Land at Scotter Road, Scunthorpe, Lincolnshire:

Report on an Archaeological Trial Trench Evaluation

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York Archaeology

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SUMMARY

- York Archaeology (Nottingham) were commissioned by William Saunders Architects on behalf of their clients Lincolnshire Lakes Ltd. to conduct an archaeological trial trench evaluation and geoarchaeological test pit survey on land west of Scotter Road, Scunthorpe, North Lincolnshire. The work was conducted from 6th—9th March 2023, as directed by a condition of planning approval (ref: PA/2021/1990).
- No archaeological finds or features were uncovered during the evaluation at the Site. The anomaly identified by the geophysical survey proved to be a modern field drain. No trace of the Frodingham Causeway (HER 25905) was present within the excavated trenches.
- Geoarchaeological test pits excavated at both ends of each trench identified a sequence of commencing with fine, well-sorted sands, likely the wind-blown Sutton Sand Formation. The deposit found at the Site was not directly dated, but the Sutton Sand Formation began to form across much of Lincolnshire during the early Holocene (*c* 10,700—9,500 years BP). At Keadby, 3.5km to the southwest of the Site, OSL dating of the sands underlying peat deposits was dated to the early—mid Mesolithic period (7270 BC-5490 BC; 9220-7440 BP).
- At Scotter Road, a peat unit found within the sands suggests that possibly large parts of the site became waterlogged for a time, before being buried by another unit of sand.
- Above the sand was an undated shallow peat layer, seen across much of the Site (0.26-0.58m below ground level, or BGL). A similar layer was seen at Keadby, where it was dated to the Neolithic to Early Bronze age periods
- In some of the trenches, a thin layer of sand covered the peat, but appears to be an artificial deposition, perhaps used to improve the quality of the land. Deposits of subsoil and topsoil completed the sequence at the Site.
- No clear evidence of flood warping sediment has been identified at the Site, despite being mapped by the BGS for parts of the southern portion of the Site. With the peat surface so shallow to the surface, it is possible that any flood warping deposits overlying the peat have been incorporated into the topsoil as part of ploughing the land surface.

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1 INTRODUCTION

1.1.1 York Archaeology (Nottingham) were commissioned by William Saunders Architects on behalf of their clients Lincolnshire Lakes Ltd. to conduct an archaeological trial trench evaluation and geoarchaeological test pit survey on land west of Scotter Road, Scunthorpe, North Lincolnshire (henceforth referred to as 'the Site'; Figure 1). The work was carried out ahead of residential development.

1.1.2 Work was carried out between the 6th and 9th March 2023.

1.1.3 This report summarises the results of the evaluation phase of archaeological investigation. The results of the evaluation will inform the decision by the Archaeological Advisor to North Lincolnshire Council on whether further works are required.

1.1.4 The work was conducted as directed by the condition of planning approval (ref: PA/2021/1990). The location of the evaluation is shown in Figure 1. The works are centred on the National Grid Reference SE 86993 10139.

2 SITE BACKGROUND

2.1 Location, Topography and Geology

2.1.1 The Site is located to the west of Scotter Road, approximately 2.75km to the south-west of Scunthorpe town centre. The Site comprises a field and its access road which together measure *c* 3.42ha and are bordered by plantations to the north and west, arable fields to the south, and Scotter Road to the east.

2.1.2 The Site is situated on a gradual slope measuring *c* 10-8m AOD (Above Ordinance Datum) to its north and *c* 3m AOD towards its southern boundary. The underlying geology of the Site, as mapped by the British Geological Survey (BGS), consists of the Mercian Mudstone Group – a sedimentary bedrock which formed during the Triassic Period 252.2-201.3 million years ago (BGS 2023).

2.1.3 Although a search of the BGS (2023) borehole record did not return any entries for the Site, a geological investigation consisting of four percussive boreholes (maximum depth 16.45m BGL) and ten trial pits (max. depth 2.2m BGL) was undertaken by Solmek in 2021 (Simpson 2021). During this investigation, a thin layer of peat was identified between 4.5-6m BGL (Below Ground Level) within three of the four boreholes. Peat deposits identified during other evaluations within the vicinity of the Site were dated from the Mesolithic to the Early Bronze Age, with peat deposits recovered from Brumby Common, a seasonally wet acidic heathland environment *c* 2km southwest of site, dating from c 6700-3000 BP (c 5600-1500 cal BC) (AOC 2017a, 2017b)

2.1.4 Within the Site this layer of peat was overlain by a superficial deposit of Warp – fine clays and silts which were formed within the Lower Trent valley by deliberate inundation for two principal reasons: to make unproductive peaty and acidic soils workable, and to reduce the impact of seasonal inundations and waterlogging by artificially raising the ground surface level (Lille 1998). This process was largely achieved by the deliberate 'flood-warping' of areas, with material (silts and clays) carried in suspension being allowed to settle and accumulate throughout areas where warping was desirable. The extent of warping is summarised as 'most of the (Trent) floodplain south of Neap House (3.25km northwest of the Site) is occupied by flood-warp, which was allowed to run from the levee slopes east towards to the rising blown sand outcrops' (cf Gaunt 1976, 419 in Lille 1998b). Specifically, the land south of Crosby (the Great Common) 1.7km north of the Site, underwent warping from 1808, with 243 ha of ings, common and moor warped until *c* 1832 (Lille 1998, 110). A substantial warping drain is located *c* 1.26km west of the Site (Earl Beauchamp's Warping Drain). These deposits can seal former land surfaces, in addition to smoothing out any subsurface topographic variation.

2.1.5 Across the western edge of the Site a superficial deposit of Sutton Sand Formation is recorded (BGS 2023). The Sutton Sand Formation is concentrated in an area between York and Lincoln and is characterized as aeolian (of the wind) in origin. These sands were originally deposited during the Devensian period (the last glacial period *c* 116,000-11,700

years ago), although no precise chronology exists with regards to the retreat of the Vale of York ice front (Bateman et al 2015). However, organic sediments underlying the Sutton Sand Formation at Sutton on the Forrest, approximately 61.4km northwest of the Site, have been dated to 12,287 +/- 168 cal yr BP indicating that the ice sheet front must have retreated to the north of this location by the late Devensian (.ibid). Locally, west of Scunthorpe and approximately 400-700m west and northwest of the Site, borehole data (BGS 2023) has shown that the sands range from 1.5- 7.3m in thickness and are likely to have been extensively reworked in the Holocene (McIlwaine and McDonnell 2006). Detailed investigations as part of the North Lincolnshire Coversands Research Project (ibid.) at Willow Holt Quarry, Flixborough (approximately 60km southeast of the Site) indicate that the 'cover sands' have been accumulating and reprofiling since *c* 11,000 BP. These have the potential to seal former land surfaces and contain archaeological remains such as lithic scatters.

2.1.6 Blown sands were also identified in the profile of the Site's southeast boundary ditch during a site walk-over (York Archaeology 2022).

2.1.7 The Cranfield Soil Site Reporter records the Site as predominantly consisting of freely draining acid sandy and loamy soils, with loamy and clayey soils with naturally high groundwater located towards the southwest of the Site (Cranfield Soil and Agrifood Institute 2023). A thin 0.1m layer of peat was also found in trial pit 8 of the Solmek evaluation beneath the topsoil at a depth of 0.3m BGL. The remaining trial pits produced layers of sand beneath the topsoil (Simpson 2021).

2.1.8 This geological makeup is consistent with those recorded during other evaluations within the nearby vicinity with peat accumulation having been recorded within sand undulations and sealed with warp (Allen Archaeology 2015; AOC 2017a, 2017b; Keyworth 2021).

3 HISTORICAL AND ARCHAEOLOIGCAL BACKGROUND

A detailed archaeological background was put together for the desk-based assessment (York Archaeology 2022) produced for the Site. The background detailed below summarises those results with additional input from a 1km study area around the Site on the Lincolnshire Historic Environments Record (HER). No nationally designated heritage assets are recorded within the Site or the search area.

3.1 Palaeolithic (650,000BC-10,000BC) - Iron Age (700BC-AD43)

3.1.1 One prehistoric heritage asset is recorded within the Site on the HER. This consists of part of the Frodingham Causeway (HER 25905) which crosses the northern part of the Site from northeast to southwest, terminating at Burrington Ferry on the east bank of the River Trent. However, a survey plan produced for Charles Budgen in 1822 shows a track along this alignment, with Frodingham Causeway being labelled as a different track located to the north of the Site and terminating at Boggard Hall, which is also located on the east bank of the Trent. This 1822 identification appears to be incorrect, as a geophysical survey carried out by Allen Archaeology in 2015 (Pringle 2015) identified the sub-surface remains of part of Frodingham Causeway along the course of the route given by the HER and which terminated at Burringham Ferry. This was also shown to be the route of the Causeway on the 1856 Ordnance Survey (OS) map.

3.1.2 Nine prehistoric findspot monuments were also identified within the 1km search area around the Site. These consist of a Neolithic flint scraper (HER 1915) discovered between the Site's eastern boundary and Scotter Road; a polished flint axe (HER 1938) found east of Kingsway Road; and Late Mesolithic flint flakes and Bronze Age Beaker sherds (HER 1957) found at Westcliff. East of Viaduct Plantation, a Neolithic flint scraper was discovered (HER 1914), with early Neolithic to early Bronze Age flints uncovered west of the M181 (HER 7767) and a Neolithic flake and scraper found at the site of Berkeley Roundabout (HER 1947). These finds suggest that the search area included marginal land, perhaps adjacent to former water courses within the floodplain of the River Trent during the prehistoric period.

3.1.3 The Portable Antiquities Scheme (PAS) records one prehistoric findspot within the search area; a Neolithic brown flint knife fragment (NLM-9F4726). The location of this PAS findspot is restricted, however the flint knife was not found within the Site nor its immediate vicinity.

3.1.4 Bronze Age activity elsewhere on Brumby Common is demonstrated by the discovery of spearheads and the Brumby Shield, to the north-east and outside the search area. Settlement during this period is indicated by a possible ring ditch (HER 25906), approximately 0.60km to the south-west of the Site. This is likely to have been created during the construction of a burial mound, the locations of which were typically selected to be prominently visible from associated settlements. There is currently no evidence to demonstrate the location or extent of Bronze Age settlement within the search area.

3.1.5 As mentioned in section 2.1.4 above, peat deposits dating from the Mesolithic to the Bronze Age have been identified on the Site as well as within its wider landscape. These peat deposits may contain palaeo-environmental evidence contributing to our understanding of the prehistoric environment, climate, and human activity or they may contain preserved organic materials such as wood and leather.

