RWE Renewables UK Dogger Bank South (West) Limited

RWE Renewables UK Dogger Bank South (East) Limited

Dogger Bank South Offshore Wind Farms

Environmental Statement

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Appendix 22-9 Archaeological and Geoarchaeological Watching Brief and Deposit Model Report

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Dogger Bank South Offshore Wind Farms: Archaeological and Geoarchaeological Watching Brief and Deposit Model Report

AOC Project No: 53087

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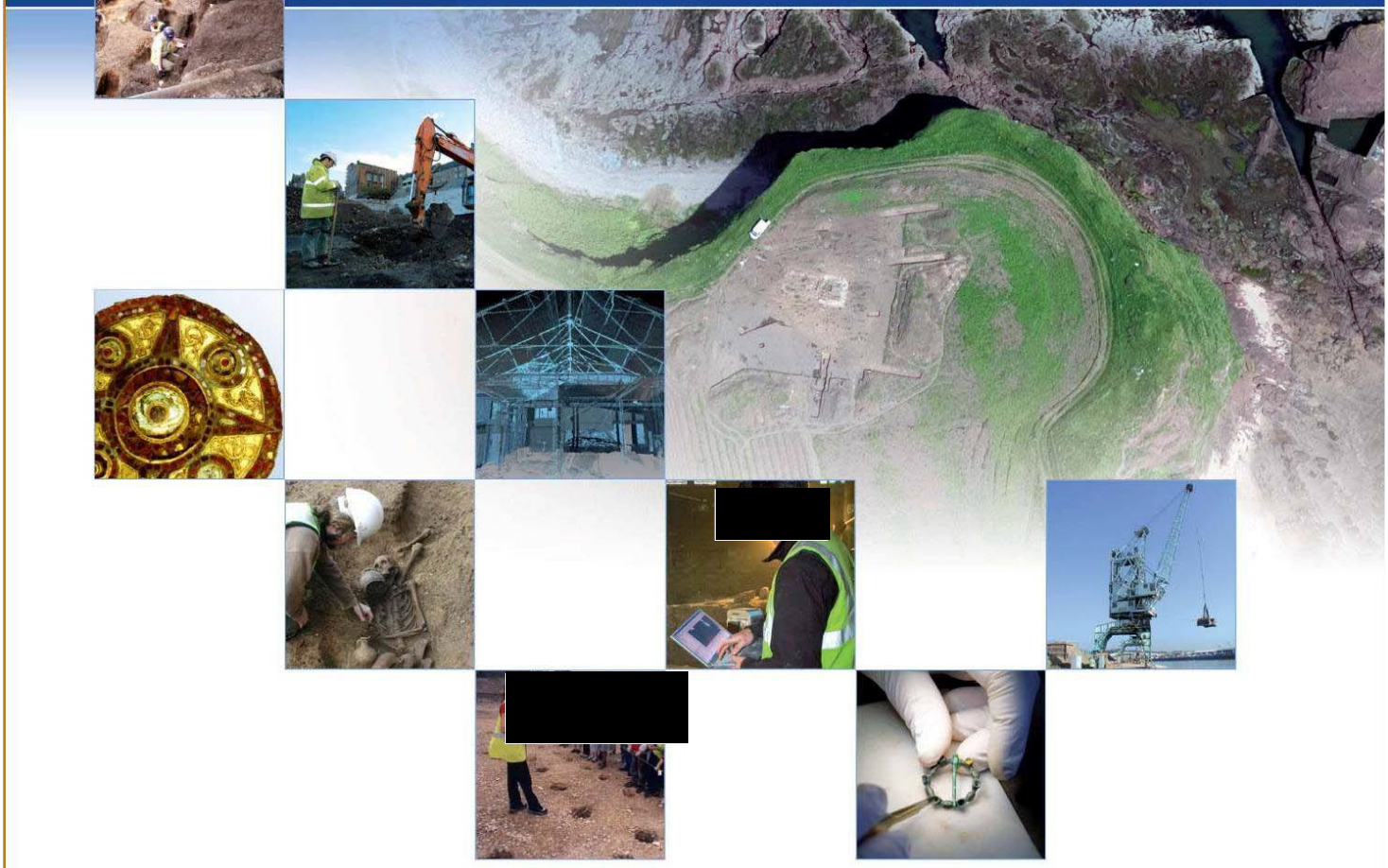

AOC Archaeology Group

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Dogger Bank South Offshore Wind Farms: Archaeological and Geoarchaeological Watching Brief and Deposit Model Report

For:	Royal HaskoningDHV
On Behalf of:	RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited
National Grid Reference (NGR):	511393, 443603
AOC Project No:	53087
Prepared by:	Jessica Taylor
Illustration by:	Jessica Taylor/Natalie Hamilton
Date:	January 2024

This document has been prepared in accordance with AOC standard operating procedures.

Author: Jessica Taylor	**Date: 6th February 2024**
Approved by: Virgil Yendell	**Date: 6th February 2024**
Report Stage: Second Submission	**Date: 6th February 2024**

Enquiries to: AOC Archaeology Group
Unit 7
St Margaret's Business Centre
Moor Mead Road
Twickenham
TW1 1JS

Tel. 020 8843 7380
Fax. 020 8892 0549
E-mail. london@aocarchaeology.com

NON-TECHNICAL SUMMARY

A geoarchaeological borehole monitoring exercise was undertaken between the 6th and 29th of June 2023 at the site of the Dogger Bank South (DBS) Offshore Wind Farm Projects ('the Projects') (NGR (centred): 511393, 443603). The work was undertaken by AOC Archaeology Group for Royal Haskoning DHV on behalf of the client, RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited.

This document summarises the stratigraphy of the geoarchaeological sequence and any archaeological remains and discusses the results in relation to their archaeological and palaeoenvironmental potential. The principal objective of this report is to present the results, refine the research objectives of the project in light of the findings, and make recommendations concerning any subsequent archaeological investigations in order to address these research objectives.

The geoarchaeological watching brief and borehole monitoring exercise comprised the monitoring of 23 geotechnical boreholes to a maximum depth of c. 35m BGL, and 12 geotechnical test pits to a maximum depth of c. 3.6 m BGL. The monitoring of these interventions contributes data to the updated deposit model. No samples were available to be retained for geo/archaeological purposes. Geoarchaeological and geotechnical deposit data can be used to identify areas of archaeological potential by characterising the probable nature and depth of sub-surface deposits.

The deposit sequence recorded across the Onshore Development Area included a bedrock of chalk, ranging in elevation between approximately -22 and 100 m OD, which was overlain by glacial till with a thickness of up to c. 40 m. Glaciofluvial deposits, demarcating the paths of glacial meltwater were identified across the development area, often overlain with Holocene alluvium. Alluvium was also recorded directly overlying till. Towards the north and east of the development, lacustrine deposits likely to be associated with former meres are identified. These align with previously mapped meres. Organic deposits were identified associated with Holocene sequences, recording a thickness of up to c. 6.5 m in the northern area of the development. These sequences were sealed with topsoil, and in some areas such as the onshore substation zone in the south, likely at least partially truncated by modern made ground.

Development impacts from the currently proposed onshore infrastructure associated with the Projects may affect archaeological remains preserved on the surface of pleistocene till and glaciofluvial geology, as well as within or beneath Holocene alluvium, organics, and lacustrine deposits. The Holocene sediments also present potential for the preservation of palaeoenvironmental remains.

It is recommended that where deposits of interest are to be impacted by proposed development, such impacts may be mitigated by a staged programme of archaeological investigation. This may potentially include purposive geoarchaeological boreholes, geophysical survey, trial trenching and Palaeolithic trial pitting – undertaken as part of initial stages of investigation with the aim to inform the planning of more detailed mitigation strategies to target areas in which archaeological and palaeoenvironmental remains are of greater potential.

The appropriate mitigation strategy for the Onshore Development Area will be decided by and agreed with the Local Authority and their archaeological advisors.

An OASIS form (OASIS ID: aocarcha1-522097) has been completed and an electronic copy of all reports will be deposited with the Archaeological Data Service (ADS). The site archive will be prepared in accordance with local and national guidance and will be deposited at with a local museum.

CONTENTS

LIST OF PLATES

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

ADS	Archaeological Data Service
AoP	Area(s) of Potential
BGS	British Geological Survey
BNG	British National Grid
DBA	Desk Based Assessment
DEM	Digital Elevation Model
GI	Geotechnical Investigation
HE	Historic England
HER	Historic Environment Record
IDW	Inverse Distance Weighted
m BGL	Meters Below Ground Level
m OD	Meters above Ordnance Datum
NGR	National Grid Reference
OS	Ordnance Survey
RSL	Relative Sea Level
SI	Site Investigation
WSI	Written Scheme of Investigation

1 INTRODUCTION

1.1 This document details the results of a geoarchaeological borehole and trial pit monitoring exercise at the site of Dogger Bank South (DBS) Wind Farm Projects ('the Projects') Onshore Development Area (NGR (centred): 511393, 443603, Figure 22-9-1). The project was commissioned from AOC by Royal Haskoning DHV on behalf of the client, RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited.

1.2 The development includes the onshore components of the Dogger Bank South Offshore Wind Farms. The Onshore Development Area comprise Landfall, Onshore Export Cable Corridor, Temporary Construction Compounds, and Onshore Converter Station(s). These areas are shown by the redline boundary for the Onshore Development Area (in Figure 22-9-1).

1.3 This report consists of a Stage 2 style, geo/archaeological borehole monitoring exercise, subsequent to an initial Stage 1 geoarchaeological desk-based assessment (GDBA: AOC, 2022). The Stage 2 style monitoring was undertaken in order to evaluate the potential of the Onshore Development Area to contain significant archaeological remains and to produce a report inclusive of an updated deposit model from the one previously created within the GDBA (AOC, 2022).

Table 1 Generic stages of geoarchaeological investigation for guidance

Stage	Stage number
Consultancy: Desk based and impact assessment	1
Fieldwork: Geotechnical monitoring	2
Fieldwork: Trench evaluation / borehole evaluation	3
Fieldwork: Watching brief / excavation / mitigation boreholes	4
Post-excavation: Specialist geoarchaeological / palaeoenvironmental assessment	5
Post-excavation: Specialist geoarchaeological / palaeoenvironmental analysis	6
Publication	7

1.4 The geoarchaeological watching brief and borehole monitoring exercise comprised the monitoring of 23 geotechnical boreholes to a maximum depth of c. 35m BGL, and 12 geotechnical test pits to a maximum depth of c. 3.6 m BGL (Figure 22-9-1). No samples were available to be retained for geoarchaeological purposes. Geoarchaeological and geotechnical deposit data can be used to identify areas of archaeological potential by characterising the probable nature and depth of sub-surface deposits.

1.5 This report provides recommendations on how investigations pertaining to these works should proceed and how such work will be integrated into the wider findings from the area. The works reported on here were carried out under the WSI (RWE, 2023) for the Onshore Development Area.

2 PLANNING BACKGROUND AND PROPOSED DEVELOPMENT

2.1 The Onshore Development Area has been subject of a previous WSI (RWE, 2023). The current development plans propose the construction of two new offshore wind farms in the shallow area of the North Sea at Dogger Bank, with the combined capacity of up to 3GW. Each will comprise infrastructure both onshore and offshore, bringing the electricity onshore and connecting it to the grid.

2.2 The Onshore Development Area, defined by the redline boundary (Figure 22-9-1), includes one landfall option near Skipsea, from which a cable corridor will traverse inland towards Dunnington and then south towards Sigglesthorne. It will then travel southwest, passing Beverly on its northern side and then to the Onshore Converter Station to the south of Beverley.

2.3 For the purposes of the GDBA (AOC Archaeology, 2022), the Onshore Development Area was separated into six areas:

- Area 1: Skipsea (landfall)
- Area 2: Skipsea to Leven
- Area 3: Leven to Woodmansey
- Area 4: Beverley to Risby and Bentley
- Area 5: Routh to Beverley
- Area 6: Creyke Beck (onshore substation zones)

2.4 Since this designation, the southern landfall option has been removed from the Onshore Development Area. In addition, one of the cable route options has been chosen, rendering 'Area 3: Leven to Woodmansey' obsolete, and as such, this area will not be included in the updated deposit models. Finally, Area 5: Routh to Beverley and Area 6: Creyke Beck have been redefined to only encompass the current substation proposal, to the south of Beverley.

2.5 The updated route has been separated into four sections, to account for the reduced route options:

- Area 1: Skipsea (Landfall)
- Area 2: Skipsea to Leven
- Area 3: Leven to Beverley
- Area 4: Beverley to Onshore Substation Zone

3 GEOLOGY AND TOPOGRAPHY

3.1 The following geological background is taken from the GDBA (AOC Archaeology, 2022).

3.2 The GDBA Study Area is located within the Hull Valley and Holderness on low lying terrain generally at elevations of less than 20m Above Ordnance Datum (AOD). The natural drainage direction across the GDBA Study Area is south and west toward the Hull valley.

3.3 The GDBA Study Area is underlain by solid geological deposits of chalk belonging to the White Chalk Subgroup. The British Geological Survey (BGS 2024) maps show the bedrock within the Onshore Development Area to comprise the following formations (from oldest to youngest bedrock age):

- Burnham Chalk Formation (Area 6);
- Flamborough Chalk Formation (Areas 2-5); and
- Rowe Chalk Formation (Areas 1-2)

3.4 The BGS (2024) geology maps show that various superficial deposits underlie the GDBA Study Area. These deposits include (from oldest to youngest deposit age):

- Basement Till (diamicton);
- Skipsea Till (diamicton);
- Lacustrine Sand, Silt, and Clay Deposits;
- Glaciofluvial Sand and Gravel Deposits;
- River Terrace Sand and Gravel Deposits; and
- Alluvial Clay, Silt, and Sand Deposits.

3.5 The oldest glacial deposit underlying the GDBA Study Area is the Basement Till, which is dated to the Wolstonian (Catt, 2007). This is overlain by the Skipsea till which is of Devensian age. Radiocarbon dates of 18,500 ± 400 14 calendar years (C yrs.) Before Present (BP) and 18,240 ± 250 BP obtained by Penny *et al*. (1969) on plant remains between the Basement and Skipsea Tills provide a maximum age for the onset of the Dimlington Stadial in the region (Rose, 1985). An additional date for the onset of the Stadial of 17,500 ± 1,600 BP was obtained by thermoluminescence techniques from beneath the Skipsea Till on the Wolds dip slope (Wintle and Catt, 1985).

3.6 The western limit of the Basement till lies along the OS 510000m line, although some outcrops extend towards the OS 505000m line around Leconfield and Cottingham. The overlying Skipsea till largely mirrors this distribution and demarcates the former limit of the Dimlington Stadial (22,000 to 13,000 year ago) North Sea glacier lobe (Bateman *et al.*, 2015).

3.7 The diamicton glacial till is the main deposit from the last (Devensian) cold stage and underlies the majority of the GDBA Study Area. Till is deposited by glacial ice, either at the glacier base or derived from material within and on the ice. It comprises gravelly sandy silty clay with boulders and contains

numerous lenses of sand and gravel. The till is also likely to contain interdigitating units of glaciolacustrine clay, plus sand and gravel formed during ice advance and retreat (Burke *et al*., 2015).

Area 1: Skipsea

3.8 Area 1 of the GDBA Study Area, including the landfall works at Skipsea, is underlain by a bedrock of Rowe Chalk Formation formed approximately 66 to 84 million years ago (mya) in the Cretaceous Period, under a shallow warm sea environment. Superficial geological deposits in Area 1 are variable. Diamicton till of Devensian date covers the largest portion of the area however patches of lacustrine sands silts and clays are mapped and may mark the location of former meres as mapped by Sheppard (1976). These lacustrine deposits likely accumulated in a depression in the pre-Holocene land surface and may be analogous to the Skipsea Withow Mere deposits initially studied by Gilbertson et al (1984) and more recently studied by Dinnin and Lillie (1995). These lacustrine deposits have excellent potential for preservation of palaeoenvironmental remains having been sealed by colluvium.

3.9 Extending north out of Area 1 are alluvial clay silt sand and gravel deposits. These deposits are mapped in close association with Devensian glaciofluvial deposits (possibly eskers) which likely influenced the location of the alluvial channels. The alluvial deposits also occur in association with the modern channels of both the east and west branches of the Skipsea Drain. The Skipsea Drain is part of a longer watercourse called Stream Ditch or Dike which collected water from the higher grounds to its south and drained much of the land around Skipsea. The Stream Dike was embanked in the 18th century as part of the wider drainage of the GDBA Study Area.

Area 2: Skipsea to Leven

3.10 The chalk bedrock in Area 2 of the GDBA Study Area is Rowe Chalk Formation until it crosses the Beeford Road west of Upton where the underlying bedrock changes to Flamborough Chalk. The Flamborough Chalk formed 72 to 86 mya in the Cretaceous Period in a local environment previously dominated by warm chalk seas. Mapped superficial deposits within Area 2 are largely dominated by till relating to the Last Glacial Maximum (LGM) with areas of glaciofluvial sands and gravels and alluvial deposits mapped in the south-west where GDBA Study Area crosses the Catfoss Drain.

Area 4: Beverley to Risby and Woodmansey

3.11 Area 4 of the GDBA Study Area is underlain by Flamborough Chalk until west of Bentley where deposits of Burnham Chalk are mapped before returning again to Flamborough Chalk. Alluvial deposits are present north of Bentley along the Blackmeredale Bottom. The majority of superficial deposits mapped by the BGS (2024) are diamicton till.

Area 5: Routh to Beverley

3.12 Area 5 of the GDBA Study Area is underlain by a solid geology of Flamborough Chalk. Alluvial deposits are present along the floodplain of the River Hull and the adjacent associated north to south aligned Beverley and Barmston Drain and the west to east aligned South Bullock Dike. These deposits directly related to the River Hull and drainage of the Hull valley. The remainder of Area 5 is underlain by superficial diamicton till deposits.

Area 6: Substation

3.13 The eastern half of Area 6 of the GDBA Study Area is underlain by Flamborough Chalk whereas

the western area is underlain by deposits of Burnham Chalk. The majority of superficial deposits mapped by the BGS (2024) are diamicton till. Deposits of sand and gravel of 'uncertain origin' are mapped in the east part of the study area. These are fine grained, unconsolidated, gravels and sands and may be associated with braided fluvial systems of the Hull valley or perhaps be of glaciofluvial origin.

4 GEOARCHAEOLOGICAL AND PALAEOENVIRONMENTAL BACKGROUND

4.1 The following is taken from the GDBA (AOC Archaeology, 2022).

4.2 During the latter stages of the last (Devensian) Ice Age, the Hull Valley and Holderness were covered by an ice lobe (North Sea Lobe) extending down the eastern margins of the North Sea Basin as far as North Norfolk, depositing extensive till and glaciofluvial sands and gravels across the region. During the colder Pleistocene periods, global sea levels were substantially lower than today, and the study area occupied part of an important location on the western margins of 'Doggerland' now submerged beneath the southern North Sea but which formerly linked the Humber to northwest Europe (Gaffney et al., 2007). Following the final retreat of the ice sheet (<13ka BC), there was a rapid incision of the river valleys down to contemporary sea-level, creating steep sided valleys up to 9m deep (Van der Noort, 2000) now largely infilled with Holocene sediment. Large numbers of lakes formed in depressions left in the till (kettle holes and pingos). These water filled depressions are locally known as meres and many were sufficiently deep to ensure the survival of open water into the Holocene (Head et al., 1995). While Hornsea mere remains as the only larger surviving open water body, a significant number of former meres containing Late Glacial deposits of palaeoenvironmental important survive across the landscape.

4.3 Following desk-based geoarchaeological reporting on geotechnical works (AOC 2019) which identified peat units (e.g. 51996_BH05-6), a purposive geoarchaeological borehole investigation was undertaken at Ulrome by AOC Archaeology Group in 2020. The investigation followed identification of peat deposits identified in the vicinity of the Stream Dyke (Skipsea Drain) as part of geotechnical works for the Dogger Bank Creyke Beck Offshore Wind Farms (AOC 2020).

4.4 The boreholes (AOCBH1 and AOCBH3) revealed a basal sequence of sand deposits interpreted as glacio-fluvial activity from the end of the Devensian glaciation, as noted at Routh Quarry (Geary, 2008). In AOCBH2 this was overlain by over 2m of fine-grained organic silt indicative of low energy deposition, from low moving or standing water, and indicates wetland or marshy conditions. Peat was found to be over 2m in thickness in AOCBH1 and a thin Holocene alluvial silty sandy was found to be sandwich between the peat and underlying Pleistocene.

4.5 The presence of organic silt and peat deposits in the boreholes in combination with organic deposits observed during previous phases of work allowed for modelling of the Stream Dyke which was shown to be somewhat wider than the narrow channel of the modern Stream Dyke thus indicating the presence of a wider paleochannel or a kettle hole. The deeper central channel of the Stream Dyke has been infilled with peat and organic silt alluvium the thickness of which indicates that infilling of the channel/kettlehole was sustained and consistent beyond the early Holocene and thus may preserve palaeoenvironmental evidence for later landscape formation processes.

4.6 The Neolithic and Bronze Age site at West Furze (Fletcher and Van de Noort 2007) is located in close proximity and although now a modern and straightened drainage channel, the Stream Dyke is evidently of some antiquity and is mentioned in association with Skipsea Castle in 1546 and in accounts of drainage in Skipsea Parish in 1765 (Allison 2002). Previous studies of kettlehole deposits from Skipsea Withow (Gilbertson et al., 1984), Barmston (Brigham and Jobling, 2015) and Hornsea (Flenley, 1987), have shown them to have Late Quaternary / Holocene origins with long lasting presence in the landscape (Bateman et al., 2010).

4.7 Palaeoecological studies carried out at Skipsea Withow Mere, (Gilbertson et al., 1984), Barmston Mere (Dinnin and Lillie, 1995; Brigham and Jobling, 2015) and Brandesburton (Van de Noort and Ellis., 1995) in Holderness and at Routh Quarry (Geary, 2008) and Gransmoor Quarry (Walker et al., 1993) in the Hull valley have provided key information about late glacial environments. Studies from Roos Bog Holderness (Beckett, 1981) and Starr Carr in the Vale of Pickering (Day, 1996; Mellars and Dark, 1998; Taylor et al., 2018; Taylor and Allison, 2018) provide important data for the understanding of past environments in the wider area and in particular provide dated continuous sequences which are largely absent from the Holderness and Hull valley palynological record (Van de Noort et al., 2000). These pollen records have allowed the development of the post-glacial environment in the area to be reconstructed as a series of 'Regional Pollen Assemblage Zones' (Beckett, 1981) that have been tentatively dated (Flenley, 1991; Lillie and Geary, 2000).

4.8 The earliest late glacial pollen records date from c. 13,000-12,400 BP and indicate an open landscape with few trees of birch, willow and juniper. Between 12,000 and 11,000 BP an expansion of birch woodland is evident although discrepancies between the records from Gransmoor (Walker et al., 1993) and Roos Bog (Beckett, 1981) indicate local climatic variations. Between 11,000 and 10,200 BP the pollen records form Roos Bog, Gransmoor and Star Carr all indicate deterioration in climate evidenced by a decrease in tree species and an increase in open ground conditions with herbs suggestive of unleached and calcium-rich soils (e.g. Helianthemum), and woody taxa limited to isolated patches of birch or hazel scrub (Lillie and Geary, 2000).

4.9 Birch and Scots Pine dominated the area as the tundra-like conditions of the Loch Lomond Interstadial gave way to the early Holocene, with probably smaller areas of juniper and willow between 10,200-9,500 BP. As the climate ameliorated further, hazel and elm began to dominate around 9,500-9,000 BP, with alder also increasing, and ash, lime and oak also appearing, beginning to shade out hazel and some of the other 'pioneer' species (Lillie and Geary, 2000).

4.10 Large-scale clearance of woodlands on the dry ground did not happen until the later Bronze Age and Iron Age by which time much of north-east Holderness and the Hull valley was dominated by eutrophic wetlands with transgression and encroachment of intertidal events. Alder dominated the marginal wetlands forming Carr woodland, while pine and lime were more prevalent on free-draining soils. Following the elm decline (c. 3,800 cal BC), oak, hazel and lime dominated within woodlands until large-scale clearance from 1,000 cal BC (Van de Noort and Ellis., 1995). Although the earliest evidence for woodland clearance dates to c. 4,000 cal BC, these are typically small-scale and impermanent and are reflected in the archaeological record by evidence of temporary seasonal activity in the form of Mesolithic and Neolithic flint scatters. Investigations at Routh Quarry have shown that Mesolithic groups were exploiting the rich riparian environments of the region in a landscape that exhibited a mixed range of vegetation types (Lillie and Geary, 2000).

4.11 Palynological investigations at Brandesburton were undertaken following finds of a Maglemosian harpoon (Van de Noort and Ellis, 1995). The pollen diagram from this site is low resolution and focuses on organic material within the sequence. It is interpreted as representative of the Late Glacial, Post Glacial, Atlantic, Sub-boreal and modern periods. During the Late Glacial, birch is the dominant tree taxa accompanied by abundant herbaceous plants such as grasses and sedges. The Post Glacial begins with a dominance of birch, giving way to an expansion of pine and hazel in low frequencies. The Atlantic period is characterised by a sharp rise in alder. Higher up the sequence is a mixed oak forest taxa followed by pollen types associated with deforestation and

animal husbandry with modern taxa represented in the final 20 cm of the record (Clark and Godwin, 1957).

4.12 Records of late Holocene environmental change within the palynological record are constrained due to the effects of post-medieval drainage, arable exploitation and urban and industrial development. Sea-level rise continued until c. 500 BC, followed by drier conditions and a phase of marine regression during the late Iron Age and Romano-British period. Palynological data are sparse for the Iron Age and Romano-British periods. However, the relatively thick sequences of peat recorded within the aforementioned AOCBH1 near Ulrome have been found to preserve palaeoenvironmental proxies, such as pollen.

4.13 The dates obtained from AOCBH1 span the period from the Mesolithic (7029BP / 5986 – 5842 cal BC) at 2.74 m, through the Neolithic (4151BP / 2874 – 2655 cal BC) at 1.66 m, to the Bronze Age to Iron Age transition (2464BP / 758 – 421 cal BC) at 0.61m with an estimated sedimentation accumulation rate of 0.06 per 10 mm (approximately 16 years per 10 mm) between 0.61 – 1.66m and 0.04 per 10 mm (approximately 27 years per 10 mm) between 1.66 – 2.74 m. Although it is probable that sedimentation rates will have varied over time, in response to variations in environmental conditions, these rates provide a good indication that there has been ongoing accumulation of sediment with no evidence of significant hiatuses within the record. Further analysis of these deposits thus may help in establishing a more secure mid-late Holocene sequence for the GDBA Study Area which in turn would contribute to our understanding of local environments, landscape formation processes and anthropogenic activity, prior to its drainage for modern agriculture (Millburn and Robertson 2022).

4.14 The landscape of the GDBA Study Area went through a transformation over the course of the post-medieval period, largely as a result of extensive drainage schemes (Shephard, 1976) gradually reducing the impact and frequency of flooding in the lower lying Carrs. Where previously these Carrs had been underwater for much of the year, by the mid-19th century they were largely dry (Shephard, 1976). The move to enclosure also effected a substantial change across north-east Holderness and within the Hull valley. It signified a shift away from the communal, open field methods of the medieval period and reflects an intensification of agriculture during this period. In the 20th century there was a further shift from mixed farming of arable and pastoral to primarily arable use with many former areas of meadow and permanent grassland drained and converted to arable (Middleton 1995).

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 The following background is taken from the WSI (RWE 2023), which should be referred to for the HER and figure references.

5.2 The region has a rich and varied history of archaeological and geological interest, providing local distinctiveness and contributing to the area's character, culture and economy (East Riding of Yorkshire Council 2005).

5.3 The secure hill-tops, fertile floodplains, mineral resources and navigable rivers have all contributed to the Region's historic environment (Government Office for Yorkshire and The Humber 2008).

5.4 Within the wider landscape there is anticipated to be a high potential for buried archaeological remains dating from the prehistoric to modern periods. This has been evidenced by archaeological works undertaken for other wind farm projects and linear infrastructure schemes within the wider region.

5.5 A GDBA (AOC Archaeology, 2022) identified deposits of archaeological and geoarchaeological interest within the GDBA Study Area. These include Holocene age alluvial, organic, and lacustrine deposits and colluvium, along with Pleistocene age glaciofluvial deposits and Head. Glacial till is present across the entire GDBA Study Area and whilst it has relatively low geoarchaeological potential, there is evidence near Skipsea of archaeological material being preserved on the surface of the deposit. The boundary between till and overlying deposits is therefore of archaeological interest.

5.6 Fine-grained alluvium is widespread at the possible landfall location and between Leven to Woodmansey where the onshore export cable corridor crosses the River Hull valley. Elsewhere, alluvium may be present locally, where it infills depressions in the surface of the underlying Pleistocene deposits, or associated with historic or modern river courses. Organic deposits have been recorded at the possible landfall location and along the banks of the River Hull in the southwest of the GDBA Study Area.

5.7 Lacustrine deposits have similar characteristics to alluvium and can also contain layers of organic deposits. These were identified at the possible landfall locations near Skipsea where they infill depressions in the underlaying deposits. These deposits are likely Late Pleistocene to Holocene age and formed when the climate was cool.

5.8 The alluvial and peat deposits are expected to be Holocene in age and evidence of prehistoric activity may survive beneath these deposits, although a high degree of reworking is expected. The organic deposits may preserve rare examples of wooden structures such as jetties or trackways.

5.9 Alluvial and lacustrine deposits provide moderate potential for the preservation of palaeoenvironmental proxies (e.g. pollen, ostracods, diatoms) which can be used to reconstruct changes in hydrology, climate and local ecology, including human influence. Organic deposits within these sequences present moderate to high potential for preservation of proxies such as pollen and plant macrofossils, which can aid in reconstruction of changing environments in the past in relation to human history.

5.10 There is some potential for colluvium (mixed sediment) to be present at the landfall location.

Colluvium has low potential to preserve archaeological or palaeoenvironmental remains, but it may seal and bury earlier archaeology or geoarchaeologically significant deposits.

5.11 Coarse-grained glaciofluvial deposits that formed in a high energy environment during the last glacial period have moderate potential to preserve Palaeolithic material although if present, remains are likely to have undergone significant erosion. They also have low potential to preserve palaeoenvironmental material. The discovery of prehistoric material associated with these deposits in the vicinity of the possible landfall locations suggest their archaeological potential is high at this location, although there is some uncertainty about the extent of these deposits in the eastern parts of the onshore export cable corridor. Elsewhere, glaciofluvial deposits are present along the margins of the River Hull where they likely represent an earlier phase of river activity adjacent to the modern River Hull. Glaciofluvial deposits are present in the southern parts of the onshore export cable corridor, but their potential is more limited.

5.12 Pleistocene age Head deposits have been mapped by the BGS within the onshore export cable corridor between Beverley and Bentley and also within the onshore substation zones. Head has low to moderate potential to preserve archaeological and palaeoenvironmental remains, but it may seal or bury earlier archaeology.

5.13 Glacial till is present across the entire GDBA Study Area and whilst it has relatively low geoarchaeological potential, there is evidence near Skipsea of archaeological material being preserved on the surface of the deposit. The boundary between till and overlying deposits is therefore of archaeological interest.

6 RESEARCH AIMS AND OBJECTIVES

6.1 Geoarchaeology is the application of earth science principles and techniques to the understanding of the archaeological record (Historic England, 2015a). It involves the examination of sub-surface deposit sequences, through coring or exposed sections, in order to identify site formation processes or landscape features of archaeological interest. Deposit models are often employed in geoarchaeology, these are conjectural maps and cross-sections used to investigate the archaeological significance, potential impact, or accessibility of buried deposits (Historic England, 2020a). Geoarchaeological approaches often form part of a wider programme of archaeological investigation.

6.2 Archaeological monitoring and recording are a formal programme of observation, investigation and recording conducted during works carried out for non-archaeological reasons, where there is a possibility that archaeological deposits may be disturbed or destroyed. This will be within a specified area or site on land, in an inter-tidal zone or under water. This definition and Standard do not cover chance observations, which should lead to an appropriate archaeological project being designed and implemented, nor do they apply to monitoring for preservation of remains in situ.

6.3 The standards set out by the Chartered Institute for Archaeologists for archaeological watching brief (Chartered Institute for Archaeologists, 2023b; Chartered Institute for Archaeologists, 2023a) apply to geoarchaeological borehole monitoring exercise as well, and the purpose of such is:

- allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works; and
- provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.

6.4 Archaeological investigations should enhance previous work and provide sufficient information upon which to base effective decisions concerning mitigation. Therefore, an investigation can highlight the need for further WSIs and archaeological work to fulfil planning conditions.

6.5 The summarised definition of an archaeological watching brief is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons, where there is a possibility that archaeological deposits may be disturbed or destroyed (Chartered Institute for Archaeologists, 2023b; Chartered Institute for Archaeologists, 2023a).

6.6 The overall objective for the borehole monitoring exercise, deposit modelling and any subsequent on-site works is to investigate the archaeological and palaeoenvironmental potential and likely significance of the deposits present, so that the impact of the development can be understood, and informed decisions made regarding appropriate mitigation. As part of this overarching objective and in order to fulfil the general aims, the specific objective of these works at the Onshore Development Area are defined as:

- To monitor the geotechnical investigations, in order to observe and record the deposit sequence and its distribution across the Onshore Development Area.

6.7 The general aims of the investigation, as laid out in the WSI (RWE, 2023), are as follows:

- To monitor the excavation of GI trial pits, and to identify, investigate and record any significant buried archaeological deposits revealed;
- To monitor, log and record the sequence of GI boreholes in areas where it has been agreed with the Historic Environment consultees that specialist geoarchaeological monitoring is necessary at locations with a higher potential for the presence of palaeoenvironmental remains;
- To review all other borehole logs, once available from the GI Contractor, for the recorded presence of any material/deposits of potential geoarchaeological / palaeoenvironmental significance and to provide recommendations for any proportionate geoarchaeological / palaeoenvironmental assessment;
- To obtain representative samples from suitable deposits;
- To produce an integrated archive of the project work and associated report setting out the results of the monitoring and any archaeological and geoarchaeological/ palaeoenvironmental conclusions that can be drawn from the recorded data; and
- To deposit the site archive with an appropriate museum (anticipated to be the East Riding of Yorkshire Museums Service – to be confirmed) and to provide information for accession to the Humber Historic Environment Record (HER).

6.8 The aims are addressed by the following objectives:

- Attend site and monitor the GI works, including all trial pits (29) and 23 boreholes (Table 1 (Appendix A), RWE 2023);
- Describe and interpret the sequences and place them within their wider geoarchaeological context;
- Undertake a programme of geoarchaeological deposit modelling;
- Arrange the taking of appropriate samples for further investigation with the GI Contractor; and
- Make specific recommendations for further work, taking into account key research questions and objectives outlined in the Yorkshire Archaeological Research Framework.

7 METHODOLOGY

Origin and Purpose of Deposit Modelling in Archaeology

7.1 AOC's geoarchaeological methodology followed the previously produced WSI covering this work and will conform to best professional practice as summarised in the appropriate Chartered Institute for Archaeologists guidelines for archaeological watching brief (Chartered Institute for Archaeologists, 2023a, 2023b) and Historic England's guidelines for geoarchaeology (Historic England, 2020, 2015a).

7.2 The purpose of a geoarchaeological deposit model as outlined by Historic England (2020) is to:

- identify areas of low or high archaeological potential;
- avoid blanket evaluation coverage and inform appropriate mitigation strategies;
- aid communication with construction professionals; and
- facilitate palaeoenvironmental reconstruction.

7.3 The character and distribution of past human activity can be better understood through the consideration of the past landscape or environmental context. Such an approach is often required by archaeological advisors and the local planning authority on floodplains where the deposit sequence can vary from thin alluvium or peat, with shallowly exposed ancient land surfaces, to complex and thick sequences of interchanging alluvium and peat, covering deeply buried ancient land surfaces.

7.4 The topography and nature of the ancient land surface during the early Holocene, the current geological epoch and equivalent to the early Mesolithic (*c*. 11,500 BP or 10,000 BC), is dictated by and inferred from the surface of the Pleistocene superficial deposits (e.g. brickearth, gravel, and till from the previous epoch) and older solid geology (e.g. mudstone or chalk). Overlying the Pleistocene – or older – deposits, Holocene alluvium may preserve palaeoenvironmental evidence (e.g. pollen, diatoms, ostracods) of landscape development, from local channel migration and vegetation change to regional effects of climate and Relative Sea Level (RSL) change. In combination, likely preservation of palaeoenvironmental remains and deposit data (e.g. depth and character) provides a comparative framework to assess archaeological potential. Peat represents vegetated and waterlogged landscapes (e.g. marshland) which developed, within local or regional fluctuations of hydrology. The anaerobic and acidic conditions of the deposit are particularly conducive to organic preservation. Palaeoenvironmental remains from floodplain deposits, especially peat, provide information on the nature and timing of environmental change and the interplay with past human activity (Historic England, 2015a, 2015b).

7.5 Modelling software (Rockworks & ArcGIS) is often used to create two and three-dimensional deposit models of the buried topography and overlying strata on the site. The data used may be readily available BGS (2024) geological information, recent geotechnical data from the client, or data past archaeological investigations. The depth and distribution of the various deposits is mapped in schematic cross-sections (transects) or plan, showing the elevation (Digital Elevation Model, DEM) or thickness (Isopach), of deposits or stratigraphic units. The model often culminates in schematics maps showing areas of archaeological potential.

Onsite GI Monitoring

7.6 Geoarchaeological monitoring was undertaken on 23 geotechnical boreholes, detailed below in Section 8. No cores samples were available for retention. Boreholes were drilled by a cable percussion rig under the monitoring of a geoarchaeologist. Where appropriate, service pits (approximately 300mm x 300mm) were hand-dug to c 1.2m at each location, and the holes CAT-scanned for live services at regular intervals by the principal contractor.

7.7 Sediment cores and upcast were recorded through the Holocene sequence or Pleistocene glaciofluvial deposits down to *c.* 12m BGL where the surface of the underlying pre-Holocene drift/solid geology was encountered. The borehole locations were surveyed in by the principal contractor, with each position located to a six-figure national grid reference, and the elevation measured to metres above ordnance datum.

7.8 On site, the geoarchaeologist photographed and logged the Holocene sediments revealed in the boreholes according to standard geological criteria (Jones et al., 1999a; Tucker, 2003a). Preliminary interpretation of the deposit sequence sampled in the cores was made in order to produce an overview of the lithology that characterises the stratigraphy and identifies formation processes.

7.9 The excavation of 13 geotechnical trial pits were monitored by an archaeologist to observe and record the geological sequence, and to identify and record any archaeological remains. Overburden was stripped using a 360° mechanical excavator, fitted with a toothless ditching bucket. All machine excavation was monitored by a suitably experienced and qualified archaeologist. Machine excavation ceased either at the first significant archaeological horizon or due to the requirements of the geotechnical investigation approach. If features were identified within 1.2m and the test pit was safe to enter all excavation of suspected features or archaeological horizons was undertaken by hand. All recording was undertaken from ground level without entering the test pit.

7.10 A full written, drawn and photographic record was made of all trial pits during the course of the archaeological monitoring, in accordance with relevant standards and guidance (Chartered Institute for Archaeologists, 2023a, 2023b). Monochrome photography (35mm format) and digital photography were employed. Digital photography was undertaken using a camera with a resolution of at least 10 megapixels.

7.11 All identified finds and artefacts were collected and retained. Finds were bagged according to their context, and significant finds were allocated a recorded finds number and their positions surveyed individually. Finds were exposed, lifted, cleaned, conserved, marked, bagged and stored in accordance with the guidelines set out in the CIfA guidelines Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (Chartered Institute for Archaeologists, 2020).

7.12 The palaeoenvironmental sampling strategy comprised the removal of a bulk sample from securely sealed, hand-excavated contexts, excepting those with excessive levels of residuality or those with minimal ‘soil’ content (such as building rubble). Bulk sampling strategy comprised a representative 40 litre sample, or, from small features, the maximum amount of material that it was practicable to collect. All sampling strategies were undertaken in in accordance with the relevant guidance (Historic England, 2015b). However, no suitable features or deposits were encountered for bulk

sampling.

7.13 No archaeological features were encountered during the monitoring of the geotechnical trial pits. Unstratified surface finds were recorded within proximity of trial pit excavation works, and collected and retained in concordance with the CIfA guidelines Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (Chartered Institute for Archaeologists, 2020).

Deposit Model

7.14 In order to create the deposit model, the geotechnical data was entered into a digital database (Rockworks 20). Any recent geotechnical logs supplied by the client or previous archaeological work onsite were given the prefix 'CP' for cable percussion, 'RT' for rotary, 'WS' for window samples, 'AH' for auger holes, 'TP' for test pits, or 'TR' for trenches. BGS logs BGS (2024) added to the database were given a prefix relating to the two-letter grid square of its national grid reference e.g. TQ. A total of 450 sedimentary logs were included in the deposit model. The distribution of this data set is presented in Figure 22-9-2 to Figure 22-9-6, and the data references for the sedimentary logs are presented in Appendix A. The numbers of each type are:

- BGS historic deposit data BGS (2024): 165
- Client supplied GI/SI data: 35 (Central Alliance)
- AOC deposit data: 245
- Other sources: 5

7.15 The survey data of 11 sedimentary logs produced by the GI contractor contained inaccurate elevation data. In order to use these logs within the deposit model, LiDAR data was obtained for the locations, to provide as accurate an elevation to the nearest 1 m. These datapoints are provided in Table 2 below.

Table 2 Datapoints using elevation provided by LiDAR

Borehole	Easting	Northing	LiDAR elevation
AOC53087_BH505	510855.905	442839.559	4
CA23_BH605	508976.178	442090.62	4
AOC53087_BH606	508356.718	442457.777	3
AOC53087_BH701	505401.657	442734.898	0
CA23_WS701	505513.586	442692.607	1
CA23_WS702	505496.064	442792.472	1
AOC53087_BH802	505231.56	442727.584	1
CA23_WS801	505200.961	442681.302	0
CA23_WS802	505190.024	442787.807	1
CA23_BH901	503648.53	442108.687	4
CA23_WS901	503482.704	442102.245	5

7.16 Each lithology type (gravel, sand, silt, clay etc.) was given a unique colour (primary component) and pattern (secondary component) enabling visual correlation of the sediment components of deposits across the site. By examining the relationship of the lithology types (both horizontally and

vertical) in preliminary and iterative transects, correlations can inform the site-wide deposit groups. The grouping of these deposits is based on the lithological descriptions, which represent distinct depositional environments, coupled with a wider understanding of the local geological sequences. Thus, a sequence of stratigraphic units ('facies'), representing certain depositional environments, and/or landforms can be reconstructed both laterally and through time.

7.17 IDW (weighting =2, number of points =12), DEM, and Isopach plots were produced for key deposits (i.e. units defining major changes in the environment and modes of deposition) and surface horizons. These highlight major features of the topography through time. In this respect, the most common surface plot depicts the surface of the Pleistocene (or older) deposits (Figure 22-9-27, Figure 22-9-28, Figure 22-9-29, Figure 22-9-30) giving an approximation of the topography of a site as it existed at the beginning of the early Mesolithic period c 10,000 years ago. The development of the Holocene floodplain is likely to have been influenced by the topography inherited from the Pleistocene/Late glacial period. This surface would have dictated the course of later channels, with gravel high points forming areas of dry land within the wetlands, and lower lying areas forming the main threads of later channels. Many of the additional surface or thickness plots are more representative of deposit survival than time-specific landscapes.

7.18 The overlying deposit sequence across the Onshore Development Area depicted by the stratigraphic units, as representative of specific depositional environments and/or landforms laterally and through time for the Onshore Development Area and immediate vicinity, is illustrated in profile or transect form (Figure 22-9-7 to Figure 22-9-14). Such transects present a straight-line correlation between the data points, extrapolating the stratigraphic units identified within each borehole.

7.19 By examining the surface and thickness plots in combination with the vertical deposition shown in the transects areas of archaeological potential can be mapped (Figure 22-9-49 to Figure 22-9-52). These characterise the differing geoarchaeological and archaeological potential and significance of single stratigraphic units, deposit sequences containing multiple stratigraphic units, or specific landforms and depositional environments.

8 RESULTS

Borehole logs

8.1 The log tables for the geotechnical boreholes monitored by a geoarchaeologist (Figure 22-9-3 to Figure 22-9-6) are presented in Appendix B – Borehole Logs.

8.2 A possible archaeological deposit was recorded in BH504, between 0.35 and 0.40 m BGL. The deposit was of mid greyish brown with mid to dark grey speckles, and comprised slightly clayey, sandy silt. Inclusions of CBM fragments and charcoal, as well as small, rounded stones were observed.

Trial Pit Results

8.3 The log tables for the geotechnical trial pits that were archaeologically monitored (Figure 22-9-3 to Figure 22-9-6) are presented in Appendix C – Trial Pit Logs.

8.4 Several sherds of Roman pottery were identified within approximately 6m to the south of TP3402. These were found on the ground surface and as such are likely to have been redeposited by agricultural activity such as ploughing. However, they may be indicative of further remains of Romano-British date within the vicinity.

8.5 One sherd of Roman greyware pottery was recovered from the plough soil approximately 7 m to the south of TP3404.

8.6 A modern plastic field drain was encountered at a depth of 1.3 m within TP3410, and the trial pit relocated 2.5 m to the west.

9 DEPOSIT MODEL

9.1 Nine stratigraphic units have been identified across the Onshore Development Area. These units are summarised in Table 3 below and listed in stratigraphic order from the oldest at the top to the most recent at the bottom. The vertical deposit succession is illustrated on the transect(s) drawn across the Onshore Development Area (Figure 22-9-7 to Figure 22-9-14). The major stratigraphic units are also represented by surface and/or thickness plots (Figure 22-9-15 to Figure 22-9-48).

Table 3 Summary of identified stratigraphic units (subdivision of the Holocene based Walker et al., 2012)

Stratigraphic unit (facies)	Lithology/Description	Chronology	Environment of deposition
Burnham Chalk Formation, West (grouped as “tertiary bedrock - chalk” to improve deposit modelling)	White, thinly bedded chalk with common flint bands.	Turonian to Santonian Age (83.9 to 83.6 million years ago)	Marine deposit.
Flamborough Chalk Formation, Central (grouped as “tertiary bedrock -chalk” to improve deposit modelling)	Chalk. White, well bedded, flint-free chalk with common marl seams.	Santonian to Campanian Age (86.3 to 72.1 million years ago)	Marine deposit.
Rowe Chalk Formation, East (grouped as “tertiary bedrock -chalk” to improve deposit modelling)	White, flint-bearing chalk with sporadic marl bands.	Campanian to Maastrichtian Age (83.6 to 66.0 million years ago)	Marine deposit.
Pleistocene - glacial till	Poorly sorted, very mixed, containing clay, silt, sand, gravel, boulders.	Devensian, Late Pleistocene (116,000 to 11,700 years ago)	Glacial conditions – deposits associated with glaciers.
Pleistocene - glaciofluvial	Primarily sand and gravel, occasionally with silty or clayey beds. Including occasional areas mapped as uncertain age and origin.	Devensian, Late Pleistocene (116,000 to 11,700 years ago)	Coarse sediments transported by glacial meltwater streams. High energy periglacial fluvial deposits.
Head (only minimal points recorded so grouped with “glaciofluvial deposits” in deposit model out puts)	Poorly sorted, poorly stratified. Comprises gravel, sand, silt, clay.	Devensian, Late Pleistocene (116,000 to 11,700 years ago)	Slow, downslope transport of waterlogged material resulting from meltwater. Periglacial conditions.
Holocene - Lacustrine	Clay, silt, sand, with occasional organic beds. Include clasts deposited by streams running into the lake.	Early Holocene / Greenlandian (c 11,650–8,276 BP/ 9,700–6326 BC)	Deposits at the base and shores of lakes.
Holocene - lower alluvium	Primarily silt and clay, occasionally sandy. Occasional organic inclusions.	Early Holocene / Greenlandian (c 11,650–8,276 BP/ 9,700–6326 BC)	Fluvial floodplain deposits. Temperate floodplain and river channel environments.

Stratigraphic unit (facies)	Lithology/Description	Chronology	Environment of deposition
Holocene - organic deposits	Peat	Mid Holocene / Northgrippian (c 8,276 – 4,200 BP/ 6,326 – 2,250 BC) to Late Holocene / Meghalayan (c 4200 BP/2250 BC onwards)	Temperate wetland development within a floodplain environment.
Holocene – warp / upper alluvium	Primarily fine-grained sediments of silt and clay, with occasional sand and gravel, and organic inclusions.	Late Holocene / Meghalayan (c 4,200 BP/ 2,250 BC onwards)	Representative of floodplain and intertidal mudflats, with additions from possible reworking of shingle or sand bank material or anthropogenic warping practices.
Colluvium (only minimal points recorded so grouped with “Holocene - alluvium” in deposit model outputs)	Identified as hard / stiff brown sandy clay overlying alluvial deposits. Poorly sorted.	Late Holocene / Meghalayan (c 4,200 BP/ 2,250 BC onwards)	Downslope transport of material under temperate conditions.
Topsoil and made ground -Modern	Clay, silt, sand, and gravel with inclusions of generally modern / reworked anthropogenic materials such as ceramic building materials.	Post-medieval to modern (19th Century AD onwards)	Reclamation / agriculture. Modern land surface.

9.2 For the purposes of the deposit models, the Onshore Development Area has been separated into four areas. The discussion of the modelling for each stratigraphic unit is divided by each area in order to increase the resolution of the models and allow greater detail in the discussion.

9.3 Area 1, Skipsea (Landfall), includes a total of 63 datapoints utilised in the modelling process and extends to Dunnington Lane in the southwest.

9.4 Area 2 encompasses the route between Skipsea and Leven. It includes 51 datapoints for use in the modelling. The section extends from the Area 1 boundary at Dunnington Lane to White Cross Road and the town of Leven.

9.5 Area 3 includes the route section from White Cross Road at Leven to Beverley Racecourse, on the western side of Beverley. It incorporates 108 data points into the modelling.

9.6 A total of 221 data points is included in the Area 4 models. The area encompasses the onshore development area between the Beverley Racecourse and the Onshore Substation Zone at Creyke Beck.

Chalk Bedrock

9.7 Tertiary bedrock identified across the development area include Burnham, Flamborough, and Rowe Formations. These deposits are generally of white chalk, occasionally with clay or flint. The chalk was deposited between the Turonian Age and the Maastrichtian Age (83.9 to 66.0 million years ago), under marine bed conditions.

9.8 They are combined into one unit for the purposes of the geoarchaeological deposit models. Within

the Onshore Development Area and surrounding areas, chalk bedrock is recorded within 199 of 450 interventions, the majority of which are situated towards the south with a spread along the east.

Area 1: Landfall (Skipsea)

9.9 Area 1, encompassing the landfall zone at Skipsea, includes a total of 63 datapoints utilised in the modelling process. Six interventions within Area 1 record chalk bedrock, and these are situated in the east towards the coastline and within the Onshore Development Area, and as such the modelling may not be as representative for the westward part of the model outside of Onshore Development Area where the bedrock should rise but there are few data points nearby.

9.10 Figure 22-9-15 illustrates the modelled surface of the chalk. It is shown to range between approximately -18 and -2 m OD, with a rapid fall in elevation towards the coastline from AOC53087_BH101 to AOC53087_BH002, within the Onshore Development Area in the east. Across the westward remainder of the Onshore Development Area it is modelled between *c*. -13.5 and -11 m OD, which is only modelled by the datapoints in other areas and at greater distances (c.2-3 km northeast, 51996-TP27, Figure 22-9-8), which reach the depth of the chalk surface.

Area 2: Skipsea to Leven

9.11 A total of 16 data points encounter chalk bedrock within Area 2. These are spread throughout the route, with the exception of the north. The majority of the data points are within the Onshore Development Area or in relatively close proximity (<300m).

9.12 A topographic plot (Figure 22-9-16) has been produced to illustrate the modelled surface elevation of the chalk across the area. It illustrates that the surface ranges between approximately -22 and -8 m OD within the Onshore Development Area. Overall, the bedrock rises towards the southwest and the boundary with Area 3. Across much of Onshore Development Area in Area 2 the elevation lies between *c*. -16.5 and -14 m OD, with two areas of reduced elevation towards the north at *c*. -18 m OD (TA15SW15) and centre reaching *c*. -22 m OD (TA14NW9/A and TA14NW9/B).

9.13 The broad lower area may illustrate the impacts of glacial erosion on the landscape, with a plateau formed by scouring by ice and meltwater. The isolated low positions may represent features such as kettle holes, or perhaps two paths of greater erosion which left a raised ridge in the centre (TA14NW35, TA14NW83) at *c*. 12 m OD.

Area 3: Leven to Beverley

9.14 Chalk bedrock is recorded among 68 of the 108 data points in Area 3, which are spread throughout the area to provide reliable data across the models.

9.15 The surface elevation of the bedrock is illustrated in Figure 22-9-17, which shows a range between approximately -12.5 and 60 m OD. Across the majority of the Onshore Development Area in Area 3, the surface of the chalk is identified between -12.5 and 0 m OD. Although for much of Transect M (Figure 22-9-10) in the east of Area 3 the bedrock is between -10 and -5 m OD, increasing to around -7 and 0 m OD westward as shown on Transect N (Figure 22-9-11). The modelled surface of the bedrock then rises sharply in the southwest at the scarp of the Yorkshire Wolds and reaching *c*. 39 m OD along the route of the Onshore Development Area at the boundary between Area 3 and Area 4. However, there are few data points within c. 500m of the Onshore Development Area near the edge of Area 3.

Area 4: Beverley to Onshore Substation Zone

9.16 Chalk bedrock is recorded among 107 data points spread across Area 4. A topographic plot has been produced to illustrate the surface elevation of the chalk (Figure 22-9-18). It illustrates a full surface elevation range of -8 to 100 m OD, with the highest elevations outside of the west of the Onshore Development Area at a steep incline into the Yorkshire Wolds. Part of this incline is illustrated in Transect O (Figure 22-9-12).

