



Bacton Beach Nourishment Norfolk

Results of Walkover Survey and Archaeological Protocol Reporting



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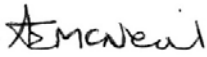

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Summary

Wessex Archaeology was commissioned by Team Van Oord to develop an archaeological protocol and undertake a walkover survey for the Bacton Beach Nourishment project, in Norfolk. Aggregate material was dredged from the East Coast licence areas, and therefore there was potential for artefacts dating from the Palaeolithic to the modern period, to be discovered during dredging or deposition on the beach.

Dredging work was undertaken in July and August 2019. Eight walkover surveys were undertaken to review material deposited on Bacton beach.

Twelve finds were recovered through the walkover survey or reported through the archaeological protocol. Three of the finds comprised flint objects, however all were determined to be natural. One piece of peat was recovered during the walkover survey and could be from a Pleistocene deposit. Although the remaining objects are not of interest with regards to the palaeogeography of the East Coast, they do provide insight into the maritime uses of the study area through time, including material from vessels (such as sheaves and the remains of a wrought iron anchor), Second World War munitions, and possible aircraft material.

The East Coast licence areas remain areas of archaeological potential, and discoveries in the area could continue to increase our understanding of past human activities.

Acknowledgements

Wessex Archaeology is thankful to the Team Van Oord staff at Bacton, in particular Jan Zwart for his co-operation and assistance during the project.

The field work was conducted by Emily Eastwood, Viktoria Halldorsdottir and Andrew Swan. Emily Eastwood and Andrea Hamel prepared this report. Kitty Foster prepared the illustrations. Euan McNeill managed the project for Wessex Archaeology.



BACTON BEACH NOURISHMENT, NORFOLK

Results of Walkover Survey and Archaeological Protocol Reporting

1 INTRODUCTION

1.1 Project background

- 1.1.1 Wessex Archaeology was commissioned by Team Van Oord to develop an archaeological protocol and undertake a walkover survey for the Bacton Beach Nourishment project, in Norfolk (**Figure 1**). Aggregate material was dredged from the East Coast licence areas (**Figure 2**).
- 1.1.2 Previous aggregate and archaeological work in the East Coast licence areas indicated the potential for archaeological discoveries. However, the level of potential is correlated to the sedimentary unit being dredged.

1.2 Archaeological background

Introduction

- 1.2.1 In 2008, artefactual material, including handaxes, flakes and cores were recovered, along with faunal remains (including bison, mammoth, horse and reindeer) from Licence Area 240, situated approximately 11 km off the coast of Great Yarmouth (Wessex Archaeology 2013). Further sampling work (funded through the Aggregate Levy Sustainability fund via English Heritage (now Historic England)) and monitoring of dredged material recovered additional flint artefacts. Interpretation of the geology in Licence Area 240 indicated that the assemblage was most likely recovered from particular floodplain sediments deposited during the early development of the Palaeo-Yare valley. Further archaeological monitoring of aggregate areas in the wider region has also revealed discoveries of additional Palaeolithic material.
- 1.2.2 The majority of material of interest has been recovered from the 3b sediments (discussed in more detail in **Table 1** below). There is some potential for derived artefacts from other sedimentary layers, however, their potential is generally lower.
- 1.2.3 There is also potential for a wide range of material dating up to the modern period, as evidenced by reports that have been made through the Marine Aggregate Industry Protocol for Archaeological Discoveries (BMAPA and English Heritage 2005).

Geological baseline of East Coast dredging areas

- 1.2.4 The geological baseline of the East Coast dredging areas has revealed a complex history of deposition and erosion. Eight sediment units have been identified, dating from the Late Pliocene/Early Pleistocene to marine deposits associated with the last transgression in the Holocene.

Table 1 Geoarchaeological interpretation and description

Unit	Interpretation	Age	Description
8	Marine deposits associated with the last transgression in the Holocene	Holocene	Shelly, gravelly medium to coarse sand.
7	Basal fill of a shallow under-filled channel feature (equivocal to onshore lower Breydon Formation)	Early Holocene	Only observed to the northwest of Area 240 and also a small patch in the south western corner. It comprises a basal unit of peat approximately 0.2 m thick overlain by a unit of sandy or shelly clay. Infilling of Channel B.
6	Glaciofluvial alluvium	Possibly mid-Devensian	Sandy gravel.
5	Possibly represents an estuarine or near coastal depositional environment	Unknown, possibly contemporary with unit 6	Slightly gravelly, slightly silty, fine to medium grained sand infilling depressions.
4	Brown Bank Formation	Early Devensian (110 – 75 ka)	Unit 4 is a very distinctive unit generally associated with the buried channel feature in the north of Area 240 interpreted as the infilling of a cut sequence. It is comprised of fine-grained sediments (sands, silts and clays) deposited in a low-energy environment such as river or estuary.
3b	Reworked glaciofluvial outwash	Wolstonian glaciation (380 to 130 ka)	Unit 3b overlies Unit 3a in the channel and directly overlies Unit 2 throughout the central and western area. It is comprised of sands and gravels.
3a	Reworked glaciofluvial outwash	Wolstonian glaciation (380 to 130 ka)	A channel (Channel A) infill deposit that is associated with a channel feature probably cut into Unit 2 during the Late-Anglian glaciation. Unit 3a is the deepest, and oldest, fill primarily associated with the channel feature in the northeast and comprises gravel and sand.
2a/b	Yarmouth Roads Formation	Cromerian period (478 to 787 ka)	Unit 2a generally comprises silty, gravelly, fine to coarse sands. Observed throughout the majority of Area 240 and generally overlies Unit 1. To the south of Area 240 Unit 2b comprises silty sand with very frequent thin beds and laminae of firm to stiff clay and peaty organic clay.
1	Westkapelle Ground Formation	Pliocene/Early Pleistocene	The deepest unit and is observed across Area 240