3.2 Romano-British Period (AD43-AD410)

3.2.1 There is no recorded Romano-British activity on the Site nor its 1km search area. Frodingham Causeway is likely to have still been in use during this period, however there is no evidence to demonstrate this.

3.3 Early Medieval to Medieval Period (AD410-AD1540)

3.3.1 Brumby derives its name from the Old Norse personal name of 'Bruni' and the Old Norse term 'by', meaning farmstead (Institute for Name-Studies 2023). The Scandinavian settlement in Lincolnshire took place after over-wintering of the Viking 'Great Army' at Torksey in AD 872 and Repton in AD 873, and their control of Lincoln from AD 876.

3.3.2 In the 1086 Domesday Survey, Brumby is recorded as 'Brunebi', located in the hundred of Manley, with 14 freemen, 3 men's plough teams and 80 meadow acres to its land and resources (Foster and Longley 1942, 20; Powell-Smith 2023).

3.3.3 During the later medieval period the Site formed part of the Brumby Common with the Site record as being 'Heathland' by the North Lincolnshire Historic Landscape Characterisation (HLC) record. This would indicate that the land within the Site was utilized for livestock grazing as opposed to arable uses (like the fields to the immediate north) during the later medieval period.

3.3.4 A feature named 'Brumby caucee' was recorded in a Lindsey court roll in 1446 (Peacock 1889, 101). A 'caucee' or 'causey' was a route "over boggy land, that has been made by raising a bank above the level of the water as it stands in flood time" (Peacock 1889, 100). In that case, Brumby Caucee may have been a name for the part of Frodingham Causeway which ran within the manor of Brumby. Should that be the case, the 1446 reference would be the earliest documentary evidence for activity within the site.

3.4 Post-Medieval Period (AD1540-AD1750)

3.4.1 No records of any post-medieval heritage have been identified within the Site on either the HER nor the PAS, neither are any features recorded on the site or around its immediate vicinity on Johann Blau's 1645 map of Lincolnshire.

3.4.2 A 1558 inquisition of Sewers record of 'Brumby causey' states that this feature had "dikes to either side" (quoted in Peacock 1889, 102). This may support the suggestion that Brumby Causeway was Frodingham Causeway, as the part of the causeway identified in the southwestern part of the Site during the 2015 survey has ditches to either side of the raised

bank (Pringle 2015, 6-7). Should this be correct this would indicate that the ditches of Frodingham Causeway remained open in the mid-16th century. The 1558 inquisition ordered that the 'dikes' were to be "sufficiently scowred and cleansed" (quoted in Peacock 1889, 102). As such, these works may have removed any earlier materials that would have been deposited within the ditches.

3.4.3 In 1696, the Yorkshire historian and antiquarian Abraham de la Pryme reported that "great stones full of petrified shell-fish… are common at Brumbe" (quoted in Peacock 1889, 352). It is not known if de la Pryme had recovered any of these fossils from within the Site or its immediate vicinity.

3.5 Modern (AD 1750 – Present)

3.5.1 As previously discussed in 2.1.4, the wider landscape around the Site started to undergo warping in the early 19th century to transform and elevate the previously wet landscape for commercial uses such as arable agriculture. As a result of this, several assets recorded around the site on the North Lincolnshire HER are either associated with warp drains, such as a drain terminus located southwest of the Site (HER 24682), or are associated with the land transformation resulting from this warping such as Frodingham Grange and Brumby Grove farmstead. The record on the North Lincolnshire HER further speculates that groundworks associated with warping may have commenced earlier, during the 18th century, but no such features are shown on subsequent maps of the area.

3.5.2 In 1822 survey drawings for the Ordnance Survey (OS) were produced by Charles Budgen, which depicted the Site as being part of Scunthorpe, Froddingham and Brumby Common. As discussed in 3.1.1, this map mislabels a trackway north of the Site as the prehistoric Frodingham Causeway which cuts northeast to southwest through the northern part of the site, an error which was repeated on the subsequent Andrew Bryant map of Lincolnshire in 1828 and Christopher Greenwood's 1830 map of Lincolnshire. Whilst this error also continued into the publication of the 1856 OS map the feature is now labelled a causeway as opposed to a trackway.

3.5.3 Around 1863, further warping works were undertaken, with a large canaled warping drain being constructed south of the Site. These works were likely undertaken by Earl Beauchamp, but no archaeological materials were retrieved during these groundworks (Smith 2012, 179).

4 RELEVANT LEGISLATION AND GUIDANCE

4.1 Planning Conditions

4.1.1 The archaeological evaluation of the Site has been mandated by a pre-commencement condition of planning approval:

"26) The details submitted in pursuance of the outline permission shall be accompanied or preceded by the submission to the local planning authority of an archaeological strategy that provides the following:

Stage One

(i) The proper identification and evaluation of the extent, character and significance of archaeological remains within the application area comprising geophysical survey followed by the excavation of trial trenches in accordance with a brief provided by the North Lincolnshire Historic Environment Record.

(ii) An assessment of the impact of the proposed development on the archaeological remains

(iii) The submission of an updated written scheme of investigation for the approval in writing of the local planning authority setting out mitigation proposals that include the following:

Stage Two

Measures to ensure the preservation in situ or by record of archaeological features of identified importance

(i) Methodologies for the recording and recovery of archaeological remains, including artefacts and Ecofacts

(ii) Post-fieldwork methodologies for assessment and analyses

(iii) Report content and arrangements for dissemination, and publication proposals

(iv) Archive preparation and deposition with recognised repositories

(v) A timetable of works in relation to the proposed development, including sufficient notification and allowance of time to ensure that the site work is undertaken and completed in accordance with the strategy

(vi) Monitoring arrangements, including the notification in writing to the North Lincolnshire Historic Environment Record of the commencement of archaeological works and the opportunities to monitor such works.

(vii) A list of all staff involved in the implementation of the strategy, including subcontractors and specialists, their responsibilities and qualifications.

Reason

"To comply with paragraph 199 of the National Planning Policy Framework, Policy CS6 of the Core Strategy and Policy HE9 of the North Lincolnshire Local Plan because the site has the potential to contain significant archaeological remains, including human remains, that the development would otherwise destroy. The evaluation strategy is required in order to assess the archaeological significance and the impact of the proposals, and to inform a subsequent archaeological mitigation strategy to preserve archaeological evidence in situ or by means of a comprehensive record and creation of a permanent archive, to advance public understanding. The Stage Two archaeological mitigation strategy must be prepared and approved for implementation prior to the commencement of any groundwork within the application site that would otherwise result in destruction without record.

27) No development shall take place until the applicant, or their agents or successors in title, has provided the local planning authority with written confirmation that they have secured the implementation of the programme of archaeological work set out in the approved written scheme of investigation for archaeological mitigation (Stage Two)."

Reason

"To comply with paragraph 199 of the National Planning Policy Framework, Policy CS6 of the Core Strategy and Policy HE9 of the North Lincolnshire Local Plan because the site has the potential to contain significant archaeological remains, including human remains, that the development would otherwise destroy. The evaluation strategy is required in order to assess the archaeological significance and the impact of the proposals, and to inform a subsequent archaeological mitigation strategy to preserve archaeological evidence in situ or by means of a comprehensive record and creation of a permanent archive, to advance public understanding. The Stage Two archaeological mitigation strategy must be prepared and approved for implementation prior to the commencement of any groundwork within the application site that would otherwise result in destruction without record.

28) The development shall not be occupied until any archaeological mitigation investigation and post-investigation assessment has been completed in accordance with the programme set out in the approved written scheme of investigation, and provision made for analysis, publication and dissemination of results and archive deposition has been secured.

Reason

To comply with paragraph 199 of the National Planning Policy Framework, Policy CS6 of the Core Strategy and Policy HE9 of the North Lincolnshire Local Plan because the site has the potential to contain significant archaeological remains, including human remains, that the development would otherwise destroy. The evaluation strategy is required in order to assess

the archaeological significance and the impact of the proposals, and to inform a subsequent archaeological mitigation strategy to preserve archaeological evidence in situ or by means of a comprehensive record and creation of a permanent archive, to advance public understanding. The Stage Two archaeological mitigation strategy must be prepared and approved for implementation prior to the commencement of any groundwork within the application site that would otherwise result in destruction without record.

29) A copy of any analysis, reporting, publication or archiving required as part of the mitigation strategy shall be deposited at the North Lincolnshire Historic Environment Record within one year of commencement of the archaeological programme of work or such other period as may be agreed in writing by the local planning authority.

Reason

"To comply with paragraph 199 of the National Planning Policy Framework, Policy CS6 of the Core Strategy and Policy HE9 of the North Lincolnshire Local Plan because the site has the potential to contain significant archaeological remains, including human remains, that the development would otherwise destroy. The evaluation strategy is required in order to assess the archaeological significance and the impact of the proposals, and to inform a subsequent archaeological mitigation strategy to preserve archaeological evidence in situ or by means of a comprehensive record and creation of a permanent archive, to advance public understanding. The Stage Two archaeological mitigation strategy must be prepared and approved for implementation prior to the commencement of any groundwork within the application site that would otherwise result in destruction without record."

The results of the archaeological trial trench evaluation and the geoarchaeological survey will inform the need for any further archaeological mitigation which will then be subject to a separate WSI.

4.2 National Planning Policy Framework (NPPF)

4.2.1 Developments of this nature, and their impact upon the historic environment, are addressed by the revised 2021 National Planning Policy Framework (NPPF) published by the Ministry of Housing, Communities and Local Government (MHCLG), now called the Department for Levelling Up, Housing and Communities (DLUHC), and the revised NPPF Planning Practice Guide Conserving and Enhancing the Historic Environment (DLUHC 2021).

4.2.2 Section 16 of NPPF, Paragraph 192 states:

"Local planning authorities should maintain or have access to a historic environment record. This should contain up-to-date evidence about the historic environment in their area and be used to:

a) Assess the significance of heritage assets and the contribution they make to their environment; and

b) Predict the likelihood that currently unidentified heritage assets, particularly sites of historic and archaeological interest, will be discovered in the future.

4.2.3 In addition, paragraph 194 states that:

"In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation."

4.2.4 Furthermore, paragraphs 199 and 205 of the NPPF state:

"When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.

Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (whole or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted."

4.3 Local Policy

4.3.1 The North Lincolnshire Local Plan has the following relevant

"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."