9.17 At the northern extent of the Onshore Development Area in Area 4 the highest surface elevation modelled reaches c. 46 m OD (CA23_BH1601, Figure 22-9-12), before falling to the southeast to approximately 0 to 2.5 m OD within the substation area (CA23_BH1504-5, Figure 22-9-14).

Glacial Till

9.1 Glacial till is recorded among 383 data points of the 450 included across the Onshore Development Area. The unit represents material deposited beneath, or adjacent to, active glaciers during in the Devensian, Late Pleistocene (116,000 to 11,700 years ago). It comprises poorly sorted material which is primarily a stiff clay with silt, sand, gravel, and larger cobbles or boulders. The coarser components are of chalk and other lithologies. No surface topography has been modelled for the till but instead a combined surface for the till and glaciofluvial units, the Pleistocene surface, has been produced and will be discussed in its own section.

Area 1: Skipsea (Landfall)

9.2 Glacial till is recorded among 55 of 63 datapoints within Area 1, although only 6 record the full extent of the unit in the east where bedrock is encountered. A thickness plot (Figure 22-9-19) illustrating the thickness of glacial till has been produced. For those points which record the full extent, the plot shows more significant till accumulation closer to the coastline, reaching up to *c*. 30 m in thickness within the eastern edge of the Onshore Development Area (AOC53087_BH001, Figure 22-9-8). Elsewhere in Area 1 to the west and north, the till is represented as being significantly thinner (up to *c*. 4 m thickness) due to the shallow depth reached by the trial pit interventions.

Area 2: Skipsea to Leven

9.3 Till is recorded at 49 data points within Area 2, which includes all but 2 data points. A thickness plot (Figure 22-9-20) has been generated to illustrate the thickness and distribution of till across Area 2. It reaches up to *c*. 40 m in thickness in proximity to the Onshore Development Area (TA15SW15, Figure 22-9-9), being thickest at the datapoints overlying the lower areas of bedrock surface and suggesting potential infilling of features such as kettle holes. Till thins adjacent to the Onshore Development Area (c. 16 m, TA14SW24, Figure 22-9-9) towards the southwest and the boundary of Area 2/ Area 3 where the bedrock rises and ground surface lowers.

Area 3: Leven to Beverley

9.4 Till is present in variable and lower thickness across Area 3, with records inside and in very close proximity to the Onshore Development Area. Figure 22-9-21 illustrates the thickness of the till across the area, highlighting that those deposits reach up to approximately 25 m outside the north of the onshore development (TA04SE6/C). These isolated thicker areas likely represent glacial features. Within the Onshore Development Area, however, the unit does not exceed *c*. 10 m (Figure 22-9-10 and Figure 22-9-11) and occasionally drops to c. 6 m where potentially scoured out by meltwaters and overlain by the deposition of glaciofluvial sediments (AOC53087_BH603, Figure

22-9-10).

Area 4: Beverley to Onshore Substation Zone

9.5 Glacial till is recorded at 198 data points within Area 4. The thickness and distribution of the deposits is illustrated in Figure 22-9-22, showing that till is generally between 3 and 7 m thick but most prominent within the areas of lower bedrock elevation beyond the east of the Onshore Development Area. The thickest till deposits, reaching up to approximately 22 m, are located to the south of the development area. The thickest till recorded within the development area is c. 10 m thick within limits the southeastern extent of the Onshore Development Area (CA23_BH1504-5, Figure 22-9-14).

9.6 Transect O (Figure 22-9-12) illustrates the variable thickness of glacial till deposits as bedrock surface elevation falls towards the southeast. It captures the area of thicker till reaching up to *c*. 7 m (SE93NE9), to the northwest of Area 4, the thinning till on the slope of the bedrock (<4 m, TA03NW129), and then thickening to c. 10 m at the base of the slope (CA23_BH1701).

Glaciofluvial Deposits

9.7 Glaciofluvial deposits comprising predominantly sand and gravel are recorded within 68 interventions. The majority of these are distributed across the centre to south of the development area. The unit represents material deposited under high energy conditions as a result of glacial outwash and is indicative of paths of glacial meltwaters across the landscape. No surface topography has been modelled for the glaciofluvial deposits but instead a combined surface for the till and glaciofluvial units, the Pleistocene surface, has been produced and will be discussed in its own section.

Area 1: Landfall (Skipsea)

9.8 A total of eight interventions within Area 1 encountered glaciofluvial deposits of sand and gravel. These are identified in the northeastern extent of the modelled area, with a thickness of up to *c*. 1.25 m (Figure 22-9-23).

9.9 Transect J (Figure 22-9-7) illustrates the location of the glaciofluvial deposits to the north of, and potentially extending into, the boundary of the Onshore Development Area. Although the unit appears to thin out toward the south and southeast. Glaciofluvial deposits are not recorded within the northern part of the Onshore Development Area, where there are no data points within the boundary. Nor are they recorded by the data points within the landfall area of the Onshore Development Area or within the southwest boundary, marking the Onshore Export Cable Corridor route, towards the edge of Area 1 at Dunnington Lane. Where again there are no data points within the Onshore Development Area.

Area 2: Skipsea to Leven

9.10 Of the 51 data points in Area 2, only 7 record glaciofluvial deposits either within or in proximity to the Onshore Development Area. The thickness of the glaciofluvial deposits is illustrated in Figure 22-9-24. The unit is identified towards the centre of the area, adjacent to West Road at Sigglesthorne, reaching 2-3 m in thickness (e.g., TA14NW72, Figure 22-9-9). Towards the southwest of Area 2, the sand and gravels reach up to 3.5 m in thickness at the boundary (e.g., TA14SW5, Figure 22-9-9).

9.11 These areas indicate positions through which glacial meltwater was likely to flow. The relative

position of these deposits in relation to the onshore development area boundary is illustrated by Transect L (Figure 22-9-9). The more significant glaciofluvial deposits in the southwest overlie lower till. In the centre, the glaciofluvial deposits occupy a region of reduced till surface elevation.

Area 3: Leven to Beverley

9.12 A thickness plot (Figure 22-9-25) has been produced to illustrate the thickness and distribution of glaciofluvial deposits across Area 3. Glaciofluvial deposits are recorded among 22 data points, primarily external to the Onshore Development Area with the exception of the eastern end of the area. Here, the unit reached up to approximately 10 m in thickness (AOC53087_BH504), further illustrated in Transect M (Figure 22-9-10). This transect indicates the potential for 2-3 former channels of the Late Glacial, predominantly filled with sand and gravel (e.g. AOC53087_BH504 and AOC53087_BH601-2, Figure 22-9-10), and Late Glacial to Holocene, predominantly filled with gravel and overlain with alluvium (e.g. CAS23_BH604, Figure 22-9-10). These channels pass through the Onshore Development Area towards the southeast of Area 3.

9.13 Further westward along the Onshore Development Area of the Onshore Export Cable Corridor route, there is only minimal thickness (c. 1-2 m) of glaciofluvial sediments infilling Late Glacial to Holocene channel routes (e.g., CAS23_BH803, Figure 22-9-11)

Area 4: Beverley to Onshore Substation Zone

9.14 Glaciofluvial deposits are recorded among 20 interventions included in the Area 4 models.

9.15 The thickness and distribution of the deposits are illustrated in Figure 22-9-26. They show that overall, glaciofluvial deposits are most prevalent external to the development area to the east, reaching up to *c*. 14 m in thickness.

9.16 Over much of the area glaciofluvial sediments are not present or very thin. CA23_TP3505, to the northwest of but not shown on Transect O, also records glaciofluvial deposits within the development boundary, with a thickness of 1.7 m. These are not highlighted in the modelling, however, dues to their relative minimal thickness.

9.17 Three data points (TA03NW150, TA03NW3, TA03NW177) record glaciofluvial deposits on the boundary of the development area at the substation, with a thickness of up to *c*. 9.25 m. Deposits of such thickness may be present within the Onshore Development Area, although only c. 1-3 m of the unit are modelled in the southeastern end of Transect Q (CA23_BH1504-5, Figure 22-9-14).

9.18 Pleistocene Head is projected on BGS (2024) mapping in a narrow east-west aligned corridor crossing Area 4. It was not identified within the deposit records used to produce the models; however, it is possible that it may be encountered in this area.

Pleistocene Surface

9.19 The surface of the Pleistocene and earlier geology represents the possible land surface at the beginning of the Holocene (*c*. 11,700 years ago). This surface may be that of the bedrock, till, or glaciofluvial deposits. It may be sealed only by topsoil, or by a thick Holocene sequence such as alluvium. Archaeological remains of Mesolithic or later date may be preserved on or cut into this surface.

Area 1: Landfall (Skipsea)

9.20 A topographic plot (Figure 22-9-27) has been generated to illustrate the potential land surface at the beginning of the Holocene (*c*. 12,000 years ago). The surface is encountered between approximately 0 and 18 m OD, with an area of lower elevation passing northwest to southeast across the modelled area and extending into the Onshore Development Area just west of landfall. Within the development area, the surface is encountered between approximately 8 to 11 m OD at landfall (AOC53087_BH001-2, Figure 22-9-8), c. 7 m OD near the very north of the Onshore Development Area (A51996_TP01-2, Figure 22-9-7), and 14 m OD at the southwestern extent of Area 1 (A51996_TP45, Figure 22-9-9).

9.21 The lower surface area may represent a mere, a route for Late Pleistocene to Early Holocene channel or wetland, and an area of primary inundation associated with the overall rise in RSL (AOC, 2022), and correlates with the mapped Skipsea Low Mere and Withow Mere (Van de Noort and Ellis, 1995; AOC, 2022).

9.22 The raised area is located within the Landfall Zone at Skipsea, where the surface rises to *c*. 11 m OD (AOC53087_BH001) compared with the adjacent areas at *c.* 8 to 10 m OD. This may have provided a more stable location in the environment for access to and exploitation by past humans of the lower lying areas as they developed into wetlands and potential channels.

9.23 To the southeast of the Onshore Development Area (Marsters2008_S_Auger) an anomalous data point suggests a rise in the surface, perhaps drawn from levelling with the adjacent datapoint (AOC53087_BH004). This datapoint should illustrate a continued depression in the surface of the Pleistocene geology towards the modern coastline, reflecting the thick accumulation of lacustrine deposits that overlies it. It is noted that at this data point, the anomaly of the smoothing from modelling has placed the Pleistocene surface at a higher elevation (*c*. 8.5 m OD) than that of the overlying lacustrine unit (*c*. 4 m OD).

Area 2: Skipsea to Leven

9.24 Figure 22-9-28 illustrates the possible land surface at the beginning of the Holocene (*c*. 12,000 years ago) for Area 2. The surface elevation is higher towards the north and falls in a southwestern direction, representing accumulation of glacial period sediments. The thick accumulation of Pleistocene deposits (primarily till) towards the centre of the Onshore Development Area in Area 2 is illustrated in Transect L as well (Figure 22-9-9).

9.25 The surface ranges between approximately 0.5 and 20 m OD, the highest of these values is centred on the raised bedrock (TA14NW83, Figure 22-9-9) between the possible kettle holes or paths of Pleistocene erosional features (TA15SW15, TA14NW10, and TA14NW9/A, Figure 22-9-9).

Area 3: Leven to Beverley

9.26 The potential ground surface at the beginning of the Holocene (*c*. 12,000 years ago) is illustrated in Figure 22-9-29 for Area 3, and is encountered between approximately -9 and 60 m OD, following the rise of the underlying bedrock to the west. Across much of the Onshore Development Area of Area 3, this surface lies between approximately 0 and 10 m OD, with two broad zones of lower surface elevation. One of these zones is located towards the centre of the Onshore Development Area in Area 3 where it crosses the modern River Hull and shows its relic river plain (AOC53087_BH802, BH701, CA23_WS801, 802, 701, 702, and TA04SE2), illustrated in Transect

N (Figure 22-9-11). The other is near the A1035 at Hall Farm (CA23_BH604, AOC53087_BH606), illustrated on Transect M (Figure 22-9-10). These areas may indicate Holocene, or late Pleistocene, erosion and relic channel routes.

Area 4: Beverley to Onshore Substation Zone

9.27 The Pleistocene surface elevation is represented in Figure 22-9-30 for Area 4. Outside of the Onshore Development Area the surface elevation ranges between approximately -9 and 100 m OD, following the same trend of rising sharply in the west as with the underlying bedrock. However, within the Onshore Development Area the modelled surfaces ranges from c. 50 m OD in the north and drops down to c. 12 m OD in the southeast.

9.28 The fall in surface is illustrated in Transect O (Figure 22-9-12) and Transect Q (Figure 22-9-14), which also illustrates the lack of Holocene superficial geology within this part of Area 4.

Lacustrine Deposits

9.29 Lacustrine deposits represent the accumulation of material within areas of standing water, at the shores and base of lakes. They are generally laminated and comprise clay, silt, and sand with occasional organic beds. Occasionally, clasts are recorded associated with the deposition of material incoming from streams. These may be of Late Glacial date and are predominantly thought to be of Holocene date within the vicinity of the Onshore Development Area.

Area 1: Landfall (Skipsea)

9.30 Lacustrine deposits are identified only within Area 1, among five interventions across the centre to southeast, outside of the Onshore Development Area. A thickness plot (Figure 22-9-31) has been produced to illustrate their thickness and distribution across the area. The lacustrine deposits reach a maximum thickness of *c*. 6 m OD (Martsters2008_S_Auger) south of landfall, on the coastline. This area of thick lacustrine deposits is captured in Transect J (Figure 22-9-7), within a depression in the surface of the Pleistocene till.

9.31 A surface plot (Figure 22-9-32) has been produced to illustrate the surface elevation of the lacustrine and earlier deposits. The surface elevation range is the same as the Pleistocene Surface (between *c*. 0 and 18 m OD, Figure 22-9-27), although it does show a general infilling across the northwest to southeast depression across Area 1. This is reflective of the thicker deposits overlying the low-lying Pleistocene surface, indicative of an infilled lake feature.

9.32 There is greater variation in this southeastern area at the surface of the lacustrine deposits, showing irregular accumulation of material across the area.

Area 2: Skipsea to Leven

9.33 No data points within Area 2 record lacustrine deposits.

Area 3: Leven to Beverley

9.34 No data points within Area 3 record lacustrine deposits.

Area 4: Beverley to Onshore Substation Zone

9.35 No data points within Area 4 record lacustrine deposits.

Lower Alluvium

9.36 Lower alluvium represents Holocene (up to *c.* 11,700 years ago) minerogenic material laid under riverine freshwater conditions, overbank or in channel, or under intertidal conditions. The lower alluvium refers to those beneath organic deposits across the Onshore Development Area. It comprises sand, silt, and clay, with occasional gravel accumulated from of underlying Pleistocene geology.

Area 1: Landfall (Skipsea)

9.37 Lower alluvium deposits have been encountered in only one intervention (52058_AOCBH1), over 2km west or north outside of the Onshore Development Area. The unit comprises grey and dark grey to blue silt and indicates the earliest infilling of the low-lying Pleistocene surface in this area.

Area 2: Skipsea to Leven

9.38 No data points within Area 2 record lower alluvium deposits.

Area 3: Leven to Beverley

9.39 Lower alluvium is recorded at one data point within Area 3. The intervention (51996_TP106) encountered clay deposits between the glaciofluvial sands and the overlying organics. The alluvial deposits are recorded to be 1.6 m thick and are c. 1.5km beyond the north of the Onshore Development Area.

Area 4: Beverley to Onshore Substation Zone

9.40 Lower alluvium is recorded in only one data point record (TA03NE114). The deposits are 5 m thick, located beneath the Holocene organic unit. These deposits are located c. 2.5 km beyond the northeast of the Onshore Development Area.

Holocene Organic Deposits

9.41 Organic deposits, comprising peat and organic clay and silt, are present among 16 data points. They are representative of lower sedimentation allowing vegetated wetland development on floodplains, in abandoned channels, or in intertidal zones.

Area 1: Landfall (Skipsea)

9.42 Organic deposits have been encountered among 6 interventions in Area 1 across the central and eastern regions, reaching a thickness of up to approximately 6.5 m (Figure 22-9-33: TA158563.03) within the potential channel or mere beyond the northwest of the development area. These organic deposits are highlighted in Transect B (AOC, 2022), showing their proximity to mapped mere locations.

9.43 The previously produced Transect A (AOC, 2022) also highlights radiocarbon dates acquired from a point to the west of these thickest deposits (52058_AOCBH1), which indicate a long period of organic accumulation spanning from the Late Mesolithic to the Early Iron Age (5986-5842 cal BC (95%), 7029 ± 24, SUERC100889, 0.25-0.26 m OD, BH1; 2874-2631 cal BC (95%), 4151 ± 21, SUERC100888, 1.33-1.34m OD, BH1; and 758-421 cal BC (95%), 2464 24, SUERC100887, 2.38-2.39 m OD, BH1, AOC 2020).

9.44 Organic deposits have not been encountered within any further interventions monitored within the development area associated with the GI works. Deposits of 1-2 m thickness were recorded c. 600

m to the south of the landfall development area (Masters2008_S_Auger, Figure 22-9-7) and thin deposits may encroach on Onshore Development Area here or in the northern limits of the Onshore Development Area.

9.45 A surface plot (Figure 22-9-36) has been generated, illustrating the further infilling of the lower underlying surface, with surface elevation ranging between approximately 3 and 18 m OD. The area of lowest surface to the northwest of the Onshore Development Area diminishes in size upon the accumulation of the organic deposits, indicating this to be the epicentre for wetland development in Area 1. This lies within the possible channel or valley traversing northwest to southeast and across the Onshore Development Area, and likely reflects the impacts of marine transgression bringing saltmarsh conditions into this low-lying area.

Area 2: Skipsea to Leven

9.46 No data points within Area 2 record organic deposits.

Area 3: Leven to Beverley

9.47 Two interventions record Holocene organic deposits within Area 3 (51996_TP104, TP106). The position of these deposits is illustrated in Figure 22-9-34, which shows them to be located c. 2 km beyond the north of the Onshore Development Area, adjacent to High Farm. The deposits have not been encountered within the Onshore Development Area.

Area 4: Beverley to Onshore Substation Zone

9.48 Organic deposits are recorded at only two data points (TA03NE114, 51996_BH30) within Area 4, which are a significant distance of over 2 km from the Onshore Development Area. Their position is illustrated in Figure 22-9-35, showing a thickness of up to *c*. 3 m. It is unlikely that such deposits will be encountered within the Onshore Development Area, based on the models.

Warp / Upper Alluvium Deposits

9.49 The unit represents minerogenic deposits across the Onshore Development Area, deposited across floodplains, within channels, or within intertidal zones. They comprise clay, silt, and sand, in varying ratios. These deposits are of Holocene age (up to *c*. 11,700 years ago), although warping deposits are likely to be significantly more recent with historic records suggesting warping to have been a prominent land management approach from the 1700s. Warp is where controlled flooding and alluvial sedimentation is purposefully induced onto the land by humans to increase soil fertility, it was variously employed during the late and post-medieval periods.

9.50 Due to the similar lithologies of anthropogenic warping deposits, which are the result of purposive flooding, and 'natural' alluvial deposits, it is often not possible to distinguish between the two deposit types within or between small-scale interventions and historic records. When directly linked to historic records of the practice, BGS mapping of warp deposits, or sequences dated to the late and post-medieval the identification of warp may be correlated with certain lithological characteristics specific to that deposit and then the definition extrapolated across the nearby agricultural fields. However, without clear evidence to suggest warping, the majority of the deposits recorded on and in the vicinity of the Onshore Development Area are assumed to be naturally lain deposits. Despite this, the warp label is kept, highlighting the potential for its presence as a part of the unit.

9.51 Across the Onshore Development Area and its surrounding area, 64 data points encounter the upper alluvium / warp stratigraphic unit.

Area 1: Landfall (Skipsea)

9.52 Fine grained, Holocene, minerogenic deposits are recorded within 11 interventions in Area 1. The distribution and thickness of these deposits is illustrated by Figure 22-9-37, showing them to reach up to approximately 2 m in thickness (AOC53087_BH004). The deposits are most prominent along the coastline, suggesting they are most likely to comprise intertidal deposits. These are also represented within Transect J (Figure 22-9-7), extending across much of the coastal area and extending into the Onshore Development Area, where they are modelled up to c. 1 m thick.

9.53 The deposits are also located within the low-lying area to the north of the Onshore Development Area (51996_BH06, BH05, and 52058_AOCBH1), overlying organic deposits. Given the aforementioned dates returned from the organic units (52058_AOCBH1, see 9.43), the latest of which is attributed to the Early Iron Age, these minerogenic deposits likely represent increased influence of rising RSL from the Iron Age or later.

9.54 A surface plot (Figure 22-9-41) has been generated to illustrate the further levelling and infilling of lower-lying surfaces throughout the Holocene. The surface lies between approximately 3.5 and 18 m OD, the lower values corresponding with those of the units beneath. Key changes shown in the plot in comparison with the underlying topography are identified on the coastline, with reduced size of the areas with lower surface elevation.

Area 2: Skipsea to Leven

9.55 Upper alluvium, warp, or intertidal deposits are recorded within 4 data point records within Area 2. These are identified in areas corresponding to the underlying glaciofluvial deposits, at West Road near Sigglesthorne and at the southwestern extent of Area 2.

9.56 Figure 22-9-38 illustrates the thickness and distribution of the unit. The deposits reach up to approximately 1.75 m in thickness (AOC53087_BH301-2) within the Onshore Development Area. These datapoints are nearby to the Catfoss Drain and associated drainage channels.

9.57 The position of the alluvial deposits overlying the glaciofluvial deposits towards the centre of the Onshore Development Area is illustrated in Transect L (TW14NW9/A, Figure 22-9-9), as well as those to the southwest.

9.58 A topographic plot (Figure 22-9-42) has been produced to illustrate the surface elevation of upper alluvium / warp and earlier deposits. The surface elevation ranges between approximately 1 and 20 m OD and reflecting the underlying Pleistocene geology, is highest towards the north and centre and falls towards the southwest. It indicates the infilling of the lowest areas of underlying geology, bringing those approximately 0.5 m higher in elevation, as well as some smoothing of the topography around Catfoss drain.

Area 3: Leven to Beverley

9.59 Upper alluvium or warp is recorded among 19 interventions within Area 3. The distribution and thickness of these deposits are illustrated in Figure 22-9-39.

9.60 The thickness of the unit reaches up to a maximum of approximately 14 m (TA04SE8/A, TA04SE33), located c. 600 m beyond the north of the Onshore Development Area at High Farm. These deposits are further illustrated in Transect M (Figure 22-9-10), overlying thin glaciofluvial deposits within a depression in the surface of the till (AOC53087_BH605-7).

9.61 A further area of thicker upper alluvium is identified adjacent to the River Hull (AOC53087_BH802, BH701), although these do not overlie glaciofluvial deposits. However, such deposits are present on the western perimeter of the channel (CA23_WS901). These two areas correspond with the areas of lower Pleistocene surface mentioned above.

9.62 Figure 22-9-43 shows the levelling throughout the Onshore Development Area and its immediate vicinity in Area 3 resulting from the accumulation of upper alluvium / warp within the areas of lower surface elevation in the centre and south, mentioned above. Transect M (Figure 22-9-10) illustrates the infilling of the low Pleistocene surface in the east of Area 3 with warp / upper alluvium (AOC53087_BH606, CA23_BH604) which overlies thin glaciofluvial deposits. Here within the Onshore Development Area the deposits reach 4-5 m thick (CA23_BH604, Figure 22-9-10). Towards the centre of Area 3, the low-lying Pleistocene surface is directly infilled with the warp / upper alluvium unit, which likely indicates more significant Holocene channel activity, fluvial erosion, and then in channel or overbank sedimentation within the Onshore Development Area of this area. This is illustrated in Transect N (Figure 22-9-11) (AOC53087_BH802, BH701).

Area 4: Beverley to Onshore Substation Zone

9.63 Nine interventions record warp or upper alluvium within Area 4, the thickest of which are external to the development area, to the east and south. The distribution of these deposits is illustrated by Figure 22-9-40, reaching a thickness of up to approximately 10 m thick over c. 3.5 km beyond the northeast (51996_BH29), and up to c. 5m thick over 1.5 km south (TA03SW159), of the Onshore Development Area.

9.64 The only deposits recorded within the Onshore Development Area are up to 3.5 m thick and within the southeast of the development area (AOC53087_BH1503 and Cas23_BH1506), captured in Transect Q (Figure 22-9-14). It illustrates the presence of Holocene water lain deposits within the development area.

9.65 The surface of the unit or earlier geology (Figure 22-9-44) lies between approximately 1 and 100 m OD, with the extremes outside the Onshore Development Area to the far east and west respectively. This lower value indicates a *c*. 10 m increase in surface in places, accumulating through the Holocene. Over much of the Onshore Development Area the surface lies at c. 50 m OD in the north and c. 10 m OD in the southeast.

Topsoil / Made Ground – Modern

9.66 The stratigraphic unit comprises mostly topsoil, subsoil, with some made ground. Made ground is generally indicative of disturbance and truncation of underlying geology, and often includes anthropogenic material such as concrete, ceramic building material (CBM), metal, or plastic. With topsoil and subsoil more indicative of agriculture and ploughing.

Area 1: Landfall (Skipsea)

9.67 A plot has been generated to illustrate the thickness of topsoil and made ground deposits (Figure 22-9-45), indicating where there is likely to be significant overburden, truncation or disturbance of underlying geology.

9.68 Overall, the deposits are predominantly below *c*. 1m in thickness, and for much of the Onshore Development Area even 0.25 m. However, immediately south of the Onshore Development Area, in AOC53087_BH102 and WX_55762_Tr1, topsoil is recorded at 1.9 to 2 m thickness respectively.

It is possible that these values reflect the accumulation of colluvial material, however this appears relatively unlikely in correlation with the underlying surface plot (Figure 22-9-41) where WX_55762_Tr1 shows a higher underlying surface than the surrounding area, suggesting possible anthropogenic ground raising which may encroach into the Onshore Development Area.

Area 2: Skipsea to Leven

9.69 The thickness of modern topsoil and made ground deposits is illustrated in Figure 22-9-46. It shows that throughout the majority of the modelled area, and within the Onshore Development Area, these deposits do not exceed *c.* 1 m in thickness, and are often below 0.5 m.

9.70 At West Roat, adjacent to the thicker warp / upper alluvium deposits at the Catfoss Drain, the topsoil/subsoil unit reaches up to *c*. 1.25 m in modelled thickness within the Onshore Development Area, extended from an external datapoint to the southeast (TA14NE5).

9.71 As the unit does not exceed *c*. 1 m in thickness throughout the route in Area 2, significant made ground related ground raising or truncation of underlying deposits is unlikely.

Area 3: Leven to Beverley

9.72 Figure 22-9-47 shows a thickness plot generated to illustrate the potential overburden and possible disturbance across Area 3. It illustrates that the thickness of these deposits reaches up to a maximum of *c.* 1.25 m in thickness, and that the majority of these thicker deposits are located adjacent to the Onshore Development Area for the Onshore Export Cable Corridor route (e.g., TA04SE76, Figure 22-9-11). However, for most of the Onshore Development Area the deposits are 0-0.75 m thick.

9.73 There are no areas within the Onshore Development Area at which the deposits exceed *c.* 1 m in thickness, and as such, significant overburden or made ground related truncation is unlikely to be encountered.

Area 4: Beverley to Onshore Substation Zone

9.74 Throughout much of Area 4, the thickness of topsoil and made ground does not exceed *c*. 0. 5 m, (Figure 22-9-48). Thicker deposits, reaching up to *c*. 4 m, are recorded to the northeast of the boundary at the Beverley Bypass / Victoria Road Junction, southwest of Beverley, and may be colluvial accumulations at the base of the bedrock slope (Figure 22-9-12). Within the Onshore Development Area the thickness is often less than 0.5 m.

9.75 The thickness plot suggests there to be little modern overburden or made ground related truncation and disturbance within the Onshore Development Area in Area 4.

9.76 A few pieces of unstratified Roman pottery were recovered from the ground surface approximately 6m to the south of TP3402, and one sherd of Roman greyware pottery from c. 7 m to the south of TP3404. These were found on the ground surface and as such are likely to have been redeposited by agricultural activity such as ploughing. Even though they may be indicative of further remains of Romano-British date within the vicinity, these trial pits are now situated over 300 m beyond the north of the current Onshore Development Area.

Deposit Model Reliability and Limitations

9.77 A total of 450 deposit logs have been included in the deposit modelling process, of which almost

half are within Area 4 around the substation Onshore Development Area zone. Due to the irregular distribution of data points across the development area, the reflection on the reliability of the deposit modelling is discussed below by Area (1-4).

Area 1: Landfall (Skipsea)

9.78 Within Area 1, the records associated with 63 interventions are included for the deposit modelling. The majority of the data points are situated external to the Onshore Development Area, to the northwest. Four points are situated within the landfall zone, and four to the southeast of the boundary.

9.79 Although there are a good number of datapoints included within the models, the majority are approximately 300 to 2500 m beyond the development boundary, and as such the extrapolation of deposit data across the Onshore Development Area may reduce reliability, especially in an area proven to have been subject to dynamic environmental development throughout the Holocene (e.g. meres and intertidal environments).

9.80 Overall, the level of detail in the deposit logs in Area 1 is low, however they are supplemented by those with more detailed sediment descriptions to support the potential for accurate interpretation. Those with the greater detail are situated within, or closer to the boundary of, the development.

Area 2: Skipsea to Leven

9.81 There are 51 data points contributing to the deposit models for Area 2. Overall, they are well spaced throughout the route, and supplemented with a cluster to the northwest. Although well-spaced, there are gaps of up to *c*. 1800 m between some data points which reduces the resolution of the model across the northern half of the Onshore Export Cable Corridor route in this area as well as in the southwest.

9.82 The deposit logs are generally of higher detail within Area 2 than in Area 1, resulting in greater confidence in the interpretation of the records.

Area 3: Leven to Beverley

9.83 Area 3 includes 108 data points. These are well spaced in the east, inside the Onshore Development Area and external to the north and south. Towards the centre and west of the area however, there are gaps of up to *c*. 2000 m between the datapoints. Where this is the case, the data is extrapolated over large distances and is of very low resolution.

9.84 Almost all deposit records within Area 3 are of high detail in terms of deposit descriptions and are therefore reliably interpreted.

Area 4: Beverley to Onshore Substation Zone

9.85 Area 4 contains almost half of the datapoints across the full Onshore Development Area. The majority of these are external to the Onshore Development Area; to the northeast, east, and south of the Onshore Substation Zone. The Onshore Export Cable Corridor route in the north of Area 4 is devoid of datapoints within the Onshore Development Area for approximately 2 km of the route, although datapoints are present *c*. 400 to 1600 m externally to the east and west. The Onshore Substation Zone is generally well covered although does also include some large gaps where there

are no deposit records available.

9.86 Approximately a quarter of the deposit records are of lower detail, however these are distributed amongst those with greater detail for comparable interpretation.

Summary

9.87 Overall, the deposit models should be regarded with a moderate level of confidence. Although all areas are covered by a good number of records, many of these are a great distance from the Onshore Development Area or from each other, especially along sections of the Onshore Export Cable Corridor route.

9.88 The result of this is that broadly, the deposit models are relatively reliable. However, at a high resolution, they are likely not to be representative due to the distance some positions along the route may be from a datapoint.

10 ARCHAEOLOGICAL AND PALAEOENVIRONMENTAL POTENTIAL

Realisation of the Research Aims

10.1 Drawing on the results presented in section 8, the following is concluded in relation to the evaluation aims, objectives and research questions detailed in section 6:

10.2 The general aims of the investigation, as laid out in the WSI (RWE, 2023), are as follows:

- To monitor the excavation of GI trial pits, and to identify, investigate and record any significant buried archaeological deposits revealed;

  No archaeological features were identified within any of the GI trial pits. A few pieces of unstratified Roman pottery were recovered from the ground surface approximately 6m to the south of TP3402, and one sherd of Roman greyware pottery from c. 7 m to the south of TP3404. These were found on the ground surface and as such are likely to have been redeposited by agricultural activity such as ploughing. Even though they may be indicative of further remains of Romano-British date within the vicinity, these trial pits are now situated between 250 and 315 m beyond the northeast of the Onshore Development Area.

- To monitor, log and record the sequence of GI boreholes in areas where it has been agreed with the Historic Environment consultees that specialist geoarchaeological monitoring is necessary at locations with a higher potential for the presence of palaeoenvironmental remains;

  GI boreholes were monitored in areas where deposits of archaeological and palaeoenvironmental interest were identified through historic deposit data.

- To review all other borehole logs, once available from the GI Contractor, for the recorded presence of any material/deposits of potential geoarchaeological / palaeoenvironmental significance and to provide recommendations for any proportionate geoarchaeological / palaeoenvironmental assessment;

  Additional logs of GI interventions have been obtained and integrated with the dataset in order to interpret the geoarchaeological / palaeoenvironmental potential of the deposits across the Onshore Development Area in greater detail.

- To obtain representative samples from suitable deposits;

  No samples were obtained from the GI interventions, as no features or deposits or interest were identified in the trial pits, and due to the geotechnical requirements no suitable samples from the boreholes were available.

- To produce an integrated archive of the project work and associated report setting out the results of the monitoring and any archaeological and geoarchaeological/ palaeoenvironmental conclusions that can be drawn from the recorded data; and

- To deposit the site archive with the East Riding of Yorkshire Museums Service and to provide information for accession to the Humber Historic Environment Record (HER).

  Full archiving is to be undertaken when any further work is determined and, if required, completed.

Archaeological Potential and Significance

10.3 Based on the distribution and character of the deposit sequence, as identified in the deposit model, and illustrated in the figures, areas of archaeological and palaeoenvironmental potential have been mapped for the Onshore Development Area. These are shown on Figure 22-9-49 to Figure 22-9-52 and the differing character and potential of each area is outlined in Table 4.

Table 4 Archaeological and palaeoenvironmental potential of areas within the Onshore Development Area, modified from the GDBA (AOC, 2022).

AoP	Character of Area	Archaeological Potential	Palaeoenvironmental Potential
A	Holocene alluvium/tidal deposits, organic deposits, lacustrine deposits, and colluvium. Alluvial/tidal sequences may include upper deposits formed as anthropogenic warp. Applies to: Area 1 – north and east, and small parts to the southwest. Area 2 – the centre, southwest, and small parts of the north. Area 3 – large parts of the centre to the east. Area 4 – linear arrangements through the north and centre.	Evidence of short-term prehistoric activity may survive beneath these deposits, on the surface of the underlying Pleistocene deposits. It is likely however, that significant reworking and erosion will have taken place throughout the period of the Holocene where fluvial action or wetland formation has taken place. It is unlikely for remains to survive in situ. Any remains surviving on these surfaces would pre-date full inundation. Rare prehistoric wooden structures (e.g. trackways, jetties, platforms, fish traps) may survive within the fills of these low-lying areas. Trackways may survive across organic deposits, the latter being representative of hard to access but resource rich wetland areas. The isolated occurrences of c. 1.5m of mixed deposits in Area 1, indicative of downslope erosion (colluvium), will not in and off themselves provide potential for in situ remains. However, they may seal in situ flint scatters or evidence of other activity sites preserved within now buried land surfaces. If sequences include, partially or as a whole, late to post-medieval warp these will have a similar potential as earlier natural sedimentation, in so far as they will similarly seal underlying earlier deposits and archaeology.	Minerogenic deposits from within these low-lying regions provide moderate potential for the preservation of palaeoenvironmental proxies (e.g. pollen, ostracods, diatoms) which can be used to reconstruct changes in hydrology, climate, and local ecology. This includes human influence. Organic deposits within these sequences present moderate to high potential for preservation of proxies such as pollen and plant macrofossils, which can aid in reconstruction of changing environments in the past. Lacustrine deposits likely associate with meres can contain Late Glacial deposits of palaeoenvironmental importance, and alluvial sequences more likely represent Holocene development. Colluvium deposits, being mixed naturally deposited sediment, do not provide good potential for paleoenvironmental. However, the isolated occurrences may seal ecofact-sensitive soil horizons in the surface of underlying deposits. If sequences include, partially or as a whole, late to post-medieval warp these will have less potential to include palaeoenvironmental remains of significant age within the deposits but still have the potential

AoP	Character of Area	Archaeological Potential	Palaeoenvironmental Potential
		General potential for AoP - Moderate to high significance x low probability = **moderate potential** Although it should be noted that in this AoP for Area 1 **potential is high** due to the incidence of previous early prehistoric finds in the vicinity.	to seal underlying earlier deposits. *General potential for AoP - Moderate to high significance x moderate to high probability* = **moderate to high potential**
B	Glaciofluvial deposits. Applies to: Area 1 - small parts of the north and centre. Area 2 – the southwest and small parts between the centre and southwest. Area 3 – the east and small parts of the centre to western central region. Area 4 – parts of the southeast within the Onshore Substation Zone region.	Prehistoric (Palaeolithic) archaeological remains (e.g., lithics) may survive within these deposits, although due to the nature of deposition and reworking of these deposits by water it is highly unlikely that any remains will survive in situ. It is also likely that they will have undergone significant erosion. The surface of these deposits represented the current land surface (Mesolithic onwards). Later archaeological remains may survive on or cut into its surface. Compared with surrounding glacial till deposits these areas would have been better drained, and potentially higher, providing suitable locations for more long-term land use. *General potential for AoP - High significance x low to moderate probability* = **moderate potential** Although it should be noted that in this AoP for Area 1 **potential is high** due to the incidence of previous early prehistoric finds in the vicinity.	High energy depositional environments and coarse clastic deposits yield low potential for preservation of palaeoenvironmental proxies and faunal remains due to high erosion and reworking, unless interglacial horizons are identified within the unit. *General potential for AoP - Moderate significance x Low potential* = **moderate to low potential**
C	Head. Applies to: Area 4 – linear region extending into the southwest of the Onshore Development Area at the Onshore Substation Zone.	Prehistoric (Palaeolithic) archaeological remains may be preserved beneath head deposits where late glacial mass movement seals subaerial slope positions. Remains within the head itself are unlikely, though Holocene archaeological remains and cut features may survive at its surface. *General potential for AoP - Moderate to high significance x low to moderate*	Slumping of head deposits may preserve past ground horizons and seal any existing ecological features (remains of plants, insects, molluscs). Due to high mixing and low structure associated with head deposits, the potential of the deposits themselves is very low. *General potential for AoP - Moderate significance x very low*

AoP	Character of Area	Archaeological Potential	Palaeoenvironmental Potential
		probability = **moderate potential**	*probability* = **low potential**
D	Till. Applies to: Area 1 – much of the southwest, parts of the east and north. Area 2 – northern half of area, and large part of south. Area 3 – western end, parts of east and eastern centre. Area 4 – majority of northwest and west.	Archaeological finds or features of prehistoric origin onwards may survive lying on the surface of or cut into the till, where it represented the land surface at the end of the Pleistocene (c. 12,000 years BP onwards). These may include remains of fires, cut features, structures, lithics etc. Where these features remained close to modern surface throughout the Holocene period, and not sealed by later deposits, remains may range from the Mesolithic onwards and could have been disturbed by modern activity. *General potential for AoP - Moderate significance x moderate probability* = **moderate potential** Although it should be noted that in this AoP for Area 1 **potential is high** due to the incidence of previous early prehistoric finds in the vicinity.	Till presents little opportunity for preservation of palaeoenvironmental proxies and organic horizons. *General potential for AoP - Moderate significance x very low Probability* = **low potential**

Area 1: Landfall (Skipsea)

10.4 Three areas of potential were identified within the Onshore Development Area in Area 1 (Figure 22-9-49):

- AoP-A: Holocene alluvium/tidal deposits, organic deposits, lacustrine deposits, and colluvium.
- AoP-B: Glaciofluvial deposits.
- AoP-D: Near surface glacial till.

10.5 Area 1 predominantly falls into AoP-A and AoP-D (Figure 22-9-49), although small areas of AoP-B are mapped within the Onshore Development Area in this area.

10.6 Till was recorded across the area, and AoP-D illustrates areas in which the till is recorded near to the ground surface. These areas are likely to have remained dry land through much of the Holocene, and therefore to have been suitable for human activity and settlement. For this reason, archaeological remains may survive on this surface.

10.7 Lacustrine and alluvial deposits overlie the till in the north, east, and southeast of Area 1 (AoP-A). Organic deposits are included within these sequences. Within the Onshore Development Area, lacustrine thickness reaches only approximately 0.75 m, at the southern end of the landfall zone,

and to the southwest of landfall within the Onshore Export Cable Corridor. Organic deposits are recorded with a total thickness of up to *c*. 6.5 m to the northwest of the Onshore Development Area, and *c*. 1.25 m to the southeast. Thin deposits may survive within the Onshore Development Area. Upper alluvium is most prominent within the development area in Area 1, representative of probable tidal deposits in this area. They reach up to *c*. 2 m, to the southeast of the Onshore Development Area, although are recorded at up to *c*. 1 m within the landfall zone and *c*. 1.75 m approximately 180 m north of the boundary. These deposits are modelled to encompass the majority of the Onshore Development Area within Area 1 and may contain further organic material. These are most likely to survive where the underlying surface is modelled to be lower in elevation, passing through the Onshore Export Cable Corridor directly southwest of the landfall zone.

10.8 Lacustrine deposits generally correlate with previously mapped meres, presenting potential for late glacial to early Holocene palaeoenvironmental remains. Resources associated with the meres may also have been exploited by humans and remains associated with this exploitation may survive adjacent to or within the lacustrine deposits. These may include trackways for access, or tools for acquiring or processing resources such as fish traps and lithics. These deposits are also of high palaeoenvironmental potential, providing good preservation of plant remains, pollen, ostracods, and diatoms which can be utilised to reconstruct environmental conditions and changes. Similar remains may survive within the alluvial and organic deposits recorded elsewhere within this area.

10.9 Small areas are mapped within AoP-B, where glaciofluvial deposits are identified in close proximity to the surface. These deposits present potential for preservation of Palaeolithic archaeological remains, although any finds may be heavily abraded and are unlikely to be in situ, especially due to the thickness being of only *c*. 1.25 m, As such, they present a lower probability for containing such remains. The surface of these deposits also presents potential for remains of later archaeological activity and settlement. The glaciofluvial deposits provide not only a potentially raised position within the resource rich wetland landscape, but well drained land which would have been suitable for more long-term occupation.

10.10 Continuous prehistoric occupation has been represented by remains identified within the vicinity of Area 1, often closely associated with the meres to the north. This includes Mesolithic remains such as barbed points crafted from bone and antler, waterlogged wooden artefacts associated with a Middle Bronze Age to Iron Age ‘lake dwelling’ (Fletcher and Van de Noort 2007), and various finds identified at the cliff and beach of Ulrome to the north which were of Romano-British origin (Morris 2021). This would suggest very high potential for remains of prehistoric age to exist within Area 1, particularly within close proximity of AoP-A.

Area 2: Skipsea to Leven

10.11 Three areas of potential were identified within the Onshore Development Area in Area 2 (Figure 22-9-50):

- AoP-A: Holocene alluvium/tidal deposits, organic deposits, lacustrine deposits, and colluvium.
- AoP-B: Glaciofluvial deposits.
- AoP-D: Near surface glacial till.

10.12 The majority of the development Onshore Development Area in Area 2 lies within AoP-D, where near-surface till is mapped. As outlined above, archaeological remains may survive on this surface, associated with all periods. This surface is recorded between approximately 0.5 and 20 m OD, with raised areas towards the north and centre of the Onshore Export Cable Corridor route in Area 2.

10.13 A west-east aligned swathe of AoP-A is identified towards the centre of Area 2, crossing through the Onshore Development Area. AoP-A represents probable alluvium here, associated with Cat Foss Drain, reaching a thickness of 1.75 m. Early remains may be identified beneath the Holocene alluvial deposits in this area, and Mesolithic or later deposits may survive within them. Organic deposits may be preserved within or beneath these alluvium deposits, as well, which present potential for the preservation of palaeoenvironmental remains which can be utilised for reconstruction of past environmental conditions, and for dating evidence for the period of deposition in this area.

10.14 AoP-B is mapped in the centre and southwest of Area 2. Palaeolithic archaeological remains may survive within these deposits, with greatest potential in the southwest at the boundary where thicker deposits of up to *c.* 3.5 m are recorded with a surface elevation of *c*. 3.5 to 5.0 m OD. Towards the centre of Area 2, the glaciofluvial deposits are recorded at an elevation of approximately 18.5 m OD.

10.15 These deposits also provided raised, well-drained positions within the landscape and as such their surface provides potential for the survival of archaeological remains associated with more long-term activity and occupation.

Area 3: Leven to Beverley

10.16 Three areas of potential were identified within the Onshore Development Area in Area 3 (Figure 22-9-51):

- AoP-A: Holocene alluvium/tidal deposits, organic deposits, lacustrine deposits, and colluvium.
- AoP-B: Glaciofluvial deposits.
- AoP-D: Near surface glacial till.

10.17 AoP-D is identified across the western portion of the Onshore Development Area of the Onshore Export Cable Corridor route in Area 3, and well as smaller areas towards the centre and east. Archaeological remains of all periods may survive on the near surface till represented by this AoP. The surface is identified between approximately -6 and 45 m OD, with higher elevations recorded across the west of the development area which are predominantly within AoP-D.

10.18 AoP-A encompasses parts of the route in the centre and east, where potential for preservation of archaeological remains may occur within or beneath the alluvium and organic deposits, and palaeoenvironmental remains are likely to survive within them. Adjacent to the River Hull, the deposits of AoP-A reach a maximum thickness of approximately 8.50 m, comprising both Holocene organics and upper alluvium / warp.

10.19 Near-surface glaciofluvial deposits of AoP-B, with potential for Palaeolithic remains, and for later archaeological remains on their surface, are mapped in small areas primarily in the east of Area 3.

At the northeastern end of the Onshore Export Cable Corridor route within Area 3, glaciofluvial deposits of up to *c*. 9.5 m thickness and a surface of approximately 9.5 m OD are recorded within the Onshore Development Area. This is the thickest glaciofluvial record within the area, and extend across a large portion of the northeast of Area 3.

10.20 A small area is also mapped immediately north of Beverley, near Ings Road, extending into the Onshore Export Cable Corridor. These deposits are *c*. 1.25 m thick and have a surface elevation of approximately 1.5 m OD.

Area 4: Beverley to Onshore Substation *Zone*

10.21 Four areas of potential were identified within the Onshore Development Area in Area 4 (Figure 22-9-52):

- AoP-A: Holocene alluvium/tidal deposits, organic deposits, lacustrine deposits, and colluvium.
- AoP-B: Glaciofluvial deposits.
- AoP-C: Head deposits.
- AoP-D: Near surface glacial till.

10.22 AoP-A enters small portions of the Onshore Development Area with two limited linear alluvial sequences suggested within the north and two isolated occurrences of these deposits within the Onshore Substation Zone area (Figure 22-9-52). Although limited information is currently known about their potential depths and character, palaeoenvironmental potential is high in these areas, and archaeological remains may survive within or beneath the Holocene geology.

10.23 The southeastern reach of the Onshore Development Area extends into AoP-B, which also covers an area further north as mapped by the BGS and as yet unconfirmed. The glaciofluvial deposits of AoP-B mapped within the southeast of the Onshore Development Area of Area 4 have an approximate thickness of up to 8.75 m. Palaeolithic remains may survive within this sediment, and later archaeology of Mesolithic or later age on its surface, which is modelled to lie at approximately 15 m OD.

10.24 Area 4 is the only part of the development area which enter AoP-C. Here, archaeological remains or former land surfaces may be preserved beneath head deposits. These are most likely to be of Palaeolithic age due to the Late Pleistocene deposition of the unit and may be deeply stratified. It is also possible that archaeological and megafaunal remains survive within the deposits, but limited information is currently known about the potential depth and character of the sediments.

10.25 AoP-D covers much of Area 4, with potential for archaeological remains of all ages on the surface of the till which lies between approximately 1 and 50 m OD within the Onshore Development Area.

11 CONCLUSIONS AND RECOMMENDATIONS

11.1 The following section reviews the significance of the results of the geoarchaeological borehole evaluation in relation to the development and makes recommendations for an appropriate mitigation strategy.

11.2 The proposed onshore development infrastructure associated with the Projects includes a landfall site at Skipsea, the excavation of *c.* 35 km of cable route (Onshore Export Cable Corridor) of approximately 75 m in width, and up to two Onshore Convertor Stations. Development impacts from these works will be variable across the Onshore Development Area. The cable route is being installed with use of trenches that may impact c. 1.5m BGL, on the other hand the landfall site may require deeper impacts than c.1.5m BGL. In addition, significant disturbance, also beyond c. 1.5m BGL is anticipated in association with the construction of the substation near Beverley, as a result of potential groundworks and piling.

11.3 Although it is difficult to ascertain with certainty the potential of the deposits to contain archaeological remains, the nature of the deposits observed suggests any archaeological remains will be of greatest frequency in proximity to landfall, where past investigation has identified remains associated with the Middle Bronze Age to Iron Age and Romano-British periods. Archaeological remains are likely to survive throughout the route, with little indication of significant truncation across most of the Onshore Development Area besides theOnshore SubstationZone. These may be of any age. Archaeological remains are most at risk where the development will truncate the surface of the underlying Pleistocene geology, for example within AoP-B, AoP-C, and AoP-D. Remains may survive close to the surface within AoP-A as well, although are more likely to be buried beneath or within the alluvial sediments.

11.4 It is recommended that where deposits of interest are to be impacted by proposed development, such impacts may be mitigated by a staged programme of archaeological investigation. This may potentially include purposive geoarchaeological boreholes, geophysical survey, trial trenching and Palaeolithic trial pitting – undertaken as part of initial stages of investigation with the aim to inform the planning of more detailed mitigation strategies to target areas in which archaeological and palaeoenvironmental remains are of greater potential.

11.5 A programme of trial trenching may be appropriate in areas where near-surface till and glaciofluvial deposits have been identified. Purposive geoarchaeological boreholes could also be considered for investigation of the thicker Holocene sequences where trial trenching will not be able to reach the full depth of the sequence, particularly where organics are identified. Palaeolithic trial pitting may be required in areas where near surface glaciofluvial deposits are identified and associated with previously identified areas or periods of Palaeolithic activity or preservation.

11.6 The nature of the deposits observed suggests any palaeoenvironmental remains will be most frequent within Area 1 and parts of Areas 2-4, within AoP-A where Holocene organic, alluvial, and lacustrine deposits are recorded.

11.7 Any impact on these deposits could be adequately mitigated by a programme of targeted geoarchaeological borehole evaluation to obtain continuous core sequences sampling material for radiocarbon dating and assessment of palaeoenvironmental remains.

11.8 The following section reviews the significance of the results of the geoarchaeological monitoring of

geotechnical investigation works in relation to the development and makes more specific recommendations for an appropriate evaluation and mitigation strategy.

Area of Potential A – Holocene Alluvium / Tidal Mudflats, Organic, and Lacustrine Deposits

11.9 AoP-A1 is identified within Areas 1 to 4 of the Onshore Development Area between landfall and the Onshore Substation Zone.

11.10 A staged approach for investigation and potential mitigation is recommended for AoP-1 in order to more fully understand the archaeological and palaeoenvironmental potential presented by the identified Holocene sequences.

11.11 Purposive geoarchaeological boreholes should be utilised to investigate the areas of palaeoenvironmental potential identified as positions of thick Holocene sequences which have not previously been subject to investigation, to confirm their presence, extent, and nature, as well as to provide samples for palaeoenvironmental assessment. These should include:

- Within the landfall zone where thick Holocene sequences are identified within the GI interventions up to a thickness of *c*. 1.75 m, and development impacts are expected to truncate the deposits which lie between *c*. 0.5 and 0.75 m BGL. Organic deposits in the south may extend into this area, providing greater potential for preservation of palaeoenvironmental remains.
- Adjacent to the Catfoss Drain, where up to *c*. 1.75 m of upper alluvium / warp is recorded through GI investigative boreholes.
- Where the Onshore Export Cable Corridor route crosses the River Hull, alluvium of up to *c*. 5.5 m in thickness is recorded which may be targeted for palaeoenvironmental sampling.

11.12 Archaeological investigation is recommended to target the peripheries of AoP-A, to look for evidence for the utilisation of wetland, riparian, and lacustrine resources associated with these areas. These remains may include artefacts, cut features, or structural remains (e.g., trackways, jetties, fish traps etc), and may survive in or nearby to near surface waterlogged deposits. The investigation should involve targeted evaluation trenching, guided by the results of geophysical survey.

- Evaluation trenching should target positions along the development route where the deposits of AoP-A are situated within *c*. 1.2 m of the ground surface so as to be accessible by unstopped trenching.

11.13 Samples from each stage of the approach should be retained for palaeoenvironmental assessment, and possible subsequent analysis and publication stages, should the results of the assessment yield such recommendations.

Area of Potential B – Glaciofluvial Deposits

11.14 AoP-B is mapped throughout the route, mostly in isolated areas. Sometimes these deposits lay beneath alluvium/warp and organic deposits, although are often still situated near the modern ground surface.

11.15 These deposits provided higher ground in the landscape and were well-drained compared with surrounding areas of till. For this reason, the surface of the glaciofluvial deposits associated with AoP-B provided suitable positions for more continuous human activity and occupation, and as such present potential for the preservation of archaeological remains such as artefacts, cut features, or structural remains on their surface.

11.16 The deposits themselves may also contain palaeolithic archaeological remains within, although due to their nature these are highly unlikely to be in situ and most probably heavily abraded.

11.17 It is recommended that select areas where fine grained horizons are recorded within the glaciofluvial unit, or where palaeolithic remains have previously been identified, should be targeted for investigation. Approaches should include geoarchaeological boreholes or trial pits, respectively, in order to record the deposits in more detail – and/or sieve for palaeolithic flint artefacts or faunal remains, and to collect samples for OSL dating etc. Areas/approaches under consideration should include:

- Purposive geoarchaeological boreholes should be undertaken within the Onshore Export Cable Corridor in the vicinity of mapped glaciofluvial deposits to potentially confirm their age and that deposits are not within the impact depths (e.g., *c*. 1.5 m BGL or the depth of impact for the Onshore Export Cable Corridor groundworks).

