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Blue-NG

Thornton Curtis CHiP Energy Centre

Archaeology and Cultural Heritage Desk Based Assessment

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1.0 Introduction

This Archaeological and Cultural Heritage Desk Based Assessment has been prepared by Kirsten Holland, Senior Archaeologist, WYG on behalf of Blue-NG to accompany a full planning application for the development of the a Combined Heat and Intelligent Power Energy Centre near South Killingholme, North Lincolnshire.

1.1 Aims and Objectives

This study examines the cultural heritage potential of the proposed development site and the surrounding area. The aim of the study is to:

- Identify recorded cultural heritage sites within the site boundary;
- Identify the potential for previously unrecorded sites to be present within the site;
- Identify potential impacts and mitigation strategies where appropriate; and
- Make recommendations for further work where required.

Cultural heritage within this context includes all buried and upstanding archaeological remains, built heritage sites, historic landscapes and any other features that contribute to the archaeological and historic interest of the area.

In accordance with the Institute for Archaeologists (IfA) Standard definition of a Desk-Based Assessment (IfA, 1994 rev 2008), this report seeks to identify and assess the known and potential historic resource within a specified area ('the site'), collating existing written and graphic information and taking full account of the likely nature and extent of previous impacts on the site, in order to identify the likely character, extent, quantity and worth of that resource in a local, regional and national context as appropriate.

The purpose of the desk-based assessment is to enable the cultural heritage resource to be assessed within its context and allow the formulation of one or more of the following:

- Formulation of a strategy to ensure the recording, preservation or management of the resource;
- Formulation of a strategy for further investigation to permit a mitigation strategy or other response to be devised, where existing evidence is insufficient; and

- Formulation of proposals for further assessment work within a framework of research.

This desk-based assessment considers the cultural heritage potential within the site itself and the surrounding area. This assessment does not attempt to plot and review every archaeological find and monument; rather it aims to examine the distribution of evidence and to use this to predict the archaeological potential of the study area and the likely significance of the development proposals on those remains.

2.0 Methodology

2.1 Assessment Methodology

Impact assessment has been carried out through the consideration of baseline conditions in relation to the elements of the scheme that could cause cultural heritage impacts. Baseline conditions are defined as the existing environmental conditions and in applicable cases, the conditions that would develop in the future without the scheme. In accordance with best practice this report assumes that the scheme will be constructed, although the use of the word 'will' in the text should not be taken to mean that implementation of the scheme is certain.

No standard method of evaluation and assessment is provided for the assessment of impact significance upon cultural heritage, therefore a set of evaluation and assessment criteria have been developed using a combination of the Secretary of State's criteria for Scheduling Monuments (Scheduled Monument Statement, Annex 1), Design Manual for Roads and Bridges, Volume 11, Part 3, Section 2, HA 208/07 and Transport Analysis Guidance (TAG Unit 3.3.9, Heritage of Historic Resources Sub-Objective). Professional judgment is used in conjunction with these criteria to undertake the impact assessment. The full assessment methodology can be seen in Appendix B.

The principles of the impact assessment methodology rest upon independently evaluating the value of the cultural heritage resource and the predicted magnitude of impact (both positive and negative) upon the resource. By combining the value of the cultural heritage resource with the predicted magnitude of impact, the significance of the impact can be determined. The impact significance can be beneficial or adverse. The evaluation of magnitude of impact and impact significance is undertaken both before and after mitigation measures are proposed.

2.2 Sources Consulted

A study area of approximately 1km radius from the approximate centre of the site (TA 130 162) has been examined to assess the nature of the surrounding cultural heritage sites and place the recorded sites within their context.

This study has been undertaken taking into consideration the historical and archaeological background of the proposed development area. The sources consulted were:

- North Lincolnshire Historic Environment Record (HER);
- National Monuments Record (NMR);
- North Lincolnshire Council and English Heritage for designated sites;
- Aerial photographs;
- Lincolnshire Record Office;
- Historic mapping including relevant Ordnance Survey Maps; and
- Appropriate documentary sources and archaeological journals, including grey literature reports.

In addition to the above a site walkover survey was undertaken on 10th February 2010.

No intrusive geotechnical site investigations have been undertaken on the development site and therefore borehole and test pit logs could not be examined.

3.0 Site and Development Description

The development site is located to the north of an existing gas pressure reduction station (PRS) in the parish of North Killingholme, approximately 1.25km west of the main village. The existing PRS site extends to 2.37 hectares, the proposed extension to 1.25 hectares and the total development site area is therefore 3.65 hectares. The site is centred on TA 131 162 (513185, 416218) and is at approximately 10m above Ordnance Datum. The site can currently be accessed via a track from the West Middle Mere Road crossing and unmanned railway crossing. A site location plan can be seen in Appendix A (WYG Figure 01). The

redline boundary of the development site can be seen in Appendix A. Photographs of the site can be seen in Appendix C.

The development site is currently in use as an arable field. The development site is bounded to the south by the existing Gas Pressure Reduction Station. To the north of the development site is the former RAF Killingholme airfield which is currently in light industrial use. The surrounding land is primarily agricultural, however the oil refineries of Immingham are located to the east of the study area beyond the villages.

The proposed development is a renewable power generation facility broadly consisting of three separate electrical generation processes that make up the Combined Heat and Intelligent Power (CHiP) Energy Centre. The first generating process is a compression ignition (diesel) engine running on unrefined vegetable oils (bio liquid) of various types, to drive an electrical generator. The second generating process is a Turbo Expander Generator installed in the gas flow path through the gas PRS. The waste heat from the engine can be recovered to provide preheat into the gas stream prior to the pressure reduction process, allowing the heat to be converted into electricity extremely efficiency and preventing sub zero degree centigrade gas from exiting the PRS and causing freezing problems downstream. The third generating process is a further heat recovery cycle called an Organic Rankine Cycle. This utilises additional surplus heat from the engine to generate more renewable electricity. A full description of the development is included in the Design and Access Statement. A plan of the proposed plant layout is included in Appendix A.

4.0 Legislation and Planning Policy Context

4.1 Ancient Monuments and Archaeological Areas Act 1979

Scheduled Monuments are designated by the Secretary of State for Culture, Media and Sport on the advice of English Heritage as selective examples of nationally important archaeological remains. Under the terms of Part 1 Section 2 of the Ancient Monuments and Archaeological Areas Act 1979 it is an offence to damage, disturb or alter a Scheduled Monument either above or below ground without first obtaining permission from the Secretary of State. This Act does not allow for the protection of the setting of Scheduled Monuments.

4.2 Planning (Listed Buildings and Conservation Areas) Act 1990

The Act outlines the provisions for designation, control of works and enforcement measures relating to Listed Buildings and Conservation Areas. Section 66 of the Act states that the planning authority must have

special regard to the desirability of preserving the setting of any Listed Building that may be affected by the grant of planning permission. Section 72 of the Act states that special attention shall be paid to the desirability of preserving or enhancing the character or appearance of Conservation Areas.

4.3 Planning Policy Statement 5: Planning for the Historic Environment - 2010

Planning Policy Statement 5 (PPS5) sets out the Government's national planning policies on the conservation of the historic environment. The PPS covers all aspects of the historic environment and heritage assets including designated assets (Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Conservation Areas, Registered Parks and Gardens and Registered Battlefields) and non-designated assets. The PPS identifies that consideration of the historic environment and the requirements for assessment and mitigation of impacts on heritage assets should be proportional to their value and the effect of proposals on their significance. The PPS sets out the approach regional and local authorities should adopt in identifying and making provision for conservation of heritage within the plan making process (HE1-HE5) and in assessing development proposals within the context of applications for development (HE6-HE12).

The PPS states that the significance of heritage assets (including their settings) should be identified and the effect of the proposal on the significance of the asset should be assessed. Prior to validation the planning application should include sufficient information to enable the impact of proposals on significance to be assessed and thus where desk-based research is insufficient to assess the interest field evaluation may also be required (HE6). The PPS includes policy principles to guide the determination of applications relating to heritage assets (HE7 and HE8) and additional principles to be considered for designated assets (HE9 and HE10).

Whilst the PPS reflects the Governments overarching aim that "the historic environment and its heritage assets should be conserved and enjoyed for the quality of life they bring to this and future generations" it recognises that there are occasions where loss of significance is justified on the merits of new development. The more significant the asset and the greater the harm to the significance the greater the justification will be needed. Policy HE11 outlines a number of principles for enabling development that should be considered in assessing the benefits and disbenefits. Where loss of significance as a result of development is considered justified the PPS includes provision to allow for the recording and advancing understanding of the asset before it is lost using planning conditions or obligations (e.g. S106) as appropriate (HE12). The results of these investigations should be made available and the archive deposited in a suitable repository. A Planning Practice Guide (English Heritage, March 2010) provides further information and guidance on the interpretation and implementation of the PPS.

4.4 Regional and Policy Guidance

The Yorkshire and Humber Regional Spatial Strategy to 2026 (published May 2008) contains one policy relevant to cultural heritage: Policy Env9: Historic Environment. Policy ENV9 states the commitment to safeguarding and enhancing the historic environment and ensuring that development decisions conserve distinctive areas. The full text can be seen in Appendix D.

4.5 Local Policy and Guidance

The North Lincolnshire Local Plan (adopted 2003) contains several policies relating to heritage. The policies reinforce the principles of national and regional planning policy. The relevant policies include:

- HE8 Ancient Monuments
- HE9 Archaeological Evaluation

The full text of the relevant policies can be seen in Appendix D. Additional policies relating to Conservation Areas (HE2-HE4) and Listed Buildings (HE5-HE7) are also present within the plan, however as there are no Listed Buildings or Conservation Areas in the vicinity of the development these policies are not relevant to this application and are not considered further.

4.6 Analysis

The proposals will not directly affect any Scheduled Monuments, Listed Buildings, Conservation Areas, and Registered Parks and Gardens; therefore these policies will not be affected. There are not anticipated to be any indirect effects upon the setting of designated heritage features as the designated sites are sufficiently distant from the proposed development site that it is not included within their setting.

The development may affect archaeological remains, however it is considered most likely that these will be of medium or low value. It is therefore considered that this desk-based assessment prior to the submission of the planning application allows an assessment of the potential impact to be undertaken and enable appropriate evaluation and mitigation measures devised. It is not anticipated that the development within the site would be in direct conflict with any identified and current planning policies.

5.0 Consultation

Consultation was undertaken with the North Lincolnshire Historic Environment Record, English Heritage and Lincolnshire Archives for the provision of data for this report. Informal consultation was undertaken with the North Lincolnshire Archaeologist (Alison Williams, 10/02/10) in their role as advisor to the local planning authority during the visit to the HER. This was followed by additional consultation on completion of the draft desk-based assessment (Alison Williams 20/04/10). The results of this consultation are incorporated into the report.

6.0 Baseline Data

6.1 Designated Sites

There are no World Heritage Sites, Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Battlefields, Registered Common Land or Registered Parks and Gardens within the study area.

6.2 Archaeological and Historic Background

The Historic Environment Record and the National Monuments Record holds details for 25 sites within the study area. Further details of these sites can be seen in Appendix E and on WYG Figure 02. The bracketed site numbers within the text refer to the site reference on the figure and in the table.