5 AIMS AND OBJECTIVES

5.1 Aims

5.1.1 The general aims of the fieldwork can be stated as:

- To provide assessment of formation processes responsible for deposit sequences and their development through time.
- To identify the presence of any archaeological remains to be affected by any intrusive aspects of the development.
- To characterise and record any archaeological remains present within the impacted area.
- To ensure any remains are recorded to a professional standard to ensure their preservation by record, although for remains of particular importance, discussions with the local planning authority should take place regarding possible preservation in situ.

5.2 Objectives

5.2.1 The objectives for the project are as follows:

- To characterise and record any archaeological remains present within the impacted area;
- To ensure preservation by record (or in situ where appropriate) of any archaeological remains encountered during the evaluation.
- To recover any archaeological artefacts and Ecofacts present within the area.
- To recover samples for paleoenvironmental assessment and dating where appropriate.
- To present the results of the fieldwork in a report.

6 METHODOLOGY

6.1 Site-specific Methodology

6.1.1 All works were undertaken in accordance with the WSI as approved by a representative of the Local Planning Authority, and to standards defined by Lincolnshire County Council (2019) and CIfA guidelines (CIfA 2020a, 2020b).

6.1.2 Seven trenches measuring 50m x 1.8m were excavated across the proposed development area in locations agreed by the Archaeological Advisor to North Lincolnshire Council (Figure 2).

6.1.3 Trenches were laid out with the use of a Leica GNSS prior to excavation.

6.1.4 Trenches were excavated to the first archaeological horizon. Topsoil and subsoil were removed in spits no greater than 100mm.

6.1.5 Geoarchaeological test pits measuring approximately 2m x 2m were dug by machine in each of the trenches to a maximum of 3m BGL (unless collapse prevented further excavation) to investigate the potential for the burial and masking of archaeological surfaces, and also to make a lithological record of the underlying deposits.

6.1.6 All machine excavation was completed with a toothless ditching bucket under constant archaeological supervision. Prior to excavation, areas were scanned with a CAT scanner to locate any services that may not be shown on service plan supplied by the client.

6.1.7 Topsoil and subsoil were stored separately at a safe distance from the trench edge. Spoil was checked for artefacts, including the use of a metal detector when deemed appropriate. No artefacts were recovered from the topsoil or subsoil.

6.1.8 The investigation area and any archaeological features were located with reference to the Ordnance Survey National Grid by GPS, Leica CS15/GS15 RTK Differential GNSS.

6.2 Recording

6.2.1 The geoarchaeological test pits were recorded using the Troels-Smith (1955) system of sediment classification (Appendix 2). The scheme breaks down a sediment sample into four main components and allows the inclusion of extra components that are also present, but that are not dominant. Key physical properties of the sediment layers are darkness (Da), stratification (St), elasticity (El), dryness of the sediment (Sicc) and the sharpness of the upper sediment boundary (UB). A summary of the sedimentary and physical properties classified by Troels-Smith (1955) and a stratigraphic breakdown of the deposits will be recorded on proforma log sheets. The logs will be supplemented by digital photography.

6.2.2 No archaeological features were identified that presented potential for palaeoenvironmental sampling, but soil samples were taken for geoarchaeological analysis.

Sampling followed procedures set out within the English Heritage (now Historic England) guidelines in Environmental Archaeology (Campbell et al 2011).

6.3 Archive

6.3.1 The archive will be fully catalogued and prepared to recognised standards (Brown 2007; Lincolnshire County Council 2019) and will contain: copies of correspondence relating to fieldwork, site notebooks/diaries, original photographic records, site drawings (plans), original context records, matrix diagrams showing stratigraphic sequence of all contexts, computer discs and printouts.

7 RESULTS

7.1 Trench Summary

7.1.1 All seven trenches were excavated (Plates 1-14). Trenches 01, 02, 03, 05 and 07 were immediately assessed to contain no archaeological features in the geological substratum. All trenches contained modern land drains and the combination of leaking drains and rising ground water presented challenging conditions.

7.1.2 Trenches 04 and 06 were positioned to investigate a geophysical anomaly identified as a linear running northeast-southwest. Investigation of potential features in these trenches proved the anomaly to be a modern field drain. Another potential linear feature excavated in Trench 04, and also visible in plan in trenches 01 and 03, was proven to be a modern land drain (Plates 15 and 16).

7.1.3 Trenches were excavated to a depth of between 0.45 and 0.62m BGL (Below ground level). Silty-peat subsoil of between 0.07m and 0.16m in depth was overlain by dark-greyish-brown silty-sand topsoil with low-moderate humic content, between 0.20m and 0.42m in depth.

7.1.4 A fine wind-blown sand formed the geological substratum, differing in colour from a mid-brownish-grey to a mid-greyish white, often with a brownish-yellow tinge. Extensive root damage was evident in the upper interface of the geological substratum and, in places, trenches had to be excavated c. 0.1-0.15m deeper than the upper horizon to compensate for this. Extensive plough damage was also observed, and this equally had to be compensated for.

7.1.5 Above the substratum, a silty-peat subsoil was present. It was moderately humified with broken down woody remains, displaying root activity within the layer. At the interface between the topsoil and subsoil in all trenches, very fine sand deposits were identified. No evidence of lamination or of silt or clay could be identified within this sand lens, and thus the evidence does not suggest this deposit is derived from warping. It is more likely to be aeolian (of the wind) in origin.

7.1.6 No physical evidence could be identified of the Frodingham Causeway (HER 25905), substantiating the geophysical survey report conclusion that no anomalies could be attributed to the causeway. This phase of evaluation concludes that the causeway is not present at the Site within the areas covered by the trenches.

8 GEOARCHAEOLOGICAL REPORT

8.1 Geoarchaeological Results

Overview

8.1.1 A total of fourteen sediment lithology recordings were taken from each end of the seven trenches, in addition to seven test pits, to characterise the subsurface deposits of the Site area. The coordinates, elevations and total depths attained are outlined in Table 1. In addition, the depths/elevations at which the top of the peat deposits were recorded are summarised, as well as the thickness of the peat deposits. The top of the fine-grained sand immediately underlying the silt peat deposits is also shown.

Table 1: Summary of deposits recorded on the Site

ID	Easting	Northing	Elevation	Total Depth	Basal sand surface (m BGL)	Basal sand surface (m OD)	Peat surface (m BGL)	Peat surface (m OD)	Peat thickness (m)
TR01 North (TP01)	486973.59	410319.04	2.28	1.10	0.60	1.68	0.37	1.91	0.23
TR02 West (TP02)	486965.13	410243.48	2.41	2.50	0.65	1.76	0.40	2.01	0.25
TR03 North (TP03)	486995.34	410217.44	2.36	2.20	0.24	2.12	n/a	n/a	0.00
TR04 West (TP04)	486970.45	410133.36	2.22	2.10	0.27	1.95	n/a	n/a	0.00
TR05 East (TP05)	487033.53	410092.24	2.81	2.20	0.42	2.39	0.37	2.44	0.05
TR06 East (TP06)	486982.56	410061.19	2.49	2.30	0.50	1.99	0.34	2.15	0.16
TR07 South (TP07)	486913.53	410067.92	2.46	2.30	0.52	1.94	0.30	2.16	0.22
TR01 South	486972.66	410272.79	2.36	0.53	0.37	1.99	0.26	2.10	0.11
TR02 East	487013.94	410248.75	2.52	0.55	0.30	2.22	n/a	n/a	0.00
TR03 South	486990.24	410164.97	2.48	0.52	0.24	2.24	n/a	n/a	0.00
TR04 East	487022.21	410122.12	2.77	0.40	0.22	2.55	n/a	n/a	0.00
TR05 West	486983.22	410085.27	2.37	0.50	0.48	1.89	0.35	2.02	0.13
TR06 West	486936.88	410081.52	2.40	0.52	0.38	2.02	0.38	2.02	0.13
TR07 North	486891.55	410108.15	2.59	0.66	0.58	2.01	0.58	2.01	0.28

Lithology

8.1.2 The basal deposits of each trench consisted of light brown/orange-yellow fine sand. The maximum depth recorded for the surface of this unit was 0.65m BGL (1.76m OD) from the western end of Trench 2, with the shallowest depth recorded at 0.22m BGL (4.55 m OD) from the eastern end of Trench 04. Slight variations in colour, with the occasional inclusion of dark brown/black blotches on the surface of the sands, likely reflect the percolation of water from the overlying peat. Orange spots in the sand were also witnessed and likely represent mineralisation of iron/manganese from water percolation driven by oxidation and root penetration from the upper units. The change to blue-grey wet sands likely represents the permanent waterlogging of the sands at this depth.

8.1.3 Overlying the sands within most of the trenches (9/14 recorded sections) was a layer of dark brown (black) moderately humified organic silty peat with broken down woody remains with minor changes of its degree of humification. Occasional large wood remains were witnessed within the spoils of excavation which may represent root remains, one of which was recovered from the eastern end of Trench 05 and identified as *Taxus baccata* (Yew). This unit also commonly had frequent thin root penetration through it which occasionally reached the underlying sands. The maximum thickness recorded for this unit was 0.28 m towards the northern end of Trench 07. The lowest elevation record to the surface of the peat was 1.91m OD in Trench 1 (North), with the highest elevation recorded at 2.44m OD from Trench 5 (East). A column sample of the peat has been retained from TR07 should palaeoenvironmental analysis be commissioned.

8.1.4 Occasionally overlying the peat deposits was a thin (*c* 0.05 m) unit of fine, well-sorted light orange-yellow sand of variable thickness. The unit at times had a very sinuous boundary between the underlying peat and overlying topsoil/subsoil (Plate 40).

8.1.5 All trenches across the site were capped by a modern, friable mid-dark brown sandy silt-clay topsoil with frequent root penetration. This unit varied in thickness between 0.15-0.35m. Occasionally a thin subsoil was identified underlying the topsoil, demonstrated by a firm mid grey-brown silt-clay unit. Slight variations in colour were witnessed in some trenches (i.e., a darker colour was witnessed from the northern end of Trench 1).

Deposit Modelling

8.1.6 Using the fourteen data points collected from either end of each of the seven trenches and the lithology data from fourteen locations by Solmek (Simpson, 2021; Figure 03), sub-surface models of the sand surface and peat thickness has been produced (Figures 04, 05).