11.18 Geophysical survey and standard archaeological trial trenching should be included within the programme of investigations of AoP-B, where near surface deposits are anticipated. However, based on the results of any geoarchaeological boreholes as outlined above the following approaches may be recommended:

- A programme of palaeolithic test pitting, sieving deposits for archaeological and megafaunal remains should be considered where glaciofluvial deposits are confirmed to survive within impact depths.

Area of Potential C – Glacial Till

11.19 Significant portions of the Onshore Development Area lie within AoP-C. The AoP represents near-surface glacial till, upon which archaeological remains of any age may survive, and include structural remains, artefacts, and cut features. Much of the northern end of the development area, as well as smaller parts in the centre, and much of the southwest, lie within AoP-C.

11.20 A staged approach is recommended to further understand the archaeological and palaeoenvironmental potential across AoP-C. The recommendations are:

- Primarily, the investigation should be led with geophysical survey to assess the potential for archaeological features beneath ground level and inform a subsequent stage of archaeological evaluation trenching.

- Should significant remains be encountered during this stage, a mitigation may be

necessary.

- Archaeological remains in this area are anticipated to lie directly beneath the topsoil/subsoil, and as such are likely to be within impact depth of the development across all areas (Onshore Export Cable Corridor, Onshore Substation Zone).

Area of Potential D – Pleistocene Head

11.21 AoP-D extends only marginally into the Onshore Substation Zone within Area 4 and is characterised by the presence of Pleistocene head deposits. These deposits may seal previous land surfaces beneath them, and due to the rapid nature of the deposition palaeoenvironmental proxies may survive on this former surface to provide a record for the environmental conditions at a particular point in the Late Pleistocene.

11.22 Geophysical survey and standard archaeological trial trenching should be included within the programme of investigations of AoP-B, where near surface deposits are anticipated. However, as Palaeolithic and Pleistocene megafaunal remains may survive beneath or within these deposits. Investigation should consider:

- A programme of targeted geoarchaeological investigation to prove the presence of these deposits within the Onshore Development Area; and

- Palaeolithic trial pits to sieve sediments and aim to recover any archaeological and megafaunal remains in this area. The trial pits can be utilised to assess the potential for accruing samples for palaeoenvironmental reconstruction and dating, should a palaeosol or past surface layer be identified.

11.23 The appropriate mitigation strategy for the Onshore Development Area will be decided by and agreed with the Local Authority and their archaeological advisors.

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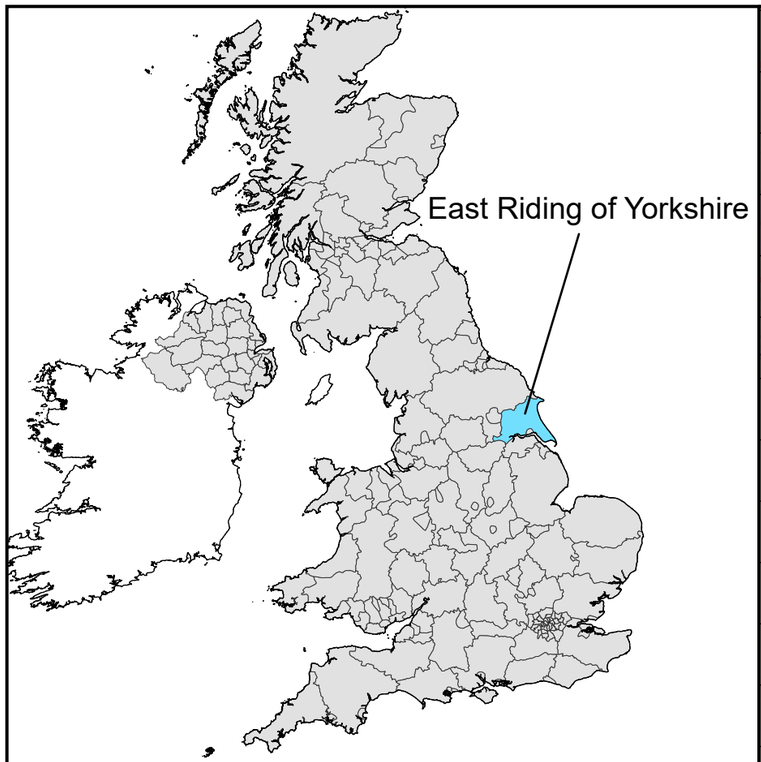
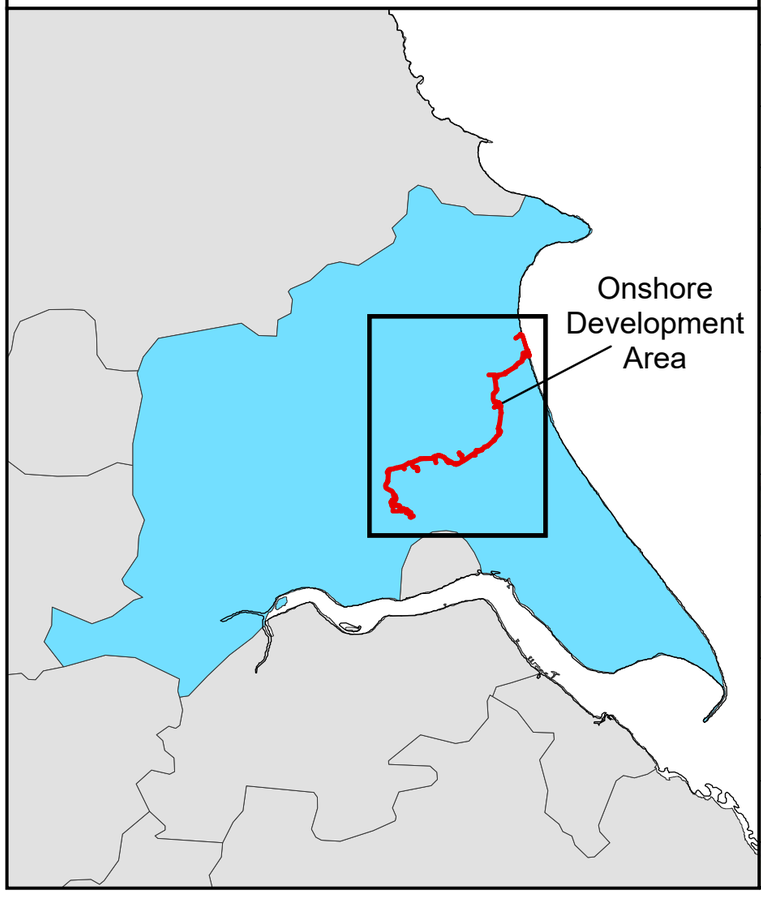
FIGURES





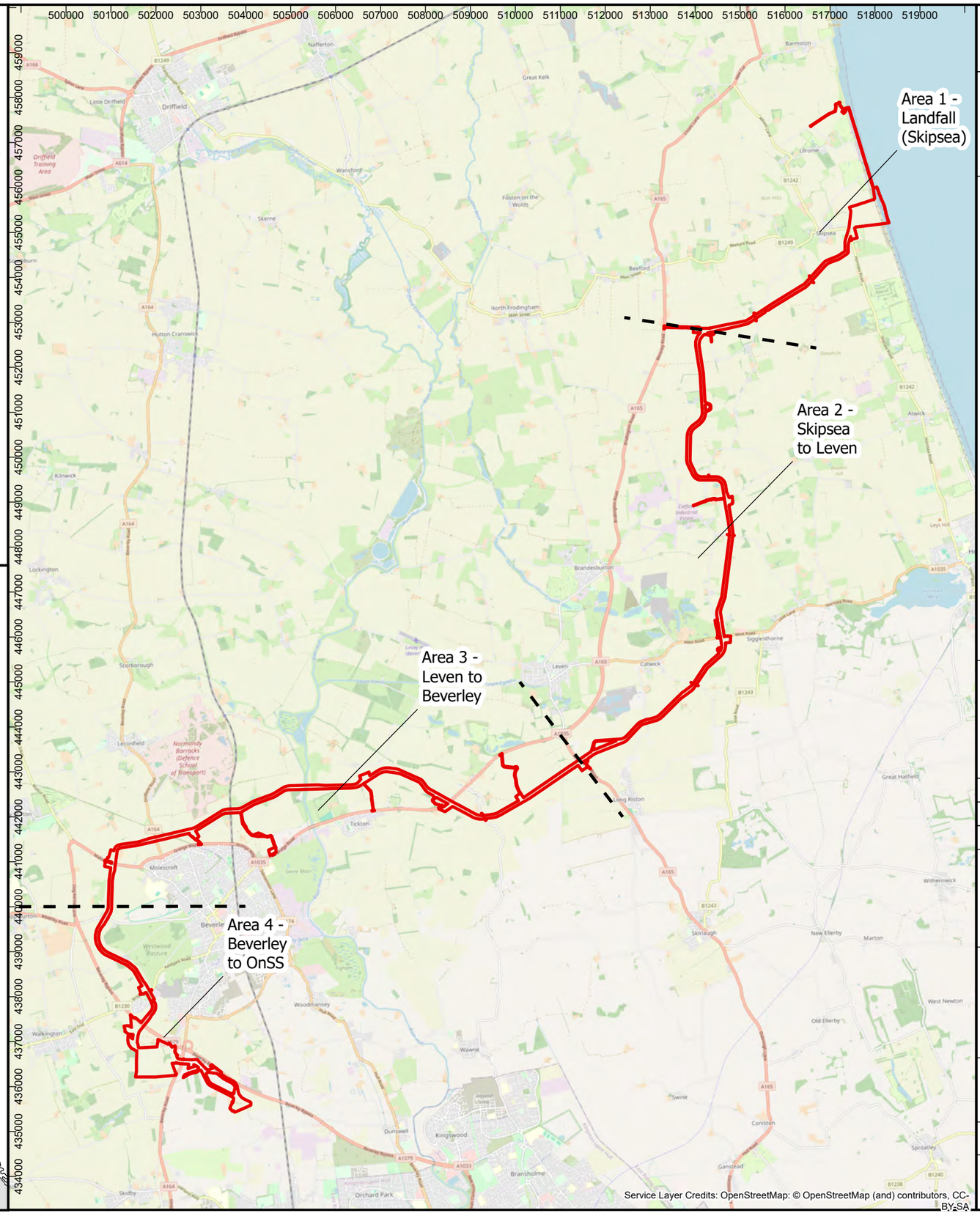


Figure	22-9-1

Site Location Map

Legend

Onshore Development Area

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

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SCALE

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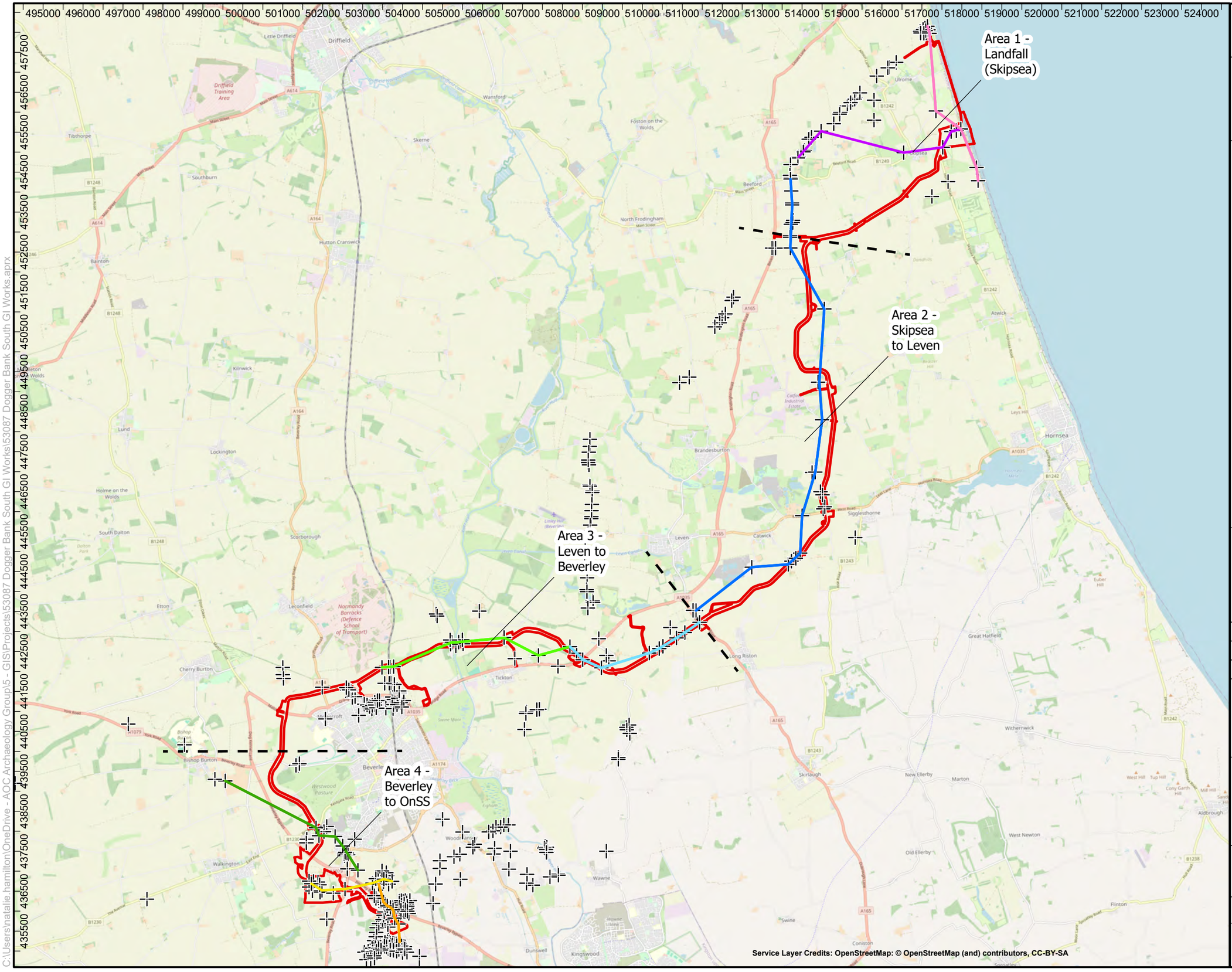

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Figure	22-9-2

Datapoints and transect locations, with route division markers

Legend

- Transect J
- Transect K
- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

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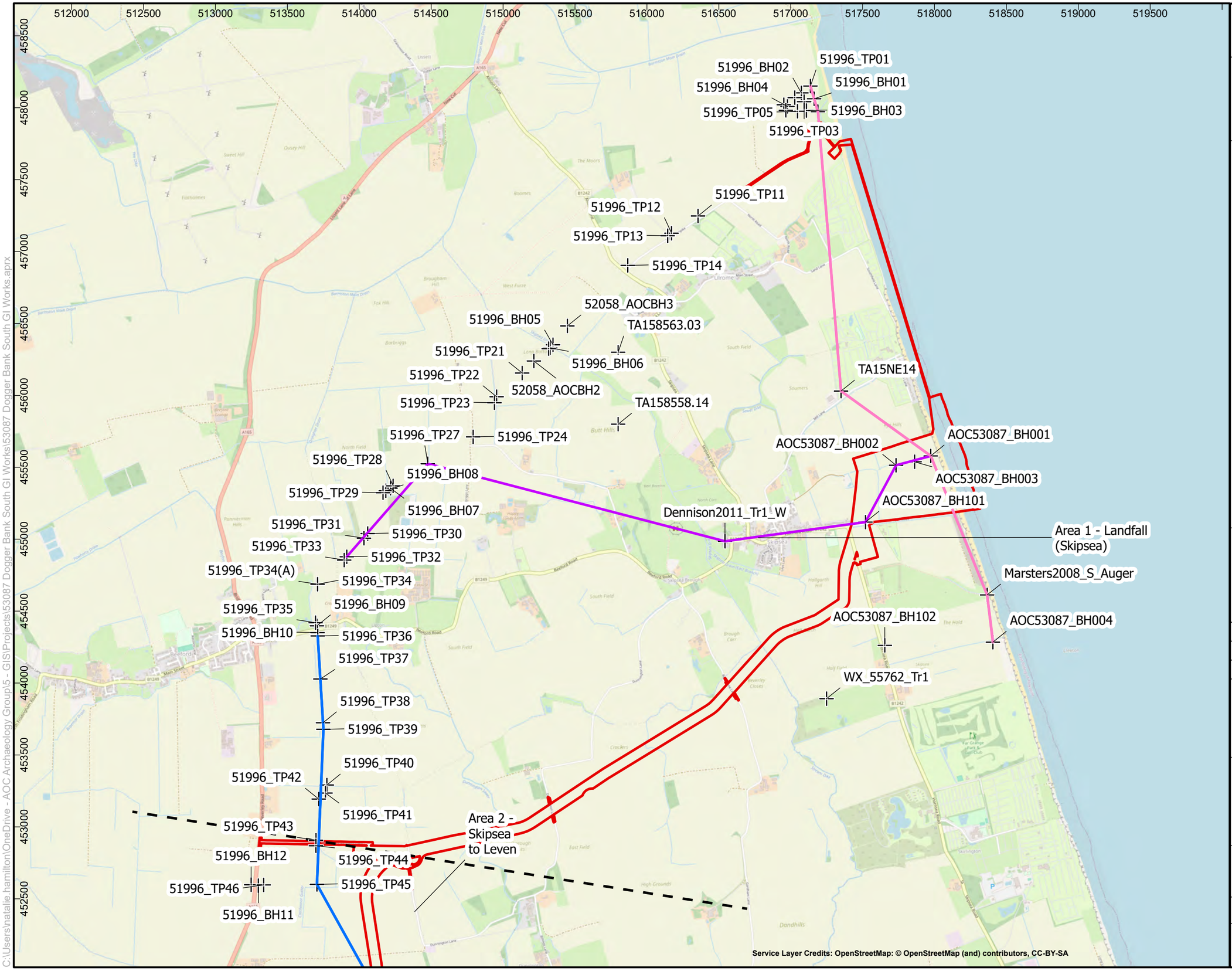

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Figure	22-9-3

Datapoints and transect locations - Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

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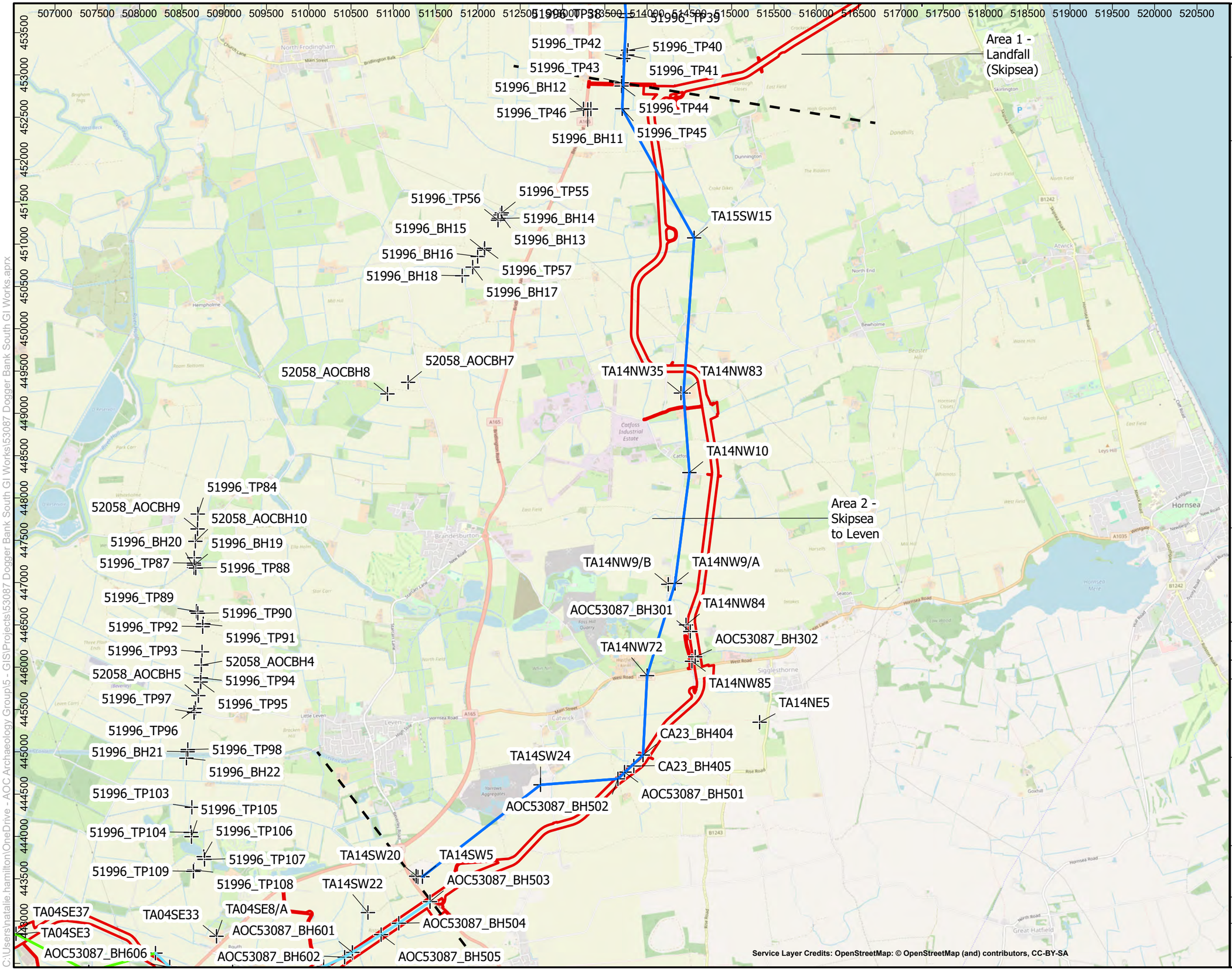

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Figure 22-9-4

Datapoints and transect locations - Area 2

Legend

- Transect L
- Transect M
- Transect N
- Data Points
- Onshore Development Area

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

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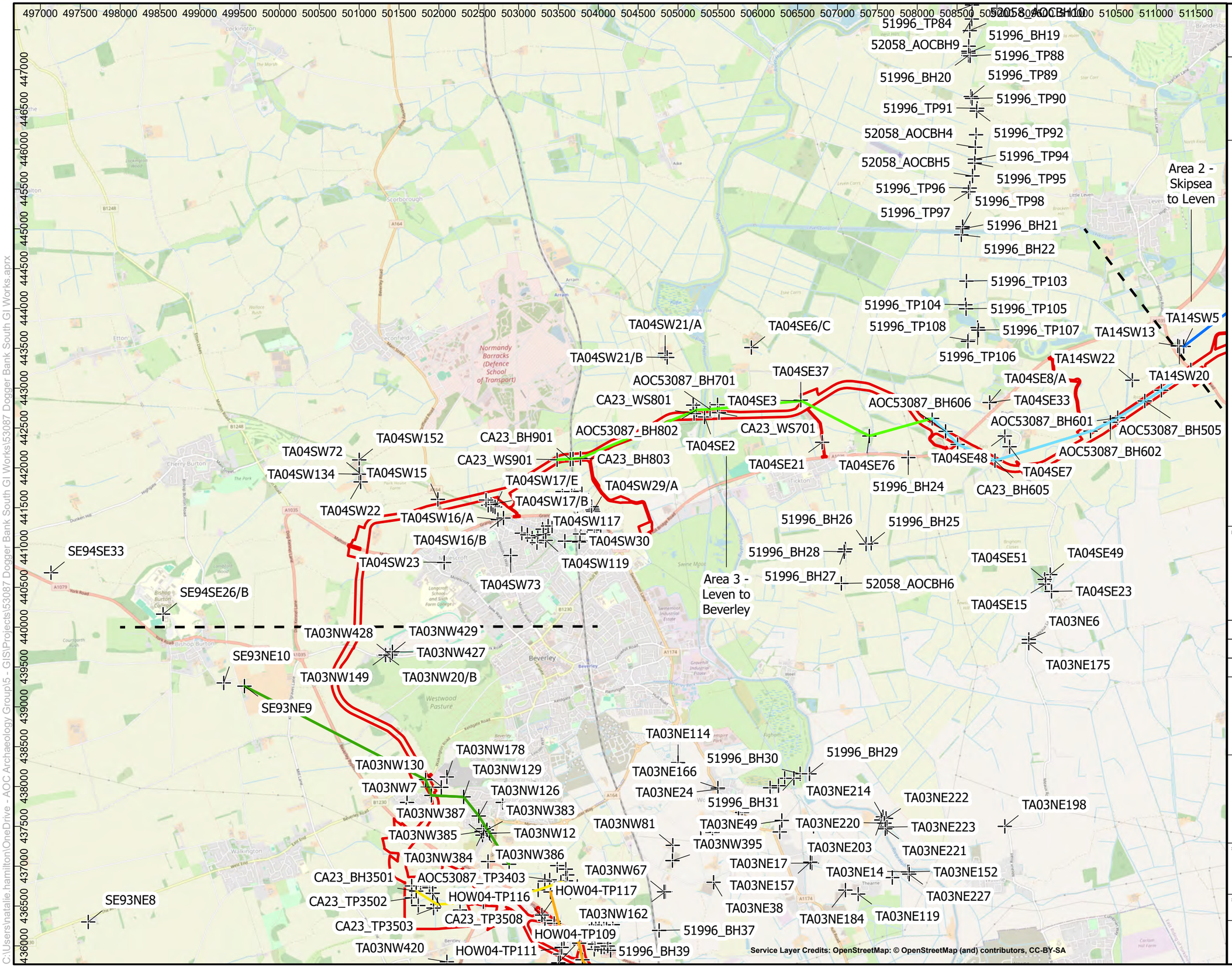

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Figure 22-9-5

Datapoints and transect locations - Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

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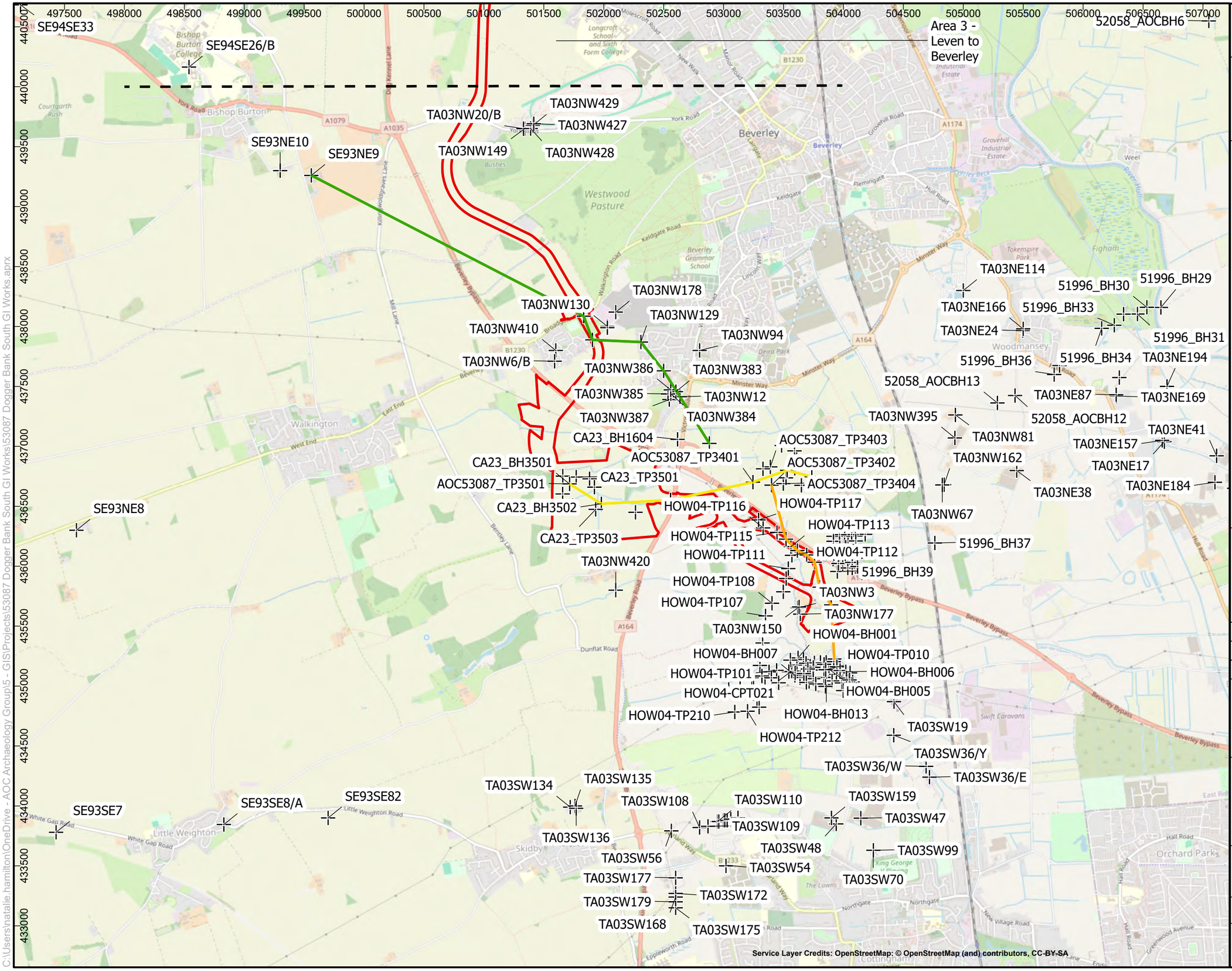

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Figure 22-9-6

Datapoints and transect locations - Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

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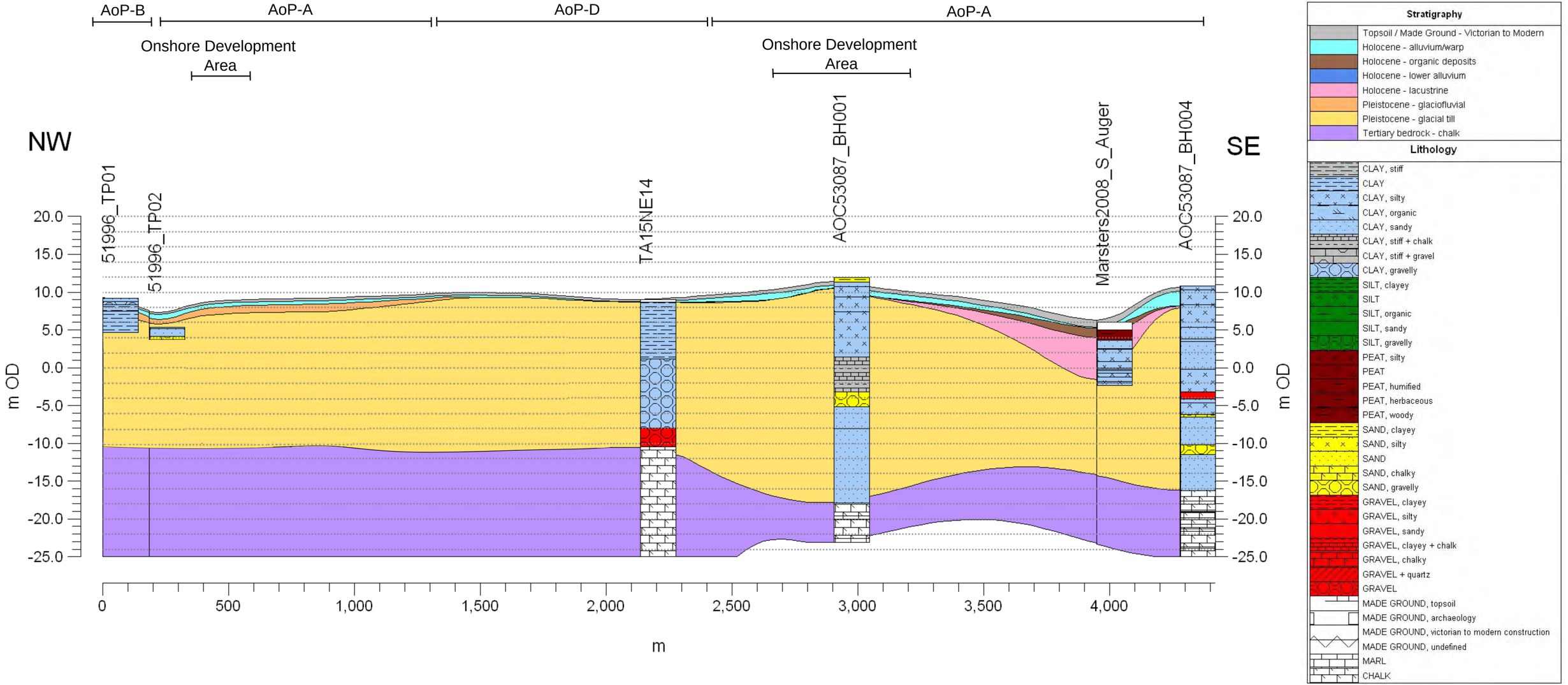
AoP-B
AoP-A
AoP-D
AoP-A
Onshore Development Area
Onshore Development Area
NW
SE
51996_TP01
51996_TP02
TA15NE14
AOC53087_BH001
Marsters2008_S_Auger
AOC53087_BH004
m OD
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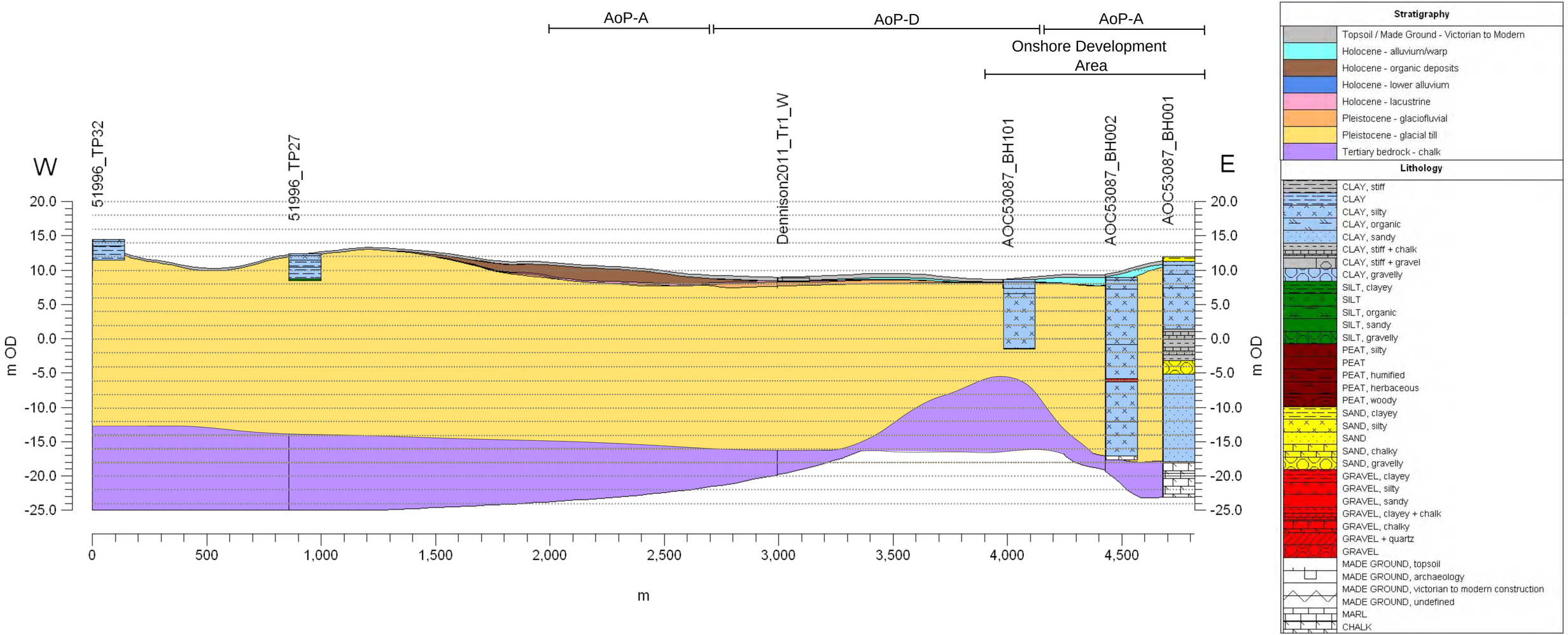
-15.0
-20.0
-25.0
Stratigraphy
Topsoil / Made Ground - Victorian to Modern
Holocene - alluvium/warp
Holocene - organic deposits
Holocene - lower alluvium
Holocene - lacustrine
Pleistocene - glaciofluvial
Pleistocene - glacial till
Tertiary bedrock - chalk
Lithology
CLAY, stiff
CLAY
CLAY, silty
CLAY, organic
CLAY, sandy
CLAY, stiff + chalk
CLAY, stiff + gravel
CLAY, gravelly
SILT, clayey
SILT
SILT, organic
SILT, sandy
SILT, gravelly
PEAT, silty
PEAT
PEAT, humified
PEAT, herbaceous
PEAT, woody
SAND, clayey
SAND, silty
SAND
SAND, chalky
SAND, gravelly
GRAVEL, clayey
GRAVEL, silty
GRAVEL, sandy
GRAVEL, clayey + chalk
GRAVEL, chalky
GRAVEL + quartz
GRAVEL
MADE GROUND, topsoil
MADE GROUND, archaeology
MADE GROUND, victorian to modern construction
MADE GROUND, undefined
MARL
CHALK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Stratigraphy
Topsoil / Made Ground - Victorian to Modern
Holocene - alluvium/warp
Holocene - organic deposits
Holocene - lower alluvium
Holocene - lacustrine
Pleistocene - glaciofluvial
Pleistocene - glacial till
Tertiary bedrock - chalk
Lithology
CLAY, stiff
CLAY
CLAY, silty
CLAY, organic
CLAY, sandy
CLAY, stiff + chalk
CLAY, stiff + gravel
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SILT, sandy
SILT, gravelly
PEAT, silty
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PEAT, herbaceous
PEAT, woody
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SAND, gravelly
GRAVEL, clayey
GRAVEL, silty
GRAVEL, sandy
GRAVEL, clayey + chalk
GRAVEL, chalky
GRAVEL + quartz
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MADE GROUND, topsoil
MADE GROUND, archaeology
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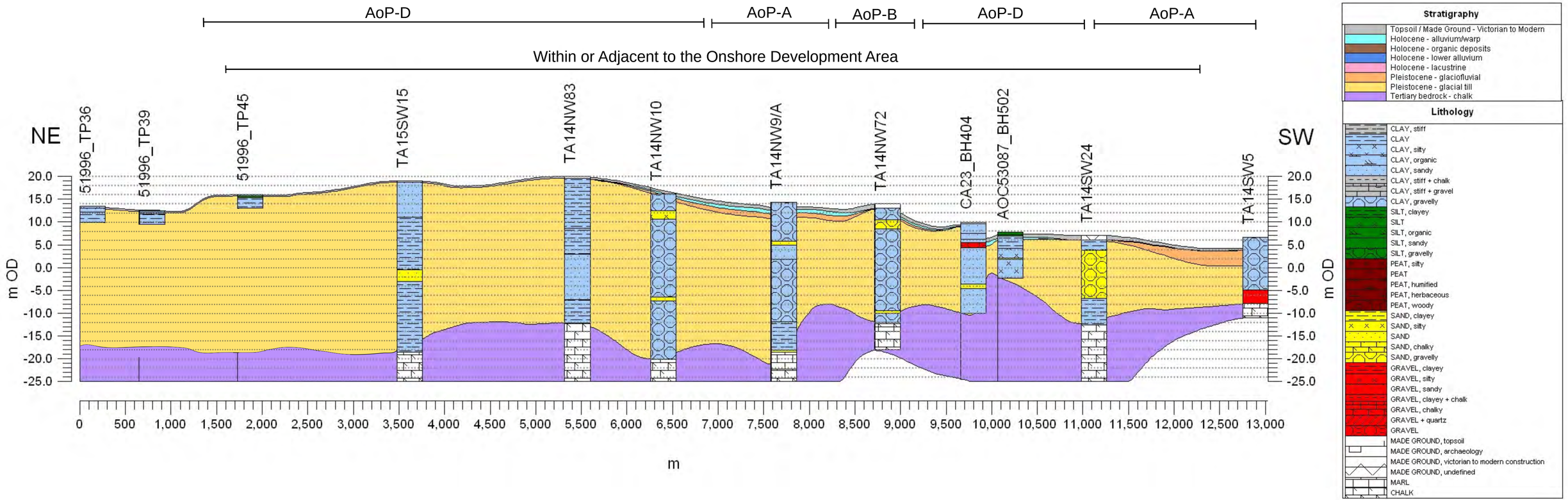
MARL
CHALK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51996_TP45
TA15SW15
TA14NW83
TA14NW10
TA14NW9/A
TA14NW72
CA23_BH404
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TA14SW24
TA14SW5
m OD
m
Stratigraphy
Topsoil / Made Ground - Victorian to Modern
Holocene - alluvium/warp
Holocene - organic deposits
Holocene - lower alluvium
Holocene - lacustrine
Pleistocene - glaciofluvial
Pleistocene - glacial till
Tertiary bedrock - chalk
Lithology
CLAY, stiff
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CLAY, organic
CLAY, sandy
CLAY, stiff + chalk
CLAY, stiff + gravel
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GRAVEL, clayey + chalk
GRAVEL, chalky
GRAVEL + quartz
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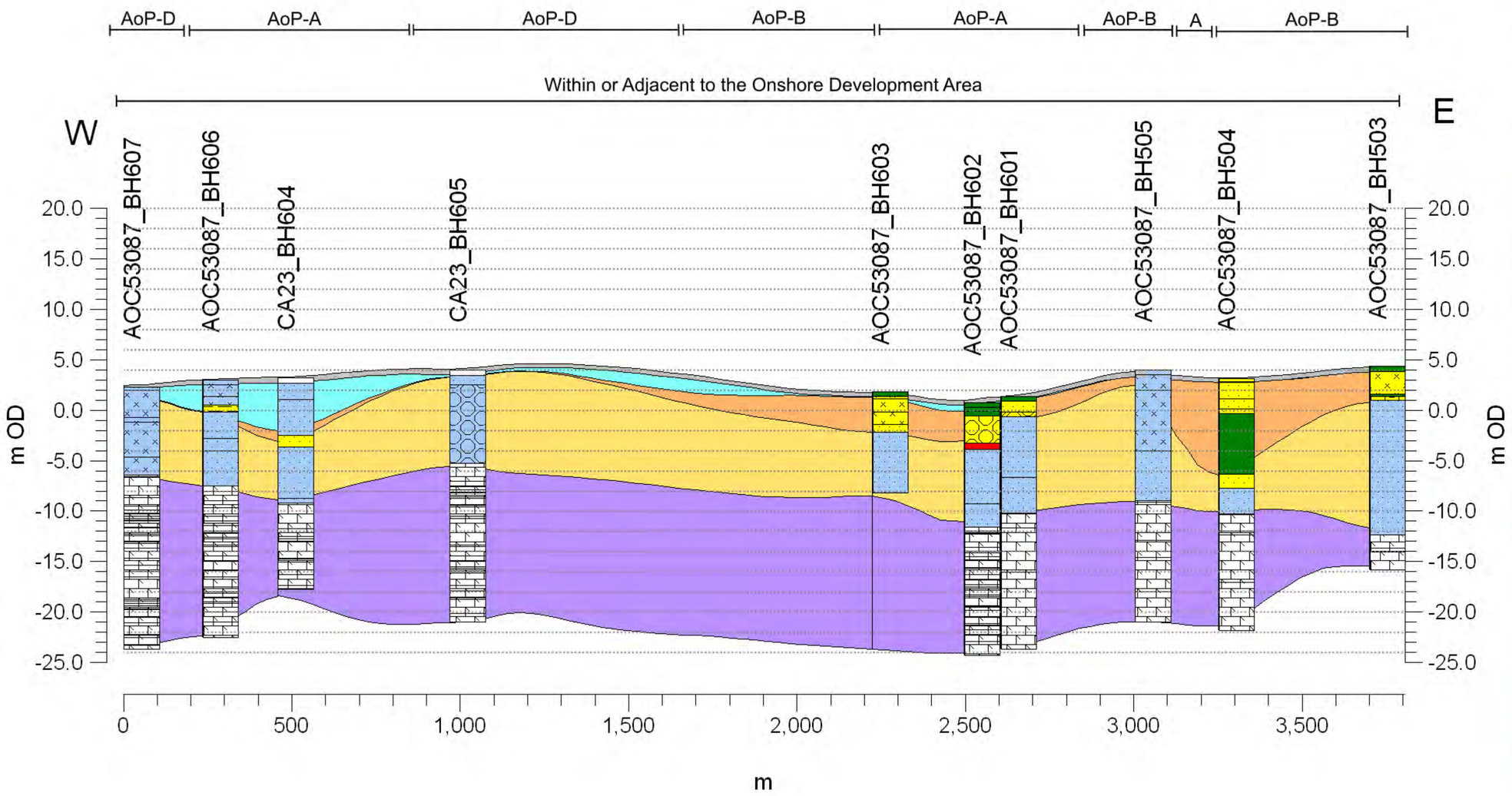
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Within or Adjacent to the Onshore Development Area
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AOC53087_BH505
AOC53087_BH504
AOC53087_BH503
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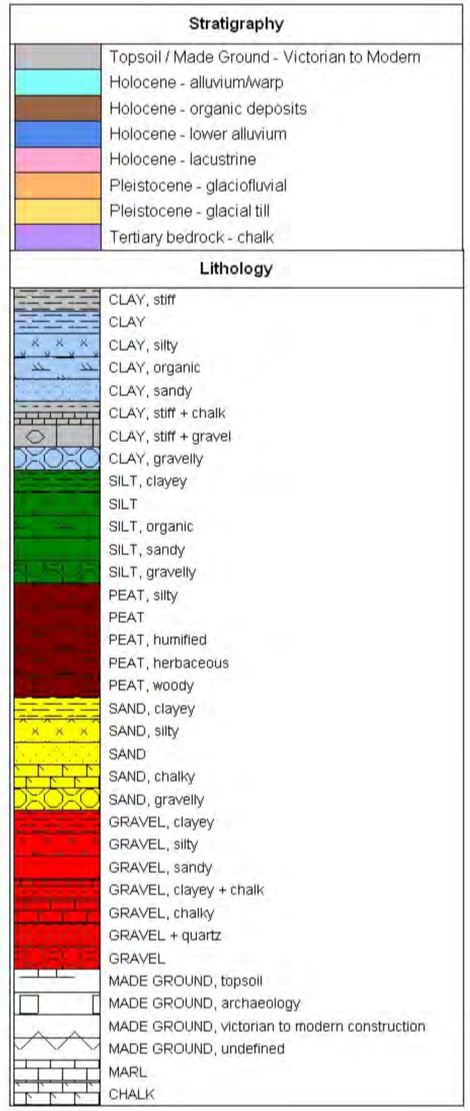
Stratigraphy
Topsoil / Made Ground - Victorian to Modern
Holocene - alluvium/warp
Holocene - organic deposits
Holocene - lower alluvium
Holocene - lacustrine
Pleistocene - glaciofluvial
Pleistocene - glacial till
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CLAY, stiff + gravel
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GRAVEL, chalky
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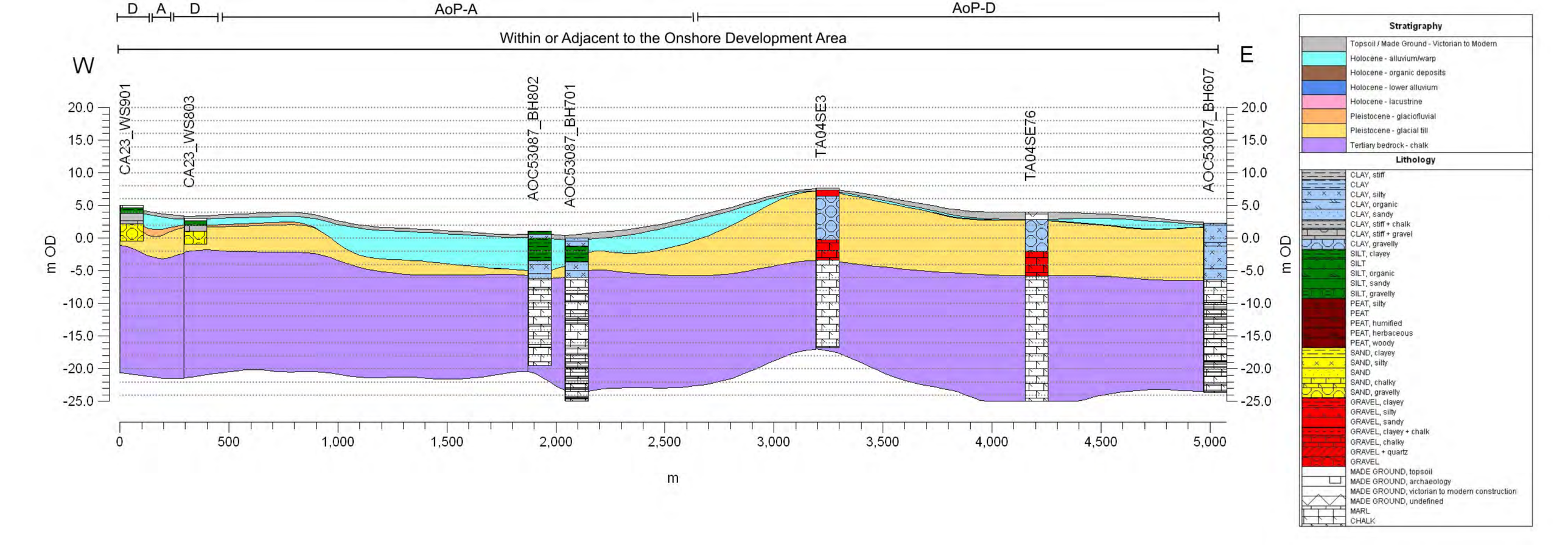
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AOC53087_BH607
m OD
m
Stratigraphy
Topsoil / Made Ground - Victorian to Modern
Holocene - alluvium/warp
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Holocene - lower alluvium
Holocene - lacustrine
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Pleistocene - glacial till
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CLAY, stiff + gravel
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GRAVEL, clayey + chalk
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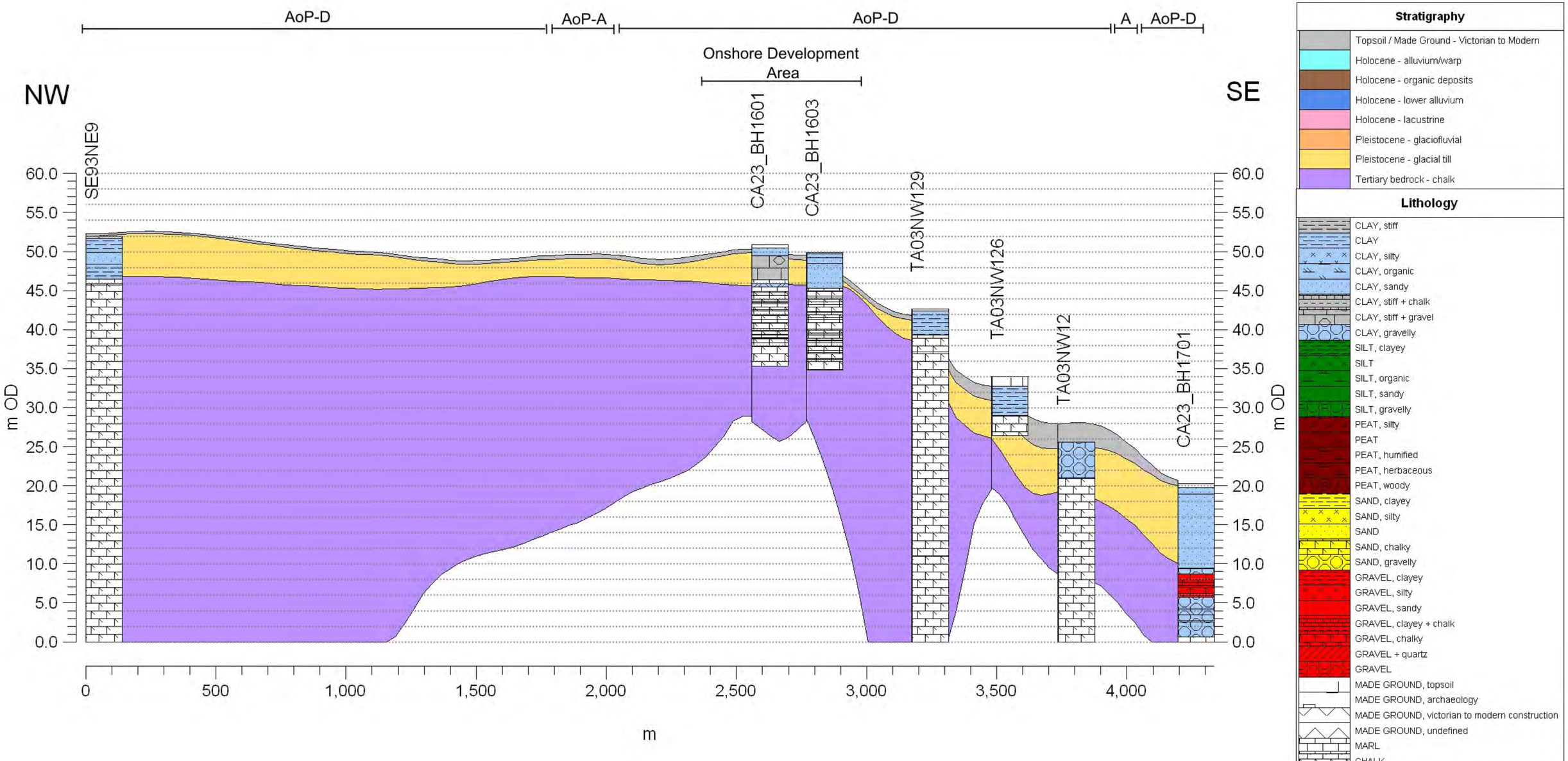
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Onshore Development Area
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TA03NW129
TA03NW126
TA03NW12
CA23_BH1701
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Stratigraphy
Topsoil / Made Ground - Victorian to Modern
Holocene - alluvium/warp
Holocene - organic deposits
Holocene - lower alluvium
Holocene - lacustrine
Pleistocene - glaciofluvial
Pleistocene - glacial till
Tertiary bedrock - chalk
Lithology
CLAY, stiff
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CLAY, sandy
CLAY, stiff + chalk
CLAY, stiff + gravel
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SILT
SILT, organic
SILT, sandy
SILT, gravelly
PEAT, silty
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PEAT, humified
PEAT, herbaceous
PEAT, woody
SAND, clayey
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SAND, chalky
SAND, gravelly
GRAVEL, clayey
GRAVEL, silty
GRAVEL, sandy
GRAVEL, clayey + chalk
GRAVEL, chalky
GRAVEL + quartz
GRAVEL
MADE GROUND, topsoil
MADE GROUND, archaeology
MADE GROUND, victorian to modern construction
MADE GROUND, undefined
MARL
CHALK

