluation are preserved, curated and archived in accordance with the Contractors' strategy for digital data, as presented in their Method Statement, and current good professional practice (refer to Annex B).

7 Reporting

7.1.1 Separate reports will be produced for each phase of the evaluation, namely earthwork survey, metal detecting, trial trenching and geoarchaeological investigation. The results of non-intrusive survey will be used to inform the design of intrusive survey phases where available for inclusion in the Archaeological Contractor's SSWSI.

7.2 Interim Reporting

7.2.1 The Archaeological Contractor will issue an interim statement of the results of each phase of the Archaeological Evaluation (earthwork survey, metal detecting, trial trenching, geoarchaeological investigation) to the Consultant within ten working days of completion of the fieldwork for that phase. Given the large geographic spread of the Proposed Development, it may be necessary to provide staged interim statements for some phases, e.g. trial trenching.

7.3 Earthwork Survey

7.3.1 Within four weeks of completion of the earthwork survey an illustrated report will be produced by the Archaeological Contractor. This will include as a minimum:

7.3.2 The report will include the following:

- a quality assurance (QA) sheet detailing as a minimum: title, author, version, date, checked by and approved by;
- non-technical summary;
- description of the background to and circumstances of the work;
- brief description of the previously known archaeology of the survey area;
- a detailed methodology;
- the aims of the survey;
- description and interpretation of results;
- location plans, detailed plans for each survey area, and sections of individual features where necessary;
- a selection of photographs illustrating the earthworks and their landscape context; and
- a statement on the storage and curation requirements for the data.

7.3.3 The Archaeological Contractor will ensure that the report contains at the front a quality assurance sheet that is appropriately signed-off to confirm that the report has gone through an in-house technical review process before it is presented for external comment.

7.3.4 An electronic copy of the draft report and drawings/figures will be submitted to the Consultant for comment. A digital version of the report and illustrations will be produced within one week of the receipt of comments on the draft report from the Consultant. Following acceptance of the report by the Consultant, the report will be issued to the relevant local authority planning archaeologists for review. In finalising the report, the comments of the local authority planning archaeologists will be taken into account. The digital report shall comprise a complete version of the report in PDF format and separate digital text (in

Microsoft Word format) and CAD mapping (in AutoCAD format) and any other illustrations or plates as appropriate (in JPEG or TIFF format).

7.4 Metal Detector Survey

7.4.1 The results of the Metal Detector Survey will be presented in the form of a written report to be prepared by the Archaeological Contractor. This report will synthesize the results of the survey and determine the significance, extent and distribution of any archaeological artefacts. The report will include the following:

- a quality assurance (QA) sheet detailing as a minimum: title, author, version, date, checked by and approved by;
- a non-technical summary;
- the archaeological and historical background (including an assessment of the results of previous phases of fieldwork);
- a detailed methodology;
- descriptive text detailing the artefacts identified and an interpretation of their date and purpose;
- a general and detailed plan showing findspots and transects;
- a statement that addresses the future retention of the material, if human remains are encountered, including if appropriate, options for reburial;
- a list of all finds that fall within the scope of the Treasure Act and associated legislation;
- an assessment / conclusion and a statement of potential (stratigraphic, artefactual, environmental);
- recommendations for publication and dissemination, where appropriate;
- photographs that illustrate work in progress and archaeological discoveries; and
- the current and proposed arrangements for long term conservation and archive storage (including details of the accredited repository).

7.4.2 The Archaeological Contractor will ensure that the report contains at the front a quality assurance sheet that is appropriately signed-off to confirm that the report has gone through an in-house technical review process before it is presented for external comment.

7.4.3 An electronic copy of the draft report and drawings/figures will be submitted to the Consultant for comment. A digital version of the report and illustrations will be produced within one week of the receipt of comments on the draft report from the Consultant. Following acceptance of the report by the Consultant, the report will be issued to the relevant local authority planning archaeologists for review. In finalising the report, the comments of the local authority planning archaeologists will be taken into account. The digital report shall comprise a complete version of the report in PDF format and separate digital text (in Microsoft Word format) and CAD mapping (in AutoCAD format) and any other illustrations or plates as appropriate (in JPEG or TIFF format).

7.5 Trial Trench Evaluation Report

7.5.1 Within eight weeks of completion of each phase of field work for the archaeological trial trenching, a post-fieldwork assessment report will be prepared by the Archaeological Contractor.

7.5.2 The preparation of the site archive and fieldwork assessment report will be undertaken in accordance with current good practice standards and guidance (refer to Annex B). The precise format of the report is dependent upon the findings of the investigations, but it will contain the following as a minimum:

- a quality assurance (QA) sheet detailing as a minimum: title, author, version, date, checked by and approved by;
- a non-technical summary;
- the archaeological and historical background (including an assessment of the results of previous phases of fieldwork);
- a full detailed methodology;
- a description of the aims and objectives of the archaeological evaluation works;
- the results of the investigations (to include full description of importance and value of the remains, in their local, regional and national context cross-referenced to the Regional Research Framework);
- a general and detailed plan showing the location of the evaluation areas accurately positioned on an Ordnance Survey base map (at an appropriate and recognised scale);
- detailed plans and sections illustrating archaeological features and relationships between features (at an appropriate and recognised scale);
- a statement that addresses the future retention of the material, if human remains are encountered including, if appropriate, options for reburial;
- a list of all finds that fall within the scope of the Treasure Act and associated legislation;
- depending upon the complexity of the remains, a stratigraphic matrix for each excavated trench;
- an assessment / conclusion and a statement of potential (stratigraphic, artefactual, environmental);
- recommendations for publication and dissemination, where appropriate;
- photographs that illustrate work in progress and archaeological discoveries;
- the current and proposed arrangements for long term conservation and archive storage (including details of the accredited repository);
- specialist artefact reports; palaeoenvironmental/ geoarchaeological reports or their equivalent;
- an appendix illustrating specific finds and general working shots or portraits of specific features or structures as appropriate; and
- a cross-referenced index of the project archive.

7.5.3 The report will specifically comment on the results of the archaeological evaluation works and will highlight relevant information on the spatial extent, character, depth, preservation,

date and detail of the archaeological resource, where appropriate. The report will comment on the potential for extrapolating the results onto adjacent areas, if applicable.

- 7.5.4 Environmental assessment is to include identification of the remains, quantification by context, discussion / interpretation, if warranted, and a description of the processing methodology. Radiocarbon results must be presented in full (laboratory sample number, conventional radiocarbon age, calibration programme). Copies of the laboratory-issued dating certificates must be included as an appendix to the report.
- 7.5.5 The Archaeological Contractor will ensure that the report contains at the front a quality assurance sheet that is appropriately signed-off to confirm that the report has gone through an in-house technical review process before it is presented for external comment.
- 7.5.6 An electronic copy of the draft report and drawings/figures will be submitted to the Consultant for comment. A digital version of the report and illustrations will be produced within one week of the receipt of comments on the draft report from the Consultant. Following acceptance of the report by the Consultant, the report will be issued to the relevant local authority planning archaeologists for review. In finalising the report, the comments of the local authority planning archaeologists will be taken into account. The digital report shall comprise a complete version of the report in PDF format and separate digital text (in Microsoft Word format) and CAD mapping (in AutoCAD format) and any other illustrations or plates as appropriate (in JPEG or TIFF format).

7.6 Geoarchaeology

- 7.6.1 The results of the borehole survey will be contained in a two-staged technical report to be prepared by the Archaeological Contractor. Earlier investigations (evaluation surveys and excavations) will be reviewed by the Archaeological Contractor where these contribute to an understanding of the borehole survey or address the research objectives.
- 7.6.2 A Preliminary Technical Report will be prepared once the fieldwork is complete and in accordance with a time frame determined by the Client following completion of the fieldwork but no later than 4 weeks following completion of the fieldwork. The Preliminary Technical Report will be followed by an Assessment Technical Report prepared in accordance with a time frame determined by the Client.

Preliminary Technical Report

- 7.6.3 The Preliminary Technical Report will detail the results of fast-turnaround assessment of environmental data (recognising that the timescale of field and laboratory-based investigation and assessment may differ slightly to the fieldwork program). The purpose of the report will be to provide outline descriptions and interpretation of superficial deposits and their geoarchaeological and archaeological potential. If relevant the report may include interim results of deposit modelling to guide interpretation or inform on the need for further work, where appropriate. It will include recommendations for targeted palaeoenvironmental / geoarchaeological assessment and initial scientific dating, considering key overarching and site-specific research objectives.
- 7.6.4 The Preliminary Technical Report will include (but is not limited to):
- A summary of results (geoarchaeological and archaeological).
 - A draft plan of borehole investigations and interim deposit modelling (where appropriate).
 - Photographs and illustrations.

- Recommendations for palaeoenvironmental / geoarchaeological assessment and scientific dating; and a programme (schedule of work) for the completion of the assessment, with results to be detailed in the full Assessment Technical Report.
- A quantification of the primary archive including finds and samples.
- Identification of any issues that have arisen during the course of the fieldwork.
- Bibliography.

Assessment Technical Report

- 7.6.5 The Assessment Technical Report will be prepared by the Archaeological Contractor. The aim of the Assessment Technical Report is to detail the results of initial laboratory-based works using a range of analytical techniques, guiding the need for and scope of subsequent targeted analysis, where appropriate.
- 7.6.6 This may include (dependent on the deposits and research objectives) an assessment of the preservation of key palaeoenvironmental indicators, geochemical, micromorphological and / or sedimentological investigations and the results of initial scientific dating.
- 7.6.7 The report will include recommendations for a targeted program of palaeoenvironment / geoarchaeological analysis and scientific dating, where appropriate.
- 7.6.8 The scope of the analysis and publication will be informed by the assessment and future discussions to be held with the Client. The report will be illustrated, and it will include the following, as a minimum:
- non-technical summary;
 - site location;
 - brief geoarchaeological background, including geology and topography;
 - aims and objectives;
 - methods;
 - results – factual data (e.g., stratigraphy, updated deposit model, palaeoenvironmental assessment);
 - discussion, including a statement of significance and potential;
 - statement on how analysis can meet the aims and objectives of the WSI;
 - statement on how analysis will contribute to specific research objectives;
 - recommendations for analysis;
 - a cross-referenced index to the project archive and summary of contexts; and
 - appendices containing specialist reports and tables that describe the deposit sequence of boreholes.
- 7.6.9 The Preliminary Technical Report and the Assessment Technical Report will be submitted to the Consultant for review and comment. The Archaeological Contractor will address any comments that the Consultant may have. In finalising the report, the Archaeological Contractor will take account of the comments of the Consultant.
- 7.6.10 The Archaeological Contractor will ensure that the report contains at the front a quality assurance sheet that is appropriately signed-off to confirm that the report has gone through an in-house technical review process before it is presented for external comment.

7.6.11 An electronic copy of the draft report and drawings/figures will be submitted to the Consultant for comment. A digital version of the report and illustrations will be produced within one week of the receipt of comments on the draft report from the Consultant. Following acceptance of the report by the Consultant, the report will be issued to the local authority planning archaeologists for review. In finalising the report, the comments of the local authority planning archaeologists will be taken into account. The digital report shall comprise a complete version of the report in PDF format and separate digital text (in Microsoft Word format) and CAD mapping (in AutoCAD format) and any other illustrations or plates as appropriate (in JPEG or TIFF format).

7.7 OASIS Record

7.7.1 An OASIS entry shall be completed at the end of the fieldwork, irrespective of whether a formal report is required. The Archaeological Contractor will complete the online form at <http://ads.ahds.ac.uk/project/oasis/> within one month following completion of the fieldwork. Archaeological contractors are advised to contact OASIS (oasis@ads.ahds.ac.uk) for technical advice.

8 Programme and Resources

8.1 Programme

- 8.1.1 The evaluation programme will be dependent upon land access agreements, including those related to environmental constraints and prevailing ground / weather conditions. The Archaeological Contractor shall liaise with the Consultant when designing a provisional programme for the evaluation. The provisional programme shall be included in the Archaeological Contractor's Method Statement (tabulated and / Gantt format, as appropriate).
- 8.1.2 Following acceptance of the programme by the Consultant and the Client the Archaeological Contractor shall mobilise to Site (subject to clearance from environmental disciplines and approval from the Client's lands liaison team and landowners).
- 8.1.3 The Archaeological Contractor will ensure that adequate and appropriate management procedures are in place to ensure that risks to the programme timetable (for example caused by inclement weather) can be identified at an early stage. These risks will be kept under constant review by the Archaeological Contractor to ensure that the fieldwork is completed to the required standard within the agreed timescales and to budget.
- 8.1.4 The Archaeological Contractor will notify the Consultant at the earliest opportunity if there are any changes to the methodology or programme of work that arise from these reviews. Changes / variations to the programme will only be accepted after they have been agreed in writing with the Consultant as part of a change control procedure. The Archaeological Contractor will immediately notify the Consultant should any agreed programme date not be achievable.
- 8.1.5 The Archaeological Contractor will provide early warnings for any delays to the works' timetable or programme issues. The early warnings will be sent to the Consultant and the Client.

8.2 Resources

- 8.2.1 All archaeological personnel involved in the project should be suitably qualified and experienced professionals. The Archaeological Contractor shall provide the Consultant with staff CVs of the Project Manager, Project Officer, Site Supervisors and any proposed specialists that might be involved in the post-excavation work. Site assistant CVs will not be required, but all site assistants should have an appropriate understanding of excavation procedures.
- 8.2.2 All staff will be fully briefed and aware of the work required under this WSI and will understand the aims and objectives of the investigation and the methodologies to be employed.

8.3 Archaeological Clerk of Works

- 8.3.1 The Consultant will appoint an Archaeological Clerk of Works (ACoW). The ACoW will be responsible for daily monitoring and record checking of the archaeological investigation to assure adherence to this WSI (Section 11). The ACoW will support the archaeological

investigations on site by, for example, providing liaison with ecologists with regard to ecological constraints and in confirming changes to trench positions to avoid local site constraints in the field.

- 8.3.2 The ACoW will provide the Viking CCS Heritage Consultees and the Client with a weekly report on progress and findings from the trial trenching. The ACoW will liaise with the Heritage Consultees in relation to backfilling of trenches and changes to trench locations should prevailing site conditions necessitate this.
- 8.3.3 The ACoW will work with AECOM's site management team to ensure the safe and timely delivery of the trial trenching.

9 Archive Preparation and Deposition

9.1 Archive Preparation

- 9.1.1 The archive will be prepared by the Archaeological Contractor in accordance with the requirements of the receiving local authority repositories and the Lincolnshire County Council Archaeology Handbook (Ref 22).
- 9.1.2 All archaeological material recovered from fieldwork is irreplaceable and data recorded in the course of fieldwork should be held securely in a separate location in line with current good practice.
- 9.1.3 The site records and assemblages (list of fieldwork interventions, notebooks / diaries, completed pro forma record cards, records of site geometry (drawings), photographs and films, finds records and associated datafiles) will constitute the primary site archive. This is the key archive of the fieldwork project and the raw data upon which all subsequent assessment, analysis and future interpretation will be based. The archive will, therefore, not be altered or compromised; it remains the original record of the fieldwork. The site archive should be quantified, ordered, indexed and made internally consistent, and prepared in line with Archive Selection Toolkit: A toolkit to aid in the selection of the working project archive (ClfA 2019b) and current good practice (ClfA 2020c; Brown 2011a & 2011b).
- 9.1.4 The archive of finds and records generated during the fieldwork will be removed from the Site at the end of each day and kept secure at all stages of the project until it is deposited in the agreed repository. The archive will be produced to current national standards (refer to Annex A).

9.2 Archive Deposition

- 9.2.1 The Archaeological Contractor will, prior to the start of fieldwork, liaise with the receiving repository or museum to obtain agreement in principle to accept the documentary, digital and photographic archive for long-term storage. The Archaeological Contractor will be responsible for identifying any specific requirements or policies of the recipient repository in respect of the archive, and for adhering to those requirements. As a minimum the Archaeological Contractor will keep the repository informed of the likely quantification and content of the archive throughout the progress of the fieldwork. Any charges levied by the repository for the long-term storage of the archive will be met by the Archaeological Contractor.

- 9.2.2 The deposition of the site archive forms the final stage of the project. The Archaeological Contractor shall provide copies of communication with the accredited repository and written confirmation of the deposition of the archive. The Archaeological Contractor shall deal with the transfer of ownership and copyright issues.

10 Safety, Health and Environment (SHE)

10.1 General

- 10.1.1 The Archaeological Contractor shall comply with the Construction (Design and Management) Regulations 2015 (Ref 12), Health and Safety at Work Act (1974), the Control of Pollution Act (1974), the Control of Substances Hazardous to Health Regulations 1999 (COSHH), the Environmental Protection Act (1990), and all other relevant statutory requirements.
- 10.1.2 The Archaeological Contractor will provide the Consultant with details of their public and professional indemnity insurance cover.
- 10.1.3 Project staff are required to follow health and safety procedures and a risk assessment should be carried out and submitted to the Consultant prior to commencing work, to ensure the safety of workers on site.
- 10.1.4 The Archaeological Contractor will have their own Health and Safety policies compiled using national guidelines, which conform to all relevant Health and Safety legislation and good practice. A copy of the Archaeological Contractor's Health and Safety policy will be submitted along with their tender to the Consultant, who will forward on to the Client.

10.2 Risk Assessment and Method Statement

- 10.2.1 The Archaeological Contractor shall prepare a Risk Assessment and Method Statement (RAMS) that will be submitted to the Consultant for approval, 10 days prior to commencing the work. The RAMS may be issued back to the Archaeological Contractor with comments requesting amendments to be made to the document, before it is reissued, reviewed and approved. The Archaeological Contractor will not start work until the RAMS has been approved by the Consultant.
- 10.2.2 If amendments are required to the Risk Assessment during the works, the Consultant and any other interested party must be provided with the revised document at the earliest opportunity.
- 10.2.3 The contents required of all RAMS issued are:
1. Scope of Works
 2. Project Specific Hazards / Risks / Environmental Factors
 3. Reference Documents
 4. Subcontracted and third-party works
 5. Areas of Work (access and egress)
 6. Resources
 7. Plant and Equipment

8. Materials

9. Mandatory PPE

10. Task Specific PPE
11. Methodology of Works
12. Environmental Protection
13. HSE Hold Points
14. Attachments
15. Risk Assessment
16. Environmental Risk Assessment
17. Amendments Record

10.2.4 Daily briefings to those individuals involved in the work tasks will be delivered by the Principal Contractor's Site Manager or the Archaeological Contractor's work supervisor (Project Officer) prior to works commencing. Site staff are to ask questions on anything that is unclear or requires repeating. At the end of the shift any feedback shall be provided to the Archaeological Contractor's work supervisor / Principal Contractor's Site Manager on the RAMS performance via the Task Hazard Assessment procedure, with a view to this being incorporated into future revisions of the documents as necessary.

10.2.5 All site personnel will familiarise themselves with the following:

- site emergency and evacuation procedures;
- the site's health and safety coordinator;
- the first aider; and
- the location of the nearest hospital and doctor's surgery.

All equipment that is used in the course of the fieldwork must be 'fit for purpose' and be maintained in a sound working condition that complies with all relevant Health and Safety regulations and recommendations.

10.2.6 The Archaeological Contractor shall liaise with the Consultant and any other sub-contractors to ensure that the archaeological work is undertaken in an organised and professional manner.

All parties shall have full regard for the safety of all personnel on site, including measures to ensure the safety of all.

10.3 Mandatory Training

10.3.1 Mandatory training requirements for all site staff are:

- Construction Skills Certification Scheme (CSCS) card (or equivalent United Kingdom based scheme), appropriate to the role they are undertaking;
- Asbestos in Soils Awareness training; and
- Manual Handling training.

Site Supervisors (AECOM and Sub-contractors) are to hold the following mandatory training:

- Site Supervisors Safety Training Scheme (SSSTS) or equivalent;

- Construction Skills Certification Scheme (CSCS) card (Black Card);
- Asbestos in Soils Awareness training;
- Manual Handling training; and
- First Aid at Work (3-day course).

10.4 On Site Training

- 10.4.1 Toolbox Talks will be undertaken weekly, or as required following an incident, on relevant subjects and delivered by the Principal Contractor's Site Manager or Archaeological Contractor's work supervisor to all personnel on site. The briefing will be held within the site welfare and, following the talk, the opportunity to raise health and safety concerns, improvement suggestions, good practise, etc. will be opened up to all present.
- 10.4.2 Daily Site Briefings (10.8 above) also provide a medium for employees to discuss Health and Safety issues and for training to be delivered as part of the delivery of key tasks. These are undertaken prior to any works being undertaken on site each day. The proposed works for the day are discussed and all controls / work procedures reinforced to ensure that all members of the site team understand their role. At the end of these briefings the workforce can then discuss the proposed work methods and other issues.

10.5 Welfare and Security Provisions

- 10.5.1 The Archaeological Contractor shall supply mobile welfare and satellite compounds as needed for the completion of the works as set out in this WSI.

10.6 Utilities

- 10.6.1 The Archaeological Contractor shall be responsible for obtaining and checking up to date statutory utility plans and undertaking a PAS128 B survey prior to the commencement of fieldwork. The Archaeological Contractor will take the necessary precautions to avoid utilities and the RAMS and Health and Safety Plan shall refer to relevant guidance and good practice, for example:
- Health and Safety Executive GS6 - Avoidance of Danger from Overhead Lines;
 - HS(G)47 - Avoiding Danger from Underground Services;
 - PAS 128:2022 – Underground Utility Detection; and
 - National Grid T/SP/SSW/22 - Safe Working in the Vicinity of National Grid High Pressure Gas Pipelines and Associated Installations.

10.7 Ground Contamination

- 10.7.1 The Consultant and the Client will supply reports relating to any known or suspected ground contamination (both on surface and sub-soil) so that known risks can be mitigated. The Archaeological Contractor's RAMS will establish procedures should ground contamination be encountered or suspected. This will include notifications to the Consultant and the Client, the relevant local authority, the Environment Agency and the affected landowner.

10.8 Permit to Dig

- 10.8.1 The Principal Contractor shall issue the Archaeological Contractor with a Permit to Dig prior to any excavation being undertaken. The Permit to Dig system will ensure that all necessary constraints to excavation have been appropriately considered and control measures implemented before excavation works are carried out.

11 Monitoring

11.1 SHE Monitoring Arrangements

- 11.1.1 The arrangements for monitoring Health and Safety during the project will be detailed in the Construction Phase Health and Safety Plan.

11.2 Technical Monitoring

- 11.2.1 The fieldwork will be monitored to ensure that it is being carried out to the required standard and that it will achieve the aims and objectives as set out in the WSI. The Archaeological Contractor shall ensure that the Archaeological Evaluation complies with current historic environment guidance and legislation, and the requirements as set out in this WSI.
- 11.2.2 The archaeological investigation will be subject to daily monitoring by the Consultant's ACoW, who will have unrestricted access to the area, fieldwork records or any other information. The work will be inspected to ensure that it is being carried out to the required standards, and that it will achieve the stated objectives.
- 11.2.3 The relevant Viking CCS Heritage Consultees have a statutory role as the planning authorities in relation to archaeological works for the Scheme, including the responsibility to 'sign-off' the archaeological fieldwork, and approval of this WSI for Archaeological Evaluation Strategy and any subsequent Site-Specific Written Scheme of Investigation ('SSWSI').
- 11.2.4 The Consultant will notify the Viking CCS Heritage Consultees in writing of the commencement of works, two weeks prior to the start of works, as a minimum. Access to the evaluation works areas will be accorded to the relevant local authority planning archaeologist to enable them to monitor the work being undertaken against the methodology detailed in this WSI for Archaeological Evaluation and any subsequent SSWSI. If significant or unusual deposits are revealed, the Historic England Regional Science Advisor will be contacted by the Consultant to discuss excavation and sampling techniques and, if necessary, to arrange a site visit.
- 11.2.5 Progress meetings involving the Consultant, the Archaeological Contractor, and the Viking CCS Heritage Consultees may be held on site, as appropriate.
- 11.2.6 In the event of remote sign off of trenches, photographs of open archaeological trial trenches will be submitted to the Consultant and the Viking CCS Heritage Consultees. Permission to backfill archaeological trial trenches must be sought by the Archaeological Contractor and given by the ACoW in liaison with the Viking CCS Heritage Consultees prior to backfilling, unless Health and Safety considerations dictate immediate backfilling, in such cases the ACoW may authorise the backfilling of trenches.

- 11.2.7 The Archaeological Contractor will only accept instruction from the Consultant.
- 11.2.8 The monitors are not liable in any way for the failings of the Archaeological Contractor and such monitoring is not intended to take the place of proper self-regulation.
- 11.2.9 At the end of each phase of fieldwork the Archaeological Evaluation will be subject to a formal signing-off procedure, whereby the ACoW submits a Completion Statement to the relevant local authority planning archaeologist for confirmation that the fieldwork has been completed in compliance with this WSI.

12 Confidentiality and Publicity

- 12.1.1 The archaeological works may attract the interest of the public and the press. All communication regarding this project is to be directed through the Consultant. The Archaeological Contractor will refer all inquiries to the Consultant without making any unauthorised statements or comments.
- 12.1.2 The Archaeological Contractor will not disseminate information or images associated with the project for publicity or information purposes without the prior written consent of the Consultant.

13 Copyright

- 13.1.1 The Archaeological Contractor will assign copyright in all reports, documentation and images produced as part of this project to the Client. The Archaeological Contractor shall retain the right to be identified as the author or originator of the material.
- 13.1.2 The Archaeological Contractor will obtain such rights from sub-contracted specialists.
- 13.1.3 The Archaeological Contractor may apply in writing to the Client to use or disseminate any of the project archive or documentation (including images). Such permission shall not be unreasonably withheld.
- 13.1.4 Information relating to the project will be deposited with the relevant local authority Historic Environment Record where it can be freely copied for the purposes of archaeological research, or development control within the planning process.
- 13.1.5 The technical report and the project archive may contain material that is non-Archaeological Contractor copyright (e.g., Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which the Archaeological Contractor can provide for limited reproduction under the terms of their own copyright licences, but for which copyright itself is non-transferable by the Archaeological Contractor.
- 13.1.6 Users remain bound by the conditions of the Copyright, Designs and Patents Act 1988 regarding multiple copying and electronic dissemination of such material.

14 Access Arrangements

- 14.1.1 Access to the Site is restricted to authorised personnel only.

- 14.1.2 Access to the Site and instruction for access/ egress to each area will be arranged by the Consultant's lands liaison team (Gateley Hamer) and communicated to the Archaeological Contractor.
- 14.1.3 The Consultant will provide the Archaeological Contractor with the details for access and any known constraints prior to the start of fieldwork.

15 General Provisions

- 15.1.1 The Archaeological Contractor shall make the minimum of disturbance during the fieldwork and will avoid any unnecessary damage. Access for temporary parking and the location of site welfare shall be agreed with the Consultant and, if appropriate, individual landowners or tenants prior to commencement of the archaeological evaluation works.
- 15.1.2 The Archaeological Contractor will undertake the works in accordance with this evaluation strategy and any subsequent Written Scheme of Investigation. No variation from, or changes to, the specification will occur except by prior agreement with the Consultant and the Viking CCS Heritage Consultees.
- 15.1.3 The Site will be left in a tidy and workman-like condition and the Archaeological Contractor will ensure that all materials brought onto site are removed.

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Annex B Survey Log

Proposed (P), Completed (C)

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
1	1SoKNLi	1	South Killingholme	NLincs						
	2SoKNLi	2	South Killingholme	NLincs						
	3SoKNLi	3	South Killingholme	NLincs						
	4SoKNLi	4	South Killingholme	NLincs	Developed					
	5SoKNLi	5	South Killingholme	NLincs						
	6SoKNLi	6	South Killingholme	NLincs	Developed					
	7SoKNLi	7	South Killingholme	NLincs					P	
	8SoKNLi	8	South Killingholme	NLincs	Woodland					
	9SoKNLi	9	South Killingholme	NLincs	Developed					
	10ImmNEL	10	Immingham	NELincs						
	11ImmNEL	11	Immingham	NELincs	Grassland	C			P	P
	12ImmNEL	12	Immingham	NELincs	Grassland	C				
	13ImmNEL	13	Immingham	NELincs	Arable	C			P	P
	14SKiNLi	14	South Killingholme	NLincs						
	15SKiNLi	15	South Killingholme	NLincs		P			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	16ImmNEL	16	Immingham	NELincs	Mixed	P				
	17SKiNLI	17	South Killingholme	NLincs	Woodland					
	18SKiNLI	18	South Killingholme	NLincs	Woodland					
	19SKiNLI	19	South Killingholme	NLincs	Woodland					
	20ImmNEL	20	Immingham	NELincs	Woodland					
	21ImmNEL	21	Immingham	NELincs	Woodland					
	22ImmNEL	22	Immingham	NELincs	Arable	C			P	P
	23HabNEL	23	Habrough	NELincs	Arable	C			P	
	24HabNEL	24	Habrough	NELincs	Arable	C			P	
	25HabNEL	25	Habrough	NELincs	Arable	C			P	
	26HImNEL	26	Habrough Immingham	NELincs	Arable	C			P	
	27ImmNEL	27	Immingham	NELincs	Grassland	C			P	
	28ImmNEL	28	Immingham	NELincs	Grassland	C				
	29ImmNEL	29	Immingham	NELincs	Grassland	C			P	
2	30ImmNEL	30	Immingham	NELincs	Arable	C			P	
	31ImmNEL	31	Immingham	NELincs	Arable	C			P	
	32ImmNEL	32	Immingham	NELincs	Arable	C			P	
	33ImmNEL	33	Immingham	NELincs	Arable	C			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	34ImmNEL	34	Immingham	NELincs	Arable	C				
	35ImmNEL	35	Immingham	NELincs	Arable	C				
	36ImmNEL	36	Immingham	NELincs	Arable	C				
	37ImmNEL	37	Immingham	NELincs	Arable	C			P	
	38ImmNEL	38	Immingham	NELincs	Arable	C			P	
	39ImmNEL	39	Immingham	NELincs	Arable	C			P	
	40ImmNEL	40	Immingham	NELincs	Arable	C			P	
	41StaNEL	41	Stallingborough	NELincs	Arable	C			P	
	42StaNEL	42	Stallingborough	NELincs		C			P	
	43StaNEL	43	Stallingborough	NELincs		C			P	
	44StaNEL	44	Stallingborough	NELincs		C	P		P	
	45StaNEL	45	Stallingborough	NELincs		C			P	
	46StaNEL	46	Stallingborough	NELincs		C			P	
	47StaNEL	47	Stallingborough	NELincs	Arable	C				
	48aStaNEL	48	Stallingborough	NELincs	Arable	C				
	49StaNEL	49	Stallingborough	NELincs	Arable	C			P	
	50StaNEL	50	Stallingborough	NELincs	Arable	P			P	
	51StaNEL	51	Stallingborough	NELincs	Arable	P			P	
	52RibLiC	52	Riby	LincsC	Arable	P			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
		52a				P			P	
	53RibLiC	53a	Riby	LincsC		P			P	
		53b				P			P	
	54RibLiC	54a	Riby	LincsC		P			P	
	55RibLiC	55a	Riby	LincsC		P			P	
	56AyINEL	56a	Aylesby	NELincs		P			P	
	57AyINEL	57a	Aylesby	NELincs		P			P	
		57b							P	
	58AyINEL	58	Aylesby	NELincs	Arable	P			P	
		58a				P			P	
	59AyINEL	59	Aylesby	NELincs	Arable	P			P	
		59a				P			P	
	60AyINEL	60	Aylesby	NELincs	Grassland	P			P	
	61AyINEL	61	Aylesby	NELincs	Grassland	P			P	
	62AyINEL	62	Aylesby	NELincs	Arable	P			P	
	63LacNEL	63	Laceby	NELincs	Arable	P			P	
	64LacNEL	64	Laceby	NELincs	Arable	P			P	
	65LacNEL	65	Laceby	NELincs	Arable	P				
	66IrbNEL	66	Irby	NELincs	Arable	C			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
3	67IrbNEL	67	Irby	NELincs	Arable	C				
	68IrbNEL	68	Irby	NELincs	Arable	C			P	
		68a				P			P	
	69IrbNEL	69a	Irby	NELincs		C			P	
	70IrbNEL	70	Irby	NELincs	Arable	C		P	P	
		70a				P		P	P	
	71IrbNEL	71	Irby	NELincs	Arable	C		P	P	
	72IrbNEL	72	Irby	NELincs	Arable	C		P	P	
	73IrbNEL	73	Irby	NELincs	Arable	C		P	P	
	74IrbNEL	74	Irby	NELincs	Arable	C		P	P	
		74a				P		P	P	
	75IrbNEL	75	Irby	NELincs	Arable	C		P	P	P
		75a				P		P	P	P
	76IrbNEL	76	Irby	NELincs	Grassland	C		P		P
	77BLBNEL	77	Barnoldby Le Beck	NELincs		C		P	P	
		77a				P		P	P	
	78BLBNEL	78	Barnoldby Le Beck	NELincs		P			P	
		78a				P				
	79BLBNEL	79	Barnoldby Le Beck	NELincs		P			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
		79a				P			P	
	80BLBNEL	80	Barnoldby Le Beck	NElincs	Arable	C			P	
	81BLBNEL	81	Barnoldby Le Beck	NElincs		C			P	
	82BLBNEL	82	Barnoldby Le Beck	NElincs		C			P	
	83BLBNEL	83	Barnoldby Le Beck	NElincs	Plantation					
	84BLBNEL	84	Barnoldby Le Beck	NElincs	Grassland	P				
	85BLBNEL	85	Barnoldby Le Beck	NElincs	Woodland					
	86BLBNEL	86	Barnoldby Le Beck	NElincs	Arable	P			P	P
	87AcFNEL	87	Ashby cum Fenby	NElincs	Woodland					P
	88AcFNEL	88	Ashby cum Fenby	NElincs	Grassland	C			P	P
	89AcFNEL	89	Ashby cum Fenby	NElincs	Grassland	C			P	
	90AcFNEL	90	Ashby cum Fenby	NElincs	Grassland	C			P	
	91AcFNEL	91	Ashby cum Fenby	NElincs	Grassland	C			P	
	92AcFNEL	92	Ashby cum Fenby	NElincs	Grassland	C			P	
	93AcFNEL	93	Ashby cum Fenby	NElincs	Grassland	P			P	
	94AcFNEL	94	Ashby cum Fenby	NElincs	Woodland					
	95AcFNEL	95	Ashby cum Fenby	NElincs	Arable	C			P	
	96AcFNEL	96	Ashby cum Fenby	NElincs	Woodland	C				
	97AcFNEL	97	Ashby cum Fenby	NElincs	Arable	C			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	98AcFNEL	98	Ashby cum Fenby	NELinCs	Arable	C			P	
	99AcFNEL	99	Ashby cum Fenby	NELinCs	Arable	C			P	
	100AcFNEL	100	Ashby cum Fenby	NELinCs	Arable	P			P	
	101AcFNEL	101	Ashby cum Fenby	NELinCs	Arable	P			P	
	102AcFNEL	102	Ashby cum Fenby	NELinCs	Arable	C			P	
	103AcFNEL	103	Ashby cum Fenby	NELinCs	Arable	C			P	
	104AcFNEL	104	Ashby cum Fenby	NELinCs	Arable	C			P	
	105AcFNEL	105	Ashby cum Fenby	NELinCs	Arable	C			P	
	106AcFNEL	106	Ashby cum Fenby	NELinCs	Arable	C			P	
	107AcFNEL	107	Ashby cum Fenby	NELinCs	Arable, grassland	C			P	
	108AcFNEL	108	Ashby cum Fenby	NELinCs	Arable, grassland	C			P	
	109AcFNEL	109	Ashby cum Fenby	NELinCs	Arable	C			P	
	110GraLiC	110	Grainsby	LincsC	Arable	C			P	
	111GraLiC	111	Grainsby	LincsC	Arable	C			P	
	112GraLiC	112	Grainsby	LincsC	Arable	C			P	
	113GraLiC	113	Grainsby	LincsC	Arable	C			P	
	114NorLiC	114	North Thoresby	LincsC	Arable	C			P	
	115NorLiC	115	North Thoresby	LincsC	Arable	P			P	
	116NorLiC	116	North Thoresby	LincsC	Arable	P			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	117NorLiC	117	North Thoresby	LincsC	Arable	P			P	
	118NorLiC	118	North Thoresby	LincsC	Arable	P			P	
	119NorLiC	119	North Thoresby	LincsC	Arable	P			P	
	120NorLiC	120	North Thoresby	LincsC	Arable	P				
	121NorLiC	121	North Thoresby	LincsC	Arable	C			P	
	122NorLiC	122	North Thoresby	LincsC	Arable	C			P	
	123NorLiC	123	North Thoresby	LincsC	Arable	C			P	
	124NorLiC	124	North Thoresby	LincsC	Arable	C			P	
	125NTLLiC	125	North Thoresby Ludborough	LincsC	Arable	P			P	
	126LudLiC	126	Ludborough	LincsC	Arable	P			P	
	127LudLiC	127	Ludborough	LincsC	Arable	C			P	
	128LudLiC	128	Ludborough	LincsC	Arable	C			P	
	129LudLiC	129	Ludborough	LincsC	Arable	C			P	
	130LudLiC	130	Ludborough	LincsC	Arable	C			P	
	131LudLiC	131	Ludborough	LincsC	Arable	P			P	
	132LudLiC	132	Ludborough	LincsC	Arable	P			P	
	133LudLiC	133	Ludborough	LincsC	Arable	P			P	
	134LudLiC	134	Ludborough	LincsC	Arable	P			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	135LudLiC	135	Ludborough	LincsC	Arable	P			P	
	136LudLiC	136	Ludborough	LincsC	Arable	P			P	
	137LudLiC	137	Ludborough	LincsC	Arable	P			P	
	138LudLiC	138	Ludborough	LincsC	Arable	P			P	
4	139UttLiC	139	Utterby	LincsC	Arable	P			P	
	140UttLiC	140	Utterby	LincsC	Arable	P			P	
	141UttLiC	141	Utterby	LincsC	Arable	P			P	
	142UttLiC	142	Utterby	LincsC	Arable	P			P	
	143UttLiC	143	Utterby	LincsC	Arable	P			P	
	144UttLiC	144	Utterby	LincsC	Arable	P			P	
	145UttLiC	145	Utterby	LincsC	Arable	P			P	
	146UttLiC	146	Utterby	LincsC	Grassland	P			P	
	147UttLiC	147	Utterby	LincsC	Arable	P			P	
	148BraLiC	148	Brackenborough	LincsC	Arable	P			P	
	149BraLiC	149	Brackenborough	LincsC	Arable	P			P	
	150BraLiC	150	Brackenborough	LincsC	Arable	P			P	
	151BraLiC	151	Brackenborough	LincsC	Arable	P			P	
	152BraLiC	152	Brackenborough	LincsC	Arable	P			P	
	153BraLiC	153	Brackenborough	LincsC	Grassland	P			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	154BraLiC	154	Brackenborough	LincsC	Arable	P			P	
	155BraLiC	155	Brackenborough	LincsC	Arable	P			P	
	156BraLiC	156	Brackenborough	LincsC	Arable	P			P	
	157BraLiC	157	Brackenborough	LincsC	Arable	P			P	
	158BraLiC	158	Brackenborough	LincsC	Arable	P			P	
	159AlvLiC	159	Alvingham	LincsC	Arable	P			P	
	160AlvLiC	160	Alvingham	LincsC	Arable	P			P	
	161AlvLiC	161	Alvingham	LincsC		P			P	
	162AlvLiC	162	Alvingham	LincsC		P			P	
	163AlvLiC	163	Alvingham	LincsC		P			P	
	164AlvLiC	164	Alvingham	LincsC		P			P	
	165AlvLiC	165	Alvingham	LincsC		P			P	
		165a				P				
	166AlvLiC	166	Alvingham	LincsC		P				P
	167AlvLiC	167	Alvingham	LincsC		P				P
		167a				P				P
	168NCoLiC	168	North Cockerington	LincsC		P				
	169NCoLiC	169	North Cockerington	LincsC	Arable	P			P	
		169a				P			P	

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	170NCoLiC	170	North Cockerington	LincsC	Arable	P			P	
		170a				P			P	
	171NCoLiC	171	North Cockerington	LincsC	Arable	P			P	
	172NCoLiC	172	North Cockerington	LincsC	Arable	P			P	
	173NCoLiC	173	North Cockerington	LincsC	Arable	P			P	
	174NCoLiC	174	North Cockerington	LincsC	Arable	P			P	
	175NCoLiC	175	North Cockerington	LincsC	Arable	P			P	
	176SCoLiC	176	South Cockerington	LincsC	Arable	P			P	
	177SCoLiC	177	South Cockerington	LincsC	Arable	P			P	
	178SCoLiC	178	South Cockerington	LincsC	Arable	P			P	
	179SCoLiC	179	South Cockerington	LincsC	Arable	P			P	
	180SCoLiC	180	South Cockerington	LincsC	Arable	C			P	
	181SCoLiC	181	South Cockerington	LincsC	Arable	P			P	
	182SCoLiC	182	South Cockerington	LincsC	Arable	P			P	
	183CoLiC	183	South Cockerington	LincsC	Arable	P			P	
	184SCoLiC	184	South Cockerington	LincsC	Arable	C			P	
	185SCoLiC	185	South Cockerington	LincsC		C			P	
		185a				P			P	
	186SCoLiC	186	South Cockerington	LincsC		P			P	P

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
		186a				P			P	P
	187GriLiC	187	Grimoldby	LincsC		P			P	P
		187a				P			P	P
	188GriLiC	188	Grimoldby	LincsC		P			P	
		188a				P			P	
	189GriLiC	189	Grimoldby	LincsC		C			P	
	190GriLiC	190	Grimoldby	LincsC		C			P	
	191GriLiC	191	Grimoldby	LincsC		C			P	
	192GriLiC	192	Grimoldby	LincsC		C			P	
5	193ManLiC	193	Manby	LincsC	Arable	P			P	P
	194ManLiC	194	Manby	LincsC	Arable	P			P	P
	195ManLiC	195	Manby	LincsC	Arable	P			P	P
	196ManLiC	196	Manby	LincsC	Arable	P			P	P
	197ManLiC	197	Manby	LincsC	Arable	P			P	P
	198ManLiC	198	Manby	LincsC	Arable	P			P	P
	199SalLiC	199	Saltfleetby	LincsC	Arable	P			P	P
	200SalLiC	200	Saltfleetby	LincsC	Arable	P			P	P
	201SalLiC	201	Saltfleetby	LincsC	Arable	P				P
	202GrCLiC	202	Great Carlton	LincsC	Grassland	C			P	P

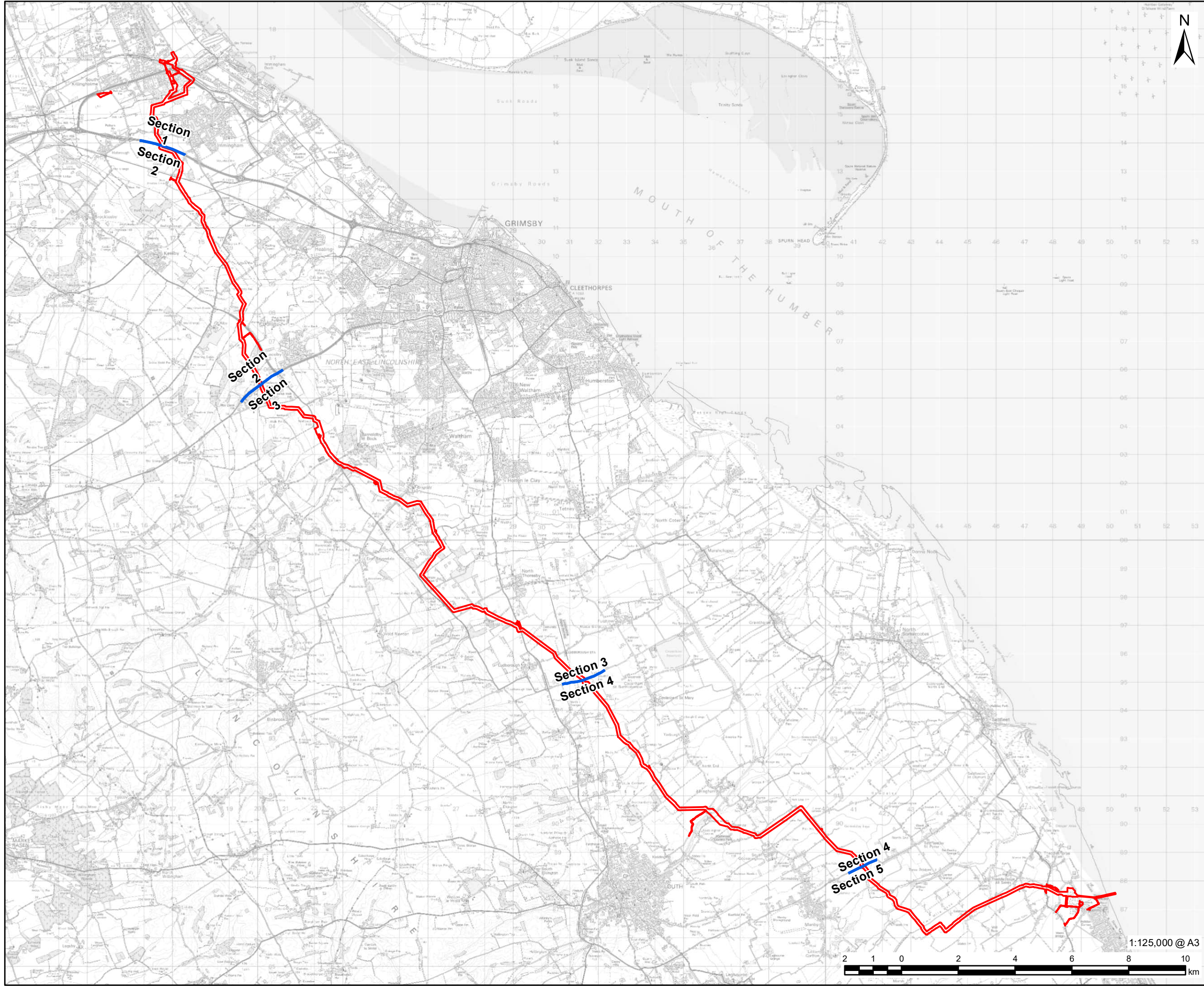
Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	203GrCLiC	203	Great Carlton	LincsC	Grassland	P			P	P
	204GrCLiC	204	Great Carlton	LincsC	Grassland	P			P	P
	205GrCLiC	205	Great Carlton	LincsC	Arable	P			P	P
	206GrCLiC	206	Great Carlton	LincsC	Arable	P			P	P
	207GrCLiC	207	Great Carlton	LincsC	Arable	P			P	P
	208GrCLiC	208	Great Carlton	LincsC	Arable	P			P	P
	209GrCLiC	209	Great Carlton	LincsC	Grassland	P			P	P
	210GLMLiC	210	Gayton Le Marsh	LincsC	Arable	P			P	P
	211GLMLiC	211	Gayton Le Marsh	LincsC	Arable	P			P	P
	212GLMLiC	212	Gayton Le Marsh	LincsC	Arable	P			P	P
	213GLMLiC	213	Gayton Le Marsh	LincsC	Arable	P			P	P
	214GLMLiC	214	Gayton Le Marsh	LincsC	Arable	P			P	P
	215GLMLiC	215	Gayton Le Marsh	LincsC	Arable	P			P	P
	216GLMLiC	216	Gayton Le Marsh	LincsC	Arable	P			P	P
		216a				P			P	P
	217GLMLiC	217	Gayton Le Marsh	LincsC	Arable	P			P	P
		217a				P			P	P
	218GLMLiC	218	Gayton Le Marsh	LincsC	Arable	P			P	P
		218a				P			P	P

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	219GLMLiC	219	Gayton Le Marsh	LincsC	Arable	P			P	P
		219a				P			P	P
	220GLMLiC	220	Gayton Le Marsh	LincsC	Grassland	P				P
		220a				P				P
	221TASLiC	221	Theddlethorpe AS	LincsC	Grassland	P				P
		221a				P				P
	222TASLiC	222	Theddlethorpe AS	LincsC		C				P
	223TASLiC	223	Theddlethorpe AS	LincsC		C			P	P
		223a				P			P	P
	224TASLiC	224	Theddlethorpe AS	LincsC		P			P	P
		224a				P			P	P
	225TASLiC	225	Theddlethorpe AS	LincsC		P			P	P
		225a				P			P	P
	226TASLiC	226	Theddlethorpe AS	LincsC		P			P	P
		226a				P			P	P
	227TASLiC	227	Theddlethorpe AS	LincsC		P	P		P	P
		227a				P	P		P	P
	228TASLiC	228	Theddlethorpe AS	LincsC		P	P		P	P
		228a				P	P		P	P

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	229TASLiC	229	Theddlethorpe AS	LincsC		P	P		P	P
		229a				P	P		P	P
	230TASLiC	230	Theddlethorpe AS	LincsC		P	P		P	P
	231TASLiC	231	Theddlethorpe AS	LincsC		P			P	P
		231a				P			P	P
	232TASLiC	232	Theddlethorpe AS	LincsC		P			P	P
	233TASLiC	233	Theddlethorpe StH	LincsC		P			P	P
	234TASLiC	234	Theddlethorpe StH	LincsC		P			P	P
	235TASLiC	235	Theddlethorpe StH	LincsC		P			P	P
	236TASLiC	236	Theddlethorpe StH	LincsC		P			P	P
	237TASLiC	237	Theddlethorpe StH	LincsC		P			P	P
		237a				P				
	238TASLiC	238	Theddlethorpe StH	LincsC		P				P
	239TASLiC	239	Theddlethorpe StH	LincsC		P			P	P
		239a				P			P	P
	240TASLiC	240	Theddlethorpe StH	LincsC		P				P
	241TASLiC	241	Theddlethorpe StH	LincsC						
	242TASLiC	242	Theddlethorpe StH	LincsC	Developed					
	243MStLiC	243	Mablethorpe&Sttn	LincsC						P

Section	Field ID	Field No.	Parish	LocalA	Landuse	Geophysical survey	Earthwork survey	Metal detecting survey	Trial trenching	Geoarchaeological borehole survey
	244MStLiC	244	Mablethorpe&Sttn	LincsC						P
	245MStLiC	245	Mablethorpe&Sttn	LincsC						P
	246MStLiC	246	Mablethorpe&Sttn	LincsC						
	247MStLiC	247	Mablethorpe&Sttn	LincsC	Dunes					
	248MStLiC	248	Mablethorpe&Sttn	LincsC	Foreshore					
1	249SKiNLI	249	South Killingholme	NLincs	Arable				P	

Annex C Figures



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FIGURE TITLE

Figure 1

Site Location

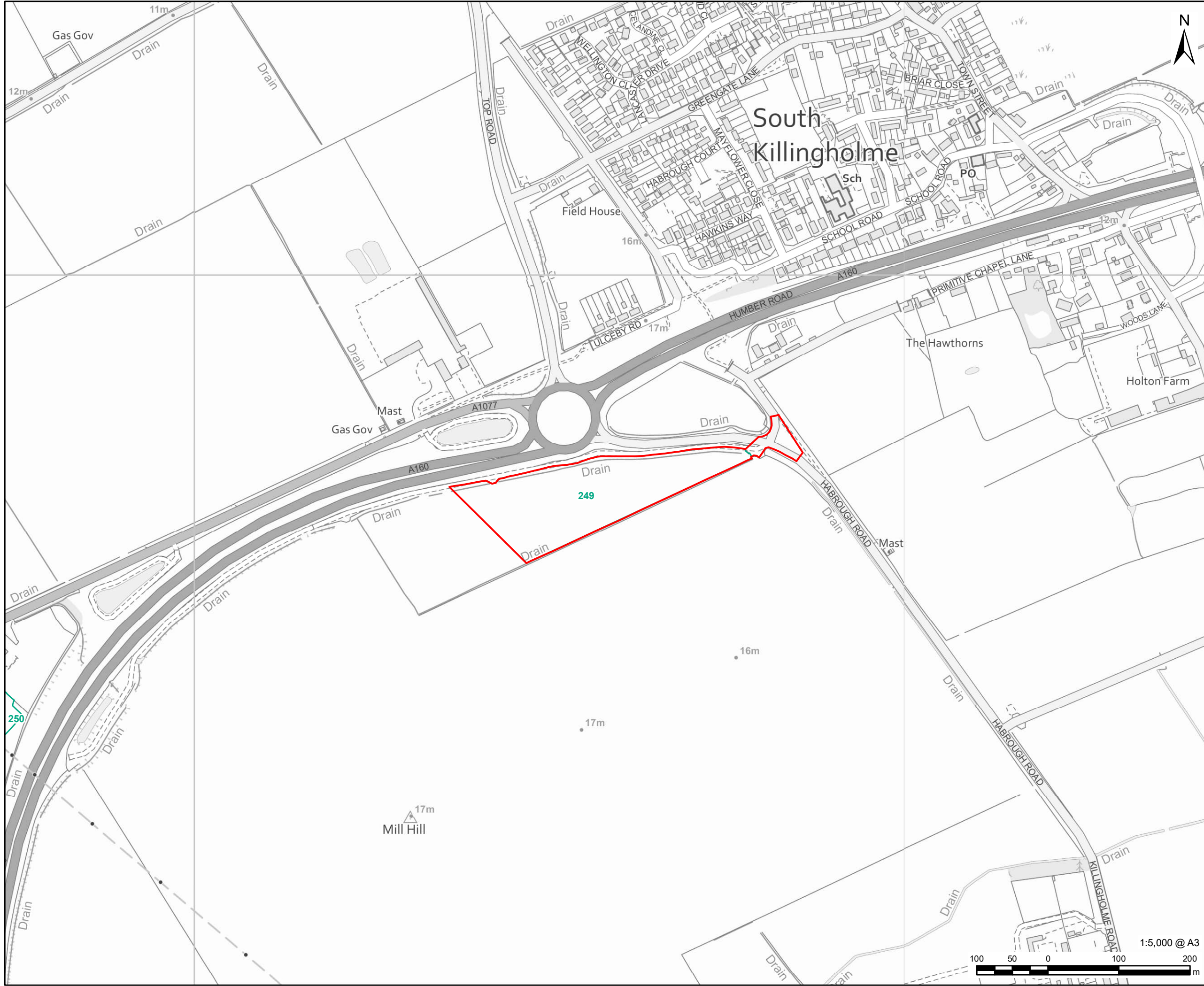
ISSUE PURPOSE

WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE

60668955 / VCSS_230927_WSI_TT_1

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VikingCCS

AECOM

PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

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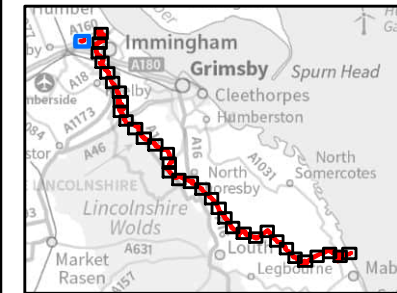
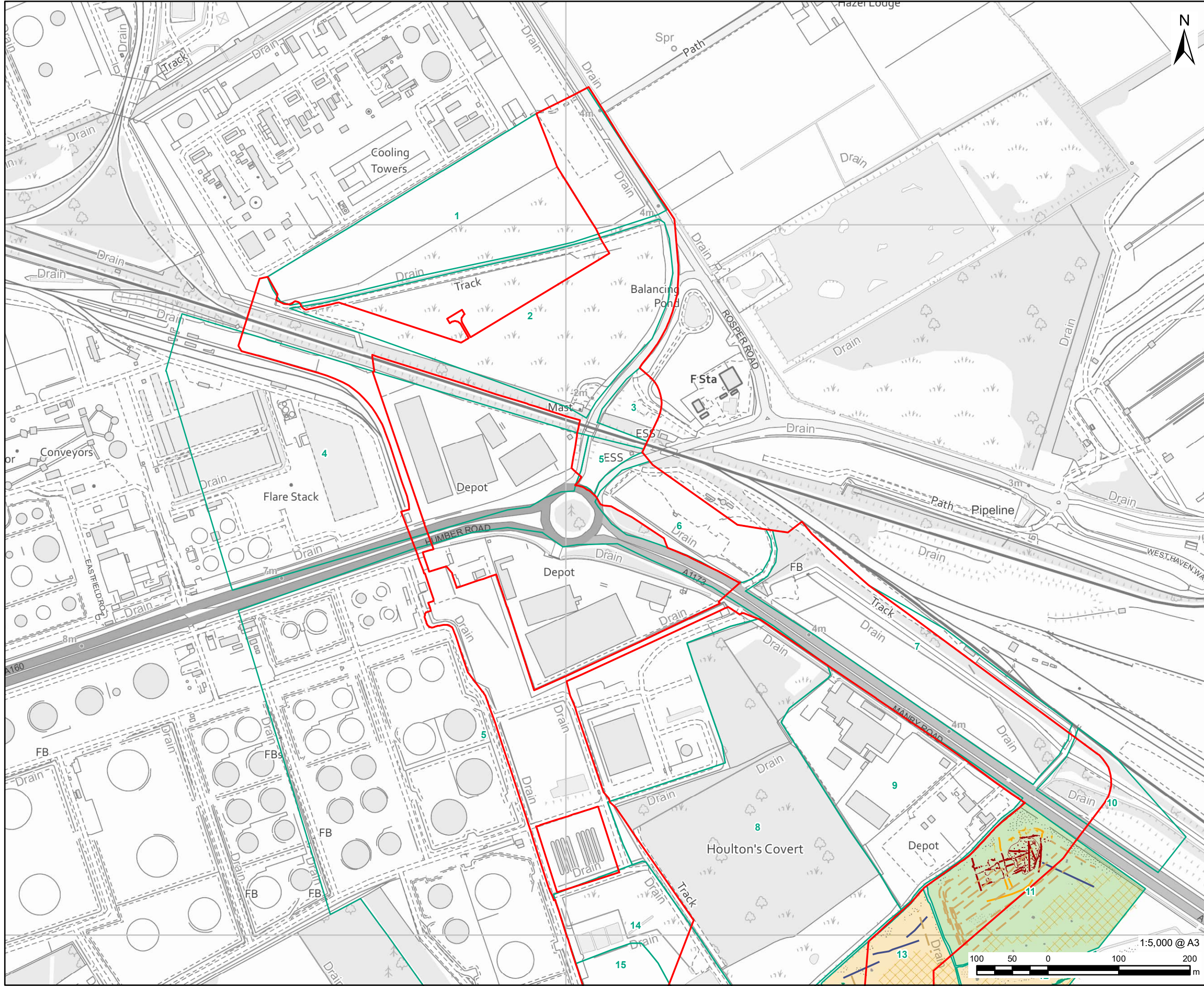


FIGURE TITLE
Figure 2 (1 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_2



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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 1 Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Possible Archaeology)
- Linear Trend (Probable Archaeology)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Interpretation Confidence Rating (AOC)**
- Highly Confident
- Unreliable

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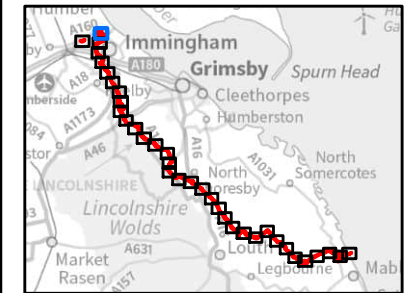
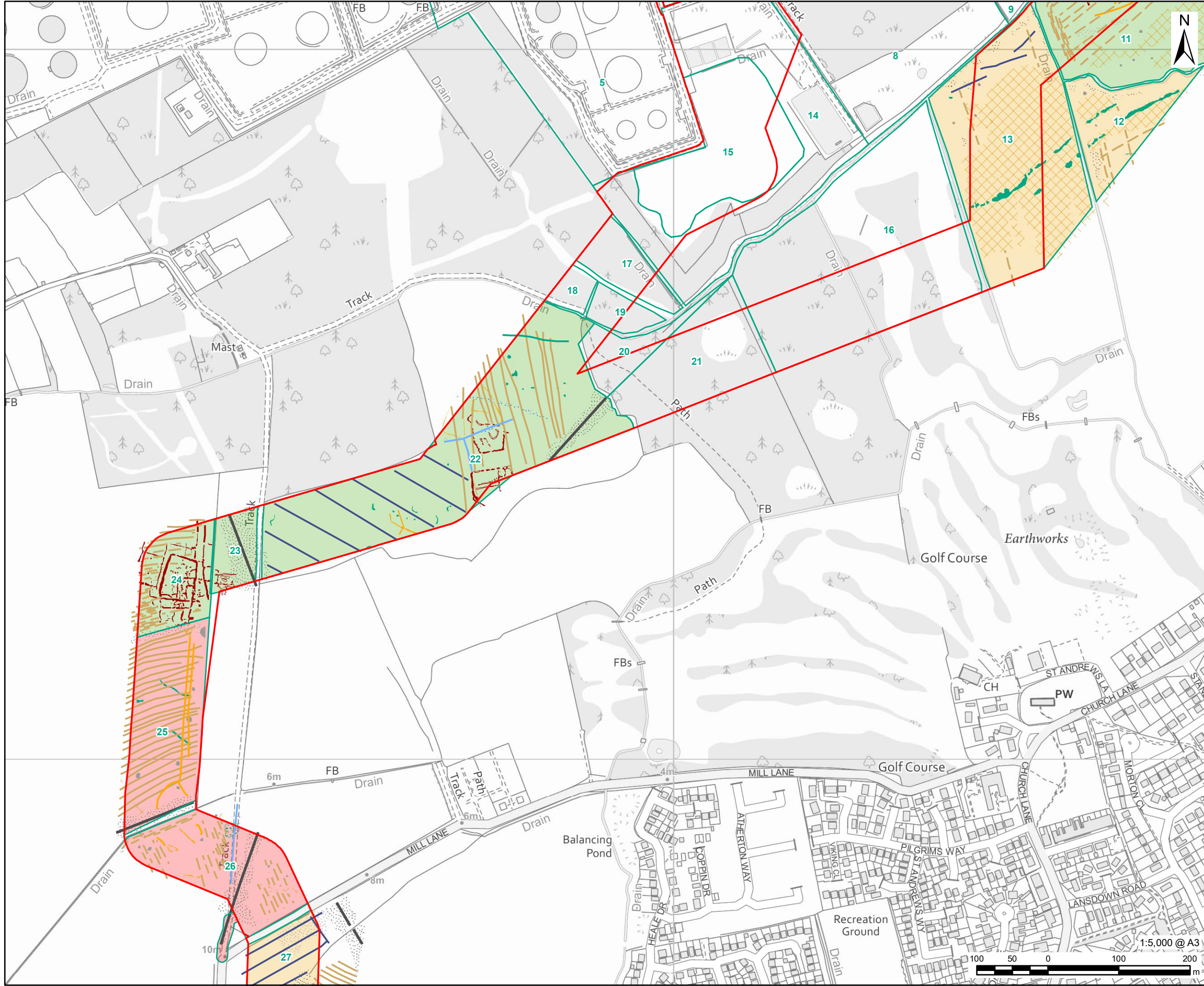


FIGURE TITLE
Figure 2 (2 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 5 Field Numbers
- Geophysical Survey Interpretation (AOC)
- Linear Trend (Drainage)
- Linear Trend (Historic Feature)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Possible Archaeology)
- Linear Trend (Probable Archaeology)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Linear Trend (Unclear Origin)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Agricultural)
- Spread (Agricultural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Spread (Historic Feature)
- Interpretation Confidence Rating (AOC)
- Highly Confident
- Unreliable
- Uncertain

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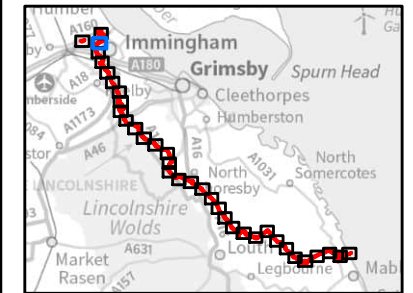
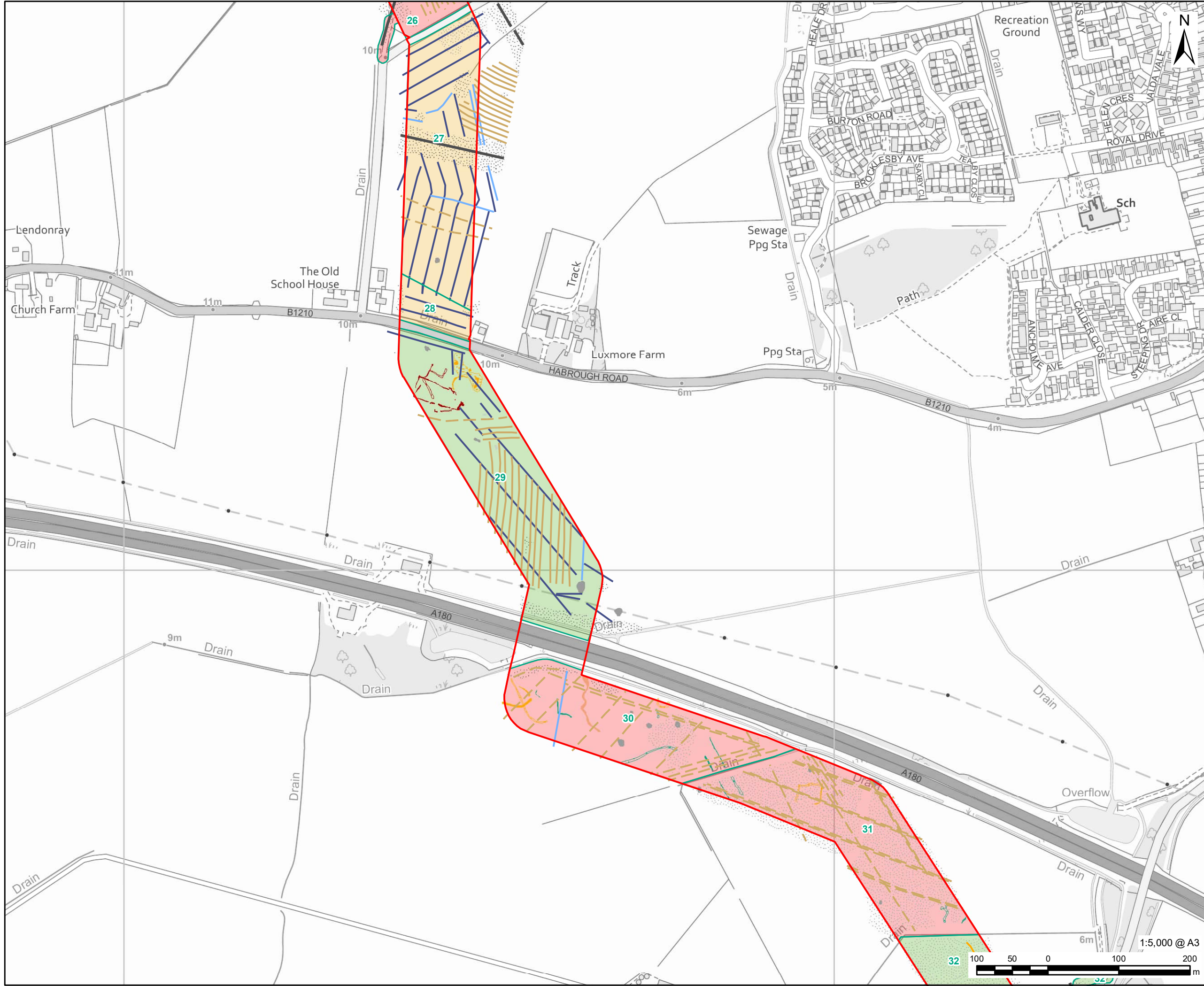


FIGURE TITLE
Figure 2 (3 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating



LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 26 Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Historic Feature)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Possible Archaeology)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Anomaly (Ferrous/Iron Spike)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Interpretation Confidence Rating (AOC)**
- Highly Confident
- Unreliable
- Uncertain

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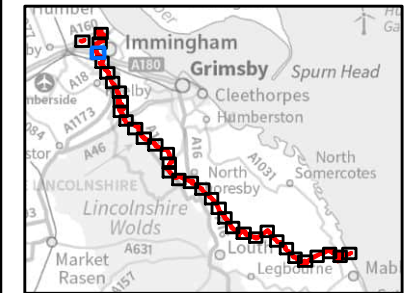
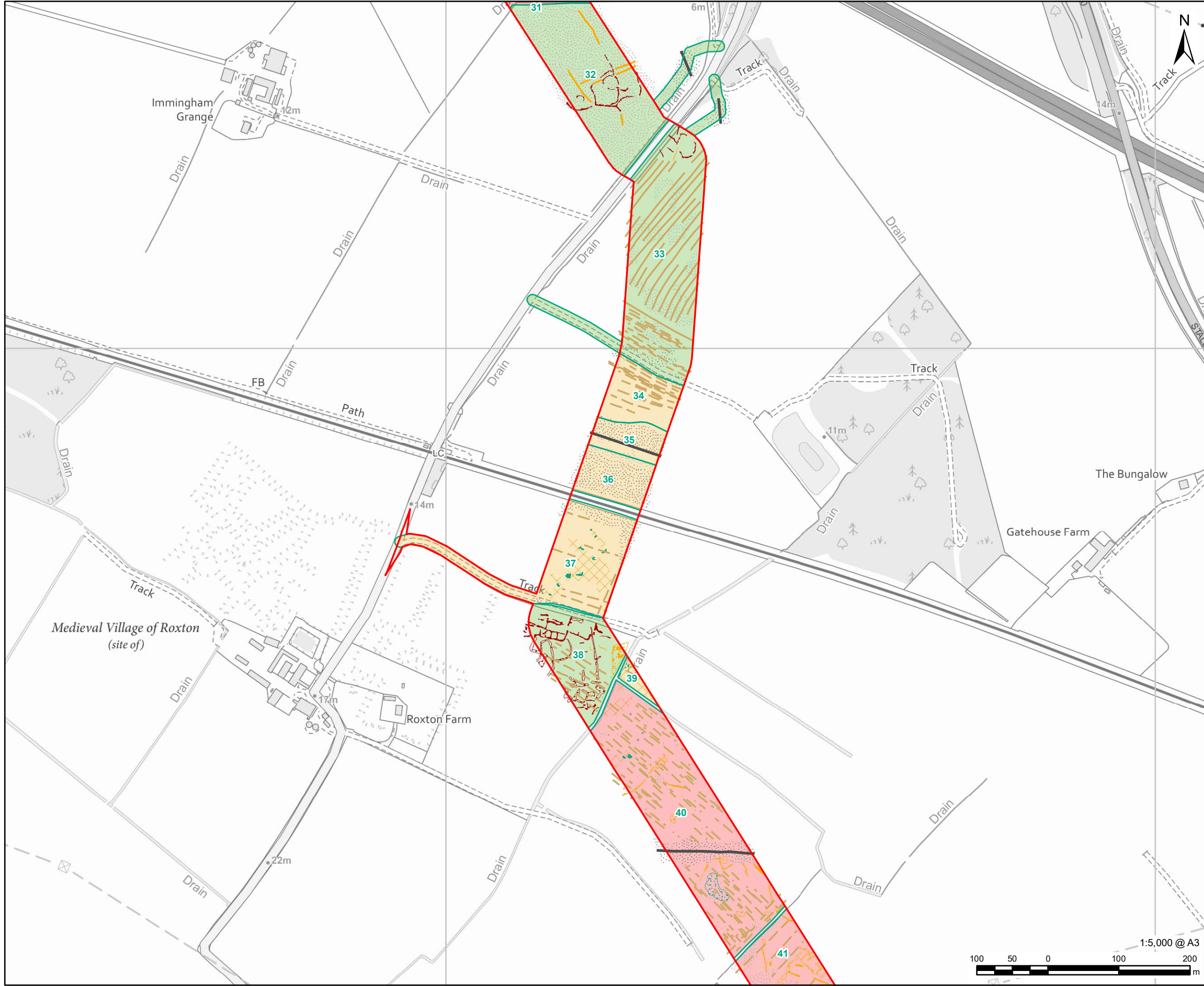


FIGURE TITLE
Figure 2 (4 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 31 Field Numbers
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Possible Archaeology)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Interpretation Confidence Rating (AOC)
- Highly Confident
- Unreliable
- Uncertain

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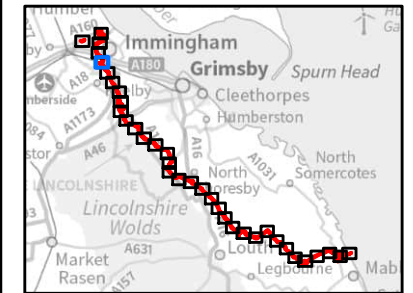


FIGURE TITLE
Figure 2 (5 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating



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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 40 Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Geology/Natural)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Agricultural)
- Spread (Agricultural)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Interpretation Confidence Rating (AOC)**
- Highly Confident
- Unreliable
- Uncertain

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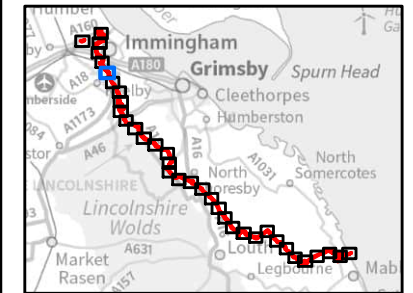
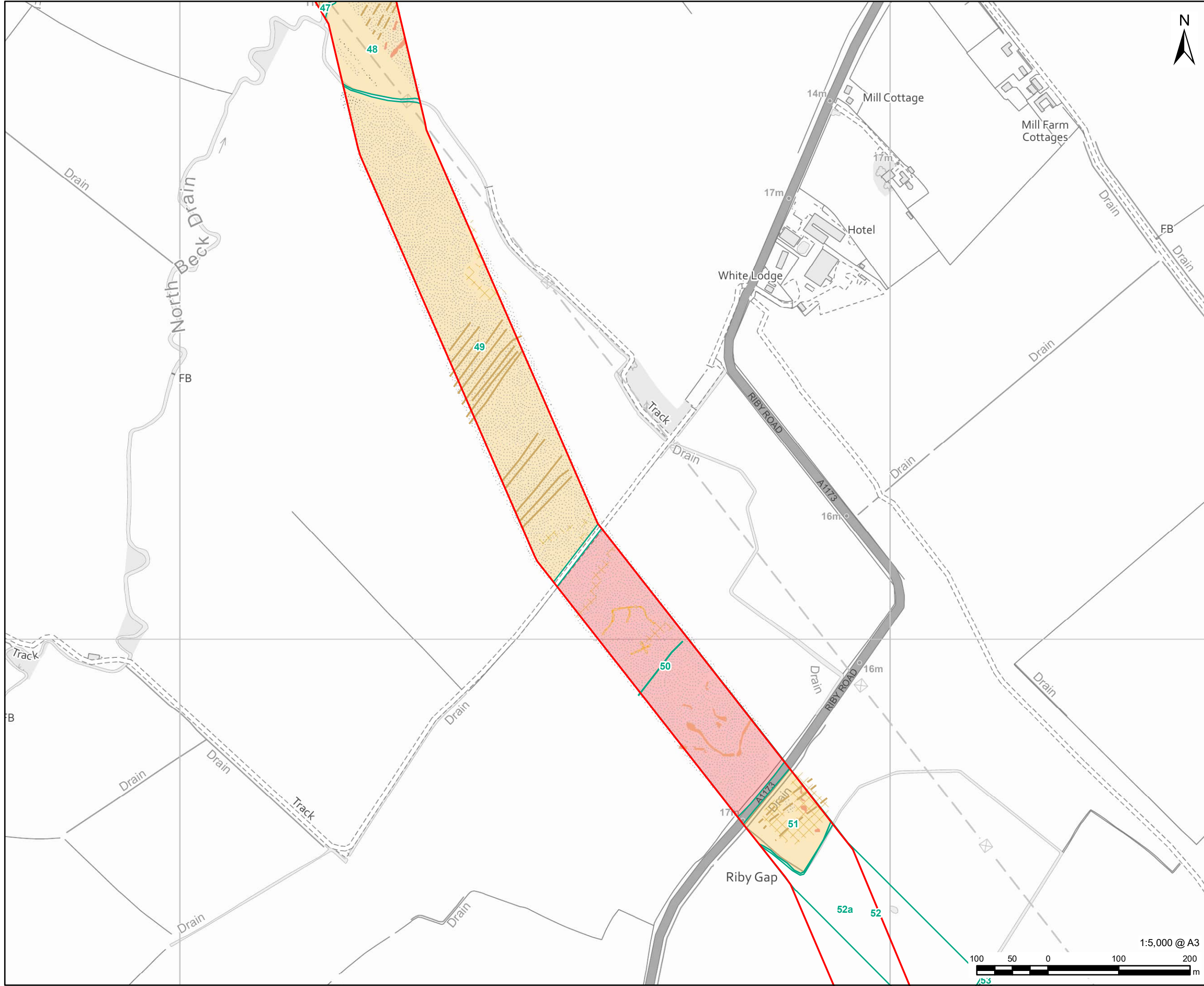


FIGURE TITLE
Figure 2 (6 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 47 Field Numbers
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Unclear Origin)
 - Spread (Possible Archaeology)
 - Spread (Magnetic Disturbance)
 - Anomaly (Geology/Natural)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)
- Interpretation Confidence Rating (AOC)**
- Unreliable
 - Uncertain

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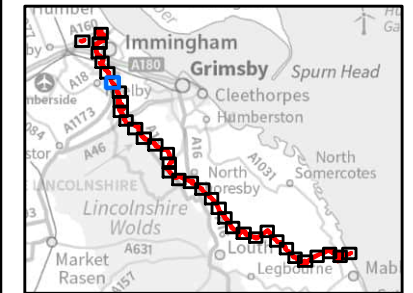
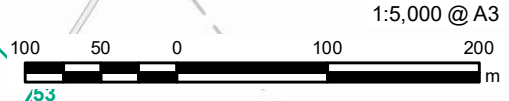
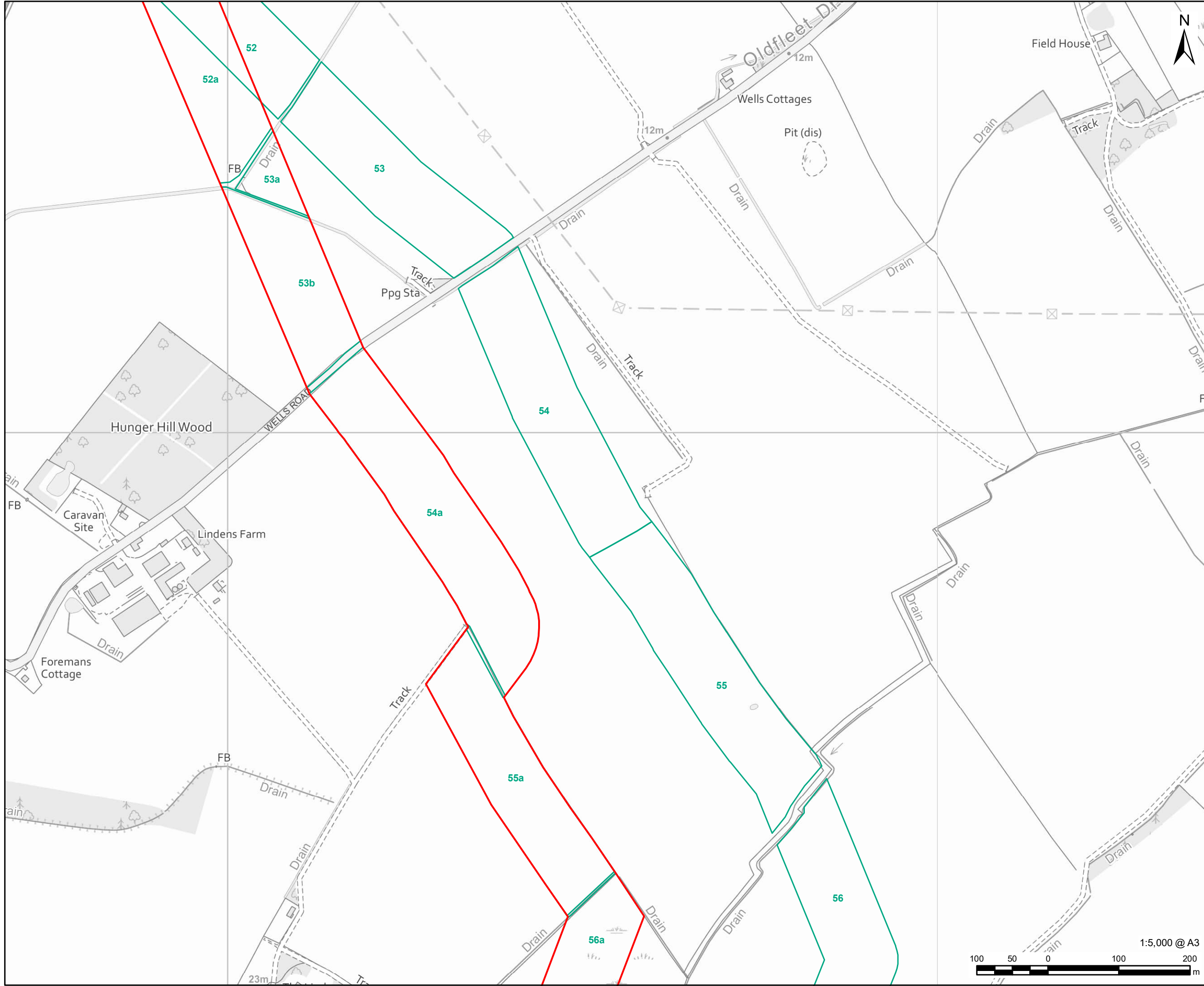


FIGURE TITLE
Figure 2 (7 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_2





VikingCCS

AECOM

PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

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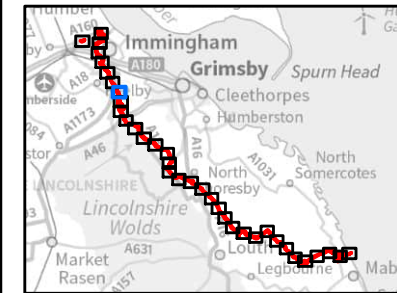
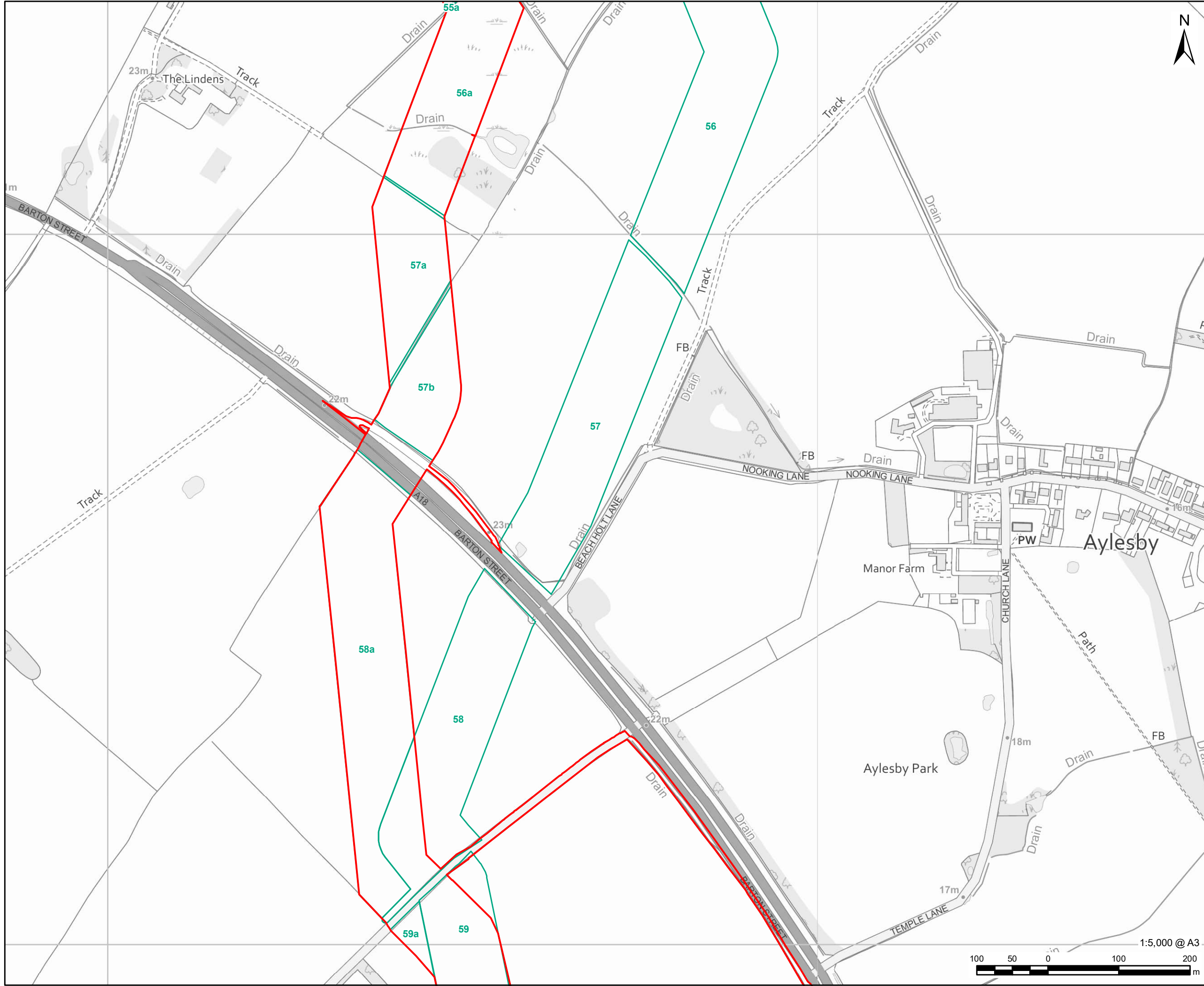


FIGURE TITLE
Figure 2 (8 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_2





- LEGEND**
- ▭ DCO Site Boundary
 - ▭ Geophysical Survey Area - AOC
 - Field Numbers

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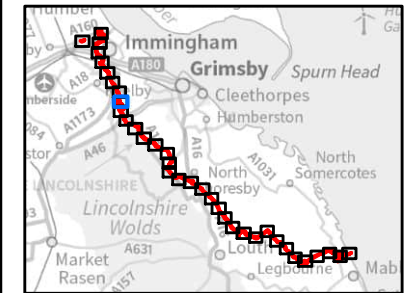
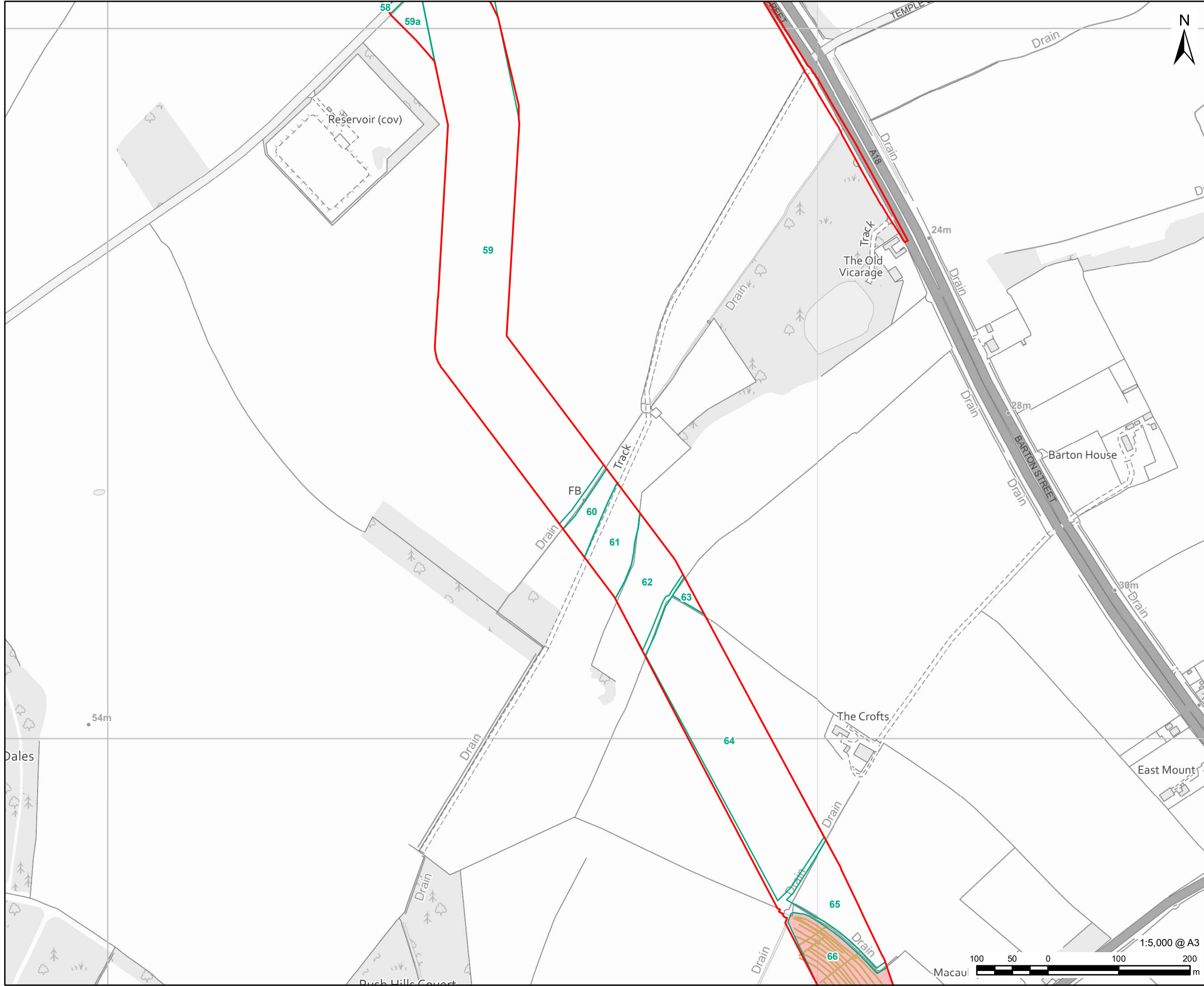


FIGURE TITLE
Figure 2 (9 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_2



- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Geophysical Survey Interpretation (AOC)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Spread (Ferrous/Iron Spike)
 - Interpretation Confidence Rating (AOC)
 - Uncertain

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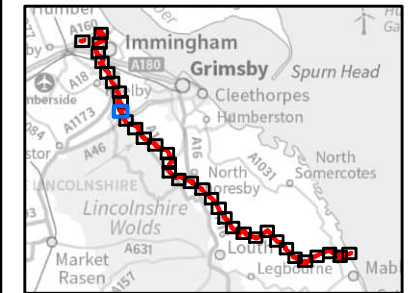
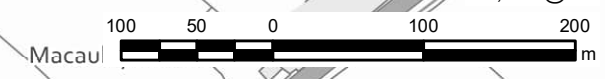
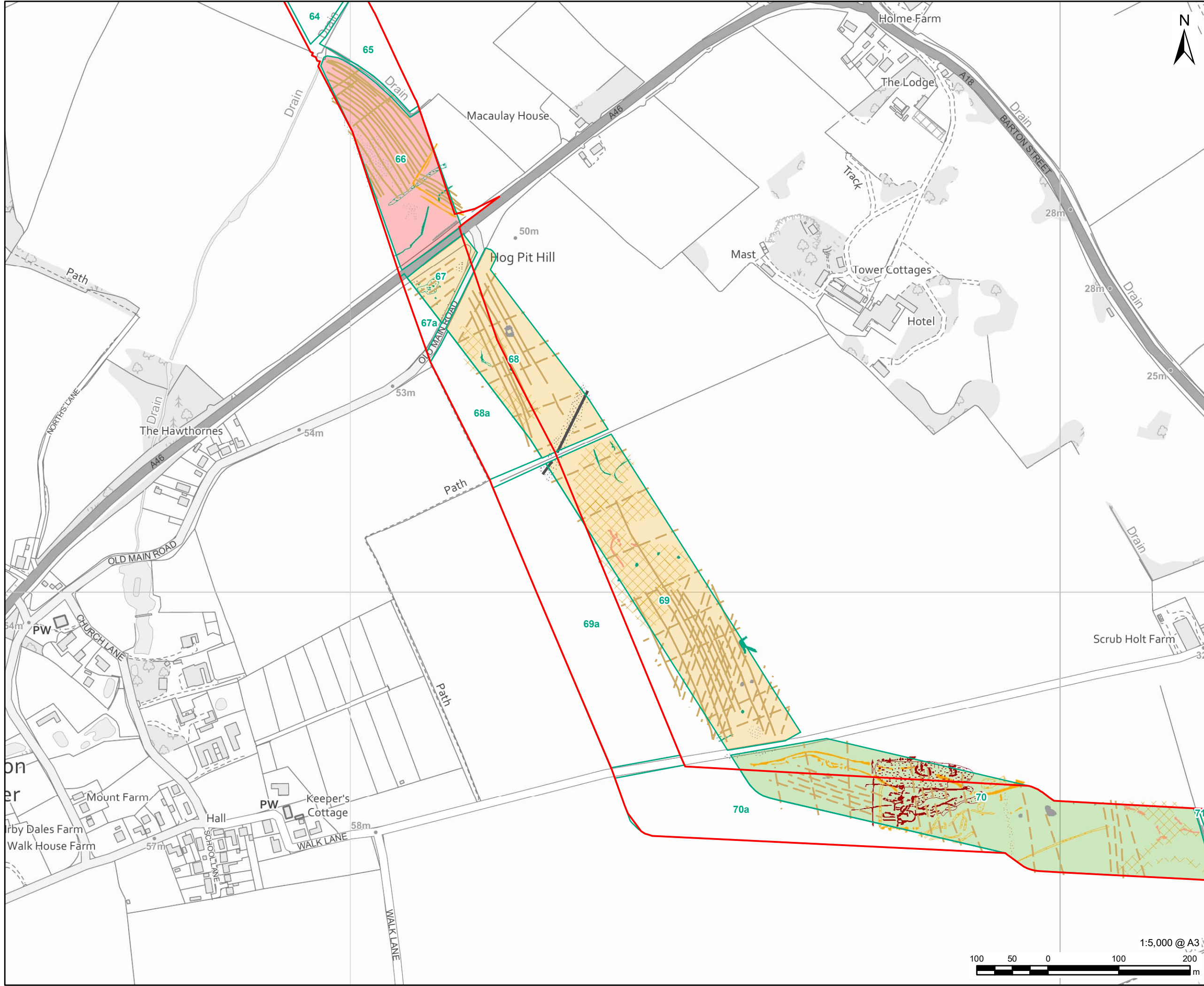


FIGURE TITLE
Figure 2 (10 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_2





LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 64 Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Geology/Natural)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Agricultural)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Interpretation Confidence Rating (AOC)**
- Highly Confident
- Unreliable
- Uncertain

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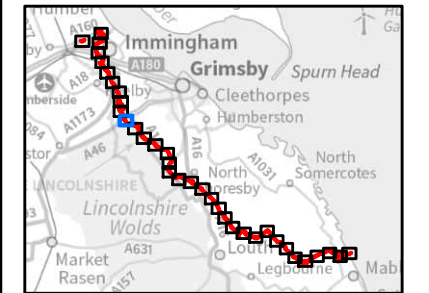
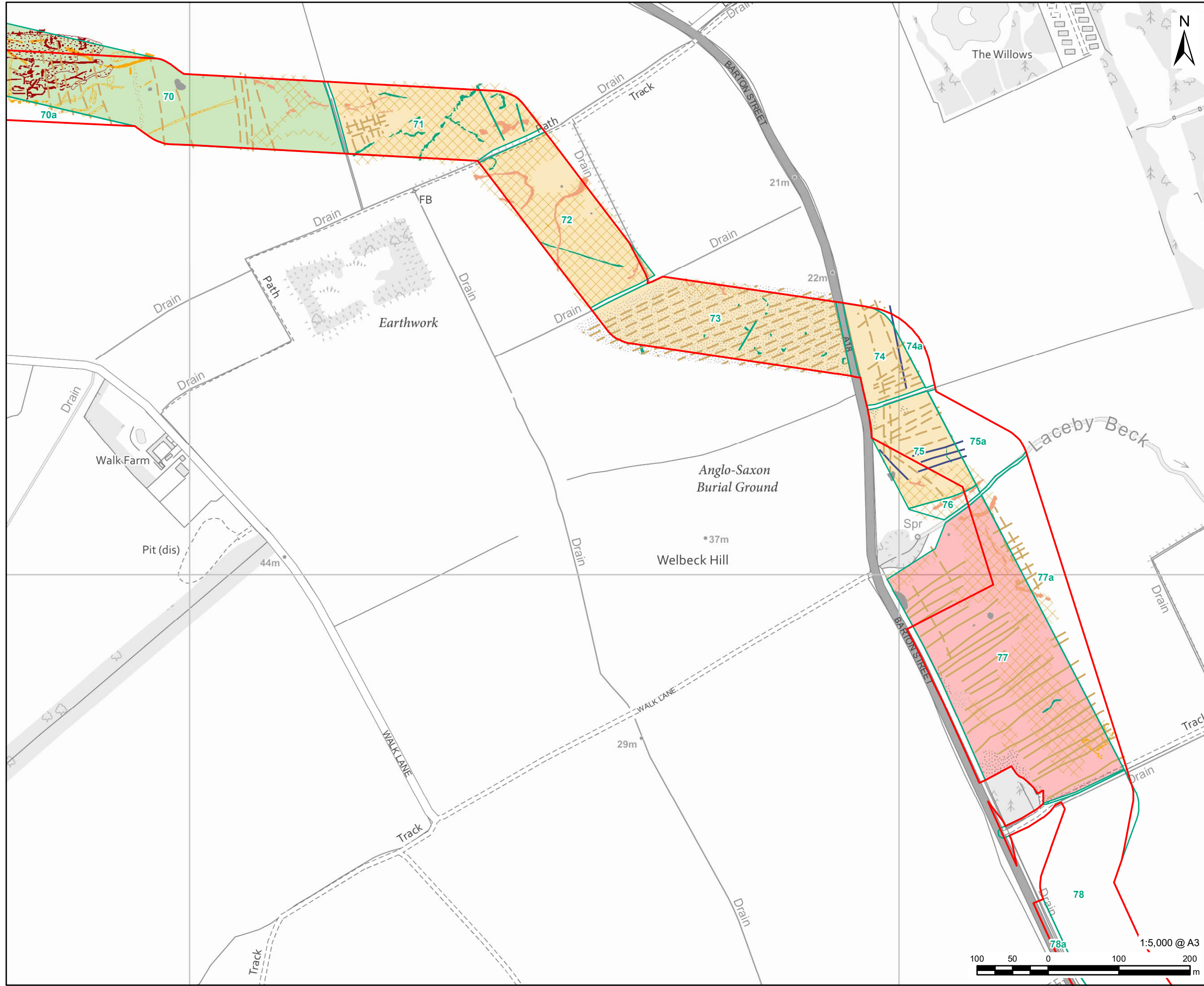


FIGURE TITLE
Figure 2 (11 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating



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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 70 Field Numbers

Geophysical Survey Interpretation (AOC)

- Linear Trend (Drainage)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Unclear Origin)

Anomaly (Probable Archaeology)

- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)

Anomaly (Magnetic Disturbance)

- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)

Spread (Agricultural)

- Spread (Agricultural)

Anomaly (Geology/Natural)

- Anomaly (Geology/Natural)
- Spread (Geology/Natural)

Spread (Ferrous/Iron Spike)

- Spread (Ferrous/Iron Spike)

Anomaly (Unclear Origin)

- Anomaly (Unclear Origin)

Interpretation Confidence Rating (AOC)

- Highly Confident
- Unreliable
- Uncertain

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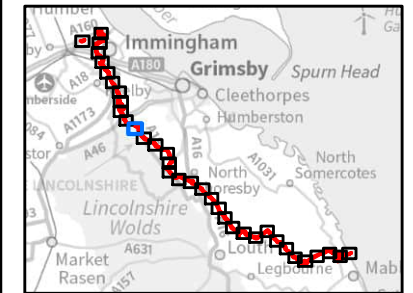


FIGURE TITLE

Figure 2 (12 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating



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VikingCCS

AECOM

PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Historic Feature)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Linear Trend (Unclear Origin)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Interpretation Confidence Rating (AOC)**
- Unreliable

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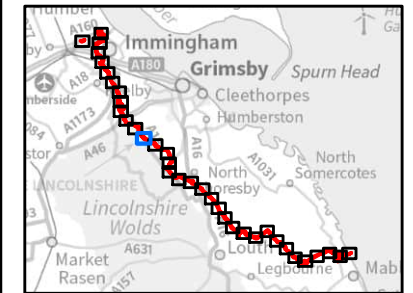


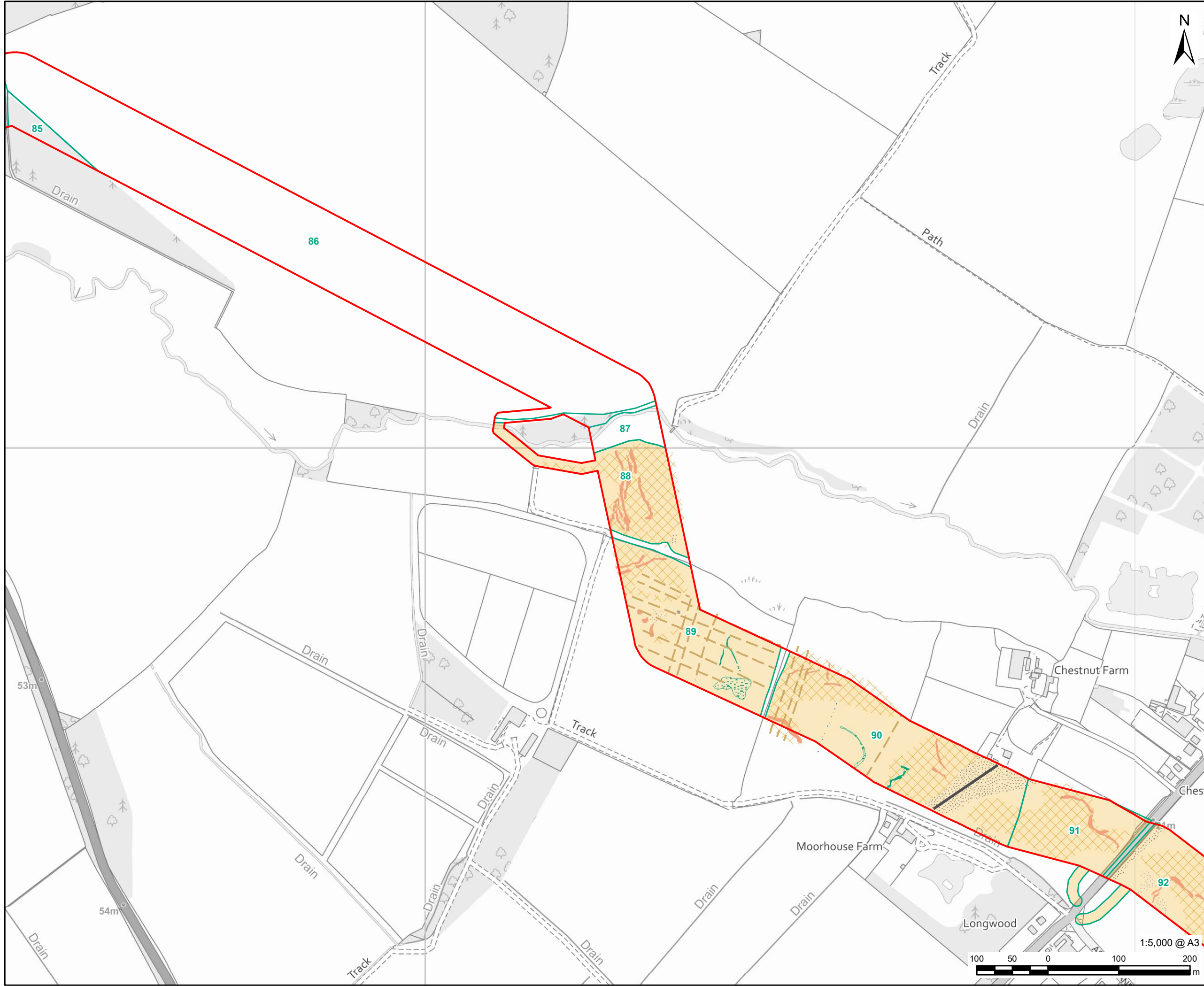
FIGURE TITLE
Figure 2 (13 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE
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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Geophysical Survey Interpretation (AOC)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Service)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Anomaly (Geology/Natural)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)
 - Spread (Historic Feature)
 - Interpretation Confidence Rating (AOC)
 - Unreliable

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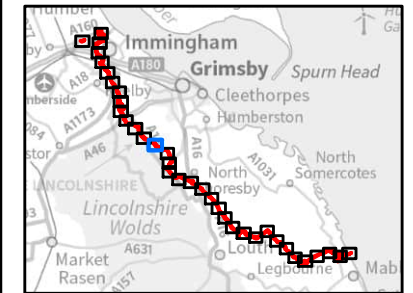
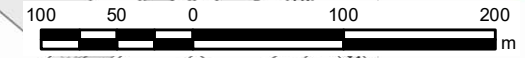
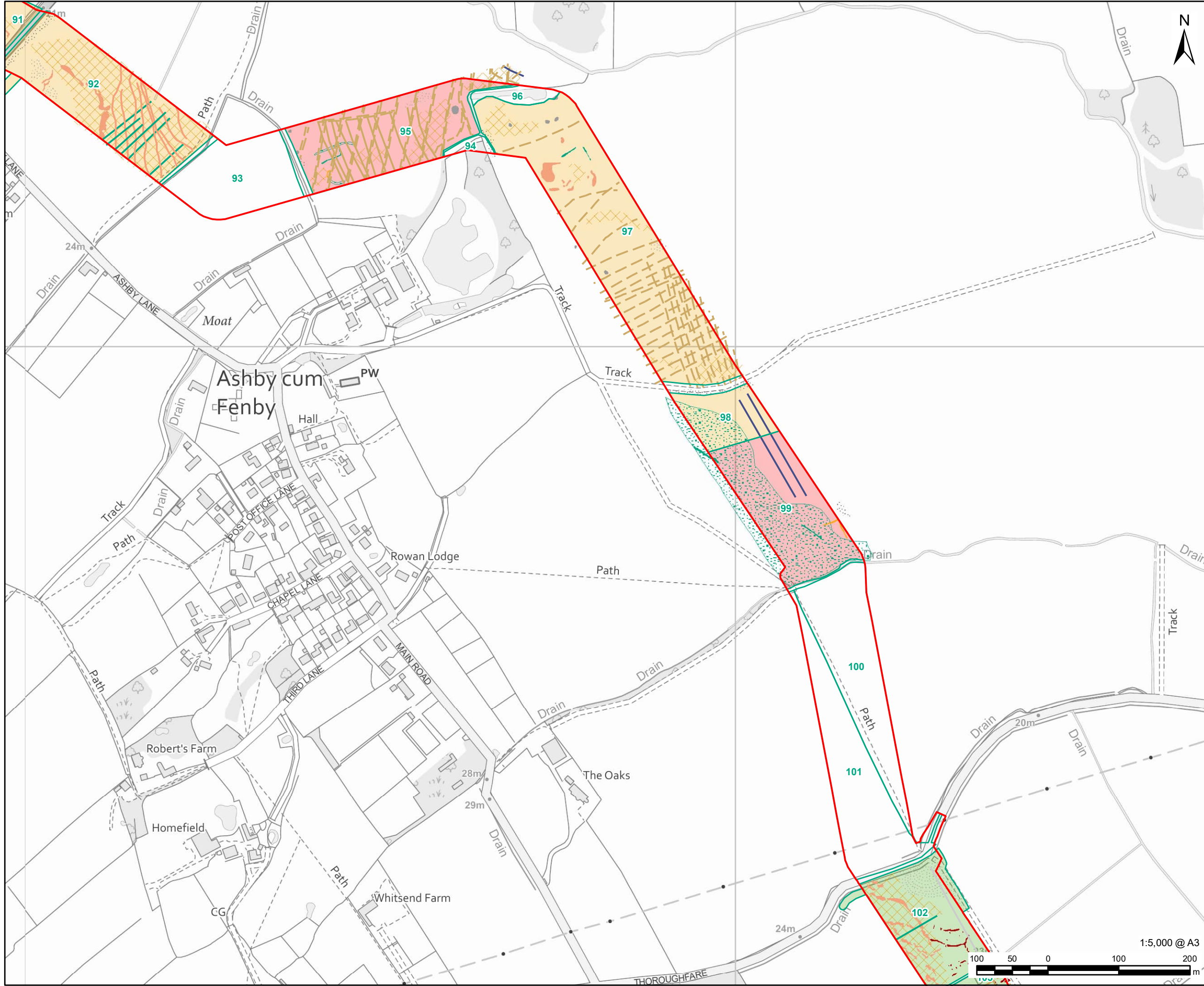


FIGURE TITLE
Figure 2 (14 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_2





LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Geology/Natural)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Ferrous/Iron Spike)
- Linear Trend (Unclear Origin)
- Anomaly (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Interpretation Confidence Rating (AOC)**
- Highly Confident
- Unreliable
- Uncertain

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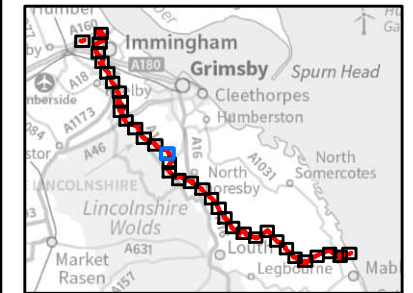
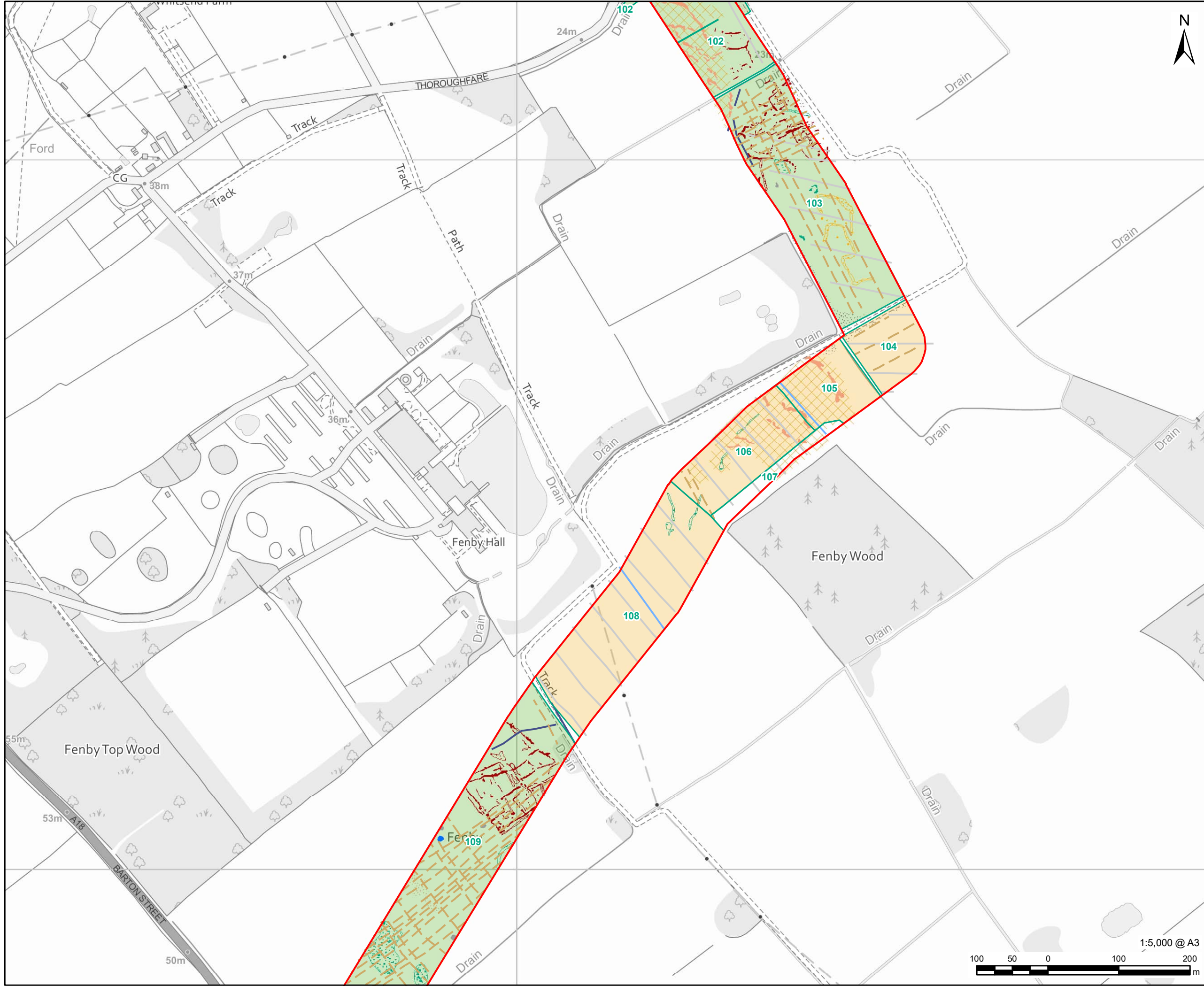


FIGURE TITLE

Figure 2 (15 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 102 Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Historic Feature)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Ferrous/Iron Spike)
- Linear Trend (Unclear Origin)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Agricultural)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Anomaly (Historic Feature)
- Interpretation Confidence Rating (AOC)**
- Highly Confident
- Unreliable

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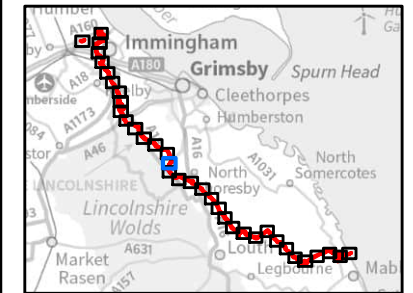


FIGURE TITLE
Figure 2 (16 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Geophysical Survey Interpretation (AOC)
 - Linear Trend (Drainage)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Agricultural, Ridge and Furrow)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Agricultural)
- Anomaly (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Anomaly (Historic Feature)

Interpretation Confidence Rating (AOC)

- Highly Confident
- Unreliable
- Uncertain

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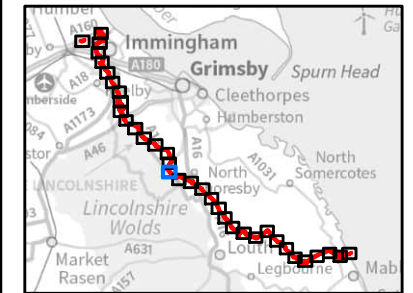
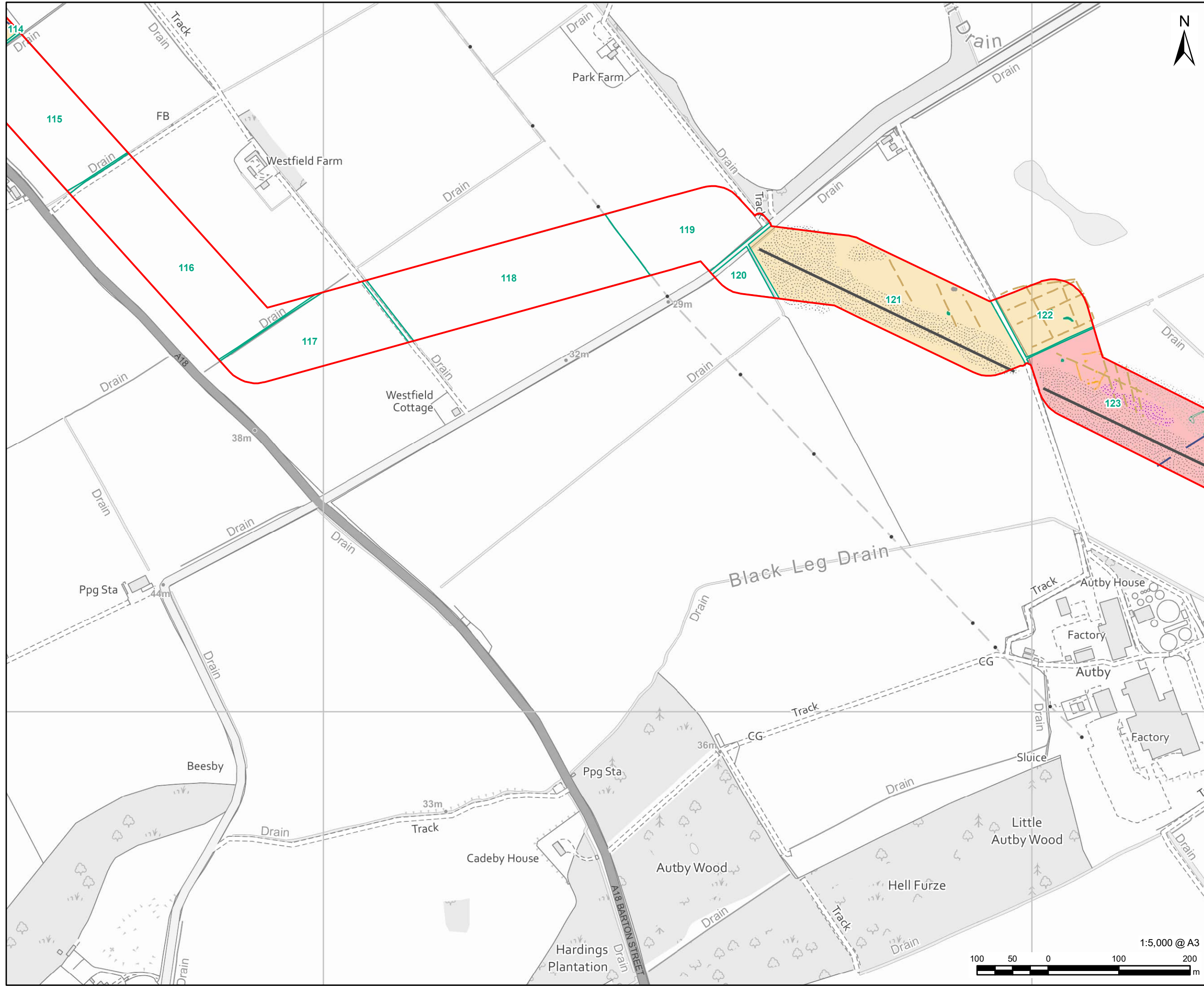


FIGURE TITLE

Figure 2 (17 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 114 Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Service)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Spread (Custom Use)
- Interpretation Confidence Rating (AOC)**
- Unreliable
- Uncertain

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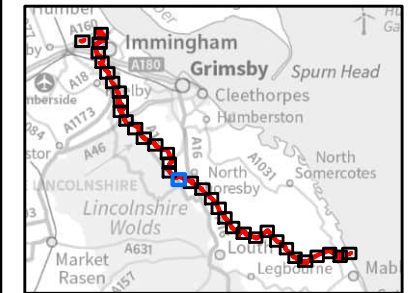
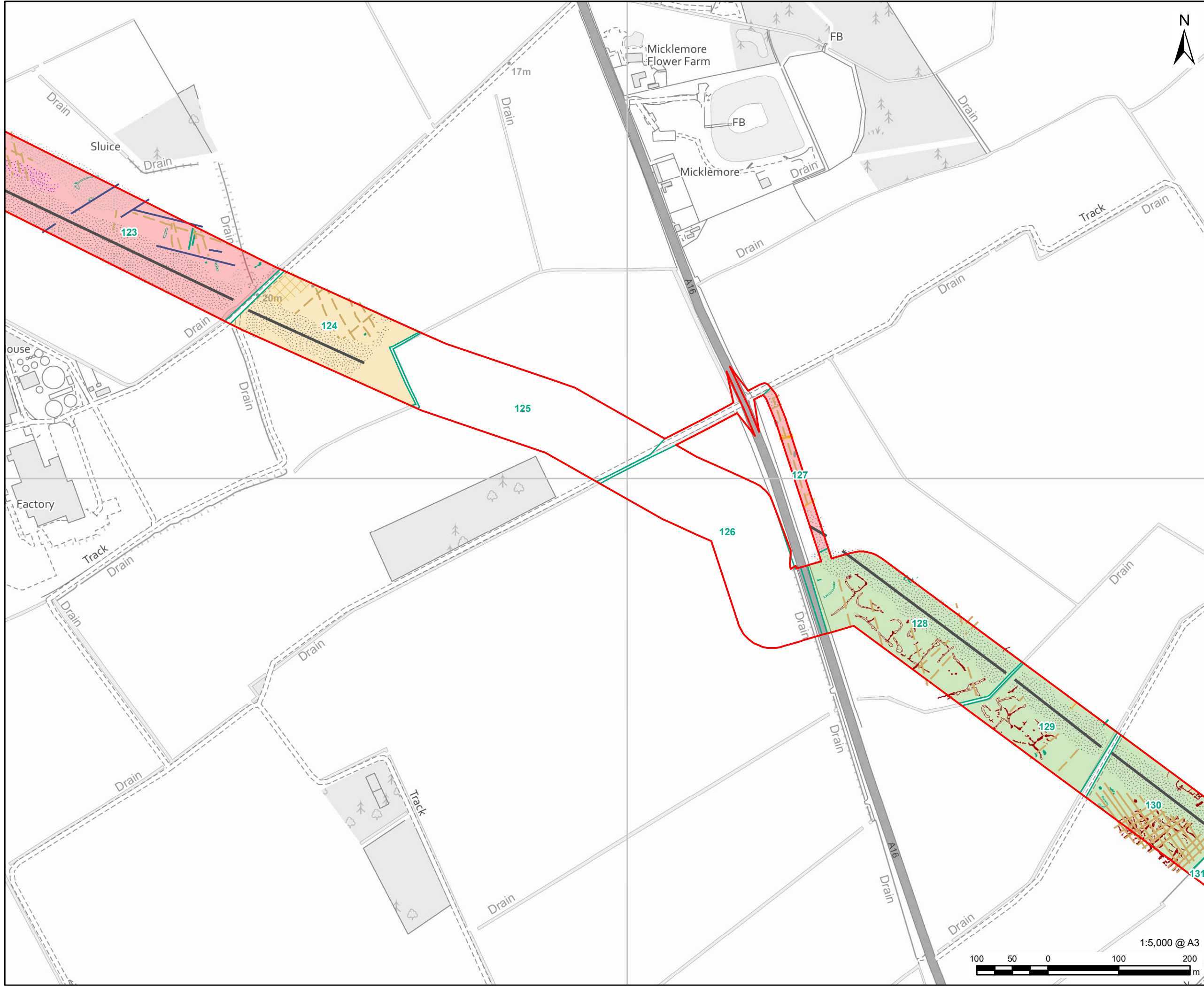


FIGURE TITLE
Figure 2 (18 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating



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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 123 Field Numbers
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Service)
 - Linear Trend (Unclear Origin)
- Anomaly (Probable Archaeology)**
- Anomaly (Probable Archaeology)
 - Spread (Probable Archaeology)
 - Anomaly (Possible Archaeology)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)
 - Spread (Burned Area)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)
 - Spread (Custom Use)
- Interpretation Confidence Rating (AOC)**
- Highly Confident
 - Unreliable
 - Uncertain

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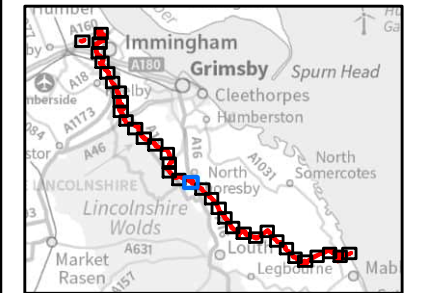
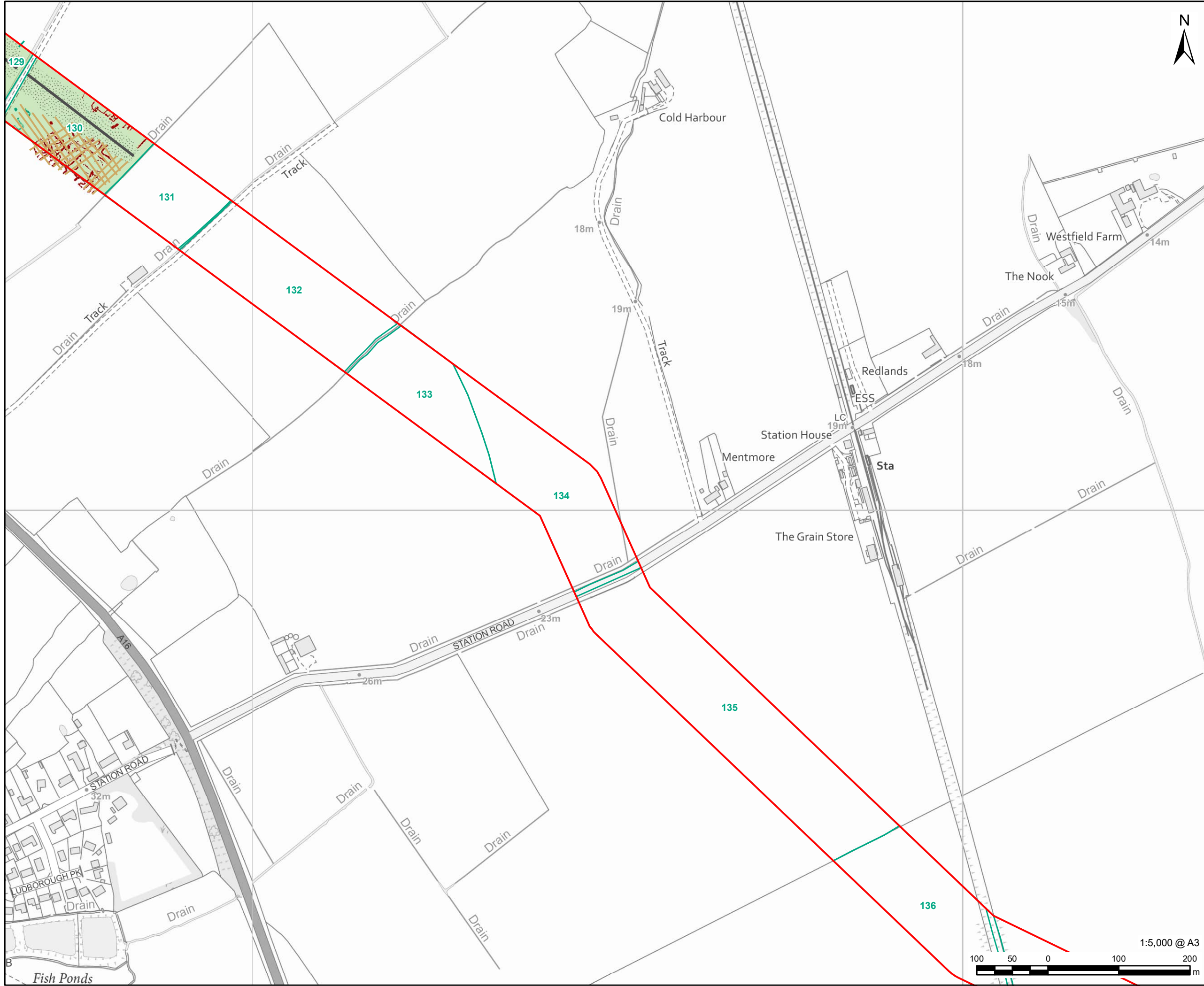


FIGURE TITLE
Figure 2 (19 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Geophysical Survey Interpretation (AOC)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Service)
 - Linear Trend (Unclear Origin)
 - Anomaly (Probable Archaeology)
 - Spread (Probable Archaeology)
 - Spread (Magnetic Disturbance)
 - Spread (Burned Area)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)
 - Interpretation Confidence Rating (AOC)
 - Highly Confident

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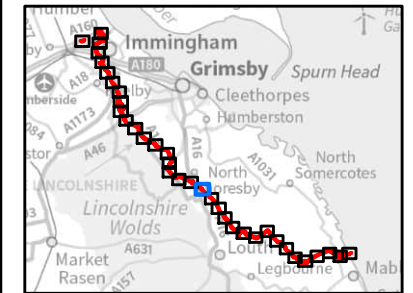
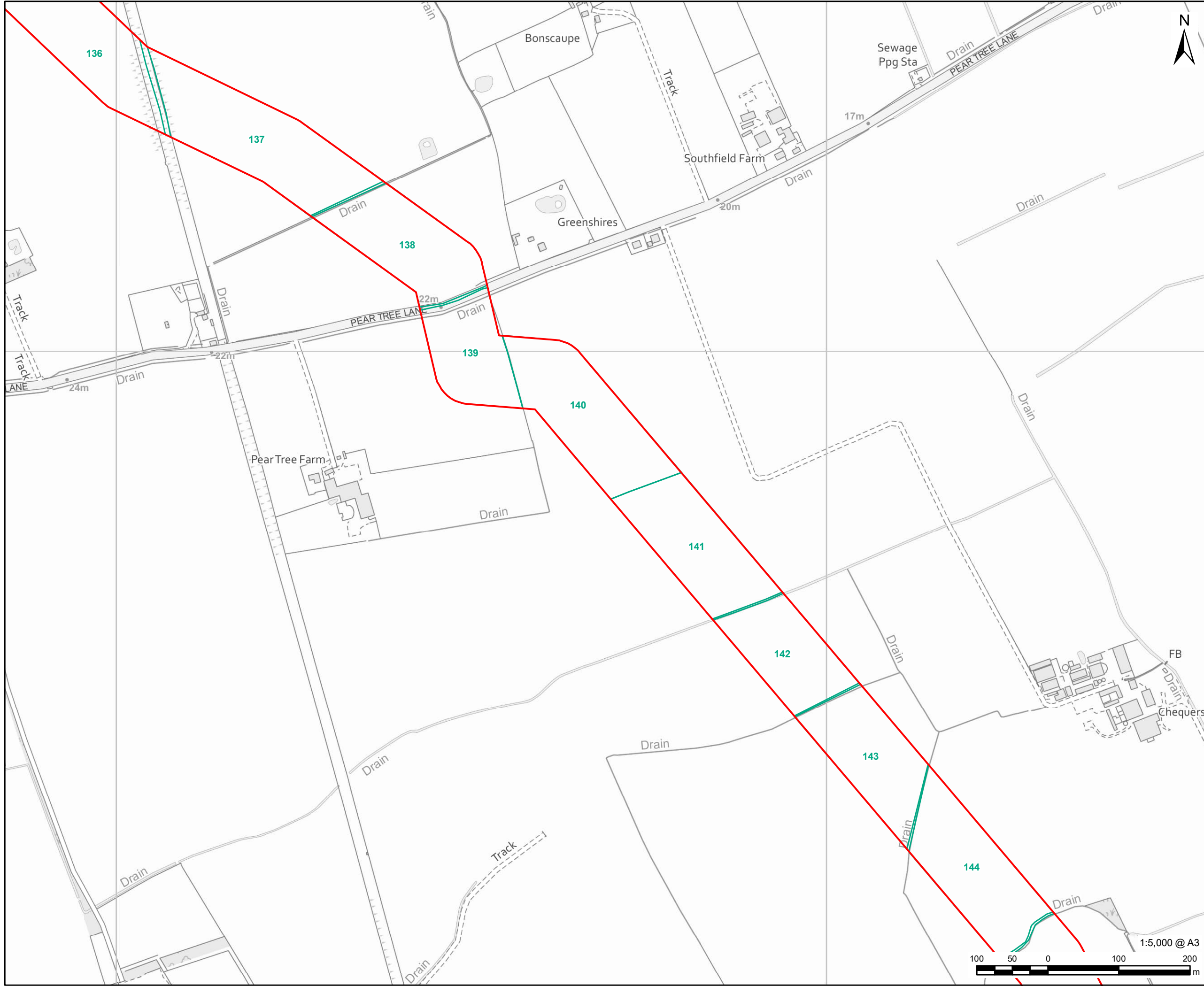


FIGURE TITLE
Figure 2 (20 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
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VikingCCS

AECOM

PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

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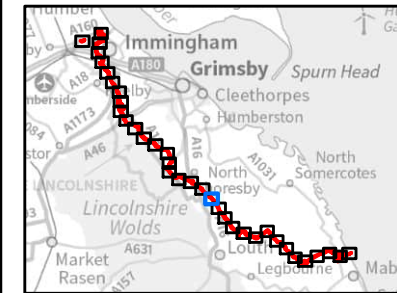