6.2.1 Prehistoric (up to 43AD)

There are no recorded sites of Palaeolithic date within the study area. Within the wider region there are relatively few finds of Palaeolithic material however small quantities of bladed artefacts have been found in the Scunthorpe area (Membery, 2006). Prior to the middle of the Mesolithic (*c.*5500 calBP) there are no recorded Mesolithic finds from the Lincolnshire Marshes. This may indicate either a preference for activity to be located in "Doggerland" (the area now submerged beneath the North Sea) or for sites to be buried beneath estuarine and marine deposits. During this period the wetlands would have been confined to the rivers and streams draining off the Lincolnshire Wolds with the coastline located much further east (van der Noort et. al. 2001, 245). Paleoenvironmental evidence indicates that in the Mesolithic period forest at Immingham was comprised on oak, alder, birch, yew and prunus (Lillie and Geary, 2001, p21). It is anticipated that the study area would have lain above the wetland areas in the prehistoric period and

therefore would have been more attractive for settlement due to the drier conditions, whilst still allowing access to wetland areas for exploitation.

Several flint artefacts have been recorded within the study area recovered from evaluations (Site 19831) and watching briefs (Sites 17871 and 17872). These flints have been assigned dates between the Mesolithic and early Bronze Age. They appear to be stray finds rather than be associated with a stratified site or definitive land surface in keeping with other sites in Lincolnshire (Membery, 2006). The Humber Wetlands Survey did not extend as far west as the study area however recorded a number of prehistoric flint findspots were recorded to the east of the study area include later Mesolithic, Neolithic and Bronze Age material (Killingholme-2 and Killingholme-3) and further material of undiagnostic date (Fenwick et. al. 2001, 109-12).

A late Iron Age to Roman settlement site has been identified from cropmarks comprised of linear ditches, rectangular enclosures and ring ditches (Sites 17453). This is located to the north of the development site area. Intrusive surveys have not been undertaken on this site and therefore no further details are available. To the east of the study area at Rosper Road (SMR 1630) pre-Roman activity has been recorded within an excavated Roman site indicating that it may have had a late Iron Age precursor and to the west at Ulceby station there is antiquarian reports of an Iron Age torc and horsebits recovered during construction at the station.

There are a substantial number of cropmarks of unknown date within the study area. These cropmarks include enclosures (Sites 20772, 8758, 8760, 8761, 8765), linears which may represent ditches (Sites 17454, 20782, 20795) and ring ditches (Sites 20794, 8737, 8766). Late Iron Age and Roman pottery (Site 19829, 19830) was recorded close to the locations of three ring ditches (Site 8766), however the pottery was not directly associated with the ring ditches themselves. Until intrusive investigations are undertaken within these sites their date can not be confirmed. Their form may indicate later prehistoric origins, particularly for the ring ditches and features which appear to form a complex, however later dates can not be ruled out at this stage, particularly for isolated features. The extent of identified cropmarks may be biased by the presence of the air field which had been constructed by the date of photography and therefore any features present within the footprint of the air field would not have been recorded.

A possible ring ditch identified from aerial photographs (Site 8757) lies within the development site. Comparison between photographs which show the site when it formed part of the airfield and after its return to agricultural use indicate however that this possible ring ditch correlates with the edge of the hardstanding turning area and is almost certainly of modern origin.

6.2.2 Roman/Romano-British (43AD to c.450AD)

There are several substantial Roman sites recorded within the region. There is evidence that the outmarsh of this area was drained in the Roman period with numerous stock enclosures being created which are anticipated to be the main economic base of the recorded settlements, in addition to the occupation of higher ground (Fenwick et al, 2001, 85) A substantial Roman settlement was recorded at Chase Hill Farm (TA 154 199) prior to development in the 1990s, approximately 4km north-east of the development site. Evidence of the settlement appears to extend out of the development area and therefore it may be representative of a small village rather than a farmstead. It appears to have been primarily formed of timber buildings with rush or thatch roofs and been based on a pastoral economy (Fenwick, et. al. 2001, 82).

There was also evidence of Roman and late Iron Age settlement to the west of the Rosper Road recorded prior to development in the early 21st century (Fenwick, et. al. 1990, 109). This is located approximately 2.5-3km north-east of the development site. Also to the east of the development site a Romano-British ladders settlement was recorded at East End Farm (Geoquest Associates, 2004). To the north of the development site at East Halton Skitter more extensive settlement has been recorded which indicates a potential small town which is likely to have been associated with a small port at the mouth of the Skitter.

There are several sites of Roman date located across the study area. There are four identified complexes of cropmarks of Roman date within the study area (Sites 17453, 20794, 8765, 8763). These are primarily composed of enclosures and ditches indicating that they may be settlement sites, however Site 8765 includes a potential droveway. In addition to these identified sites there are numerous findspots of Roman material, particularly sherds of pottery found during evaluation excavations or watching briefs but not clearly associated with a defined site (Sites 16397, 17871, 17872, 19829, 19830). A quern stone was also recorded during ploughing in the 1960s (Site 1629).

6.2.3 The Early Medieval Period (c.450AD to 1066AD)

There is very limited evidence for early medieval settlement within the study area with confirmed artefacts being limited to some Anglo-Saxon pottery found during a watching brief (Site 17872). The majority of evidence is based upon the anticipated early medieval origins of sites assigned to the medieval period. The cemetery at Barton on Humber indicates that the individuals buried in the sixth and seventh centuries came from a prosperous trading area due to the range of high quality burial goods (Fenwick et. al 2001, 66).

Killingholme is mentioned in the Domesday Book (1086) as Chelvingholm which indicates that the village has its origins in the early medieval period. In addition the origins of the name are from Old English and Old Scandinavian. The name means "homestead of a family or followers of a man called Ceolwulf" derived from an Old English personal name, *inga* (OE) meaning people or family and *holmr* (OScand) meaning island or dry ground in marsh (Mills, 2003). Ulceby is also recorded in the Domesday Book as Ulvesbi, the name meaning "farmstead or village of a man called Ulfr", a Scandinavian personal name.

6.2.4 Medieval Period (1066AD to c. 1540AD)

The medieval village locations are a reflection of the topography of the area with the villages being situated on slightly higher ground. The medieval agricultural use of the villages was divided such that the best drained ground around the villages was used for arable, the land beyond that for hay meadows and the wettest to the east for common pasture (Fenwick et. al. 2001, 67).

The settlement pattern of the medieval period has been carried through to the modern day and the medieval villages form the core of the modern villages. There are numerous areas of ridge and furrow remains which have been recorded within the study area. The location of these can be seen on Figure 02 (and Sites 8758, 8756, 8736). The recording of these remains has largely been undertaken from aerial photographs and is therefore biased away from the airfield which had already been constructed by the date of photography. The only other recorded site of medieval date within the study area is the recovery of some medieval pottery recorded during a watching brief (Site 16397). It is probable that this pottery relates to medieval manuring of fields.

The majority of land within the study area and the surrounding region would have belonged to Thornton Abbey located approximately 3km to the north of the development site. The Augustinian abbey was founded as a priory in 1139 becoming an abbey in 1148. A number of moated sites within the surrounding villages of North Killingholme and East Halton may have originally been monastic granges, although some such as Manor Farm in North Killingholme, may have had manorial origins. Many of these villages also had small ports or havens associated with them in this period.

6.2.5 Post-Medieval Period (c.1540AD to 1900AD) and Modern (1900AD to present)

There appear to have been relatively few changes to the study area and immediate region through the post-medieval period. The silting up of the rivers meant that the ports and havens in this area gradually fell into disuse and the villages became more focussed on inland agriculture. Following the dissolution of Thornton Abbey the land was initially part of the College of the Holy Trinity before passing to the Bishop of

Lincoln and then into private lands. The land in the surrounding villages would gradually have been sold off and broken up in this period.

The branch railway from Goxhill to Ulceby was constructed in the 19th century ultimately linking to the line at Grimsby. Subsequent to this a commercial railway was built in 1912 between Ulceby and Immingham Dock to create a transport link to the new dock which was opened at the same time. The dock was largely unsuccessful until the mid 20th century when petrochemical plants were built. This led to a new period of prosperity to the docks and they have expanded considerably over the latter half of the 20th century.

Construction work started at North Killingholme Airfield in 1942. The location and layout of the site was constrained by roads and Skitter Beck. It was built to a standard three runway layout with an encircling perimeter track and turning and marshalling areas. Three hangars were constructed and accommodation blocks were dispersed throughout the site. The airfield opened in November 1943 and received its first resident squadron (No. 550) in January 1944. It was closed to flights in late October 1945 and was not used subsequently by the RAF (Halfpenny, 1981). The layout of the airfield has remained relatively intact and has been used for light industrial purposes, container storage and poultry farming.

7.0 Historic Mapping Survey

Extracts of selected historic maps can be seen in Appendix F. The location of the existing Thornton Curtis AGI site is outlined and the proposed development site is located to the immediate north of this. The earliest historic mapping examined was the 1779 Enclosure Award for North and South Killingholme. It is unusual that both townships were enclosed with the same Act (Russell, 1974). The plan indicated the proposed layout of the study area post-enclosure but also identified areas of ancient enclosure to be redistributed. The ancient enclosure was largely focussed around the immediate line of the village and higher ground, however an area of ancient enclosures was located within the immediate vicinity of the development site. The ancient enclosures were located within the open field at the end of the track which currently leads to the development site.

The enclosed fields were aligned with the same alignment which was observed and recorded by the time of the first edition OS mapping, although it is unclear whether there were internal field divisions within the land plots. A tracing which is derived from the 1779 Enclosure Award and Russell's (1974) interpretation is included in the Appendix. The development site lay within the lands held by CA Pelham and just above the lands held by the Vicar of Killingholme.

Estate mapping of 1869 and 1882 was examined at the archives. The two maps demonstrate that very few changes had occurred since the time of enclosure with the exception that internal field sub-divisions were now shown. The layout of the two maps was the same and a tracing is included in the appendix. Other estate mapping was examined but lay outside of the study area and the archives do not hold a record of the tithe map for the township.

The development site remained undeveloped at the time of the first Ordnance Survey mapping of the study area (1887). The field layout continued to reflect the field pattern which was established at the time of Enclosure. Very few alterations occur the historic mapping over subsequent editions with the exception the branch railway line constructed in 1912 which was shown on the 1932 mapping. The airfield although constructed in the 1940s was not shown on the OS mapping until the 1965 edition. This may be because the military nature of the site meant it was omitted from mapping, alternatively it may mean that the area was not resurveyed until the 1960s.

The 1965 mapping indicates that the development site formed part of the airfield at this time. The development site and existing AGI site was covered by hardstanding associated with a turning area. By the 1972 OS mapping the development site had been returned to agricultural use and the industrial development within the airfield had been established.

8.0 Aerial Photographs

Aerial photographs were examined at the North Lincolnshire Historic Environment Record and copies of selected aerial photographs were also ordered from the National Monuments Record. A full list of aerial photographs examined can be seen in the Bibliography. Photographs from the 1940s demonstrated the presence of areas of hardstanding within the development site. These correlate with the layout recorded in the 1965 OS mapping. The hard standing appears to have been partially removed by the 1970s aerial photograph although the field is not in full cultivation. The 1983 photograph demonstrates the field is back in cultivation, however the shadow of a circle (Site 8757) can be seen within the field. Comparison with the earlier aerial photographs indicates this is almost certainly a relict of the former turning area, rather than an earlier ring ditch. Other archaeological sites identified as cropmarks have already been recorded within the Historic Environment Record and are discussed above.

9.0 Site Walkover Survey

A site walkover survey was undertaken on 10th February 2010. The weather was dry and bright. Photographs of the site can be seen in Appendix C.

The additional site area is currently in use as an arable field. At the time of the walkover survey a crop had been planted and was approximately 5-7cm in height. The field was not therefore systematically field walked to avoid damage to the crop and due to anticipated obscuring of potential artefacts due to the length of time since ploughing. No earthworks or other features of potential archaeological interest were observed on the additional site area. The PRS site was not accessed during the walkover survey. The location of the turbo expander building is currently undeveloped, but is within the enclosed PRS site and is surrounded by modern built development.