AoP-A

AoP-D

AoP-B

Onshore Development Area

NW

SE

AOC53087_TP3501

CA23_BH3502

CA23_BH1401

AOC53087_TP3401

CA23_BH3402

AOC53087_TP3410A

m OD

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1,000

1,500

2,000

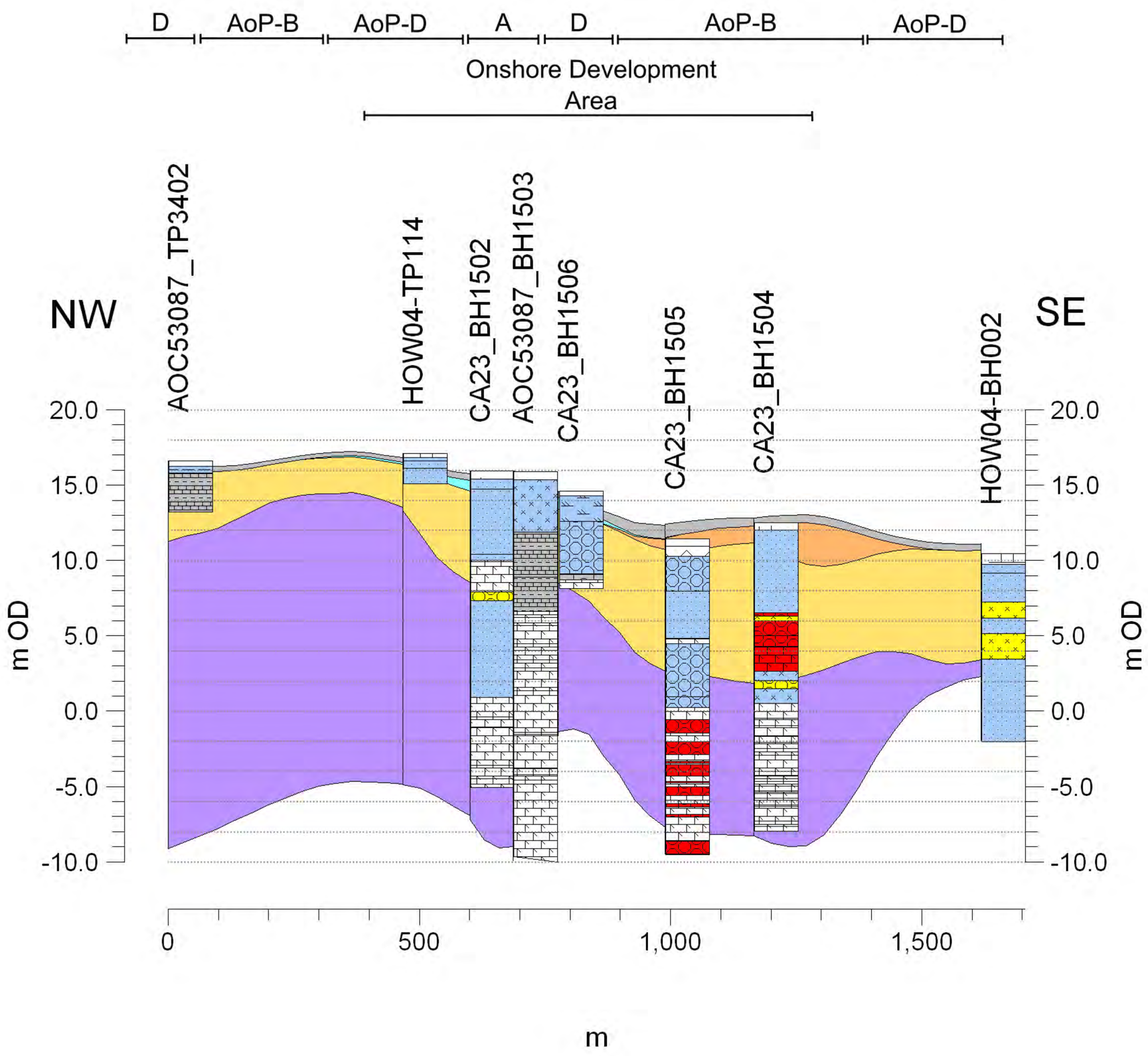
m

Stratigraphy

- Topsoil / Made Ground - Victorian to Modern
- Holocene - alluvium/warp
- Holocene - organic deposits
- Holocene - lower alluvium
- Holocene - lacustrine
- Pleistocene - glaciofluvial
- Pleistocene - glacial till
- Tertiary bedrock - chalk

Lithology

- CLAY, stiff
- CLAY
- CLAY, silty
- CLAY, organic
- CLAY, sandy
- CLAY, stiff + chalk
- CLAY, stiff + gravel
- CLAY, gravelly
- SILT, clayey
- SILT
- SILT, organic
- SILT, sandy
- SILT, gravelly
- PEAT, silty
- PEAT
- PEAT, humified
- PEAT, herbaceous
- PEAT, woody
- SAND, clayey
- SAND, silty
- SAND
- SAND, chalky
- SAND, gravelly
- GRAVEL, clayey
- GRAVEL, silty
- GRAVEL, sandy
- GRAVEL, clayey + chalk
- GRAVEL, chalky
- GRAVEL + quartz
- GRAVEL
- MADE GROUND, topsoil
- MADE GROUND, archaeology
- MADE GROUND, victorian to modern construction
- MADE GROUND, undefined
- MARL
- CHALK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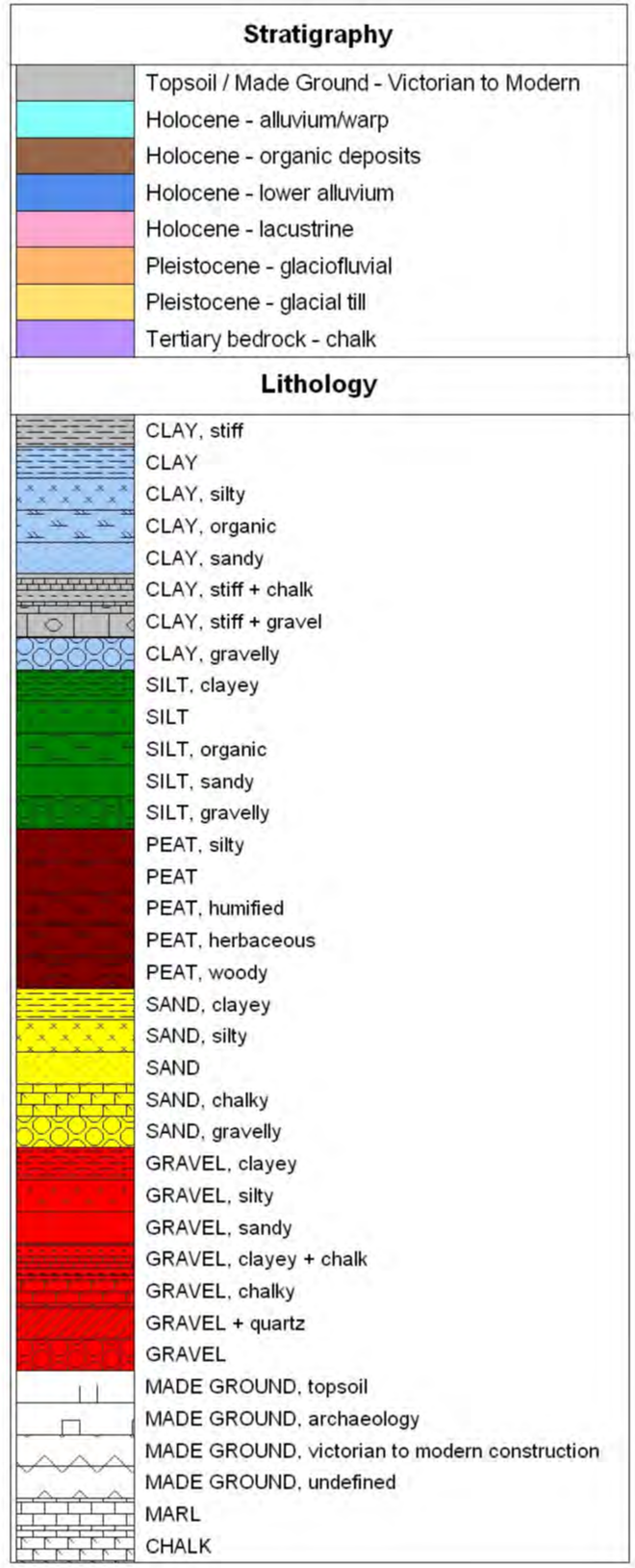
AoP-D
A
D
AoP-B
AoP-D
Onshore Development Area
NW
SE
AOC53087_TP3402
HOW04-TP114
CA23_BH1502
AOC53087_BH1503
CA23_BH1506
CA23_BH1505
CA23_BH1504
HOW04-BH002
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
m OD
0
500
1,000
1,500
m


Stratigraphy
Topsoil / Made Ground - Victorian to Modern
Holocene - alluvium/warp
Holocene - organic deposits
Holocene - lower alluvium
Holocene - lacustrine
Pleistocene - glaciofluvial
Pleistocene - glacial till
Tertiary bedrock - chalk
Lithology
CLAY, stiff
CLAY
CLAY, silty
CLAY, organic
CLAY, sandy
CLAY, stiff + chalk
CLAY, stiff + gravel
CLAY, gravelly
SILT, clayey
SILT
SILT, organic
SILT, sandy
SILT, gravelly
PEAT, silty
PEAT
PEAT, humified
PEAT, herbaceous
PEAT, woody
SAND, clayey
SAND, silty
SAND
SAND, chalky
SAND, gravelly
GRAVEL, clayey
GRAVEL, silty
GRAVEL, sandy
GRAVEL, clayey + chalk
GRAVEL, chalky
GRAVEL + quartz
GRAVEL
MADE GROUND, topsoil
MADE GROUND, archaeology
MADE GROUND, victorian to modern construction
MADE GROUND, undefined
MARL
CHALK

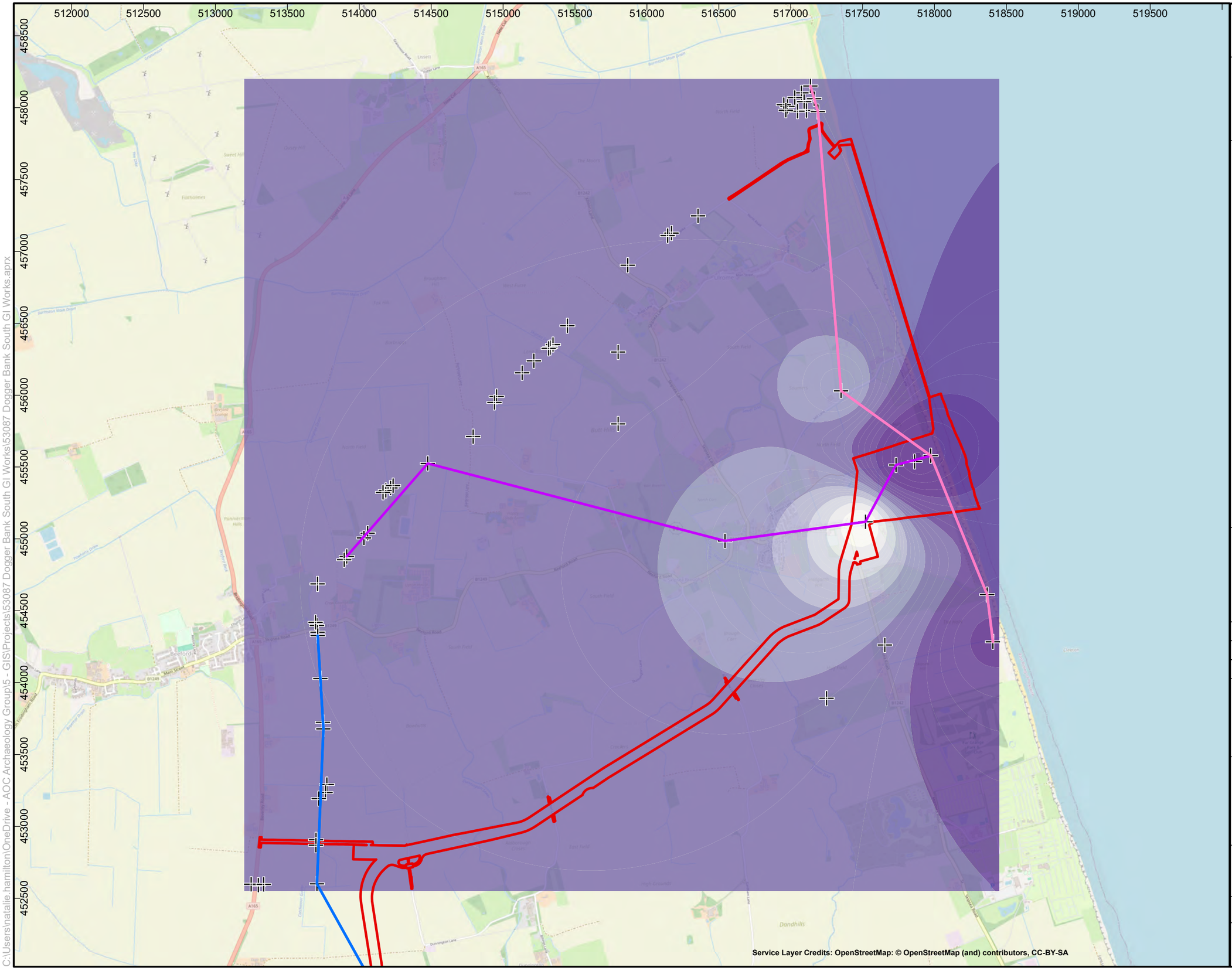


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Figure	22-9-15

Topographic plot of the below ground chalk bedrock (extrapolated from deposit records)
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Bedrock Surface - Area 1

m OD

- -3.99 - -2.00
- -5.99 - -4.00
- -7.99 - -6.00
- -9.99 - -8.00
- -11.99 - -10.00
- -13.99 - -12.00
- -15.99 - -14.00
- -17.99 - -16.00
- -18.00

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AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 1,000m

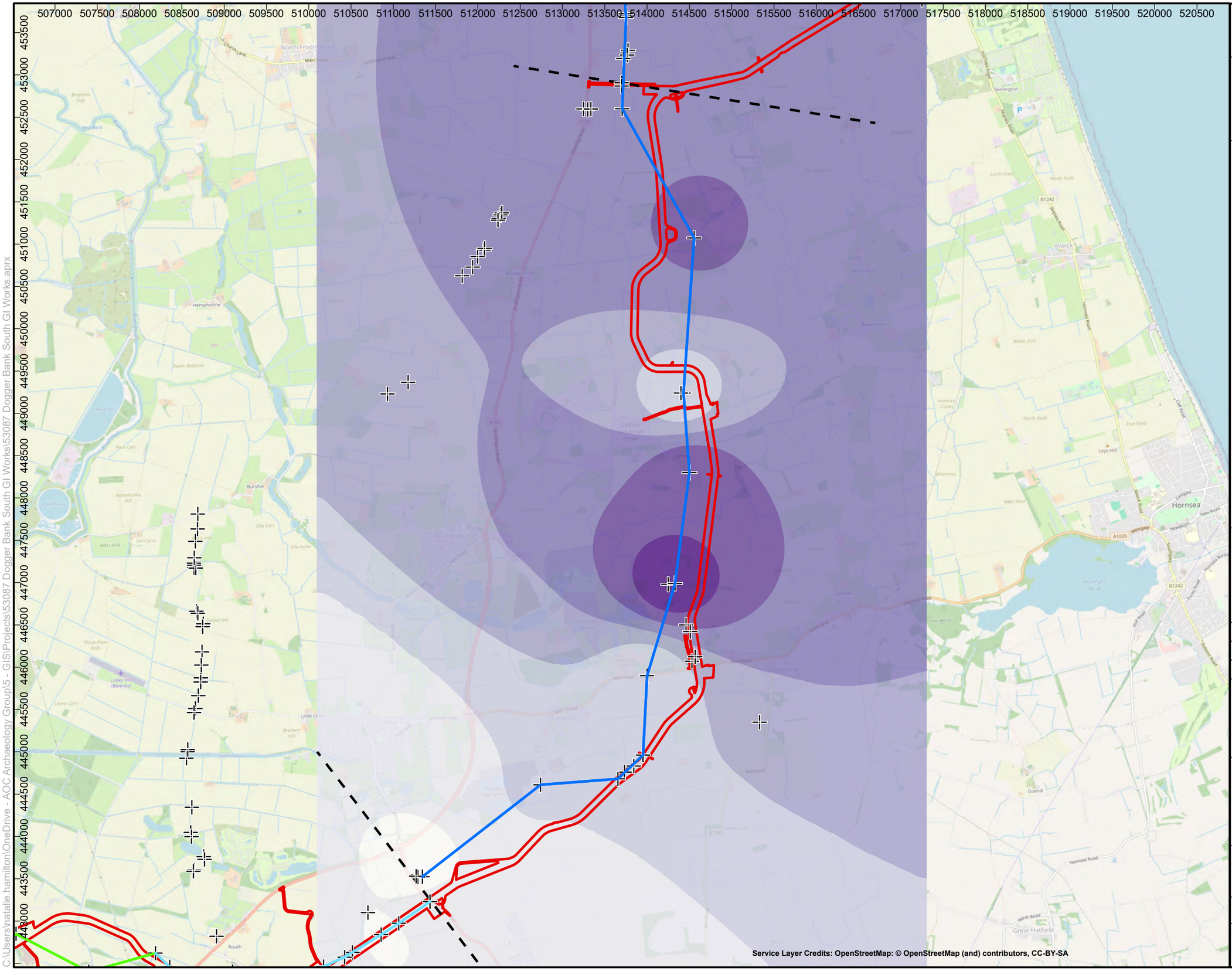

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Figure	22-9-16

Topographic plot of the below ground chalk bedrock (extrapolated from deposit records)
- Area 2

Legend

- Transect L
- Transect M
- Transect N
- Transect Q
- Data Points
- Onshore Development Area

Bedrock Surface - Area 2

m OD

- -9.99 - -8.00
- -11.99 - -10.00
- -13.99 - -12.00
- -15.99 - -14.00
- -17.99 - -16.00
- -19.99 - -18.00
- -22.00 - -20.00

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SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:42,500 @ A3

0 2,000m

Figure	22-9-17

Topographic plot of the below ground chalk bedrock (extrapolated from deposit records)
- Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Bedrock Surface - Area 3

m OD

- 50.01 - 60.00
- 40.01 - 50.00
- 30.01 - 40.00
- 20.01 - 30.00
- 10.01 - 20.00
- 0.01 - 10.00
- -9.99 - 0.00
- -12.50 - -10.00

FOR

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AOC Archaeology Group

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:45,000 @ A3

0 2,000m

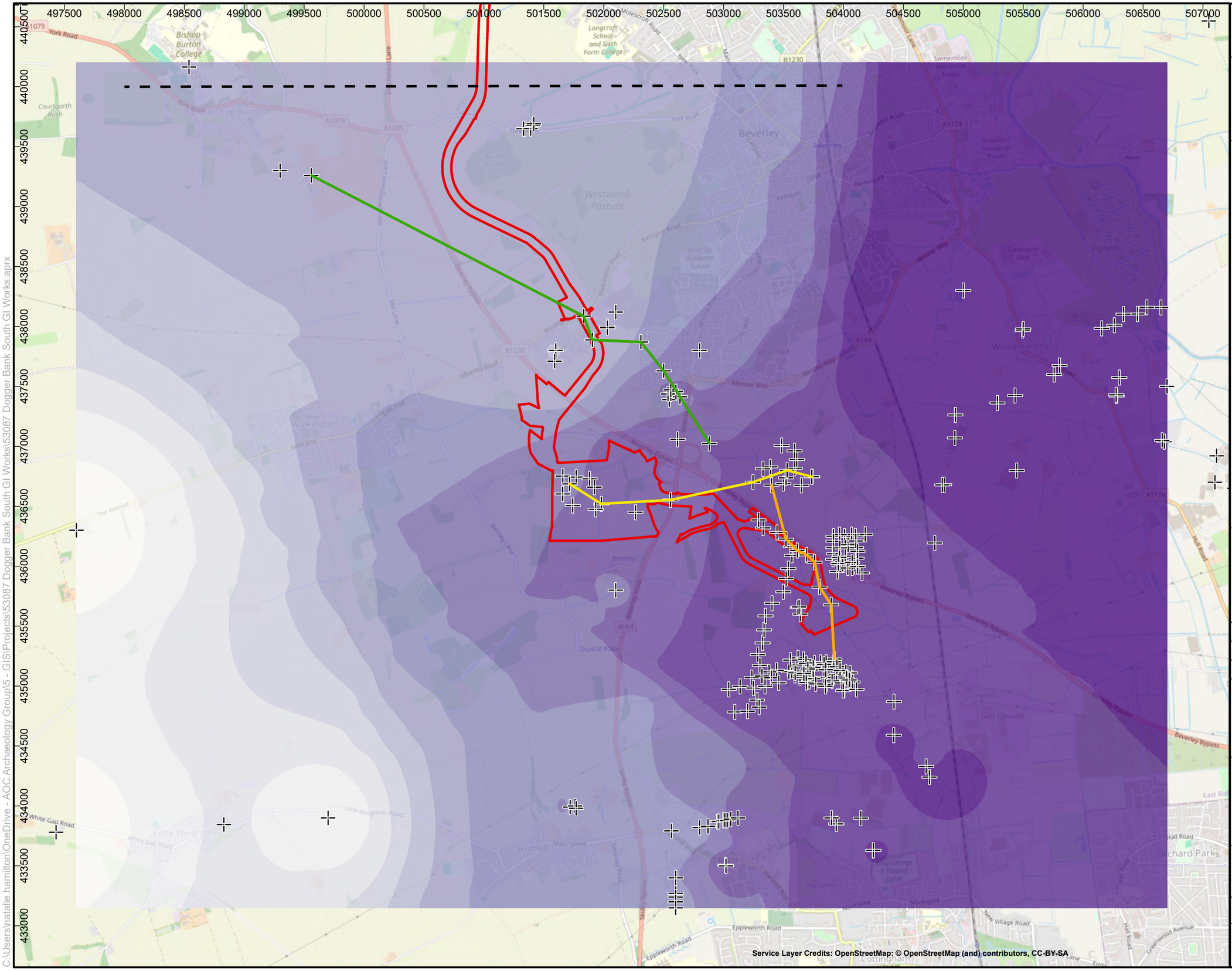

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Figure 22-9-18

Topographic plot of the chalk bedrock (extrapolated from deposit records) - Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Bedrock Surface - Area 4

m OD

- 90.01 - 100.00
- 80.01 - 90.00
- 70.01 - 80.00
- 60.01 - 70.00
- 50.01 - 60.00
- 40.01 - 50.00
- 30.01 - 40.00
- 20.01 - 30.00
- 10.01 - 20.00
- 0.01 - 10.00
- -8.00 - 0.00

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SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:30,000 @ A3

0 1,500m

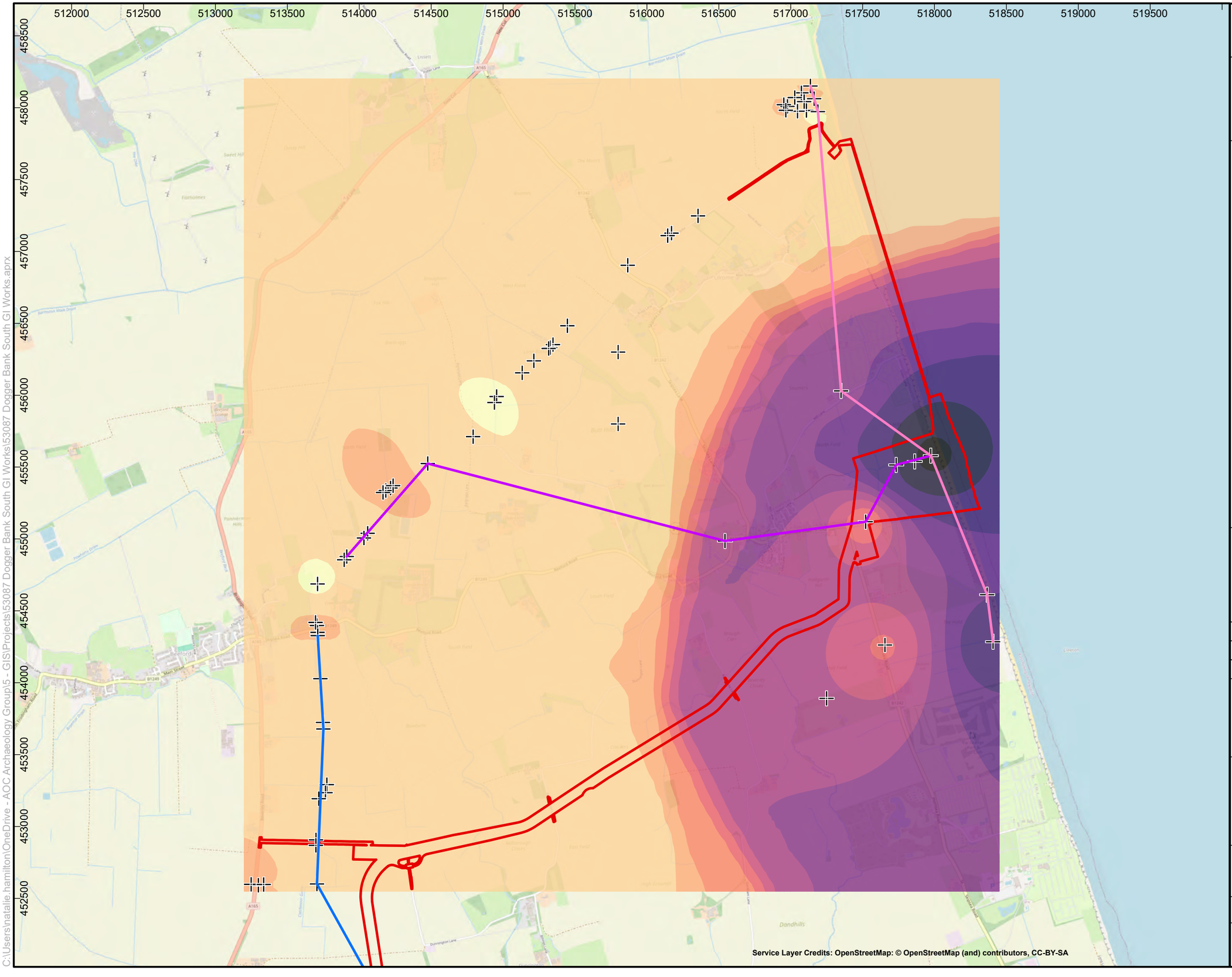

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Figure	22-9-19

Thickness plot of the below ground glacial till (extrapolated from deposit records)
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Till Thickness - Area 1

m

- 0.00 - 2.50
- 2.51 - 5.00
- 5.01 - 7.50
- 7.51 - 10.00
- 10.01 - 12.50
- 12.51 - 15.00
- 15.01 - 17.50
- 17.51 - 20.00
- 20.01 - 22.50
- 22.51 - 25.00
- 25.01 - 27.50
- 27.51 - 30.00

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SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 1,000m

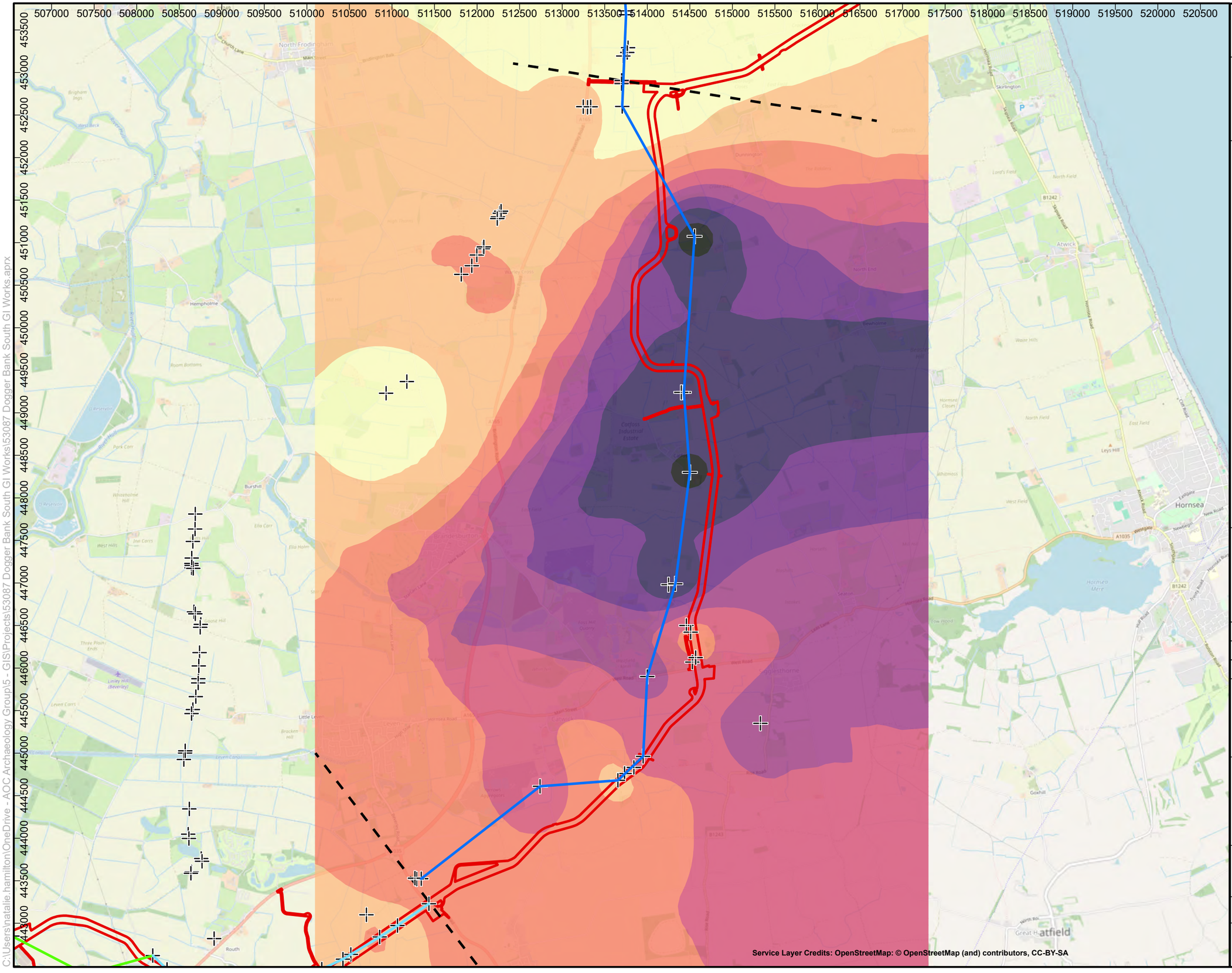

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Figure	22-9-20

Thickness plot of the below ground glacial till (extrapolated from deposit records)
- Area 2

Legend

- Transect L
- Transect M
- Transect N
- Data Points
- Onshore Development Area

Till Thickness - Area 2

m

- 0.00 - 5.00
- 5.01 - 10.00
- 10.01 - 15.00
- 15.01 - 20.00
- 20.01 - 25.00
- 25.01 - 30.00
- 30.01 - 35.00
- 35.01 - 40.00

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SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:42,250 @ A3

0 2,000m

Figure	22-9-21

Thickness plot of the below ground glacial till (extrapolated from deposit records)
- Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Till Thickness - Area 3

m

- 0.00 - 2.50
- 2.51 - 5.00
- 5.01 - 7.50
- 7.51 - 10.00
- 10.01 - 12.50
- 12.51 - 15.00
- 15.01 - 17.50
- 17.51 - 20.00
- 20.01 - 22.50
- 22.51 - 25.00

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Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:45,000 @ A3

0 2,000m

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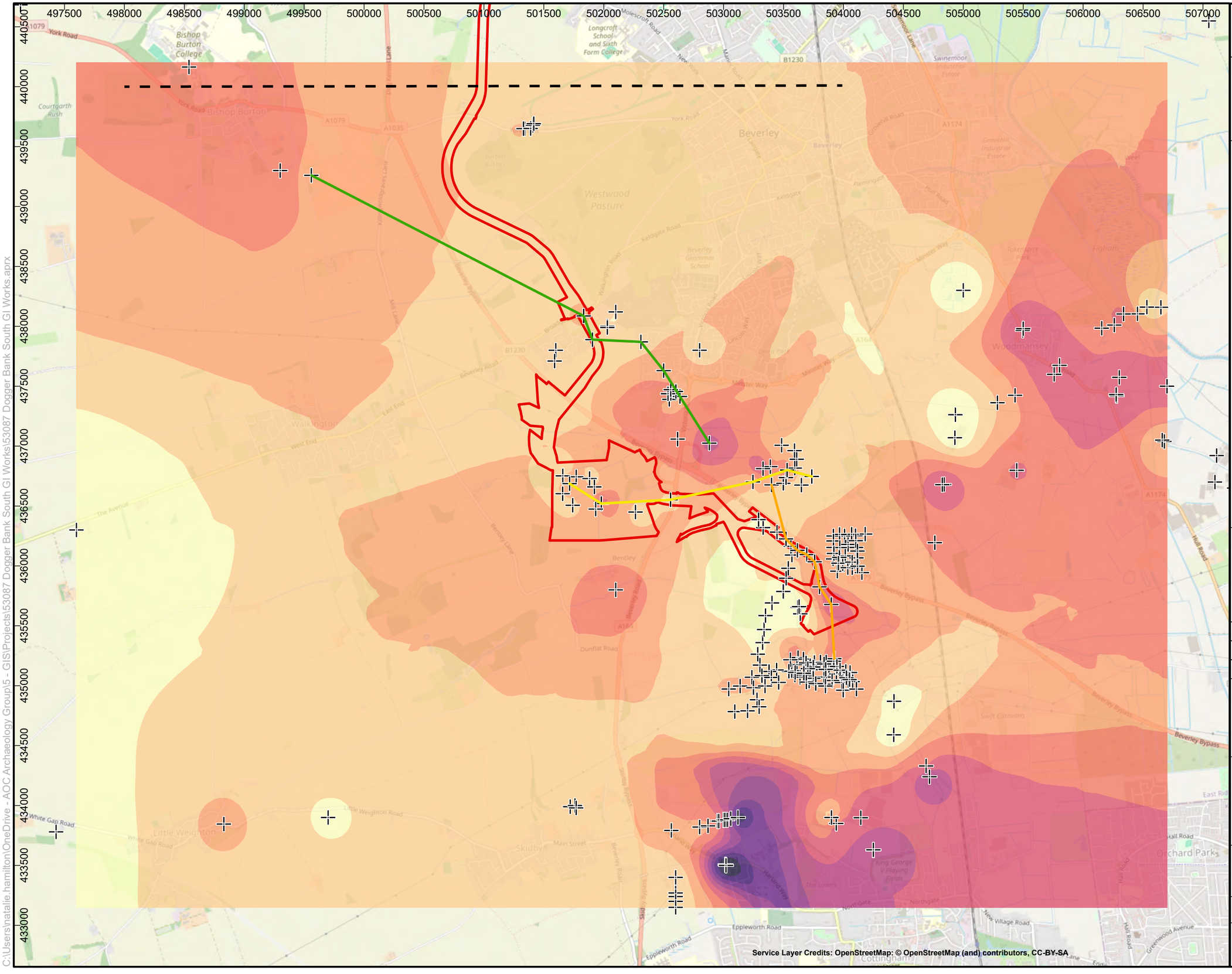

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Figure	22-9-22

Thickness plot of the glacial till (extrapolated from deposit records) - Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Till Thickness - Area 4

m

- 0.00 - 2.00
- 2.01 - 4.00
- 4.01 - 6.00
- 6.01 - 8.00
- 8.01 - 10.00
- 10.01 - 12.00
- 12.01 - 14.00
- 14.01 - 16.00
- 16.01 - 18.00
- 18.01 - 20.00
- 20.01 - 22.00

FOR

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AOC Archaeology Group

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SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:30,000 @ A3

0 — 1,500m

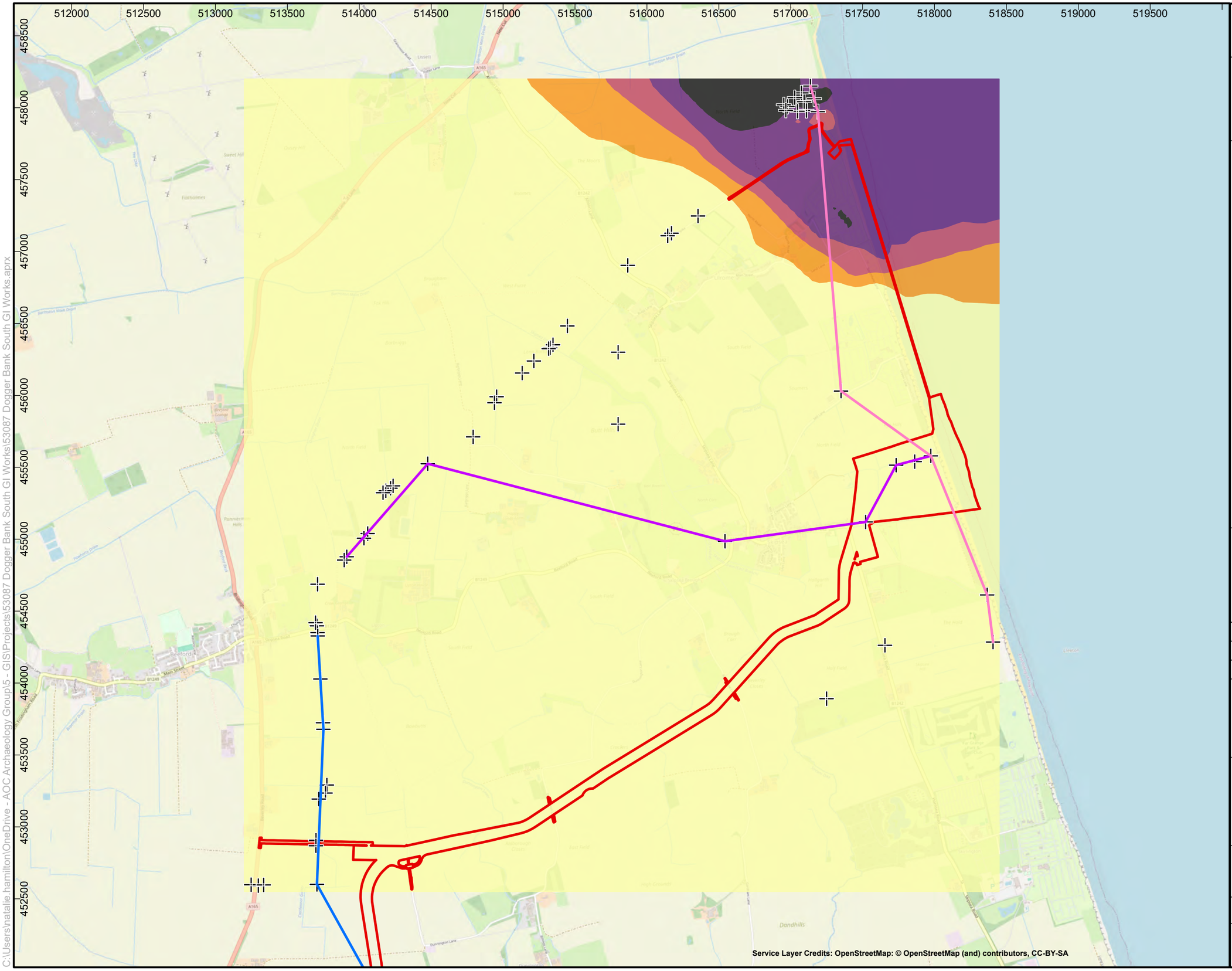

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Figure	22-9-23

Thickness plot of the below ground glaciofluvial deposits (extrapolated from deposit records)
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Glaciofluvial Thickness - Area 1

m

- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 0.75
- 0.76 - 1.00
- 1.01 - 1.25

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SYSTEM

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Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 1,000m

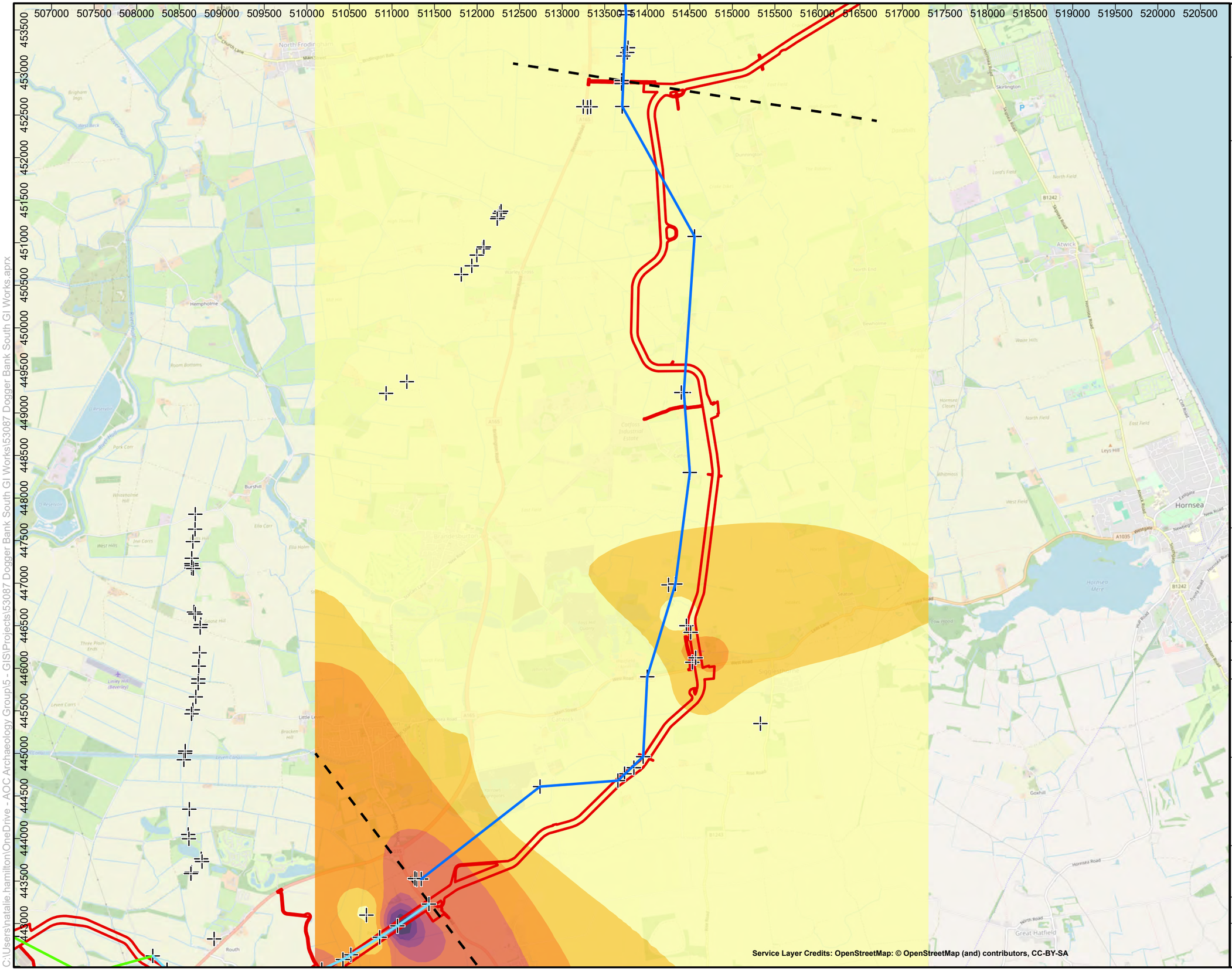

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Figure	22-9-24

Thickness plot of the below ground glaciofluvial deposits (extrapolated from deposit records)
- Area 2

Legend

- Transect L
- Transect M
- Transect N
- Data Points
- Onshore Development Area

Glaciofluvial Thickness - Area 2

m

- 0.00 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00
- 6.01 - 7.00
- 7.01 - 8.00
- 8.01 - 9.00

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N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:42,250 @ A3

0 2,000m

Figure	22-9-25

Thickness plot of the below ground glaciofluvial deposits (extrapolated from deposit records)
- Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Glaciofluvial Thickness - Area 3

m

- 0.00 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00
- 6.01 - 7.00
- 7.01 - 8.00
- 8.01 - 9.00
- 9.01 - 10.00

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Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:45,000 @ A3

0 2,000m

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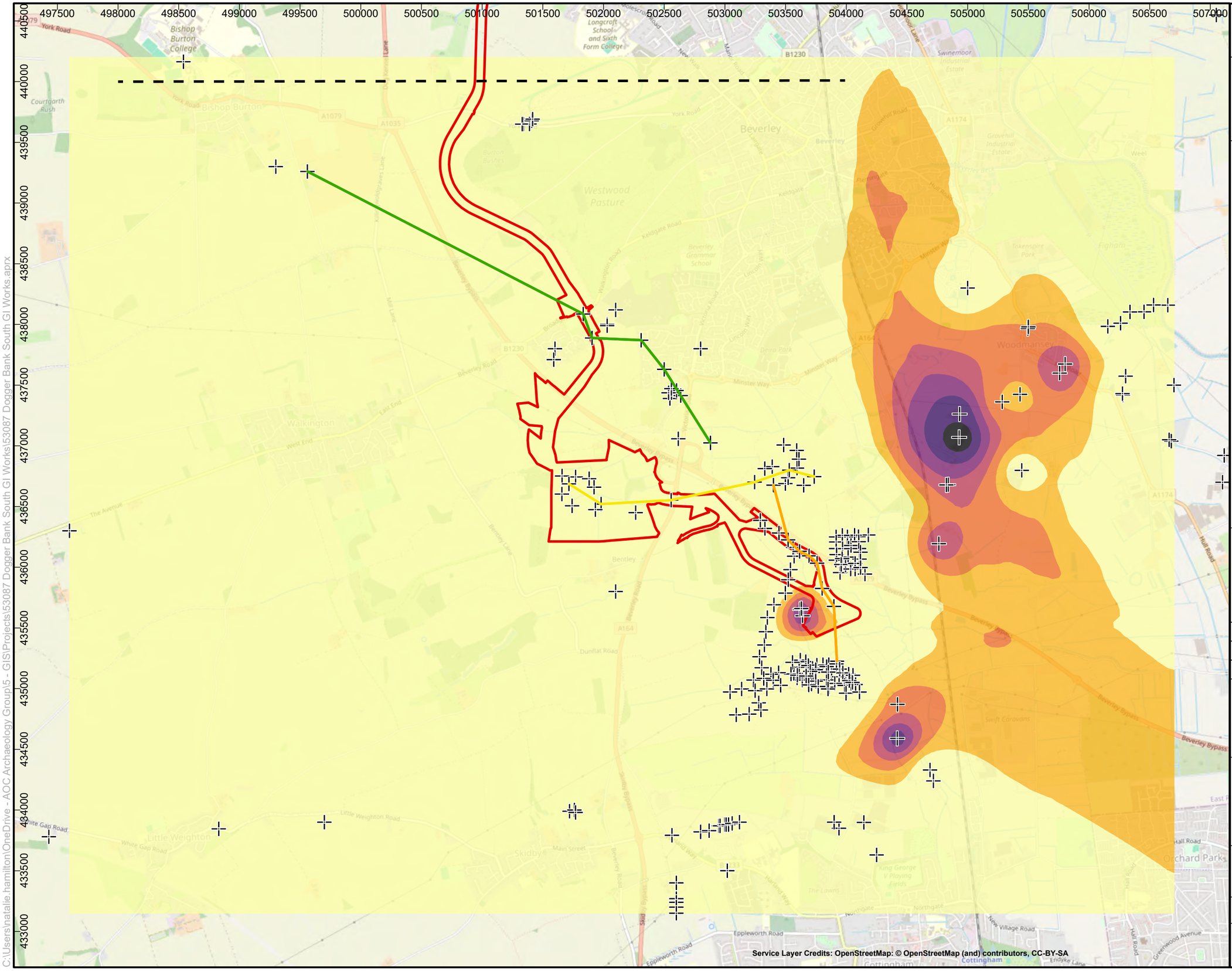

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Figure	22-9-26

Thickness plot of the below ground glaciofluvial deposits (extrapolated from deposit records)
- Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Glaciofluvial Thickness - Area 4

m

- 0.00 - 2.00
- 2.01 - 4.00
- 4.01 - 6.00
- 6.01 - 8.00
- 8.01 - 10.00
- 10.01 - 12.00
- 12.01 - 14.00

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N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:29,622 @ A3

0 1,500m

Figure	22-9-27

Topographic plot of the below ground Pleistocene deposits (extrapolated from deposit records), representing the possible ground surface at the beginning of the Holocene (c. 12,000 years ago)
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Pleistocene Surface - Area 1

m OD

- 16.01 - 18.00
- 14.01 - 16.00
- 12.01 - 14.00
- 10.01 - 8.00
- 8.01 - 10.00
- 6.01 - 8.00
- 4.01 - 6.00
- 2.01 - 4.00
- 0.00 - 2.00

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Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 1,000m

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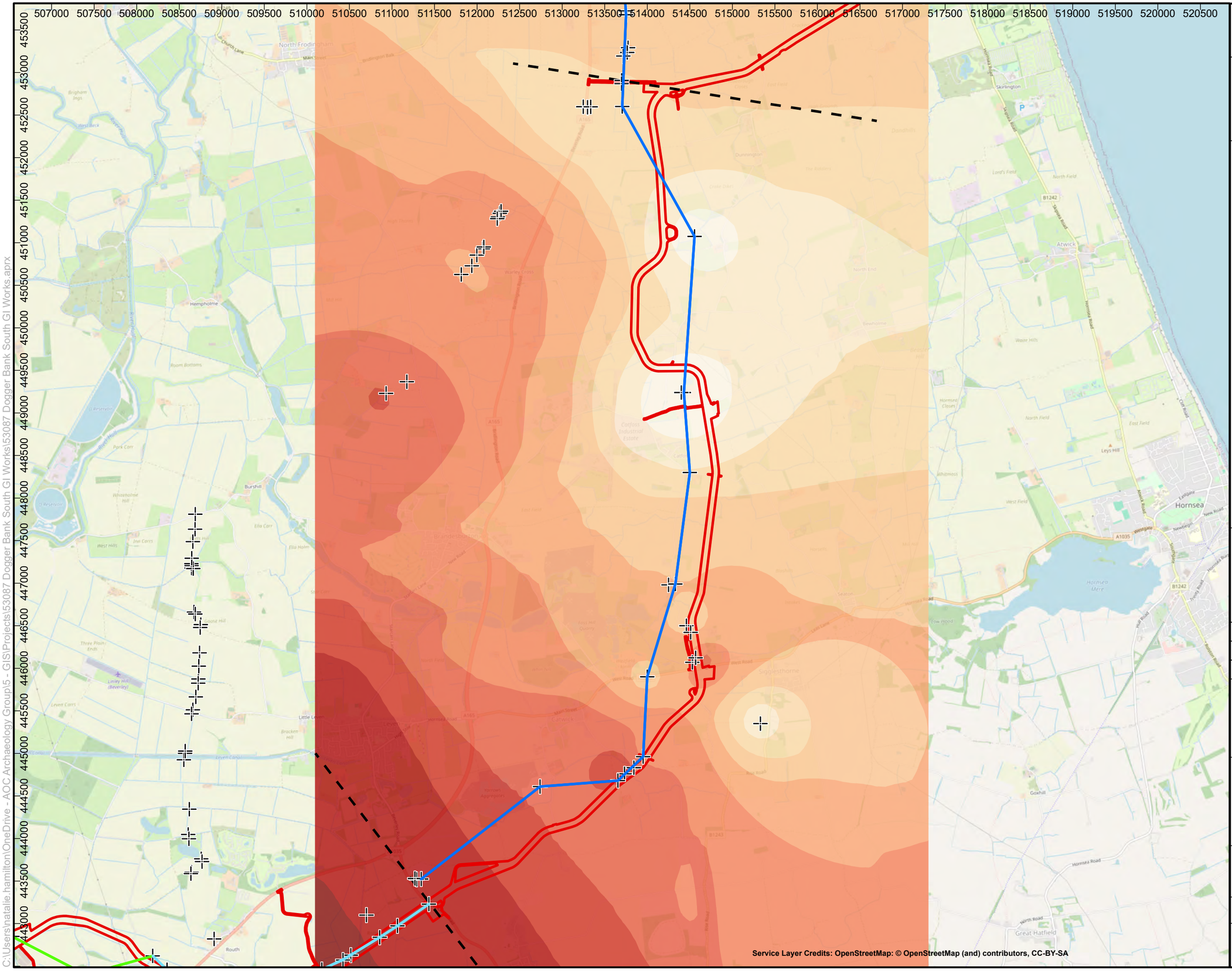