8.1.7 Figure 05 models the surface of the basal sands within the trenches and test pits of the archaeological evaluation and GI survey, and the surface of the upper unit of sands recorded within the GI boreholes (Simpson 2021). Small areas of variation are seen between datapoints which demonstrates minor undulations of the sand surface across the Site. Such depressions are often able to support and preserve greater thicknesses of waterlogged

organic sediments which are likely to contain a rich archive of the Site during peat formation, most evident with column sampling of the 0.28m thickness of peat recorded from TR07 North (Plate 39). This is most evident at the southern portion of the site, with changes between light orange/red shading to green/blue. With the sand surface of the Site so shallow, it is unclear whether depressions of the sand surface elevation are indeed natural or have been modified and truncated by any modern landscaping/ploughing.

8.1.8 On the margins of the modelled higher sand surface (Figure 04; red shading) towards the east of the Site, both TR02 East and TR04 East demonstrated a lack of peat deposits (Figure 05). Peat was also absent within this higher ground from Solmek TP03 and TP04. This area extends further eastwards towards TR04 West and TR03 North. The lack of peat deposits within this area could relate to its greater relief compared to the northern and south-western parts of the Site or its loss by incorporation into the topsoil by any modern landscape clearance/ploughing. Areas of slightly higher elevation are significant given they are potential locations for buried 'dryland' archaeological remains, given their advantageous relief within the historically marshy/waterlogged wider floodplain.

8.1.9 The models provide a visual representation of some variation of both the sand surface and the thickness of peat deposits across the site which demonstrates a general profile of the subsurface deposits. Such modelled representations however should be viewed as a guide of the subsurface deposits only.

8.2 Discussion

Overview of lithological sequence

8.2.1 The archaeological investigation has demonstrated a fairly simple and shallow sequence of deposits. The max thicknesses of the units within the sequence is listed as follows:

Topsoil/ Subsoil: 0.37m

Fine light orange-yellow sand: 0.05m

Silty woody peat: 0.28m

Fine light orange-yellow/grey sand (Sutton Sand Formation?): >0.28m

Deposit survival and existing impacts

8.2.2 The trenches occasionally revealed ceramic field drains, assumed to date from the modern period (1750-present). It is likely that the engineered drainage of the Site has lowered the groundwater level which may have had some impact to the peat deposits in terms of their degree of organic humification and desiccation. Changes to the local hydrology of the Site may also have adversely affected the preservation of the palaeoenvironmental archive contained within waterlogged organic sediments. For the trenches which began to fill with

groundwater, the seepage level occurred broadly to the base of the peat unit after a couple of days of being excavated.

8.2.3 The deposits across the Site occasionally displayed signs of disturbance. A subsoil was only identified within two trenches which may suggest that its lack of visibility in other locations demonstrates the mixing of a possible subsoil into a single topsoil. In addition, very sinuous upper and lower boundaries of the thin fine sand unit were demonstrated in some trenches (i.e., Plate 40). The peat deposits demonstrated were also affected which demonstrates that in some areas of the Site, the deposits have been modified by up to *c* 0.50m. It is suggested that the disturbance of the units was caused by ploughing of the land for agricultural use.

8.2.4 Natural disturbance of the deposits has occurred by root penetration through each of the units across the site. This has opened pathways for the oxidation and desiccation of the underlying units. The occasional orange staining of the upper basal sands (Sutton Sand Formation) occurs by mineral deposition from water percolating through the sequence. The topsoil/subsoil are of low palaeoenvironmental potential.

Discussion of deposits

Basal sands

8.2.5 The fine, well-sorted sands witnessed at the base of each of the trenches are likely to represent the wind-blown Sutton Sand Formation. The deposits of the sands began accumulating across large parts of Lincolnshire during the early Holocene (*c* 10,700-9,950 years BP; Bateman *et al* 2015), though are known to have been extensively reworked during the Holocene. At Keadby, OSL dating of the sands underlying peat deposits returned an early-mid Mesolithic age (7270 BC-5490 BC; 9220-7440 BP; York Archaeology 2022), and at Flixborough, reworking was demonstrated up to the Romano-British period (McDonnell 2003, 2006).

8.2.6 The origin of a peat unit within the sands (Simpson 2021) indicates that potentially large parts of the Site become consistently waterlogged for a time, allowing peat formation, before being buried by another unit of up to 6.00m of sands. In this sense, the basal sands recorded within the trenches bury an earlier land surface potentially dating back to the early Mesolithic period. The burial of the peat unit recorded by Simpson (2021) by another layer of sand is likely to reflect sediment reworking during the Holocene. With a lack of absolute dating, it is difficult to quantify the age and significance of the peat unit, though with the age of much shallower peat deposits recorded nearby at Brumby Common (see 8.2.7), it is possible this reflects an earlier phase of peat development within the Mesolithic. The age of the burial of the peat by the redeposition of the overlying sands is also unclear.

Silty peat

8.2.7 The trenches revealed a shallow peat layer demonstrated across large parts of the Site (0.26-0.58m BGL), the surface of which ranges in elevation between 1.91-2.44m OD. A shallow peat

unit has been demonstrated both at Keadby (York Archaeology 2022) and at Brumby Common (AOC, 2017a, 2017b; TPA 2021). At Keadby, mid-Mesolithic reworked sands were overlain by peat dating from the Neolithic to Early Bronze Age periods, lying between 0.28 to -0.67 m OD. More proximal to the Site, radiocarbon dating at Brumby Common demonstrated that organic deposition in this area occurred between the Mesolithic and Bronze Age. The low-lying floodplain of the lower Trent Valley could suggest waterlogging of the Site allowing for peat formation at a similar period, though would require dating of the sediments to determine this suggestion.

8.2.8 The waterlogged silty peat unit is likely to preserve a rich palaeoenvironmental archive, which records a brief history of the evolution of the local and regional landscape of the site, potentially from late Prehistory. This wetland environment would have provided a rich environment and resource for any potential settlers to exploit.

Thin sand unit

8.2.9 The thin layer of fine layer of sand occasionally witnessed is thought not be represent warp, which typically displays repeated thin laminations of silt and sand through repetitive flooding of an area, though may instead be another form of artificial deposition used to improve the quality of the land. Its sinuous upper boundary to the topsoil suggests it has been affected by surface ploughing and likely partly incorporated into the topsoil. The unit is suggested to have been deposited at some time during the later historic period.

Topsoil and Subsoil

8.2.10 The topsoil in places saw minor changes in colour which is suggested to represent the incorporation of peat deposits into a surface unit. In places, this topsoil is seen directly overlying the basal sands (i.e. Plate 23) and often has a sinuous boundary to the sands.

9 DISCUSSION AND CONCLUSION

9.1 Archaeological findings

9.1.1 No archaeological finds or features were uncovered during the evaluation at the Site. The anomaly identified by the geophysical survey proved to be a modern field drain. No trace of the Frodingham Causeway (HER 25905) was present within the excavated trenches.

9.2 Geological deposits

9.2.1 The lower peat unit recorded by the GI works (Simpson, 2021) represents an earlier phase of peat development at the Site which has subsequently been overlain by presumably another layer of wind-blown sands, the basal sands witnessed within the seven trenches. The archaeological evaluation trenches reached the surface of these sands at which depth no archaeological features were encountered.

9.2.2 No clear evidence of flood warping sediment has been identified at the Site, despite being mapped by the BGS for parts of the southern portion of the Site. With the peat surface so shallow to the surface, it is possible that any flood warping deposits overlying the peat have been incorporated into the topsoil as part of ploughing the land surface. Should flood warping sediment be found in alternative environs of the Site it likely demonstrates a late-nineteenth century (Smith 2014) surface associated with the construction of the Earl Beauchamp's Warping Drain lying at the southern border of the Site.

9.3 Conclusion

9.3.1 The trial trench evaluation has successfully met the aims and objectives and set out in Section 5 above. Archaeological finds and features were shown to be absent from the trenches. Geoarchaeological assessment has recorded the deposit sequences present at the site and established their formation processes.

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APPENDIX 1: TRENCH RECORDS

Trench 01							
Length (m)	50	Width (m)	1.8	Depth (m)	0.54	Orientation	North – South
Context		Type	Description				Measurements (m) (L x W x D)
1001		Layer	Topsoil. Loose dark-greyish-brown silty sand. Modern agricultural plough soil. A sand lens was observed at the interface between the topsoil and subsoil.				>50x>1.8x0.29
1002		Layer	Subsoil. Loose - spongey black peat layer. Undulates throughout trench and shows evidence of extensive rooting.				>50x>1.8x0.15
1003		Layer	Natural. Loose, very fine-grained wind-blown sand. Mid-greyish-brown with yellowish tinge. Extensive root damage.				>50x>1.8x>0.1

Trench 02							
Length (m)	50	Width (m)	1.8	Depth (m)	0.58	Orientation	East - West
Context		Type	Description				Measurements (m) (L x W x D)
2001		Layer	Topsoil. Loose dark-greyish-brown silty sand. Modern agricultural plough soil. A sand lens was observed at the interface between the topsoil and subsoil.				>50x>1.8x0.20
2002		Layer	Subsoil. Loose, spongey black peat layer. Undulates throughout trench and shows evidence of extensive rooting.				>50x>1.8x0.16
2003		Layer	Natural. Loose, very fine-grained wind-blown sand. Mid-greyish-brown with				>50x>1.8x>0.22

		yellowish tinge. Extensive root damage. Plough damage evident.	