The surrounding modern industrial development has resulted in a degradation of the historic landscape character and the current landscape is does not have a strong, coherent, historic legibility. The existing PRS sites to the south and south-east of the development site dominate the views in this direction. To the east of the development the stacks of the Immingham petrochemical plants are key visual feature. To the north the modern development within the former airfield is of varying styles and sizes and the pylons are a key visual feature. Spoil banks at the southern boundary of the airfield restrict low level views. The former airfield remains and layout can not be appreciated from the location of the development site. Views to the west are limited be changes in topography and vegetation.

10.0 Previous Archaeological Investigations

A number of previous archaeological investigations have been carried out within the study area. The location and nature of these investigations can be seen in Appendix E and on Figure 03. Where the investigations have identified archaeological remains these have largely been incorporated into the Historic Environment Record. A number of the grey literature reports were examined at the Historic Environment Record and these are identified in the Bibliography.

The archaeological investigations which have yielded the greatest number of identified sites have been the aerial photograph analyses (ELS770 and ELS3299). These have identified many of the cropmark sites, however these have generally not been impacted by development and it is anticipated that the subsequent developments sought to avoid their location.

Geophysical survey was undertaken on the Thornton Curtis PRS site to the south-east of the development site prior to development however no archaeological anomalies were identified. Although it was anticipated a watching brief would be maintained during development there is no record of whether this was carried out or remains discovered.

Within the pipelines located to the south and east of the Thornton Curtis PRS site the discoveries of archaeological artefacts during the evaluations and watching briefs have been largely restricted to unstratified ceramic and occasional flint artefacts from the topsoil. It should be noted however that these investigations have represented relatively narrow cross sections across the study area. Investigations to the north and west of the development site are very limited and have effectively represented key-hole investigations within a very small footprint.

11.0 Archaeological Potential and Impact Assessment

The only recorded cultural heritage site within the development boundary is a potential ring ditch (Site 8757), however comparison of the HER record with aerial photographs and historic mapping indicates that this circular feature identified on a photograph from 1983 is almost certainly a result of the hardstanding turning area associated with the airfield dating from the 1940s and does not have a prehistoric or Roman origin. The cultural heritage value of the remains associated with the airfield are considered to be of low heritage value. The magnitude of impact upon the remains is considered to be slight adverse because although the development may result in the removal of these remains they constitute a very small overall proportion of the airfield and are currently disassociated from the remainder of the airfield. The unmitigated significance of effect of development will therefore be minor adverse - neutral.

The potential for buried archaeological remains within the additional development site area remains relatively high. Although the construction of hard standing associated with the airfield may have resulted in partial truncation of any archaeological remains the depth of construction associated with the hard standing is anticipated to be relatively shallow and therefore archaeological remains may still be present. There is a moderate potential that flint artefacts from the Mesolithic and Neolithic may be discovered within the development site based upon findspots within the surrounding area. It is relatively unlikely that settlement remains form this period may be discovered. It is considered most likely that archaeological remains of late prehistoric (Bronze Age and Iron Age) and/or Roman date may be discovered within the development site due to the extent and number of previously identified sites in the surrounding area. These remains could include settlement or agricultural remains. Should archaeological remains from this period be recovered they are considered most likely to be of medium or low heritage value. The unmitigated magnitude of

impact upon these archaeological remains could be substantial negative resulting in their removal. The unmitigated significance of effect would be intermediate adverse for remains of medium value and intermediate-minor adverse for remains of low value.

Remains from the early medieval, medieval and post-medieval periods are considered less likely to be discovered within the additional development site area . The focus of settlement in these periods appears to have moved to the higher ground which is associated with the location of the existing villages of North and South Killingholme. The development site is anticipated to have been utilised for agricultural purposes and therefore should archaeological remains be discovered they are most likely to be former field boundaries, relict ridge and furrow or artefacts associated with manuring. Previously unrecorded archaeological remains from these periods are therefore considered likely to be of low heritage value. The unmitigated magnitude of impact upon these archaeological remains could be substantial negative resulting in their removal. The unmitigated significance of effect would be intermediate-minor adverse.

The turbo expander building is located within the existing PRS site. Although the footprint of the building is located within an area which is not currently developed, buildings and pipelines have been constructed to all sides surrounding this. There is anticipated to have been a significant amount of disturbance within this area from this former construction. No archaeological remains were identified when the existing PRS was constructed and therefore in combination with the anticipated disturbance and the limited extent of excavation associated with the strip foundations the potential to discover archaeological remains is considered to be low. Should archaeological remains be identified they area considered most likely to be of medium or low heritage value. The unmitigated magnitude of impact upon these archaeological remains could be substantial negative resulting in their removal. The unmitigated significance of effect would be intermediate adverse for remains of medium value and intermediate-minor adverse for remains of low value.

12.0 Recommended Evaluation and Mitigation Measures

It is recommended that a programme of evaluation is undertaken within the development site to assess the survival of the airfield remains, the extent of truncation as a result of the airfield construction and the potential for previously unrecorded archaeological remains to be discovered. Due to the relatively small area of development and the anticipated ground disturbance as a result of the airfield hardstanding geophysical survey and fieldwalking are unlikely to yield productive or informative results.

It is therefore recommended that evaluation excavation trenches are excavated across the development site. These trenches should be located to confirm that the cropmark identified on aerial photographs is related to the airfield construction and also to examine a representative proportion of the development site to determine the potential for previously unrecorded archaeological remains. It is anticipated that the evaluation trenches would be located within the areas of greatest impact within the footprint of the development. This includes two areas within the main engine building structure where the depth of excavation is anticipated to extent to approximately 5m below ground level for the engine and exhaust foundations.

The results of the evaluation excavations will be used to identify whether the potential to discover previously unrecorded archaeological remains within the development site is still probable, or whether the effect of truncation and previous development has reduced this to negligible potential. The results of this evaluation will be used to determine the mitigation strategy for the development site. This mitigation strategy may include, but not be limited to preservation of remains *in situ*, excavation of selected areas in advance of development, a watching brief during construction or no further works required depending upon the results of the evaluation.

Within the area of the turbo expander building the limited potential for archaeological remains means that a watching brief during the main construction phase is considered to be an appropriate mitigation methodology. The potential for archaeological monitoring of site investigations will be considered, however this is not anticipated to occur until post-determination of the planning application.

All further assessment work and mitigation measures should be undertaken in accordance with a Written Scheme of Investigation agreed in advance with the Archaeologist for North Lincolnshire Council. All evaluation and mitigation works should be undertaken in accordance with the Standards and Guidance from the Institute for Archaeologists.

13.0 Residual Impacts and Conclusions

The implementation of a programme of evaluation excavation will allow the most appropriate final mitigation strategy to be adopted for the development site. This mitigation strategy may allow for the preservation of archaeological remains *in situ*, however due to the limited scope of design alterations within the development site boundary this may not be possible. Where preservation *in situ* is not possible, or the value of the archaeological remains do not warrant it, a programme of preservation through recording will

be pursued. It is anticipated that the magnitude of impact upon archaeological remains can be reduced to slight negative through the implementation of this evaluation and mitigation strategy.

Residual Cultural Heritage Effects

Environmental Effects	Sensitivity Of Receptor	Impact Magnitude	Nature of the Impact	Significance	Mitigation	Residual Impact Magnitude	Residual Significance of Effects
Impact on buried remains of airfield	Low	Slight negative	Direct, Permanent	Minor adverse - neutral	Evaluation excavation followed by determination of mitigation strategy which may include advance excavation or watching brief	Negligible negative	Neutral
Potential to discover previously unrecorded archaeological remains of prehistoric or Roman date	Anticipated to be medium or low	Substantial negative	Direct, Permanent	Intermediate adverse or intermediate-minor adverse	Evaluation excavation followed by determination of mitigation strategy which may include advance excavation or watching brief	Slight negative	Minor adverse or Minor-neutral adverse
Potential to discover previously unrecorded archaeological remains of early medieval and later date	Anticipated to be low	Substantial negative	Direct, Permanent	Intermediate-minor adverse	Evaluation excavation followed by determination of mitigation strategy which may include advance excavation or watching brief	Slight negative	Minor-neutral adverse

14.0 References

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Historic Mapping

YARB/4/17/1 1779 Plan of North and South Killingholme

YARB/4/17/2 1779 North and South Killingholme Enclosure Plan

YARB/5/1/95 1869 Plan of North and South Killingholme

MISC DON 897 Plan of Estate at Killingholme 1869

BH/11/15 Plan of Estate South Killingholme 1855

10-NOTT/2/62 Plan of North Killingholme 1888

BH/11/14 Plans of estate in Killingholme 1853

Stubbs III/38 estate plan of North Killingholme, 1833

Ordnance Survey mapping 6" to 1 mile/1:10,560 1887, 1908, 1932, 1947

Ordnance Survey mapping 1:10,000 1956, 1965, 1972, 1994, 2000, 2006, 2009

Ordnance Survey mapping 25" to 1mile/1:2500 1887, 1907, 1932, 1970, 1994

Aerial Photographs

Sortie number	Library number	Frame number	Date
1/685 Fairey	HER	7022	May-June 1970
14R28 TA 1415/1	HER	14	26 July 1971
363/14 TA1415/1	HER	14	26 July 1971
1/109	HER	8308	9 April 1983
UK 98-01	HER	211	21 Feb 1989
RAF/CPE/1748	NMR	5034	21 Sept 1946
RAF/CPE/1748	NMR	5033	21 Sept 1946
RAF/CPE/UK/2043	NMR	4011	29 April 1947
RAF/CPE/UK/2043	NMR	1092	29 April 1947
RAF/CPE/UK/2043	NMR	4012	29 April 1947
RAF/CPE/UK/2043	NMR	1093	29 April 1947

Appendices

Appendix A – Site Location Plan & Proposed Development Plan

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Kilometres

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PMC	KRH	March 2010	V2
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Sheet Size: **A4** Scale of Original: **1:50,000**