1.3 Development proposal

1.3.1 Aggregate material for the Bacton Beach Nourishment project was obtained from East Coast licence areas (**Figure 2**). Work was undertaken by a Trailing Suction Hopper Dredger (TSHD), HAM 318. Work took place 24 hours a day, seven days per week.



- 1.3.2 Dredging comprised 3-4 loads per 24 hours of ca. 20,000 m³ per load. The material was not be screened on board but was be deposited directly to the beach, through a series of pipelines..
- 1.3.3 Dredging took place from 7 July to 19 August 2019.
- 1.3.4 Material was dredged from the following licence areas:

Table 2 Dredged aggregate licence areas

Production Agreement	Licence Area
Cemex	511, 512, 513
Hanson	212
Tarmac	494, 254
Volker Dredging	228

- 1.3.5 Although Licence Areas 242/361 and 240 were suggested as possible back up areas for dredging, no dredging was undertaken in these areas.
- 1.3.6 The dredged material was deposited on Bacton Beach (**Figure 1**).

1.4 Scope of document

- 1.4.1 This document sets out the results of the archaeological protocol and the archaeological walkover survey.
- 1.4.2 In format and content this document conforms with current best practice and the Chartered Institute for Archaeologists' (CIfA) Standards and Guidance (CIfA 2014 a-g).

1.5 Aims

- 1.5.1 The aim of this report is to outline the results of the mitigation measures implemented for the Bacton Beach Nourishment project. The mitigation measures were in line with industry guidance, such as Marine Aggregate Dredging and the Historic Environment: Assessing, evaluating, mitigating and monitoring the archaeological effects of marine aggregate dredging (BMAPA and English Heritage 2003).
- 1.5.2 The mitigation measures were intended to reduce any adverse effects of the proposed dredging works on the historic environment by:
- archaeologically assessing a proportion of the dredged aggregate material that was transferred to the beach; and
 - enabling staff working on-board the dredging vessels or on shore to report discoveries in a manner that was both convenient to their everyday work and effective with regard to curatorial requirements.
- 1.5.3 The objectives were:
- to ensure archaeological involvement during dredging works;
 - to record material of archaeological potential as it was recovered/and or encountered on the seabed through a project specific archaeological protocol, in line



with existing industry protocols, such as the one produced by BMAPA and English Heritage (2005);

- to record material of archaeological potential as it was identified on the beach;
- to assess the archaeological potential of discoveries;
- to provide archaeological advice regarding legal requirements;
- to provide 'first aid' conservation advice for finds and to provide storage advice;
- to establish Temporary Exclusion Zones (TEZs) for discoveries of archaeological material of major archaeological importance;
- to provide advice on further archaeological works should avoidance not be possible;
- to provide advice on further evaluation that may be required; and
- to prepare this report on the results.

2 METHODOLOGY

2.1 Protocol for Archaeological Discoveries

Introduction

- 2.1.1 A Protocol for Archaeological Discoveries (the Protocol) was implemented to reduce any adverse effects of dredging on the historic environment, by enabling staff working on the project to report finds in a manner that was convenient and effective. This Protocol was developed in line with existing dredging industry guidance, namely, *the Protocol for reporting finds of archaeological interest* (BMAPA and English Heritage 2005).
- 2.1.2 The Protocol ensured that unexpected discoveries of archaeological material, whether on the seabed or recovered to the surface, and including submerged prehistoric material, shipwreck material, aircraft remains and any other archaeological material, were addressed in a timely and appropriate manner.
- 2.1.3 The Protocol was specifically designed to deal with any discoveries that were made during dredging works for the Bacton Beach Nourishment project.