Trench 03							
Length (m)	50	Width (m)	1.8	Depth (m)	0.49	Orientation	North - South
Context		Type	Description				Measurements (m) (L x W x D)
3001		Layer	Topsoil. Loose dark-greyish-brown silty sand. Modern agricultural plough soil. A sand lens was observed at the interface between the topsoil and subsoil.				>50x>1.8x0.20
3002		Layer	Subsoil. Loose, spongey black peat layer. Undulates throughout trench and shows evidence of extensive rooting.				>50x>1.8x0.09
3003		Layer	Natural. Loose, very fine-grained wind-blown sand. Mid-greyish-white with yellowish tinge. Extensive root damage. Plough damage observed.				>50x>1.8x>0.20

Trench 04							
Length (m)	50	Width (m)	1.8	Depth (m)	0.48	Orientation	East - West
Context		Type	Description				Measurements (m) (L x W x D)
4001		Layer	Topsoil. Loose dark-greyish-brown silty sand. Modern agricultural plough soil. A sand lens was observed at the interface between the topsoil and subsoil.				>50x>1.8x0.20
4002		Layer	Subsoil. Loose, spongey black peat layer. Undulates throughout trench and shows evidence of extensive rooting.				>50x>1.8x0.08

4003	Layer	Natural. Loose, very fine-grained wind-blown sand. Mid-greyish-brown with yellowish tinge. Extensive root and plough damage.	>50x>1.8x>0.20

Trench 05							
Length (m)	50	Width (m)	1.8	Depth (m)	0.45	Orientation	East - West
Context		Type	Description				Measurements (m) (L x W x D)
5001		Layer	Topsoil. Loose dark-greyish-brown silty sand. Modern agricultural plough soil. A sand lens was observed at the interface between the topsoil and subsoil.				>50x>1.8x0.42
5002		Layer	Subsoil. Loose, spongey black peat layer. Undulates throughout trench and shows evidence of extensive rooting.				>50x>1.8x0.07
5003		Layer	Natural. Loose, very fine-grained wind-blown sand. Mid-greyish-white. Extensive root and plough damage.				>50x>1.8x>0.16

Trench 06							
Length (m)	50	Width (m)	1.8	Depth (m)	0.61	Orientation	East - West
Context		Type	Description				Measurements (m) (L x W x D)
6001		Layer	Topsoil. Loose dark-greyish-brown silty sand. Modern agricultural plough soil. A sand lens was observed at the interface between the topsoil and subsoil.				>50x>1.8x0.30

6002	Layer	Subsoil. Loose, spongey black peat layer. Undulates throughout trench and shows evidence of extensive rooting.	>50x>1.8x0.15
6003	Layer	Natural. Loose, very fine-grained wind-blown sand. Mid-greyish-brown with yellowish-brown tinge. Extensive root damage.	>50x>1.8x>0.16

Trench 07							
Length (m)	50	Width (m)	1.8	Depth (m)	0.62	Orientation	North - South
Context		Type	Description				Measurements (m) (L x W x D)
7001		Layer	Topsoil. Loose dark-greyish-brown silty sand. Modern agricultural plough soil. A sand lens was observed at the interface between the topsoil and subsoil.				>50x>1.8x0.34
7002		Layer	Subsoil. Loose, spongey black peat layer. Undulates throughout trench and shows evidence of extensive rooting.				>50x>1.8x0.12
7003		Layer	Natural. Loose, very fine-grained wind-blown sand. Mid-greyish-brown with yellowish tinge. Extensive root and plough damage.				>50x>1.8x>0.26

APPENDIX 2: TROELS-SMITH SYSTEM OF SEDIMENT CLASSIFICATION

Darkness	
nig.4	black
nig.3	
nig.2	
nig.1	
nig.0	white

Degree of Stratification	
strf.4	well stratified
strf.3	
strf.2	
strf.1	
strf.0	no stratification

Degree of Elasticity	
elas.4	very elastic
elas.3	
elas.2	
elas.1	
elas.0	no elasticity

Degree of Dryness	
sicc.4	very dry
sicc.3	
sicc.2	
sicc.1	
sicc.0	water

	Sharpness of Upper Boundary
lim.4	< 0.5mm
lim.3	< 1.0 &> 0.5mm
lim.2	< 2.0 &> 1.0mm
lim.1	< 10.0 &> 2.0mm
lim.0	> 10.0mm

	Sh	*Substantia humus*	Humous substance, homogeneous microscopic structure
I Turfan	*Tb*	*T. Bryophyta*	Mosses +/- humous substance
	Tl	*T. lignose*	Stumps, roots, intertwined rootlets, of ligneous plants
	Th	*T. herbage*	Roots, intertwined rootlets, rhizomes of herbaceous plants
II Detritus	*Dl*	*D. lignose's*	Fragments of ligneous plants >2mm
	Dh	*D. harbours*	Fragments of herbaceous plants >2mm
	Dg	*D. Granicus*	Fragments of ligneous and herbaceous plants <2mm >0.1mm
III Limmus	*Lf*	*L. ferrugineus*	Rust, non-hardened. Particles <0.1mm
IV Argilla	*As*	*A.steatodes*	Particles of clay
	Ag	*A. granosa*	Particles of silt
V Grana	*Ga*	*G. arenosa*	Mineral particles 0.6 to 0.2mm
	Gs	*G. saburralia*	Mineral particles 2.0 to 0.6mm

	Gg(min)	*G. glareosa minora*	Mineral particles 6.0 to 2.0mm
	Gg(maj)	*G. glareosa majora*	Mineral particles 20.0 to 6.0mm
	Ptm	*Particulaetestaemolloscorum*	Fragments of calcareous shells

Physical and sedimentary properties of deposits according to Troels-Smith (1955)

Lithology logs

TR01 – Northern end of trench, Test Pit 1 (TP01)

0.00-0.25m DA ST EL SICC UB

3/4 0 0 2 /

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.25-0.37m DA ST EL SICC UB

3 0 0 3 2

As2 As1 Ga1

Stiff mid grey-brown, orange in places, sandy silt-clay. Occasional root penetration. Subsoil.

0.37-0.60m DA ST EL SICC UB

4 0 0 2 4

As3 Tl1 Ag Th

Friable dark grey-black sandy moderately humified organic silty peat with occasional small broken down wood remains with some root penetration.

0.60-1.10m DA ST EL SICC UB

1 0 0 2 4

Ga4

Fine light brown-yellow sand with root penetration and iron/manganese mineralisation (orange) staining at the upper boundary.

Test Pit terminated at 1.10m BGL due to the presence of a plastic drain pipe.

TR01 – Southern end of trench

0.00-0.26m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.26-0.37m	DA	ST	EL	SICC	UB
	4	0	0	2	4

As3 Tl1 Ag Th

Friable dark grey-black sandy moderately humified organic silty peat with occasional small broken down wood remains and root penetration.

0.37-0.53m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and occasional iron/manganese mineralisation (orange) staining.

TR02 – Western end of trench, Test Pit 2 (TP02)

0.00-0.35m	DA	ST	EL	SICC	UB
	3	0	0	2	/

As2 As1 Ga1 Th

Friable mid grey-brown sandy silt-clay with frequent roots. Topsoil.

0.35-0.40m	DA	ST	EL	SICC	UB
	1	0	0	3	4

Ga4

Fine well sorted light orange-yellow sand

0.40-0.65m	DA	ST	EL	SICC	UB
	4	0	0	2	4

As3 Tl1 Ag Th

Friable but wet dark grey-black sandy moderately humified organic silty peat with occasional small broken down wood remains with some root penetration.

0.65-2.50m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and occasional black spots (peat percolation) and iron/manganese mineralisation (orange) staining at the upper boundary. Minor changes in colour to grey driven by water percolation. TP collapsing at 2.50m BGL.

TR02 – Eastern end of trench

0.00-0.30m	DA	ST	EL	SICC	UB
	3	0	0	2	/

As2 As1 Ga1 Th

Friable mid grey-brown sandy silt-clay with frequent roots. Topsoil.

0.30-0.55m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and occasional iron/manganese mineralisation (orange).

TR03 – Northern end of trench, Test Pit 3 (TP03)

0.00-0.24m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.24-2.20m	DA	ST	EL	SICC	UB
	2	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and occasional iron/manganese mineralisation (orange) spots. TP collapsing at 2.20m BGL.

TR03 – Southern end of trench

0.00-0.24m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.24-0.52m	DA	ST	EL	SICC	UB
	2	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and occasional iron/manganese mineralisation (orange) spots.

TR04 – Western end of trench, Test Pit 4 (TP04)

0.00-0.27m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.27-1.20m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and occasional iron/manganese mineralisation (orange) spots.

1.20-2.10m	DA	ST	EL	SICC	UB
	2	0	0	2	3

Ga4

Fine blue-grey sand. Water ingress occurring from upper boundary. TP collapsing at 2.10m BGL.

TR04 – Eastern end of trench

0.00-0.22m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.22-0.40m	DA	ST	EL	SICC	UB
	1	0	0	3	4

Ga4

Fine light yellow sand with occasional root penetration and iron/manganese mineralisation (orange) from the upper boundary. Sinuous upper boundary caused by ploughing?

TR05 – Eastern end of trench, Test Pit 5 (TP05)

0.00-0.15m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.15-0.37m	DA	ST	EL	SICC	UB
	3	0	0	3	2

As2 As1 Ga1

Stiff mid grey-brown, orange in places, sandy silt-clay. Occasional root penetration. Subsoil.

0.37-0.42m	DA	ST	EL	SICC	UB
	4	0	0	2	4

As3 Tl1 Ag Th

Friable dark grey-black sandy moderately humified organic silty peat with occasional small broken down wood remains with some root penetration.

0.42-0.90m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and iron/manganese mineralisation (orange) staining at the upper boundary.

0.90-1.90m	DA	ST	EL	SICC	UB
	2	0	0	2	3

Ga4

Fine blue-grey sand.

1.90-2.20m	DA	ST	EL	SICC	UB
	1	0	0	2	3

Ga4

Fine light orange sand. TP collapsing at 2.20m BGL.

TR05 – Western end of trench

0.00-0.28m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.28-0.35m	DA	ST	EL	SICC	UB
	1	0	0	3	4

Ga4

Fine yellow-white sand with occasional root penetration. Sinuous upper boundary caused by ploughing?

0.35-0.48m	DA	ST	EL	SICC	UB
	4	0	0	2	4

As3 Tl1 Ag Th

Friable dark grey-black sandy moderately humified organic silty peat with occasional small broken down wood remains with some root penetration.

0.48-0.50m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and iron/manganese mineralisation (orange) staining at the upper boundary.

TR06 – Eastern end of trench, Test Pit 6 (TP06)

0.00-0.28m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.28-0.34m

DA	ST	EL	SICC	UB
3	0	0	3	2

As2 As1 Ga1

Stiff mid grey-brown, orange in places, sandy silt-clay. Occasional root penetration. Subsoil.

0.34-0.50m

DA	ST	EL	SICC	UB
4	0	0	2	4

As3 Tl1 Ag Th

Friable dark grey-black sandy moderately humified organic silty peat with occasional small broken down wood remains with some root penetration.

0.50-1.30m

DA	ST	EL	SICC	UB
1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and iron/manganese mineralisation (orange) staining at the upper boundary.

1.20-2.30m

DA	ST	EL	SICC	UB
2	0	0	2	3

Ga4

Fine blue-grey sand. Water ingress occurring from upper boundary. TP collapsing at 2.30m BGL.

TR06 – Western end of trench

0.00-0.15m

DA	ST	EL	SICC	UB
3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.15-0.20m

DA	ST	EL	SICC	UB
3	0	0	3	2

As2 As1 Ga1

Stiff mid grey-brown, orange in places, sandy silt-clay. Occasional root penetration. Subsoil.