Client: Blue NG

Project: Combined Heat and Intelligent Power Energy Centre Thornton Curtis

Title: Site Location Plan

Office:	Project No:	Figure No:
4104	A061188	1

C.A.D. PLOTTING INFORMATION
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Design file $$$$$$$$DESIGNFILENAME$$$$$$
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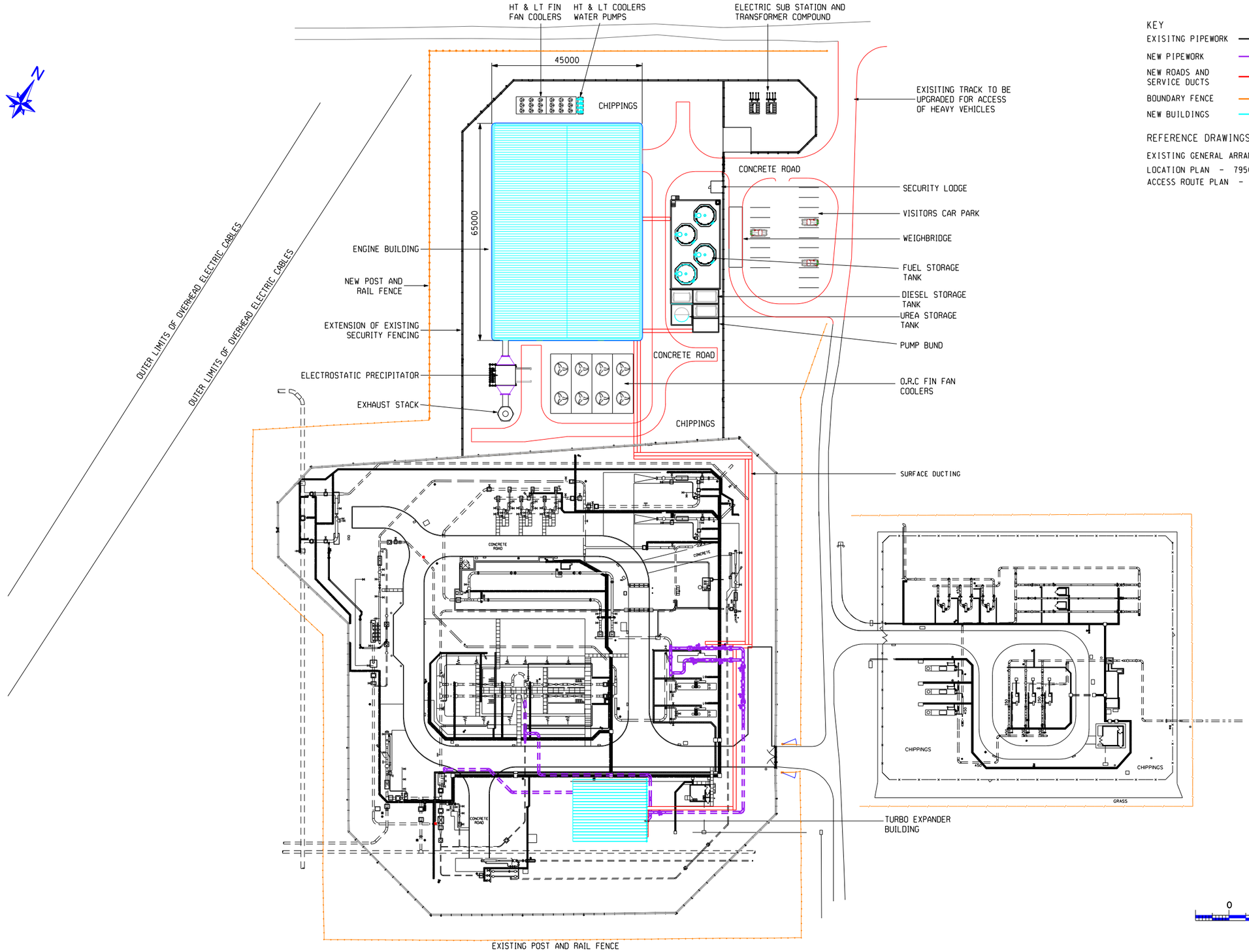


KEY

- EXISITNG PIPEWORK
- NEW PIPEWORK
- NEW ROADS AND SERVICE DUCTS
- BOUNDARY FENCE
- NEW BUILDINGS

REFERENCE DRAWINGS

EXISTING GENERAL ARRANGEMENT - 795605/BE/03/01/1905/002
LOCATION PLAN - 795605/BE/03/01/1905/004
ACCESS ROUTE PLAN - 795605/BE/03/01/1905/010

DRAWN BY		DRAWN BY		DRAWN BY		DRAWN BY A.C.	A	Mouchel Wheatfield House Wheatfield Way Hinckley Leics. LE10 1YG Tel 01455 254500 Fax 01455 254510	PROJECT: RENEWABLE ENERGY CENTRE THORNTON CURTIS
DATE		DATE		DATE		DATE 27-4-10	PRE APPLICATION ISSUE		
CHECKED		CHECKED		CHECKED		CHECKED			TITLE: PROPOSED GENERAL ARRANGEMENT FOR 14K60 ENGINE
APPROVED		APPROVED		APPROVED		APPROVED			

CONSULTANT: mouchel
CLIENT: blue-ng

DRAWN BY	A.C.
DATE	26/04/10
CAD FILENAME	795605t050.dgn
SCALE 1:600 @	A1
DRG. No. 795605/BE/03/01/1905/050	SHT 1 OF 1
ISSUE	A
PROJECT No	795605

Appendix B - Assessment Methodology

Cultural Heritage Impact Assessment Methodology

No standard method of evaluation and assessment is provided for the assessment of significance of effects upon cultural heritage, therefore a set of evaluation and assessment criteria have been developed using a combination of the Secretary of State's criteria for Scheduling Monuments (Scheduled Monument Statement, Annex 1), Design Manual for Roads and Bridges, Volume 11, Part 3, Section 2, HA 208/07 and Transport Analysis Guidance (TAG Unit 3.3.9, Heritage of Historic Resources Sub-Objective). Professional judgement is used in conjunction with these criteria to undertake the impact assessment.

Value

The table below provides guidance on the assessment of cultural heritage value on all archaeological sites and monuments, historic buildings, historic landscapes and other types of historical site such as battlefields, parks and gardens, not just those that are statutorily designated.

Value	Examples
Very High	World Heritage Sites, Scheduled Monuments of exceptional quality, or assets of acknowledged international importance or can contribute to international research objectives Grade I Listed Buildings and built heritage of exceptional quality Grade I Registered Parks and Gardens and historic landscapes and townscapes of international sensitivity, or extremely well preserved historic landscapes and townscapes with exceptional coherence, integrity, time-depth, or other critical factor(s)
High	Scheduled Monuments, or assets of national quality and importance or than can contribute to national research objectives Grade II* and Grade II Listed Buildings, Conservation Areas with very strong character and integrity, other built heritage that can be shown to have exceptional qualities in their fabric or historical association. Grade II* and II Registered Parks and Gardens, Registered Battlefields and historic landscapes and townscapes of outstanding interest, quality and importance, or well preserved and exhibiting considerable coherence, integrity time-depth or other critical factor(s)
Medium	Designated or undesignated assets of regional quality and importance that contribute to regional research objectives Locally Listed Buildings, other Conservation Areas, historic buildings that can be shown to have good qualities in their fabric or historical association Designated or undesignated special historic landscapes and townscapes with reasonable coherence, integrity, time-depth or other critical factor(s)

Value	Examples
	Assets that form an important resource within the community, for educational or recreational purposes.
Low	Undesignated assets of local importance Assets compromised by poor preservation and/or poor survival of contextual associations but with potential to contribute to local research objectives. Historic (unlisted) buildings of modest quality in their fabric or historical association Historic landscapes and townscapes with limited sensitivity or whose sensitivity is limited by poor preservation, historic integrity and/or poor survival of contextual associations. Assets that form a resource within the community with occasional utilisation for educational or recreational purposes.
Negligible	Assets with very little or no surviving cultural heritage interest. Buildings of no architectural or historical note. Landscapes and townscapes that are badly fragmented and the contextual associations are severely compromised or have little or no historical interest.

Magnitude

The magnitude of the potential impact is assessed for each site or feature independently of its archaeological or historical value. Magnitude is determined by considering the predicted deviation from baseline conditions. The magnitude of impact categories are adapted from the Transport Assessment Guidance (TAG Unit 3.3.9) and Design Manual for Roads and Bridges, Volume 11, Part 3, Section 2, HA 208/07.

Magnitude of Impact	Typical Criteria Descriptors
Substantial	Impacts will damage or destroy cultural heritage assets; result in the loss of the asset and/or quality and integrity; cause severe damage to key characteristic features or elements; almost complete loss of setting and/or context of the asset. The assets integrity or setting is almost wholly destroyed or is severely compromised, such that the resource can no longer be appreciated or understood. (Negative) The proposals would remove or successfully mitigate existing damaging and discordant impacts on assets; allow for the restoration or enhancement of characteristic features; allow the substantial re-establishment of the integrity, understanding and setting for an area or group of features; halt rapid degradation and/or erosion of the heritage resource, safeguarding substantial elements of the

Magnitude of Impact	Typical Criteria Descriptors
	heritage resource. (Positive)
Moderate	Substantial impact on the asset, but only partially affecting the integrity; partial loss of, or damage to, key characteristics, features or elements; substantially intrusive into the setting and/or would adversely impact upon the context of the asset; loss of the asset for community appreciation. The assets integrity or setting is damaged but not destroyed so understanding and appreciation is compromised. (Negative) Benefit to, or restoration of, key characteristics, features or elements; improvement of asset quality; degradation of the asset would be halted; the setting and/or context of the asset would be enhanced and understanding and appreciation is substantially improved; the asset would be bought into community use. (Positive)
Slight	Some measurable change in assets quality or vulnerability; minor loss of or alteration to, one (or maybe more) key characteristics, features or elements; change to the setting would not be overly intrusive or overly diminish the context; community use or understanding would be reduced. The assets integrity or setting is damaged but understanding and appreciation would only be diminished not compromised. (Negative) Minor benefit to, or partial restoration of, one (maybe more) key characteristics, features or elements; some beneficial impact on asset or a stabilisation of negative impacts; slight improvements to the context or setting of the site; community use or understanding and appreciation would be enhanced. (Positive)
Negligible / No Change	Very minor loss or detrimental alteration to one or more characteristics, features or elements. Minor changes to the setting or context of the site. No discernible change in baseline conditions (Negative). Very minor benefit to or positive addition of one or more characteristics, features or elements. Minor changes to the setting or context of the site No discernible change in baseline conditions. (Positive).

Magnitude (scale of change) is determined by considering the predicted deviation from baseline conditions. Quantifiable assessment of magnitude has been undertaken where possible. In cases where only qualitative assessment is possible, magnitude has been defined as fully as possible.

During the assessment any embedded mitigation has been considered in the impact assessment and this is clearly described in this section (cross referring the development description). Therefore, the magnitude of the impacts described herein will be stated before and after additional mitigation has been taken into consideration.

Impacts may be of the following nature and will be identified as such where relevant:

- Negative or Positive.
- Direct or indirect.
- Temporary or permanent.
- Short, medium or long term.
- Reversible or irreversible.
- Cumulative.

Significance

By combining the value of the cultural heritage resource with the predicted magnitude of impact, the significance of the effect can be determined. This is undertaken following the table below. The significance of effects can be beneficial or adverse.

Significance of Effects	Magnitude of Impact			
Cultural Heritage Value	**Substantial**	**Moderate**	**Slight**	**Negligible / no Change**
Very High	Major	Major – Intermediate	Intermediate	Minor
High	Major – Intermediate	Intermediate	Intermediate – Minor	Neutral
Medium	Intermediate	Intermediate	Minor	Neutral
Low / Negligible	Intermediate – Minor or Minor-Neutral	Minor or Minor - Neutral	Minor – Neutral or Neutral	Neutral

Significance should always be qualified as in certain cases an effect of minor significance could be considered to be of great importance by local residents and deserves further consideration. To aid in the assignment of significance the following significance criteria have been developed to enable effective and transparent discrimination between categories.

The significance of effect is considered both before and after additional mitigation measures proposed have been taken into account.

Appendix C – Site Photographs

Photograph 1: Looking north across development site towards industrial units on former airfield

Photograph 2: Looking north-east across development site with industrial units on the former airfield in the distance

Photograph 3: Looking east along southern boundary with Thornton Curtis AGI on right and Immingham stacks in the distance

Appendix D – Planning Policies

The Yorkshire and Humber Regional Spatial Strategy to 2026 (published May 2008)

POLICY ENV9: Historic Environment

A The Region will safeguard and enhance the historic environment, and ensure that historical context informs decisions about development and regeneration.