FIGURE TITLE

Figure 2 (21 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

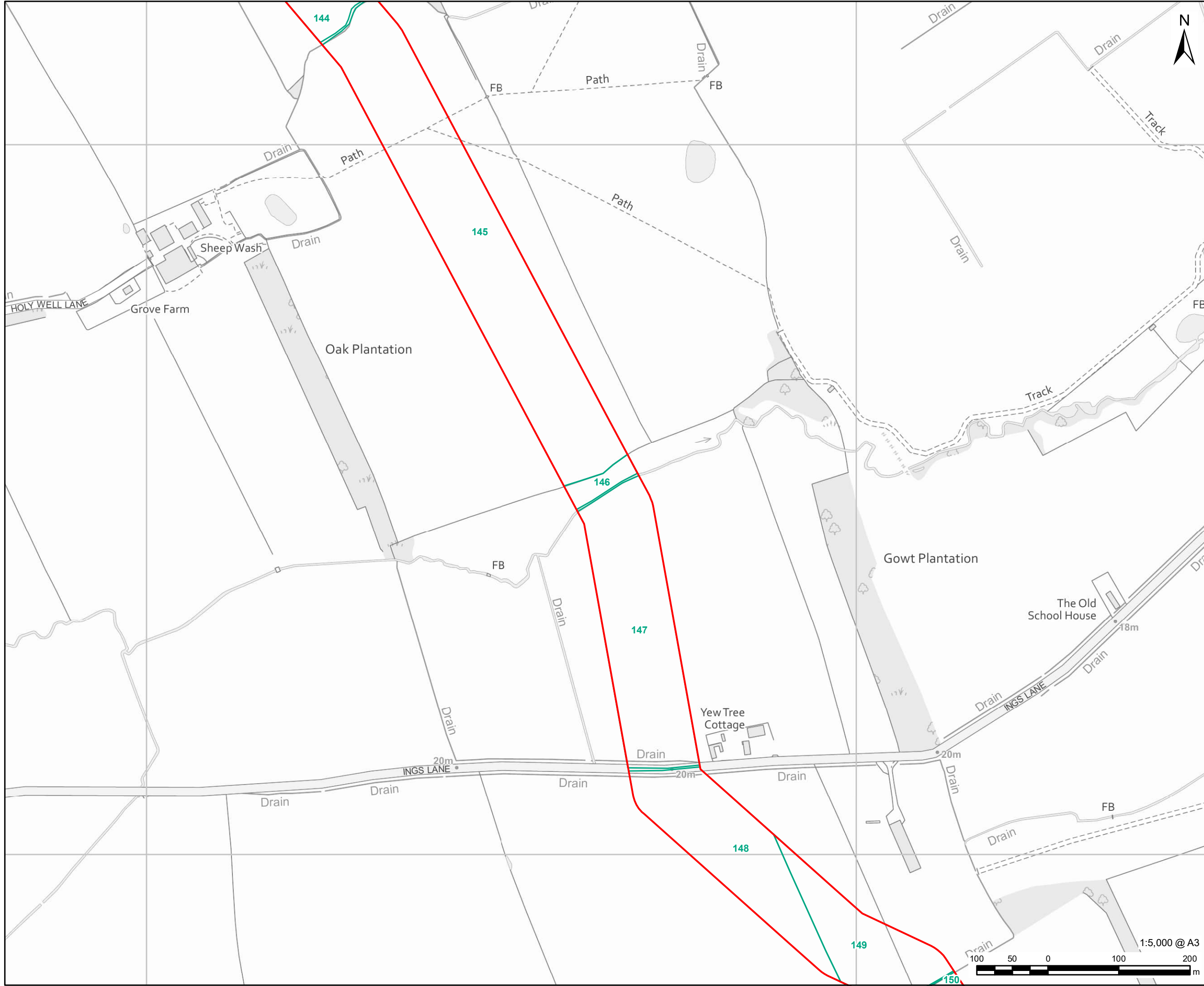
ISSUE PURPOSE

WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE

60668955 / VCSS_230927_WSI_TT_2





VikingCCS

AECOM

PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

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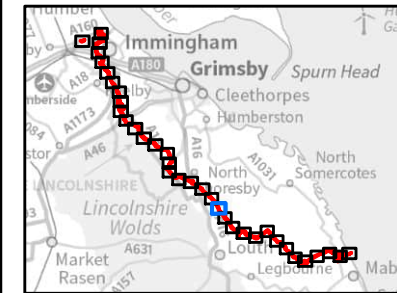
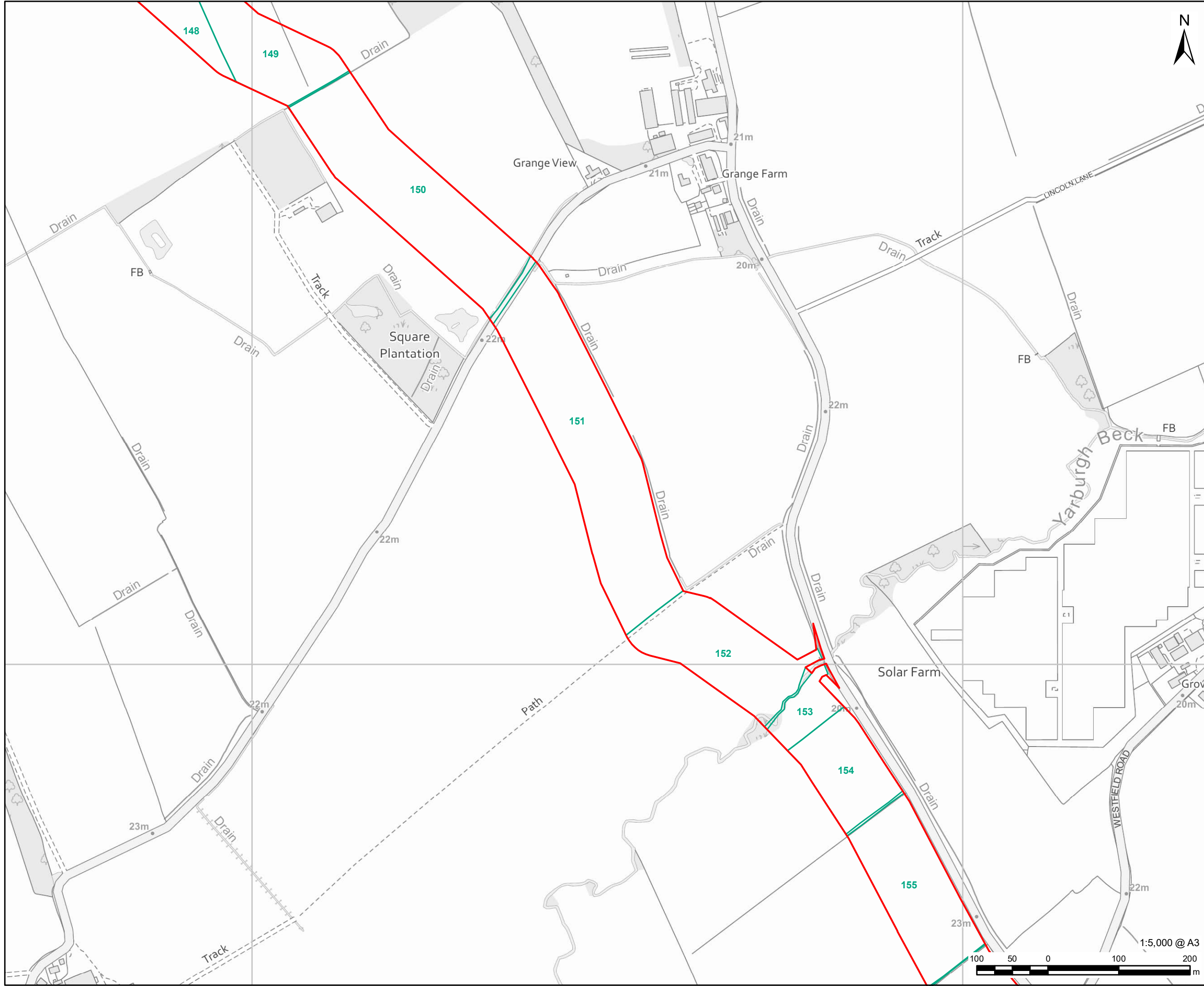


FIGURE TITLE
Figure 2 (22 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_2



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 PROJECT
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 DCO Site Boundary
 Geophysical Survey Area - AOC
 Field Numbers

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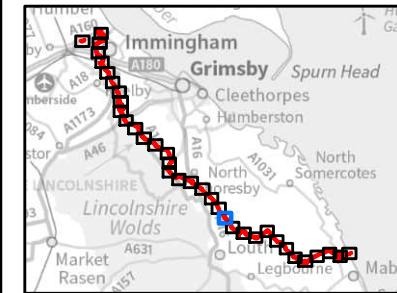
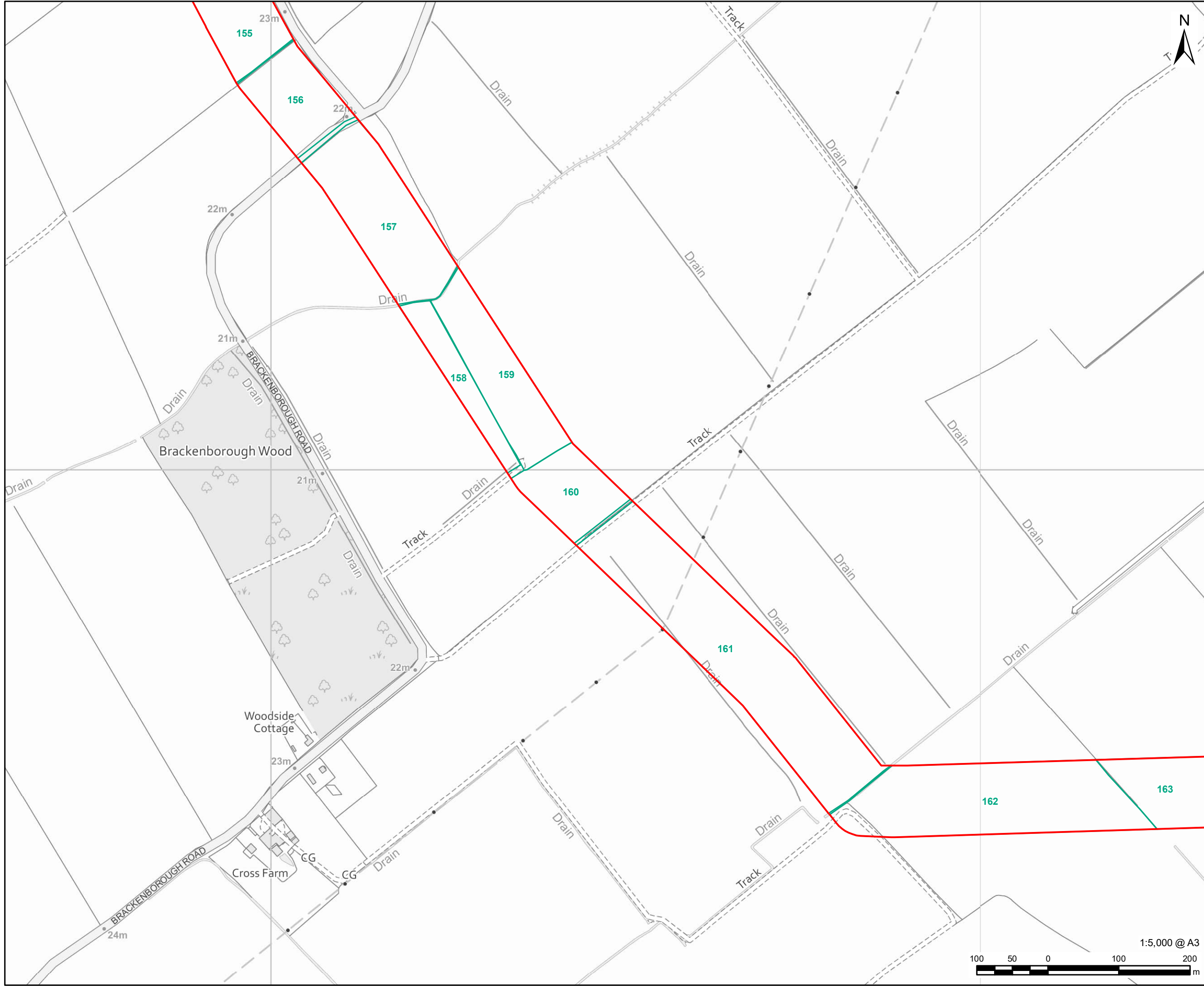


FIGURE TITLE
Figure 2 (23 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
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PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

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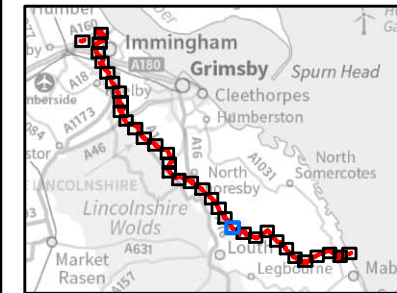


FIGURE TITLE

Figure 2 (24 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE

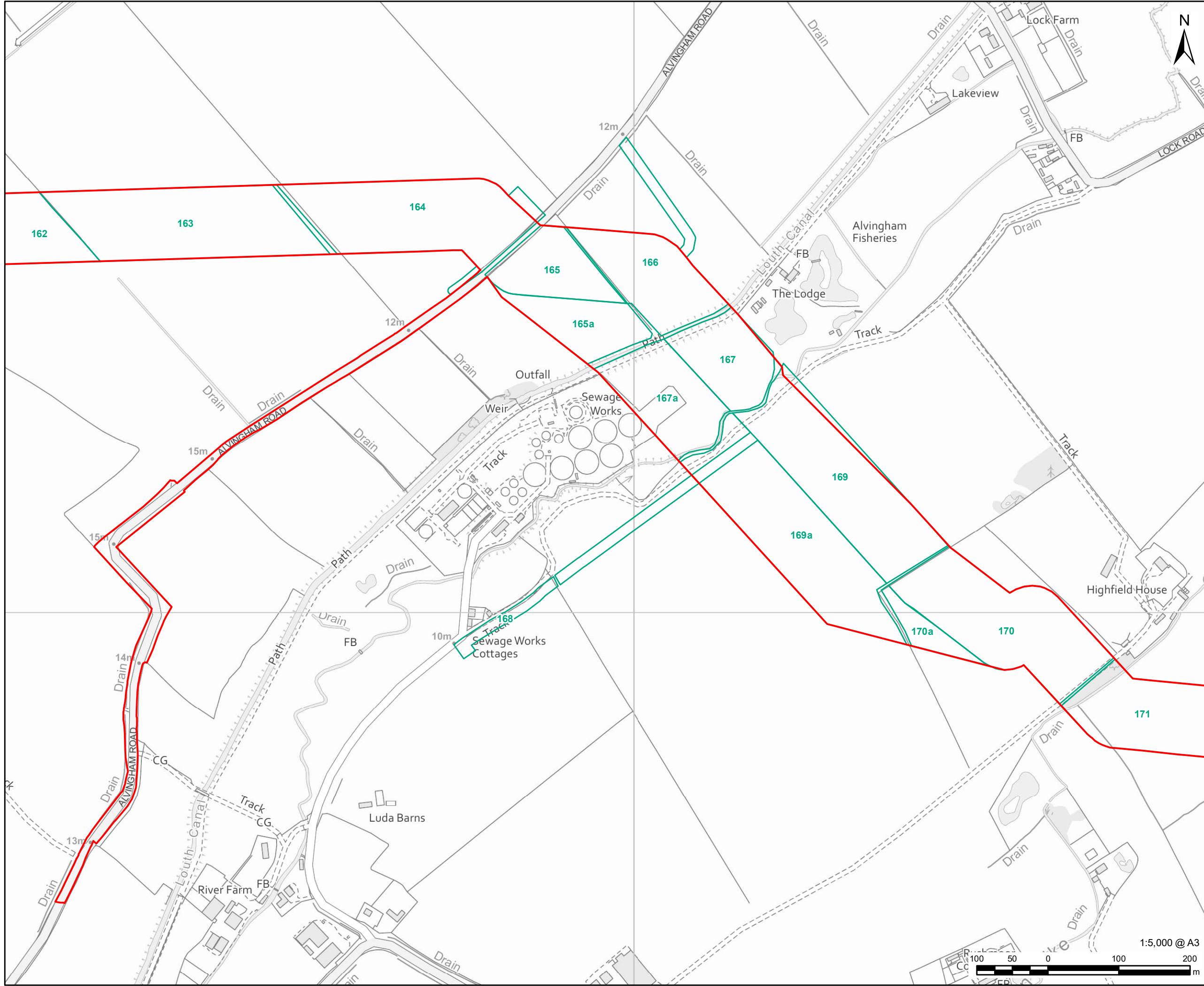
WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE

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PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

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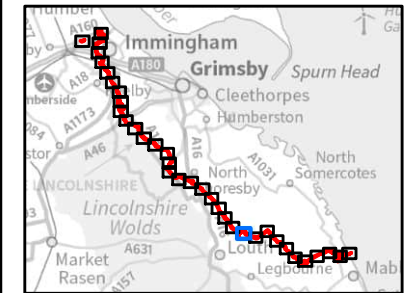


FIGURE TITLE

Figure 2 (25 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE

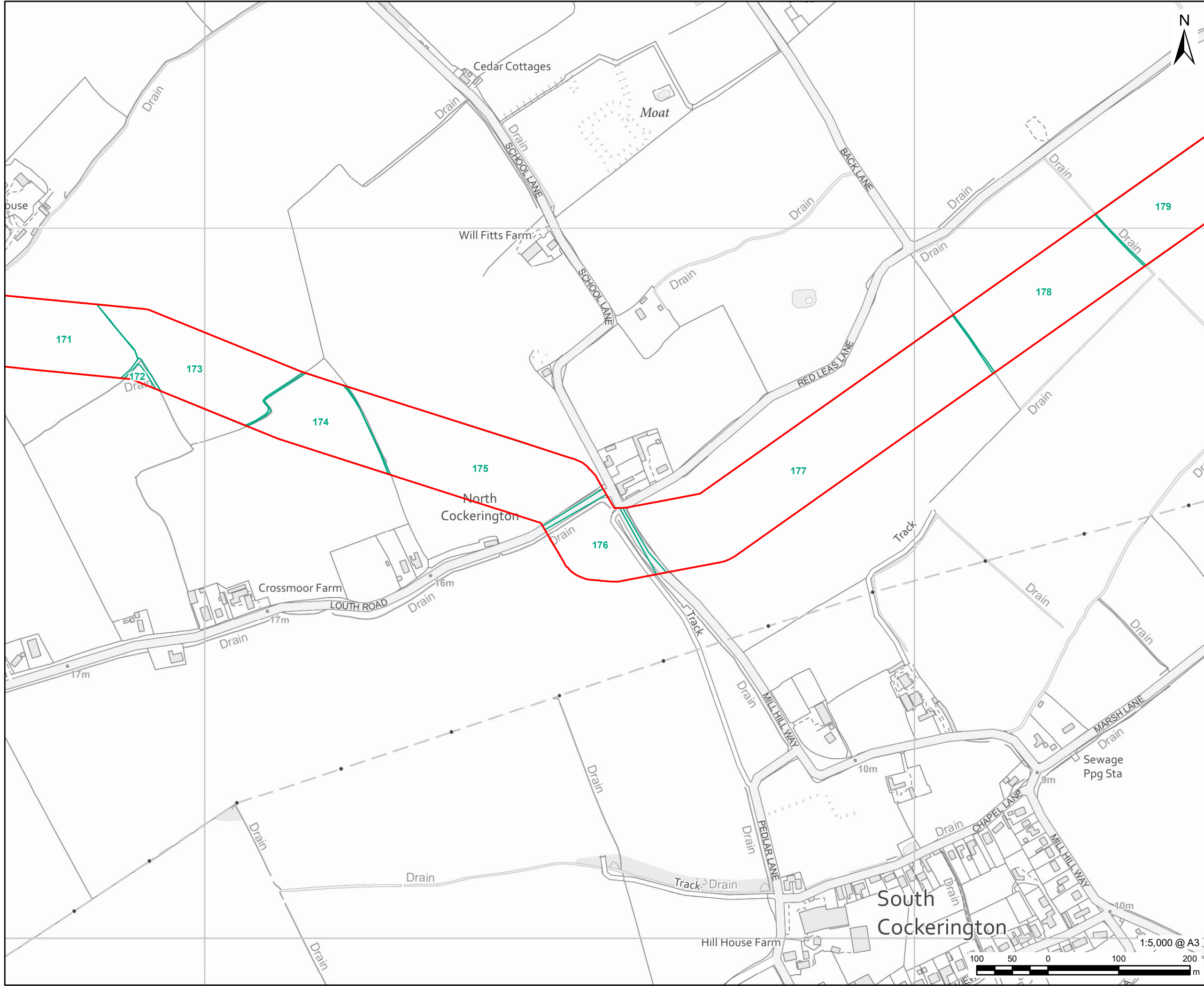
WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE

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VikingCCS

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PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

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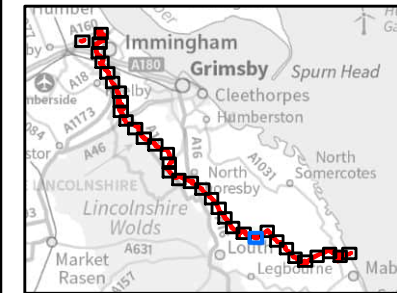
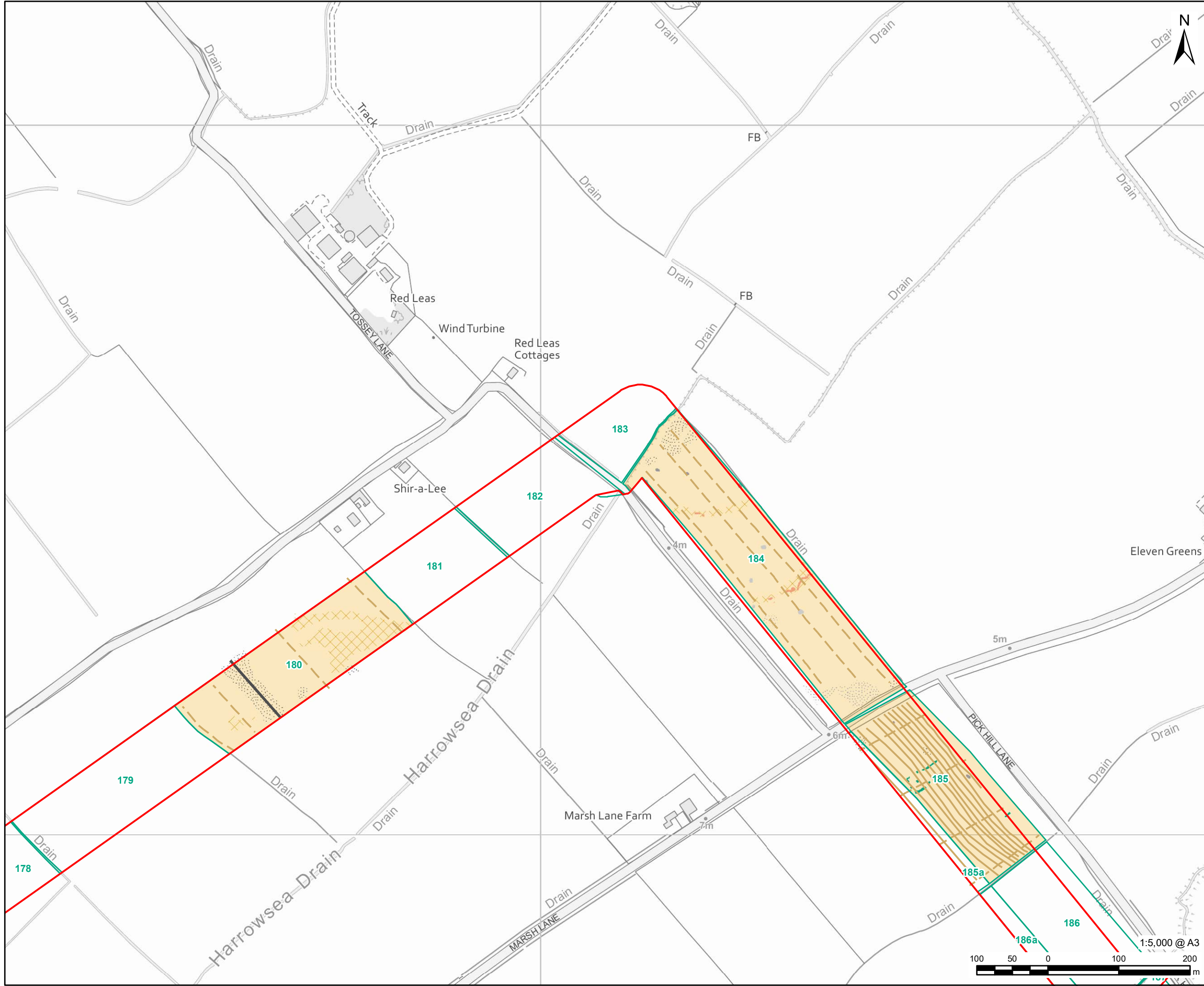


FIGURE TITLE
Figure 2 (26 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_2





LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

Geophysical Survey Interpretation (AOC)

- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Anomaly (Ferrous/Iron Spike)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)

Interpretation Confidence Rating (AOC)

- Unreliable

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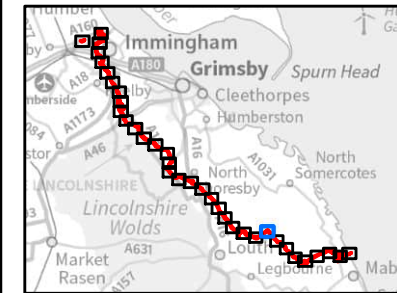
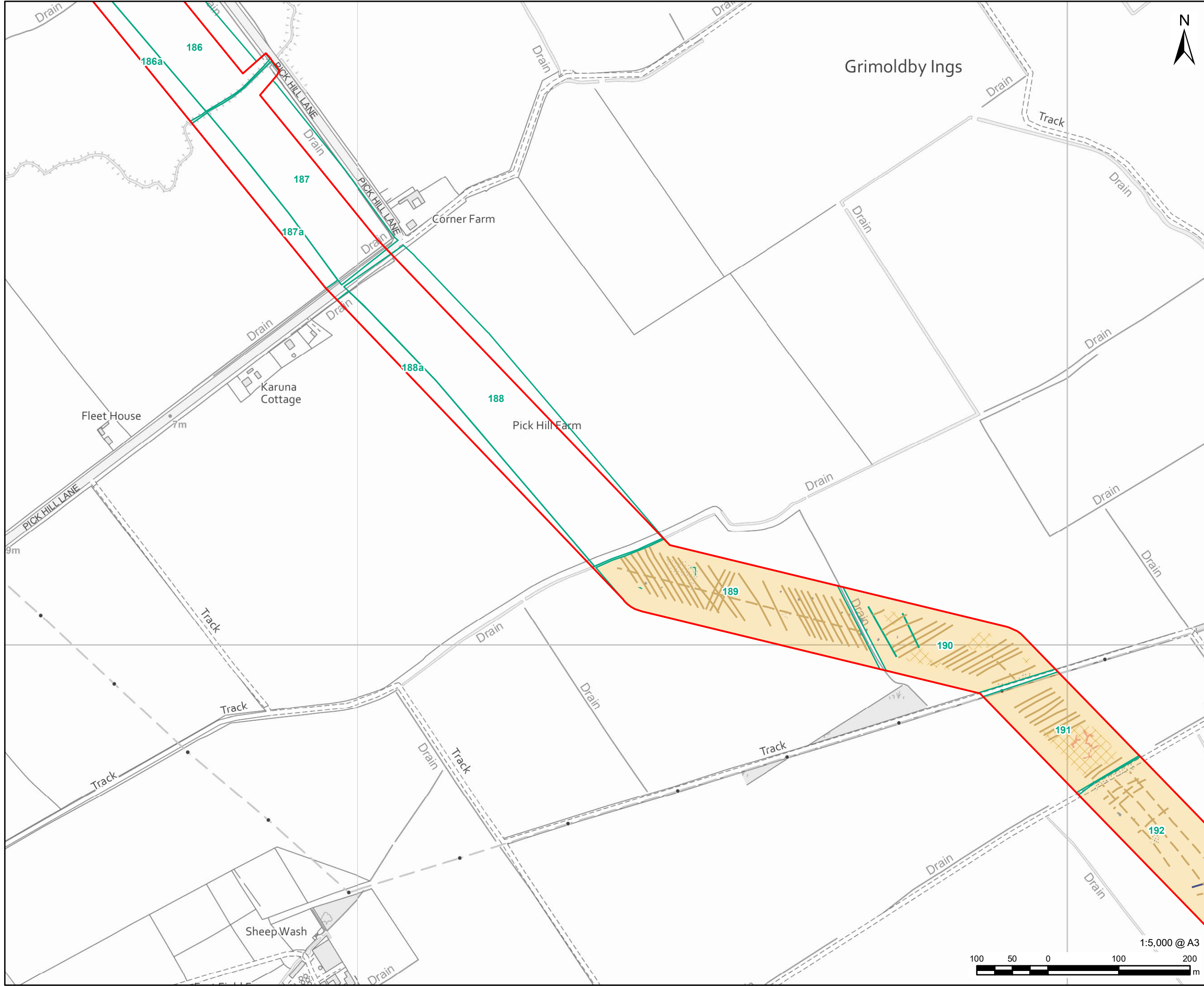


FIGURE TITLE
Figure 2 (27 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating





LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Geophysical Survey Interpretation (AOC)
- Linear Trend (Drainage)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Unclear Origin)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Interpretation Confidence Rating (AOC)
- Unreliable

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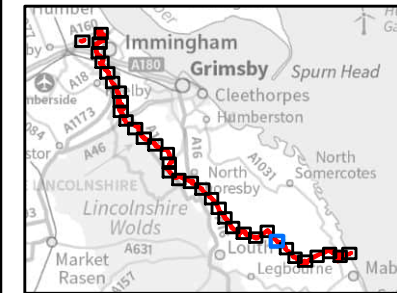
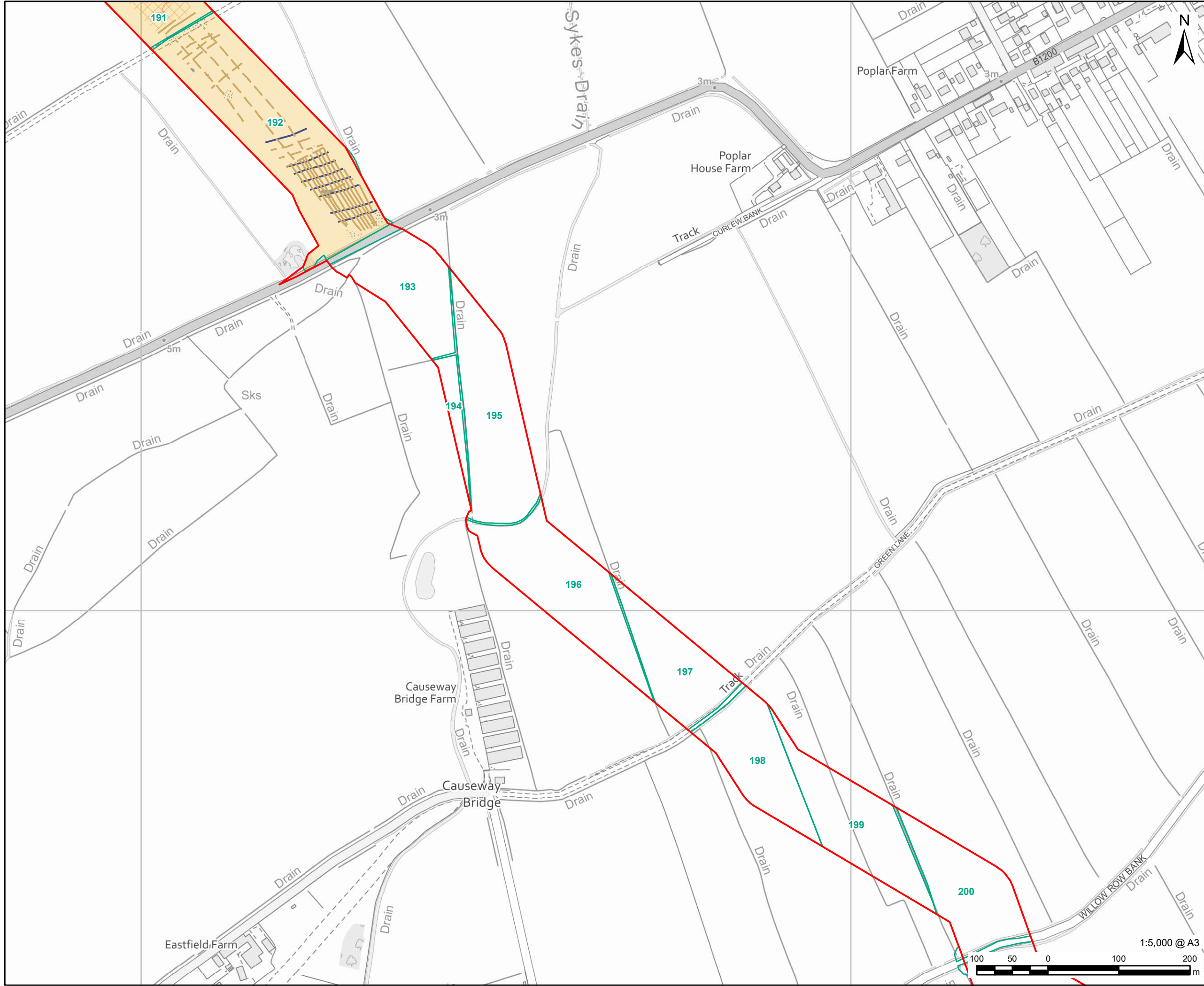


FIGURE TITLE

Figure 2 (28 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating



LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 191 Field Numbers

Geophysical Survey Interpretation (AOC)

- Linear Trend (Drainage)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)

Interpretation Confidence Rating (AOC)

- Unreliable

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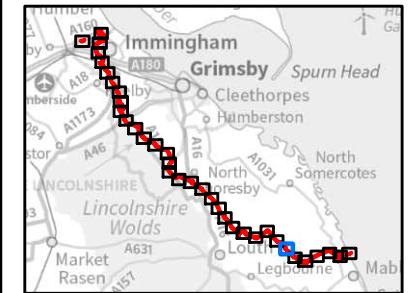
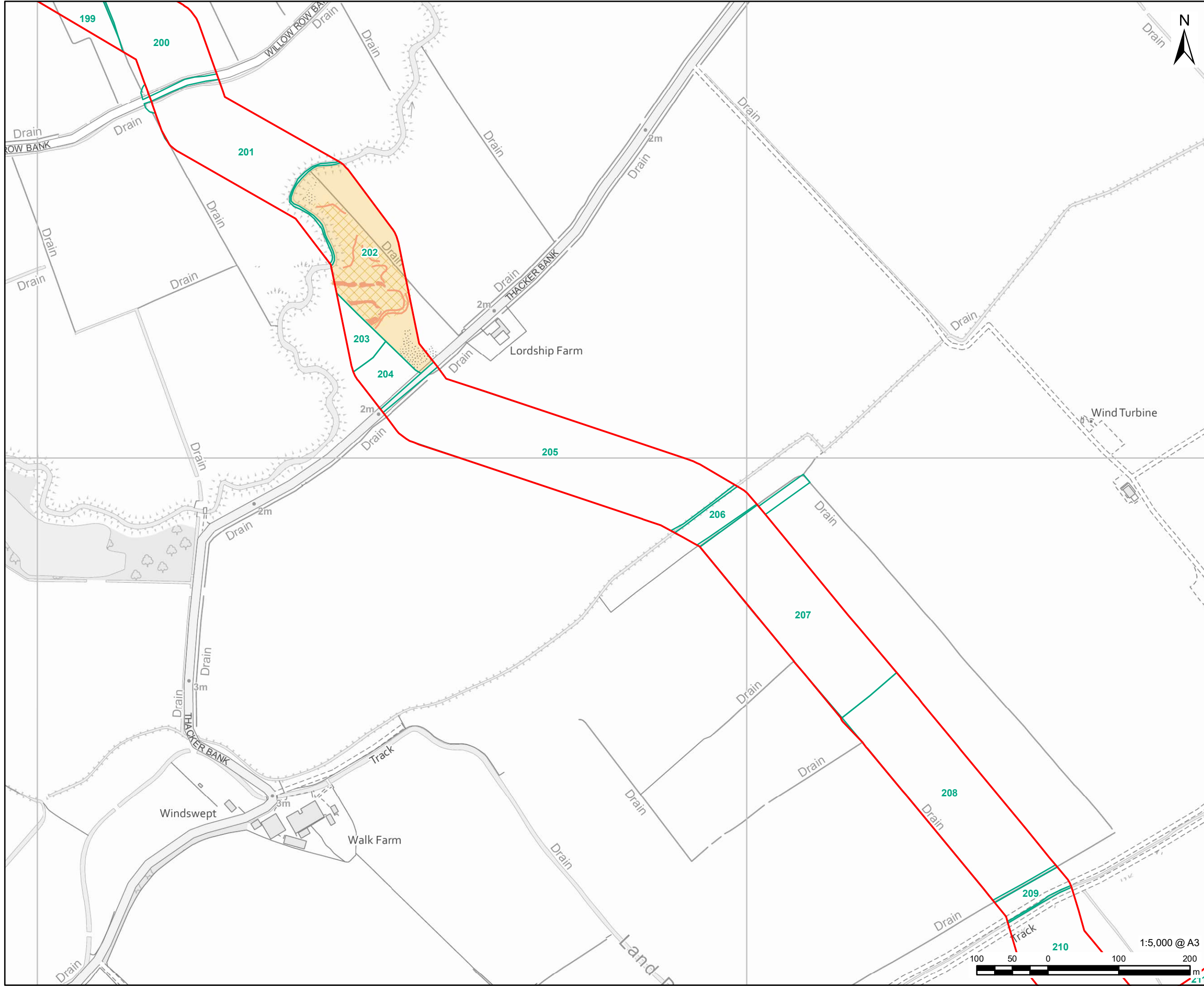


FIGURE TITLE
Figure 2 (29 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 200 Field Numbers
- Geophysical Survey Interpretation (AOC)
 - Linear Trend (Geology/Natural)
 - Spread (Magnetic Disturbance)
 - Anomaly (Geology/Natural)
 - Spread (Geology/Natural)
- Interpretation Confidence Rating (AOC)
 - Unreliable

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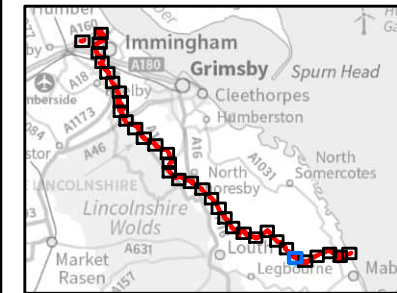
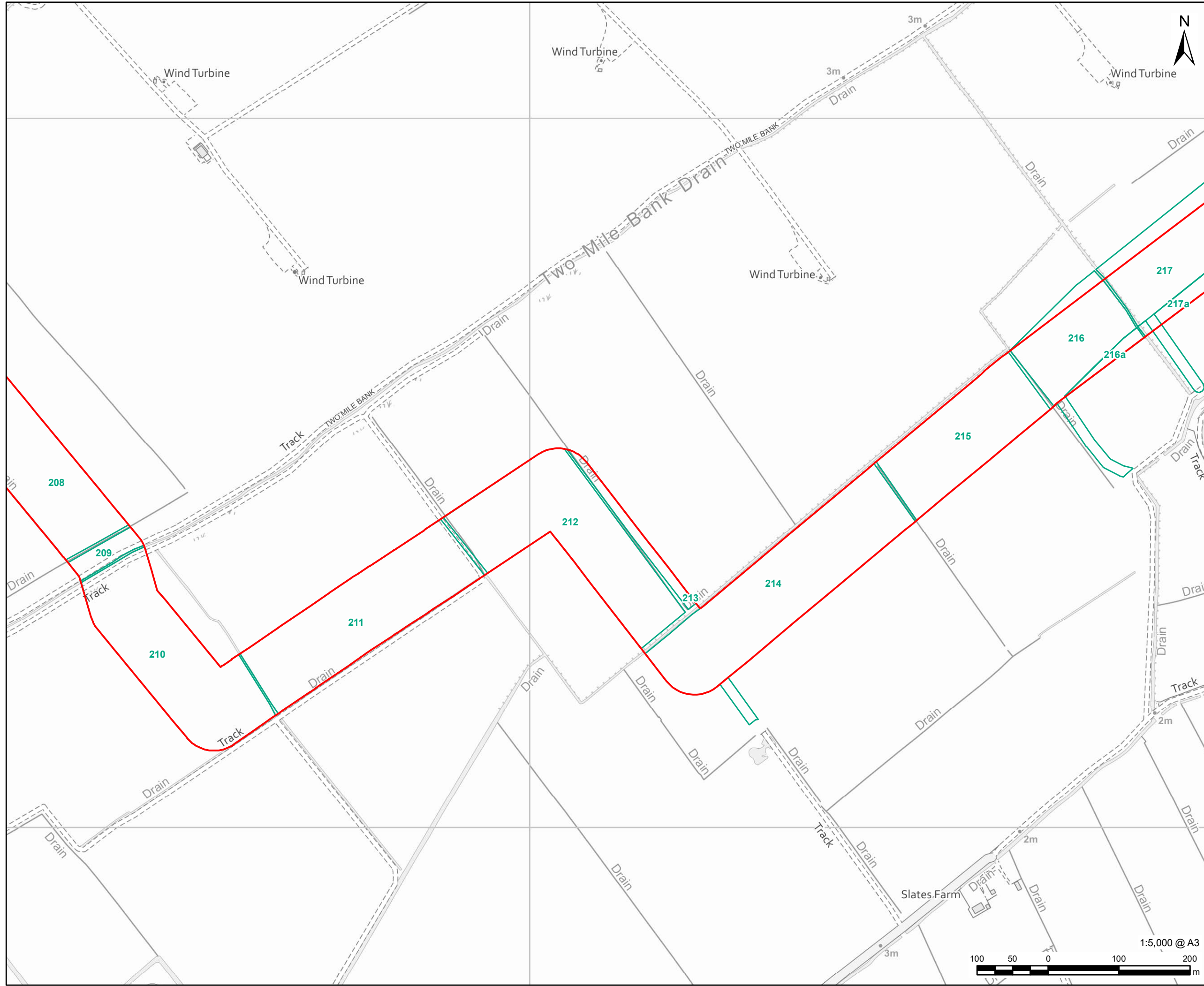


FIGURE TITLE

Figure 2 (30 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating



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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers

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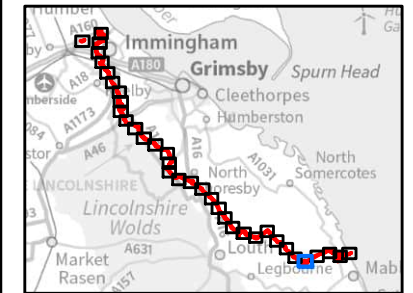
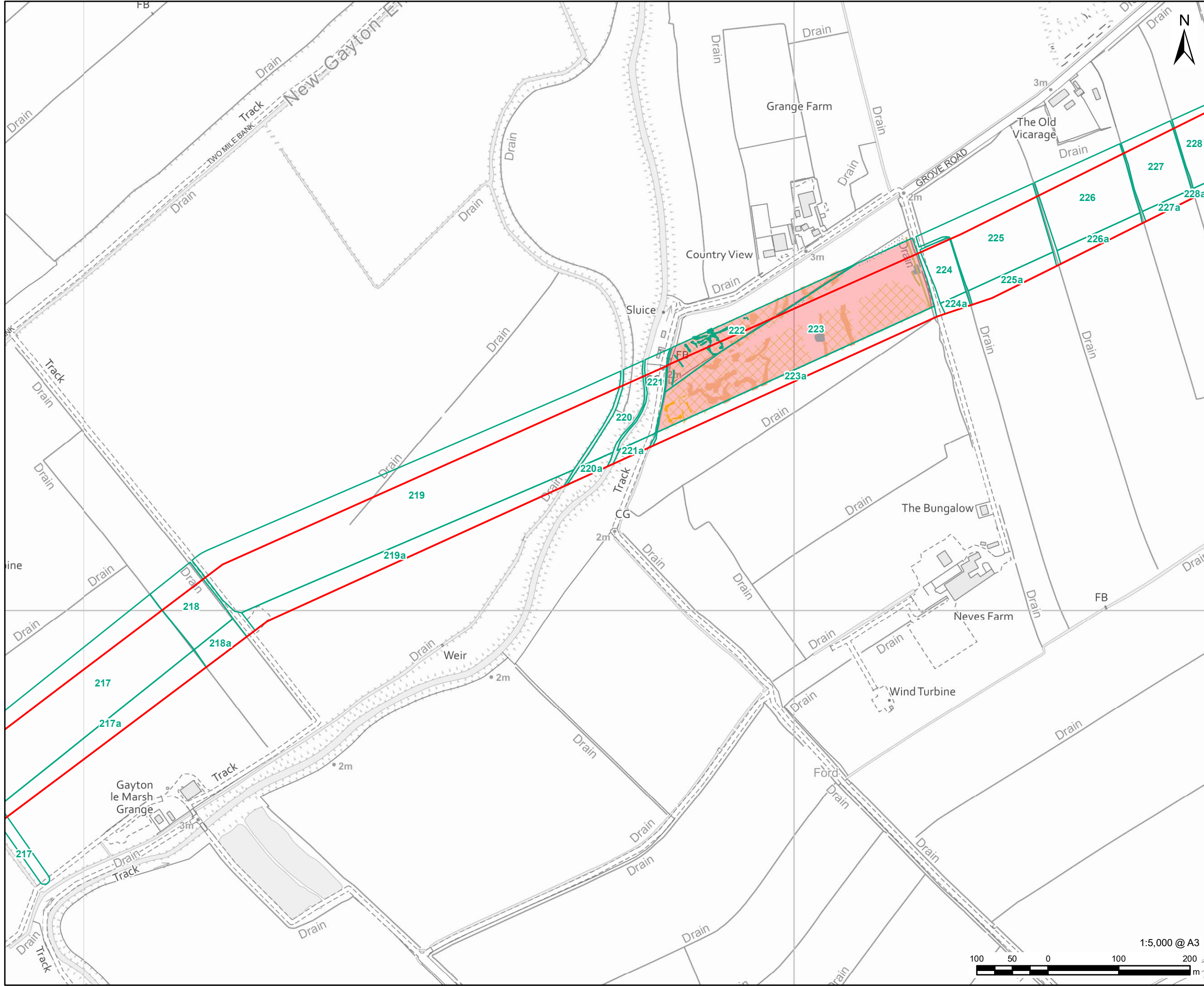


FIGURE TITLE
Figure 2 (31 of 35)
AOC Geophysical Survey
Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_2



LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 228 Field Numbers

Geophysical Survey Interpretation (AOC)

- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Unclear Origin)
- Anomaly (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Anomaly (Unclear Origin)

Interpretation Confidence Rating (AOC)

- Uncertain

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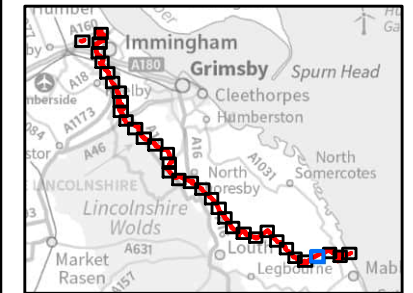
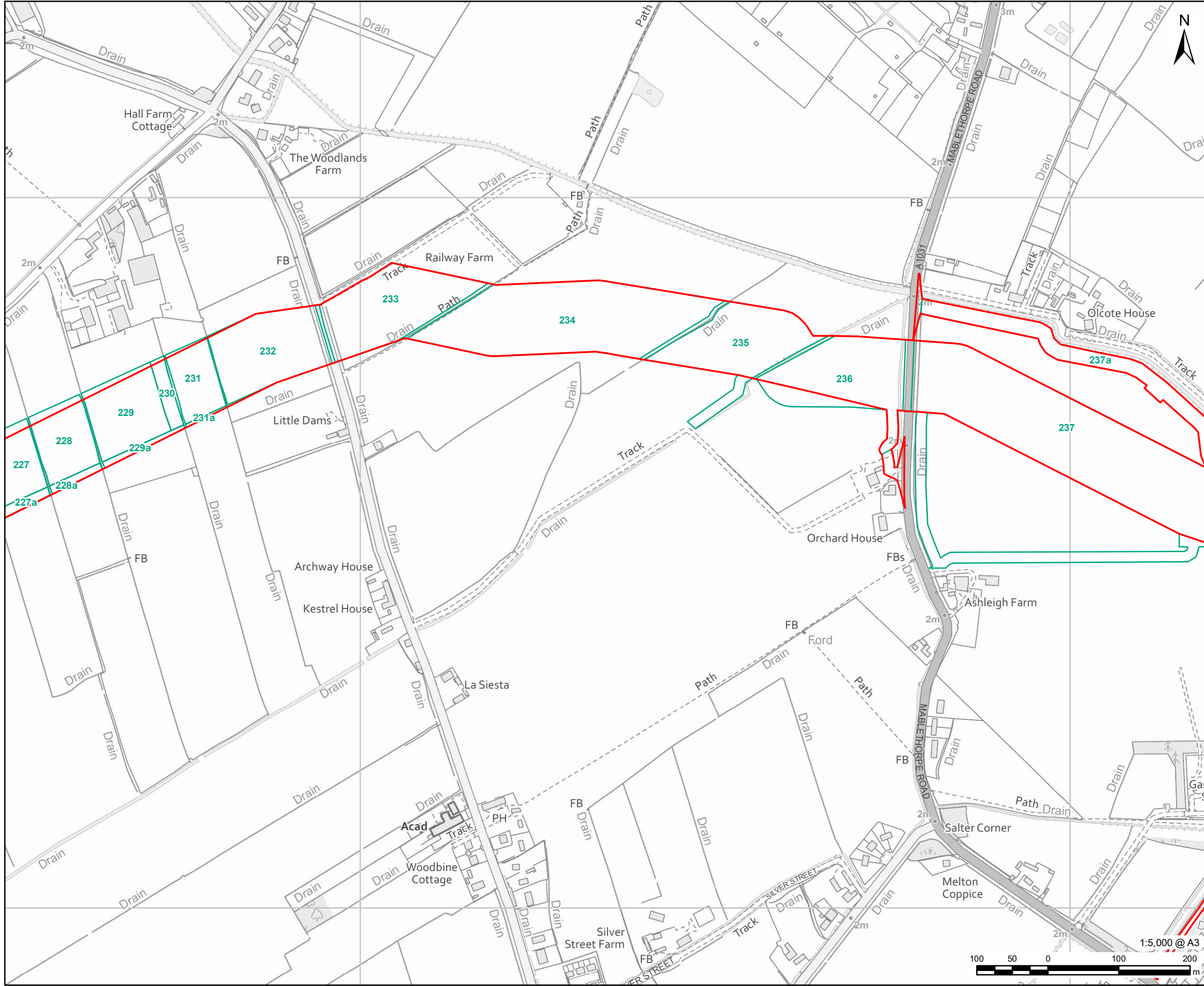


FIGURE TITLE
Figure 2 (32 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating



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VikingCCS

AECOM

PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers

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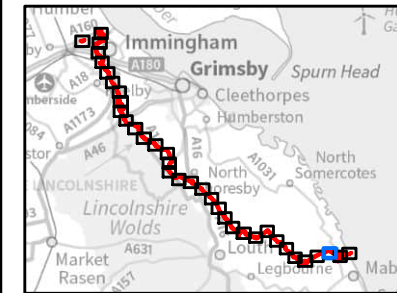


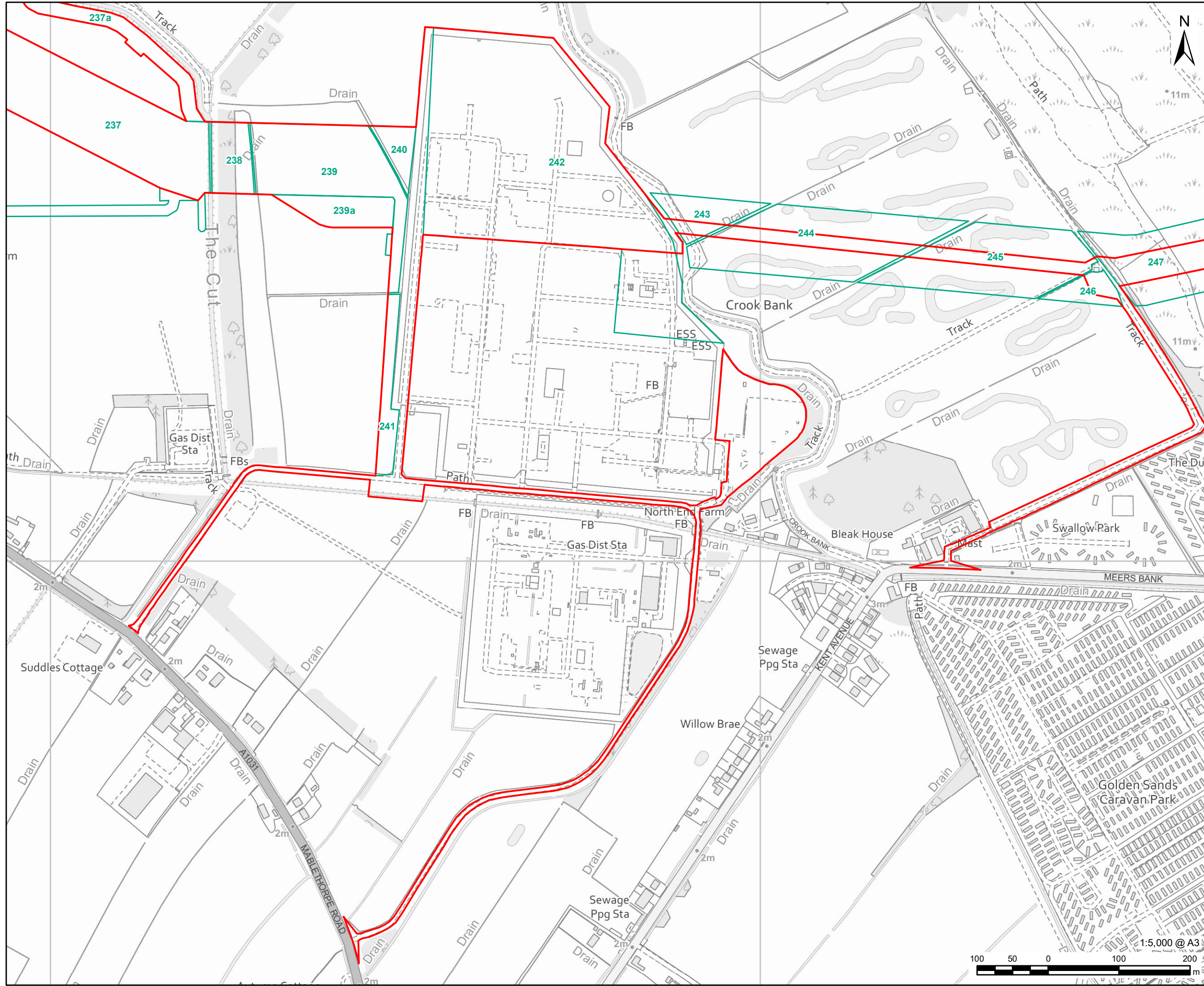
FIGURE TITLE
Figure 2 (33 of 35)
AOC Geophysical Survey
Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE
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VikingCCS
AECOM
 PROJECT
Viking CCS Pipeline
 LEGEND
 DCO Site Boundary
 Geophysical Survey Area - AOC
237 Field Numbers

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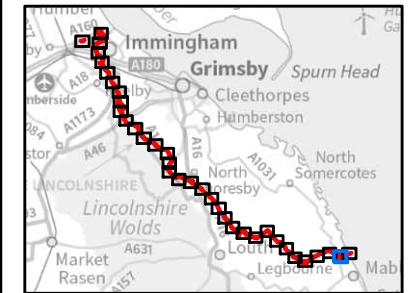
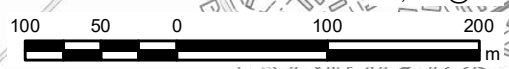
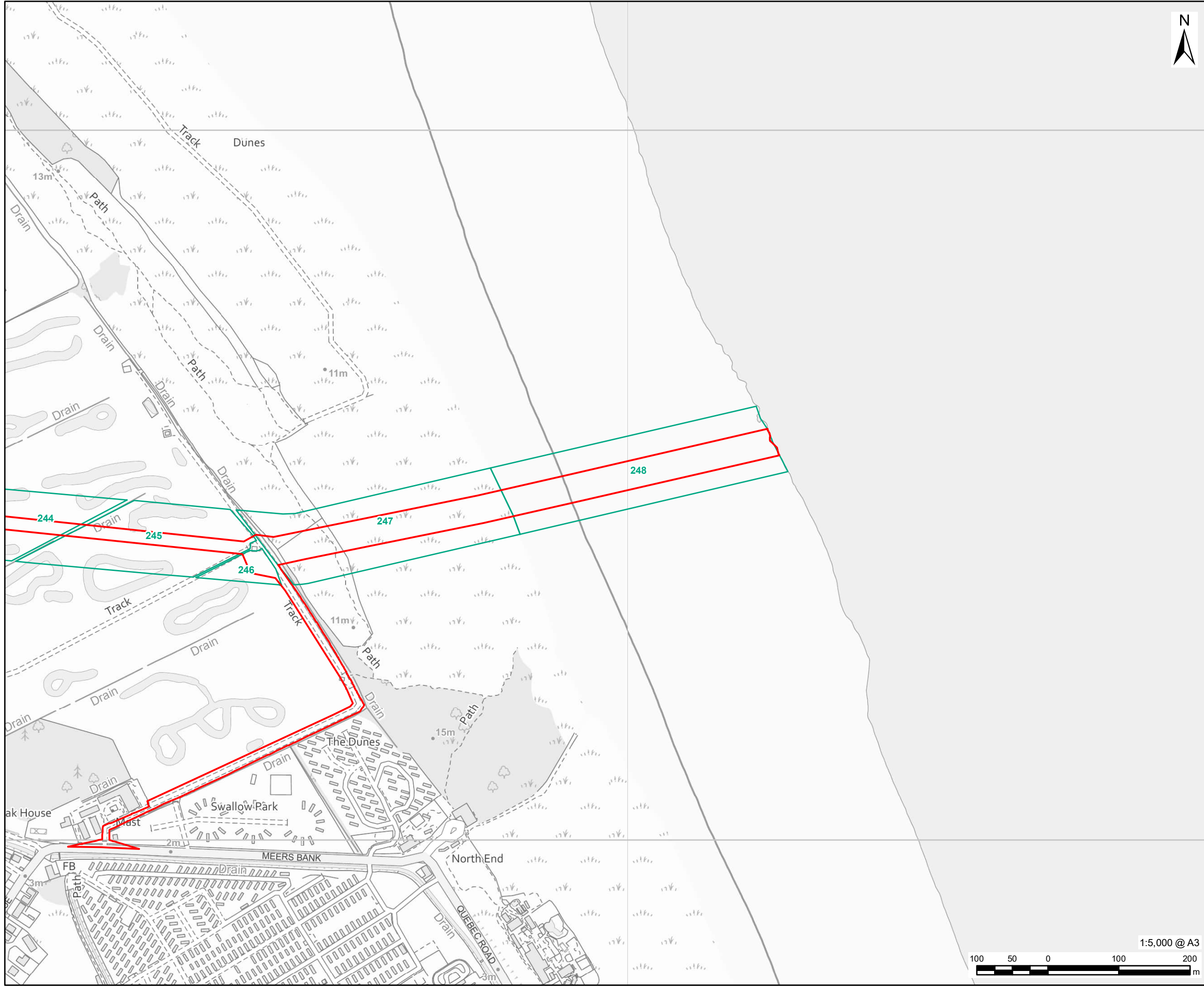


FIGURE TITLE
Figure 2 (34 of 35)
AOC Geophysical Survey Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers

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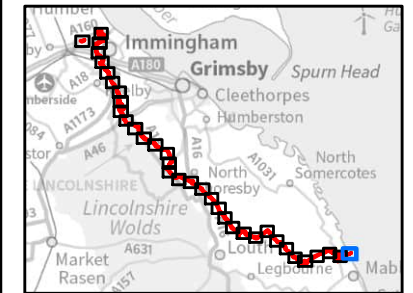
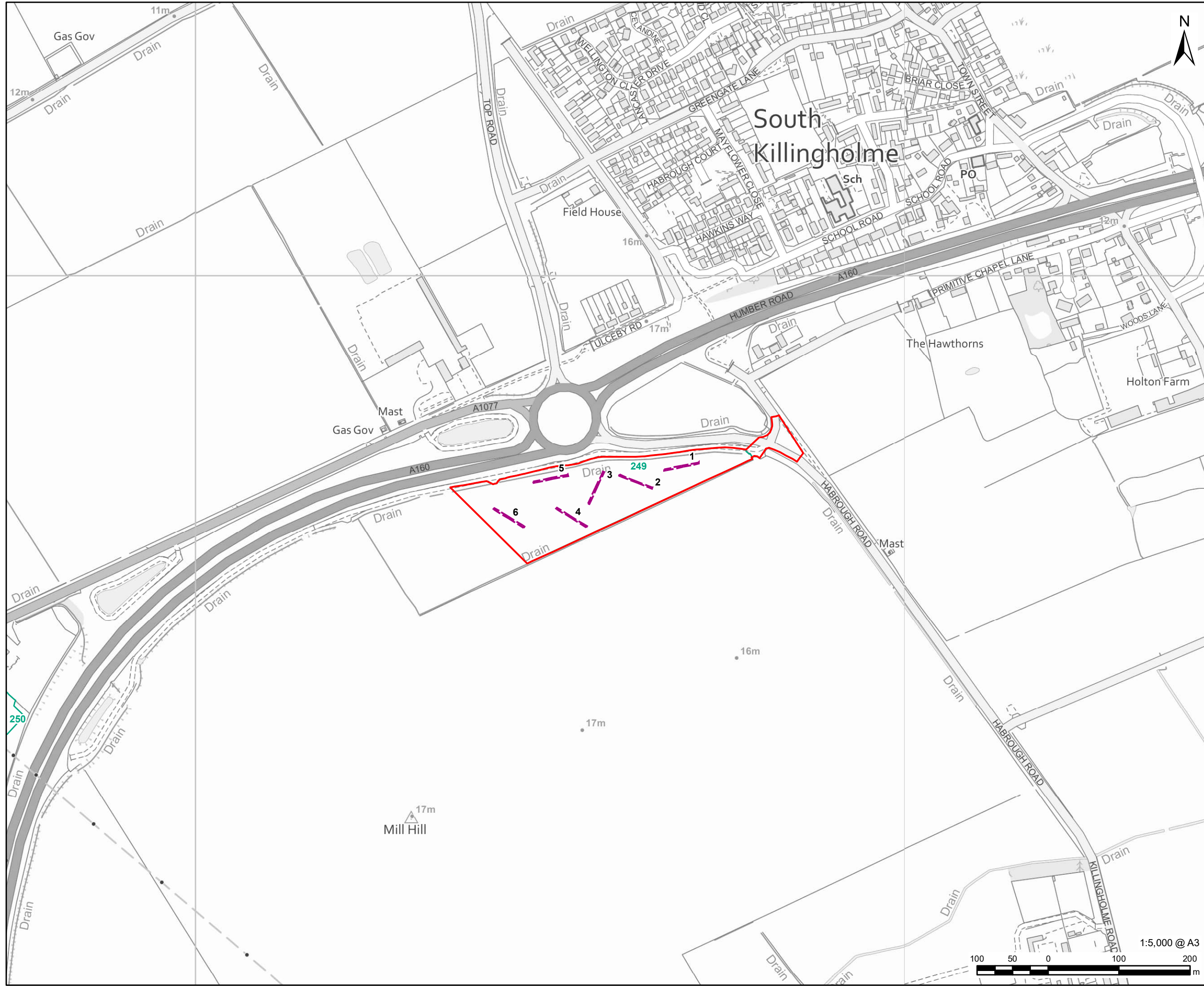


FIGURE TITLE
Figure 2 (35 of 35)
AOC Geophysical Survey
Interpretation and Confidence Rating

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_2





- LEGEND
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Indicative Trench Location

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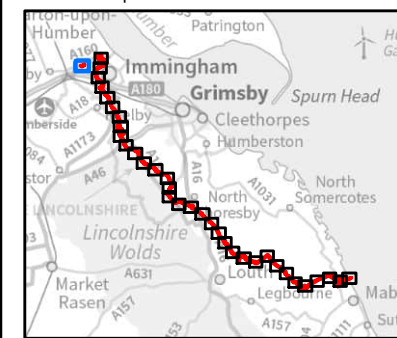


FIGURE TITLE

Figure 3 (1 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

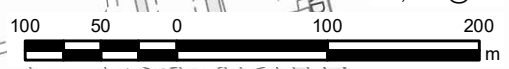
ISSUE PURPOSE

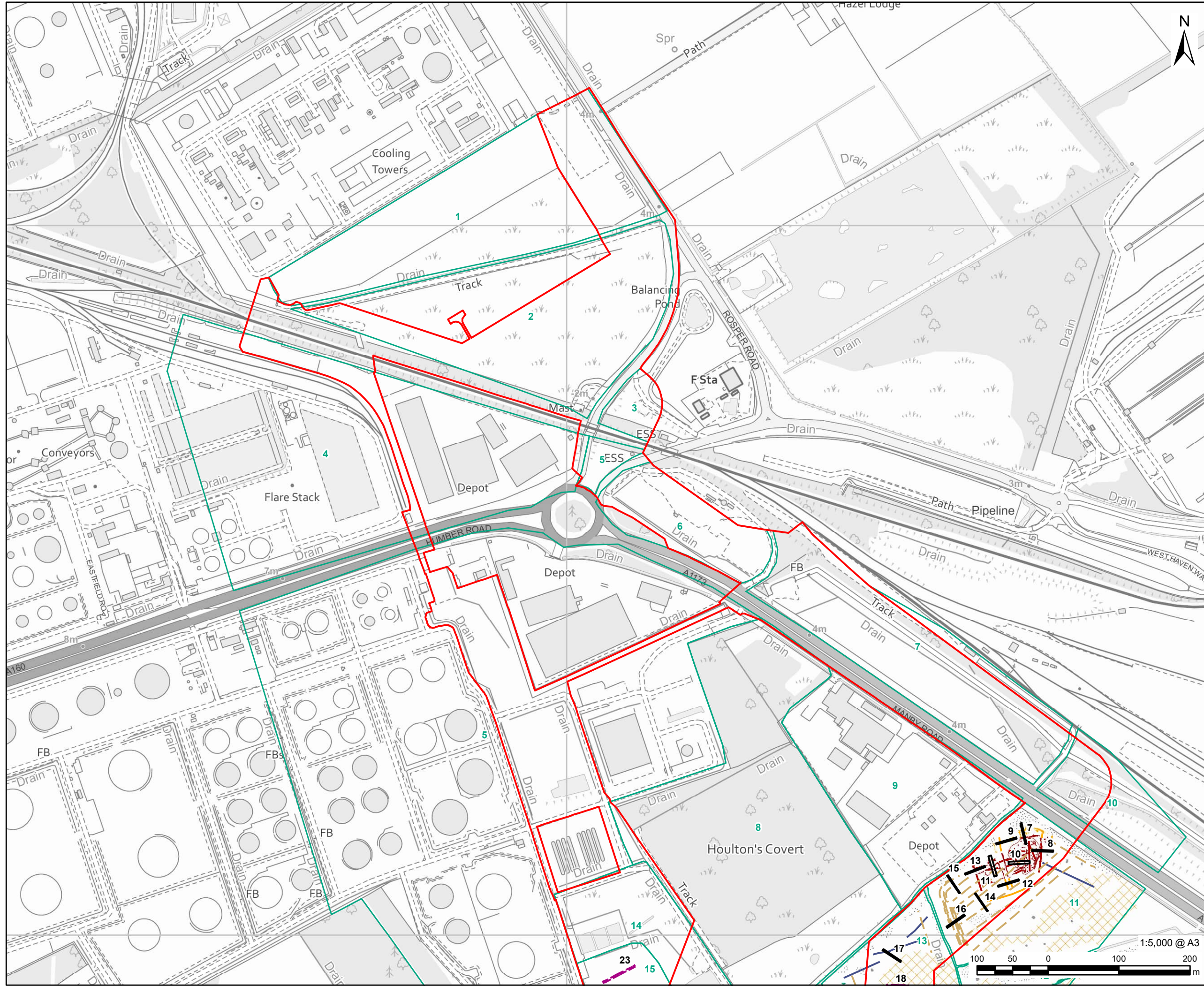
WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230927_WSI_TT_3

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 1 Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)
- Linear Trend (Drainage)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Possible Archaeology)
- Linear Trend (Probable Archaeology)
- Anomaly (Probable)
- Spread (Probable)
- Anomaly (Possible)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)

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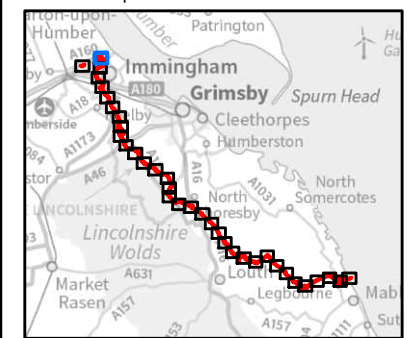
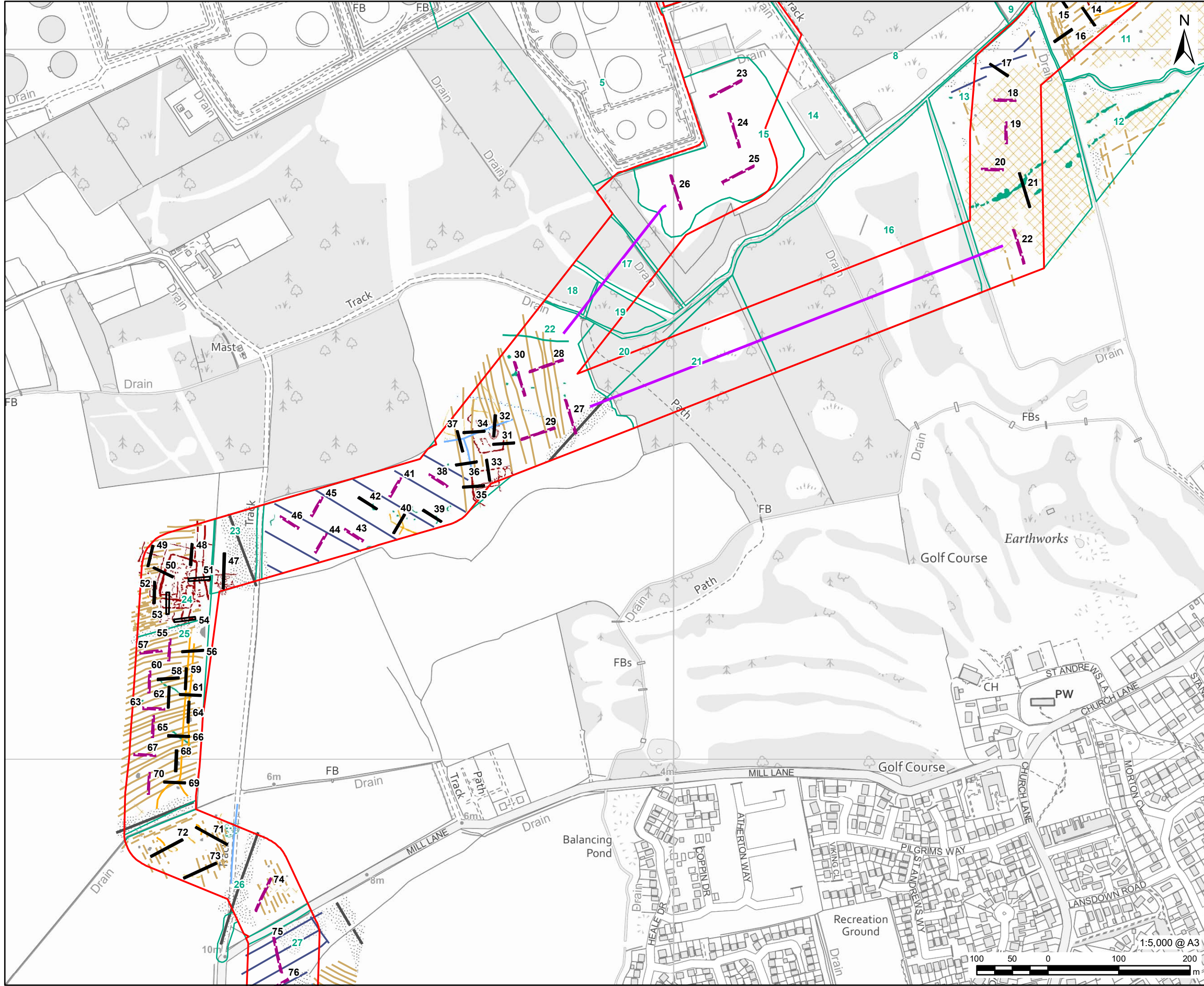


FIGURE TITLE

Figure 3 (2 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)
- Linear Trend (Drainage)
- Linear Trend (Historic Feature)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Possible Archaeology)
- Linear Trend (Probable Archaeology)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Linear Trend (Unclear Origin)
- Anomaly (Probable)
- Spread (Probable)
- Anomaly (Possible)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Agricultural)
- Spread (Agricultural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)

NOTES: Spread (Historic Feature)
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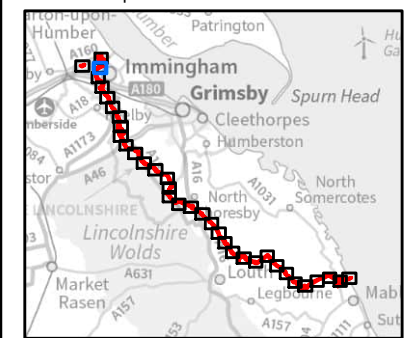
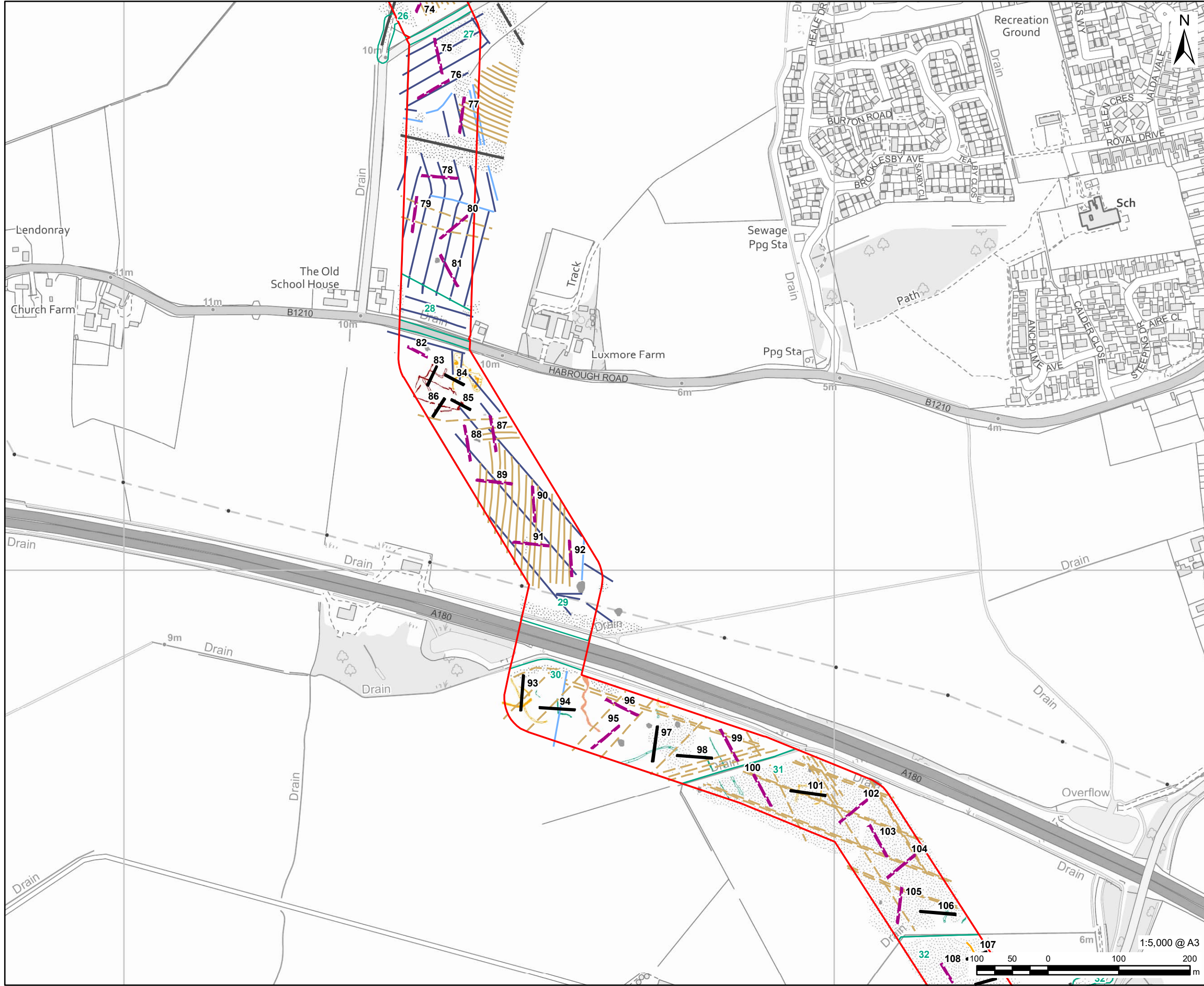


FIGURE TITLE
Figure 3 (3 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 26 Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Historic Feature)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Possible Archaeology)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Probable)
- Spread (Probable)
- Anomaly (Possible)
- Spread (Possible)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Anomaly (Ferrous/Iron Spike)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)

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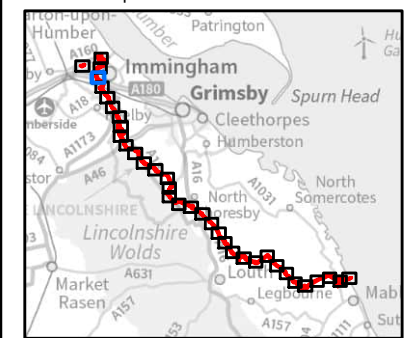
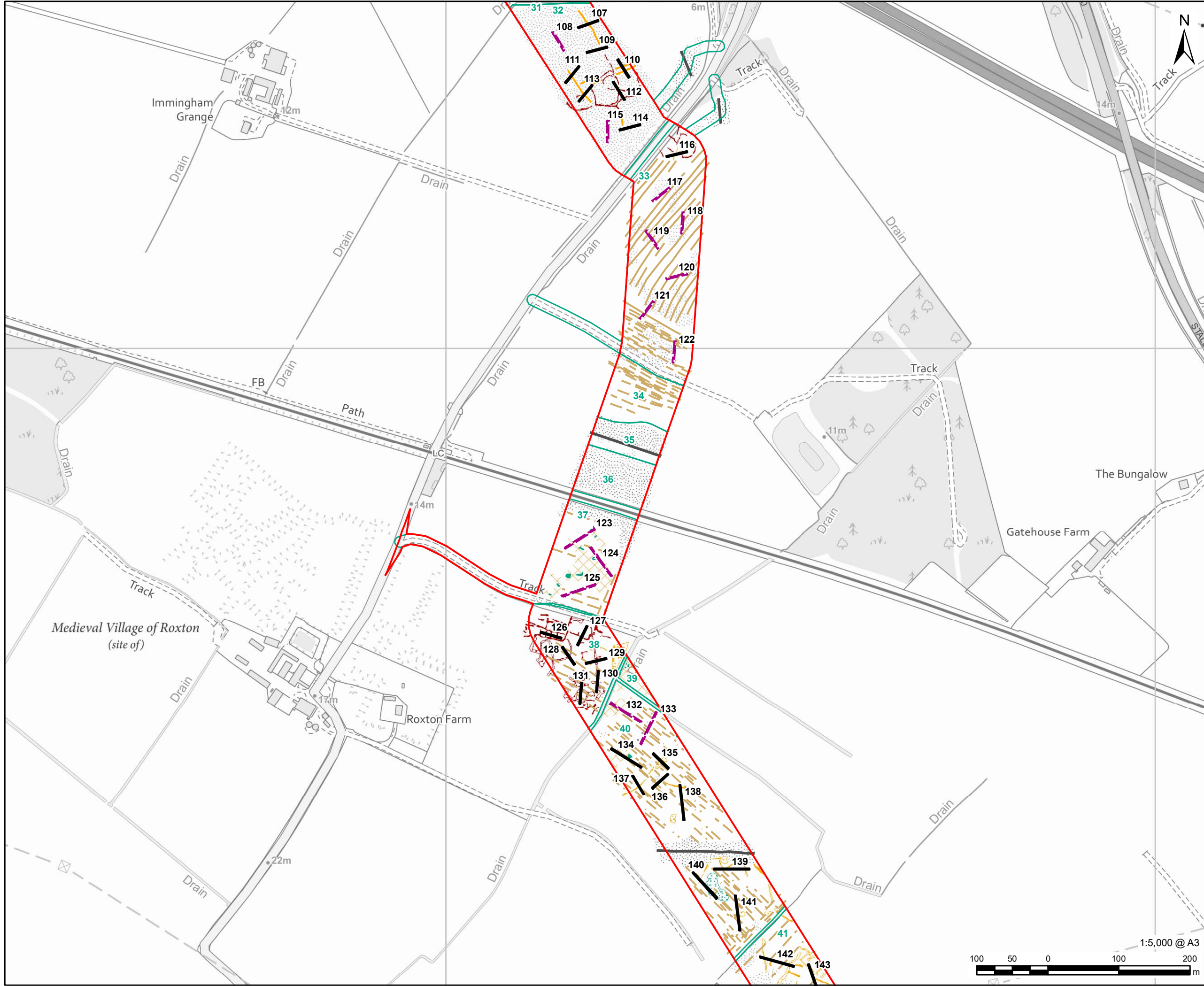


FIGURE TITLE
Figure 3 (4 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Possible Archaeology)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)

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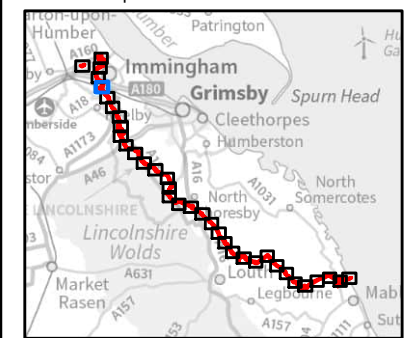
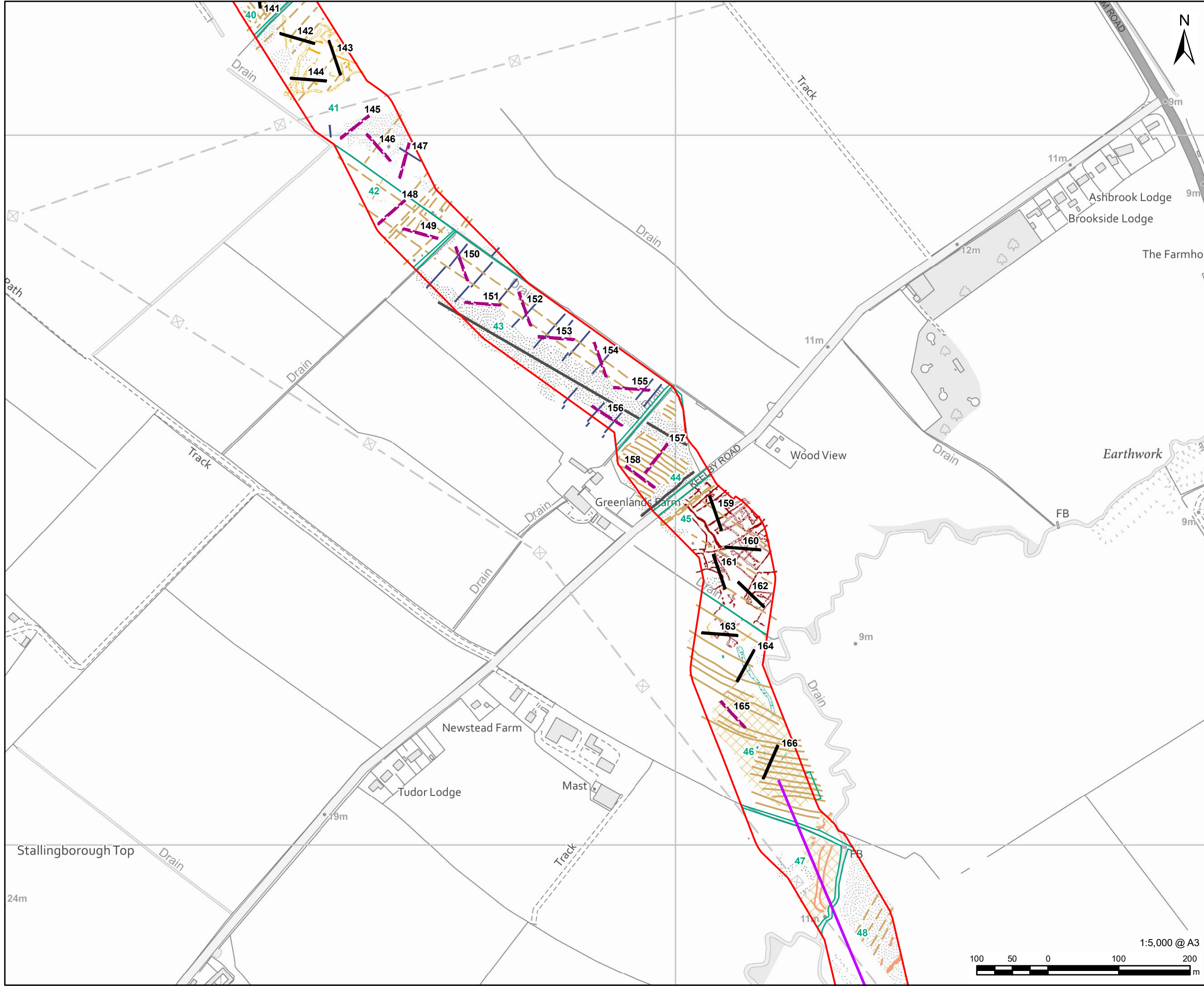


FIGURE TITLE
Figure 3 (5 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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PROJECT NUMBER / REFERENCE
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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Geology/Natural)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Probable)
- Spread (Probable)
- Anomaly (Possible)
- Spread (Possible)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Agricultural)
- Spread (Agricultural)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)

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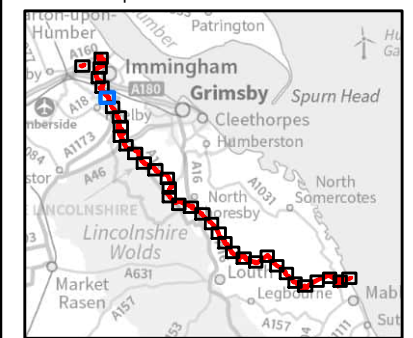
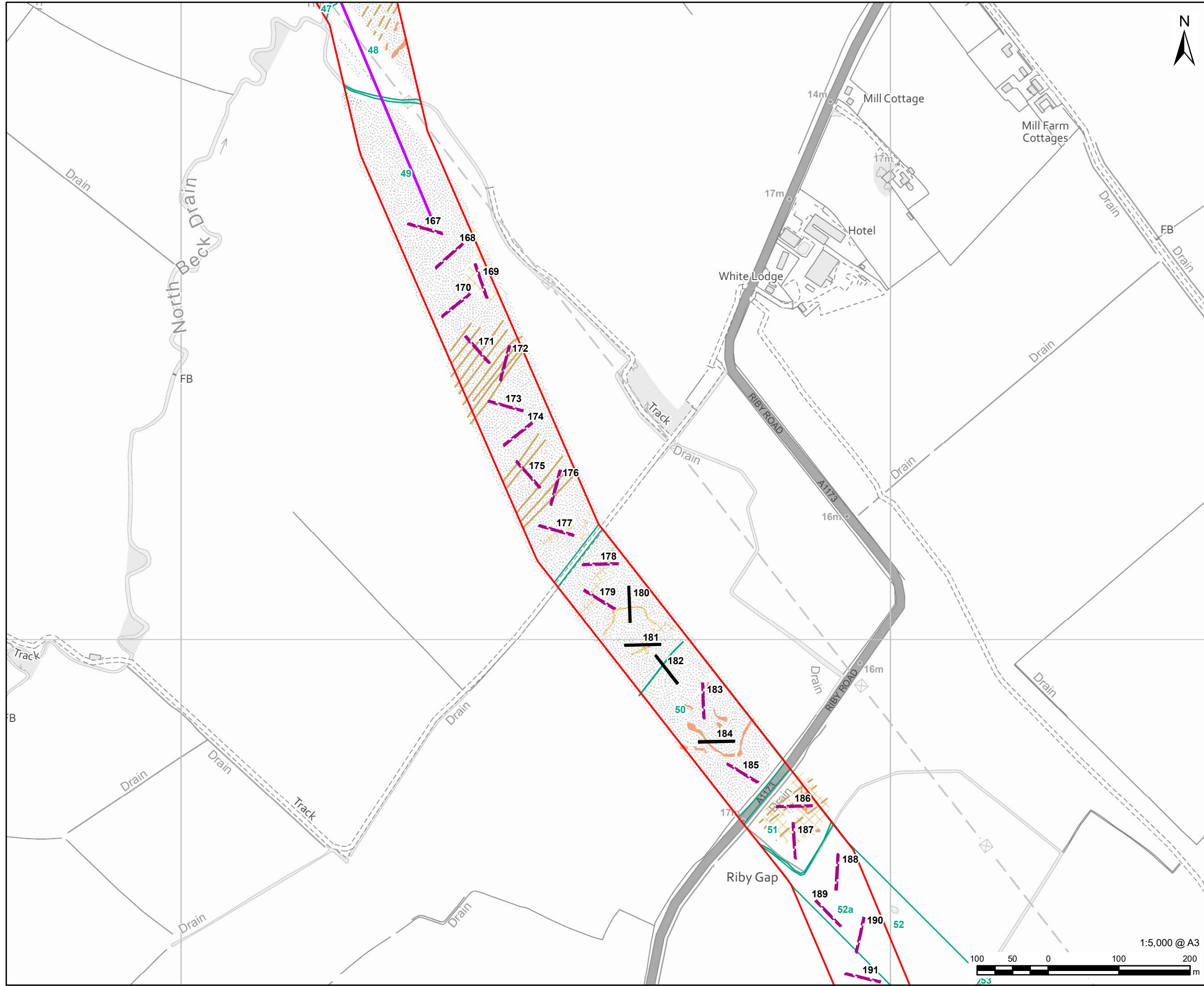


FIGURE TITLE

Figure 3 (6 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Proposed HDD Section
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Unclear Origin)
 - Spread (Possible)
 - Spread (Magnetic Disturbance)
 - Anomaly (Geology/Natural)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)

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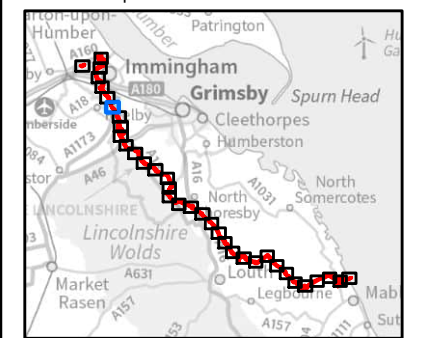
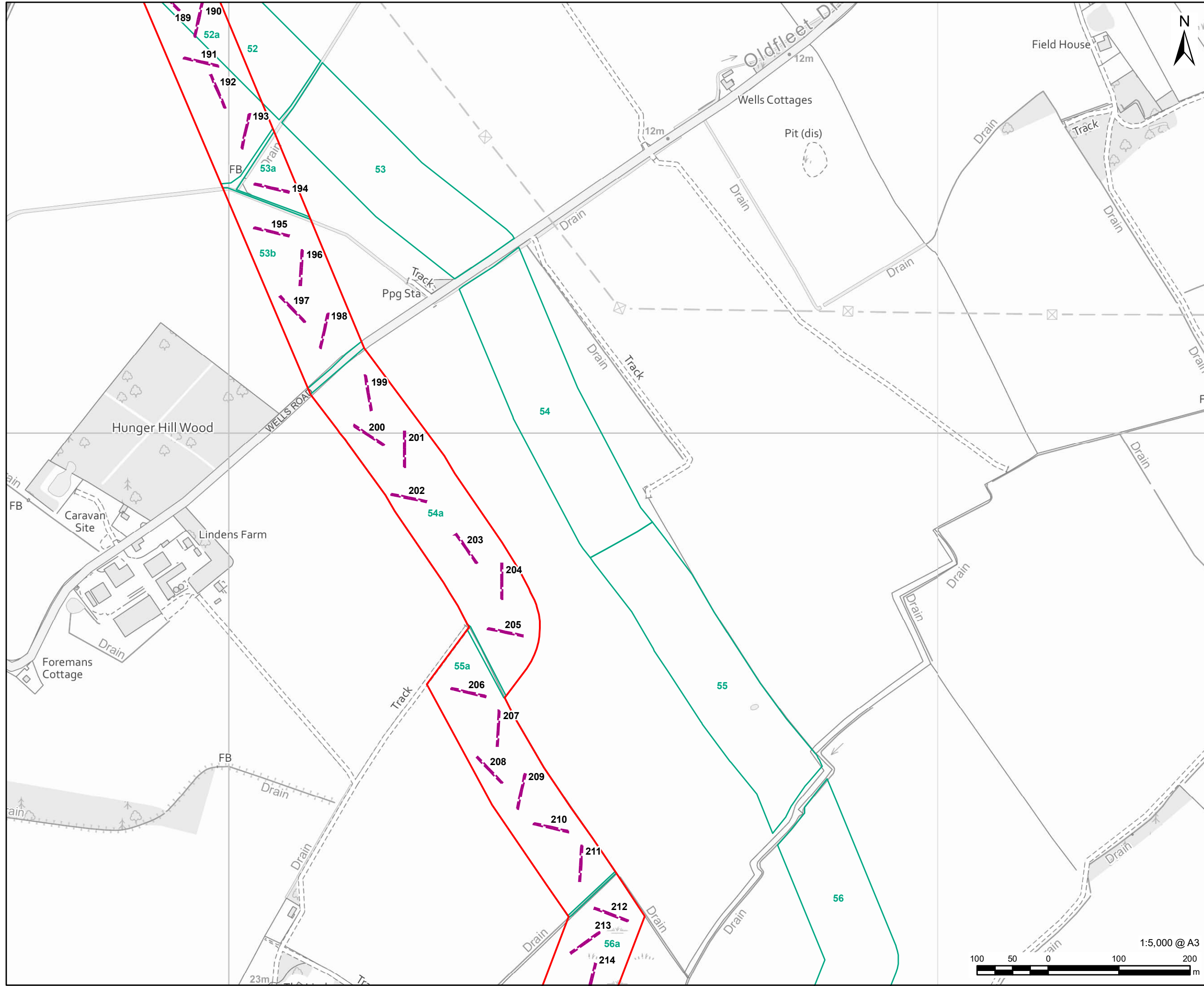


FIGURE TITLE
Figure 3 (7 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 52 Field Numbers
 - Indicative Trench Location

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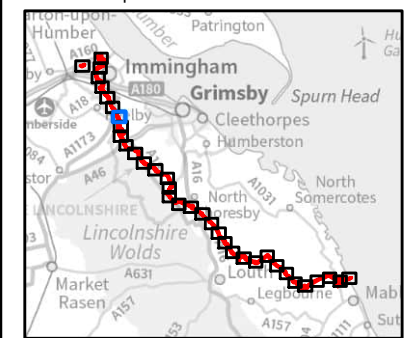
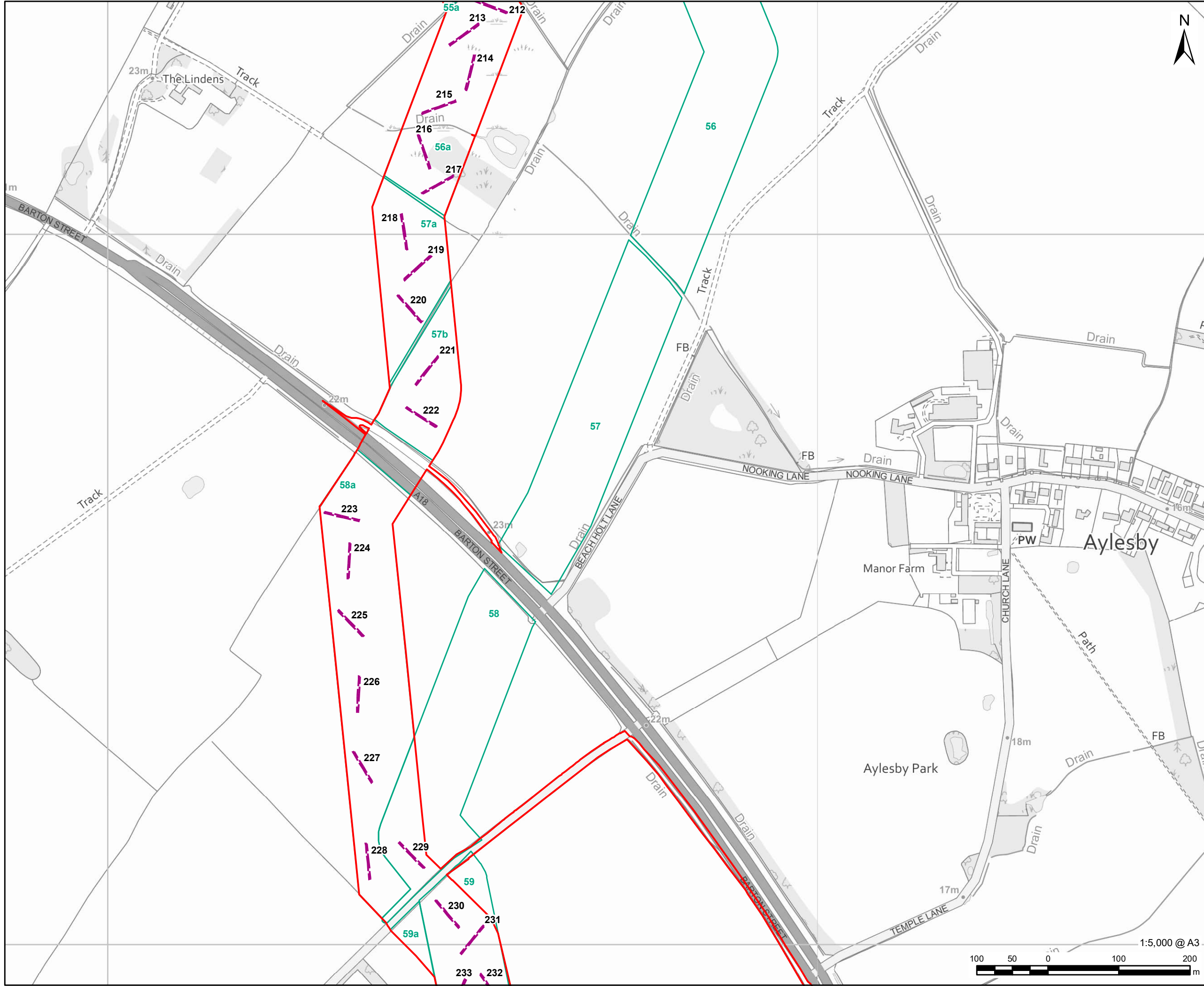


FIGURE TITLE
Figure 3 (8 of 35)
Indicative Trench Locations with
AOC Geophysical Survey
Interpretation

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PROJECT NUMBER / REFERENCE
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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location

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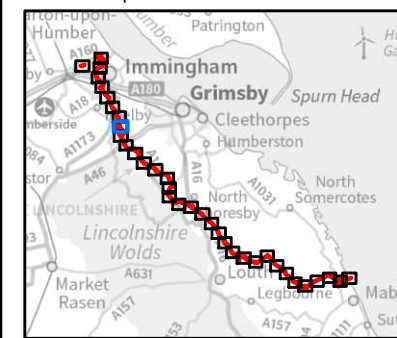
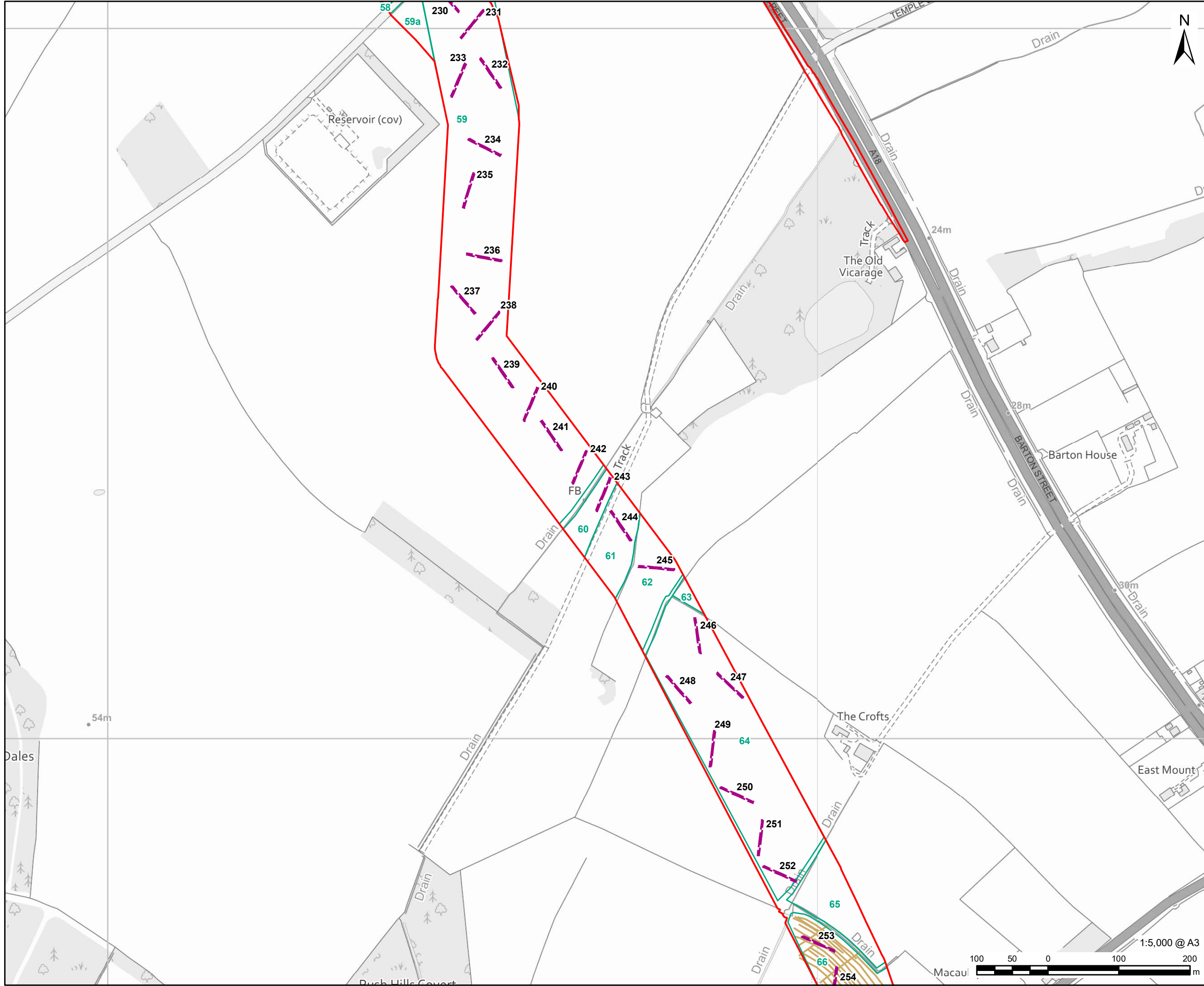


FIGURE TITLE
Figure 3 (9 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 58 Field Numbers
- Indicative Trench Location
- Linear Trend (Agricultural, Ridge and Furrow)
- Spread (Ferrous/Iron Spike)

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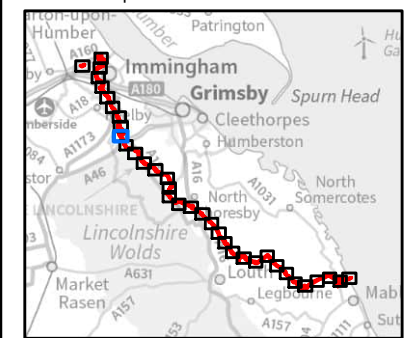
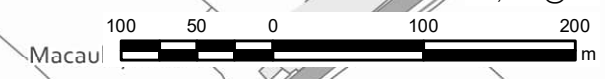
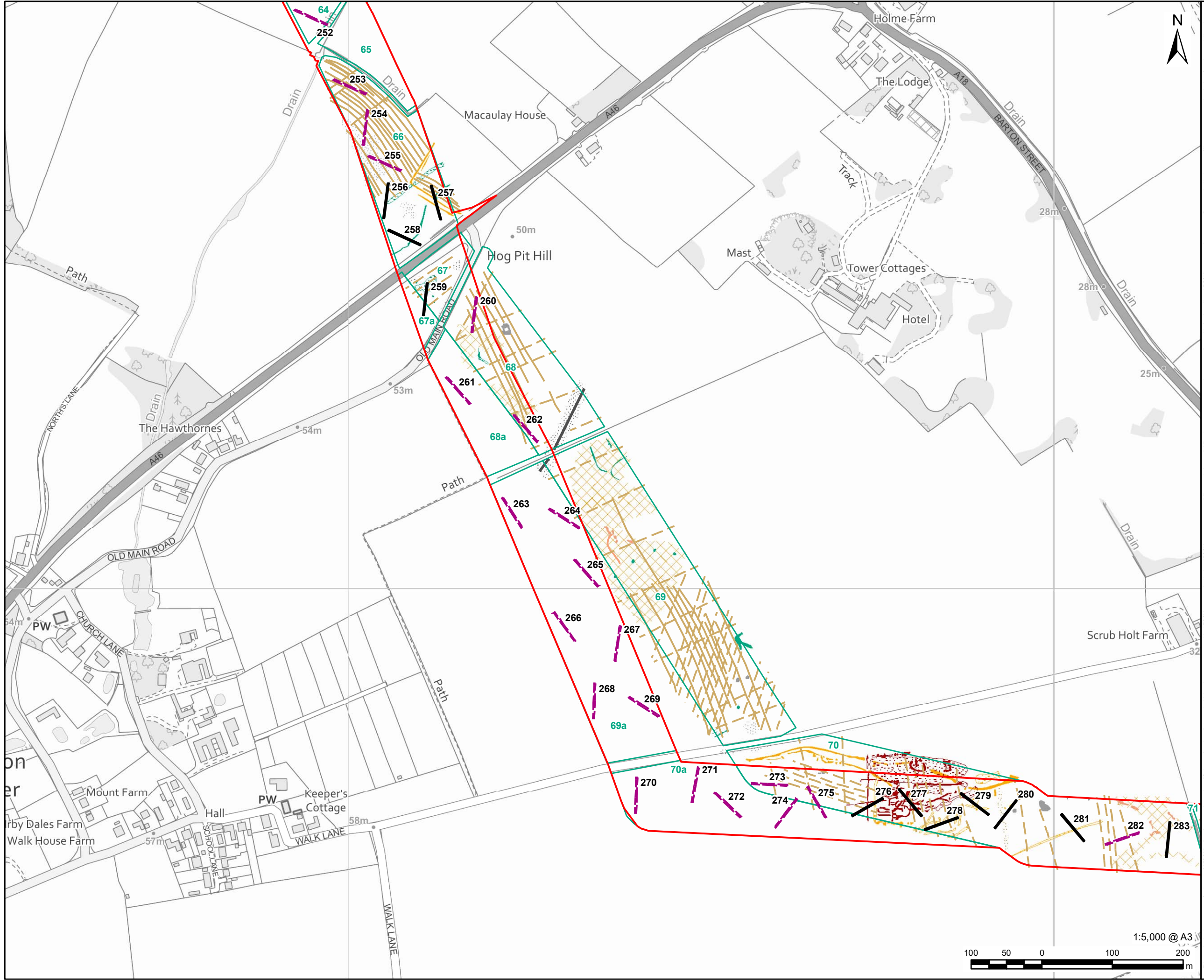




FIGURE TITLE
Figure 3 (10 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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PROJECT
Viking CCS Pipeline

LEGEND

-  DCO Site Boundary
-  Geophysical Survey Area - AOC
-  Field Numbers
-  Indicative Trench Location - Targeted
-  Indicative Trench Location
- Geophysical Survey Interpretation (AOC)**
-  Linear Trend (Geology/Natural)
-  Linear Trend (Agricultural, Ploughing)
-  Linear Trend (Agricultural, Ridge and Furrow)
-  Linear Trend (Service)
-  Anomaly (Probable)
-  Spread (Probable)
-  Anomaly (Possible)
-  Spread (Possible)
-  Anomaly (Magnetic Disturbance)
-  Spread (Magnetic Disturbance)
-  Spread (Agricultural)
-  Anomaly (Geology/Natural)
-  Spread (Geology/Natural)
-  Spread (Ferrous/Iron Spike)
-  Anomaly (Unclear Origin)
-  Spread (Unclear Origin)


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FIGURE TITLE
Figure 3 (11 of 35)
Indicative Trench Locations with
AOC Geophysical Survey
Interpretation

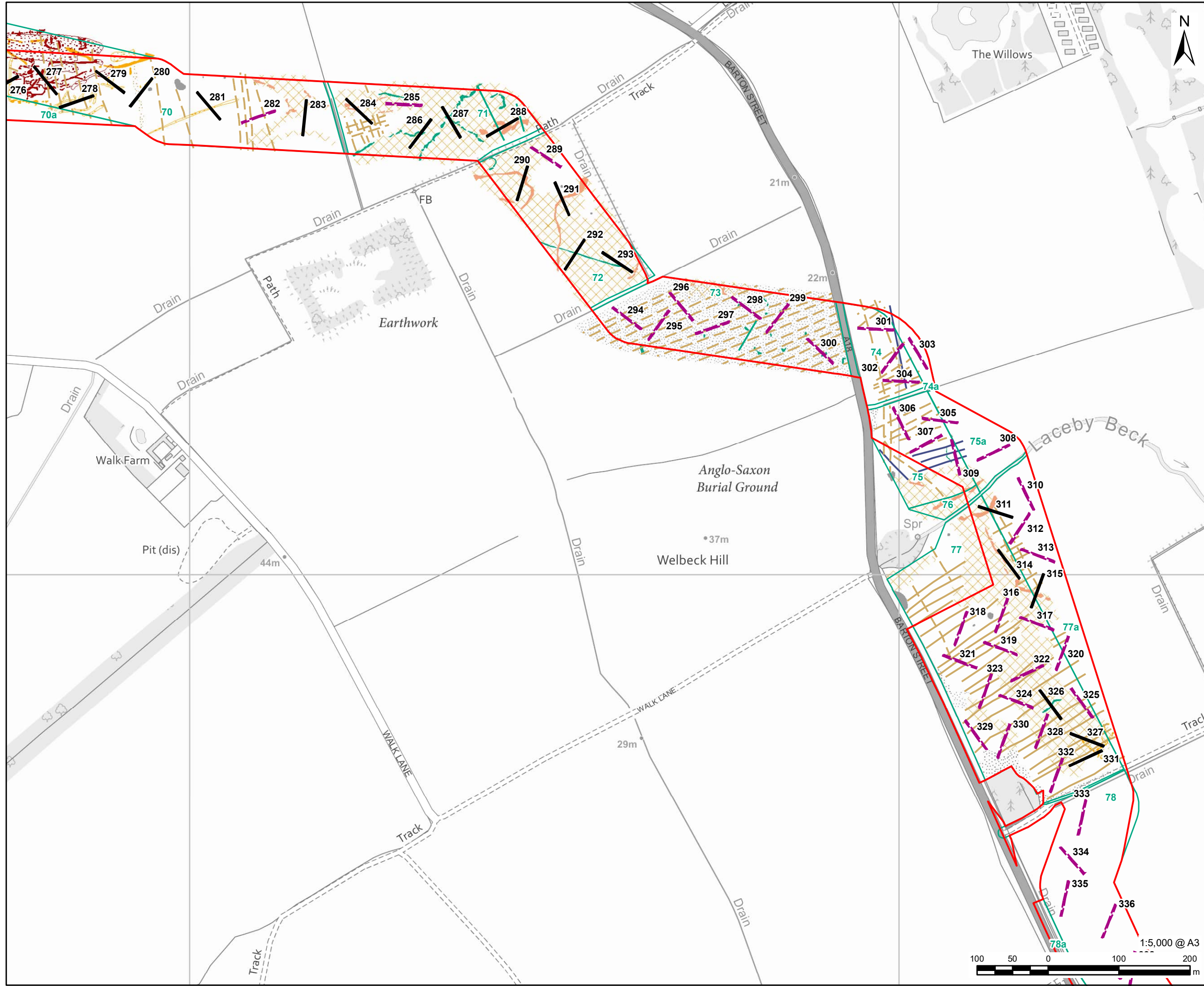
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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Drainage)
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Unclear Origin)
- Anomaly (Probable Archaeology)
- Spread (Probable Archaeology)
- Anomaly (Possible Archaeology)
- Spread (Possible Archaeology)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Spread (Agricultural)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)

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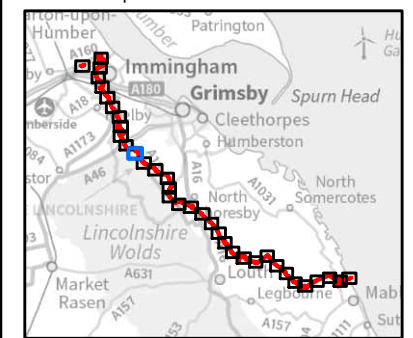


FIGURE TITLE

Figure 3 (12 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

ISSUE PURPOSE

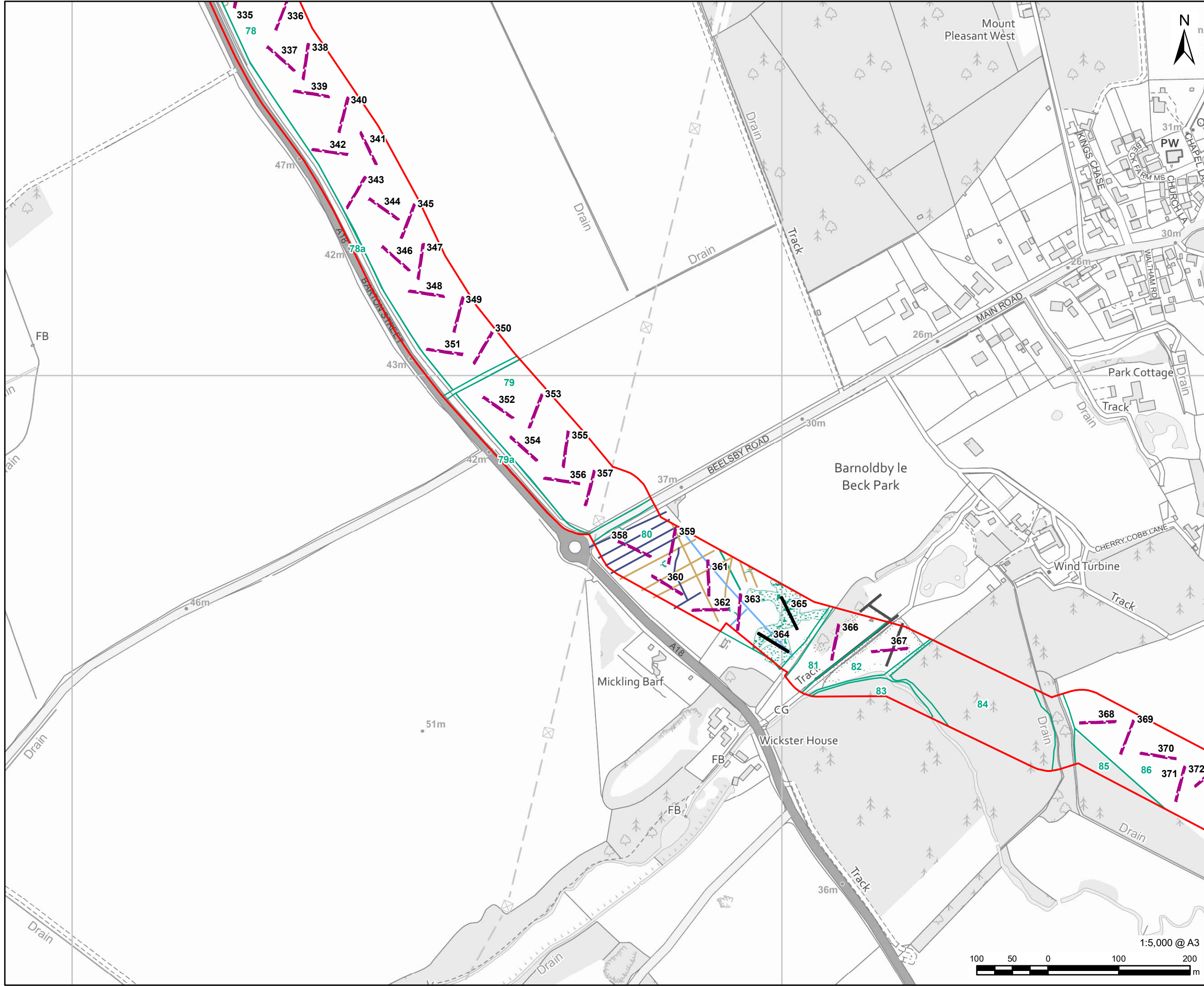
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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)
 - Linear Trend (Drainage)
 - Linear Trend (Historic Feature)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Service)
 - Linear Trend (Unclear Origin)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Spread (Ferrous/Iron Spike)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)

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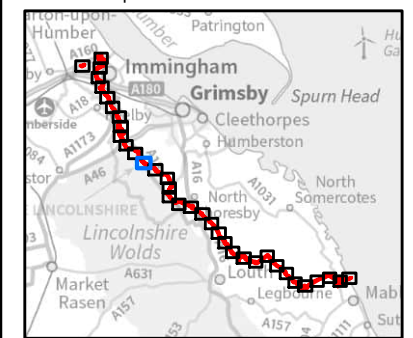


FIGURE TITLE

Figure 3 (13 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

ISSUE PURPOSE

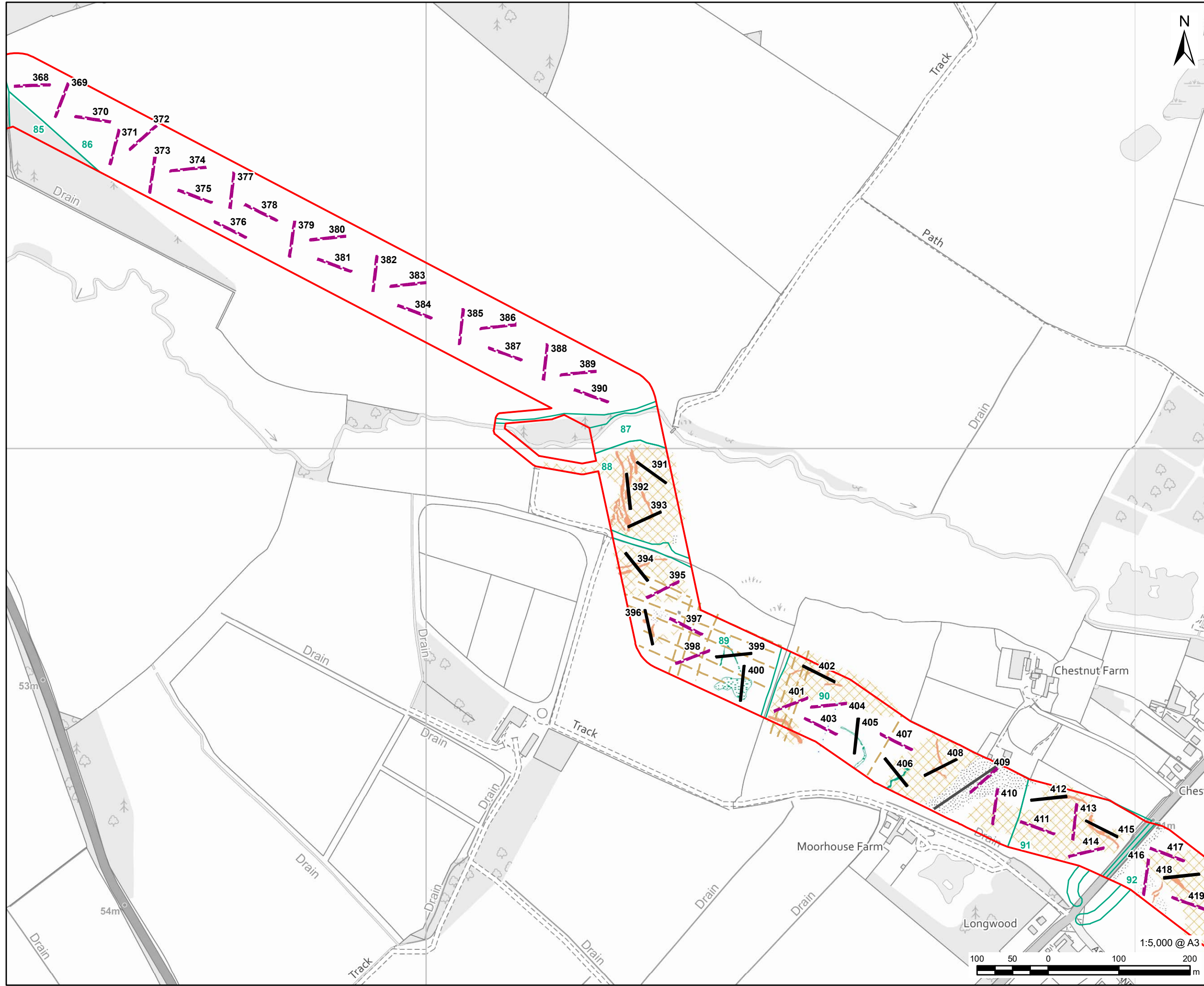
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PROJECT NUMBER / REFERENCE

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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)**
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Service)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Anomaly (Geology/Natural)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)
 - Spread (Historic Feature)

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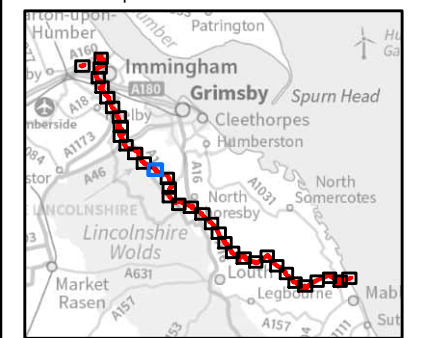
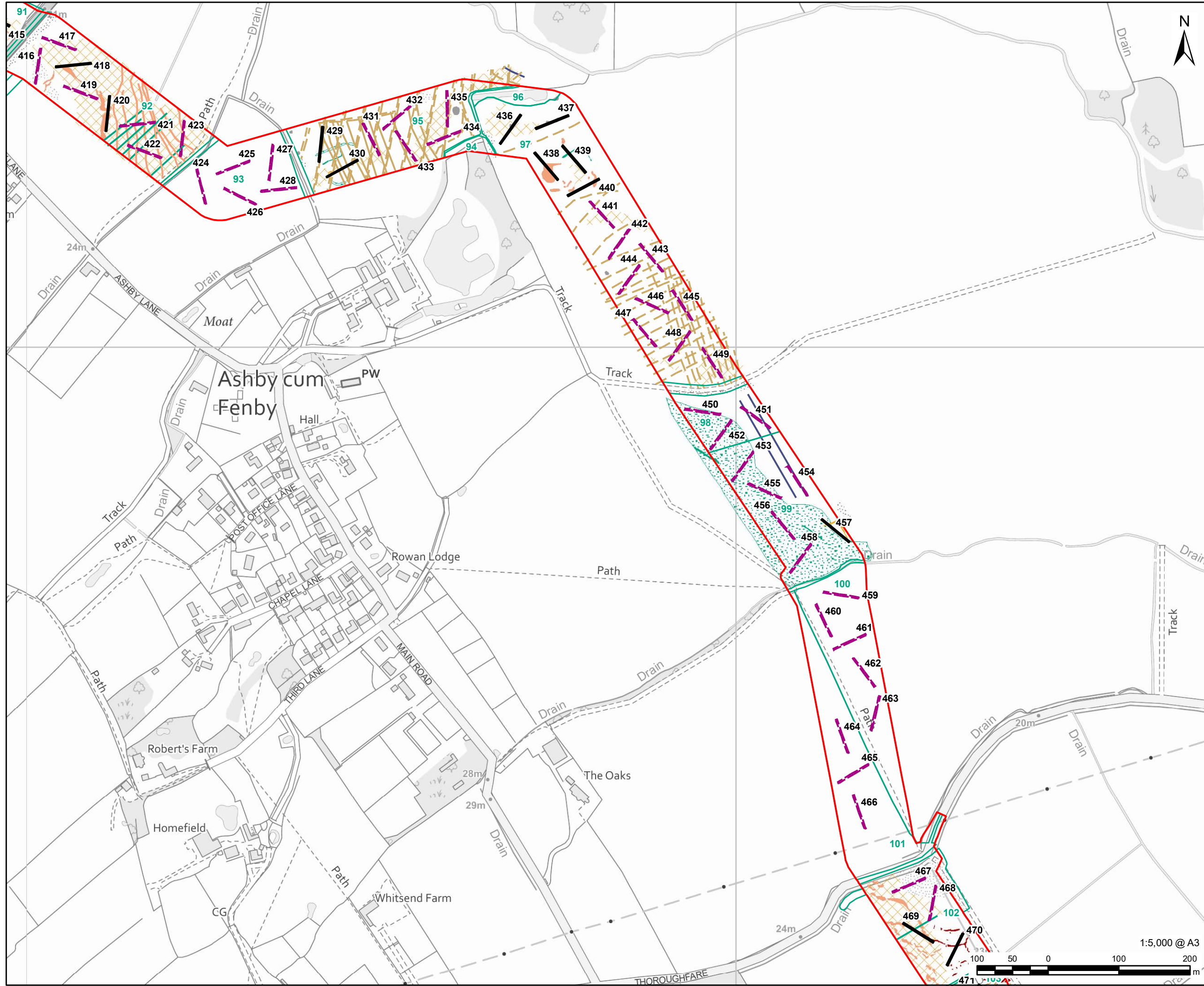


FIGURE TITLE
Figure 3 (14 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 91 Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)**
 - Linear Trend (Drainage)
 - Linear Trend (Geology/Natural)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Ferrous/Iron Spike)
 - Linear Trend (Unclear Origin)
 - Anomaly (Probable)
 - Anomaly (Possible)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Anomaly (Geology/Natural)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)

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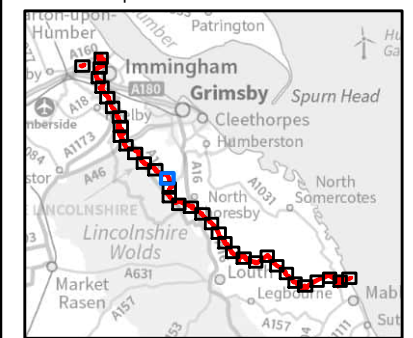
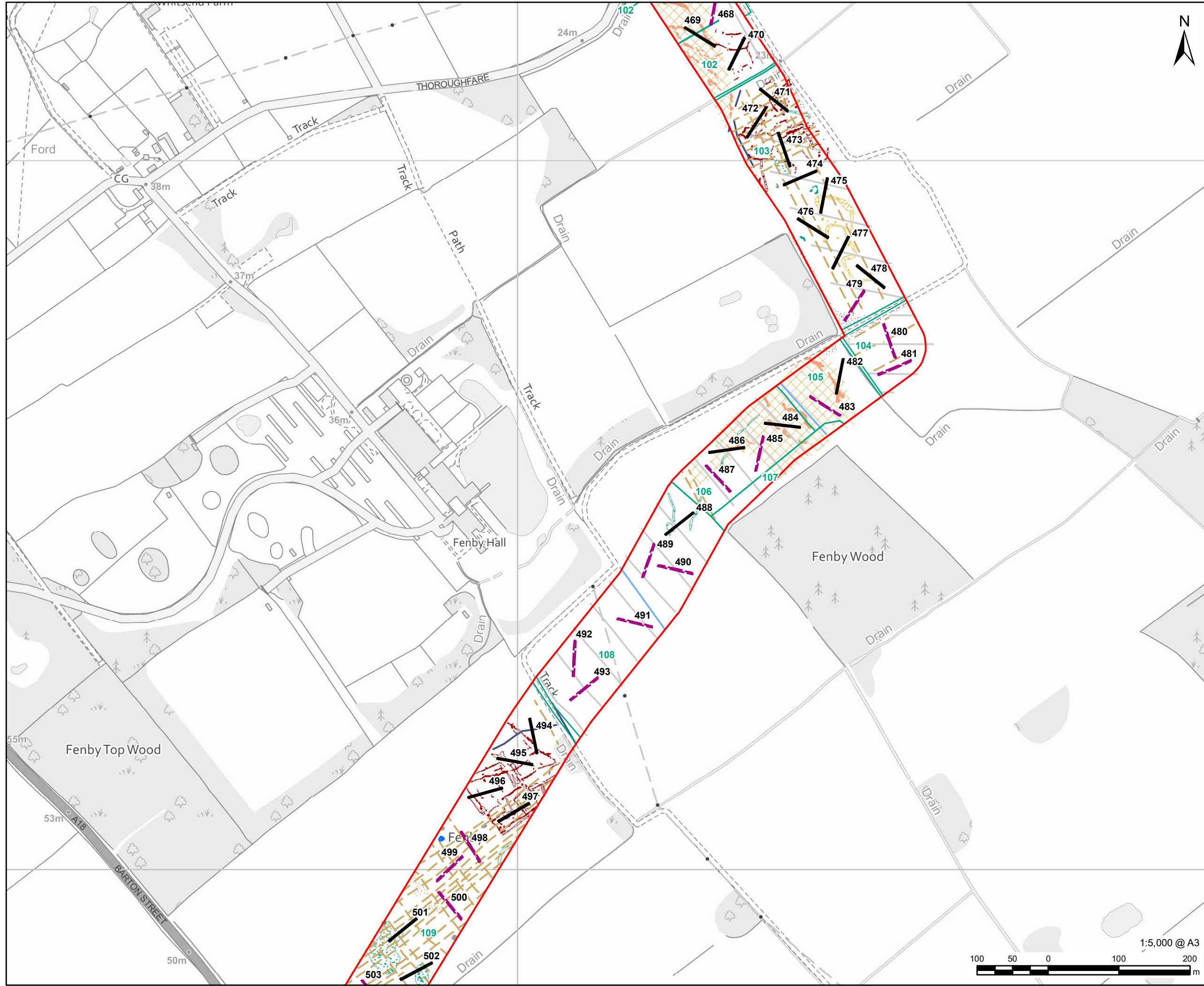


FIGURE TITLE
Figure 3 (15 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 102 Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)**
 - Linear Trend (Drainage)
 - Linear Trend (Historic Feature)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Ferrous/Iron Spike)
 - Linear Trend (Unclear Origin)
 - Anomaly (Probable Archaeology)
 - Spread (Probable Archaeology)
 - Anomaly (Possible Archaeology)
 - Spread (Possible Archaeology)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Spread (Agricultural)
 - Anomaly (Geology/Natural)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)
 - Anomaly (Historic Feature)

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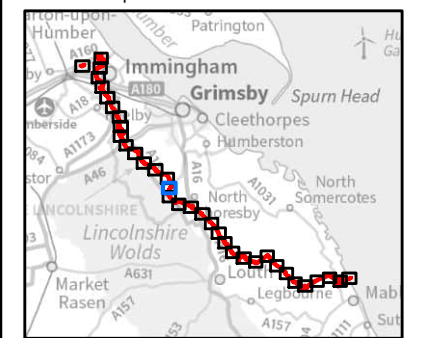


FIGURE TITLE
Figure 3 (16 of 35)
Indicative Trench Locations with
AOC Geophysical Survey
Interpretation

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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)**
 - Linear Trend (Drainage)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Anomaly (Probable Archaeology)
 - Spread (Probable Archaeology)
 - Anomaly (Possible Archaeology)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Spread (Agricultural)
 - Anomaly (Ferrous/Iron Spike)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)
 - Anomaly (Historic Feature)

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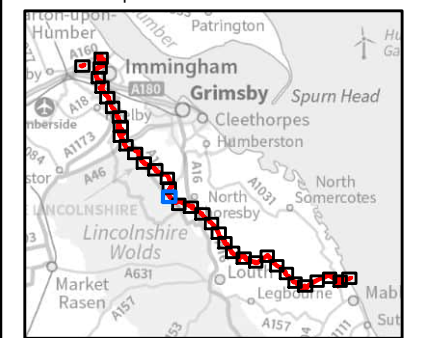
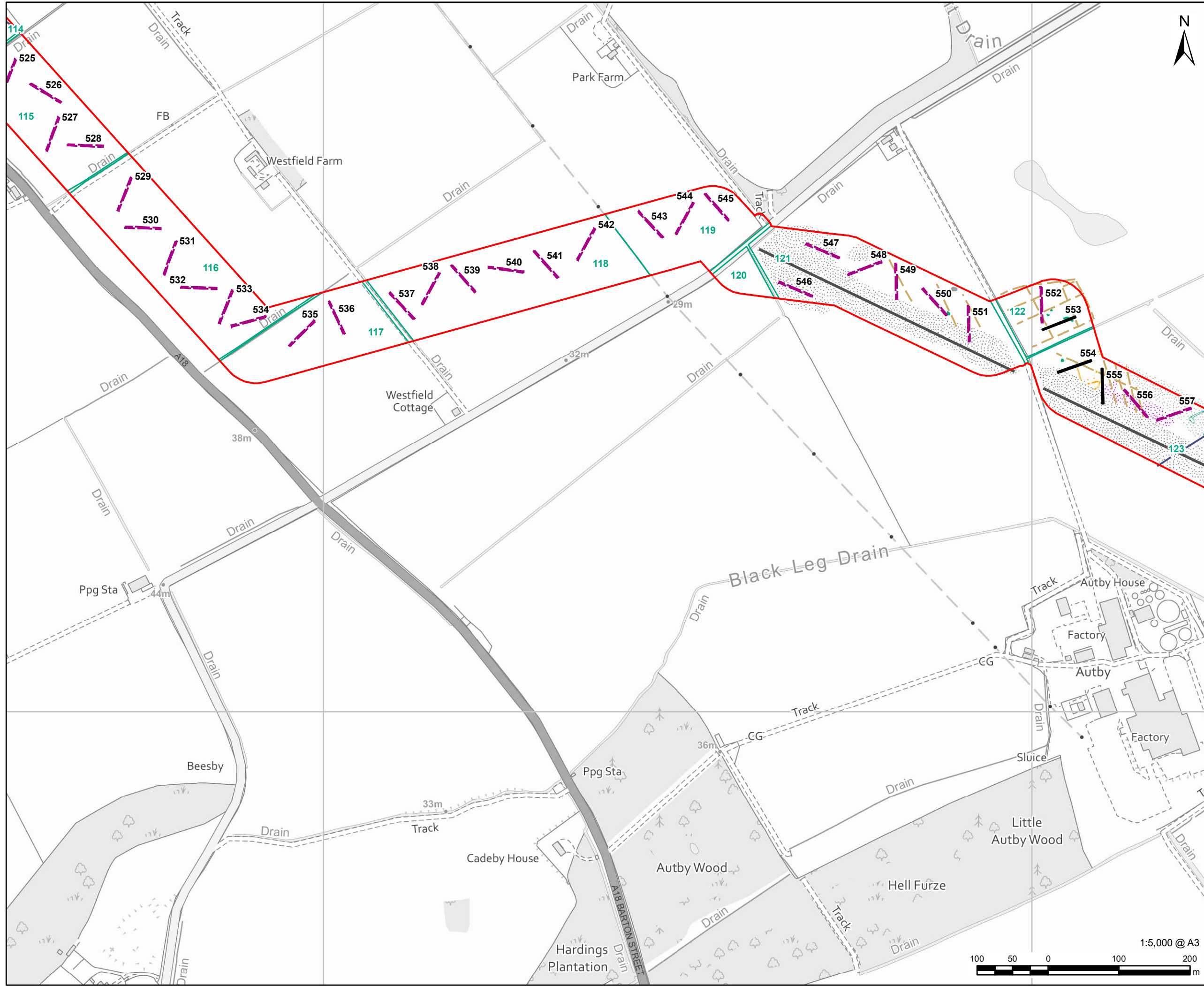


FIGURE TITLE
Figure 3 (17 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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PROJECT NUMBER / REFERENCE
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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 114 Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)
 - Linear Trend (Drainage)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Service)
 - Anomaly (Possible Archaeology)
 - Spread (Possible Archaeology)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Spread (Ferrous/Iron Spike)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)
 - Spread (Custom Use)