0.20-0.25m	DA	ST	EL	SICC	UB
	1	0	0	3	4

Ga4

Fine yellow-white sand with occasional root penetration.

0.25-0.38m	DA	ST	EL	SICC	UB
	4	0	0	2	4

As3 Tl1 Ag Th

Friable dark grey-black sandy moderately humified organic silty peat with occasional small broken down wood remains with some root penetration.

0.38-0.52m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and iron/manganese mineralisation (orange) staining at the upper boundary.

TR07 – Southern end of trench, Test Pit 7 (TP07)

0.00-0.20m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.20-0.30m	DA	ST	EL	SICC	UB
	1	0	0	3	4

Ga4

Fine orange-yellow sand

0.30-0.52m	DA	ST	EL	SICC	UB
	4	0	0	2	4

As4 Tl+ Ag Th

Friable dark grey-black sandy moderate-well humified organic silty peat with occasional small broken down wood remains with some root penetration.

0.52-1.50m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and iron/manganese mineralisation (orange) staining at the upper boundary.

1.20-2.30m	DA	ST	EL	SICC	UB
	2	0	0	2	3

Ga4

Fine blue-grey sand. TP collapsing at 2.30m BGL.

TR07 – Northern end of trench

0.00-0.28m	DA	ST	EL	SICC	UB
	3/4	0	0	2	/

As2 As1 Ga1 Th

Friable dark grey-brown sandy silt-clay with frequent roots. Topsoil.

0.28-0.30m	DA	ST	EL	SICC	UB
	1	0	0	3	4

Ga4

Fine orange-yellow sand

0.30-0.58m	DA	ST	EL	SICC	UB
	4	0	0	2	4

As4 Tl+ Ag Th

Friable dark grey-black sandy moderate-well humified organic silty peat with occasional small broken down wood remains with some root penetration.

0.58-0.66m	DA	ST	EL	SICC	UB
	1	0	0	2	4

Ga4

Fine light brown-yellow sand with root penetration and iron/manganese mineralisation (orange) staining at the upper boundary.

APPENDIX 3: OASIS DATA COLLECTION FORM

OASIS ID (UID)	yorkarch3-514405
Project Name	Land at Scotter Road, Scunthorpe, Lincolnshire. Report on an Archaeological Trial trench Evaluation
Sitename	Scotter Road, Scunthorpe, Lincolnshire
Activity type	Trial Trench
Project Identifier(s)	SRS
Planning Id	PA/2021/1990
Reason For Investigation	Planning requirement
Organisation Responsible for work	York Archaeology
Project Dates	06-Mar-2023 - 09-Mar-2023
Location	Scotter Road, Scunthorpe, Lincolnshire NGR: SE 86990 10130 LL: 53.5805579684469, -0.687562173593635 12 Fig: 486990,410130
Administrative Areas	Country: England County: Lincolnshire District: North Lincolnshire Parish: Ashby Parkland
Project Methodology	Seven trenches measuring 50m x 1.8m were excavated across the proposed development area in locations agreed by the Archaeological Advisor to North Lincolnshire Council. Trenches were laid out with the use of a Leica GNSS prior to excavation. Trenches were excavated to the first archaeological horizon. Topsoil and subsoil were removed in spits no greater than 100mm. Geoarchaeological test pits measuring approximately 2m x 2m were dug by machine in each of the trenches to a maximum of 3m BGL (unless collapse prevented further excavation) to investigate the potential for the burial and masking of archaeological surfaces, and also to make a lithological record of the underlying deposits
Project Results	The trial trench evaluation has successfully met the aims and objectives and set out in Section 5 above. Archaeological finds and features were shown to be absent from the trenches. Geoarchaeological assessment has recorded the deposit sequences present at the site and established their formation processes.
HER	North Lincolnshire HER - unRev - STANDARD

PLATES

Plate 1: Trench 01, overall shot with remnants of a land drain in the foreground.

Plate 2: Trench 01, representative section

Plate 3: Trench 02, overall shot

Plate 4: Trench 02, representative section

Plate 5: Trench 03, overall shot

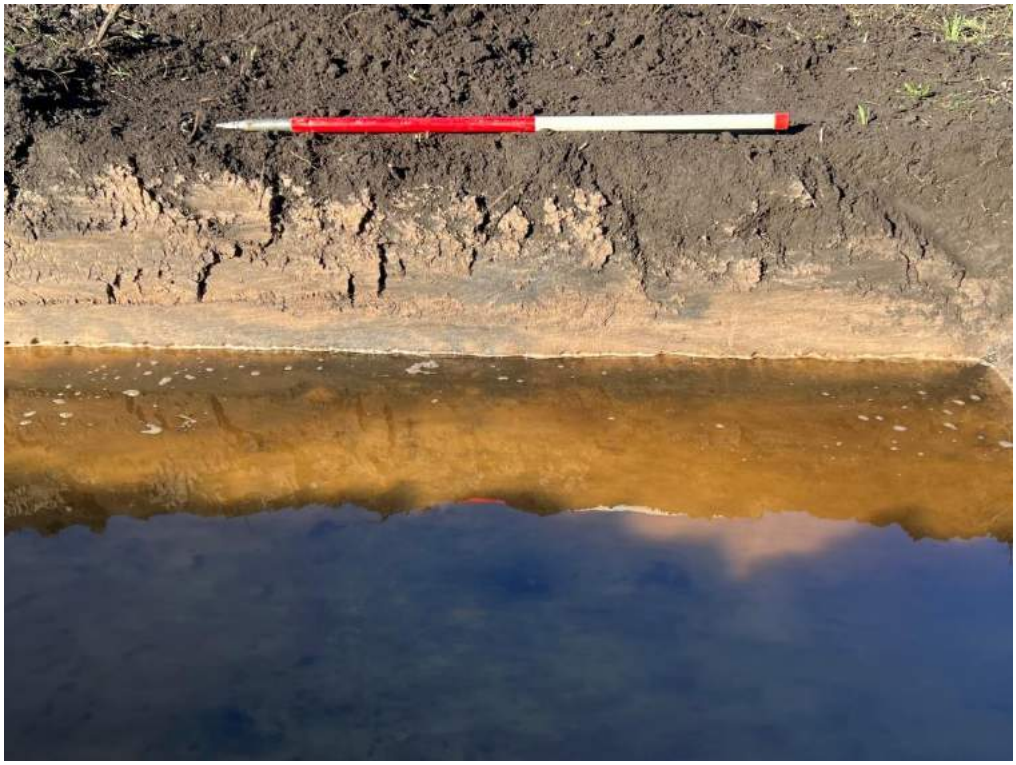


Plate 6: Trench 03, representative section

Plate 7: Trench 04, overall shot

Plate 8: Trench 04, representative section. The modern linear excavated in plate 15 is seen in plan.

Plate 9: Trench 05, overall shot

Plate 10: Trench 05, representative section

Plate 11: Trench 06, overall shot

Plate 12: Trench 06, representative section

Plate 13: Trench 07, overall shot

Plate 14: Trench 07, representative section

Plate 15: Potential archaeological feature in trench 04, proven to be a land drain.

Plate 16: Potential archaeological feature in trench 06, proven to be a land drain.

Plate 17: Sediment section from northern end of Trench 1

Plate 18: Test Pit 1 (TP01) carried out at the northern end of Trench 1. Test Pit terminated at 1.10m BGL due to pipe struck, previously obscured by groundwater ingress

Plate 19: Sediment section from southern end of Trench 1

Plate 20: Sediment section from the western end of Trench 2

Plate 21: Test Pit 2 (TP02) carried out at the western end of Trench 2

Plate 22: Test Pit 2 (TP02) collapsing at 2.50m BGL

Plate 23: Sediment section from the eastern end of Trench 2. No test pit carried out at this end of trench

Plate 24: Sediment section from the northern end of Trench 3.

Plate 25: Test Pit 3 (TP03) carried out at the northern end of Trench 3

Plate 26: Sediment section from the eastern end of Trench 3. No test pit carried out at this end of trench

Plate 27: Sediment section from the western end of Trench 4.

Plate 28: Test Pit 4 (TP04) carried out at the western end of Trench 4. Change to blue-grey colour sands at 1.20m BGL

Plate 29: Test Pit 4 (TP04) carried out at the western end of Trench 4. Collapse at 2.10m BGL.

Plate 30: Sediment section from the eastern end of Trench 4. No test pit carried out at this end of trench

Plate 31: Sediment section from the eastern end of Trench 5.

Plate 32: Test Pit 5 (TP05) carried out at the eastern end of Trench 5.

Plate 33: Sediment section from the western end of Trench 5. No test pit carried out at this end of trench

Plate 34: Sediment section from the eastern end of Trench 6.

Plate 35: Test Pit 6 (TP06) carried out at the eastern end of Trench 6.

Plate 36: Sediment section from the western end of Trench 6. No test pit carried out at this end of trench

Plate 37: Sediment section from the southern end of Trench 7

Plate 38: Test Pit 7 (TP07) carried out at the southern end of Trench 7.