B Plans, strategies, investment decisions and programmes should conserve the following regionally-distinctive elements of the historic environment, enhance their character and reinforce their distinctiveness:

1. World Heritage Sites and their settings at Saltaire, and Fountains Abbey and Studley Royal;

2. Prehistoric landscapes, especially the Wolds, the Southern Magnesian Limestone Ridge, the Vale of Pickering, and Ilkley and Rombalds Moors;

3. Medieval settlements and landscapes, especially the Lincolnshire Coversands, the waterlogged landscapes of the Humber and the relict industrial landscapes of the North York Moors and Yorkshire Dales;

4. Former industrial landscapes, housing areas and civic buildings of note, especially in West and South Yorkshire;

5. Roman military and civil settlements and communications, especially in North Yorkshire;

6. The street patterns, sky lines, views and setting of the historic City of York;

7. Maritime archaeological assets, seaside resorts, and the purpose built historic ports, docks and infrastructure of the East Coast and the Humber;

8. Historic landscapes including registered battlefields, parks and gardens; and

9. The unique record of historic urban development present as archaeological deposits in large areas of the region's cities and towns.

North Lincolnshire Local Plan, 2003 (North Lincolnshire Council, 2003)

HE8 - Ancient Monuments

Development proposals which would result in an adverse effect on Scheduled Ancient Monuments and other nationally important monuments, or their settings, will not be permitted.

HE9 – Archaeological Evaluation

Where development proposals affect sites of known or suspected archaeological importance, an archaeological assessment to be submitted prior to the determination of a planning application will be required. Planning permission will not be granted without adequate assessment of the nature, extent and significance of the remains present and the degree to which the proposed development is likely to affect them.

Sites of known archaeological importance will be protected. When development affecting such sites is acceptable in principle, mitigation of damage must be ensured and the preservation of the remains in situ is a preferred solution. When in situ preservation is not justified, the developer will be required to make adequate provision for excavation and recording before and during development.

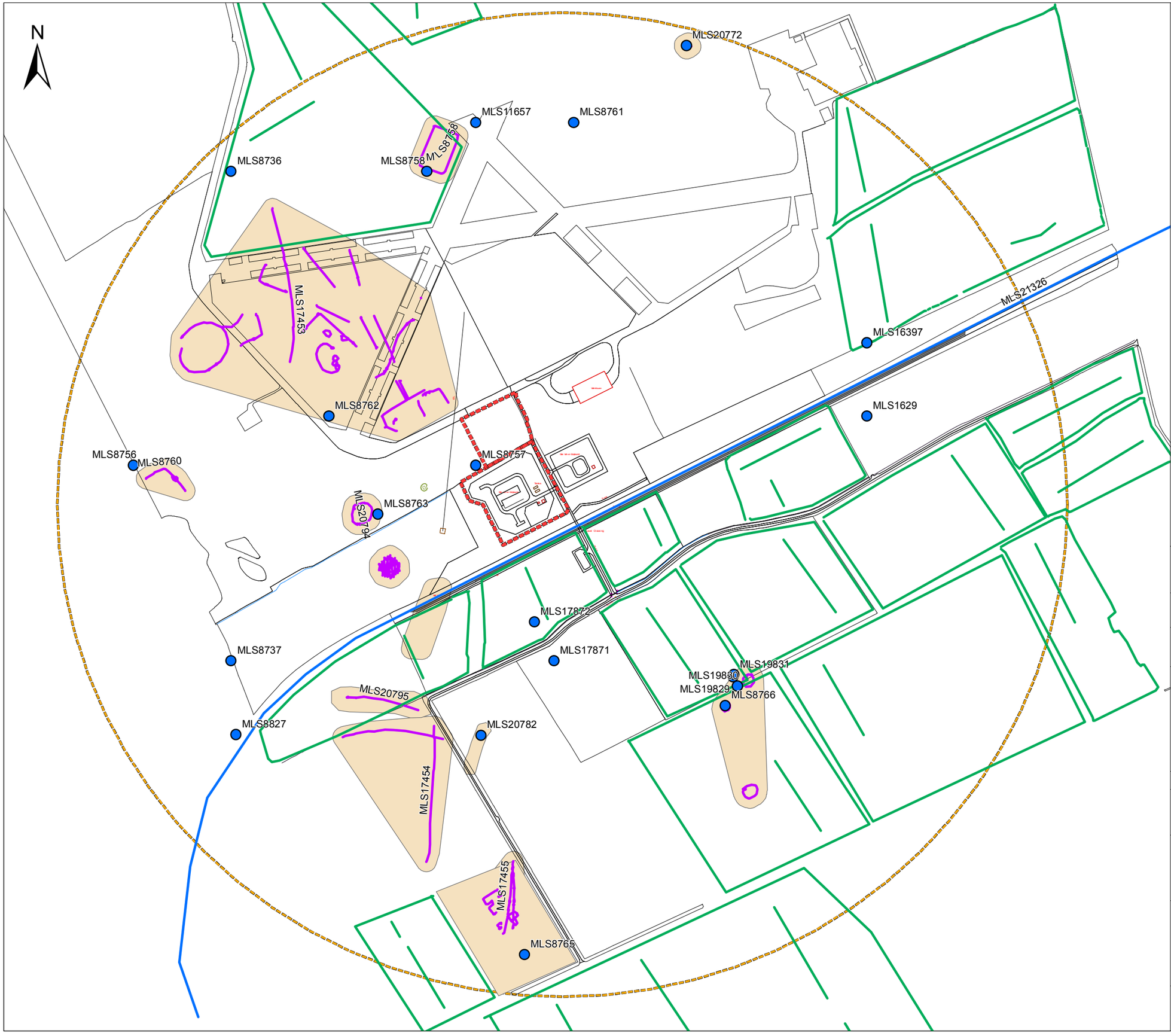
Appendix E – Recorded Cultural Heritage Sites

Recorded Cultural Heritage (National Monuments Record and Historic Environment Record)

Identifier	Grid Reference	Period	Description
MLS11657; UID1406903	TA 130 170	Modern	North Killingholme Airfield. A former World War Two military airfield, opened in 1943 and closed in 1945. It was equipped with three concrete runways and aircraft hangars. The technical and administration sites were located east of the flying field. There was a mess, sick quarters communal and domestic accommodation sites west of the East Halton Road. East of the flying field was a bomb store. It was an operational bomber station for Royal Air Force Bomber Command Group 1.
MLS1629; UID80443	TA 138 164	Roman	Romano-British upper stone of a quern, found north of West Middle Mere Road in 1964 during ploughing.
MLS16397	TA 1354 1644	Roman to Medieval	Romano-British & Medieval pottery recovered during a pipeline watching brief.
MLS17453; MLS8762	TA 126 165	Early Iron Age to Roman	Rectangular enclosures, ring ditches and linear cropmarks identified from aerial photographs at North Killingholme airfield.
MLS17454	TA 128 156	Unknown	Linear cropmarks identified north-east of Sinks Covert.
MLS17871	TA 1316 1590	Early Mesolithic to Roman	Flint and Romano-British pottery found south of West Middle Mere Road.
MLS17872	TA 1312 1598	Early Mesolithic to Early Medieval	Flint, Romano-British and Anglo-Saxon pottery found north of West Middle Mere Road.
MLS19829	TA 1352 1586	Late Iron Age to Roman	Late Iron Age and Roman pottery sherds found south of Middle Mere Drain in 2002 during evaluation excavations.
MLS19830	TA 1353 1584	Roman	Two sherds of Roman pottery recovered south of Middle Mere drain during evaluation excavations, 2002.
MLS19831	TA 1352 1587	Late Mesolithic to Early Bronze Age	Two flint flakes recovered from the spoil heap of an evaluation trench in 2002.
MLS20772	TA 1343 1715	Unknown	Small square cropmark enclosure visible on aerial photographs to the west of Maritime House.

Identifier	Grid Reference	Period	Description
MLS20782	TA 1294 1586	Unknown	Cropmark of a ditch to the east of West Middle Mere Road.
MLS20794	TA 1276 1200	Unknown	Cropmark of a ring ditch of uncertain date identified during a pipeline survey from aerial photograph
MLS8763	TA 1283 1620	Roman	Romano-British settlement site, south of Bygotts Covert identified from cropmarks.
MLS20795	TA 1280 1581	Unknown	Linear cropmark of a potential ditch west of West Middle Mere Road plotted during a pipeline survey.
MLS8736	TA 125 169	Medieval	Soilmarks of ridge and furrow at Low Farm identified from aerial photographs.
MLS8737	TA 125 159	Unknown	Ovoid ring ditch identified as a cropmark from aerial photographs at Ulceby Carr.
MLS8756	TA 123 163	Medieval	Ridge & furrow cropmark identified from aerial photographs west of Bygott's Covert.
MLS8757	TA 130 163	?Modern	Possible ring ditch identified as a cropmark, south-east of Bygott's Covert. 70-80m diameter. Comparison with aerial photographs and historic mapping indicates most likely associated with airfield and not of archaeological origin.
MLS8758	TA 129 169	Unknown	Rectangular enclosure of unknown date identified as a soil mark.
MLS 8761	TA 132 170	Medieval	Medieval ridge and furrow remains identified at Thornton Curtis airfield.
MLS8760	TA 123 162	Unknown	Earthwork enclosure, west of Bygott's Covert identified from aerial photographs.
MLS8765	TA 131 153	Roman	Possible droveway and rectangular enclosure identified as cropmarks at Ulceby Road
MLS8766	TA 1353 1574	Unknown	Three ring ditches identified as cropmarks at Ulceby Road, however no evidence of a ring ditch was recorded during evaluation excavations.
MLS8827	TA 1368 1811	Post Medieval	Branch railway from Goxhill-Ulceby via Killingholme.

Identifier	Grid Reference	Period	Description
MLS21326	TA 148 169	Modern	The Humber Commercial Railway constructed in 1912 to link the eastern jetty at Immingham Dock with the main Grimsby-New Holland line at Ulceby.
MLS17455	TA 1306 1535	Modern	Site of a World War II anti-aircraft battery. It comprised three gun emplacements, a possible weapons pit and associated military buildings.



Legend

- Site Boundary
- Study Area
- Cultural Heritage Site
- Cultural Hertage Site
- Ridge And Furrow
- Cropmarks from Aerial Photos
- Archaeological Areas

0 50 100 200 300 400 500

Metres

PMC	KRH	March 2010	V2
Created:	Checked:	Date:	Version:

Arndale Court
Headingley
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TEL: +44 (0)113 2787111
FAX: +44 (0)113 2750623
e-mail: enviro@wyg.com

Sheet Size: **A3** Scale of Original: **1:7,500**

Client:

Blue NG

Project:

Combined Heat and Intelligent
Power Energy Centre
Thornton Curtis

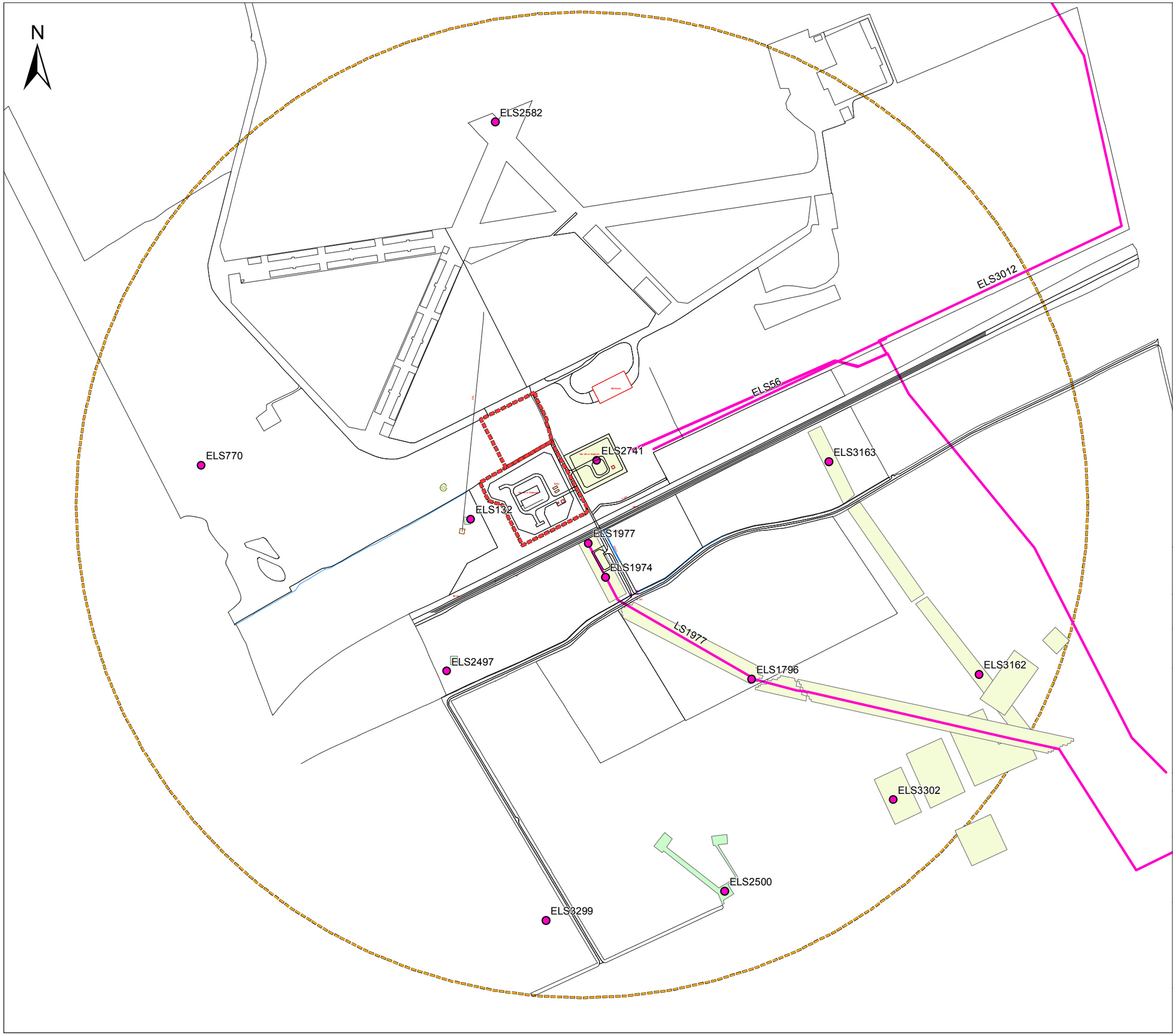
Title:

Recorded Cultural Heritage Sites

Office:	Project No:	Figure No:
4104	A061188	2

Archaeological Investigations (Historic Environment Record)

Identifier	Description
ELS770	Aerial photographic sorties by Clyde Surveys for National Grid. Results incorporated into HER records.
ELS132	North Killingholme Pylons Watching Brief. No archaeological features identified.
ELS1796	Trenches 1 & 2, Archaeological Evaluation, Immingham CHP Gas Pipeline Project (2002). South of West Middle Mere Road. Diassociated finds in topsoil only.
ELS1974	Geophysical Survey, Conoco CHP Gas Pipeline (2000). Some potential pit like anomalies located near Ulceby Road.
ELS1977	Watching Brief, Conoco CHP Gas Pipeline (2001). No archaeological features recorded within the study area.
ELS2497	Desk based assessment, Keadby - Grimsby overhead transmission line refurbishment (2000/2001). Potential for archaeological remains to be recorded.
ELS2500	Watching brief, Tower 116, 4KG Keadby - Grimsby overhead transmission line refurbishment, (2000). No archaeological features identified.
ELS2741	Thornton Curtis Above Ground Installation, West Middle Mere Road (1992). No features identified during geophysical survey.
ELS3012	Watching brief on Theddlethorpe to Killingholme Pipeline (1992). Only unstratified post-medieval pottery recovered from Killingholme area.
ELS3162	Fieldwalking on the Goxhill to Hatton Natural Gas Pipeline (2007). Early modern stoneware, one undated flint, two fragments of medieval roof tile and George V half penny found near Ulceby Road.
ELS3163	Geophysics on Goxhill to Hatton Proposed Pipeline (2007). No significant archaeological sites identified.
ELS3299	Aerial Photographic Assessment, A160-A180 Improvements (2008). Results incorporated into HER records.
ELS3302	Geophysical Survey, A160-A180 Improvements (2008). Anomalies detected at southern end of route.
ELS56	Watching brief on Theddlethorpe to Killingholme Pipeline (1992). Only unstratified post-medieval pottery recovered from Killingholme area.



Legend

- Site Boundary
- Study Area
- Archaeological Investigation
- Watching Brief
- Geophysical Survey
- Watching Brief

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Metres

PMC	KRH	March 2010	V2
Created:	Checked:	Date:	Version:

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Sheet Size: **A3** Scale of Original: **1:7,500**