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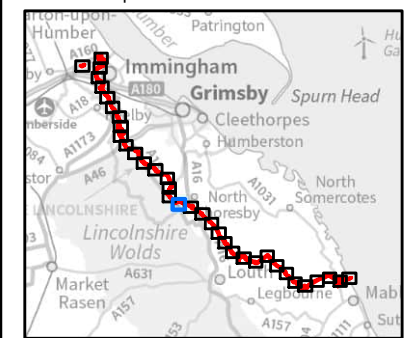
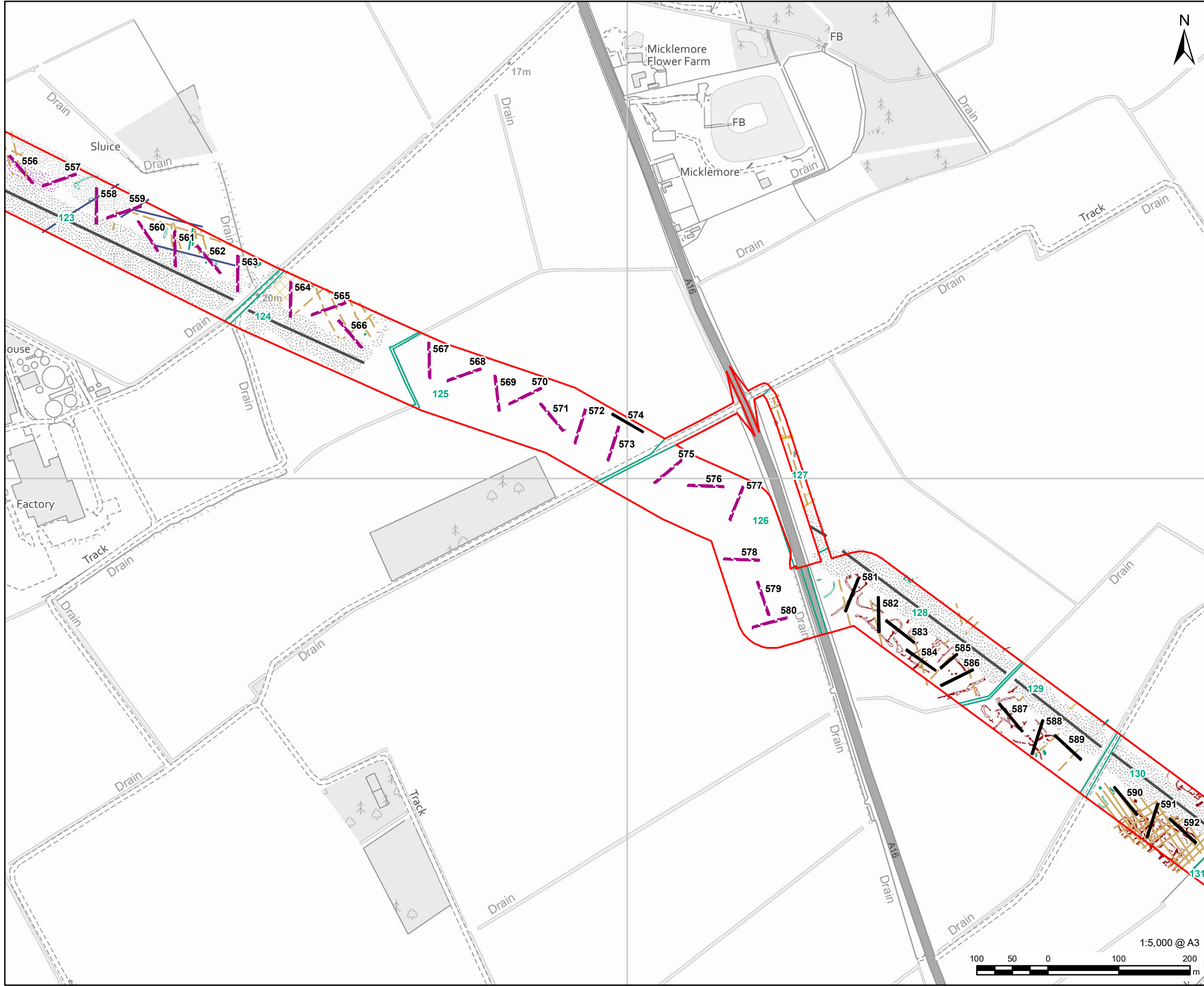


FIGURE TITLE
Figure 3 (18 of 35)
Indicative Trench Locations with
AOC Geophysical Survey
Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_3



- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)**
 - Linear Trend (Drainage)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Service)
 - Linear Trend (Unclear Origin)
 - Anomaly (Probable)
 - Anomaly (Possible)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)
 - Spread (Burned Area)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)
 - Spread (Custom Use)

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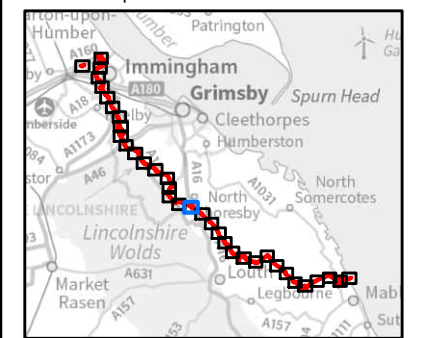
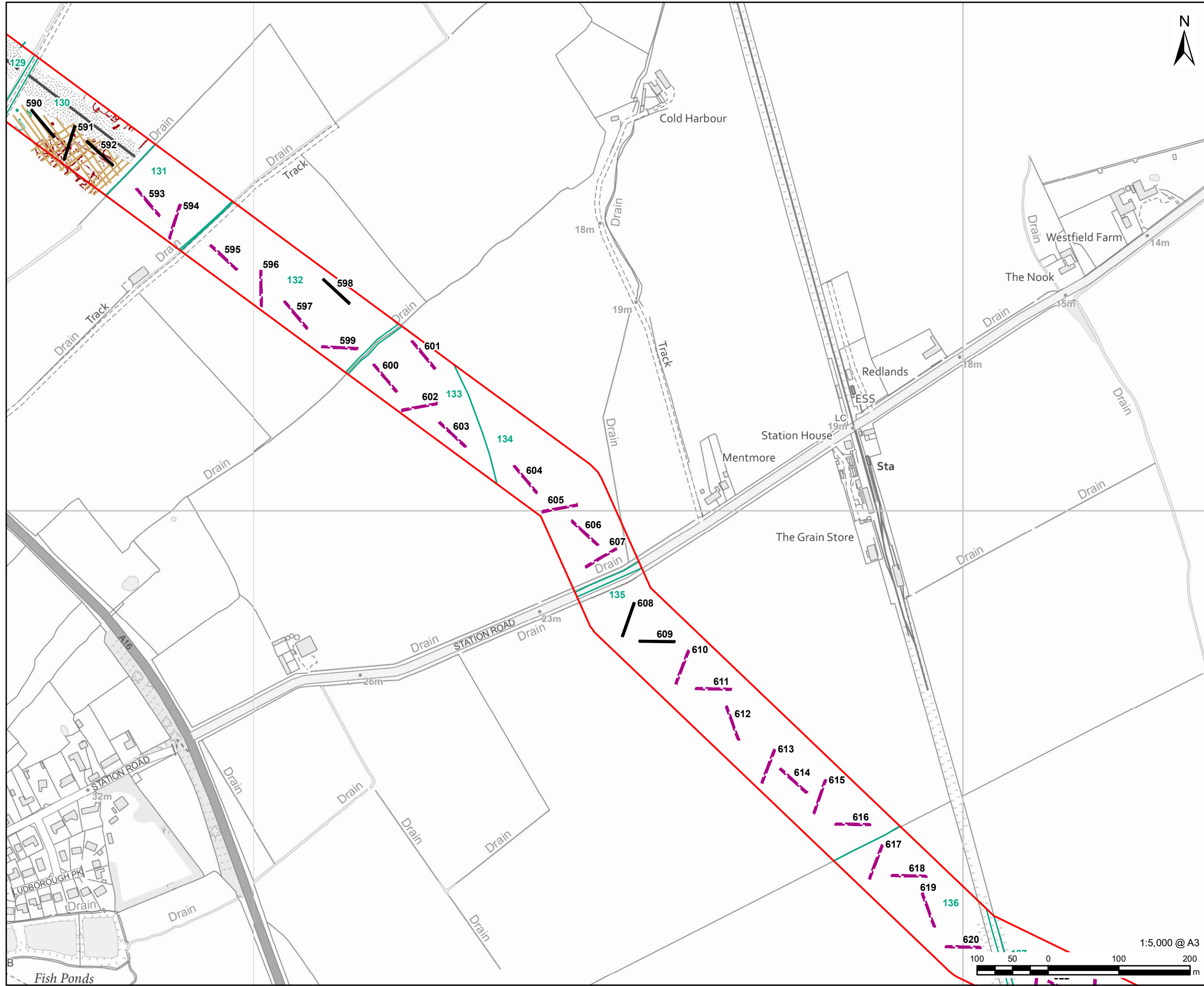


FIGURE TITLE
Figure 3 (19 of 35)
Indicative Trench Locations with
AOC Geophysical Survey
Interpretation

ISSUE PURPOSE
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PROJECT NUMBER / REFERENCE
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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Service)
 - Linear Trend (Unclear Origin)
 - Anomaly (Probable Archaeology)
 - Spread (Probable Archaeology)
 - Spread (Magnetic Disturbance)
 - Spread (Burned Area)
 - Anomaly (Unclear Origin)
 - Spread (Unclear Origin)

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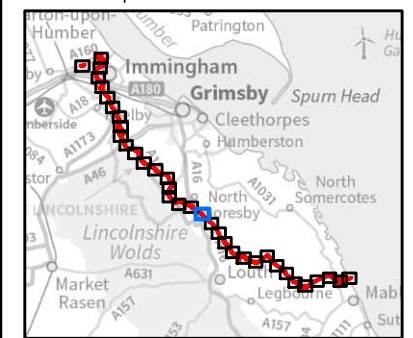
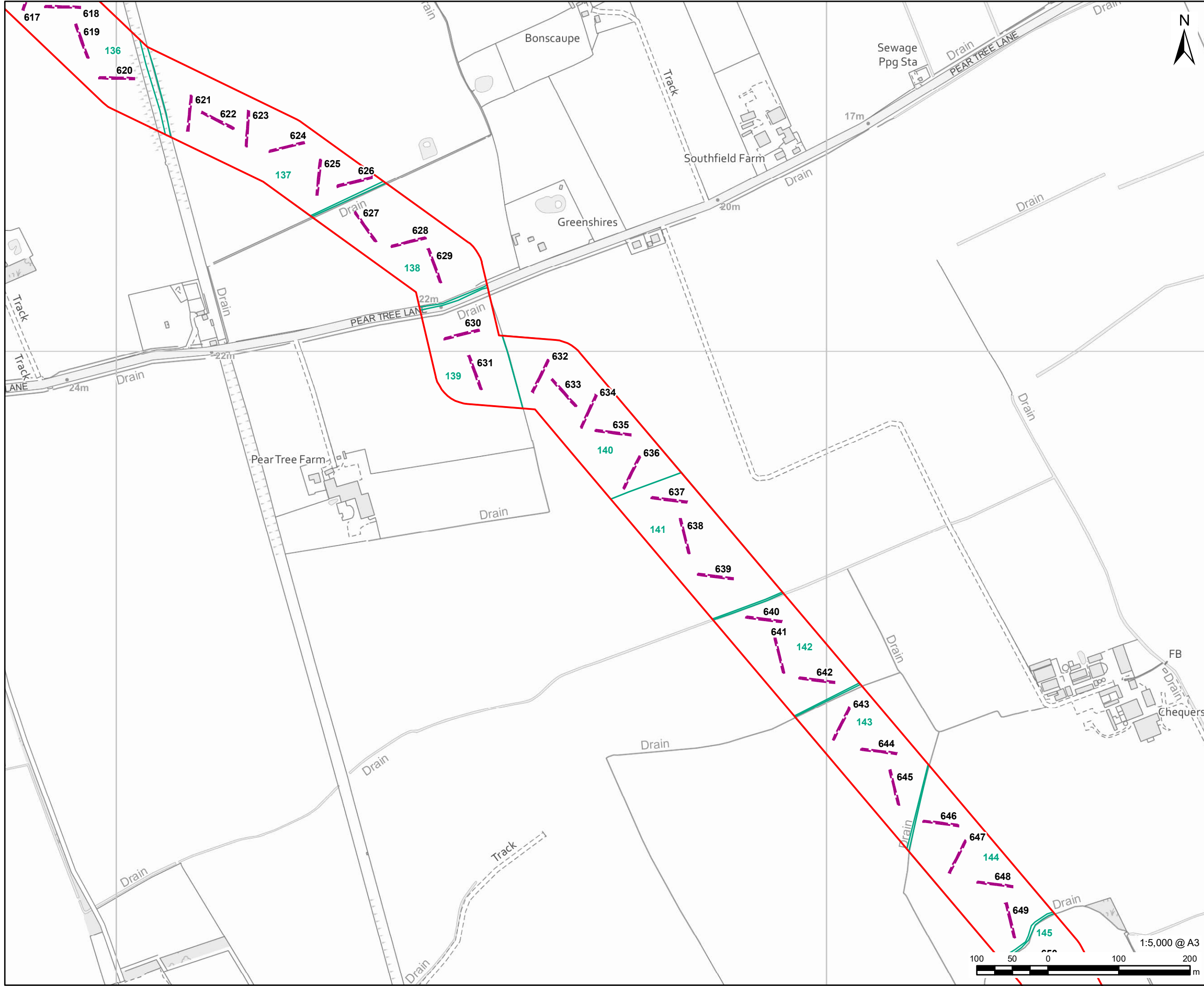


FIGURE TITLE
Figure 3 (20 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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PROJECT NUMBER / REFERENCE
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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 136 Field Numbers
- Indicative Trench Location

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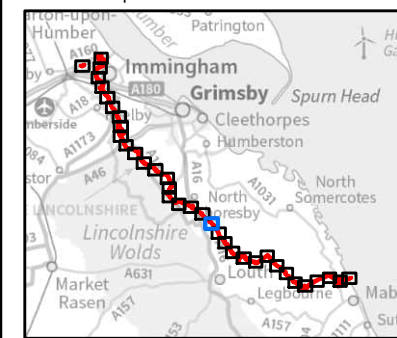
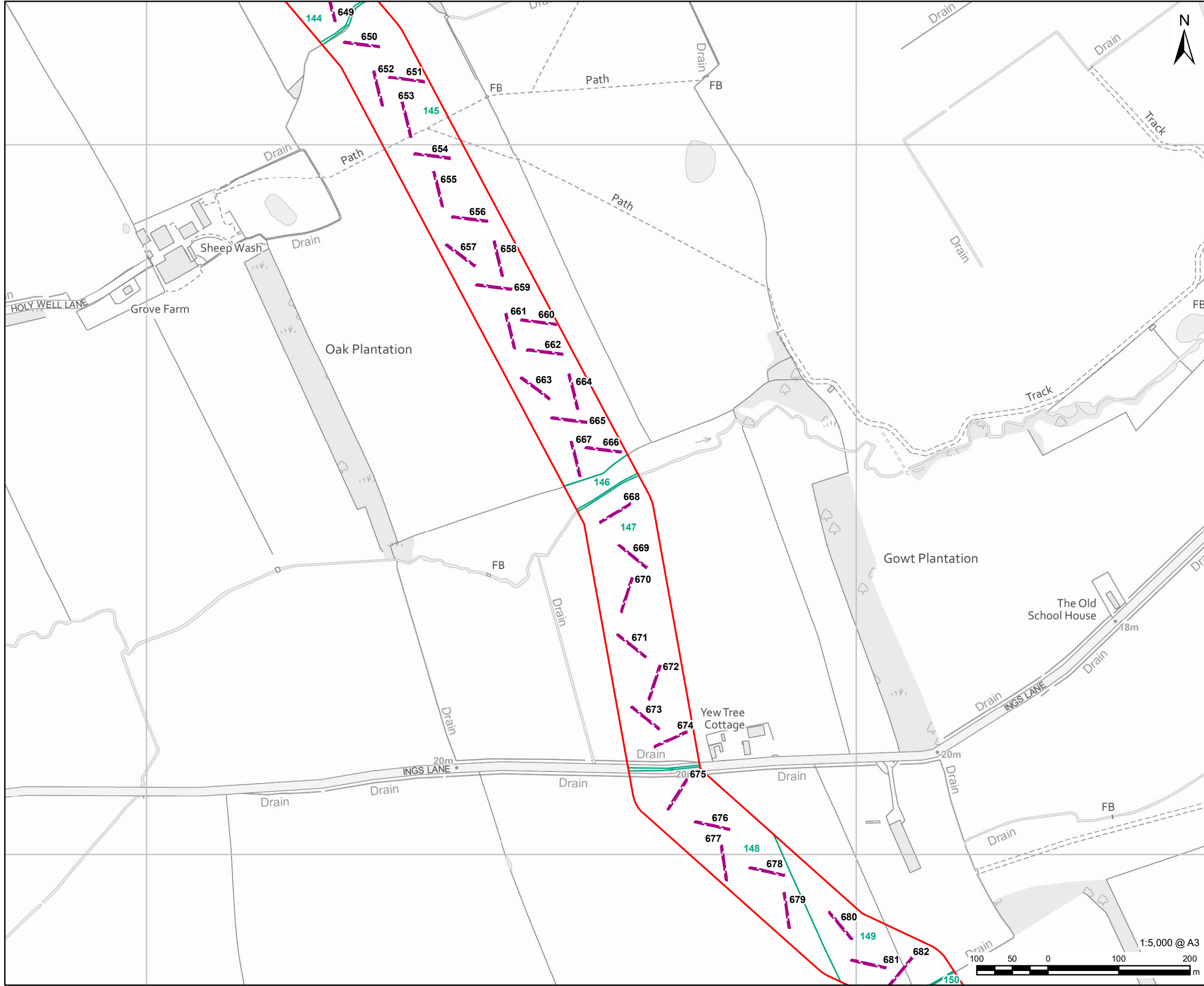


FIGURE TITLE

Figure 3 (21 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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- LEGEND
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 144 Field Numbers
 - Indicative Trench Location

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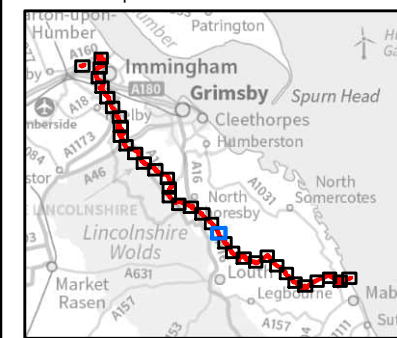
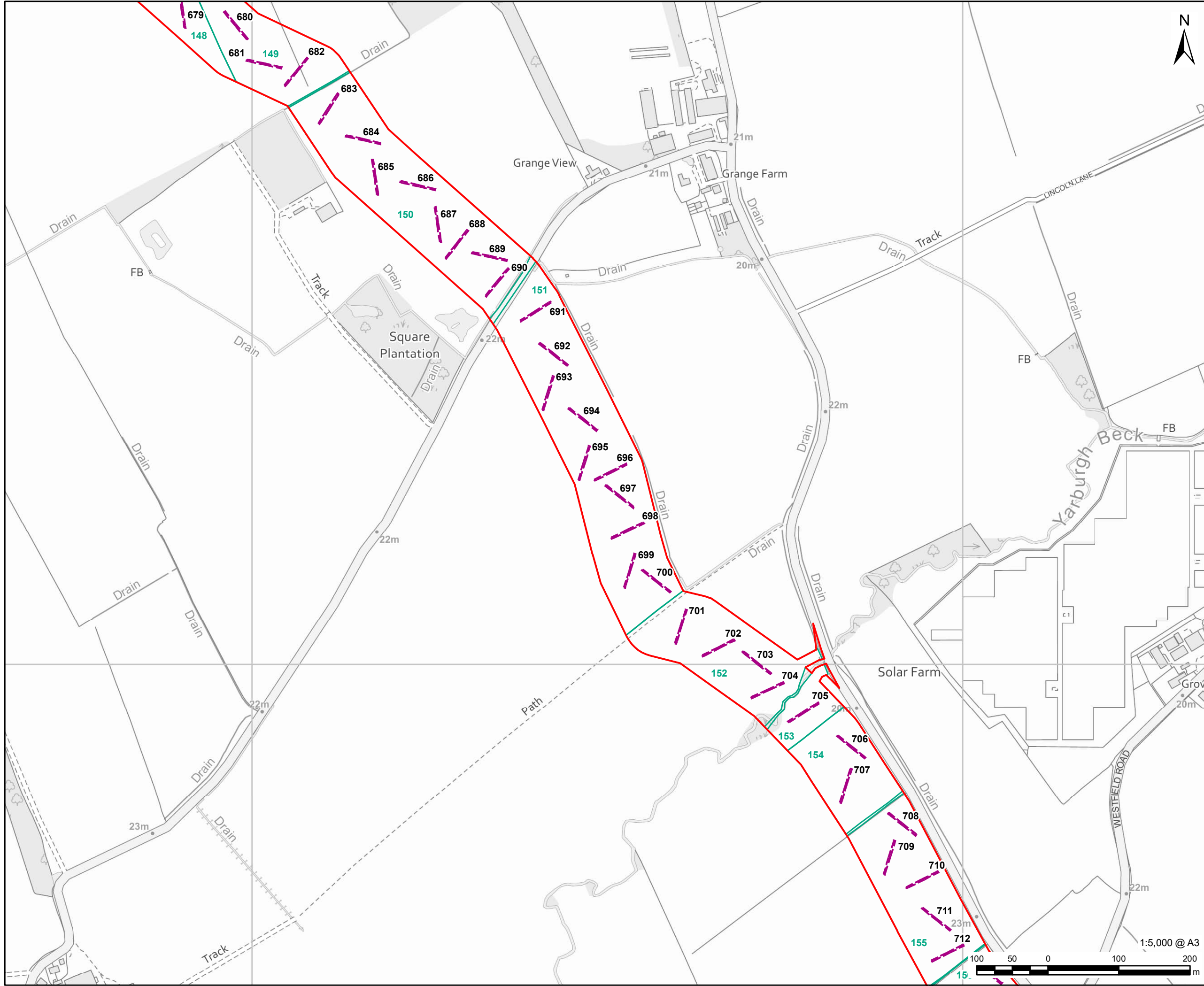


FIGURE TITLE
Figure 3 (22 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 148 Field Numbers
 - Indicative Trench Location

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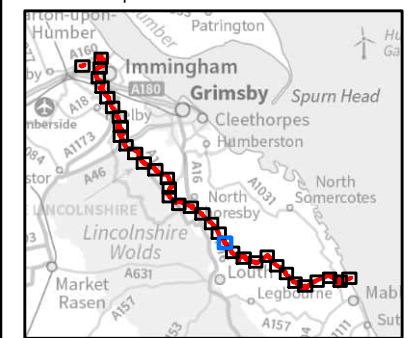
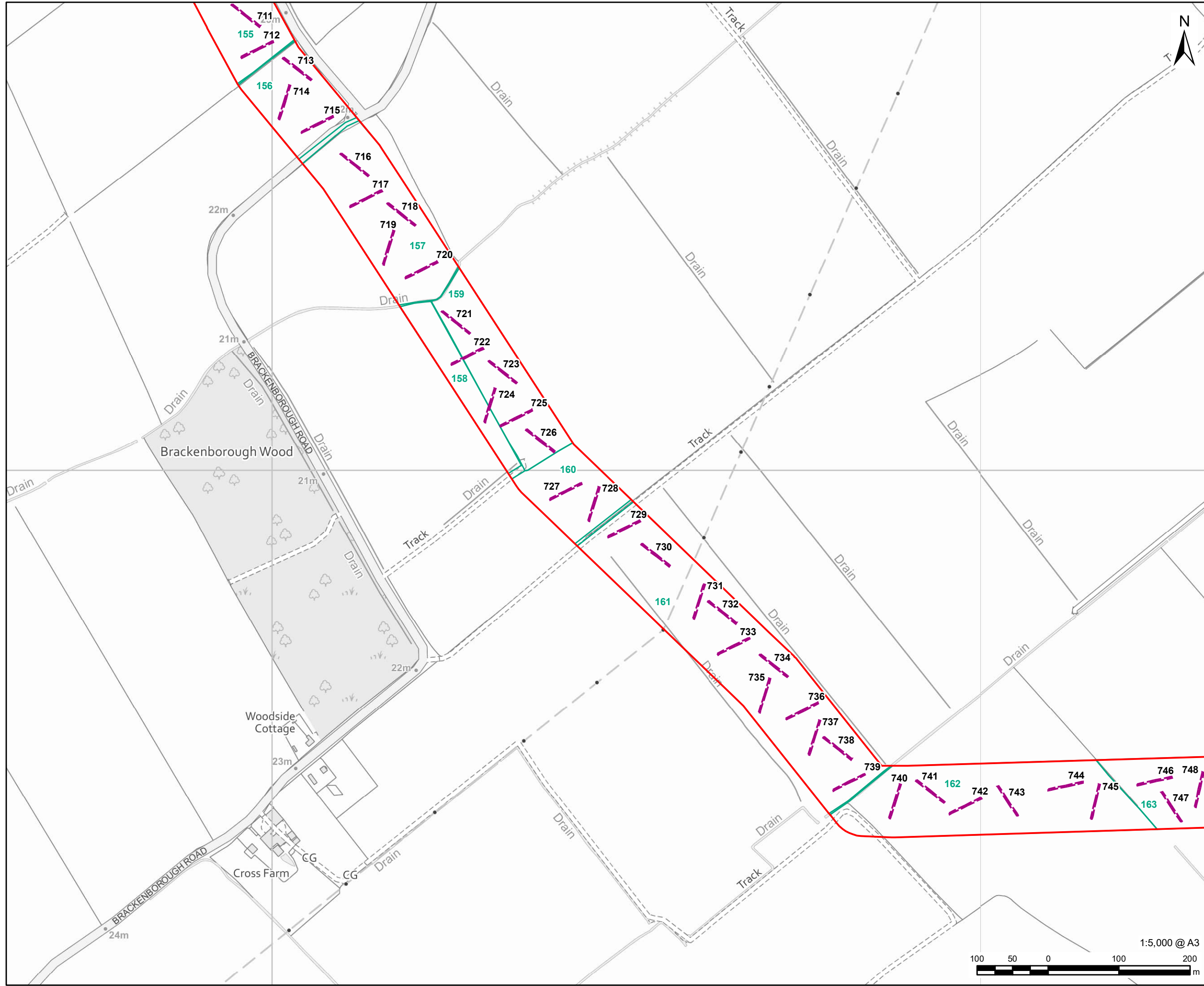


FIGURE TITLE
Figure 3 (23 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location

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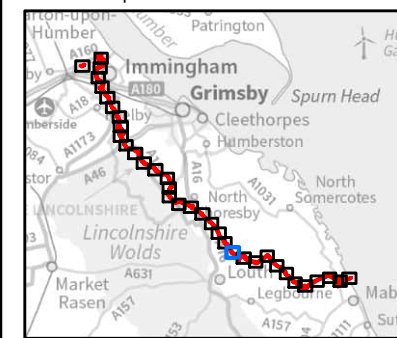


FIGURE TITLE

Figure 3 (24 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

ISSUE PURPOSE

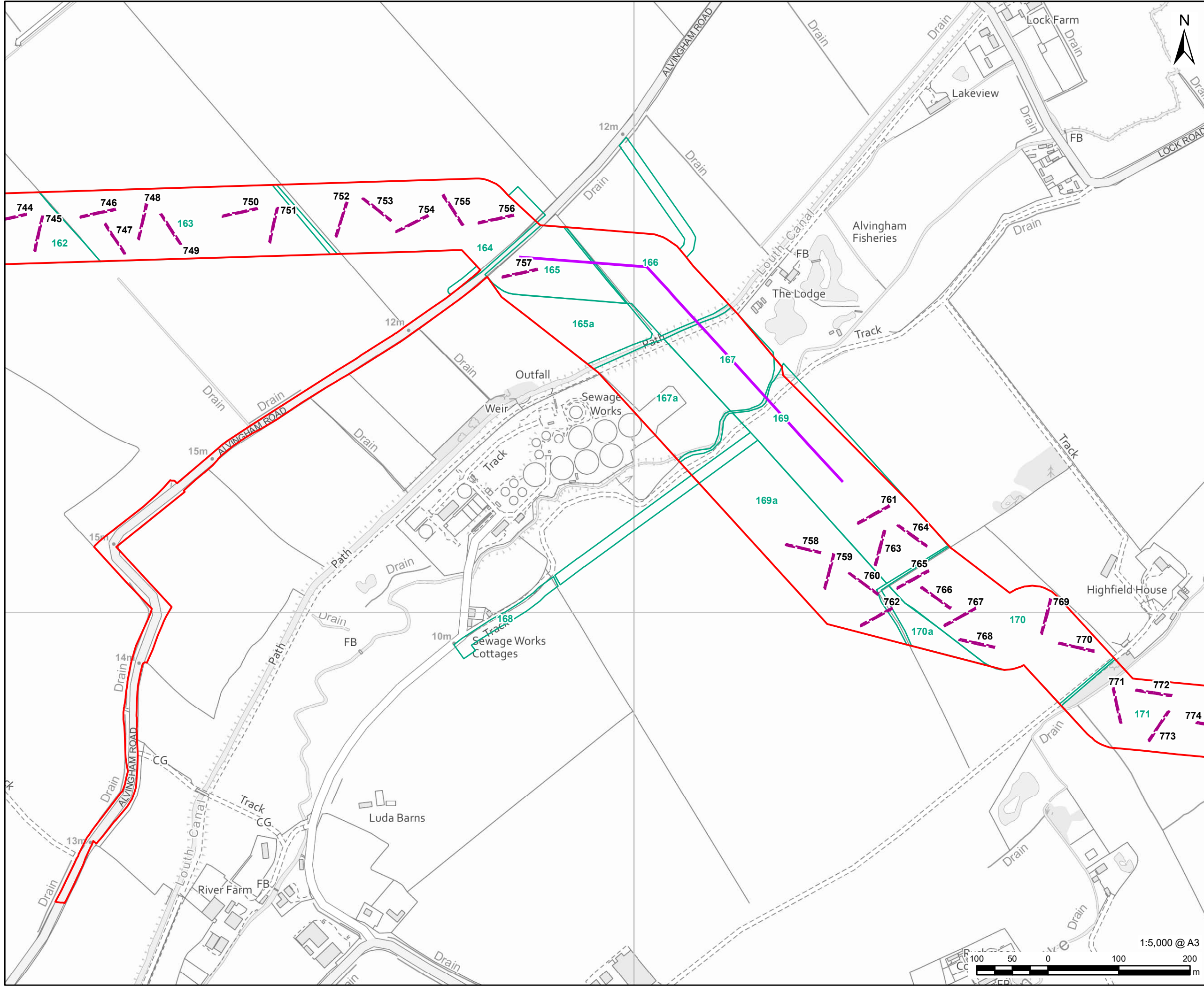
WSI TRIAL TRENCHING

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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Geophysical Survey Area - AOC
- 162 Field Numbers
- Indicative Trench Location

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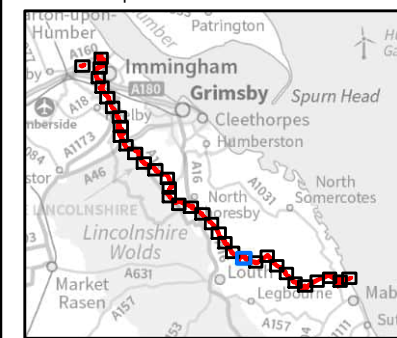


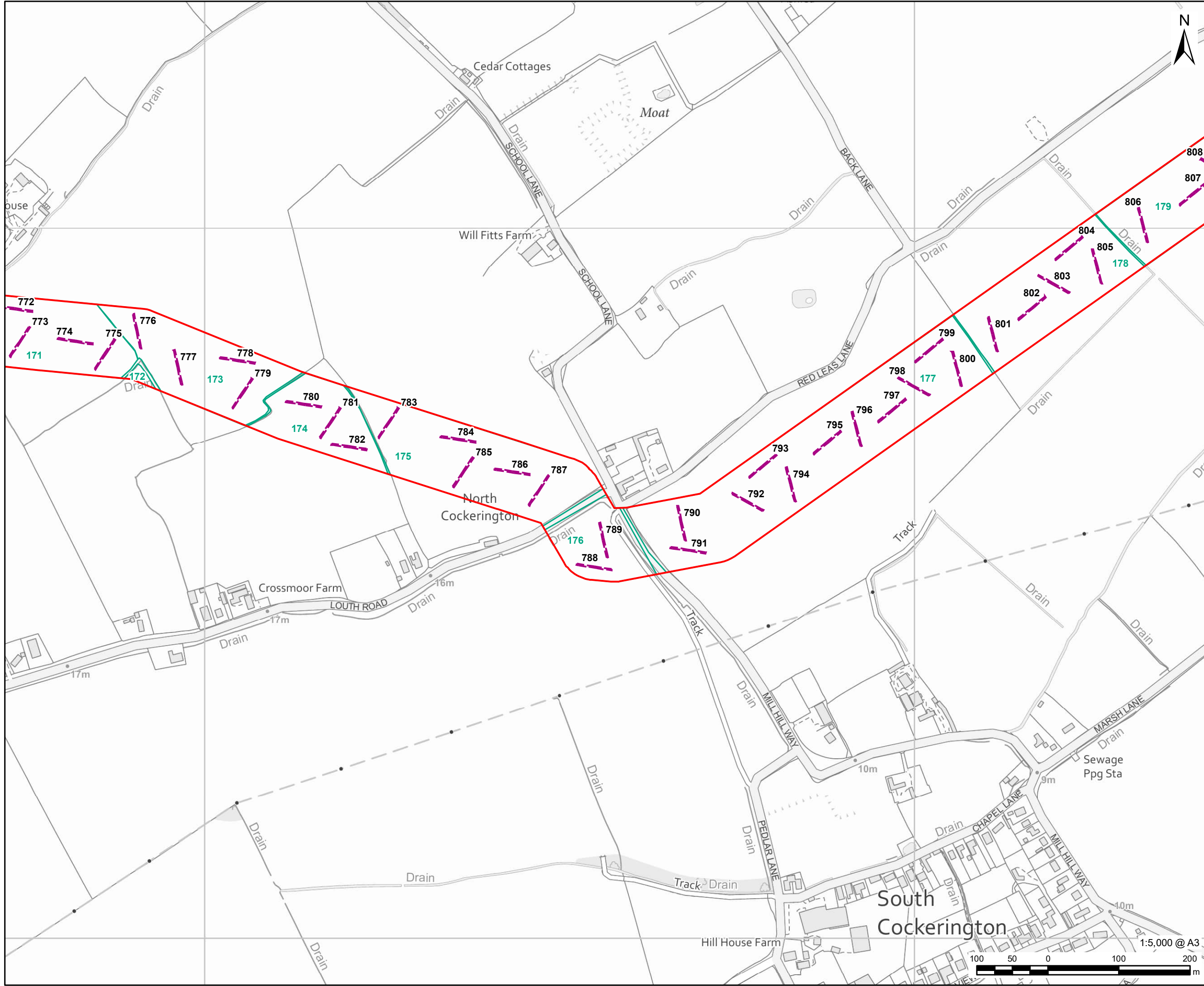
FIGURE TITLE
Figure 3 (25 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 172 Field Numbers
- Indicative Trench Location

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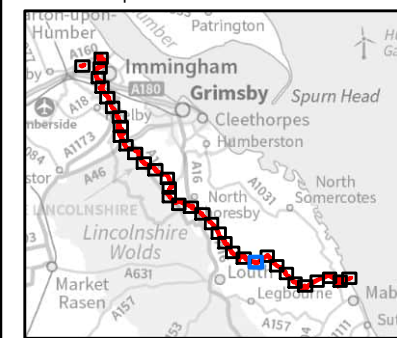
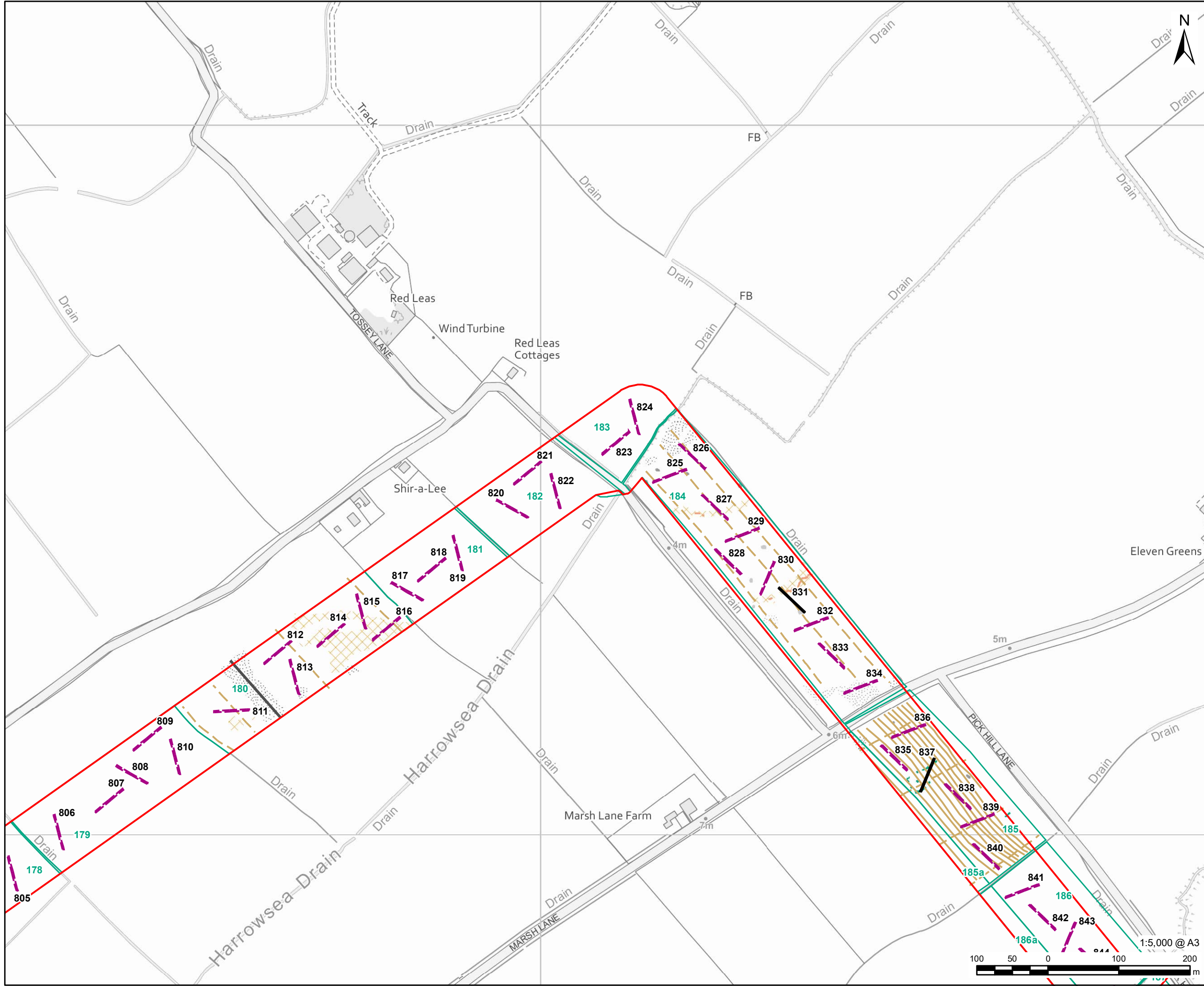


FIGURE TITLE

Figure 3 (26 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)**
- Linear Trend (Agricultural, Ploughing)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Service)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Anomaly (Ferrous/Iron Spike)
- Spread (Ferrous/Iron Spike)
- Anomaly (Unclear Origin)

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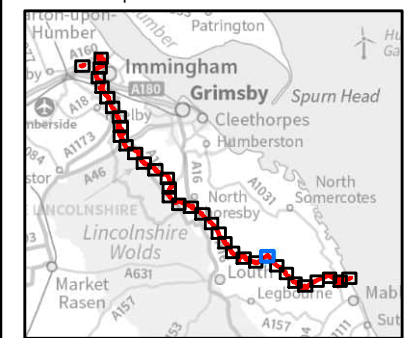
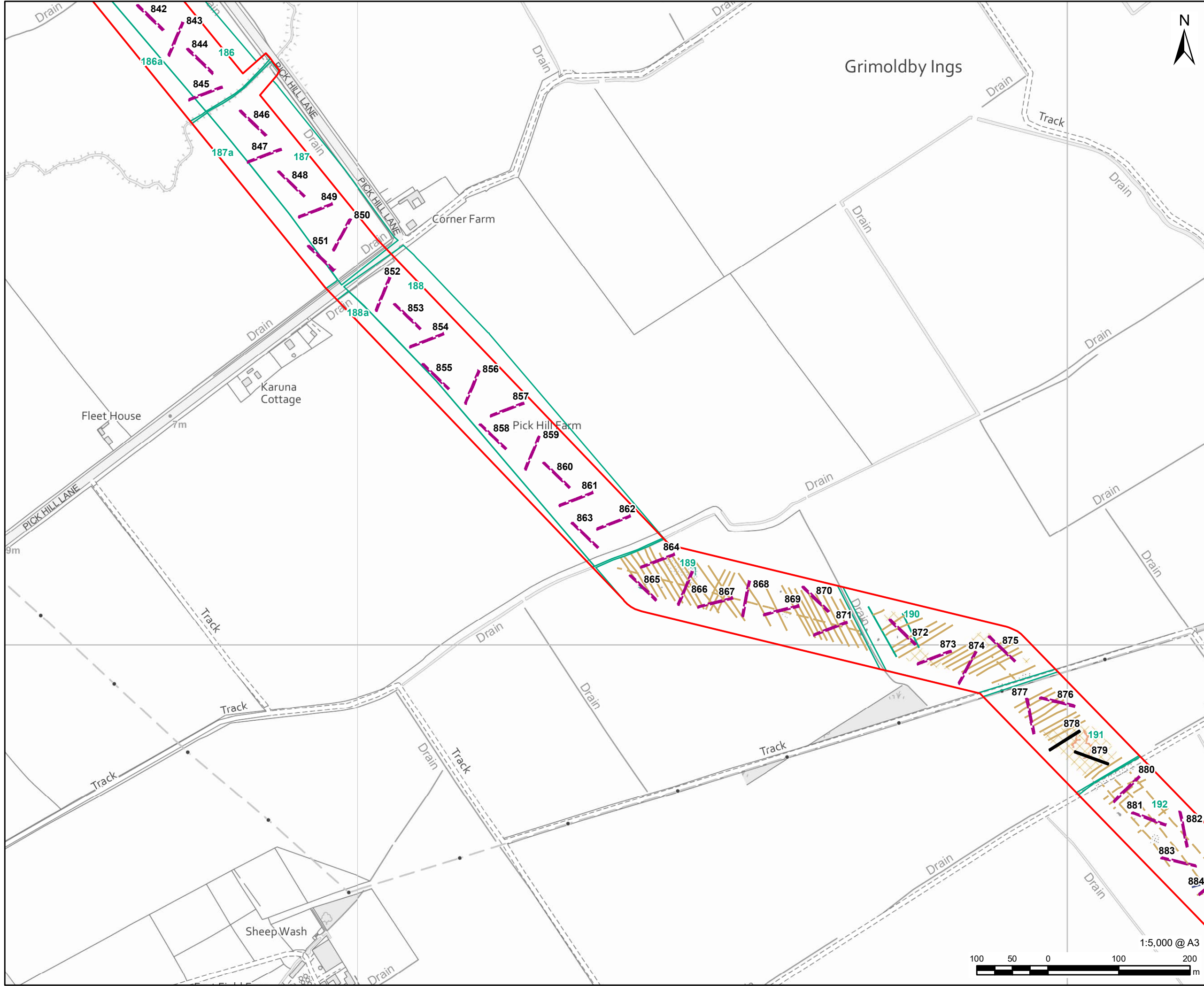


FIGURE TITLE
Figure 3 (27 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_3





- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - 186a Field Numbers
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Geophysical Survey Interpretation (AOC)
 - Linear Trend (Drainage)
 - Linear Trend (Agricultural, Ploughing)
 - Linear Trend (Agricultural, Ridge and Furrow)
 - Linear Trend (Unclear Origin)
 - Anomaly (Magnetic Disturbance)
 - Spread (Magnetic Disturbance)
 - Anomaly (Geology/Natural)
 - Spread (Geology/Natural)
 - Spread (Ferrous/Iron Spike)
 - Anomaly (Unclear Origin)

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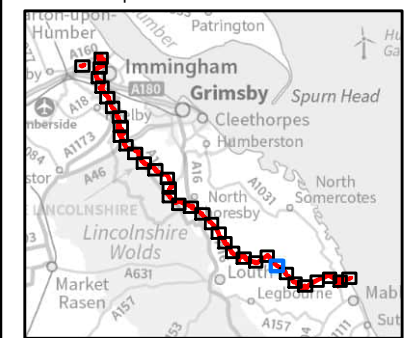
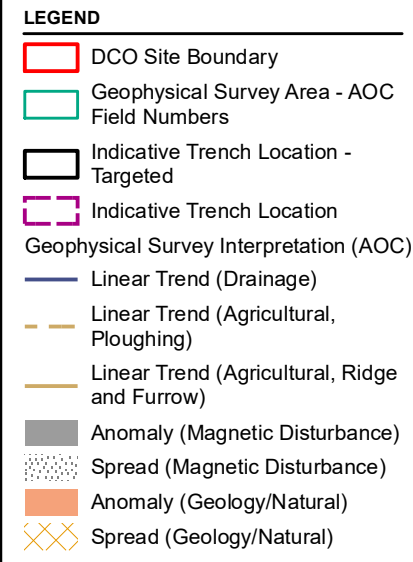
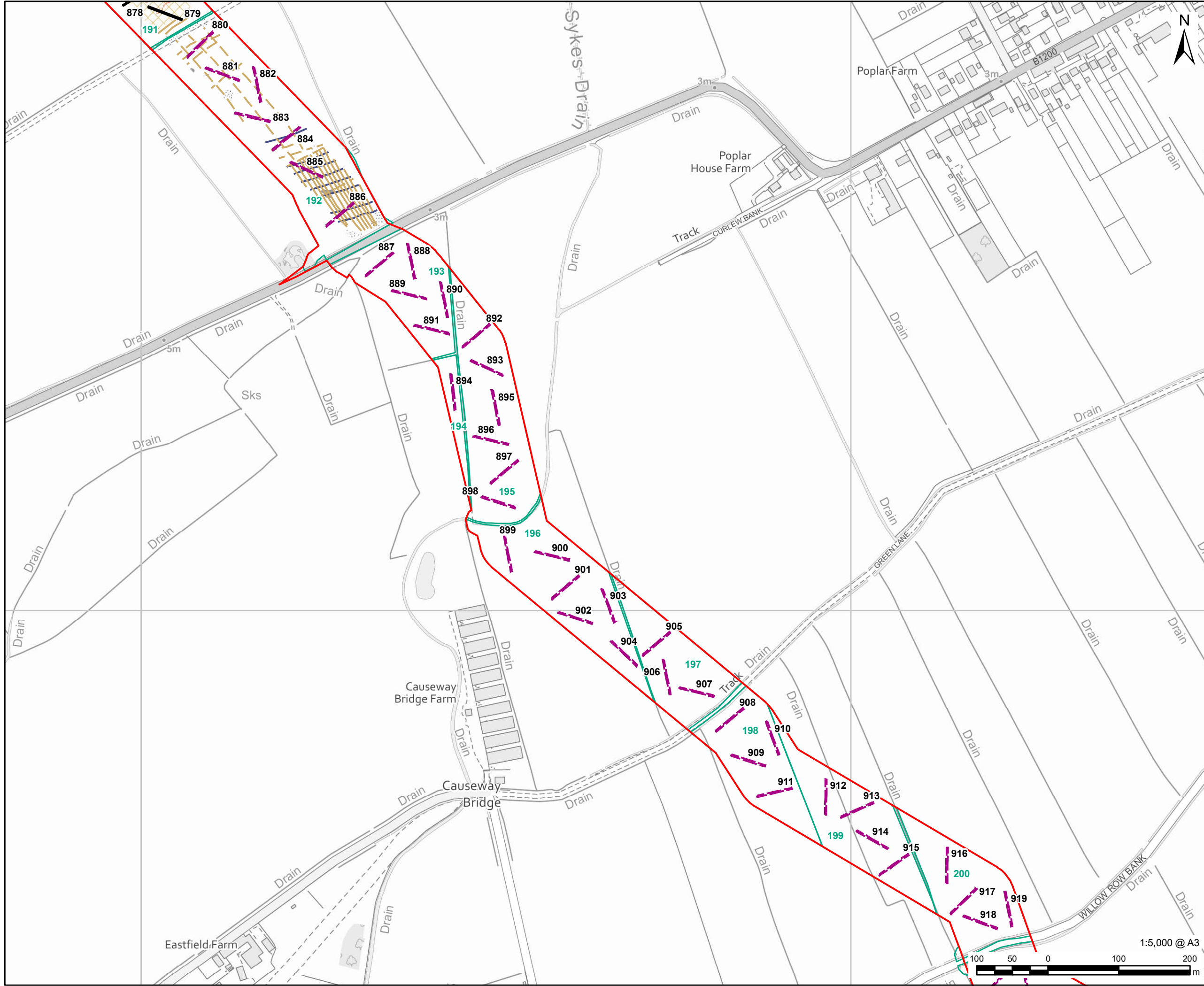


FIGURE TITLE
Figure 3 (28 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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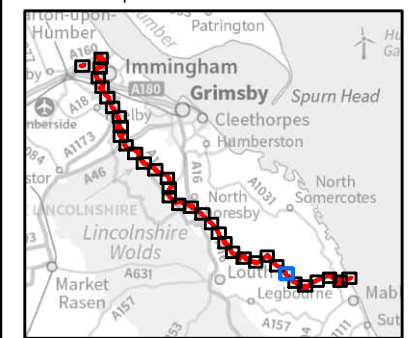
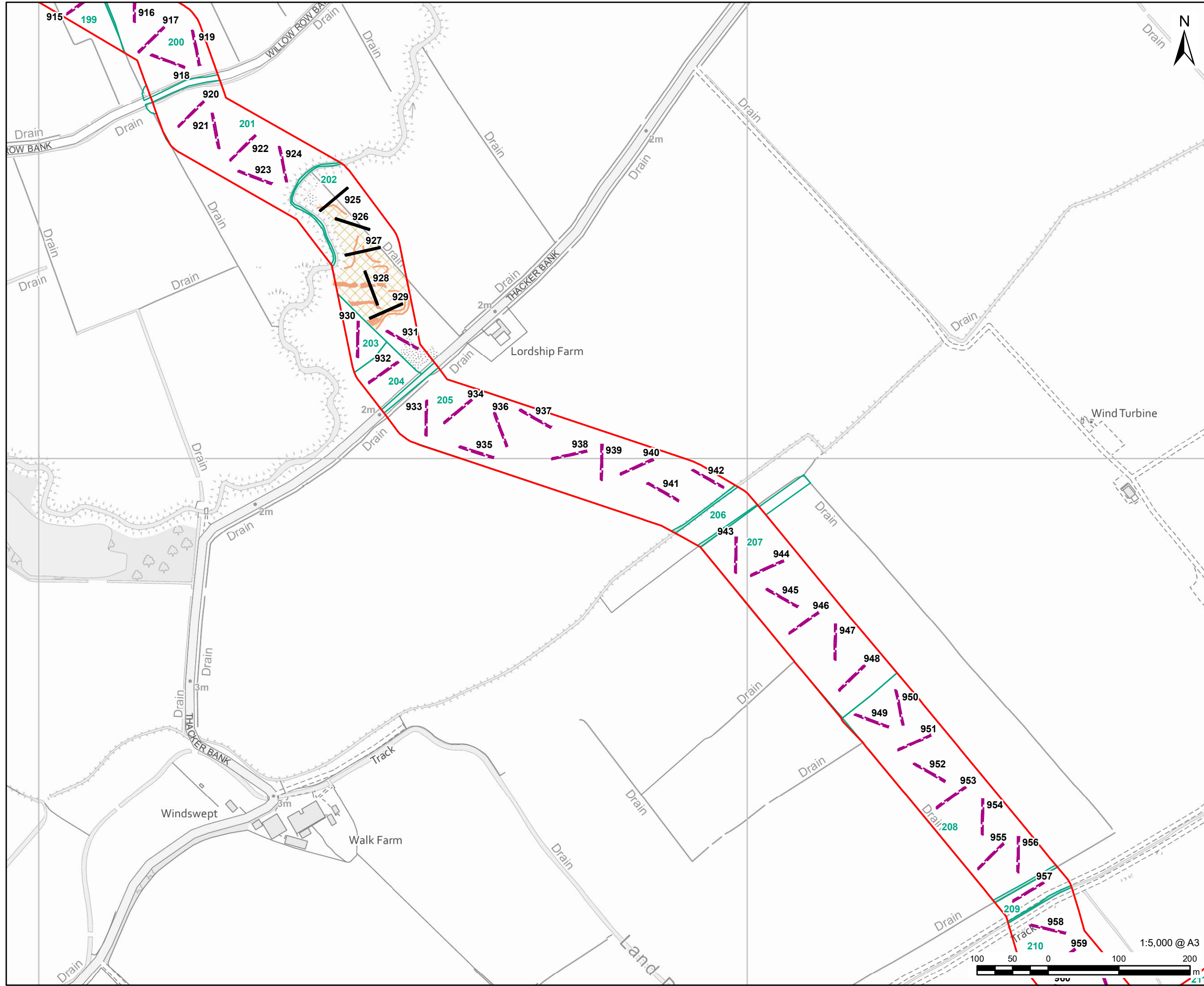


FIGURE TITLE
Figure 3 (29 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 200 Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- 920 Geophysical Survey Interpretation (AOC)
- Linear Trend (Geology/Natural)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)

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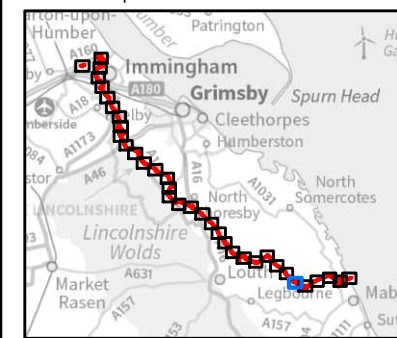
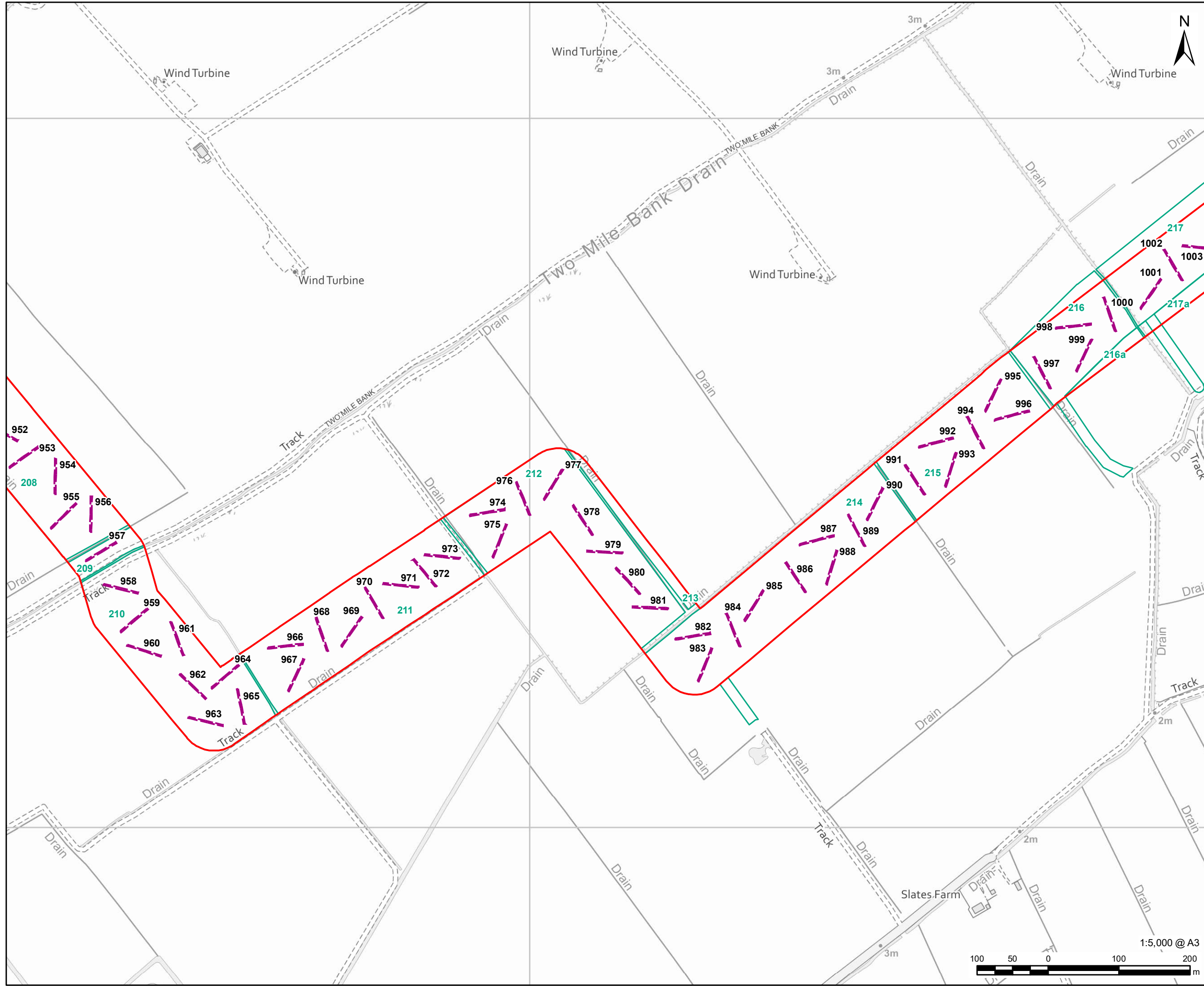


FIGURE TITLE
Figure 3 (30 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- 217 Field Numbers
- Indicative Trench Location

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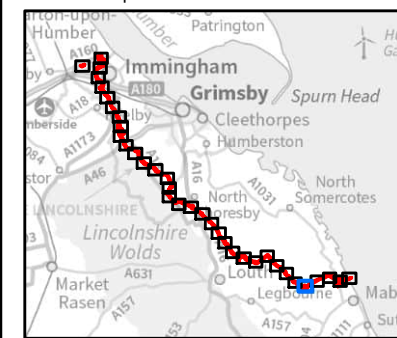
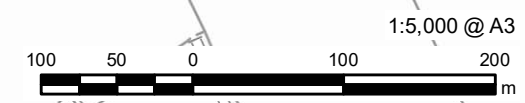
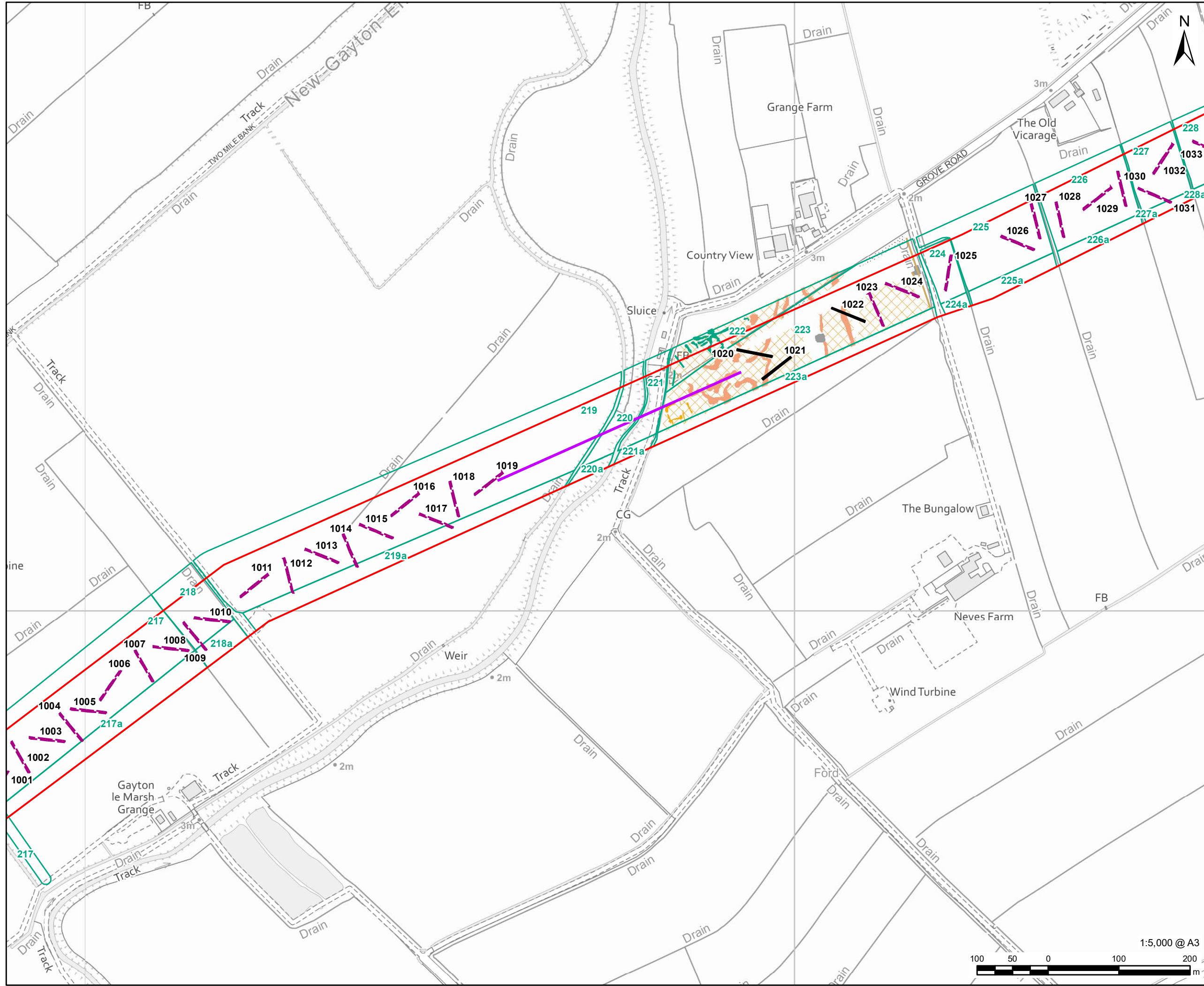


FIGURE TITLE

Figure 3 (31 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation





LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Geophysical Survey Interpretation (AOC)
- Linear Trend (Agricultural, Ridge and Furrow)
- Linear Trend (Unclear Origin)
- Anomaly (Possible)
- Anomaly (Magnetic Disturbance)
- Spread (Magnetic Disturbance)
- Anomaly (Geology/Natural)
- Spread (Geology/Natural)
- Anomaly (Unclear Origin)

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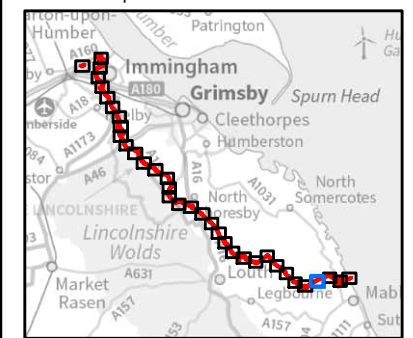
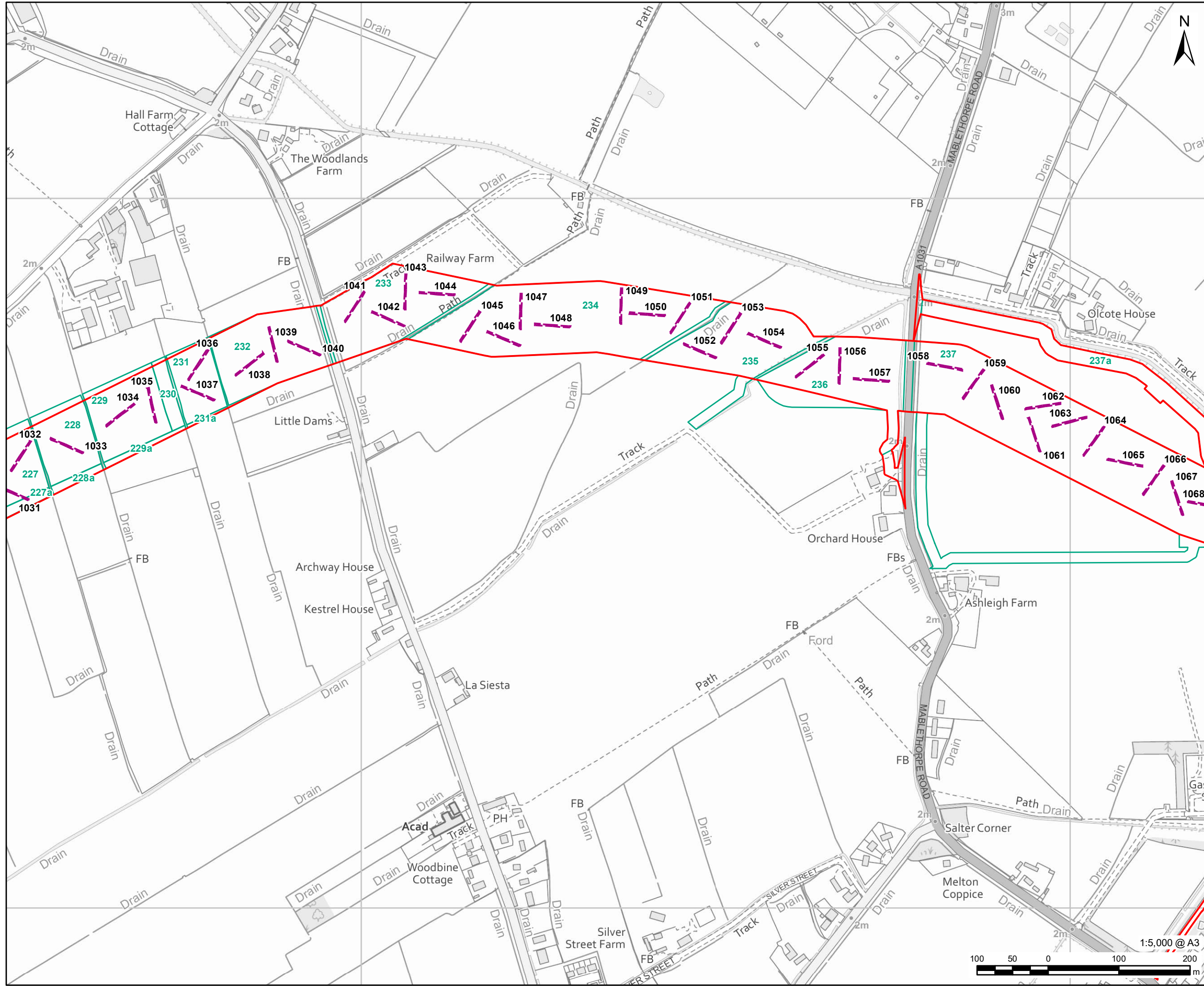


FIGURE TITLE
Figure 3 (32 of 35)
Indicative Trench Locations with AOC Geophysical Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers
 - Indicative Trench Location

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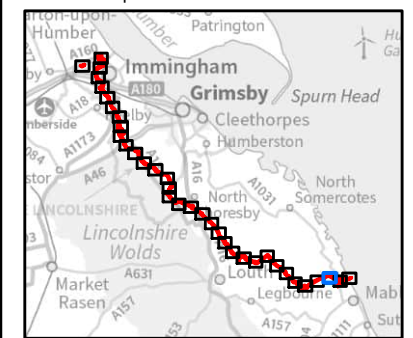
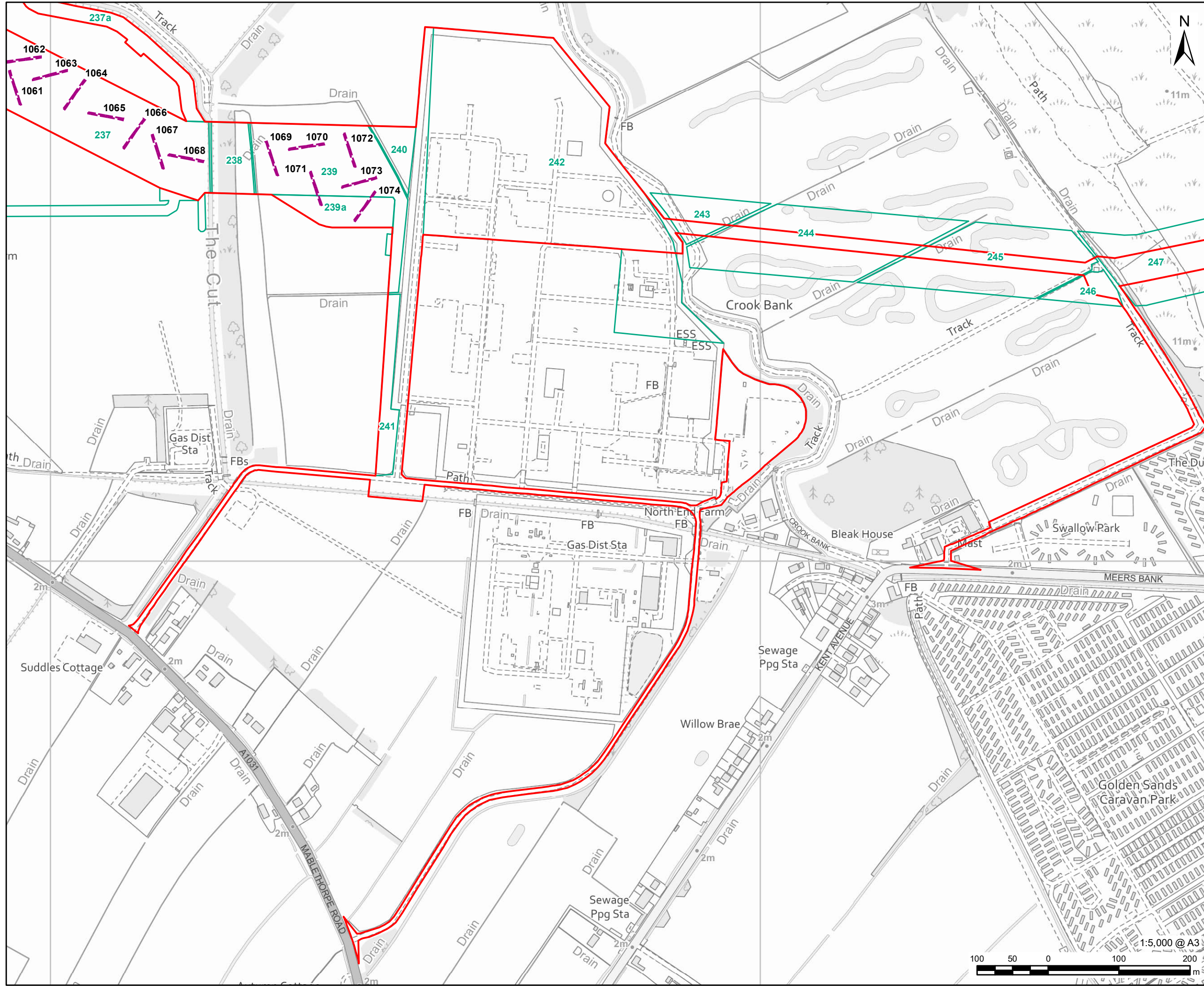


FIGURE TITLE
 Figure 3 (33 of 35)
 Indicative Trench Locations with
 AOC Geophysical Survey
 Interpretation

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LEGEND

- DCO Site Boundary
- Geophysical Survey Area - AOC
- Field Numbers
- Indicative Trench Location

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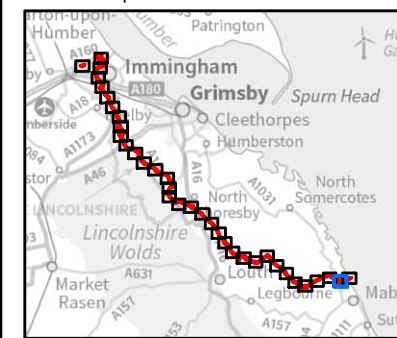


FIGURE TITLE
Figure 3 (34 of 35)
Indicative Trench Locations with
AOC Geophysical Survey
Interpretation

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PROJECT NUMBER / REFERENCE
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- LEGEND**
- DCO Site Boundary
 - Geophysical Survey Area - AOC
 - Field Numbers

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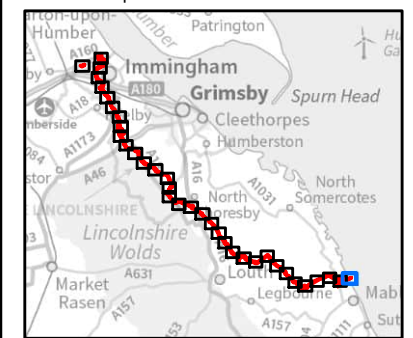
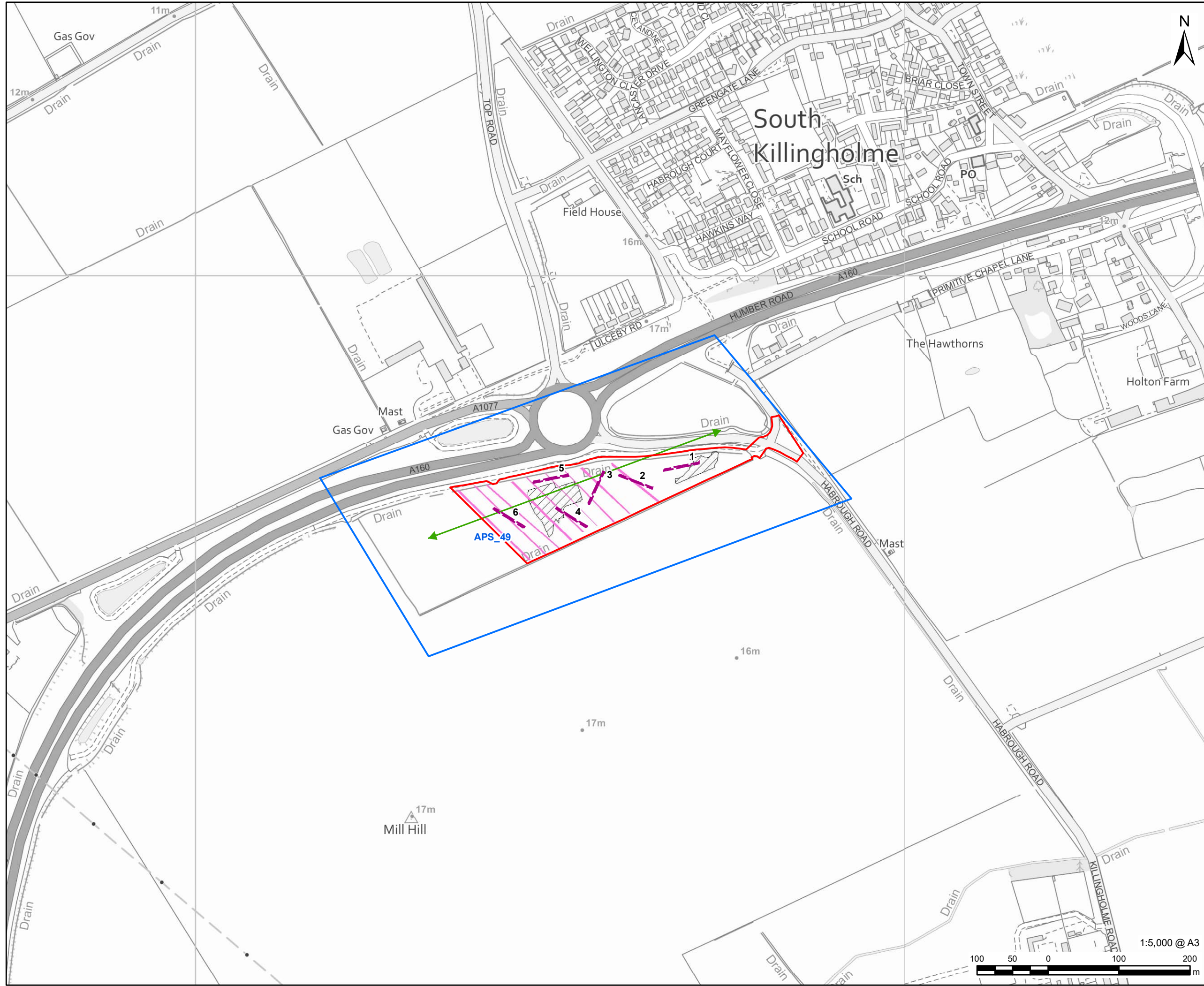


FIGURE TITLE
Figure 3 (35 of 35)
Indicative Trench Locations with
AOC Geophysical Survey
Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_3

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location
 - Site Extent
 - Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - ↔ Drainage Ditch
 - Mining

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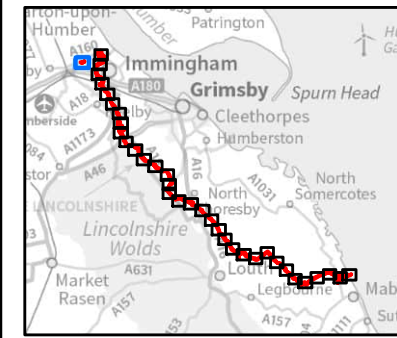
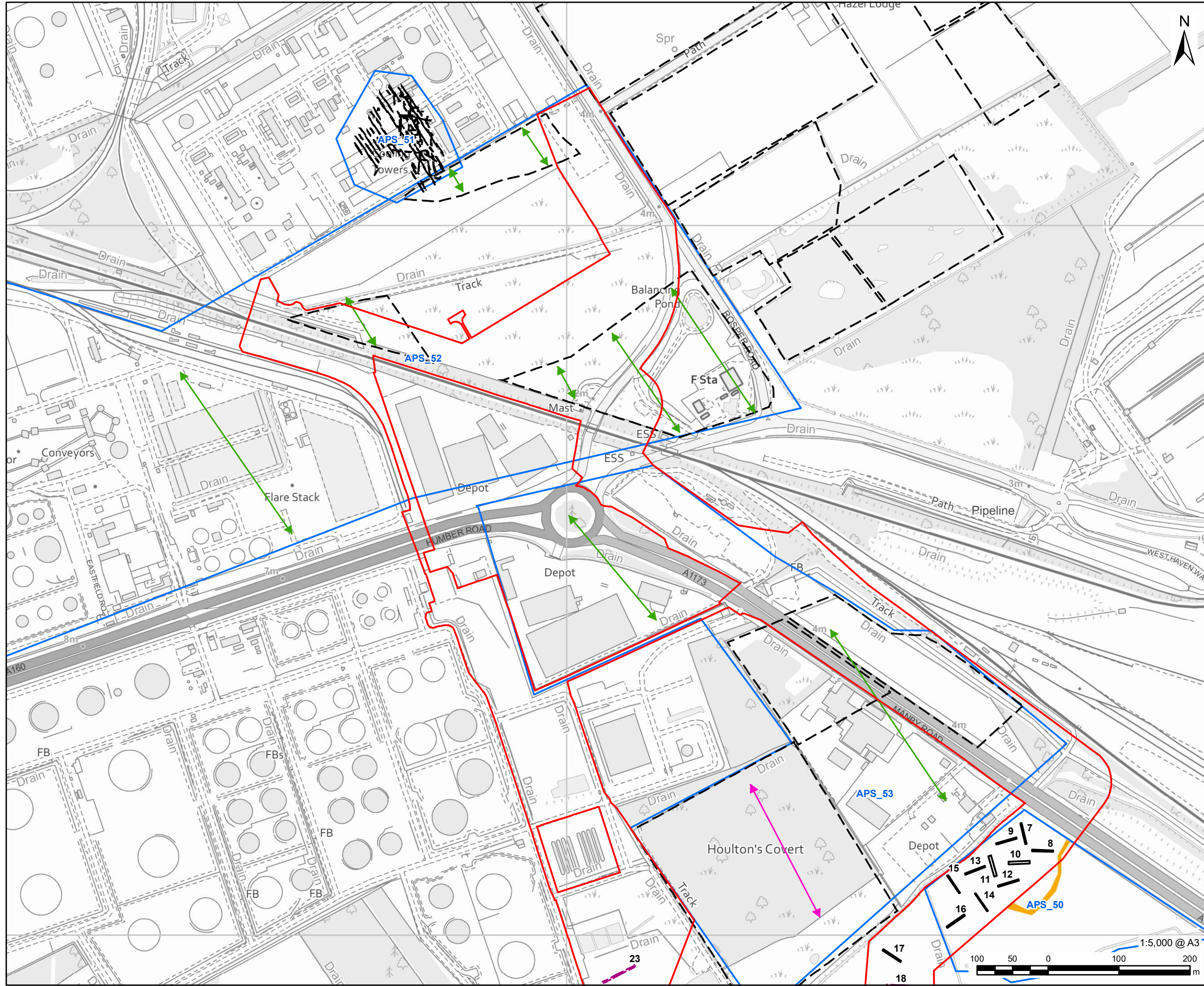


FIGURE TITLE
Figure 4 (1 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Extant Ridge and Furrow
 - ↔ Eroded Ridge and Furrow
 - ↔ Ditch
 - Inner Humber NMP

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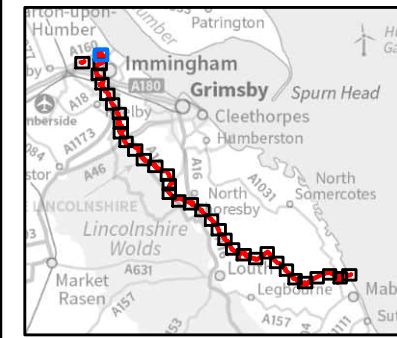
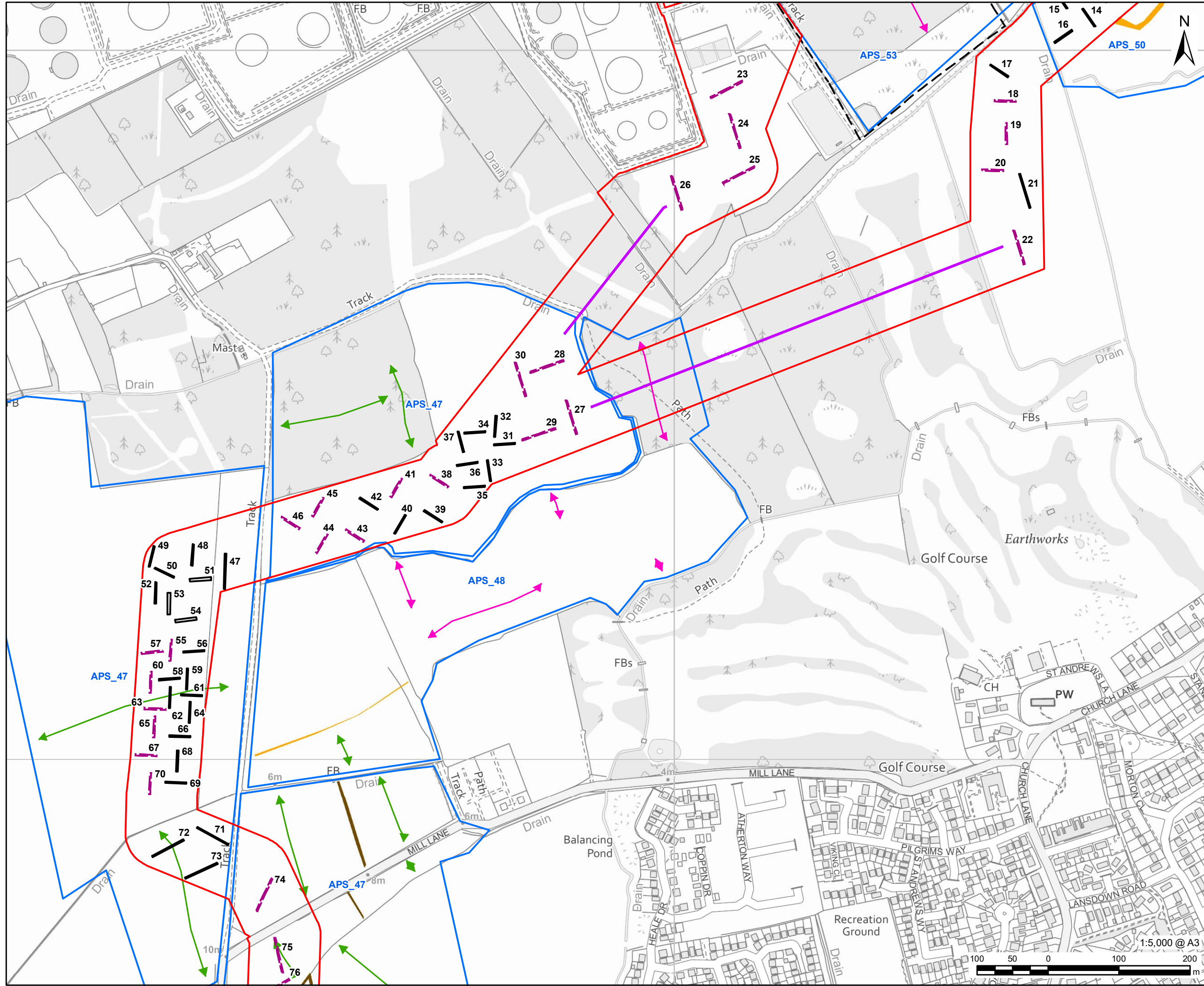


FIGURE TITLE

Figure 4 (2 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Proposed HDD Section
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Extant Ridge and Furrow
 - ↔ Eroded Ridge and Furrow
 - Ditch
 - Field Boundary
 - Inner Humber NMP

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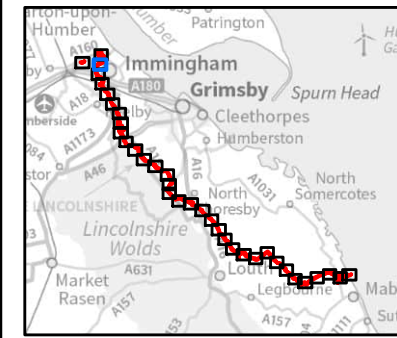
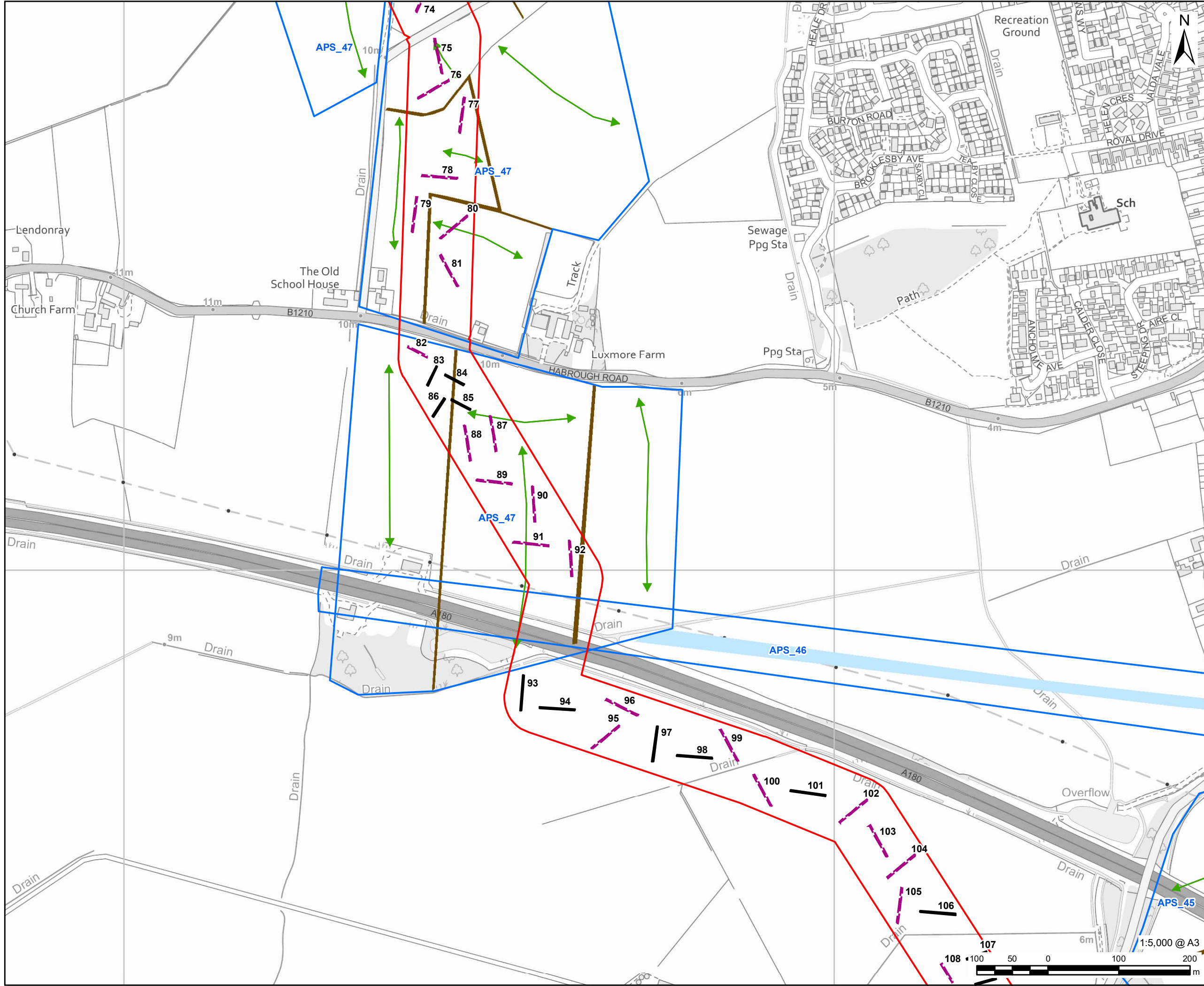


FIGURE TITLE
Figure 4 (3 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Field Boundary
 - Road

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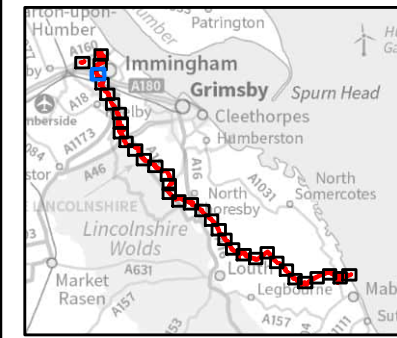
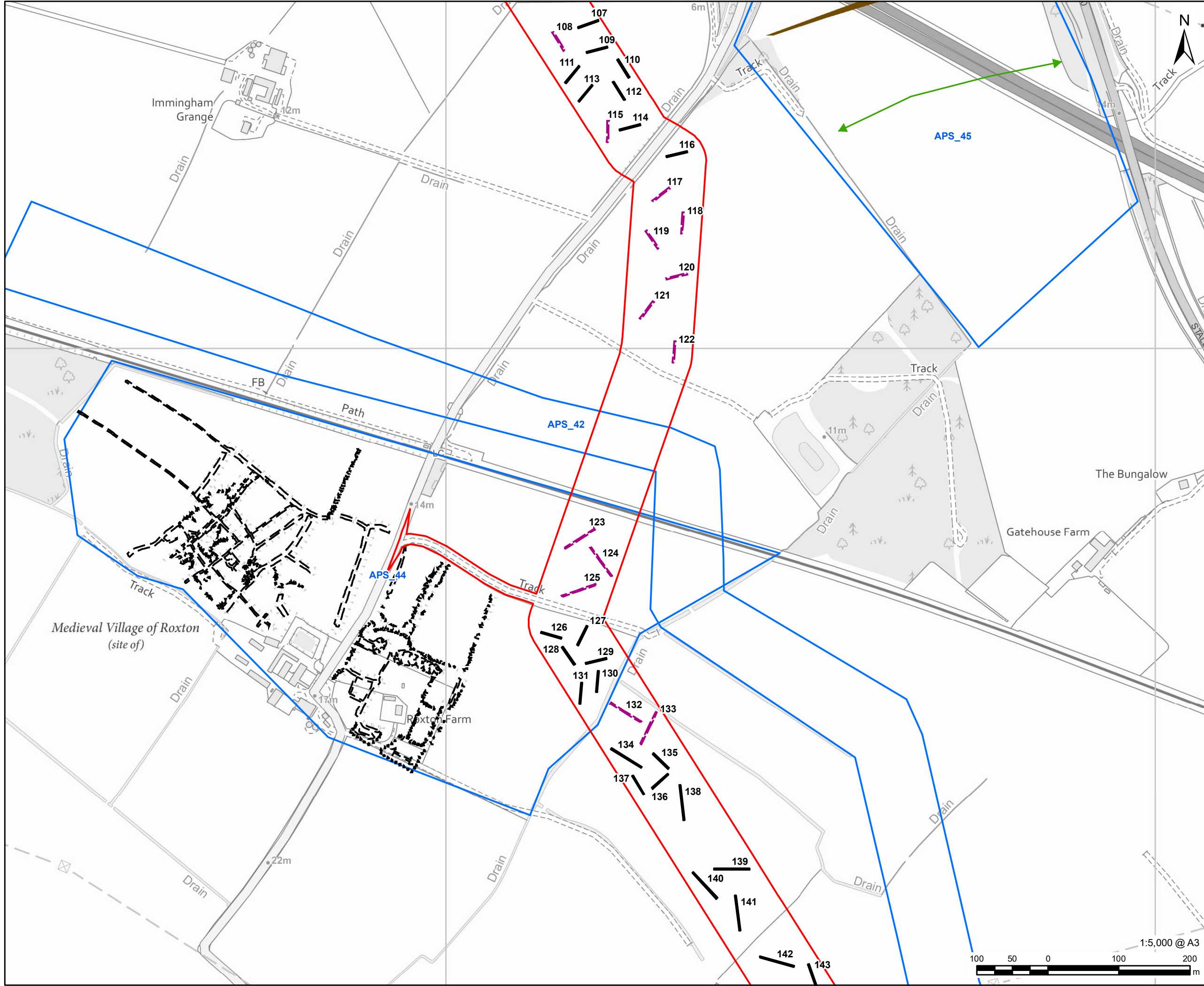


FIGURE TITLE
Figure 4 (4 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_4

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - Air Photo Services Interpretation
 - Eroded Ridge and Furrow
 - Field Boundary
 - Lincolnshire NMP

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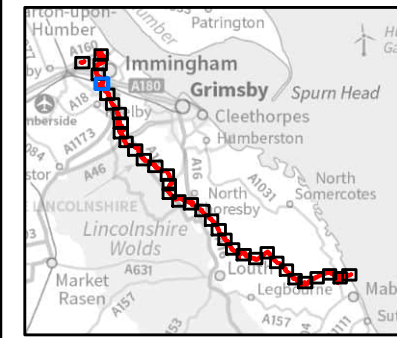
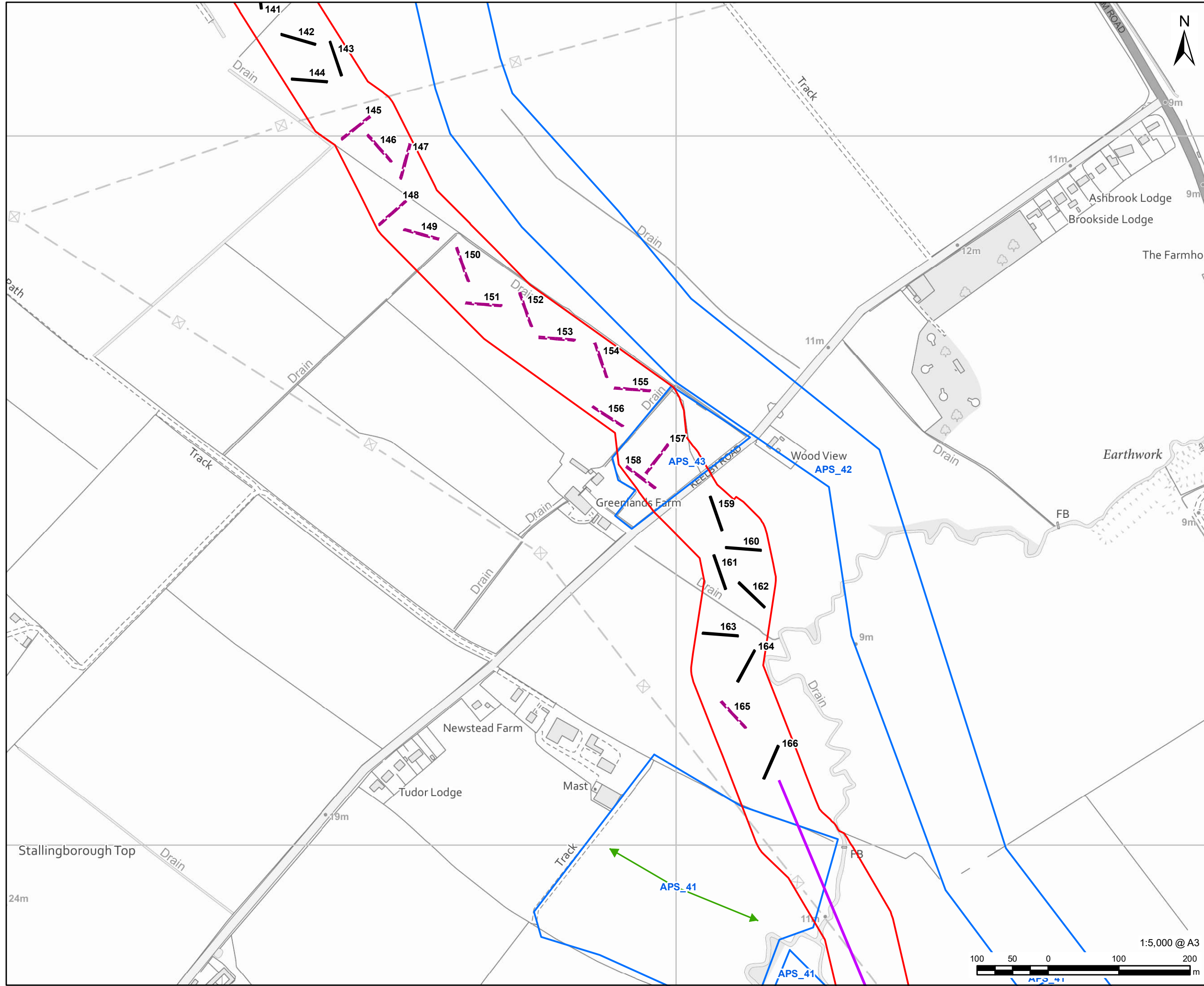


FIGURE TITLE
 Figure 4 (5 of 35)
 Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_4



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- LEGEND**
- DCO Site Boundary
 - Proposed HDD Section
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow

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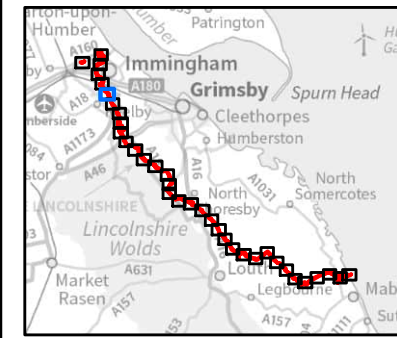
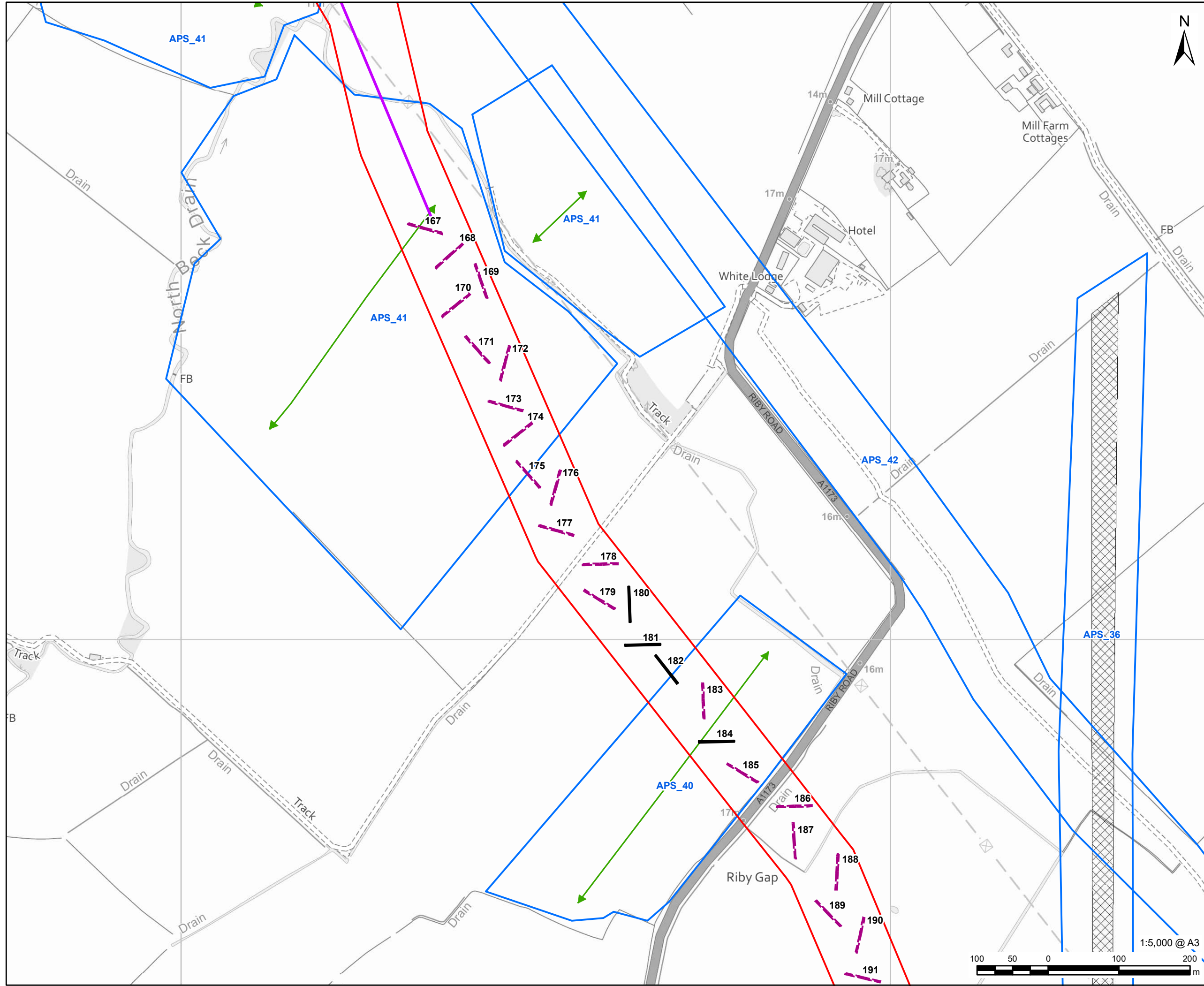


FIGURE TITLE
Figure 4 (6 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Proposed HDD Section
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - Air Photo Services Interpretation
 - Eroded Ridge and Furrow
 - Modern Service

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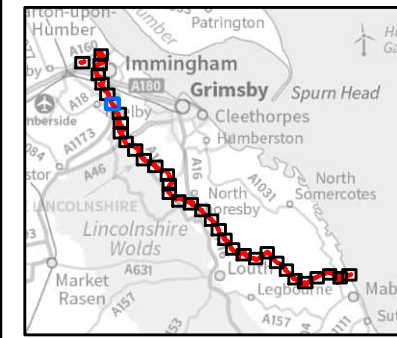
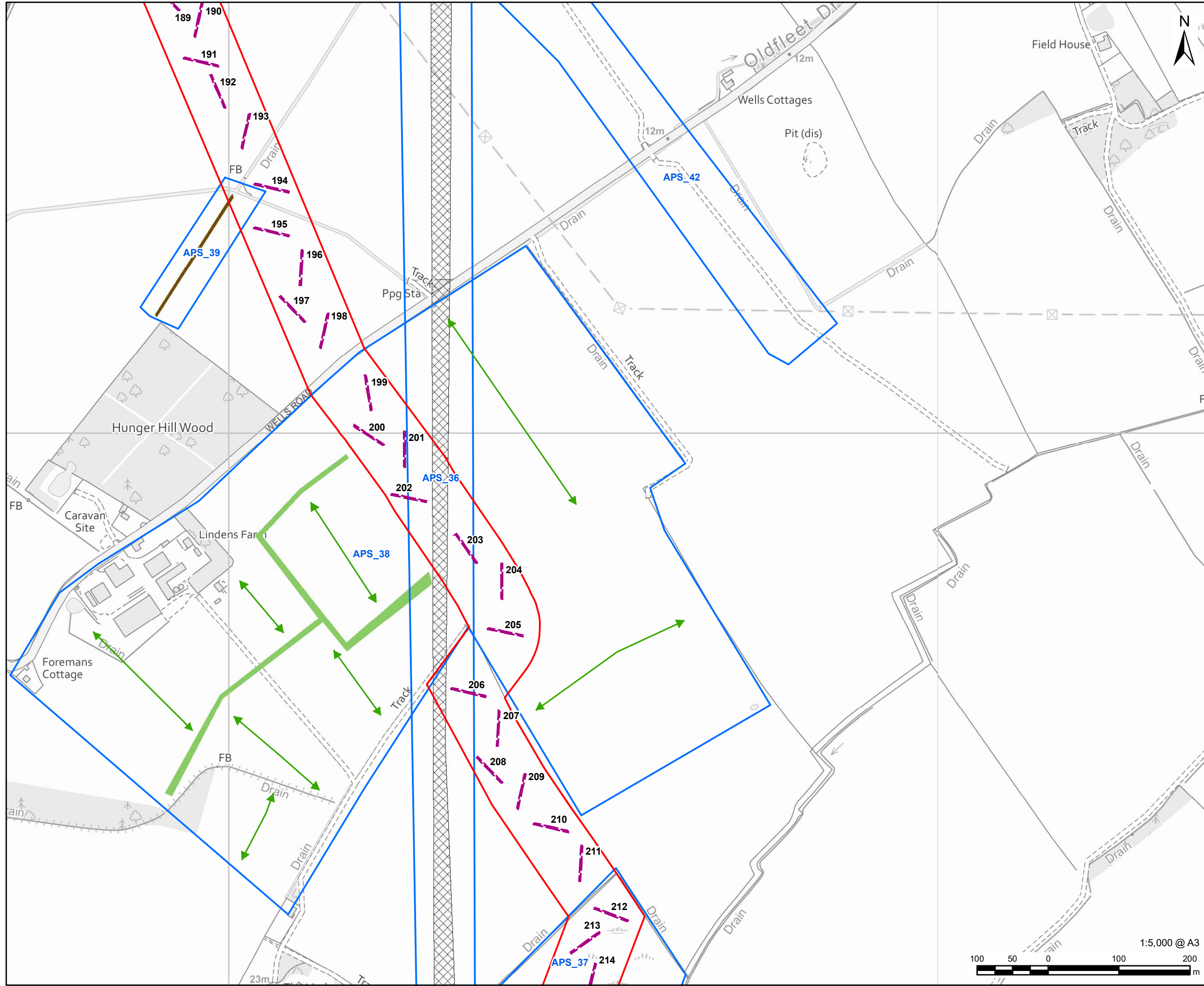


FIGURE TITLE
Figure 4 (7 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location
 - Site Extent
 - Air Photo Services Interpretation**
 - ↔ Eroded Ridge and Furrow
 - Field Boundary
 - Headland
 - Modern Service

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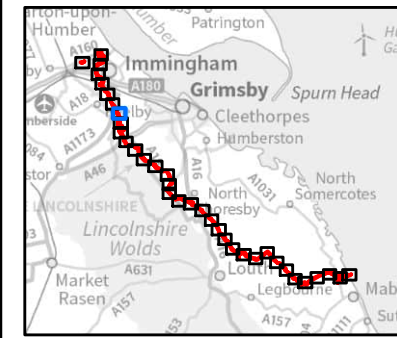
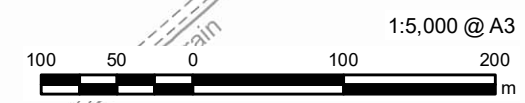
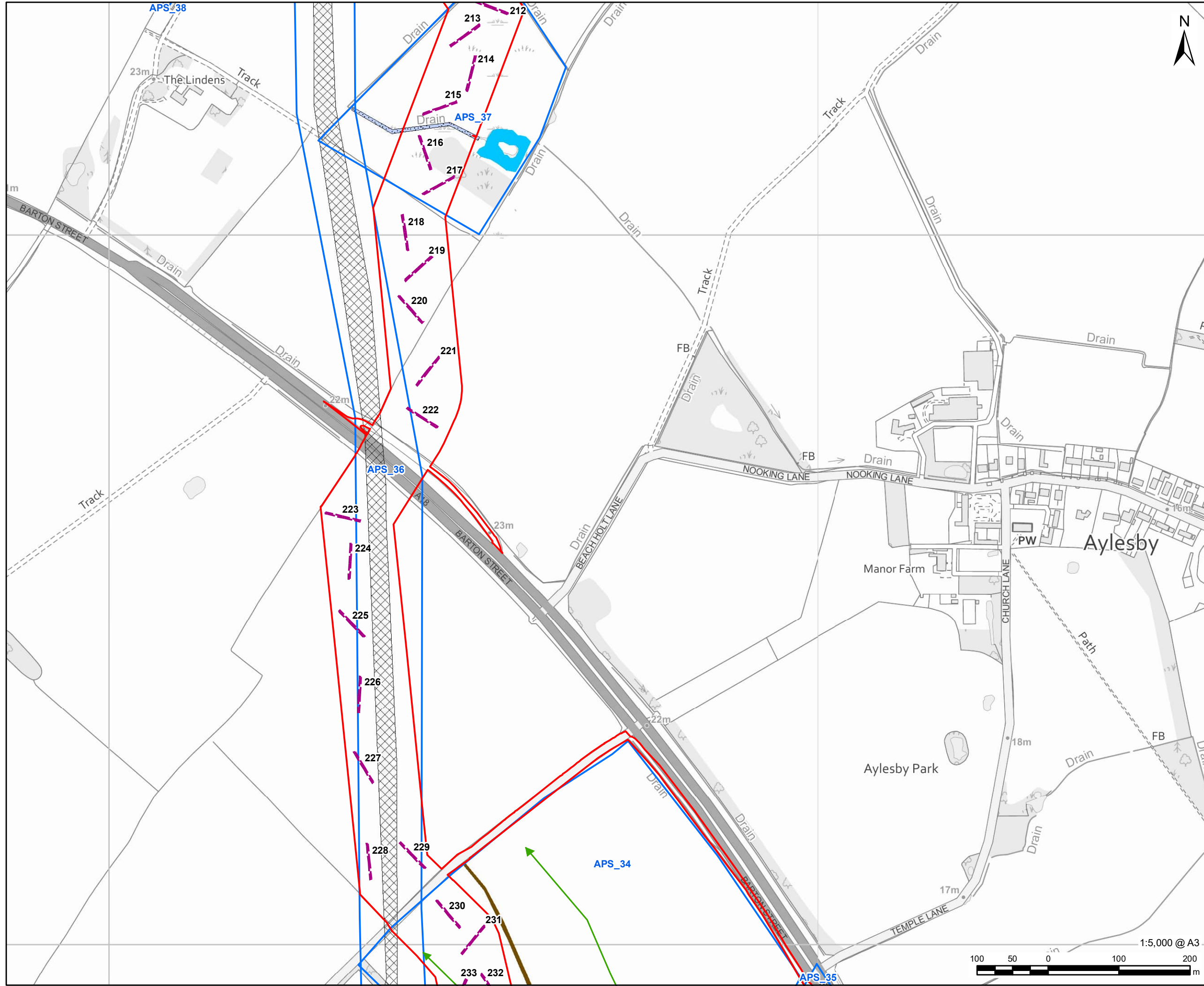


FIGURE TITLE

Figure 4 (8 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Site Extent
- Air Photo Services Interpretation**
- ↔ Eroded Ridge and Furrow
- Field Boundary
- Leat
- Mining
- Moated Site
- Modern Service

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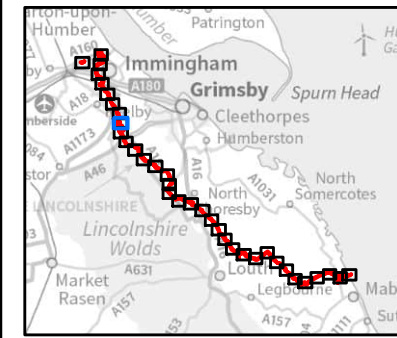
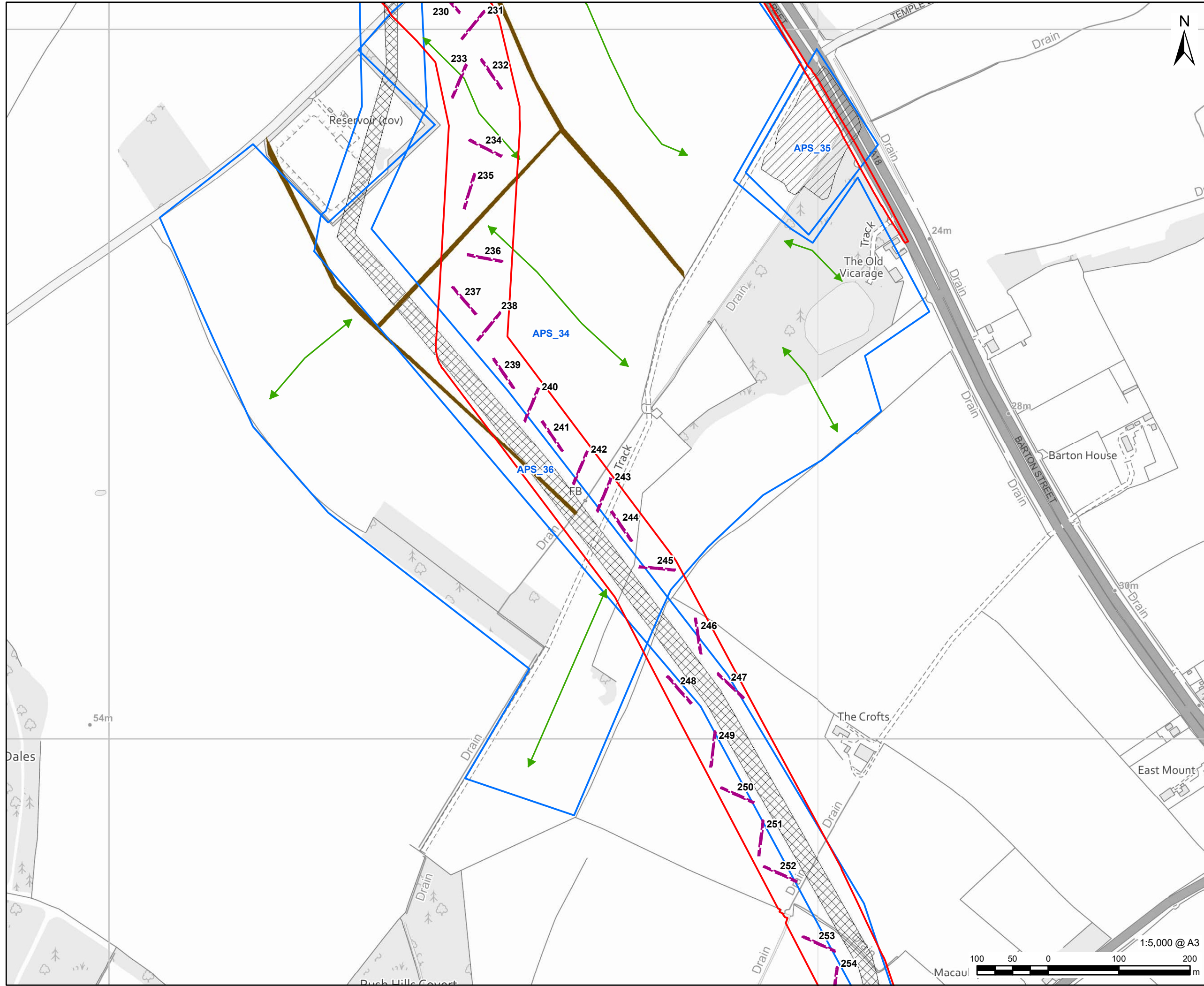


FIGURE TITLE
Figure 4 (9 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_4





LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Site Extent
- ↔ Air Photo Services Interpretation
- ↔ Eroded Ridge and Furrow
- Field Boundary
- Mining
- Modern Service

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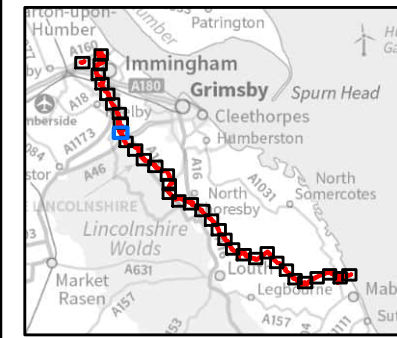
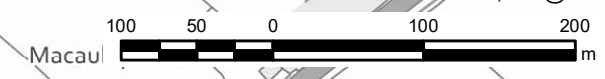
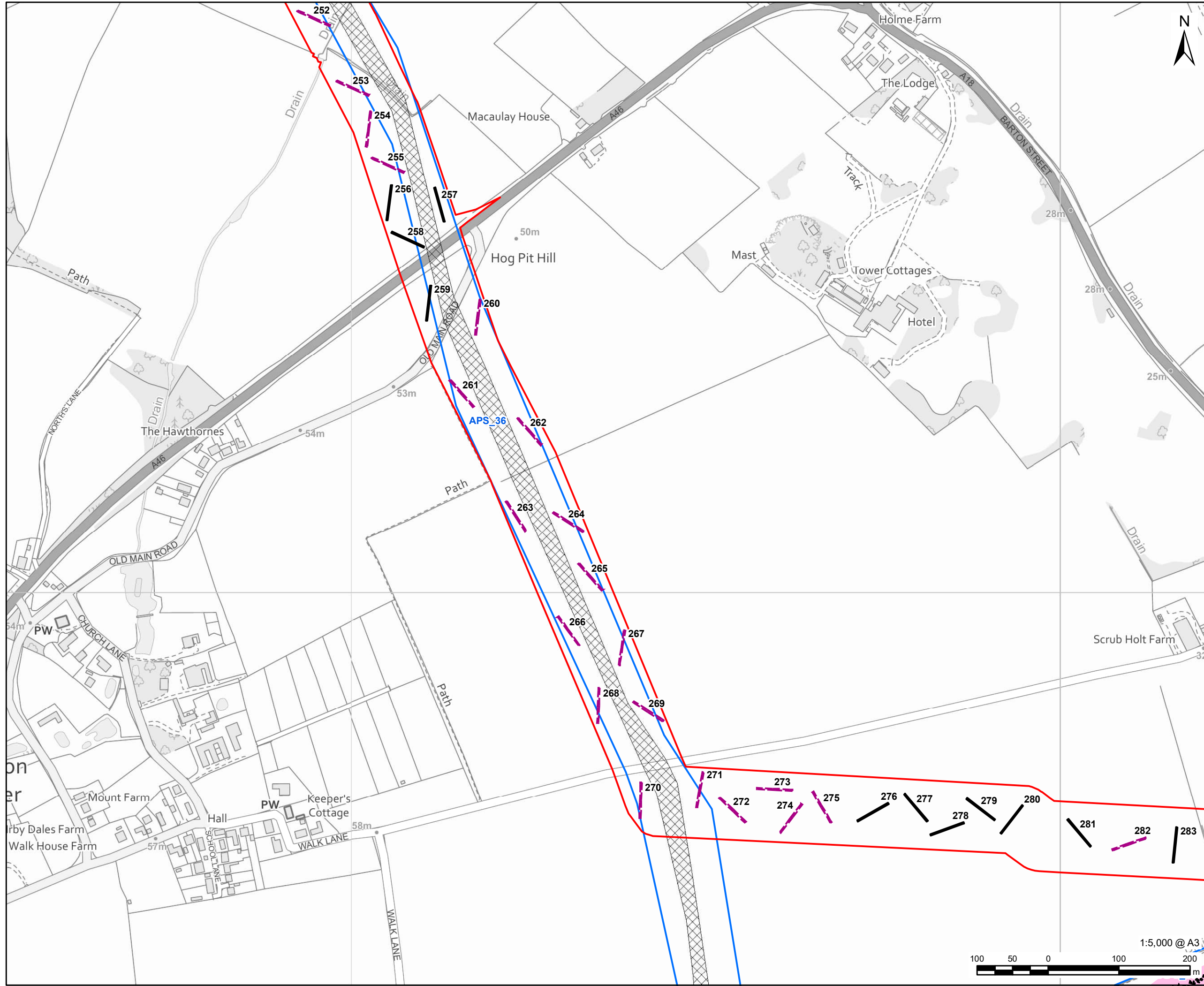


FIGURE TITLE
Figure 4 (10 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_4





- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - Modern Service
 - Scheduled Monument
 - Lincolnshire NMP

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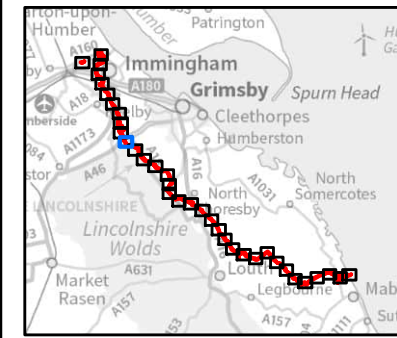
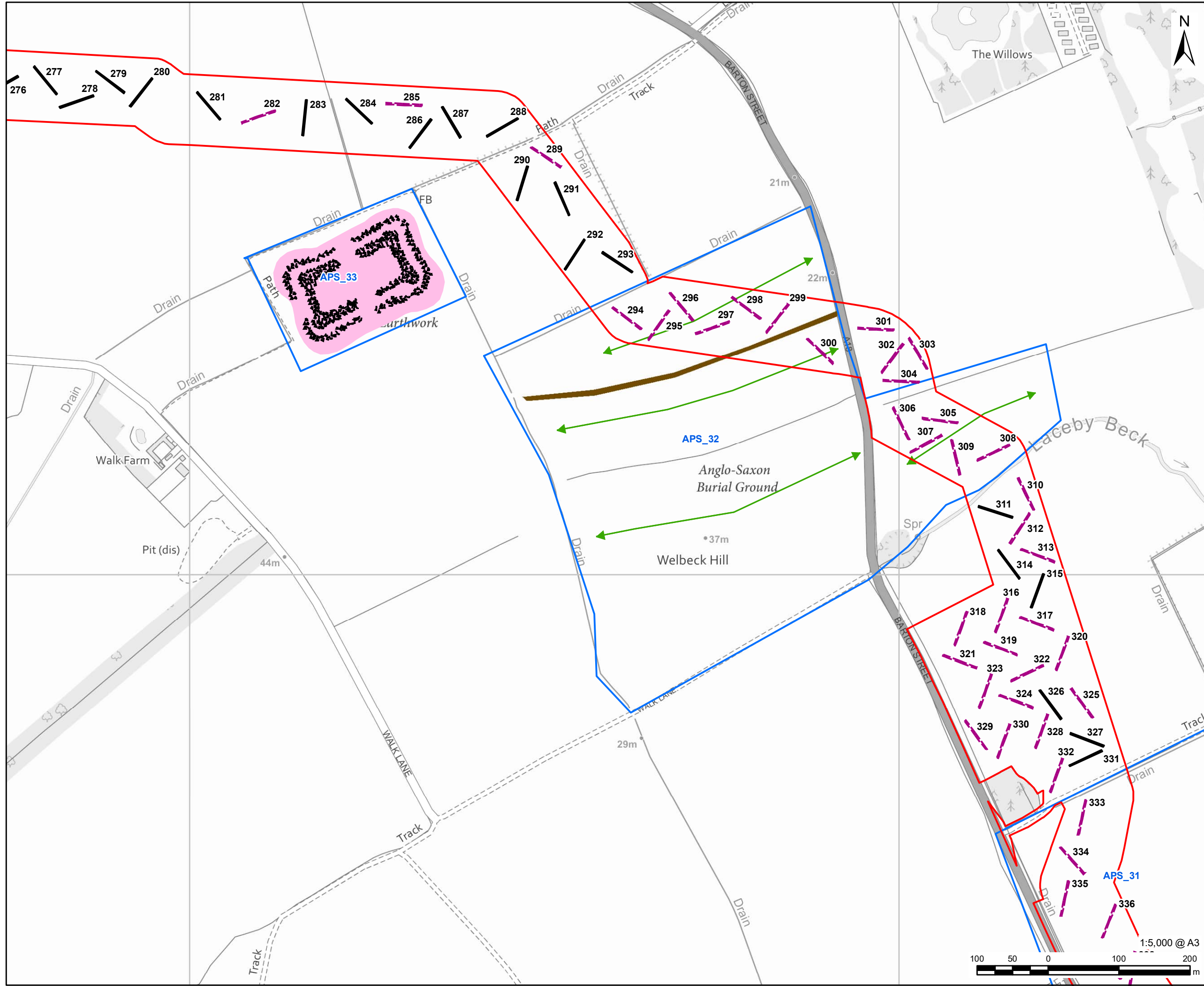


FIGURE TITLE
Figure 4 (11 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Field Boundary
 - Scheduled Monument
 - Lincolnshire NMP

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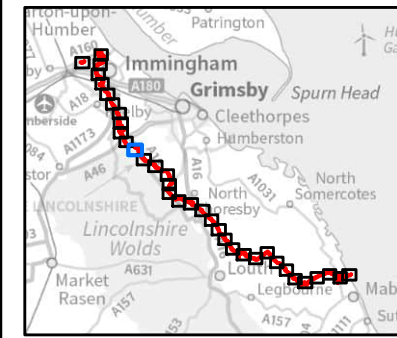
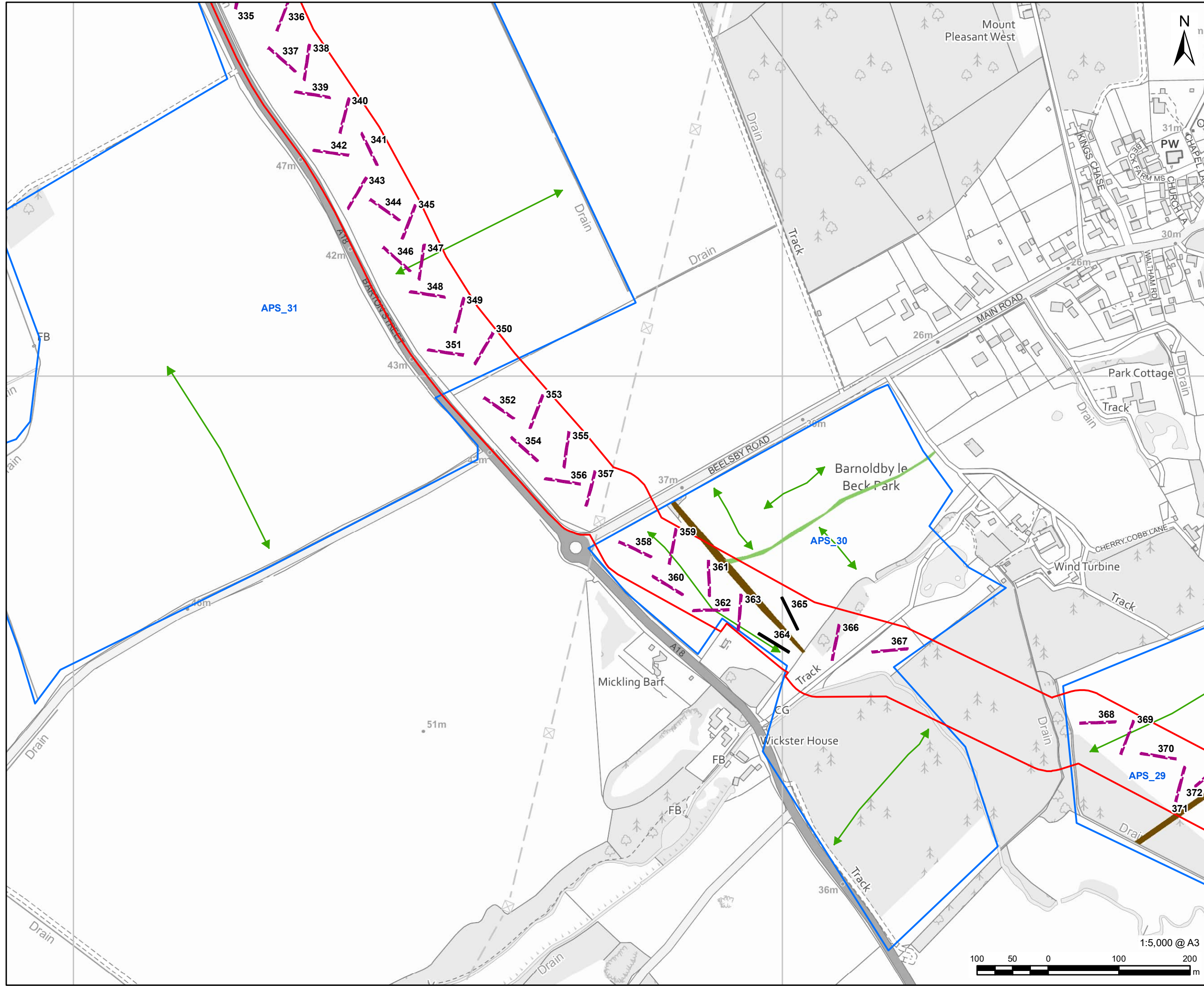


FIGURE TITLE
 Figure 4 (12 of 35)
 Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Site Extent
- ↔ Air Photo Services Interpretation
- ↔ Eroded Ridge and Furrow
- Field Boundary
- Headland

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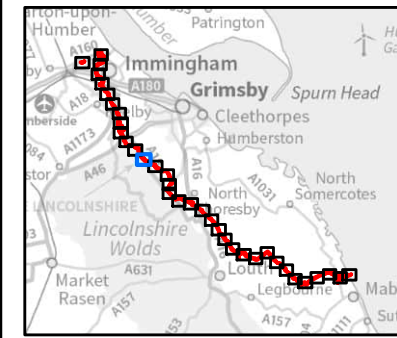
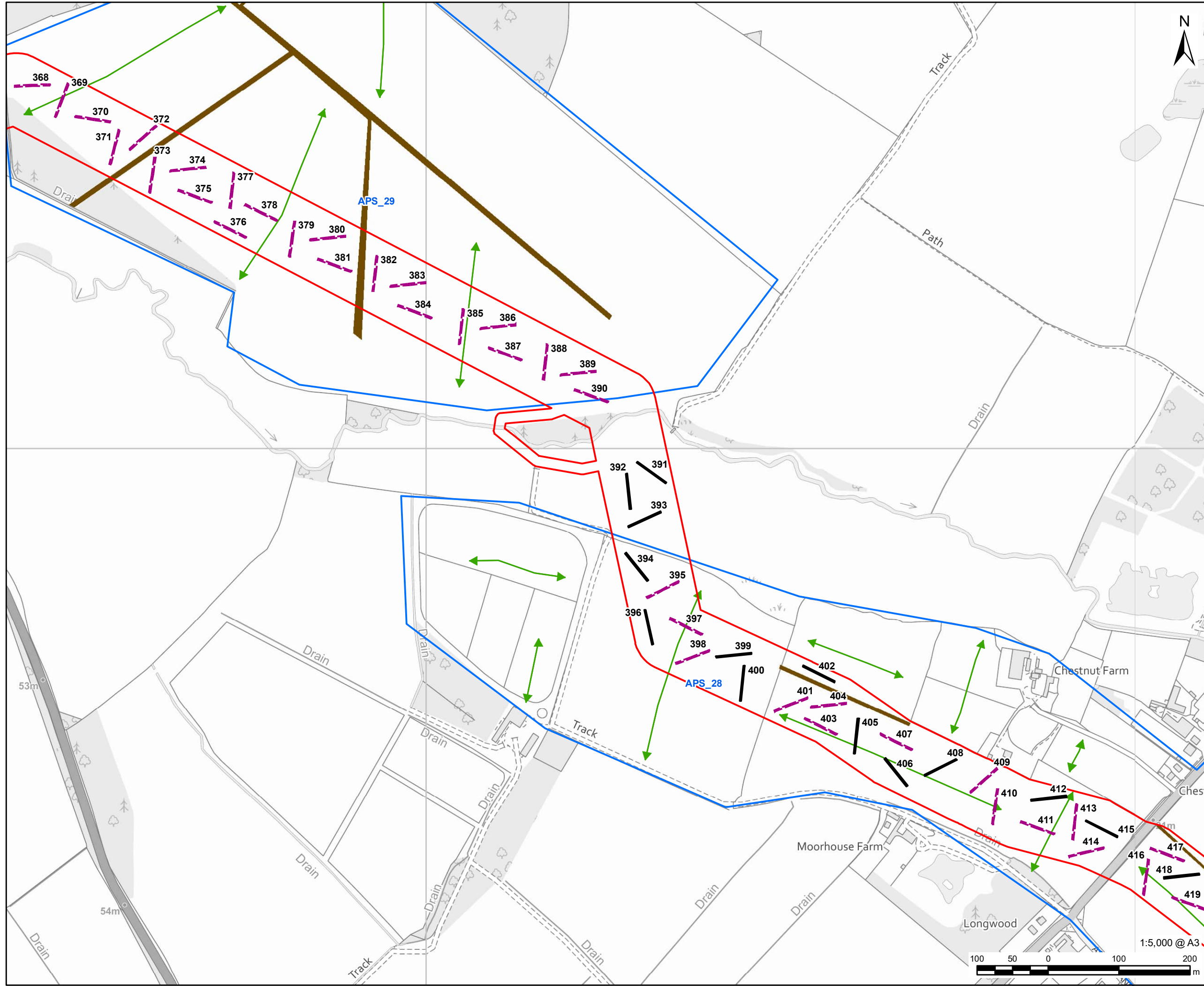


FIGURE TITLE

Figure 4 (13 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Field Boundary

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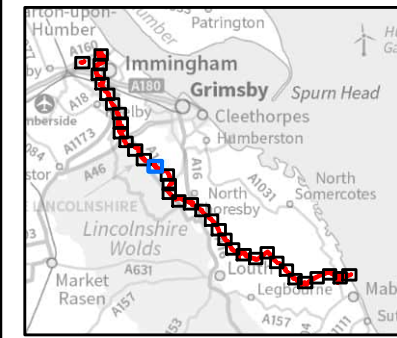
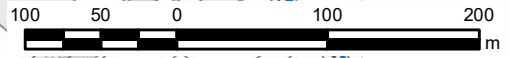
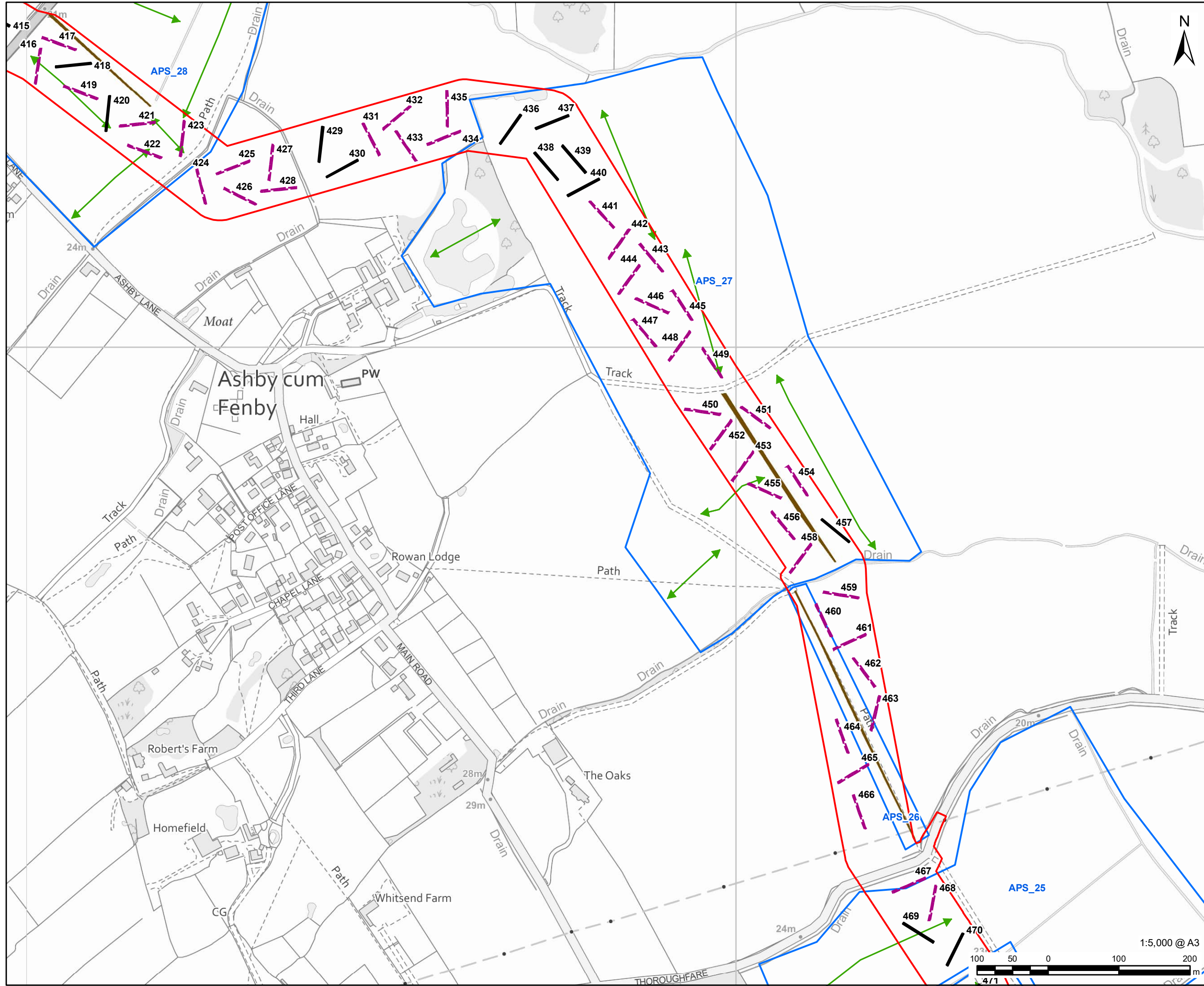