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Figure	22-9-28

Topographic plot of the below ground Pleistocene deposits (extrapolated from deposit records), representing the possible ground surface at the beginning of the Holocene (c. 12,000 years ago)
- Area 2

Legend

- Transect L
- Transect M
- Transect N
- Data Points
- Onshore Development Area

Pleistocene Surface - Area 2

m OD

- 18.01 - 20.00
- 16.01 - 18.00
- 14.01 - 16.00
- 12.01 - 14.00
- 10.01 - 12.00
- 8.01 - 10.00
- 6.01 - 8.00
- 4.01 - 6.00
- 2.01 - 4.00
- 0.50 - 2.00

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AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:42,250 @ A3

0 2,000m

Figure	22-9-29

Topographic plot of the below ground Pleistocene deposits (extrapolated from deposit records)
- Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Pleistocene Surface - Area 3

m OD

- 50.01 - 60.00
- 40.01 - 50.00
- 30.01 - 40.00
- 20.01 - 30.00
- 10.01 - 20.00
- 0.01 - 10.00
- -9.00 - 0.00

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DWG no / Date:	09/01/24
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:45,000 @ A3

0 2,000m

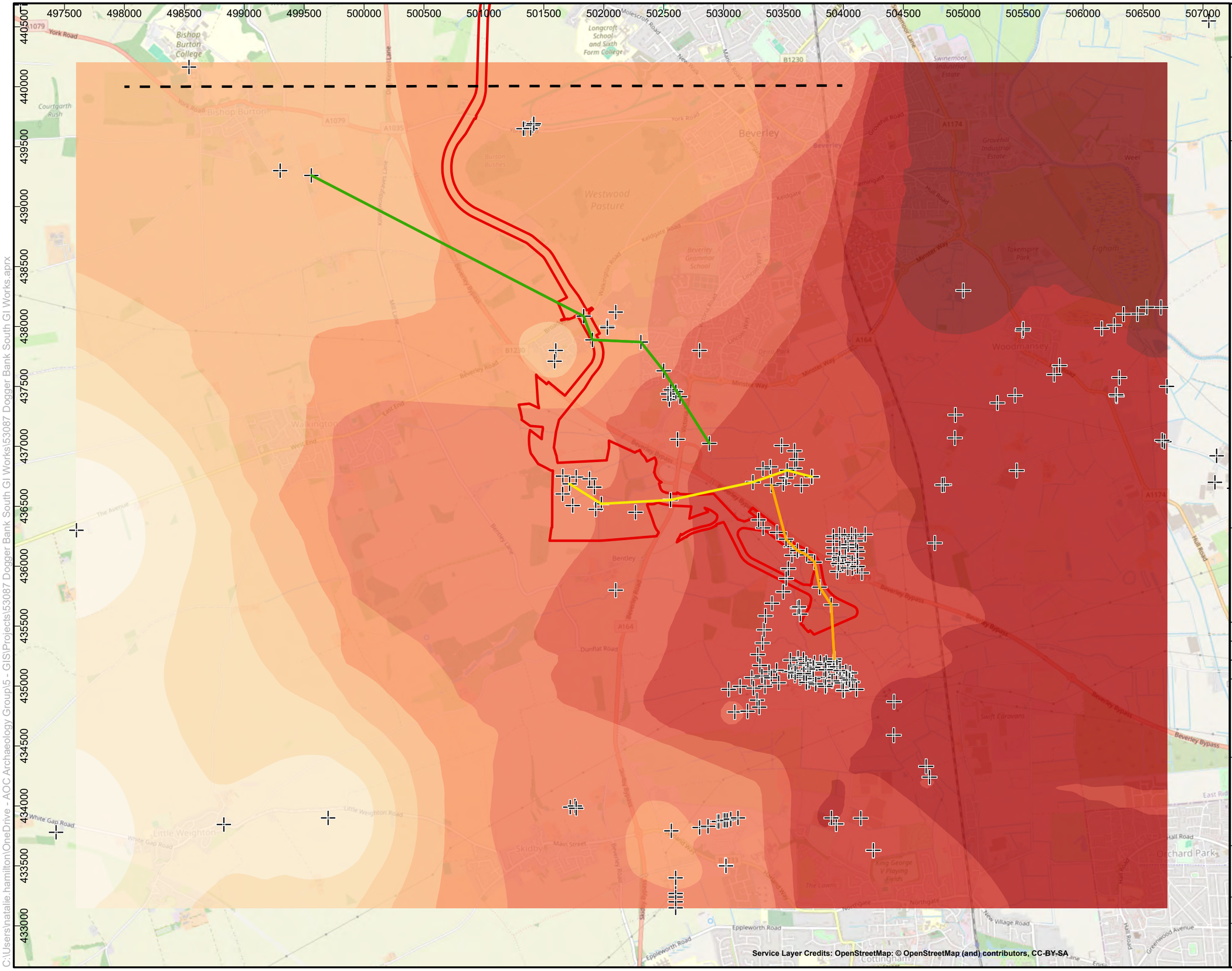

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Figure 22-9-30

Topographic plot of the below ground Pleistocene deposits (extrapolated from deposit records), illustrating the possible land surface at the beginning pf the Holocene (c. 12,000 years ago) - Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Pleistocene Surface - Area 4

m OD

- 90.01 - 100.00
- 80.01 - 90.00
- 70.01 - 80.00
- 60.01 - 70.00
- 50.01 - 60.00
- 40.01 - 50.00
- 30.01 - 40.00
- 20.01 - 30.00
- 10.01 - 20.00
- 0.01 - 10.00
- -9.00 - 0.00

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DWG no / Date:	09/01/24
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:30,000 @ A3

0 1,500m

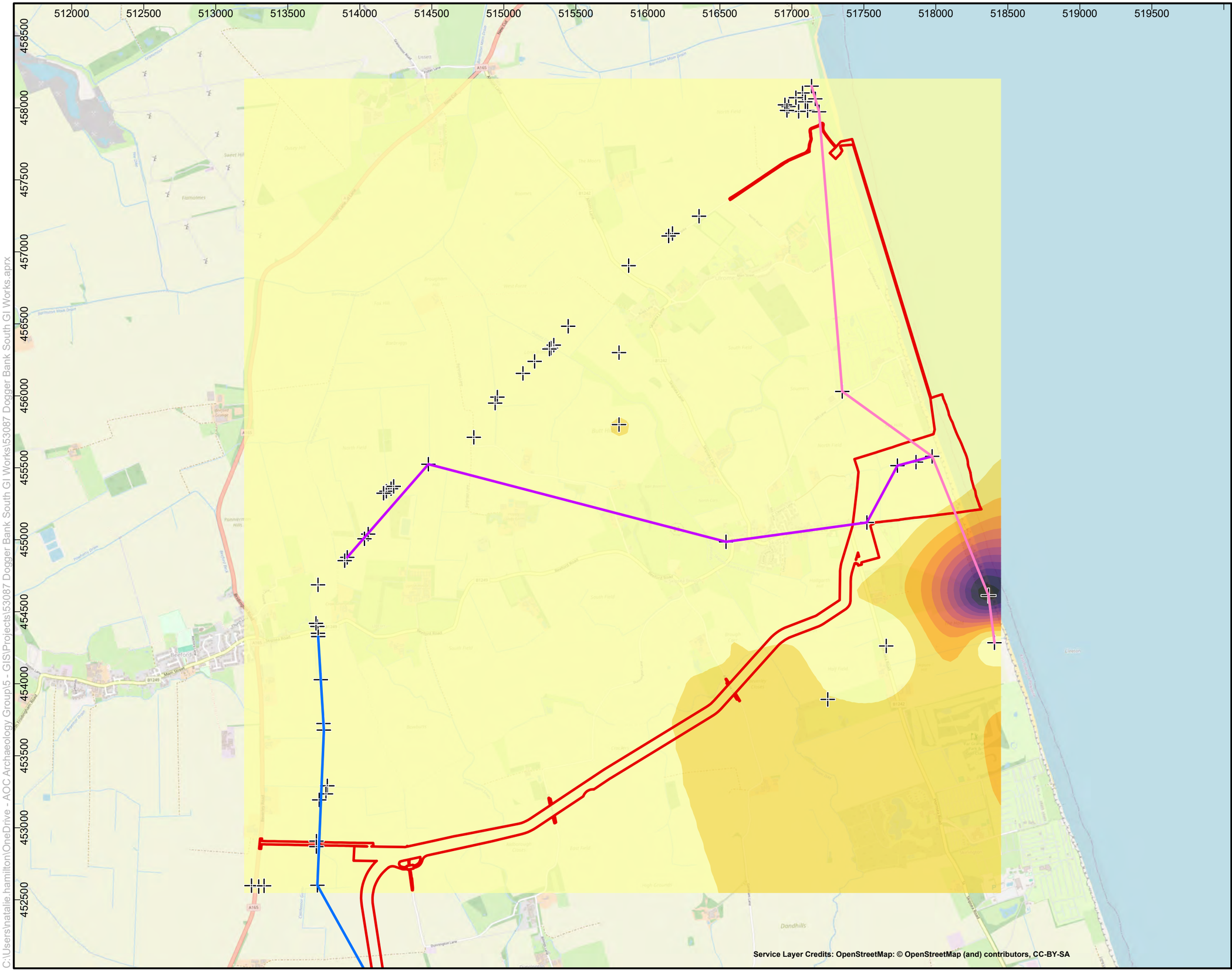

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Figure	22-9-31

Thickness plot of the below ground lacustrine deposits (extrapolated from deposit records), representing deposit survival
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Lacustrine Thickness - Area 1

m

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- 2.01 - 2.50
- 2.51 - 3.00
- 3.01 - 3.50
- 3.51 - 4.00
- 4.01 - 4.50
- 4.51 - 5.00
- 5.01 - 5.50
- 5.51 - 6.00

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RWE Renewables UK Dogger Bank South (East) Limited

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DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

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0 1,000m

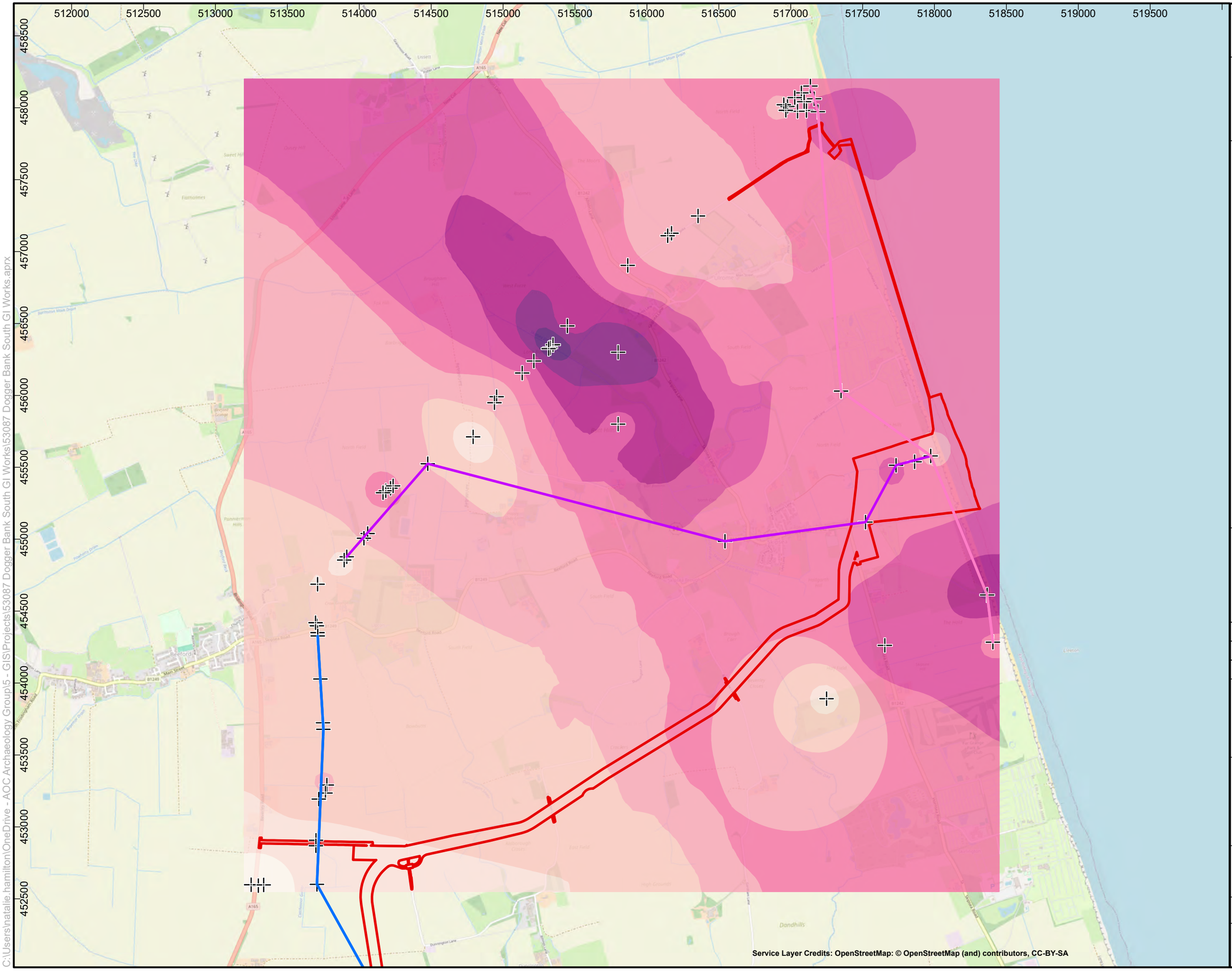

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Figure	22-9-32

Topographic plot of the below ground lacustrine deposits (extrapolated from deposit records)
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Lacustrine Surface - Area 1

m OD

- 16.01 - 18.00
- 14.01 - 16.00
- 12.01 - 14.00
- 10.01 - 12.00
- 8.01 - 10.00
- 6.01 - 8.00
- 4.01 - 6.00
- 2.01 - 4.00
- 0.00 - 2.00

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT/NH
DWG no / Date:	08/01/24
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 1,000 m

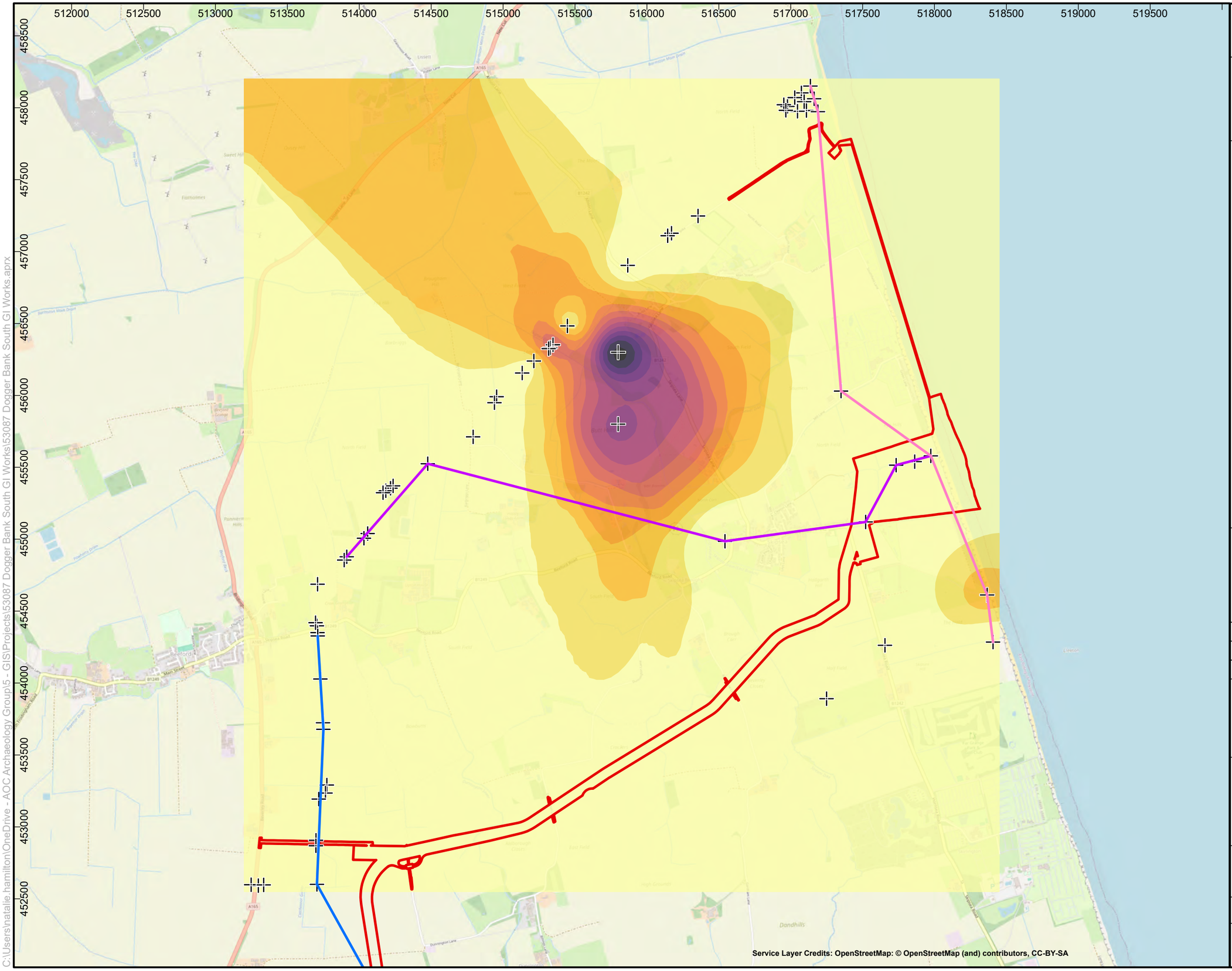

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Figure	22-9-33

Thickness plot of the below ground organic deposits (extrapolated from deposit records), representing deposit survival
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Organic Thickness - Area 1

m

- 0.25 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- 2.01 - 2.50
- 2.51 - 3.00
- 3.01 - 3.50
- 3.51 - 4.00
- 4.01 - 4.50
- 4.51 - 5.00
- 5.01 - 5.50
- 5.51 - 6.00
- 6.01 - 6.50

FOR

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DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 1,000m

Figure	22-9-34

Thickness plot of the below ground organic deposits (extrapolated from deposit records)
- Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Organic Thickness - Area 3

m

- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 0.75
- 0.76 - 1.00
- 1.01 - 1.25
- 1.26 - 1.50

FOR

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DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:45,000 @ A3

0 2,000m

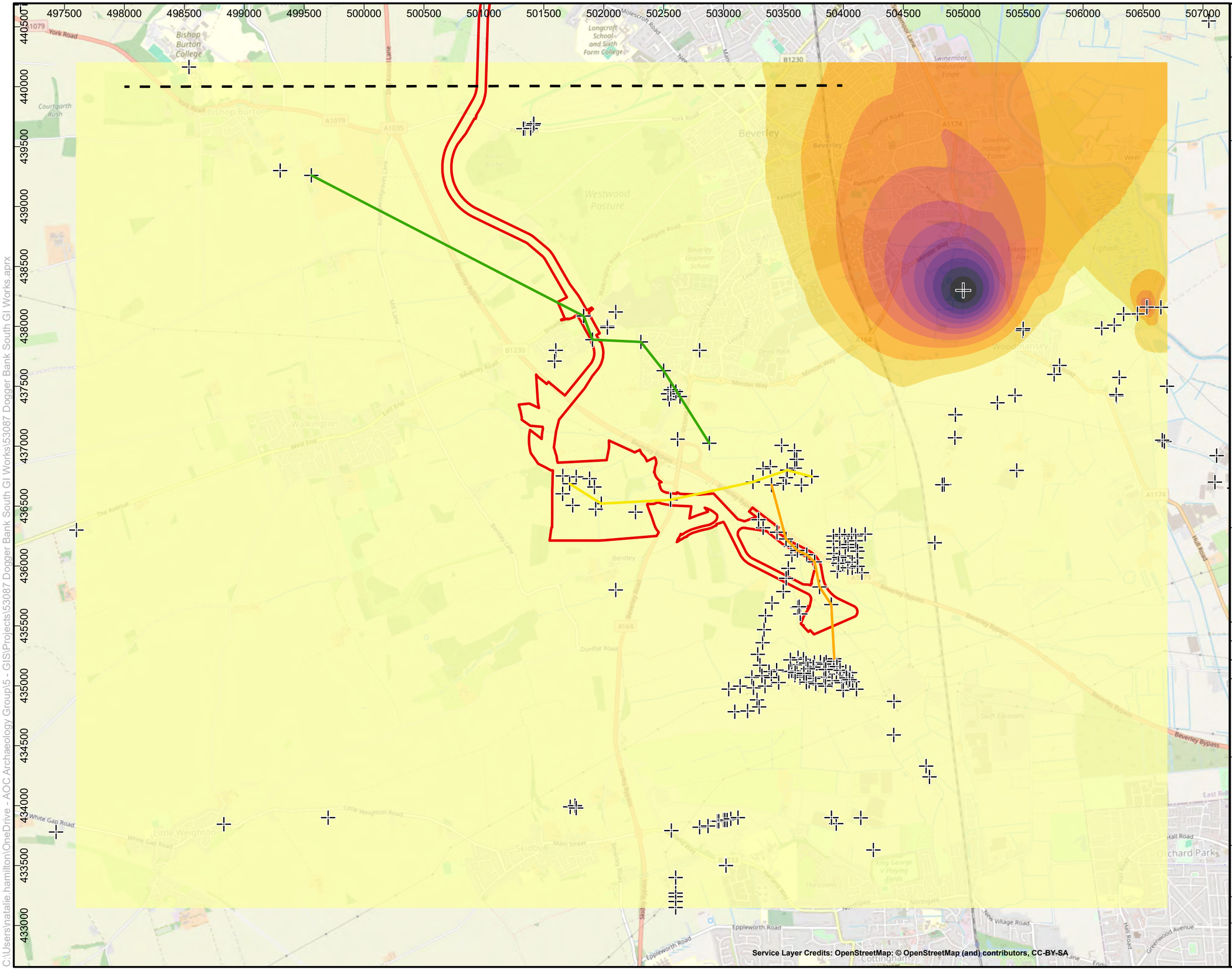

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Figure	22-9-35

Thickness plot of the below ground organic deposits (extrapolated from deposit records), showing deposit survival
- Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Organic Thickness - Area 4

m

- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 0.75
- 0.76 - 1.00
- 1.01 - 1.25
- 1.26 - 1.50
- 1.51 - 1.75
- 1.76 - 2.00
- 2.01 - 2.25
- 2.26 - 2.50
- 2.51 - 2.75
- 2.76 - 3.00

FOR

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DWG no / Date:	27/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:30,000 @ A3

0 — 1,500m

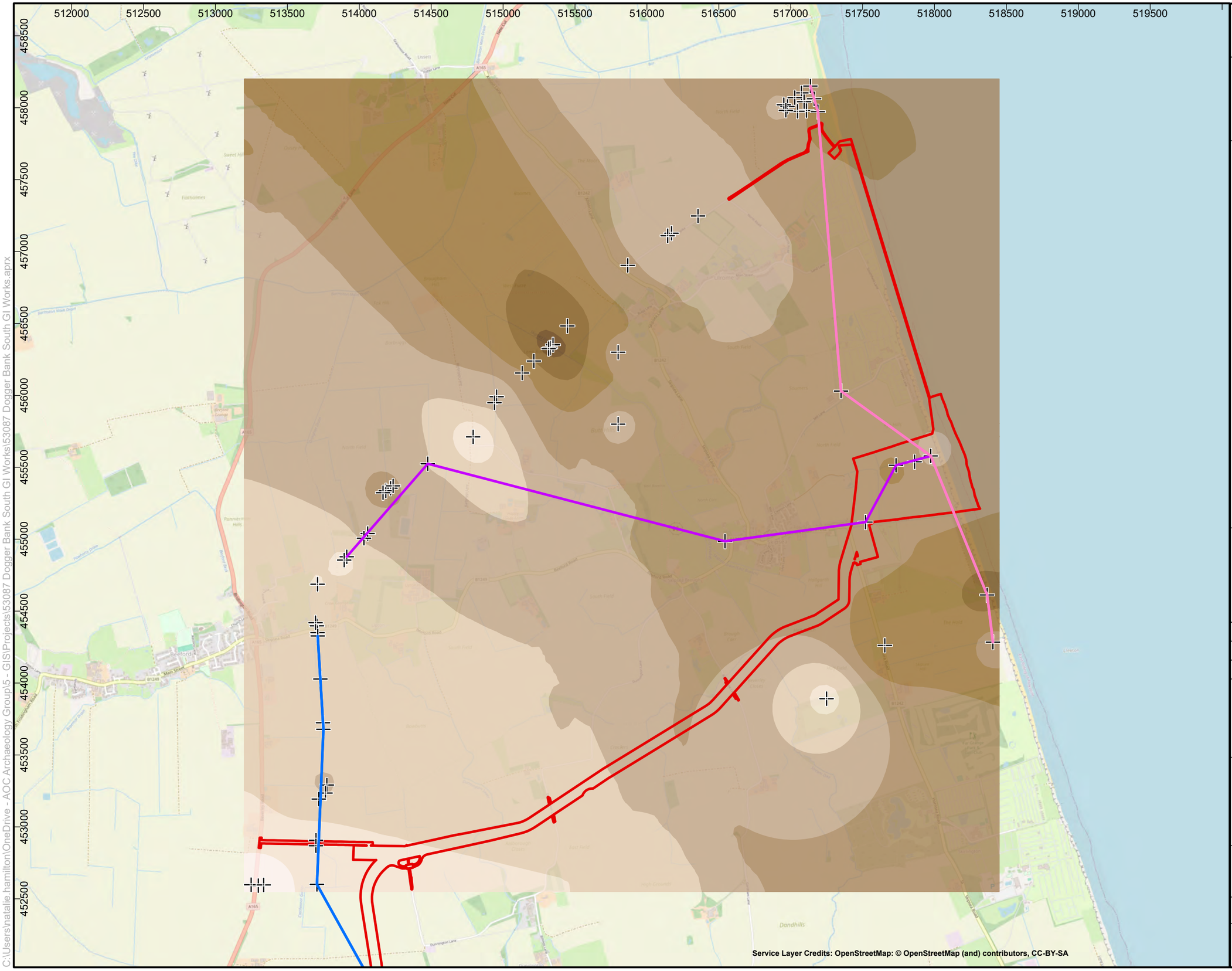

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Figure	22-9-36

Topographic plot of the below ground organic deposits (extrapolated from deposit records)
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Organic Surface - Area 1

m OD

- 16.01 - 18.00
- 14.01 - 16.00
- 12.01 - 14.00
- 10.01 - 12.00
- 8.01 - 10.00
- 6.01 - 8.00
- 4.01 - 6.00
- 3.00 - 4.00

FOR

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RWE Renewables UK Dogger Bank South (East) Limited

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DWG no / Date:	08/01/24
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 1,000m

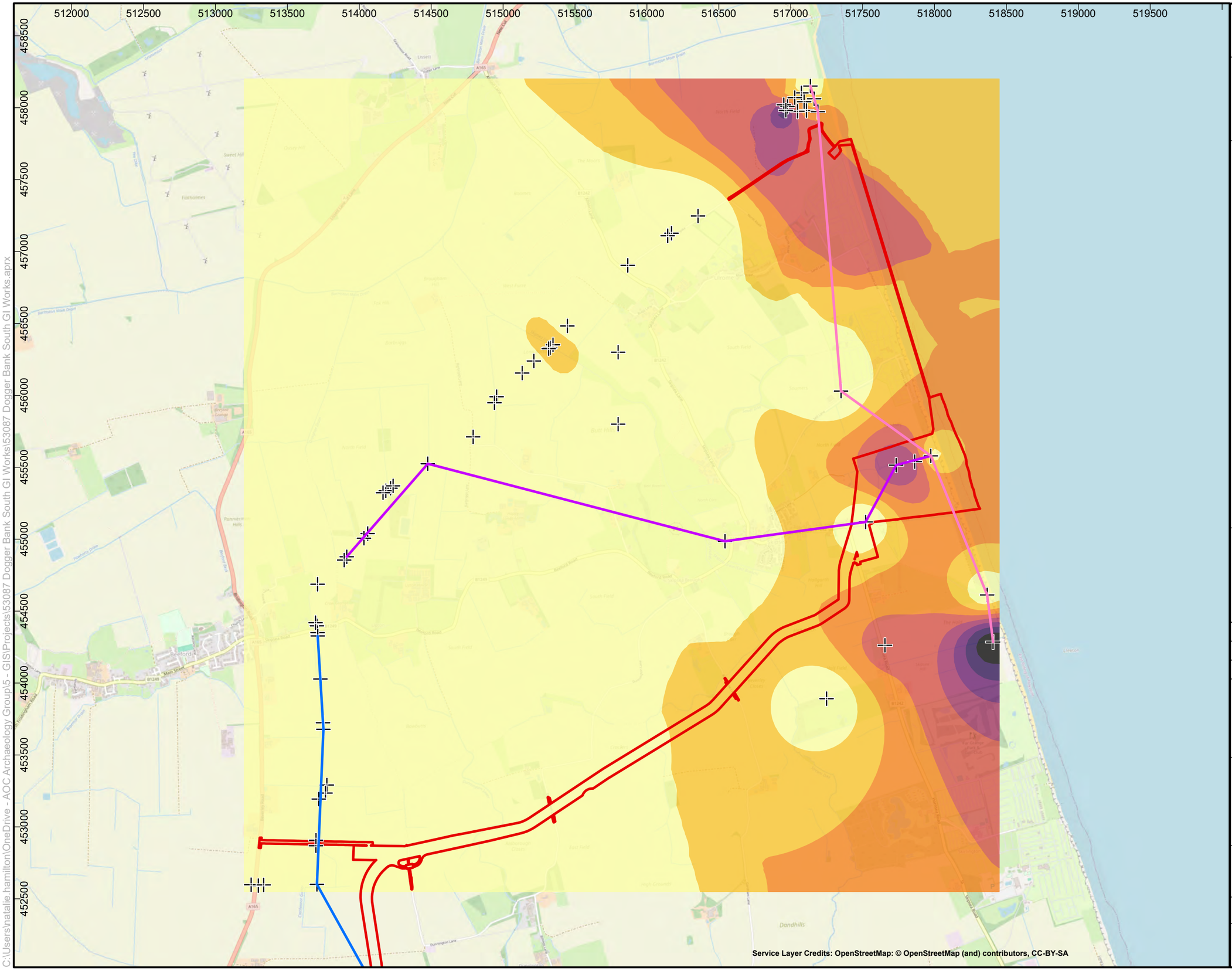

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Figure	22-9-37

Thickness plot of the below ground warp / upper alluvium deposits (extrapolated from deposit records), representing deposit survival
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Warp / Upper Alluvium Thickness - Area 1

m

- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 0.75
- 0.76 - 1.00
- 1.01 - 1.25
- 1.26 - 1.50
- 1.51 - 1.75
- 1.76 - 2.00

FOR

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and
RWE Renewables UK Dogger Bank South (East) Limited

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DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 — 1,000 m

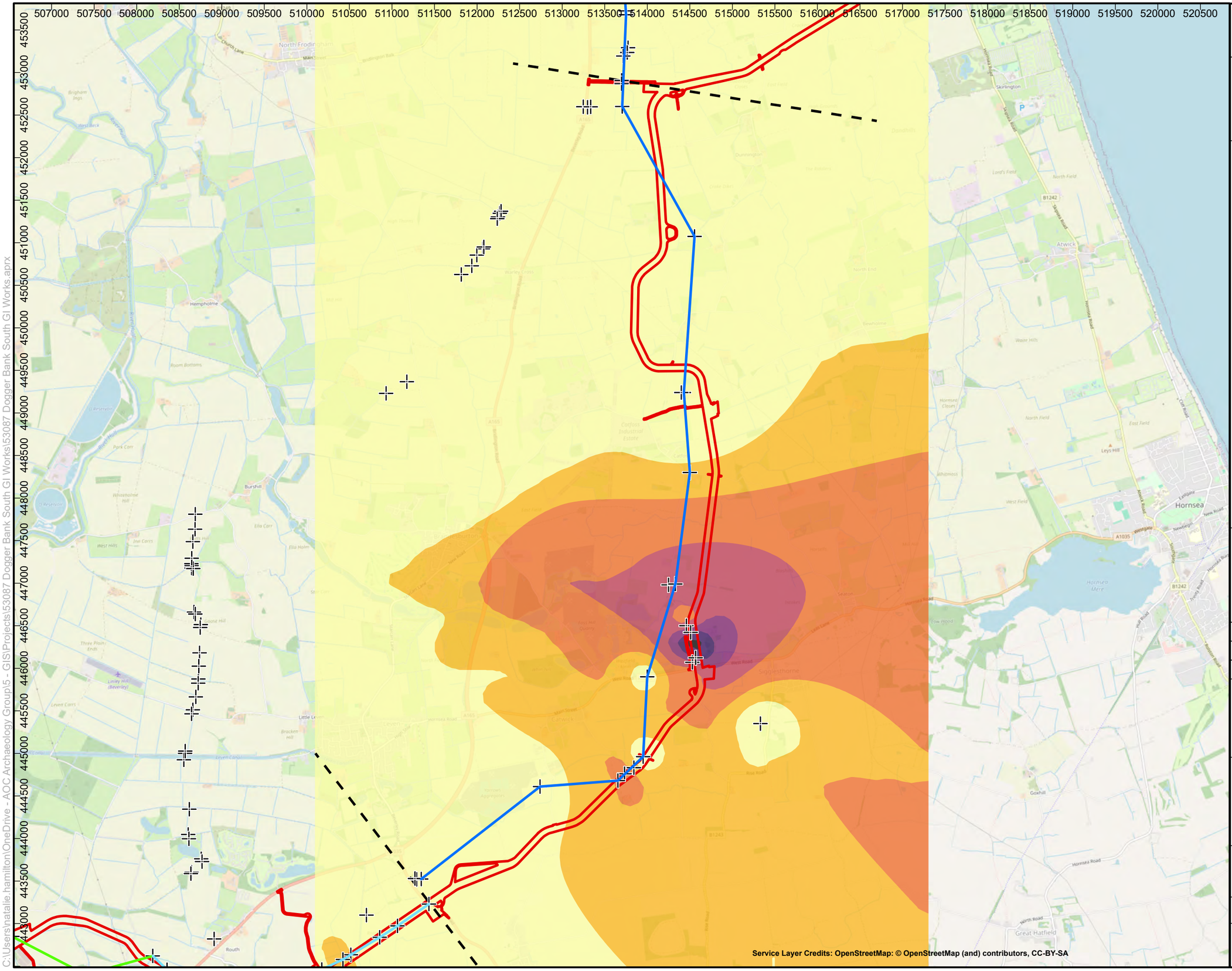

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Figure	22-9-38

Thickness plot of below ground warp / upper alluvium deposits (extrapolated from deposit records), representing deposit survival
- Area 2

Legend

- Transect L
- Transect M
- Transect N
- Data Points
- Onshore Development Area

Warp / Upper Alluvium Thickness - Area 2

m

- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 0.75
- 0.76 - 1.00
- 1.01 - 1.25
- 1.26 - 1.50
- 1.51 - 1.75

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DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:42,250 @ A3

0 2,000m

Figure	22-9-39

Thickness plot of the below ground warp / upper alluvium deposits (extrapolated from deposit records) - Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Warp / Alluvium Thickness - Area 3

m

- 0.00 - 2.00
- 2.01 - 4.00
- 4.01 - 6.00
- 6.01 - 8.00
- 8.01 - 10.00
- 10.01 - 12.00
- 12.01 - 14.00

FOR

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AOC Archaeology Group

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:45,000 @ A3

0 2,000m

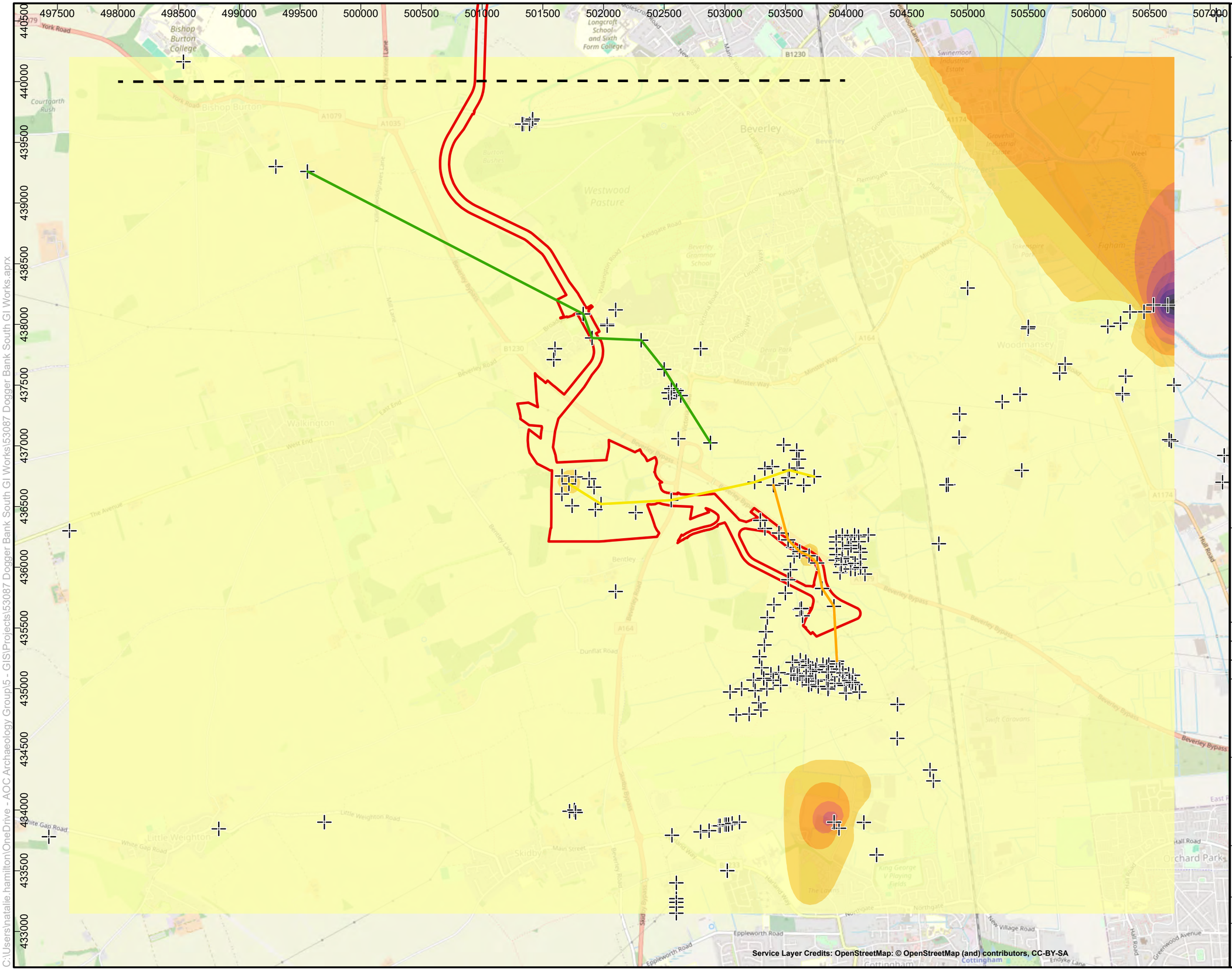

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Figure	22-9-40

Thickness plot of the below ground warp / upper alluvium deposits (extrapolated from deposit records), showing deposit survival
- Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Warp / Alluvium Thickness - Area 4

m

- 0.00 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00
- 6.01 - 7.00
- 7.01 - 8.00
- 8.01 - 9.00
- 9.01 - 10.00

FOR

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DWG no / Date:	27/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:29,622 @ A3

0 1,500m

Figure	22-9-41

Topographic plot of the below ground warp / upper alluvium deposits (extrapolated from deposit records) - Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Warp / Upper Alluvium - Area 1

m OD

- 16.01 - 18.00
- 14.01 - 16.00
- 12.01 - 14.00
- 10.01 - 12.00
- 8.01 - 10.00
- 6.01 - 8.00
- 4.01 - 6.00
- 3.50 - 4.00

FOR

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RWE Renewables UK Dogger Bank South (East) Limited

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DWG no / Date:	08/01/24
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 1,000m

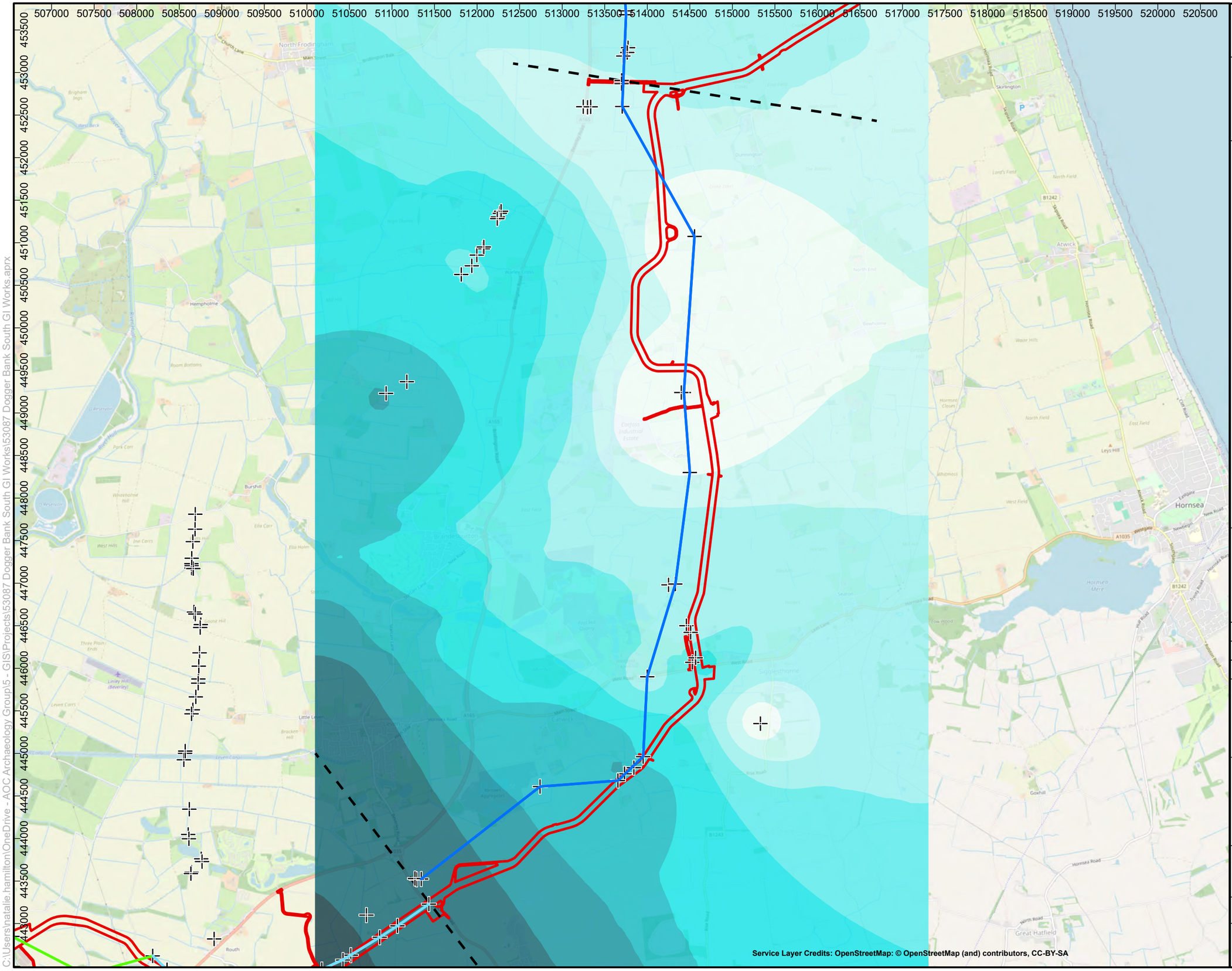

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Figure	22-9-42

Topographic plot of below ground warp / upper alluvium deposits (extrapolated from deposit records)
- Area 2

Legend

- Transect L
- Transect M
- Transect N
- Data Points
- Onshore Development Area

Warp / Upper Alluvium Surface - Area 2
m OD

- 18.01 - 20.00
- 16.01 - 18.00
- 14.01 - 16.00
- 12.01 - 14.00
- 10.01 - 12.00
- 8.01 - 10.00
- 6.01 - 8.00
- 4.01 - 6.00
- 2.01 - 4.00
- 1.00 - 2.00

FOR

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and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT/NH
DWG no / Date:	09/01/24
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:42,250 @ A3

0 2,000m

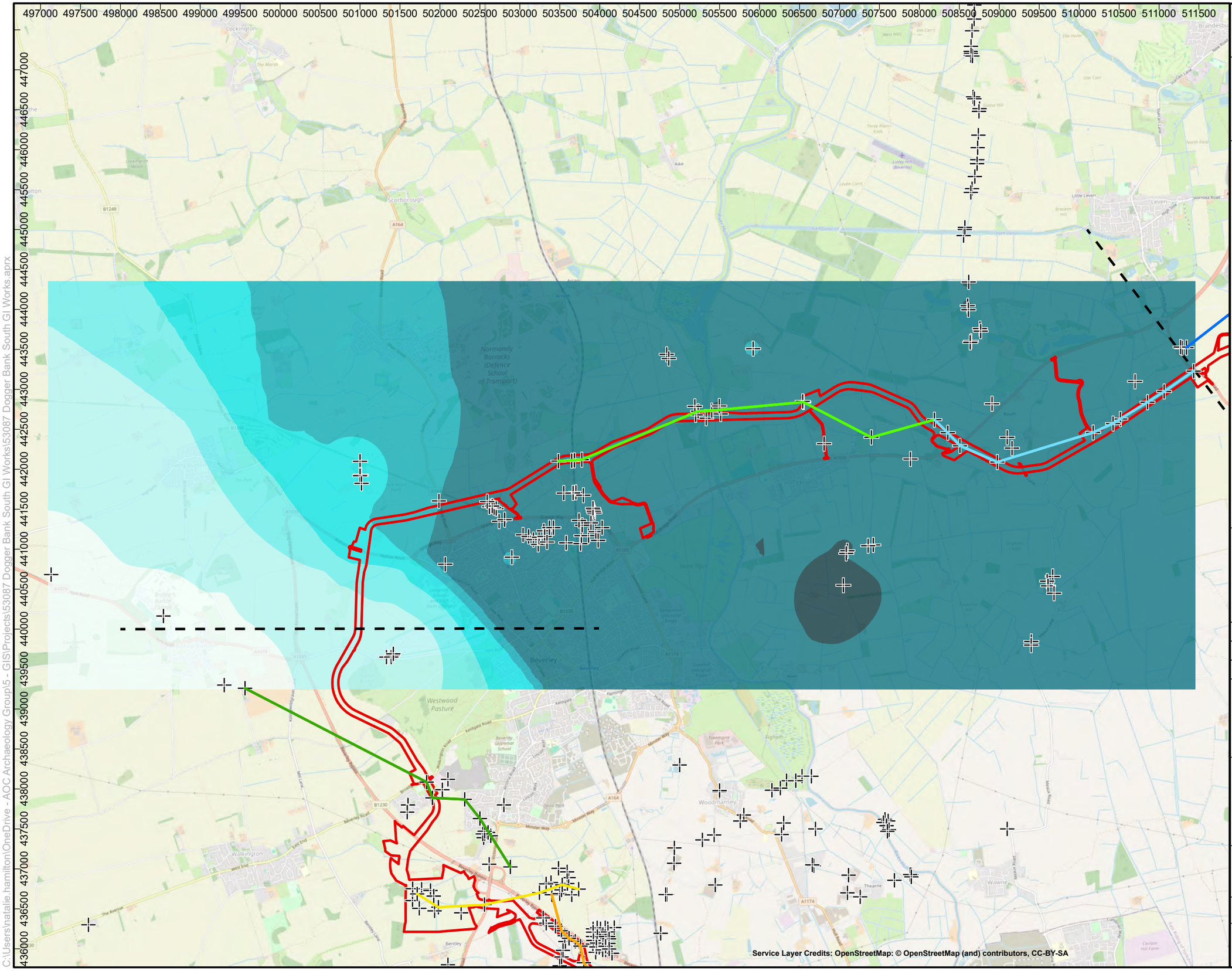

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Figure	22-9-43

Topographic plot of the below ground warp / upper alluvium deposits (extrapolated from deposit records) - Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Warp / Upper Alluvium - Area 3

m OD

- 50.01 - 60.00
- 40.01 - 50.00
- 30.01 - 40.00
- 20.01 - 30.00
- 10.01 - 20.00
- 0.01 - 10.00
- -1.00 - 0.00

FOR

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RWE Renewables UK Dogger Bank South (East) Limited

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DWG no / Date:	09/01/24
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:45,000 @ A3

0 2,000m

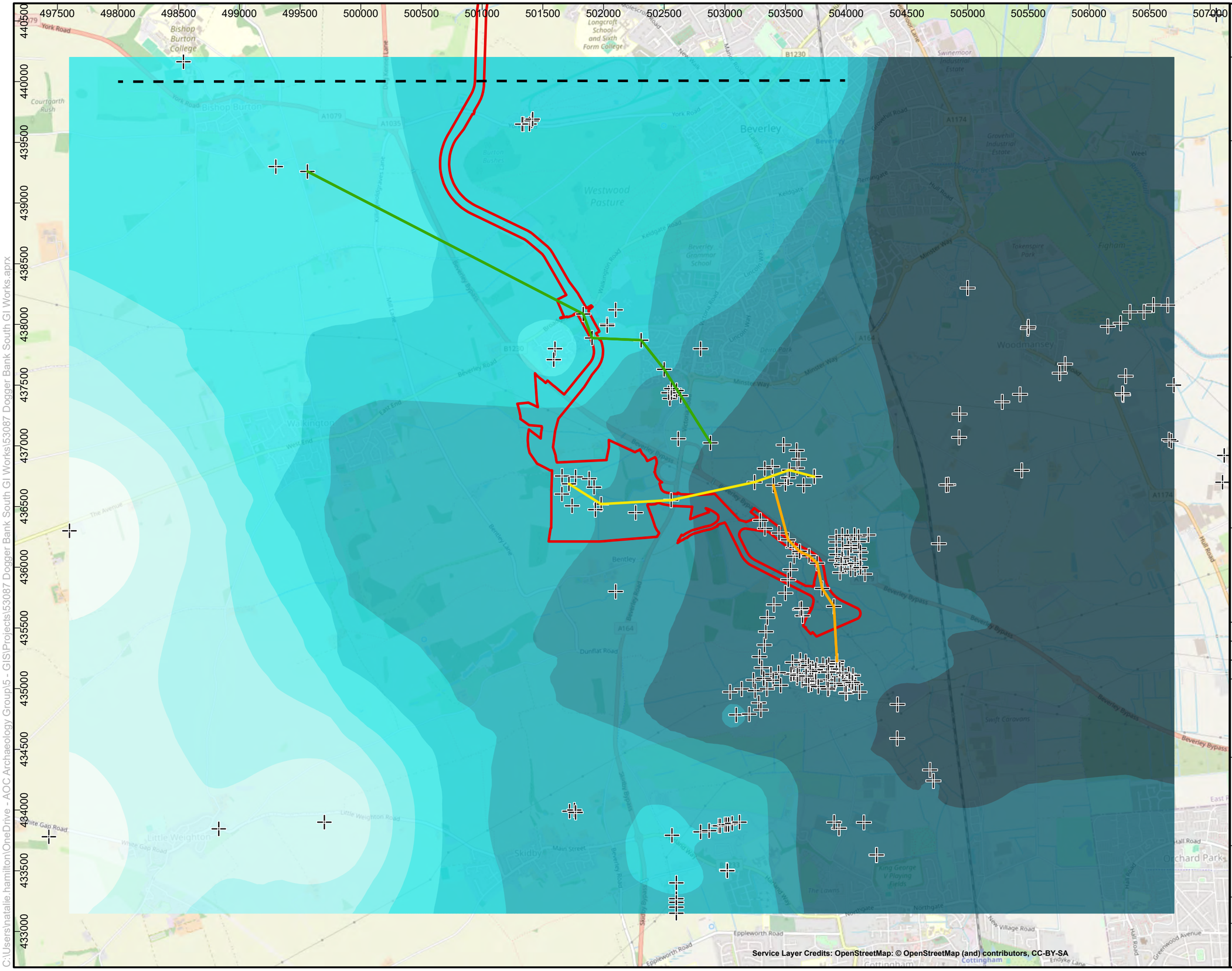

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Figure	22-9-44

Topographic plot of the below ground warp / upper alluvium deposits (extrapolated from deposit records) - Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Warp / Upper Alluvium Surface - Area 4
m OD

- 90.01 - 100.00
- 80.01 - 90.00
- 70.01 - 80.00
- 60.01 - 70.00
- 50.01 - 60.00
- 40.01 - 50.00
- 30.01 - 40.00
- 20.01 - 30.00
- 10.01 - 20.00
- 1.00 - 10.00

FOR

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AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:29,622 @ A3