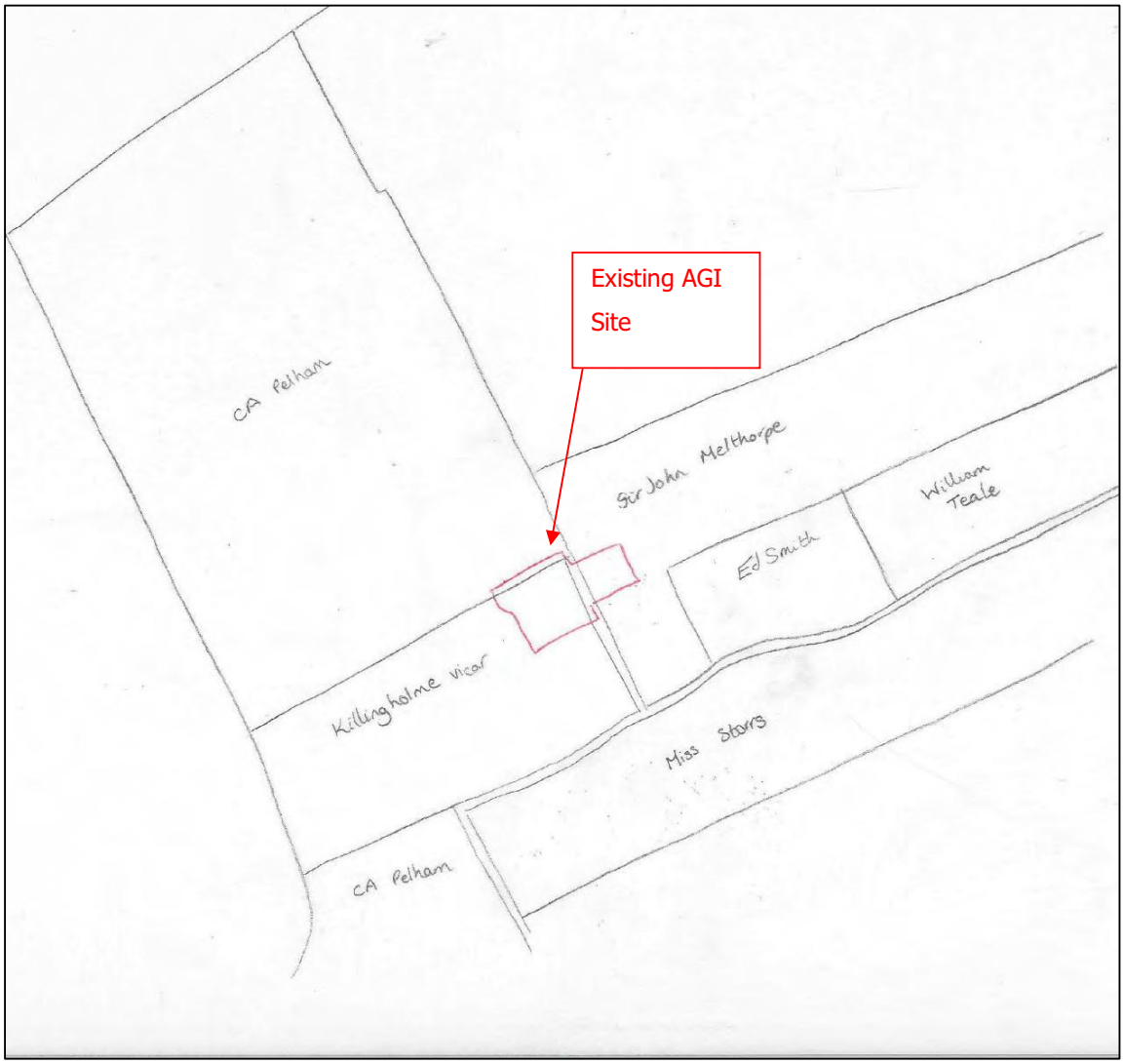
Client:
Blue NG

Project:
Combined Heat and Intelligent
Power Energy Centre
Thornton Curtis

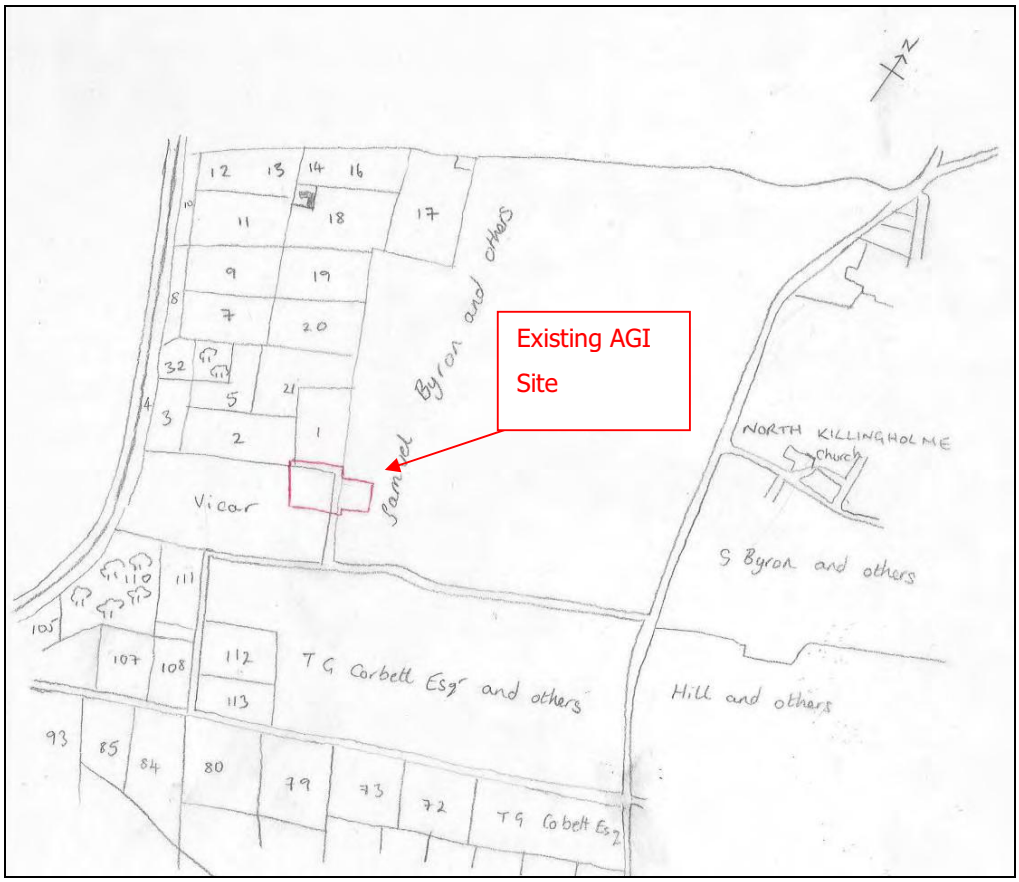
Title:
Archaeological Investigations

Office:	Project No:	Figure No:
4104	A061188	3

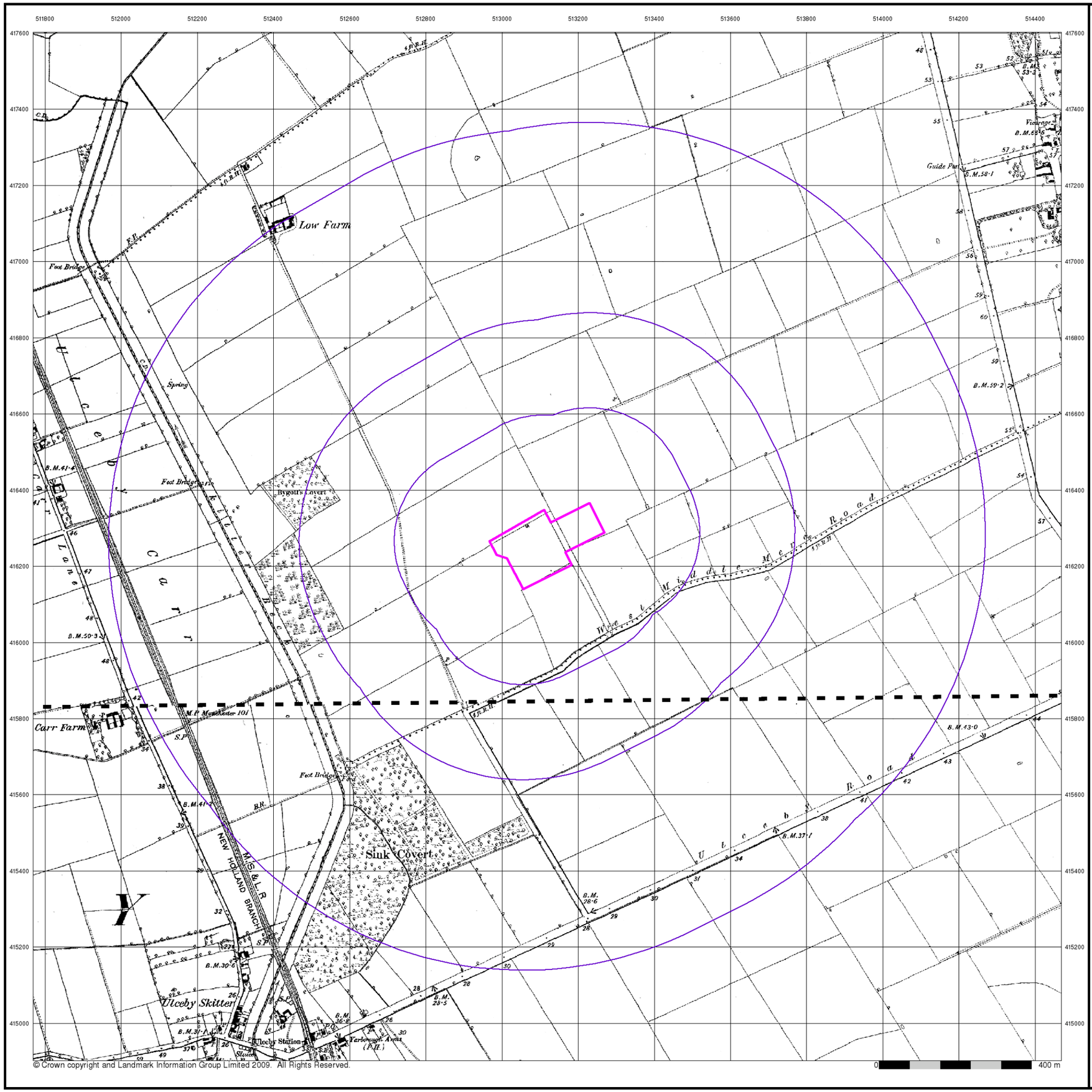
Appendix F – Historic Mapping



Part of Enclosure Award, 1779 (after Russell, 1974)



Part of Estate Map, 1853



Envirocheck®

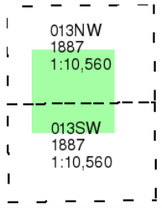
Lincolnshire

Published 1887

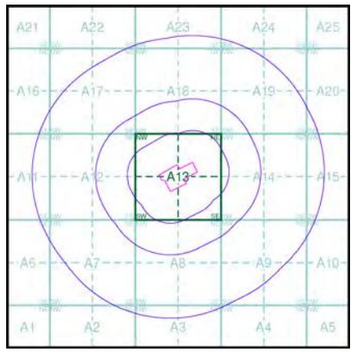
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



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Order Details

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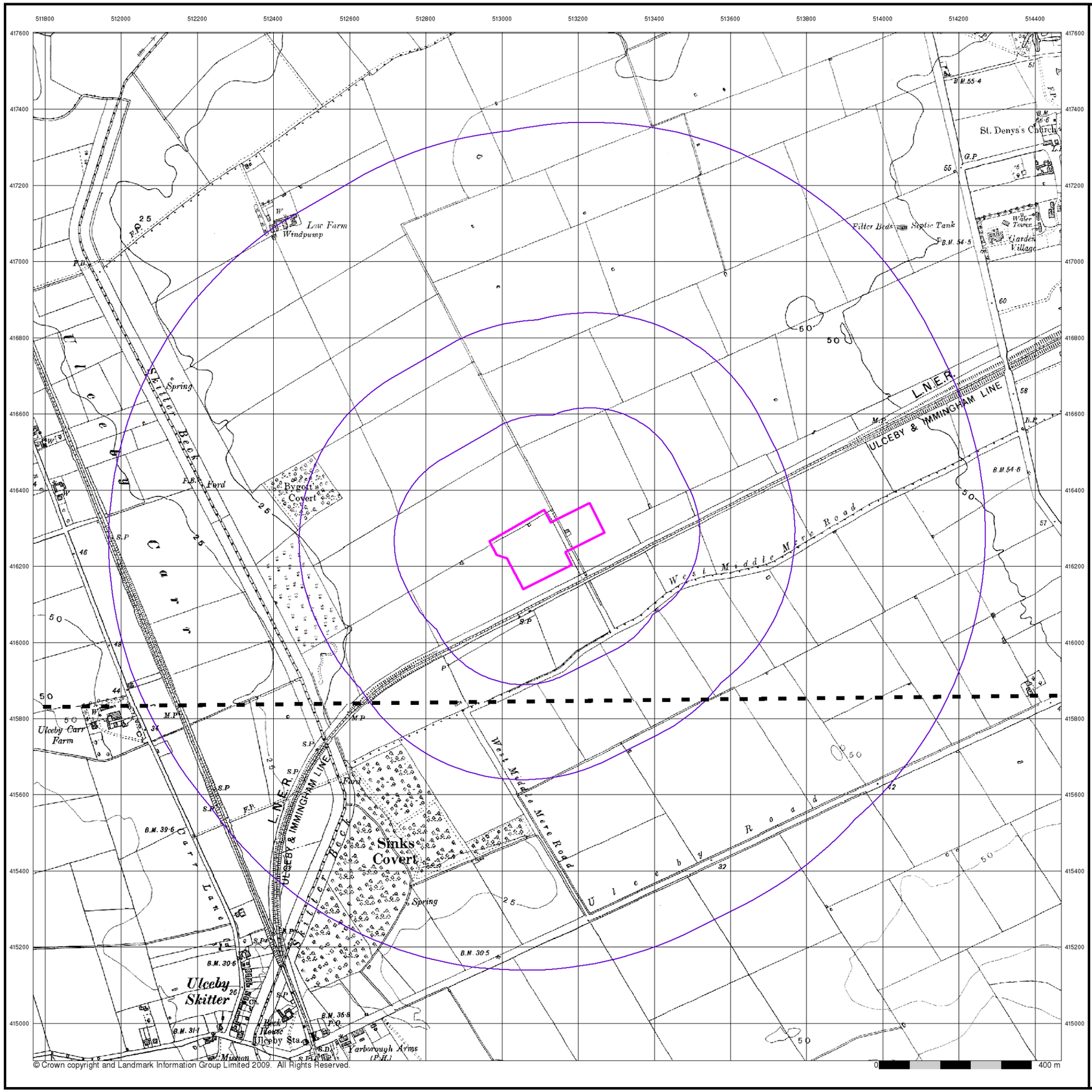
National Grid Reference:	513120, 416260
Slice:	A
Site Area (Ha):	3.36
Search Buffer (m):	1000

Site Details

Site at 513100, 416200

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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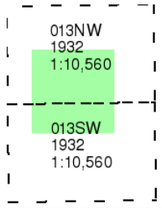
Lincolnshire

Published 1932

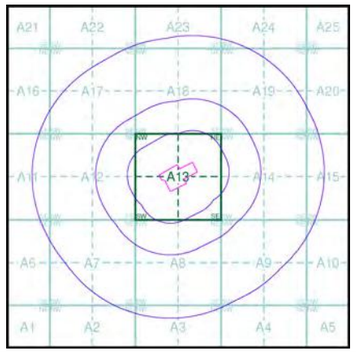
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