FIGURE TITLE
Figure 4 (14 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_4



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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Site Extent
- ↔ Air Photo Services Interpretation
- ↔ Eroded Ridge and Furrow
- Field Boundary

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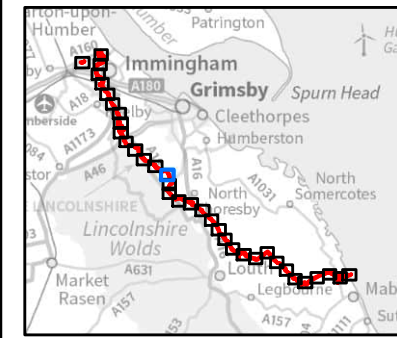
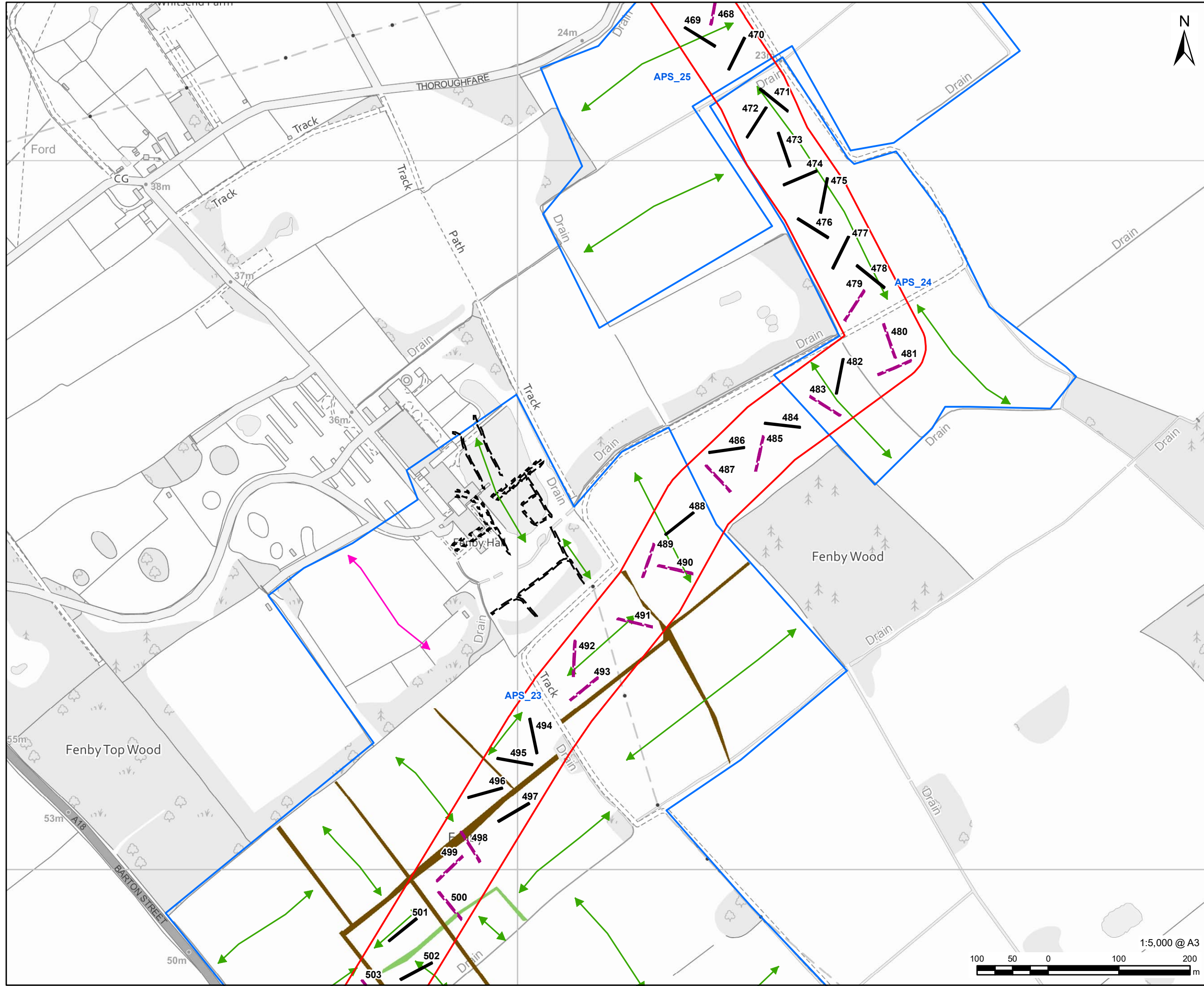


FIGURE TITLE
Figure 4 (15 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - Air Photo Services Interpretation
 - ↔ Extant Ridge and Furrow
 - ↔ Eroded Ridge and Furrow
 - Field Boundary
 - Headland
 - Lincolnshire NMP

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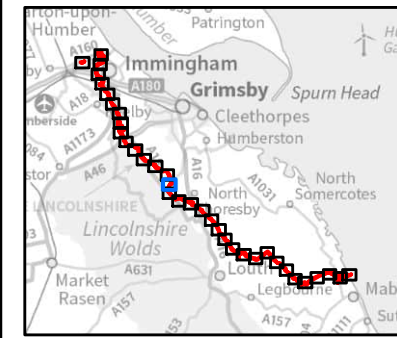
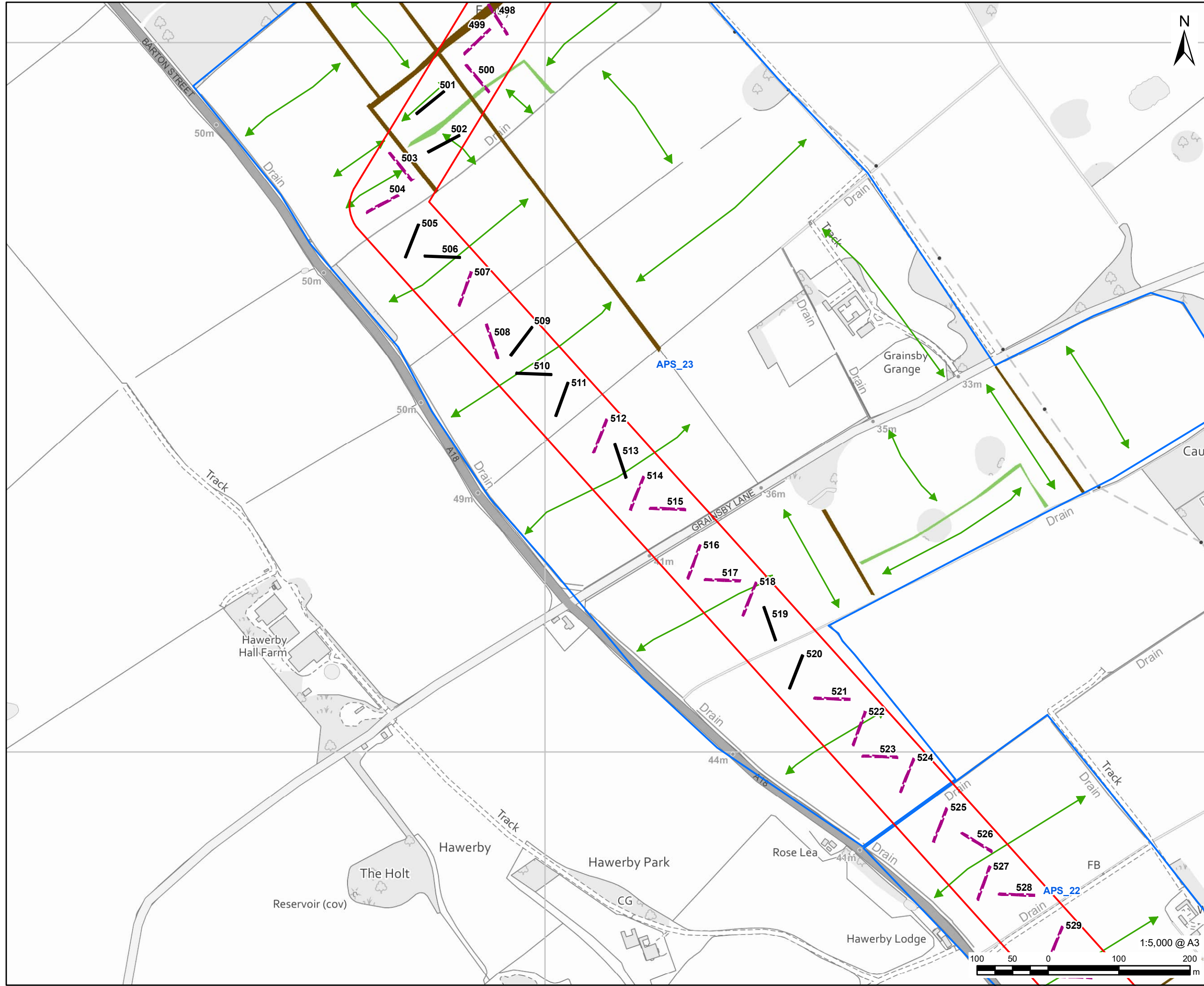


FIGURE TITLE
Figure 4 (16 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Field Boundary
 - Headland

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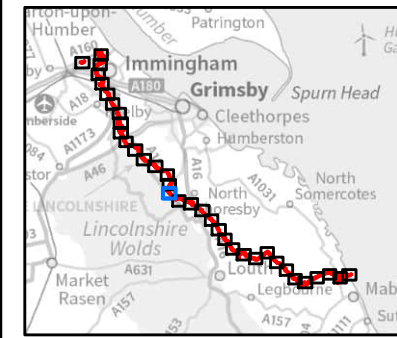
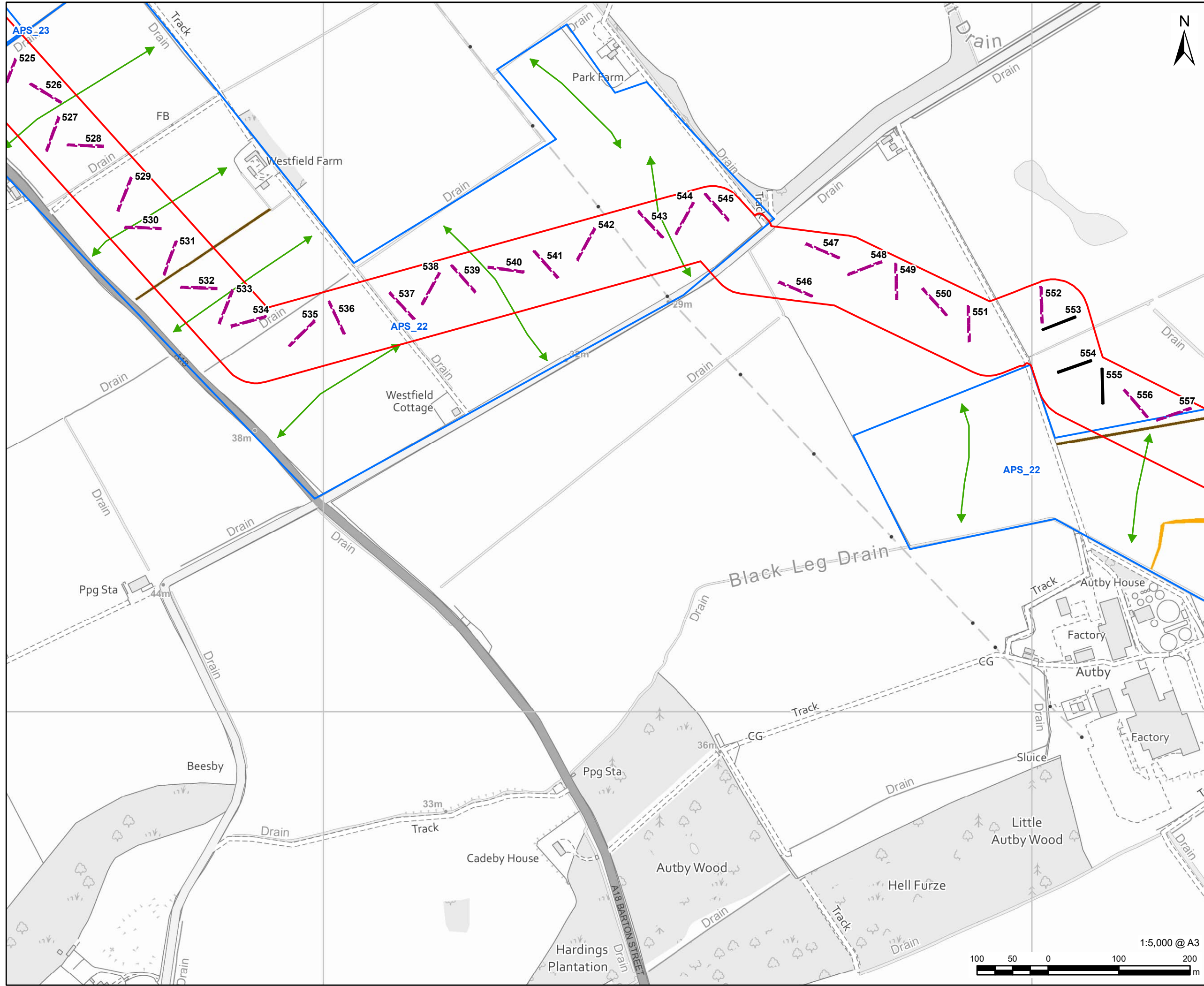


FIGURE TITLE
Figure 4 (17 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Ditch
 - Field Boundary

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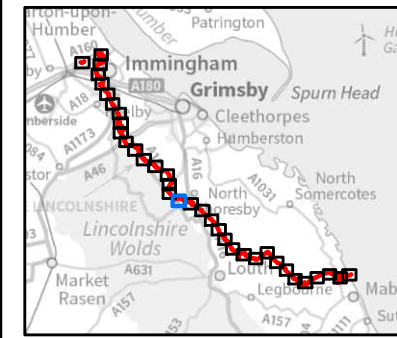
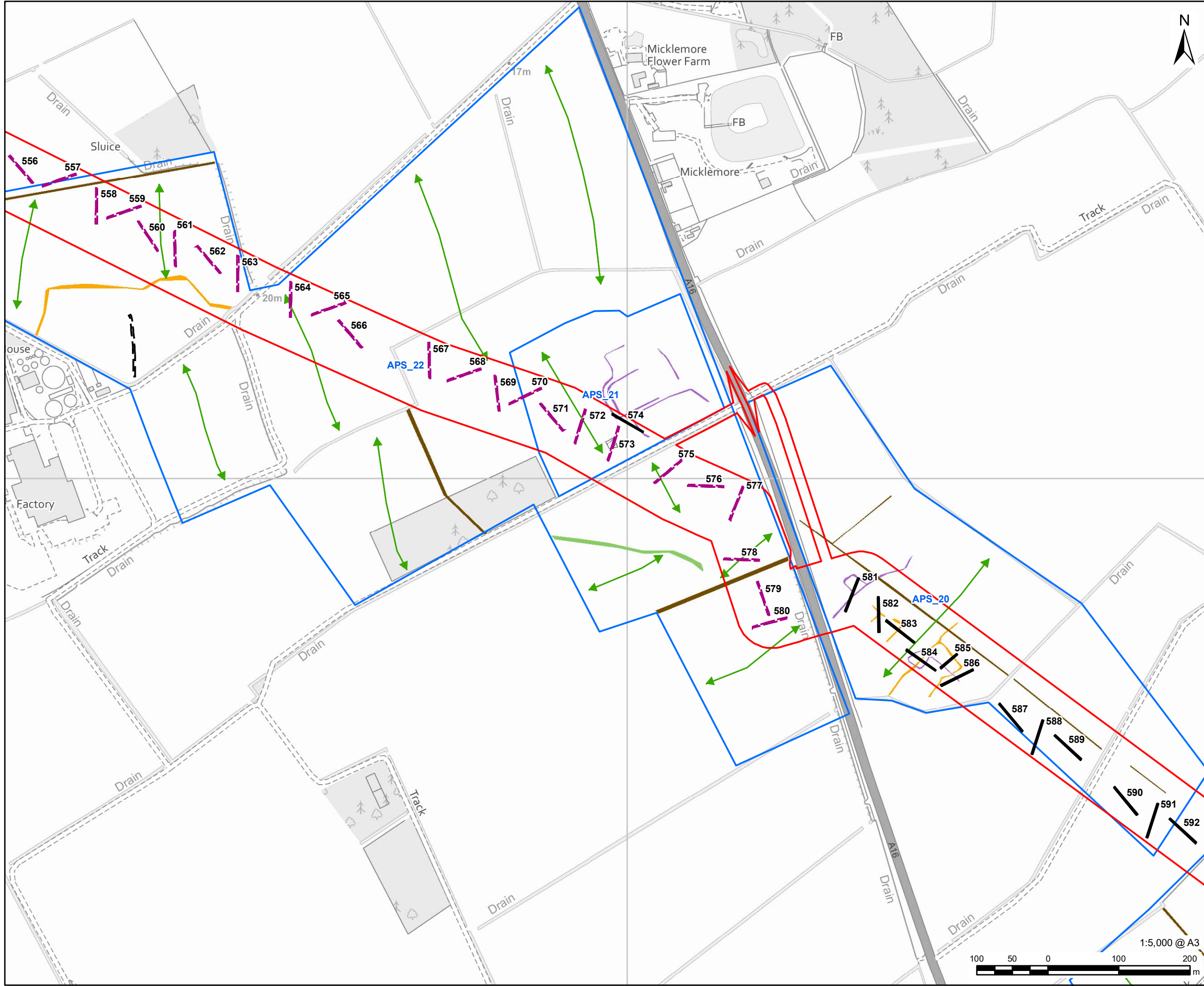


FIGURE TITLE
Figure 4 (18 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Ditch
 - Enclosure
 - Field Boundary
 - Headland
 - Mining
 - Lincolnshire NMP

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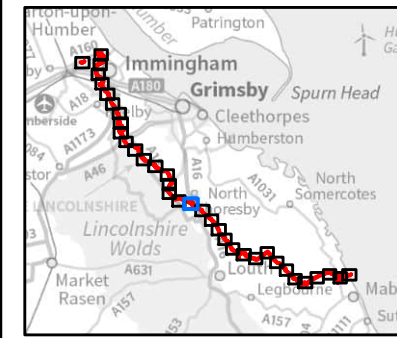
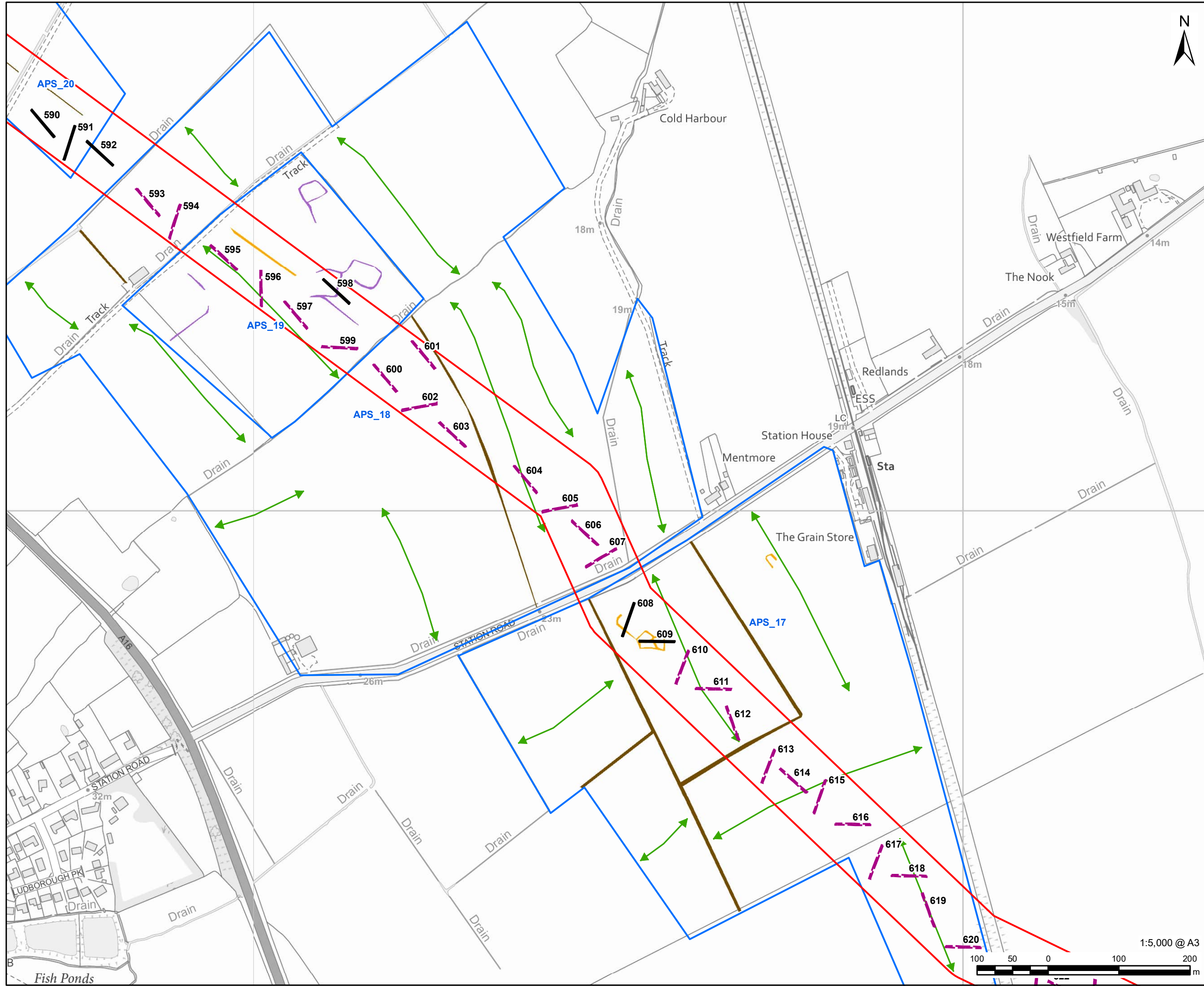


FIGURE TITLE
Figure 4 (19 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_4





- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Ditch
 - Enclosure
 - Field Boundary

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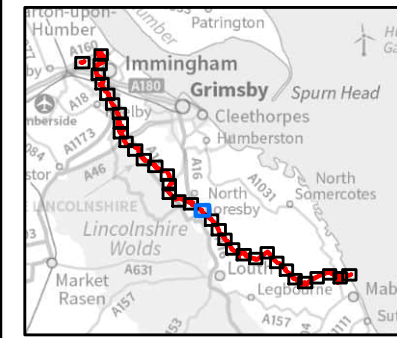
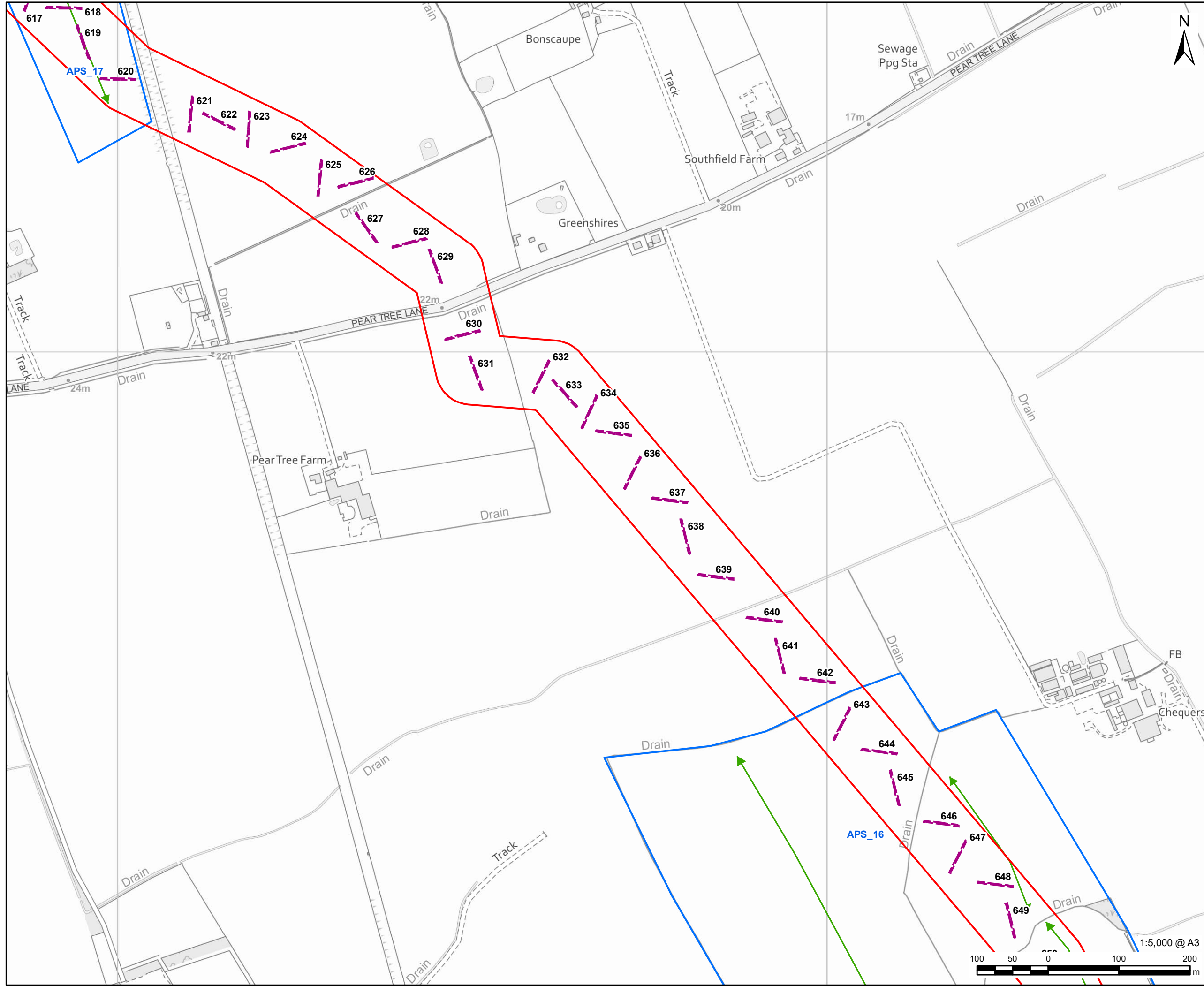


FIGURE TITLE
Figure 4 (20 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_4



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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location
 - Site Extent
 - Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow

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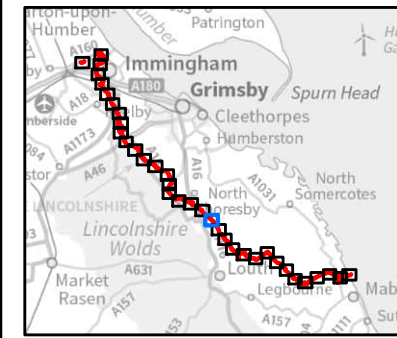
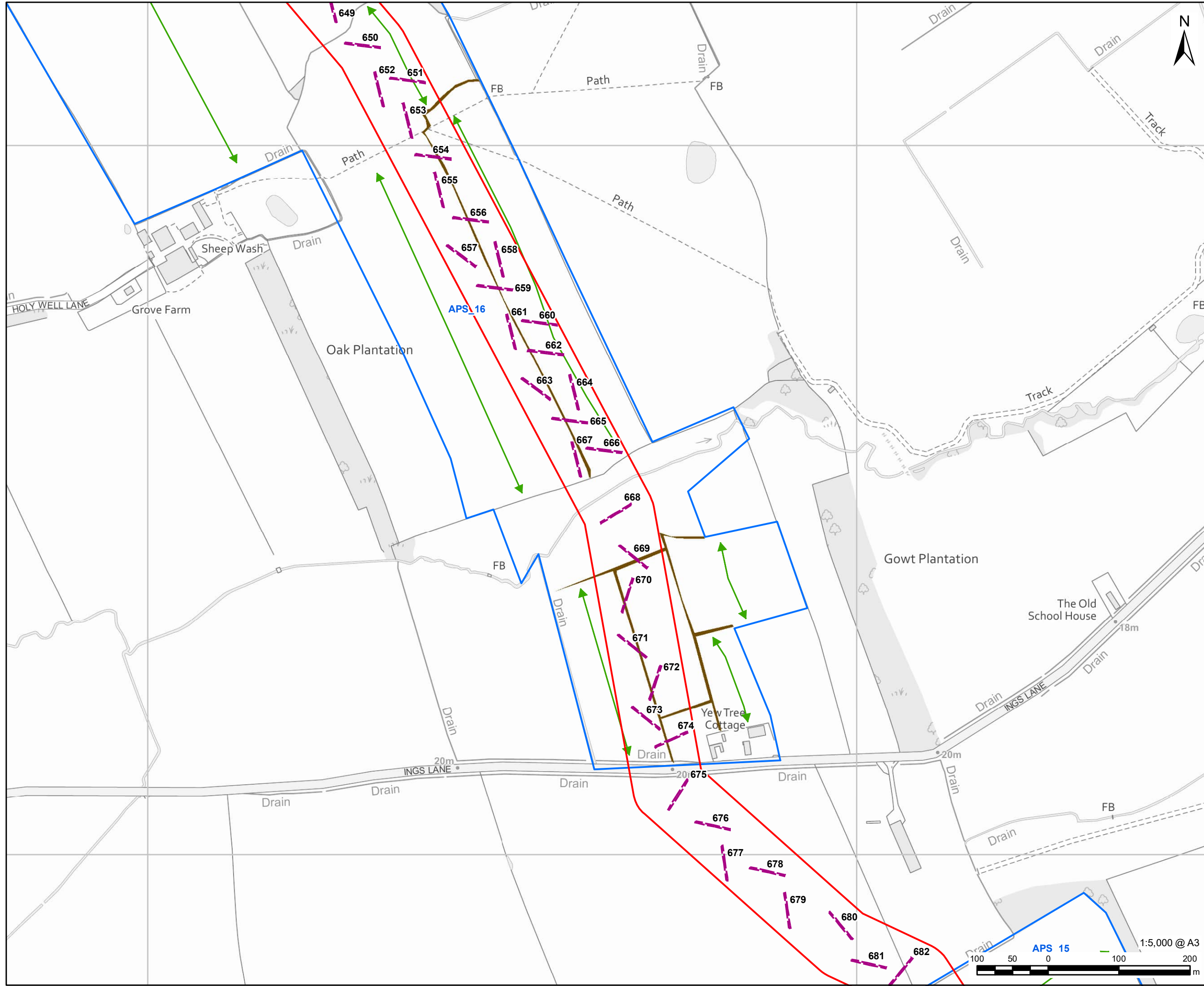


FIGURE TITLE
 Figure 4 (21 of 35)
 Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_4



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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Field Boundary

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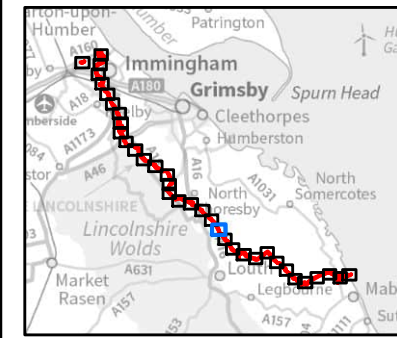
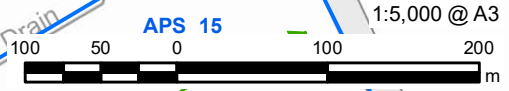
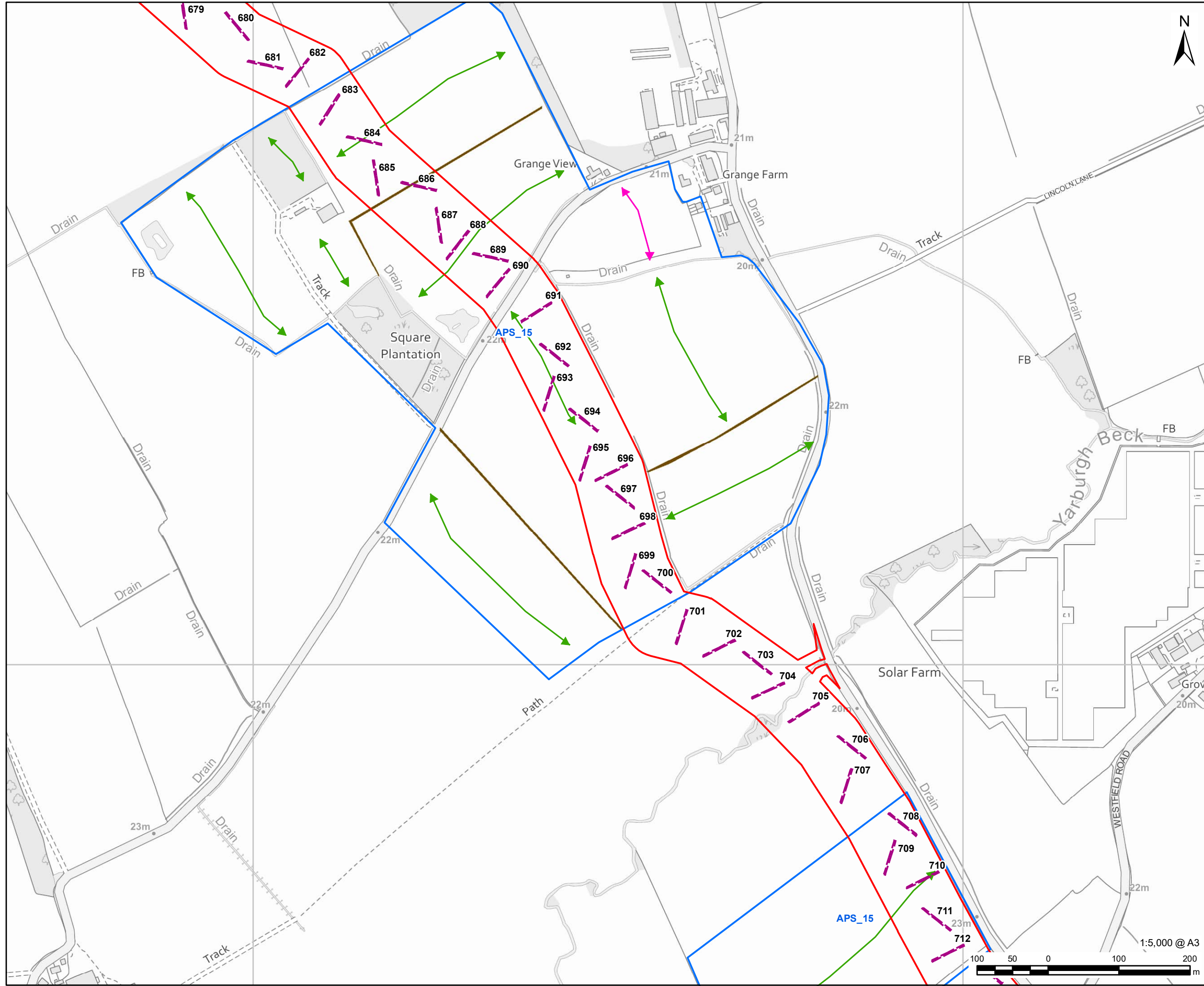


FIGURE TITLE
 Figure 4 (22 of 35)
 Indicative Trench Locations and Air Photo Services Survey Interpretation



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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Site Extent
- ↔ Air Photo Services Interpretation
Extant Ridge and Furrow
- ↔ Eroded Ridge and Furrow
- Field Boundary

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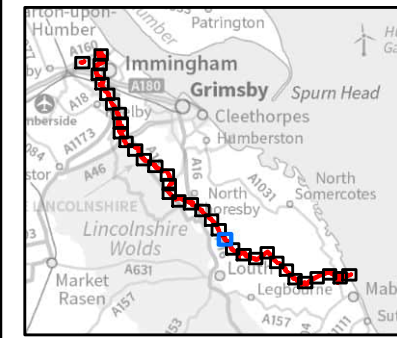
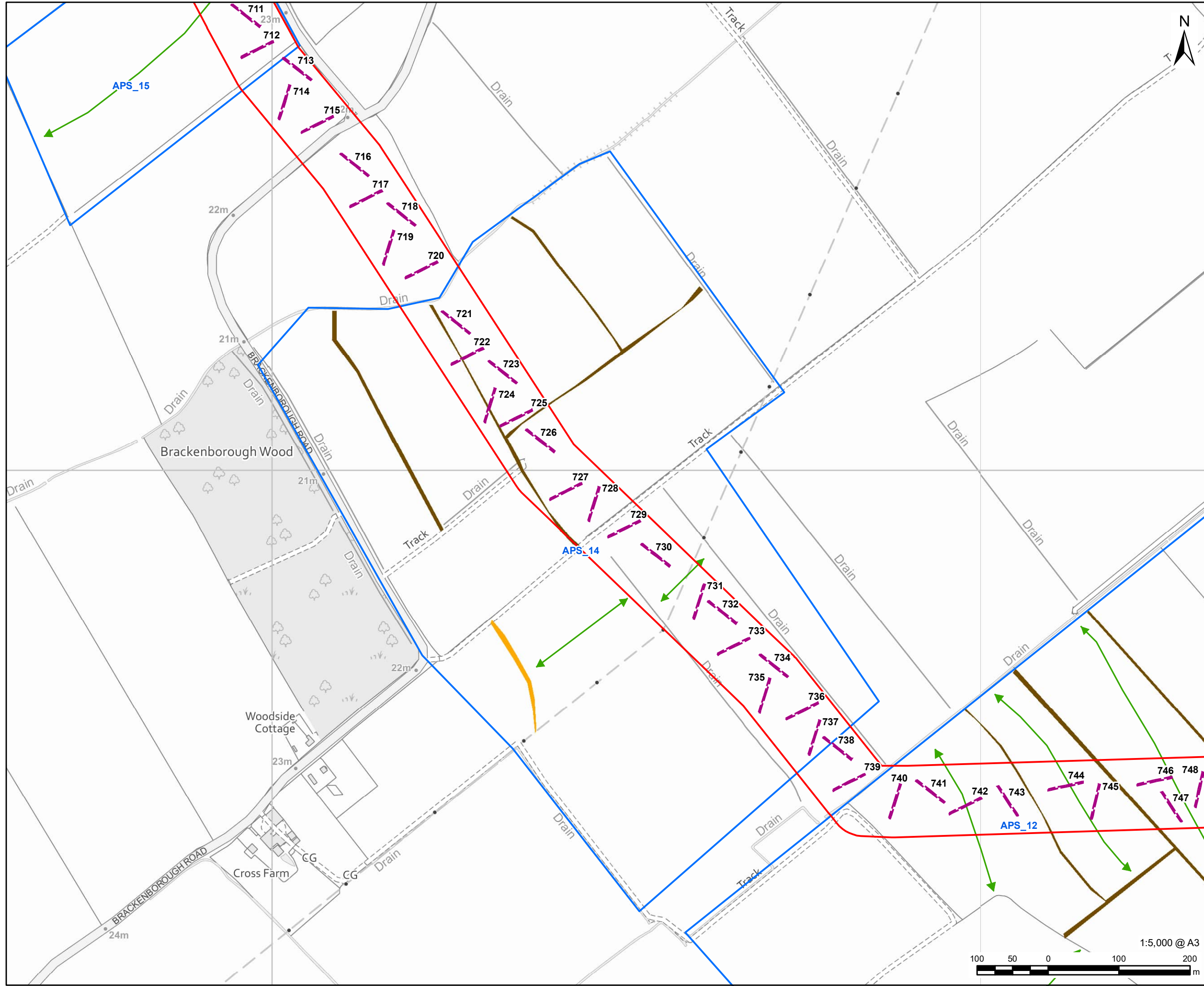


FIGURE TITLE
Figure 4 (23 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation





- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - Eroded Ridge and Furrow
 - Ditch
 - Field Boundary

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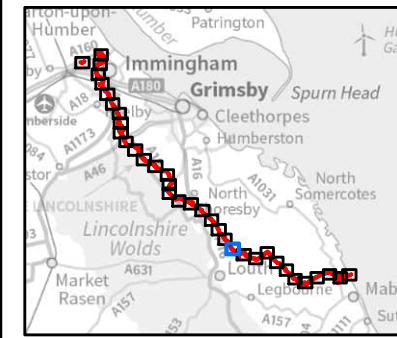
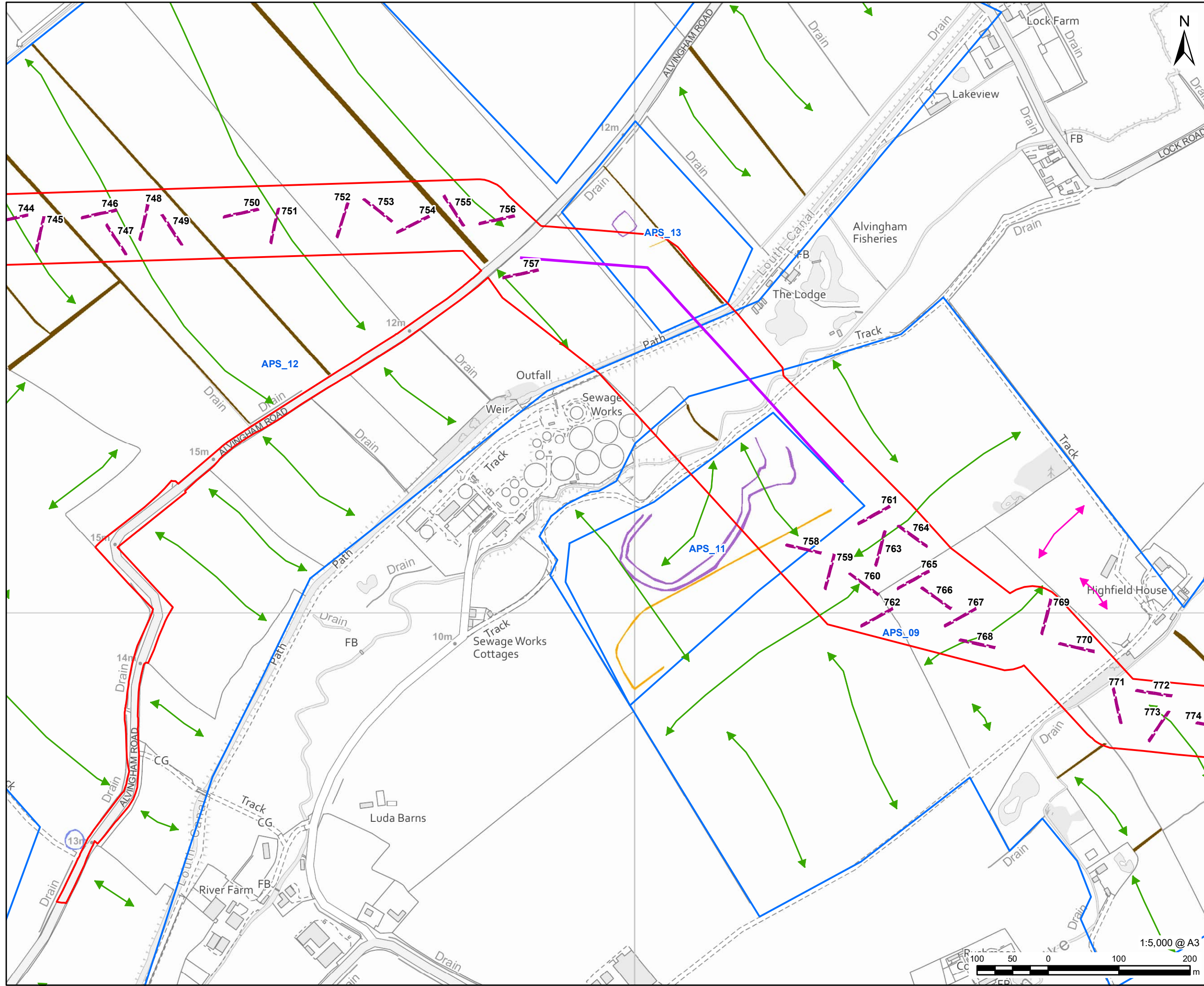


FIGURE TITLE
 Figure 4 (24 of 35)
 Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_230927_WSI_TT_4

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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Indicative Trench Location
- Site Extent
- ↔ Air Photo Services Interpretation
- ↔ Extant Ridge and Furrow
- ↔ Eroded Ridge and Furrow
- Barrow
- Ditch
- Enclosure
- Field Boundary

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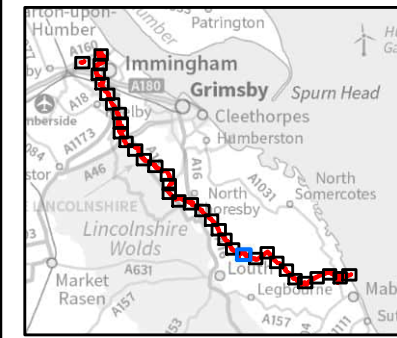
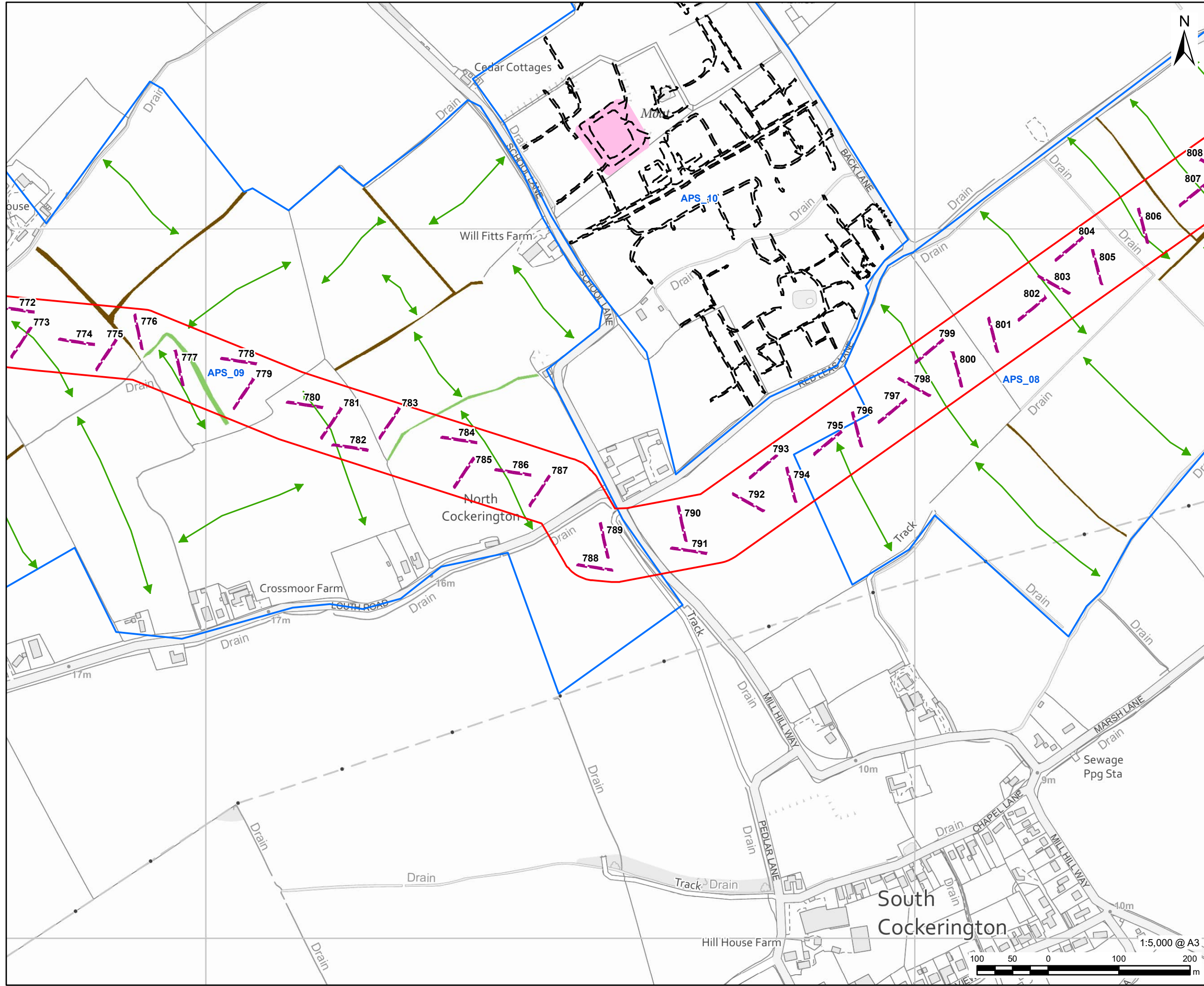


FIGURE TITLE

Figure 4 (25 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Site Extent
- Air Photo Services Interpretation
- ↔ Eroded Ridge and Furrow
- Field Boundary
- Headland
- Scheduled Monument
- Lincolnshire NMP

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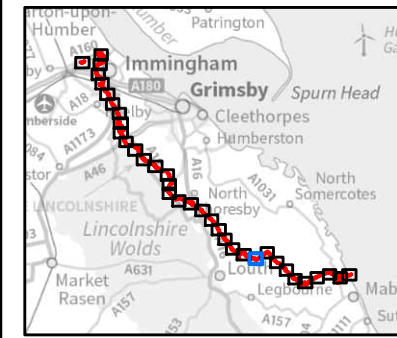
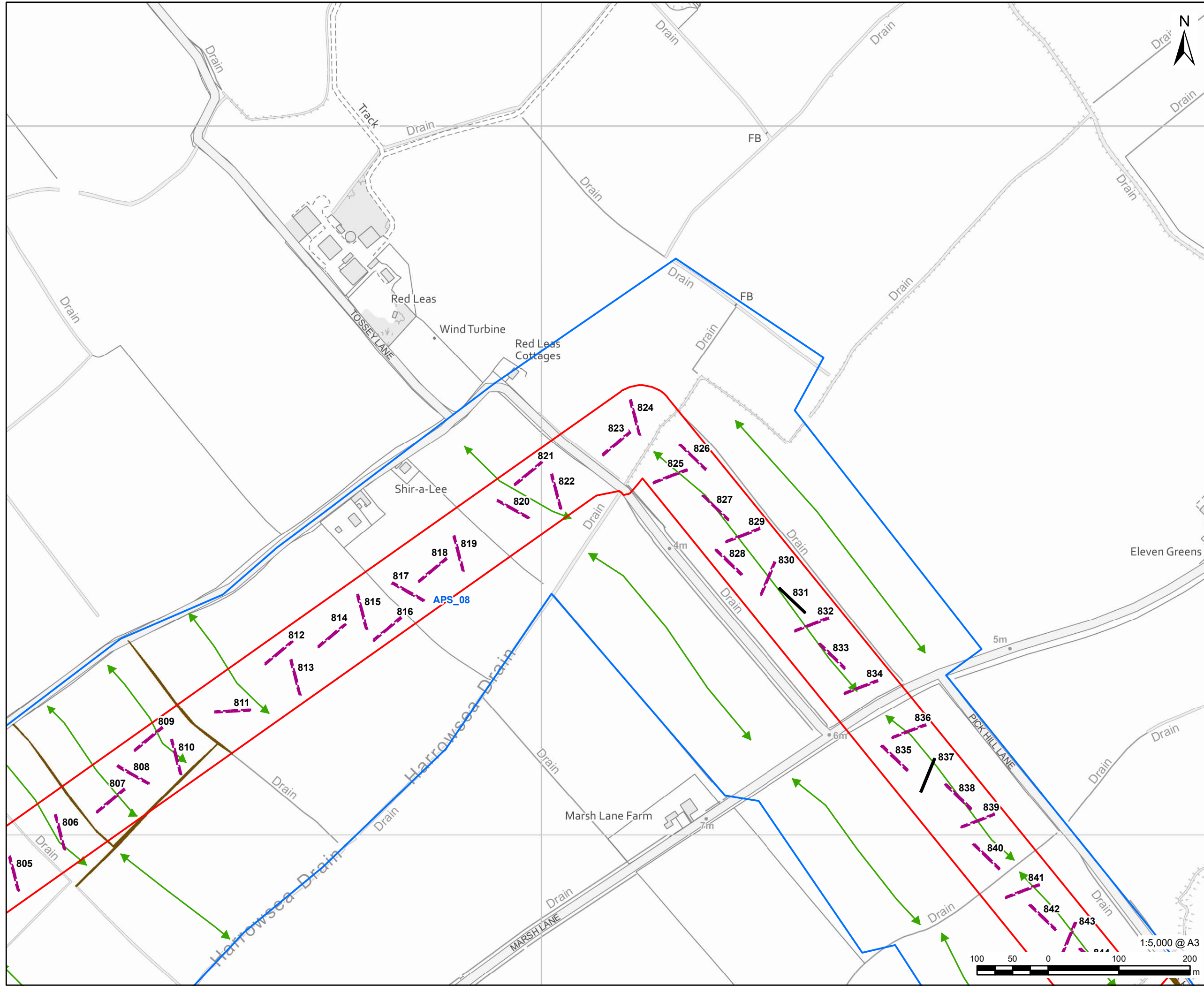


FIGURE TITLE

Figure 4 (26 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Field Boundary

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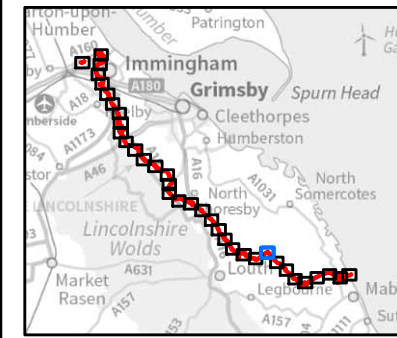
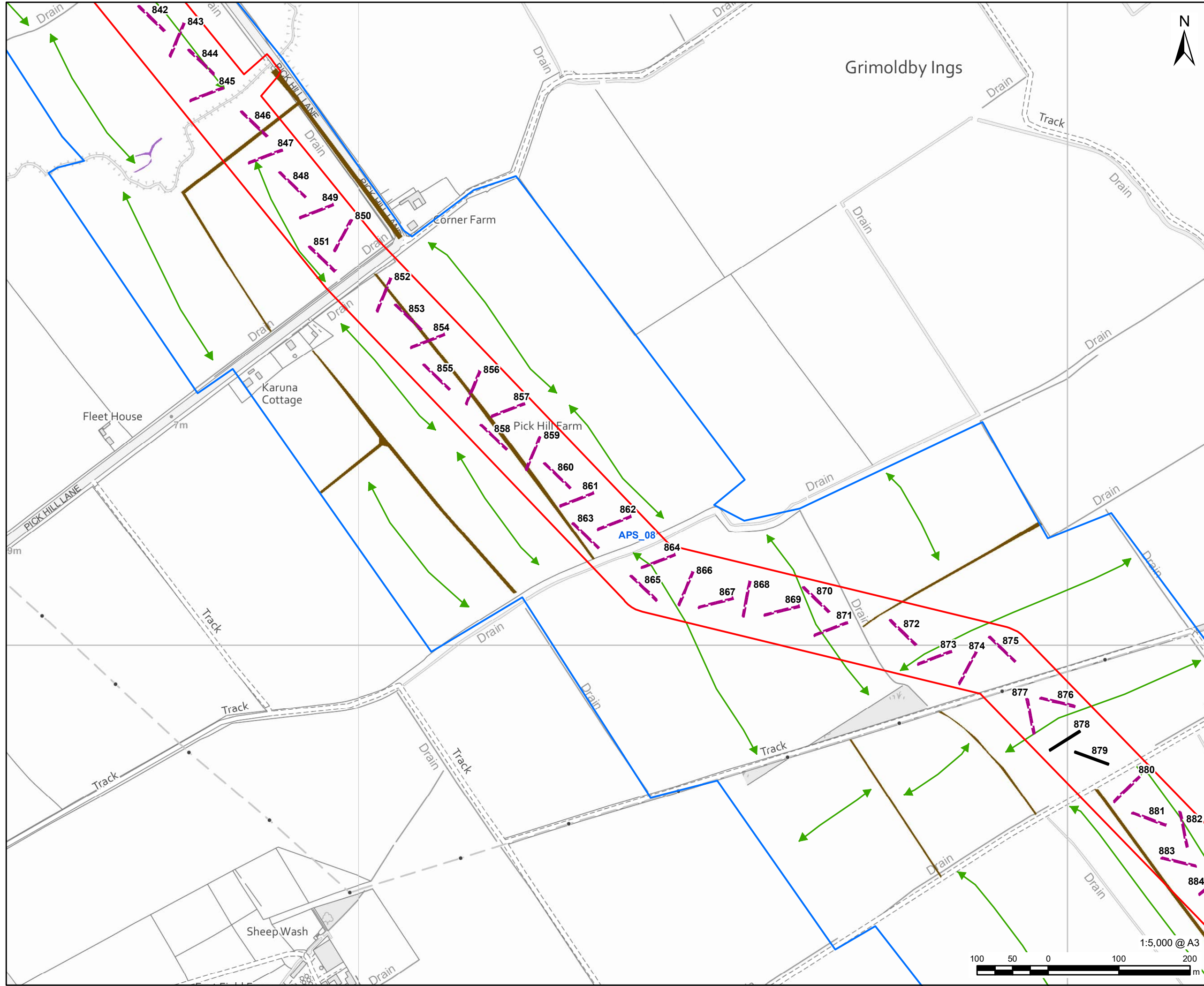


FIGURE TITLE
 Figure 4 (27 of 35)
 Indicative Trench Locations and Air Photo Services Survey Interpretation

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Site Extent
 - ↔ Air Photo Services Interpretation
 - ↔ Eroded Ridge and Furrow
 - Enclosure
 - Field Boundary

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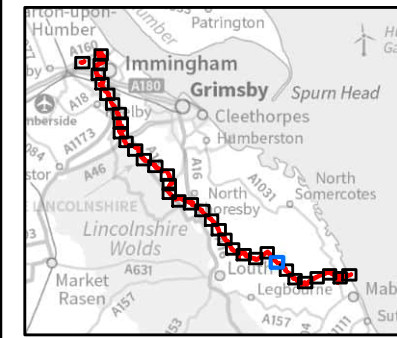
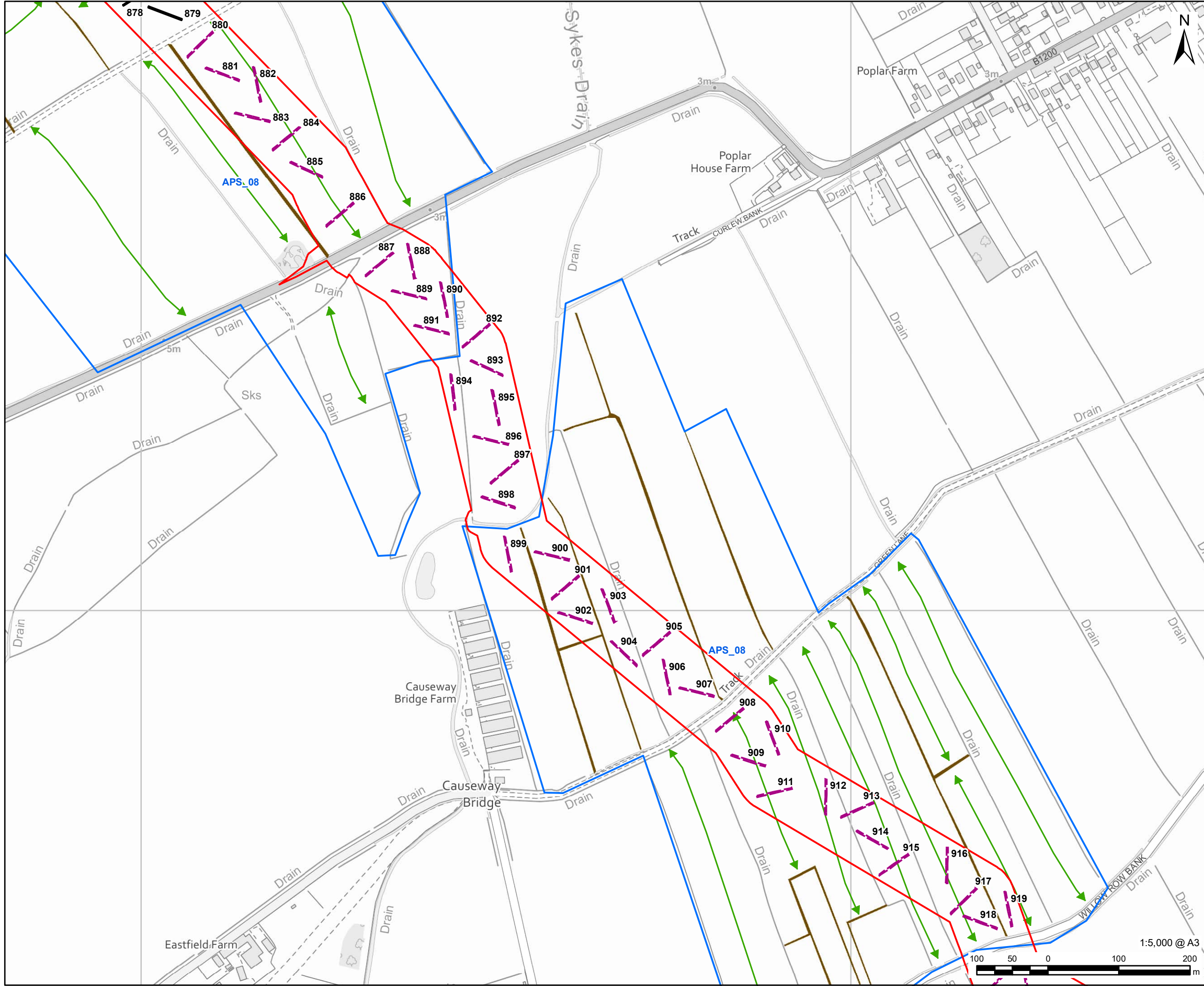


FIGURE TITLE
Figure 4 (28 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_4





LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Site Extent
- ↔ Air Photo Services Interpretation
- ↔ Eroded Ridge and Furrow
- Field Boundary

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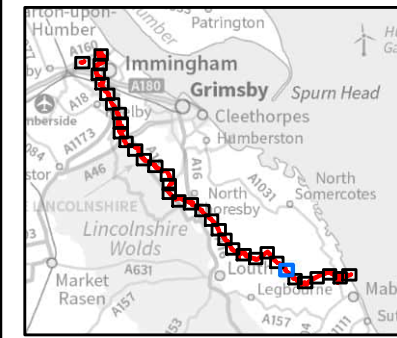
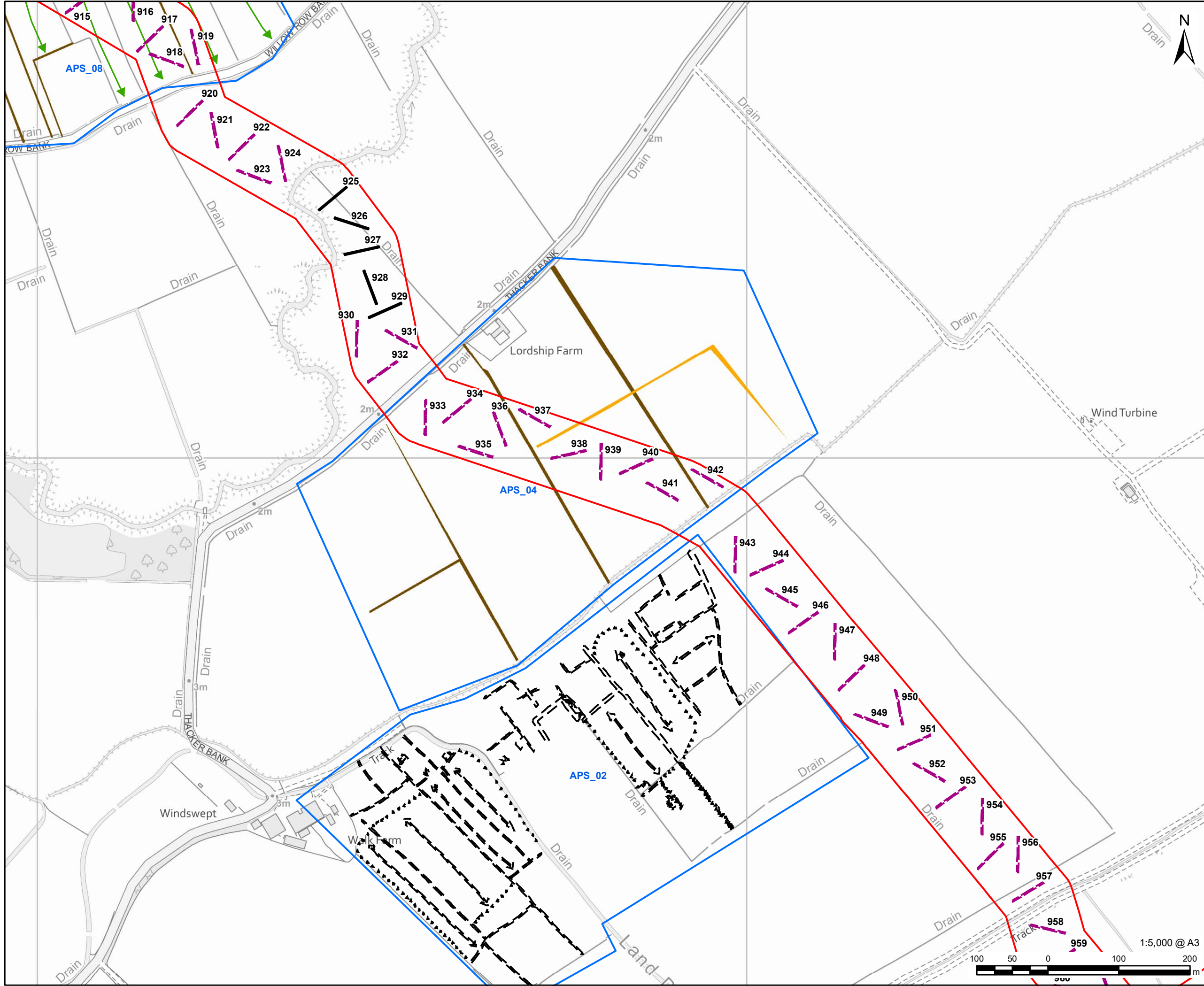


FIGURE TITLE

Figure 4 (29 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Site Extent
- ↔ Air Photo Services Interpretation
- ↔ Eroded Ridge and Furrow
- Ditch
- Field Boundary
- Lincolnshire NMP

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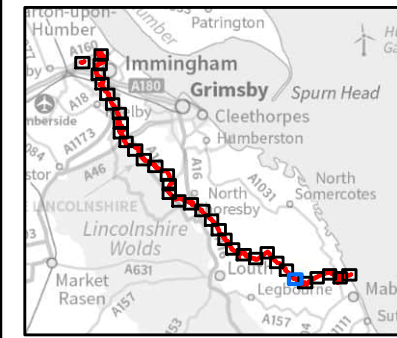
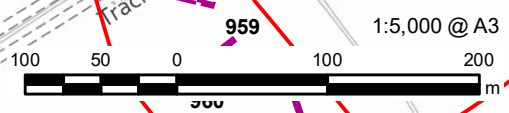
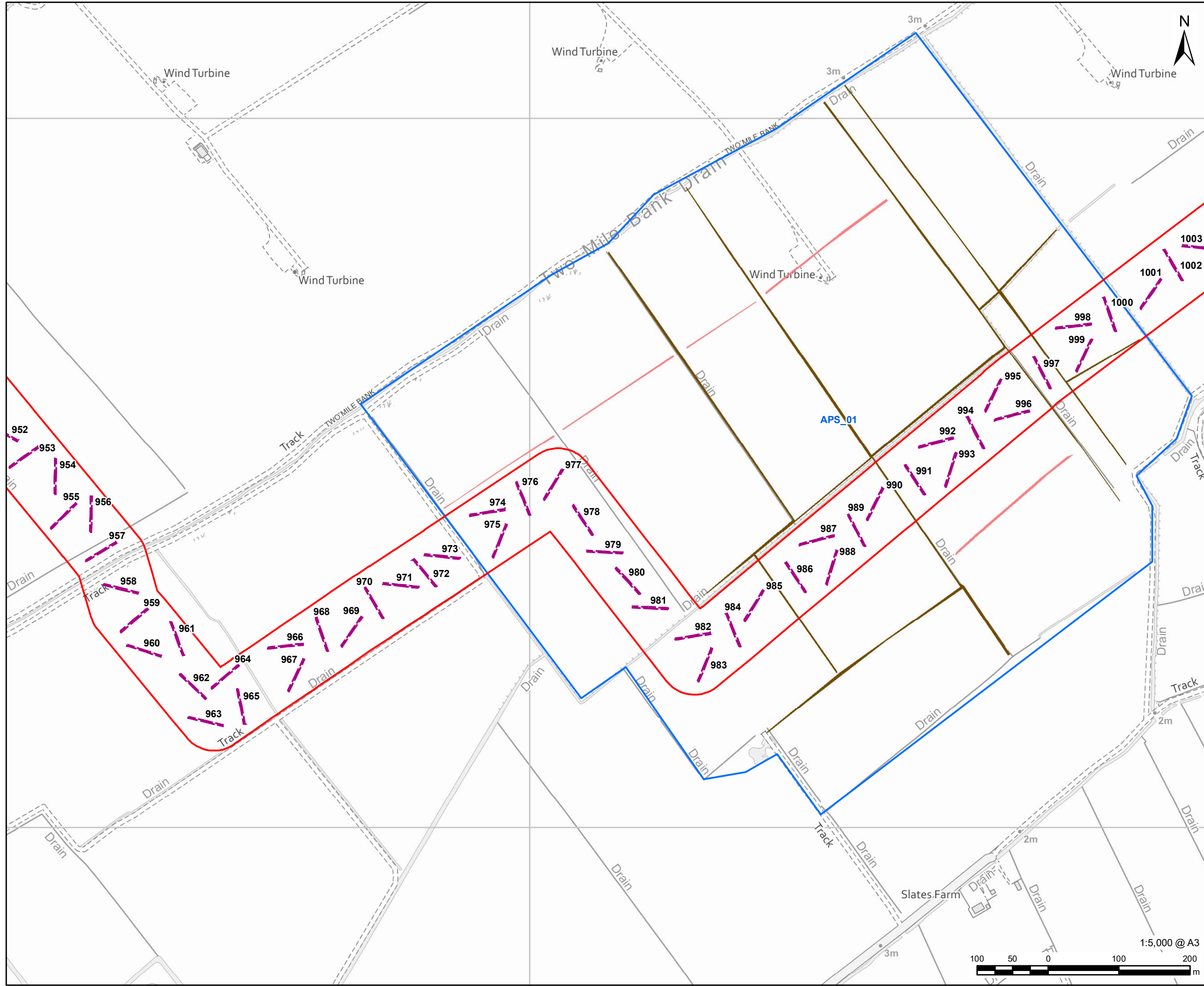


FIGURE TITLE

Figure 4 (30 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location
 - Site Extent
 - Anti Glider Ditch
 - Field Boundary

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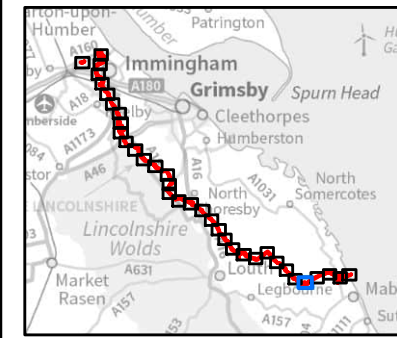
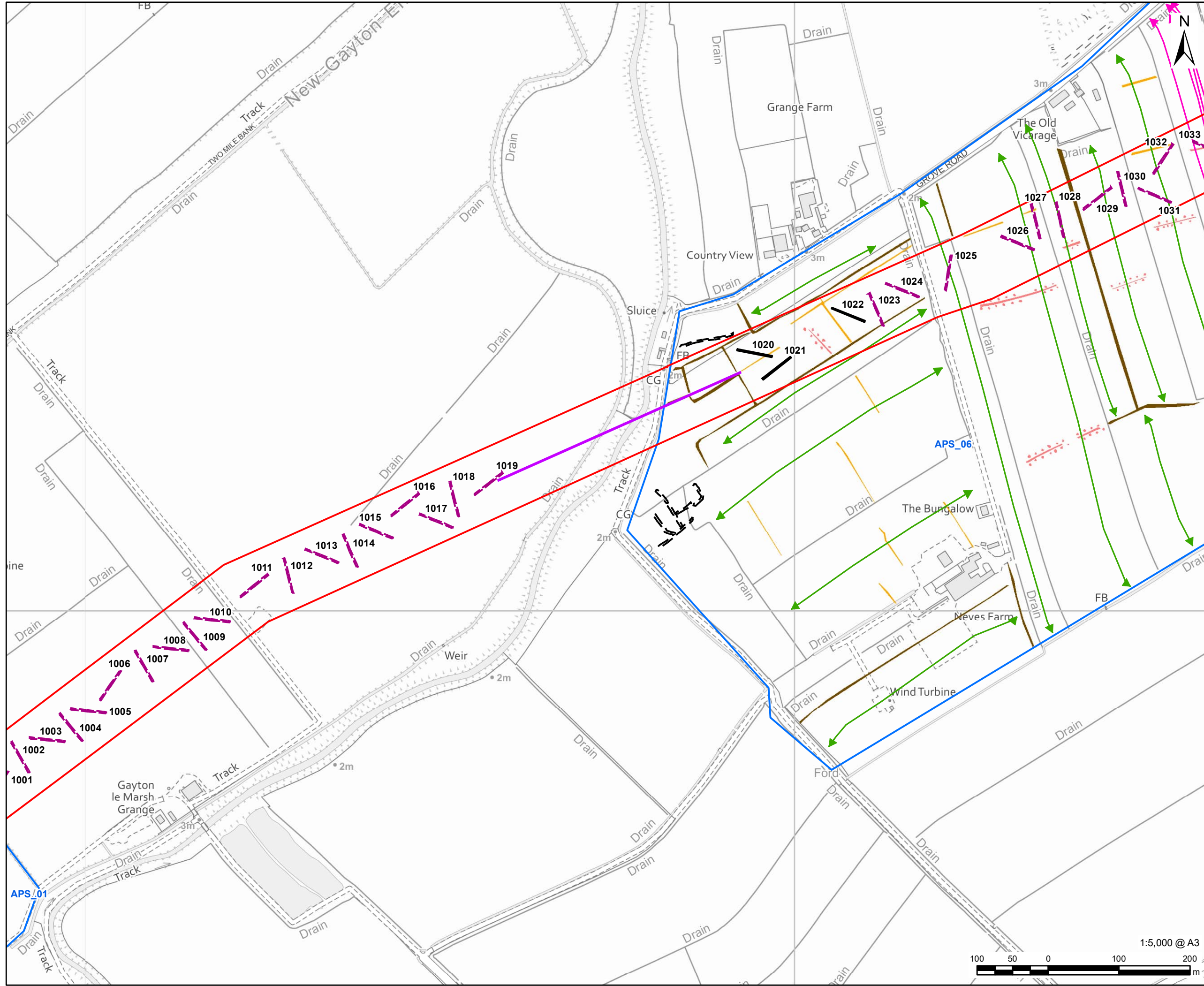


FIGURE TITLE
Figure 4 (31 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Site Extent
- Air Photo Services Interpretation**
- Extant Ridge and Furrow
- Eroded Ridge and Furrow
- Anti Glider Ditch
- Ditch
- Field Boundary
- Lincolnshire NMP

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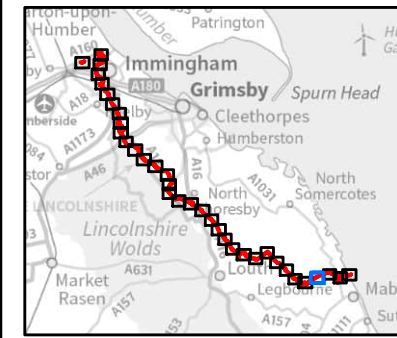
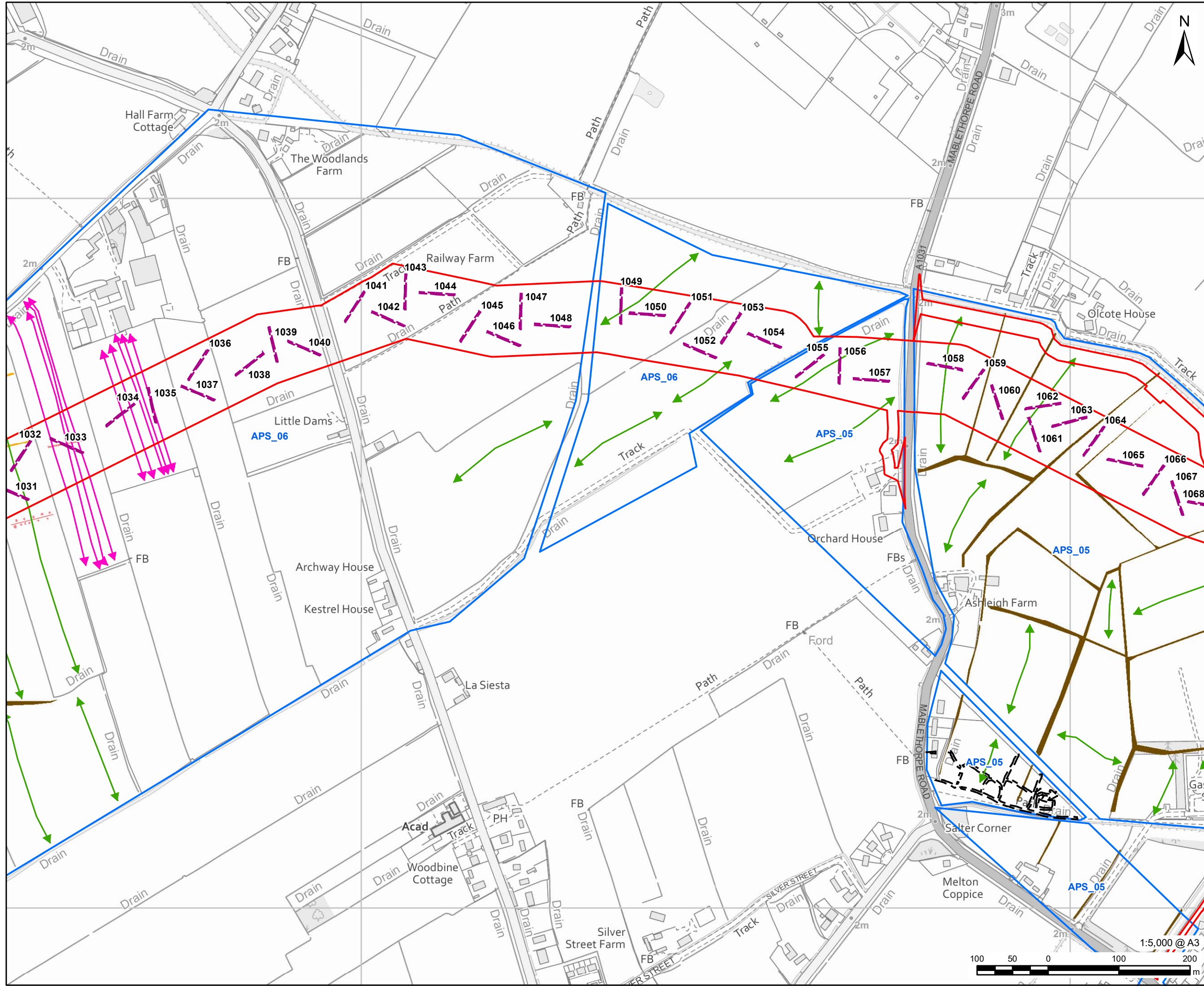


FIGURE TITLE
Figure 4 (32 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Site Extent
- Air Photo Services Interpretation**
- ↔ Extant Ridge and Furrow
- ↔ Eroded Ridge and Furrow
- Anti Glider Ditch
- Ditch
- Field Boundary
- Lincolnshire NMP

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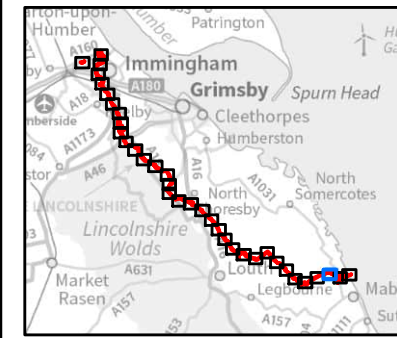
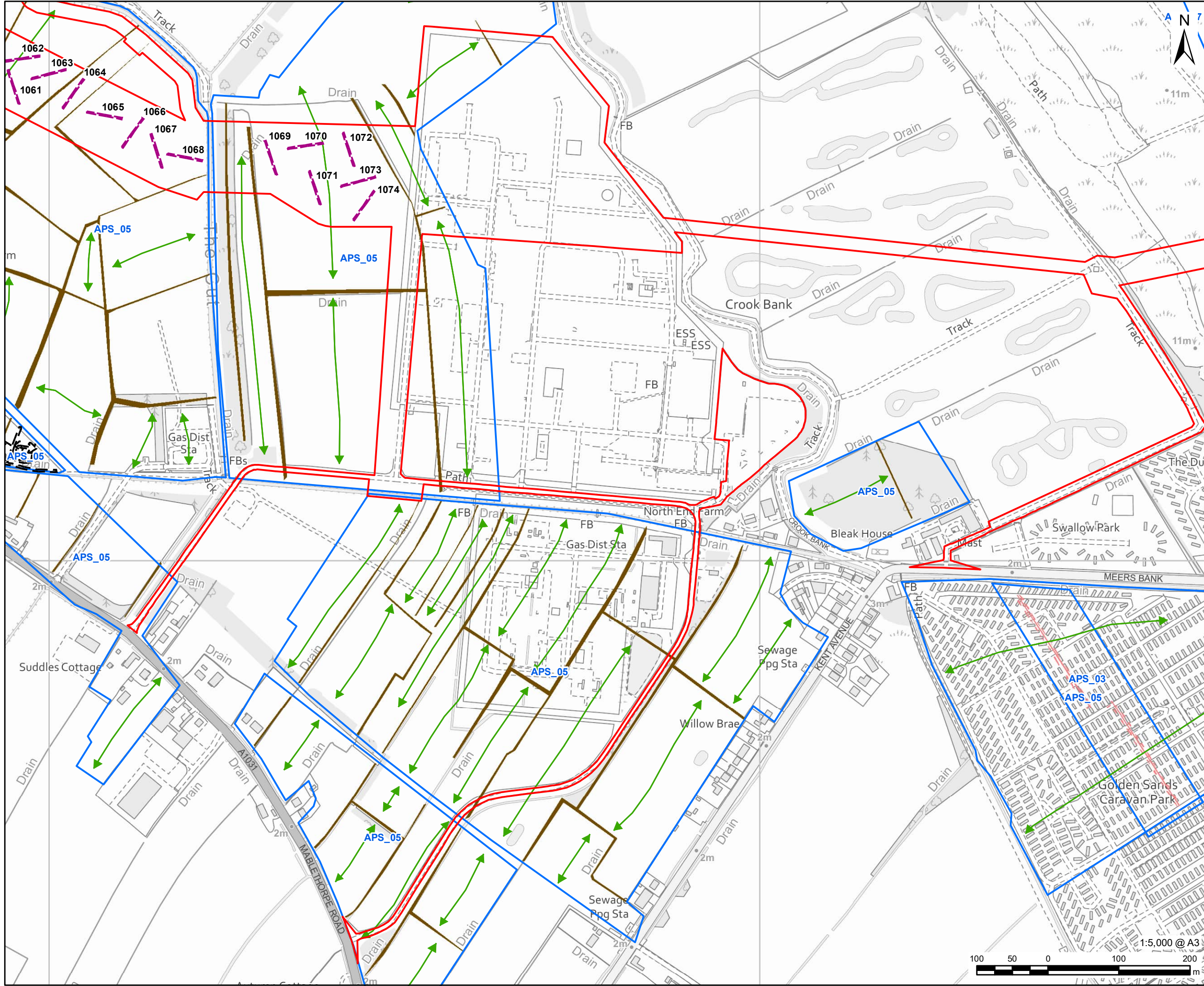


FIGURE TITLE
Figure 4 (33 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Site Extent
- ↔ Air Photo Services Interpretation
- ↔ Eroded Ridge and Furrow
- Anti Glider Ditch
- Field Boundary
- Lincolnshire NMP

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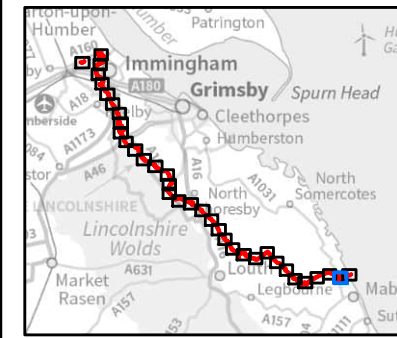
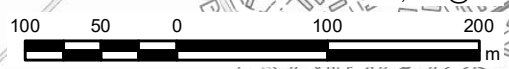
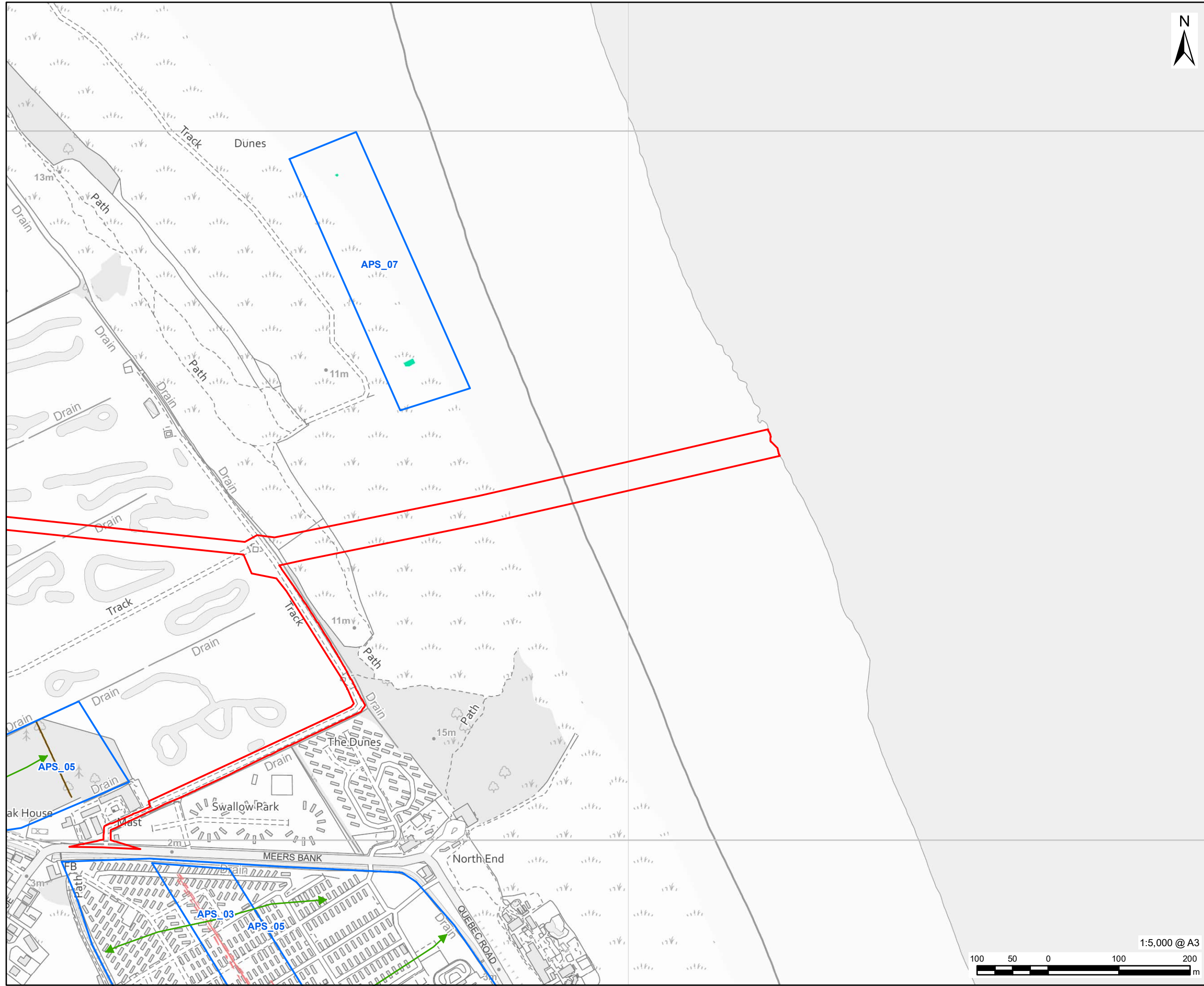


FIGURE TITLE

Figure 4 (34 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation



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LEGEND

- DCO Site Boundary
- Site Extent
- Air Photo Services Interpretation
- ↔ Eroded Ridge and Furrow
- Anti Glider Ditch
- Field Boundary
- Structure

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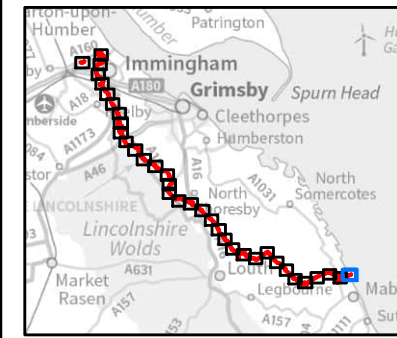
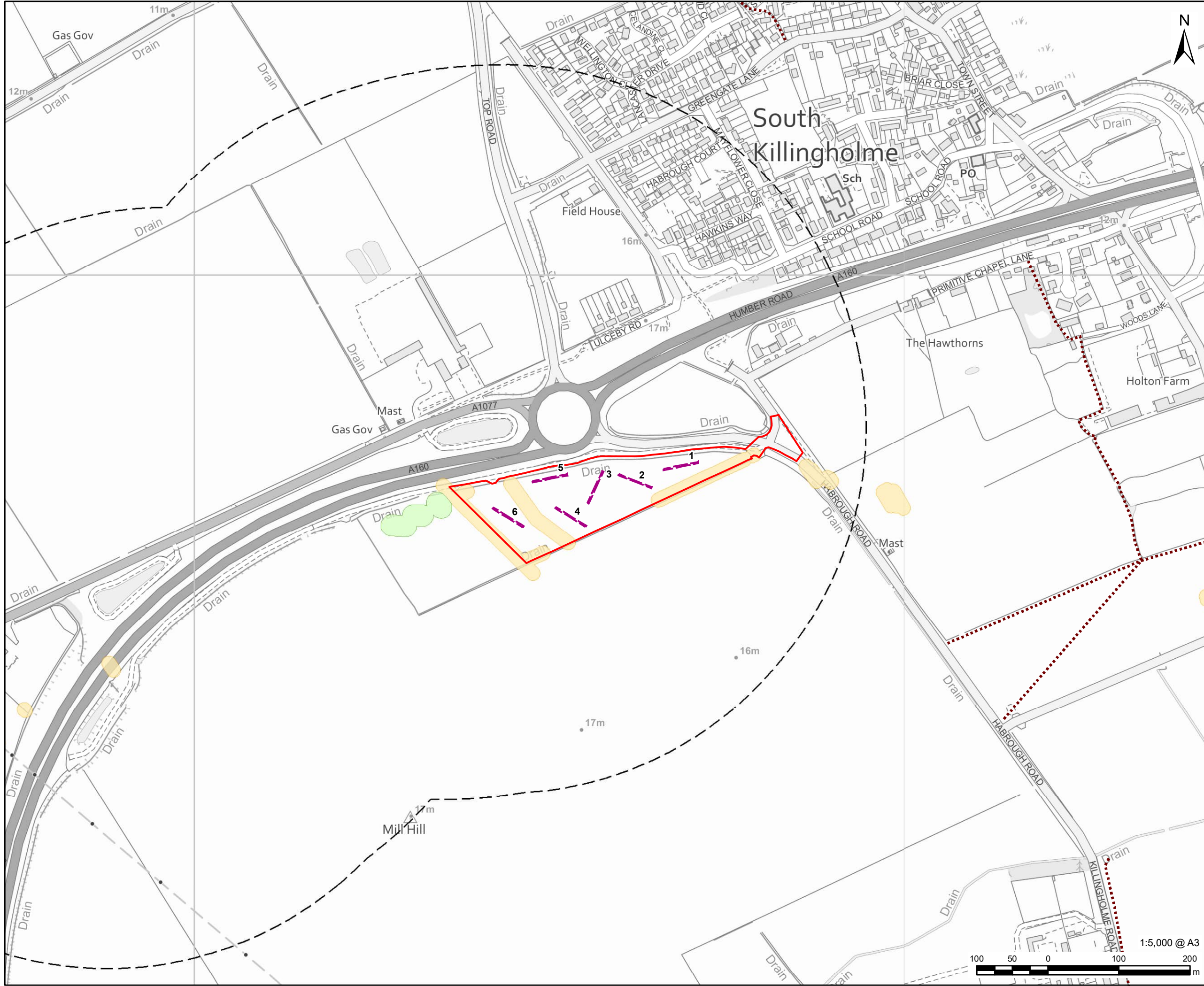


FIGURE TITLE
Figure 4 (35 of 35)
Indicative Trench Locations and Air Photo Services Survey Interpretation

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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Public Right of Way
- Known Utilities (Gas) - 15m Buffer
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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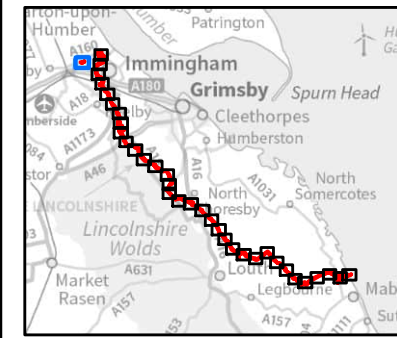


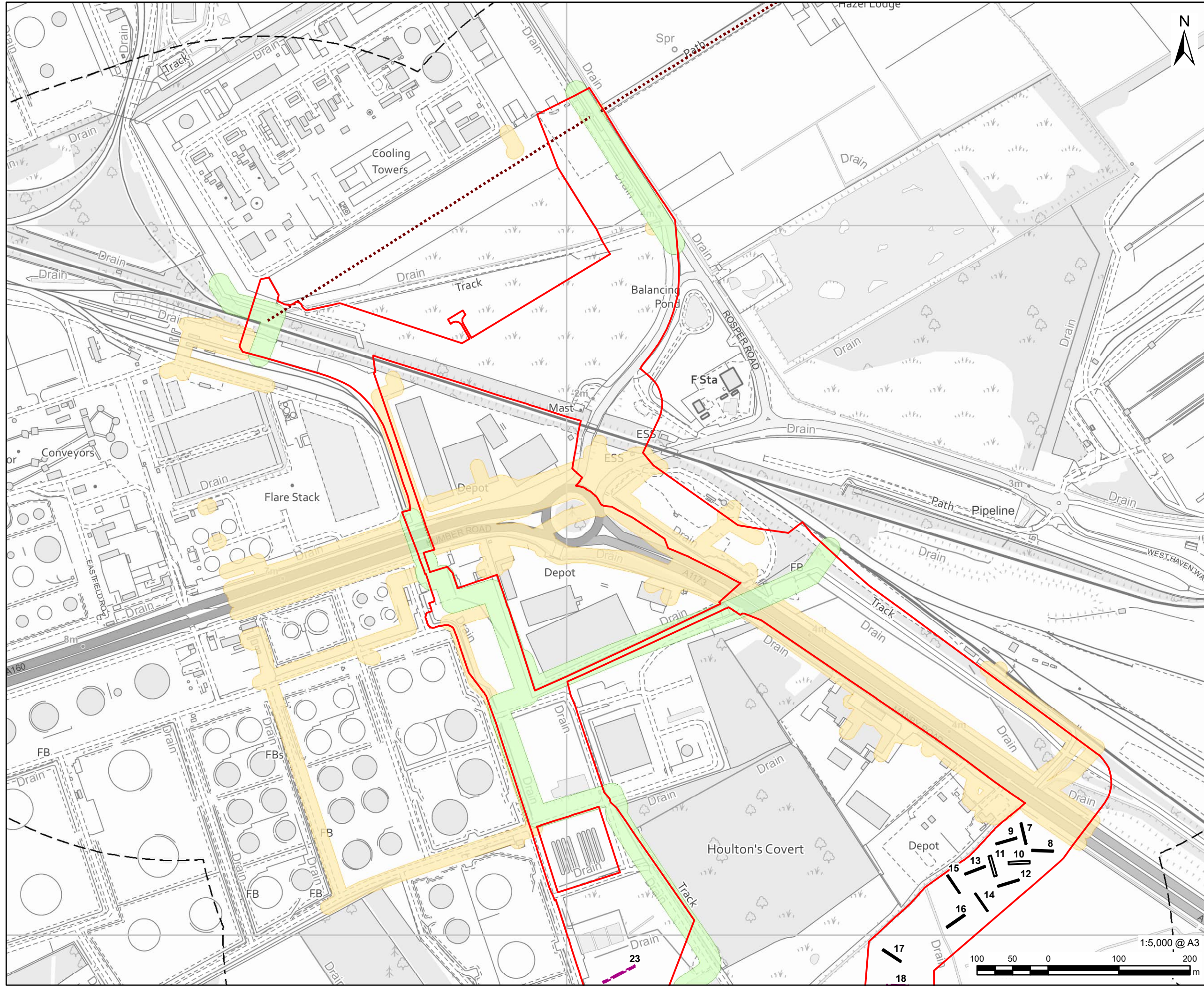
FIGURE TITLE

Figure 5 (1 of 35)

Indicative Trench Locations and Site Constraints



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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities (Gas) - 15m Buffer
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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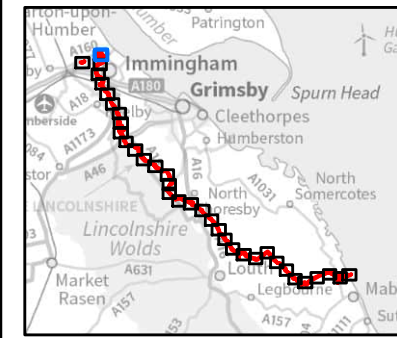
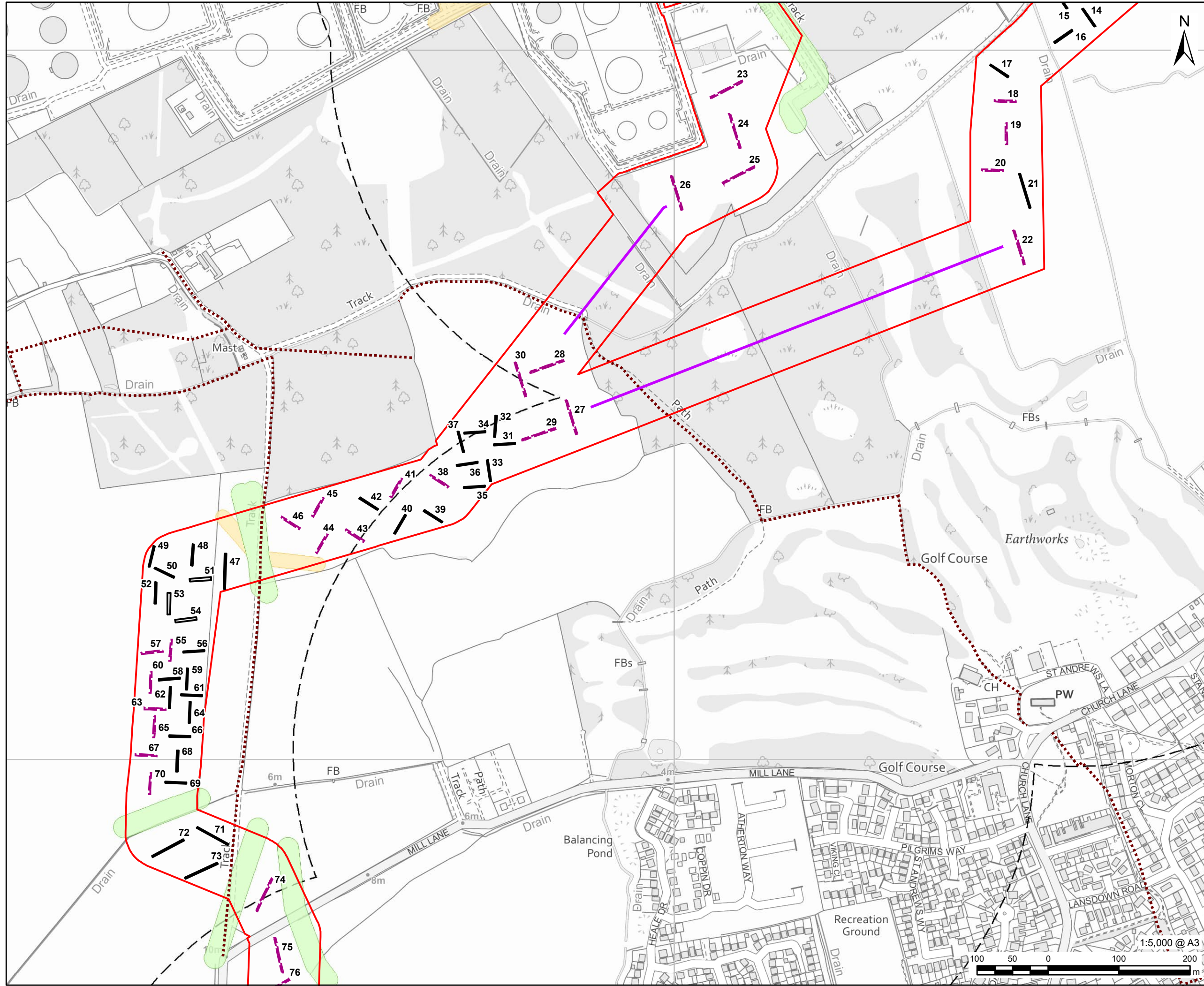


FIGURE TITLE
Figure 5 (2 of 35)
Indicative Trench Locations and Site Constraints



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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities (Gas) - 15m Buffer
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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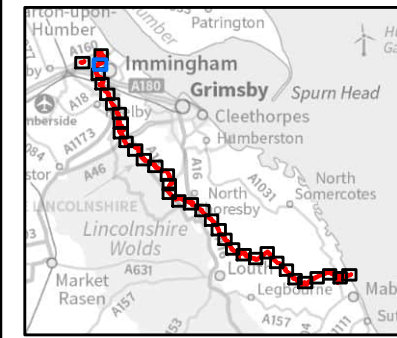
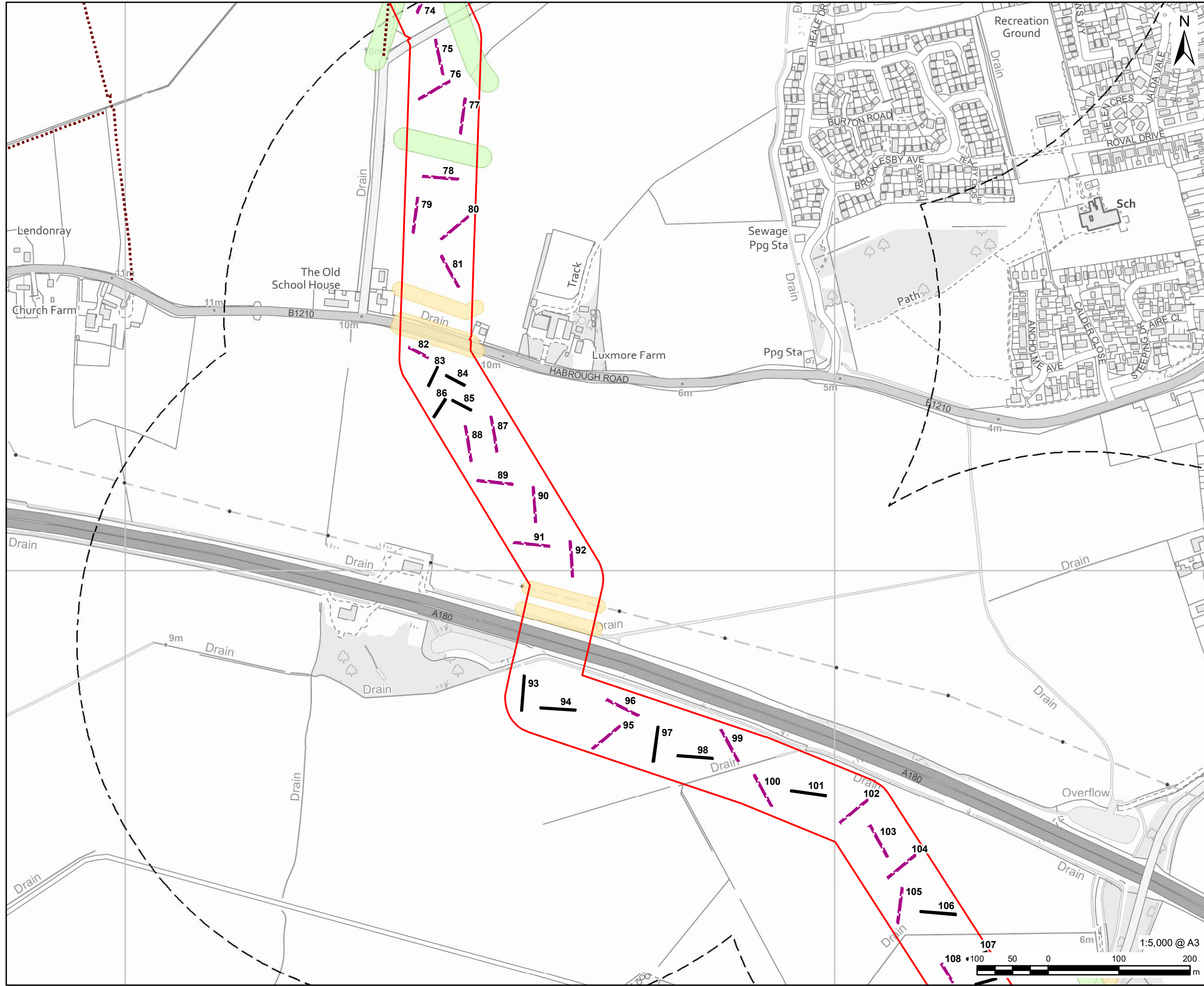


FIGURE TITLE
Figure 5 (3 of 35)
Indicative Trench Locations and Site Constraints

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Public Right of Way
 - Known Utilities (Gas) - 15m Buffer
 - Known Utilities - 10m Buffer
 - Pond - 500m Buffer

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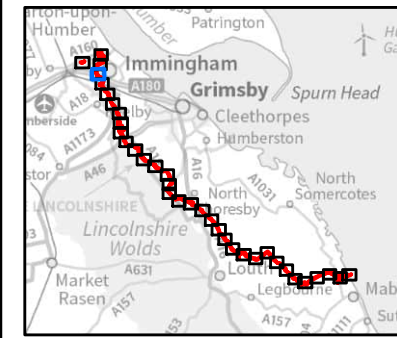
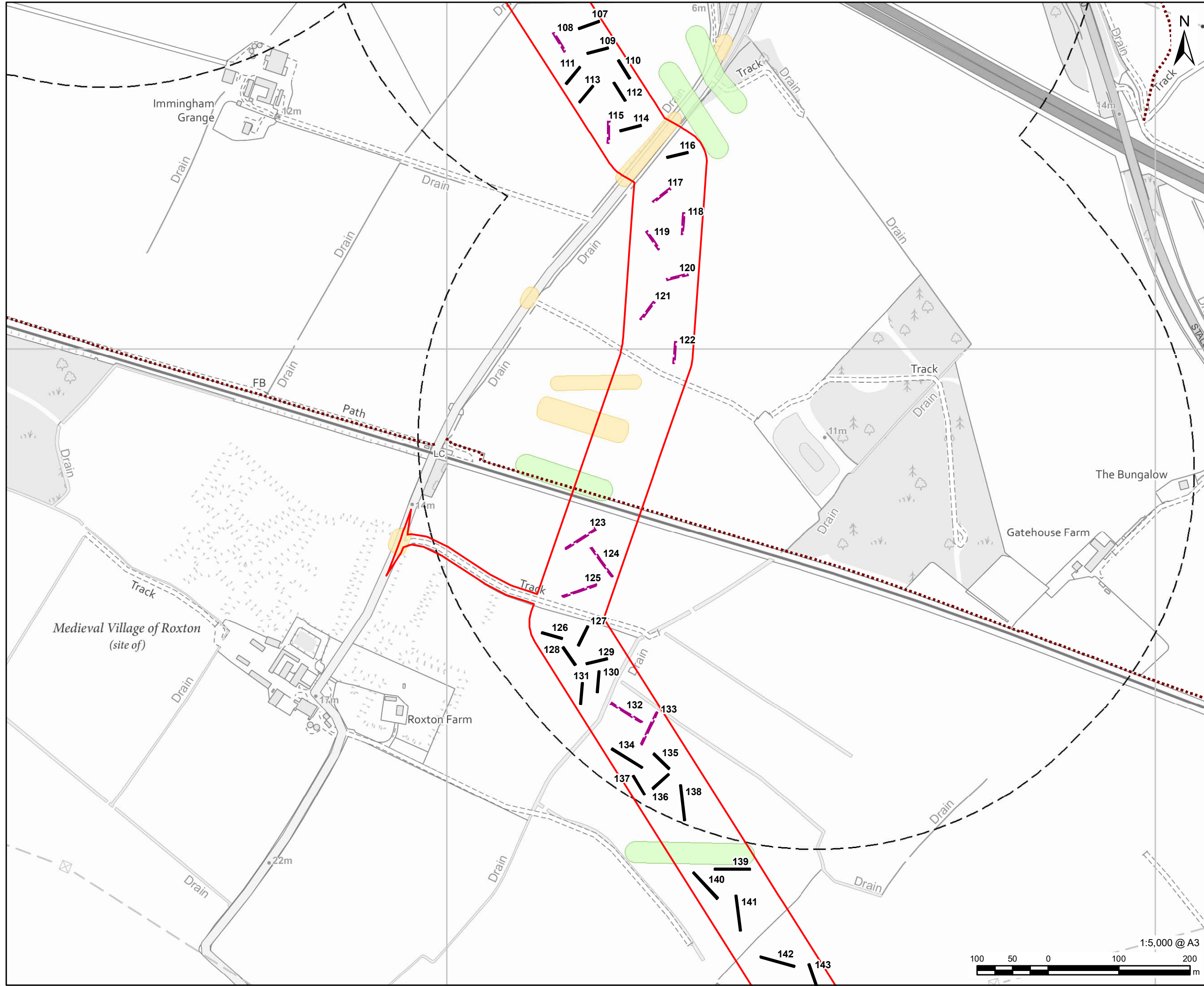


FIGURE TITLE
Figure 5 (4 of 35)
Indicative Trench Locations and Site Constraints

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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities (Gas) - 15m Buffer
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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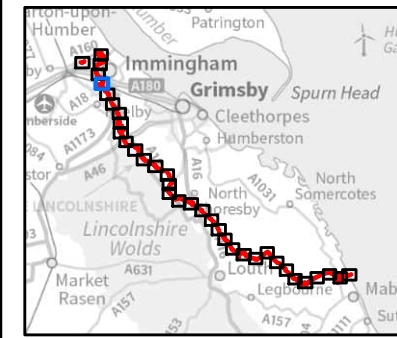
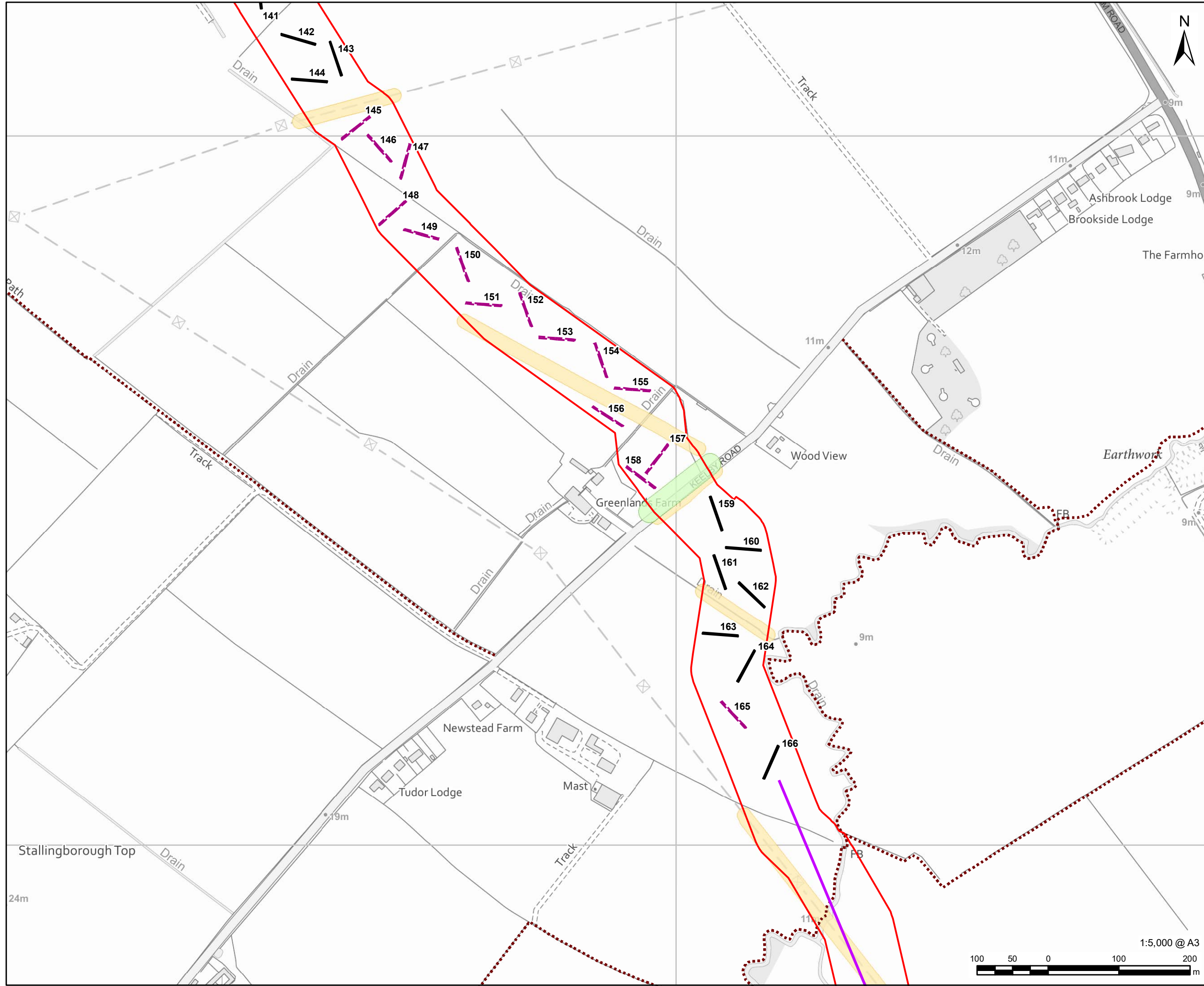


FIGURE TITLE
Figure 5 (5 of 35)
Indicative Trench Locations and Site Constraints



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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities (Gas) - 15m Buffer
- Known Utilities - 10m Buffer

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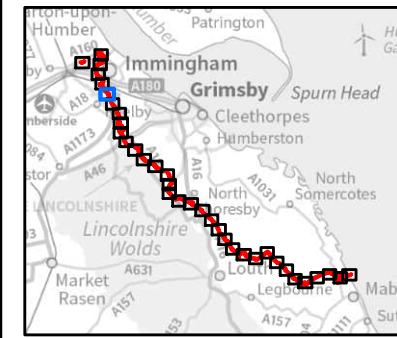
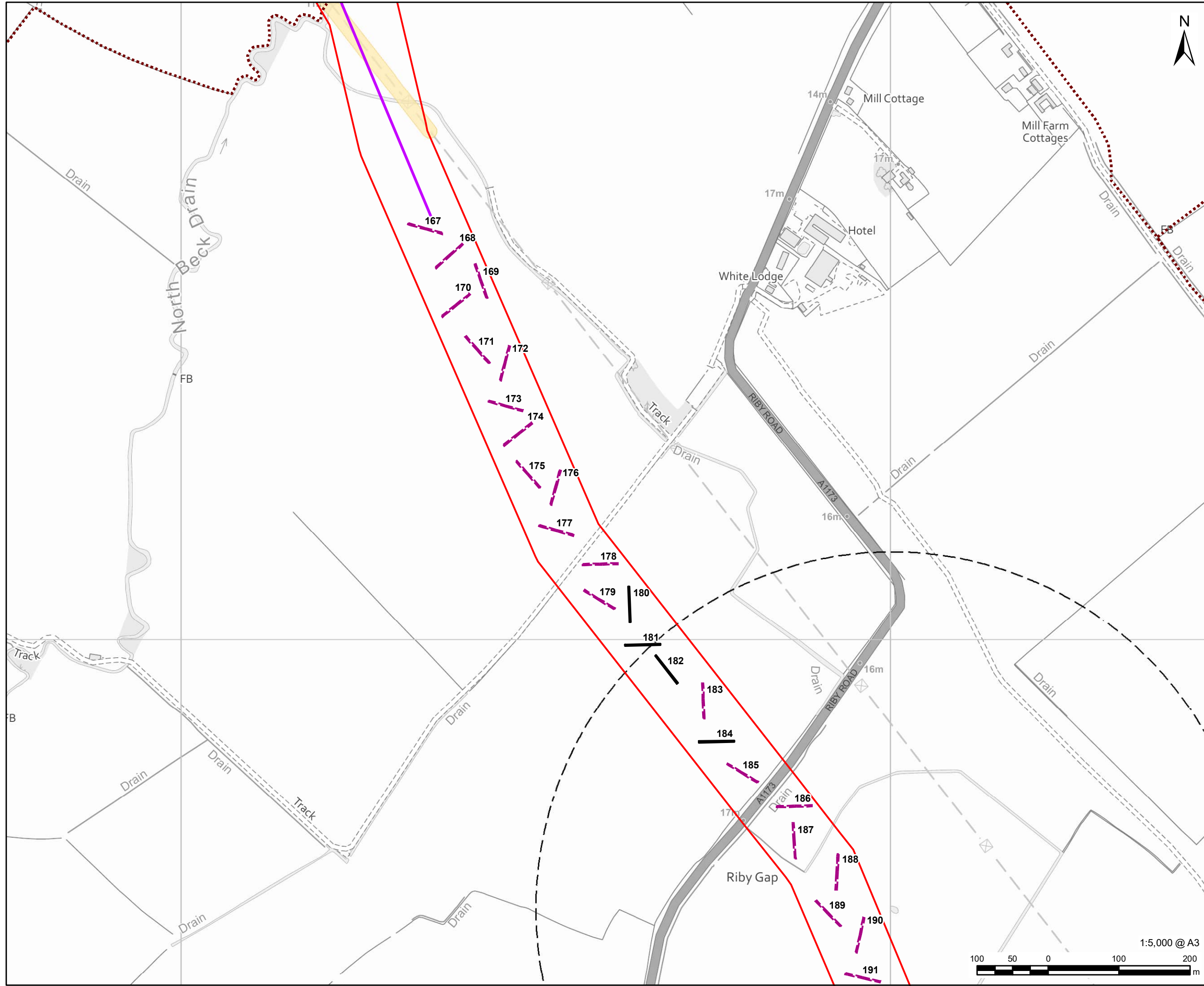


FIGURE TITLE
Figure 5 (6 of 35)
Indicative Trench Locations and Site Constraints





- LEGEND**
- DCO Site Boundary
 - Proposed HDD Section
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Public Right of Way
 - Known Utilities - 10m Buffer
 - Pond - 500m Buffer

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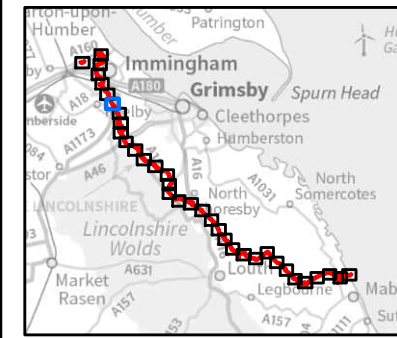
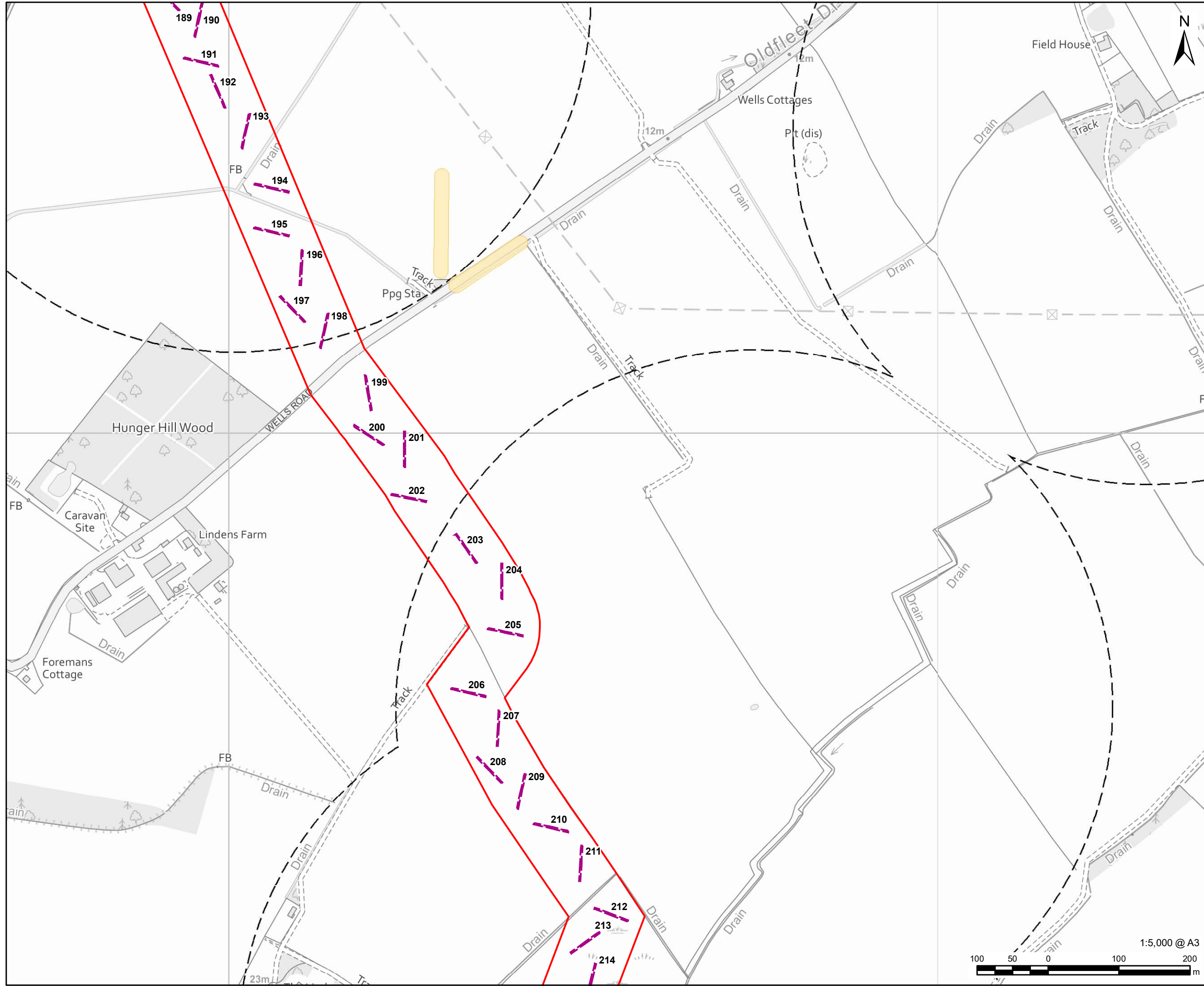


FIGURE TITLE
Figure 5 (7 of 35)
Indicative Trench Locations and Site Constraints





- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location
 - Public Right of Way
 - Known Utilities - 10m Buffer
 - Pond - 500m Buffer

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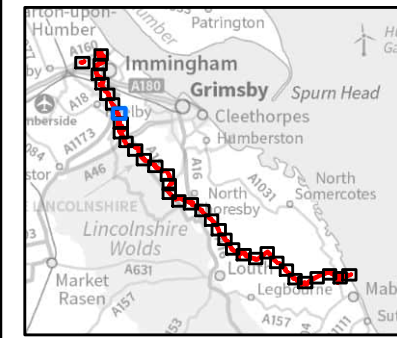
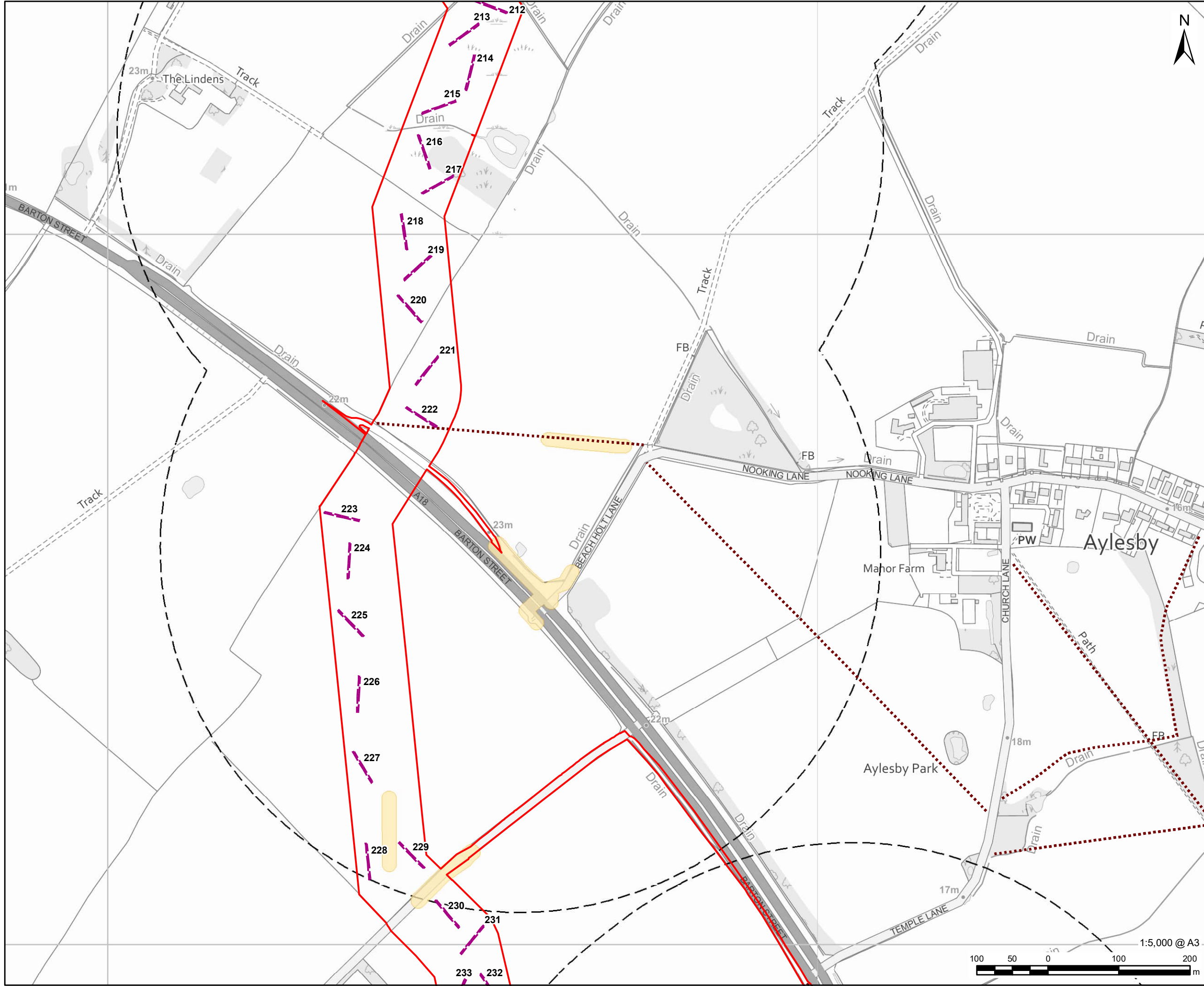


FIGURE TITLE
Figure 5 (8 of 35)
Indicative Trench Locations and Site Constraints

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_5



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LEGEND

	DCO Site Boundary
	Indicative Trench Location
	Public Right of Way
	Known Utilities - 10m Buffer
	Pond - 500m Buffer

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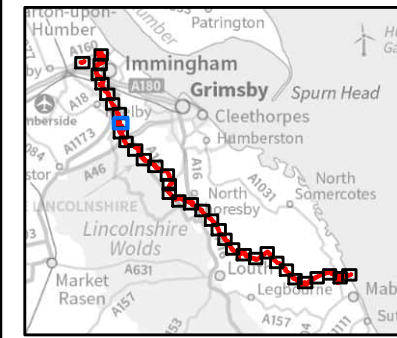


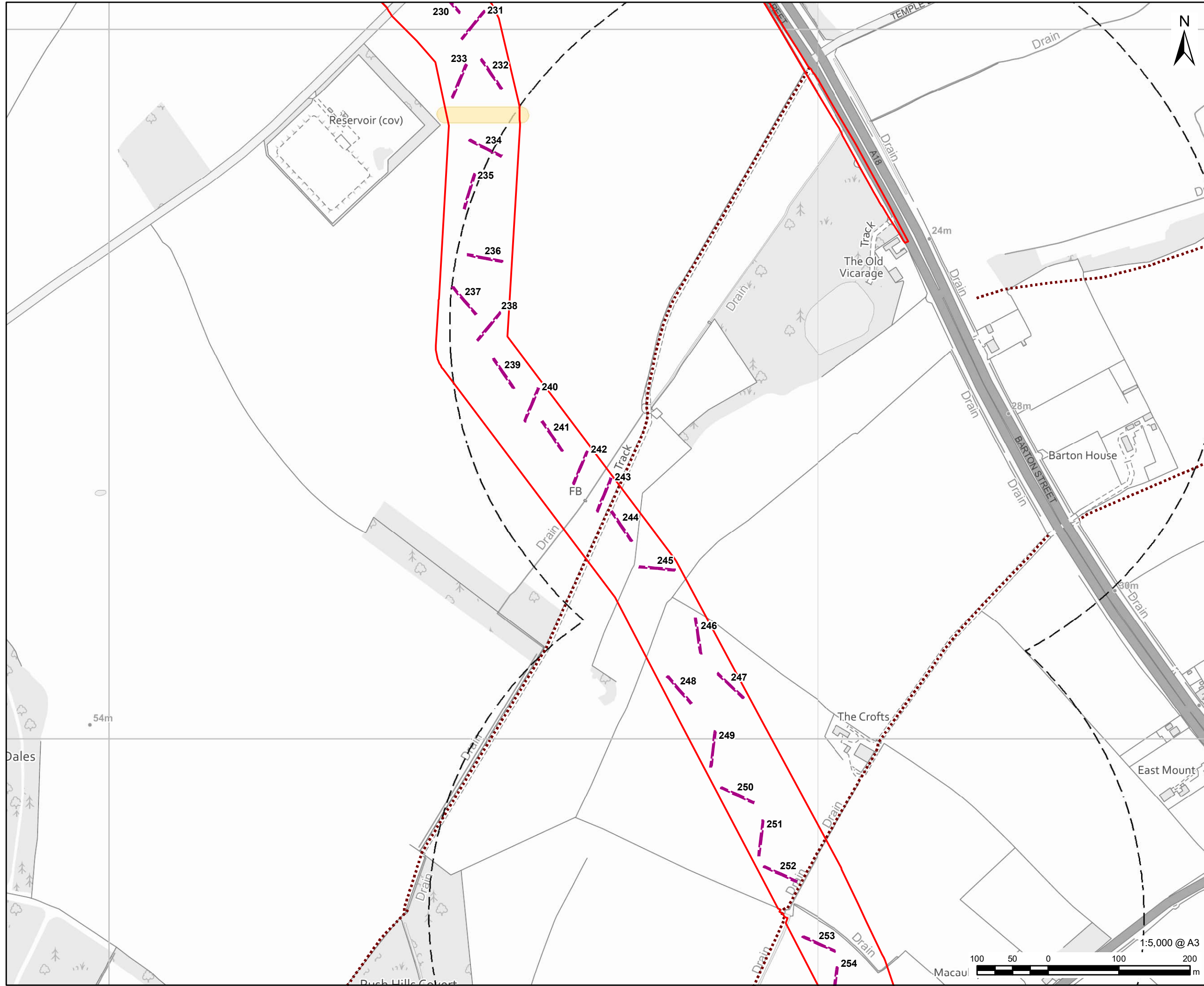
FIGURE TITLE

Figure 5 (9 of 35)

Indicative Trench Locations and Site Constraints



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LEGEND

	DCO Site Boundary
	Indicative Trench Location
	Public Right of Way
	Known Utilities - 10m Buffer
	Pond - 500m Buffer