0 — 1,500m

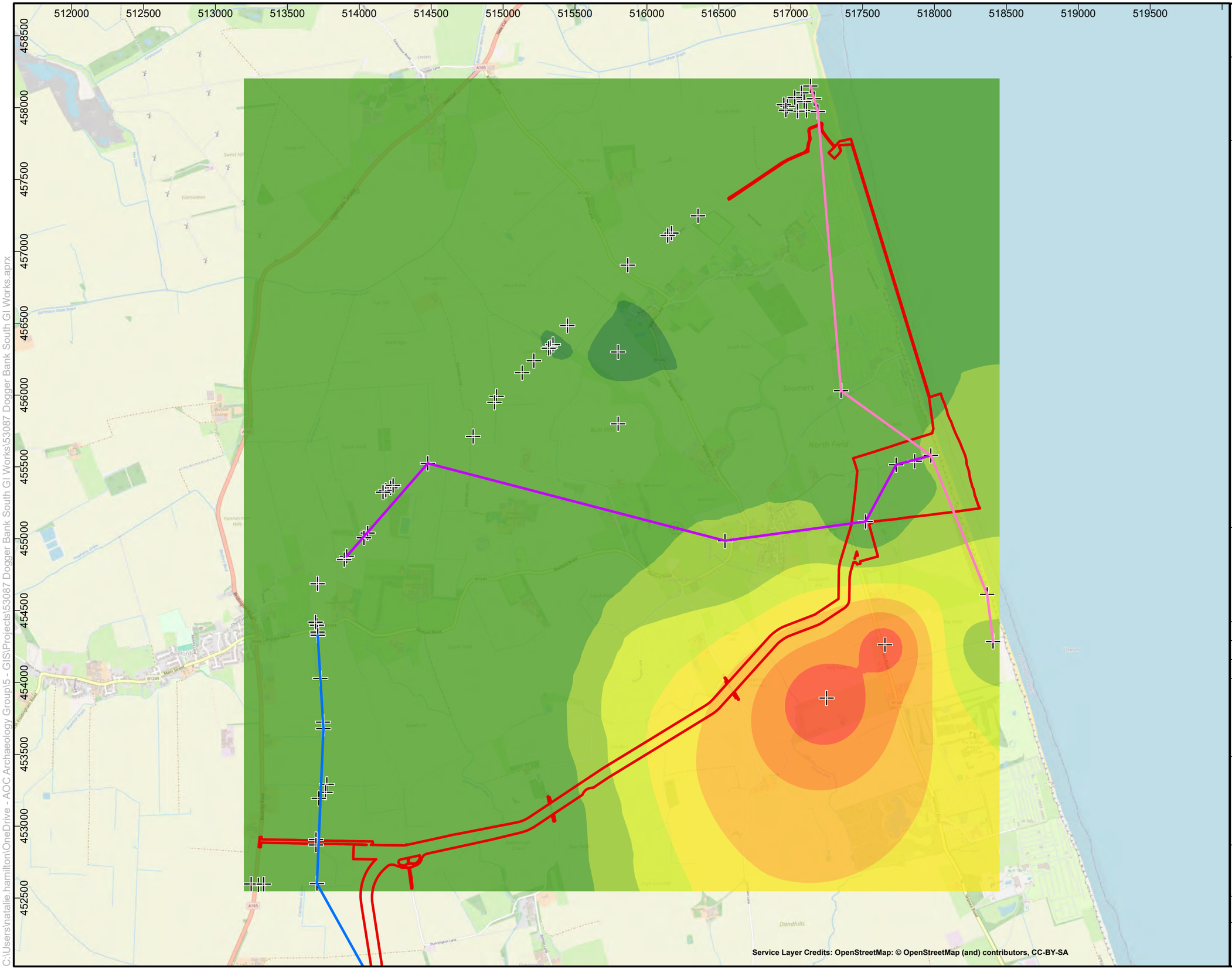

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Figure	22-9-45

Thickness plot of the made ground / topsoil deposits (extrapolated from deposit records), representing potential truncation and disturbance
- Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area

Topsoil / Made Ground Thickness - Area 1

m

- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 0.75
- 0.76 - 1.00
- 1.01 - 1.25
- 1.26 - 1.50
- 1.51 - 1.75
- 1.76 - 2.00

FOR

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AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:25,000 @ A3

0 — 1,000 m

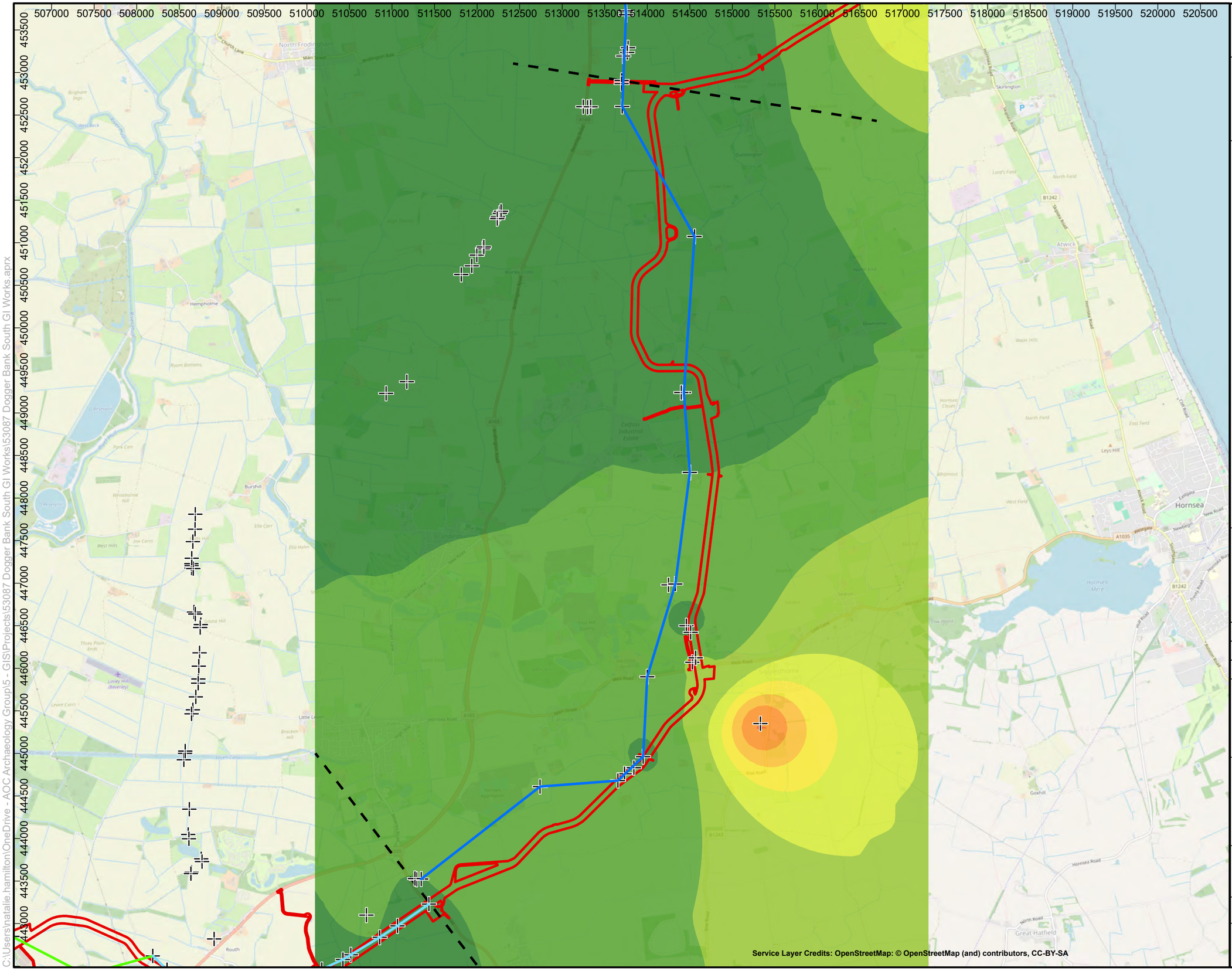

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Figure	22-9-46

Thickness plot of made ground / topsoil deposits (extrapolated from deposit records), representing areas of potential truncation and disturbance
- Area 2

Legend

- Transect L
- Transect M
- Transect N
- Data Points
- Onshore Development Area

Topsoil / Made Ground Thickness - Area 2

m

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- 2.01 - 2.50
- 2.51 - 3.00
- 3.01 - 3.50
- 3.51 - 4.00

FOR

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and
RWE Renewables UK Dogger Bank South (East) Limited

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DWG no / Date:	23/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:42,250 @ A3

0 2,000m

497000 497500 498000 498500 499000 499500 500000 500500 501000 501500 502000 502500 503000 503500 504000 504500 505000 505500 506000 506500 507000 507500 508000 508500 509000 509500 510000 510500 511000 511500

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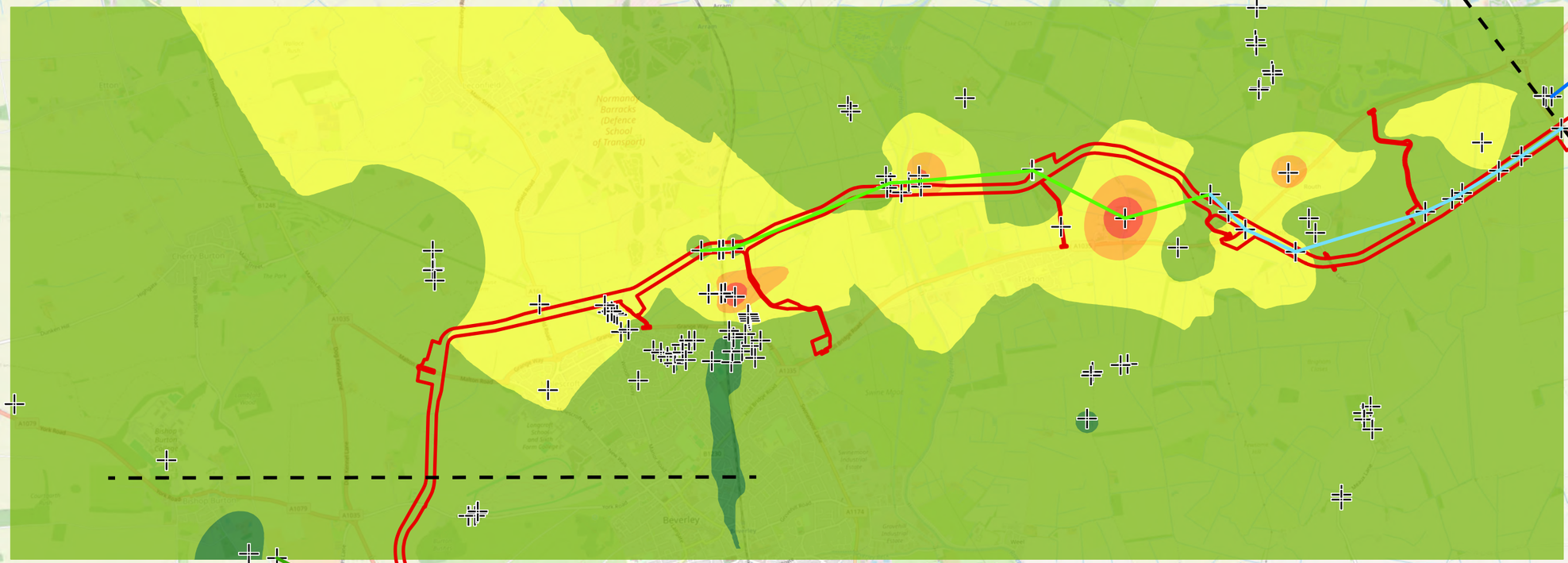

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Figure	22-9-47

Thickness plot of the made ground ground / topsoil deposits (extrapolated from deposit records), indicating potential truncation and disturbance
- Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Topsoil / Made Ground

m

- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 0.75
- 0.76 - 1.00
- 1.01 - 1.25

FOR

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AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:45,000 @ A3

0 2,000m

Figure	22-9-48

Thickness plot of the made ground / topsoil deposits (extrapolated from deposit records), representing potential truncation and disturbance
- Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area

Topsoil / Made Ground Thickness - Area 4

m

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- 2.01 - 2.50
- 2.51 - 3.00
- 3.01 - 3.50
- 3.51 - 4.00

FOR

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RWE Renewables UK Dogger Bank South (East) Limited

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AOC Project No.:	53087

AOC Archaeology Group

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

1:30,000 @ A3

0 — 1,500m

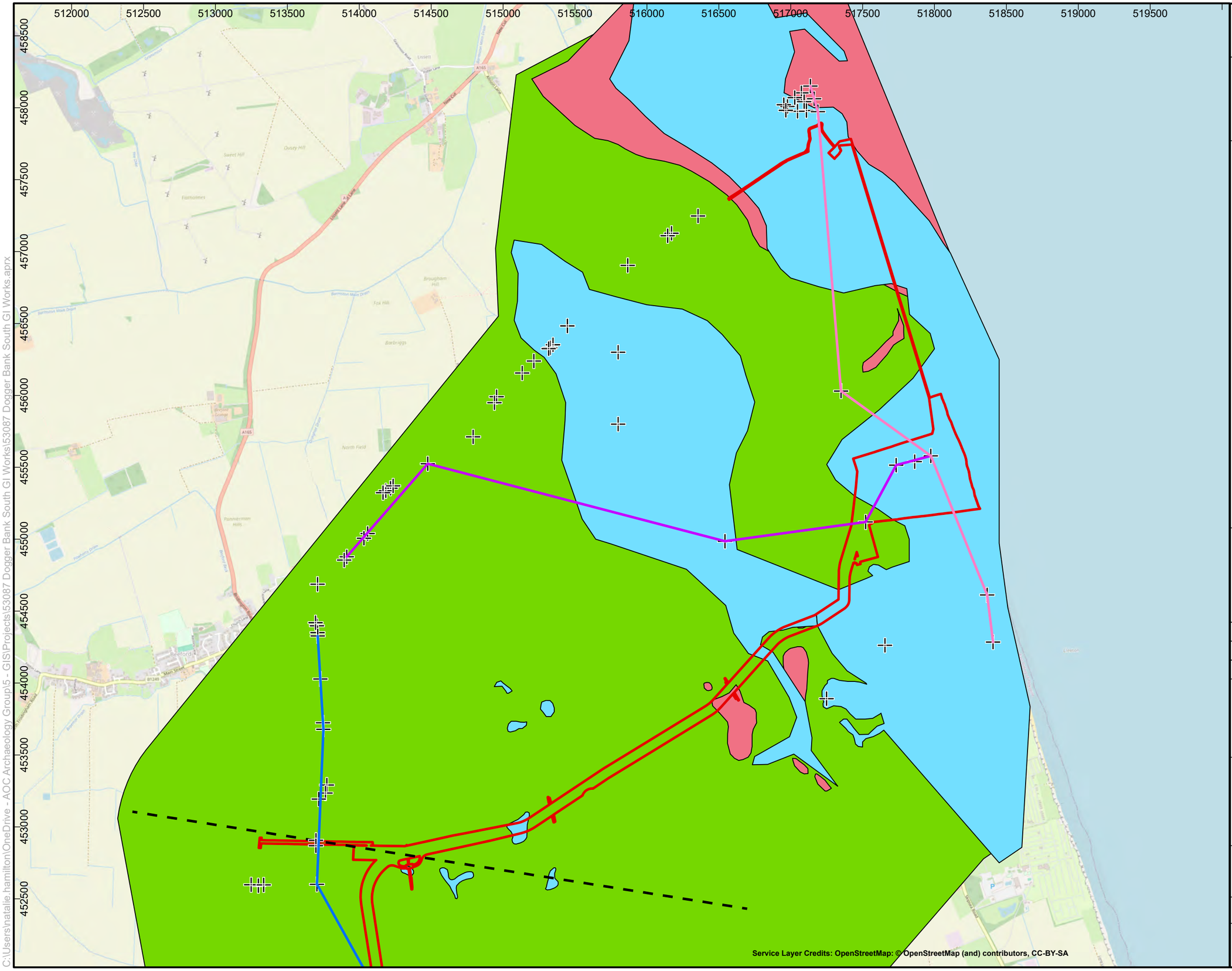

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Figure	22-9-49

Plan showing Areas of Potential (AoPs) for archaeology and palaeoenvironmental remains (extrapolated from deposit records) - Area 1

Legend

- Transect J
- Transect K
- Transect L
- Data Points
- Onshore Development Area
- AoP-A
- AoP-B
- AoP-C
- AoP-D

FOR

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AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

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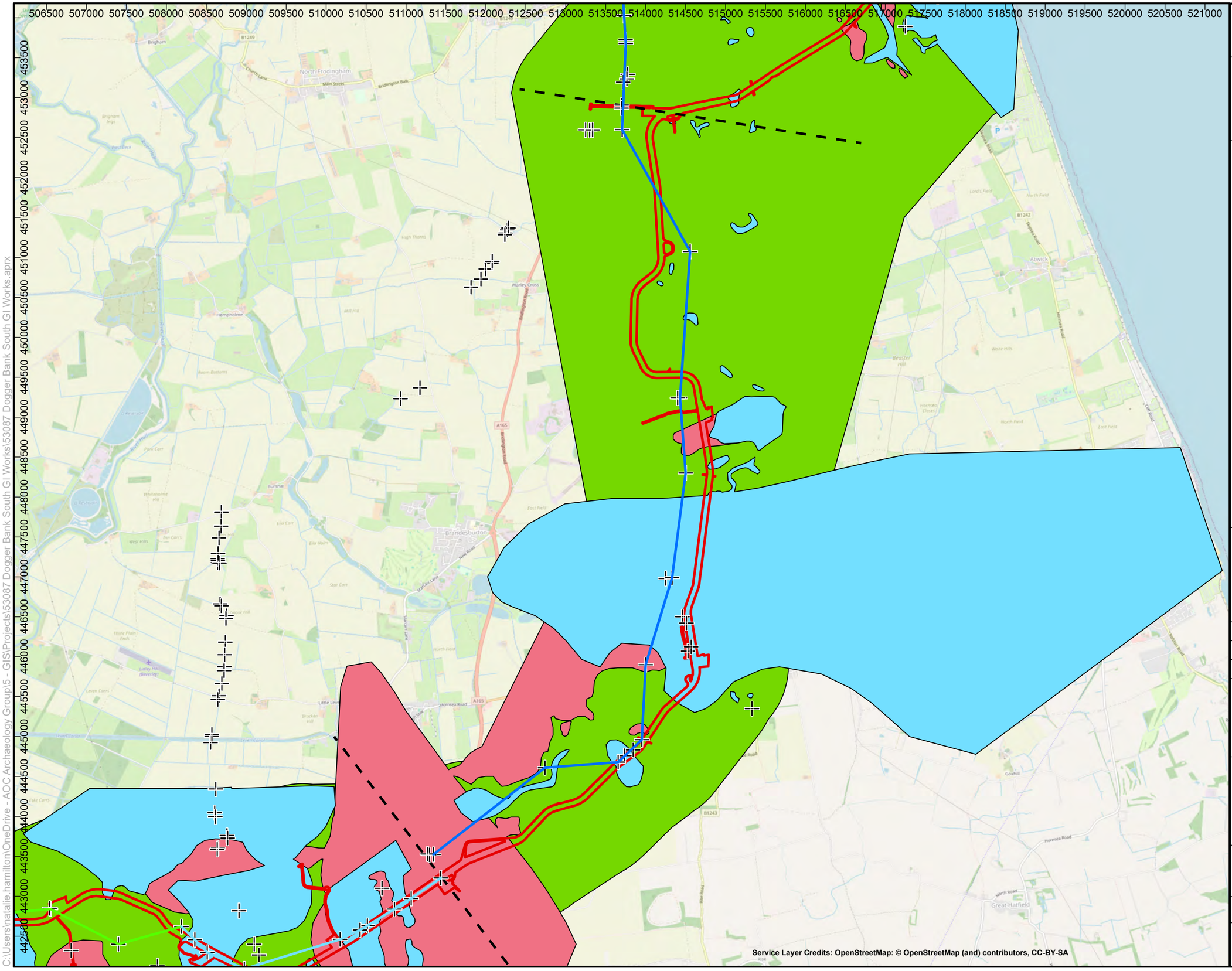

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Figure 22-9-50

Plan showing Areas of Potential (AoPs) for archaeology and palaeoenvironmental remains (extrapolated from deposit records) - Area 2

Legend

- Transect L
- Transect M
- Transect N
- Data Points
- Onshore Development Area
- AoP-A
- AoP-B
- AoP-C
- AoP-D

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	27/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

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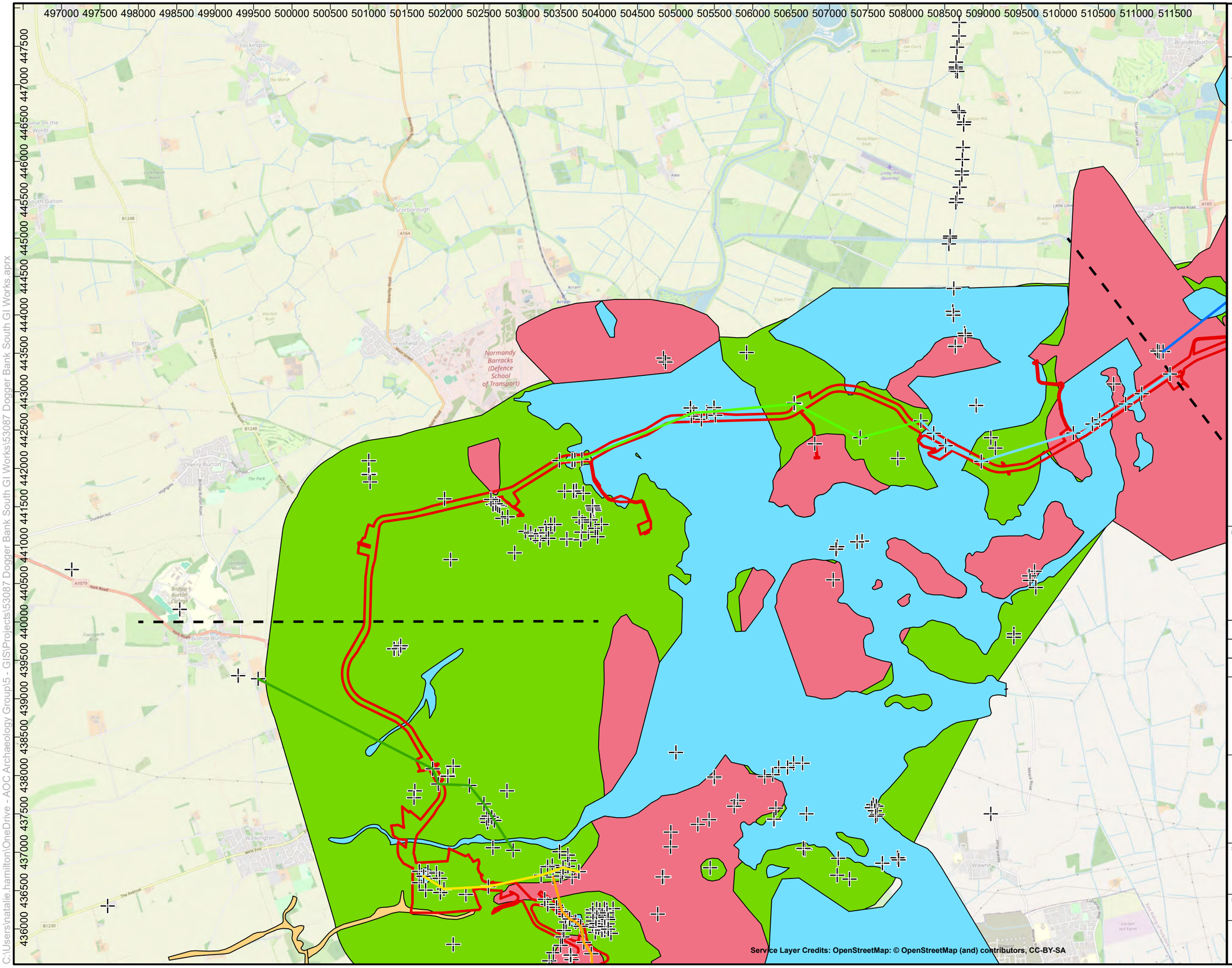

C:\Users\natalie.hamilton\OneDrive - AOC Archaeology Group\5 - GIS\Projects\53087 Dogger Bank South GI Works\53087 Dogger Bank South GI Works.aprx

Figure 22-9-51

Plan showing Areas of Potential (AoPs) for archaeology and palaeoenvironmental remains (extrapolated from deposit records) - Area 3

Legend

- Transect L
- Transect M
- Transect N
- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area
- AoP-A
- AoP-B
- AoP-C
- AoP-D

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	27/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

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0 1,000m

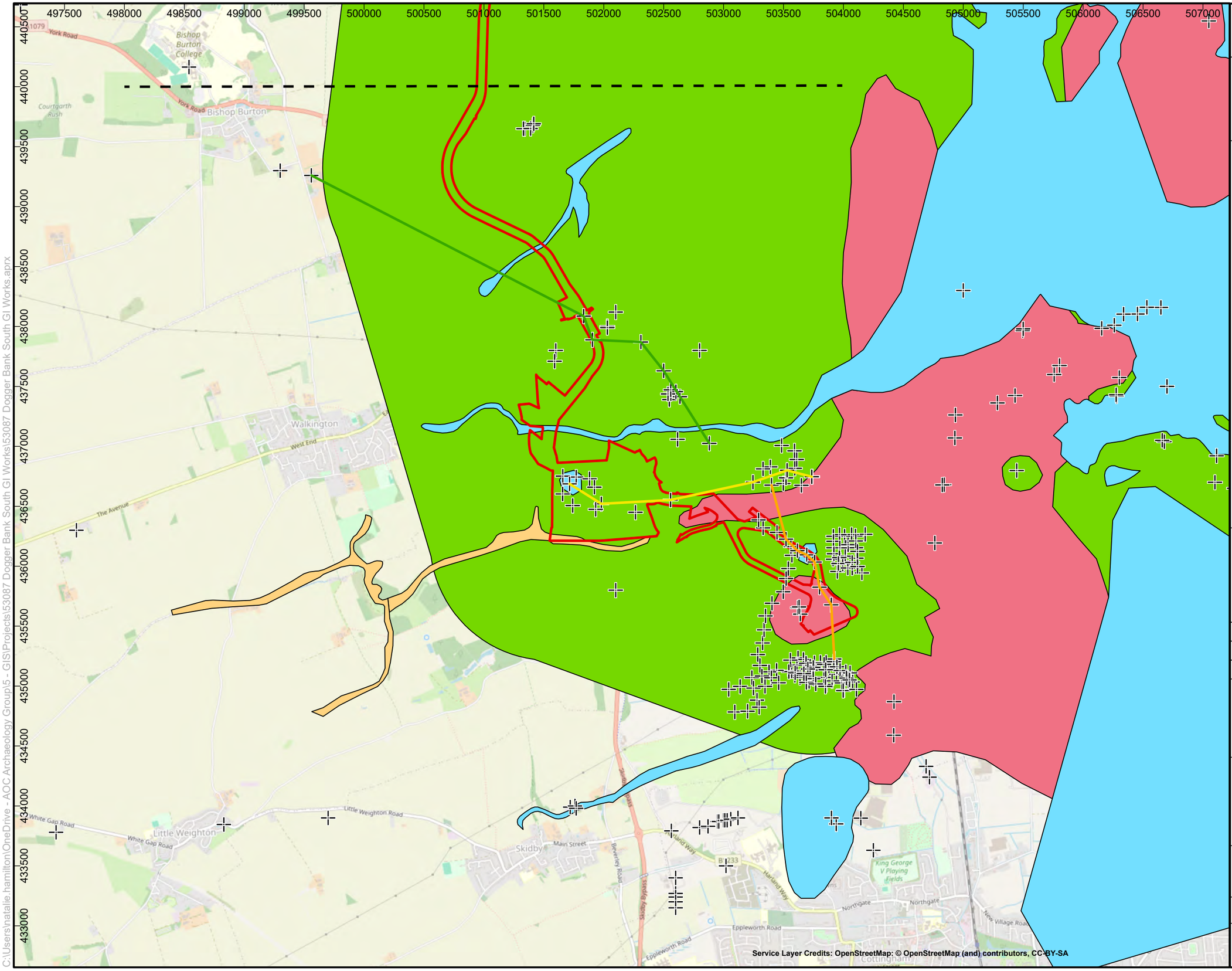

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Figure	22-9-52

Plan showing Areas of Potential (AoPs) for archaeology and palaeoenvironmental remains (extrapolated from deposit records) - Area 4

Legend

- Transect O
- Transect P
- Transect Q
- Data Points
- Onshore Development Area
- AoP-A
- AoP-B
- AoP-C
- AoP-D

FOR

RWE Renewables UK Dogger Bank South (West) Limited
and
RWE Renewables UK Dogger Bank South (East) Limited

Drawn/checked:	JT
DWG no / Date:	27/11/23
AOC Project No.:	53087

AOC Archaeology Group

N

SYSTEM

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

SCALE

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APPENDICES

13 APPENDIX A – DEPOSIT MODEL DATA REFERENCES

Deposit log	Easting	Northing	Elevation m OD	Source
51996_BH01	517163	458062.4	8.05	AOC
51996_BH02	517074.2	458103.2	10.271	AOC
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51996_BH05	515347.1	456352	3.107	AOC
51996_BH06	515327.3	456331	3.022	AOC
51996_BH07	514217.1	455354.6	9.88	AOC
51996_BH08	514184.6	455337.1	9.576	AOC
51996_BH09	513705.3	454398	12.797	AOC
51996_BH10	513709.3	454350.8	13.289	AOC
51996_BH11	513298.1	452591.7	16.725	AOC
51996_BH12	513248.2	452597.9	16.34	AOC
51996_BH13	512267.6	451346.2	9.978	AOC
51996_BH14	512245.6	451303.4	9.685	AOC
51996_BH15	512068.3	450929	9.627	AOC
51996_BH16	511997.2	450854.4	10.451	AOC
51996_BH17	511938.1	450728.6	11.328	AOC
51996_BH18	511814.3	450626.8	10.041	AOC
51996_BH19	508645.2	447207.1	0.522	AOC
51996_BH20	508645	447177.7	0.142	AOC
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51996_BH22	508554.1	444925.1	-0.059	AOC
51996_BH24	507888.9	442129.1	4.082	AOC
51996_BH25	507423.8	441053.7	0.71	AOC
51996_BH26	507359.3	441043.9	0.998	AOC
51996_BH27	507099.3	440981.2	0.141	AOC
51996_BH28	507085.2	440947.3	0.607	AOC
51996_BH29	506649.1	438158.8	1.062	AOC
51996_BH30	506532	438160.2	0.844	AOC
51996_BH31	506453.3	438103.9	1.094	AOC
51996_BH32	506337.7	438102.8	1.074	AOC
51996_BH33	506260.2	438010.2	1.679	AOC
51996_BH34	506155.1	437984.2	1.725	AOC
51996_BH35	505803.4	437673.9	3.075	AOC
51996_BH36	505758.5	437599.1	2.243	AOC
51996_BH37	504762.7	436193.7	6.805	AOC
51996_BH39	503949	435956	12.613	AOC
51996_BHCS01	504100.5	436252	12.056	AOC
51996_BHCS02	504009.4	436250.3	12.86	AOC
51996_BHCS03	503916.3	436249.6	14.077	AOC
51996_BHCS04	503916.3	436153.8	14.222	AOC
51996_BHCS05	504019	436157.3	12.704	AOC
51996_BHCS06	504105.2	436154.1	12.231	AOC

Deposit log	Easting	Northing	Elevation m OD	Source
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51996_BHCS08	504015.4	436083.4	13.118	AOC
51996_BHCS09	504109.2	436067	12.833	AOC
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51996_TP02	517189.2	457972.5	5.313	AOC
51996_TP03	517093.5	458042	9.483	AOC
51996_TP04	517028.1	458070.2	10.21	AOC
51996_TP05	517047.3	457975.3	10.133	AOC
51996_TP06	516952.1	458020.6	11.491	AOC
51996_TP07	516966.1	457981.9	10.783	AOC
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51996_TP104	508605.3	444047.4	0.197	AOC
51996_TP105	508613.8	443996.9	0.434	AOC
51996_TP106	508758.4	443761.6	0.899	AOC
51996_TP107	508767.9	443728.9	1.737	AOC
51996_TP108	508645.8	443602.6	3.826	AOC
51996_TP109	508637.1	443587.9	3.611	AOC
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51996_TP23	514939.9	455949.2	12.601	AOC
51996_TP24	514791.8	455711.8	16.663	AOC
51996_TP27	514476.3	455524.7	12.444	AOC
51996_TP28	514235.3	455371	10.247	AOC
51996_TP29	514165	455323.4	9.473	AOC
51996_TP30	514058.4	455039.6	11.213	AOC
51996_TP31	514032.5	455006.9	12.11	AOC
51996_TP32	513913.1	454878.1	14.465	AOC
51996_TP33	513895.1	454855.1	15.102	AOC
51996_TP34	513709.9	454687.2	14.45	AOC
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51996_TP35	513695.8	454419.6	12.932	AOC
51996_TP36	513711.3	454327.7	13.429	AOC
51996_TP37	513729.3	454028.3	13.197	AOC
51996_TP38	513747.8	453724	12.749	AOC
51996_TP39	513750.4	453678.4	12.496	AOC
51996_TP40	513774.6	453291.3	12.013	AOC
51996_TP41	513765	453235.4	12.071	AOC
51996_TP42	513718.2	453193.5	12.606	AOC

Deposit log	Easting	Northing	Elevation m OD	Source
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51996_TP46	513335.4	452596.8	17.367	AOC
51996_TP55	512282.2	451369.4	10.408	AOC
51996_TP56	512237.4	451282.9	9.649	AOC
51996_TP57	512079.1	450950	9.283	AOC
51996_TP84	508688.7	447810.2	2.33	AOC
51996_TP87	508642.6	447229.1	0.073	AOC
51996_TP88	508664.6	447171.9	0.288	AOC
51996_TP89	508672.7	446660.8	1.614	AOC
51996_TP90	508688.9	446637.3	1.288	AOC
51996_TP91	508753.4	446513.4	2.593	AOC
51996_TP92	508746.5	446479	3.68	AOC
51996_TP93	508738.7	446181.4	-0.359	AOC
51996_TP94	508725.2	445874.4	-0.077	AOC
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51996_TP96	508660.2	445512.1	-0.257	AOC
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51996_TPCS05	504038.9	436178.9	12.705	AOC
51996_TPCS06	504103.1	436210.5	11.814	AOC
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51996_TPCS08	503920.2	436103.9	13.555	AOC
51996_TPCS09	503966.1	436071.1	13.174	AOC
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51996_TPCS11	503958.3	436022.6	13.738	AOC
51996_TPCS12	504036.6	435985.3	12.46	AOC
51996_TPCS13	504073	436031.5	13.246	AOC
51996_TPCS14	504118	435997.4	12.972	AOC
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52058_AOCBH10	508660	447488	2.5	AOC
52058_AOCBH11	508647	447293	1.3	AOC
52058_AOCBH12	505432	437424	3.8	AOC
52058_AOCBH13	505285	437362	4.2	AOC
52058_AOCBH2	515214	456239	6.4	AOC
52058_AOCBH3	515447	456483	6.3	AOC
52058_AOCBH4	508730	446025	-0.1	AOC
52058_AOCBH5	508695	445664	-0.2	AOC
52058_AOCBH6	507049	440549	-1	AOC
52058_AOCBH7	511175	449367	7.9	AOC

Deposit log	Easting	Northing	Elevation m OD	Source
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AOC53087_BH003	517861.5	455538.4	10.49	AOC
AOC53087_BH004	518406	454284.2	10.83	AOC
AOC53087_BH101	517520	455119.1	8.61	AOC
AOC53087_BH102	517654.4	454262.1	8.96	AOC
AOC53087_BH1503	503693.6	436093.9	15.88	AOC
AOC53087_BH301	514510.2	446421.7	13.88	AOC
AOC53087_BH302	514568.6	446123	7.44	AOC
AOC53087_BH501	513733	444760.1	5.53	AOC
AOC53087_BH502	513655.1	444680.4	7.74	AOC
AOC53087_BH503	511433.7	443229	4.35	AOC
AOC53087_BH504	511064.4	442973.8	3.151	AOC
AOC53087_BH505	510855.9	442839.6	4	AOC
AOC53087_BH601	510516.5	442629.4	1.33	AOC
AOC53087_BH602	510424.5	442572.3	0.71	AOC
AOC53087_BH603	510175.6	442461.1	1.79	AOC
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AOC53087_BH902	503666.3	441705	4.33	AOC
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AOC53087_TP3501	501715	436686.7	33.83	AOC
CA23_BH1401	502557.4	436552.9	20.49	Central Alliance
CA23_BH1502	503615.6	436130.7	15.93	Central Alliance
CA23_BH1504	503898.1	435677.5	12.52	Central Alliance
CA23_BH1505	503801.1	435825.1	11.46	Central Alliance
CA23_BH1506	503759.8	436033.2	14.6	Central Alliance
CA23_BH1601	501832.9	438085.8	50.78	Central Alliance
CA23_BH1603	501905.6	437888.2	49.82	Central Alliance

Deposit log	Easting	Northing	Elevation m OD	Source
CA23_BH1604	502616	437058.2	22.29	Central Alliance
CA23_BH1701	502881.2	437024.2	20.3	Central Alliance
CA23_BH3401	503328.7	436812.5	15.56	Central Alliance
CA23_BH3402	503530.2	436799.8	15.28	Central Alliance
CA23_BH3501	501715.4	436686.1	33.83	Central Alliance
CA23_BH3502	501980.1	436520.2	29.4	Central Alliance
CA23_BH404	513951.6	444961.5	10.05	Central Alliance
CA23_BH405	513842.9	444831.9	6.52	Central Alliance
CA23_BH604	508508	442293.7	3.24	Central Alliance
CA23_BH605	508976.2	442090.6	4	Central Alliance
CA23_BH803	503682.5	442112	3.42	Central Alliance
CA23_BH901	503648.5	442108.7	4	Central Alliance
CA23_TP3501	501770.2	436743.7	33.48	Central Alliance
CA23_TP3502	501657	436602.7	33.63	Central Alliance
CA23_TP3503	501932.8	436474.3	30.21	Central Alliance
CA23_TP3504	501881.5	436729.1	31.62	Central Alliance
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CA23_TP3506	501741	436506.1	31.7	Central Alliance
CA23_TP3508	501922	436659.3	29.69	Central Alliance
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CA23_WS701	505513.6	442692.6	1	Central Alliance
CA23_WS702	505496.1	442792.5	1	Central Alliance
CA23_WS801	505201	442681.3	0	Central Alliance
CA23_WS802	505190	442787.8	1	Central Alliance
CA23_WS803	503775.2	442120.5	3.03	Central Alliance
CA23_WS804	503794.4	441675.4	4.33	Central Alliance
CA23_WS901	503482.7	442102.2	5	Central Alliance
CA23_WS902	503550.1	441702.6	4.405	Central Alliance
Dennison2011_Tr1_W	516543	454985.8	8.94	Dennison (2011)
HOW04-BH001	503621.4	435234.8	13.698	AOC
HOW04-BH002	503923.8	435225.8	10.461	AOC
HOW04-BH003	503856	435197.8	11.419	AOC
HOW04-BH004	503612	435176.2	13.69	AOC
HOW04-BH005	503879.2	435141.9	11.844	AOC
HOW04-BH006	504019.9	435118.9	11.668	AOC
HOW04-BH007	503595	435088.9	14.353	AOC
HOW04-BH008	503726	435133.6	11.529	AOC
HOW04-BH009	503941	435098	11.859	AOC
HOW04-BH010	503838	435071.8	12.811	AOC
HOW04-BH011	503994.8	435036.3	10.998	AOC
HOW04-BH012	503713.7	435038	13.67	AOC
HOW04-BH013	503857.3	435011.9	12.395	AOC
HOW04-BH014	504041.1	435043	10.801	AOC
HOW04-BH015	504003.9	434967.7	11.474	AOC
HOW04-CPT001	503666.5	435222.3	13.607	AOC

Deposit log	Easting	Northing	Elevation m OD	Source
HOW04-CPT003	503808.1	435197.2	12.284	AOC
HOW04-CPT006	503722.3	435167.1	12.353	AOC
HOW04-CPT013	503637.4	435071.1	14.022	AOC
HOW04-CPT021	503568.1	435125.5	14.704	AOC
HOW04-TP001	503557.4	435216.5	13.766	AOC
HOW04-TP003	503688.2	435190.2	13.116	AOC
HOW04-TP004	503757.8	435193.7	12.465	AOC
HOW04-TP005	503838.6	435181.4	11.881	AOC
HOW04-TP006	503919.2	435203.8	10.548	AOC
HOW04-TP007	503945.5	435160.9	11.388	AOC
HOW04-TP008	504055.5	435110	11.396	AOC
HOW04-TP009	503972	435129.6	11.975	AOC
HOW04-TP010	503852.1	435136.2	12.488	AOC
HOW04-TP011	503748.6	435155.9	12.394	AOC
HOW04-TP012	503703.2	435142.3	12.127	AOC
HOW04-TP013	503544.6	435120.6	15.337	AOC
HOW04-TP014	503597.1	435110.7	14.391	AOC
HOW04-TP015	503669.6	435103.7	13.471	AOC
HOW04-TP016	503748.1	435061.8	14.259	AOC
HOW04-TP018	503905.4	435043	12.003	AOC
HOW04-TP019	503986.7	435026.3	11.145	AOC
HOW04-TP020	504077.1	435033.9	10.803	AOC
HOW04-TP021	503690.6	435030.3	13.675	AOC
HOW04-TP022	503769.1	435017.7	13.504	AOC
HOW04-TP023	503849.8	434997.3	12.525	AOC
HOW04-TP024	503998.2	434962.3	11.436	AOC
HOW04-TP025	504108.9	434971.8	10.48	AOC
HOW04-TP028	504024.9	435066.4	11.044	AOC
HOW04-TP029	504051	435051.3	11.034	AOC
HOW04-TP101	503442.5	435131.1	16.263	AOC
HOW04-TP102	503379.2	435118.7	16.906	AOC
HOW04-TP103	503303.4	435172.1	17.563	AOC
HOW04-TP104	503285.1	435262.8	17.225	AOC
HOW04-TP105	503325.7	435359.6	16.573	AOC
HOW04-TP106	503337.7	435468.8	17.128	AOC
HOW04-TP107	503349.8	435585.2	18.337	AOC
HOW04-TP108	503404	435690.8	16.048	AOC
HOW04-TP109	503498.2	435786.7	14.867	AOC
HOW04-TP110	503522.1	435897.1	14.865	AOC
HOW04-TP111	503540	435980.1	13.056	AOC
HOW04-TP112	503570.2	436090.7	14.715	AOC
HOW04-TP113	503561.8	436163.3	16.519	AOC
HOW04-TP114	503520.8	436225.4	17.093	AOC
HOW04-TP115	503445.7	436281.9	17.813	AOC
HOW04-TP116	503330	436319.5	18.571	AOC

Deposit log	Easting	Northing	Elevation m OD	Source
HOW04-TP117	503291.9	436386.3	15.906	AOC
HOW04-TP201	503042.8	434972.4	19.838	AOC
HOW04-TP202	503138	434997.2	18.267	AOC
HOW04-TP203	503235.8	435070.7	18.456	AOC
HOW04-TP204	503249.2	434983.2	17.589	AOC
HOW04-TP205	503319.9	435083.9	17.292	AOC
HOW04-TP206	503345.8	434997.5	17.246	AOC
HOW04-TP207	503398.4	435068.9	17.024	AOC
HOW04-TP208	503459.4	435027.3	16.403	AOC
HOW04-TP210	503093.5	434783.7	22.193	AOC
HOW04-TP212	503200.1	434790	19.979	AOC
HOW04-TP213	503278.8	434882.9	17.52	AOC
HOW04-TP214	503296.9	434824.1	18.402	AOC
Marsters2008_S_Auger	518366.2	454612.7	6	Marsters (2008)
SE93NE10	499300	439300	57	BGS
SE93NE8	497600	436300	97	BGS
SE93NE9	499560	439260	52	BGS
SE93NW13	494300	439200	109	BGS
SE93SE7	497430	433780	97.54	BGS
SE93SE8/A	498830	433845	69.19	BGS
SE93SE82	499700	433900	89	BGS
SE94SE26/B	498539	440164	51.82	BGS
SE94SE33	497133	440683	52.04	BGS
TA03NE114	505000	438300	2.5	BGS
TA03NE119	507260	436650	2.5	BGS
TA03NE14	507885	436929	5	BGS
TA03NE150	507690	436850	3.05	BGS
TA03NE152	507900	436930	5	BGS
TA03NE157	506660	437050	2.13	BGS
TA03NE166	505500	437980	4.57	BGS
TA03NE169	506280	437420	4	BGS
TA03NE17	506678	437039	2.13	BGS
TA03NE175	509400	439800	5	BGS
TA03NE184	507100	436700	4	BGS
TA03NE194	506700	437500	4	BGS
TA03NE198	509100	437500	6	BGS
TA03NE203	507550	437580	3	BGS
TA03NE214	507570	437620	3	BGS
TA03NE220	507590	437540	4	BGS
TA03NE221	507600	437470	3	BGS
TA03NE222	507610	437600	4	BGS
TA03NE223	507620	437490	4	BGS
TA03NE227	507900	436900	5	BGS
TA03NE24	505496	437966	4.57	BGS
TA03NE38	505446	436798	3.048	BGS

Deposit log	Easting	Northing	Elevation m OD	Source
TA03NE41	507114	436921	2.13	BGS
TA03NE49	506302	437574	4.57	BGS
TA03NE51	507688	436857	3.05	BGS
TA03NE6	509401	439846	6	BGS
TA03NE87	506276	437430	3	BGS
TA03NW12	502636	437414	25.6	BGS
TA03NW126	502500	437630	34	BGS
TA03NW129	502310	437870	42.67	BGS
TA03NW130	502030	438000	50	BGS
TA03NW149	501340	439650	46	BGS
TA03NW150	503630	435660	16	BGS
TA03NW162	504840	436680	8.23	BGS
TA03NW177	503640	435600	16	BGS
TA03NW178	502100	438120	45	BGS
TA03NW20/B	501330	439650	46	BGS
TA03NW3	503619	435653	15	BGS
TA03NW383	502602	437456	25.34	BGS
TA03NW384	502560	437439	28.5	BGS
TA03NW385	502536	437437	29.8	BGS
TA03NW386	502559	437471	29.8	BGS
TA03NW387	502547	437390	28.8	BGS
TA03NW395	504930	437070	7	BGS
TA03NW410	501600	437800	55.64	BGS
TA03NW420	502100	435800	28	BGS
TA03NW427	501416	439691	45	BGS
TA03NW428	501390	439651	49.75	BGS
TA03NW429	501409	439678	45	BGS
TA03NW6/B	501590	437710	53.34	BGS
TA03NW67	504825	436678	8.23	BGS
TA03NW7	502030	437990	50	BGS
TA03NW81	504934	437262	6.1	BGS
TA03NW94	502800	437800	27.5	BGS
TA03SW107	503020	433500	33.53	BGS
TA03SW108	502800	433820	42.26	BGS
TA03SW109	502870	433830	39.11	BGS
TA03SW110	502950	433870	32.199	BGS
TA03SW111	503000	433880	34.04	BGS
TA03SW112	502960	433870	33.85	BGS
TA03SW113	503010	433880	33.53	BGS
TA03SW114	503030	433880	32.95	BGS
TA03SW115	503060	433890	31.99	BGS
TA03SW116	503120	433900	29.02	BGS
TA03SW134	501720	433990	33.7	BGS
TA03SW135	501760	434000	33.6	BGS
TA03SW136	501770	433980	34.1	BGS

Deposit log	Easting	Northing	Elevation m OD	Source
TA03SW159	503900	433900	13	BGS
TA03SW168	502600	433240	38	BGS
TA03SW172	502600	433270	39	BGS
TA03SW175	502600	433150	35	BGS
TA03SW177	502600	433400	46	BGS
TA03SW179	502600	433200	37	BGS
TA03SW19	504422	434870	9.14	BGS
TA03SW36/E	504718	434240	11	BGS
TA03SW36/W	504690	434330	9	BGS
TA03SW36/Y	504420	434590	10	BGS
TA03SW47	504145	433898	12.19	BGS
TA03SW48	503940	433850	13.72	BGS
TA03SW54	503016	433506	33.53	BGS
TA03SW56	502564	433792	45.77	BGS
TA03SW70	504249	433628	9.14	BGS
TA03SW98	503940	433850	13.72	BGS
TA03SW99	504250	433630	11	BGS
TA04SE15	509611	440541	5	BGS
TA04SE2	505332	442639	2.13	BGS
TA04SE21	506808	442321	5	BGS
TA04SE23	509686	440449	5	BGS
TA04SE3	506548	442842	7.62	BGS
TA04SE33	508910	442820	5	BGS
TA04SE37	506540	442850	7.62	BGS
TA04SE48	509100	442400	5	BGS
TA04SE49	509670	440660	5	BGS
TA04SE51	509600	440600	6	BGS
TA04SE6/C	505920	443510	10.97	BGS
TA04SE7	509160	442265	4.88	BGS
TA04SE76	507400	442400	4	BGS
TA04SE8/A	508910	442820	4.88	BGS
TA04SW100	504030	441270	6	BGS
TA04SW111	503040	441180	8	BGS
TA04SW112	503310	441160	6.5	BGS
TA04SW113	503420	441270	6	BGS
TA04SW114	503230	441060	7	BGS
TA04SW115	503370	441270	7	BGS
TA04SW116	503300	441230	8	BGS
TA04SW117	503170	441120	8	BGS
TA04SW118	503240	441150	8	BGS
TA04SW119	503340	441090	10	BGS
TA04SW120	503110	441160	9	BGS
TA04SW134	501000	441920	23	BGS
TA04SW142	503580	441080	6.096	BGS
TA04SW15	501987	441604	23.73	BGS

Deposit log	Easting	Northing	Elevation m OD	Source
TA04SW152	501000	442100	21	BGS
TA04SW16/A	502740	441350	11	BGS
TA04SW16/B	502810	441370	10	BGS
TA04SW17/A	502652	441540	7.86	BGS
TA04SW17/B	502654	441540	8.01	BGS
TA04SW17/C	502677	441521	8.11	BGS
TA04SW17/D	502618	441531	7.96	BGS
TA04SW17/E	502704	441509	8.53	BGS
TA04SW17/F	502591	441596	7.99	BGS
TA04SW21/A	504838	443438	6.1	BGS
TA04SW21/B	504864	443386	6.1	BGS
TA04SW22	501018	441824	24.38	BGS
TA04SW23	502066	440812	24.38	BGS
TA04SW29/A	503934	441454	5.83	BGS
TA04SW29/B	503922	441496	5.83	BGS
TA04SW29/C	503915	441513	5.83	BGS
TA04SW29/D	503926	441474	5.83	BGS
TA04SW30	503581	441079	6.096	BGS
TA04SW72	501010	441930	22	BGS
TA04SW73	502900	440900	11	BGS
TA04SW90	503980	441110	7	BGS
TA04SW93	503760	441070	8	BGS
TA04SW94	503770	441170	8	BGS
TA04SW95	503780	441300	8	BGS
TA04SW96	503740	441360	8	BGS
TA04SW97	503890	441330	7	BGS
TA04SW98	503860	441170	7	BGS
TA04SW99	503950	441220	7	BGS
TA14NE5	515330	445350	21	BGS
TA14NW10	514500	448300	16.15	BGS
TA14NW35	514400	449240	20	BGS
TA14NW72	514000	445900	14	BGS
TA14NW83	514430	449240	20	BGS
TA14NW84	514460	446500	14	BGS
TA14NW85	514530	446070	14	BGS
TA14NW9/A	514330	446990	14.33	BGS
TA14NW9/B	514250	446980	14.33	BGS
TA14SW13	511270	443530	6.71	BGS
TA14SW20	511290	443520	6.71	BGS
TA14SW22	510700	443100	3	BGS
TA14SW24	512740	444610	7	BGS
TA14SW5	511344	443524	6.71	BGS
TA158558.14	515800	455800	11	BGS
TA158563.03	515800	456300	9	BGS
TA15NE14	517350	456030	9	BGS

Deposit log	Easting	Northing	Elevation m OD	Source
TA15SW15	514556	451074	19	BGS
WX_55762_Tr1	517249.4	453891.4	16.6	Wessex

14 APPENDIX B – BOREHOLE LOGS

Table 5 Deposit log for AOC53087_BH001

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH001		517973.6	455579.1	11.9		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
11.90	11.30	0.00	0.60	0.60	SAND, clayey, Colour:, Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Crumbly Stone: occasional small sub-angular Rootlets: frequent Rooting: none, Interpretation: Topsoil	Topsoil / Made Ground - Victorian to modern
11.30	10.70	0.60	1.20	0.60	CLAY, sandy, Colour: Yellowish Brown (10YR 5/4), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Occasional To semi-frequent chalk flecks Less crumbly than above level, more malleable Stone: none Rootlets: - Rooting: none, Interpretation:	Pleistocene - Till
10.70	9.40	1.20	2.50	1.30	CLAY, silty, Colour: Brown (10YR 5/3), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Soil has very slight red hue to it. Frequent chalk flecks. Occasional Black speckles. Dusting of red brown sand across part of sample. Possible sand lenses Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation:	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH001		517973.6	455579.1	11.9		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
9.40	7.40	2.50	4.50	2.00	CLAY, silty, Colour: Greyish Brown (2.5Y 5/2), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Coarse sandy patch apparent Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Boulder clay/glacial till Colour is more mid brownish grey than greyish brown.	Pleistocene - Till
7.40	1.40	4.50	10.50	6.00	CLAY, silty, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: very gradual, Inclusions - Fewer stones than above layer. Rare black mineralisation flecks Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Boulder clay/glacial till	
1.40	-3.20	10.50	15.10	4.60	Firm to stiff dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium chalk, quartz and flint.	Tertiary Bedrock - chalk
-3.20	-5.20	15.10	17.10	2.00	Loose medium dense brown clayey gravelly fine to coarse SAND. Gravel is subangular to rounded fine to medium quartz, flint, chalk and sandstone.	
-5.20	-8.10	17.10	20.00	2.90	Firm to stiff dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium chalk.	