FIGURES

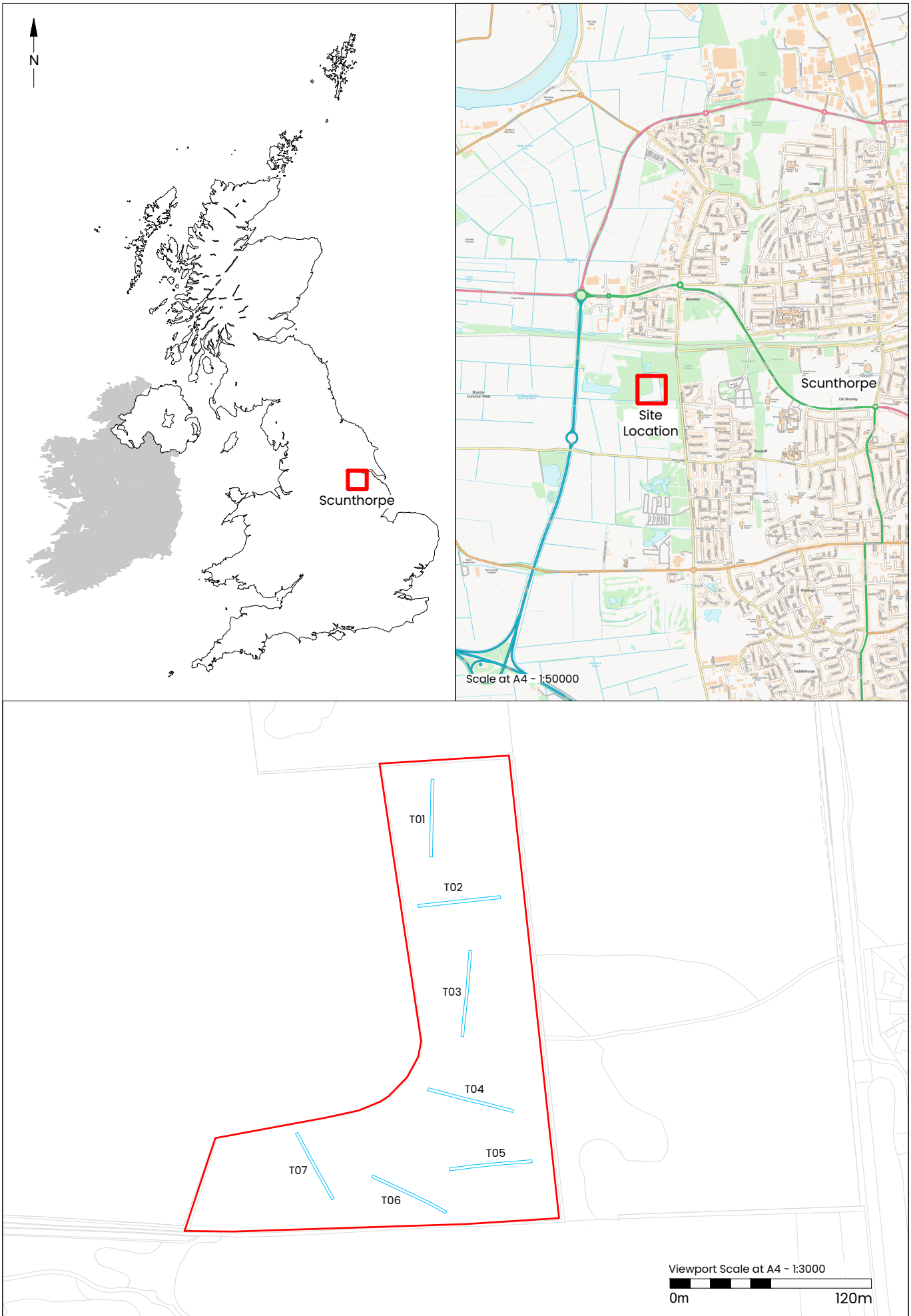


Figure 01 - Location Map
SRS - Land At Scotter Road, Sunthorpe, Lincolnshire

Scale at A4 - varies
Drawn by MI

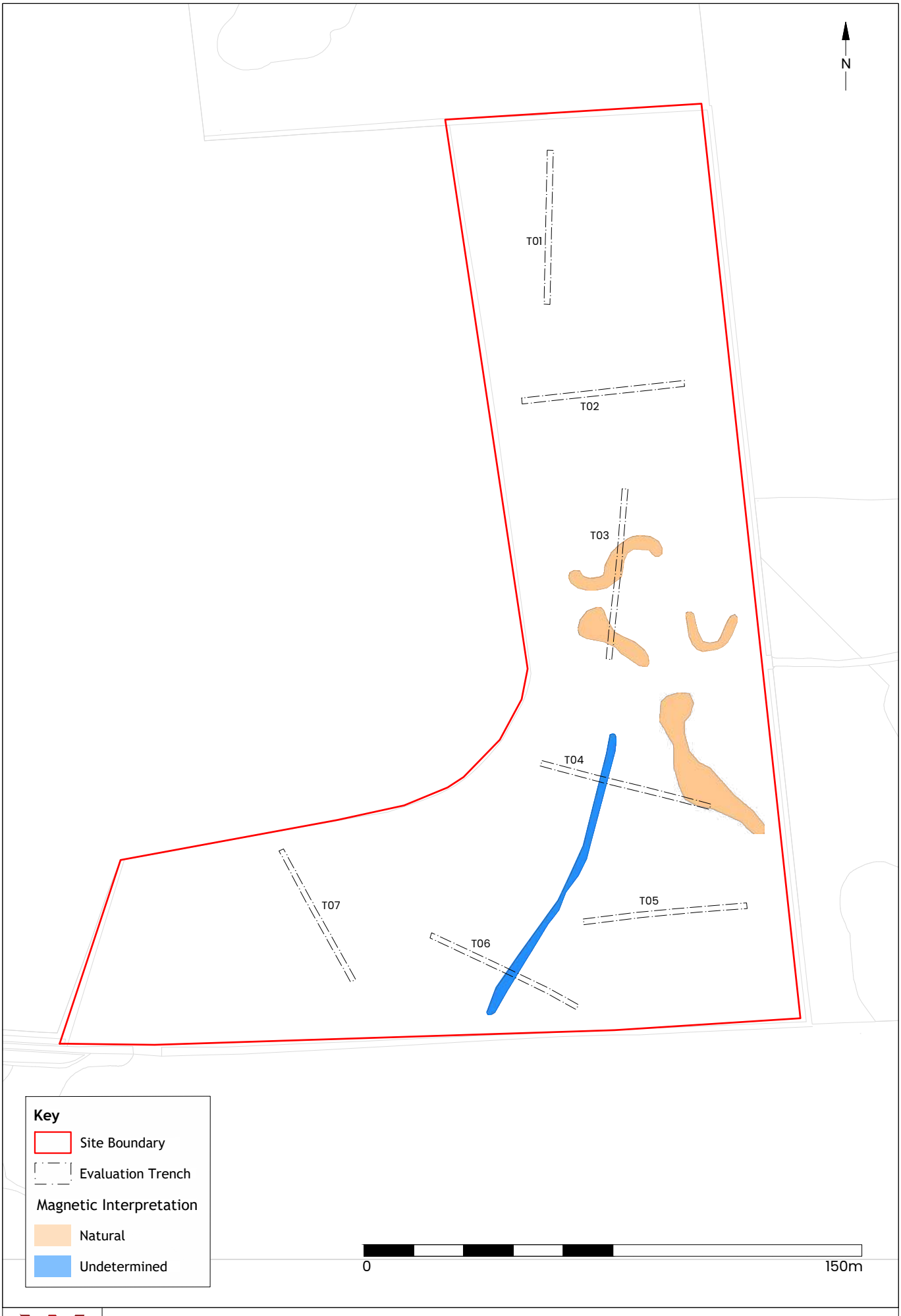


Figure 02 - Site Plan & Magnetic Interpretation
SRS - Land At Scotter Road, Scunthorpe, Lincolnshire

Scale at A4 - 1:1500
Drawn by MI

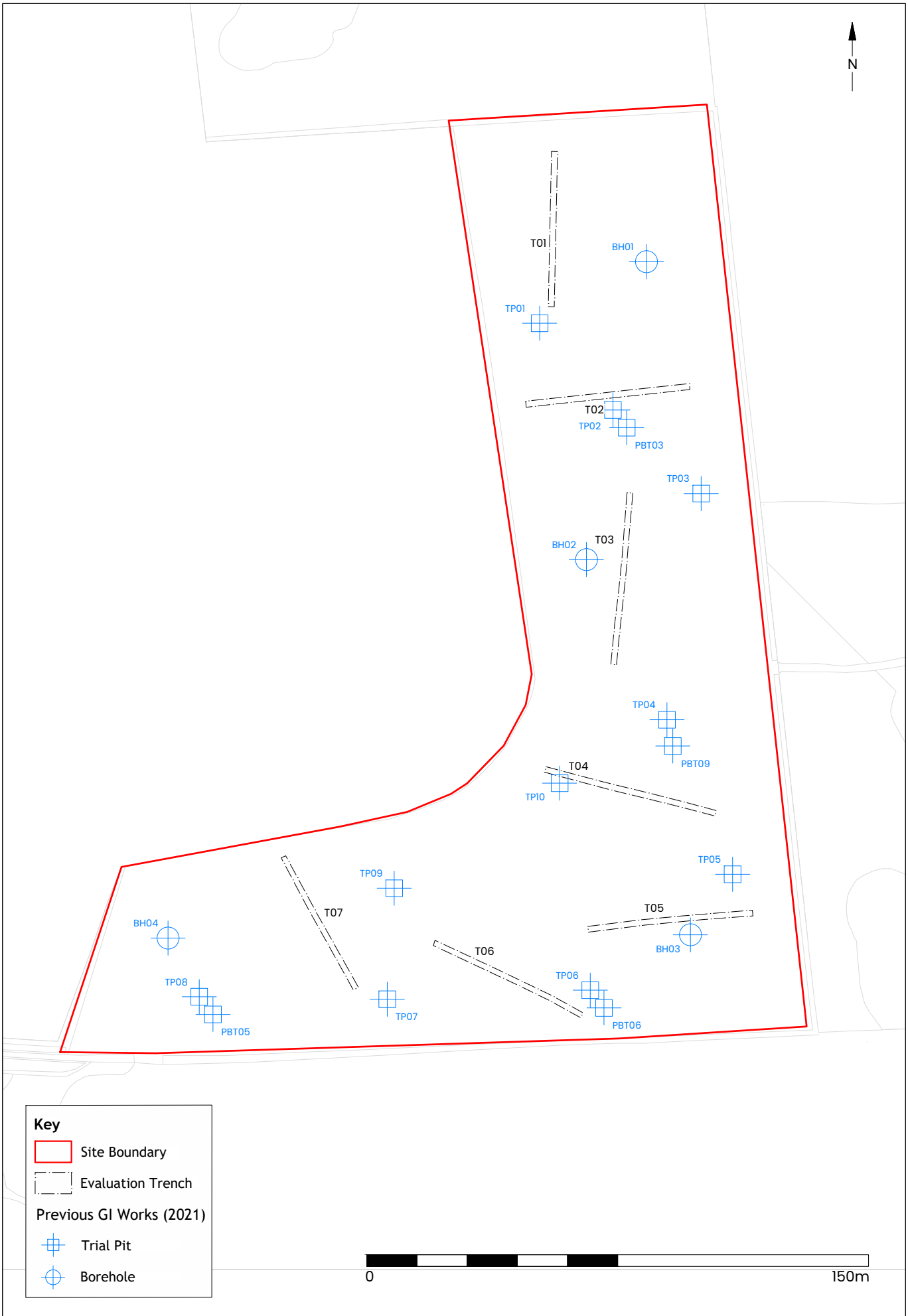
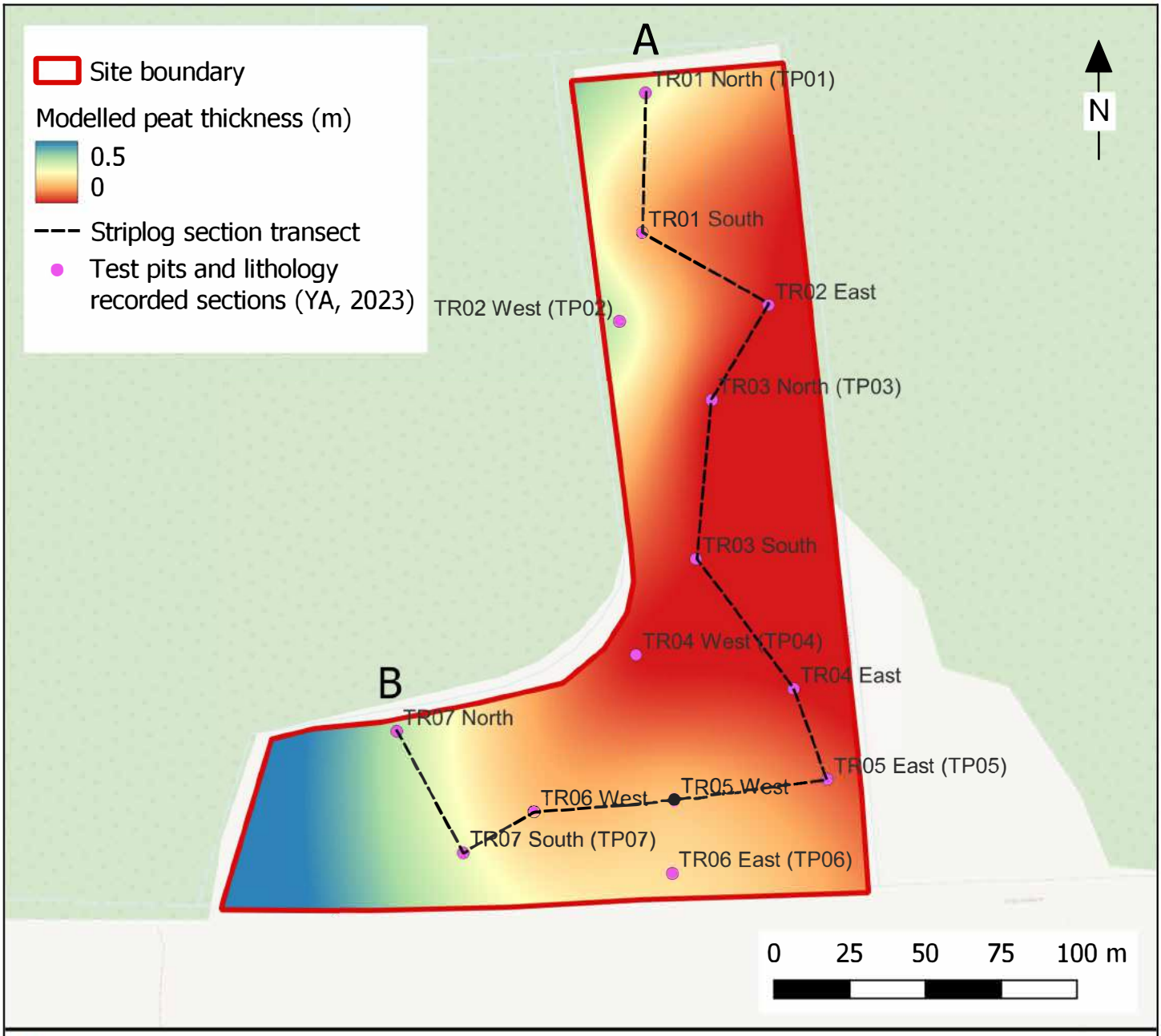