Awareness training

- 2.1.4 Wessex Archaeology provided awareness training on 19 July 2019. The awareness training enabled dredging staff and staff on shore to identify finds of archaeological potential, to report such discoveries, and to implement 'first aid' conservation for the finds.
- 2.1.5 Training included an overview of the types of material likely to be discovered during the dredging operations, with examples of aircraft material, shipwreck material and prehistoric material.
- 2.1.6 Training provided details about the procedure for reporting discoveries, and the types of information that the archaeologists would require. Staff were also be introduced to the Preliminary Recording Form.
- 2.1.7 Training also included information on handling and storing archaeological discoveries.



Steps taken following a discovery (of all levels of significance)

2.1.8 The Site Representative:

- ensured that all material was handled/treated with care;
- did not remove any rust, sediment, concretion or marine growth, not separate 'groups' of items;
- ensured that the find was photographed, using a camera with a date/time stamp, and/or videoed;
- provided the find with a reference number from a continuous unique numbering system;
- obtained a position for the find from the vessel's GPS (Global Positioning System) location and/or provided a trackplot for the dredger;
- provided 'first aid' for the recovered find (kept the find cool, dark and wet);
- filled in a preliminary recording form;
- forwarded the preliminary recording form, and any additional information to the Nominated Contact;
- the Nominated Contact confirmed all details in the preliminary recording form were comprehensive and correct and forwarded it, along with copies of any photographs, video, vessel trackplot, and other relevant information to the retained archaeologist; and
- on receipt of a report, the retained archaeologist reviewed the data provided and supplied further advice as relevant.

2.1.9 Material recovered from the dredging works was handled by the retained archaeologist according to the details set out in the Method Statement (Wessex Archaeology 2019).

2.2 Walkover survey methodology

Introduction

2.2.1 An archaeological walkover survey was undertaken on Bacton Beach following the deposition of aggregate material. The walkover survey was undertaken in line with applicable guidance from the ClfA: *Standard and Guidance for archaeological field evaluation* (ClfA 2014a).

2.2.2 A suitably qualified and experienced archaeologist visited Bacton Beach at least once a week during the nourishment works (**Table 3**). The archaeologist was accompanied to the deposition areas by Van Oord staff, and advised of any relevant Health & Safety issues.

Table 3 Dates of walkover surveys

Date	Wessex Archaeology staff in attendance
16/07/2019	Andy Swann
19/07/2019	Emily Eastwood
22/07/2019	Emily Eastwood



25/07/2019	Emily Eastwood
01/08/2019	Emily Eastwood
08/08/2019	Emily Eastwood
15/08/2019	Emily Eastwood
22/08/2019	Viktoria Halldorsdottir

2.2.3 All material of archaeological interest was provided with a unique project ID and recorded with measurements and photographs. The position of each find was recorded. Material of archaeological interest was retained and brought back to Wessex Archaeology's office for further assessment.

2.2.4 The location of any material of archaeological interest discovered on the beach was compared with the dredging trackplots provided by the dredger to ascertain the provenance of the material.

2.3 Archaeological assessment and compilation of report

2.3.1 Finds were recovered as they were reported and recorded in the project database. Each object was provided a unique reference number (002-013) (**Appendix 1**). The recording included the 'as found' location of the object, as well as the source licence area.

2.3.2 Finds discovered on the beach were recorded with their initial beach location in BNG and uploaded into the Bacton Beach GIS (BNG) (ArcGIS 10.6). Information about the 'borrow area and chainage' (where 'borrow area' relates to the 'licence area' and 'chainage' relates to the location on the beach where the material was deposited) was supplied by the Client as a PDF. This was georeferenced in BNG. The find location was then compared with the reported chainage locations (represented by the 400 m – 5900 m marks, running NW-SE) (**Figure 3**). The licence area from which the material was derived could then be determined (**Appendix 1**) (for example material dredged from Licence Area 254 on 8 August 2019 was deposited in the chainage range 3326–3858). The centrepoin of the licence area was used as the provenance location for the find. The points were then added to the East Coast dredging area GIS (UTM31N) (ArcGIS 10.6).

2.3.3 Where finds were reported from the dredging vessels, the 'as found' location comprised the centrepoin of the vessel trackplot, or the targeted area of the trackplot, if known from vessel staff. The vessel trackplots, received as PDFs, were uploaded into the East Coast dredging area GIS (UTM13N) (ArcGIS 10.6) and georeferenced in UTM31N. The centrepoin of the track plot, or the particular target area was then determined and recorded (**Appendix 1**) (**Figure 4**).

2.3.4 The locations in the East Coast dredging area GIS were overlaid on the geoarchaeological units (**Figure 4**), in order to determine which unit the material had been derived from.

2.3.5 Finds considered to be 'wreck' under the *Merchant Shipping Act* 1995 were reported to the Receiver of Wreck and have been provided with a droit number (**Appendix 1**).

2.3.6 Objects were assessed by a suitably qualified and experienced archaeologist and specialists within Wessex Archaeology.

3 ARCHAEOLOGICAL RESULTS

3.1 Introduction

3.1.1 The finds are discussed here by the licence area, based on the provenance of the finds, rather than their discovery location on the beach. A full listing of finds, with positional information and images can be found in the gazetteer (**Appendix 1**).