Bore		Easting	Northing	Elevation		
AOC53087_BH001		517973.6	455579.1	11.9		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-8.10	-17.90	20.00	29.80	9.80	Stiff to very stiff dark brown lightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium chalk.	Tertiary Bedrock - chalk
-17.90	-19.60	29.80	31.50	1.70	White STRUCTURELESS CHALK recovered as sandy silty subangular fine to medium chalk GRAVEL. Sand is fine to coarse.	
-19.60	-20.00	31.50	31.90	0.40	Firm to stiff brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chalk and quartzite.	
-20.00	-22.60	31.90	34.50	2.60	STRUCTURELESS CHALK recovered as soft to firm white sandy gravelly CLAY. Sand is medium to coarse. Gravel is subangular fine to coarse chalk. (Grade Dm)	
-22.60	-23.10	34.50	35.00	0.50	STRUCTURELESS CHALK recovered as soft to firm white sandy gravelly CLAY. Sand is medium to coarse. Gravel is subangular fine to coarse chalk. (Grade Dm)	

Table 6 Deposit log for AOC53087_BH002

Bore		Easting	Northing	Elevation		
AOC53087_BH002		517732.48	455514.3	8.902		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
8.90	8.55	0.00	0.35	0.35	CLAY, silty, Colour: Dark Brown (10YR 3/3), Soil Strength: hard, Soil Structure: homogenous, Moisture: dry, Boundary: sharp, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: frequent, Interpretation: Topsoil. Dry, cement-like, crumbly.	Topsoil / Made Ground - Victorian to modern
8.55	8.00	0.35	0.90	0.55	CLAY, silty, Colour:, Soil Strength: stiff, Soil Structure: homogenous, Moisture: dry, Boundary: sharp, Inclusions - Occasional black mineral staining. Stone: none Rootlets: none Rooting: occasional, Interpretation: Possible subsoil. Compact, dry, crumbly.	Holocene - alluvium/warp
8.00	7.25	0.90	1.65	0.75	CLAY, silty, Colour: Grey (10YR 5/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Occasional chalk flecks and pink sandstone smears. Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Layer. Mid grey silty clay with lenses of orange and grey. Compact, but mouldable with pressure. Slightly moist.	Holocene - alluvium

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH002		517732.48	455514.3	8.902		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
7.25	-0.80	1.65	9.70	8.05	CLAY, silty, Colour: Light Brownish Grey (2.5Y 6/2), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Occasional chalk flecks throughout Stone: none Rootlets: none Rooting: none, Interpretation: Mid brownish grey slightly silty clay. Occasional chalk flecks throughout. Boulder clay/ glacial till	Pleistocene - Till
-0.80	-5.80	9.70	14.70	5.00	CLAY, silty, Colour: Dark Grey (10YR 4/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Slightly silty clay. Compact but ever so slightly softer than the deposit above. Slightly easier to indent the clay with your fingers. Some pressure still required but not as much. Sterile. Till or possible mudstone	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH002		517732.48	455514.3	8.902		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-5.80	-6.30	14.70	15.20	0.50	GRAVEL + quartz, Colour: Brown (10YR 4/3), Soil Strength: firm, Soil Structure: undefined, Moisture: wet, Boundary: sharp, Inclusions - Flint, quartz and chert up to 30mm Stone: none Rootlets: none Rooting: none, Interpretation: Gravel. Compact in ground but loose when disturbed. Wet. Consisted of flint, quartz and chert- rounded and subangular stones up to 30mm.	Pleistocene - Till
-6.30	-12.10	15.20	21.00	5.80	CLAY, silty, Colour: Grey (10YR 5/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Rare chalk flecks Stone: rare small sub-angular Rootlets: none Rooting: none, Interpretation: Boulder clay/ glacial till. Compact but can be moulded and indented with pressure.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH002		517732.48	455514.3	8.902		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-12.10	-14.10	21.00	23.00	2.00	CLAY, silty, Colour: Grey (10YR 5/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: wet, Boundary: sharp, Inclusions - Rounded and subangular gravel present occasionally. Stone: none Rootlets: none Rooting: none, Interpretation: Similar to deposit above but with gravel. Compact in ground but fairly loose when disturbed. Can easily indent.	Pleistocene - Till
-14.10	-17.10	23.00	26.00	3.00	CLAY, silty, Colour: Grey (10YR 6/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Gritty feeling. Occasional chalk flecks present. Stone: none Rootlets: none Rooting: none, Interpretation: Mid grey slightly sandy, silty clay. Compact but can be indented with pressure. Boulder clay/ glacial till	
-17.10	-17.60	26.00	26.50	0.50	CHALK, Colour: White (10R 8/1), Soil Strength: soft, Soil Structure: blocky, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Chalk- bedrock. Exposed for 0.5m. Hole ceased here.	Tertiary bedrock - chalk

Table 7 Deposit log for AOC53087_BH003

Bore		Easting	Northing	Elevation		
AOC53087_BH003		517861.5	455538.4	10.489		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
10.49	10.09	0.00	0.40	0.40	CLAY, silty, Colour: Dark Brown (10YR 3/3), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: sharp, Inclusions - Stone: occasional small rounded Rootlets: none Rooting: frequent, Interpretation: Topsoil	Topsoil / Made Ground - Victorian to modern
10.09	8.79	0.40	1.70	1.30	CLAY, silty, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: very sharp, Inclusions - Stone: occasional small rounded Rootlets: none Rooting: occasional, Interpretation: Layer. Occasional chalk flecks.	Holocene - alluvium/warp
8.79	7.99	1.70	2.50	0.80	CLAY, silty, Colour: Reddish Brown (2.5YR 4/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Black mineral staining and occasional chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Layer. Compact - difficult to indent and break but can with pressure.	Pleistocene - Till
7.99	5.99	2.50	4.50	2.00	CLAY, silty, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Occasional gravel and chalk flecks up to 30mm present. Stone: none Rootlets: none Rooting: none, Interpretation: Layer. Mid greyish brown with tinges of red. Fairly firm but still mouldable.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH003		517861.5	455538.4	10.489		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
5.99	-0.96	4.50	11.45	6.95	CLAY, silty, Colour: Grey (10YR 5/1), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Rare chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Boulder clay/ glacial till. Mid grey slightly silty clay. Very compact- can indent but with pressure. Ceased watching BH at 11.45m bgl.	
-0.96	-3.51	11.45	14.00	2.55	Firm to stiff dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to medium quartz, chalk, sandstone and chert.	
-3.51	-5.21	14.00	15.70	1.70	Brown gravelly clayey fine to coarse SAND. Gravel is angular to subrounded fine to medium chalk, quartz, and chert.	
-5.21	-8.51	15.70	19.00	3.30	Firm dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium quartz, chalk and chert.	
-8.51	-9.51	19.00	20.00	1.00	Brown clayey fine to coarse SAND.	
-9.51	-11.51	20.00	22.00	2.00	Soft to firm slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chalk and quartz.	
-11.51	-13.51	22.00	24.00	2.00	Stiff dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium chalk and quartz.	
-13.51	-18.51	24.00	29.00	5.00	Brown gravelly clayey fine to coarse SAND. Gravel is subangular fine to medium quartz, chalk, and chert.	
-18.51	-19.51	29.00	30.00	1.00	STRUCTURELESS CHALK recovered as white gravelly clayey SILT. Gravel is subangular fine to medium chalk.	Tertiary Bedrock - chalk

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH003		517861.5	455538.4	10.489		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-19.51	-21.01	30.00	31.50	1.50	STRUCTURELESS CHALK recovered as soft off white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse chalk and quartzite. (Grade Dm)	Tertiary Bedrock - chalk
-21.01	-21.72	31.50	32.21	0.71	Assumed zone of core loss. CHALK. (Driller's description)	
-21.72	-22.51	32.21	33.00	0.79	STRUCTURELESS CHALK recovered as soft off white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse chalk and quartzite. (Grade Dm)	
-22.51	-22.92	33.00	33.41	0.41	Assumed zone of core loss. CHALK. (Driller's description)	
-22.92	-24.18	33.41	34.67	1.26	STRUCTURELESS CHALK recovered as soft off white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse chalk and quartzite. (Grade Dm)	
-24.18	-24.33	34.67	34.82	0.15	STRUCTURELESS CHALK recovered as soft off white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse chalk and quartzite. (Grade Dm)	
-24.33	-24.51	34.82	35.00	0.18	Weak white CHALK. Discontinuities are closely spaced undulating rough.	

Table 8 Deposit log for AOC53087_BH004

Bore		Easting	Northing	Elevation		
AOC53087_BH004		518405.97	454284.2	10.827		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
10.83	10.33	0.00	0.50	0.50	CLAY, silty, Colour: Brown (10YR 4/3), Soil Strength: stiff, Soil Structure: homogenous, Moisture: dry, Boundary: gradual, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Topsoil	Topsoil / Made Ground - Victorian to modern
10.33	8.33	0.50	2.50	2.00	CLAY, silty, Colour: Yellowish Brown (10YR 5/4), Soil Strength: firm, Soil Structure: fissured, Moisture: moist, Boundary: gradual, Inclusions - Occasional iron panning. Occasional Black streaks. Stone: rare small sub-angular Rootlets: none Rooting: none, Interpretation:	Holocene - alluvium/warp
8.33	5.33	2.50	5.50	3.00	CLAY, silty, Colour:, Soil Strength: stiff, Soil Structure: undefined, Moisture: moist, Boundary: sharp, Inclusions - Frequent small chalk flecks, though some reaching 2cm. Stone: none Rootlets: none Rooting: none, Interpretation:	Pleistocene - Till
5.33	3.83	5.50	7.00	1.50	CLAY, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Slightly silty, sandy CLAY. Sand is fairly fine. Occasional flecks of chalk Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Inter tidal deposit	

Bore		Easting	Northing	Elevation		
AOC53087_BH004		518405.97	454284.2	10.827		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
3.83	3.43	7.00	7.40	0.40	CLAY, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Slightly silty, sandy CLAY. Sand is fairly fine. Occasional flecks of chalk Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Fluvial deposit	Pleistocene - Till
3.43	-0.17	7.40	11.00	3.60	CLAY, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: gradual, Inclusions - More sandy than above layer and less firm. No chalk Stone: rare small sub-angular Rootlets: none Rooting: none, Interpretation: Inter tidal deposit	
-0.17	-3.17	11.00	14.00	3.00	CLAY, silty, Colour: Greyish Brown (2.5Y 5/2), Soil Strength: stiff, Soil Structure: fissured, Moisture: moist, Boundary: sharp, Inclusions - Slightly silty, sandy CLAY. Sand is fairly fine. Occasional flecks of chalk Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Fluvial deposit	
-3.17	-4.17	14.00	15.00	1.00	GRAVEL, sandy, Colour: Brown (10YR 4/3), Soil Strength: undefined, Soil Structure: undefined, Moisture: wet, Boundary: sharp, Inclusions - Slightly silty, sandy CLAY. Sand is fairly fine. Occasional flecks of chalk Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation:	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH004		518405.97	454284.2	10.827		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-4.17	-4.67	15.00	15.50	0.50	CLAY, silty, Colour: Greyish Brown (2.5Y 5/2), Soil Strength: stiff, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Rare to Occasional small gravel and chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Possible glacial till	Pleistocene - Till
-4.67	-6.17	15.50	17.00	1.50	CLAY, silty, Colour: Grey (10YR 5/1), Soil Strength: stiff, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Slightly silty, sandy CLAY. Sand is fairly fine. Occasional flecks of chalk Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Glacial till. Consistent till deposits, monitoring ceased.	
-6.17	-6.57	17.00	17.40	0.40	Brown clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to medium quartz, sandstone, chert, and flint.	
-6.57	-10.17	17.40	21.00	3.60	Firm to stiff dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular fine to medium quartz, sandstone, and chert.	
-10.17	-11.47	21.00	22.30	1.30	Brown clayey gravelly fine to coarse SAND. Gravel is subangular fine quartz, chalk, flint and chert.	
-11.47	-16.27	22.30	27.10	4.80	Stiff to very stiff brown and grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium chalk and quartz.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH004		518405.97	454284.2	10.827		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-16.27	-17.67	27.10	28.50	1.40	White STRUCTURELESS CHALK recovered as sandy silty subangular fine to medium chalk GRAVEL. Sand is fine to coarse.	Tertiary Bedrock - chalk
-17.67	-18.85	28.50	29.68	1.18	Assumed zone of core loss. CHALK. (Driller's description)	
-18.85	-18.98	29.68	29.81	0.13	STRUCTURELESS CHALK recovered as soft white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse mixed lithologies including flint and chalk. weak low to medium density. (Grade Dm)	
-18.98	-19.17	29.81	30.00	0.19	Weak cream CHALK. Discontinuities are horizontal closely spaced stepped rough surfacing with gravelly clay infill. (Grade C3)	
-19.17	-19.87	30.00	30.70	0.70	Assumed zone of core loss. CHALK (Driller's description)	
-19.87	-20.67	30.70	31.50	0.80	STRUCTURELESS CHALK recovered as soft white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse mixed lithologies including flint and chalk of low to medium density. (Grade Dm)	
-20.67	-21.27	31.50	32.10	0.60	Assumed zone of core loss. CHALK. (Driller's description)	
-21.27	-21.67	32.10	32.50	0.40	STRUCTURELESS CHALK recovered as off white subangular to subrounded fine to coarse chalk and flint GRAVEL. (Grade Dc)	
-21.67	-23.67	32.50	34.50	2.00	STRUCTURELESS CHALK recovered as soft to firm white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium chalk.	
-23.67	-23.87	34.50	34.70	0.20	Assumed zone of core loss. CHALK. (Driller's description)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH004		518405.97	454284.2	10.827		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-23.87	-25.17	34.70	36.00	1.30	STRUCTURELESS CHALK recovered as slightly sandy clayey angular to subangular fine to coarse chalk GRAVEL. weak low density. Sand is fine to coarse. (Grade Dc)	Tertiary Bedrock - chalk

Table 9 Deposit log for AOC53087_BH101

Bore		Easting	Northing	Elevation		
AOC53087_BH101		517520.04	455119.1	8.612		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
8.61	8.26	0.00	0.35	0.35	CLAY, sandy, Colour: Dark Greyish Brown (10YR 4/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: sharp, Inclusions - Stone: frequent small sub-angular Rootlets: none Rooting: frequent, Interpretation: topsoil. loose and crumbly but compact when in situ.	Topsoil / Made Ground - Victorian to modern
8.26	7.31	0.35	1.30	0.95	CLAY, sandy, Colour: Brown (10YR 4/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: diffuse, Inclusions - Stone: frequent small sub-angular Rootlets: none Rooting: occasional, Interpretation: Layer. Mid orange brown. Dry and crumbly but compact in situ.	Pleistocene - Till
7.31	6.61	1.30	2.00	0.70	CLAY, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: stiff, Soil Structure: undefined, Moisture: moist, Boundary: sharp, Inclusions - Occasional subangular and rounded stones up to 40mm. Occasional chalk flecks present. Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Layer. Similar to above. Mid orange grey brown. Difficult to mould and comes out in clumps. Fairly mixed.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH101		517520.04	455119.1	8.612		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
6.61	-1.39	2.00	10.00	8.00	CLAY, silty, Colour: Greyish Brown (10YR 5/2), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Occasional chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Boulder clay/ glacial till. Very compact - difficult to indent even with pressure.	Pleistocene - Till
-1.39	-1.49	10.00	10.10	0.10	CHALK, Colour: White (10R 8/1), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Occasional chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Chalk. Bedrock. Hole finished at 10.1m bgl.	Tertiary bedrock - chalk

Table 10 Deposit log for AOC53087_BH102

Bore		Easting	Northing	Elevation		
AOC53087_BH102		517654.43	454262.06	8.963		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
8.96	7.96	0.00	1.00	1.00	CLAY, silty, Colour: Yellowish Brown (10YR 5/4), Soil Strength: very soft, friable, Soil Structure: undefined, Moisture: dry, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Topsoil	Topsoil / Made Ground - Victorian to modern
7.96	7.06	1.00	1.90	0.90	CLAY, silty, Colour: Yellowish Brown (10YR 5/4), Soil Strength: soft, Soil Structure: undefined, Moisture: dry, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation:	Archaeology - undefined
7.06	6.21	1.90	2.75	0.85	CLAY, silty, Colour: Brown (10YR 4/3), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: gradual, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation:	Holocene - alluvium/warp
6.21	-5.79	2.75	14.75	12.00	CLAY, sandy, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Till	Pleistocene - Till

Table 11 Deposit log for AOC53087_BH301

Bore		Easting	Northing	Elevation		
AOC53087_BH301		514510.16	446421.64	13.892		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
13.89	13.49	0.00	0.40	0.40	CLAY, sandy, Colour: Reddish Brown (2.5YR 4/3), Soil Strength: soft, friable, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Stone: frequent small sub-angular Rootlets: none Rooting: frequent, Interpretation: Topsoil	Topsoil / Made Ground - Victorian to modern
13.49	12.89	0.40	1.00	0.60	CLAY, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: soft, friable, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: occasional, Interpretation: Layer	Holocene - alluvium/warp
12.89	11.39	1.00	2.50	1.50	CLAY, sandy, Colour: Reddish Brown (2.5YR 4/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Occasional black mineral staining and chalk flecks Stone: rare small sub-angular Rootlets: none Rooting: none, Interpretation: Layer. Compact but can indent with pressure.	
11.39	10.89	2.50	3.00	0.50	SAND, Colour: Reddish Brown (2.5YR 4/3), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Coarse sand - sterile and loose.	Pleistocene - Glaciofluvial

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH301		514510.16	446421.64	13.892		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
10.89	9.69	3.00	4.20	1.20	SAND, Colour: Yellowish Brown (10YR 5/4), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Layer. Sand finer than deposit above. Sterile and loose	Pleistocene - Glaciofluvial
9.69	9.19	4.20	4.70	0.50	CLAY, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Occasional chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Layer. Mid brownish grey	Pleistocene - Till
9.19	8.89	4.70	5.00	0.30	SILT, clayey, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Coarse sand. Mid brownish grey.	
8.89	3.89	5.00	10.00	5.00	CLAY, sandy, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Occasional chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Mid brownish grey slightly sandy clay. Compact - hard to indent, even with pressure. Likely glacial till/ boulder clay.	

Table 12 Deposit log for AOC53087_BH302

Bore		Easting	Northing	Elevation		
AOC53087_BH302		514568.62	446123	7.44		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
7.44	6.94	0.00	0.50	0.50	CLAY, sandy, Colour: Dark Reddish Brown (2.5YR 2.5/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Stone: frequent small sub-angular Rootlets: none Rooting: frequent, Interpretation: Dry and crumbly. Topsoil	Topsoil / Made Ground - Victorian to modern
6.94	6.24	0.50	1.20	0.70	CLAY, sandy, Colour: Reddish Brown (2.5YR 4/3), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Layer.	
6.24	3.99	1.20	3.45	2.25	CLAY, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Smells organic - no fibrous material noted Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Possible water deposit. Mid blackish brownish grey. Sample taken in case it is peat.	Holocene - alluvium/warp

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH302		514568.62	446123	7.44		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
3.99	-1.36	3.45	8.80	5.35	SAND, Colour: Dark Yellowish Brown (10YR 3/6), Soil Strength: soft, Soil Structure: undefined, Moisture: wet, Boundary: undefined, Inclusions - Frequent rounded pebbles and subangular flint up to 10mm. Stone: none Rootlets: none Rooting: none, Interpretation: Sand - coarse with frequent stones. Fairly mixed.	Pleistocene - Glaciofluvial
-1.36	-3.06	8.80	10.50	1.70	CLAY, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Stone: occasional small rounded Rootlets: none Rooting: none, Interpretation: Layer - compact but can be indented and broken.	Pleistocene - Till
-3.06	-5.06	10.50	12.50	2.00	SILT, clayey, Colour: Brown (10YR 4/3), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Small flecks of chalk, less than 10mm, present Stone: none Rootlets: none Rooting: none, Interpretation: Layer - water formed. Feels like silk and heavily stains fingers. Slightly moist. Towards base if deposit the composition becomes ever so slightly sandier.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH302		514568.62	446123	7.44		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-5.06	-7.46	12.50	14.90	2.40	CLAY, silty, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Layer. Sterile. Dry and crumbles easily.	Pleistocene - Till
-7.46	-12.56	14.90	20.00	5.10	CLAY, silty, Colour: Grey (10YR 5/1), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Occasional chalk flecks present Stone: occasional small rounded Rootlets: none Rooting: none, Interpretation: Boulder clay/ glacial till. Very compact - hard to break, indent, or mould, even with pressure. Ceased recording at 20m bgl	

Table 13 Deposit log for AOC53087_BH501

Bore		Easting	Northing	Elevation		
AOC53087_BH501		513,732.98	444,760.10	5.53		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
5.53	4.73	0.00	0.80	0.80	CLAY, silty, Colour: Brown (10YR 4/3), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Occasional black mineral staining Stone: occasional small sub-angular Rootlets: none Rooting: frequent, Interpretation: Topsoil - mid greyish brown. Very compact - difficult to indent. Fairly sharp boundary.	Topsoil / Made Ground - Victorian to modern
4.73	3.53	0.80	2.00	1.20	SAND, clayey, Colour: Yellowish Brown (10YR 5/4), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Occasional black mineral staining Stone: occasional small sub-angular Rootlets: none Rooting: frequent, Interpretation: Layer. Mid yellowish brown. Moderate pressure required to indent with finger.	Holocene - alluvium/warp
3.53	3.03	2.00	2.50	0.50	SAND, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: undefined, Soil Structure: undefined, Moisture: moist, Boundary: gradual, Inclusions - Stone: rare small sub-angular Rootlets: none Rooting: none, Interpretation: Dark brownish grey. Slightly more mixed than previous layer of sand. Coarse. Firm but gives easily once disturbed.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH501		513,732.98	444,760.10	5.53		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
3.03	2.53	2.50	3.00	0.50	CLAY, sandy, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Occasional black mineral staining Stone: occasional small sub-angular Rootlets: none Rooting: frequent, Interpretation: Mid brownish grey. Likely boulder clay/ glacial till. Compact, difficult to indent but eventually yields.	Pleistocene - Till
2.53	2.43	3.00	3.10	0.10	SAND, clayey, Colour: Dark Grey (10YR 4/1), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: frequent small sub-angular Rootlets: none Rooting: frequent, Interpretation: Sand and gravel. Coarse and gritty. Easy to indent with a finger so fairly soft. Mixed. Stopped monitoring borehole at 3.1m as not part of our remit.	

Table 14 Deposit log for AOC53087_BH502

Bore		Easting	Northing	Elevation		
AOC53087_BH502		513,655.10	444,680.40	7.74		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
7.74	7.26	0.00	0.48	0.48	SILT, sandy, Colour: Light Brown (7.5YR 6/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: occasional, Interpretation: Topsoil	Topsoil / Made Ground - Victorian to modern
7.26	6.94	0.48	0.80	0.32	SILT, sandy, Colour: Light Brown (7.5YR 6/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: gradual, Inclusions - Moderate chalk flecks. Stone: occasional small sub-angular Rootlets: none Rooting: rare, Interpretation: Subsoil. Slightly moister than topsoil and slightly crumbly.	
6.94	4.24	0.80	3.50	2.70	CLAY, Colour: Dark Brown (10YR 3/3), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Occasional chalk flecks throughout and black mineral staining. Stone: occasional small rounded Rootlets: none Rooting: none, Interpretation: Dark brown with mottled black and grey throughout. Ever so slightly silty. Layer. Very compact, slightly crumbly.	Pleistocene - Till

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH502		513,655.10	444,680.40	7.74		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
4.24	2.14	3.50	5.60	2.10	CLAY, silty, Colour: Dark Brown (10YR 3/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Boulder clay/ glacial till. Sandy silty clay. Dark brownish grey. Very compact.	Pleistocene - Till
2.14	1.84	5.60	5.90	0.30	SAND, Colour: Light Grey (10R 7/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Sand lens in natural clay. Not seen in a sample as it ran out the tube. Mid grey. Coarse sand.	
1.84	-2.26	5.90	10.00	4.10	CLAY, silty, Colour: Dark Brown (7.5YR 3/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Occasional chalk flecks, rounded, up to 5mm. Stone: none Rootlets: none Rooting: none, Interpretation: Sandy silty clay. Dark brownish grey. Less firm than previous clay layer, but still difficult to get finger into.	

Table 15 Deposit log for AOC53087_BH503

Bore		Easting	Northing	Elevation		
AOC53087_BH503		511433.71	443229.04	4.351		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
4.35	3.85	0.00	0.50	0.50	SILT, sandy, Colour: Brown (10YR 4/3), Soil Strength: firm, friable, Soil Structure: homogenous, Moisture: dry, Boundary: sharp, Inclusions - Stone: occasional small sub-rounded Rootlets: frequent Rooting: none, Interpretation: TOPSOIL. Mid brown. Firm. Friable. Dry. Slightly sandy (fine to coarse) SILT. Crop cover. Frequent rootlets. Occasional small to medium stones (rounded to subangular) becoming frequent lower down.	Topsoil / Made Ground - Victorian to modern
3.85	1.55	0.50	2.80	2.30	SAND, silty, Colour: Greyish Brown (2.5Y 5/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Light to mid grey and yellow brown mottled. Silty SAND (fine to medium). Dry to moist. Very fine light grey patches c. 1.1- 1.2 m bgl.	Pleistocene - Glaciofluvial
1.55	1.35	2.80	3.00	0.20	SILT, sandy, Colour: Yellowish Brown (10YR 5/4), Soil Strength: soft, elastic, Soil Structure: homogenous, Moisture: wet, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Mind brown and orange brown patchy. Wet to moist. Slightly clayey, sandy (fine) SILT. Soft / firm. Malleable but falls apart.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH503		511433.71	443229.04	4.351		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
1.35	1.00	3.00	3.35	0.35	SAND, gravelly, Colour: Yellowish Brown (10YR 5/6), Soil Strength: undefined, Soil Structure: undefined, Moisture: wet, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Yellow brown medium to coarse SAND with very fine gravel.	Pleistocene - Glaciofluvial
1.00	-12.35	3.35	16.70	13.35	CLAY, sandy, Colour: Dark Reddish Grey (10R 3/1), Soil Strength: stiff, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: frequent small sub-rounded Rootlets: none Rooting: none, Interpretation: GLACIAL TILL.	Pleistocene - Till
-12.35	-13.65	16.70	18.00	1.30	Weak cream and white CHALK. Non-intact core recovered as weak low density subangular to subrounded fine to coarse chalk GRAVEL.	Tertiary Bedrock - chalk
-13.65	-14.05	18.00	18.40	0.40	Very weak greyish white STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chalk.	
-14.05	-15.85	18.40	20.20	1.80	Extremely weak to weak white STRUCTURELESS CHALK. Nonintact core recovered as weak low density subangular to subrounded fine to coarse chalk GRAVEL.	

Table 16 Deposit log for AOC53087_BH504

Bore		Easting	Northing	Elevation		
AOC53087_BH504		511064.37	442973.84	3.151		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
3.15	2.80	0.00	0.35	0.35	SAND, silty, Colour: Yellowish Brown (10YR 5/4), Soil Strength: firm, friable, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Stone: none Rootlets: frequent Rooting: none, Interpretation: TOPSOIL. Firm. Friable. Sandy SILT. Sand is fine to coarse. Mid yellow to orange brown. Frequent rootlets. Dry.	Topsoil / Made Ground - Victorian to modern
2.80	2.75	0.35	0.40	0.05	SILT, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: firm, friable, Soil Structure: undefined, Moisture: dry, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: ARCHAEOLOGY? Slightly clayey, sandy (fine to medium) SILT. Mid grey brown with mud and dark grey speckles. Dry. Firm. Friable. Patches malleable (more clayey). CBM fragments and charcoal present. Occasional small rounded stones.	Archaeology - undefined
2.75	1.15	0.40	2.00	1.60	SAND, Colour: Yellowish Red (5YR 4/6), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Firm in situ but crumbles easily once disturbed. Layer. Sterile. Fine sand.	Pleistocene - Glaciofluvial

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH504		511064.37	442973.84	3.151		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
1.15	0.15	2.00	3.00	1.00	SAND, Colour: Brown (10YR 4/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Occasional charcoal inclusions. Stone: none Rootlets: none Rooting: none, Interpretation: Coarse sand. Mid brown. Layer. Firm when pressed but soft once disturbed. Takes a fair bit of pressure to sink a finger in.	Pleistocene - Glaciofluvial
0.15	-0.35	3.00	3.50	0.50	SAND, Colour: Yellowish Brown (10YR 5/4), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Finely mixed, coarse sand. Layer.	
-0.35	-6.35	3.50	9.50	6.00	SILT, sandy, Colour: Brown (7.5YR 4/2), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Rare black mineral staining. Stone: none Rootlets: none Rooting: none, Interpretation: Mid brownish grey sandy silty. Very silky and can be indented immediately with little resistance.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH504		511064.37	442973.84	3.151		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-6.35	-7.75	9.50	10.90	1.40	SAND, Colour: Dark Greyish Brown (10YR 4/2), Soil Strength: soft, friable, Soil Structure: undefined, Moisture: moist, Boundary: gradual, Inclusions - Rare very small subangular stones making up part of sand. Stone: none Rootlets: none Rooting: none, Interpretation: Mixed. Coarse sand, gritty. Dark brownish grey. Layer	Pleistocene - Glaciofluvial
-7.75	-10.30	10.90	13.45	2.55	CLAY, sandy, Colour: Dark Grey (10YR 4/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Rare subangular stones up to 10mm and moderate chalk flecks throughout. Stone: none Rootlets: none Rooting: none, Interpretation: Layer Will dent eventually with pressure but takes a bit of force.	Pleistocene - Till
-10.30	-10.35	13.45	13.50	0.05	CHALK, Colour: White (10R 8/1), Soil Strength: soft, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Occasional black mineral staining. Stone: none Rootlets: none Rooting: none, Interpretation: Chalk. Likely bedrock. Crumbles. Soft.	Tertiary bedrock - chalk
-10.35	-11.95	13.50	15.10	1.60	STRUCTURELESS CHALK recovered as soft to firm yellowish cream gravelly SILT. Gravel is subangular to subrounded Fine to coarse chalk. (DM,V).	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH504		511064.37	442973.84	3.151		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-11.95	-12.35	15.10	15.50	0.40	STRUCTURELESS CHALK recovered as weak white silty subangular to subrounded Fine to coarse GRAVEL (DC,V)	
-12.35	-17.05	15.50	20.20	4.70	STRUCTURELESS CHALK recovered as weak to firm yellowish white to white gravelly SILT. Gravel is subangular to subrounded Fine to coarse chalk (C,v).	
-17.05	-21.85	20.20	25.00	4.80	Very weak to weak low density white CHALK. Discontinuities are closely spaced planar rough clean with clay infill. (C,v)	

Table 17 Deposit log for AOC53087_BH505

Bore		Easting	Northing	Elevation		
AOC53087_BH505		510855.91	442839.56	4		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
4.00	3.50	0.00	0.50	0.50	CLAY, silty, Colour: Brown (10YR 4/3), Soil Strength: soft, Soil Structure: homogenous, Moisture: dry, Boundary: sharp, Inclusions - Stone: frequent small sub-angular Rootlets: none Rooting: frequent, Interpretation: Topsoil. Mid brown. Dry and crumbly	Topsoil / Made Ground - Victorian to modern
3.50	2.00	0.50	2.00	1.50	CLAY, silty, Colour: Brown (10YR 4/3), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Manganese and iron pan occasionally present. Possible charcoal present. Chalk flecks throughout. Stone: none Rootlets: none Rooting: occasional, Interpretation: Mid brown with some lenses of grey. Compact - difficult to indent.	Pleistocene - Till
2.00	-4.00	2.00	8.00	6.00	CLAY, silty, Colour: Light Brownish Grey (2.5Y 6/2), Soil Strength: soft, friable, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Occasional chalk flecks throughout Stone: none Rootlets: none Rooting: none, Interpretation: Soft - easy to indent and shape. Feels gritty. Layer - boulder clay	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH505		510855.91	442839.56	4		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-4.00	-9.00	8.00	13.00	5.00	CLAY, sandy, Colour: Dark Grey (10YR 4/1), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Small chalk flecks throughout but also larger rounded chalk pieces present, up to 90mm, occasionally. Boulder clay. Stone: none Rootlets: none Rooting: none, Interpretation: Boulder clay. Slightly sandy clay.	Pleistocene - Till
-9.00	-9.10	13.00	13.10	0.10	CHALK, Colour: White (10R 8/1), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Bedrock. Hole ceased at 13.1m bgl	Tertiary Bedrock - chalk
-9.10	-12.90	13.10	16.90	3.80	STRUCTURELESS CHALK recovered as firm to stiff greyish white gravelly SILT. Gravel is subangular to subrounded fine to coarse chalk.	
-12.90	-14.60	16.90	18.60	1.70	STRUCTURELESS CHALK recovered as soft to firm yellowish white gravelly SILT. Gravel is subangular to subrounded fine to coarse chalk.	
-14.60	-18.00	18.60	22.00	3.40	Very weak to weak whitish cream CHALK. Discontinuities are closely spaced planar rough clean with silt infill.	
-18.00	-21.00	22.00	25.00	3.00	Weak weathered white to yellowish white CHALK. Discontinuities are closely spaced planar rough/smooth with silt infill.	

Table 18 Deposit log for AOC53087_BH601

Bore		Easting	Northing	Elevation		
AOC53087_BH601		510,516.47	442,629.40	1.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
1.33	0.88	0.00	0.45	0.45	SILT, sandy, Colour: Brown (10YR 4/3), Soil Strength: firm, friable, Soil Structure: undefined, Moisture: dry, Boundary: sharp, Inclusions - Stone: occasional small sub-rounded Rootlets: frequent Rooting: none, Interpretation: TOPSOIL. Crop cover. Mid brown. Dry. Firm. Friable. Slightly sandy (fine to medium) SILT. frequent rootless at top. Occasional small stones.	Topsoil / Made Ground - Victorian to modern
0.88	-0.17	0.45	1.50	1.05	SAND, Colour: Yellow (10YR 7/6), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Mid yellow brown, mid yellow, and light yellow patchy SAND (fine to coarse). Very little silt content. Moist. Occasional small stones (rounded to subangular).	Pleistocene - Glaciofluvial

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH601		510,516.47	442,629.40	1.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-0.17	-0.67	1.50	2.00	0.50	SAND, gravelly, Colour: Dark Yellowish Brown (10YR 3/6), Soil Strength: undefined, Soil Structure: undefined, Moisture: saturated, Boundary: sharp, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Saturated (slop) yellow brown SAND (fine to coarse) with fine gravel, occasionally medium. Gravel is low to moderate in frequency, subrounded to subangular. GLACIOFLUVIAL. Generally very similar to above.	Pleistocene - Glaciofluvial
-0.67	-6.67	2.00	8.00	6.00	CLAY, sandy, Colour: Dark Reddish Grey (10R 3/1), Soil Strength: stiff, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: frequent small sub-rounded Rootlets: none Rooting: none, Interpretation: GLACIAL TILL. Stiff sandy (fine to coarse) CLAY. Frequent small stones (rounded to subangular). Mid to dark red/grey. Occasional dark grey/brown patches.	Pleistocene - Till
-6.67	-10.17	8.00	11.50	3.50	Firm grey brown slightly gravelly slightly sandy CLAY. Sand is fine. Gravel is subangular to rounded fine to coarse chalk and flint.	
-10.17	-11.67	11.50	13.00	1.50	Extremely weak white STRUCTURELESS CHALK recovered as white gravelly SILT. Gravel is angular fine of coarse chalk.	Tertiary Bedrock - chalk

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH601		510,516.47	442,629.40	1.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-11.67	-16.07	13.00	17.40	4.40	Soft to firm yellowish white STRUCTURELESS CHALK. Non-intact core recovered as slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is angular to subangular fine chalk.	Tertiary Bedrock - chalk
-16.07	-17.67	17.40	19.00	1.60	Weak yellowish white and cream CHALK interbedded with weak greyish white STRUCTURELESS CHALK. Discontinuities are horizontal widely spaced planar rough open clean with silt infill. Non-intact core recovered as slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is angular to subangular fine chalk. From 17.50m to 17.79m, Assumed zone of core loss.	
-17.67	-23.67	19.00	25.00	6.00	Weak white CHALK. Discontinuities are horizontal closely spaced planar rough clean with silt infill.	

Table 19 Deposit log for AOC53087_BH602

Bore		Easting	Northing	Elevation		
AOC53087_BH602		510,424.52	442,572.30	0.71		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
0.71	0.26	0.00	0.45	0.45	SILT, sandy, Colour: Dark Brown (10YR 3/3), Soil Strength: firm, friable, Soil Structure: homogenous, Moisture: dry, Boundary: very sharp, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: TOPSOIL. Dark brown slightly clayey, slightly sandy (fine to coarse) SILT. Moderate rooting (crop cover). Occasional small to medium stones (subrounded to subangular). Firm. Friable. Frequent rootless in clumps.	Topsoil / Made Ground - Victorian to modern
0.26	-0.59	0.45	1.30	0.85	SILT, clayey, Colour: Olive Yellow (5Y 6/8), Soil Strength: firm, Soil Structure: fissured, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Light and mid yellow and grey mottled. Frequent black and orange speckles. Slightly moist. Very fine sandy clayey SILT. Mid grey and orange clayey lumps.	Holocene - alluvium/warp
-0.59	-3.29	1.30	4.00	2.70	SAND, gravelly, Colour: Yellowish Brown (10YR 5/6), Soil Strength: undefined, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Mid yellow brown SAND (fine to coarse) with gravel (fine) (subrounded to subangular). Moist. Occasional grey and dark brown patches.	Pleistocene - Glaciofluvial

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH602		510,424.52	442,572.30	0.71		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-3.29	-3.89	4.00	4.60	0.60	GRAVEL, sandy, Colour: Greyish Brown (10YR 5/2), Soil Strength: undefined, Soil Structure: undefined, Moisture: saturated, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Sandy (fine to coarse) GRAVEL (fine to medium, rounded to subangular). Mid grey brown. Saturated.	Pleistocene - Glaciofluvial
-3.89	-9.29	4.60	10.00	5.40	CLAY, sandy, Colour: Reddish Grey (10R 5/1), Soil Strength: firm, Soil Structure: undefined, Moisture: wet, Boundary: undefined, Inclusions - Stone: frequent small sub-rounded Rootlets: none Rooting: none, Interpretation: GLACIAL TILL	Pleistocene - Till
-9.29	-11.59	10.00	12.30	2.30	CLAY, sandy, Colour: Reddish Grey (10R 5/1), Soil Strength: firm, Soil Structure: undefined, Moisture: wet, Boundary: undefined, Inclusions - Stone: frequent small sub-rounded Rootlets: none Rooting: none, Interpretation: GLACIAL TILL	
-11.59	-11.99	12.30	12.70	0.40	Assumed zone of core loss. CHALK. (Drillers description)	Tertiary Bedrock - chalk
-11.99	-12.20	12.70	12.91	0.21	Weak to medium strong white CHALK. Non-intact core recovered as angular to subangular fine to coarse chalk GRAVEL.	
-12.20	-12.29	12.91	13.00	0.09	Weak to medium strong white CHALK.	
-12.29	-13.56	13.00	14.27	1.27	Assumed zone of core loss. CHALK. (Drillers description)	
-13.56	-14.15	14.27	14.86	0.59	Weak to medium strong white CHALK. Non-intact core recovered as angular to subangular fine to coarse chalk GRAVEL.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH602		510,424.52	442,572.30	0.71		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-14.15	-14.53	14.86	15.24	0.38	Assumed zone of core loss. CHALK. (Drillers description)	Tertiary Bedrock - chalk
-14.53	-14.80	15.24	15.51	0.27	Weak medium strong white CHALK. Non-intact core recovered as angular to subangular fine to coarse chalk GRAVEL.	
-14.80	-15.55	15.51	16.26	0.75	Assumed zone of core loss. CHALK. (Drillers description)	
-15.55	-15.69	16.26	16.40	0.14	Weak to medium strong white CHALK. Non-intact core recovered as angular to subangular fine to coarse chalk GRAVEL.	
-15.69	-16.29	16.40	17.00	0.60	Weak cream STRUCTURELESS CHALK. Matrix is sandy clayey SILT. Non-intact core recovered as angular to subangular fine to coarse chalk GRAVEL.	
-16.29	-16.79	17.00	17.50	0.50	Weak grey and white STRUCTURELESS CHALK. Matrix is sandy clayey SILT. Non-intact core recovered as angular to subangular fine to coarse chalk GRAVEL.	
-16.79	-17.31	17.50	18.02	0.52	Assumed zone of core loss. CHALK. (Drillers description) At 18.00m, Matrix becomes very sandy.	
-17.31	-17.54	18.02	18.25	0.23	Weak grey and white STRUCTURELESS CHALK. Matrix is clayey very sandy SILT. Non-intact core recovered as angular to subangular fine to coarse chalk GRAVEL.	
-17.54	-17.79	18.25	18.50	0.25	Very weak to weak yellowish white and white STRUCTURELESS CHALK. Matrix is slightly sandy very clayey SILT. Non-intact core recovered as angular to subangular Fine to medium chalk GRAVEL.	

Bore		Easting	Northing	Elevation		
AOC53087_BH602		510,424.52	442,572.30	0.71		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-17.79	-18.29	18.50	19.00	0.50	Weak white CHALK. Non-intact core recovered as angular to subangular fine to medium chalk GRAVEL.	Tertiary Bedrock - chalk
-18.29	-18.47	19.00	19.18	0.18	Assumed zone of core loss. CHALK. (Drillers description)	
-18.47	-19.33	19.18	20.04	0.86	Weak white CHALK. Non-intact core recovered as angular to subangular Fine to medium chalk GRAVEL.	
-19.33	-19.47	20.04	20.18	0.14	Weak white CHALK. Discontinuities are closely spaced angular planar rough with silt infill.	
-19.47	-19.79	20.18	20.50	0.32	Weak white CHALK. Non-intact core recovered as angular to subangular fine to medium chalk GRAVEL.	
-19.79	-20.49	20.50	21.20	0.70	Assumed zone of core loss. CHALK. (Drillers description)	
-20.49	-21.15	21.20	21.86	0.66	Weak white and cream CHALK. Non-intact core recovered as angular to subangular fine to medium chalk GRAVEL.	
-21.15	-21.29	21.86	22.00	0.14	Weak white and cream CHALK. Discontinuities are closely spaced angular planar rough clean.	
-21.29	-21.78	22.00	22.49	0.49	Assumed zone of core loss. CHALK. (Drillers description)	
-21.78	-22.22	22.49	22.93	0.44	Weak white and white CHALK. Discontinuities are closely spaced angular planar rough clean.	
-22.22	-22.89	22.93	23.60	0.67	Weak white and cream CHALK. Non-intact core recovered as angular to subangular fine to medium chalk GRAVEL.	
-22.89	-24.29	23.60	25.00	1.40	Very weak yellowish white and white STRUCTURELESS CHALK. Matrix is slightly sandy clayey SILT. Non-intact core recovered as angular to subrounded fine chalk GRAVEL.	

Table 20 Deposit log for AOC53087_BH603

Bore		Easting	Northing	Elevation		
AOC53087_BH603		510,175.60	442,461.10	1.79		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
1.79	1.39	0.00	0.40	0.40	SILT, sandy, Colour: Brownish Yellow (10YR 6/6), Soil Strength: firm, Soil Structure: fissured, Moisture: moist, Boundary: sharp, Inclusions - Frequent CBM frags and 1x CTP stem on surface next to location Stone: rare small sub-rounded Rootlets: occasional Rooting: rare, Interpretation: Topsoil	Topsoil / Made Ground - Victorian to modern
1.39	1.09	0.40	0.70	0.30	SAND, silty, Colour: Yellowish Brown (10YR 5/4), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Mid yellowish brown, becoming mid yellow. Slightly silty SAND (f-c, mostly m). Moist. Loose.	Pleistocene - Glaciofluvial
1.09	-0.21	0.70	2.00	1.30	SAND, silty, Colour: Light Grey (2.5Y 7/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Light grey with mid yellow mottling and black speckles. Less yellow with depth. Fine silty SAND (fine to medium, more fine). Moist. Firm but loosens easily. Gradual boundary.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH603		510,175.60	442,461.10	1.79		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-0.21	-1.41	2.00	3.20	1.20	SAND, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: wet, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Wet. Mid brownish grey silty SAND (fine to medium). More fine. Frequent small (=<1mm) black/dark brown speckles - manganese?	Pleistocene - Glaciofluvial
-1.41	-2.21	3.20	4.00	0.80	SAND, Colour: Brownish Yellow (10YR 6/6), Soil Strength: firm, Soil Structure: homogenous, Moisture: wet, Boundary: sharp, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Mid yellow / brown mottled SAND (fine to coarse). Mixed lithologies. Firm. Moist to wet but impacted by added water.	
-2.21	-8.21	4.00	10.00	6.00	CLAY, sandy, Colour: Reddish Grey (10R 6/1), Soil Strength: firm, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Firm. Reddish brown with grey mottling. Frequent small stones (Subrounded to subangular) mostly less than 5mm sometimes bigger. Sandy (fine to coarse) CLAY. Mixed lithologies of stone inclusions. GLACIAL TILL.	Pleistocene - Till

Table 21 Deposit log for AOC53087_BH606

Bore		Easting	Northing	Elevation		
AOC53087_BH606		508356.72	442457.78	3		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
3.00	2.53	0.00	0.47	0.47	CLAY, silty, Colour: Dark Brown (10YR 3/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: frequent, Interpretation: Topsoil. Compact but can be indented and moulded with pressure.	Topsoil / Made Ground - Victorian to modern
2.53	1.35	0.47	1.65	1.18	CLAY, silty, Colour: Dark Brown (10YR 3/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Occasional iron pan and manganese present. Stone: occasional small sub-angular Rootlets: none Rooting: rare, Interpretation: Layer. Dark brown mottled with grey. Slightly moist. Firm but mouldable.	Holocene - alluvium/warp
1.35	0.50	1.65	2.50	0.85	CLAY, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Rare black mineral staining Stone: rare small sub-angular Rootlets: none Rooting: none, Interpretation: Layer - mid brownish grey. Slightly moist. Compact but able to indent and mould. Water strike at 2.5m bgl	Holocene - alluvium

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH606		508356.72	442457.78	3		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
0.50	-0.20	2.50	3.20	0.70	SAND, clayey, Colour: Brown (10YR 4/3), Soil Strength: soft, Soil Structure: undefined, Moisture: wet, Boundary: sharp, Inclusions - Stone: rare small sub-angular Rootlets: none Rooting: none, Interpretation: Gritty and coarse clayey sand. Mid brown. Mixed form. Layer	
-0.20	-2.80	3.20	5.80	2.60	CLAY, sandy, Colour: Grey (10YR 5/1), Soil Strength: firm, friable, Soil Structure: homogenous, Moisture: undefined, Boundary: undefined, Inclusions - Frequent chalk flecks throughout. Stone: none Rootlets: none Rooting: none, Interpretation: Compact - difficult to indent but can with pressure. Boulder clay/ glacial till?	Pleistocene - Till
-2.80	-4.00	5.80	7.00	1.20	CLAY, sandy, Colour: Grey (10YR 5/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Same as previous boulder clay/ glacial till layer but entirely sterile, no chalk flecks. Compact - can indent but with pressure. Slightly moist.	