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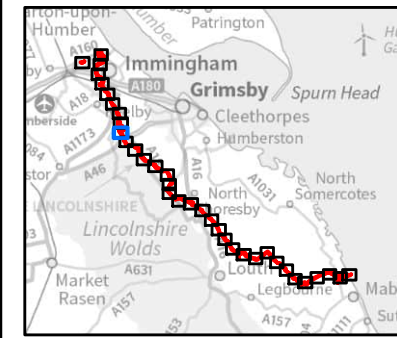
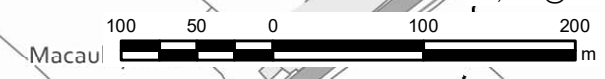
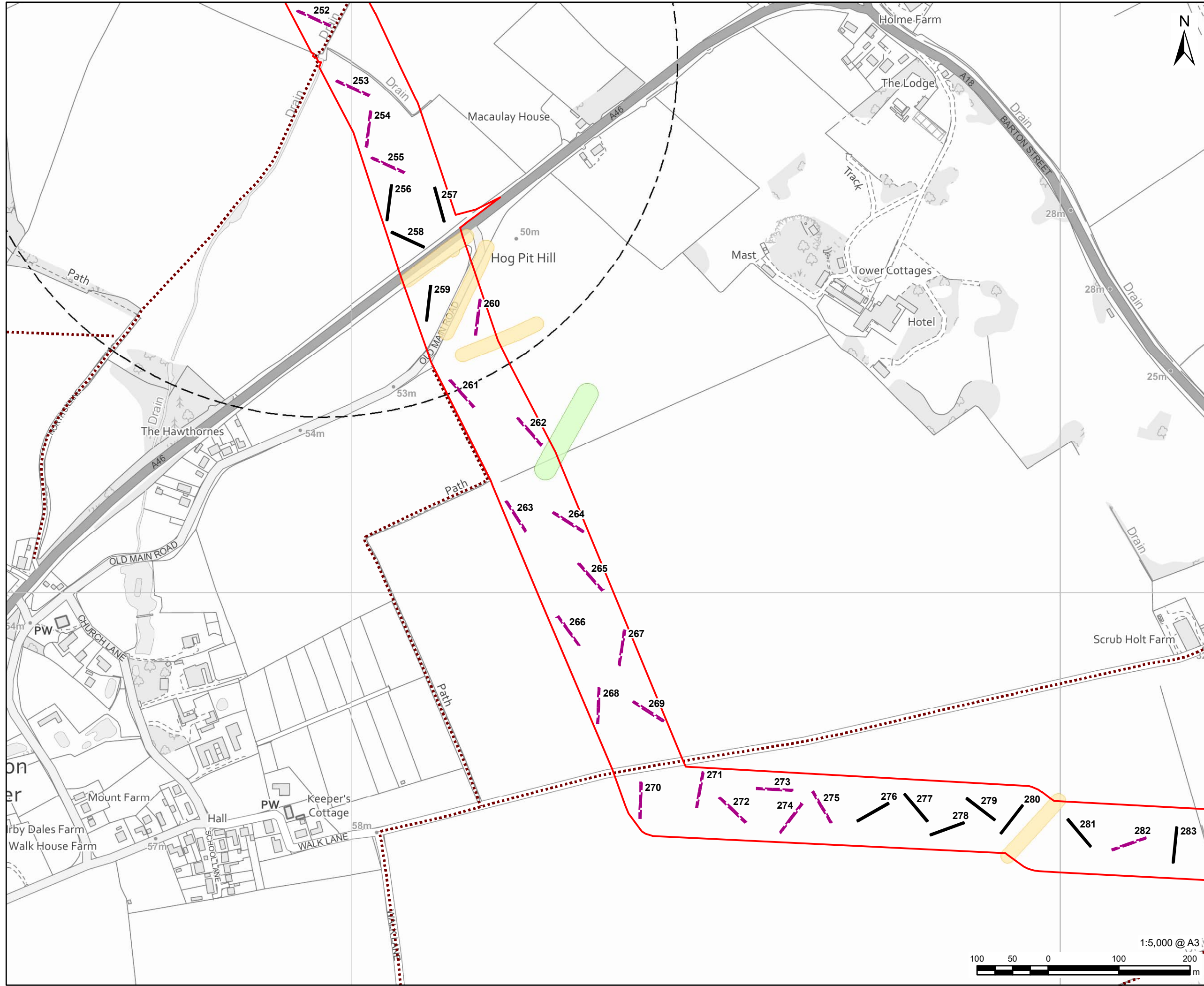


FIGURE TITLE
Figure 5 (10 of 35)
Indicative Trench Locations and Site Constraints



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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities (Gas) - 15m Buffer
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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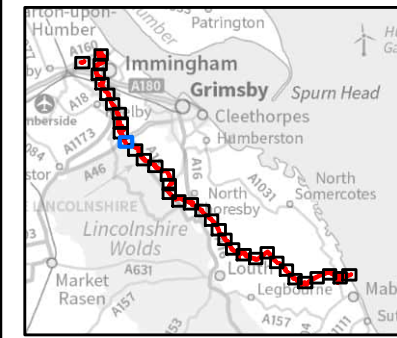
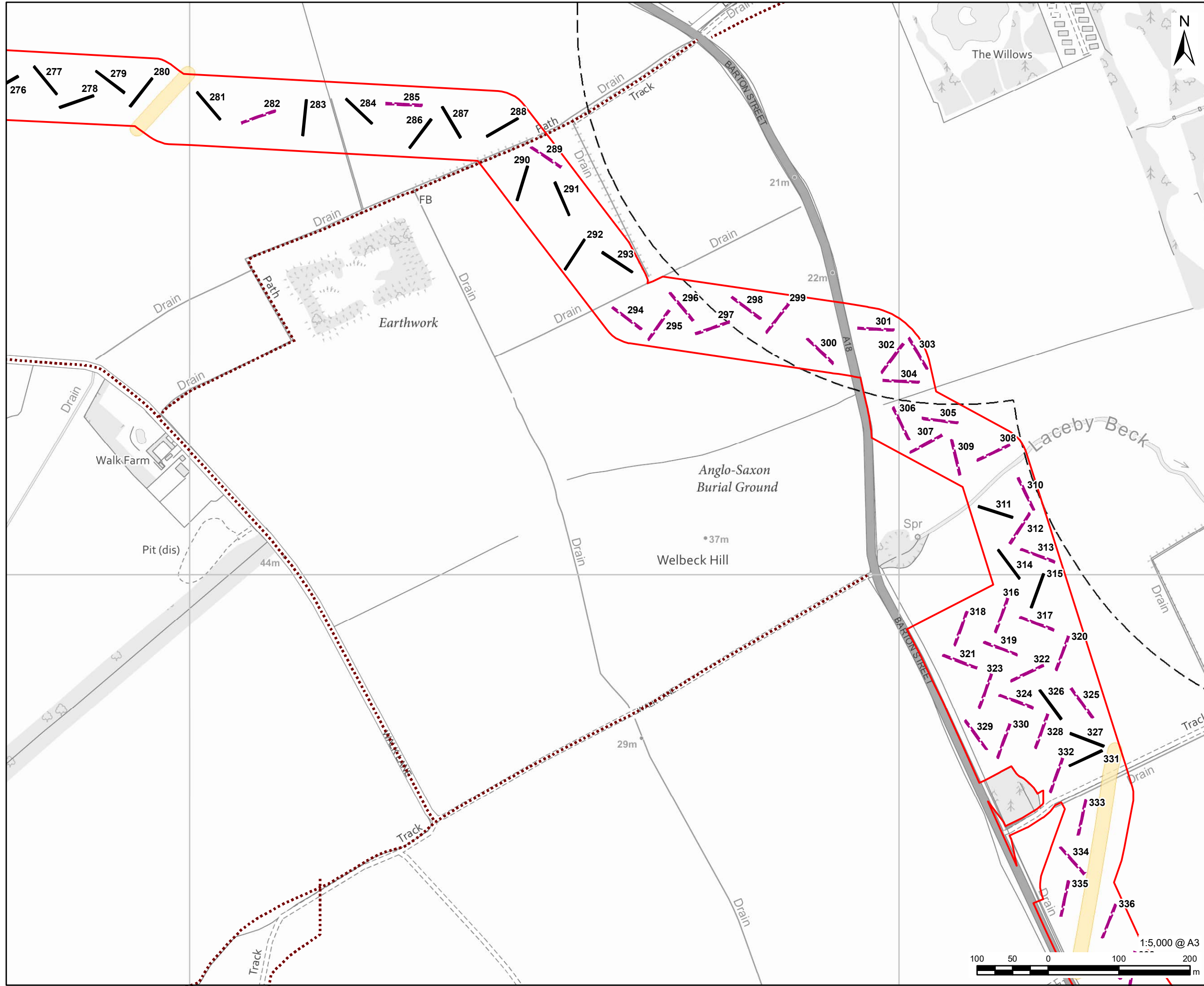


FIGURE TITLE
Figure 5 (11 of 35)
Indicative Trench Locations and Site Constraints





LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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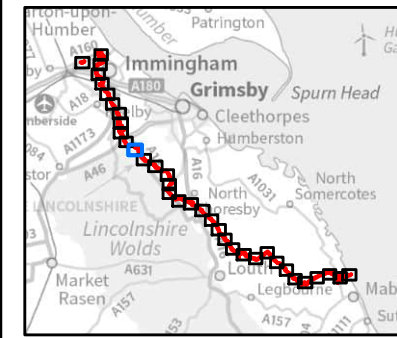
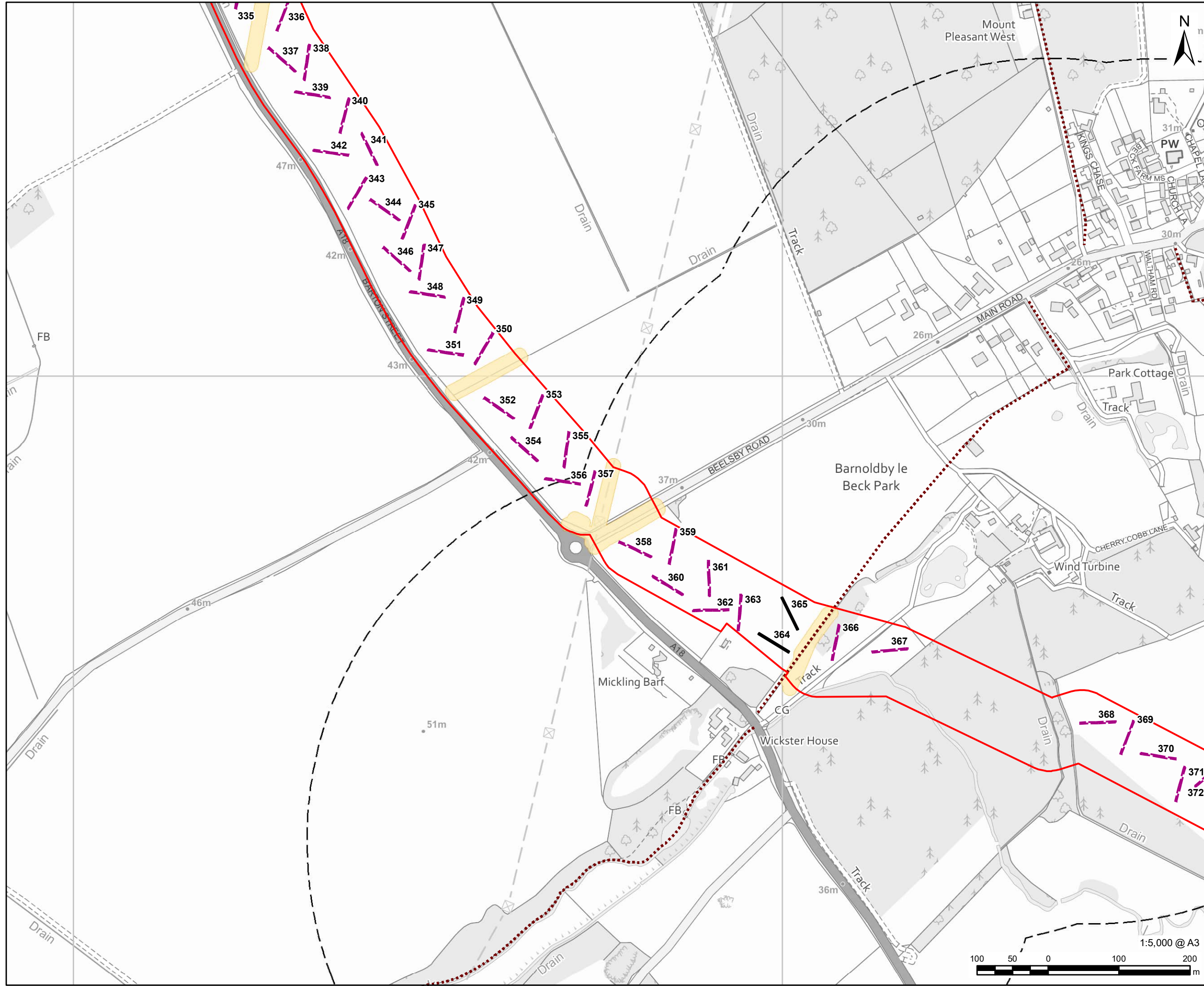


FIGURE TITLE
Figure 5 (12 of 35)
Indicative Trench Locations and Site Constraints



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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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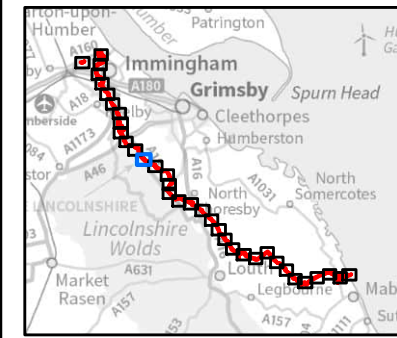


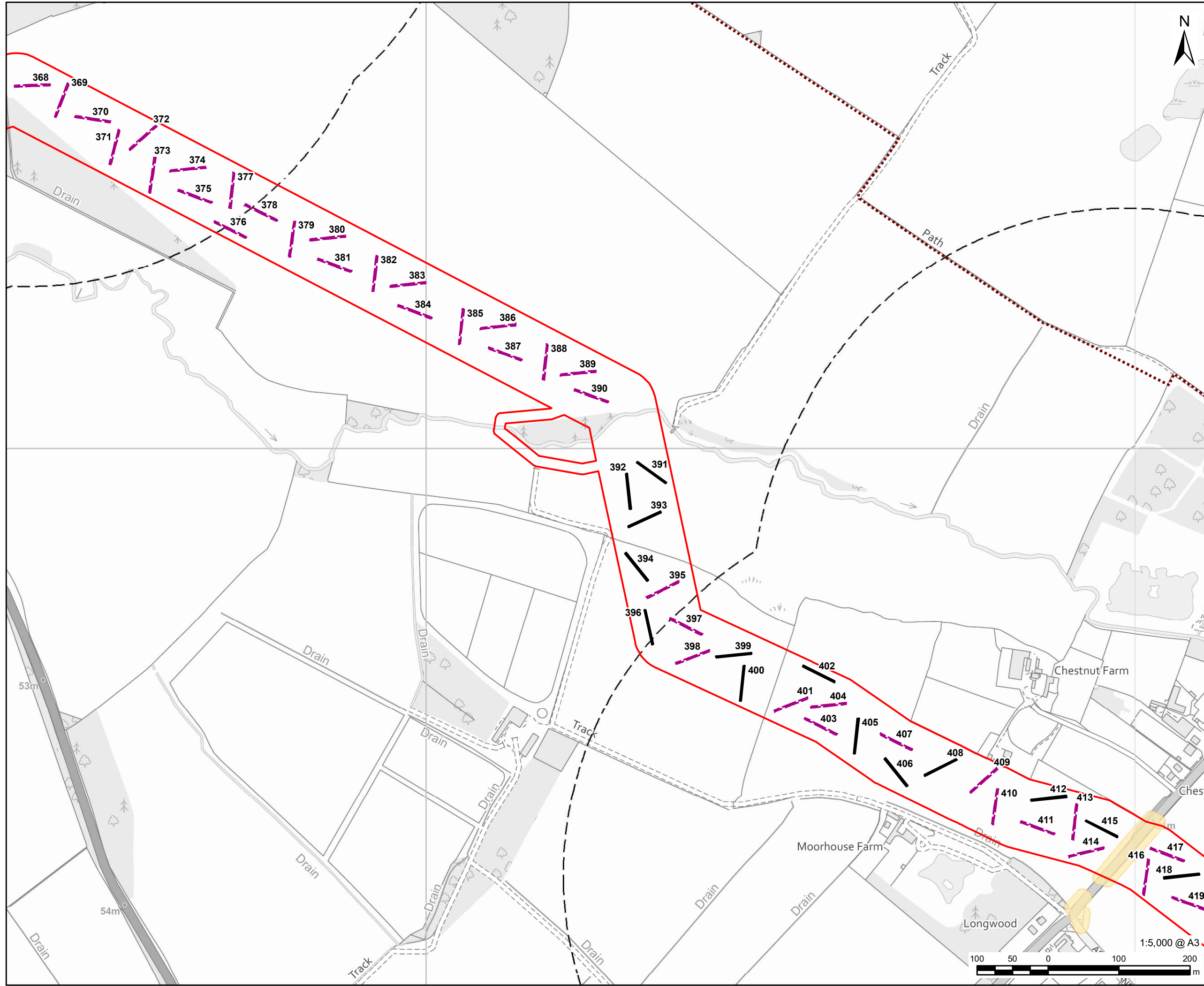
FIGURE TITLE

Figure 5 (13 of 35)

Indicative Trench Locations and Site Constraints



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LEGEND

	DCO Site Boundary
	Indicative Trench Location - Targeted
	Indicative Trench Location
	Public Right of Way
	Known Utilities - 10m Buffer
	Pond - 500m Buffer

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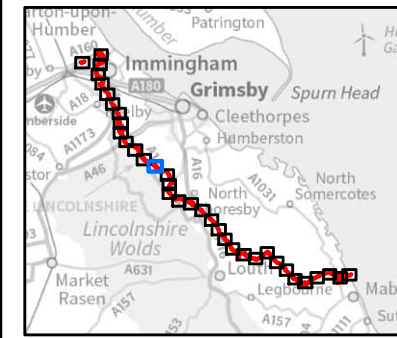
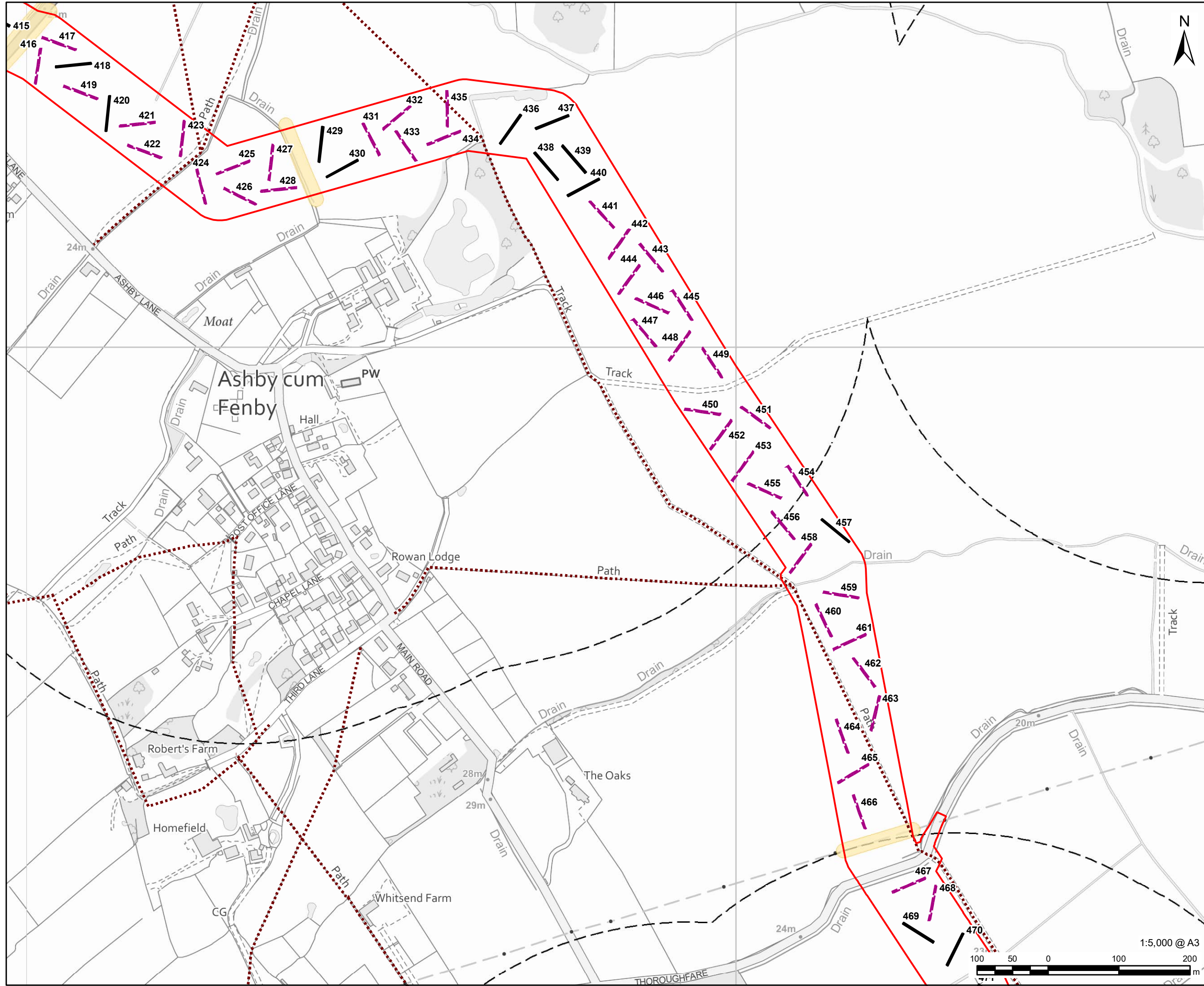


FIGURE TITLE
**Figure 5 (14 of 35)
 Indicative Trench Locations and Site Constraints**

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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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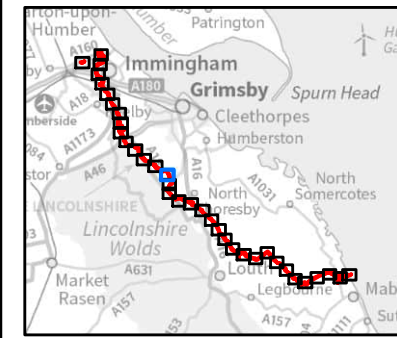
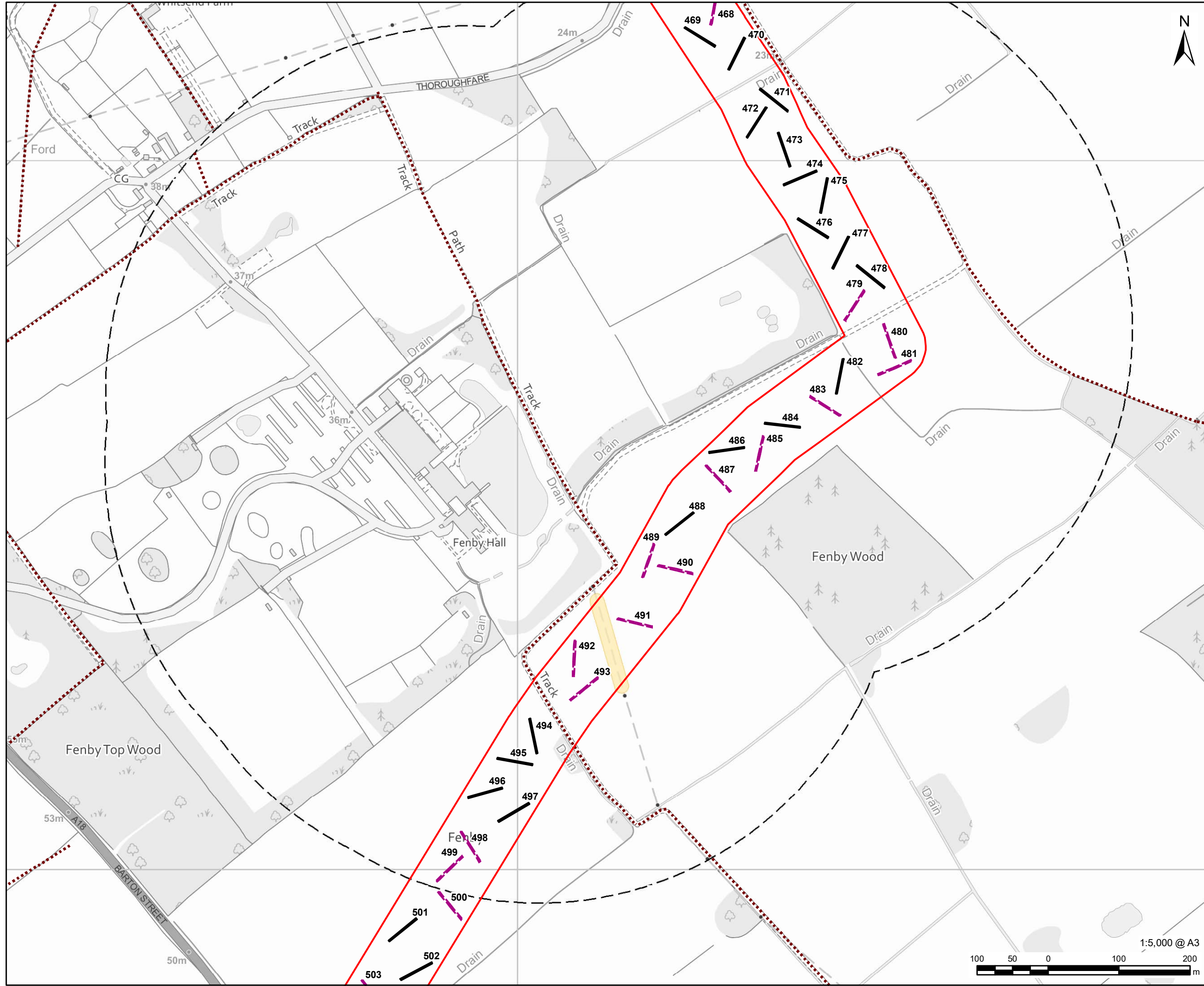


FIGURE TITLE
Figure 5 (15 of 35)
Indicative Trench Locations and Site Constraints

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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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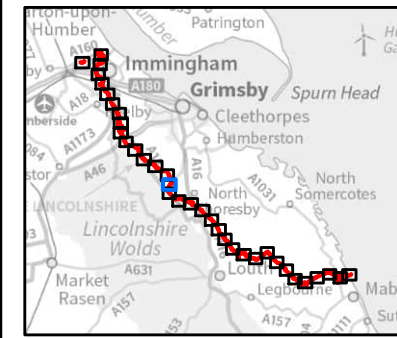
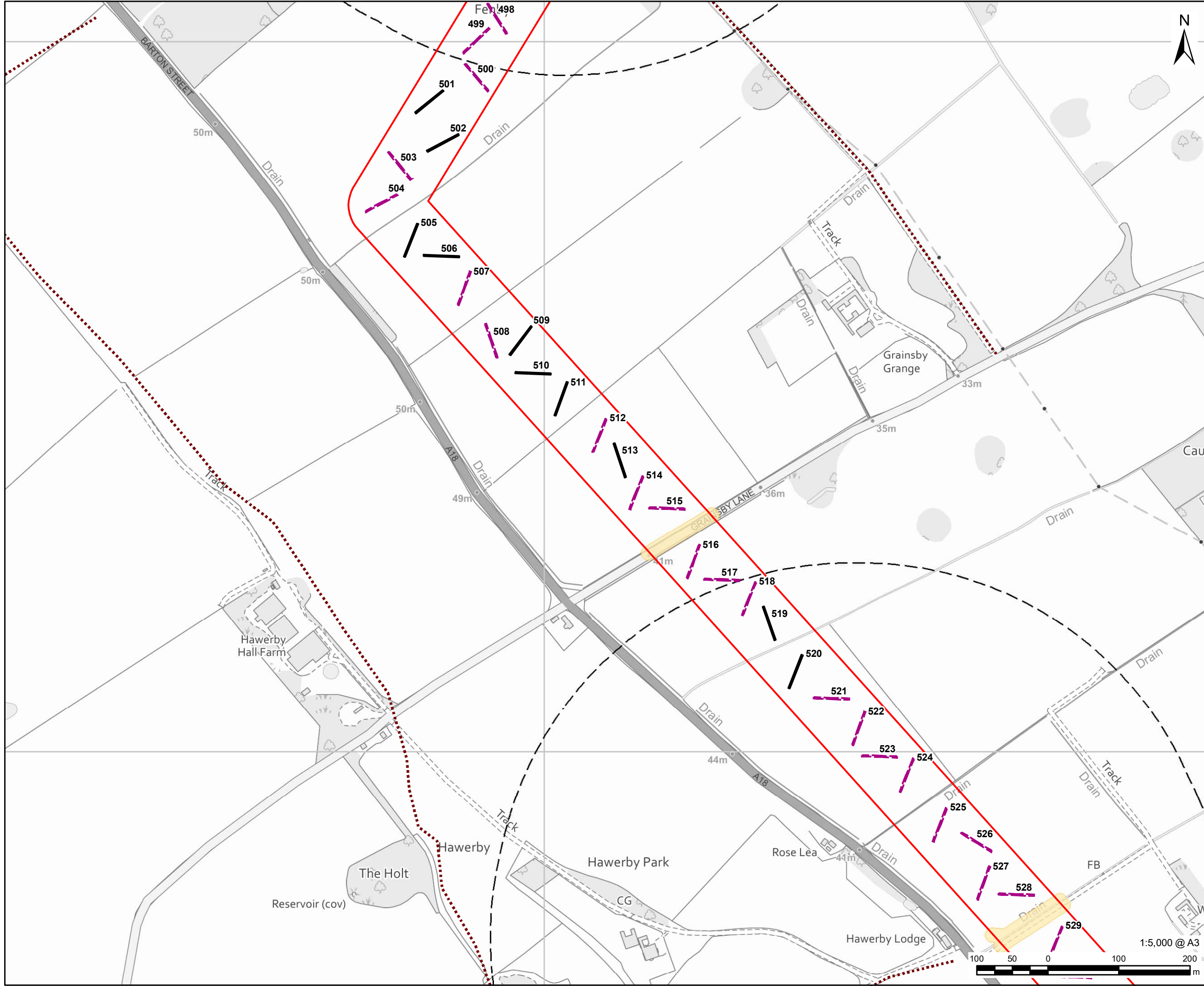


FIGURE TITLE
Figure 5 (16 of 35)
Indicative Trench Locations and Site Constraints





LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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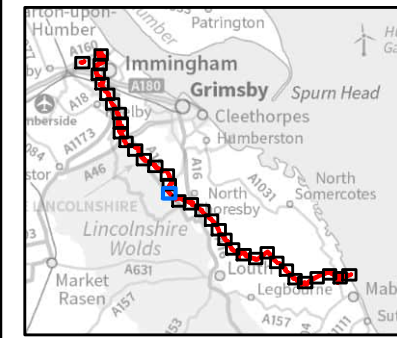


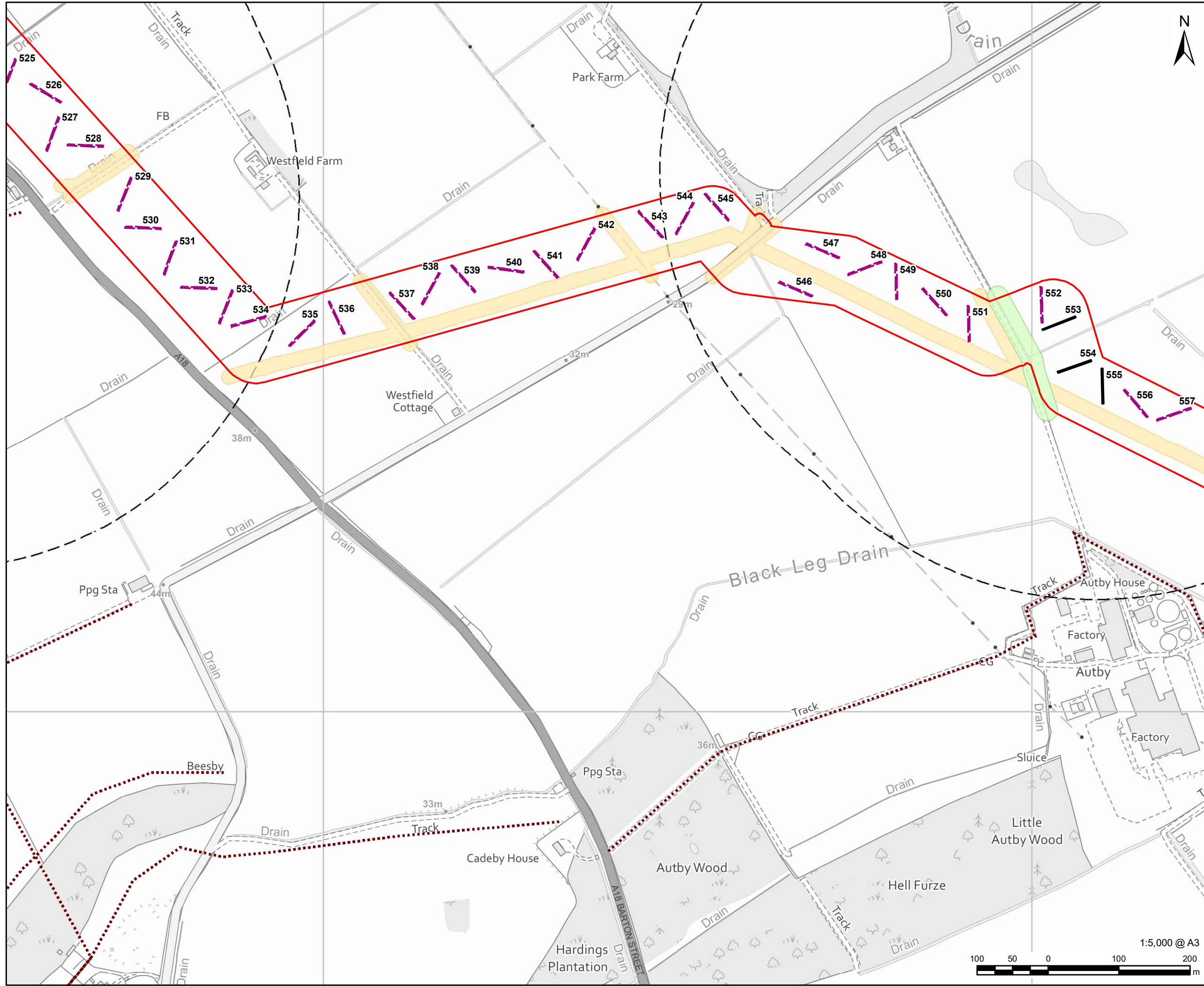
FIGURE TITLE

Figure 5 (17 of 35)

Indicative Trench Locations and Site Constraints

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Public Right of Way
 - Known Utilities (Gas) - 15m Buffer
 - Known Utilities - 10m Buffer
 - Pond - 500m Buffer

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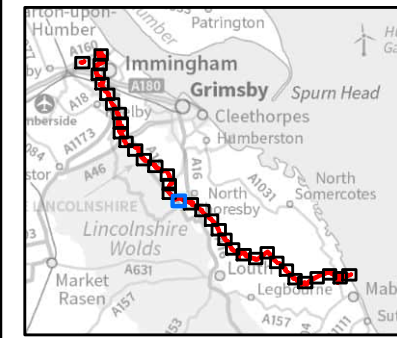
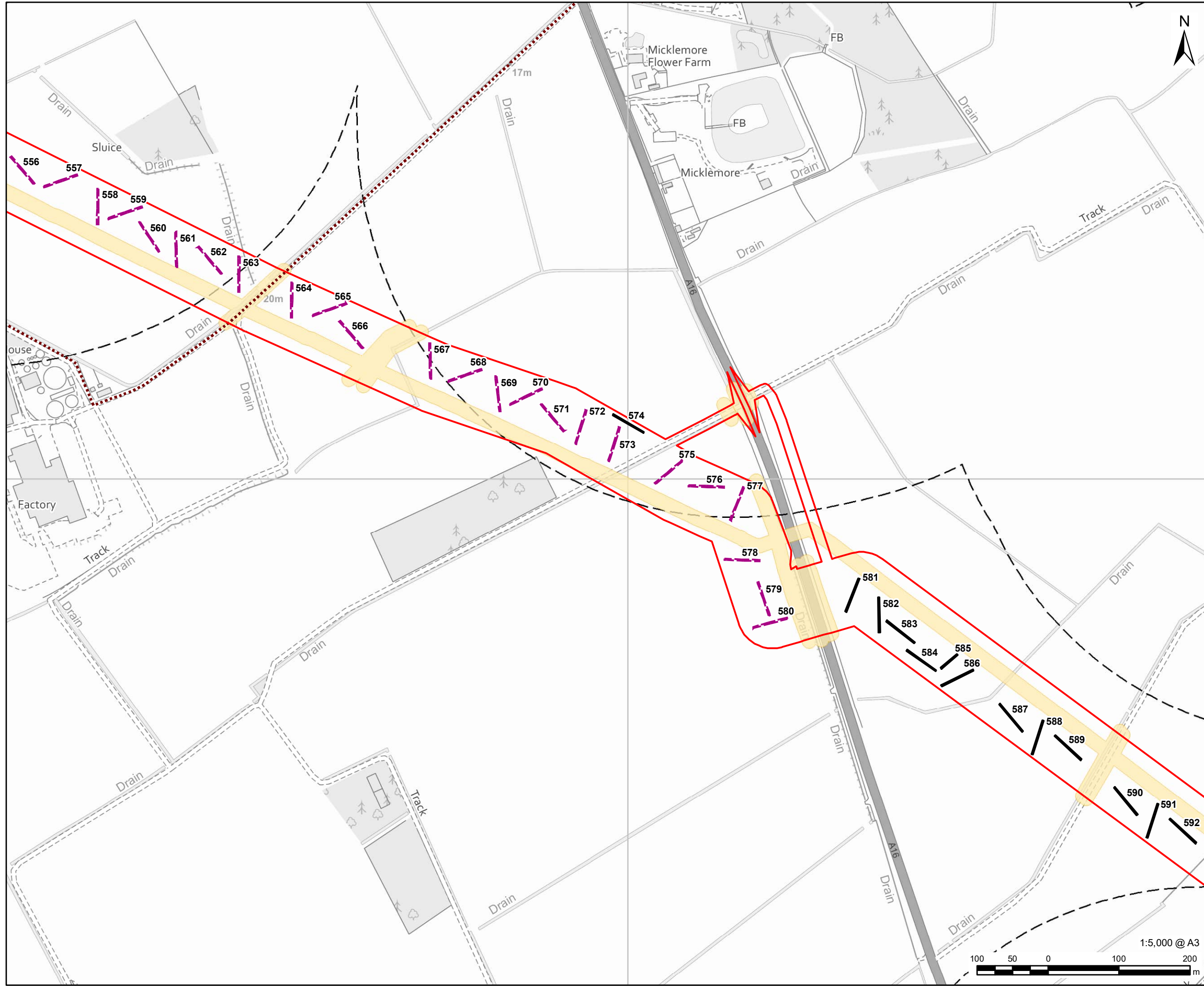


FIGURE TITLE
Figure 5 (18 of 35)
Indicative Trench Locations and Site Constraints

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_5





LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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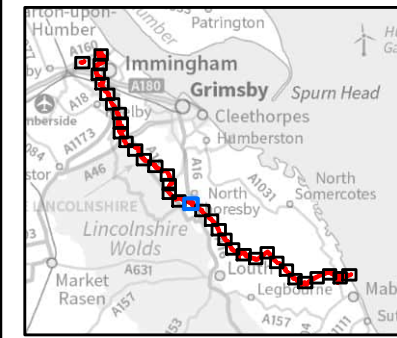
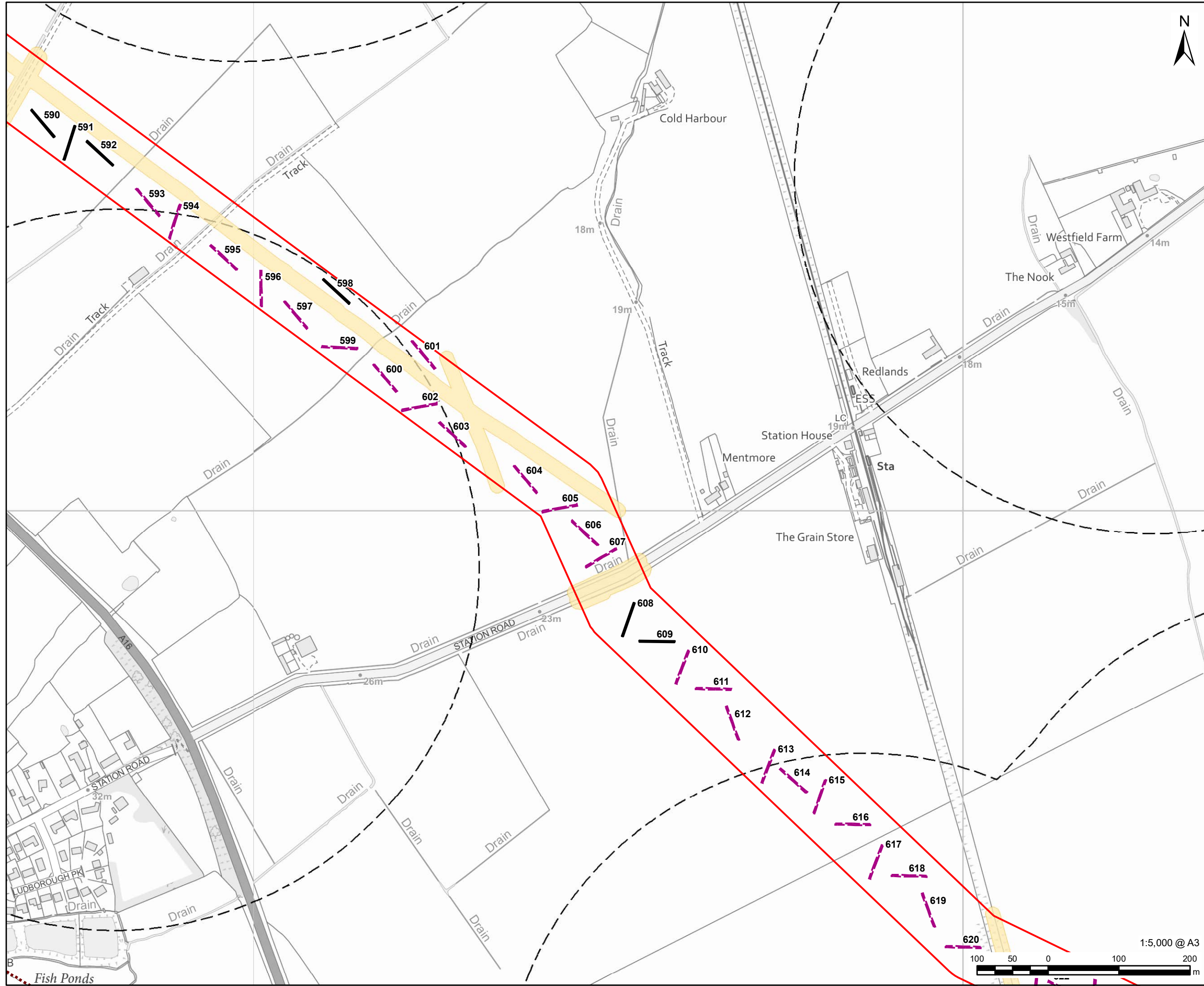


FIGURE TITLE
Figure 5 (19 of 35)
Indicative Trench Locations and Site Constraints

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Public Right of Way
 - Known Utilities - 10m Buffer
 - Pond - 500m Buffer

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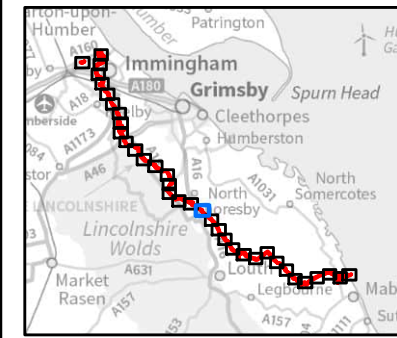
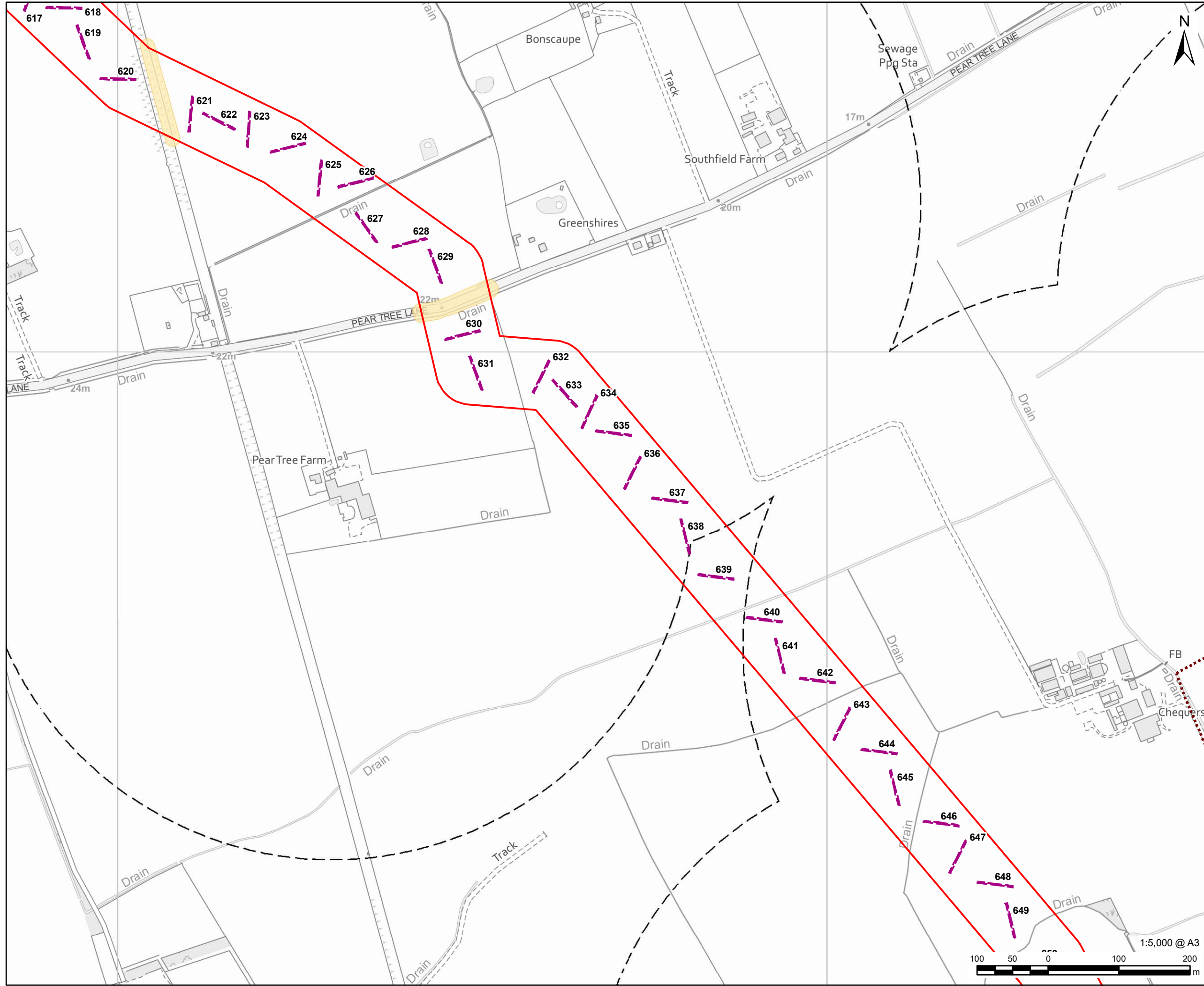


FIGURE TITLE
Figure 5 (20 of 35)
Indicative Trench Locations and Site Constraints

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_5





LEGEND

	DCO Site Boundary
	Indicative Trench Location
	Public Right of Way
	Known Utilities - 10m Buffer
	Pond - 500m Buffer

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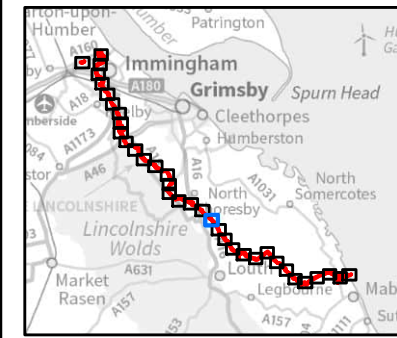
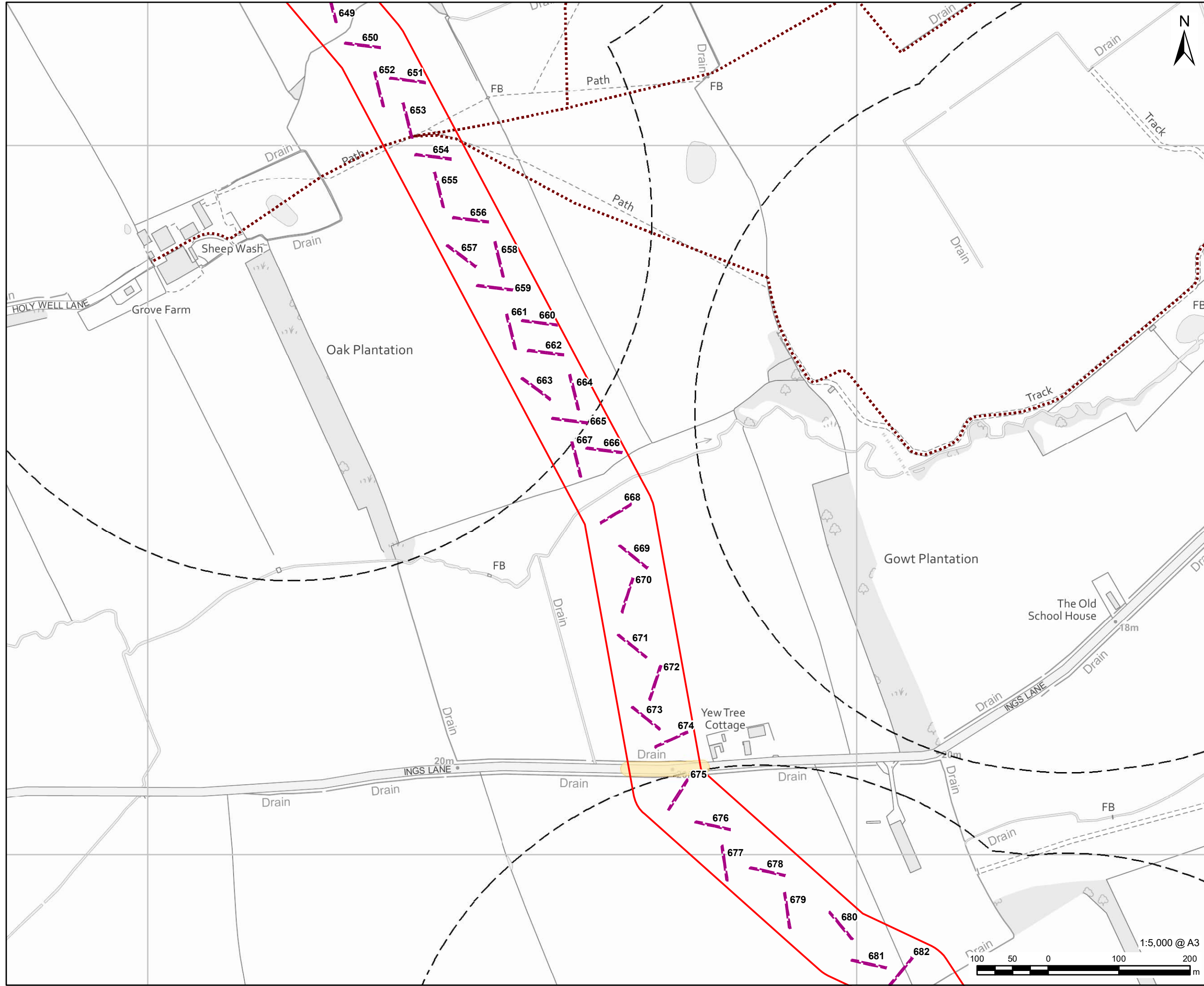


FIGURE TITLE
Figure 5 (21 of 35)
Indicative Trench Locations and Site Constraints



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LEGEND

	DCO Site Boundary
	Indicative Trench Location
	Public Right of Way
	Known Utilities - 10m Buffer
	Pond - 500m Buffer

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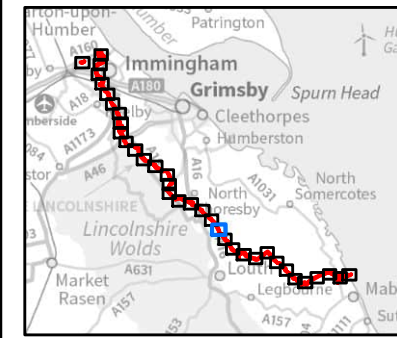
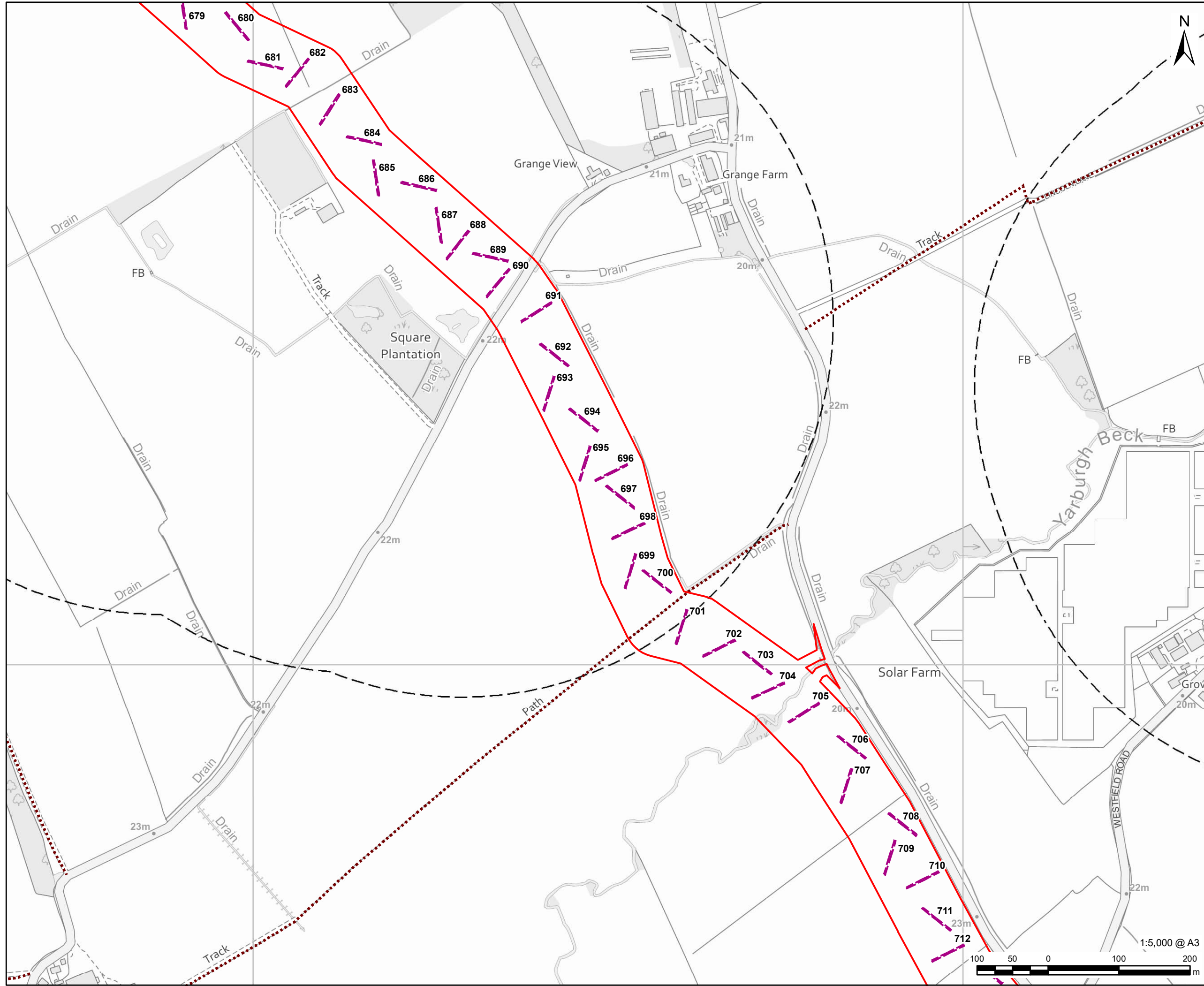


FIGURE TITLE
Figure 5 (22 of 35)
Indicative Trench Locations and Site Constraints

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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Public Right of Way
- Pond - 500m Buffer

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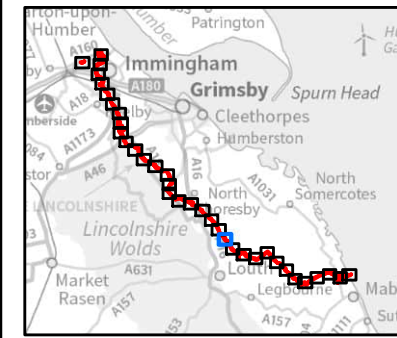
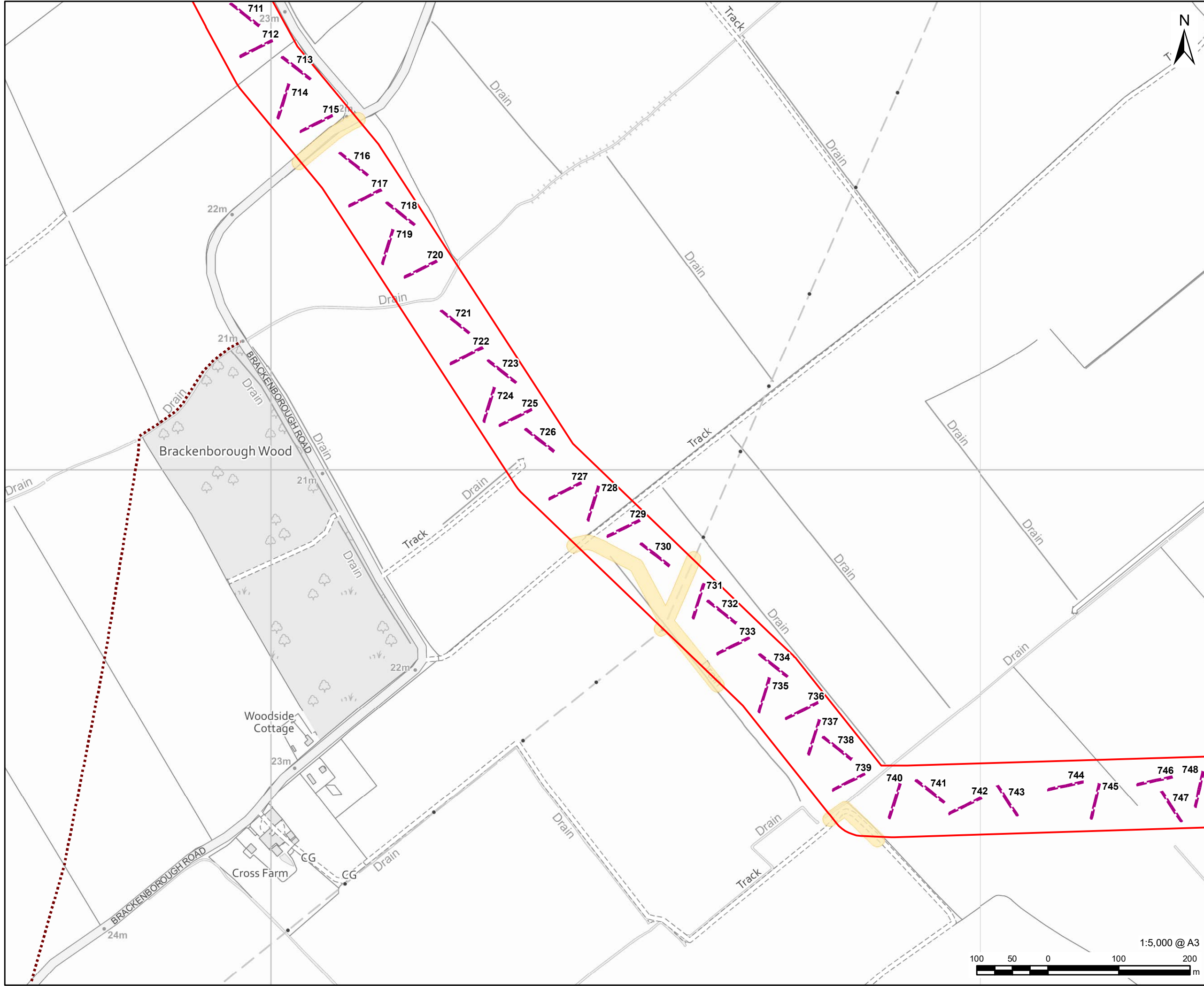


FIGURE TITLE
Figure 5 (23 of 35)
Indicative Trench Locations and Site Constraints



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LEGEND

	DCO Site Boundary
	Indicative Trench Location
	Public Right of Way
	Known Utilities - 10m Buffer

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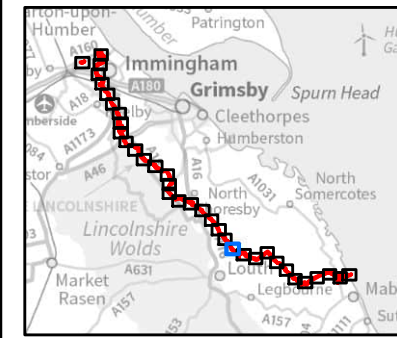
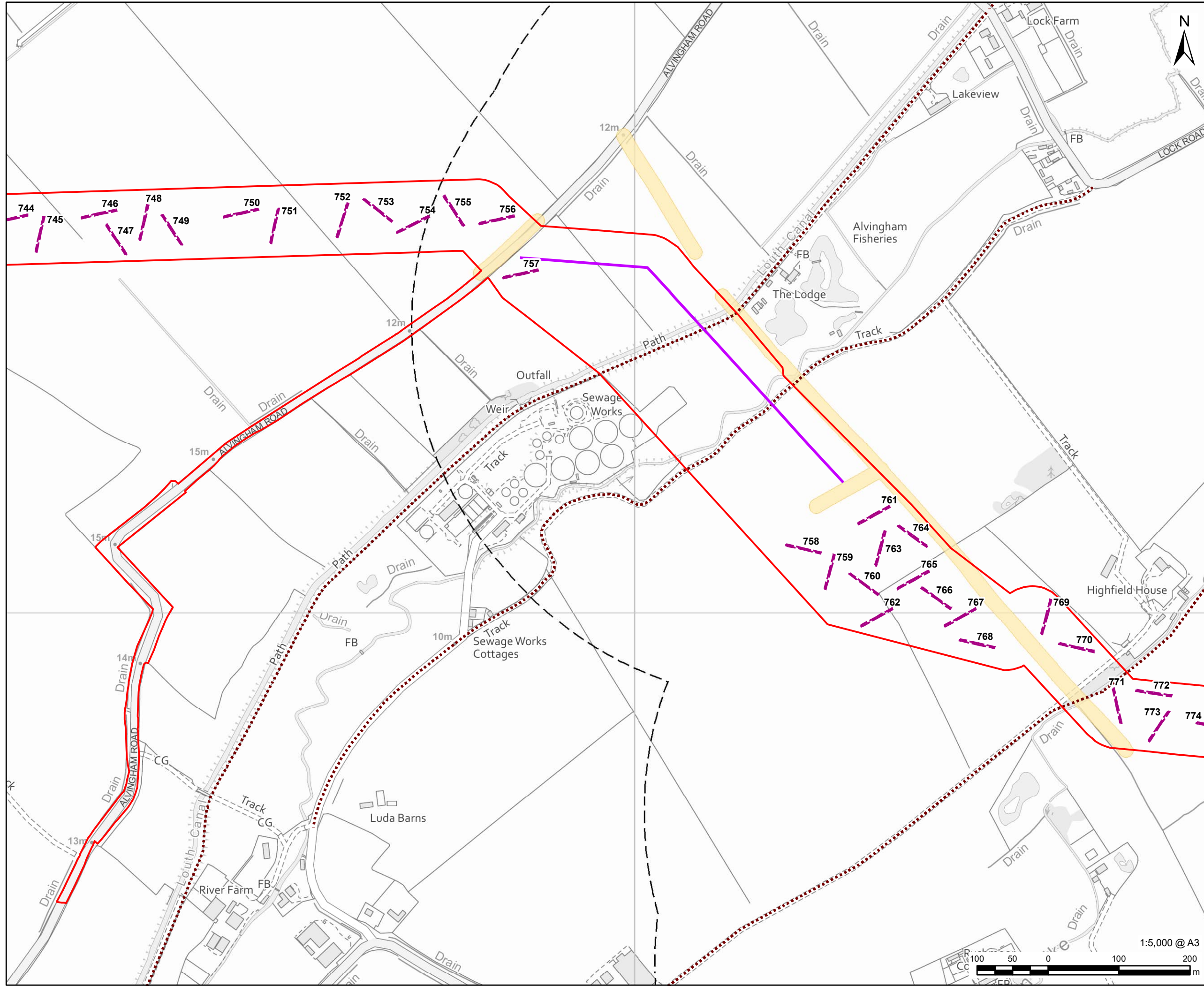


FIGURE TITLE
Figure 5 (24 of 35)
Indicative Trench Locations and Site Constraints



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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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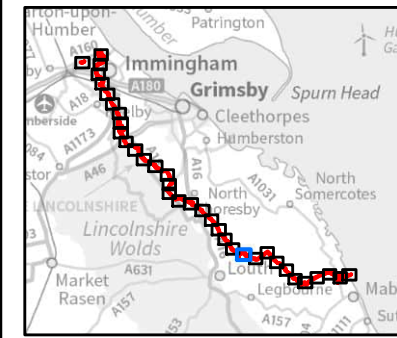
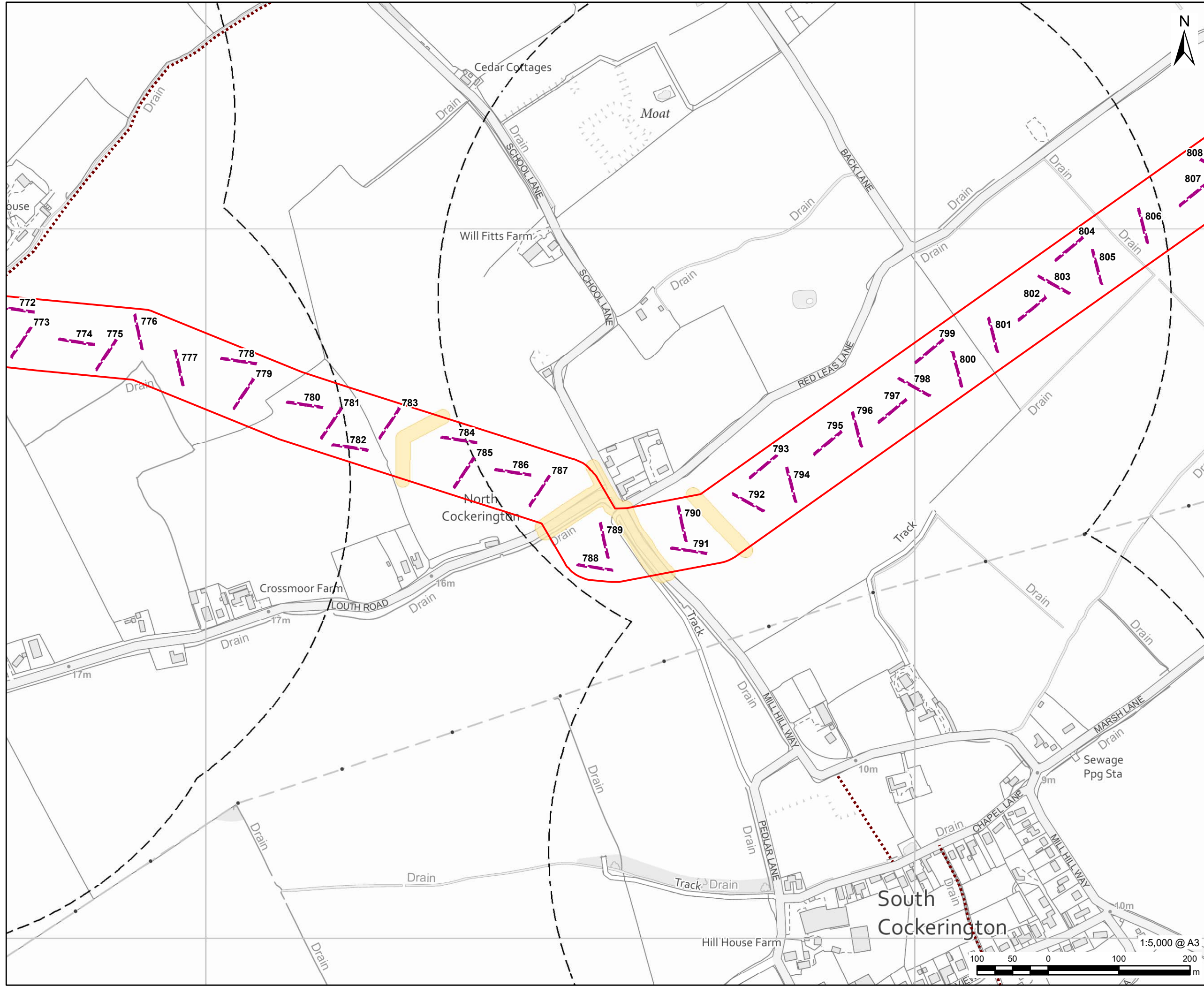


FIGURE TITLE
Figure 5 (25 of 35)
Indicative Trench Locations and Site Constraints

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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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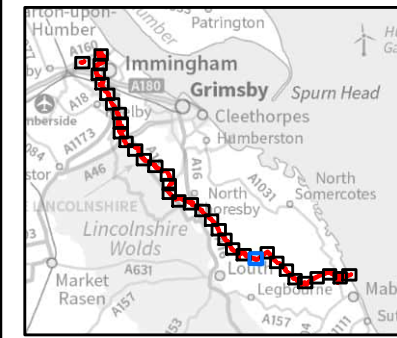
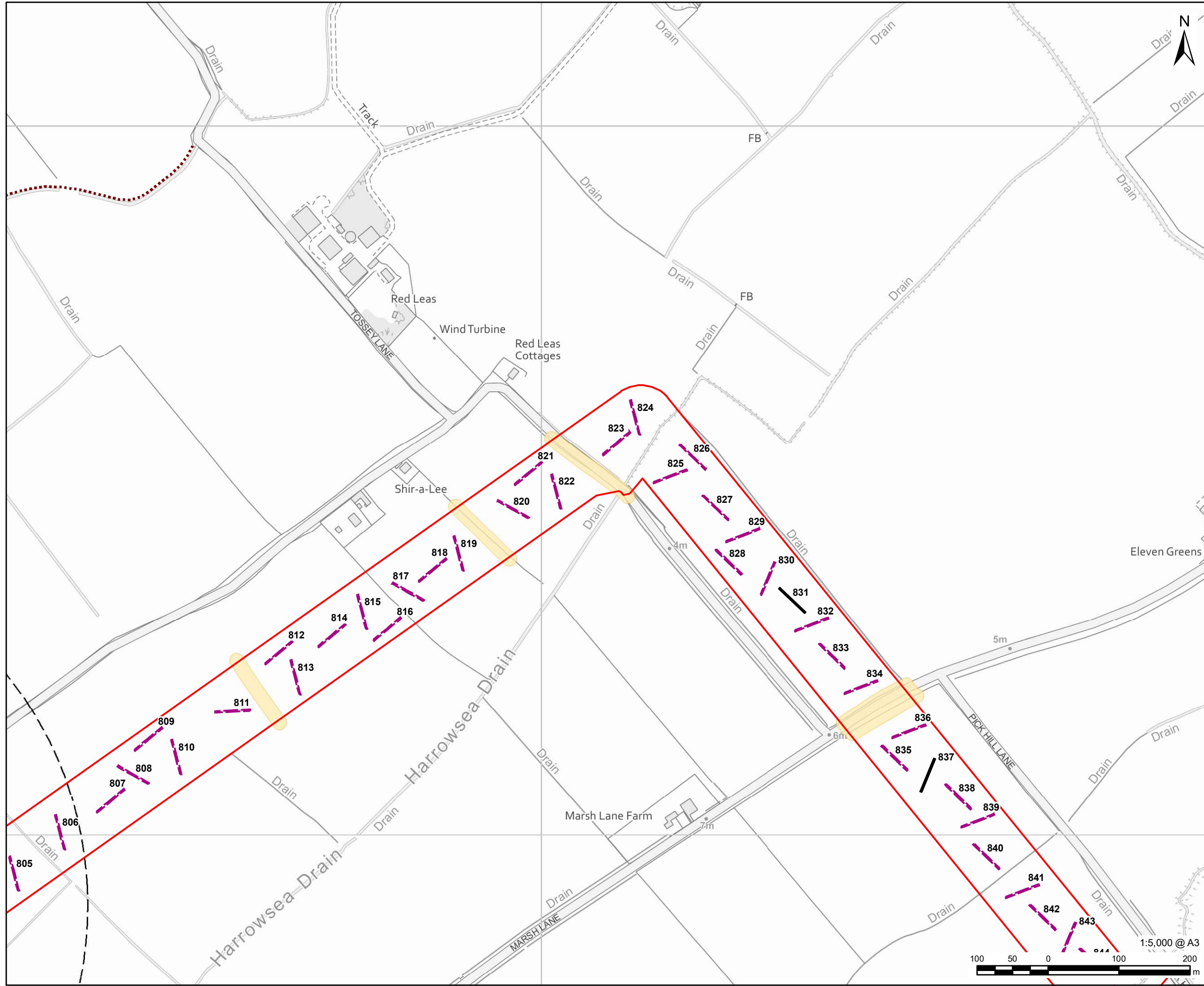


FIGURE TITLE

Figure 5 (26 of 35)

Indicative Trench Locations and Site Constraints

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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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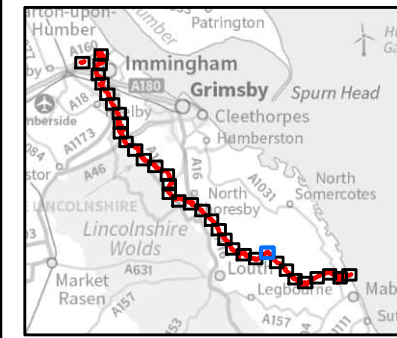
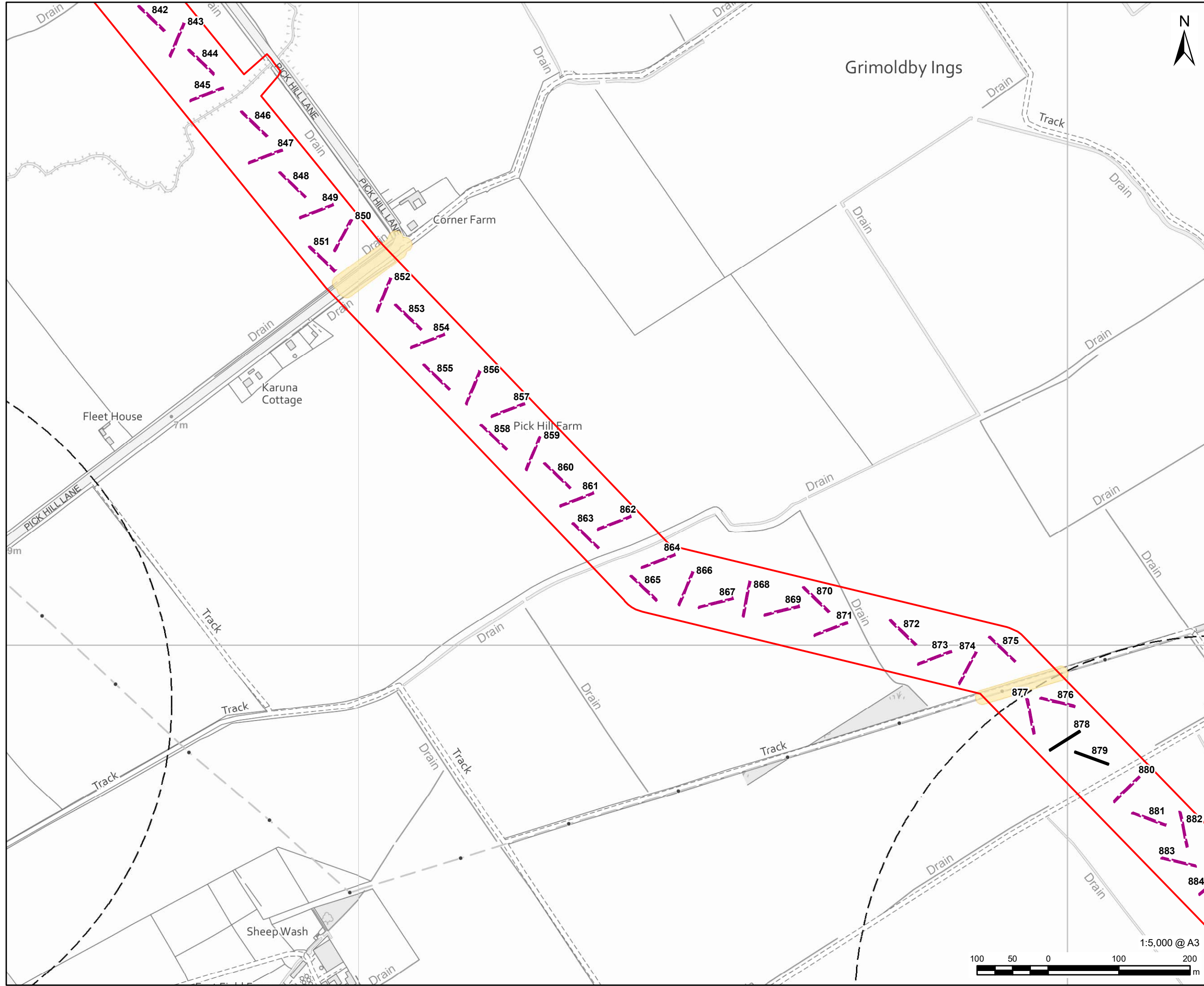


FIGURE TITLE
Figure 5 (27 of 35)
Indicative Trench Locations and Site Constraints



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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location - Targeted
 - Indicative Trench Location
 - Public Right of Way
 - Known Utilities - 10m Buffer
 - Pond - 500m Buffer

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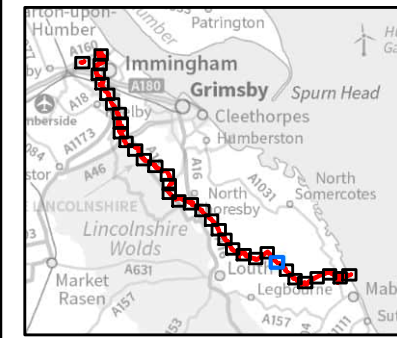
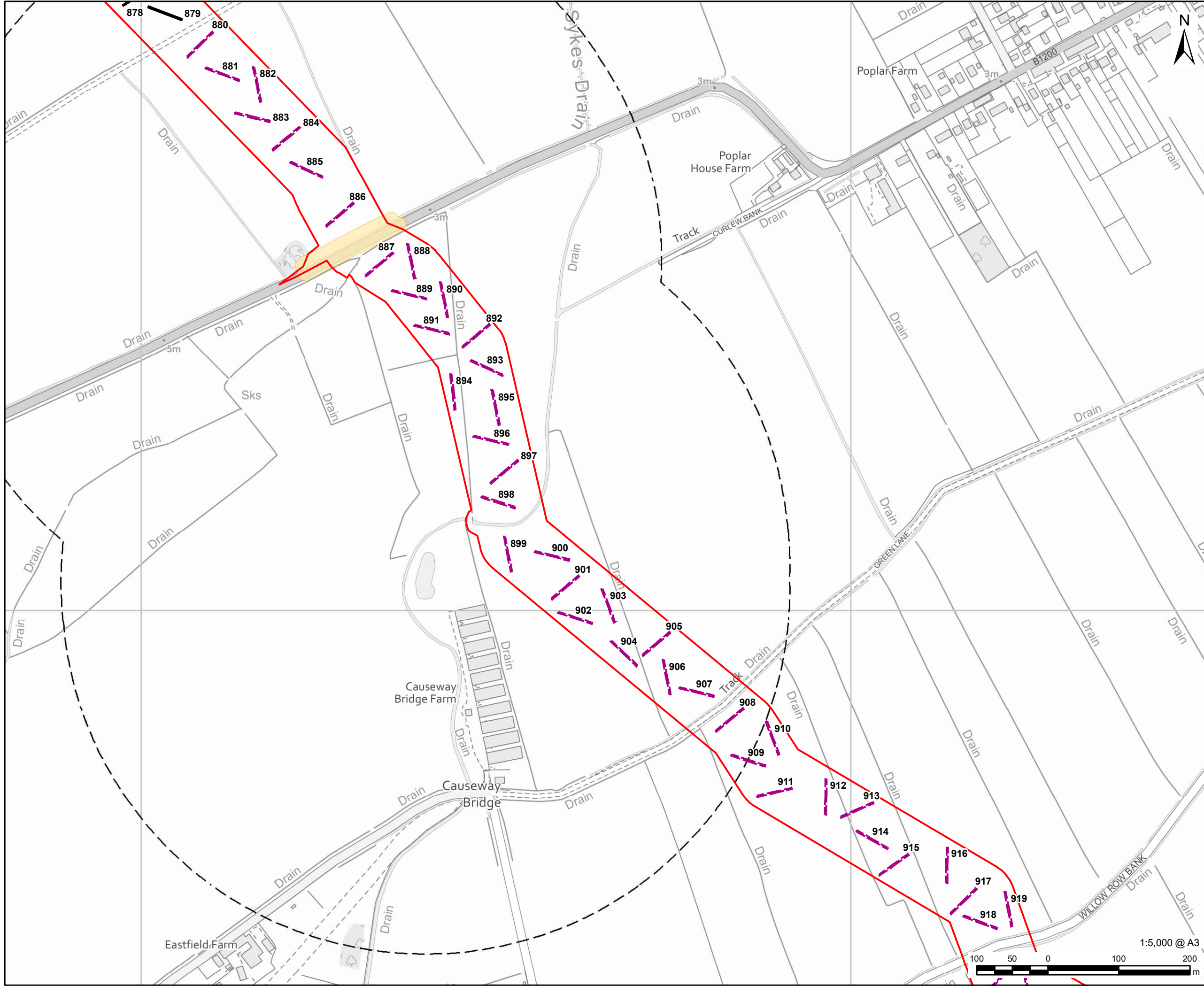


FIGURE TITLE
Figure 5 (28 of 35)
Indicative Trench Locations and Site Constraints



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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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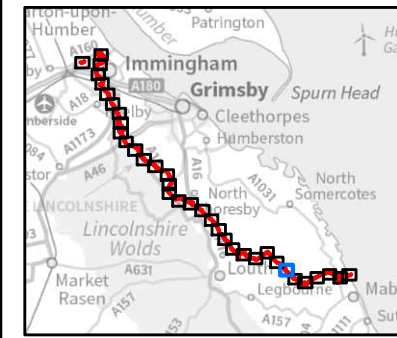


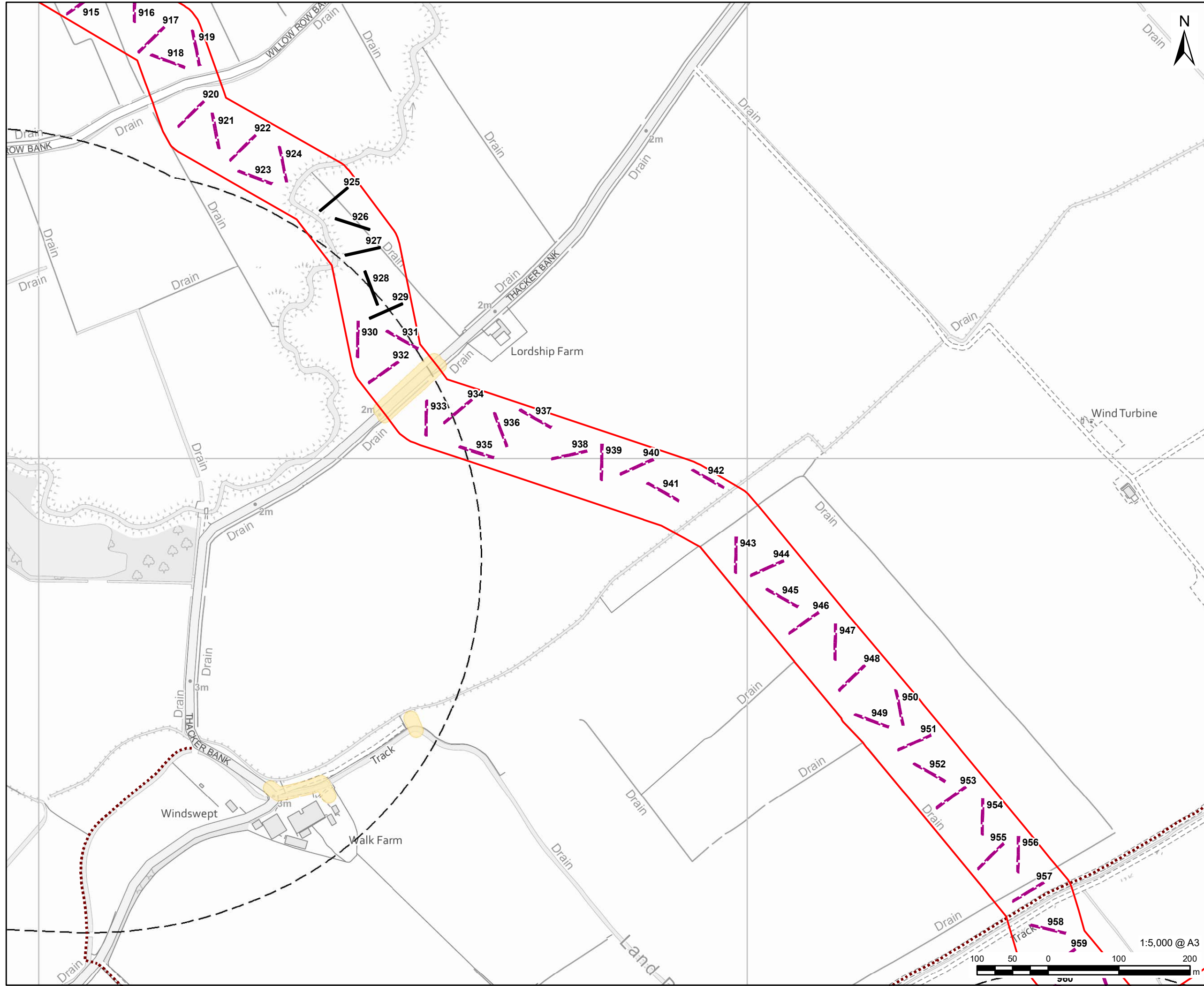
FIGURE TITLE

Figure 5 (29 of 35)

Indicative Trench Locations and Site Constraints

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LEGEND

- DCO Site Boundary
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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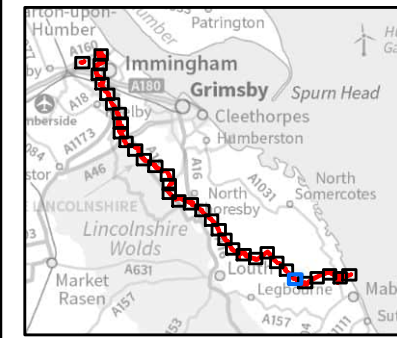
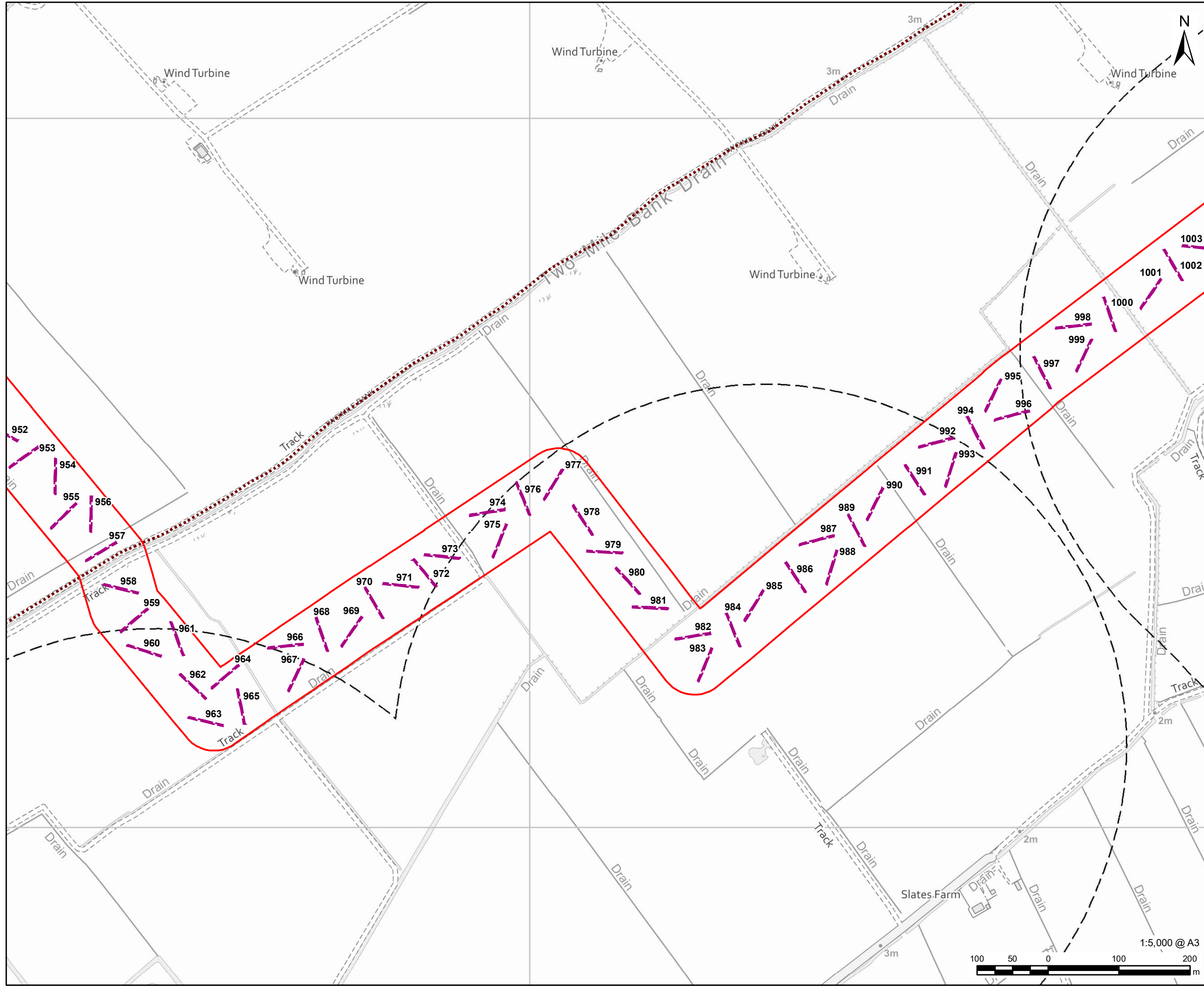


FIGURE TITLE
Figure 5 (30 of 35)
Indicative Trench Locations and Site Constraints

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- LEGEND**
- DCO Site Boundary
 - Indicative Trench Location
 - Public Right of Way
 - Pond - 500m Buffer

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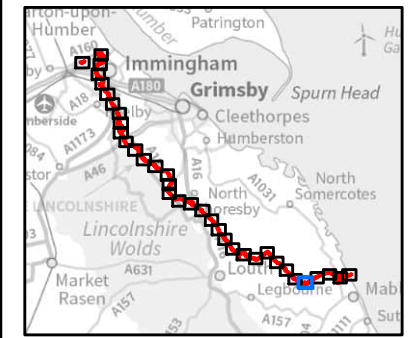
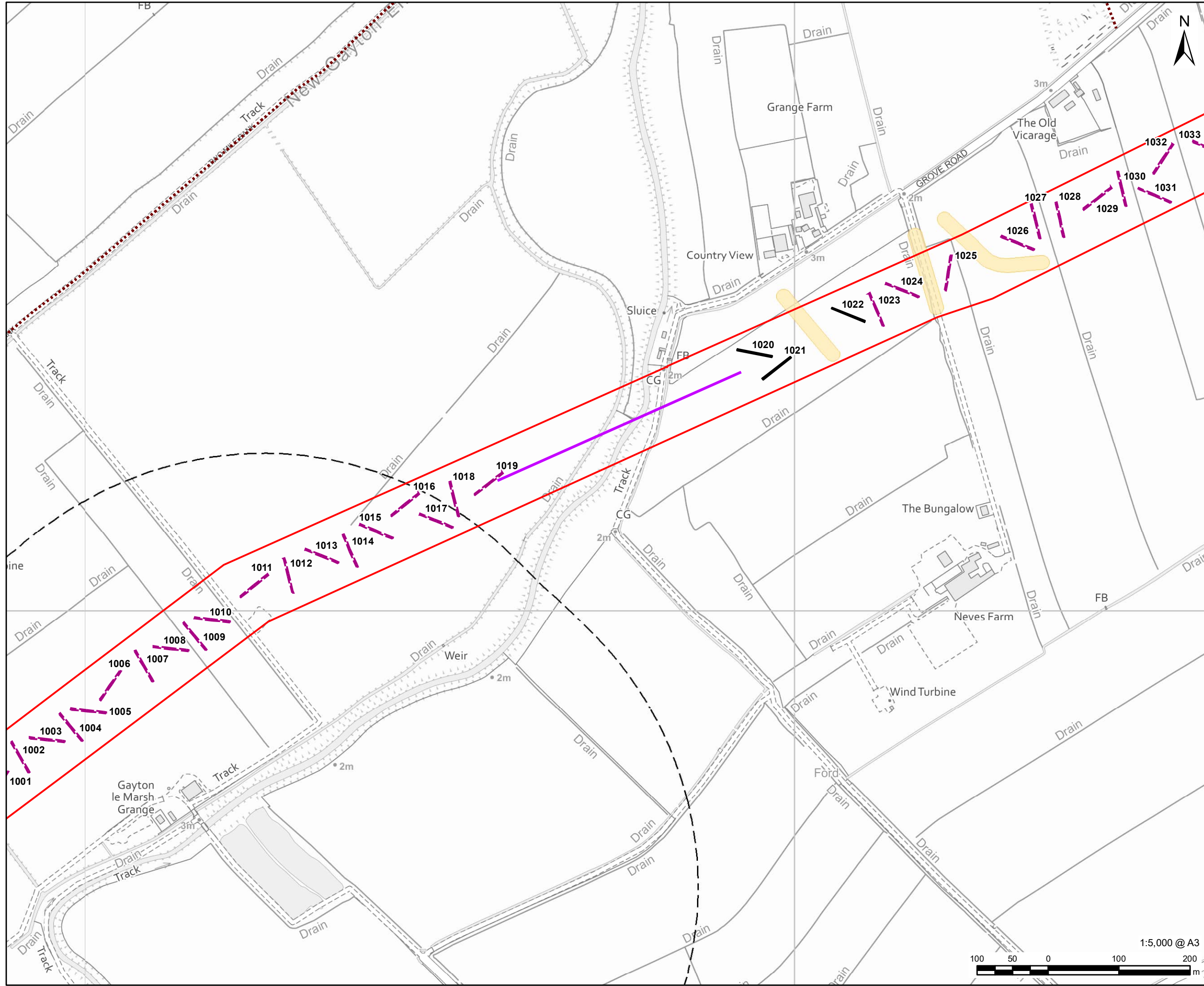


FIGURE TITLE
Figure 5 (31 of 35)
Indicative Trench Locations and Site Constraints

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LEGEND

- DCO Site Boundary
- Proposed HDD Section
- Indicative Trench Location - Targeted
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Pond - 500m Buffer

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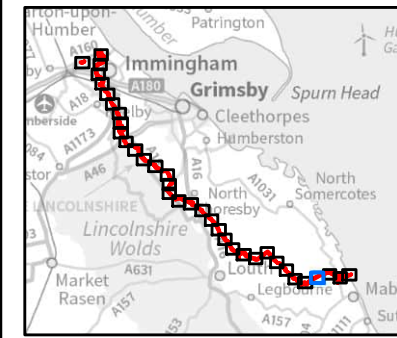
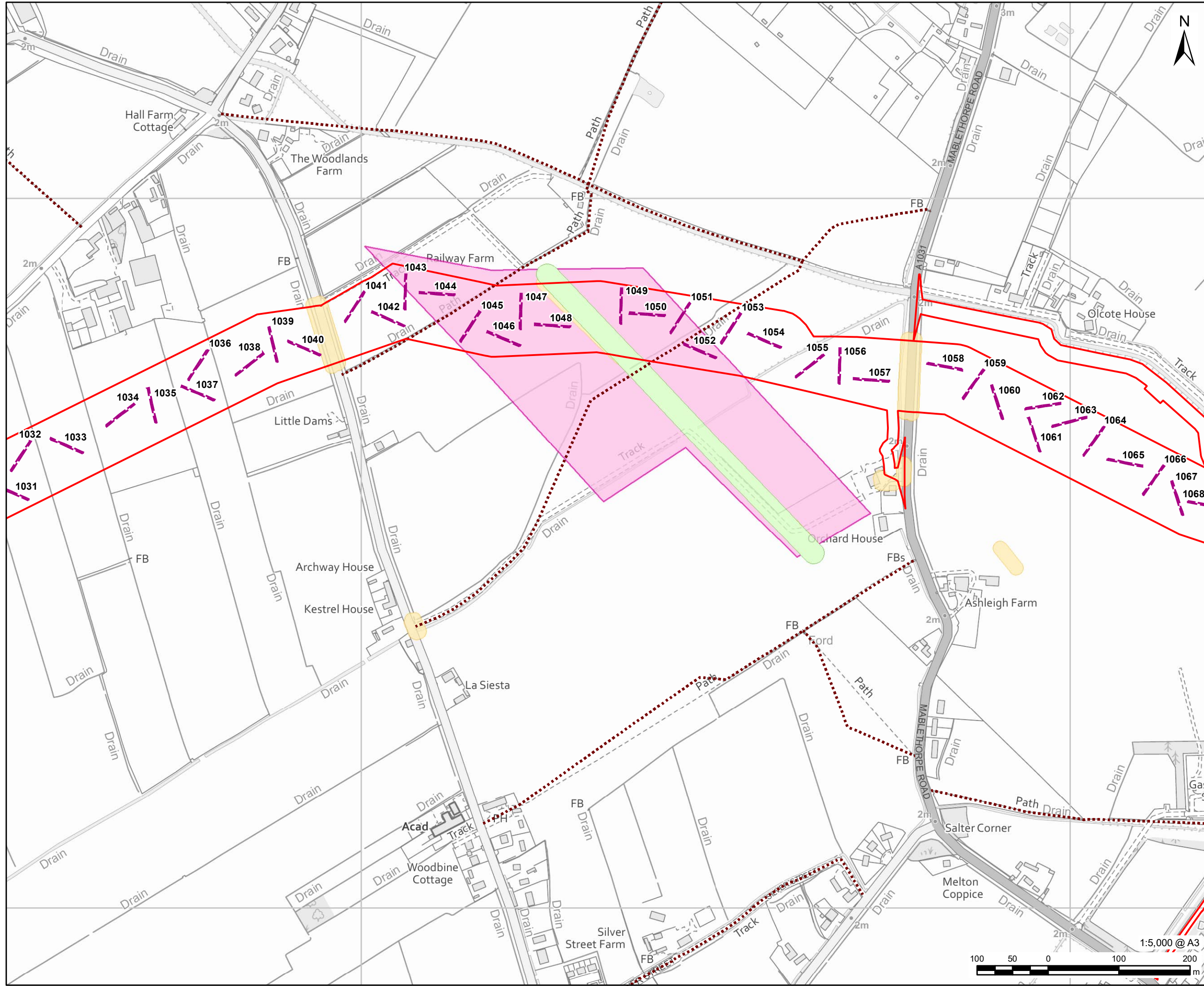


FIGURE TITLE
Figure 5 (32 of 35)
Indicative Trench Locations and Site Constraints



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VikingCCS
AECOM
 PROJECT
Viking CCS Pipeline
 LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Public Right of Way
- Known Utilities (Gas) - 15m Buffer
- Known Utilities - 10m Buffer
- Known Utilities - Angus Energy Gas Pipeline Route Area

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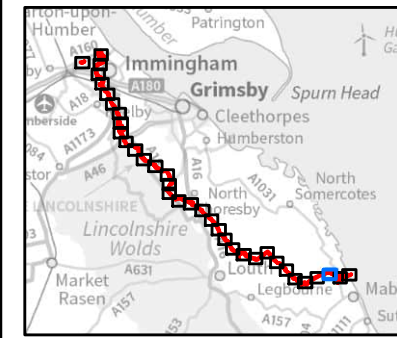
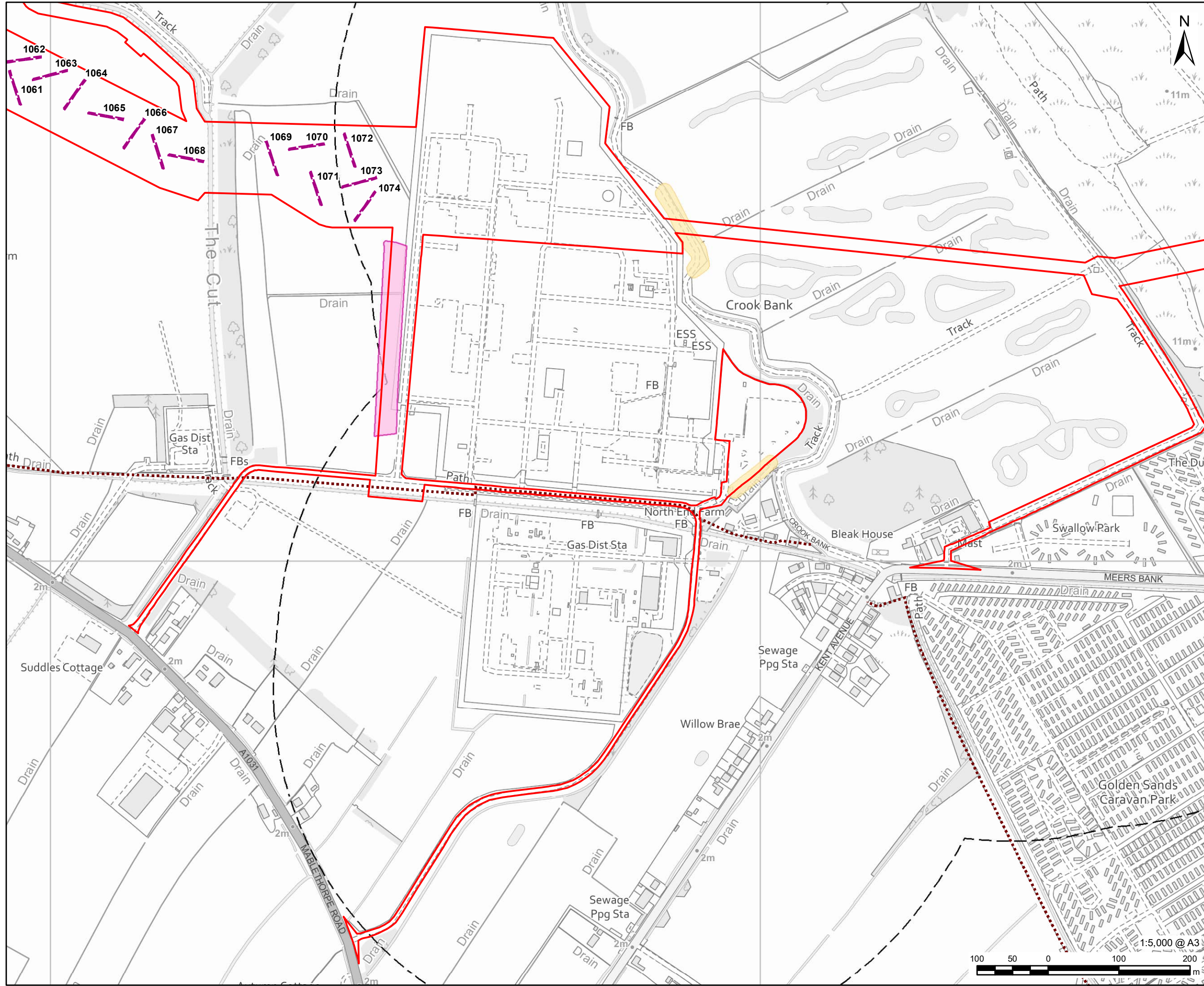


FIGURE TITLE
Figure 5 (33 of 35)
Indicative Trench Locations and Site Constraints

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCSS_230927_WSI_TT_5



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LEGEND

- DCO Site Boundary
- Indicative Trench Location
- Public Right of Way
- Known Utilities - 10m Buffer
- Known Utilities - Angus Energy Gas Pipeline Route Area
- Pond - 500m Buffer

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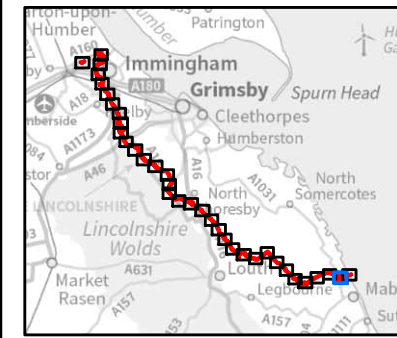


FIGURE TITLE
Figure 5 (34 of 35)
Indicative Trench Locations and Site Constraints



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- LEGEND
- DCO Site Boundary
 - Public Right of Way
 - Pond - 500m Buffer

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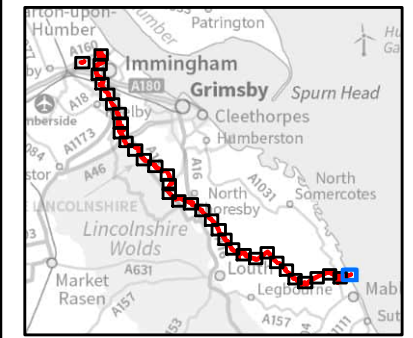
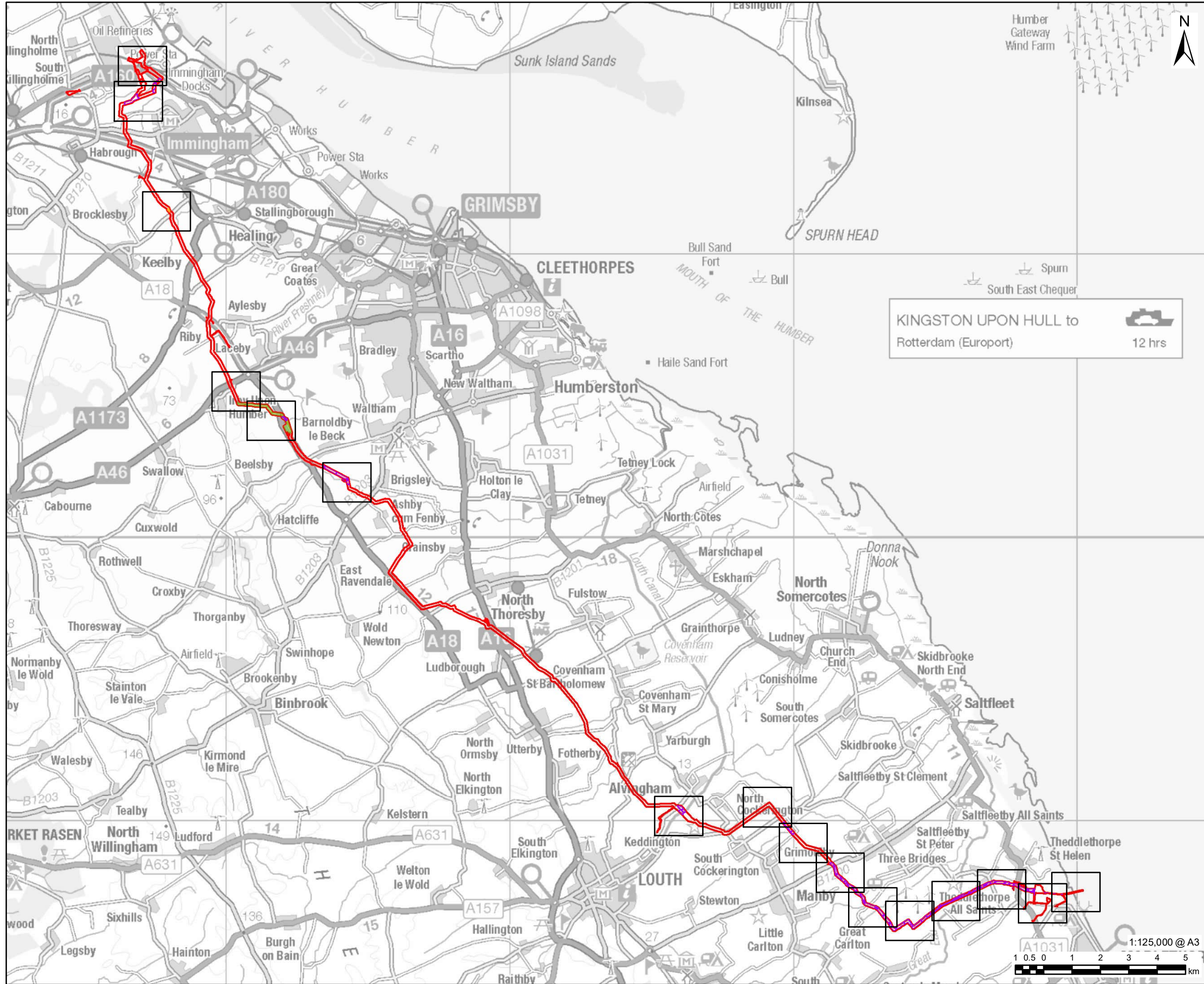


FIGURE TITLE
Figure 5 (35 of 35)
Indicative Trench Locations and Site Constraints



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- LEGEND
- Detailed Sheet Reference
 - DCO Site Boundary
 - Proposed Geoarchaeological Borehole Survey Area
 - Proposed Earthwork Survey
 - Proposed Metal Detector Survey Area

KINGSTON UPON HULL to Rotterdam (Europort) 12 hrs

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FIGURE TITLE

Figure 6A - Overview Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

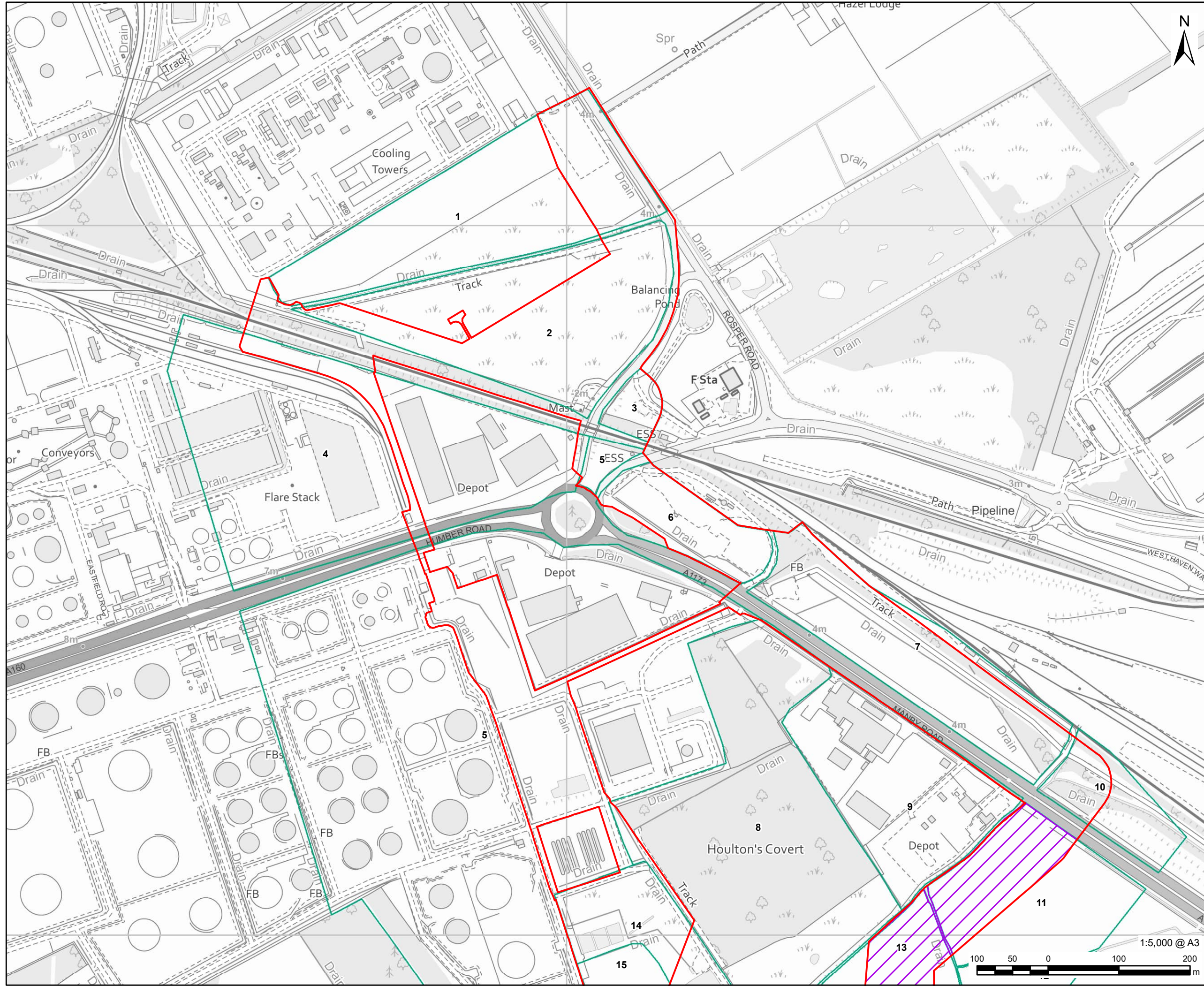
ISSUE PURPOSE

WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE

60668955 / VCSS_231003_WSI_TT_BA

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LEGEND

- DCO Site Boundary
- Survey Field Boundary
- Proposed Geoarchaeological Borehole Survey Area

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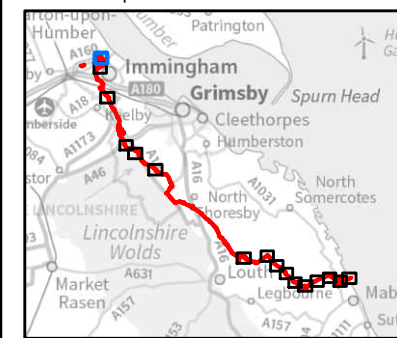
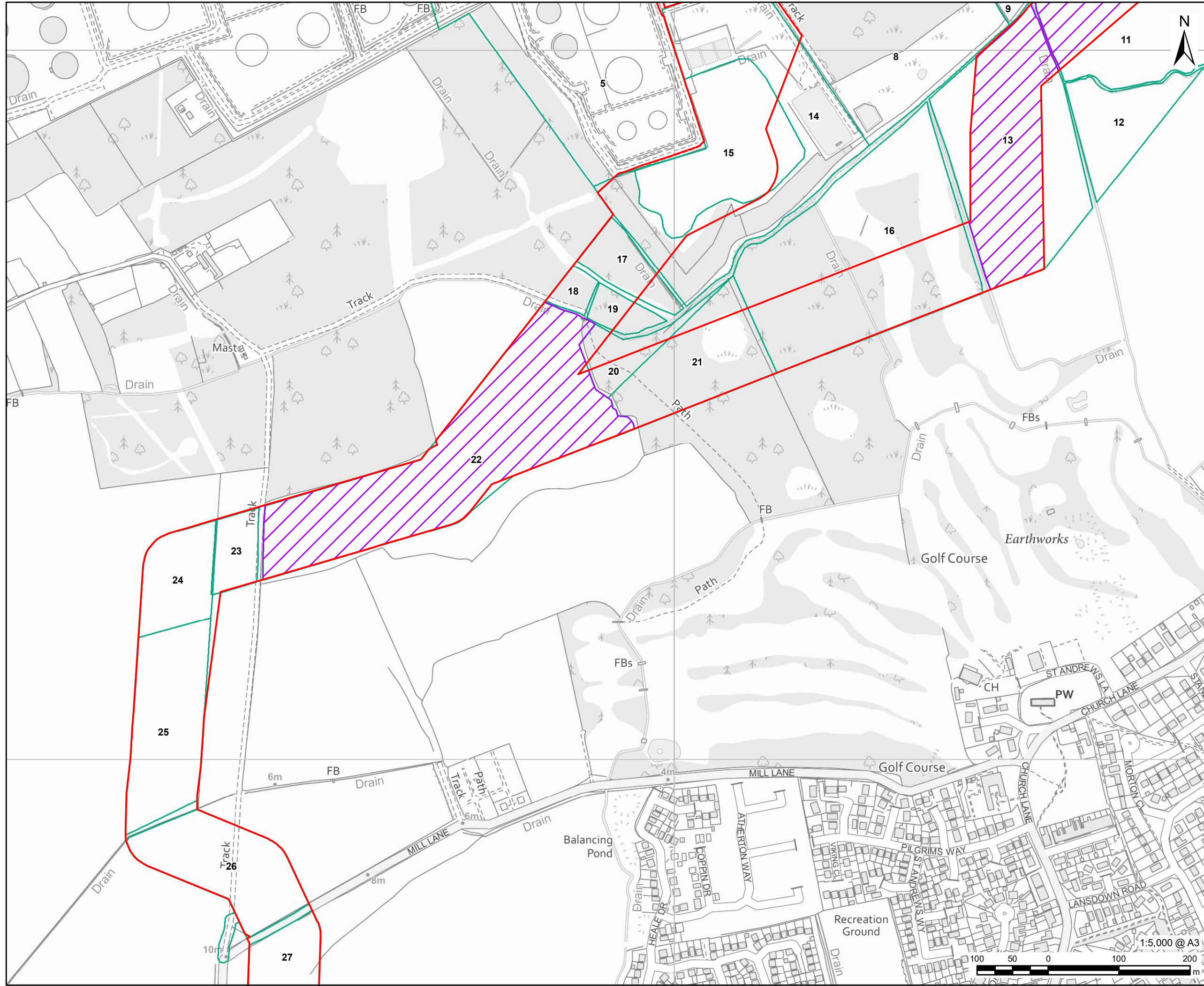


FIGURE TITLE
Figure 6B (1 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_231003_WSI_TT_BB



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VikingCCS

AECOM

PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Survey Field Boundary
- Proposed Geoarchaeological Borehole Survey Area

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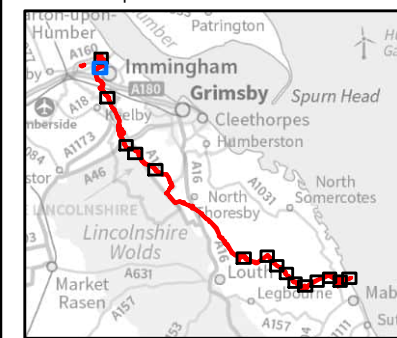
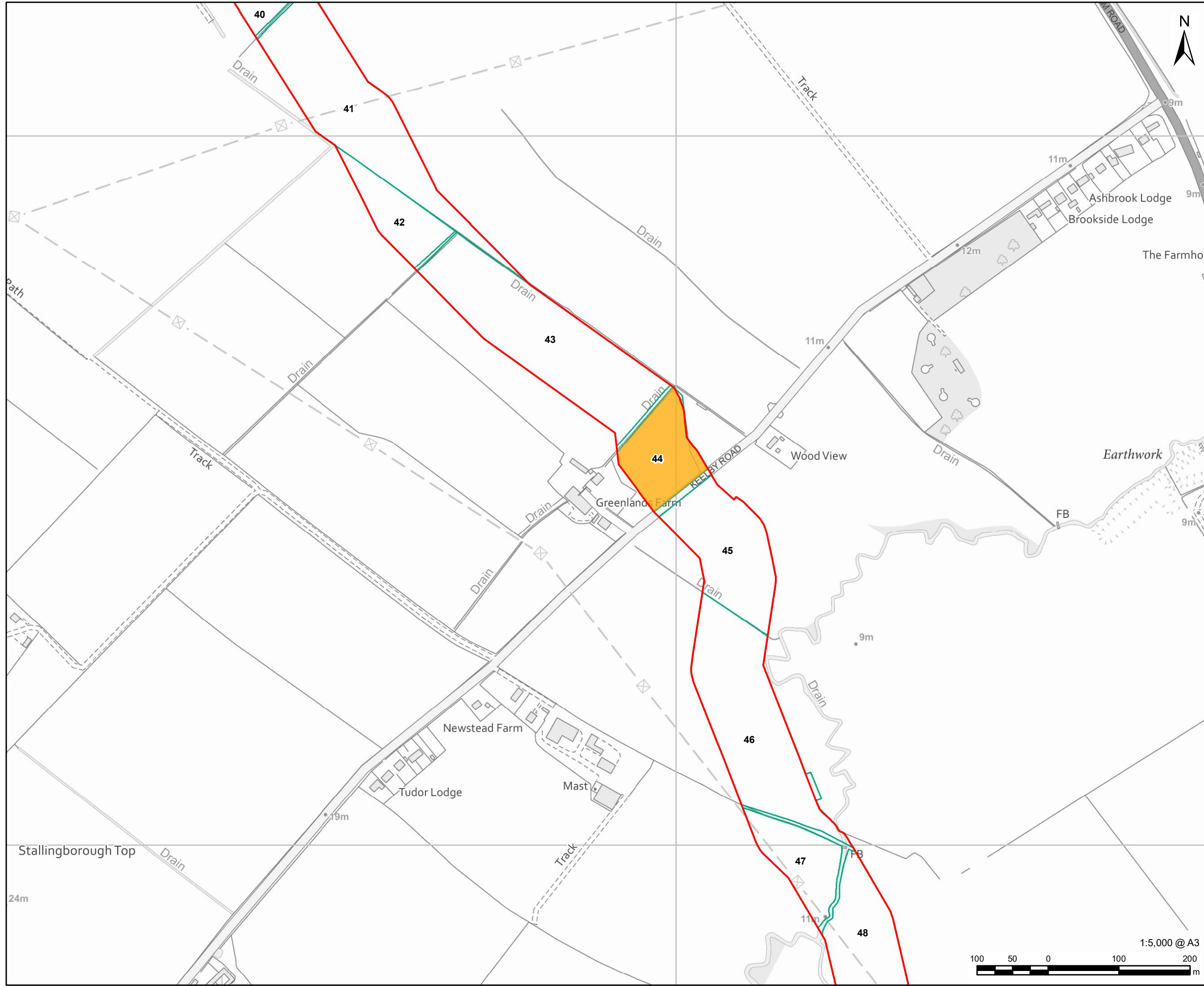


FIGURE TITLE
Figure 6B (2 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

ISSUE PURPOSE
 WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE
 60668955 / VCCS_231003_WSI_TT_08

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VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Survey Field Boundary
- Proposed Earthwork Survey

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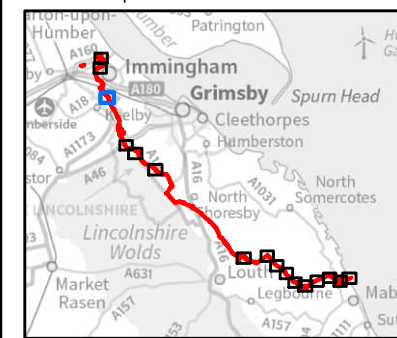


FIGURE TITLE

Figure 6B (3 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

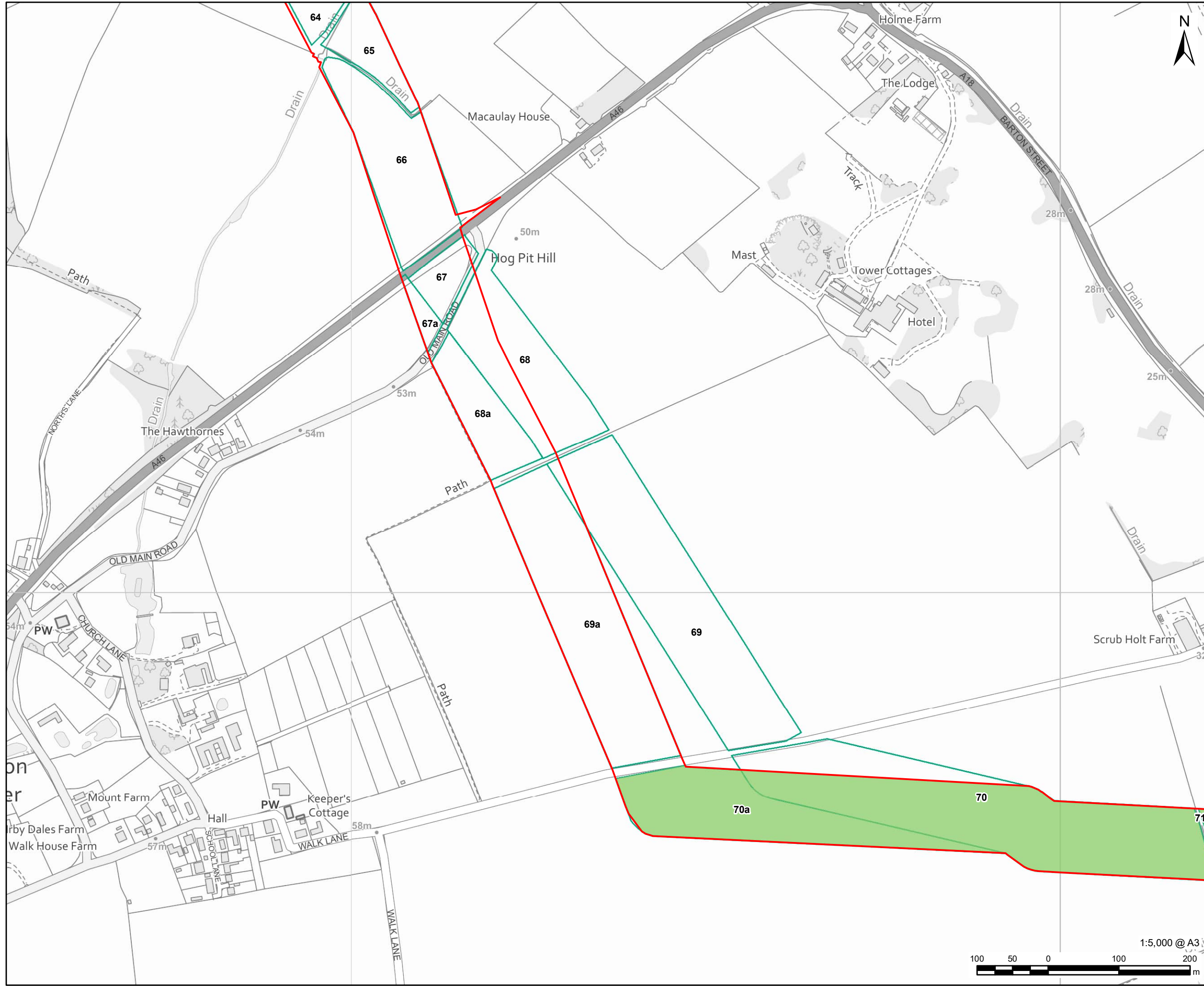
ISSUE PURPOSE

WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE

60668955 / VCCS_231003_WSI_TT_08





- LEGEND**
- DCO Site Boundary
 - Survey Field Boundary
 - Proposed Metal Detector Survey Area

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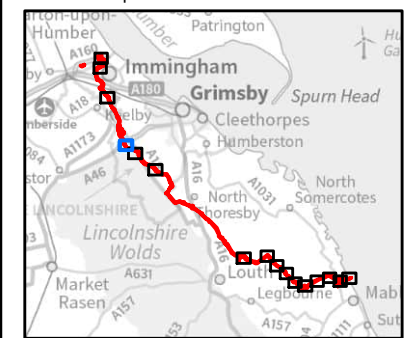


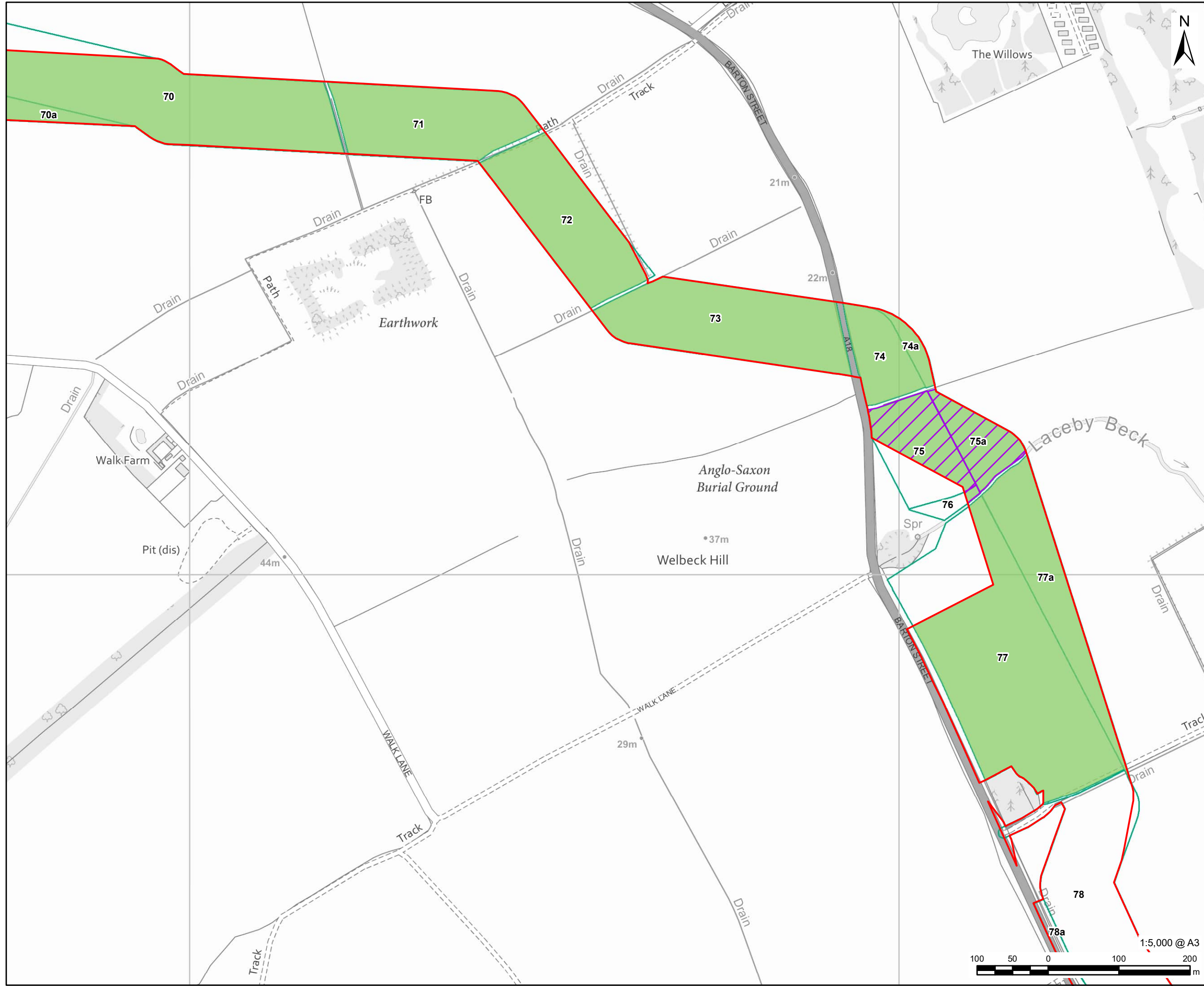
FIGURE TITLE
Figure 6B (4 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

ISSUE PURPOSE
 WSI TRIAL TRENCHING

PROJECT NUMBER / REFERENCE
 60668955 / VCCS_231003_WSI_TT_08

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VikingCCS

AECOM

PROJECT
Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Survey Field Boundary
- Proposed Georarchaeological Borehole Survey Area
- Proposed Metal Detector Survey Area

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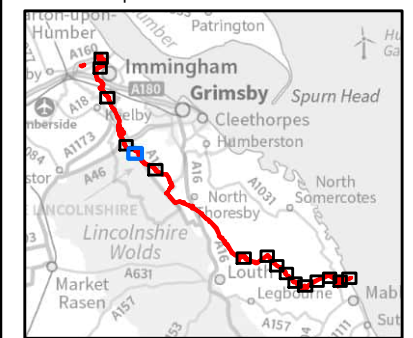


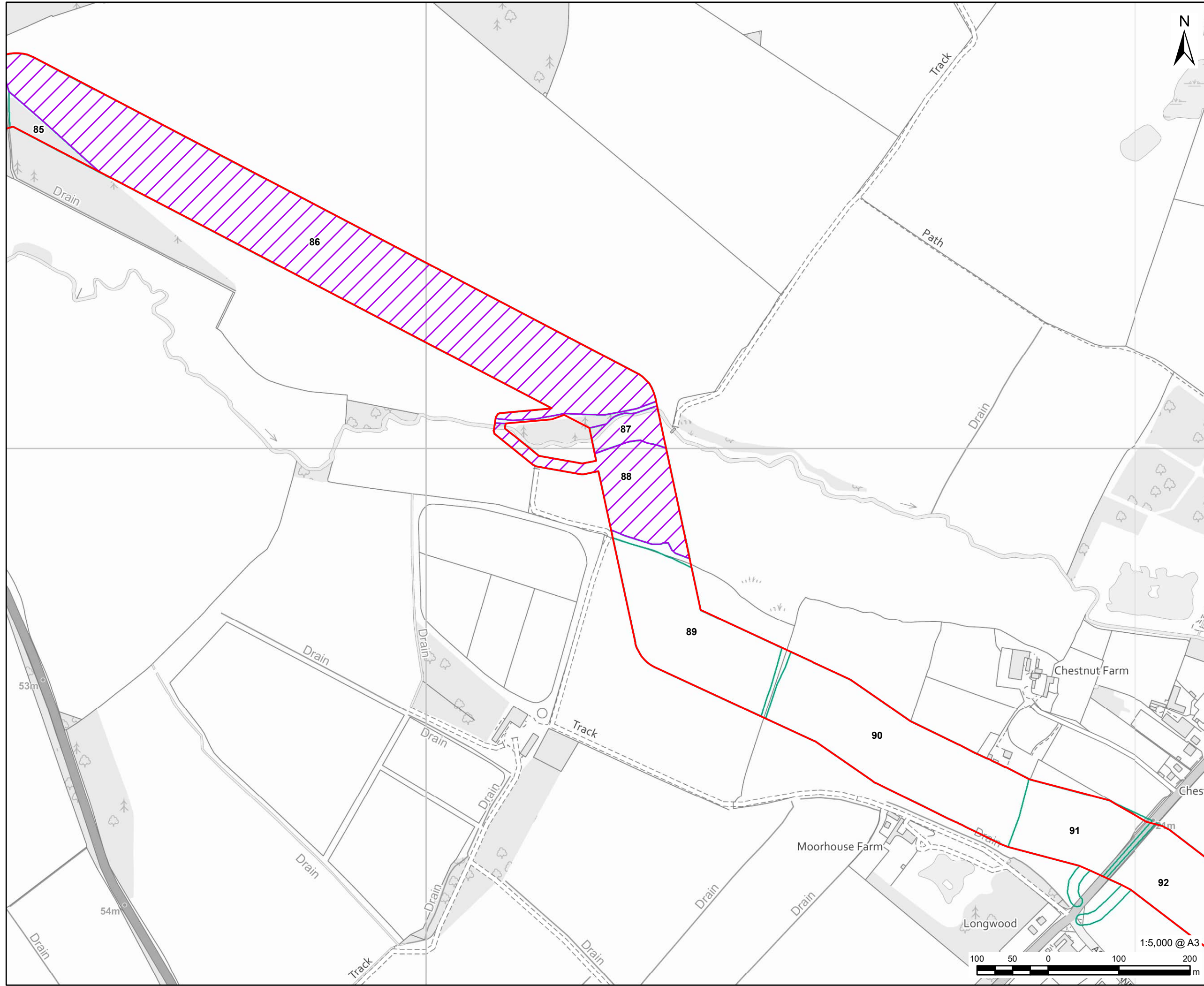
FIGURE TITLE
Figure 6B (5 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Georarchaeological Assessment

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LEGEND

	DCO Site Boundary
	Survey Field Boundary
	Proposed Geoaerchaeological Borehole Survey Area