Figure 03 - Site Plan Showing 2021 GI Works
SRS - Land At Scotter Road, Scunthorpe, Lincolnshire

Scale at A4 - 1:1500
Drawn by MI



Topsoil and Subsoil
Organic silty Peat
Sand

*Across site an arbitrary 10m distance was set between each of the recorded sections.

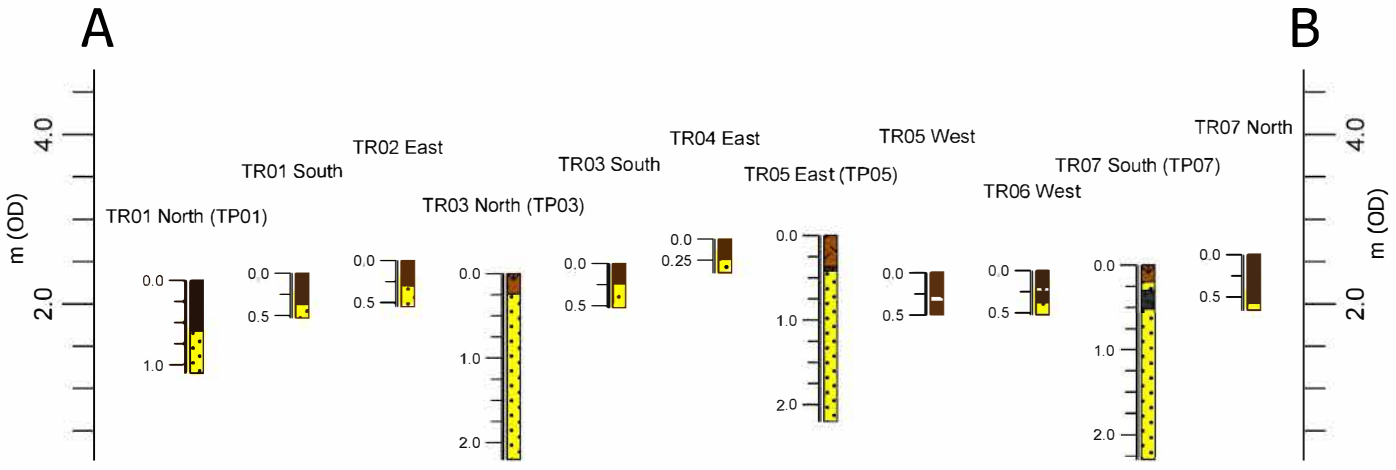


Figure 04 - 2d Striplog Section of Lithological Recordings
SRS - Scotter Road, Scunthorpe, Lincolnshire

Scale at A4 - 1:2000
Drawn by: RL

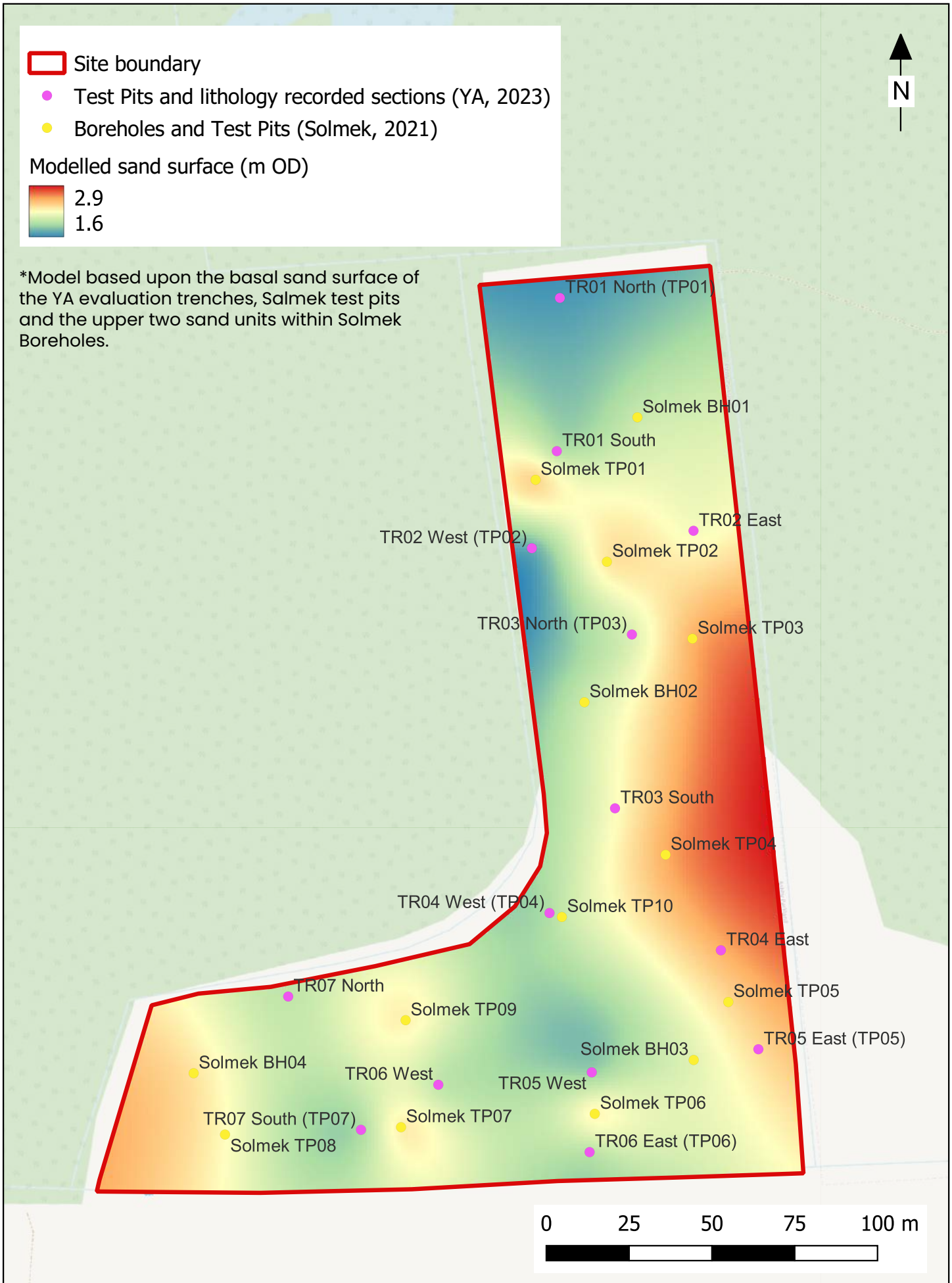


Figure 05 - Modelled Sand Surface (m OD) For Site Area
SRS - Scotter Road, Scunthorpe, Lincolnshire

Scale at A4 - 1:1500
Drawn by: RL