3.2 Licence Area 212

3.2.1 Dredging in Licence Area 212 took place largely in Unit 2 sediments (**Figure 4**). These are generally silty fine sand with occasional clay and peat, and the peat and any finds would be of archaeological potential.

3.2.2 One find was recovered from the beach (WA 007) (**Plate 1**), a piece of flint with a small hole, thought to be a possible flint weight. However, the flint specialist at Wessex Archaeology noted that the material was natural, and the hole was likely natural as well. The breakages at one end of the find appeared to be relatively recent, possibly made during dredging or deposition.

3.3 Licence Area 228

3.3.1 Dredging in Licence Area 228 took place in largely in Unit 3b sediments (**Figure 4**), and therefore there was potential for discoveries of prehistoric material.

3.3.2 One object (WA 006) was recovered from Licence Area 228 (**Figure 4**). It comprised a possible iron rudder gudgeon, measuring 180 mm in length by 160 mm across including the concretion (**Plate 2**). The hole at one end has an interior diameter of 30 mm. The find is likely post-medieval or modern, and the concretion indicates that it has been exposed on the seabed for some time.

3.4 Licence Area 494

3.4.1 Dredging in Licence Area 494 took place largely in sediments of low archaeological potential, including the sheet deposit, reworked banks and Unit 2 (**Figure 4**).

3.4.2 Three objects (WA 008, WA 009 and WA 010) were recovered from Licence Area 494 (**Figure 4**).

3.4.3 WA 008 is possible aircraft material (**Plate 3**). The find comprised aluminium and possibly steel metal and nylon webbing. The aluminium is long and narrow, with 'spade' shaped aluminium pieces extending outwards at one end, and the steel material at the other end, near the webbing. The iron/steel section appears as though it could slide up and down, and it looks as though there are 'tracks' on the aluminium channel. The 'spades' appear to be very damaged and are possibly bent out of location. One piece of the aluminium material appears to have nail holes, with possible metal nails still *in situ*. If the nylon webbing is associated with the artefact, it could suggest a post war date, possibly 1970s onwards.

3.4.4 A metal sheave (WA 009) (**Plate 4**) measured approximately 500 x 250 x 100 mm. The find is modern.

3.4.5 An unknown semi-circular wooden object (WA 010) (**Plate 5**) was recovered on the beach. It measures 268 mm x 140 mm. The wood is worked, and although one side has the appearance of a wooden plate, the back side is too thick and rounded. It could be a sacrificial wear board, although these are not generally circular. The material looks too



modern to be a plug, but it could be a broken flange insert/cover for a pipeline, to keep it dry during construction.

3.5 Licence Area 511

- 3.5.1 Dredging in Licence Area 511 was undertaken largely in Unit 3b deposits of high archaeological potential, as well as Unit 2 deposits (**Figure 4**).
- 3.5.2 Three objects were recovered from Licence Area 511 (WA 003, WA 004 and WA 012).
- 3.5.3 Two of the objects comprised probable 8 inch naval shells (WA 003 and WA 004) (**Plate 6**), both of which were stamped 1941, and therefore date to the Second World War. The shells were disposed of through company ordnance protocols.
- 3.5.4 The third object was a piece of peat (WA 012) (**Plate 7**) discovered on the beach. It was initially recovered due to its shape and hole, but later confirmed as peat. It measured 122 mm x 80 mm. A specialist at Wessex Archaeology noted that the hole in the peat was likely made recently, possibly by a stake or a walking stick. It appears similar to material recovered from Happisburgh Phase 1, and therefore could be from a Pleistocene deposit.

3.6 Licence Area 512

- 3.6.1 Dredging in Licence Area 512 took place largely in Unit 2 and on the edge of Unit 3b, and therefore there was potential for discoveries of prehistoric material in Unit 3b (**Figure 4**).
- 3.6.2 Four objects relating to Licence Area 512 were discovered: two pieces of flint (WA 002 and WA 005) were recovered from the beach, and two nautical artefacts (WA 011 and WA 013) were recovered during dredging.
- 3.6.3 One small piece of flint (WA 002) (**Plate 8**) measured 54 mm x 22 mm. A specialist at Wessex Archaeology noted that the damage to the flint appeared to be very recent, possibly made during the dredging process, and therefore the flint is natural.
- 3.6.4 A slightly larger piece of flint with a hole in it (WA 005) (**Plate 9**) was initially thought to be a possible flint weight. It measured 52 mm x 34 mm. The flint specialist at Wessex Archaeology noted that the breakages appeared to be relatively recent and the hole was likely made naturally.
- 3.6.5 A broken and very corroded small wrought iron anchor (WA 011) (**Plate 10**) measured 1032 mm between the remains of the arms, and 490 mm from the point of the crown to the break in the shank. It had no evidence of stock or bills, but the lack of bills could be due to damage/corrosion on the arms. It is difficult to determine the date of this anchor based on its shape, as anchor shapes could remain similar over long periods of time. It could be from a small civilian vessel dating to the early to mid-19th century, but alternatively it could date as early as the medieval or post-medieval period, for example a wrought iron anchor was recovered from the wreck of the *Mary Rose* (Curryer 1999).
- 3.6.6 A modern sheave (WA 013) (**Plate 11**) measured 540 mm x 230 mm. The object appears very similar to WA 009, another modern sheave block. However, the dates of recovery of the two artefacts are different, and they are recorded as coming from different licence areas.