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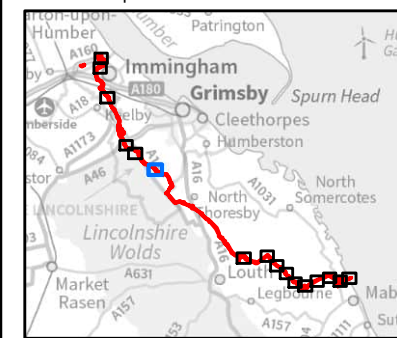
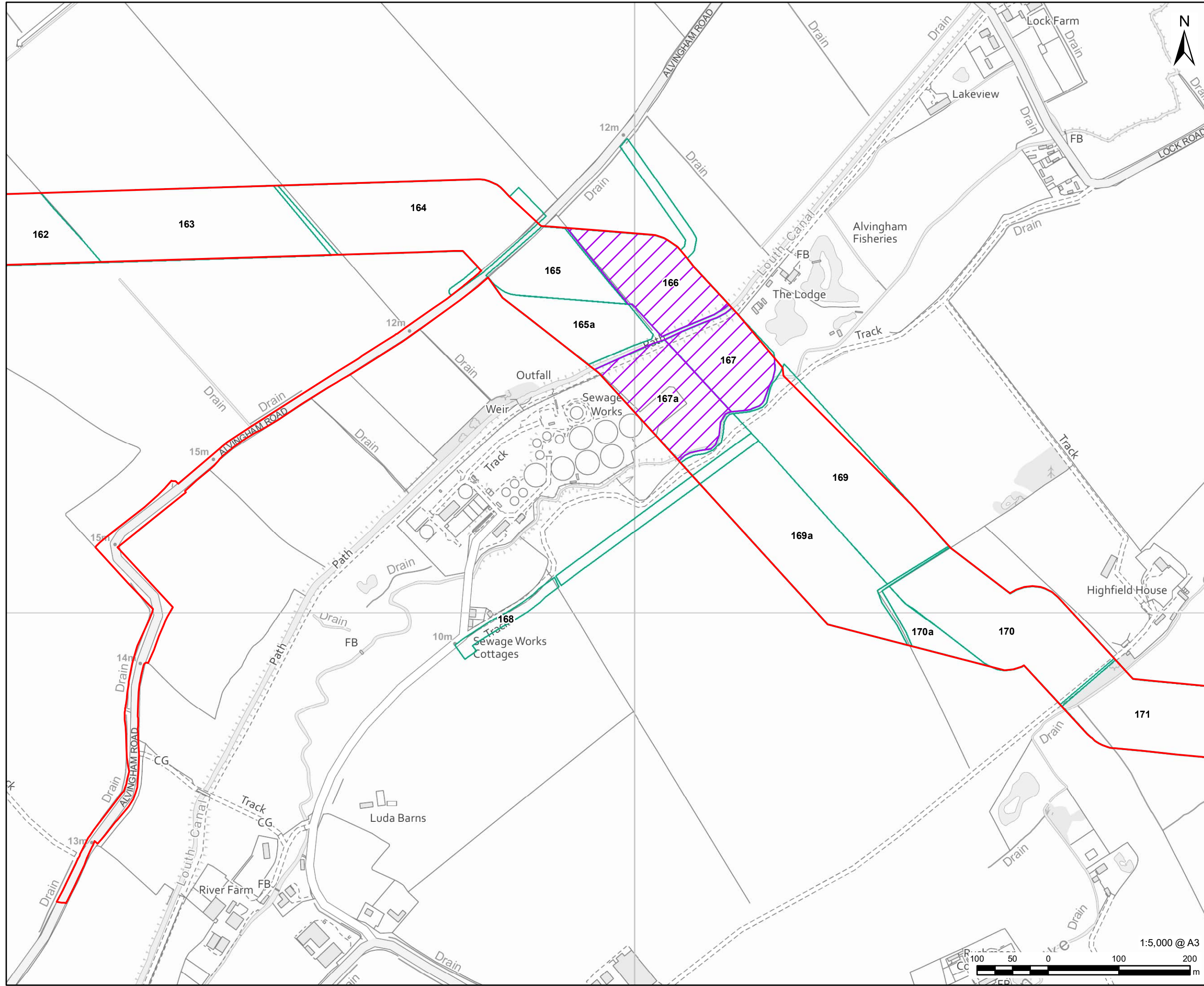


FIGURE TITLE
Figure 6B (6 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoaerchaeological Assessment

ISSUE PURPOSE
 WSI TRIAL TRENCHING
PROJECT NUMBER / REFERENCE
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LEGEND

- DCO Site Boundary
- Survey Field Boundary
- Proposed Geoarchaeological Borehole Survey Area

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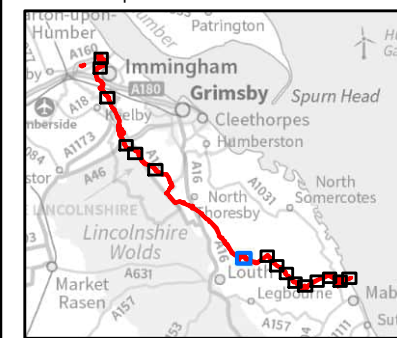
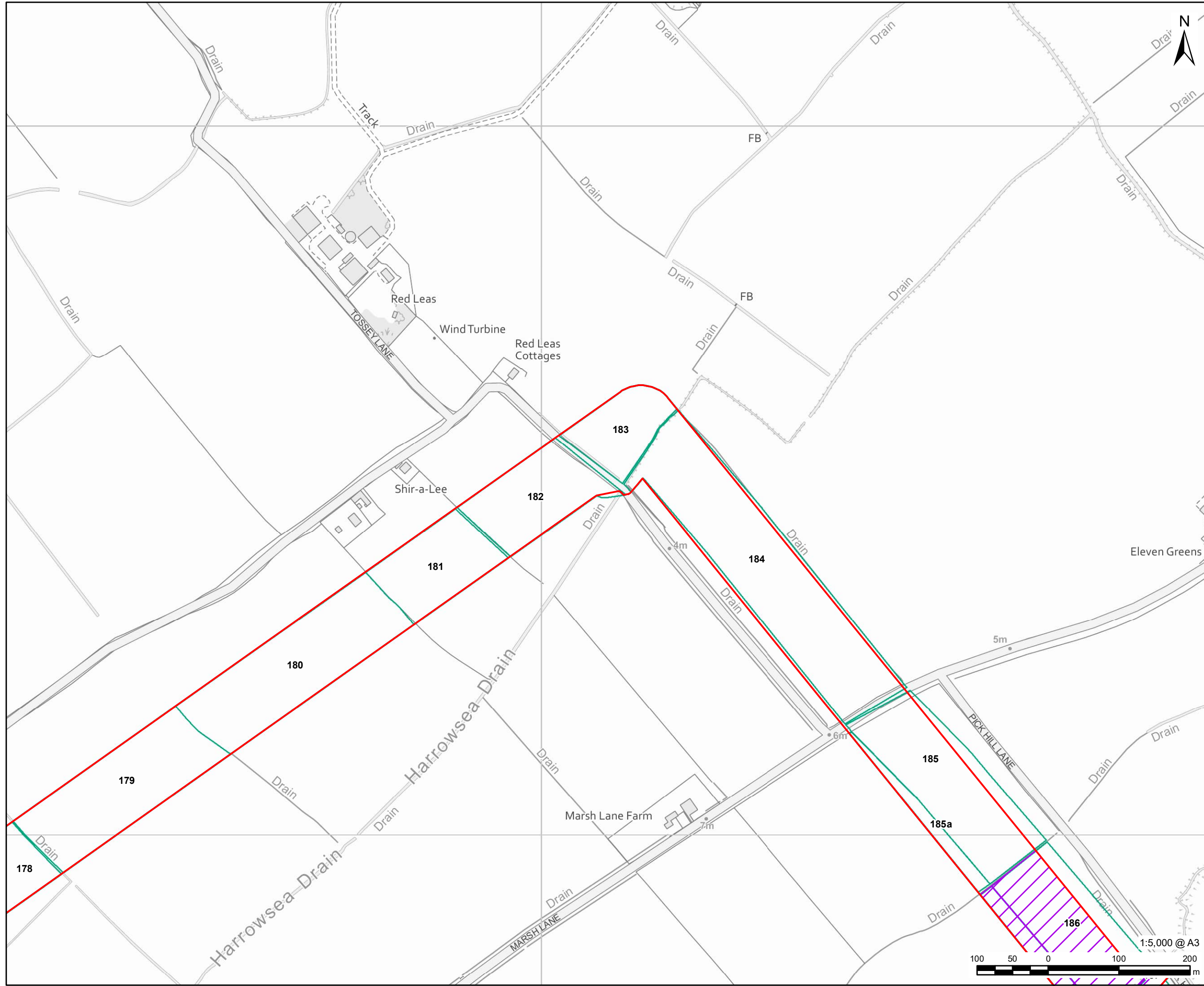


FIGURE TITLE
Figure 6B (7 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

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- LEGEND**
- DCO Site Boundary
 - Survey Field Boundary
 - Proposed Geoarchaeological Borehole Survey Area

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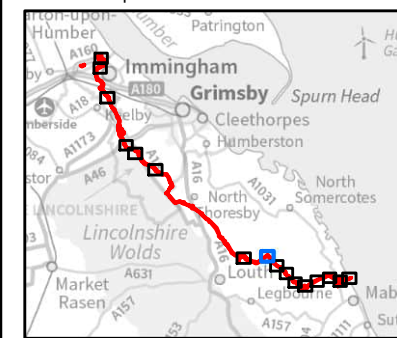
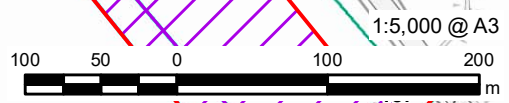
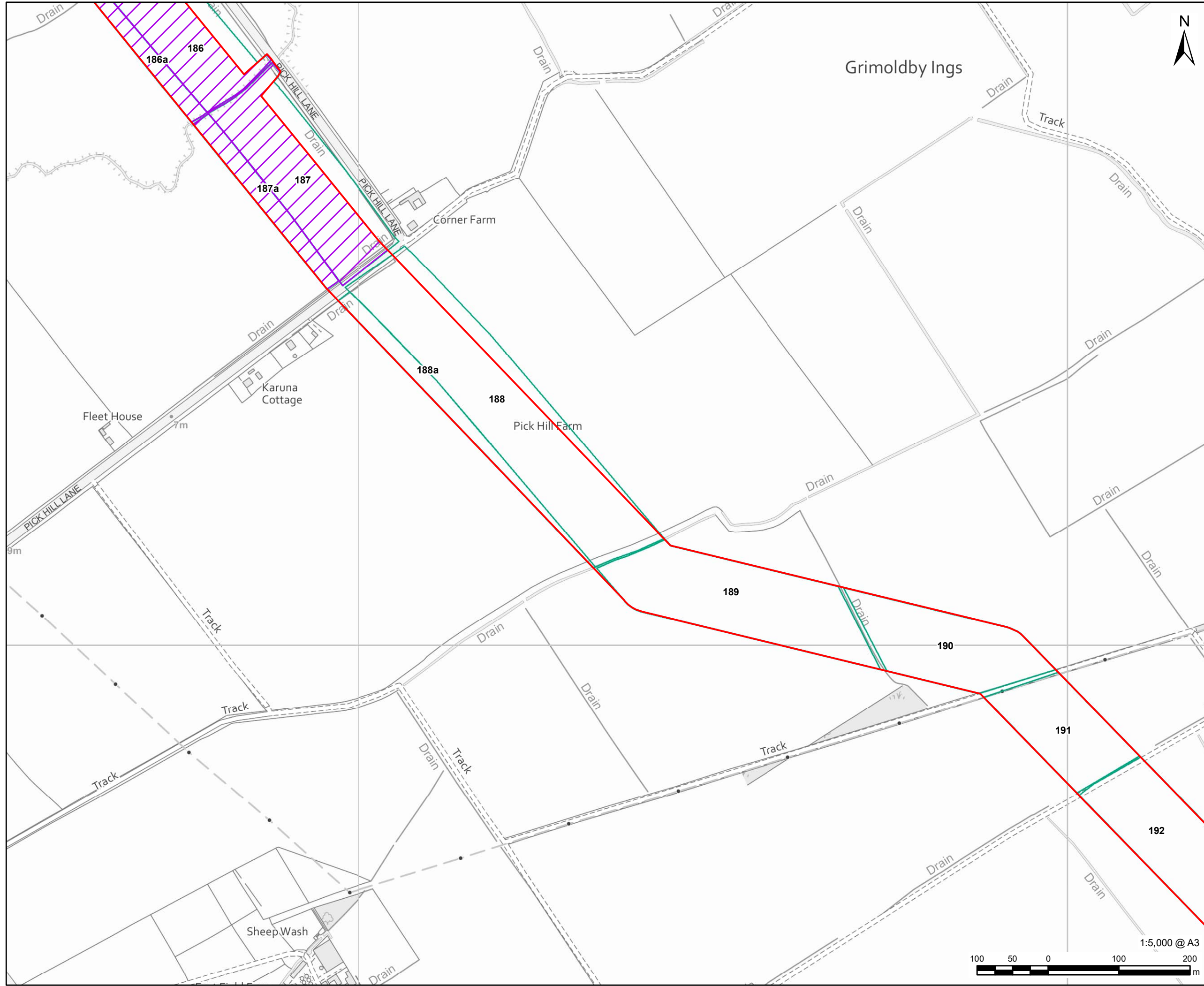


FIGURE TITLE
Figure 6B (8 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

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LEGEND

	DCO Site Boundary
	Survey Field Boundary
	Proposed Geoarchaeological Borehole Survey Area

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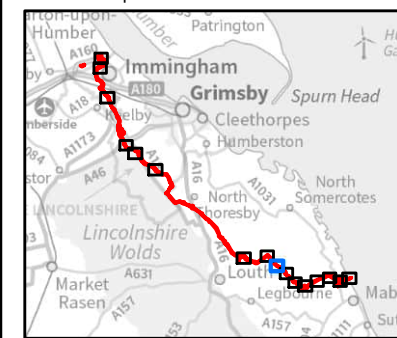
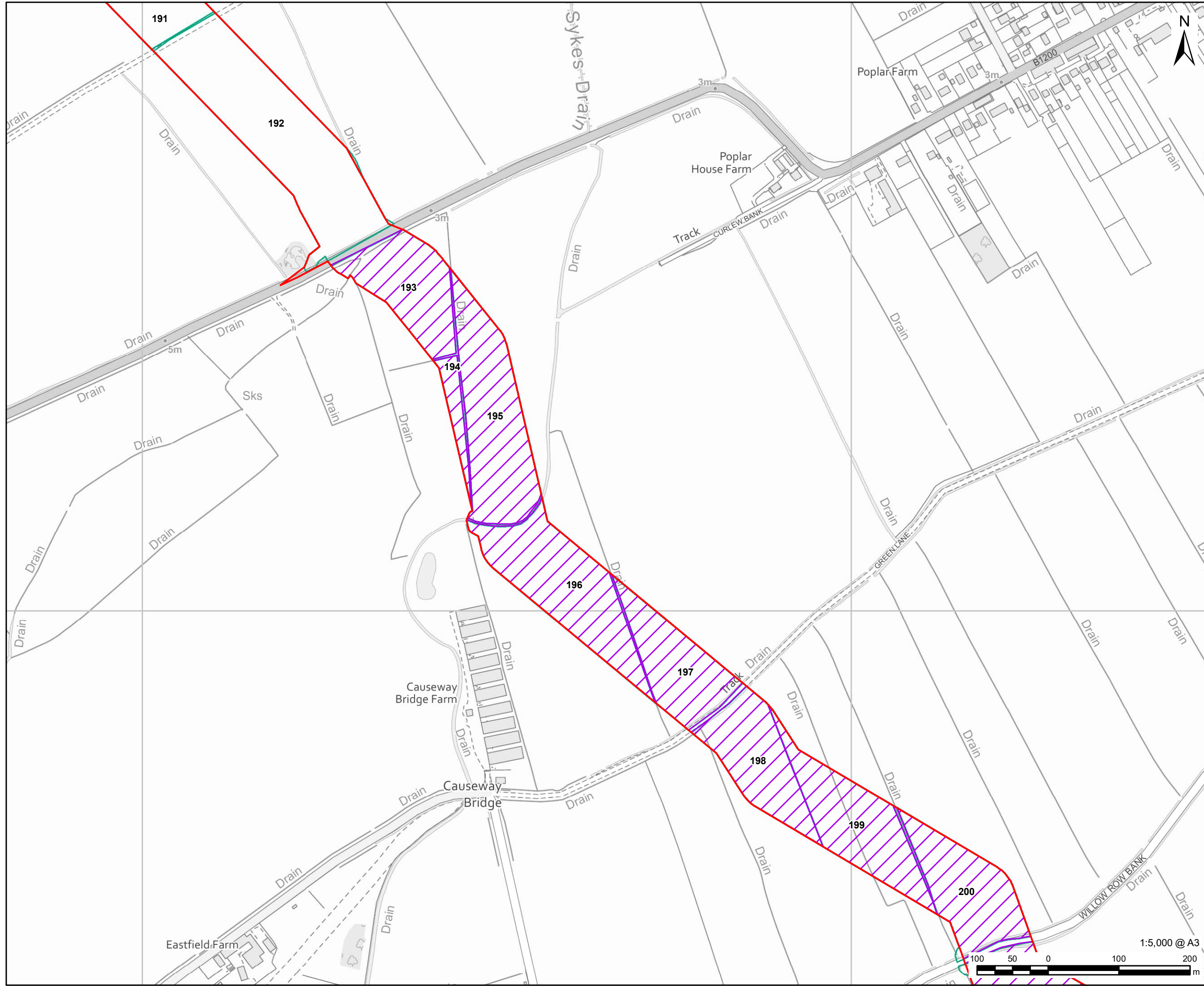


FIGURE TITLE
Figure 6B (9 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

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- LEGEND**
- DCO Site Boundary
 - Survey Field Boundary
 - Proposed Geoarchaeological Borehole Survey Area

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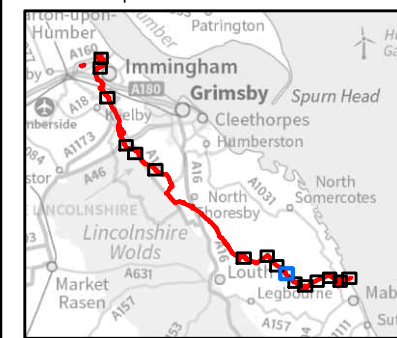
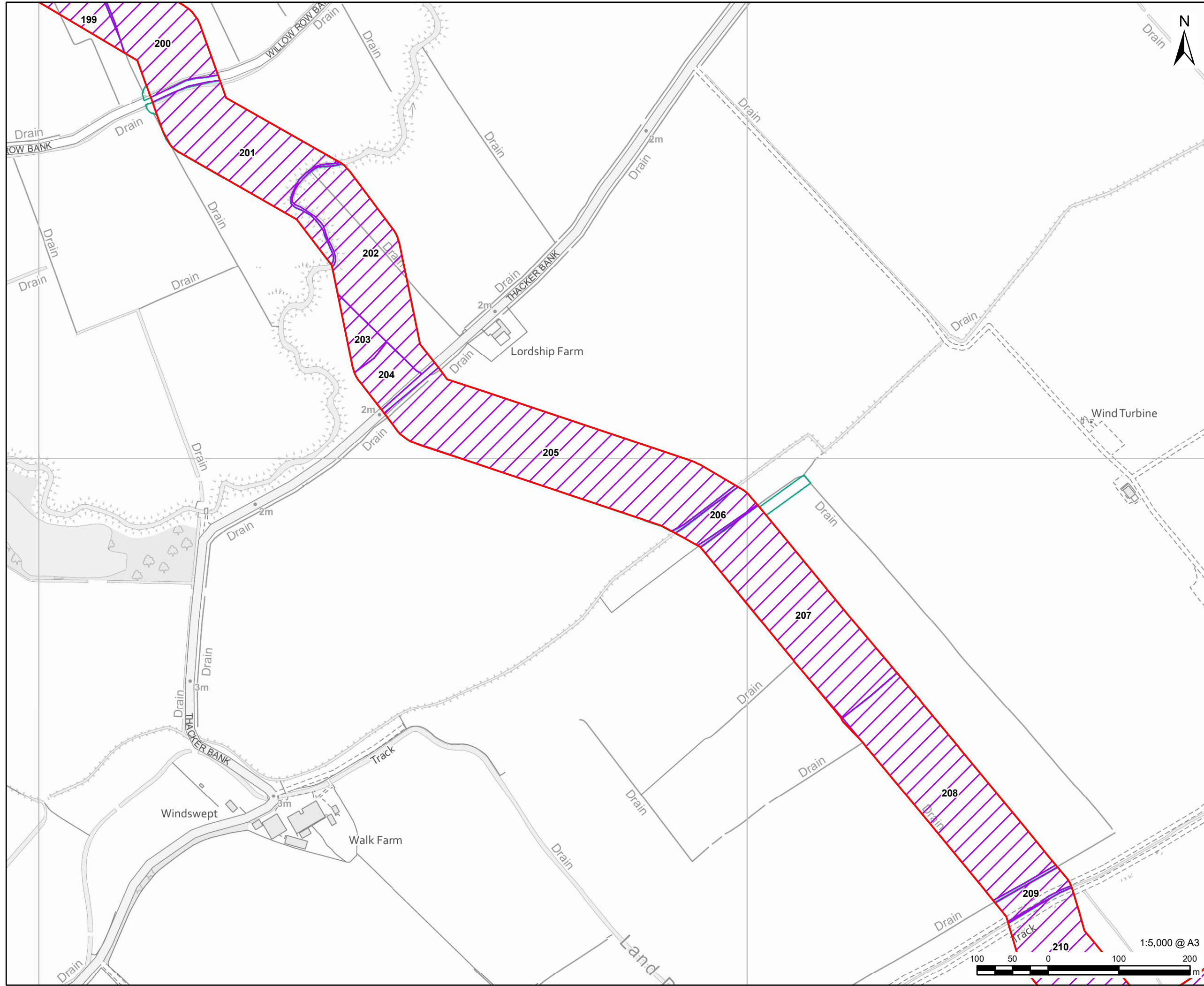


FIGURE TITLE
Figure 6B (10 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

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LEGEND

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	Survey Field Boundary
	Proposed Georarchaeological Borehole Survey Area

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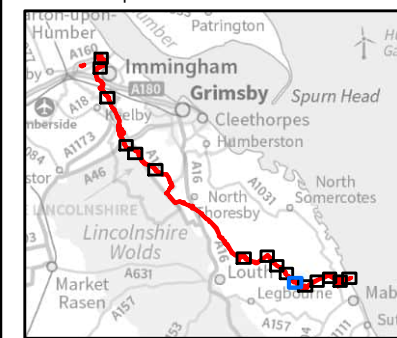
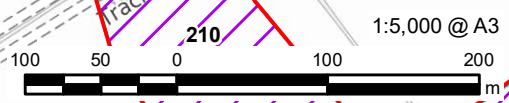
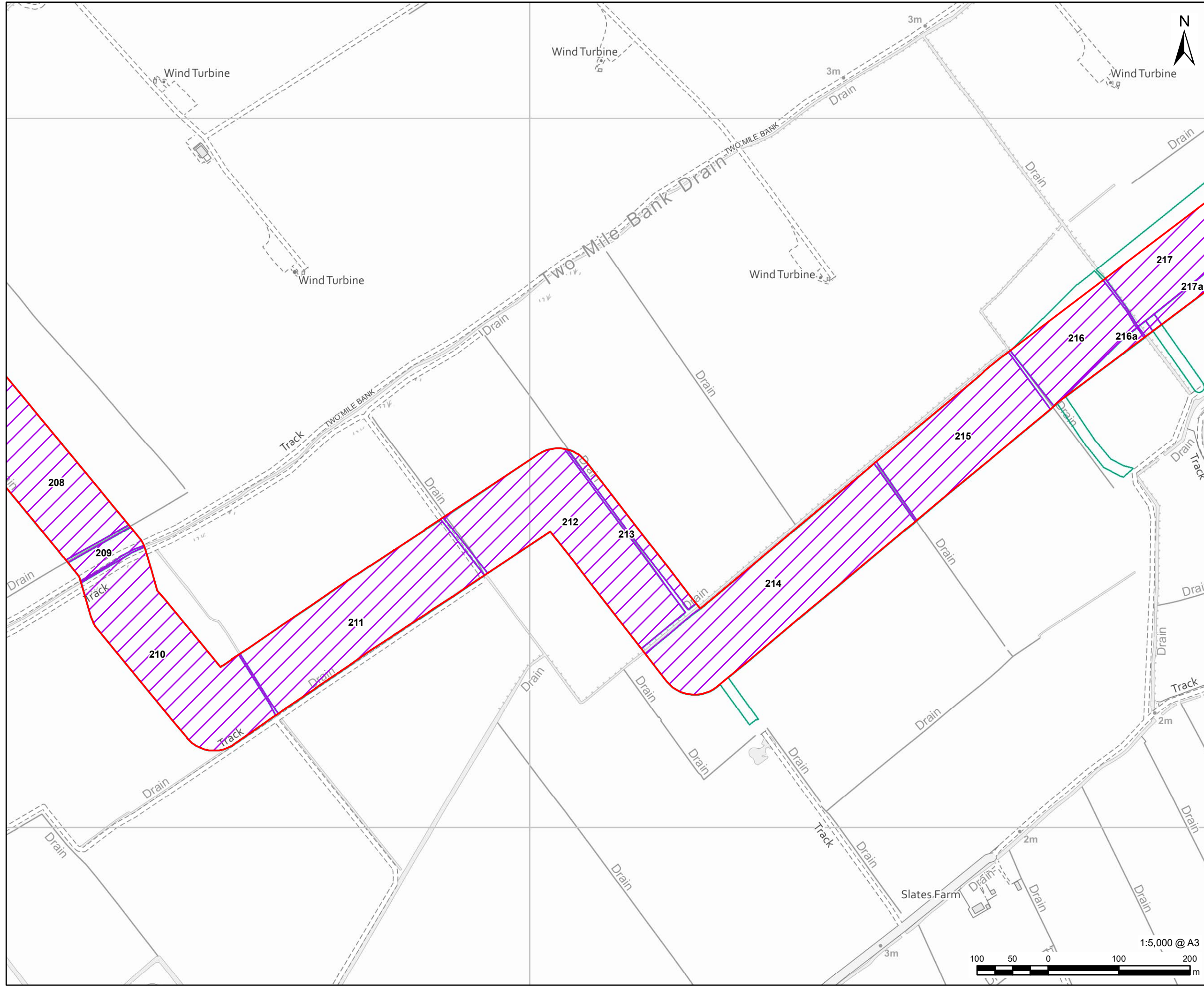


FIGURE TITLE
Figure 6B (11 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Georarchaeological Assessment

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LEGEND

- DCO Site Boundary
- Survey Field Boundary
- Proposed Geoarchaeological Borehole Survey Area

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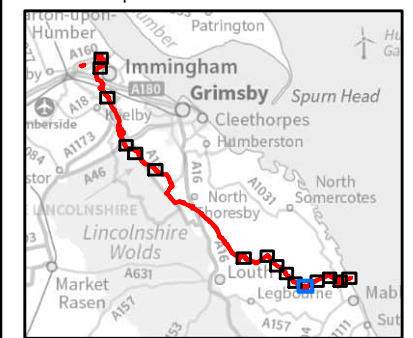
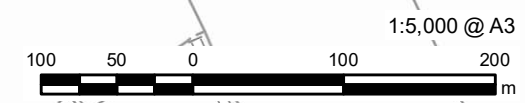
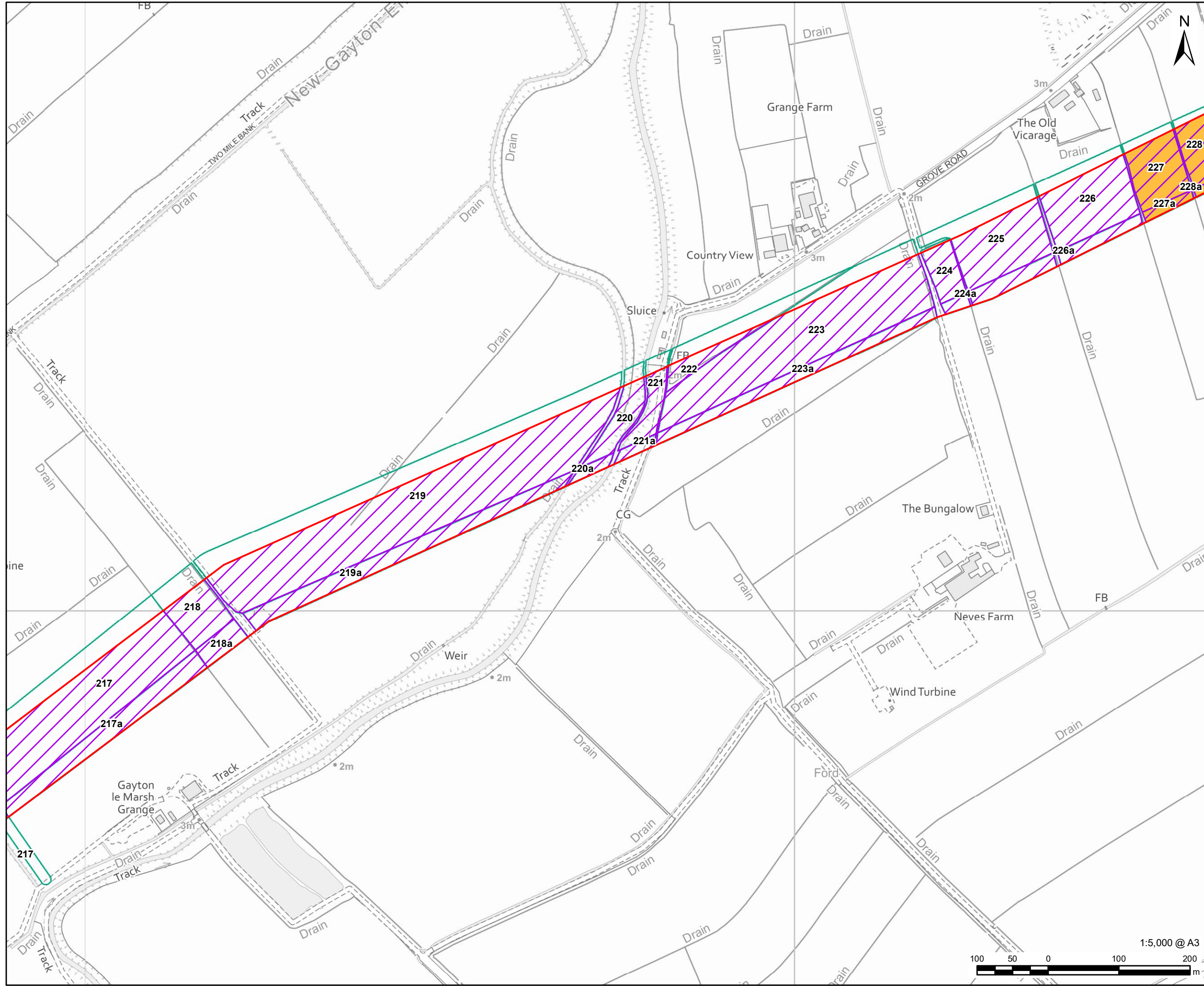


FIGURE TITLE
Figure 6B (12 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

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LEGEND

- DCO Site Boundary
- Survey Field Boundary
- Proposed Geoarchaeological Borehole Survey Area
- Proposed Earthwork Survey

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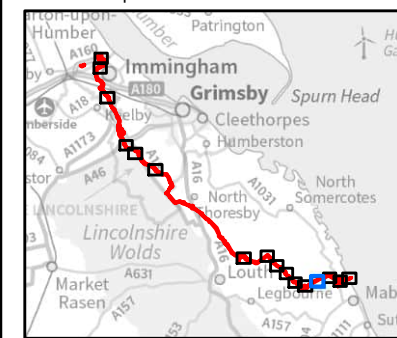
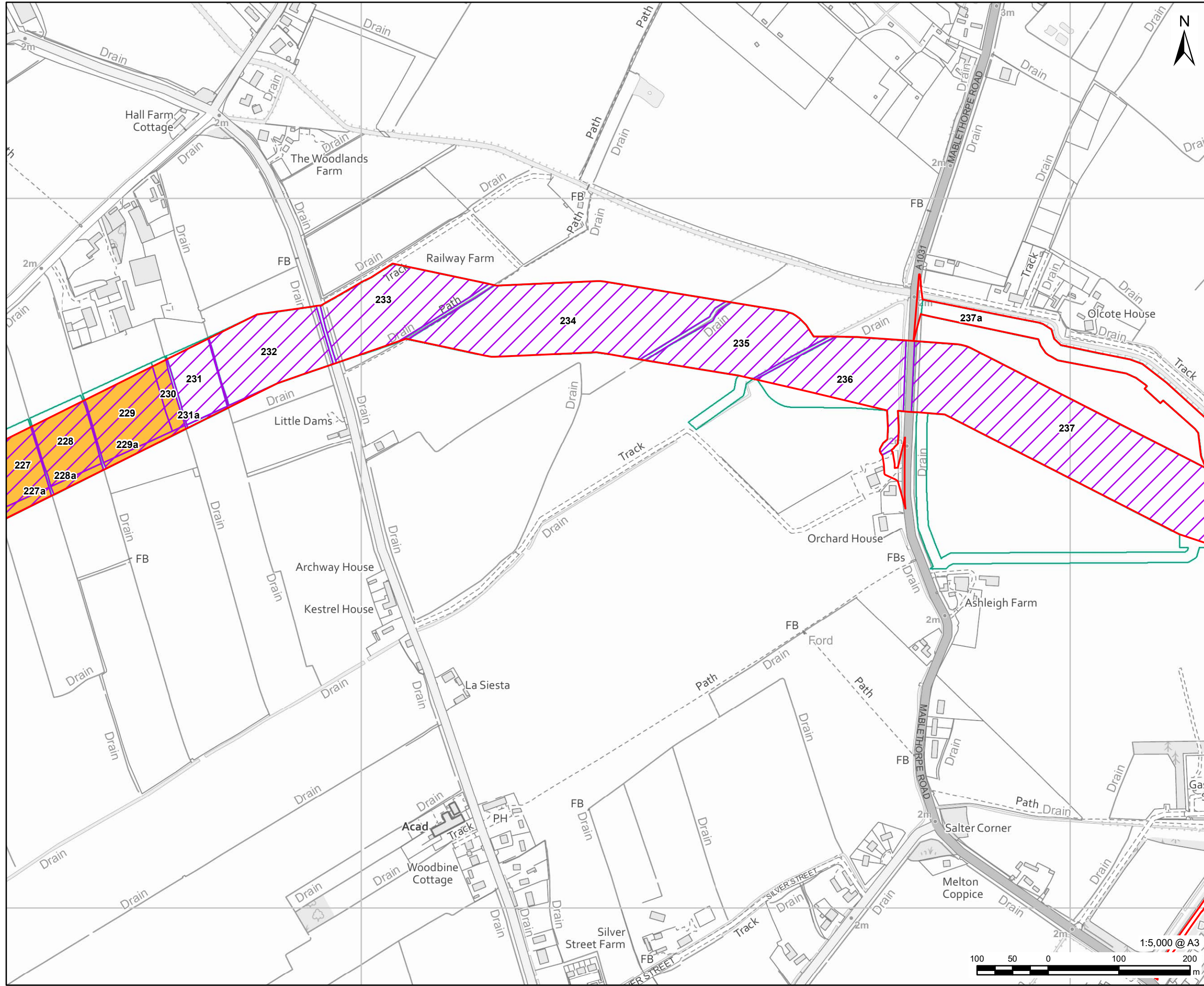


FIGURE TITLE
Figure 6B (13 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

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- LEGEND**
- DCO Site Boundary
 - Survey Field Boundary
 - Proposed Georarchaeological Borehole Survey Area
 - Proposed Earthwork Survey

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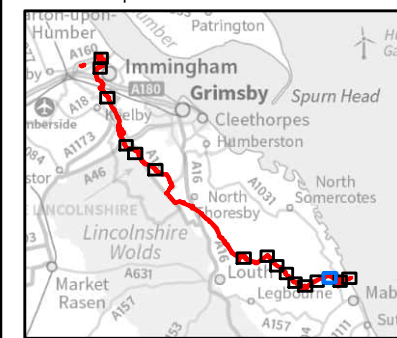
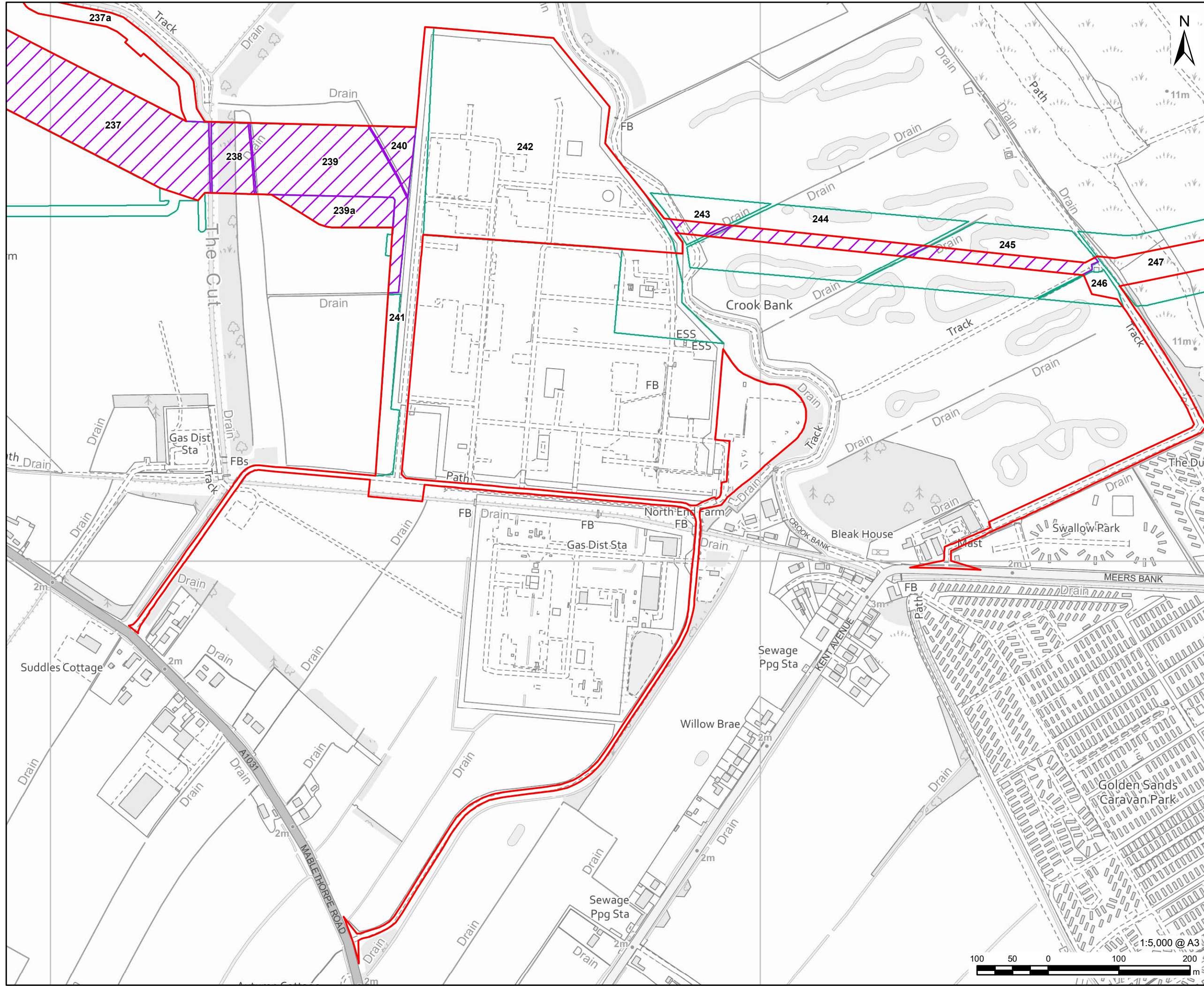


FIGURE TITLE
Figure 6B (14 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Georarchaeological Assessment

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LEGEND

- DCO Site Boundary
- Survey Field Boundary
- Proposed Geoarchaeological Borehole Survey Area

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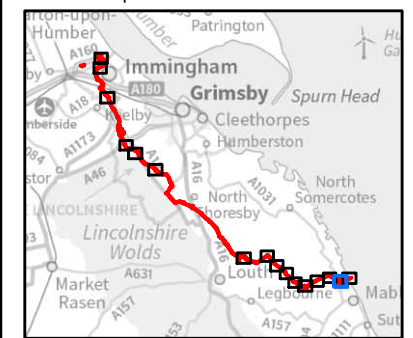


FIGURE TITLE

Figure 6B (15 of 16)
Areas for Earthwork Survey, Metal Detector Survey and Geoarchaeological Assessment

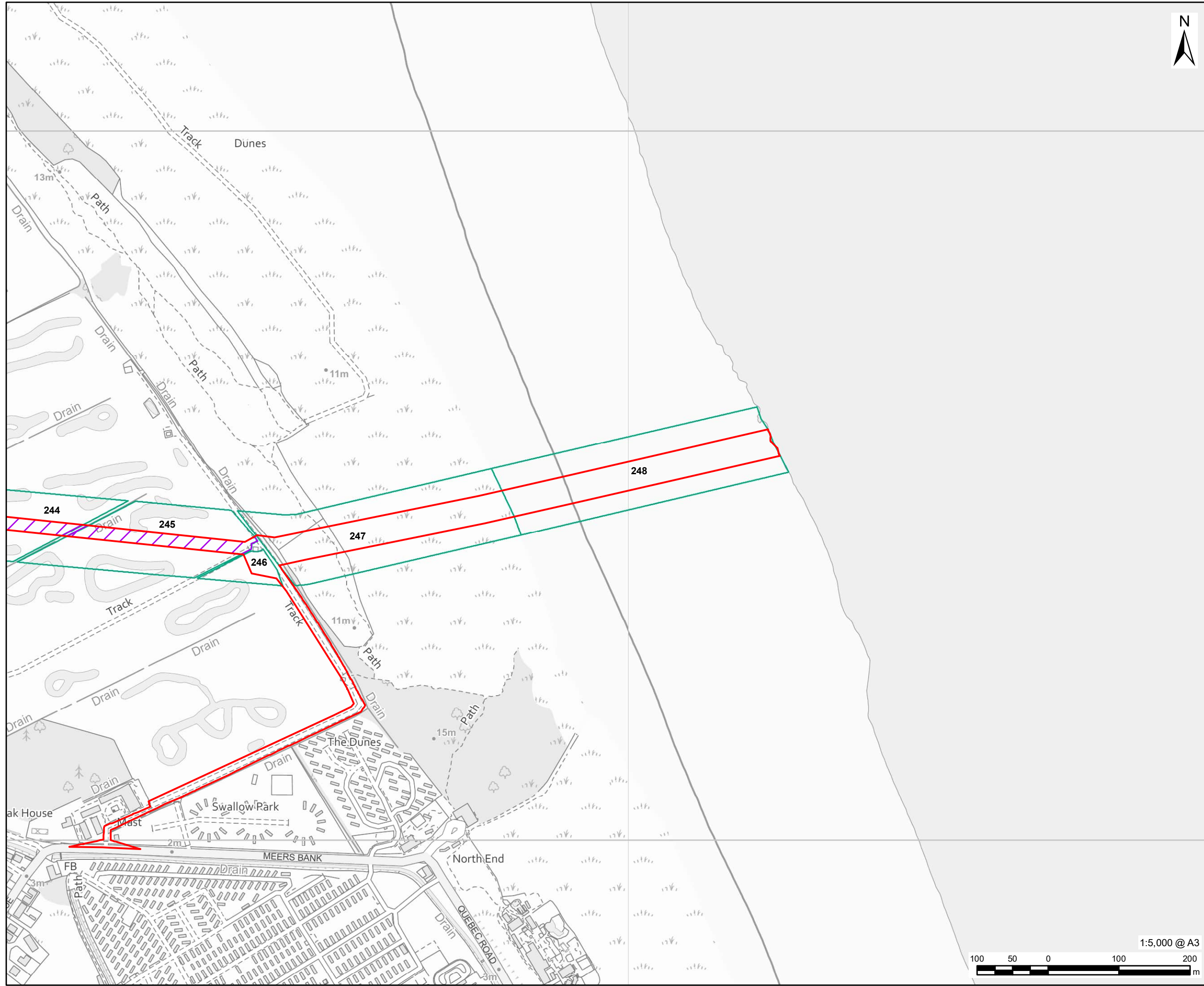
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	Proposed Geoarchaeological Borehole Survey Area

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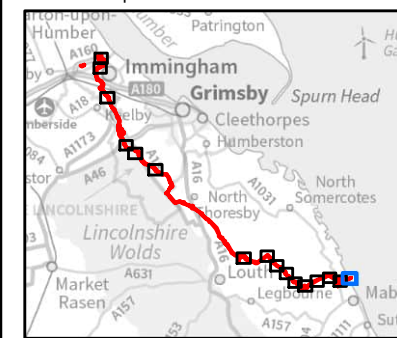


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Annex D Wessex Archaeology WSI



VIKING CCS PIPELINE Lincolnshire

Written Scheme of Investigation for
Archaeological Evaluation

Planning Ref.: EN070008
Accession Number: LCNCC: 2024.69
Document Ref.: 286440.02
March 2024



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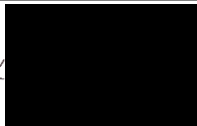
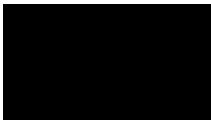
Document title VIKING CCS PIPELINE, Lincolnshire
Document subtitle Written Scheme of Investigation for Archaeological Evaluation
Document reference 286440.02

Client name Harbour Energy group
Address 4th Floor, Salire Court
20 Castle Terrace
Edinburgh

Site location From Habrough Road (Immingham) to Maplethorpe Road
(Theddlethorpe)
County Lincolnshire
National grid reference 514655, 415720 to 548407, 387516
Planning authority North Lincolnshire Council, North East Lincolnshire Council, East Lindsey District Council, West Lindsey District Council along with Lincolnshire County Council
Planning reference EN070008
Museum name The Collection Museum. Art & Archaeology Lincolnshire
Museum accession code LCNCC: 2024.69

WA project code(s) 286440
Project management by Catherine Douglas
Document compiled by Viktoria Halldorsdottir
Graphics by Amy Derrick

Quality Assurance

Issue	Date	Author	Approved by
1 Issued to the client and the curators	21/03/2024	VH	C Douglas 
2 Issued to the client and curators	04/04/2024	VH	C Douglas 



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VIKING CCS PIPELINE Lincolnshire

Written Scheme of Investigation for Archaeological Evaluation

1 INTRODUCTION

1.1 Project and planning background

- 1.1.1 Wessex Archaeology has been commissioned by Harbour Energy group ('the client') to produce a written scheme of investigation (WSI) for a proposed archaeological evaluation of the 55.5 km cable route of Viking Carbon Capture and Storage (CCS) Scheme. The cable route starts west of Immingham ends at Theddlethorpe Gas Terminal. It extends across the administrative areas of Lincolnshire County Council, North Lincolnshire Council, North East Lincolnshire Council, West Lindsey District Council and East Lindsey District Council. (West Lindsey District Council and East Lindsey District Council are located within the Lincolnshire County Council administrative boundary).
- 1.1.2 The proposed scheme comprises the installation of a new onshore pipeline approximately 55.5 km in length. The pipeline will transport Carbon Dioxide from the Immingham industrial area to Theddlethorpe on the Lincolnshire coast where it will connect to the offshore LOGGS pipeline.
- 1.1.3 The key components of the Proposed Scheme comprise:
- Immingham Facility;
 - Approximately 55.5 km 24 inch onshore steel pipeline (including cathodic protection);
 - Three Block Valve Stations;
 - Theddlethorpe Facility;
 - Existing LOGGS pipeline and isolation valve to the extent of the Order Limits at Mean Low Water Springs (MLWS);
 - Permanent access to facilities;
 - Mitigation and landscaping works;
 - Temporary construction compounds, laydown, parking and welfare facilities;
 - Temporary access points during construction.
- 1.1.4 The Scheme is defined as a Nationally Significant Infrastructure Project (NSIP) under Section 14(1)(a) and 15(2) of the Planning Act 2008 (Ref 1-2) as a construction of a pipeline other than by a gas transporter'. The Planning Act 2008 requires the Applicant to apply for a Development Consent Order (DCO) to develop the NSIP.
- 1.1.5 A consultation has been undertaken with key stakeholders with specific focus on the historic environment, including Historic England and the archaeological advisors to East Lindsey District Council, Lincolnshire County Council, North Lincolnshire Council and North East Lincolnshire Council (collectively called the Viking CCS Heritage Consultees).



- 1.1.6 For the ease of the logistics, the route has been split into five sections (Sections 1–5):
- Section 1 includes trenches 1-86 and 1018-1019 (fields 11, 13, 15, 22–27, 29 and 249);
 - Section 2 includes trenches 87-252 (fields 30–33, 37–38, 40–46, 49–51, 52a, 53a, 53b, 54a–57a, 57b, 58a, 60–62, 64 and 66);
 - Section 3 includes trenches 253-622 (fields 67a–70a, 71–73, 74a, 75a, 77a, 78–82, 86, 88–93, 95, 97–106, 108–119, 121–126 and 128–138);
 - Section 4 includes trenches 623-880 (fields 139–145, 147–165, 169, 169a, 170, 171 and 173–192);
 - Section 5 includes trenches 881-1011 (fields 193–205, 207–212, 214–219, 223–229, 231–237 and 239).

- 1.1.7 The evaluation will comprise the excavation, investigation and recording of 1017 trial trenches (each measuring 50 m by 1.8 m).

This evaluation is part of staged approach to determining the archaeological potential of the site, and follows other non-intrusive archaeological work, including desk-based research assessment (AECOM 2023a), aerial photographic assessment and LiDAR analysis (AECOM 2023b), and a geophysical survey (AECOM 2024).

- 1.1.8 Additional trenching will be deployed if the level and the complexity of archaeology could not be resolved by the initial number of trenches. This will be carried out with a prior dialogue and an agreement with the client and the archaeological advisors to the local planning authorities; the use of the contingency (i.e., the actual trenching on site) within a specific area will need to be executed as soon as determined necessary to avoid any delays in the programme.

- 1.1.9 A detailed trench by trench rationale for the location of the trenches is presented in Appendix 3. The trenches have been positioned to target:

- probable archaeological features;
- possible archaeological features;
- ferrous/iron spike features;
- historic features; and
- a sample of ‘blank’ areas.

1.2 Scope of document

- 1.2.1 This WSI sets out the aims and objectives of the evaluation, and the methods and standards that will be employed. It conforms to current best practice, as well as the Chartered Institute for Archaeologists’ relevant standards and guidance (CIfA 2023a–b) and the guidance in *Management of Research Projects in the Historic Environment* (MoRPHE; Historic England 2015a).
- 1.2.2 This document will be submitted to Viking CCS Heritage Consultees, archaeological advisors to the Local Planning Authority (LPA), for approval prior to the evaluation.



1.3 Location, topography and geology

Section 1 (trenches 1-86 and 1018-1019) (fields 111, 13, 15, 22–29 and 249)

- 1.3.1 The section lies from Manby Road (A1173) west of Immingham to the A180, south-west of Immingham.
- 1.3.2 The ground levels of the section are mostly at or below 10 aOD, with ground levels at 5 aOD the start of the pipeline rising up to 11 aOD the end of the section at Habrough Road.
- 1.3.3 The bedrock geology is Chalk of the Burnham Chalk Formation, comprising thinly bedded chalk. Superficial deposits comprise the Devensian - Diamicton Till, a heterogenous mixture of clay, sand, gravel, and boulders varying widely in shape and size (British Geological Survey 2024)

Section 2 (trenches 87-252) (fields 30–33, 37–38, 40–46, 49–51, 52a, 53a, 53b, 54a–57a, 57b, 58a, 60–62, 64 and 66)

- 1.3.4 Section 2 starts at A180 road, south-west of Immingham and ends at the low foothills of the Lincolnshire Wolds west of Laceby (A46 road).
- 1.3.5 The ground levels of the section rise from 9 aOD to approximately 17 aOD at Roxton Farm (field 28). Between Roxton Farm and Riby Road (field 50) the levels are generally 17 aOD. From Riby Road the ground levels drop to 15 aOD but start to rise again towards the south where the end of the section measures 48 aOD.
- 1.3.6 The bedrock geology is Chalk of the Burnham Chalk Formation, comprising thinly bedded chalk. At southern end of the section the bedrock is Chalk of the Welton Chalk Formation generally comprising white, massive or thickly bedded chalk. The superficial deposits comprise mostly of Glaciofluvial Sheet Deposits, Devensian, sand and gravel around Aylesby and between Irby Upon Humbe. Lacustrine Deposits are present around Irby Upon Humber, comprising laminated clay and silt which may contain thin layers of organic material or sand (British Geological Survey 2024).

Section 3 (trenches 253-622) (fields 67a–70a, 71–73, 74a, 75a, 77a, 78–82, 86, 88–93, 95, 97–106, 108–119, 121–126 and 128–138)

- 1.3.7 The section lies between the A46 road, south-west of Laceby and ends at Pear Tree Lane south-east of Ludborough.
- 1.3.8 The ground levels are at 53 aOD at the start of the section and gradually falls to 44 aOD west of Scrub Holt Farm (field 70). As the pipeline passes the scheduled Civil War earthworks west of field 72 the ground levels continue to fall to 28 aOD. Between the A18 road (field 74a) and Waithe Beck (field 97) the ground levels are generally between 28 and 41 aOD, however it dips to 18 aOD at broad valley of Waithe Beck, south of Waltham Road, Brigsley (B1203 road). The ground level again rises to 40 aOD as the pipeline travels south of Ashby cum Fenby. Where the section continues south of North Thoresby the ground drop to 21 aOD and towards the end of the section it remains between 21 and 24 aOD.
- 1.3.9 The majority of the bedrock geology is Chalk of the Welton Chalk Formation comprised of thickly bedded chalk, apart from the northern end which is dominated by Chalk bedrock of the Burnham Chalk Formation. The superficial deposits recorded are mostly Glacial Till, however alluvium is also present along the watercourses e.g. Laceby Back and Waitheby Back. Smaller localised superficial deposits, Lacustrine north of Ludborough and Glaciofluvial around Grainsby are also present (British Geological Survey 2024).



Section 4 (trenches 623-880) (fields 139–145, 147–165, 169, 169a, 170, 171 and 173–192)

- 1.3.10 Section 4 starts at Pear Tree Lane, south-east of Ludborough and ends at B1200 road (Manby Middlegate) between Grimoldby and Saltfleetby St Peter.
- 1.3.11 The ground levels at the start of the section, south of Pear Tree Lane are around 23 aOD and is undulating between 17 and 24 aOD towards Grove Farm (Field 145). As the pipeline continues south-east the ground levels drop to 10 aOD west of Covenham St Mary where it crosses the floodplain of Poulton Drain. From Alvingham Road the ground levels drop to 9 aOD but rises to 13 aOD at between North and South Cockerington and from there the ground levels remain between 4 and 7 aOD to the end of the section at Manby Middlegate (B1200 road).
- 1.3.12 The bedrock geology is Chalk of the Welton Chalk Formation, although the pipeline route crosses into the Ferriby Chalk Formation to the east of Brackenborough, in the middle part of the section. The superficial deposit in the section is mostly recorded as Glacial Till, however Alluvium is also recorded along watercourses e.g. Poulton Drain and Yarburgh Beck / Black Dike. Glacial Till and Tidal Flats Deposits are recorded where the pipeline crosses Pock Hill Lane, east of south Cockerington (British Geological Survey 2024).

Section 5 (trenches 881-1011) (fields 193–205, 207–212, 214–219, 223–229, 231–237 and 239)

- 1.3.13 The section crosses the coastal fenland area between Manby Middlegate (B1200 road) and Theddlethorpe.
- 1.3.14 The section is generally flat as the ground levels are around 3 to 4 aOD.
- 1.3.15 The bedrock geology in the northern part of the section is Chalk of the Welton Chalk Formation and then Chalk of the Burnham Formation from east of Walk Farm, Great Carlton to the end of the Section. The superficial deposit is mostly Tidal Flat Deposits, at the northern end there are small areas of Glacial Till.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND.

2.1 Introduction

- 2.1.1 The archaeological and historical background was assessed in a prior desk-based assessment (AECOM 2023a), which considered the recorded historic environment resource within a 500 m study area of the scheme. The results are presented below, with relevant entry numbers from the Lincolnshire Historic Environment Record (HER) and the National Heritage List for England (NHLE) included. This information was detailed in a prior WSI (AECOM 2023c) and has been replicated below with due acknowledgement. Additional sources of information are referenced, as appropriate.

2.2 Previous investigations related to the proposed development

Geophysical survey (AECOM 2024)

- 2.2.1 The majority of the anomalies reflect long-term agricultural use of the area in the form of former mapped and unmapped field boundaries and ridge and furrow systems. Both probable and possible archaeological anomalies were identified across site, the most prominent are possibly prehistoric or Romano-British enclosures in fields 11, 22, 32, 33, 38, 109, 128, 129 and 135; and possible trackway in fields 23, 24, 25, 26 and 130. Numerous anomalies within the site have been classified as unclear of origin as its unclear whether they are the result of archaeological, agricultural, or natural processes.



Aerial photographic assessment LiDAR analysis (AECOM 2023b)

- 2.2.2 The assessment recorded numerous archaeological sites and landscapes from the prehistoric to post-medieval period. Fifty-three individual sites or landscape areas were identified with 45 located within the site, eight sites lay adjacent or up to 200m outside the site boundary. Most notably were a possible Iron Age stock corralling site with “banjo” shaped ditched enclosure in field 169a; enclosure ditch in field 135; enclosure ditches overlain by eroded remains of Medieval fields in field 125, 128; ditches possibly associated with of Autby House and Park at ML41209 in field 123 and an earlier settlement site located north of field 15 and is now built over by Immingham Power Station.

2.3 Archaeological and historical context

Section 1 (trenches 1-86 and 1018-1019) (fields 11, 13, 15, 22–29 and 249)

Prehistoric (up to AD43) and Roman (AD43-50) periods.

- 2.3.1 Archaeological evidence shows that the Humber estuary has been a key trade and communication route between the North Sea and the Pennines, and to the Midlands (River Trent), since prehistoric times. Important palaeo-environmental and archaeological evidence preserved within wetland locations includes Bronze Age boats and fish traps. There is also evidence of early settlement on higher, drier land, while the lower wetlands provided fishing and fowling as well as summer grazing for the surrounding settlements.
- 2.3.2 Research on the Humber wetlands has suggested that, at the beginning of the Holocene, the onset of warmer conditions led to the establishment of dense vegetation cover over undulating boulder clay. At the same time kettle-holes and poorly draining hollows would have allowed the formation of a series of organic peaty sediments, and fluctuating sea levels would have led to increasing sedimentation through the process of alluviation and the formation of marshlands (Macklin, M, G et al. 2000, Taylor et al 2000 and Van de Noort, R and Davies, P 1993). The Humber continued to have great importance throughout the Roman and medieval periods for trade and communication and it is possible that on the north bank of the estuary drainage of the marshes began as long ago as the second century AD.
- 2.3.3 Prehistoric flintwork (waste material and tools), of Late Mesolithic to Early Bronze Age date, has been found during archaeological investigations close to the scheme (surface artefact collection and excavations) (MNL3927, MLS19799, MLS1615, MLS1614, MLS19831, MLS19832, MLS19834) and within the DCO Site Boundary (MLS21544). There are other findspots of prehistoric flintwork (waste flakes and cores) in the wider area, south of Station Road (MLS19726).
- 2.3.4 Archaeological evaluation at the Humber Refinery, c.300 m northeast of the DCO Site Boundary, has recorded evidence of Bronze Age activity and a late prehistoric and Roman settlement with associated evidence for salt-making and iron smelting (MLS21553, MLS21554, MLS21555, MLS21556). Charcoal from a ditch has been radiocarbon dated to the Early Bronze Age and, sealed beneath 0.4 m of alluvial clay, a charcoal-rich deposit (burnt stone and charcoal) was radiocarbon dated to the Late Bronze Age. A spread of burnt material which lay over a possible buried soil was also sealed beneath the alluvium which produced a Middle Bronze Age date. The Iron Age (and early Roman occupation) appears to occupy the driest ground, towards the west of the investigated area. Many of the features coincided with geophysical anomalies (possibly representing Iron Age enclosure ditches) and it is possible that salt making was carried out on the wetter ground to the east.
- 2.3.5 Although undated deposits interpreted as the buried shoreline were recorded east of Rosper Road during archaeological evaluations in 2004 and 2005, trenches in 2004 recorded 1 m

of alluvium over a peaty deposit and alluvium over deposits of mid-late Iron Age date. In 2005 alluvium which sealed an organic deposit was recorded beneath subsoil within the DCO Site Boundary (MLS20141). Also, a system of creeks which were detected by geophysical survey are likely to mark a former high-water position.

- 2.3.6 Close to the northern end of the DCO Site Boundary an archaeological trial trench evaluation in 2016 at Rosper Road identified multiperiod activity, including several Iron Age ditches (MLS20103, MLS20422, MLS20424). An earlier excavation either side of Rosper Road, that was carried out between 2000 to 2002 adjacent to the Conoco Refinery, suggested that the original early Iron Age settlement was located on the lower ground near to a former creek on the shore of the River Humber. There then appears, on the basis of the pottery sequence, to have been a hiatus in the mid- to late Iron Age. The subsequent late Iron Age and Romano-British settlement, representing possibly a small farmstead, developed on higher ground further north on the palaeo-shoreline. This was centred around a driveway and a pattern of enclosures (MLS1614, MLS20078), including within the DCO Site Boundary (MLS19771). Further evidence for Iron Age occupation was found west of Rosper Road, within the DCO Site Boundary, during trial trenching in 2010, related to the A160-A180 road improvements, where two Iron Age ditches were recorded (MLS22428).
- 2.3.7 Trial trench evaluation carried out in April 2023 for the proposed Humber Zero carbon capture scheme, within the northern extent of the DCO Site Boundary at the proposed pipeline offtake facility at Immingham, has recorded evidence of prehistoric activity and Iron Age / Romano-British occupation along the edge of the former buried shoreline (Taylor, J. and Lynn, R. 2023 and Wilson, B. 2023). The evaluation formed part of a programme of works, following a geophysical survey and a geoarchaeological borehole survey. A total of 32 trenches were excavated, which identified three areas of archaeological activity at the northwest, northeast and southeast corners of the trenched area, centring on the slightly higher ground within the site. Trenching at the northwestern corner of the evaluation area revealed several ditches containing Romano-British pottery and animal bone, however, the earliest evidence of activity came from a small number of pits found beside a possible palaeochannel which produced late Mesolithic / early Neolithic lithic fragments. At the north-eastern corner an alignment of postholes and several small boundary or enclosure ditches were recorded. A concentration of features at the south-eastern corner, dated mostly to the Iron Age / Romano-British period, included a large multiphase curvilinear ditch within a possible enclosure, and a series of small ditches possibly associated with a contemporary field system.
- 2.3.8 In the central part of the evaluation area geoarchaeological boreholes (11 drilled boreholes to a maximum depth of c.6 m below ground level) were used to identify areas of archaeological potential by characterising the probable nature and depth of sub-surface deposits (ibid). The deposit sequence recorded included Pleistocene glacial till found between approximately -0.5 m and 3 m OD; the lower elevations traverse the evaluation site from the northeastern boundary, forming a relict coastal inlet which was found to be infilled with intertidal deposits. It is likely that this inlet was open in the Mesolithic to Neolithic periods but has been gradually infilled during the Holocene by alluvium or warp (flooding) deposits which were found across the site. Made ground of up to approximately 1.4 m in thickness was also recorded.
- 2.3.9 There are several cropmark features of possible Iron Age date, including west of Habrough Road where a linear feature is visible (MLS20077) and a series of three possible enclosures (MLS20780). From the same general area, a late Iron Age enclosure, which was also visible on aerial photographs, was identified by geophysical survey and trial trenching (MLS1611).



- 2.3.10 Late Roman ditches were also recorded north of Marsh Lane (c.100 m north of the DCO Site Boundary) during trial trenching in 2012 and 2013. These are likely to represent a continuation of the small farmstead recorded on the west side of Rosper Road (MLS22743).
- 2.3.11 At East End Farm (c.130 m west of the DCO Site Boundary) archaeological geophysical survey has detected a trackway and a complex series of rectangular ditches flanking the trackway. Evidence also included a walled building. The complex could represent a series of small Romano-British farmsteads, a single large farm, or perhaps even be of military or ritual origin (MLS20152). Metal detection in the same area also recovered Roman coins and metalwork.
- 2.3.12 A driveway and enclosure of possible Roman date are visible on aerial photographs next to Ulceby Road and the woodland known as Sinks Covert (MLS8765).
- 2.3.13 South of East End Farm, and c.75 m west of the DCO Site Boundary, archaeological geophysical survey detected the buried remains of a Roman enclosure, northeast of Glebe Farm, which is also associated with Roman coins and pottery (MNL820).
- 2.3.14 A sherd of possible imitation Samian pottery has been found within the DCO Site Boundary (MNL1508).
- 2.3.15 Late Iron Age pottery and Roman pottery was found west of Habrough Road during excavations (MLS19829, MLS19830). A large hoard of Roman coins was also discovered by a metal-detectorist in the same area (MLS16344).
- 2.3.16 In the wider area a high-status Roman settlement and industrial site was found at Mauxhall Farm / Stallingborough Interchange (MNL4490, MNL4763). Here trial trenching revealed a substantial settlement belonging to two main phases (1st to 2nd centuries and 3rd centuries) followed by the site's abandonment. The presence of a stone building appears to mark this site out as different from other settlements along the edge of the tidal flats. It has been suggested that it may have functioned as a possible estate centre from which other sites were managed.
- Section 1 (trenches 1-86 and 1018-1019) (fields 11, 13, 15, 22-29 and 249)
Early medieval (450-1066) and medieval (1066-1500)*
- 2.3.17 Evidence of early medieval and medieval occupation tends to be concentrated within and close to the historic settlements that the pipeline route passes, however, the surrounding area also contains evidence for activity and occupation as a result of shifting settlement patterns and landscape changes. Within much of the study area the majority of the evidence is represented by former cultivation features, and it is likely that some of these also continued in use until enclosure in the post-medieval period.
- 2.3.18 Immingham is mentioned in the Domesday Book, the Lindsey Survey (c.1115) and the Early Yorkshire Charters (1100-15), and it formed a small cluster of settlements with place names indicating early Anglo-Saxon settlement (MNL287). The form of the settlement appears to have been a chain of farmsteads or hamlets laid out along a pair of parallel roads, with a denser core around the parish church. Archaeological trial trenching has recovered early medieval pottery and also pottery of 13th to 14th century and post-medieval date. Alluvial layers also show that the area was prone to flooding and that in some places, which were most vulnerable, seasonal farming activities were undertaken.
- 2.3.19 Habrough is also mentioned in various historic documents (Domesday, the Lindsey Survey (c.1115), Assize Rolls (1202), the Valuation of Norwich (1254) and Pipe Rolls (1197))

(MNL205). Originally the parish included a large, detached section of coastal marshland, Habrough Marsh (now a part of Immingham). The village was comprised of two settlement cores with dispersed occupation between them. The eastern core contains the church and at least one moated manorial site. It appears to have been laid out along a single road and the western core contains post-medieval Newsham Farm (settlement appears to have formed around a small grid like system of roads without an obvious topographic influence).

2.3.20 Settlement evidence has been identified within and surrounding Immingham. The scheduled Manor Farm medieval moated site is located in North Killingholme and was occupied into the post-medieval period (NHLE1008044, NHLE1346854, NHLE1214980). A possible area of medieval settlement is located within the DCO Site Boundary, northeast of Houlton's Covert, (evidenced by a fieldname which may correspond to the small close shown on Russell's pre-enclosure map of Killingholme, on the edge of Summergates) (MLS19827). The possible remains of a shrunken medieval village have been found at South Killingholme (MLS1613), c.270m north of the DCO Site Boundary, comprising a rectilinear enclosure, ditches and ridge and furrow (visible on aerial photographs, but now largely built over, although elements of the site may survive). A possible medieval moated site was found during an archaeological evaluation and excavation west of Luxmore Farm (complex of ditches and pits that respected Immingham Road) (MNL2373). A series of linear earthwork features (drainage systems, trackways and enclosures) at Homestead Park, Immingham (MNL284) (c.486m southeast of the DCO Site Boundary) also suggest medieval settlement in the wider area where waterlogged deposits of possible late medieval origin were recorded during monitoring in 1994.

2.3.21 There is evidence of extensive ridge and furrow cultivation in the area, of likely medieval to post-medieval date, associated with areas of historic settlement activity. The remains are visible on aerial photographs at several locations within or close to the DCO Site Boundary, including at Habrough (MNL2234), South Killingholme (MLS10748, MLS20104) and at Immingham (MNL2238 and which extends into Section 2). Several findspots of medieval pottery may also be connected to activity associated with cultivation or occupation (MLS20275), including within the DCO Site Boundary (MNL1507).

Section 1 (trenches 1-86 and 1018-1019) (fields 111, 13, 15, 22-29 and 249)

Post-medieval (1500-1900) and modern (post-1900)

2.3.22 From the 17th century, coastal reclamation, drainage and enclosure had a significant impact on the rural landscape. Flood defences were built to protect the developing towns and industrial areas and warping was introduced by the Dutch in the 18th century. Later, Parliamentary enclosures produced the landscape of regular, geometric fields, mostly enclosed by dikes, with associated large brick-built isolated farmsteads and excavation of brick pits for the extraction of Pleistocene clays.

2.3.23 The pipeline route passes several extant or demolished post-medieval and later farms / farmsteads, including Glebe Farm (MNL1818); Church Farm, Habrough (MNL2302); Luxmore Farm, Habrough Road (MNL2449); Elm Tree Farm, South Killingholme (MLS25002); Willows Farm, Immingham (MNL2451); and also several rural dwellings (NHLE1161631, NHLE1215113, NHLE1161630 / MNL288, NHLE1161587 and MNL2311). These reflect the former agricultural character and rural industries of the area prior to the development of Immingham Docks and the subsequent expansion of Immingham. Within the DCO Site Boundary is the site of a demolished post mill that is located along Mill Lane, Immingham (MNL4349).

2.3.24 Immingham Dock was established by the Humber Commercial Railway and Dock Company in association with the Great Central Railway (Humber Commercial Railway and Dock Act

of 1904, and subsequent amendments). Construction of Immingham Docks began in 1906 and was completed by 1912. Initially the dock exported coal from the coalfields of Derbyshire and Yorkshire via the Humber Commercial Railway (Grimsby District Light Railway was used for contractors' traffic and later for carrying passengers / dock workers) (Grace's Guide, 2020). A temporary settlement, or workers village, was established at Immingham (Humberville) comprising of a series of corrugated tin huts (known as Tin Town) for the dock construction workers (NHLE1391349). An extensive complex of railway lines and sidings were integrated into Immingham dock (London and North Eastern Railway - Immingham Dock Branch) (MNL3039). The Humber Commercial Railway line constructed in 1912 linked the eastern jetty at Immingham Dock with the main Grimsby - New Holland line at Ulceby (MLS21326).

- 2.3.25 From the 16th and 17th centuries onwards, defensive structures were constructed to protect the coastline from attack and the threat of invasion. The importance of defence continued into the late-19th century (coastal artillery battery and minefield control centre built at Paull Point on the north bank of the estuary) and was followed by a 20th century World War 1 acoustic mirror near Kilnsea and two forts at the estuary mouth.
- 2.3.26 During World War 1 Immingham Docks was a base for British D-class submarines. Following the end of World War 1 trade declined (as it did elsewhere along the east coast), including demand for shipping services and new ships. World War 2, however, revived its prospects but, together with other ports along the east coast such as Hull, it became the target of bombing raids. During World War 2 Immingham Docks became a naval base and headquarters for the Royal Navy. A series of anti-aircraft batteries and bombing decoys were built to protect the docks and nearby military airfields from attack. There are several known World War 2 military installations which are outside of the DCO Site Boundary, including heavy anti-aircraft battery installations at Immingham (MNL1523) and next to Sinks Covert (MLS17455); a searchlight emplacement at North Killingholme (MLS26168) and levelled anti-aircraft obstructions at Immingham (MLS21322). A possible bomb crater has been identified on aerial photographs at South Killingholme (MLS26149); and in the wider area are former barrage balloon sites (MNL4651, MNL4684, MNL4675), and other military buildings and installations (MNL4644, MNL4689).

Section 1 (trenches 1-86 and 1018-1018) (fields 111, 13, 15, 22–29 and 249)

Undated

- 2.3.27 The pipeline route passes several undated cropmark sites including a possible square enclosure (now beneath the Immingham CHP Plant, MLS21321) and an undated linear feature, west of Rosper Road (MLS21315); and outside the DCO Site Boundary, south of Ulceby Road (MLS20124, MLS1608, MLS1609, MLS20781, MLS8766, MLS25944, MLS1610, MLS21317). A series of linear geophysical anomalies at East End Farm, South Killingholme that are also undated (MLS20273, MLS20274) have been identified from archaeological geophysical survey.

Section 2 (trenches 87-622) (fields 30–33, 37–38, 40–46, 49–51, 52a, 53a, 53b, 54a–57a, 57b, 58a, 60–62, 64 and 66)

Prehistoric (to AD43) and Roman (AD42-450)

- 2.3.28 There is no evidence of significant prehistoric activity within this Section of the pipeline route. In the wider area to the west of the pipeline route there is evidence of Neolithic and Bronze Age burial activity. Southwest of Riby Grove Farm are the remains of a Neolithic long barrow and a Bronze Age round barrow (NHLE1018838) that are located on a spur of land overlooking several dry valleys. Prehistoric flintwork has been found outside of the



DCO Site Boundary but only in small quantities or as a single findspot (MNL4760, MNL3924, MNL3922, MNL3923).

- 2.3.29 Barton Street forms the parish boundary between several settlements and has been identified as a possible late Iron Age routeway that continued in use into historic times (MNL2583 / MLI116141 and also crosses Section 3).
- 2.3.30 Evidence for a possible Roman settlement have been found within the DCO Site Boundary southeast of Greenlands Farm, Stallingborough (MNL2689). The site appears to occupy an area of higher ground and comprises a complex of small enclosures alongside a trackway. Pottery from the site included possible Iron Age and early medieval material, suggesting the site may have earlier origins and was occupied into the post-Roman period. The discovery of fragments of Roman brick and tile in Stallingborough are possible indicators of Romano-British settlement / occupation (MNL3920, MNL3921). There is also a scatter of findspots of Roman material (pottery and metalwork) that indicate a possible more extensive Roman presence in the area (MNL1906, MNL3925, MNL3926, MNL834).

Section 2 (trenches 87-252) (fields 30–33, 37–38, 40–46, 49–51, 52a, 53a, 53b, 54a–57a, 57b, 58a, 60–62, 64 and 66)

Early medieval (450-1066) and medieval (1066-1500)

- 2.3.31 The pipeline route passes close to several historic settlements that have their origins in the early medieval and medieval periods. Aylesby is mentioned in Domesday (1086) and the Lindsey Survey (c.1202) and the village is probably a later Saxon foundation (occupation focused on Barton Street) (MNL125). Evidence of Anglo-Scandinavian occupation has been recorded (pottery and other finds) in the village which suggests occupation from at least the 10th century.
- 2.3.32 Stallingborough is mentioned in Domesday, the Lindsey Survey (c.1115), the British Museum Charters (c.1130), the Episcopal Registers (1233) and the Valuation of Norwich (1254). Along with Healing, Immingham and a lost settlement called Lopingham, it forms a small cluster of settlements with place names indicating early Anglo-Saxon settlement (MNL371). The medieval village was originally located on the edge of the salt marsh that has since been almost totally reclaimed. A low hill formed an early settlement focus, and this elevated position was used for the church and the principal manor house of the village. Recorded as a designated 'creek' port during the post-medieval period, archaeological investigations (geophysical survey, monitoring, trial trenching and excavation) have found evidence for Late Saxon and medieval occupation.
- 2.3.33 Irby upon Humber is mentioned in Domesday, the Lindsey Survey (c.1115) and the Assize Rolls (1202). The medieval settlement developed on patches of high ground around a riverless valley. It formed around a sub-rectangular road, with others radiating away from it, with no particular focus for dense settlement (MNL67).
- 2.3.34 There is evidence of early medieval occupation in the wider area at Riby where a substantial middle Saxon settlement, comprising field and enclosure ditches and elements of probable post-built and sunken buildings, has been investigated (Riby Crossroads) (MLI52885). The site is associated with an extensive pattern of cropmarks. At Riby Park a small 7th century Anglo-Saxon cemetery was discovered in 1915 (MLI50022) along with Anglo-Saxon pottery (MLI50023). Southeast of Riby Church, investigations within the Walled Garden have also recorded evidence of Roman, early medieval and medieval activity (MLI125879, MLI125880, MLI125881, MLI125882). At Laceby (north of Barton House), another Anglo-Saxon inhumation cemetery was found during sand and gravel extraction in 1934 and 1936-1939 (MNL295), but this is located in the wider area.



- 2.3.35 A sherd of possible Saxo-Norman pottery is also recorded north of Greenlands Farm, Immingham (MNL4199).
- 2.3.36 There are several smaller historic settlements within this Section. Roxton is mentioned in historic documents (including the Book of Fees, 1242, in the 1334 tax list, and it is marked on the Yarborough Estate map). Earthwork remains of the deserted medieval settlement at Roxton have largely been levelled but are visible as soil and cropmarks, including within the DCO Site Boundary (part of an extensive area covering c.15 hectares) (MNL286). At Stallingborough, part of the deserted medieval settlement, together with the earthworks of a post-medieval manor house and associated formal gardens, are located next to the parish church (NHLE1020423). At nearby Little London three areas, which are separated by roads and earthworks, are largely contiguous with the earthworks at Stallingborough; and features along the south bank of North Beck Drain may represent a series of moated enclosures and fishponds. Investigation of some of the features has revealed building platforms, chalk foundations, tile, and Roman, medieval to post-medieval pottery and other material (animal bones, oyster shell, nails and a coin of Henry IV) (MNL382).
- 2.3.37 Medieval moated sites are also recorded in the wider area, including the scheduled Healing Hall (NHLE1010947), at Roxton Farm (MNL283) and possibly also south of Manor Farm, Aylesby (MNL120).
- 2.3.38 There are cropmark remains of medieval / post-medieval ridge and furrow surrounding several of the historic villages and settlements, including at Stallingborough (MNL2235) and at Aylesby (MNL2225), which cross into the DCO Site Boundary.
- Section 2 (trenches 87-252) (30–33, 37–38, 40–46, 49–51, 52a, 53a, 53b, 54a–57a, 57b, 58a, 60–62, 64 and 66)*
- Post-medieval (1500-1900) and modern (post 1900)*
- 2.3.39 The pipeline route passes several gravel and chalk extraction pits, of post-medieval to modern date, that are shown on OS maps from the end of the 19th century (MNL1565, MNL1569), including two that are within the DCO Site Boundary (MNL1566, MNL2175).
- 2.3.40 There are numerous farmsteads and dwellings of post-medieval to modern date that the pipeline passes that reflect the farming and rural character of the area within the wider study area. These include Roxton Farm, Immingham (MNL1881); Stallingborough Grange (MNL1893); Healing Wells Farm (NHLE1346977 / MNL241); Manor Farm, Aylesby (MNL1609); Church Farm, Riby (NHLE1308735 / MLI96869); Church Farmhouse, Riby (NHLE1359822 / MLI97067); The Crofts, Laceby (MNL4254); and Greenland's Farm, which is located just outside of the DCO Site Boundary (MNL1895).
- 2.3.41 Riby Park (MLI92320) was built over the deserted medieval settlement of Riby and was laid out around the Church of St Edmund. The Park is recorded on both the OS 1st edition maps (1887-9) and 2nd edition maps (1902-6).
- 2.3.42 The north end of the pipeline route crosses the Manchester, Sheffield and Lincoln Railway – Cleethorpes to Barton railway line, that opened in 1848 (Cleethorpes extension added around 1863, part of a trans Pennine route from Manchester via Sheffield) (MNL1302). The site of a former railway siding, alongside Roxton Road, is within the DCO Site Boundary and is shown on the OS maps of 1887-9 (MNL2960) (associated with Roxton Siding Signal Box, MNL2820).
- 2.3.43 The pipeline passes several historic roads of post-medieval date (marked on OS maps of 1887-9), although some are also likely to have medieval origins, including Riby Road,

Stallingborough (MNL3502); Keelby Road, Stallingborough (probably documented in the reign of Henry III as 'Kelebigate') (MNL3505); Beach Holt Lane, Aylesby (MNL3476); and Nooking Lane, Aylesby (also documented in 1840) (MNL3477).

- 2.3.44 The pipeline route passes a number of modern refuse disposal sites in Aylesby (MNL1031) and Laceby (MNL1020), and landfill sites in Aylesby (MNL1068, MNL1069, MNL1070). A part of the former Aylesby Park is also within the DCO Site Boundary which is shown on OS maps of 1907-10 (southwest side of Aylesby, next to Manor House Farm) (MNL3157).
- 2.3.45 Several World War 2 military installations are recorded at the northern end of the Section, but outside of the DCO Site Boundary, that belong to the defensive arrangements for Immingham Docks. These include the Heavy Anti-Aircraft Battery H37 at Immingham Grange (MNL1524) (although possibly never built) and a pair of designated World War 2 heavy anti-aircraft batteries at Stallingborough (NHLE1403222 / MNL1525), which in 1946 became a Nucleus Force Battery headquarters. A group of closely spaced circular or sub-circular earthworks at Healing Wells Farm, identified on aerial photographs from the 1940s, possibly represent the site of a World War 2 searchlight battery (MNL4346). There is also a 1960s underground Royal Observer Corps monitoring post at Stallingborough (NHLE1403218 / MNL1900).

Section 2 (trenches 87-252) (fields 30-33, 37-38, 40-46, 49-51, 52a, 53a, 53b, 54a-57a, 57b, 58a, 60-62, 64 and 66)

Undated

- 2.3.46 The pipeline route passes several undated cropmark sites, including a small enclosure and field boundaries of possible medieval to post-medieval date that is within the DCO Site Boundary (200 m southwest of Barton Street) (MNL123). Undated ditches, pits and a possible palaeochannel have been identified during a geophysical survey at Immingham (MNL3915) and similar features were recorded within the DCO Site Boundary at Stallingborough (MNL3914). In the wider area an undated cropmark south of Gatehouse Farm, Stallingborough (MNL1234) was not located during construction work for a linear pipeline scheme in 1996 (although a large deposit of organic sediment was recorded during archaeological investigations close to the site).

Section 3 (trenches 253-622) (fields 67a-70a, 71-73, 74a, 75a, 77a, 78-82, 86, 88-93, 95, 97-106, 108-119, 121-126 and 128-138)

Prehistoric (to AD43) and Roman (AD43-450)

- 2.3.47 Evidence of prehistoric activity comes from findspots and cropmarks along this Section of the pipeline route. Small amounts of prehistoric flintwork comprising tools and waste material have been recovered at Irby Upon Humber (MNL1213), Holton le Clay (MLI41238), Ashby cum Fenby (MNL2110, MNL2111) and near Grainsby (MLI41215). Neolithic flints (two flint scrapers and numerous flint flakes, including a human tooth) were discovered in Hatcliffe, located in discrete patches that possibly reflect disturbed buried features (MNL2081).
- 2.3.48 There is a possible prehistoric burial mound at Waltham that is visible as a subcircular cropmark on aerial photographs (MNL2554); and beyond the wider area there is a scheduled Bronze Age round barrow cemetery at Tetney (visible as low earthworks and cropmarks) (NHLE1469975).
- 2.3.49 Topographic features such as hilltops and areas of higher ground may have been attractive to early settlers. A spring located on Welbeck Hill, west of Barnoldby le Beck, is marked on OS maps of 1887-9. but may have been used in the prehistoric period (MNL1570). Similarly,



Laceby Beck may have been a valuable resource from the prehistoric period (connecting Wellbeck Spring in the south with the River Freshney in the north) (MNL4273) and also Waithe Beck (MNL4344).

- 2.3.50 A possible late prehistoric or Roman enclosure, with an opening to the east and a small enclosure at the northwest corner, has been identified from aerial photographs at Ludborough (MLI98689). Another possible late prehistoric farmstead, with an associated field system, has been identified from cropmarks, west of North Thoresby, and beyond the wider area (MLI87920). Iron Age pottery from a ditch at Ashby cum Fenby is possibly indicative of late Iron Age activity in the area (MNL4398).
- 2.3.51 There is evidence for more extensive Romano-British occupation and settlement within this Section of the pipeline route. A possible Roman villa is visible as a cropmark to the west of Barnoldby le Beck (MNL850). Finds recovered from the site include a wide range of material such as brickwork, stone roof tile, a flint core and flakes, worked stone masonry, painted plaster, ceramic roof tile, possible tessera, possible hypocaust tiles, animal bone, stonework with paint and a large number of grey-ware sherds. At Irby upon Humber a dark soil on the south side of Welbeck Hill has produced Roman finds (abundant animal bone, burnt material and Roman pottery) (MNL1952). The presence of early medieval pottery at the same site suggests that occupation may have extended into later periods. Surface artefact collection, archaeological geophysical survey and archaeological excavations of a cropmark site have revealed evidence of a Romano-British settlement at Hatcliffe (MNL211).
- 2.3.52 Southwest of Hatcliffe Mill another Roman settlement is suggested by possible building platforms, that are visible on aerial photographs, alongside an old road (MNL208) with abundant Roman pottery from an adjacent field. In Ashby cum Fenby a Romano-British pit or ditch was uncovered during a watching brief in 1995 (MNL2370). Roman material has also been found near Ashby Hill, west of Ashby cum Fenby (MNL96) and Roman coins (together with early medieval and medieval material) has been reported by the Portable Antiquity Scheme near Ashby cum Fenby. An extensive Romano-British field system, covering approximately 12 acres that is associated with a possible vineyard, is visible on aerial photographs at North Thoresby (MLI41207). Pottery that is associated with dark soilmarks at Grainsby may indicate the presence of kilns and a buried cultivation system (MLI41216).
- 2.3.53 Several cropmark features that have been detected in this Section, but which are undated, could represent evidence for occupation in the prehistoric and Roman periods.

Section 3 (trenches 253-622) (fields 67a–70a, 71–73, 74a, 75a, 77a, 78–82, 86, 88–93, 95, 97–106, 108–119, 121–126 and 128–138)

Early medieval (450-1066) and medieval (1066-1500)

- 2.3.54 The pipeline route passes several historic settlements that have their origins in the early medieval and medieval periods, however, not all settlements prospered, and there are a number of shrunken and deserted settlements. Irby upon Humber (whose historic core lies within the wider area, MNL67) is mentioned in Domesday, the Lindsey Survey (c.1115AD) and the Assize Rolls (1202AD) and likely has early medieval origins. It developed on patches of high ground around a river-less valley and the settlement formed around a sub-rectangular road, with others radiating away from it, but it appears that there was no particular focus for dense settlement, instead it contained small clusters of houses and farmsteads, separated from each other by relatively small distances.

- 2.3.55 Barnoldby le Beck also has early medieval origins and is mentioned in historical sources (Domesday (1086), the Lindsey Survey (c.1115), and the Index to the Charters and Rolls (1202)). Part of its historic core is within the DCO Site Boundary (MNL137). In the post-medieval period, it was de-populated and emparked. A cluster of farmsteads and cottages is shown around the parish church at the end of the 19th century, suggesting that in the medieval period there was a dense nucleated core with a tight grid like pattern of roads. Crofts arranged along a possible road, suggestive of planned settlement, are documented around 250 m south of the church. Two large areas of parkland were established around the 18th to 19th centuries 'Manor House' and 'Oakland House' (also known as 'Woodlands' and 'The Grange') which may have involved some re-organisation of the settlement. Remains dating to the 13th and 14th centuries have been recorded during archaeological investigations and there are earthworks representing the former medieval extent of settlement to the south of Main Road and Waltham Road (building platforms, paddocks and trackways).
- 2.3.56 Brigsley is mentioned in Domesday (1086), the Lindsey Survey (c.1115), the Assize Rolls (1202) and the Index to Charters and Rolls in the British Museum (1202). The settlement is formed within a rough grid-based road system of three north-south roads and two east-west roads with the parish church roughly central (MNL2250). Areas of historic settlement earthworks survive, including a hollow-way to the east of the church which represents an abandoned road. To the east of the hollow-way is a post-medieval manorial site, around which appear to be the earthworks of medieval building platforms and house plots now covered by woodland. Archaeological investigations in Brigsley have uncovered evidence dated to the early medieval to medieval periods (ditches containing Ipswich ware and Northern Maxey Ware) (MNL2320).
- 2.3.57 The settlement of Holton le Clay is first documented in the Domesday Book and is subsequently documented throughout the medieval period (MLI80552). The remains of parts of the medieval settlement are visible on aerial photographs. There is evidence to suggest that the origins of the village lie in the late Anglo-Saxon period, if not earlier. Saxon graves were found during excavations at the church and finds dating from the mid- to late Saxon period were also recovered. Archaeological investigations elsewhere in the village have produced late Saxon and medieval pottery and medieval and post-medieval features.
- 2.3.58 Ashby cum Fenby is also mentioned in Domesday (1086), the Lindsey Survey (c.1115) and the Curia Regis Rolls (1205). Archaeological investigations have found evidence of 9th to 15th century occupation (MNL2113, MNL3102), including areas that are within the DCO Site Boundary (MNL2249, MNL98). Aerial photographs and historic documents suggest that the settlement comprised dwellings interspersed with garths, paddocks and crofts. From at least the 19th century the settlement spread to the south of the manor and church. The area around the medieval manor was converted into parkland and formal gardens during the post-medieval period.
- 2.3.59 Hawerby is an historic settlement known to have existed since the early medieval period (MNL233). The former settlement pattern is of house platforms and crofts, arranged along a single central road, with the church and rectory to the west and a small country house with its associated farmstead to the north.
- 2.3.60 The pipeline route passes close to an Anglo-Saxon cemetery on Welbeck Hill (MNL64) that spread along a gravel spur projecting from the hilltop. This was investigated in 1962 and 1979 and a total of 72 inhumation and 5 cremation burials were recorded in three areas: north-south along the hill crest, east-west on the hill's western slope and a deposit of cremations on the eastern slope. Finds recovered from the burials indicate a likely date for

the burials from the mid-5th century to the 6th century and it is likely that the cemetery went out of use in the late 6th or early 7th centuries. It is possible that the cemetery has not been fully excavated. A soil mark area to the northeast of the cemetery could represent either contemporary settlement or possibly a pyre associated with the cremations found in the cemetery (MNL71).

- 2.3.61 There is evidence of medieval settlement and cultivation across this Section with a cluster in and around the settlements that had their origins in the early medieval period. Southwest of North Thoresby, traces of the deserted medieval settlement of Autby (MLI41208) have been identified in the northwest corner of Autby Park (MLI41209). The scheduled remains of the deserted medieval village of Beesby [NHLE1003553] are located on the edge of the wider area, north of Cadeby Hall (northwest of Ludborough), and to the south of Cadeby Hall are the remains of the deserted medieval village of North Cadeby (NHLE1003611).
- 2.3.62 Beyond the wider area are the remains of Waithe deserted medieval village (located alongside the A16 road (MLI41233) and the shrunken medieval settlement of Grainsby, which extends either side of Grainsby Lane (MLI41222).
- 2.3.63 Several medieval moated sites are scattered across the Section, including east of Manor House, Irby upon Humber (MNL2511), where a square enclosure is flanked and respected by ridge and furrow; and at Ashby cum Fenby where there is a moated site and other possibly associated features which are crossed by the DCO Site Boundary at Hall Farm (MNL411). At Barnoldby le Beck an L-shaped fishpond which is marked on OS maps of 1887-9 is potentially the remains of another moated site (MNL1590); and at Ludborough, the Manor Moated site [673] has several earthworks including a rectangular enclosure likely to represent the site of the former manor house.
- 2.3.64 Aerial photography has identified several areas of medieval / post-medieval ridge and furrow throughout this Section. At Barnoldby le Beck extensive ridge and furrow earthworks almost surround the village core and are preserved in the two landscape parks to the south of the village, including within the DCO Site Boundary (MNL2228). Ridge and furrow are also recorded at Welbeck Hill, northwest of Barnoldby le Beck, also within the DCO Site Boundary (MNL2237). At Brigsby, numerous disparate areas of ridge and furrow earthworks (MNL2230) suggest that these remains are part of more extensive cultivation systems (a geophysical survey identified linear features which might be the remains of ridge and furrow along with other field boundaries). In Ashby cum Fenby there are also extensive earthwork remains of ridge and furrow cultivation features visible on aerial photographs from the late 1940s (MNL2224) (AECOM 2023b) Ridge and furrow cultivation features are also recorded at Laceby (MNL2243), Hatcliffe (MNL2236), Grainsby Grange (MLI98651, MLI98650) (field 108), Hawerby (MNL2226) and northeast of Ludborough (MLI125503) and at Cold Harbour Farm (Ludborough Parish) where cropmarked features are visible partially within and next to the DCO Site Boundary (field 131).

Section 3 (trenches 253-622) (fields 67a–70a, 71–73, 74a, 75a, 77a, 78–82, 86, 88–93, 95, 97–106, 108–119, 121–126 and 128–138)

Post-medieval (1500-1900) and modern (post-1900)

- 2.3.65 Southeast of Irby upon Humber and below Welbeck Hill is a scheduled Civil War earthwork fort that is located c.75 m west of the DCO Site Boundary (NHLE1007735, MNL62) (south of field 71) (AECOM 2023b). The 17th century fort comprises a rectangular earthen rampart, with projecting bastions at each of its four corners, an enclosing ditch, and a counterscarp bank. It is sited on high ground close to the road from the Humber to Boston and Kings Lynn (Barton Street, A18) and within easy reach of the road from Newark to the Humber via

Gainsborough (Grimsby Road, A46). It is possible that remains associated with the Civil War fort may extend into the DCO Site Boundary.

- 2.3.66 A post-medieval field boundary that is partially within the DCO Site Boundary is visible on satellite imagery between Barnoldby le Beck Park and Waithe Beck (field 86) and another field boundary that is broadly aligned along the axis of the DCO Site Boundary is visible also as a cropmark feature at Ashby cum Fenby (fields 100 and 101).
- 2.3.67 The OS maps of 1887-9 show two areas of parkland on the south side of Barnoldby le Beck with a northern boundary along Main Road and Waltham Road (MNL1588, MNL1589) and at Hawerby cum Beesby. Part of Hawerby Park is close to the DCO Site Boundary (MNL1870), it surrounds St Michael's Church and is also shown on OS maps of 1887-9. Further south there is a large area of dispersed trees, occasionally in groups, indicative of a landscape park (shown on the OS maps of 1887-9) (MNL3935), possibly an extension of Cadeby Park or parkland for Beesby House, which lies at the centre of the landscape. The parkland is still extant in areas where scheduled medieval earthworks are present (NHLE1003553). Early 20th century OS maps (between 1906-10) also depict an area of parkland at Oaklands, Laceby (MNL3156) and, southwest of North Thoresby, part of Autby Park, which is marked on OS maps of 1956, lies within the DCO Site Boundary (MLI41209).
- 2.3.68 The pipeline route passes several demolished post-medieval buildings and farmsteads, including two that are close to the DCO Site Boundary at Barnoldby le Beck (MNL1571) and Asby cum Fenby (MNL1555).
- 2.3.69 The pipeline route passes several gravel and chalk extraction pits, that are marked on OS maps from the end of the 19th century, at Irby upon Humber (MNL1922, MNL1925), Barnoldby le Beck (MNL1587), Beelsby (MNL1593), Hatcliffe (MNL1838, MNL1840) and Ashby cum Fenby (MNL1547).
- 2.3.70 The pipeline passes several historic roads of post-medieval date (marked on OS maps of 1887-9), although some are also likely to have medieval origins, including Old Main Road, Irby upon Humber (MNL3534) (the road from the village eastwards was part of the turnpike trust of 1765); Main Road, Barnoldby le Beck (MNL3447); Main Road, Beelsby (MNL3542); Brigsley Road, Ashby cum Fenby (MNL3448) (part of the turnpike trust of 1765); Ashby Lane, Ashby cum Fenby (MNL3450); Thoroughfare Lane, Ashby cum Fenby (MNL3455) (the section around Thoroughfare Farm (formerly Sykes Farm), is shown as a trackway rather than a formal road); and Hawerby Road (MNL3562).
- 2.3.71 A series of hedgerows crossed by section 3 of the pipeline are marked on tithe maps and may be regarded as important under the historic criteria set out in the Hedgerow Regulations as forming part of a field system pre-dating the Enclosure Acts [H20 – H30] (see ES Volume IV, Appendix 8-1: Cultural Heritage Desk-based Assessment, Annex C (Application Document 6.4.8.1)).
- 2.3.72 A World War 2 searchlight battery and possible command post are visible on aerial photographs at Ashby cum Fenby (MNL2223).

Section 3 (trenches 253-622) (fields 67a–70a, 71–73, 74a, 75a, 77a, 78–82, 86, 88–93, 95, 97–106, 108–119, 121–126 and 128–138)

Undated

- 2.3.73 The pipeline route passes several undated cropmark features (enclosures and linear features) which could belong to any period (prehistoric to modern), including at Irby upon Humber (faint cropmarks indicating a possible sub-rectangular enclosure and trackway,



MNL409) and at Waltham (cropmark of a possible undated small enclosure, MNL2544; and linear features, MNL2555).

*Section 4 (trenches 623-880) (fields 139–145, 147–169, 169a, 170, 171 and 173–192)
Prehistoric (to AD43) and Roman (AD43-450)*

2.3.74 This Section of the pipeline route crosses the edge of the low-lying Mablethorpe Outmarsh in an area where there are few known heritage assets of prehistoric or Roman date. There are no find spots of prehistoric date, although beyond the wider area prehistoric flintwork has been found at South Cockerington (MLI81617, MLI43242). Possible Bronze Age barrows (MLI82192) and prehistoric enclosures are recorded at Keddington (MLI87925, MLI87928) Aerial photographs have also revealed a probable Bronze Age barrow at Alvingham (MLI82175).

2.3.75 A possible Iron Age 'banjo' enclosure is visible as a cropmark feature partially within the DCO Site Boundary to the south of Louth Canal (Keddington Parish) (field 165) (AECOM 2023b).

Section 4 (trenches 623-880) (fields 139–145, 147–165, 169, 169a, 170, 171 and 173–192)

Early medieval (450-1066) and medieval (1066-1500)

2.3.76 The historic settlements of Covenham St Bartholomew, Covenham St Mary, Yarburgh, North End, Alvingham, North Cockerington, South Cockerington and Grimoldby were likely founded in the early medieval or medieval periods. All are documented since the medieval period and are often associated with ridge and furrow and other settlement related features (crofts, tofts and former field boundaries and lanes), which extend beyond the historic cores, and which are visible on aerial photographs; for example, at Covenham St Bartholomew (MLI87811), Covenham St Mary (MLI87807, MLI87808) and Yarburgh (MLI87851).

2.3.77 The scheduled earthworks and buried remains of the deserted medieval village of Brackenborough are located c.1 km west of the DCO Site Boundary (NHLE1003616).

2.3.78 The historic settlement at North Cockerington, whose area extends into the DCO Site Boundary (MLI83365), is first documented in Domesday. Medieval settlement remains (trackway, ponds, enclosures, ridge and furrow, field boundary, boundary bank and crofts) are visible as cropmarks and earthworks around the present village. Archaeological watching briefs have recorded evidence of medieval and later occupation which are likely associated with the earthworks and cropmarks. Features associated with the settlement were visible from the detailed assessment of aerial photographs, but the remains lie to the north of Red Leas Lane and outside of the DCO Site Boundary (field 177) (AECOM 2023b).

2.3.79 Between Meadow Lane and Red Lease Lane, on the south side of North Cockerington, there is a scheduled medieval moated site (NHLE1004988, MLI43595).

2.3.80 South Cockerington is first documented in Domesday, and it probably has its origins in the Anglo-Saxon period (MLI43243). The regular road layout is possibly the result of deliberate planning. Earthworks associated with medieval settlement (crofts and trackways) have been identified and archaeological watching briefs have recorded evidence of medieval occupation.

2.3.81 Keddington is also first recorded in the Domesday book and is listed as being owned by the Bishop of Durham and Rainer of Brimeux. Based on the size of the settlement and the etymology of the name it is likely that the settlement originated in the early Anglo-Saxon

period. A medieval earthwork moat, enclosures and ditches are recorded near the village (MLI88730), as are earthworks of ridge and furrow visible on aerial photographs (MLI98757) (field 169).

- 2.3.82 Areas of medieval / post-medieval ridge and furrow have been identified within and surrounding the historic settlements (also often extending beyond the wider area, for example, at Alvingham (MLI5866, MLI116055). The features are visible on aerial photographs and have been identified by archaeological geophysical survey and earthwork survey at Alvingham (MLI87867), North Cockerington (MLI87881, MLI87883, MLI87887, MLI87886) [APS_9], South Cockerington (MLI88026, MLI88027, MLI99468) [APS_8], Keddington (MLI99449) and Grimoldby (MLI97316). The cropmarked remains of ridge and furrow are also visible on satellite imagery within the DCO Site Boundary at Grove Farm (Utterby Parish) (field 147) and at Grange Farm (Brackenborough with Little Grimsby Parish) (fields 150 and 151).
- 2.3.83 The earthwork remains of a large post-medieval mill mound are visible at North Cockerington (MLI41375) next to an area of ridge and furrow (the mound was originally identified as a tumulus on early OS maps).
- Section 4 (trenches 623-880) (fields 139–145, 147–165, 169, 169a, 170, 171 and 173–192)*
Post-medieval (1500-1900) and modern (post-1900)
- 2.3.84 The pipeline route crosses the historic Louth Navigation (MLI86587) between Alvingham and North Cockerington. Construction of the canal began in 1767 and linked inland Louth with coastal Tetney. A small inland port developed at Louth and the canal remained open until the 20th century (canal closed to navigation in 1924). Several designated (listed grade II) historic canal locks of red brick and ashlar limestone construction, are present within the wider area, including Ticklepenny Lock TF 351889 (NHLE1063048) and Willows Lock TF 352892 (NHLE1063049) at Keddington; Alvingham Lock and inverted syphon (NHLE1063080, MLI89033) and Salter Fen Lock at Alvingham (NHLE1063081, MLI89034).
- 2.3.85 The pipeline route passes several demolished post-medieval buildings and farmstead including two that are within the DCO Site Boundary at South Cockerington (MLI117795) and at Grimoldby (MLI117829).
- 2.3.86 A series of hedgerows, crossed by Section 4 of the pipeline route, are marked on tithe maps and may be regarded as important, under the historic criteria set out in the Hedgerow Regulations, as forming part of a field system pre-dating the Enclosure Acts [H31 – H34] .
- 2.3.87 The pipeline route crosses a demolished railway line, of post-medieval to modern date (Great North Railway, Mablethorpe Branch line, marked on OS maps from 1888: Lincolnshire Sheet XLVIII.SE), northeast of Eastfield Farm, Grimoldby, which is visible as a soilmark (Google Earth images) (part of the same line is also visible at Theddlethorpe All Saints).
- 2.3.88 There are two World War 2 anti-aircraft obstructions at Grimoldby which are part of a larger network of similar features constructed to deter an invading landing force (MLI88037, MLI88040).

Section 4 (trenches 623-880) (fields 139–145, 147–165, 169, 169a, 170, 171 and 173–192)

Undated

- 2.3.89 The pipeline route passes several undated enclosures visible as cropmarks at North Cockerington (possible moated site) (MLI42854), near South Cockerington (MLI88024), including one that is close to the DCO Site Boundary (MLI88025); and at Grimoldby (MLI88041). An undated (possible prehistoric) rectilinear enclosure is visible on aerial photographs and lies partially within the DCO Site Boundary, north of Louth Canal (Alvingham Parish) (east of field 165) (AECM 2023b)

Section 5 (trenches 881-1011) (fields 193–205, 207–212, 214–219, 223–229, 231–237 and 239)

Prehistoric (to AD43) and Roman (AD43-450)

- 2.3.90 This Section of the pipeline route is located on the low-lying Mablethorpe Outmarsh area where there are few known heritage assets of prehistoric or Roman date. A prehistoric flint scraper (MLI87326) was found between Two Mile Bank and Pyewipe Farm during archaeological monitoring for the Maltby le Marsh to Manby Replacement Water Main.
- 2.3.91 An archaeological watching brief near Walk Farm, Great Carlton, has recorded evidence of a Romano-British field system and occupation remains (MLI87322) (west of field 207) (AECOM 2023b) suggesting the possible presence of a nearby settlement (ditches, gully, hearth, pit and pottery) and possible industrial activity. A sherd of Roman pottery was found during archaeological monitoring at Gayton le Marsh (MLI87325).

Section 5 (trenches 881-1011) (fields 193–205, 207–212, 214–219, 223–229, 231–237 and 239)

Early medieval (450-1066) and medieval (1066-1500)

- 2.3.92 There is extensive evidence for medieval settlement and cultivation within this Section of the pipeline route. Northeast of Great Carlton the route passes the remains of a medieval field system and settlement at Walk Farm (MLI42821) (field 207), where remains sit on slightly higher ground above the neighbouring enclosed fen that forms the marshland parish (features visible on aerial photographs include crofts, tofts, building platforms, a moat, ridge and furrow and a linear boundary feature). An archaeological geophysical survey (2003) identified a series of archaeological anomalies, including linear and rectilinear features (possibly representing field systems and/ enclosures) and several pit-like features (represented by burning or possible domestic dumping). During a subsequent archaeological watching brief (Maltby le Marsh to Manby Replacement Water Main), ridge and furrow was recorded, and a sherd of medieval pottery was recovered. Next to the medieval settlement a boundary earthwork is also visible on aerial photographs (MLI88280). There is also an undated earthwork north of Walk Farm that could be part of the settlement (MLI88283).
- 2.3.93 An area of historic settlement is documented at Theddlethorpe All Saints (MLI88255), which is mentioned in Domesday, and remains of the settlement have been identified on aerial photographs (enclosures and a moat). Pottery from Theddlethorpe All Saints suggests possible early medieval / medieval occupation west of Mablethorpe Road (MLI80941) and also near Railway Farm (MLI80945). A possible late Saxon / medieval farmstead (MLI80963) has been recorded next to Station Road. A medieval moated site known as 'Keleshall' was found in 1956 along Grove Road (MLI41411). Between Slates Farm and Will Row, on the western side of Theddlethorpe All Saints, more remains of likely medieval settlement have been found (cropmark and earthwork remains of tofts and a trackway visible on aerial photographs next to the Great Eau) (MLI88207). Also, north of Will Row

and alongside the Great Eau, there are more cropmarks and earthwork features (including the remains of tofts) (MLI88214) (field 235) (AECOM 2023b)

- 2.3.94 At Theddlethorpe St Helen there is evidence of medieval settlement and cultivation (tofts and ridge and furrow). The remains have been identified either side of A1031 Mablethorpe Road and extending as far south as Carlton House (MLI98809) (field 237), and also within the DCO Site Boundary next to Dicote House (cropmark and earthwork remains of enclosures and tofts) (MLI98811).
- 2.3.95 Areas of medieval / post-medieval ridge and furrow have been found associated with the evidence of settlement activity, including at Pyewipe Farm, Gayton (MLI84714) and within the DCO Site Boundary either side of Station Road (MLI80946) (field 235). Cultivation earthworks are also recorded at Theddlethorpe All Saints, alongside Highgate and east of Highgate Farm, (MLI88216) and either side of Station Road. Other areas of more extensive ridge and furrow are also present at Theddlethorpe St Helen (MLI98954) and either side of Mablethorpe Road, (MLI88266, MLI98722, MLI88264), including within or close to the DCO Site Boundary (MLI80943, MLI98724) (field 235). West of Mablethorpe Road there are other linear and pit-like features (recorded during archaeological monitoring) that are undated, but which could belong to this period (MLI80940, MLI80942, MLI80944).
- 2.3.96 Medieval pottery has been found at Gayton le Marsh, during surface artefact collection for a linear scheme (MLI84716, MLI84718, MLI84724), and a medieval candlestick was found during drainage work on the edge of Long Eau at Dowsey Fen (MLI41309). These could be related to the medieval settlement near Walk Farm. Several pieces of medieval pottery were also recovered during an archaeological watching brief close to the Theddlethorpe Gas Terminal (MLI80938).
- 2.3.97 The pipeline crosses a probable medieval salters' route (MLI82703) that follows the parish boundaries between Gayton le Marsh and Great Carlton and corresponds to an earthwork (Two Mile Bank) that is recorded on the 1st edition OS map of 1888.

Section 5 (trenches 881-1011) (fields 193–205, 207–212, 214–219, 223–229, 231–237 and 239)

Post-medieval (1500-1900) and modern (post-1900)

- 2.3.98 A post-medieval field boundary that is partially within the DCO Site Boundary is visible on satellite imagery north of Walk Farm (Great Carlton Parish) (fields 213, 214 and 215).
- 2.3.99 This Section of the pipeline route contains several demolished farms / farmsteads of post medieval to modern date (all within the wider area), including at Saltfleetby (MLI117784, MLI117785, MLI117786), Manby (MLI118194), Gayton le Marsh (MLI118412), Theddlethorpe All Saints (MLI118152) and at Mablethorpe and Sutton (MLI118366). The site of a post-medieval to modern tower mill lies close to the DCO Site Boundary at Theddlethorpe St Helen (MLI85787).
- 2.3.100 A series of hedgerows, crossed by Section 5 of the pipeline route, are marked on tithe maps and may be regarded as important under the historic criteria, set out in the Hedgerow Regulations as forming part of a field system pre-dating the Enclosure Acts, on Great Carlton parish tithe map [H35] ('Willow Row Bank') and in Gayton le Marsh parish (1839 tithe map) [H36 – H38].
- 2.3.101 The pipeline route crosses a demolished railway line of post-medieval to modern date at Theddlethorpe All Saints (Great North Railway, Mablethorpe Branch line, marked on OS maps from 1888: Lincolnshire Sheet XLIX.SE & XLIXA.SW), which is visible as a soilmark.



2.3.102 There are several World War 2 aircraft obstruction sites which are visible on aerial photographs towards the eastern end of the Section, including at Theddlethorpe All Saints (MLI88212), within the DCO Site Boundary (MLI88213) and at Theddlethorpe St Helen (MLI88267). These are part of a larger group of former coastal defence installations that are situated in the wider area, including pillbox and gun emplacements (MLI43272); anti-aircraft pillboxes (MLI125949, MLI125950); and the possible site of a World War 2 store (MLI43393).

Section 5 (trenches 881-1011) (fields 193–205, 207–212, 214–219, 223–229, 231–237 and 239)

Undated

2.3.103 The pipeline route passes undated linear cropmark features at Theddlethorpe All Saints, on the eastern side of the Great Eau (MLI88208, MLI88209), and close to the centre of the village (MLI88217) where there are two enclosures at Theddlethorpe St Helen (MLI88265, MLI98810).

3 AIMS AND OBJECTIVES

3.1 Aims

3.1.1 The general aims of the evaluation are to:

- provide information about the archaeological potential of the site; and
- inform either the scope and nature of any further archaeological work that may be required, or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource) or management strategy.

3.2 General objectives

3.2.1 In order to achieve the above aims, the general objectives are to:

- determine the presence or absence of archaeological features, deposits, structures, artefacts or ecofacts within the specified area;
- establish, within the constraints of the evaluation, the extent, character, date, condition and quality of any surviving archaeological remains;
- place any identified archaeological remains within a wider historical and archaeological context in order to assess their significance;
- inform the strategy for any required mitigation via recording, preservation and/or management of identified assets; and
- make available information about the archaeological resource within the site by reporting on the results of the evaluation
- test the results of the geophysical survey (AECOM 2024);

4 FIELDWORK METHODS

4.1 Introduction

4.1.1 Compliance with health and safety regulations and requirements will take priority over archaeological considerations in all works.



4.1.2 All works will be undertaken in accordance with the detailed methods set out within this WSI. Any significant variations to these methods will be agreed in writing with the Viking CCS Heritage Consultees and the client prior to being implemented.

4.1.3 The evaluation will comprise the excavation, investigation and recording of 1017 trial trenches (each measuring 50 m by 1.8 m). A trench rationale has been included to show which trenches are targeting geophysical anomalies and which ones are targeting 'blank' areas (Appendix 3).

4.1.4 Due to the cross-county nature of the project, North Lincolnshire museum have agreed in principle for Lincoln museum to be the primary archive holder, with the caveat that if anything of particular importance is found in their collecting area, that element will be deposited with them. Lincoln museum have been contacted and an accession number has been issued: LCNCC: 2024.69.

4.2 Setting out of the trenches

4.2.1 All trenches will be set out using a Global Navigation Satellite System (GNSS) in the approximate positions shown in Figure 1. Minor adjustments to the layout may be required to take account of constraints such as vegetation or located services, and to allow for machine manoeuvring. The trench locations will be tied into the Ordnance Survey (OS) National Grid and Ordnance Datum (OD) (Newlyn), as defined by OSTN15 and OSGM15.

4.3 Service location and other constraints

4.3.1 The client will provide information regarding the presence of any below/above-ground services, and any ecological, environmental or other constraints.

4.3.2 Before excavation begins, the evaluation area will be walked over and visually inspected to identify, where possible, the location of any below/above-ground services. All trial trench locations will be scanned before and during excavation with a Cable Avoidance Tool (CAT) to verify the absence of any live underground services.

4.4 Excavation methods

4.4.1 The trenches will be excavated using a 360° tracked excavator equipped with a toothless bucket. Machine excavation will be under the constant supervision and instruction of the monitoring archaeologist. Machine excavation will proceed in level spits of approximately 50–200 mm until the upper-most archaeological horizon or geological substrate is exposed. Where necessary, the base of the trench/surface of archaeological deposits will be cleaned by hand.

4.4.2 A sample of the archaeological features and deposits identified will be hand-excavated, sufficient to address the project aims. Spoil from machine stripping and hand-excavation will be visually scanned for the purposes of finds retrieval and, where appropriate, will also be metal-detected by trained archaeologists. Finds will be collected and bagged by context.

4.4.3 If an exceptional number and/or complexity of archaeological deposits are identified, sample excavation will aim to be minimally intrusive, but sufficient to resolve the principal aims of the evaluation, to a level agreed with the Viking CCS Heritage Consultees and the client.

4.4.4 If human remains are uncovered, the specific methods outlined below (section 4.9) will be followed.



- 4.4.5 Where complex archaeological stratification is encountered, deposits will be left *in situ* and alternative measures taken to assess their depth, as agreed with the Viking CCS Heritage Consultees. Where modern features are seen to truncate the archaeological stratification, these may be removed, where practicable, in a manner that does not damage the surrounding deposits to enable the depth of stratification to be assessed.

4.5 Recording

- 4.5.1 All exposed archaeological deposits and features will be recorded using Wessex Archaeology's pro forma recording system.
- 4.5.2 A complete record of excavated archaeological features and deposits will be made. This will include plans and sections, drawn to appropriate scales (generally 1:20 or 1:50 for plans, 1:10 for sections) and tied to the OS National Grid.
- 4.5.3 A full photographic record will be made using digital cameras equipped with an image sensor of not less than 16 megapixels. This will record the detail and general context of the principal features and the site. Digital images will be subject to managed quality control and curation processes, which will embed appropriate metadata within the image and ensure long term accessibility of the image set. Photographs will also be taken of all areas, including access routes, to provide a record of conditions prior to and on completion of the evaluation.

4.6 Survey

- 4.6.1 The real time kinematic (RTK) survey of all trenches and features will be carried out using a Leica GNSS connected to Leica's SmartNet service. All survey data will be recorded in OS National Grid coordinates and heights above OD (Newlyn), as defined by OSTN15 and OSGM15, with a three-dimensional accuracy of at least 50 mm.

4.7 Monitoring

- 4.7.1 The client will inform the Viking CCS Heritage Consultees of the start of the evaluation and its progress. Reasonable access will be arranged for the Viking CCS Heritage Consultees to make site visits to inspect and monitor progress. Any variations to the WSI, if required to better address the project aims, will be agreed in advance with the client and the Viking CCS Heritage Consultees.

4.8 Reinstatement

- 4.8.1 Trenches completed to the satisfaction of the client and the Viking CCS Heritage Consultees will be backfilled using excavated materials in the order in which they were excavated, and left level on completion. Photos of trenches will be shared through SharePoint where the Viking CCS Heritage Consultees can sign off blank trenches. No other reinstatement or surface treatment will be undertaken.

4.9 Finds

General

- 4.9.1 All archaeological finds will be retained, although those of clearly very recent origin with negligible potential to provide information relevant to the project aims and objectives may be recorded on site and not retained. Where appropriate, soil samples may be taken and sieved to aid in finds recovery. Any finds requiring conservation or specific storage conditions will be dealt with immediately in line with *First Aid for Finds* (Watkinson and Neal 1998).



Human remains

- 4.9.2 In the event of discovery of any human remains (articulated or disarticulated, cremated or unburnt), all excavation of the deposit(s) will cease pending Wessex Archaeology obtaining a Ministry of Justice licence (this includes cases where remains are to be left *in situ*).
- 4.9.3 Initially the remains will be left *in situ*, covered and protected, pending discussions between the client, Wessex Archaeology's osteoarchaeologist and the Viking CCS Heritage Consultees regarding the need for excavation/removal or sampling. Where this is deemed appropriate, the human remains will be fully recorded, excavated and removed from site in compliance with the Ministry of Justice licence.
- 4.9.4 Excavation and post-excavation processing of human remains will be in accordance with Wessex Archaeology protocols and in-line with current guidance documents (e.g., McKinley 2013) and the standards set out in ClfA Technical Paper 13 (McKinley and Roberts 1993). Appropriate specialist guidance/site visits will be undertaken if required.
- 4.9.5 The final deposition of human remains subsequent to the appropriate level of osteological analysis and other specialist sampling/examinations will follow the requirements set out in the Ministry of Justice licence.

Treasure

- 4.9.6 Wessex Archaeology will immediately notify the client and the Viking CCS Heritage Consultees on discovery of any material covered, or potentially covered, by the *Treasure Act 1996*. All information required by the Act (i.e., finder, location, material, date, associated items etc.) will be reported to the Coroner within 14 days.

4.10 Environmental sampling

- 4.10.1 All sampling will be undertaken following Wessex Archaeology's in-house guidance, which adheres to the principles outlined in Historic England's guidance (English Heritage 2011; Historic England 2015b).
- 4.10.2 Bulk environmental soil samples, for the recovery of plant macrofossils, wood charcoal, small animal bones and other small artefacts, will be taken as appropriate from well-sealed and dateable contexts. In general, features directly associated with particular activities (e.g., pits, latrines, cesspits, hearths, ovens, kilns and crop driers) should be prioritised for sampling over features, such as ditches or postholes, that are likely to contain reworked and residual material.
- 4.10.3 If waterlogged or mineralised deposits are encountered, an appropriate environmental sampling strategy will be agreed with the Viking CCS Heritage Consultees. Specialist guidance will be provided by Wessex Archaeology's geoarchaeological and environmental team, with site visits undertaken if required.
- 4.10.4 Any samples will be of an appropriate size – typically 40 litres for the recovery of environmental evidence from dry contexts, and 10 litres from waterlogged deposits.
- 4.10.5 Following specialist advice, other sampling methods such as monolith, Kubiena or contiguous small bulk (column) samples may be employed to enable investigation of deposits with regard to microfossils (e.g., pollen, diatoms) and macrofossils (e.g., molluscs, insects), soil micromorphological or soil chemical analyses.



5 POST-EXCAVATION METHODS AND REPORTING

5.1 Stratigraphic evidence

- 5.1.1 All written and drawn records, and surveyed data from the evaluation will be collated and checked for consistency. Key data will be transcribed into a database, which can be updated during any future analyses. The preliminary phasing of archaeological features and deposits will be undertaken using stratigraphic relationships and the spot dating from finds, particularly pottery, and any other relevant information.
- 5.1.2 A written description will be made of all archaeologically significant features and deposits that were exposed and excavated, ordered by trench, site subdivision and/or period/phase as appropriate. Detail of all contexts will be provided in trench tables in an appendix to the report.

5.2 Finds evidence

- 5.2.1 All retained finds will, as a minimum, be cleaned, weighed, counted and identified. They will then be recorded to a level appropriate to the aims and objectives of the project. Recording and reporting will conform to the Type 2 (Appraisal) level according to the ClfA (n.d. a) *Toolkit for Specialist Reporting*, to include appropriate quantification, characterisation and assessment of significance and potential. The report will include a table of finds by feature/context or trench.
- 5.2.2 Metalwork from stratified contexts will be X-rayed and, along with other fragile and delicate materials, stored in a stable environment. The X-raying of objects and other conservation needs will be undertaken by Wessex Archaeology's conservation staff or another approved conservation centre.
- 5.2.3 Finds will be suitably bagged and boxed in accordance with the guidance given by the relevant museum and ClfA (2014b).

5.3 Environmental evidence

- 5.3.1 Bulk environmental soil samples will be processed by standard flotation methods. The residues will be fractionated into 5.6/4 mm and 1/0.5 mm and dried if necessary. The coarse residue fraction (>5.6/4 mm), and the fine fraction when appropriate, will be sorted and discarded, with any finds recovered given to the appropriate specialist. The flot will be retained on a 0.25 mm mesh and scanned to assess the range of environmental remains present and their preservation. Unsorted fine residues will be retained until after any analyses and discarded following final reporting (in accordance with the Selection policy, below).
- 5.3.2 In the case of samples from cremation-related deposits the flots will be retained on a 0.25 mm mesh, with residues fractionated into 4 mm, 2 mm and 1 mm. In the case of samples from inhumation burial deposits, the sample will be wet-sieved through 9.5 mm and 1 mm mesh sizes. The coarse fractions (9.5 mm) will be sorted with any finds recovered given to the appropriate specialist together with the finer residues.
- 5.3.3 Any waterlogged samples will be processed by standard waterlogged flotation methods.
- 5.3.4 Recording and reporting will conform to the Type 2 (Appraisal) level according to the ClfA (n.d. a) *Toolkit for Specialist Reporting*, to include appropriate quantification, characterisation and assessment of significance and potential.



5.4 Reporting

General

5.4.1 Following completion of the fieldwork and the evaluation of the stratigraphic, finds and environmental evidence, a draft report will be prepared in general accordance with relevant guidance (ClfA 2023b). The draft report will be submitted for approval to the client and the Viking CCS Heritage Consultees for comment. Once approved, a final version will be submitted.

5.4.2 The report will include the following elements:

- Non-technical summary;
- Project background;
- Archaeological and historical context;
- Aims and objectives;
- Methods;
- Results – stratigraphic, finds and environmental;
- Conclusions in relation to the project aims and objectives, and discussion in relation to the wider local, regional or other archaeological contexts and research frameworks etc;
- Archive preparation and deposition arrangements;
- Appendices, including trench summary tables;
- Illustrations; and
- References.

5.4.3 A copy of the final report will be deposited with the HER, along with surveyed spatial digital data (.dxf or shapefile format).

Publication

5.4.4 If no further mitigation works are undertaken, a short report on the results will be prepared for publication in a suitable journal, if considered appropriate and agreed with the client and the Viking CCS Heritage Consultees.

OASIS

5.4.5 An OASIS (online access to the index of archaeological investigation) record (<http://oasis.ac.uk>) will be created, with key fields completed, and a .pdf version of the final report submitted. Subject to any contractual requirements on confidentiality, copies of the OASIS record will be integrated into the relevant local and national records and published through the Archaeology Data Service (ADS) ArchSearch catalogue.

6 ARCHIVE STORAGE AND CURATION

6.1 Museum

6.1.1 Due to the cross-county nature of the project, North Lincolnshire museum have agreed in principle for Lincoln Museum to be the primary archive holder, with the caveat that if anything of particular importance is found in their collecting area, that element will be deposited with them. Lincoln Museum has been notified of the project, prior to fieldwork commencing and have issued an accession number: LCNCC: 2024.69.



6.2 Transfer of title

- 6.2.1 The legal owner of any finds recovered (i.e., the landowner), with the exception of human remains and any objects covered by the *Treasure Act 1996*, will be contacted to request transfer of their ownership to the museum via a written agreement.

6.3 Preparation of archive

Physical archive

- 6.3.1 The physical archive will be prepared following the standard conditions for the acceptance of excavated archaeological material by Lincoln Museum, and in general following nationally recommended guidelines (Brown 2011; ClfA 2014b; SMA 1995). The archive will usually be deposited within one year of completion of the project, with the agreement of the client.

Digital archive

- 6.3.2 The digital archive will be deposited with a Trusted Digital Repository, in this instance the Archaeology Data Service (ADS), to ensure its long-term curation. Digital data will be prepared following ADS guidelines (ADS 2013 and online guidance) and accompanied by metadata.

6.4 Selection strategy

- 6.4.1 It is widely accepted that not all records and materials (artefacts and ecofacts) collected or created during an archaeological project require preservation in perpetuity. These records and materials will be subject to selection in order to establish what will be retained for long-term curation, with the aim of ensuring that all elements selected to be retained are appropriate to establish the significance of the project and support future research, outreach, engagement, display and learning activities, i.e., the retained archive should fulfil the requirements of future researchers and the receiving museum.
- 6.4.2 The selection strategy, which details the project-specific selection process, is underpinned by national guidelines on selection and retention (Brown 2011, section 4) and generic selection policies (SMA 1993; Wessex Archaeology's internal selection policy) and follows ClfA's (n.d. b) *Toolkit for Selecting Archaeological Archives*. It should be agreed by all stakeholders (Wessex Archaeology's specialists, external specialists, local authority, museum) and fully documented in the project archive.
- 6.4.3 The project-specific selection strategy (Appendix 2) currently includes the on-site collection strategy for finds. The selection strategy will be modified as the project progresses, with specific review points at assessment stage, and on project completion prior to final preparation of the archive for deposition.

6.5 Security copy

- 6.5.1 In line with current best practice (e.g., Brown 2011), on completion of the project a security copy of the written records will be prepared in the form of a digital PDF/A file.

7 COPYRIGHT

7.1 Archive and report copyright

- 7.1.1 The full copyright of the written/illustrative/digital archive relating to the project will be retained by Wessex Archaeology under the *Copyright, Designs and Patents Act 1988* with all rights reserved. The client will be licenced to use each report for the purposes that it was produced in relation to the project as described in the specification. The museum, however,



will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use conforms to the *Copyright and Related Rights Regulations 2003*.

- 7.1.2 Information relating to the project will be deposited with the Historic Environment Record (HER), where it can be freely copied without reference to Wessex Archaeology for the purposes of archaeological research, or development control within the planning process.

7.2 Third party data copyright

- 7.2.1 This document, the report and the project archive may contain material that is non-Wessex Archaeology copyright (e.g., Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which Wessex Archaeology are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of the *Copyright, Designs and Patents Act 1988* with regard to multiple copying and electronic dissemination of such material.

8 WESSEX ARCHAEOLOGY PROCEDURES

8.1 External quality standards

- 8.1.1 Wessex Archaeology is registered as an archaeological organisation with the Chartered Institute for Archaeologists (CIfA) and fully endorses its *Code of Conduct* (CIfA 2014c) and *Regulations for Professional Conduct* (CIfA 2019). All staff directly employed or subcontracted by Wessex Archaeology will be of a standard approved by Wessex Archaeology, and archaeological staff will be employed in line with the CIfA codes of practice and will normally be members of the CIfA.

8.2 Personnel

- 8.2.1 The fieldwork will be directed and supervised by an experienced archaeologist from Wessex Archaeology's core staff. The overall responsibility for the conduct and management of the project will be held by one of Wessex Archaeology's project managers, who will visit the fieldwork as appropriate to monitor progress and to ensure that the scope of works is adhered to. Where required, monitoring visits may also be undertaken by Wessex Archaeology's Health and Safety manager.
- 8.2.2 The assessment of any finds and environmental data will be undertaken by Wessex Archaeology core staff or external specialists, using Wessex Archaeology's standard methods, under the supervision of the departmental managers and the overall direction of the project manager. A complete list of specialists is provided in Appendix 1.
- 8.2.3 The following key staff are proposed:
- Project Manager Catherine Douglas
 - Fieldwork Director John Hirst
- 8.2.4 Wessex Archaeology reserves the right, where necessary due to unforeseen circumstances, to replace nominated personnel with alternative members of staff of comparable expertise and experience.



8.3 Internal quality standards

- 8.3.1 Wessex Archaeology is an ISO 9001 accredited organisation (certificate number FS 606559), confirming the operation of a Quality Management System which complies with the requirements of ISO 9001:2015 – covering professional archaeological and heritage advice and services. The award of the ISO 9001 certificate, independently audited by the British Standards Institution (BSI), demonstrates Wessex Archaeology's commitment to providing quality heritage services to our clients.
- 8.3.2 Wessex Archaeology assigns responsibility to individual managers for the successful completion of all aspects of a project, including reporting. This includes monitoring progress and quality; controlling the budget from inception to completion; and all aspects of health and safety for the project. At all stages, the project manager will carefully assess and monitor performance of staff and adherence to objectives, timetables and budgets, while the manager's own performance is monitored by the team leader or regional director. The technical managers in the Graphics, Research, GeoServices and IT sections provide additional assistance and advice.
- 8.3.3 All staff are responsible for following Wessex Archaeology's quality standards but the overall adherence to and setting of these standards is the responsibility of the senior management team who, in consultation with the team leaders/regional directors, also ensure projects are adequately programmed and resourced within Wessex Archaeology's portfolio of project commitments.

8.4 Health and safety

- 8.4.1 All works will be undertaken in accordance with the *Health and Safety at Work Act 1974*; the *Management of Health and Safety at Work Regulations 1999* and all other applicable health and safety legislation.
- 8.4.2 Wessex Archaeology is an ISO 45001 accredited organisation (certificate number OHS 744383), confirming the operation of an Occupational Health and Safety Management System that complies with the requirements of ISO 45001:2018. The award of the ISO 45001 certificate, independently audited by the British Standards Institution (BSI), demonstrates Wessex Archaeology's commitment to delivering effective risk management across all its activities.
- 8.4.3 Wessex Archaeology will, for all projects, produce one or more task and site-specific risk assessments and method statements (RAMS), which will ensure our staff can work safely on the site. A copy of the RAMS and our Health and Safety Policy can be provided to the client. All staff on our sites will be made fully familiar with the RAMS before work commences.
- 8.4.4 We aim to work collaboratively on health and safety with clients and, where separately appointed, with principal contractors. We expect clients to provide in good time all the necessary risk information about a site that may affect the archaeological work, such as locations of utilities or any known ground contamination. We will comply with the project specific Personal Protective Equipment (PPE) requirements, and any other specific additional requirements of the Principal Contractor.
- 8.4.5 All fieldwork staff are certified through the Construction Skills Certification Scheme (CSCS) and have undergone UKATA Asbestos Awareness Training. Staff who carry out specific tasks are suitably trained and competent to do so through training accredited by the



Construction Industry Training Board (CITB), Institution of Occupational Safety & Health (IOSH) and the National Plant Operators Recognitions Scheme (NPORS).

8.5 Insurance

- 8.5.1 Wessex Archaeology holds Employers Liability (£15,000,000), Public Liability (£15,000,000) and Professional Indemnity (£10,000,000) policies.



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APPENDICES

Appendix 1 Finds and environmental specialists

Name	Qualifications	Specialism
Sander Aerts	BA, MSc	Archaeoentomological remains, animal bone, marine shell and archaeobotanical remains (carbonised)
Phil Andrews	BSc; FSA; MCIfA	Slag and metal working debris
Richard Bradley	BA; MA; MCIfA	Battlefield artefacts, particularly Civil War period lead shot
Ceridwen Boston	BSocSc; MA; MSc; DPhil	Osteoarchaeology; funerary archaeology
Elina Brook	BA; MA; PCIfA	Later prehistoric and Romano-British pottery, and small finds
Alex Brown	BA; MSc; PhD	Geoarchaeology, palynology
Liz Chambers	BA; MSc	Geoarchaeology
Fiona Eaglesham	BSc; MSc	Archaeobotanical remains
Erica Gittins	BA; MA; PhD	Prehistoric flint
Phil Harding	PhD	Prehistoric flint, particularly Palaeolithic flint
Lorrain Higbee	BSc; MSc; MCIfA	Animal bone
Jessica Irwin	BSc	Post-medieval finds
Matt Leivers	BA; PhD; ACIfA	Prehistoric pottery and flint
Inés López-Dóriga	BA; MA; PhD	Archaeobotanical remains
Erica Macey-Bracken	BA; ACIfA	Post-medieval finds, ceramic building material and worked wood
Katie Marsden	BSc	Pottery from prehistoric to post-medieval/modern. Metalwork of all periods, including coins. Small and bulk finds including fired clay, ceramic building material, worked bone
Jacqueline McKinley	BTech; FSA	Human remains (inhumations and cremations)
Nicki Mulhall		Geoarchaeology and archaeobotanical remains
Emma Robertson	BA; MSc	Human remains (inhumations)
Megan Scantlebury	BA, MSc	Archaeobotanical remains
Rachael Seager Smith	BA; MCIfA	Pottery with particular emphasis on Roman ceramics; and metalwork, fired clay, ceramic building material, stone, worked bone, shale, glass, and wall plaster
Andrew Shaw	BA; MA; PhD	Palaeolithic lithic artefacts and Pleistocene geoarchaeology
Mark Stewart	BA; MPhil	Prehistoric flint. Worked stone, ceramic building material, glass, fired clay
Amy Thorp	BA; MA	Pottery with emphasis on Roman ceramics, small finds
Ed Treasure	BSc; MRes; PhD	Archaeobotanical remains, including plant remains and charcoal/wood
Kevin Trott	BA	Pottery from the Iron Age to early modern period, with emphasis on later Iron Age/Romano-British and medieval to post-medieval periods. Ceramic building material, fired clay/briquetage, metalwork/small finds, clay tobacco pipes, worked bone, stone artefacts, shale, glass, wall plaster, leather, marine shell
Thomas Wicks	BA; MA	Conservation of objects



Appendix 2. SELECTION STRATEGY

Project Information

Project name		
Viking Carbon Capture Storage (CCS)		
Project code(s)		
286440		
Version control		
Issue	Date	Description/summary of revisions
1	19/03/2024	Selection strategy created
2	/	Revision at project review/assessment/reporting stage
3	/	Revision at archiving stage
Project management		
Organisation	Wessex Archaeology (WA)	
Project Manager	Fieldwork: Catherine Douglas, MCIfA Post-excavation: Kirsten Egging Dinwiddy, MCIfA	
Archaeological Archive Manager	Jessica Irwin MCIfA	
Stakeholders		Date Contacted
Collecting Institution(s)	Lincoln Museum, Lisa Mitchell (Primary Repository TBC) North Lincolnshire Museum, Rose Nicholson Archaeology Data Service	1 st March 2024
Project Lead / Project Assurance	Lead: John Hirst Assurance: Catherine Douglas	N/A
Landowner / Developer	Various Landowners TBC / Harbour Energy	/
Local planning authority (LPA) curatorial service / archaeological advisor	North Lincolnshire Council, North East Lincolnshire Council, East Lindsey District Council, West Lindsey District Council along with Lincolnshire County Council	/
Other (external)	External finds and environmental specialists	N/A
Other (internal)	WA Finds Manager (Rachael Seager Smith) WA Environmental Manager (Sander Aerts) WA Geomatics Manager (Chris Breeden) WA Lead Archivist (Jessica Irwin) WA finds and environmental specialists (see project design/WSI) WA archives team (see project design/WSI)	N/A; briefed as part of standard project process
Resources		
Resources required	WA finds and environmental specialists; external finds and environmental specialists (where applicable); WA archives team	
Context		

This overarching selection strategy document is based on the ClfA (n.d.) *Archives Selection Toolkit* and relates to archaeological project work being undertaken by Wessex Archaeology as defined in the project design/WSI(s).