Bore		Easting	Northing	Elevation		
AOC53087_BH606		508356.72	442457.78	3		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-4.00	-7.50	7.00	10.50	3.50	CLAY, sandy, Colour: Grey (10YR 6/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: gradual, Inclusions - Occasional chalk flecks. From 9m there are large, rounded chalk boulders up to 120mm present. Stone: none Rootlets: none Rooting: none, Interpretation: Very similar to last glacial till/ boulder clay layers, only difference is presence and/or frequency of inclusions. Compact. Difficult to indent but can with pressure. Slightly moist.	Pleistocene - Till
-7.50	-8.00	10.50	11.00	0.50	CHALK, Colour: White (10R 8/1), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Chalk. Bedrock Hole ceased at 10.5m bgl	Tertiary bedrock - chalk
-8.00	-9.00	11.00	12.00	1.00	STRUCTURELESS CHALK recovered as firm to stiff pale brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse weak low density chalk. (Grade Dm)	
-9.00	-9.66	12.00	12.66	0.66	Assumed zone of core loss. CHALK. (drillers description)	
-9.66	-10.50	12.66	13.50	0.84	STRUCTURELESS CHALK recovered as white subangular to subrounded medium to coarse weak low density chalk GRAVEL. (Grade Dc)	
-10.50	-10.96	13.50	13.96	0.46	Assumed zone of core loss. CHALK. (Drillers description)	

Bore		Easting	Northing	Elevation		
AOC53087_BH606		508356.72	442457.78	3		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-10.96	-11.40	13.96	14.40	0.44	STRUCTURELESS CHALK recovered as white subangular to subrounded fine to coarse weak low density chalk GRAVEL. (Grade Dc)	Tertiary bedrock - chalk
-11.40	-12.00	14.40	15.00	0.60	STRUCTURELESS CHALK recovered as firm to stiff off white gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse chalk. Clasts are weak low density. (Grade Dm)	
-12.00	-12.20	15.00	15.20	0.20	Assumed zone of core loss. CHALK. (Drillers description)	
-12.20	-12.57	15.20	15.57	0.37	STRUCTURELESS CHALK recovered as white slightly sandy weak medium density subangular medium to coarse chalk GRAVEL. Sand is fine to coarse. (Grade Dc)	
-12.57	-12.73	15.57	15.73	0.16	Weak white CHALK. Discontinuities are closely spaced open. (Grade A3)	
-12.73	-13.34	15.73	16.34	0.61	STRUCTURELESS CHALK recovered as firm to stiff gravelly sandy CLAY. Sand is fine to coarse. Gravel is weak low density subangular to subrounded fine to coarse chalk. (Grade Dm)	
-13.34	-13.50	16.34	16.50	0.16	Weak white CHALK. Discontinuities are closely spaced open. (Grade A3)	
-13.50	-14.40	16.50	17.40	0.90	Assumed zone of core loss. CHALK. (Drillers description)	
-14.40	-15.00	17.40	18.00	0.60	STRUCTURELESS CHALK recovered as white weak medium density subangular to subrounded medium to coarse chalk GRAVEL. (Grade Dm)	
-15.00	-15.90	18.00	18.90	0.90	Assumed zone of core loss. CHALK. (Drillers description)	

Bore		Easting	Northing	Elevation		
AOC53087_BH606		508356.72	442457.78	3		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-15.90	-16.50	18.90	19.50	0.60	STRUCTURELESS CHALK recovered as weak low density white subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dm)	Tertiary bedrock - chalk
-16.50	-17.49	19.50	20.49	0.99	Assumed zone of core loss. CHALK. (Drillers description)	
-17.49	-18.00	20.49	21.00	0.51	STRUCTURELESS CHALK recovered as weak low density white subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dc)	
-18.00	-18.14	21.00	21.14	0.14	Assumed zone of core loss. CHALK. (Drillers description)	
-18.14	-18.49	21.14	21.49	0.35	STRUCTURELESS CHALK recovered as weak low density white subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dc)	
-18.49	-18.96	21.49	21.96	0.47	Weak white CHALK. Discontinuities are closely spaced open. (Grade A3)	
-18.96	-19.11	21.96	22.11	0.15	STRUCTURELESS CHALK recovered as weak low density white subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dc)	
-19.11	-19.50	22.11	22.50	0.39	Weak white CHALK. Discontinuities are horizontal very closely to closely spaced stepped rough open. (Grade C3-C4)	
-19.50	-19.97	22.50	22.97	0.47	Assumed zone of core loss. CHALK. (Drillers description)	
-19.97	-21.00	22.97	24.00	1.03	STRUCTURELESS CHALK recovered as weak low density subangular fine to coarse chalk GRAVEL.	
-21.00	-22.50	24.00	25.50	1.50	Weak white CHALK. Discontinuities are horizontal very closely to closely spaced undulating rough open with gravel and clay infill. (Grade C3)	

Table 22 Deposit log for AOC53087_BH607

Bore		Easting	Northing	Elevation		
AOC53087_BH607		508,188.24	442,620.80	2.32		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
2.32	1.97	0.00	0.35	0.35	CLAY, silty, Colour: Dark Brown (10YR 3/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Occasional chalk flecks. From 9m there are large, rounded chalk boulders up to 120mm present. Stone: none Rootlets: none Rooting: none, Interpretation: Topsoil - slightly moist. Compact but mouldable.	Topsoil / Made Ground - Victorian to modern
1.97	-0.68	0.35	3.00	2.65	CLAY, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Moderate chalk flecks, rare pink sandstone and black mineral staining present. Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: Dark brownish grey. Layer.	Pleistocene - Till
-0.68	-1.18	3.00	3.50	0.50	CLAY, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Moderate chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Dark brownish grey. Layer - possibly the beginnings of boulder clay.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH607		508,188.24	442,620.80	2.32		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-1.18	-4.68	3.50	7.00	3.50	CLAY, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Dark brownish grey. Similar to the above but sterile in terms of inclusions. Compact but can with moulded with pressure.	Pleistocene - Till
-4.68	-6.38	7.00	8.70	1.70	CLAY, silty, Colour: Light Brownish Grey (2.5Y 6/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Occasional chalk flecks. Stone: none Rootlets: none Rooting: none, Interpretation: Dark brownish grey. Compact but mouldable with pressure. Similar to above layer but with occasional chalk flecks. Boulder clay/ glacial till.	
-6.38	-6.68	8.70	9.00	0.30	CHALK, Colour: White (10R 8/1), Soil Strength: soft, Soil Structure: blocky, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Chalk. Bedrock. Hole ceased at 9m bgl.	Tertiary bedrock - chalk
-6.68	-8.68	9.00	11.00	2.00	White STRUCTURELESS CHALK recovered as clayey silty subangular to subrounded fine to medium chalk and flint.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH607		508,188.24	442,620.80	2.32		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-8.68	-9.47	11.00	11.79	0.79	Assumed zone of core loss. CHALK. (Driller's description)	Tertiary bedrock - chalk
-9.47	-9.85	11.79	12.17	0.38	Soft dark brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse quartzite and chalk.	
-9.85	-10.18	12.17	12.50	0.33	STRUCTURELESS CHALK recovered as soft to firm white mottled yellow and brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse weak low-density chalk. (Grade Dm)	
-10.18	-10.52	12.50	12.84	0.34	Assumed zone of core loss. CHALK. (Driller's description)	
-10.52	-10.76	12.84	13.08	0.24	Weak off-white CHALK. Discontinuities are sub-horizontal closely spaced undulating smooth. (Grade C4-C3)	
-10.76	-10.92	13.08	13.24	0.16	STRUCTURELESS CHLK recovered as slightly sandy weak white subangular to subrounded fine to coarse chalk GRAVEL. (Grade C4-C3)	
-10.92	-10.99	13.24	13.31	0.07	Weak off-white CHALK. Discontinuities are sub-horizontal closely spaced undulating rough. (Grade C4-C3)	
-10.99	-11.60	13.31	13.92	0.61	STRUCTURELESS CHALK recovered as clayey sandy angular to rounded fine to coarse chalk GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular to rounded chalk. (Grade Dc)	
-11.60	-11.68	13.92	14.00	0.08	Weak white CHALK. Discontinuities are horizontal closely spaced stepped rough. (Grade C4-C3)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH607		508,188.24	442,620.80	2.32		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-11.68	-12.24	14.00	14.56	0.56	Assumed zone of core loss. CHALK. (Driller's description)	Tertiary bedrock - chalk
-12.24	-12.43	14.56	14.75	0.19	Weak white CHALK. Discontinuities are horizontal closely spaced planar rough. (Grade C4-C3)	
-12.43	-12.98	14.75	15.30	0.55	STRUCTURELESS CHALK recovered as slightly sandy subangular to subrounded fine to coarse chalk GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded chalk. (Grade Dc)	
-12.98	-13.18	15.30	15.50	0.20	Weak white CHALK. Discontinuities are horizontal closely spaced planar rough. (Grade A3)	
-13.18	-13.68	15.50	16.00	0.50	STRUCTURELESS CHALK recovered as white subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dc)	
-13.68	-14.68	16.00	17.00	1.00	STRUCTURELESS CHALK recovered as firm white gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dm)	
-14.68	-15.35	17.00	17.67	0.67	Assumed zone of core loss. CHALK. (Driller's description)	
-15.35	-15.99	17.67	18.31	0.64	STRUCTURELESS CHALK recovered as firm gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse chalk. (Grade Dm)	

Bore		Easting	Northing	Elevation		
AOC53087_BH607		508,188.24	442,620.80	2.32		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-15.99	-16.54	18.31	18.86	0.55	STRUCTURELESS CHALK recovered as white mottled yellow and brown clayey sandy subangular fine to coarse chalk GRAVEL. Sand is fine to coarse. (Grade Dc)	Tertiary bedrock - chalk
-16.54	-17.68	18.86	20.00	1.14	Assumed zone of core loss. CHALK. (Driller's description)	
-17.68	-18.71	20.00	21.03	1.03	STRUCTURELESS CHALK composed of white angular to subangular fine to coarse chalk GRAVEL. Clasts are weak low to medium density chalk. (Grade Dc)	
-18.71	-18.88	21.03	21.20	0.17	STRUCTURELESS CHALK composed of white angular to subangular chalk GRAVEL. Clasts are weak low to medium density chalk. (Grade Dc)	
-18.88	-19.10	21.20	21.42	0.22	STRUCTURELESS CHALK composed of soft to firm off white gravelly CLAY. Clasts are weak. (Grade Dm)	
-19.10	-19.32	21.42	21.64	0.22	Weak cream CHALK. Discontinuities are horizontal closely spaced undulating smooth. (Grade A3)	
-19.32	-19.67	21.64	21.99	0.35	STRUCTURELESS CHALK recovered as slightly clayey sandy subangular to subrounded fine to coarse weak chalk GRAVEL. (Grade Dc)	
-19.67	-19.76	21.99	22.08	0.09	Weak white CHALK. Discontinuities are horizontal closely spaced stepped rough. (Grade C4-C3)	
-19.76	-20.44	22.08	22.76	0.68	STRUCTURELESS CHALK recovered as slightly clayey sandy subangular to subrounded fine to coarse weak chalk GRAVEL. (Grade Dc)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH607		508,188.24	442,620.80	2.32		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-20.44	-20.53	22.76	22.85	0.09	Weak white CHALK. Discontinuities are horizontal closely spaced stepped rough. (Grade A3)	Tertiary Bedrock - chalk
-20.53	-21.08	22.85	23.40	0.55	STRUCTURELESS CHALK recovered as slightly clayey sandy subangular to subrounded fine to coarse weak chalk GRAVEL. (Grade Dc)	
-21.08	-22.18	23.40	24.50	1.10	Weak white CHALK. Discontinuities are very closely to closely spaced. (Grade A3)	
-22.18	-22.49	24.50	24.81	0.31	Assumed zone of core loss. CHALK. (Driller's description)	
-22.49	-23.31	24.81	25.63	0.82	Weak cream CHALK. Discontinuities are very closely to closely spaced undulating rough open. (Grade C4-C3)	
-23.31	-23.68	25.63	26.00	0.37	STRUCTURELESS CHALK recovered as cream sandy subangular to subrounded fine to coarse weak chalk GRAVEL. (Grade Dc)	

Table 23 Deposit log for AOC53087_BH701

Bore		Easting	Northing	Elevation		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
0.00	-0.50	0.00	0.50	0.50	CLAY, silty, Colour: Dark Brown (10YR 3/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: frequent, Interpretation: Topsoil Compact but crumbly.	Topsoil / Made Ground - Victorian to modern
-0.50	-1.20	0.50	1.20	0.70	CLAY, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Occasional iron pan Stone: occasional small sub-angular Rootlets: none Rooting: occasional, Interpretation: Dark greyish brown (colour not in list) Compact but mouldable.	Holocene - alluvium/warp
-1.20	-3.70	1.20	3.70	2.50	SILT, clayey, Colour: Grey (10YR 5/1), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Occasional black mineral staining - otherwise sterile. Stone: none Rootlets: none Rooting: none, Interpretation: Mid grey slightly clayey silt. Soft and silky. Waterlain deposit.	
-3.70	-5.00	3.70	5.00	1.30	CLAY, silty, Colour: Dark Brown (7.5YR 3/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Occasional chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: Dark brownish grey. Compact but can indent with fingers with pressure. Possible boulder clay/ glacial till.	Pleistocene - Till

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-5.00	-6.00	5.00	6.00	1.00	CLAY, silty, Colour: Light Grey (10R 7/1), Soil Strength: firm, Soil Structure: homogenous, Moisture: moist, Boundary: sharp, Inclusions - Moderate chalk flecks present. Stone: none Rootlets: none Rooting: none, Interpretation: Glacial till/ boulder clay. Slightly silty clay, light grey. Compact but can be indented with pressure.	Pleistocene - Till
-6.00	-8.00	6.00	8.00	2.00	CHALK, Colour: White (10R 8/1), Soil Strength: firm, Soil Structure: blocky, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Bedrock - chalk. Encountered at 6m bgl but hole excavated to 8m bgl before ceasing.	Tertiary bedrock - chalk
-8.00	-8.45	8.00	8.45	0.45	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy slightly silty subangular to subrounded fine to coarse GRAVEL. Gravel is weak medium density white and cream with occasional black specks. Matrix is uncompacted with occasional subangular fine flint gravel. (Grade Dc)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-8.45	-9.50	8.45	9.50	1.05	Weak medium density creamish white CHALK. Discontinuities are 1) horizontal closely to medium spaced open and infilled with gravel and clay chalk. 2) Subvertical medium spaced undulating rough open infilled with gravel and clay chalk. (Grade C3) From 8.80m to 8.86m, STRUCTURELESS CHALK composed of uncompacted gravelly sandy SILT. Gravel is weak medium density creamish white subangular to subrounded. (Grade Dm) From 9.30m to 9.38m, Becomes Firm.	Tertiary bedrock - chalk
-9.50	-9.72	9.50	9.72	0.22	Assumed zone of core loss. CHALK. (Drillers Description)	
-9.72	-11.00	9.72	11.00	1.28	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy silty subangular to subrounded Fine to coarse GRAVEL. Gravel is weak to moderately weak high density white and yellowish cream. Matrix is uncompacted. (Grade Dc)	
-11.00	-11.55	11.00	11.55	0.55	Weak medium density creamish white with yellow staining CHALK. Discontinuities are horizontal closely to medium spaced undulating rough partly open with Infill of gravel and clay chalk. (Grade B3)	
-11.55	-12.38	11.55	12.38	0.83	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy subangular to subrounded fine to coarse GRAVEL. Gravel is weak medium density white with yellow thinly laminated with occasional subangular cobbles. (Grade Dc)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-12.38	-12.50	12.38	12.50	0.12	Weak medium density white CHALK. Discontinuities are 1) Horizontal closely spaced stepped rough and planar rough partly open to open with gravel and clay infill. (Grade C3) 2) Subvertical closely spaced undulating rough partly open to Tight with clay Infill. (Grade B3)	Tertiary bedrock - chalk
-12.50	-12.60	12.50	12.60	0.10	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy silty subangular medium to coarse GRAVEL. Gravel is weak medium density white. (Grade Dc)	
-12.60	-13.00	12.60	13.00	0.40	Assumed zone of core loss. CHALK. (Drillers Description)	
-13.00	-15.50	13.00	15.50	2.50	STRUCTURELESS CHALK composed of uncompacted white gravelly sandy SILT. Gravel is weak medium density angular to subangular with occasional black specks. (Grade Dm)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-15.50	-16.37	15.50	16.37	0.87	Weak medium density white with occasional black specks CHALK. Discontinuities are horizontal closely spaced undulating rough open to partly open with gravel and clay infill. (Grade C3) From 13.84m to 13.90m, STRUCTURELESS CHALK composed of slightly sandy slightly silty subangular GRAVEL. Gravel is weak medium density white with rare black specks. (Grade Dc) At 13.90m, subvertical very closely spaced undulating rough open with gravel and clay infill. (Grade C4) From 14.00m, Sub horizontal medium spaced undulating rough partly open to tight with slightly sandy silt sized chalk infill. (Grade B2) At 15.20m, With firm greyish silty clay. STRUCTURELESS CHALK composed of uncompacted gravelly sandy SILT. Gravel is weak medium density white subangular Fine to coarse. (Grade Dm)	Tertiary bedrock - chalk
-16.37	-17.00	16.37	17.00	0.63	Assumed zone of core loss. CHALK. (Drillers description)	
-17.00	-17.60	17.00	17.60	0.60	STRUCTURELESS CHALK composed of slightly sandy slightly silty medium to coarse GRAVEL with frequent rounded cobbles. Gravel is medium strong very high density white and grey Flint. Cobbles are medium strong very high density with rare gravel sized voids. (Grade Dc)	
-17.60	-18.00	17.60	18.00	0.40	Assumed zone of core loss. CHALK. (Drillers description)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-18.00	-18.50	18.00	18.50	0.50	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy slightly silty subangular to subrounded medium to coarse GRAVEL. Gravel is moderately weak to medium strong medium to high density white with occasional rounded Flint. (Grade Dc)	Tertiary bedrock - chalk
-18.50	-19.15	18.50	19.15	0.65	Medium strong to strong very high density with occasional black specks white CHALK. Discontinuities are horizontal planar rough open with gravel and sand sized chalk infill occasionally with yellow and brown staining and rounded Flint. (Grade C3) From 18.11m to 18.19m, STRUCTURELESS CHALK composed of slightly sandy slightly silty subangular to subrounded Fine to coarse GRAVEL with occasional cobbles. Gravel and cobbles are medium strong to strong very high density white. From 18.26m to 18.29m, STRUCTURELESS CHALK composed of slightly sandy slightly silty subangular to subrounded Fine to coarse GRAVEL with occasional cobbles. Gravel and cobbles are medium strong to strong very high density white.	
-19.15	-19.55	19.15	19.55	0.40	Assumed zone of core loss. CHALK. (Driller's description)	
-19.55	-19.80	19.55	19.80	0.25	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy subangular to subrounded medium to coarse GRAVEL with occasional subrounded cobbles. Gravel is strong very high density white. Cobbles are strong very high density white. (Grade Dc)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-19.80	-19.92	19.80	19.92	0.12	Strong very high density with occasional black specks white CHALK. Discontinuities are 1) Horizontal closely spaced planar rough open with gravel and sand sized chalk infill. 2) subvertical closely spaced planar rough open. (Grade C3)	Tertiary bedrock - chalk
-19.92	-20.00	19.92	20.00	0.08	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy subangular to subrounded medium to coarse GRAVEL with occasional cobbles. Gravel is strong very high density white. (Grade Dc)	
-20.00	-20.55	20.00	20.55	0.55	Strong very high density CHALK	
-20.55	-21.10	20.55	21.10	0.55	Assumed zone of core loss. CHALK. (Drillers description)	
-21.10	-21.40	21.10	21.40	0.30	STRUCTURELESS CHALK. Non-intact core recovered as subangular to subrounded medium to coarse GRAVEL with frequent subrounded cobbles. Gravel is strong very high density white occasional black specks. Cobbles are strong very high density white with occasional black specks and rare Flint. (Grade Dc) at 21.00m, Becomes slightly sandy slightly silty medium to coarse GRAVEL.	
-21.40	-21.50	21.40	21.50	0.10	Strong very high density white with occasional black specks CHALK. Discontinuities are horizontal very closely spaced planar rough open clean and tight clean. (Grade A4)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-21.50	-21.85	21.50	21.85	0.35	STRUCTURELESS CHALK. Non-intact core recovered as sandy silty subangular to subrounded medium to coarse GRAVEL with occasional subrounded cobbles. Gravel is strong very high density white with black specks. Cobbles are strong very high density white with occasional black specks. (Grade Dc)	Tertiary bedrock - chalk
-21.85	-22.20	21.85	22.20	0.35	Assumed zone of core loss. CHALK. (Driller's Description)	
-22.20	-22.90	22.20	22.90	0.70	STRUCTURELESS CHALK. Non-intact core recovered as subangular to subrounded medium to coarse GRAVEL with frequent subrounded cobbles. Gravel is strong very high density white with occasional black specks. Cobbles are strong very high density white with black specks and occasional yellow staining. (Grade Dc)	
-22.90	-23.00	22.90	23.00	0.10	Strong very high density with occasional black specks and yellowish brown staining white CHALK. Discontinuities are 1) horizontal closely spaced planar rough open clean and occasionally open with gravel sized chalk infill. (Grade C3) 2) Sub horizontal medium spaced undulating rough open clean. (Grade C3) 3) Vertical very closely to closely spaced planar rough open clean. (Grade C3-C4)	
-23.00	-23.19	23.00	23.19	0.19	STRUCTURELESS CHALK. Non-intact core recovered as sandy silty subangular to subrounded Fine to coarse GRAVEL. Gravel is strong very high density white with black specks and occasional yellowish-brown staining. Matrix is uncompacted. (Grade Dc)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH701		505401.66	442734.9	0		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-23.19	-24.22	23.19	24.22	1.03	STRUCTURELESS CHALK composed of subangular to subrounded medium to coarse GRAVEL. Gravel is strong very high density white. From 23.00m to 23.05m, Strong very high density with occasional black specks white CHALK.	Tertiary bedrock - chalk
-24.22	-24.36	24.22	24.36	0.14	Strong very high density with occasional black specks and yellowish brown staining white CHALK. Discontinuities are 1) Horizontal very closely to closely spaced planar rough open clean. (Grade C3-C4) 2) vertical medium spaced planar rough open clean. (Grade C3)	
-24.36	-24.50	24.36	24.50	0.14	STRUCTURELESS CHALK composed of slightly sandy subangular to subrounded Fine to coarse GRAVEL with occasional subrounded cobbles. Gravel is strong very high density with yellowish staining and white. Cobbles are strong very high density white.	
-24.50	-24.75	24.50	24.75	0.25	Moderately strong to weak high density white CHALK. Discontinuities are horizontal to subvertical open.	
-24.75	-25.00	24.75	25.00	0.25	STRUCTURELESS CHALK composed of sandy silty subangular to subrounded Fine to coarse GRAVEL with occasional subrounded cobbles. Gravel is moderately strong to weak high density to medium density white. Cobbles are moderately strong high density white.	

Table 24 Deposit log for AOC53087_BH802

Bore		Easting	Northing	Elevation		
AOC53087_BH802		505231.56	442727.58	1		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
1.00	0.60	0.00	0.40	0.40	SILT, clayey, Colour: Dark Brown (10YR 3/3), Soil Strength: firm, friable, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Occasional iron panning Stone: occasional small sub-angular Rootlets: frequent Rooting: none, Interpretation: Topsoil	Topsoil / Made Ground - Victorian to modern
0.60	0.00	0.40	1.00	0.60	CLAY, silty, Colour: Dark Greyish Brown (10YR 4/2), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Occasional black staining Stone: none Rootlets: none Rooting: none, Interpretation: Topsoil	
0.00	-3.50	1.00	4.50	3.50	SILT, clayey, Colour: Grey (10YR 5/1), Soil Strength: very soft, Soil Structure: undefined, Moisture: wet, Boundary: gradual, Inclusions - Occasional black staining Stone: none Rootlets: none Rooting: none, Interpretation:	Holocene - alluvium
-3.50	-4.00	4.50	5.00	0.50	CLAY, silty, Colour: Dark Bluish Grey (10B 4/1), Soil Strength: very soft, Soil Structure: undefined, Moisture: wet, Boundary: undefined, Inclusions - Occasional black staining Stone: none Rootlets: none Rooting: none, Interpretation: Possible vegetation layer	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH802		505231.56	442727.58	1		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-4.00	-5.50	5.00	6.50	1.50	CLAY, silty, Colour: Greyish Brown (10YR 5/2), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: diffuse, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation:	Holocene - alluvium
-5.50	-6.20	6.50	7.20	0.70	CLAY, sandy, Colour: Greyish Brown (2.5Y 5/2), Soil Strength: soft, Soil Structure: undefined, Moisture: wet, Boundary: very sharp, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: Glacial till. Hit chalk layer at 7.2m	Pleistocene - Till
-6.20	-7.20	7.20	8.20	1.00	Brownish white STRUCTURELESS CHALK recovered as brownish white silty subangular Fine to medium chalk and Flint GRAVEL.	Tertiary Bedrock - chalk
-7.20	-8.20	8.20	9.20	1.00	Assumed zone of core loss. CHALK. (Driller's description)	
-8.20	-9.20	9.20	10.20	1.00	STRUCTURELESS CHALK recovered as Firm cream to white sandy gravelly CLAY. Sand is Fine to coarse. Gravel is subangular Fine to coarse mixed lithologies, Flint, quartz, and chalk. (Grade Dm)	
-9.20	-10.20	10.20	11.20	1.00	STRUCTURELESS CHALK recovered as firm cream to white sandy gravelly CLAY. Sand is Fine to coarse. Gravel is subangular Fine to coarse mixed lithologies, Flint, quartz, and chalk. (Grade Dm)	
-10.20	-11.20	11.20	12.20	1.00	Assumed zone of core loss. CHALK. (Driller's description)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH802		505231.56	442727.58	1		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-11.20	-12.20	12.20	13.20	1.00	STRUCTURELESS CHALK recovered as Firm cream to white sandy gravelly CLAY. Sand is Fine to coarse. Gravel is subangular Fine to coarse mixed lithologies, Flint, quartz and chalk. (Grade Dm)	Tertiary Bedrock - chalk
-12.20	-13.20	13.20	14.20	1.00	STRUCTURELESS CHALK. Non-intact core recovered as clayey sandy subangular to subrounded Fine to coarse chalk and quartzite GRAVEL. (Grade Dc)	
-13.20	-14.20	14.20	15.20	1.00	Assumed zone of core loss. CHALK. (Driller's description)	
-14.20	-15.20	15.20	16.20	1.00	STRUCTURELESS CHALK. Non-intact core recovered as clayey sandy subangular to subrounded Fine to coarse chalk and quartzite GRAVEL. (Grade Dc)	
-15.20	-16.20	16.20	17.20	1.00	STRUCTURELESS CHALK recovered as firm cream to white sandy gravelly CLAY. Sand is Fine to coarse. Gravel is subangular Fine to coarse mixed lithologies, Flint, quartz and chalk. (Grade Dm) From 19.00m to 19.50m, Becomes very soft.	

Table 25 Deposit log for AOC53087_BH804

Bore		Easting	Northing	Elevation		
AOC53087_BH804		503701.43	441711.29	4.25		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
4.25	3.65	0.00	0.60	0.60	CLAY, silty, Colour: Dark Greyish Brown (10YR 4/2), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: frequent, Interpretation: topsoil. compact and blocky. Unknown boundary. This was recorded back at the cabin as there was some confusion over whether or not it was within our remit.	Topsoil / Made Ground - Victorian to modern
3.65	3.05	0.60	1.20	0.60	CLAY, silty, Colour: Light Brownish Grey (10YR 6/2), Soil Strength: firm, Soil Structure: undefined, Moisture: dry, Boundary: undefined, Inclusions - High percentage of possible concrete, black mineral staining, and rounded stones up to 10mm. Stone: none Rootlets: none Rooting: none, Interpretation: likely modern disturbance. slightly silty clay, dark brownish grey. Mixed.	
3.05	2.45	1.20	1.80	0.60	SAND, clayey, Colour: Greyish Brown (10YR 5/2), Soil Strength: soft, Soil Structure: undefined, Moisture: moist, Boundary: undefined, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: none, Interpretation: light yellowish greyish brown clayey sand. Coarse.	Pleistocene - Glaciofluvial

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH804		503701.43	441711.29	4.25		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
2.45	1.35	1.80	2.90	1.10	CLAY, silty, Colour: Dark Greyish Brown (10YR 4/2), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Occasional chalk flecks throughout. Stone: none Rootlets: none Rooting: none, Interpretation: possible boulder clay/ glacial till. slightly silty clay. Very compact, difficult to indent or mould, even with pressure.	Pleistocene - Till
1.35	-0.25	2.90	4.50	1.60	SAND, silty, Colour: Brown (10YR 4/3), Soil Strength: soft, Soil Structure: homogenous, Moisture: undefined, Boundary: undefined, Inclusions - Occasional chalk flecks throughout. Stone: none Rootlets: none Rooting: none, Interpretation: layer - possible water deposit? mid orange, brown silty sand. Sterile and loose. Fine.	
-0.25	-3.75	4.50	8.00	3.50	CLAY, sandy, Colour: Grey (10YR 6/1), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Frequent rounded chalk up to 50mm present, getting more frequent and larger as the hole descends. Stone: none Rootlets: none Rooting: none, Interpretation: boulder clay/ glacial till. Compact in situ but loose and easy to indent once sampled. Hole finished at 8m BGL.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH804		503701.43	441711.29	4.25		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-3.75	-3.85	8.00	8.10	0.10	No recovery. CHALK. (Driller's description)	Tertiary Bedrock - chalk
-3.85	-4.25	8.10	8.50	0.40	STRUCTURELESS CHALK recovered as soft white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded Fine to coarse mixed lithologies including chalk and quartzite. (Grade Dm)	
-4.25	-4.57	8.50	8.82	0.32	No recovery. CHALK. (Driller's description)	
-4.57	-5.25	8.82	9.50	0.68	STRUCTURELESS CHALK recovered as soft white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse mixed lithologies including chalk and quartzite. (Grade Dm)	
-5.25	-5.85	9.50	10.10	0.60	Assumed zone of core loss. CHALK. (Driller's description)	
-5.85	-6.25	10.10	10.50	0.40	STRUCTURELESS CHALK. Non-intact core as cream slightly sandy subangular to subrounded Fine to coarse GRAVEL. Sand is fine to coarse. Clasts are weak low density. (Grade Dc)	
-6.25	-6.75	10.50	11.00	0.50	STRUCTURELESS CHALK recovered as soft cream gravelly CLAY. Gravel is subangular fine to coarse chalk. Clasts are weak low density. (Grade Dm)	
-6.75	-7.59	11.00	11.84	0.84	Assumed zone of core loss. CHALK. (Driller's description)	
-7.59	-7.93	11.84	12.18	0.34	STRUCTURELESS CHALK. Non-intact core as cream slightly sandy subangular to subrounded Fine to coarse GRAVEL. Sand is fine to coarse. Clasts are weak low density. (Grade Dc)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH804		503701.43	441711.29	4.25		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-7.93	-9.75	12.18	14.00	1.82	STRUCTURELESS CHALK recovered as soft to firm white gravelly very sandy CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse chalk. (Grade Dm) From 12.50m to 12.66m, Assumed zone of core loss.	Tertiary Bedrock - chalk
-9.75	-10.05	14.00	14.30	0.30	Assumed zone of core loss. CHALK. (Driller's description)	
-10.05	-10.65	14.30	14.90	0.60	STRUCTURELESS CHALK. Non-intact core recovered as a white sandy subangular to subrounded fine to coarse chalk GRAVEL. Clasts are weak low density. (Grade Dc)	
-10.65	-11.45	14.90	15.70	0.80	STRUCTURELESS CHALK recovered as firm slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular Fine to coarse chalk. (Grade Dm) From 14.90m to 14.98m, Weak white CHALK. Discontinuities are closely spaced undulating rough. From 15.50m to 15.60m, Assumed zone of core loss. From 15.60m to 15.70m, STRUCTURELESS CHALK. Non-intact core recovered as a white sandy subangular to subrounded fine to coarse chalk GRAVEL. Clasts are weak low density. (Grade Dc)	
-11.45	-11.80	15.70	16.05	0.35	Weak white CHALK. Discontinuities are horizontal to sub horizontal closely spaced undulating rough open. (Grade A3)	

Bore		Easting	Northing	Elevation		
AOC53087_BH804		503701.43	441711.29	4.25		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-11.80	-13.43	16.05	17.68	1.63	STRUCTURELESS CHALK. Non-intact core recovered as a white sandy subangular to subrounded fine to coarse chalk GRAVEL. Clasts are weak low density. (Grade Dc) From 16.64m to 16.76m, Weak white CHALK. Discontinuities are horizontal to sub horizontal closely spaced undulating rough open. (Grade A3) From 17.59m to 17.68m, Weak white CHALK. Discontinuities are horizontal to sub horizontal closely spaced undulating rough open. (Grade A3)	Tertiary Bedrock - chalk
-13.43	-13.78	17.68	18.03	0.35	STRUCTURELESS CHALK recovered as firm white slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular fine to coarse chalk. (Grade Dm)	
-13.78	-14.11	18.03	18.36	0.33	Weak white CHALK. Discontinuities are horizontal closely spaced undulating rough infilled with gravelly clay. (Grade B3)	
-14.11	-14.25	18.36	18.50	0.14	Weak white CHALK. Discontinuities are horizontal closely spaced undulating rough infilled with gravelly clay. (Grade B3)	
-14.25	-14.51	18.50	18.76	0.26	STRUCTURELESS CHALK recovered as firm white slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular fine to coarse chalk. (Grade Dm)	
-14.51	-14.92	18.76	19.17	0.41	Assumed zone of core loss. CHALK. (Driller's description)	
-14.92	-13.19	19.17	17.44	-1.73	STRUCTURELESS CHALK. Non-intact core recovered as white clayey sandy subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dc)	

Bore		Easting	Northing	Elevation		
AOC53087_BH804		503701.43	441711.29	4.25		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-13.19	-15.63	17.44	19.88	2.44	Weak white CHALK. Discontinuities are horizontal closely spaced undulating rough infilled with gravelly clay. (Grade B3)	Tertiary Bedrock - chalk
-15.63	-15.85	19.88	20.10	0.22	STRUCTURELESS CHALK. Non-intact core recovered as white clayey sandy subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dc)	
-15.85	-16.25	20.10	20.50	0.40	STRUCTURELESS CHALK. Non-intact core recovered as white clayey very sandy subangular to subrounded fine to coarse chalk GRAVEL.	
-16.25	-16.67	20.50	20.92	0.42	Weak white CHALK. Discontinuities are horizontal closely spaced planar smooth infilled with clay. (Grade C3)	
-16.67	-17.89	20.92	22.14	1.22	STRUCTURELESS CHALK. Non-intact core recovered as white clayey very sandy subangular to subrounded fine to coarse chalk GRAVEL.	
-17.89	-18.41	22.14	22.66	0.52	Weak white CHALK. Discontinuities are closely spaced undulating rough. (Grade A3)	
-18.41	-18.75	22.66	23.00	0.34	Weak white CHALK. Discontinuities are horizontal closely spaced planar smooth infilled with clay. (Grade Dc)	
-18.75	-19.07	23.00	23.32	0.32	Assumed zone of core loss. CHALK. (Driller's description)	
-19.07	-20.25	23.32	24.50	1.18	Weak white CHALK. Discontinuities are horizontal closely spaced planar smooth infilled with clay. (Grade Dc)	
-20.25	-20.60	24.50	24.85	0.35	Weak white CHALK. Discontinuities are horizontal closely spaced stepped rough infilled with sandy gravel. (Grade C3)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH804		503701.43	441711.29	4.25		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-20.60	-20.95	24.85	25.20	0.35	Assumed zone of core loss. CHALK. (Driller's description)	Tertiary Bedrock - chalk
-20.95	-21.25	25.20	25.50	0.30	Weak white CHALK. Discontinuities are horizontal closely spaced stepped rough infilled with sandy gravel. (Grade C3)	
-21.25	-21.75	25.50	26.00	0.50	STRUCTURELESS CHALK recovered as firm white gravelly CLAY. Gravel is subangular fine to coarse chalk.	

Table 26 Deposit log for AOC53087_BH902

Bore		Easting	Northing	Elevation		
AOC53087_BH902		503,666.25	441,705.00	4.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
4.33	3.73	0.00	0.60	0.60	CLAY, silty, Colour: Dark Greyish Brown (10YR 4/2), Soil Strength: stiff, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Stone: frequent small sub-angular Rootlets: none Rooting: frequent, Interpretation: topsoil. unknown boundary. this borehole location was recorded back in the cabin due to uncertainty as to whether or not it was in our remit. Depths are approximate as using logs and samples.	Topsoil / Made Ground - Victorian to modern
3.73	1.83	0.60	2.50	1.90	CLAY, silty, Colour: Brown (10YR 5/3), Soil Strength: firm, Soil Structure: homogenous, Moisture: dry, Boundary: undefined, Inclusions - Stone: occasional small sub-angular Rootlets: none Rooting: rare, Interpretation: layer. mid orange, brown. compact but can be moulded and indented. Comes out in blocks.	Pleistocene - Till
1.83	-0.67	2.50	5.00	2.50	CLAY, silty, Colour: Greyish Brown (10YR 5/2), Soil Strength: stiff, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - moderate chalk flecks Stone: none Rootlets: none Rooting: none, Interpretation: possible boulder clay. Very compact - difficult to indent and mould.	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH902		503,666.25	441,705.00	4.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-0.67	-2.07	5.00	6.40	1.40	SAND, Colour: Yellowish Brown (10YR 5/4), Soil Strength: soft, Soil Structure: undefined, Moisture: wet, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: layer. Dull yellowish-brown sand, coarse with very small (1mm) subangular flint pieces present throughout.	Pleistocene - Till
-2.07	-2.67	6.40	7.00	0.60	CHALK, Colour: White (10R 8/1), Soil Strength: soft, Soil Structure: homogenous, Moisture: moist, Boundary: undefined, Inclusions - Stone: none Rootlets: none Rooting: none, Interpretation: chalk. bedrock. Hole ceased at 7m BGL.	Tertiary bedrock - chalk
-2.67	-3.12	7.00	7.45	0.45	STRUCTURELESS CHALK. Non-intact core recovered as cream to off white clayey sandy angular to subangular fine to coarse GRAVEL. Gravel is weak low-density chalk. Grade Dc)	
-3.12	-4.51	7.45	8.84	1.39	Assumed zone of core loss. CHALK. (Driller's description)	
-4.51	-5.93	8.84	10.26	1.42	STRUCTURELESS CHALK. Non-intact core recovered as cream to off white clayey sandy angular to subangular fine to coarse GRAVEL. Gravel is weak low-density chalk. (Grade Dc)	
-5.93	-7.08	10.26	11.41	1.15	weak white CHALK. Discontinuities are horizontal closely spaced infilled with gravelly clay. (Grade C3-C4)	

Bore		Easting	Northing	Elevation		
AOC53087_BH902		503,666.25	441,705.00	4.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-7.08	-7.29	11.41	11.62	0.21	STRUCTURELESS CHALK recovered as soft to firm white sandy gravelly CLAY. Sand is fine. Gravel is subangular fine to coarse weak low-density chalk.	Tertiary bedrock - chalk
-7.29	-7.93	11.62	12.26	0.64	STRUCTURELESS CHALK. Non-intact core recovered as cream to off white clayey sandy angular to subangular fine to coarse GRAVEL. Gravel is weak low-density chalk. (Grade Dc)	
-7.93	-8.08	12.26	12.41	0.15	Weak white CHALK. Discontinuities are stepped rough.	
-8.08	-8.17	12.41	12.50	0.09	Assumed zone of core loss. CHALK. (Driller's description)	
-8.17	-8.37	12.50	12.70	0.20	STRUCTURELESS CHALK. Non-intact core recovered as angular to subangular fine to coarse weak low density chalk GRAVEL. At 13.10m, Becomes clayey.	
-8.37	-9.67	12.70	14.00	1.30	STRUCTURELESS CHALK recovered as very soft white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium chalk. (Grade Dm) From 14.80m, becomes firm.	
-9.67	-11.17	14.00	15.50	1.50	STRUCTURELESS CHALK recovered as very soft white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium chalk. (Grade Dm)	
-11.17	-11.59	15.50	15.92	0.42	Assumed zone of core loss. CHALK. (Driller's description)	
-11.59	-12.51	15.92	16.84	0.92	STRUCTURELESS CHALK recovered as very soft white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium chalk. (Grade Dm)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH902		503,666.25	441,705.00	4.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-12.51	-12.67	16.84	17.00	0.16	Weak white CHALK. Discontinuities are closely spaced stepped rough. (Grade A)	Tertiary bedrock - chalk
-12.67	-13.73	17.00	18.06	1.06	STRUCTURELESS CHALK. Non-intact core recovered as cream slightly sandy angular medium to coarse chalk GRAVEL. Sand is fine. From 17.00m to 17.10m, Assumed zone of core loss.	
-13.73	-14.17	18.06	18.50	0.44	Weak white CHALK. Discontinuities are horizontal closely spaced planar rough occasionally infilled with gravel (Grade B3-A3)	
-14.17	-14.60	18.50	18.93	0.43	Assumed zone of core loss. CHALK. (Driller's description)	
-14.60	-15.05	18.93	19.38	0.45	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy angular fine to coarse chalk GRAVEL. (Grade Dc) From 18.93m to 19.38m, Becomes clayey	
-15.05	-15.17	19.38	19.50	0.12	Weak white CHALK. Discontinuities are horizontal closely to very closely spaced planar rough. (Grade A3)	
-15.17	-15.41	19.50	19.74	0.24	STRUCTURELESS CHALK. Non-intact core recovered as slightly sandy angular fine to coarse chalk GRAVEL. (Grade Dc)	
-15.41	-15.57	19.74	19.90	0.16	Weak white CHALK. Discontinuities are horizontal closely to very closely spaced planar rough. (Grade A3)	
-15.57	-15.67	19.90	20.00	0.10	STRUCTURELESS CHALK. Non-intact core recovered as white sandy clayey subangular to subrounded fine to coarse chalk GRAVEL.	

Bore		Easting	Northing	Elevation		
AOC53087_BH902		503,666.25	441,705.00	4.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-15.67	-15.92	20.00	20.25	0.25	assumed zone of core loss. CHALK. (Driller's description)	Tertiary bedrock - chalk
-15.92	-16.17	20.25	20.50	0.25	STRUCTURELESS CHALK. Non-intact core recovered as white slightly sandy angular medium to coarse chalk GRAVEL. Sand is fine to coarse. (grade Dc)	
-16.17	-16.51	20.50	20.84	0.34	STRUCTURELESS CHALK recovered as sandy gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse chalk. (Grade Dm)	
-16.51	-16.91	20.84	21.24	0.40	Weak white CHALK. Discontinuities are horizontal closely to very closely spaced undulating rough. (Grade A3)	
-16.91	-17.17	21.24	21.50	0.26	STRUCTURELESS CHALK recovered as sandy gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse chalk. (Grade Dm) From 21.24m to 21.32m, Becomes clayey.	
-17.17	-17.37	21.50	21.70	0.20	Assumed zone of core loss. CHALK. (Driller's description)	
-17.37	-17.49	21.70	21.82	0.12	STRUCTURELESS CHALK. Non-intact core recovered as angular coarse chalk GRAVEL.	
-17.49	-18.17	21.82	22.50	0.68	Weak white CHALK. Discontinuities are horizontal to sub horizontal closely to very closely planar rough infilled with clayey gravel. (Grade B3-B4)	
-18.17	-18.57	22.50	22.90	0.40	STRUCTURELESS CHALK. Non-intact core recovered as angular coarse chalk GRAVEL.	
-18.57	-19.17	22.90	23.50	0.60	Weak white CHALK. Discontinuities are horizontal closely spaced planar rough. (Grade A3)	

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_BH902		503,666.25	441,705.00	4.33		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
-19.17	-19.32	23.50	23.65	0.15	STRUCTURELESS CHALK recovered as soft white gravelly CLAY. Gravel is subangular fine to medium chalk.	Tertiary bedrock - chalk
-19.32	-19.46	23.65	23.79	0.14	Weak white CHALK. Discontinuities are horizontal closely spaced planar rough. (Grade A3)	
-19.46	-20.08	23.79	24.41	0.62	STRUCTURELESS CALK. Non-intact core recovered as white angular to subangular coarse chalk GRAVEL. (Grade Dc)	
-20.08	-20.37	24.41	24.70	0.29	Weak white CHALK. Discontinuities are horizontal closely spaced planar rough. (Grade A3) From 24.60m to 24.70m, STRUCTURELESS CHALK recovered as white angular medium to coarse chalk GRAVEL.	
-20.37	-20.87	24.70	25.20	0.50	Weak white CHALK. Discontinuities are horizontal to sub horizontal closely spaced planar rough. (Grade A3)	
-20.87	-21.08	25.20	25.41	0.21	STRUCTURELESS CHALK recovered as white angular medium to coarse chalk GRAVEL.	
-21.08	-21.17	25.41	25.50	0.09	Weak white CHALK. Discontinuities are horizontal closely spaced planar rough.	
-21.17	-21.67	25.50	26.00	0.50	STRUCTURELESS CHALK. Non-intact core recovered as white slightly clayey sandy subangular to subrounded fine to coarse chalk GRAVEL. (Grade Dc)	

15 APPENDIX C – TRIAL PIT LOGS

Table 27 Deposit log for AOC53087_TP3401

Bore		Easting	Northing	Elevation		
AOC53087_TP3401		503244.93	436701.15	17.972		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
17.97	17.62	0.00	0.35	0.35	Grey-brown silty sandy clay LOAM. Natural flint and stone inclusions. TOPSOIL	Topsoil / Made Ground - Victorian to modern
17.62	17.22	0.35	0.75	0.40	Pinkish-yellow brown silty CLAY with gravel/sand inclusions. NATURAL	Pleistocene - Till
17.22	14.47	0.75	3.50	2.75	Mid brown clay with small angular chalky inclusions small stones and occasional large cobble. NATURAL	

Plate 1: Test pit [3401] viewed from the south.

Table 28 Deposit log for AOC53087_TP3402

Bore		Easting	Northing	Elevation		
AOC53087_TP3402		503400.16	436676.13	16.624		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
16.62	16.27	0.00	0.35	0.35	Grey brown silty sandy clay LOAM. Natural flint and small stone inclusions. TOPSOIL	Topsoil / Made Ground - Victorian to modern
16.27	15.82	0.35	0.80	0.45	Yellow brown CLAY with little silt. Few small flecks of stone. Fim/compact. NATURAL	Pleistocene - Till
15.82	13.22	0.80	3.40	2.60	Mid-dark brown CLAY with limestone flecks and mineral staining. NATURAL	

15.1 Several sherds of Roman pottery were identified within approximately 6m to the south of TP3402. These were found on the ground surface and as such are likely to have been redeposited by agricultural activity such as ploughing. However, they may be indicative of further remains of Romano-British date within the vicinity.

Plate 2: Test pit [3402] viewed from the south-east.

Table 29 Deposit log for AOC53087_TP3403

Bore		Easting	Northing	Elevation		
AOC53087_TP3403		503389.88	436828.64	15.276		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
15.28	14.88	0.00	0.40	0.40	Grey brown silty clay LOAM. Few natural flint fragments and small stones. TOPSOIL	Topsoil / Made Ground - Victorian to modern
14.88	14.18	0.40	1.10	0.70	Yellow brown firm silty sandy CLAY, mostly small limestone fragments and or cobbles. NATURAL	Pleistocene - Till
14.18	11.78	1.10	3.50	2.40	Mid brown firm silty CLAY with very small limestone flecks. NATURAL	

Plate 3: Test pit [3403] viewed from the south.

Table 30 Deposit log for AOC53087_TP3404

Bore		Easting	Northing	Elevation		
AOC53087_TP3404		503498.45	436689.1	15.964		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
15.96	15.61	0.00	0.35	0.35	Grey brown silty clay LOAM. Flint fragments (natural) and occasional small stones. TOPSOIL.	Topsoil / Made Ground - Victorian to modern
15.61	15.36	0.35	0.60	0.25	Yellow brown firm silty CLAY. Very few small stone inclusions. SUBSOIL/NATURAL	Pleistocene - Till
15.36	12.46	0.60	3.50	2.90	Mid brown firm CLAY with few small chalky flecks and occasional angular stones. NATURAL	

15.2 One sherd of Roman greyware pottery was recovered from the ploughsoil approximately 7 m to the south of TP3404.

Plate 4: Test pit [3404] viewed from the south.

Table 31 Deposit log for AOC53087_TP3405

Bore		**Easting**	**Northing**	**Elevation**		
AOC53087_TP3405		503521.1	436737	15.729		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
15.73	15.38	0.00	0.35	0.35	Grey brown silty clay LOAM with small stones and natural flint fragments. TOPSOIL	Topsoil / Made Ground - Victorian to modern
15.38	15.08	0.35	0.65	0.30	Yellow brown clay SILT. Very firm. Few small stone inclusions. NATURAL	Pleistocene - Till
15.08	12.23	0.65	3.50	2.85	Very firm mid brown CLAY with mostly small limestone inclusions. NATURAL	

Plate 5: Test pit [3405] excavated to the top of the subsoil, viewed from the south.

Plate 6: Test pit [3405] excavated to 3.5m, viewed from the south-east.

Table 32 Deposit log for AOC53087_TP3406

Bore		Easting	Northing	Elevation		
AOC53087_TP3406		503594.21	436816.6	14.845		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
14.85	14.50	0.00	0.35	0.35	Grey brown silty clay LOAM - friable - small stone inclusions and few natural flints. TOPSOIL	Topsoil / Made Ground - Victorian to modern
14.50	14.30	0.35	0.55	0.20	Yellow brown firm clayey SILT with few small limestone inclusions. NATURAL	Pleistocene - Till
14.30	12.25	0.55	2.60	2.05	Mid brown firm clayey SILT with small to tiny chalky/limestone fragments. NATURAL.	

Plate 7: Test pit [3406] excavated to the top of the subsoil and slot of pressure test, viewed from the south.

Table 33 Deposit log for AOC53087_TP3407

Bore		Easting	Northing	Elevation		
AOC53087_TP3407		503649.28	436674.79	13.442		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
13.44	12.99	0.00	0.45	0.45	Grey brown silty sandy clay LOAM (friable) with stones, stone fragments, and natural flint. TOPSOIL	Topsoil / Made Ground - Victorian to modern
12.99	11.59	0.45	1.85	1.40	Brownish yellow CLAY with little silt (firm/compact) with few small limestone flecks and occasional flint. NATURAL	Pleistocene - Till
11.59	9.89	1.85	3.55	1.70	Mid brown firm CLAY with frequent small limestone fragments. NATURAL	

Plate 8: Test pit [3407] viewed from the south.

Table 34 Deposit log for AOC53087_TP3408

Bore		Easting	Northing	Elevation		
AOC53087_TP3408		503610.3	436890.09	13.895		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
13.90	13.55	0.00	0.35	0.35	Grey brown silty clay LOAM with small stones and natural flint fragments. TOPSOIL	Topsoil / Made Ground - Victorian to modern
13.55	13.10	0.35	0.80	0.45	Yellow brown silty CLAY and little sand, firm, small flecks and fragments of limestone. NATURAL	Pleistocene - Till
13.10	10.40	0.80	3.50	2.70	Mid brown firm clay SILT with few small flecks of stone and stone fragments. NATURAL	

Plate 9: Test pit [3408] viewed from the south-east.

Table 35 Deposit log for AOC53087_TP3409

Bore		Easting	Northing	Elevation		
AOC53087_TP3409		503591.66	436962.43	13.257		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
13.26	12.86	0.00	0.40	0.40	Grey brown silty CLAY with natural flint fragments and few small stones. TOPSOIL	Topsoil / Made Ground - Victorian to modern
12.86	12.61	0.40	0.65	0.25	Firm/compact yellow brown CLAY with small stone inclusions. NATURAL	Pleistocene - Till
12.61	9.76	0.65	3.50	2.85	Mid brown firm / compact CLAY with small limestone fragments. Small sandy content towards base. NATURAL	

Plate 10: Test pit [3409] viewed from the south.

Table 36 Deposit log for AOC53087_TP3410

Bore		Easting	Northing	Elevation		
AOC53087_TP3410		503739.11	436746.82	12.139		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
12.14	11.84	0.00	0.30	0.30	Grey brown silty sandy clay LOAM (friable). Stone and natural flint. TOPSOIL	Topsoil / Made Ground - Victorian to modern
11.84	11.49	0.30	0.65	0.35	Pale orange brown friable silty sandy CLAY. Frequent natural flint and occasional sandstone and gravel. NATURAL	Pleistocene - Till
11.49	10.84	0.65	1.30	0.65	Mid brown CLAY with few inclusions. NATURAL	

15.3 A modern plastic field drain was encountered at a depth of 1.3 m, and the trial pit relocated 2.5 m to the west.

Plate 11: Test pit [3410] viewed from the north-east.

Table 37 Deposit log for AOC53087_TP3410A

Bore		Easting	Northing	Elevation		
AOC53087_TP3410A		503735.94	436746.31	12.166		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
12.17	11.82	0.00	0.35	0.35	Grey brown friable sandy silty clay LOAM with small stones and natural flint fragments. TOPSOIL	Topsoil / Made Ground - Victorian to modern
11.82	11.42	0.35	0.75	0.40	Yellow brown clay SILT (firm). NATURAL	Pleistocene - Till
11.42	10.07	0.75	2.10	1.35	Firm brown CLAY with small limestone flecks. NATURAL	
10.07	9.57	2.10	2.60	0.50	Pale buff coarse sand and tiny chalk flecks. NATURAL	
9.57	8.67	2.60	3.50	0.90	Firm brown CLAY, few notable inclusions. NATURAL	

Plate 12: Test pit [3410A] viewed from the south.

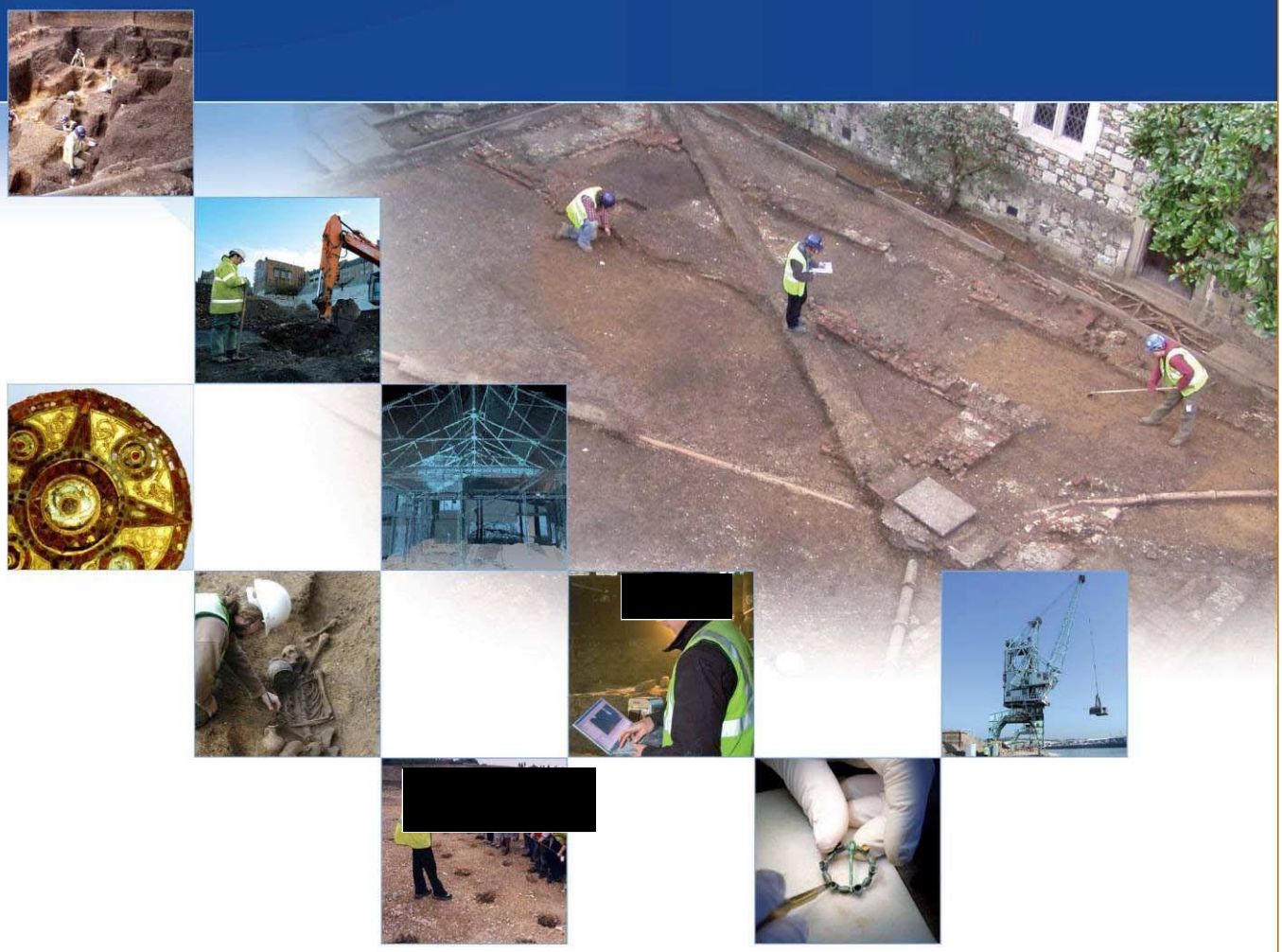
Table 38 Deposit log for AOC53087_TP3411

Bore		Easting	Northing	Elevation		
AOC53087_TP3411		503484.14	437006.94	12.175		
Top elevation (m OD)	**Base elevation (m OD)**	**Top depth (m bgl)**	**Base depth (m bgl)**	**Thickness (m)**	**Description**	**Interpretation**
12.18	11.83	0.00	0.35	0.35	Grey brown silty sandy clay LOAM topsoil with small stones and natural flint fragments. TOPSOIL	Topsoil / Made Ground - Victorian to modern
11.83	11.58	0.35	0.60	0.25	Yellow brown silty CLAY chalk flecks // reworked. SUBSOIL	Pleistocene - Till
11.58	8.68	0.60	3.50	2.90	Heavy/firm CLAY with angular small chalky/limestone inclusions and occasional large cobbles. NATURAL	
8.68	8.58	3.50	3.60	0.10	Brown sandy CLAY. NATURAL	

Plate 13: Test pit [3411] viewed from the south.

16 APPENDIX D – OASIS FORM

OASIS ID (UID): aocarcha1-522097
Project Name: Dogger Bank South Offshore Wind Farms: Archaeological and Geoarchaeological Watching Brief and Deposit Model Report
Activity type: Watching Brief
Sitecode(s): [no data]
Project Identifier(s): 53087
Planning Id: [no data]
Reason for Investigation: Planning requirement
Organisation Responsible for work: AOC Archaeology Group
Project Dates: 06-Jun-2023 - 29-Jun-2023
HER: Humber HER
HER Identifiers: [no data]
Project Methodology: The geoarchaeological watching brief and borehole monitoring exercise comprised the monitoring of 23 geotechnical boreholes to a maximum depth of c. 35m bgl, and 12 geotechnical test pits to a maximum depth of c. 3.6 m bgl. The monitoring of these interventions contributes data to the updated deposit model. No core samples were available to be retained for geoarchaeological purposes. Geoarchaeological and geotechnical deposit data can be used to identify areas of archaeological potential by characterising the probable nature and depth of sub-surface deposits.
Project Results: The deposit sequence recorded across the site included a bedrock of chalk, ranging in elevation between approximately -22 and 100 m OD, which was overlain with glacial till with a thickness of up to c. 40 m. Glaciofluvial deposits, demarcating the paths of glacial meltwater were identifies across the site, often overlain with Holocene alluvium. Alluvium was also recorded directly overlying till. Towards the north and east of the development, lacustrine deposits likely to be associated with former meres are identified. These align with previously mapped mere outlines. Organic deposits were identified associated with these Holocene sequences, with a thickness of up to c. 6.5 m in the northern area of the development. These sequences were sealed with topsoil, and in some areas such as the onshore substation zone in the south, likely truncated by modern made ground.
Keywords:
Archive:
Reports in OASIS:
Taylor, J., (2024). *Dogger Bank South Offshore Wind Farms: Archaeological and Geoarchaeological Watching Brief and Deposit Model Report*. Twickenham: AOC Archaeology. Embargo ends: 16/07/2024



AOC Archaeology Group

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