3.7 Areas with no reported finds

- 3.7.1 There were no finds reported from Licence Areas 212 or 513, or from the beach where the material was deposited.



4 CONCLUSIONS

- 4.1.1 Overall, 12 finds were reported during the walkover survey and archaeological protocol reporting.
- 4.1.2 Three pieces of flint were recovered on the beach. Although all showed signs that could have indicated human working, specialist assessment in the office determined that all of them were natural, and any damage to the flints appeared to be recent, possibly made during dredging or deposition.
- 4.1.3 A small piece of peat was recovered on the beach. It appears similar to material recovered from Happisburgh, and therefore could be from a Pleistocene deposit. It likely derived from Licence Area 511, where work was largely undertaken in the Unit 3b deposits of archaeological potential and could indicate the potential for further discoveries of interest.
- 4.1.4 Although the remaining objects are not of interest with regards to the palaeogeography of the East Coast, they do provide insight into the maritime uses of the study area through time, including material from vessels (such as sheaves and part of an anchor), Second World War munitions, and possible aircraft material.
- 4.1.5 The East Coast dredging areas continue to be of potential for archaeological discoveries, with particular heightened potential for Palaeolithic material in the Unit 3b deposits. Further dredging works in these areas should continue to undergo archaeological monitoring, in order to preserve discoveries for future generations.



REFERENCES

Bibliography

- BMAPA and Historic England 2003 *Marine Aggregate Dredging and the Historic Environment*. Available online at http://www.bmapa.org/documents/arch_guidance.pdf
- BMAPA and English Heritage 2005 *Protocol for reporting finds of archaeological interest. Full text*. Prepared by Wessex Archaeology.
- Chartered Institute for Archaeologists (CIfA) 2014a *Standard and guidance for archaeological field evaluation*. Reading, CIfA
- CIfA 2014b *Standard and guidance for the collection, documentation, conservation and research of archaeological materials*. Reading, CIfA
- CIfA 2014c *Standard and guidance for an archaeological watching brief*. Reading, CIfA
- CIfA 2014d *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives*. Reading, CIfA
- CIfA 2014e *Code of Conduct*. Reading, CIfA
- CIfA 2014f *Regulations for Professional Conduct*. Reading, CIfA
- CCIfA 2014g *Standard and Guidance for nautical archaeology recording and reconstruction*. Reading, CIfA
- Curryer, B. 2019 *Anchors: An Illustrated History*.
- Wessex Archaeology 2019 *Bacton Beach Nourishment, Norfolk: Heritage Method Statement for Archaeological Protocol and Walkover Survey*. Internal Reference 223720.01.



APPENDICES

Appendix 1: Recovered Material

Context Number	Date Found	Description	Where Found	Beach Location BNG Easting	Beach Location BNG Northing	Source License	Provenance UTM31 E	Provenance UTM31 N	Location description	Location	RoW droit
002	16/07/2019	Small piece of flint. Measured 54 mm x 24 mm. A specialist at Wessex Archaeology noted that the damage to the flint appeared to be very recent, possibly made during the dredging process, and therefore the flint is natural.	Shore	633668	334695	512	430036	5816864	BNG: Location of object recovered on beach. UTM31N: Centrepont of Licence Area 512, determined using ArcGIS 10.6. Based on the location of the material deposited on the beach, Licence Area 512 is the most likely provenance for this material. Although there may also be a possibility that it came from Licence Area 511, as it is near the edge of these areas.	Wessex Archaeology's Salisbury Office Unit 24	N/A
003	19/07/2019	Shell casing, probably an 8 inch naval shell, stamped 1941 and therefore dating to the Second World War.	Shore	-	-	512	428946	5817896	UTM31N: Approximate centrepont of dredging lanes, calculated in UTM31N in ArcGIS 10.6.	Disposed of through company ordnance procedures	147/19
004	20/07/2019	Shell casing, probably an 8 inch naval shell, stamped 1941 and therefore dating to the Second World War.	Shore	-	-	512	428920	5817897	UTM31N: Approximate centrepont of dredging lanes, calculated in UTM31N in ArcGIS 10.6.	Disposed of through company ordnance procedures	147/19
005	22/07/2019	Small piece of flint. 52 mm x 34 mm. A specialist at Wessex Archaeology noted that the flint appeared to have been rolled around on the beach, possibly during the dredging or deposition process, and therefore it comprises natural, fractured flint.	Shore	633430	334858	512	430036	5816864	BNG: Location of object recovered on beach. UTM31N: Centrepont of Licence Area 512, determined using ArcGIS 10.6. Based on the dredging licence areas supplied by the Client, and the location of the material deposited on the beach, Licence Area 512 is the most likely provenance for this material.	Wessex Archaeology's Salisbury Office Unit 24	N/A
006	24/07/2019	Iron rudder or gate gudgeon, post-medieval or modern. It measures 180 mm in length by 160 mm across, including the concretion. The interior of the hole has a diameter of 30 mm.	Shore	-	-	228	429548	5821972	UTM31N: Approximate centrepont of western dredging lanes, calculated in UTM31N in ArcGIS 10.6. Converted to WGS84 using Quest Geodetic Calculator.	Wessex Archaeology's Salisbury Office Unit 24	149/19
007	25/07/2019	Small piece of flint, measuring 140 mm x 120 mm. The flint specialist at Wessex Archaeology noted that the breakages appeared to be relatively recent, and that the hole was likely made naturally.	Shore	633543	334750	212	432375.3671	5831680.611	BNG: Location of object recovered on beach. UTM31N: Centrepont of Licence Area 212, determined using ArcGIS 10.6. Based on the dredging licence areas supplied by the Client, and the location of the material deposited on the beach, Licence Area 212 is the most likely provenance for this material.	Wessex Archaeology's Salisbury Office Unit 24	N/A