Relevant standards, policies and guidelines consulted include:

General

- Archaeological Archives Forum [AAF] 2011. *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* (revised edition).
- Society of Museum Archaeologists [SMA] 1993. *Selection, Retention and Dispersal of Archaeological Collections*. London: Society of Museum Archaeologists.
- Lincolnshire County Council Culture Service: Collections Development Policy (Museums) 2022–2025 <https://lincolnshire.moderngov.co.uk/documents/s50877/Appendix%20A%20-%20Collections%20Development%20Policy%20Museums%202022-2025.pdf>
- Guidelines for deposition of Archaeological Archive with North Lincolnshire Museums 2021
- Lincolnshire County Council: Archaeological Archives Deposition Guidelines (Chapter 17, Lincolnshire Archaeological Handbook v4.1 May 2017)

Relevant research agendas

- Research Frameworks 2023. East Midlands Historic Environment Research Framework. [REDACTED]

Finds

- Barclay, A., Knight, D., Booth, P., Evans, J., Brown, D. H., and Wood, I. 2016. *A Standard for Pottery Studies in Archaeology*. PCRG, SGRP and MPRG.
- Chartered Institute for Archaeologists [ClfA] 2014 (revised October 2020). *Standard and guidance for the collection, documentation, conservation, and research of archaeological materials*. Reading: Chartered Institute for Archaeologists.

Environmental

- English Heritage 2008. *Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains*. Swindon: English Heritage.
- English Heritage 2010. *Waterlogged Wood: guidelines on the recording, sampling, conservation and curation of waterlogged wood*. Swindon: English Heritage.
- English Heritage 2011. *Environmental Archaeology. A Guide to Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (2nd edition). Portsmouth: English Heritage.
- Historic England 2015. *Geoarchaeology: using earth sciences to understand the archaeological record*. Swindon: Historic England.
- Historic England 2018. *Waterlogged Organic Artefacts: guidelines on their recovery, analysis and conservation*. Swindon: Historic England.

Research objectives of the project

The research objectives of the project, as stated in the WSI, were broken down into **Aims, General objectives** and **Site-specific objectives**:

Aims

- provide information about the archaeological potential of the site; and
- inform either the scope and nature of any further archaeological work that may be required, or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource) or management strategy.

General objectives

In order to achieve the above aims, the general objectives are to:

- determine the presence or absence of archaeological features, deposits, structures, artefacts or ecofacts within the specified area;



- establish, within the constraints of the evaluation, the extent, character, date, condition and quality of any surviving archaeological remains;
- place any identified archaeological remains within a wider historical and archaeological context in order to assess their significance;
- inform the strategy for any required mitigation via recording, preservation and/or management of identified assets; and
- make available information about the archaeological resource within the site by reporting on the results.

Site-specific objectives

Following consideration of the archaeological potential of the site and the regional research framework (Research Frameworks 2024), the site-specific objectives are to:

- test the results of the geophysical survey (AECOM 2023c);
- To make a record, through measured earthwork survey, of extant ridge and furrow present in fields that will be subject to archaeological evaluation trenching;
- To assess, through metal detecting, survey areas adjacent to the Civil War fortification and the Welbeck Hill Anglo-Saxon cemetery site to inform the potential for evidence relating to these sites to extend in the DCO Site Boundary; and
- To investigate, through a programme of geoarchaeological investigation, the archaeological and palaeoenvironment potential of deeper deposits at:
 - South Killingholme / Immingham (Section 1), where there is a former prehistoric shoreline.
 - North Beck Drain (Section 1), where there is a possible palaeochannel evident in the geophysical survey results.
 - Laceby Beck (Section 3), where there is a potential for alluvial deposits and where trenchless techniques will be utilised to install the pipeline that will require entry and exit pits;
 - Waithe Beck (Section 3), where trenchless techniques will be utilised to install the pipeline that will require entry and exit pits;
 - River Lud/Louth Canal, Alvingham (Section 4), where there is alluvium along the valley floor and where trenchless techniques will be utilised to install the pipeline that will require entry and exit pits;
 - Grayfleet Drain, South Cockerington (Section 4), where there is alluvium along the valley floor and where trenchless techniques will be utilised to install the pipeline that will require entry and exit pits;
 - The Lincolnshire Outmarsh (Section 5), where there are a series of former roddons and tributary channels.

Research themes.

The following research themes, as defined in the East Midlands Historic Environment Research Framework, have been identified as ones to which the project may be able to contribute:

Mesolithic (c. 9500 to c.4000 BC)

Research question	Updated Research Agenda section ref.	Research Objective
How were sites distributed across low-lying and upland areas, and in particular how many sites might be concealed beneath alluvium, colluvium and other masking deposits or beneath the sea?	Spatial distribution of activity: 2.2.2	2B, 2C, 2D, 2G, 2I



What can analyses of palaeochannel fills and other deposits with potential for preserved pollen, charcoal and other organic remains contribute to studies of the earliest stages of woodland clearance and plant domestication?	Environmental change and food procurement strategies: 2.6.1	2A, 2H, 2I
How can we maximise the potential of palaeochannels or coastal peats and other organically rich deposits as sources of data on Early Holocene landscapes and changes in subsistence strategies and diet?	Environmental change and food procurement strategies: 2.6.2	2A, 2H, 2I

Neolithic and Early to Middle Bronze Age (c. 4,000 to c.1150 BC)

Research question	Updated Research Agenda section ref.	Research Objective
How may the region's remarkable variety of upland, lowland and coastal landscapes be surveyed in ways that would permit recognition of significant intra-regional variations in land use?	Exploitation of landscape zones: 3.4.1	3D, 3E
Can we identify locations with a high potential for elucidating variations in arable, pasture and woodland cover between ecological zones (e.g., palaeochannels)?	Exploitation of landscape zones: 3.4.2	3D, 3E, 3I
Can we further refine our knowledge of the selective use of particular landscapes for ritual, agriculture and other activities?	Exploitation of landscape zones: 3.4.3	3E, 3F, 3G
Can we obtain a clearer understanding of temporal and spatial variability in the duration of settlement activity?	Settlement patterns: 3.5.2	3A

Late Bronze Age and Iron Age (c. 1150 BC to AD 43)

Research question	Updated Research Agenda section ref.	Research Objective
How can we expand our knowledge of first millennium BC activity in areas with a poor record of settlement?	Site visibility, prospection and landscape exploration: 4.2.3	4C, 4I
Why are sites of this period comparatively rare in the archaeological record?	Late Bronze Age & Early Iron Age settlement: 4.3.1	4A, 4B, 4C, 4I
Can we shed further light upon the development of field and boundary systems?	Field systems and major linear boundaries: 4.6.1	4C, 4F
What roles may wet, and other natural locations have performed and how might these have changed over time?	Ritual & structured deposition & religion: 4.7.2	4H, 4J

Romano-British (AD 43 to c. 410)

Research question	Updated Research Agenda section ref.	Research Objective
How did the Conquest impact upon rural settlements and landscapes?	Rural settlement patterns and landscapes: 5.4.1	5C, 5H, 5I



How did rural settlements relate to each other and to towns and military sites, and how may this have varied regionally and over time?	Rural settlement patterns and landscapes: 5.4.3	5B, 5C, 5H, 5I
How did field and boundary systems relate to earlier systems of land allotment, and how did these boundary networks develop over time?	Rural settlement patterns and landscapes: 5.4.4	5C, 5H, 5I
What patterns can be discerned in the location of settlements in the landscape?	Rural settlement patterns and landscapes: 5.4.5	5H, 5I
To what extent may communication routes have been influenced by Late Iron Age settlement patterns and routes of movement?	Roads and waterways: 5.7.3	5G, 5I, 5J

Early Medieval (c. AD 410 to 1066)

Research question	Updated Research Agenda section ref.	Research Objective
Can we identify social / political boundaries (e.g., surviving linear earthworks and natural barriers) and / or estate centres?	Demography and the identification of social groups: 6.1.7	6F, 6G, 6I
Can 'sub-Roman' or 'British' cemeteries and cemeteries dating from the late seventh to ninth centuries be identified?	Ritual and belief: 6.2.2	6B
Can we elucidate the production and distribution of Early Medieval salt?	Industry, trade and the emergence of a monetary system: 6.6.3	6H

Medieval (1066 to 1485)

Research question	Updated Research Agenda section ref.	Research Objective
How can we shed further light upon the origin and development of dispersed hamlets and farms in champion and pastoral areas?	Rural settlement: 7.2.2	7E, 7I
Can we clarify further the processes of settlement desertion and shrinkage, especially within zones of dispersed settlement?	Rural settlement: 7.2.4	7E, 7F
How best may we enhance study of the origins and development of early land reclamation and drainage?	The agrarian landscape and food-producing economy: 7.7.6	7E

Post-medieval (1485 to 1750)

Research question	Updated Research Agenda section ref.	Research Objective
How did water management and land drainage change the landscape during this period?	Agricultural landscapes and the food-producing economy: 8.3.2	8E



How can we refine our knowledge of Civil War defences and siege works?	Battlefields and fortifications: 8.7.2	8J
Modern (1750 to present)		
Research question	Updated Research Agenda section ref.	Research Objective
What survives of country estates, parks and gardens, how are they distributed, and how should they be classified?	Estates, parks, gardens and woodlands: 9.5.2	9H
How did Parliamentary enclosure and other agricultural improvements (e.g., water management) impact upon the rural landscape?	Agriculture: 9.6.2	9G
<p>Review Points</p> <p>Consultation with all Stakeholders regarding project-specific selection decisions will be undertaken at a maximum of three project review points:</p> <ol style="list-style-type: none"> 1. Data gathering: on site, if any unforeseen discovery necessitates an amendment to the proposed collection strategy, or if adjustments are made to any sampling strategy 2. End of data gathering (assessment stage) 3. Archive compilation 		

Section 1: Digital Data

Stakeholders		
WA Project Manager; WA Archives Manager; WA Geomatics Manager; LPA curatorial service / archaeological advisor; ADS		
Selection		
This document is designed to link to the project data management plan (DMP).		
To promote long-term future re-use, deposition file formats will be of archival standard, open source and accessible in nature following national guidance and the requirements of the digital repository.		
Any sensitive data will be handled according to Wessex Archaeology data policy to ensure it is stored and transferred securely. The identity of individuals will be protected in line with GDPR. If required, data will be anonymised and redacted. Selection and retention of sensitive data for archival purposes will occur in consultation with the client and relevant stakeholders. Confidential data will not be selected for archiving and will be handled as per contractual obligation.		
Type	Selection strategy	Review points
Site records	Most records will be completed digitally on site (with the exception of registers). All will be selected for deposition.	3
Reports	To include project designs/WSIs, interim reports, client reports and (where possible, subject to copyright restrictions) publication reports. Final versions only will be selected for deposition.	2, 3
Specialist reports	Specialist reports will generally be incorporated in other documents with only minimal editing (reformatting, etc), and will be selected only if the original differs significantly from the incorporated version.	2, 3
Photographic media (site recording)	Substandard and duplicate images will be eliminated; pre-excavation images may not be selected where duplicated by post-excavation shots; working shots will be selected to	2, 3



	include only good quality images with potential for re-use and those integral to understanding features, their inter-relationships and location on site; site condition and reinstatement photos will not be selected.		
Photographic media (objects)	Images of individual or groups of objects, to include those of significance selected for publication and reporting. Substandard and duplicate images will be eliminated; all others will be selected.	3	
Photographic media (community engagement and other activities)	General shots, promotional videos, etc. None will be selected, unless images are generated that are not duplicated in the main site record, but which have specific archaeological value.	3	
Survey data	Site survey data will be used to generate CAD/GIS files for use in post-excavation activities. Shapefiles of both the original tidied survey data, and the final phased drawings will be selected.	2, 3	
Databases and spreadsheets	Context, finds and environmental data in linked databases. Final versions will be selected. Any specialist data submitted separately will also be selected.	2, 3	
Administrative records	Includes invoices, receipts, timesheets, financial information, email correspondence. None will be selected, with the exception of any correspondence relating directly to the archaeology.	3	
De-selected digital data			
De-selected data will be stored on WA secured servers on offsite storage locations during the lifetime of the project. This data may also be used for teaching or reference collections by the museum, or by WA unless otherwise required by contractual or copyright obligations.			
Amendments			
Date	Amendment	Rationale	Stakeholders

Section 2: Documents

Stakeholders		
WA Project Manager; WA Archives Manager; receiving Museum; LPA curatorial service / archaeological advisor		
Selection		
A security copy of all paper/drawn records will be prepared on completion of the project, in the form of a digital PDF/A file. Note that information may be redacted to comply with GDPR legislation.		
Type	Selection strategy	Review points
Site records	Selected records only will be completed in hard copy on site (registers, some graphics). All will be selected for deposition.	3
Reports	Hard copies of all reports (project designs/WSIs, interim reports, post-excavation assessment reports, publication reports). All will be selected for deposition, with the exception of earlier versions of reports which have been clearly superseded.	2, 3
Specialist reports and data	Specialist reports will generally be incorporated in other documents with no significant editing. Supporting data is more likely to be included in the digital archive, but if	2, 3



	supplied in hard copy and not incorporated elsewhere, this will be selected.		
Photographic media	X-radiographic plates: all will be selected.	3	
Working notes	Rough working notes, annotated plans, preliminary versions of matrices etc, will not be selected.	3	
Administrative records	Invoices, receipts, timesheets, financial information, hard copy correspondence. None will be selected, with the exception of any hard copy correspondence relating directly to the archaeology.	3	
De-selected documents			
De-selected sensitive analogue data will be destroyed (shredded) subject to final checking by the WA Archives team with the remainder recycled. Possible exceptions include records retained for business purposes, including promotional material, teaching and internal WA library copies of reports.			
Amendments			
Date	Amendment	Rationale	Stakeholders

Section 3.1 Materials – Artefacts (bulk and registered finds)

Stakeholders		
WA Archives Manager; WA Finds Manager; WA specialists; external specialists (where applicable); receiving Museum; LPA curatorial service / archaeological advisor; landowner		
Selection		
Human remains are not included in this selection strategy; their recovery and subsequent treatment and curation will be governed by a Ministry of Justice licence(s).		
The on-site finds recovery strategy is given below; it is of necessity fairly generic. This will be reviewed and updated at the project assessment stage, once all collected finds have been processed and quantified. Amendments may be made prior to that on site in the event of unforeseen discoveries necessitating adjustments to recovery or sampling strategies (e.g., production sites, large concentrations of building debris, 'burnt mounds').		
Throughout the following section, 'stratified' is taken to include topsoil deposits, while 'unstratified' indicates anything completely separated from context, e.g., spoilheap finds, or surface finds other than those directly associated with underlying features.		
Type	Selection strategy	Review points
Animal bone	All will normally be collected from stratified contexts. Selection could be recommended at next review point, dependent on stratigraphic integrity, condition and size of assemblage.	2, 3
Briquetage and other saltmaking material	All briquetage from stratified contexts will be collected and reviewed at the processing stage. If in situ saltern mounds are encountered, these should be fully recorded on site, with a specialist on hand or making repeated visits during the course of the excavation to assess the nature of the assemblage by examining, for example, form, fabric, dimensions, spatial location, and to advise on a suitable sampling strategy for that particular assemblage. Further selection is likely to be recommended at the next review point.	1 (if large quantities encountered), 2, 3



Building materials (other, e.g., mortar, plaster, <i>opus signinum</i>)	If found <i>in situ</i> , these should be recorded on site and, if appropriate, a small sample of <i>opus signinum</i> or wall plaster (not mortar) retained for further examination. Loose fragments of mortar or <i>opus signinum</i> should not be collected, but their presence on site should be noted. All loose wall plaster will be collected from stratified contexts. Selection likely to be recommended at next review point.	2, 3
Burnt (unworked) flint	All will normally be collected from stratified contexts. Selection likely to be recommended at next review point.	1 (if large quantities encountered), 2, 3
Ceramic building material	All CBM from stratified contexts will be collected and reviewed at the processing stage. If <i>in situ</i> structures are encountered, these should be fully recorded on site, but samples of components may be collected for a closer examination of form, fabric and dimensions. Selection likely to be recommended at next review point.	1 (if large quantities encountered), 2, 3
Ceramic objects	Includes spindlewhorls, loomweights, slingshot, portable kiln furniture, etc. All will be collected, including any unstratified examples.	2, 3
Clay tobacco pipes	All will normally be collected from stratified contexts. Selection likely to be recommended at next review point.	2, 3
Coins	All will be collected, including unstratified finds.	2, 3
Fired clay	Includes structural material ('daub') and undiagnostic fragments. All will be collected from stratified contexts. Selection likely to be recommended at next review point.	2, 3
Glass, vessel and window	All will normally be collected from stratified contexts. Unstratified post-medieval/modern material will not be collected, unless of intrinsic interest. If large-scale post-medieval/modern bottle dumps are encountered, items will be recorded <i>in situ</i> as far as possible, and a small sample collected. Selection likely to be recommended at next review point.	1 (if large quantities encountered), 2, 3
Glass, objects	All will be collected, including unstratified finds	2, 3
Jet, shale, amber	All will be collected, with the possible exception of unstratified unworked shale or shale-working waste. Selection could be recommended at next review point, dependent on condition.	2, 3
Leather and textile	All will be collected, including unstratified finds. Selection could be recommended at next review point, dependent on date and condition.	2, 3
Marine shell	All will normally be collected from stratified contexts. If large-scale dumps are encountered, an appropriate sampling strategy may be employed with the aim of characterising the shell assemblage (species, condition, potential sources, management of oyster beds, etc). All shell-working waste will be collected. Selection likely to be recommended at next review point.	1 (if large quantities encountered), 2, 3
Metalwork	All will be collected from stratified contexts, with the exception of obviously modern (19th-/20th-century) objects found in topsoil/overburden or unstratified. Selection likely to be recommended at next review point.	2, 3



Metalworking residues	All will be normally collected from stratified contexts. Selection likely to be recommended at next review point.	2, 3
Pottery, prehistoric	All will be collected, including unstratified finds.	2, 3
Pottery, all other periods	All will be collected from stratified contexts. From unstratified contexts, only pieces of intrinsic interest will be collected, unless this is the only datable material recovered. Selection could be recommended at next review point.	2, 3
Stone, building	<i>In situ</i> architectural fragments and other building material may be recorded on site rather than collected, and samples taken for geological identification. Other building stone will be collected from stratified contexts. From unstratified contexts, only pieces of intrinsic interest (e.g., architectural fragments). Selection likely to be recommended at next review point.	2, 3
Stone, portable objects	All will be collected from stratified contexts. From unstratified contexts, only identifiable objects.	2, 3
Stone, unworked	Unworked stone will only be collected if considered to be archaeologically significant, i.e., included in features intentionally, or thought to have fulfilled a specific function.	2, 3
Worked bone and antler	Includes finished objects as well as boneworking waste. All will be collected, including unstratified finds.	2, 3
Worked flint	All will be collected.	2, 3
Worked wood	This includes all structural timbers as well as any portable objects (e.g., vessels, implements, etc). Structural timbers found <i>in situ</i> should be recorded stratigraphically but may be sampled for species identification and/or dating without full recovery. All other will be collected, with the exception of unstratified and undiagnostic pieces. Selection could be recommended at next review point.	1 (if <i>in situ</i> finds encountered), 2, 3

Uncollected material

Finds outside the categories proposed for on-site collection will not normally be recorded beyond a general comment on site recording sheets on the presence and nature of large concentrations (e.g., building materials, modern debris), but if specific sampling strategies are employed to deal with, for example, production waste, then a more accurate guide to the actual size of the parent assemblage (and thus the sample percentage) will be given.

Any uncollected material will be left *in situ* or (if collected and then de-selected) re-incorporated into the site.

De-selected material

Consideration will be given to the suitability for use for handling or teaching collections by the museum or Wessex Archaeology, or whether they are of particular interest to the local community. De-selected material will either be returned to the landowner or disposed of. All will be adequately recorded to the appropriate level before de-selection.

Amendments

Date	Amendment	Rationale	Stakeholders

Section 3.2 Materials – Palaeoenvironmental material

Stakeholders



WA Archives Manager; WA Environmental Manager; WA specialists; external specialists (where applicable); receiving Museum; LPA curatorial service / archaeological advisor

Selection

All suitable contexts will be considered for environmental sampling. All environmental sampling will be undertaken following Wessex Archaeology's in-house guidance, which adheres to the principles outlined in Historic England's guidance (English Heritage 2011 and Historic England 2015), and as stated in the relevant project design/WSI(s).

Type	Selection strategy	Review points
Unprocessed samples	In the event of any samples being eliminated from processing due to lack of archaeological significance, these will not be retained.	2, 3
Unsorted residues	Residues from samples not proposed for further analysis will be de-selected, with the possible exception of any taken for the recovery of human remains.	2, 3
Assessed flots with no extracted materials	Assessed flots with no extracted materials are considered to be devoid of any significant environmental evidence and will be de-selected.	2, 3
Assessed or analysed flots with extracted materials	All analysed samples will be selected; assessed flots with extracted materials with no further research potential (to be established on a sample by sample case) may be de-selected.	2, 3
Charred and waterlogged plant remains	All extracted plant remains will be selected	3
Mollusca	All extracted mollusca will be selected	3
All other analysed material (e.g., insects, pollen)	All material will be selected	3

Uncollected material

Any uncollected material will be left *in situ* or re-incorporated into the site.

De-selected material

De-selected material from samples will be disposed of after processing and post-excavation recording. All processed material will be adequately recorded to the appropriate level before de-selection.

Amendments

Date	Amendment	Rationale	Stakeholders



Appendix 3 Trench rationale

Field	Trench	Trench rationale
11	1	Targeting probable and possible archaeology
11	2	Targeting possible archaeology
11	3	Targeting probable archaeology
11	4	Targeting probable archaeology
11	5	Targeting probable archaeology
11	6	Targeting probable archaeology
11	7	Targeting possible archaeology
11	8	Targeting "blank area"
11	9	Targeting ferrous/iron spike spread
13	10	Targeting "blank area"
13	11	Targeting "blank area"
13	12	Targeting "blank area"
13	13	Targeting "blank area"
13	14	Targeting "blank area"
13	15	Targeting "blank area"
13	16	Targeting "blank area"
15	17	Descoped
15	18	Descoped
15	19	Descoped
15	20	Descoped
22	21	Descoped
22	22	Descoped
22	23	Descoped as outside of site boundary
22	24	Targeting "blank area"
22	25	Targeting historic feature
22	26	Targeting probable archaeology, possible archaeology, and historic feature
22	27	Targeting probable archaeology
22	28	Targeting possible archaeology and historic feature
22	29	Targeting probable archaeology and historic feature
22	30	Targeting probable archaeology
22	31	Targeting probable archaeology
22	32	Targeting "blank area"
22	33	Targeting "blank area"
22	34	Targeting "blank area"
22	35	Targeting possible archaeology
22	36	Targeting "blank area"
22	37	Targeting "blank area"
22	38	Targeting "blank area"
22	39	Targeting "blank area"
22	40	Targeting "blank area"
23	41	Targeting probable and possible archaeology
24	42	Targeting probable archaeology
24	43	Targeting "blank area"
24	44	Targeting probable and possible archaeology
24	45	Targeting probable archaeology
24	46	Targeting probable archaeology
24	47	Targeting probable archaeology



Field	Trench	Trench rationale
24	48	Targeting probable archaeology
24	49	Targeting probable archaeology
25	50	Targeting possible archaeology
25	51	Targeting "blank area"
25	52	Targeting "blank area"
25	53	Targeting ferrous/iron spike spread
25	54	Targeting possible archaeology
25	55	Targeting "blank area"
25	56	Targeting "blank area"
25	57	Targeting "blank area"
25	58	Targeting possible archaeology
25	59	Targeting "blank area"
25	60	Targeting possible archaeology
25	61	Targeting possible archaeology
26	62	Targeting "blank area"
26	63	Targeting "blank area"
26	64	Targeting historic feature
26	65	Targeting historic feature
26	66	Targeting possible archaeology
26	67	Targeting possible archaeology
26	68	Targeting "blank area"
27	69	Targeting "blank area"
27	70	Targeting historic feature
27	71	Targeting historic feature
27	72	Targeting historic feature
27	73	Targeting "blank area"
27	74	Targeting "blank area"
27	75	Targeting "blank area"
29	76	Targeting probable archaeology
29	77	Targeting probable archaeology
29	78	Targeting probable and possible archaeology
29	79	Targeting probable archaeology
29	80	Targeting probable archaeology and ferrous/iron spike spread
29	81	Targeting "blank area"
29	82	Targeting possible archaeology
29	83	Targeting "blank area"
29	84	Targeting "blank area"
29	85	Targeting "blank area"
29	86	Targeting historic feature
30	87	Targeting possible archaeology
30	88	Targeting historic feature
30	89	Targeting "blank area"
30	90	Targeting possible archaeology
30	91	Targeting "blank area"
30	92	Targeting "blank area"
30	93	Targeting "blank area"
31	94	Targeting ferrous/iron spike spread
31	95	Targeting possible archaeology and ferrous/iron spike spread
31	96	Targeting ferrous/iron spike spread
31	97	Targeting ferrous/iron spike spread



Field	Trench	Trench rationale
31	98	Targeting ferrous/iron spike spread
31	99	Targeting ferrous/iron spike spread
31	100	Targeting ferrous/iron spike spread
32	101	Targeting possible archaeology and ferrous/iron spike spread
32	102	Targeting ferrous/iron spike spread
32	103	Targeting probable archaeology and ferrous/iron spike spread
32	104	Targeting probable archaeology and ferrous/iron spike spread
32	105	Targeting probable archaeology, possible archaeology and ferrous/iron spike spread
32	106	Targeting probable archaeology, possible archaeology and ferrous/iron spike spread
32	107	Targeting ferrous/iron spike spread
32	108	Targeting probable archaeology and ferrous/iron spike spread
32	109	Targeting ferrous/iron spike spread
33	110	Targeting probable and possible archaeology
33	111	Targeting ferrous/iron spike spread
33	112	Targeting ferrous/iron spike spread
33	113	Targeting ferrous/iron spike spread
33	114	Targeting ferrous/iron spike spread
33	115	Targeting ferrous/iron spike spread
33	116	Targeting "blank area"
37	117	Targeting "blank area"
37	118	Targeting "blank area"
38	119	Targeting probable archaeology
38	120	Targeting probable archaeology
38	121	Targeting probable and possible archaeology
38	122	Targeting probable archaeology
38	123	Targeting probable and possible archaeology
38	124	Targeting probable archaeology
38	125	Targeting probable archaeology
40	126	Targeting "blank area"
40	127	Targeting "blank area"
40	128	Targeting possible archaeology
40	129	Targeting possible archaeology
40	130	Targeting possible archaeology
40	131	Targeting possible archaeology
41	132	Targeting possible archaeology
41	133	Targeting possible archaeology
41	134	Targeting possible archaeology
41	135	Targeting possible archaeology
41	136	Targeting possible archaeology
41	137	Targeting possible archaeology
41	138	Targeting possible archaeology
41	139	Targeting possible archaeology
42	140	Targeting ferrous/iron spike spread
42	141	Targeting ferrous/iron spike spread
42	142	Targeting "blank area"
42	143	Targeting "blank area"
43	144	Targeting "blank area"
43	145	Targeting "blank area"



Field	Trench	Trench rationale
43	146	Targeting "blank area"
43	147	Targeting "blank area"
43	148	Targeting "blank area"
44	149	Targeting "blank area"
44	150	Targeting "blank area"
45	151	Targeting probable archaeology
45	152	Targeting probable archaeology
45	153	Targeting probable archaeology
45	154	Targeting probable archaeology
45	155	Targeting probable archaeology
45	156	Targeting probable archaeology
46	157	Targeting probable and possible archaeology
46	158	Targeting "blank area"
46	159	Targeting "blank area"
46	160	Targeting "blank area"
49	161	Targeting ferrous/iron spike spread
49	162	Targeting ferrous/iron spike spread
49	163	Targeting ferrous/iron spike spread
49	164	Targeting ferrous/iron spike spread
49	165	Targeting ferrous/iron spike spread
49	166	Targeting ferrous/iron spike spread
49	167	Targeting ferrous/iron spike spread
49	168	Targeting ferrous/iron spike spread
49	169	Targeting ferrous/iron spike spread
49	170	Targeting ferrous/iron spike spread
49	171	Targeting ferrous/iron spike spread
50	172	Targeting ferrous/iron spike spread
50	173	Targeting ferrous/iron spike spread
50	174	Targeting possible archaeology and ferrous/iron spike spread
50	175	Targeting possible archaeology and ferrous/iron spike spread
50	176	Targeting ferrous/iron spike spread
50	177	Targeting ferrous/iron spike spread
50	178	Targeting ferrous/iron spike spread
50	179	Targeting ferrous/iron spike spread
51	180	Targeting ferrous/iron spike spread
51	181	Targeting "blank area"
52a	182	Targeting ferrous/iron spike spread
52a	183	Targeting ferrous/iron spike spread
52a	184	Targeting ferrous/iron spike spread
52a	185	Targeting ferrous/iron spike spread
52a	186	Targeting ferrous/iron spike spread
52a	187	Targeting ferrous/iron spike spread
53a	188	Targeting "blank area"
53b	189	Targeting "blank area"
53b	190	Targeting "blank area"
53b	191	Targeting "blank area"
53b	192	Targeting "blank area"
54a	193	Targeting "blank area"
54a	194	Targeting "blank area"
54a	195	Targeting "blank area"



Field	Trench	Trench rationale
54a	196	Targeting "blank area"
54a	197	Targeting "blank area"
54a	198	Targeting "blank area"
54a	199	Targeting "blank area"
55a	200	Targeting "blank area"
55a	201	Targeting "blank area"
55a	202	Targeting "blank area"
55a	203	Targeting "blank area"
55a	204	Targeting "blank area"
56a	205	Targeting ferrous/iron spike spread
56a	206	Targeting "blank area"
56a	207	Targeting "blank area"
56a	208	Targeting "blank area"
56a	209	Targeting "blank area"
57a	210	Targeting possible archaeology
57a	211	Targeting possible archaeology
57a	212	Targeting "blank area"
57b	213	Targeting probable and possible archaeology
57b	214	Targeting probable archaeology
57b	215	Targeting probable and possible archaeology
57b	216	Targeting "blank area"
58a	217	Targeting "blank area"
58a	218	Targeting "blank area"
58a	219	Targeting "blank area"
58a	220	Targeting "blank area"
58a	221	Targeting "blank area"
58a	222	Targeting "blank area"
58a	223	Targeting "blank area"
59	224	Targeting "blank area"
59	225	Targeting "blank area"
59	226	Targeting "blank area"
59	227	Targeting "blank area"
59	228	Targeting "blank area"
59	229	Targeting "blank area"
59	230	Targeting "blank area"
59	231	Targeting "blank area"
59	232	Targeting "blank area"
59	233	Targeting "blank area"
59	234	Targeting "blank area"
59	235	Targeting "blank area"
60	236	Targeting "blank area"
61	237	Targeting "blank area"
62	238	Targeting "blank area"
64	239	Targeting possible archaeology
64	240	Targeting possible archaeology
64	241	Targeting possible archaeology
64	242	Targeting "blank area"
64	243	Targeting "blank area"
64	244	Targeting "blank area"
64	245	Targeting "blank area"



Field	Trench	Trench rationale
64	246	Targeting "blank area"
66	247	Targeting "blank area"
66	248	Targeting "blank area"
66	249	Targeting ferrous/iron spike spread
66	250	Targeting possible archaeology
66	251	Targeting possible archaeology
66	252	Targeting "blank area"
67	253	Targeting "blank area"
68a	254	Targeting "blank area"
68a	255	Targeting "blank area"
68a	256	Targeting "blank area"
69a	257	Targeting "blank area"
69a	258	Targeting "blank area"
69a	259	Targeting "blank area"
69a	260	Targeting "blank area"
70a	261	Targeting possible archaeology
70a	262	Targeting possible archaeology
70a	263	Targeting possible archaeology
70a	264	Targeting "blank area"
70a	265	Targeting "blank area"
70a	266	Targeting probable archaeology
70a	267	Targeting probable archaeology
70a	268	Targeting probable and possible archaeology
70a	269	Targeting probable and possible archaeology
70a	270	Targeting probable and possible archaeology
70a	271	Targeting probable and possible archaeology
70a	272	Targeting possible archaeology
70a	273	Targeting possible archaeology
70a	274	Targeting possible archaeology and historic feature
70a	275	Targeting possible archaeology
70a	276	Targeting "blank area"
70a	277	Targeting "blank area"
71	278	Targeting "blank area"
71	279	Targeting "blank area"
71	280	Targeting "blank area"
71	281	Targeting "blank area"
71	282	Targeting "blank area"
72	283	Targeting "blank area"
72	284	Targeting "blank area"
72	285	Targeting "blank area"
72	286	Targeting "blank area"
72	287	Targeting "blank area"
73	288	Targeting ferrous/iron spike spread
73	289	Targeting ferrous/iron spike spread
73	290	Targeting ferrous/iron spike spread
73	291	Targeting ferrous/iron spike spread
73	292	Targeting ferrous/iron spike spread
73	293	Targeting ferrous/iron spike spread
73	294	Targeting ferrous/iron spike spread
74	295	Targeting "blank area"



Field	Trench	Trench rationale
74	296	Targeting "blank area"
74	297	Targeting "blank area"
74	298	Targeting "blank area"
75a	299	Targeting "blank area"
75a	300	Targeting "blank area"
75a	301	Targeting "blank area"
75a	302	Targeting ferrous/iron spike spread
75a	303	Targeting "blank area"
77a	304	Targeting "blank area"
77a	305	Targeting "blank area"
77a	306	Targeting "blank area"
77a	307	Targeting "blank area"
77a	308	Targeting "blank area"
77a	309	Targeting "blank area"
77a	310	Targeting "blank area"
77a	311	Targeting "blank area"
77a	312	Targeting "blank area"
77a	313	Targeting "blank area"
77a	314	Targeting "blank area"
77a	315	Targeting "blank area"
77a	316	Targeting "blank area"
77a	317	Targeting "blank area"
77a	318	Targeting "blank area"
77a	319	Targeting possible archaeology
77a	320	Targeting "blank area"
77a	321	Targeting possible archaeology
77a	322	Targeting "blank area"
77a	323	Targeting "blank area"
77a	324	Targeting "blank area"
77a	325	Targeting possible archaeology
78	326	Targeting "blank area"
78	327	Targeting "blank area"
78	328	Targeting "blank area"
78	329	Targeting "blank area"
78	330	Targeting "blank area"
78	331	Targeting "blank area"
78	332	Targeting "blank area"
78	333	Targeting "blank area"
78	334	Targeting "blank area"
78	335	Targeting "blank area"
78	336	Targeting "blank area"
78	337	Targeting "blank area"
78	338	Targeting "blank area"
78	339	Targeting "blank area"
78	340	Targeting "blank area"
78	341	Targeting "blank area"
78	342	Targeting "blank area"
78	343	Targeting "blank area"
78	344	Targeting "blank area"
78	345	Targeting "blank area"



Field	Trench	Trench rationale
79	346	Targeting "blank area"
79	347	Targeting "blank area"
79	348	Targeting "blank area"
79	349	Targeting "blank area"
79	350	Targeting "blank area"
79	351	Targeting "blank area"
80	352	Targeting "blank area"
80	353	Targeting "blank area"
80	354	Targeting historic feature
80	355	Targeting "blank area"
80	356	Targeting "blank area"
80	357	Targeting historic feature
80	358	Targeting "blank area"
80	359	Targeting "blank area"
81	360	Targeting "blank area"
82	361	Targeting "blank area"
86	362	Targeting "blank area"
86	363	Targeting "blank area"
86	364	Targeting "blank area"
86	365	Targeting "blank area"
86	366	Targeting "blank area"
86	367	Targeting historic feature
86	368	Targeting "blank area"
86	369	Targeting "blank area"
86	370	Targeting "blank area"
86	371	Targeting "blank area"
86	372	Targeting "blank area"
86	373	Targeting "blank area"
86	374	Targeting "blank area"
86	375	Targeting historic feature
86	376	Targeting "blank area"
86	377	Targeting "blank area"
86	378	Targeting "blank area"
86	379	Targeting "blank area"
86	380	Targeting "blank area"
86	381	Targeting "blank area"
86	382	Targeting "blank area"
86	383	Targeting "blank area"
86	384	Targeting "blank area"
88	385	Targeting "blank area"
88	386	Targeting "blank area"
88	387	Targeting "blank area"
89	388	Targeting "blank area"
89	389	Targeting "blank area"
89	390	Targeting "blank area"
89	391	Targeting "blank area"
89	392	Targeting "blank area"
89	393	Targeting "blank area"
89	394	Targeting "blank area"
90	395	Targeting "blank area"



Field	Trench	Trench rationale
90	396	Targeting "blank area"
90	397	Targeting historic feature
90	398	Targeting historic feature
90	399	Targeting "blank area"
90	400	Targeting "blank area"
90	401	Targeting "blank area"
90	402	Targeting "blank area"
91	403	Targeting "blank area"
91	404	Targeting "blank area"
91	405	Targeting "blank area"
91	406	Targeting "blank area"
91	407	Targeting "blank area"
91	408	Targeting "blank area"
91	409	Targeting "blank area"
92	410	Targeting ferrous/iron spike spread
92	411	Targeting "blank area"
92	412	Targeting "blank area"
92	413	Targeting ferrous/iron spike spread
92	414	Targeting "blank area"
92	415	Targeting "blank area"
92	416	Targeting "blank area"
92	417	Targeting "blank area"
93	418	Targeting "blank area"
93	419	Targeting "blank area"
93	420	Targeting "blank area"
93	421	Targeting "blank area"
93	422	Targeting "blank area"
95	423	Targeting "blank area"
95	424	Targeting possible archaeology
95	425	Targeting "blank area"
95	426	Targeting "blank area"
95	427	Targeting "blank area"
95	428	Targeting "blank area"
95	429	Targeting ferrous/iron spike spread
95	430	Targeting "blank area"
97	431	Targeting "blank area"
97	432	Targeting "blank area"
97	433	Targeting "blank area"
97	434	Targeting "blank area"
97	435	Targeting "blank area"
97	436	Targeting "blank area"
97	437	Targeting "blank area"
97	438	Targeting "blank area"
97	439	Targeting "blank area"
97	440	Targeting "blank area"
97	441	Targeting "blank area"
97	442	Targeting "blank area"
97	443	Targeting "blank area"
97	444	Targeting "blank area"
98	445	Targeting "blank area"



Field	Trench	Trench rationale
98	446	Targeting "blank area"
98	447	Targeting "blank area"
99	448	Targeting possible archaeology
99	449	Targeting "blank area"
99	450	Targeting "blank area"
99	451	Targeting possible archaeology
99	452	Targeting "blank area"
100	453	Targeting "blank area"
100	454	Targeting "blank area"
100	455	Targeting "blank area"
100	456	Targeting "blank area"
101	457	Targeting ferrous/iron spike spread
101	458	Targeting "blank area"
101	459	Targeting "blank area"
102	460	Targeting ferrous/iron spike spread
102	461	Targeting probable archaeology
102	462	Targeting probable archaeology
103	463	Targeting probable archaeology
103	464	Targeting probable archaeology
103	465	Targeting probable archaeology and ferrous/iron spike linear trend
103	466	Targeting probable archaeology and ferrous/iron spike linear trend
103	467	Targeting probable archaeology and ferrous/iron spike linear trend
103	468	Targeting possible archaeology and ferrous/iron spike linear trend
103	469	Targeting possible archaeology and ferrous/iron spike linear trend
103	470	Targeting possible archaeology
103	471	Targeting ferrous/iron spike linear trend
103	472	Targeting possible archaeology and ferrous/iron spike linear trend
103	473	Targeting possible archaeology and ferrous/iron spike linear trend
104	474	Targeting ferrous/iron spike linear trend
104	475	Targeting ferrous/iron spike linear trend
105	476	Targeting "blank area"
105	477	Targeting historic feature
106	478	Targeting ferrous/iron spike linear trend
106	479	Targeting ferrous/iron spike linear trend
106	480	Targeting ferrous/iron spike linear trend
108	481	Targeting "blank area"
108	482	Targeting "blank area"
108	483	Targeting historic feature and ferrous/iron spike linear trend
108	484	Targeting ferrous/iron spike linear trend
108	485	Targeting "blank area"
109	486	Targeting probable archaeology
109	487	Targeting probable archaeology
109	488	Targeting probable archaeology
109	489	Targeting probable archaeology
109	490	Targeting probable archaeology
109	491	Targeting probable archaeology
109	492	Targeting "blank area"
109	493	Targeting historic feature
109	494	Targeting "blank area"
109	495	Targeting "blank area"



Field	Trench	Trench rationale
109	496	Targeting "blank area"
109	497	Targeting "blank area"
109	498	Targeting "blank area"
110	499	Targeting "blank area"
110	500	Targeting "blank area"
110	501	Targeting "blank area"
111	502	Targeting "blank area"
111	503	Targeting "blank area"
111	504	Targeting possible archaeology
111	505	Targeting possible archaeology
112	506	Targeting possible archaeology
112	507	Targeting "blank area"
112	508	Targeting "blank area"
112	509	Targeting "blank area"
113	510	Targeting "blank area"
113	511	Targeting "blank area"
113	512	Targeting "blank area"
114	513	Targeting "blank area"
114	514	Targeting "blank area"
114	515	Targeting "blank area"
114	516	Targeting "blank area"
114	517	Targeting "blank area"
115	518	Targeting "blank area"
115	519	Targeting possible archaeology
115	520	Targeting possible archaeology
115	521	Targeting probable archaeology
115	522	Targeting probable archaeology
116	523	Targeting "blank area"
116	524	Targeting "blank area"
116	525	Targeting "blank area"
116	526	Targeting "blank area"
116	527	Targeting "blank area"
116	528	Targeting "blank area"
117	529	Targeting "blank area"
117	530	Targeting "blank area"
118	531	Targeting "blank area"
118	532	Targeting "blank area"
118	533	Targeting "blank area"
118	534	Targeting "blank area"
118	534	Targeting "blank area"
118	536	Targeting "blank area"
119	537	Targeting "blank area"
119	538	Targeting "blank area"
119	539	Targeting "blank area"
121	540	Targeting "blank area"
121	541	Targeting "blank area"
121	542	Targeting "blank area"
121	543	Targeting "blank area"
121	544	Targeting "blank area"
121	545	Targeting "blank area"



Field	Trench	Trench rationale
122	546	Targeting "blank area"
122	547	Targeting "blank area"
123	548	Targeting possible archaeology
123	549	Targeting possible archaeology
123	550	Targeting possible archaeology
123	551	Targeting ferrous/iron spike spread
123	552	Targeting ferrous/iron spike spread
123	553	Targeting "blank area"
123	554	Targeting "blank area"
123	555	Targeting "blank area"
123	556	Targeting "blank area"
123	557	Targeting ferrous/iron spike spread
124	558	Targeting "blank area"
124	559	Targeting "blank area"
124	560	Targeting "blank area"
125	561	Targeting "blank area"
125	562	Targeting "blank area"
125	563	Targeting "blank area"
125	564	Targeting "blank area"
125	565	Targeting "blank area"
126	566	Targeting "blank area"
126	567	Targeting "blank area"
126	568	Targeting "blank area"
126	569	Targeting "blank area"
126	570	Targeting "blank area"
128	571	Targeting probable archaeology
128	572	Targeting probable archaeology
128	573	Targeting probable archaeology
128	574	Targeting probable archaeology
128	575	Targeting probable archaeology
129	576	Targeting "blank area"
129	577	Targeting probable archaeology
129	578	Targeting probable archaeology
129	579	Targeting probable archaeology
130	580	Targeting "blank area"
130	581	Targeting probable archaeology
130	582	Targeting probable archaeology and burned area (spread)
130	583	Targeting probable archaeology
130	584	Targeting probable archaeology and burned area (spread)
130	585	Targeting probable archaeology and burned area (spread)
130	586	Targeting probable archaeology
131	587	Targeting "blank area"
131	588	Targeting "blank area"
132	589	Targeting "blank area"
132	590	Targeting "blank area"
132	591	Targeting "blank area"
132	592	Targeting "blank area"
132	593	Targeting "blank area"
133	594	Targeting "blank area"
133	595	Targeting "blank area"



Field	Trench	Trench rationale
133	596	Targeting "blank area"
133	597	Targeting "blank area"
134	598	Targeting "blank area"
134	599	Targeting "blank area"
134	600	Targeting "blank area"
135	601	Targeting probable archaeology
135	602	Targeting probable archaeology
135	603	Targeting probable archaeology
135	604	Targeting "blank area"
135	605	Targeting "blank area"
135	606	Targeting "blank area"
135	607	Targeting "blank area"
135	608	Targeting possible archaeology
135	609	Targeting possible archaeology
135	610	Targeting "blank area"
136	611	Targeting "blank area"
136	612	Targeting "blank area"
136	613	Targeting "blank area"
136	614	Targeting "blank area"
137	615	Targeting "blank area"
137	616	Targeting "blank area"
137	617	Targeting "blank area"
137	618	Targeting "blank area"
137	619	Targeting "blank area"
137	620	Targeting "blank area"
138	621	Targeting "blank area"
138	622	Targeting "blank area"
139	623	Targeting "blank area"
139	624	Targeting "blank area"
140	625	Targeting "blank area"
140	626	Targeting "blank area"
140	627	Targeting "blank area"
140	628	Targeting "blank area"
141	629	Targeting possible archaeology
141	630	Targeting "blank area"
142	631	Targeting possible archaeology
142	632	Targeting possible archaeology
142	633	Targeting possible archaeology
142	634	Targeting possible archaeology
142	635	Targeting possible archaeology
142	636	Targeting possible archaeology
143	637	Targeting ferrous/iron spike spread
143	638	Targeting "blank area"
143	639	Targeting "blank area"
144	640	Targeting "blank area"
144	641	Targeting "blank area"
144	642	Targeting ferrous/iron spike spread
144	643	Targeting "blank area"
144	644	Targeting ferrous/iron spike spread
145	645	Targeting "blank area"



Field	Trench	Trench rationale
145	646	Targeting "blank area"
145	647	Targeting "blank area"
145	648	Targeting "blank area"
145	649	Targeting "blank area"
145	650	Targeting "blank area"
145	651	Targeting "blank area"
145	652	Targeting "blank area"
145	653	Targeting "blank area"
145	654	Targeting "blank area"
145	655	Targeting "blank area"
145	656	Targeting "blank area"
145	657	Targeting "blank area"
145	658	Targeting "blank area"
145	659	Targeting "blank area"
145	660	Targeting "blank area"
145	661	Targeting "blank area"
147	662	Targeting "blank area"
147	663	Targeting "blank area"
147	664	Targeting "blank area"
147	665	Targeting "blank area"
147	666	Targeting "blank area"
147	667	Targeting "blank area"
148	668	Targeting "blank area"
148	669	Targeting "blank area"
148	670	Targeting "blank area"
148	671	Targeting "blank area"
148	672	Targeting "blank area"
149	673	Targeting "blank area"
149	674	Targeting "blank area"
149	675	Descoped due to proximity to chickens
150	676	Targeting "blank area"
150	677	Targeting "blank area"
150	678	Targeting "blank area"
150	679	Targeting "blank area"
150	680	Targeting "blank area"
150	681	Targeting possible archaeology
150	682	Targeting possible archaeology
150	683	Targeting "blank area"
151	684	Targeting possible archaeology
151	685	Targeting possible archaeology
151	686	Targeting possible archaeology
151	687	Targeting "blank area"
151	688	Targeting "blank area"
151	689	Targeting "blank area"
151	690	Targeting "blank area"
151	691	Targeting "blank area"
151	692	Targeting "blank area"
151	693	Targeting "blank area"
151	694	Targeting ferrous/iron spike spread
152	695	Targeting "blank area"



Field	Trench	Trench rationale
152	696	Targeting "blank area"
152	697	Targeting "blank area"
152	698	Targeting "blank area"
153	699	Targeting "blank area"
154	700	Targeting "blank area"
154	701	Targeting "blank area"
155	702	Targeting "blank area"
155	703	Targeting "blank area"
155	704	Targeting "blank area"
155	705	Targeting "blank area"
155	706	Targeting "blank area"
156	707	Targeting "blank area"
156	708	Targeting "blank area"
156	709	Targeting "blank area"
157	710	Targeting "blank area"
157	711	Targeting "blank area"
157	712	Targeting "blank area"
157	713	Targeting "blank area"
157	714	Targeting "blank area"
159	715	Targeting "blank area"
159	716	Targeting "blank area"
159	717	Targeting "blank area"
159	718	Targeting "blank area"
159	719	Targeting "blank area"
159	720	Targeting "blank area"
160	721	Targeting "blank area"
160	722	Targeting "blank area"
161	723	Targeting "blank area"
161	724	Targeting "blank area"
161	725	Targeting "blank area"
161	726	Targeting "blank area"
161	727	Targeting possible archaeology
161	728	Targeting possible archaeology and ferrous/iron spike spread
161	729	Targeting possible archaeology and ferrous/iron spike spread
161	730	Targeting "blank area"
161	731	Targeting possible archaeology
161	732	Targeting possible archaeology
161	733	Targeting "blank area"
162	734	Targeting "blank area"
162	735	Targeting "blank area"
162	736	Targeting "blank area"
162	737	Targeting "blank area"
162	738	Targeting "blank area"
162	739	Targeting "blank area"
163	740	Targeting "blank area"
163	741	Targeting "blank area"
163	742	Targeting "blank area"
163	743	Targeting "blank area"
163	744	Targeting "blank area"
163	745	Targeting "blank area"



Field	Trench	Trench rationale
164	746	Targeting "blank area"
164	748	Targeting "blank area"
164	749	Targeting "blank area"
164	750	Targeting "blank area"
165	751	Targeting "blank area"
169	752	Targeting "blank area"
169	753	Targeting "blank area"
169	754	Targeting "blank area"
169	755	Targeting "blank area"
169	756	Targeting "blank area"
169	757	Targeting "blank area"
169	758	Targeting "blank area"
170	759	Targeting "blank area"
170	760	Targeting "blank area"
170	761	Targeting "blank area"
170	762	Targeting "blank area"
170	763	Targeting "blank area"
170	764	Targeting "blank area"
171	765	Targeting possible archaeology
171	766	Targeting possible archaeology
171	767	Targeting possible archaeology
171	768	Targeting "blank area"
171	769	Targeting "blank area"
173	770	Targeting "blank area"
173	771	Targeting "blank area"
173	772	Targeting "blank area"
173	773	Targeting "blank area"
174	774	Targeting "blank area"
174	775	Targeting "blank area"
174	776	Targeting "blank area"
174	777	Targeting "blank area"
175	778	Targeting "blank area"
175	779	Targeting "blank area"
175	780	Targeting "blank area"
175	781	Targeting "blank area"
176	782	Targeting "blank area"
176	783	Targeting "blank area"
177	784	Targeting "blank area"
177	785	Targeting "blank area"
177	786	Targeting "blank area"
177	787	Targeting "blank area"
177	788	Targeting historic feature
177	789	Targeting "blank area"
177	790	Targeting "blank area"
177	791	Targeting historic feature
177	792	Targeting "blank area"
177	793	Targeting "blank area"
177	794	Targeting "blank area"
178	795	Targeting ferrous/iron spike spread
178	796	Targeting "blank area"



Field	Trench	Trench rationale
178	797	Targeting ferrous/iron spike spread
178	798	Targeting "blank area"
179	799	Targeting "blank area"
179	800	Targeting "blank area"
179	801	Targeting "blank area"
179	802	Targeting possible archaeology
179	803	Targeting possible archaeology
179	804	Targeting possible archaeology
180	805	Targeting "blank area"
180	806	Targeting "blank area"
180	807	Targeting "blank area"
180	808	Targeting "blank area"
180	809	Targeting "blank area"
180	810	Targeting "blank area"
181	811	Targeting "blank area"
181	812	Targeting historic feature
181	813	Targeting "blank area"
182	814	Targeting "blank area"
182	815	Targeting "blank area"
182	816	Targeting "blank area"
183	817	Targeting "blank area"
183	818	Targeting "blank area"
184	819	Targeting "blank area"
184	820	Targeting "blank area"
184	821	Targeting "blank area"
184	822	Targeting "blank area"
184	823	Targeting "blank area"
184	824	Targeting "blank area"
184	825	Targeting "blank area"
184	826	Targeting "blank area"
184	827	Targeting "blank area"
184	828	Targeting ferrous/iron spike spread
185	829	Targeting "blank area"
185	830	Targeting "blank area"
185	831	Targeting "blank area"
185	832	Targeting "blank area"
185	833	Targeting "blank area"
185	834	Targeting "blank area"
186	835	Targeting "blank area"
186	836	Targeting "blank area"
186	837	Targeting "blank area"
186	838	Targeting "blank area"
186	839	Targeting "blank area"
187	840	Targeting ferrous/iron spike spread
187	841	Targeting "blank area"
187	842	Targeting "blank area"
187	843	Targeting "blank area"
187	844	Targeting "blank area"
187	845	Targeting "blank area"
188	846	Targeting possible archaeology and ferrous/iron spike spread



Field	Trench	Trench rationale
188	847	Targeting possible archaeology
188	848	Targeting "blank area"
188	849	Targeting "blank area"
188	850	Targeting "blank area"
188	851	Targeting "blank area"
188	852	Targeting ferrous/iron spike spread
188	853	Targeting ferrous/iron spike spread
188	854	Targeting "blank area"
188	855	Targeting "blank area"
188	856	Targeting possible archaeology
188	857	Targeting "blank area"
189	858	Targeting "blank area"
189	859	Targeting "blank area"
189	860	Targeting ferrous/iron spike spread
189	861	Targeting "blank area"
189	862	Targeting "blank area"
189	863	Targeting "blank area"
189	864	Targeting "blank area"
189	865	Targeting "blank area"
190	866	Targeting "blank area"
190	867	Targeting "blank area"
190	868	Targeting "blank area"
190	869	Targeting "blank area"
191	870	Targeting "blank area"
191	871	Targeting "blank area"
191	872	Targeting "blank area"
191	873	Targeting "blank area"
192	874	Targeting "blank area"
192	875	Targeting "blank area"
192	876	Targeting "blank area"
192	877	Targeting "blank area"
192	878	Targeting "blank area"
192	879	Targeting "blank area"
192	880	Targeting "blank area"
193	881	Targeting "blank area"
193	882	Targeting "blank area"
193	883	Targeting "blank area"
193	884	Targeting "blank area"
193	885	Targeting "blank area"
195	886	Targeting "blank area"
195	887	Targeting "blank area"
194	888	Targeting "blank area"
195	889	Targeting "blank area"
195	890	Targeting "blank area"
195	891	Targeting "blank area"
195	892	Targeting "blank area"
196	893	Targeting "blank area"
196	894	Targeting "blank area"
196	895	Targeting "blank area"
196	896	Targeting "blank area"



Field	Trench	Trench rationale
196	897	Targeting "blank area"
196	898	Targeting "blank area"
197	899	Targeting "blank area"
197	900	Targeting "blank area"
197	901	Targeting "blank area"
198	902	Targeting "blank area"
198	903	Targeting probable archaeology
198	904	Targeting "blank area"
198	905	Targeting probable archaeology
198	906	Targeting probable archaeology
198	907	Targeting historic feature
199	908	Targeting "blank area"
199	909	Targeting "blank area"
200	910	Targeting "blank area"
200	911	Targeting "blank area"
200	912	Targeting "blank area"
200	913	Targeting "blank area"
201	914	Targeting "blank area"
201	915	Targeting "blank area"
201	916	Targeting "blank area"
202	917	Targeting "blank area"
202	918	Targeting "blank area"
202	919	Targeting "blank area"
204	920	Targeting "blank area"
205	921	Targeting "blank area"
205	922	Targeting "blank area"
205	923	Targeting historic feature
205	924	Targeting "blank area"
205	925	Targeting "blank area"
205	926	Targeting "blank area"
207	927	Targeting "blank area"
207	928	Targeting "blank area"
207	929	Targeting "blank area"
207	930	Targeting "blank area"
207	931	Targeting ferrous/iron spike spread
208	932	Targeting "blank area"
208	933	Targeting "blank area"
208	934	Targeting "blank area"
208	935	Targeting "blank area"
210	936	Targeting "blank area"
210	937	Targeting "blank area"
210	938	Targeting "blank area"
210	939	Targeting "blank area"
211	940	Targeting "blank area"
211	941	Targeting "blank area"
211	942	Targeting "blank area"
211	943	Targeting "blank area"
212	944	Targeting "blank area"
212	945	Targeting "blank area"
212	946	Targeting "blank area"



Field	Trench	Trench rationale
212	947	Targeting "blank area"
212	948	Targeting "blank area"
214	949	Targeting ferrous/iron spike spread
214	950	Targeting ferrous/iron spike spread
214	951	Targeting ferrous/iron spike spread
214	952	Targeting ferrous/iron spike spread
214	953	Targeting ferrous/iron spike spread
214	954	Targeting ferrous/iron spike spread
215	955	Targeting ferrous/iron spike spread
215	956	Targeting ferrous/iron spike spread
215	957	Targeting ferrous/iron spike spread
215	958	Targeting ferrous/iron spike spread
216	959	Targeting ferrous/iron spike spread
216	960	Targeting ferrous/iron spike spread
217	961	Targeting ferrous/iron spike spread
217	962	Targeting ferrous/iron spike spread
217	963	Targeting ferrous/iron spike spread
217	964	Targeting ferrous/iron spike spread
217	965	Targeting ferrous/iron spike spread
217	966	Targeting ferrous/iron spike spread
218	967	Targeting ferrous/iron spike spread
219	968	Targeting ferrous/iron spike spread
219	969	Targeting ferrous/iron spike spread
219	970	Targeting ferrous/iron spike spread
219	971	Targeting ferrous/iron spike spread
219	972	Targeting ferrous/iron spike spread
219	973	Targeting ferrous/iron spike spread
223	974	Targeting "blank area"
223	975	Targeting "blank area"
223	976	Targeting "blank area"
223	977	Targeting "blank area"
225	978	Targeting "blank area"
226	979	Targeting "blank area"
226	980	Targeting "blank area"
227	981	Targeting "blank area"
228	982	Targeting "blank area"
229	983	Targeting "blank area"
231	984	Targeting "blank area"
232	985	Targeting "blank area"
232	986	Targeting "blank area"
233	987	Targeting "blank area"
233	988	Targeting "blank area"
233	989	Targeting "blank area"
234	990	Targeting "blank area"
234	991	Targeting "blank area"
234	992	Targeting historic feature
234	993	Targeting "blank area"
234	994	Targeting "blank area"
235	995	Targeting historic feature
235	996	Targeting "blank area"



Field	Trench	Trench rationale
236	997	Targeting "blank area"
236	998	Targeting "blank area"
237	999	Targeting "blank area"
237	1000	Targeting historic feature
237	1001	Targeting "blank area"
237	1002	Targeting "blank area"
237	1003	Targeting "blank area"
237	1004	Targeting "blank area"
237	1005	Targeting "blank area"
237	1006	Targeting "blank area"
239	1007	Targeting "blank area"
239	1008	Targeting "blank area"
239	1009	Targeting "blank area"
239	1010	Targeting "blank area"
239	1011	Targeting "blank area"
249	1012	Descoped
249	1013	Descoped
249	1014	Descoped
249	1015	Descoped
249	1016	Descoped
249	1017	Descoped
10	1018	Targeting unknown area
10	1019	Targeting unknown area



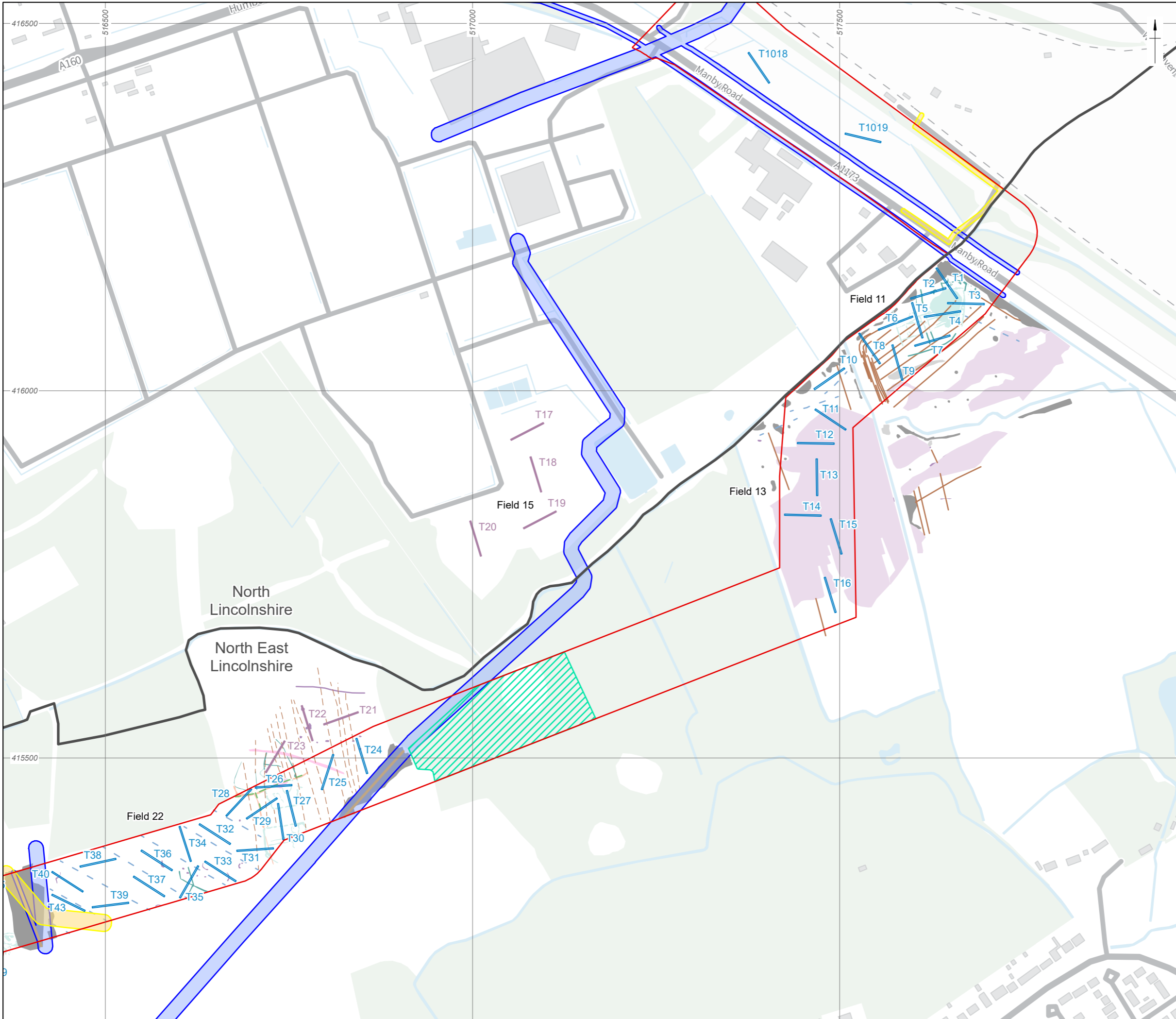
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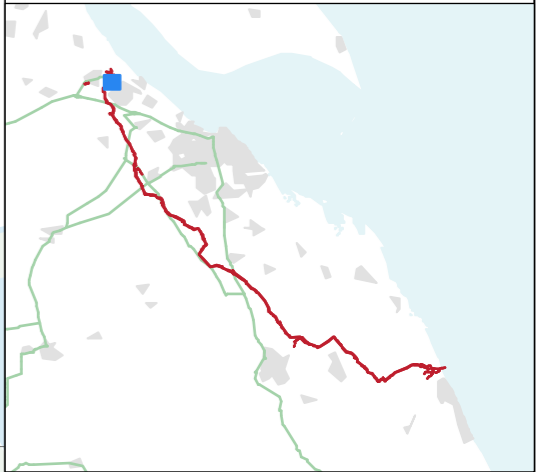
Figure 1: Site location

▬ Proposed Pipeline Corridor
 County Boundary





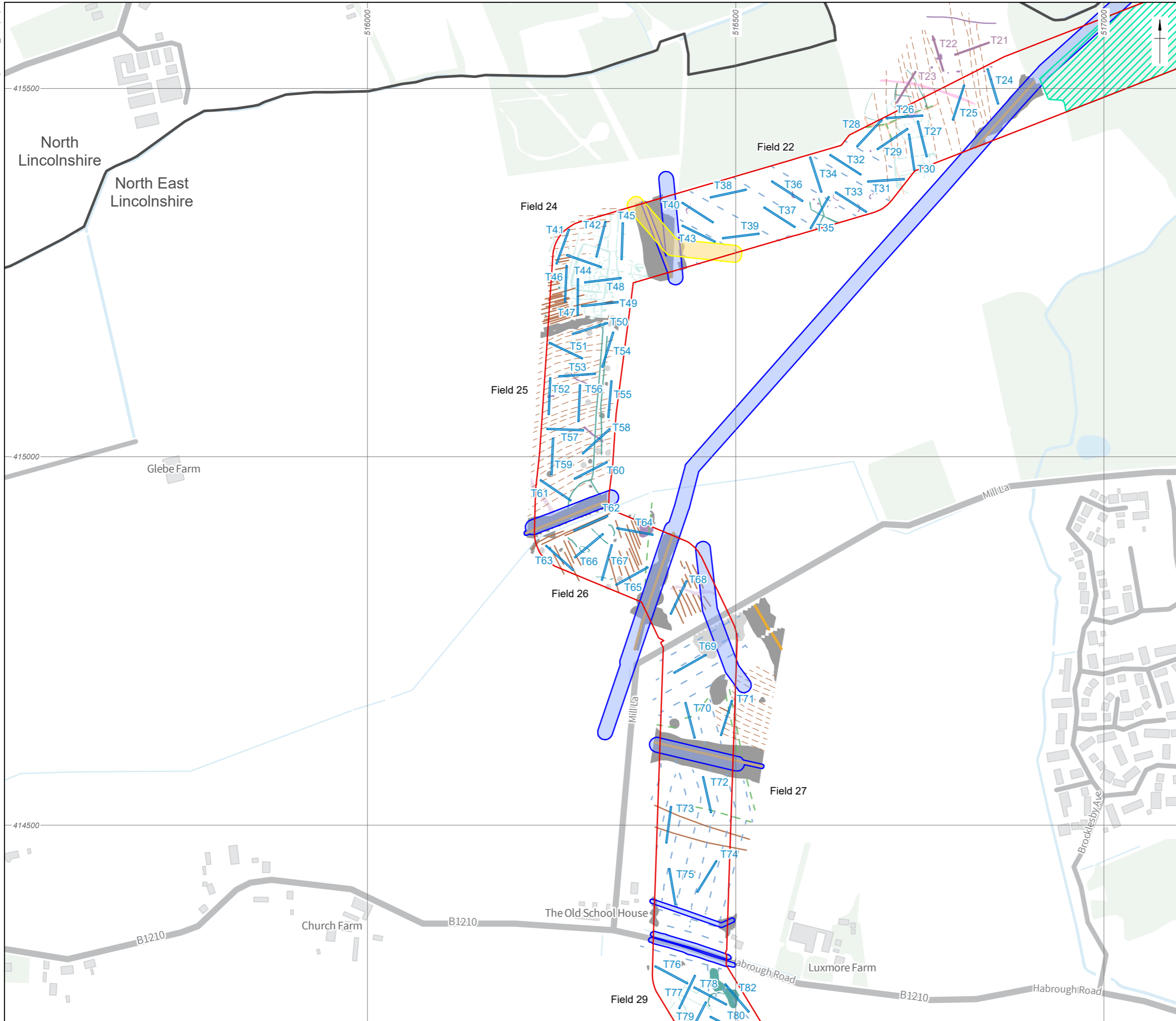
- ▭ Site Area
- ▭ Proposed Trench
- ▭ Descoped Trench
- ▨ Earthwork Survey Area
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- ▭ Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Agriculture
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Drainage
- ▭ Linear Trend (Unclear)
- ▭ Modern Service



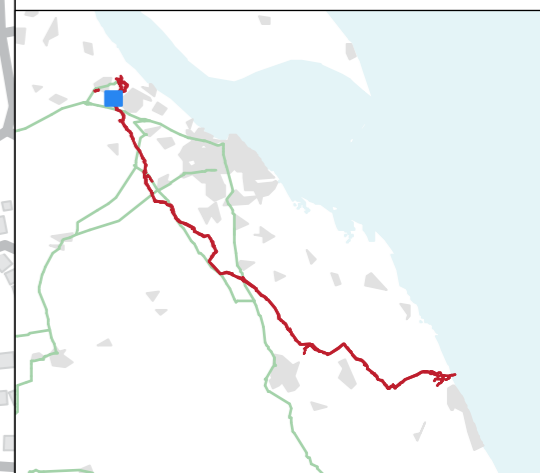
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Figure 2: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Descoped Trench
- ▭ Earthwork Survey Area
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Agriculture
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Drainage
- ▭ Linear Trend (Unclear)
- ▭ Modern Service
- Ferrous Anomalies/Iron Spike

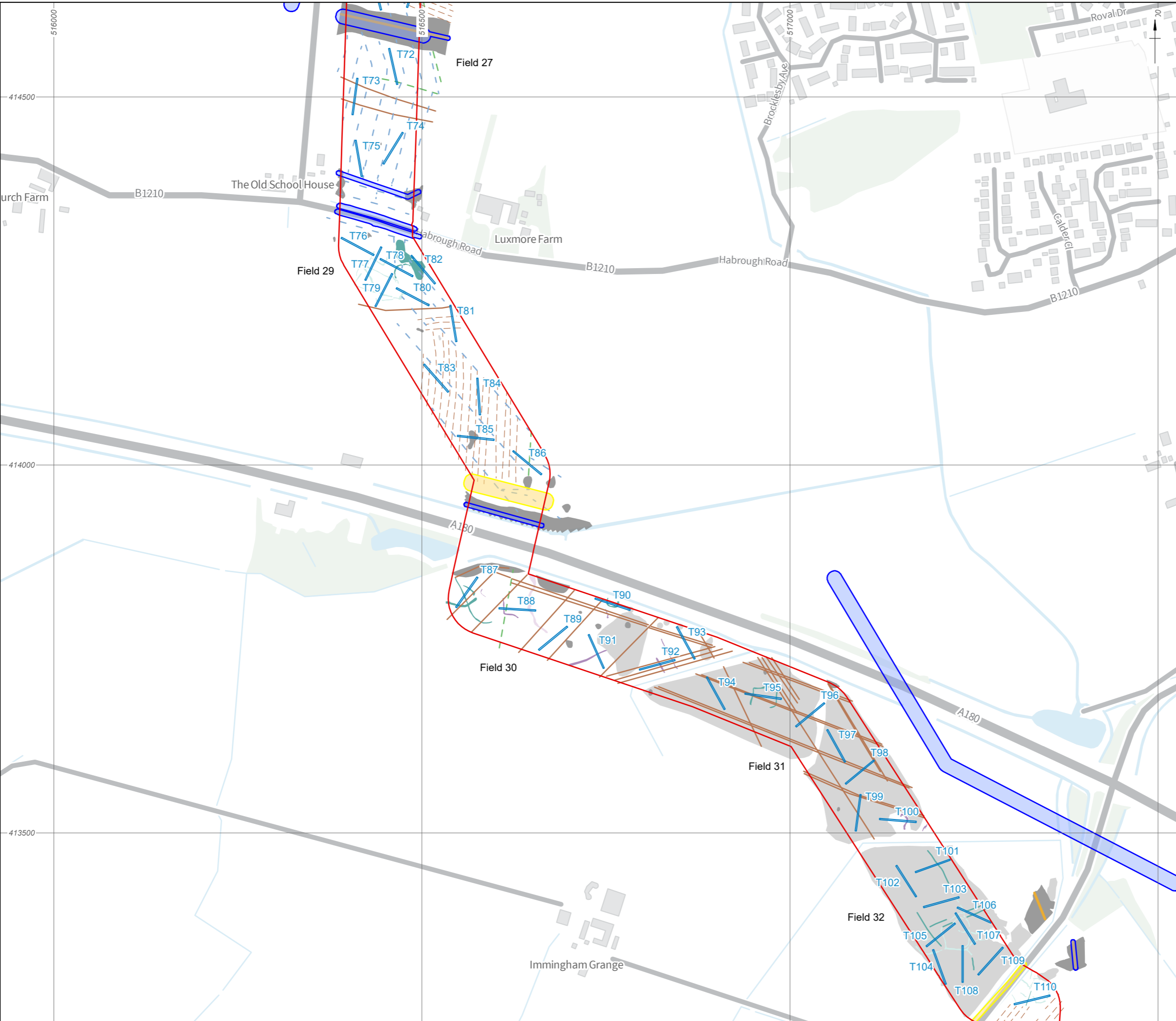


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Figure 3: Proposed trenches

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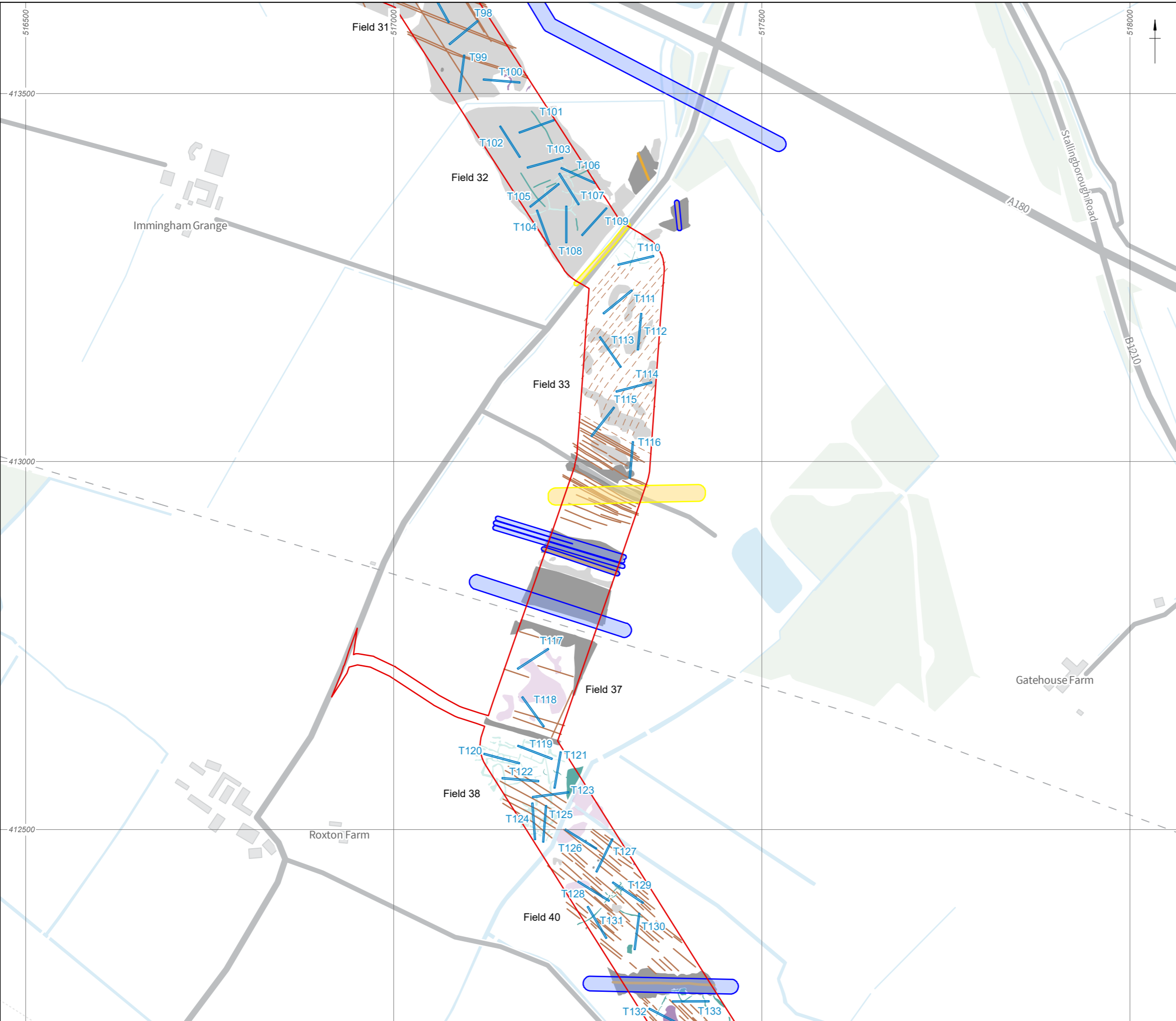
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- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▬ Possible Archaeology
- ▬ Agricultural Ploughing
- ▬ Ridge & Furrow
- - - Historic Feature
- - - Drainage
- ▬ Modern Service
- Ferrous Anomalies/Iron Spike



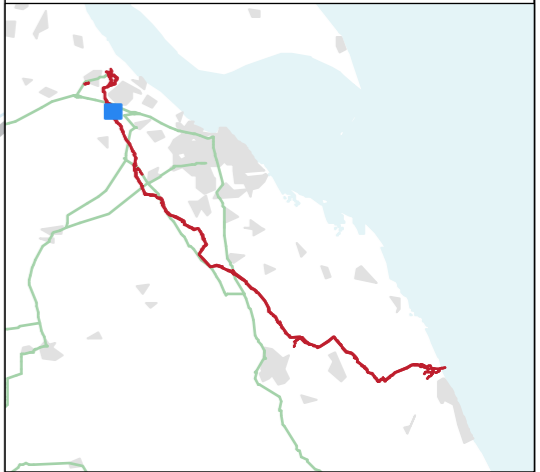
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Figure 4: Proposed trenches



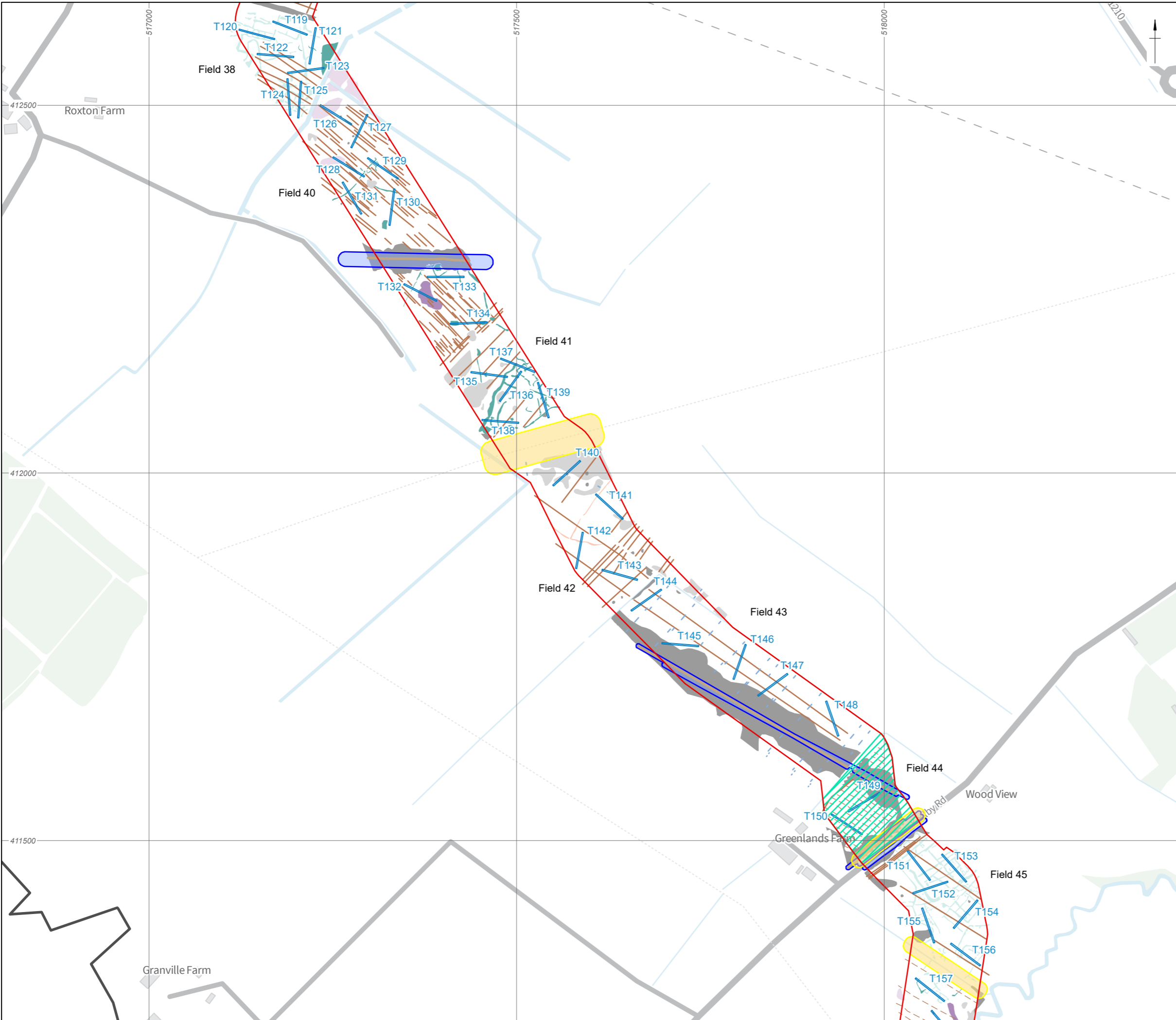
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- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Possible Archaeology
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Modern Service



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Figure 5: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Earthwork Survey Area
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Agriculture
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- - - Ridge & Furrow
- - - Drainage
- ▭ Modern Service



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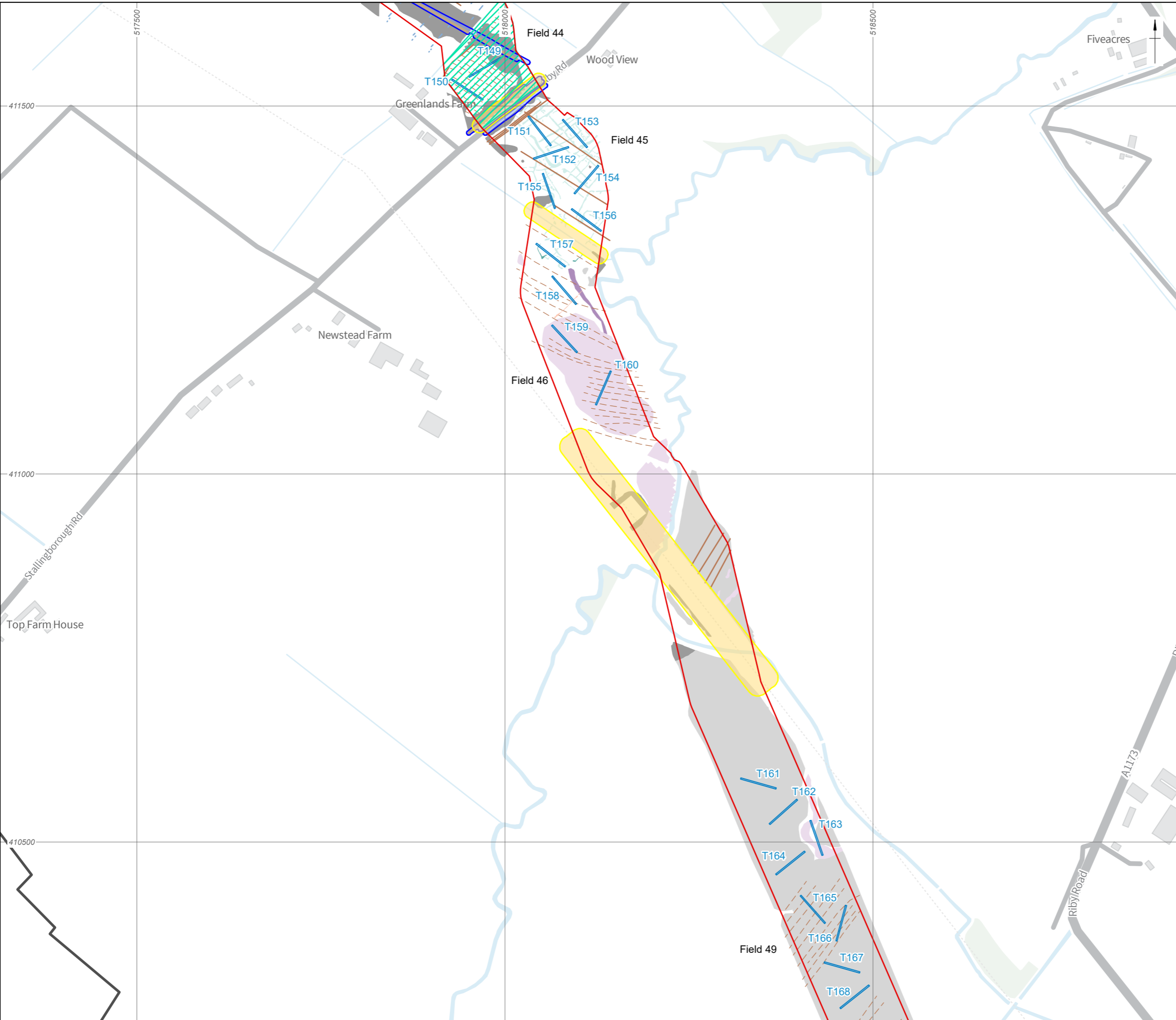
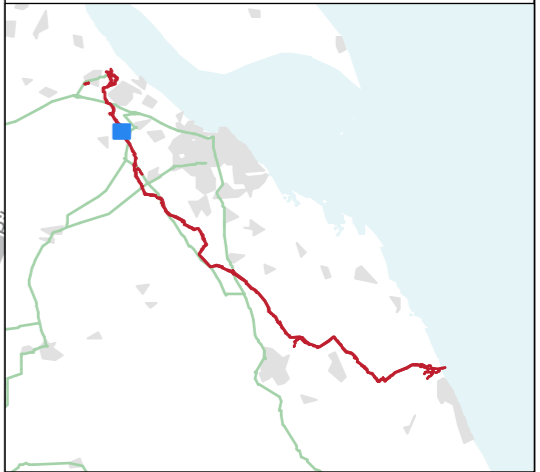
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Figure 6: Proposed trenches

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- ▭ Site Area
- ▭ Proposed Trench
- ▭ Earthwork Survey Area
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- ▭ Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Agriculture
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Geology
- ▭ Modern Service



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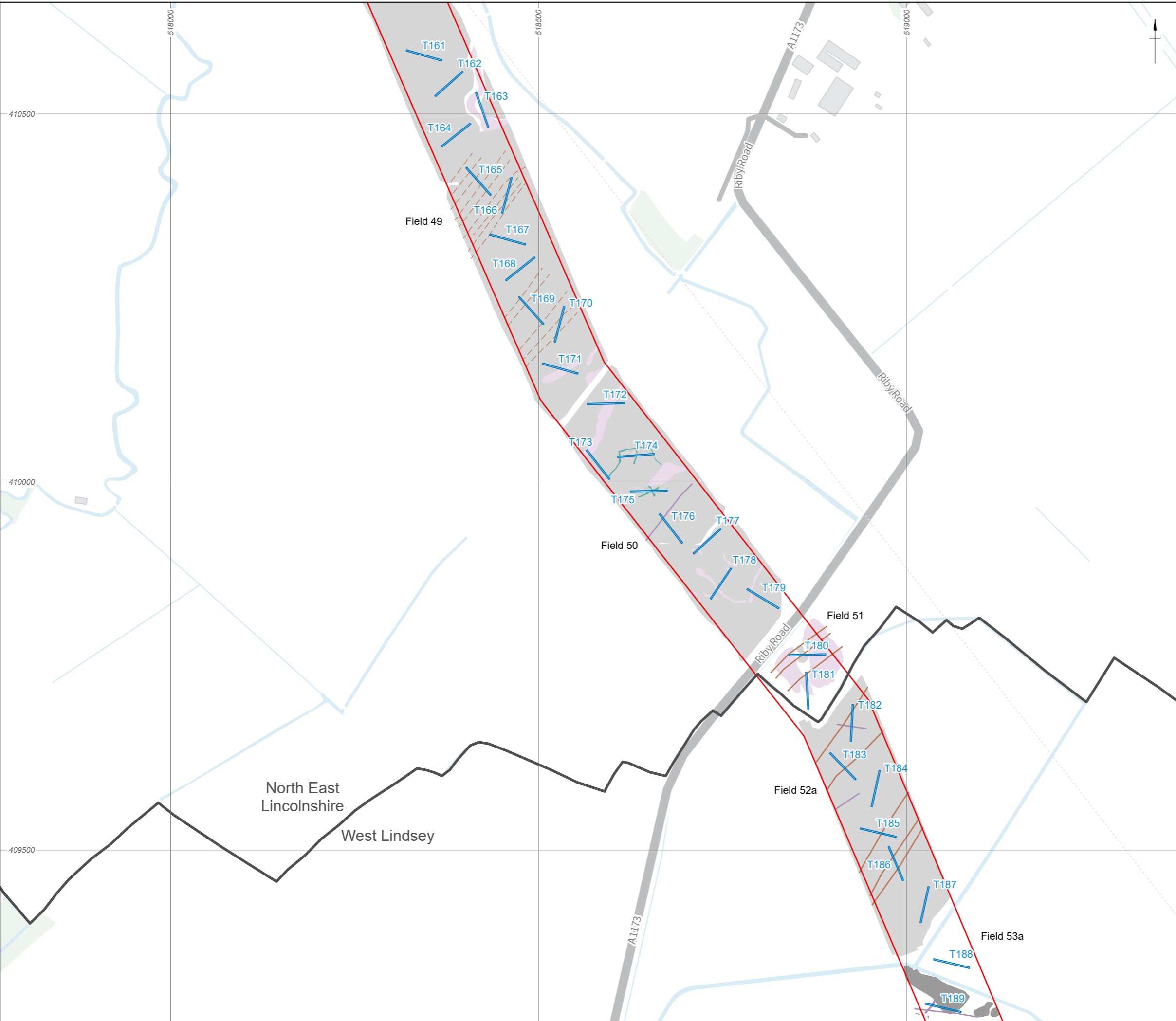
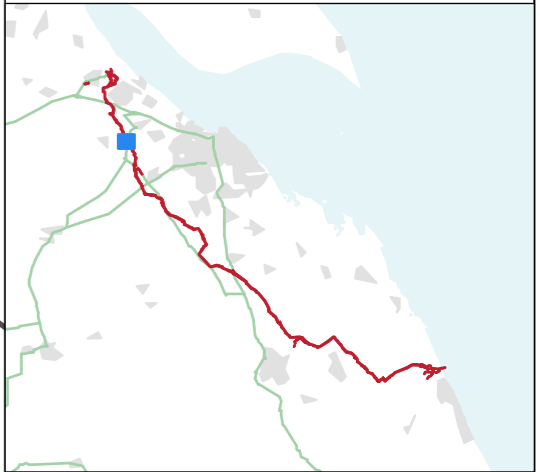
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Figure 7: Proposed trenches



- Site Area
- Proposed Trench
- Local Planning Authority
- Geophysical Survey Interpretation
- Possible Archaeology
- Geology
- Magnetic Disturbance
- Spread (Ferrous/Iron Spike)
- Spread (Unclear)
- Agricultural Ploughing
- Ridge & Furrow
- Linear Trend (Unclear)



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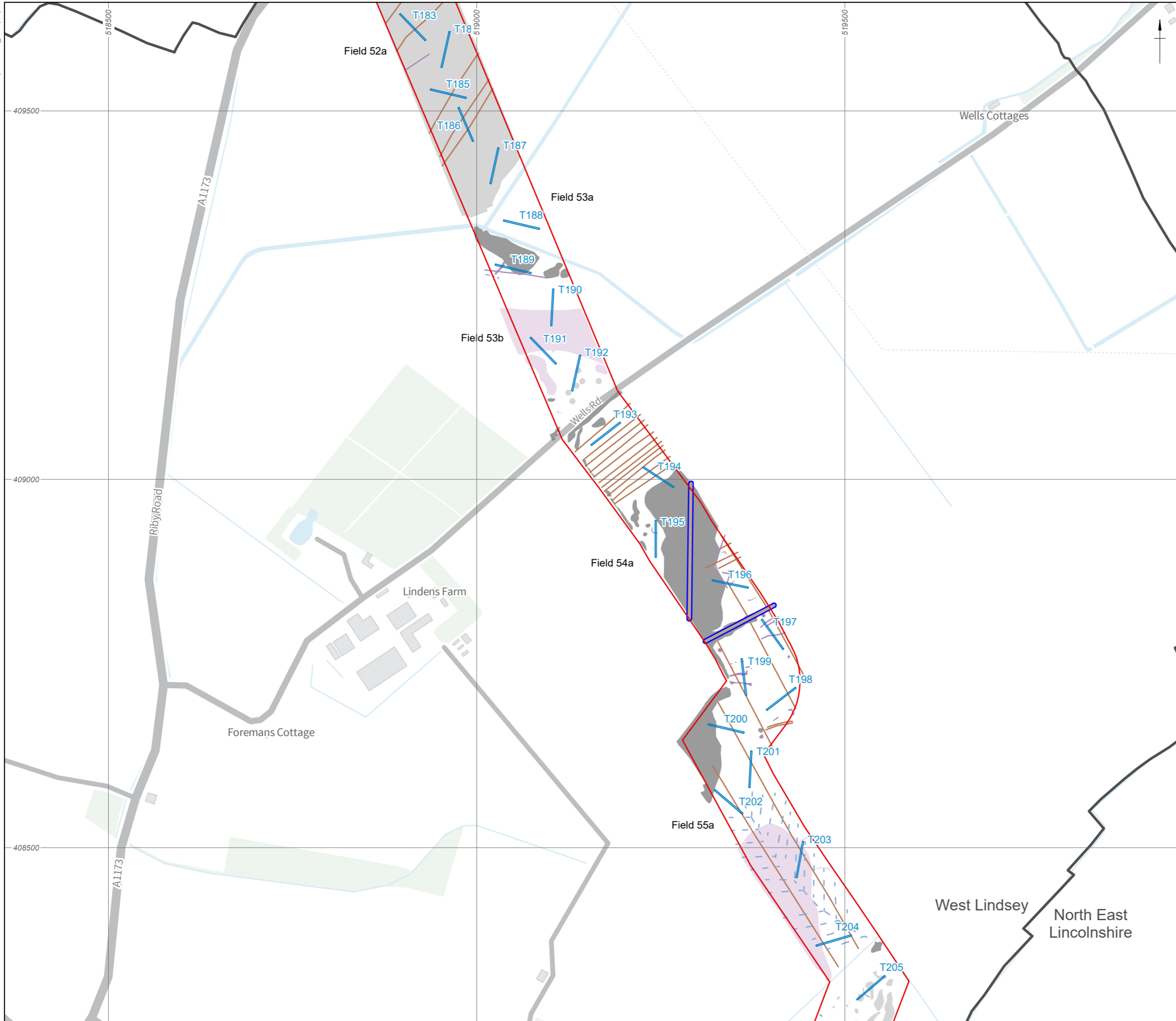
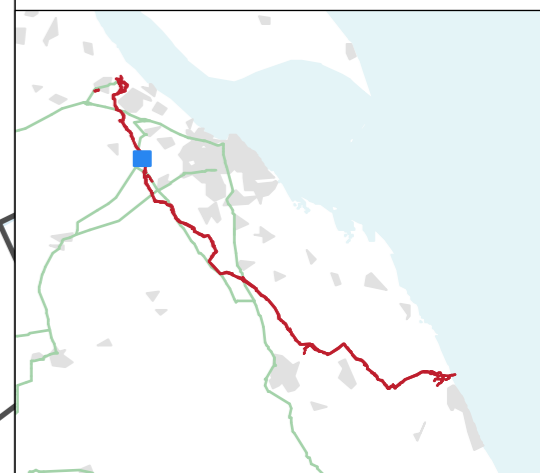
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Figure 8: Proposed trenches



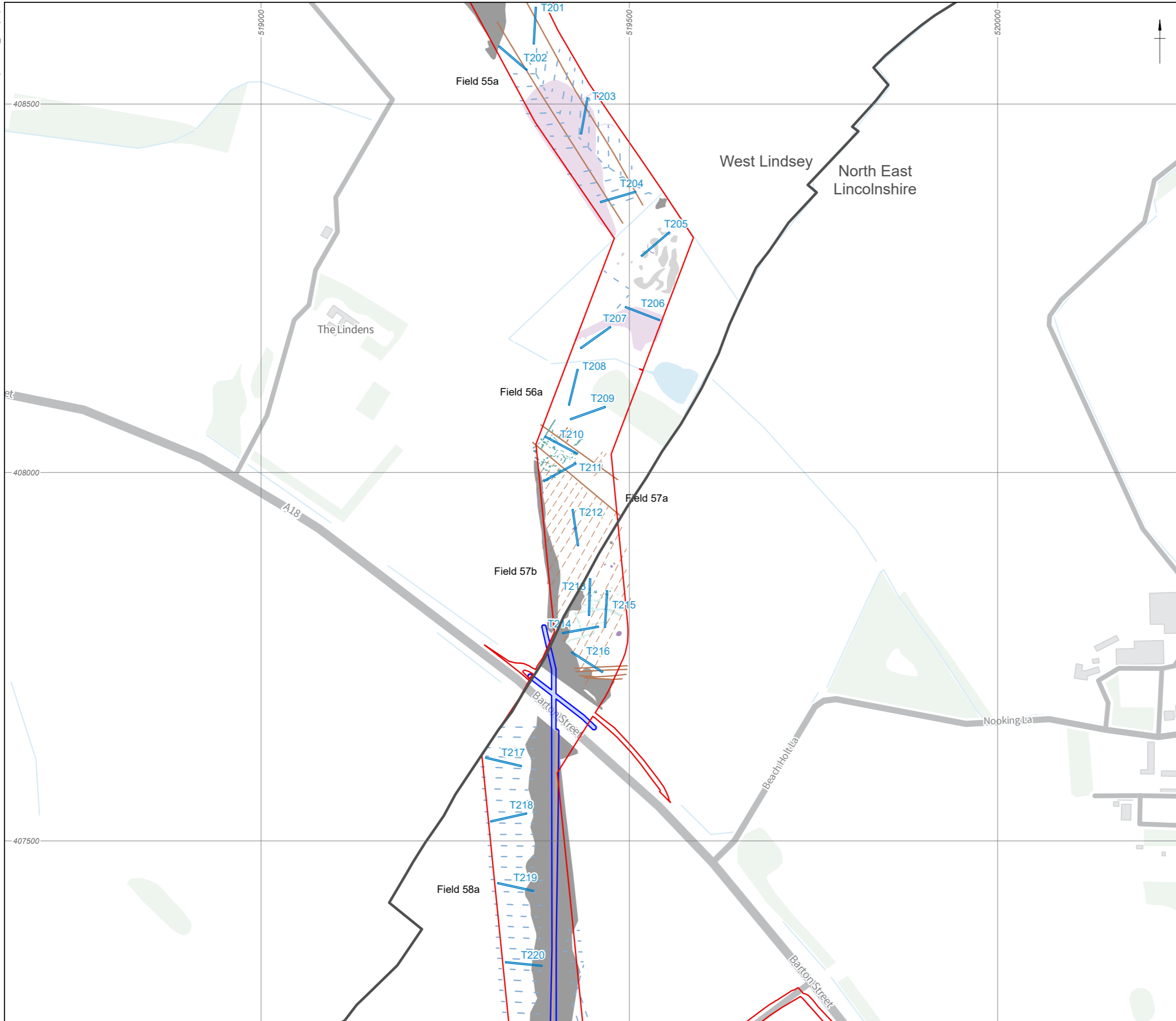
- ▭ Site Area
- ▭ Proposed Trench
- ▭ Underground Utility Buffer
- Local Planning Authority
- Geophysical Survey Interpretation
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- - - Drainage
- Linear Trend (Unclear)
- Modern Service
- Ferrous Anomalies/Iron Spike



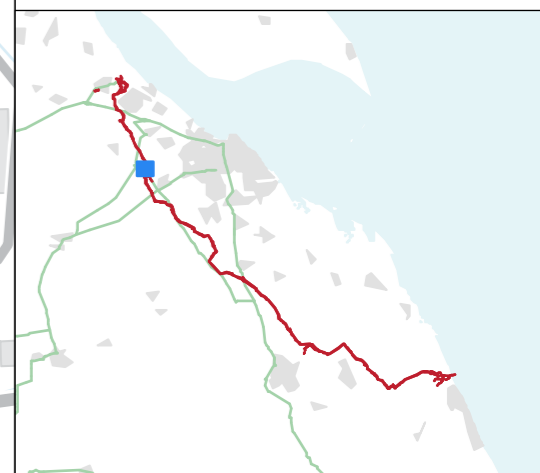
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Figure 9: Proposed trenches



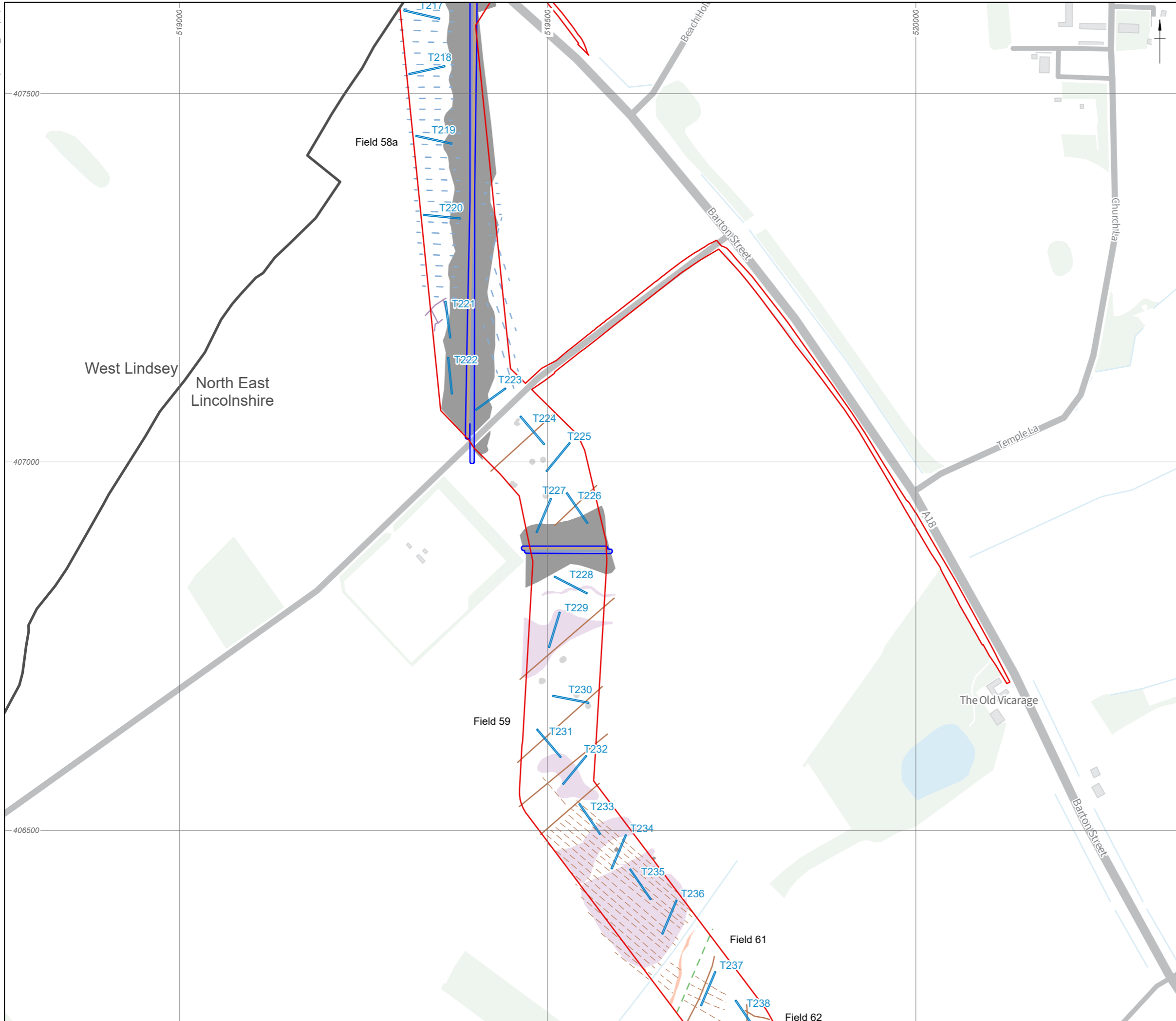
- ▭ Site Area
- ▭ Proposed Trench
- ▭ Underground Utility Buffer
- Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- Possible Archaeology
- Agricultural Ploughing
- Ridge & Furrow
- - - Drainage
- Modern Service



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Figure 10: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Underground Utility Buffer
- Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Agriculture
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Drainage
- ▭ Linear Trend (Unclear)
- ▭ Modern Service
- Ferrous Anomalies/Iron Spike



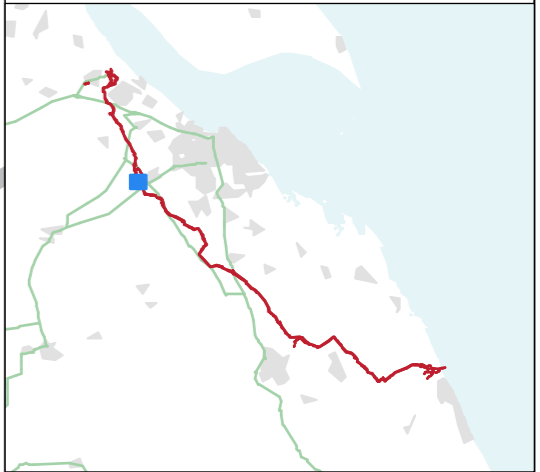
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Figure 11: Proposed trenches



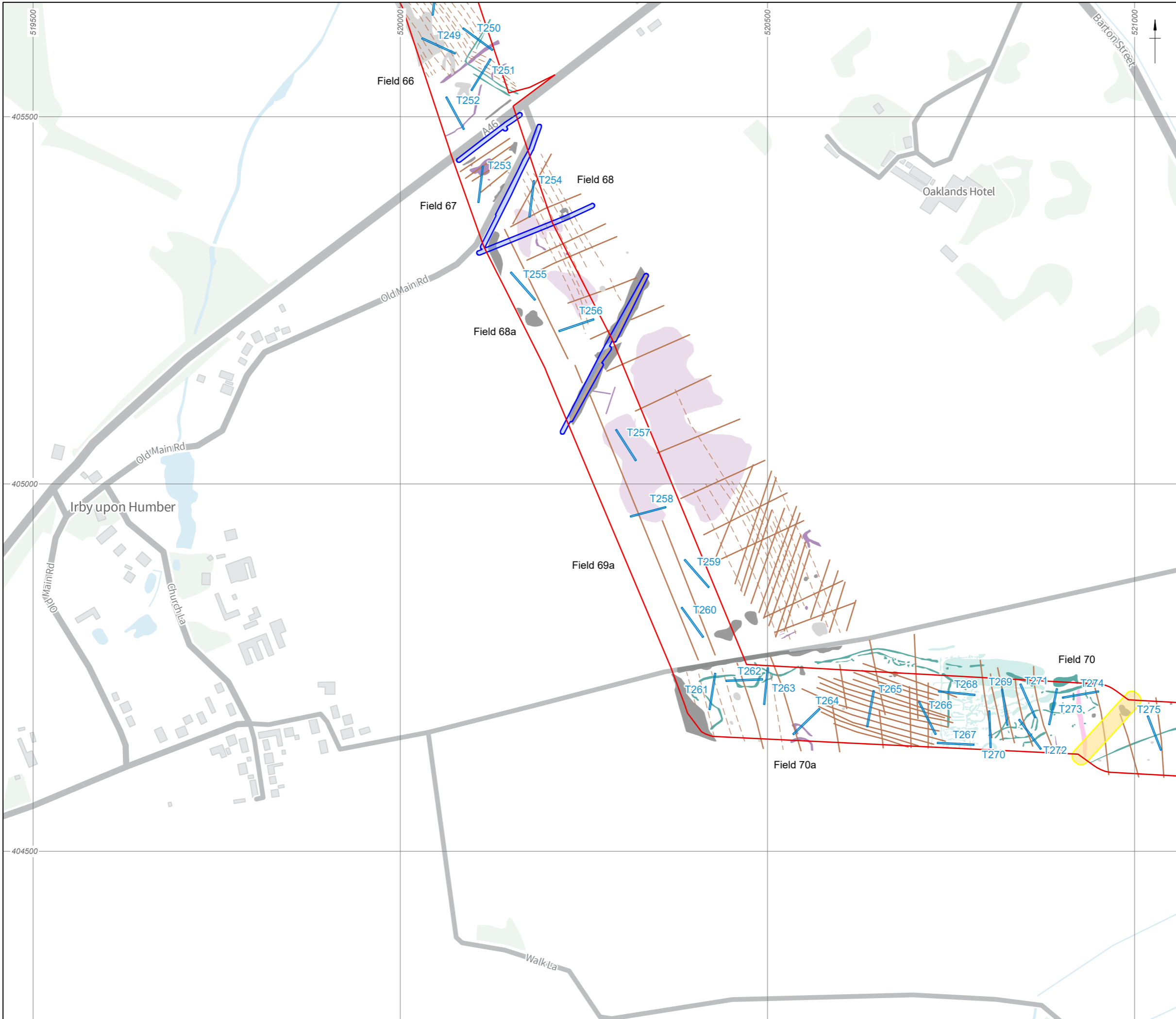
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- ▭ Proposed Trench
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation
- ▭ Possible Archaeology
- ▭ Agriculture
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Linear Trend (Unclear)
- ▭ Modern Service
- Ferrous Anomalies/Iron Spike



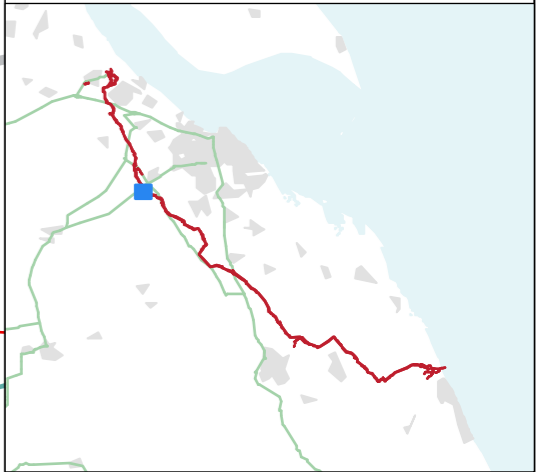
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Figure 12: Proposed trenches



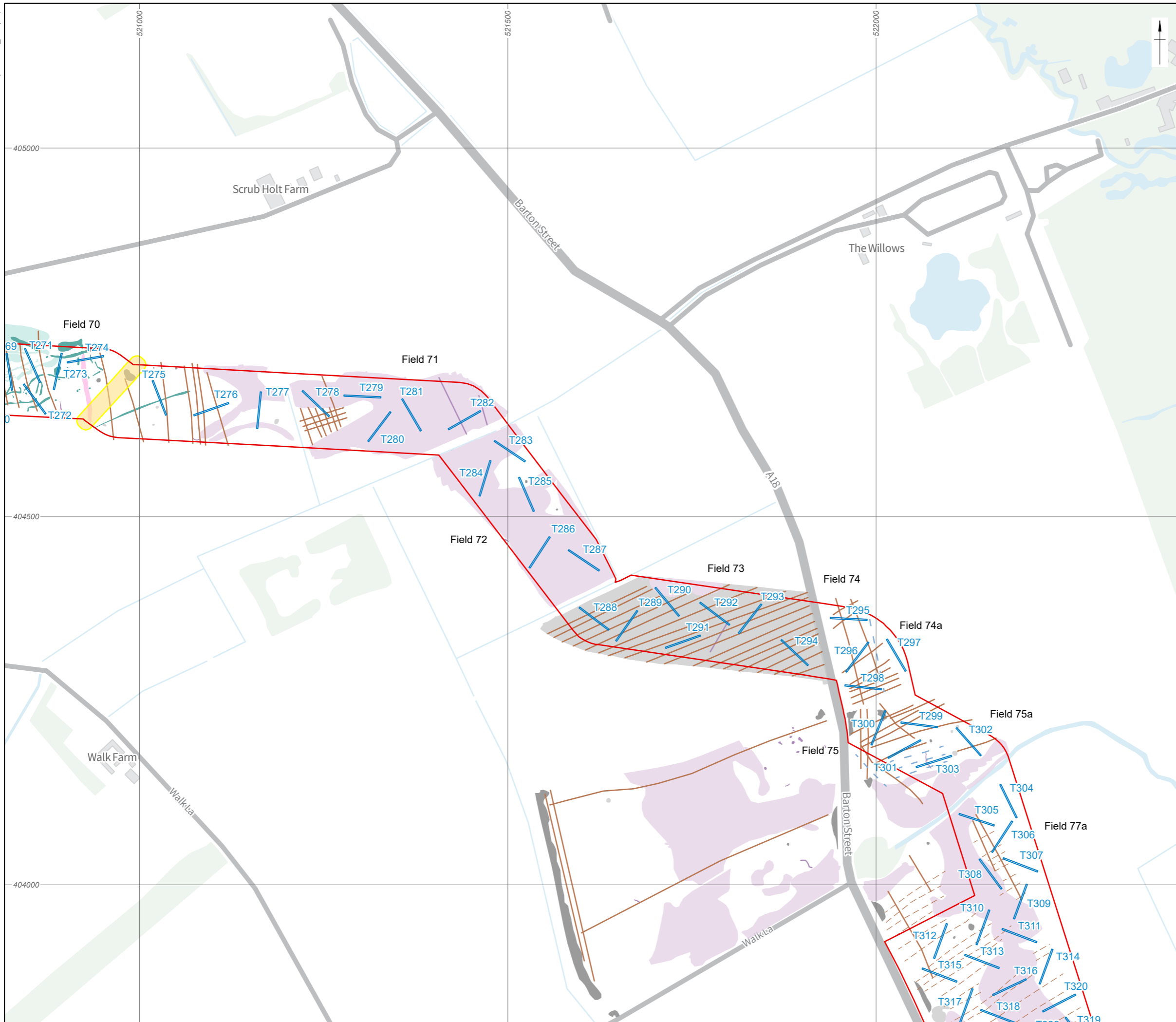
- ▭ Site Area
- ▭ Proposed Trench
- Overhead Utility Buffer
- Underground Utility Buffer
- Geophysical Survey Interpretation**
- Probable Archaeology
- Possible Archaeology
- Geology
- Magnetic Disturbance
- Historic Feature
- Spread (Ferrous/Iron Spike)
- Spread (Unclear)
- ▬ Agricultural Ploughing
- ▬ Ridge & Furrow
- ▬ Geology
- ▬ Linear Trend (Unclear)
- ▬ Modern Service
- Ferrous Anomalies/Iron Spike



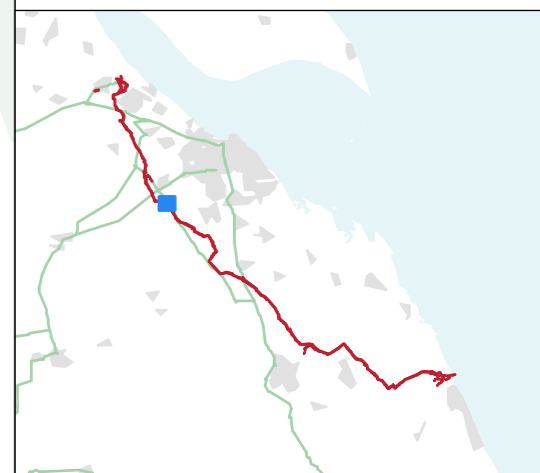
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Figure 13: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- Geophysical Survey Interpretation
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Linear Trend (Unclear)



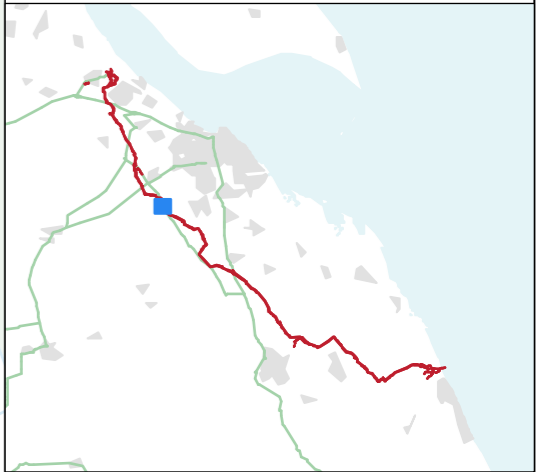
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Figure 14: Proposed trenches



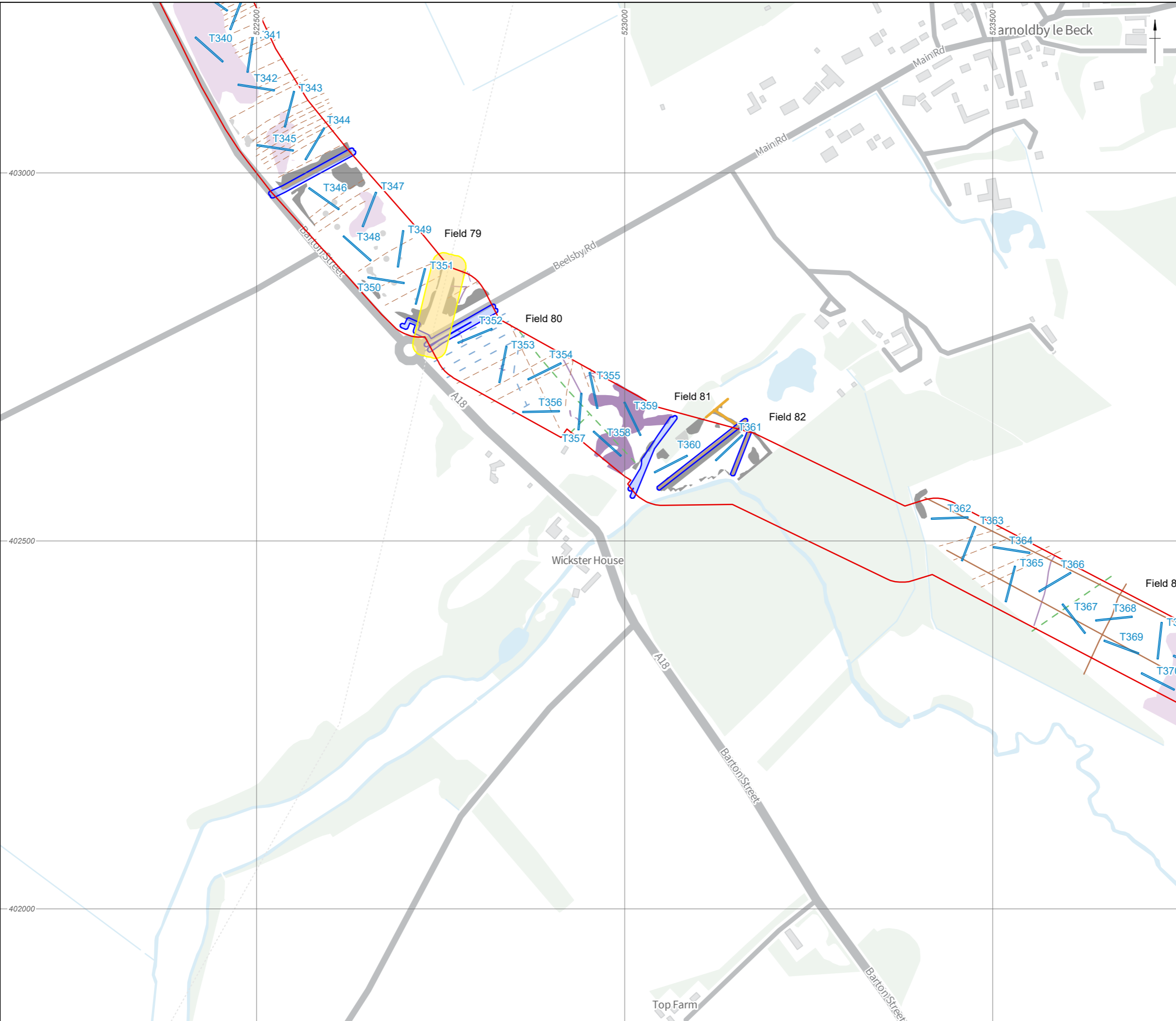
- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Linear Trend (Unclear)
- ▭ Modern Service
- Ferrous Anomalies/Iron Spike



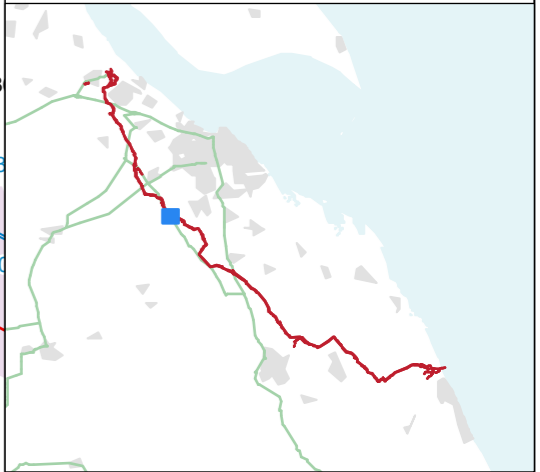
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Figure 15: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- - - Ridge & Furrow
- - - Historic Feature
- - - Drainage
- ▭ Linear Trend (Unclear)
- ▭ Modern Service
- Ferrous Anomalies/Iron Spike



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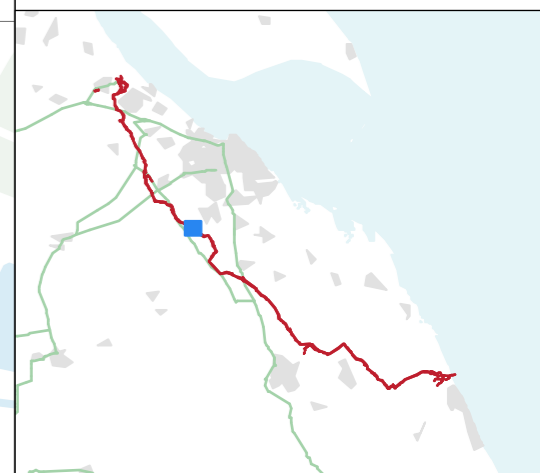
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Figure 16: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- Agricultural Ploughing
- - - Ridge & Furrow
- - - Historic Feature
- Geology
- Linear Trend (Unclear)
- Modern Service

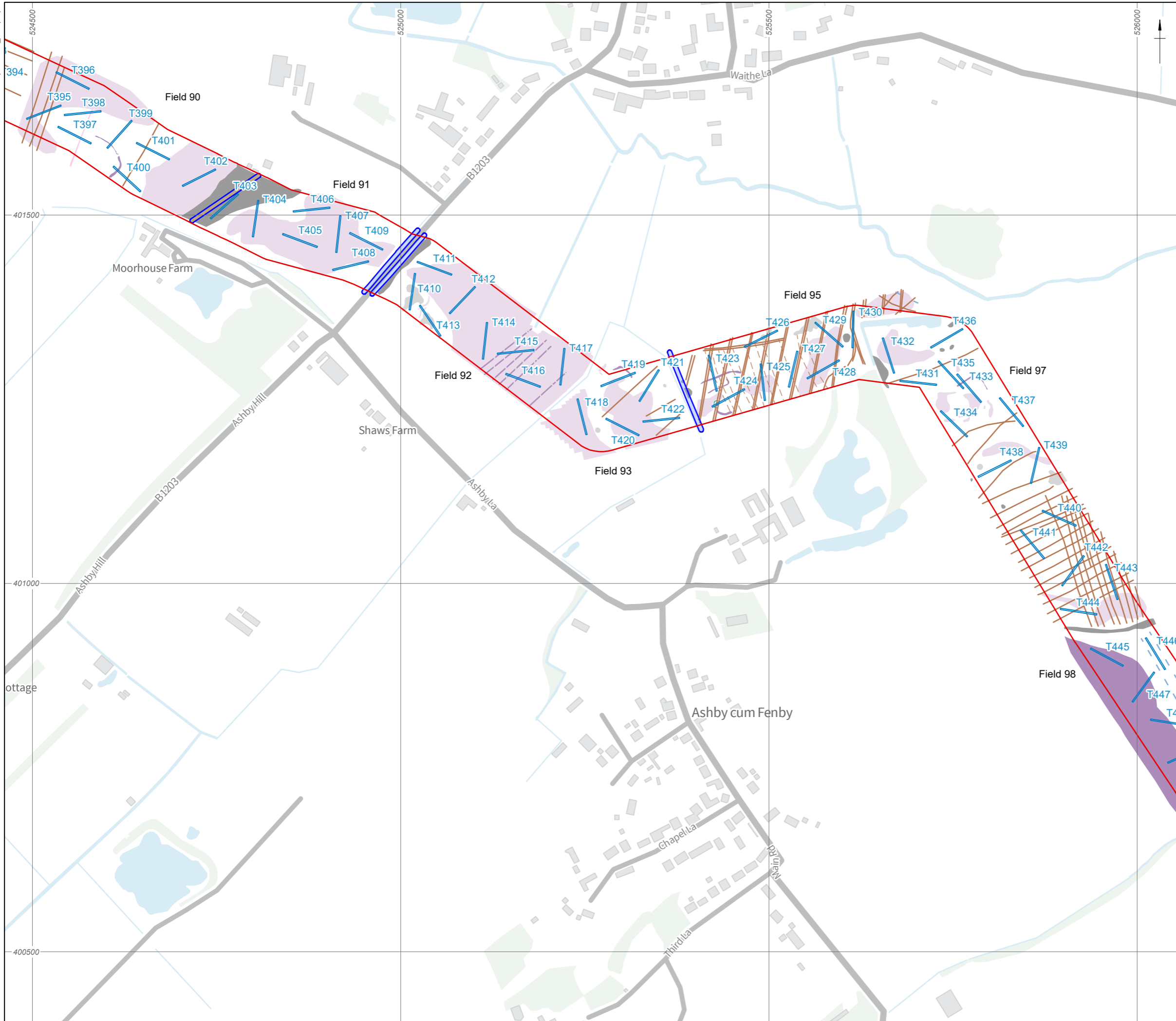


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Figure 17: Proposed trenches

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- ▭ Site Area
- ▭ Proposed Trench
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- - - Drainage
- ▭ Geology
- ▭ Linear Trend (Unclear)
- ▭ Modern Service
- Ferrous Anomalies/Iron Spike



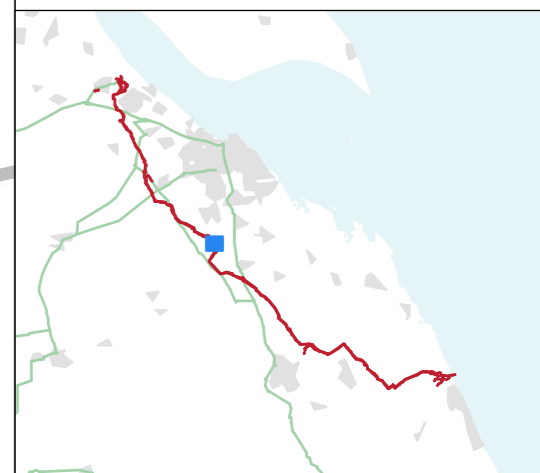
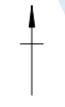
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Figure 18: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▬ Local Planning Authority
- Geophysical Survey Interpretation
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- - - Drainage
- ▬ Linear Trend (Ferrous/Iron Spike)
- ▬ Linear Trend (Unclear)
- Ferrous Anomalies/Iron Spike



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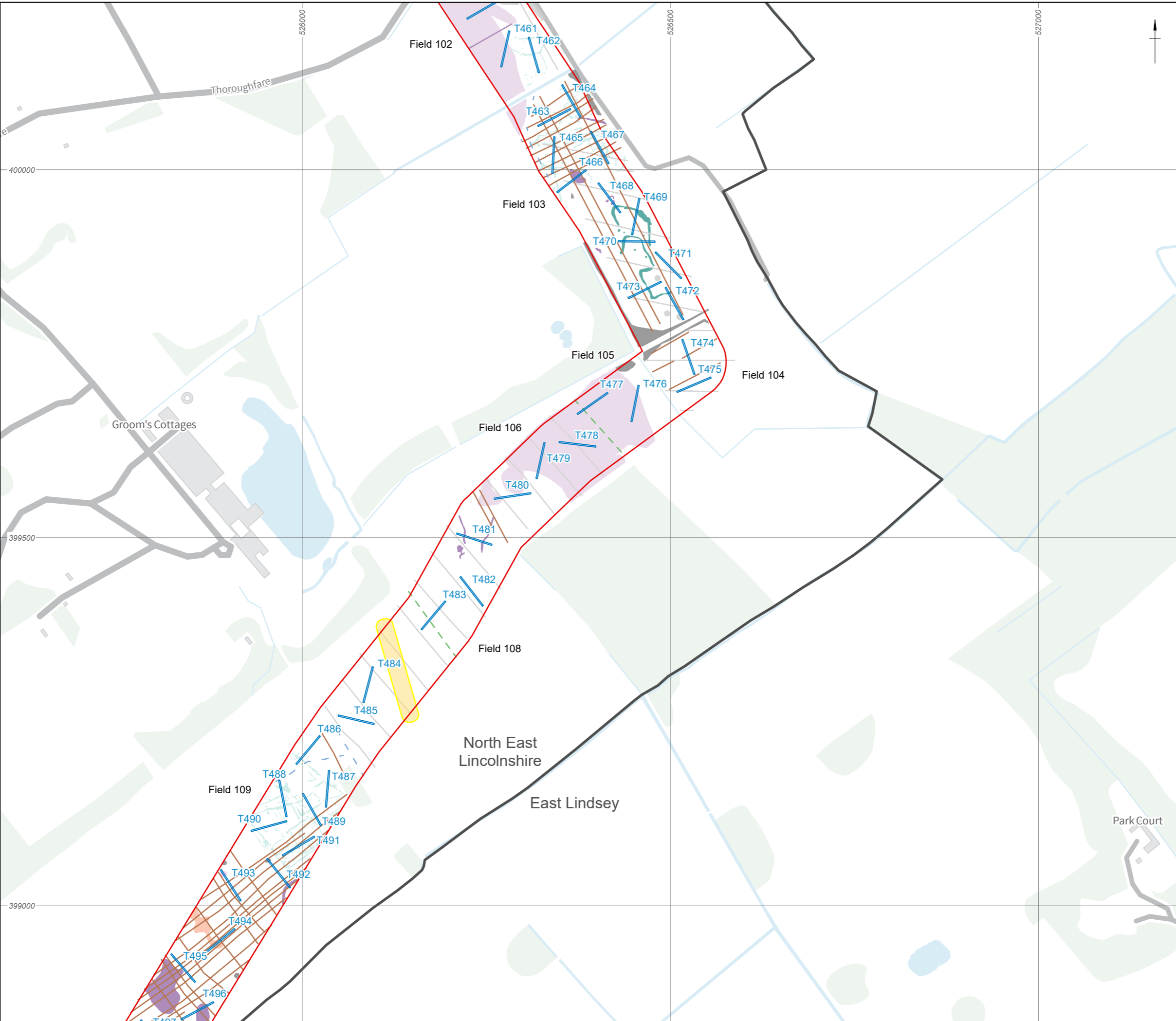
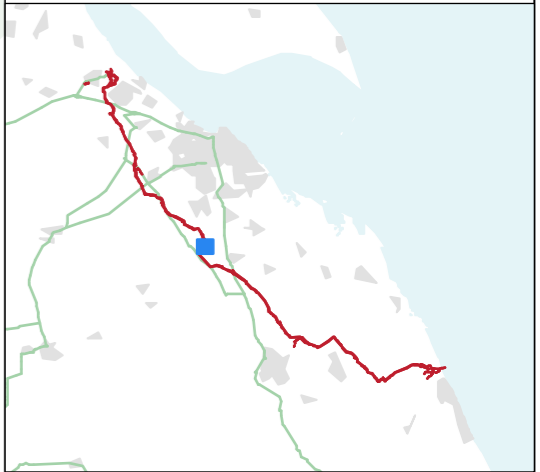
Date: 02/04/2024	Created by: AD	
Scale: 1:5,000 at A3	Revision: 0	

Figure 19: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▬ Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Agriculture
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▬ Historic Feature
- ▬ Drainage
- ▬ Linear Trend (Ferrous/Iron Spike)
- ▬ Linear Trend (Unclear)
- Ferrous Anomalies/Iron Spike



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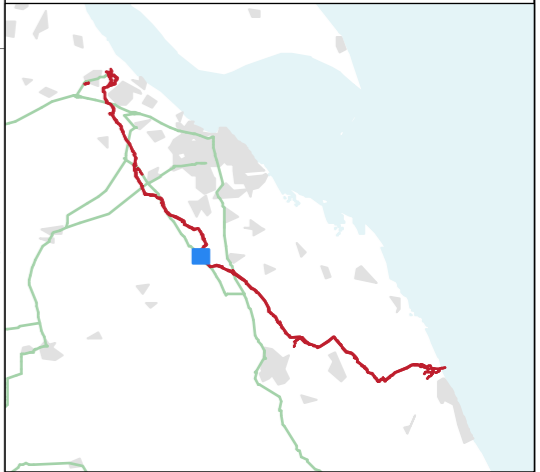