N

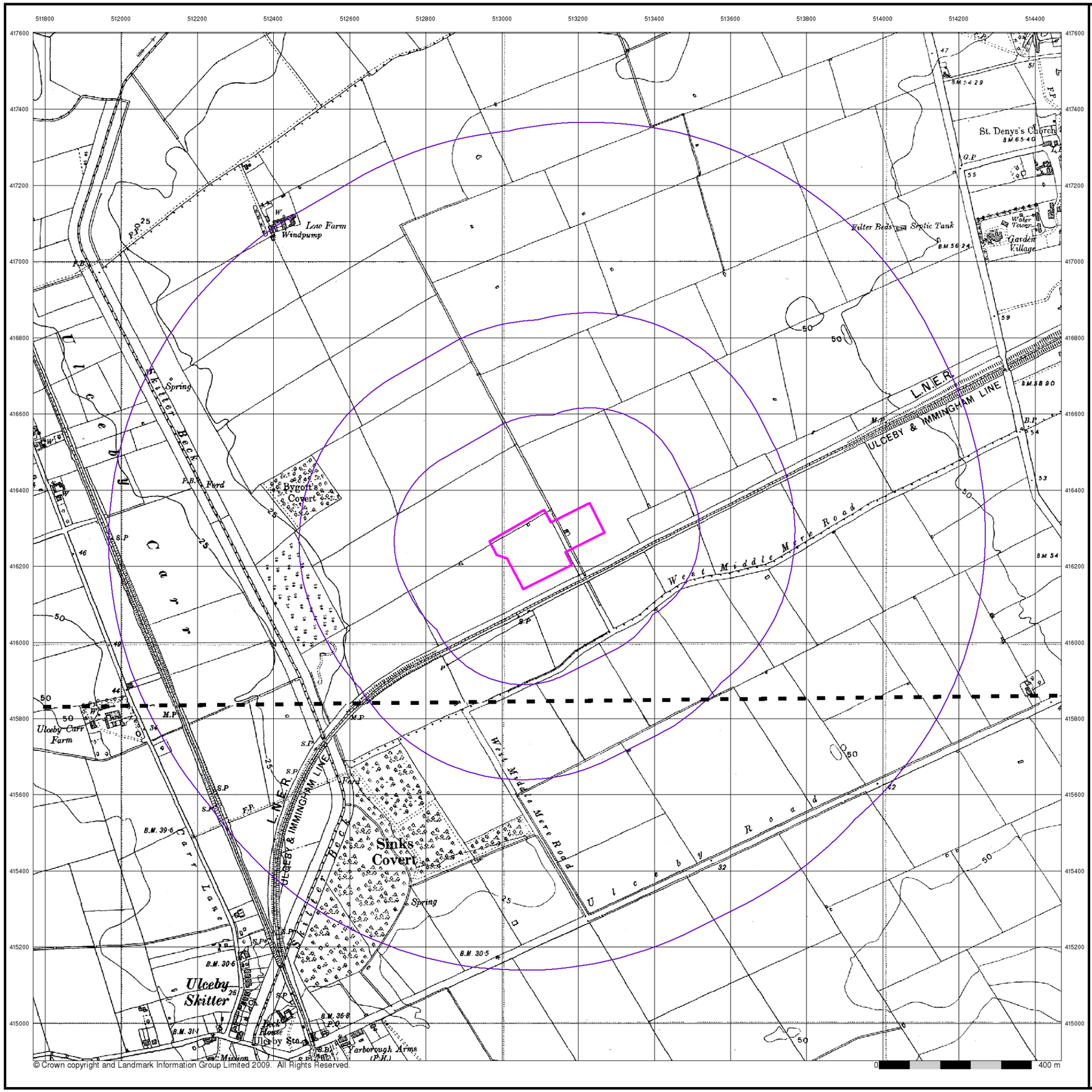
Order Details

Order Number:	29261132_1_1
Customer Ref:	A060506
National Grid Reference:	513120, 416260
Slice:	A
Site Area (Ha):	3.36
Search Buffer (m):	1000

Site Details

Site at 513100, 416200

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Lincolnshire

Published 1946 - 1947

Source map scale - 1:10,560

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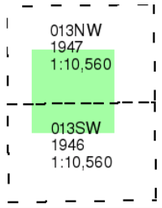

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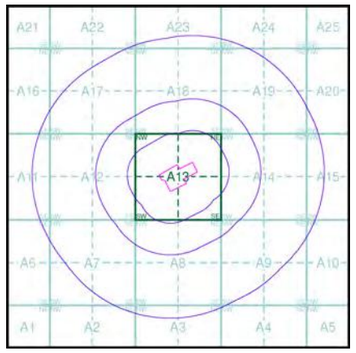

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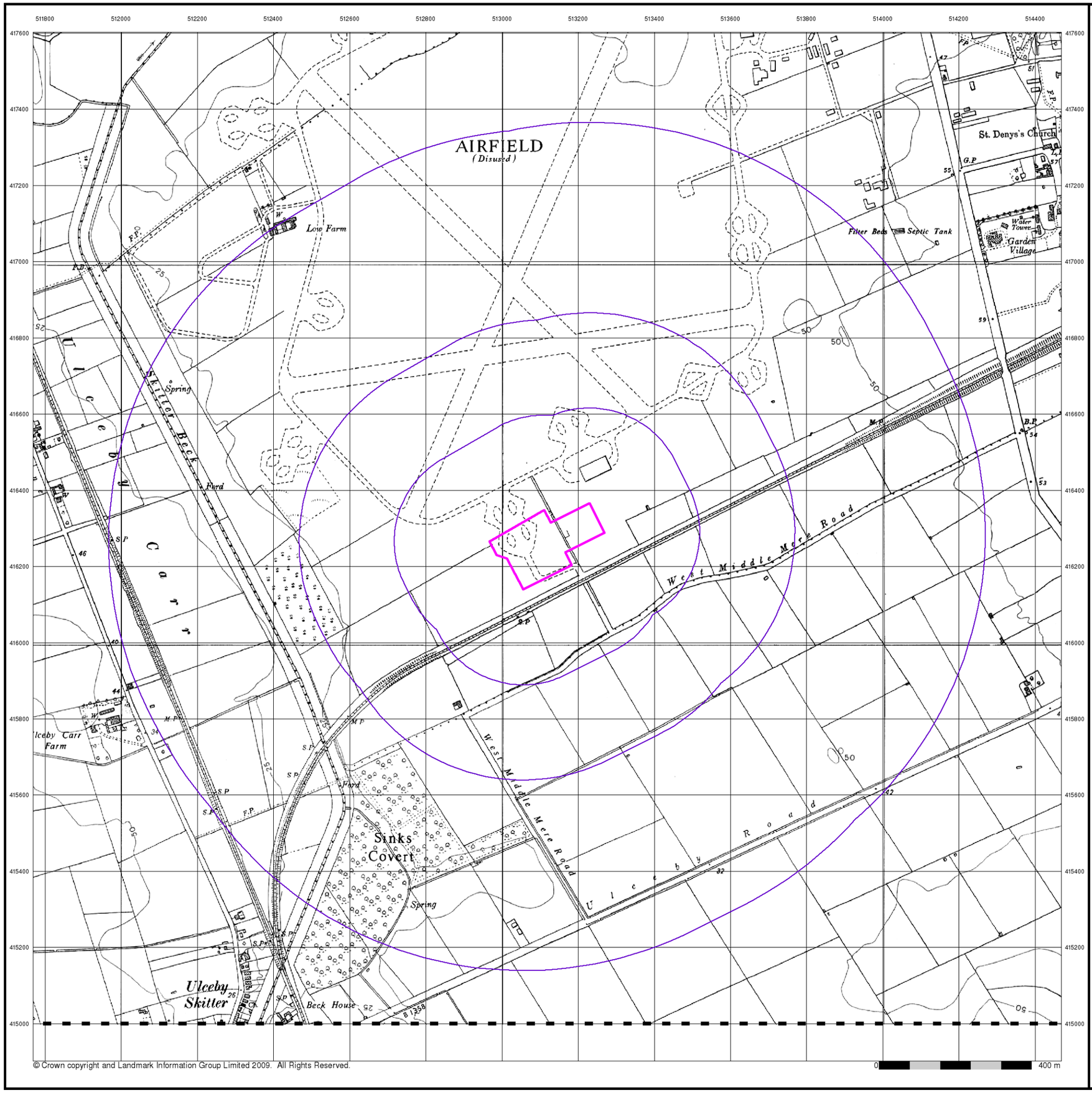

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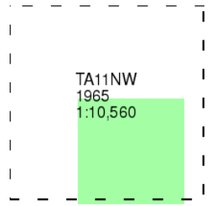
Ordnance Survey Plan

Published 1965

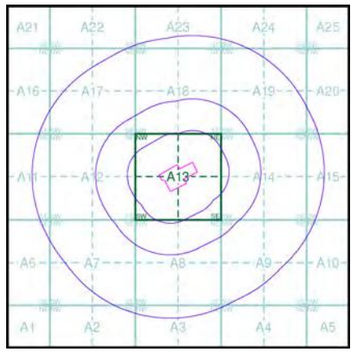
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



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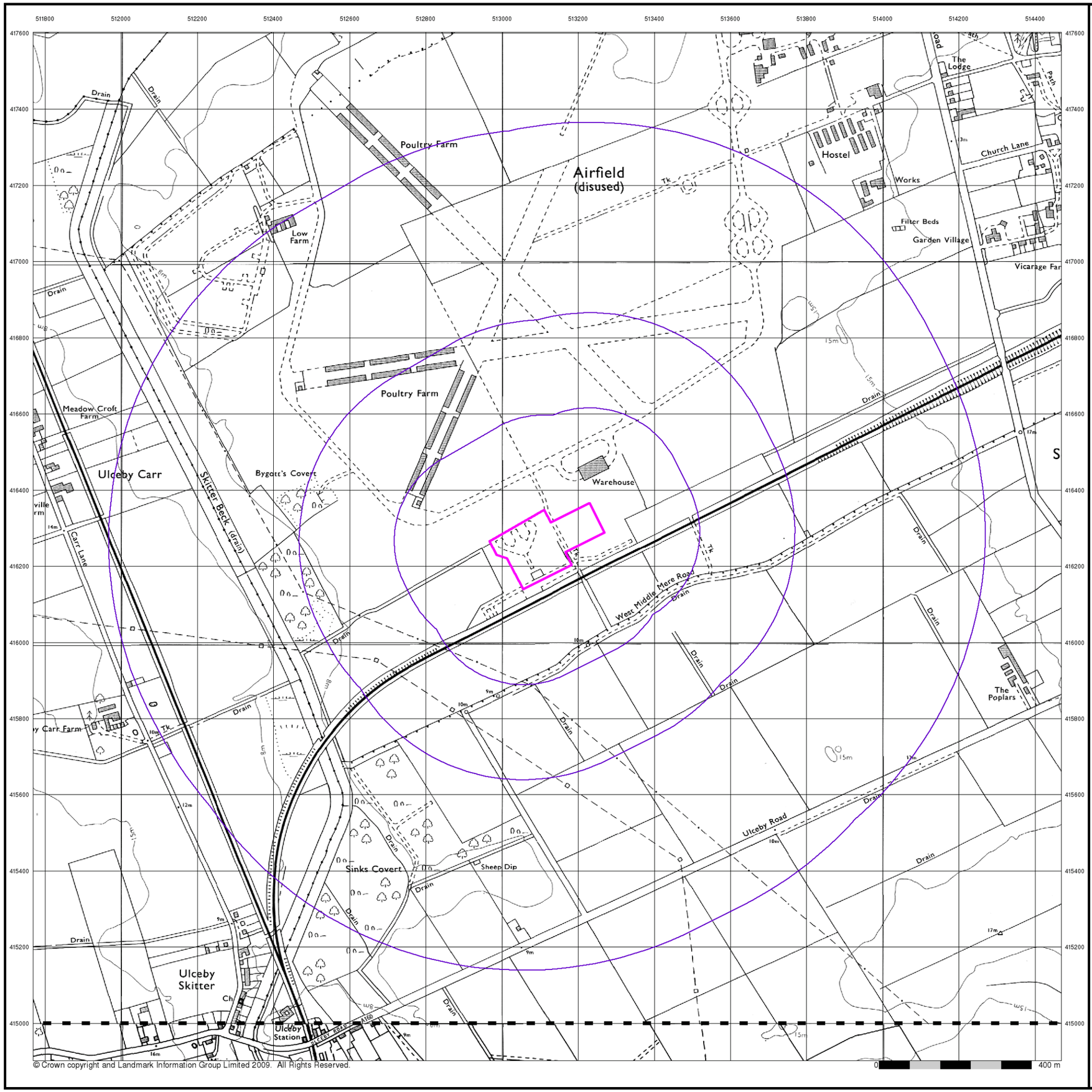


Envirocheck®

Ordnance Survey Plan
Published 1972
Source map scale - 1:10,000

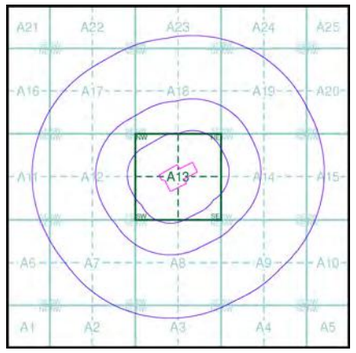
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

TA11NW
1972
1:10,000

TA11SW
1972
1:10,000

Historical Map - Slice A



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Appendix G – Report Conditions

Cultural Heritage Desk-Based Assessment, CHiP Installation, Thornton Curtis, North Lincolnshire

This report is produced solely for the benefit of **Blue NG** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYG. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of WYG using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to WYG by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors

November 2008

WYG Environment Planning Transport Ltd