Figure 20: Proposed trenches

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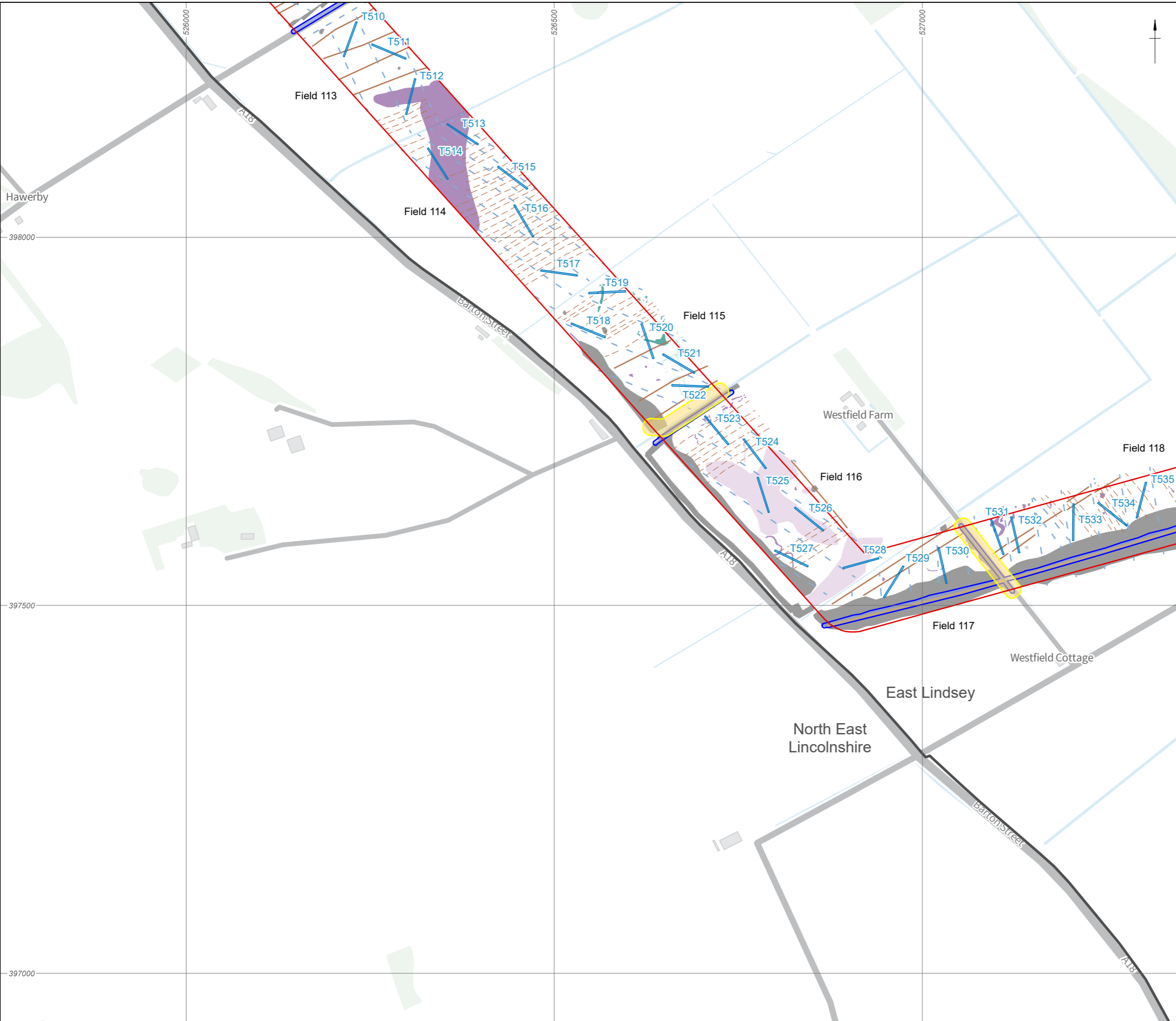
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- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- ▬ Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Agriculture
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Linear Trend (Ferrous/Iron Spike)
- Ferrous Anomalies/Iron Spike



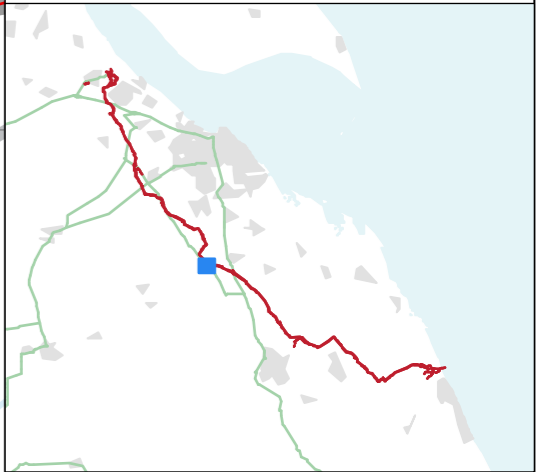
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Figure 21: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- ▭ Local Planning Authority
- Geophysical Survey Interpretation
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Geology
- ▭ Linear Trend (Unclear)
- ▭ Modern Service



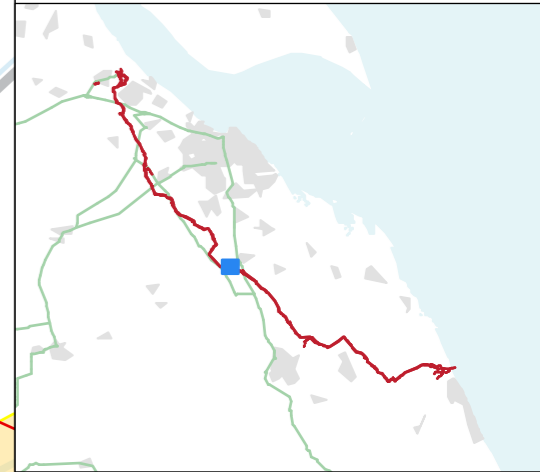
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Figure 22: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- ▭ Local Planning Authority
- Geophysical Survey Interpretation**
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Linear Trend (Unclear)
- ▭ Modern Service
- Ferrous Anomalies/Iron Spike



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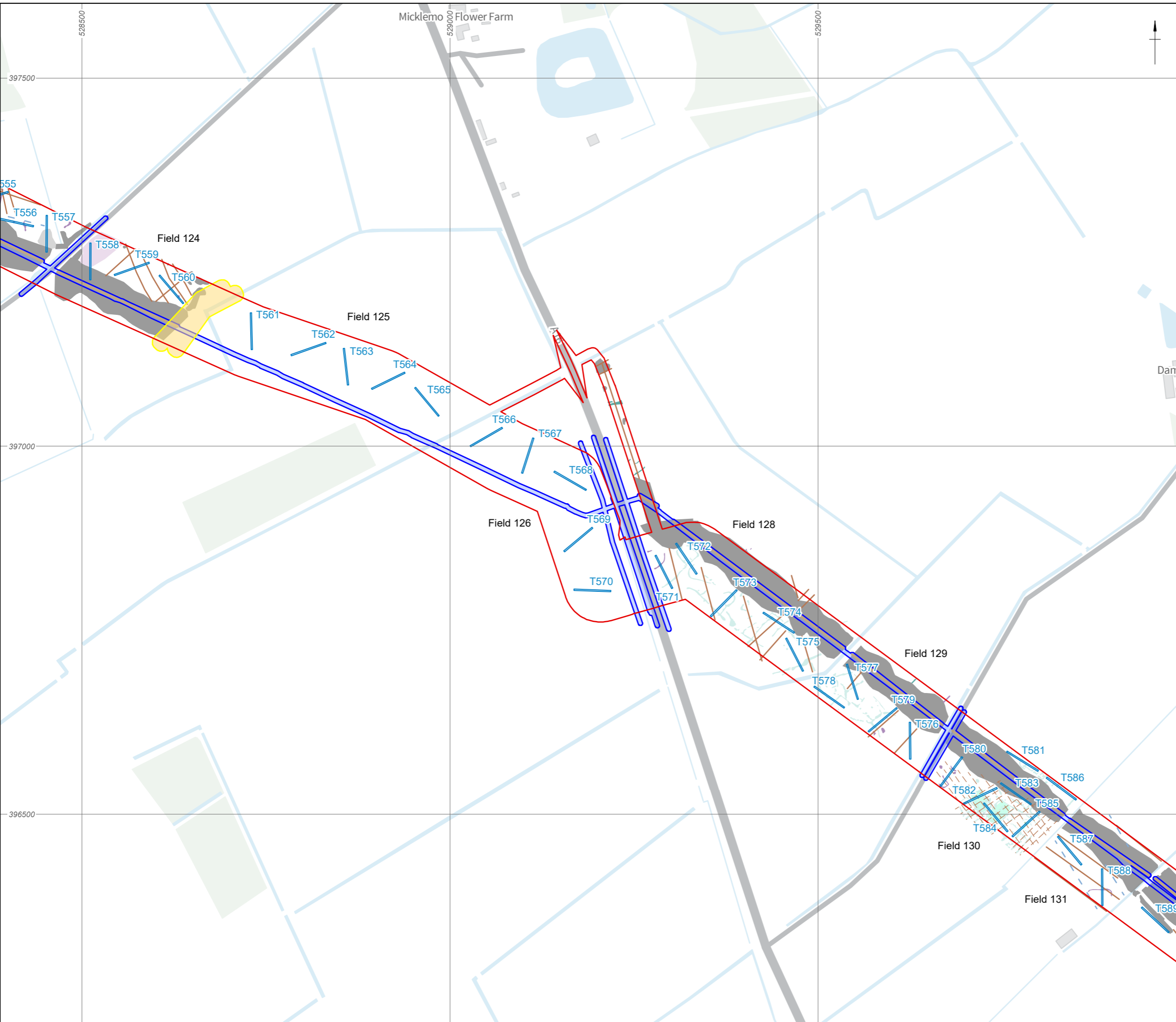
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Figure 23: Proposed trenches

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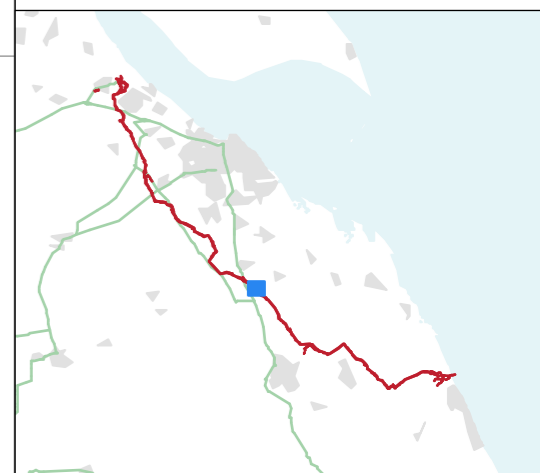
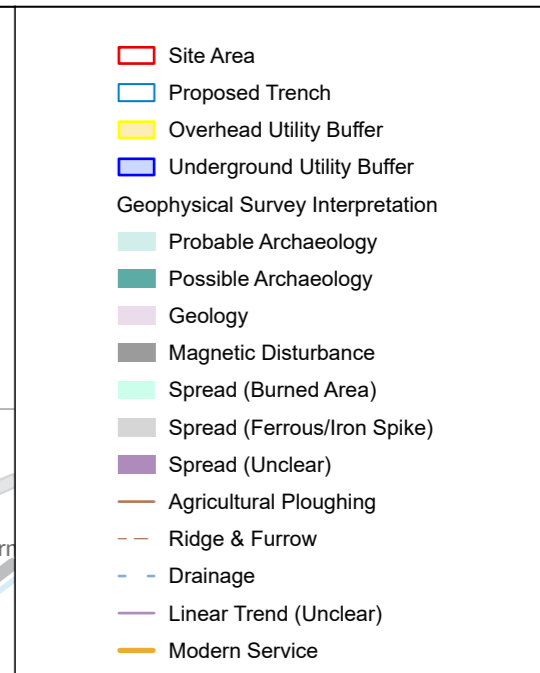
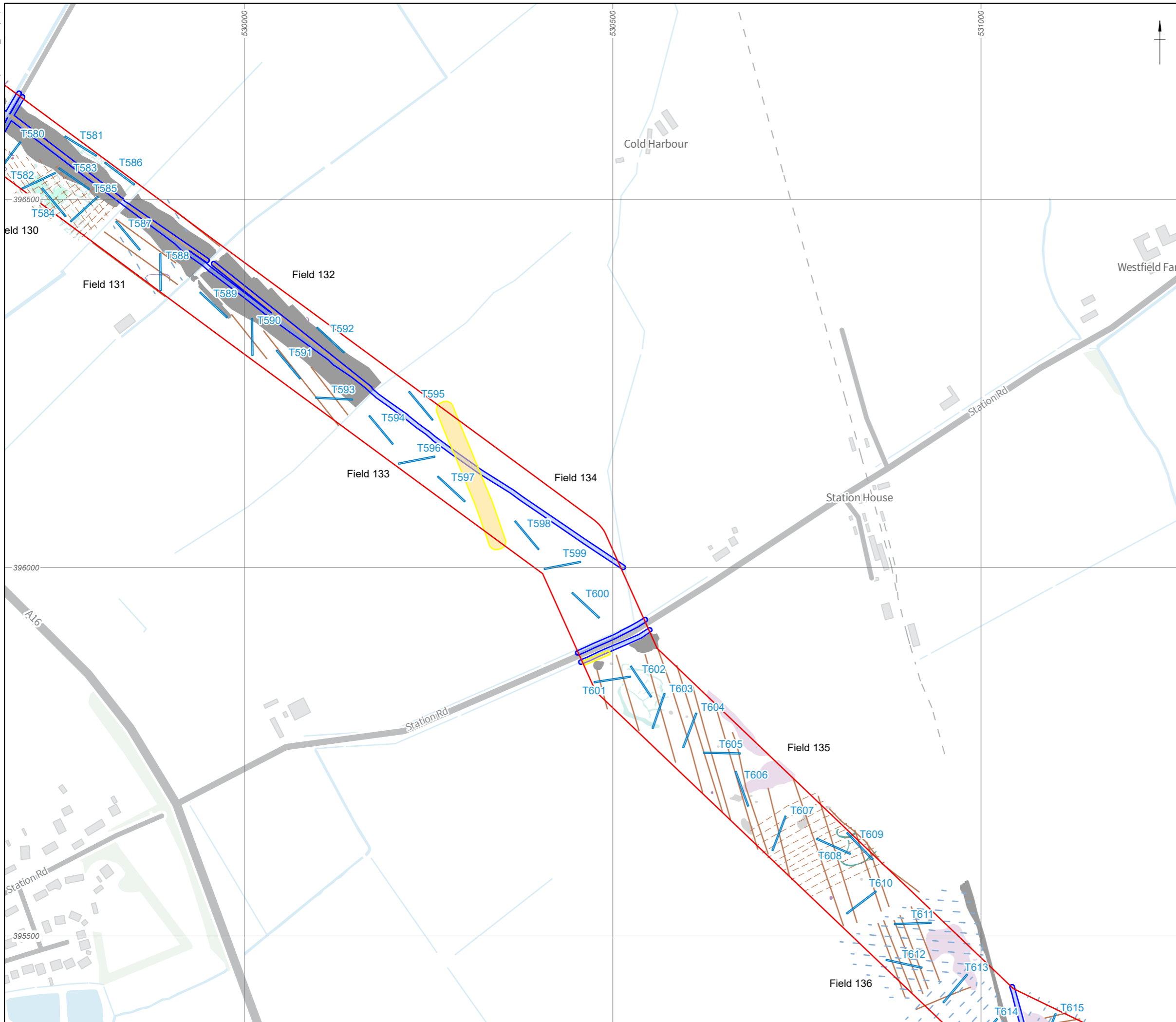
- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Burned Area)
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Linear Trend (Unclear)
- ▭ Modern Service



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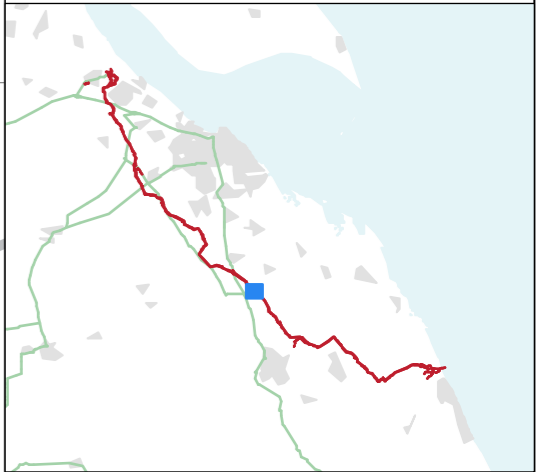
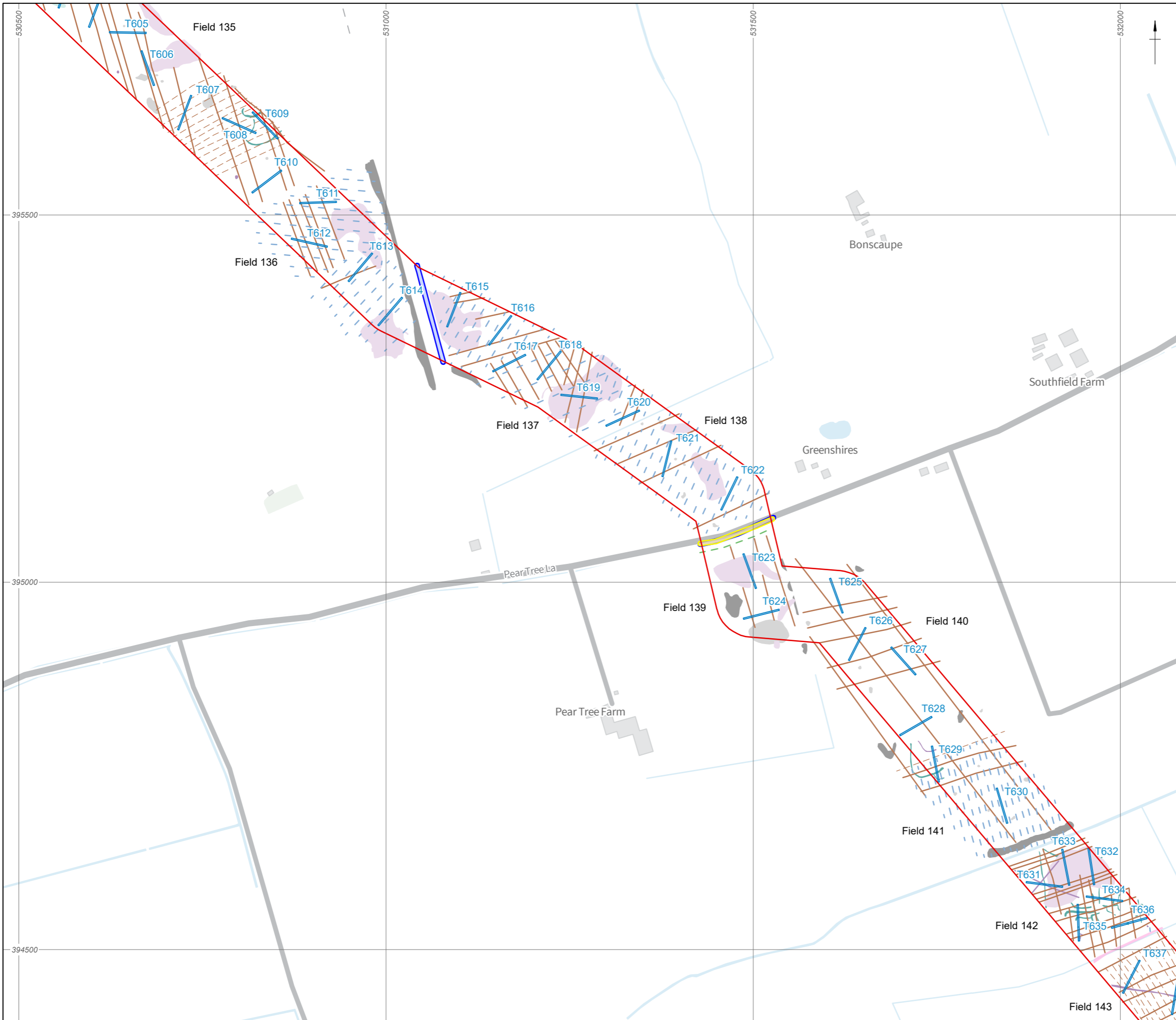
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Figure 24: Proposed trenches



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Figure 25: Proposed trenches		

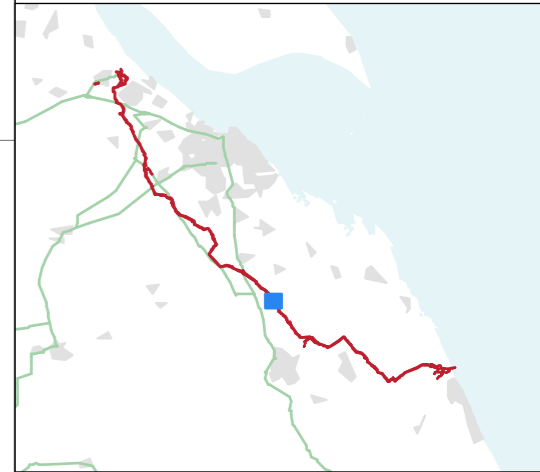


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Figure 26: Proposed trenches		



- ▭ Site Area
- ▭ Proposed Trench
- Geophysical Survey Interpretation
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Drainage
- ▭ Linear Trend (Unclear)



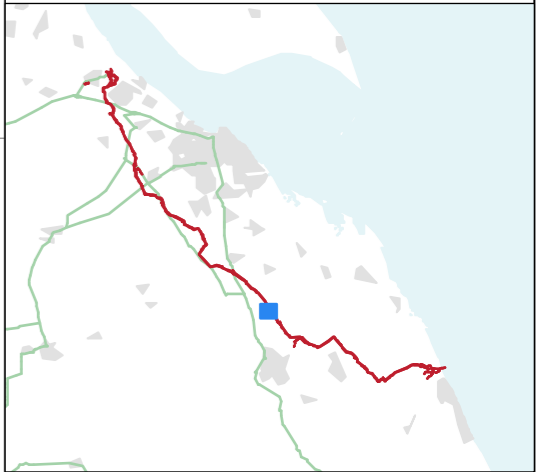
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Figure 27: Proposed trenches



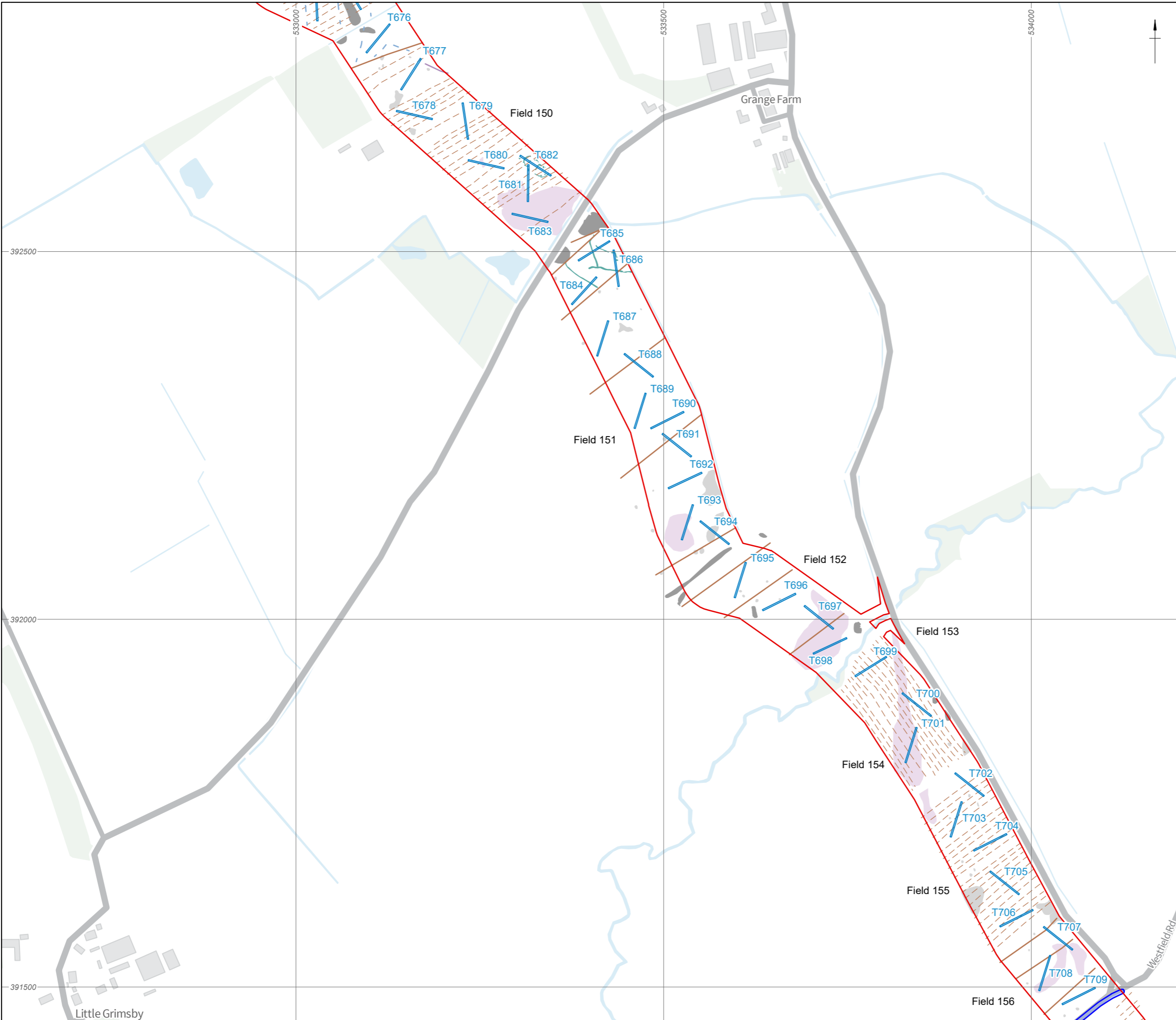
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- ▭ Proposed Trench
- Geophysical Survey Interpretation
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Linear Trend (Unclear)



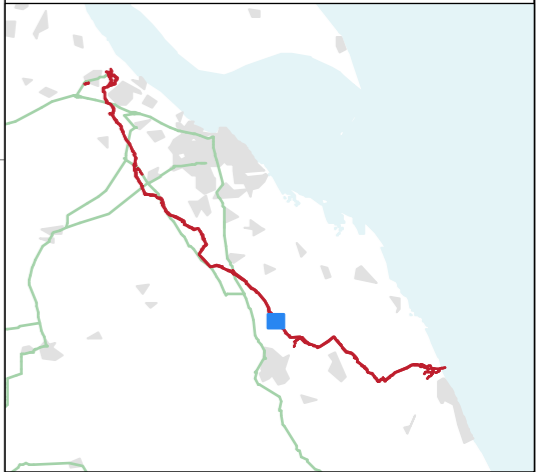
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Figure 28: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage
- ▭ Linear Trend (Unclear)



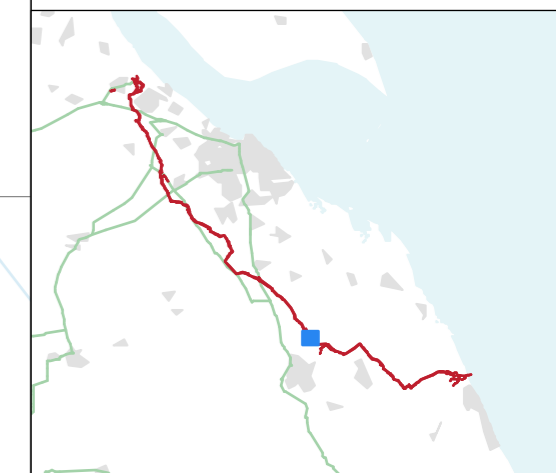
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Figure 29: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage



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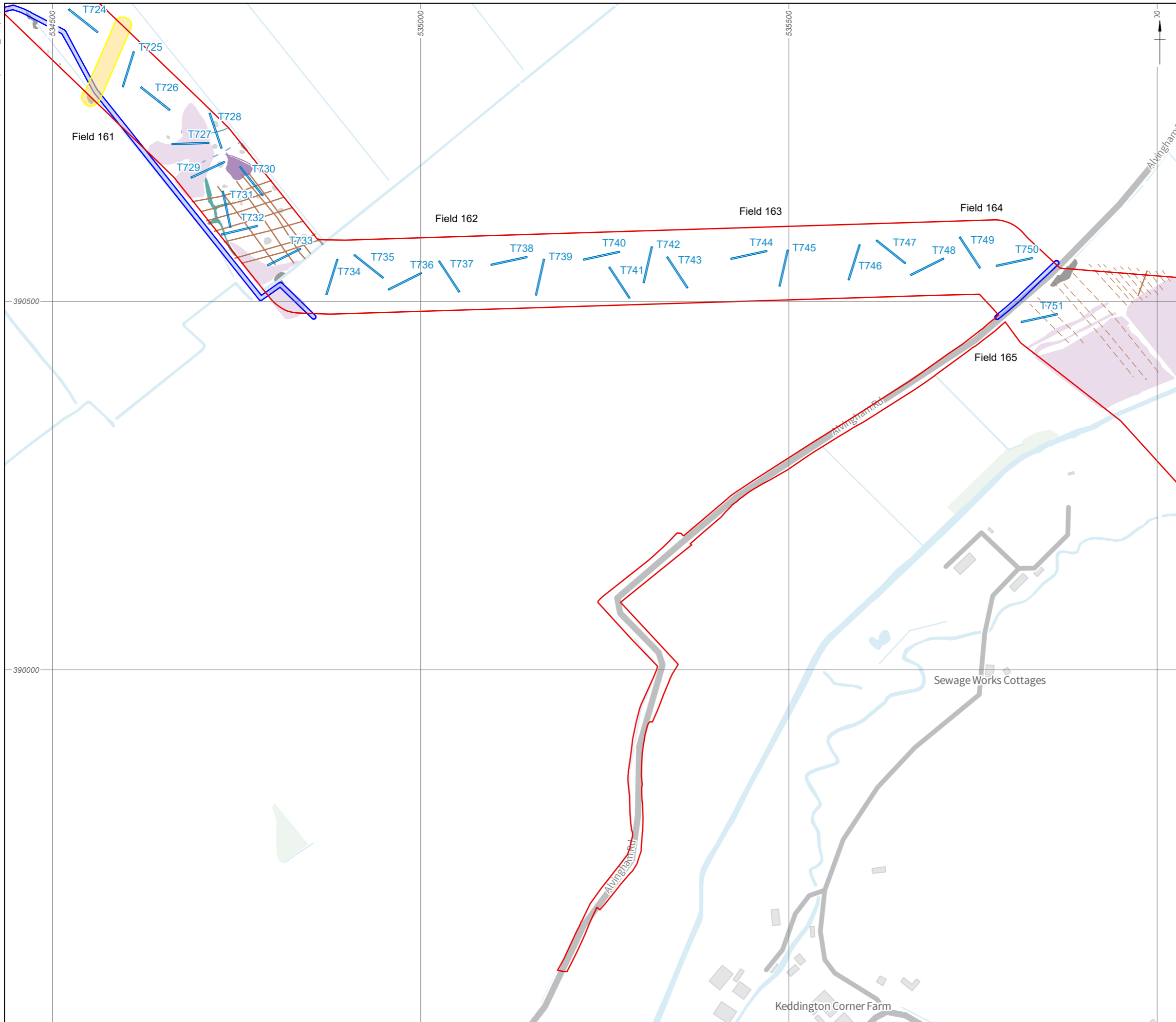
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Figure 30: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Historic Feature
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Drainage



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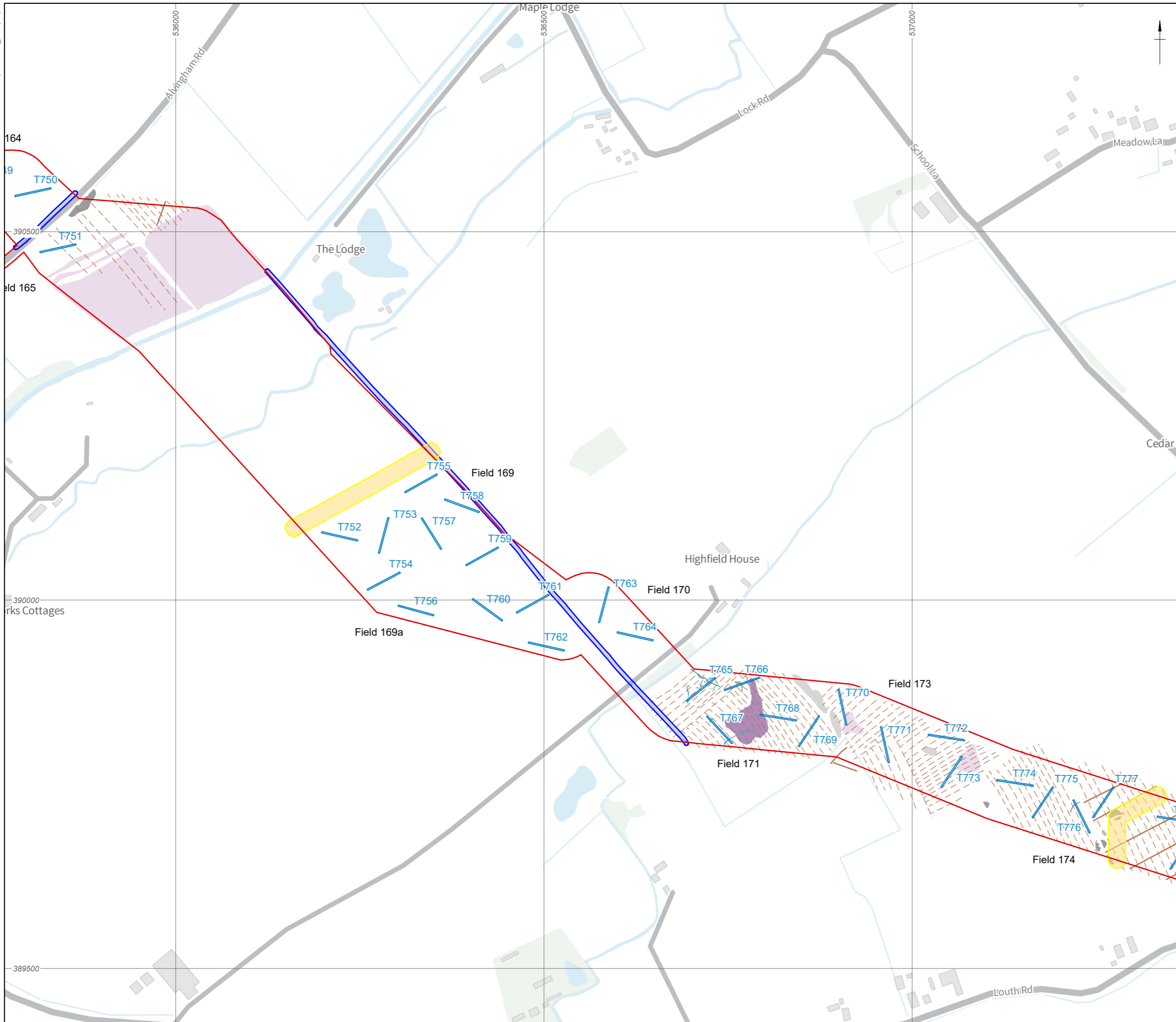
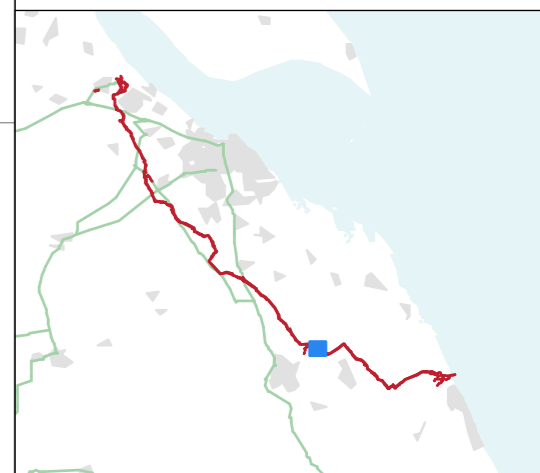
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Figure 31: Proposed trenches

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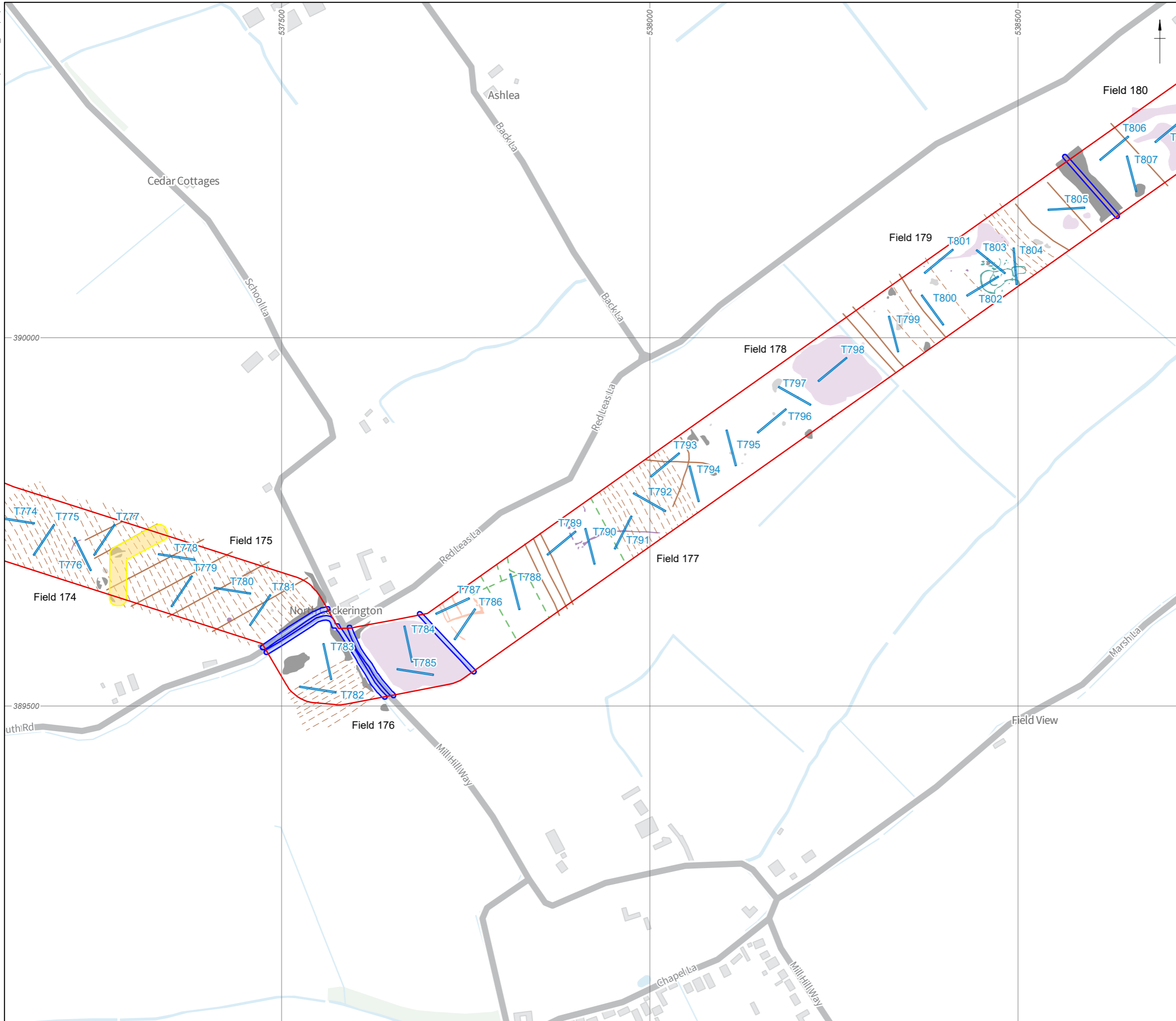


- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow

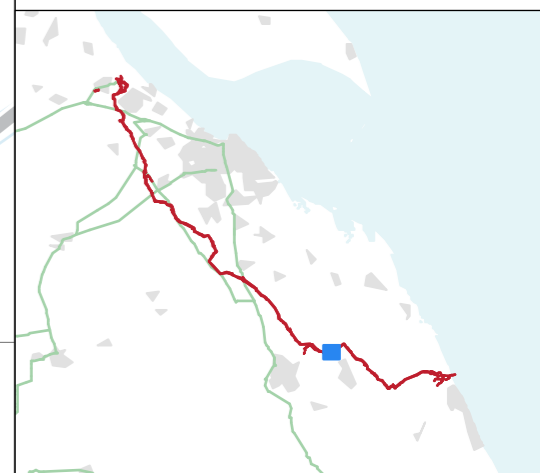


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Figure 32: Proposed trenches		



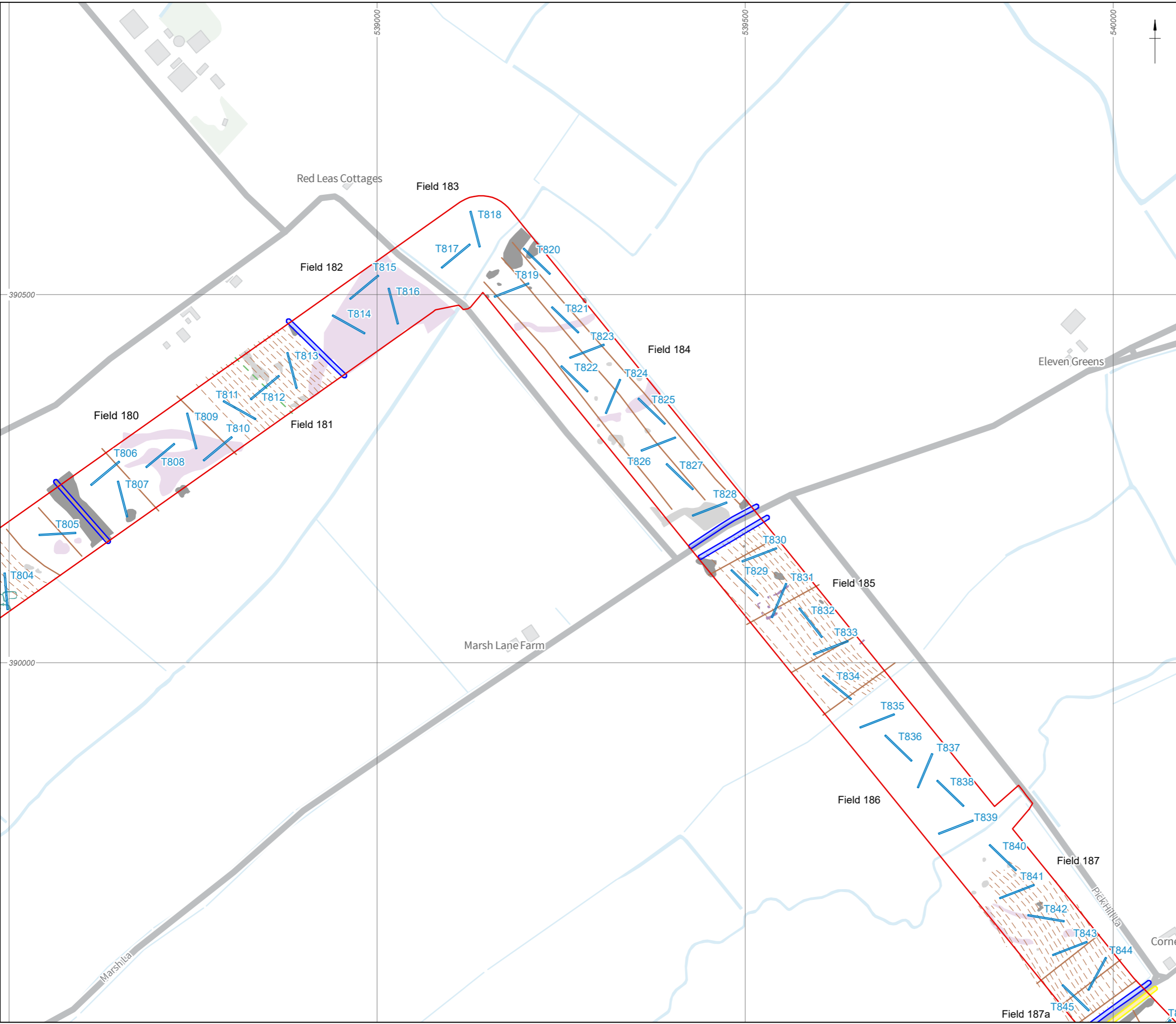
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- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Possible Archaeology
- ▭ Agriculture
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Modern Service



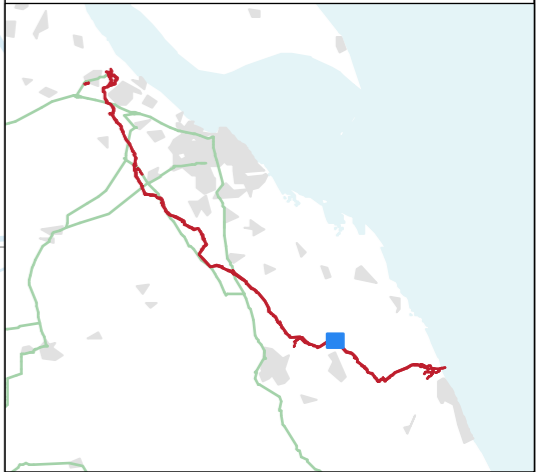
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Figure 33: Proposed trenches



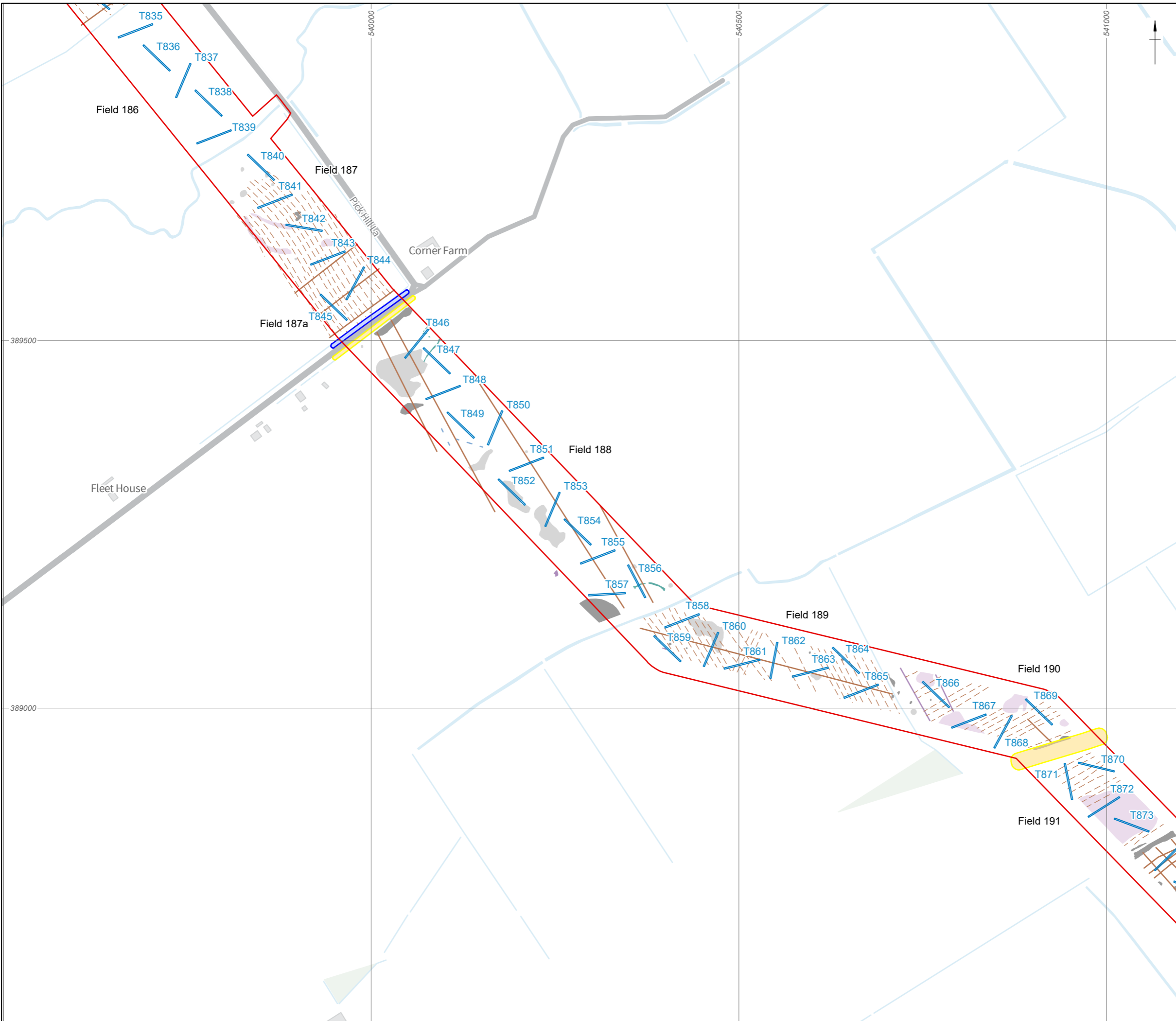
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- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Modern Service
- Ferrous Anomalies/Iron Spike



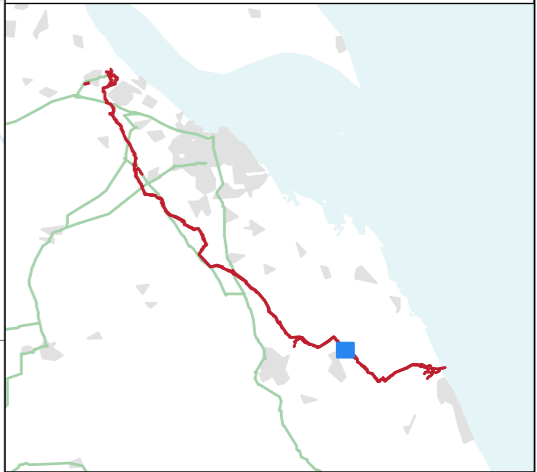
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Figure 34: Proposed trenches



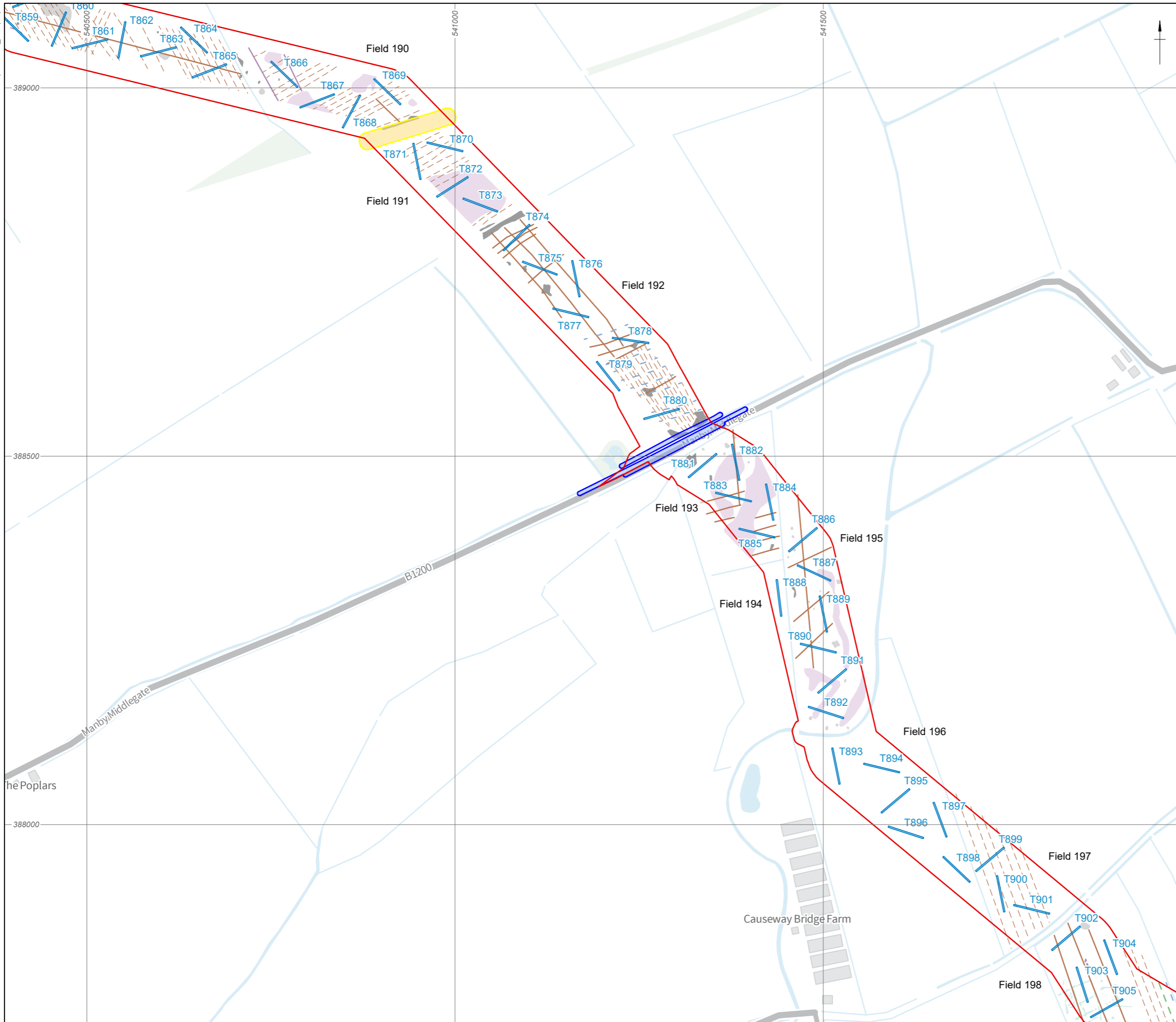
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- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- - - Drainage
- ▬ Linear Trend (Unclear)
- Ferrous Anomalies/Iron Spike



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Figure 35: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Drainage
- ▭ Linear Trend (Unclear)
- Ferrous Anomalies/Iron Spike



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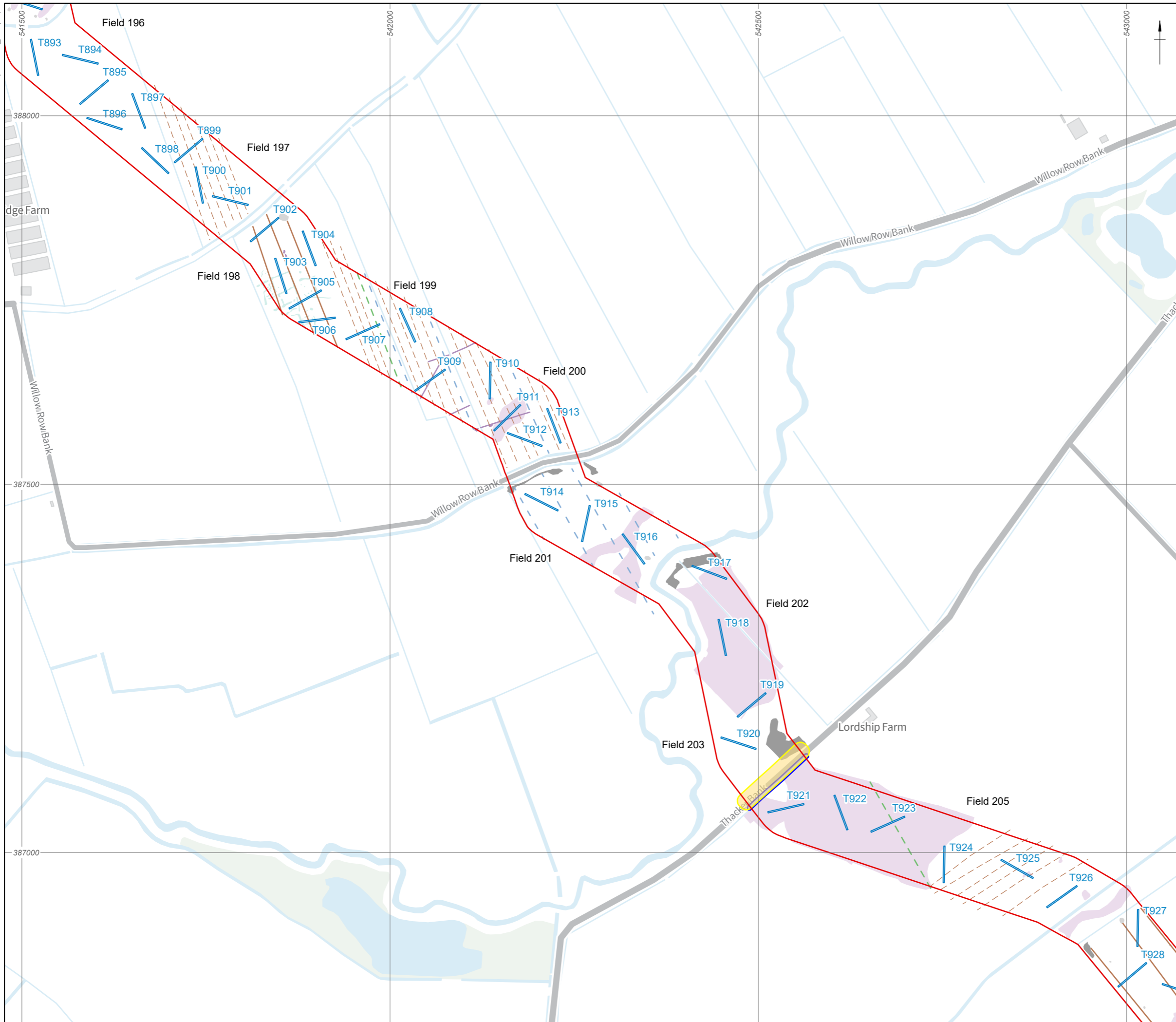
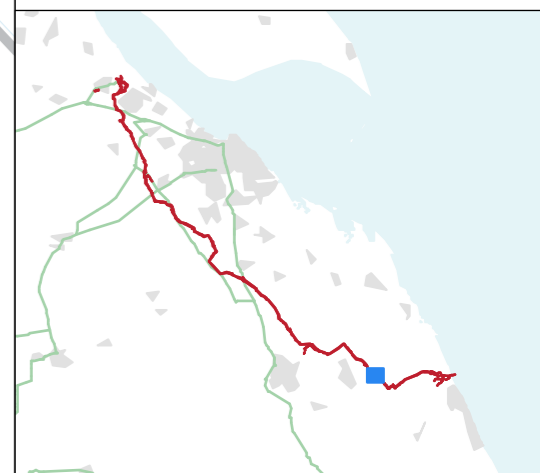
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Figure 36: Proposed trenches

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- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Probable Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Drainage
- ▭ Geology
- ▭ Linear Trend (Unclear)



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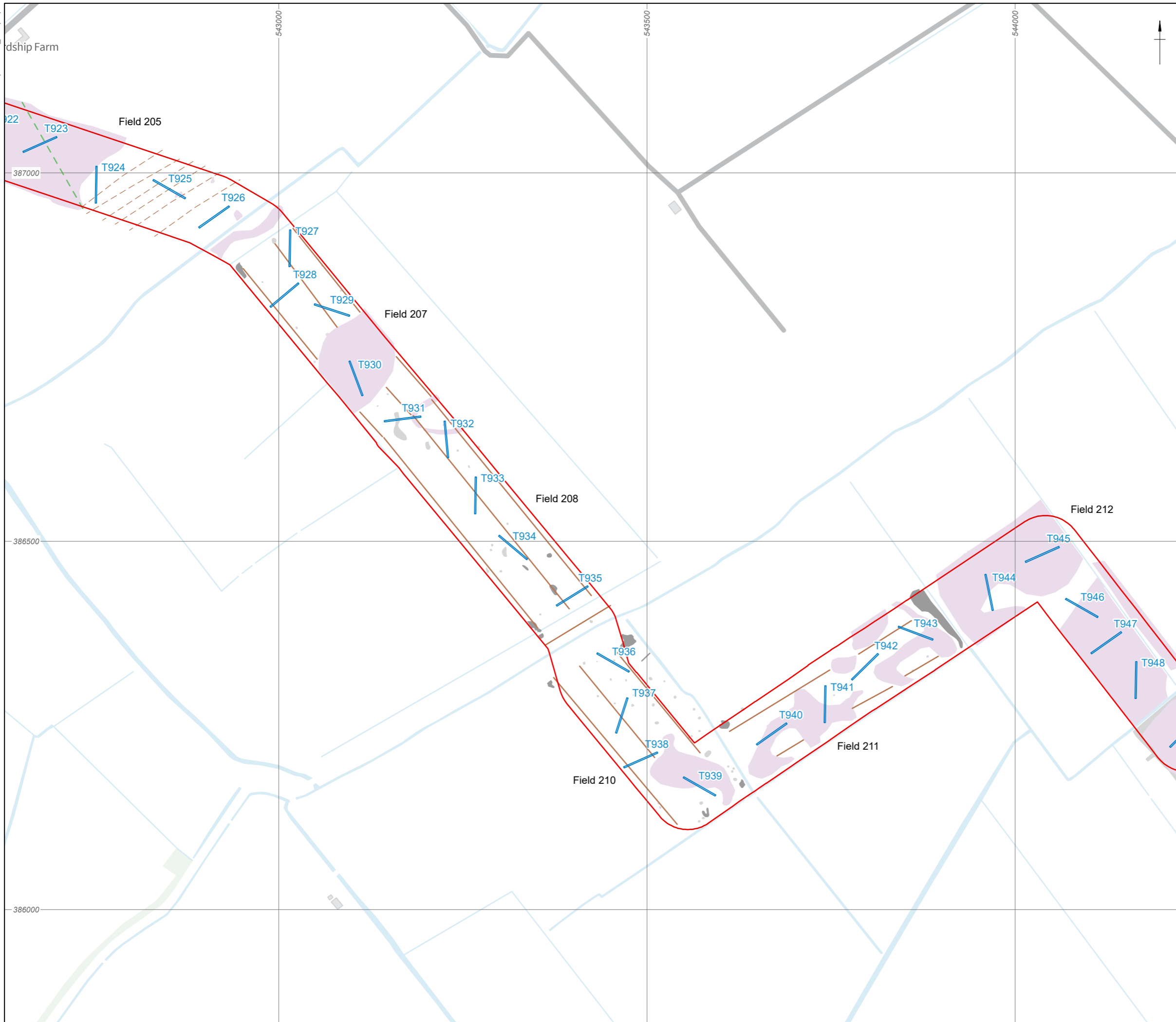
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Figure 37: Proposed trenches

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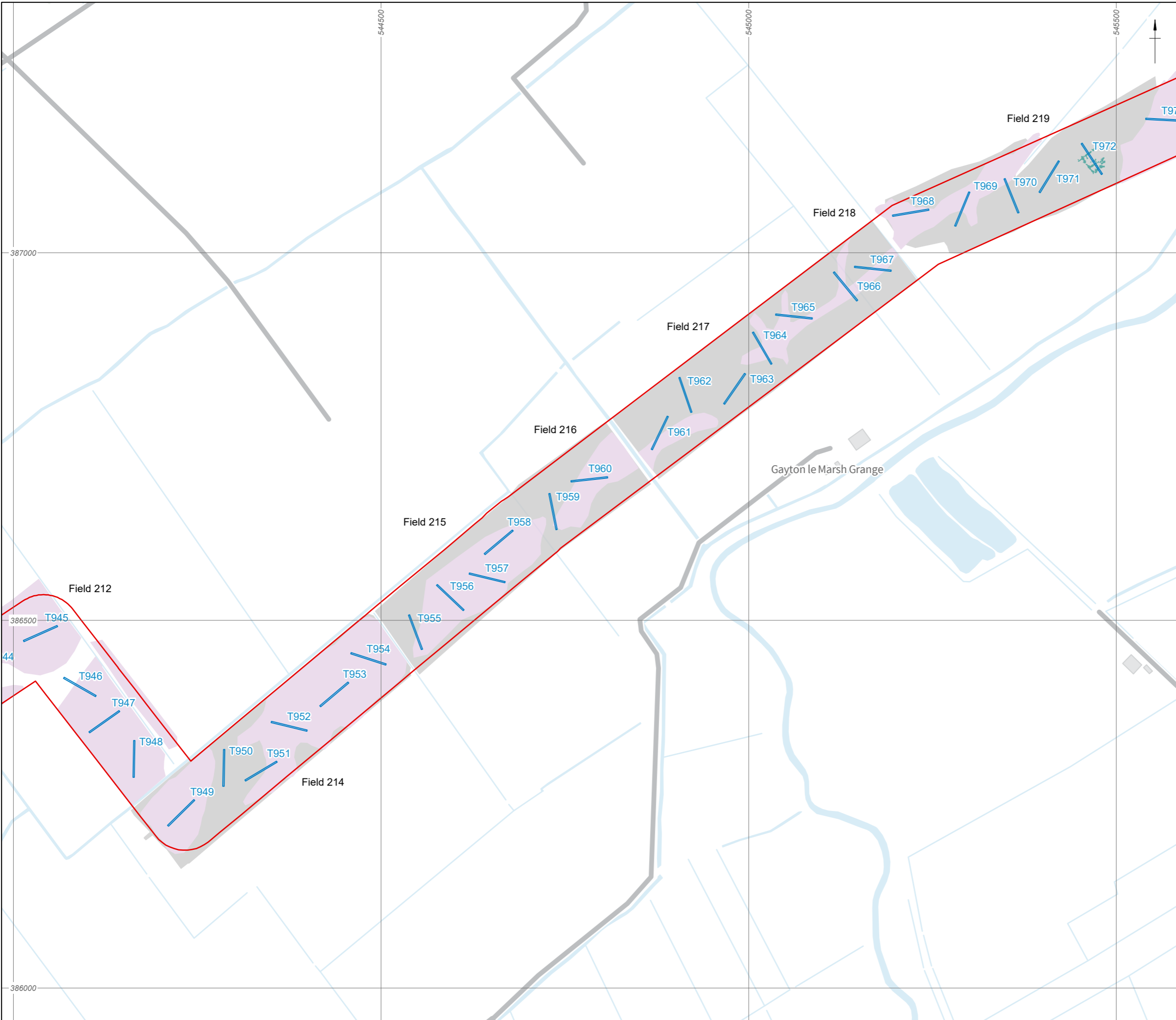
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- ▭ Proposed Trench
- Geophysical Survey Interpretation
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Agricultural Ploughing
- ▭ Ridge & Furrow
- ▭ Historic Feature
- ▭ Magnetic Disturbance



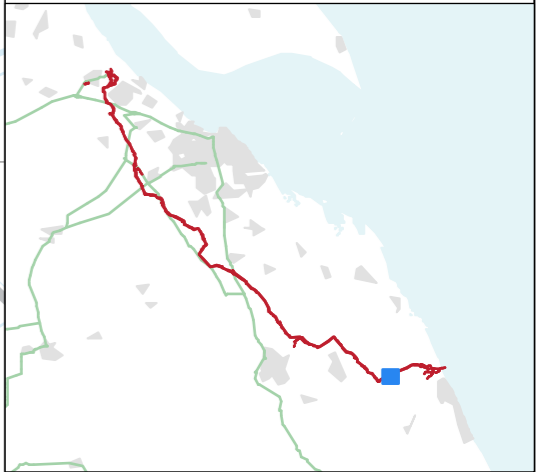
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Figure 38: Proposed trenches



- Site Area
- Proposed Trench
- Geophysical Survey Interpretation
- Possible Archaeology
- Geology
- Spread (Ferrous/Iron Spike)



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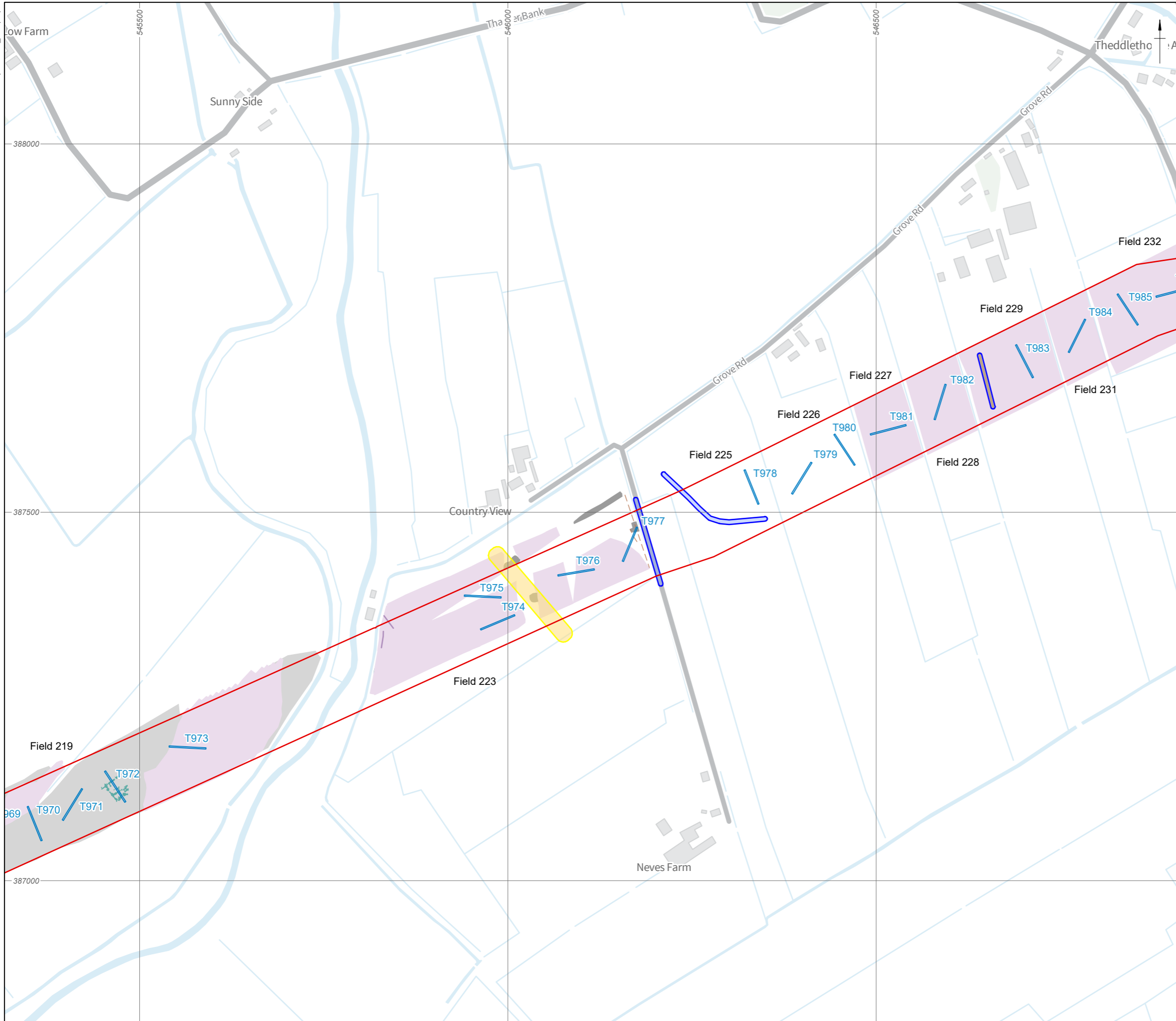
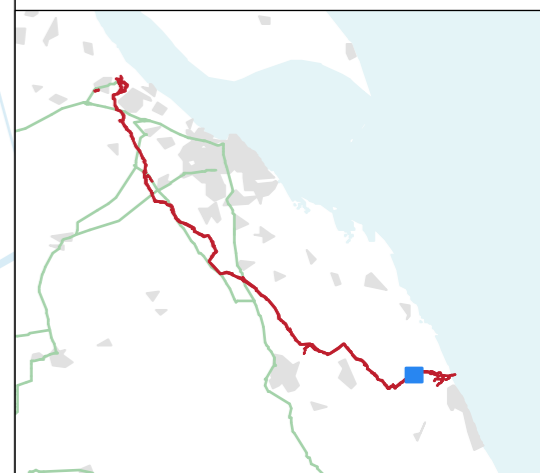
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Figure 39: Proposed trenches

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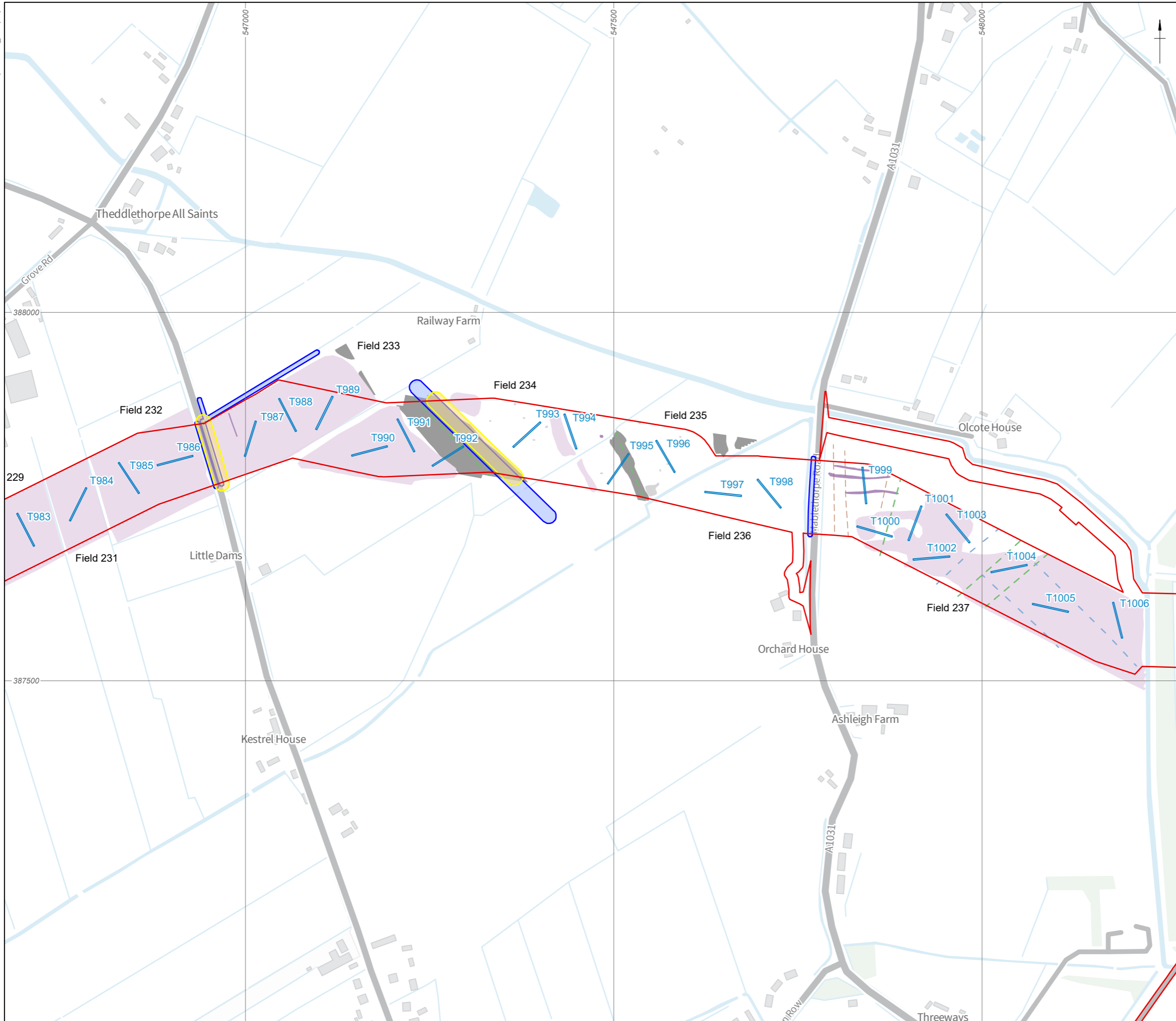
- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Possible Archaeology
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- Ridge & Furrow
- Linear Trend (Unclear)
- ▭ Modern Service



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Figure 40: Proposed trenches



- ▭ Site Area
- ▭ Proposed Trench
- ▭ Overhead Utility Buffer
- ▭ Underground Utility Buffer
- Geophysical Survey Interpretation**
- ▭ Geology
- ▭ Magnetic Disturbance
- ▭ Spread (Ferrous/Iron Spike)
- ▭ Spread (Unclear)
- - - Ridge & Furrow
- - - Historic Feature
- - - Drainage
- - - Linear Trend (Unclear)

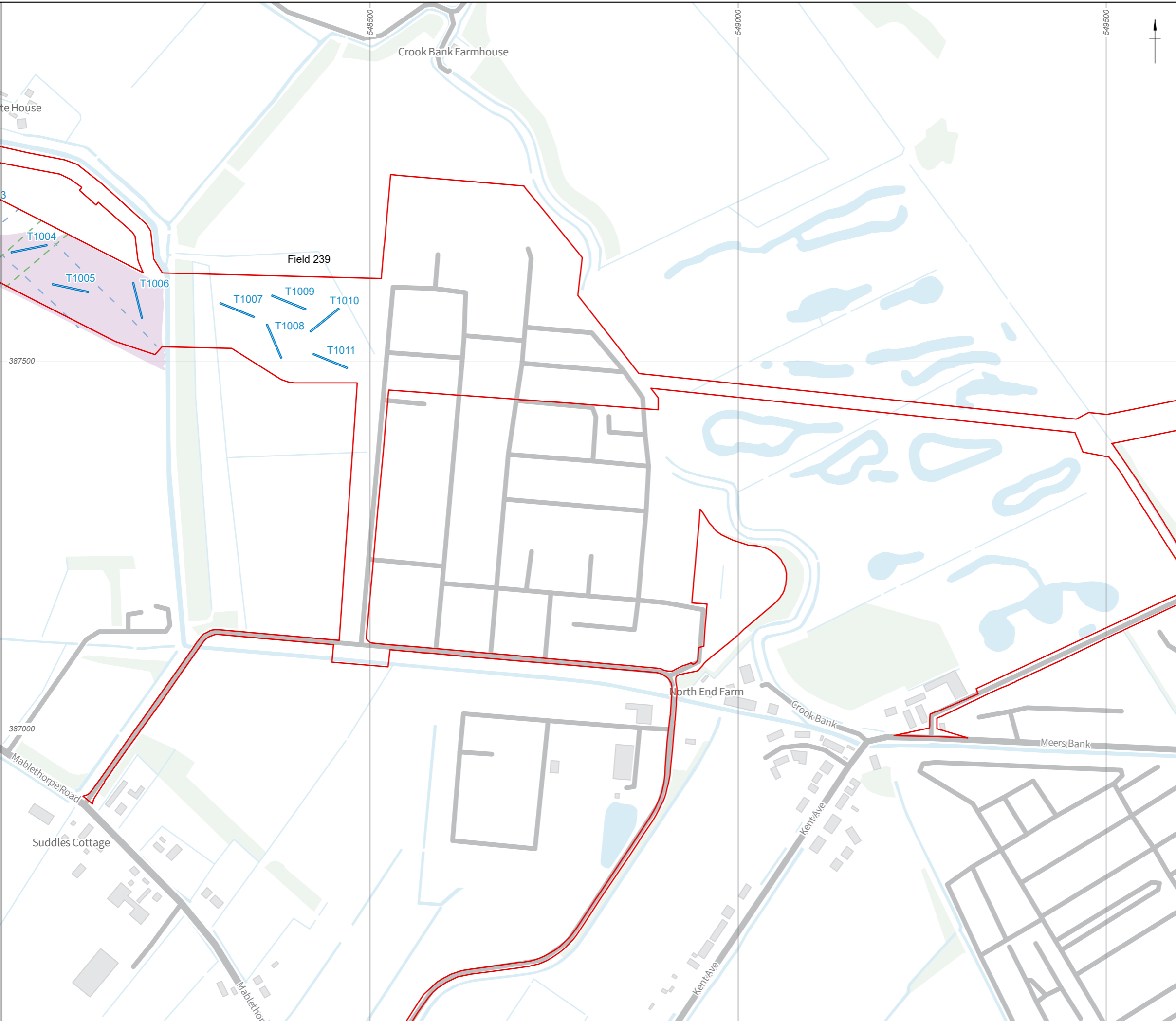


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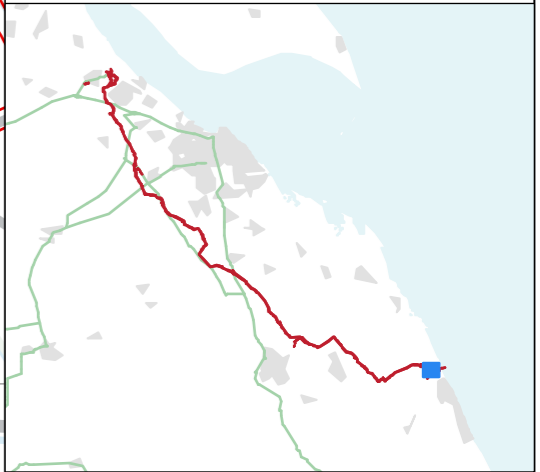
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Figure 41: Proposed trenches

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- ▭ Site Area
- ▭ Proposed Trench
- Geophysical Survey Interpretation
- ▭ Geology
- - - Historic Feature
- - - Drainage



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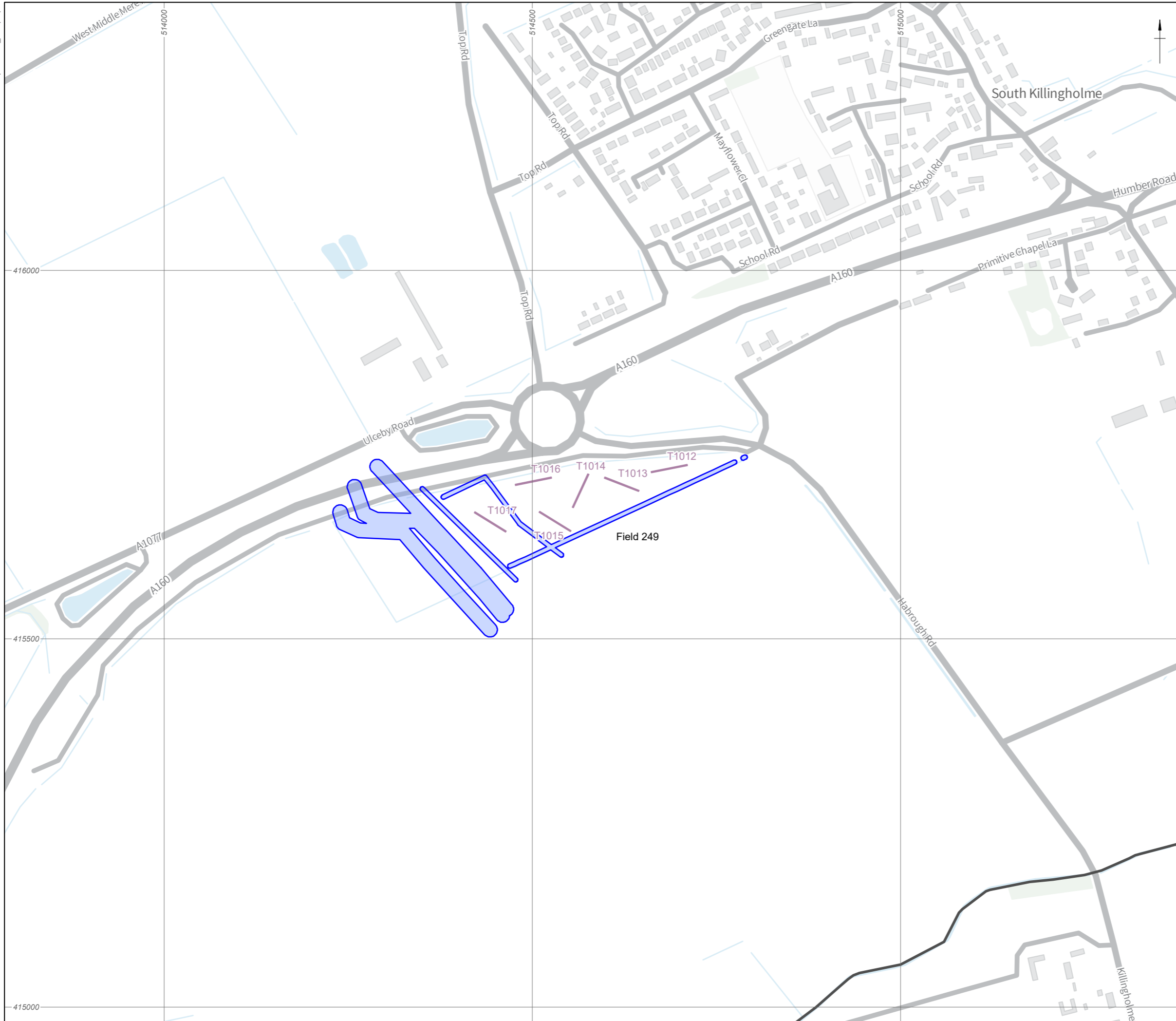
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Figure 42: Proposed trenches



- Descoped Trench
- Underground Utility Buffer
- Local Planning Authority



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Figure 43: Proposed trenches





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Annex E Wessex Archaeology Metal Detecting WSI



VIKING CCS PIPELINE Lincolnshire

Written Scheme of Investigation for
Archaeological Metal Detecting

Planning Ref.: EN070008
Accession Number: LCNCC: 2024.69
Document Ref.: 286442.01
April 2024



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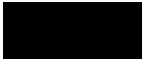
Document title VIKING CCS PIPELINE, Lincolnshire
Document subtitle Written Scheme of Investigation for Archaeological Metal Detecting
Document reference 286442.01

Client name Harbour Energy group
Address 4th Floor, Salire Court
20 Castle Terrace
Edinburgh

Site location From Habrough Road (Immingham) to Maplethorpe Road
(Theddlethorpe)
County Lincolnshire
National grid reference 514655, 415720 to 548407, 387516
Planning authority North Lincolnshire Council, North East Lincolnshire Council, East
Lindsey District Council, West Lindsey District Council along with
Lincolnshire County Council
Planning reference EN070008
Museum name The Collection Museum. Art & Archaeology Lincolnshire
Museum accession code LCNCC: 2024.69

WA project code(s) 286440; 286441; 286442
Project management by Catherine Douglas
Document compiled by Chris Breeden
Graphics by Amy Derrick

Quality Assurance

Issue	Date	Author	Approved by
1 Issued to the client and the curators	05/04/2024	CB	CD 



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Figure 3 Metal detecting survey area



VIKING CCS PIPELINE Lincolnshire

Written Scheme of Investigation for Archaeological Metal Detecting

1 INTRODUCTION

1.1 Project and planning background

- 1.1.1 Wessex Archaeology has been commissioned by Harbour Energy group ('the client') to produce a written scheme of investigation (WSI) for a proposed archaeological metal detecting survey of 26.3 hectares of arable land within the cable route of the Viking Carbon Capture and Storage (CCS) Scheme.
- 1.1.2 The proposed scheme comprises the installation of a new onshore pipeline approximately 55.5 km in length. The pipeline will transport Carbon Dioxide from the Immingham industrial area to Theddlethorpe on the Lincolnshire coast where it will connect to the offshore LOGGS pipeline.
- 1.1.3 The pipeline starts west of Immingham ends at Theddlethorpe Gas Terminal. It extends across the administrative areas of Lincolnshire County Council, North Lincolnshire Council, North East Lincolnshire Council, West Lindsey District Council and East Lindsey District Council. (West Lindsey District Council and East Lindsey District Council are located within the Lincolnshire County Council administrative boundary).
- 1.1.4 The key components of the Proposed Scheme comprise:
- Immingham Facility;
 - Approximately 55.5 km 24-inch onshore steel pipeline (including cathodic protection);
 - Three Block Valve Stations;
 - Theddlethorpe Facility;
 - Existing LOGGS pipeline and isolation valve to the extent of the Order Limits at Mean Low Water Springs (MLWS);
 - Permanent access to facilities;
 - Mitigation and landscaping works;
 - Temporary construction compounds, laydown, parking and welfare facilities;
 - Temporary access points during construction.
- 1.1.5 The Scheme is defined as a Nationally Significant Infrastructure Project (NSIP) under Section 14(1)(a) and 15(2) of the Planning Act 2008 (Ref 1-2) as a construction of a pipeline other than by a gas transporter'. The Planning Act 2008 requires the Applicant to apply for a Development Consent Order (DCO) to develop the NSIP.
- 1.1.6 A consultation has been undertaken with key stakeholders with specific focus on the historic environment, including Historic England and the archaeological advisors to East Lindsey



District Council, Lincolnshire County Council, North Lincolnshire Council and North East Lincolnshire Council (collectively called the Viking CCS Heritage Consultees).

- 1.1.7 The metal detecting survey is required to inform the potential for the adjacent Civil War fortification and the Welbeck Hill Anglo-Saxon cemetery sites to extend into the DCO site boundary.

1.2 Scope of document

- 1.2.1 This WSI sets out the aims and objectives of the survey, and the methods and standards that will be employed. It conforms to current best practice, as well as the Chartered Institute for Archaeologists' relevant standards and guidance (CIfA 2023a–b) and the guidance in *Management of Research Projects in the Historic Environment* (MoRPHE; Historic England 2015a).
- 1.2.2 This document will be submitted to Viking CCS Heritage Consultees, archaeological advisors to the Local Planning Authority (LPA), for approval prior to the survey commencing.

1.3 Location, topography and geology

- 1.3.1 The metal detector survey will be conducted in fields 70IrbNEL to 77BLBNEL in Section 3 of the scheme (Figure 1) in advance of any trial trenching taking place.
- 1.3.2 Section 3 lies between the A46 road, south-west of Laceby and ends at Pear Tree Lane south-east of Ludborough, in North-East Lincolnshire.
- 1.3.3 The ground levels are at 53 aOD at the start of the section and gradually falls to 44 aOD west of Scrub Holt Farm (field 70). As the pipeline passes the scheduled Civil War earthworks west of field 72 the ground levels continue to fall to 28 aOD. Between the A18 road (field 74a) and Waithe Beck (field 97) the ground levels are generally between 28 and 41 aOD, however it dips to 18 aOD at broad valley of Waithe Beck, south of Waltham Road, Brigsley (B1203 road). The ground level again rises to 40 aOD as the pipeline travels south of Ashby cum Fenby. Where the section continues south of North Thoresby the ground drop to 21 aOD and towards the end of the section it remains between 21 and 24 aOD.
- 1.3.4 The majority of the bedrock geology is Chalk of the Welton Chalk Formation comprised of thickly bedded chalk, apart from the northern end which is dominated by Chalk bedrock of the Burnham Chalk Formation. The superficial deposits recorded are mostly Glacial Till, however alluvium is also present along the watercourses e.g. Laceby Back and Waitheby Back. Smaller localised superficial deposits, Lacustrine north of Ludborough and Glaciofluvial around Grainsby are also present (British Geological Survey 2024).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND.

2.1 Introduction

- 2.1.1 The archaeological and historical background was assessed in a prior desk-based assessment (AECOM 2023a), which considered the recorded historic environment resource within a 500 m study area of the scheme. The results for Section 3 are presented below, with relevant entry numbers from the Lincolnshire Historic Environment Record (HER) and the National Heritage List for England (NHLE) included. This information was detailed in a prior WSI (AECOM 2023c) and has been replicated below with due acknowledgement. Additional sources of information are referenced, as appropriate.



2.2 Previous scheme-wide investigations

Geophysical survey (AECOM 2024)

- 2.2.1 The majority of the anomalies reflect long-term agricultural use of the area in the form of former mapped and unmapped field boundaries and ridge and furrow systems. Both probable and possible archaeological anomalies were identified across site, the most prominent are possibly prehistoric or Romano-British enclosures in fields 11, 22, 32, 33, 38, 109, 128, 129 and 135; and possible trackway in fields 23, 24, 25, 26 and 130. Numerous anomalies within the site have been classified as unclear of origin as its unclear whether they are the result of archaeological, agricultural, or natural processes.

Aerial photographic assessment LiDAR analysis (AECOM 2023b)

- 2.2.2 The assessment recorded numerous archaeological sites and landscapes from the prehistoric to post-medieval period. Fifty-three individual sites or landscape areas were identified with 45 located within the site, eight sites lay adjacent or up to 200m outside the site boundary. Most notably were a possible Iron Age stock corralling site with “banjo” shaped ditched enclosure in field 169a; enclosure ditch in field 135; enclosure ditches overlain by eroded remains of Medieval fields in field 125, 128; ditches possibly associated with of Autby House and Park at ML41209 in field 123 and an earlier settlement site located north of field 15 and is now built over by Immingham Power Station.

2.3 Archaeological and historical context – Section 3

Prehistoric (to AD43) and Roman (AD43-450)

- 2.3.1 Evidence of prehistoric activity comes from findspots and cropmarks along this Section of the pipeline route. Small amounts of prehistoric flintwork comprising tools and waste material have been recovered at Irby Upon Humber (MNL1213), Holton le Clay (MLI41238), Ashby cum Fenby (MNL2110, MNL2111) and near Grainsby (MLI41215). Neolithic flints (two flint scrapers and numerous flint flakes, including a human tooth) were discovered in Hatcliffe, located in discrete patches that possibly reflect disturbed buried features (MNL2081).
- 2.3.2 There is a possible prehistoric burial mound at Waltham that is visible as a subcircular cropmark on aerial photographs (MNL2554); and beyond the wider area there is a scheduled Bronze Age round barrow cemetery at Tetney (visible as low earthworks and cropmarks) (NHLE1469975).
- 2.3.3 Topographic features such as hilltops and areas of higher ground may have been attractive to early settlers. A spring located on Welbeck Hill, west of Barnoldby le Beck, is marked on OS maps of 1887-9. but may have been used in the prehistoric period (MNL1570). Similarly, Laceby Beck may have been a valuable resource from the prehistoric period (connecting Wellbeck Spring in the south with the River Freshney in the north) (MNL4273) and also Waithe Beck (MNL4344).
- 2.3.4 A possible late prehistoric or Roman enclosure, with an opening to the east and a small enclosure at the northwest corner, has been identified from aerial photographs at Ludborough (MLI98689). Another possible late prehistoric farmstead, with an associated field system, has been identified from cropmarks, west of North Thoresby, and beyond the wider area (MLI87920). Iron Age pottery from a ditch at Ashby cum Fenby is possibly indicative of late Iron Age activity in the area (MNL4398).
- 2.3.5 There is evidence for more extensive Romano-British occupation and settlement within this Section of the pipeline route. A possible Roman villa is visible as a cropmark to the west of



Barnoldby le Beck (MNL850). Finds recovered from the site include a wide range of material such as brickwork, stone roof tile, a flint core and flakes, worked stone masonry, painted plaster, ceramic roof tile, possible tessera, possible hypocaust tiles, animal bone, stonework with paint and a large number of grey-ware sherds. At Irby upon Humber a dark soil on the south side of Welbeck Hill has produced Roman finds (abundant animal bone, burnt material and Roman pottery) (MNL1952). The presence of early medieval pottery at the same site suggests that occupation may have extended into later periods. Surface artefact collection, archaeological geophysical survey and archaeological excavations of a cropmark site have revealed evidence of a Romano-British settlement at Hatcliffe (MNL211).

- 2.3.6 Southwest of Hatcliffe Mill another Roman settlement is suggested by possible building platforms, that are visible on aerial photographs, alongside an old road (MNL208) with abundant Roman pottery from an adjacent field. In Ashby cum Fenby a Romano-British pit or ditch was uncovered during a watching brief in 1995 (MNL2370). Roman material has also been found near Ashby Hill, west of Ashby cum Fenby (MNL96) and Roman coins (together with early medieval and medieval material) has been reported by the Portable Antiquity Scheme near Ashby cum Fenby. An extensive Romano-British field system, covering approximately 12 acres that is associated with a possible vineyard, is visible on aerial photographs at North Thoresby (MLI41207). Pottery that is associated with dark soilmarks at Grainsby may indicate the presence of kilns and a buried cultivation system (MLI41216).
- 2.3.7 Several cropmark features that have been detected in this Section, but which are undated, could represent evidence for occupation in the prehistoric and Roman periods.

Early medieval (450-1066) and medieval (1066-1500)

- 2.3.8 The pipeline route passes several historic settlements that have their origins in the early medieval and medieval periods, however, not all settlements prospered, and there are a number of shrunken and deserted settlements. Irby upon Humber (whose historic core lies within the wider area, MNL67) is mentioned in Domesday, the Lindsey Survey (c.1115AD) and the Assize Rolls (1202AD) and likely has early medieval origins. It developed on patches of high ground around a river-less valley and the settlement formed around a sub-rectangular road, with others radiating away from it, but it appears that there was no particular focus for dense settlement, instead it contained small clusters of houses and farmsteads, separated from each other by relatively small distances.
- 2.3.9 Barnoldby le Beck also has early medieval origins and is mentioned in historical sources (Domesday (1086), the Lindsey Survey (c.1115), and the Index to the Charters and Rolls (1202)). Part of its historic core is within the DCO Site Boundary (MNL137). In the post-medieval period, it was de-populated and emparked. A cluster of farmsteads and cottages is shown around the parish church at the end of the 19th century, suggesting that in the medieval period there was a dense nucleated core with a tight grid like pattern of roads. Crofts arranged along a possible road, suggestive of planned settlement, are documented around 250 m south of the church. Two large areas of parkland were established around the 18th to 19th centuries 'Manor House' and 'Oakland House' (also known as 'Woodlands' and 'The Grange') which may have involved some re-organisation of the settlement. Remains dating to the 13th and 14th centuries have been recorded during archaeological investigations and there are earthworks representing the former medieval extent of settlement to the south of Main Road and Waltham Road (building platforms, paddocks and trackways).



- 2.3.10 Brigsley is mentioned in Domesday (1086), the Lindsey Survey (c.1115), the Assize Rolls (1202) and the Index to Charters and Rolls in the British Museum (1202). The settlement is formed within a rough grid-based road system of three north-south roads and two east-west roads with the parish church roughly central (MNL2250). Areas of historic settlement earthworks survive, including a hollow-way to the east of the church which represents an abandoned road. To the east of the hollow-way is a post-medieval manorial site, around which appear to be the earthworks of medieval building platforms and house plots now covered by woodland. Archaeological investigations in Brigsley have uncovered evidence dated to the early medieval to medieval periods (ditches containing Ipswich ware and Northern Maxey Ware) (MNL2320).
- 2.3.11 The settlement of Holton le Clay is first documented in the Domesday Book and is subsequently documented throughout the medieval period (MLI80552). The remains of parts of the medieval settlement are visible on aerial photographs. There is evidence to suggest that the origins of the village lie in the late Anglo-Saxon period, if not earlier. Saxon graves were found during excavations at the church and finds dating from the mid- to late Saxon period were also recovered. Archaeological investigations elsewhere in the village have produced late Saxon and medieval pottery and medieval and post-medieval features.
- 2.3.12 Ashby cum Fenby is also mentioned in Domesday (1086), the Lindsey Survey (c.1115) and the Curia Regis Rolls (1205). Archaeological investigations have found evidence of 9th to 15th century occupation (MNL2113, MNL3102), including areas that are within the DCO Site Boundary (MNL2249, MNL98). Aerial photographs and historic documents suggest that the settlement comprised dwellings interspersed with garths, paddocks and crofts. From at least the 19th century the settlement spread to the south of the manor and church. The area around the medieval manor was converted into parkland and formal gardens during the post-medieval period.
- 2.3.13 Hawerby is an historic settlement known to have existed since the early medieval period (MNL233). The former settlement pattern is of house platforms and crofts, arranged along a single central road, with the church and rectory to the west and a small country house with its associated farmstead to the north.
- 2.3.14 The pipeline route passes close to an Anglo-Saxon cemetery on Welbeck Hill (MNL64) that spread along a gravel spur projecting from the hilltop. This was investigated in 1962 and 1979 and a total of 72 inhumation and 5 cremation burials were recorded in three areas: north-south along the hill crest, east-west on the hill's western slope and a deposit of cremations on the eastern slope. Finds recovered from the burials indicate a likely date for the burials from the mid-5th century to the 6th century and it is likely that the cemetery went out of use in the late 6th or early 7th centuries. It is possible that the cemetery has not been fully excavated. A soil mark area to the northeast of the cemetery could represent either contemporary settlement or possibly a pyre associated with the cremations found in the cemetery (MNL71).
- 2.3.15 There is evidence of medieval settlement and cultivation across this Section with a cluster in and around the settlements that had their origins in the early medieval period. Southwest of North Thoresby, traces of the deserted medieval settlement of Autby (MLI41208) have been identified in the northwest corner of Autby Park (MLI41209). The scheduled remains of the deserted medieval village of Beesby [NHLE1003553] are located on the edge of the wider area, north of Cadeby Hall (northwest of Ludborough), and to the south of Cadeby Hall are the remains of the deserted medieval village of North Cadeby (NHLE1003611).



- 2.3.16 Beyond the wider area are the remains of Waithe deserted medieval village (located alongside the A16 road (MLI41233) and the shrunken medieval settlement of Grainsby, which extends either side of Grainsby Lane (MLI41222).
- 2.3.17 Several medieval moated sites are scattered across the Section, including east of Manor House, Irby upon Humber (MNL2511), where a square enclosure is flanked and respected by ridge and furrow; and at Ashby cum Fenby where there is a moated site and other possibly associated features which are crossed by the DCO Site Boundary at Hall Farm (MNL411). At Barnoldby le Beck an L-shaped fishpond which is marked on OS maps of 1887-9 is potentially the remains of another moated site (MNL1590); and at Ludborough, the Manor Moated site [673] has several earthworks including a rectangular enclosure likely to represent the site of the former manor house.
- 2.3.18 Aerial photography has identified several areas of medieval / post-medieval ridge and furrow throughout this Section. At Barnoldby le Beck extensive ridge and furrow earthworks almost surround the village core and are preserved in the two landscape parks to the south of the village, including within the DCO Site Boundary (MNL2228). Ridge and furrow are also recorded at Welbeck Hill, northwest of Barnoldby le Beck, also within the DCO Site Boundary (MNL2237). At Brigsby, numerous disparate areas of ridge and furrow earthworks (MNL2230) suggest that these remains are part of more extensive cultivation systems (a geophysical survey identified linear features which might be the remains of ridge and furrow along with other field boundaries). In Ashby cum Fenby there are also extensive earthwork remains of ridge and furrow cultivation features visible on aerial photographs from the late 1940s (MNL2224) (AECOM 2023b) Ridge and furrow cultivation features are also recorded at Laceby (MNL2243), Hatcliffe (MNL2236), Grainsby Grange (MLI98651, MLI98650) (field 108), Hawerby (MNL2226) and northeast of Ludborough (MLI125503) and at Cold Harbour Farm (Ludborough Parish) where cropmarked features are visible partially within and next to the DCO Site Boundary (field 131).

Post-medieval (1500-1900) and modern (post-1900)

- 2.3.19 Southeast of Irby upon Humber and below Welbeck Hill is a scheduled Civil War earthwork fort that is located c.75 m west of the DCO Site Boundary (NHLE1007735, MNL62) (south of field 71) (AECOM 2023b). The 17th century fort comprises a rectangular earthen rampart, with projecting bastions at each of its four corners, an enclosing ditch, and a counterscarp bank. It is sited on high ground close to the road from the Humber to Boston and Kings Lynn (Barton Street, A18) and within easy reach of the road from Newark to the Humber via Gainsborough (Grimsby Road, A46). It is possible that remains associated with the Civil War fort may extend into the DCO Site Boundary.
- 2.3.20 A post-medieval field boundary that is partially within the DCO Site Boundary is visible on satellite imagery between Barnoldby le Beck Park and Waithe Beck (field 86) and another field boundary that is broadly aligned along the axis of the DCO Site Boundary is visible also as a cropmark feature at Ashby cum Fenby (fields 100 and 101).
- 2.3.21 The OS maps of 1887-9 show two areas of parkland on the south side of Barnoldby le Beck with a northern boundary along Main Road and Waltham Road (MNL1588, MNL1589) and at Hawerby cum Beesby. Part of Hawerby Park is close to the DCO Site Boundary (MNL1870), it surrounds St Michael's Church and is also shown on OS maps of 1887-9. Further south there is a large area of dispersed trees, occasionally in groups, indicative of a landscape park (shown on the OS maps of 1887-9) (MNL3935), possibly an extension of Cadeby Park or parkland for Beesby House, which lies at the centre of the landscape. The parkland is still extant in areas where scheduled medieval earthworks are present (NHLE1003553). Early 20th century OS maps (between 1906-10) also depict an area of



parkland at Oaklands, Laceby (MNL3156) and, southwest of North Thoresby, part of Autby Park, which is marked on OS maps of 1956, lies within the DCO Site Boundary (ML141209).

- 2.3.22 The pipeline route passes several demolished post-medieval buildings and farmsteads, including two that are close to the DCO Site Boundary at Barnoldby le Beck (MNL1571) and Asby cum Fenby (MNL1555).
- 2.3.23 The pipeline route passes several gravel and chalk extraction pits, that are marked on OS maps from the end of the 19th century, at Irby upon Humber (MNL1922, MNL1925), Barnoldby le Beck (MNL1587), Beelsby (MNL1593), Hatcliffe (MNL1838, MNL1840) and Ashby cum Fenby (MNL1547).
- 2.3.24 The pipeline passes several historic roads of post-medieval date (marked on OS maps of 1887-9), although some are also likely to have medieval origins, including Old Main Road, Irby upon Humber (MNL3534) (the road from the village eastwards was part of the turnpike trust of 1765); Main Road, Barnoldby le Beck (MNL3447); Main Road, Beelsby (MNL3542); Brigsley Road, Ashby cum Fenby (MNL3448) (part of the turnpike trust of 1765); Ashby Lane, Ashby cum Fenby (MNL3450); Thoroughfare Lane, Ashby cum Fenby (MNL3455) (the section around Thoroughfare Farm (formerly Sykes Farm), is shown as a trackway rather than a formal road); and Hawerby Road (MNL3562).
- 2.3.25 A series of hedgerows crossed by section 3 of the pipeline are marked on tithe maps and may be regarded as important under the historic criteria set out in the Hedgerow Regulations as forming part of a field system pre-dating the Enclosure Acts [H20 – H30] (see ES Volume IV, Appendix 8-1: Cultural Heritage Desk-based Assessment, Annex C (Application Document 6.4.8.1)).
- 2.3.26 A World War 2 searchlight battery and possible command post are visible on aerial photographs at Ashby cum Fenby (MNL2223).

Undated

- 2.3.27 The pipeline route passes several undated cropmark features (enclosures and linear features) which could belong to any period (prehistoric to modern), including at Irby upon Humber (faint cropmarks indicating a possible sub-rectangular enclosure and trackway, MNL409) and at Waltham (cropmark of a possible undated small enclosure, MNL2544; and linear features, MNL2555).

3 AIMS AND OBJECTIVES

3.1 Aims

3.1.1 The general aims of the survey are to:

- provide information about the archaeological potential of the site; and
- inform either the scope and nature of any further archaeological work that may be required, or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource) or management strategy.

3.2 General objectives

3.2.1 In order to achieve the above aims, the general objectives are to:

- determine the presence or absence of archaeological artefacts through metal detecting survey;



- accurately record the spatial location of any recovered artefacts;
- conduct intensive surveys where appropriate to better understand the artefact assemblage;
- place any recovered archaeological artefacts within a wider historical and archaeological context in order to assess their significance;
- inform the strategy for any required mitigation within the survey area; and
- make available information about the archaeological resource within the site by reporting on the results of the survey.

4 FIELDWORK METHODS

4.1 Introduction

- 4.1.1 Compliance with health and safety regulations and requirements will take priority over archaeological considerations in all works.
- 4.1.2 All works will be undertaken in accordance with the detailed methods set out within this WSI. Any significant variations to these methods will be agreed in writing with the Viking CCS Heritage Consultees and the client prior to being implemented.
- 4.1.3 The survey will be conducted using a series of regularly spaced transects laid out on two perpendicular axes orientated along the longest boundary within each field.
- 4.1.4 An initial non-intensive survey will be conducted across the entire 26.3-hectare area using a ten metre transect spacing. The results of the non-intensive survey will be presented to the consultant and will be used to define any areas of intensive survey that may be required to clarify the extent, character, and complexity of the artefact distribution.
- 4.1.5 The intensive surveys will be conducted at 2 metre line transects laid out on two perpendicular axes orientated on the same grid as the non-intrusive surveys.
- 4.1.6 All surveys will be undertaken in accordance with the methodology set out by the Battlefields Trust in the 2022 guidance document *Battlefield Investigation: Policy and Guidance* and by the Portable Antiques Scheme in the 2017 guidance document *Code of Practice for Responsible Metal Detecting in England & Wales*.
- 4.1.7 Prior to surveys commencing soil chemistry will be analysed to inform the potential for metal artefact preservation. This will be conducted using a Hanna Instruments HI-83141-1 portable pH/mV meter and will be performed systematically across all fields included in the survey area.

4.2 Survey methodology

- 4.2.1 All transects will be set out using a Global Navigation Satellite System (GNSS) with a marker at 30 metre intervals. Markers will consist of wooden canes with hazard tape flags which may be left out overnight on consecutive survey days but not over weekends or if there are any gaps in the survey programme.
- 4.2.2 Surveys will be completed by a team of five archaeologists, of which four will be prospecting along consecutive transects with metal detectors, while the fifth assess any recovered finds against the discard policy and subsequently bags, numbers, and spatially locates any finds retained for analysis.



4.2.3 All retained finds will be given a unique number with their spatial location recorded using a GNSS against Ordnance Survey (OS) National Grid and Ordnance Datum (OD) (Newlyn), as defined by OSTN15 and OSGM15 transformation.

4.2.4 No artefacts will be recovered beyond the depth of the plough soil and will be excavated using appropriate tools with all efforts made to minimise ground disturbance.

4.3 Constraints

4.3.1 The client will provide information regarding the presence of any below/above-ground services, and any ecological, environmental, or other constraints.

4.3.2 Any areas which are not accessible during the survey, or which are deemed by Wessex Archaeology staff to be unsafe to access, will not form a part of this survey work. Any such areas will be documented for future reference.

4.4 Equipment

4.4.1 Metal detecting will be undertaken using Garrett EuroAce detectors and pin pointers.

4.4.2 Set out and spatial recording will be undertaken using a Leica Captivate NetRover Global Navigation Satellite System or an equivalent instrument. It will be set to a minimum three-dimensional accuracy of 30 mm.

4.5 Artefact recovery

General

4.5.1 Any finds requiring conservation or specific storage conditions will be dealt with immediately in line with *First Aid for Finds* (Watkinson and Neal 1998).

4.5.2 Where possible a provisional identification will be made within 1 working day through the distribution of photographs of the artefact to a suitable specialist.

Discard Policy

4.5.3 All archaeological finds will be retained, although those of clearly very recent origin with negligible potential to provide information relevant to the project aims and objectives will not be retained and will be discarded on site.

Treasure

4.5.4 Wessex Archaeology will immediately notify the client and the Viking CCS Heritage Consultees on discovery of any material covered, or potentially covered, by the *Treasure Act 1996*. All information required by the Act (i.e., finder, location, material, date, associated items etc.) will be reported to the Coroner within 14 days.

4.6 Monitoring

4.6.1 The client will inform the Viking CCS Heritage Consultees of the start of the survey and its progress. Reasonable access will be arranged for the Viking CCS Heritage Consultees to make site visits to inspect and monitor progress. Any variations to the WSI, if required to better address the project aims, will be agreed in advance with the client and the Viking CCS Heritage Consultees.



5 POST-EXCAVATION METHODS AND REPORTING

5.1 Artefacts

- 5.1.1 All retained finds will, as a minimum, be cleaned, weighed, counted and identified. They will then be distributed to the appropriate specialist to be recorded to a level appropriate to the aims and objectives of the project. Recording and reporting will conform to the Type 2 (Appraisal) level according to the ClfA (n.d. a) *Toolkit for Specialist Reporting*, to include appropriate quantification, characterisation, and assessment of significance and potential.
- 5.1.2 Metalwork may be X-rayed to aid with identification. The X-raying of objects and other conservation needs will be undertaken by Wessex Archaeology's conservation staff or another approved conservation centre.
- 5.1.3 Finds will be suitably bagged and boxed in accordance with the guidance given by the relevant museum and ClfA (2014b).

5.2 Reporting

General

- 5.2.1 The results of the metal detecting survey will be presented in a stand-alone report with an interim statement of results provided after each phase or works.
- 5.2.2 The draft final report will be distributed for approval to the client and the Viking CCS Heritage Consultees for comment. Once approved, a final version will be submitted.
- 5.2.3 The report will include the following elements:
- A quality assurance sheet
 - Non-technical summary;
 - Project background;
 - Archaeological and historical context;
 - Aims and objectives;
 - Detailed Methods;
 - Results (descriptive text detailing the artefacts identified and an interpretation of their date and purpose);
 - Illustrations (including a general and detailed plan showing findspots and transects);
 - Storage and archiving statement (including a statement that addresses the future retention of the material);
 - A list of all finds that fall within the scope of the Treasure Act and associated legislation ;
 - An assessment / conclusion and a statement of potential (stratigraphic, artefactual, environmental);
 - Recommendations for publication and dissemination, where appropriate;
 - A series of photographic plates illustrating works completed and their landscape context;
 - Storage and archiving statement;



- the current and proposed arrangements for long term conservation and archive storage (including details of the accredited repository).

5.2.4 A copy of the final report will be deposited with the HER, along with surveyed spatial digital data (.dxf or shapefile format).

Publication

5.2.5 A short report on the results will be prepared for publication in a suitable journal, if considered appropriate and agreed with the client and the Viking CCS Heritage Consultees.

OASIS

5.2.6 An OASIS (online access to the index of archaeological investigation) record (<http://oasis.ac.uk>) will be created, with key fields completed, and a .pdf version of the final report submitted. Subject to any contractual requirements on confidentiality, copies of the OASIS record will be integrated into the relevant local and national records and published through the Archaeology Data Service (ADS) ArchSearch catalogue.

6 ARCHIVE STORAGE AND CURATION

6.1 Museum

6.1.1 Due to the cross-county nature of the project, North Lincolnshire Museum have agreed in principle for Lincoln Museum to be the primary archive holder, with the caveat that if anything of particular importance is found in their collecting area, that element will be deposited with them. Lincoln Museum has been notified of the project, prior to fieldwork commencing and have issued an accession number: LCNCC: 2024.69.

6.2 Transfer of title

6.2.1 The legal owner of any finds recovered (i.e., the landowner), with the exception of human remains and any objects covered by the *Treasure Act 1996*, will be contacted to request transfer of their ownership to the museum via a written agreement.

6.3 Preparation of archive

Physical archive

6.3.1 The physical archive will be prepared following the standard conditions for the acceptance of excavated archaeological material by Lincoln Museum, and in general following nationally recommended guidelines (Brown 2011; ClfA 2014b; SMA 1995). The archive will usually be deposited within one year of completion of the project, with the agreement of the client.

Digital archive

6.3.2 The digital archive will be deposited with a Trusted Digital Repository, in this instance the Archaeology Data Service (ADS), to ensure its long-term curation. Digital data will be prepared following ADS guidelines (ADS 2013 and online guidance) and accompanied by metadata.

6.4 Selection strategy

6.4.1 It is widely accepted that not all records and artefacts collected or created during an archaeological project require preservation in perpetuity. These records and materials will be subject to selection in order to establish what will be retained for long-term curation, with the aim of ensuring that all elements selected to be retained are appropriate to establish the significance of the project and support future research, outreach, engagement, display



and learning activities, i.e., the retained archive should fulfil the requirements of future researchers and the receiving museum.

- 6.4.2 The selection strategy, which details the project-specific selection process, is underpinned by national guidelines on selection and retention (Brown 2011, section 4) and generic selection policies (SMA 1993; Wessex Archaeology's internal selection policy) and follows ClfA's (n.d. b) *Toolkit for Selecting Archaeological Archives*. It should be agreed by all stakeholders (Wessex Archaeology's specialists, external specialists, local authority, museum) and fully documented in the project archive.

6.5 Security copy

- 6.5.1 In line with current best practice (e.g., Brown 2011), on completion of the project a security copy of the written records will be prepared in the form of a digital PDF/A file.

7 COPYRIGHT

7.1 Archive and report copyright

- 7.1.1 The full copyright of the written/illustrative/digital archive relating to the project will be retained by Wessex Archaeology under the *Copyright, Designs and Patents Act 1988* with all rights reserved. The client will be licenced to use each report for the purposes that it was produced in relation to the project as described in the specification. The museum, however, will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use conforms to the *Copyright and Related Rights Regulations 2003*.

- 7.1.2 Information relating to the project will be deposited with the Historic Environment Record (HER), where it can be freely copied without reference to Wessex Archaeology for the purposes of archaeological research, or development control within the planning process.

7.2 Third party data copyright

- 7.2.1 This document, the report and the project archive may contain material that is non-Wessex Archaeology copyright (e.g., Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which Wessex Archaeology are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of the *Copyright, Designs and Patents Act 1988* with regard to multiple copying and electronic dissemination of such material.

8 WESSEX ARCHAEOLOGY PROCEDURES

8.1 External quality standards

- 8.1.1 Wessex Archaeology is registered as an archaeological organisation with the Chartered Institute for Archaeologists (ClfA) and fully endorses its *Code of Conduct* (ClfA 2014c) and *Regulations for Professional Conduct* (ClfA 2019). All staff directly employed or subcontracted by Wessex Archaeology will be of a standard approved by Wessex Archaeology, and archaeological staff will be employed in line with the ClfA codes of practice and will normally be members of the ClfA.

8.2 Personnel

- 8.2.1 The fieldwork will be directed and supervised by an experienced archaeologist from Wessex Archaeology's core staff. The overall responsibility for the conduct and management of the



project will be held by one of Wessex Archaeology's project managers, who will visit the fieldwork as appropriate to monitor progress and to ensure that the scope of works is adhered to. Where required, monitoring visits may also be undertaken by Wessex Archaeology's Health and Safety manager.

8.2.2 The assessment of any finds will be undertaken by Wessex Archaeology core staff or external specialists, using Wessex Archaeology's standard methods, under the supervision of the departmental managers and the overall direction of the project manager. A complete list of specialists is provided in Appendix 1.

8.2.3 The following key staff are proposed:

- Project Manager Chris Breeden
- Fieldwork Director Luke Roberts

8.2.4 Wessex Archaeology reserves the right, where necessary due to unforeseen circumstances, to replace nominated personnel with alternative members of staff of comparable expertise and experience.

8.3 Internal quality standards

8.3.1 Wessex Archaeology is an ISO 9001 accredited organisation (certificate number FS 606559), confirming the operation of a Quality Management System which complies with the requirements of ISO 9001:2015 – covering professional archaeological and heritage advice and services. The award of the ISO 9001 certificate, independently audited by the British Standards Institution (BSI), demonstrates Wessex Archaeology's commitment to providing quality heritage services to our clients.

8.3.2 Wessex Archaeology assigns responsibility to individual managers for the successful completion of all aspects of a project, including reporting. This includes monitoring progress and quality; controlling the budget from inception to completion; and all aspects of health and safety for the project. At all stages, the project manager will carefully assess and monitor performance of staff and adherence to objectives, timetables, and budgets, while the manager's own performance is monitored by the team leader or regional director. The technical managers in the Graphics, Research, GeoServices and IT sections provide additional assistance and advice.

8.3.3 All staff are responsible for following Wessex Archaeology's quality standards but the overall adherence to and setting of these standards is the responsibility of the senior management team who, in consultation with the team leaders/regional directors, also ensure projects are adequately programmed and resourced within Wessex Archaeology's portfolio of project commitments.

8.4 Health and safety

8.4.1 All works will be undertaken in accordance with the *Health and Safety at Work Act 1974*; the *Management of Health and Safety at Work Regulations 1999* and all other applicable health and safety legislation.

8.4.2 Wessex Archaeology is an ISO 45001 accredited organisation (certificate number OHS 744383), confirming the operation of an Occupational Health and Safety Management System that complies with the requirements of ISO 45001:2018. The award of the ISO 45001 certificate, independently audited by the British Standards Institution (BSI),



demonstrates Wessex Archaeology's commitment to delivering effective risk management across all its activities.

- 8.4.3 Wessex Archaeology will, for all projects, produce one or more task and site-specific risk assessments and method statements (RAMS), which will ensure our staff can work safely on the site. A copy of the RAMS and our Health and Safety Policy can be provided to the client. All staff on our sites will be made fully familiar with the RAMS before work commences.
- 8.4.4 We aim to work collaboratively on health and safety with clients and, where separately appointed, with principal contractors. We expect clients to provide in good time all the necessary risk information about a site that may affect the archaeological work, such as locations of utilities or any known ground contamination. We will comply with the project specific Personal Protective Equipment (PPE) requirements, and any other specific additional requirements of the Principal Contractor.
- 8.4.5 All fieldwork staff are certified through the Construction Skills Certification Scheme (CSCS) and have undergone UKATA Asbestos Awareness Training. Staff who carry out specific tasks are suitably trained and competent to do so through training accredited by the Construction Industry Training Board (CITB), Institution of Occupational Safety & Health (IOSH) and the National Plant Operators Recognitions Scheme (NPORS).

8.5 Insurance

- 8.5.1 Wessex Archaeology holds Employers Liability (£15,000,000), Public Liability (£15,000,000) and Professional Indemnity (£10,000,000) policies.

REFERENCES

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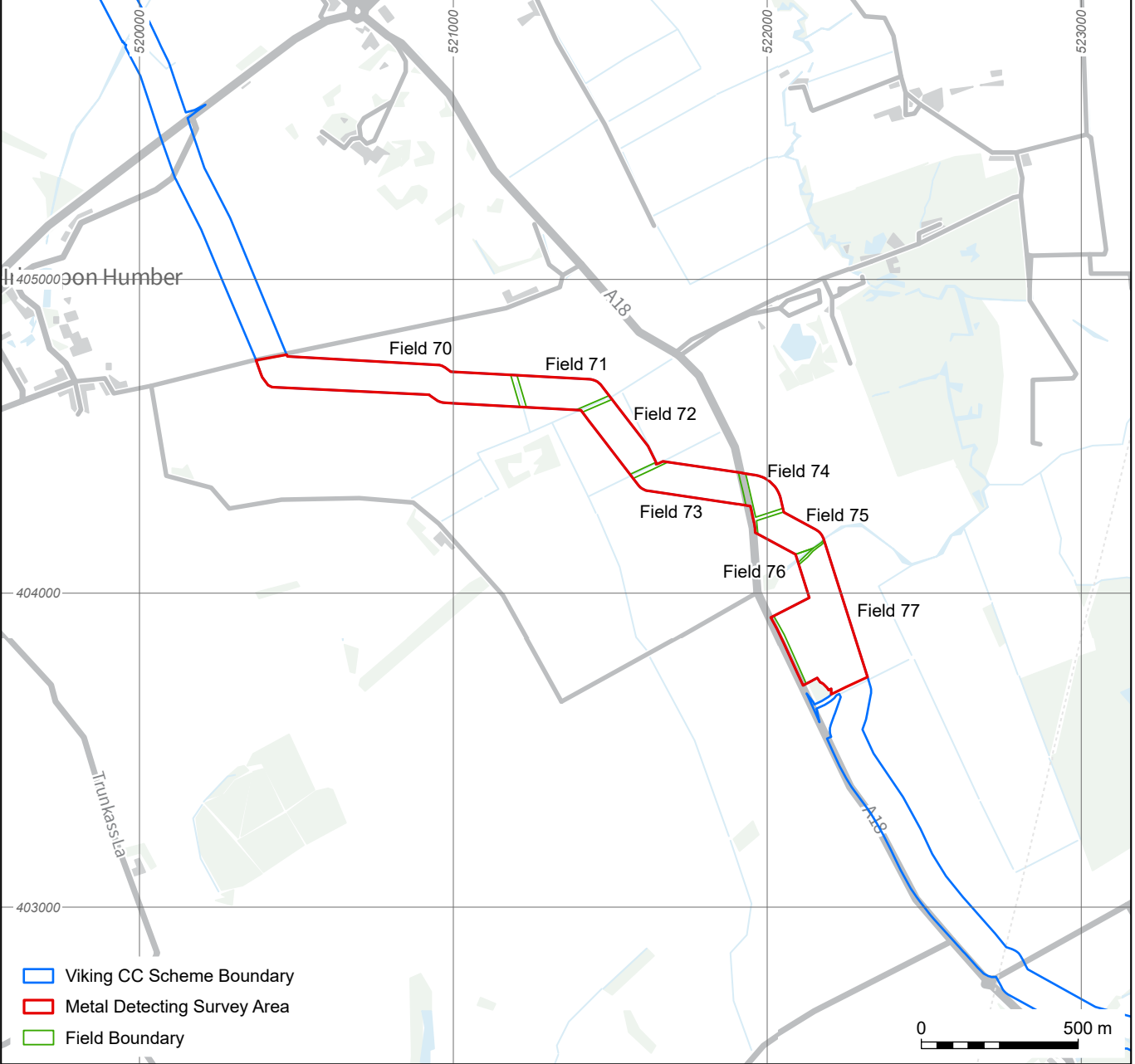
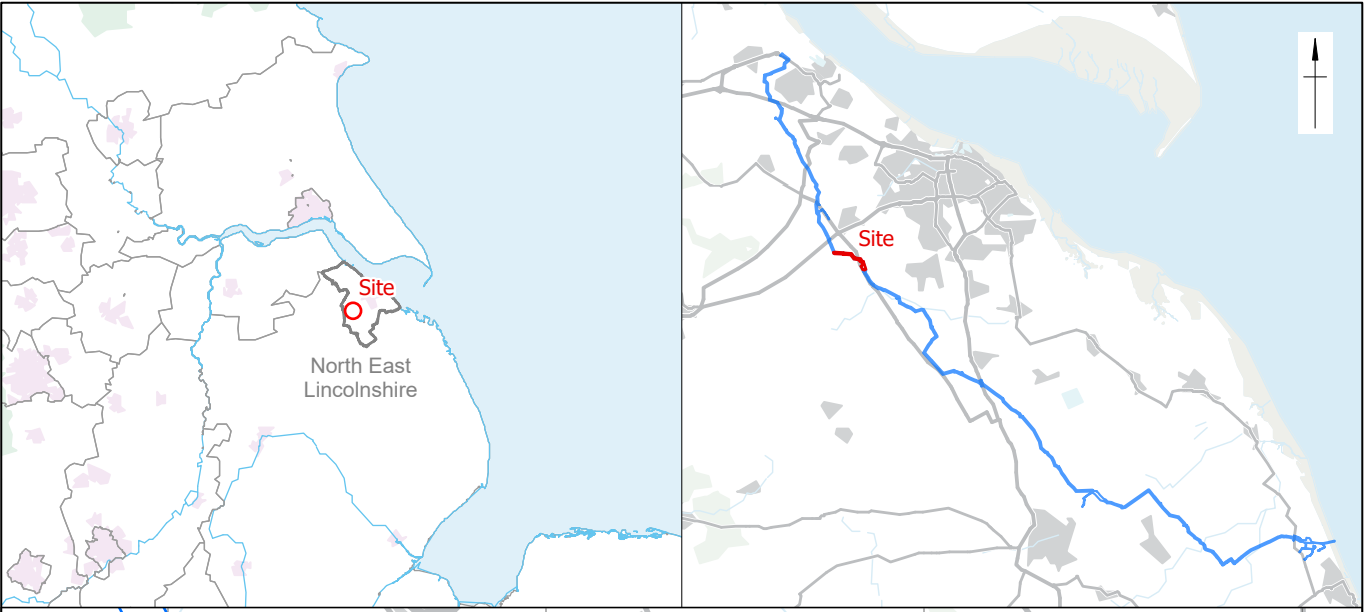
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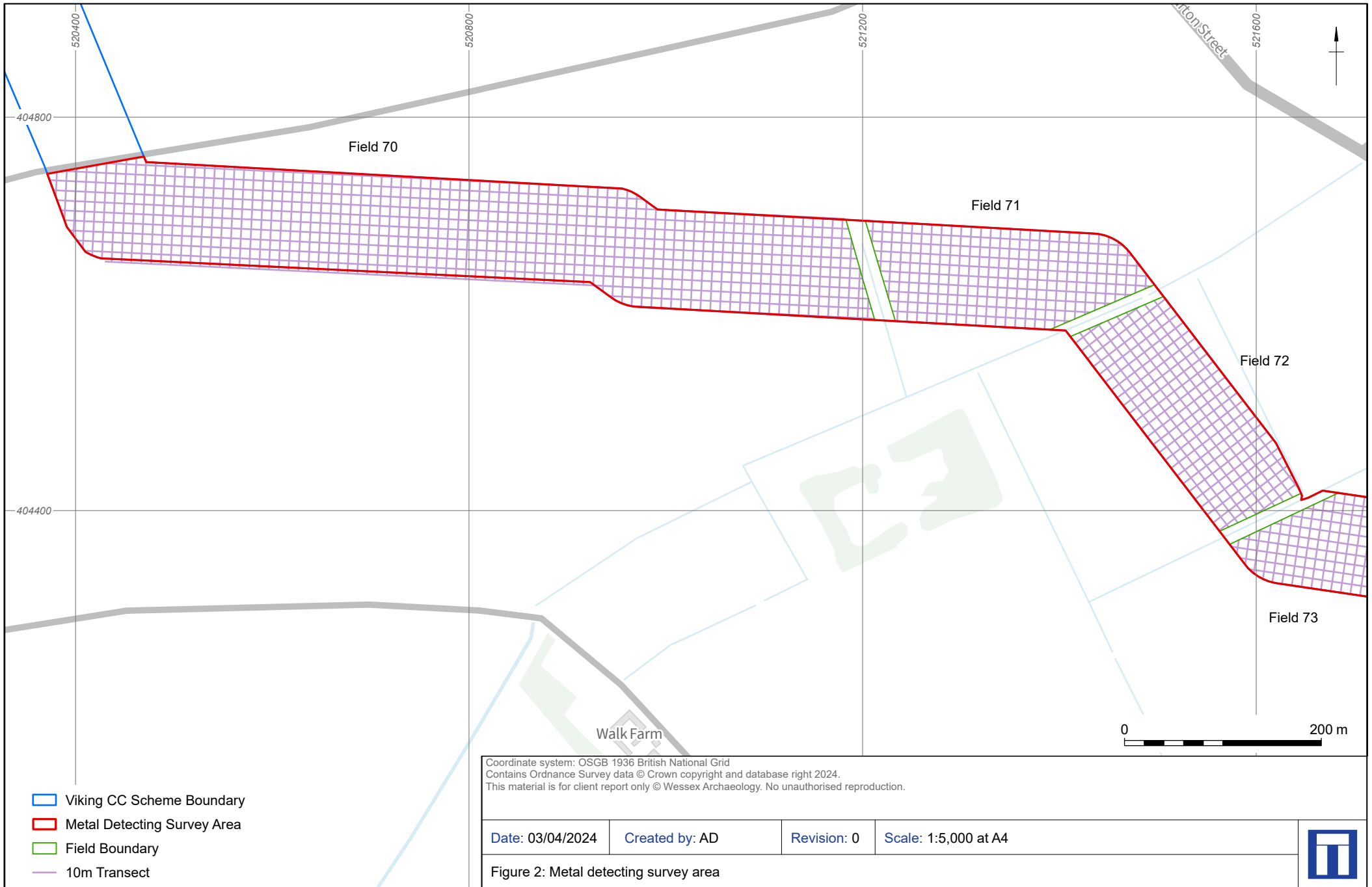
APPENDICES

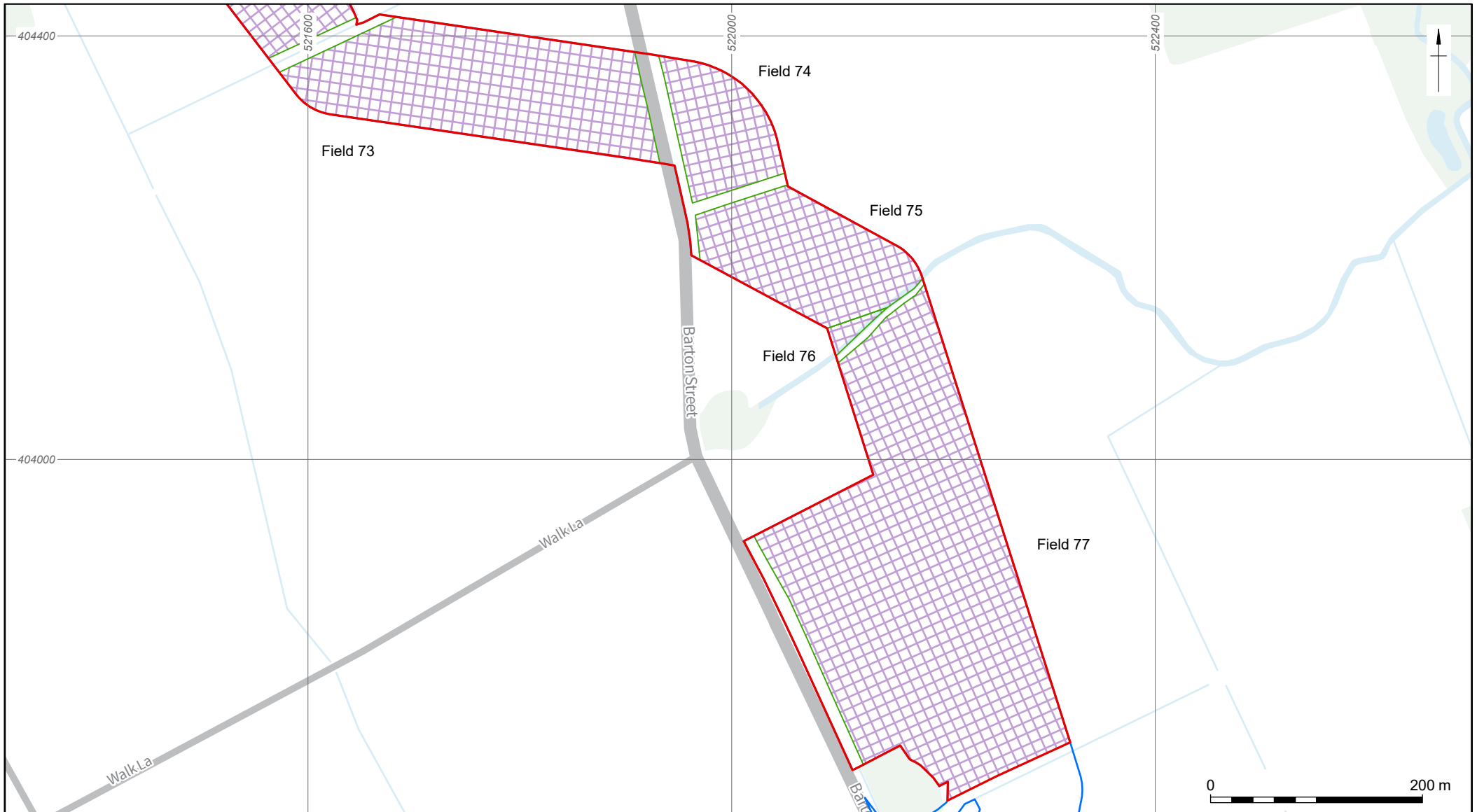
Appendix 1 Finds specialists

Name	Qualifications	Specialism
Phil Andrews	BSc; FSA; MCIfA	Slag and metal working debris
Richard Bradley	BA; MA; MCIfA	Battlefield artefacts, particularly Civil War period lead shot
Ceridwen Boston	BSocSc; MA; MSc; DPhil	Osteoarchaeology; funerary archaeology
Elina Brook	BA; MA; PCIfA	Later prehistoric and Romano-British pottery, and small finds
Erica Gittins	BA; MA; PhD	Prehistoric flint
Phil Harding	PhD	Prehistoric flint, particularly Palaeolithic flint
Lorrain Higbee	BSc; MSc; MCIfA	Animal bone
Jessica Irwin	BSc	Post-medieval finds
Matt Leivers	BA; PhD; ACIfA	Prehistoric pottery and flint
Erica Macey-Bracken	BA; ACIfA	Post-medieval finds, ceramic building material and worked wood
Katie Marsden	BSc	Pottery from prehistoric to post-medieval/modern. Metalwork of all periods, including coins. Small and bulk finds including fired clay, ceramic building material, worked bone
Jacqueline McKinley	BTech; FSA	Human remains (inhumations and cremations)
Emma Robertson	BA; MSc	Human remains (inhumations)
Rachael Seager Smith	BA; MCIfA	Pottery with particular emphasis on Roman ceramics; and metalwork, fired clay, ceramic building material, stone, worked bone, shale, glass, and wall plaster
Andrew Shaw	BA; MA; PhD	Palaeolithic lithic artefacts and Pleistocene geoarchaeology
Mark Stewart	BA; MPhil	Prehistoric flint. Worked stone, ceramic building material, glass, fired clay
Amy Thorp	BA; MA	Pottery with emphasis on Roman ceramics, small finds
Kevin Trott	BA	Pottery from the Iron Age to early modern period, with emphasis on later Iron Age/Romano-British and medieval to post-medieval periods. Ceramic building material, fired clay/briquetage, metalwork/small finds, clay tobacco pipes, worked bone, stone artefacts, shale, glass, wall plaster, leather, marine shell
Thomas Wicks	BA; MA	Conservation of objects



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- Viking CC Scheme Boundary
- Metal Detecting Survey Area
- Field Boundary
- 10m Transect

Date: 03/04/2024	Created by: AD	Revision: 0	Scale: 1:5,000 at A4
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Figure 3: Metal detecting survey area





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