Context Number	Date Found	Description	Where Found	Beach Location BNG Easting	Beach Location BNG Northing	Source License	Provenance UTM31 E	Provenance UTM31 N	Location description	Location	RoW droit
008	22/07/2019	Possible aircraft material. If the nylon webbing is associated with the artefact, it could suggest a post war date, possibly 1970s onwards. The iron/steel section appears as though it could slide up and down, and it looks as though there are 'tracks' on the aluminium channel. The 'spades' appear to be very damaged and are possibly bet out of location.	Vessel	-	-	494	430362	5834168	UTM31N: Approximate centrepont of western dredging lanes, calculated in UTM31N in ArcGIS 10.6.	On board dredger	148/19
009	24/07/2019	Modern sheave block	Vessel	-	-	494	430670	5834061	UTM31N: Approximate centrepont of dredging lanes, calculated in UTM31N in ArcGIS 10.6.	On board dredger	148/19
010	08/08/2019	Fragment of worked wooden object. It measures 268 mm x 140 mm. The remains represent just under half of a possible circle.	Shore	635983	332915	494	431256.5329	5833982.411	BNG: Location of object on beach. UTM31N: Centrepont of Licence Area 494, determined using ArcGIS 10.6. Based on the dredging licence areas supplied by the Client, and the location of the material deposited on the beach, Licence Area 494 is the most likely provenance for this material.	Wessex Archaeology's Salisbury Office Unit 24	In process Reported 5/09/2019
011	17/08/2019	Remains of a small wrought iron anchor. It measures 1032 mm from the remains of one arm to the other, and 490 mm from the point of the crown to the remains of the shank. No bills or stock were present. It could be from a small civilian vessel, dating to the early/mid 19th century, or alternatively could be significantly older, as wrought iron anchors are known from the medieval and post-medieval periods.	Vessel	-	-	511	423656	5815335	UTM31N: Approximate location of dredging in Licence Area 511, based on vessel track plot and indication from vessel crew.	Wessex Archaeology's Salisbury Office Unit 24	In process Reported 5/09/2019
012	21/08/2019	The piece of peat measures 122 mm x 80 mm. A specialist at Wessex Archaeology noted that the hole in the peat was likely made recently, possibly by a stake or a walking stick. It appears similar to material recovered from Happisburgh Phase 1, and therefore could be from a Pleistocene deposit.	Shore	636618	332540	511	424074	5818688	BNG: Location of object on beach. UTM31N: Centrepont of Licence Area 511, determined using ArcGIS 10.6. Based on the dredging licence areas supplied by the Client, and the location of the material deposited on the beach, Licence Area 511 is the most likely provenance for this material.	Wessex Archaeology's Salisbury Office Unit 24	In process Reported 5/09/2019
013	17/08/2019	Modern metal sheave block. Measured 540 mm x 230 mm.	Vessel	-	-	511	423622	5815375	Approximate location of dredging in Licence Area 511, based on vessel track plot and indication from vessel crew.	Wessex Archaeology's Salisbury Office Unit 24	In process Reported 5/09/2019



Appendix 8: OASIS record form

Project Details:

Project name	Bacton Beach Nourishment, Norfolk		
Project code	223720.02		
OASIS ID			
Type of project	Field evaluation		
Project description	<p>Wessex Archaeology was commissioned by Van Oord to develop an archaeological protocol and undertake a walkover survey for the Bacton Beach Nourishment project, in Norfolk. Aggregate material was be dredged from the East Coast licence areas, and therefore there was potential for material dating from the Palaeolithic to the modern period. Dredging work was undertaken in July and August 2019. Eight walkover surveys were undertaken to review material deposited on Bacton beach.</p> <p>Twelve finds were recovered through the walkover survey or reported through the archaeological protocol. Three of the finds comprised flint objects, however all were determined to be natural. One piece of peat was recovered during the walkover survey and could be from a Pleistocene deposit. Although the remaining objects are not of interest with regards to the palaeogeography of the East Coast, they do provide insight into the maritime uses of the study area through time, including material from vessels (such as sheaves and the remains of an anchor), Second World War munitions, and possible aircraft material.</p>		
Project dates	Start: 9 July 2019	End:	
Previous work	N/A		
Future work	N/A		
Site status	N/A		
Land use	Coastland 1 – Marine Coastland 2 - Intertidal		
Monument type		Period	

Project Location:

County	Norfolk	District	Maritime	Parish	Maritime
Site name	Bacton Beach Nourishment, Norfolk; Results of Walkover Survey and Archaeological Protocol Reporting				
Study area (m²)	617509 m ²				
Site co-ordinates	632431, 335716 BNG	(TG 3243 3571)			
	636878, 332270 BNG	(TG 3687 3227)			

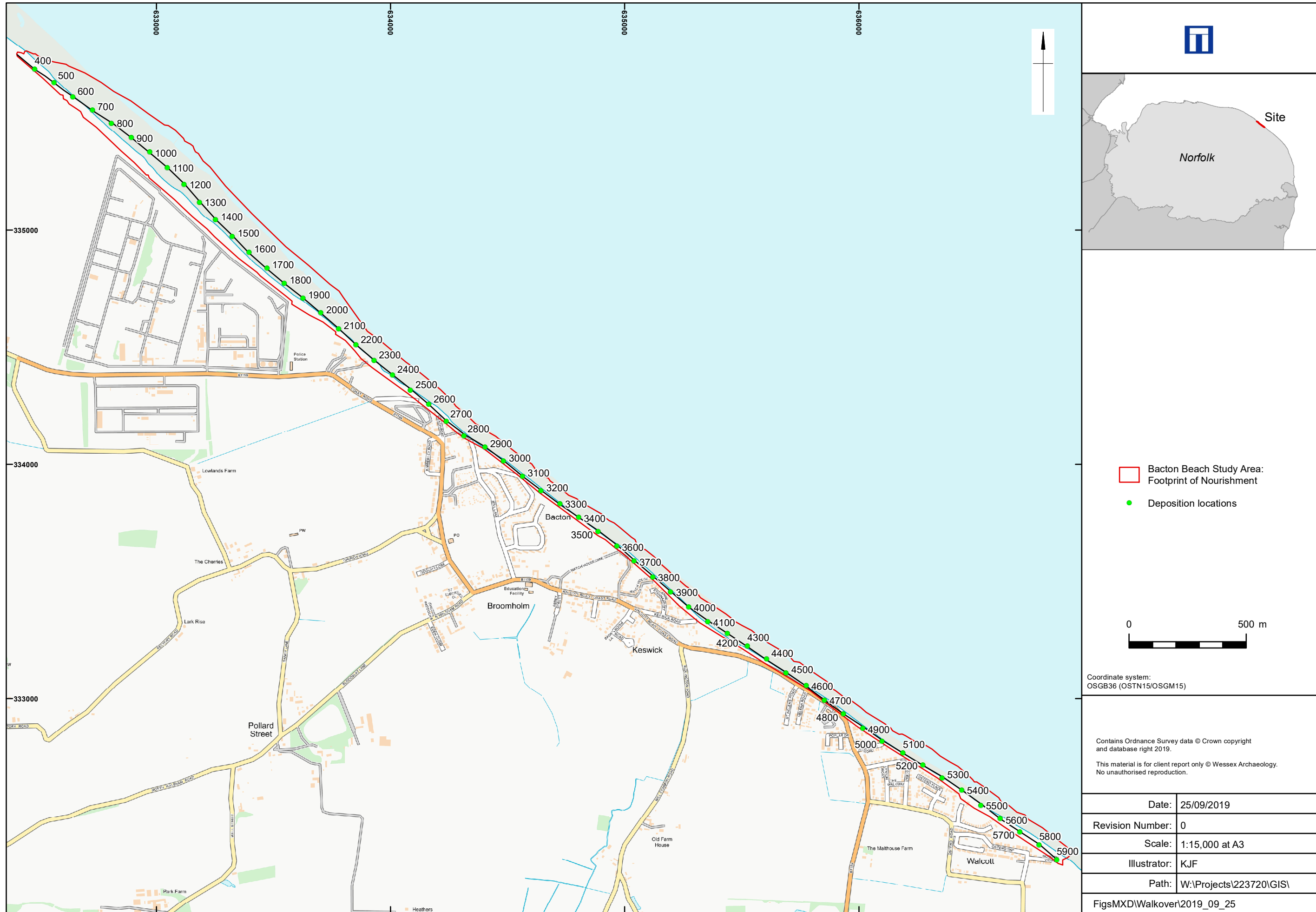
Project Creators:

Name of organisation	Wessex Archaeology		
Project brief originator	Van Oord	Project design originator	Wessex Archaeology
Project manager	Euan McNeill	Project supervisor	Andrea Hamel

Project Archive and Bibliography:

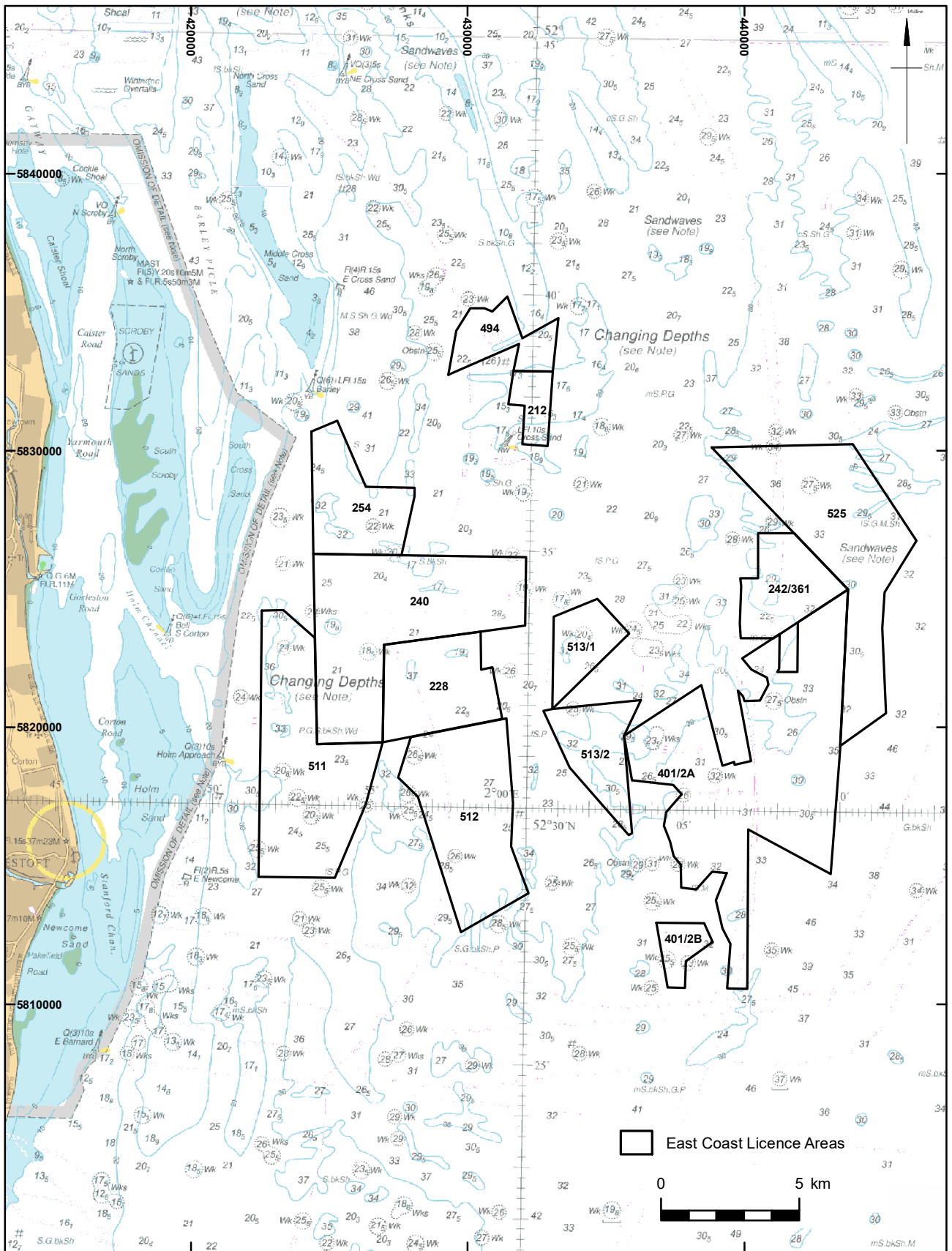


Physical archive	Finds	Digital archive	Finds, recording forms, ArcGIS, spreadsheets, databases	Paper archive	Recording forms, fieldwork forms, etc
Report title	Bacton Beach Nourishment, Norfolk Results of Walkover Survey and Archaeological Protocol Reporting			Year	2019
Author	Wessex Archaeology	Place of issue	Salisbury	Report ref.	223720.02



Location of Bacton Beach Nourishment scheme

Figure 1



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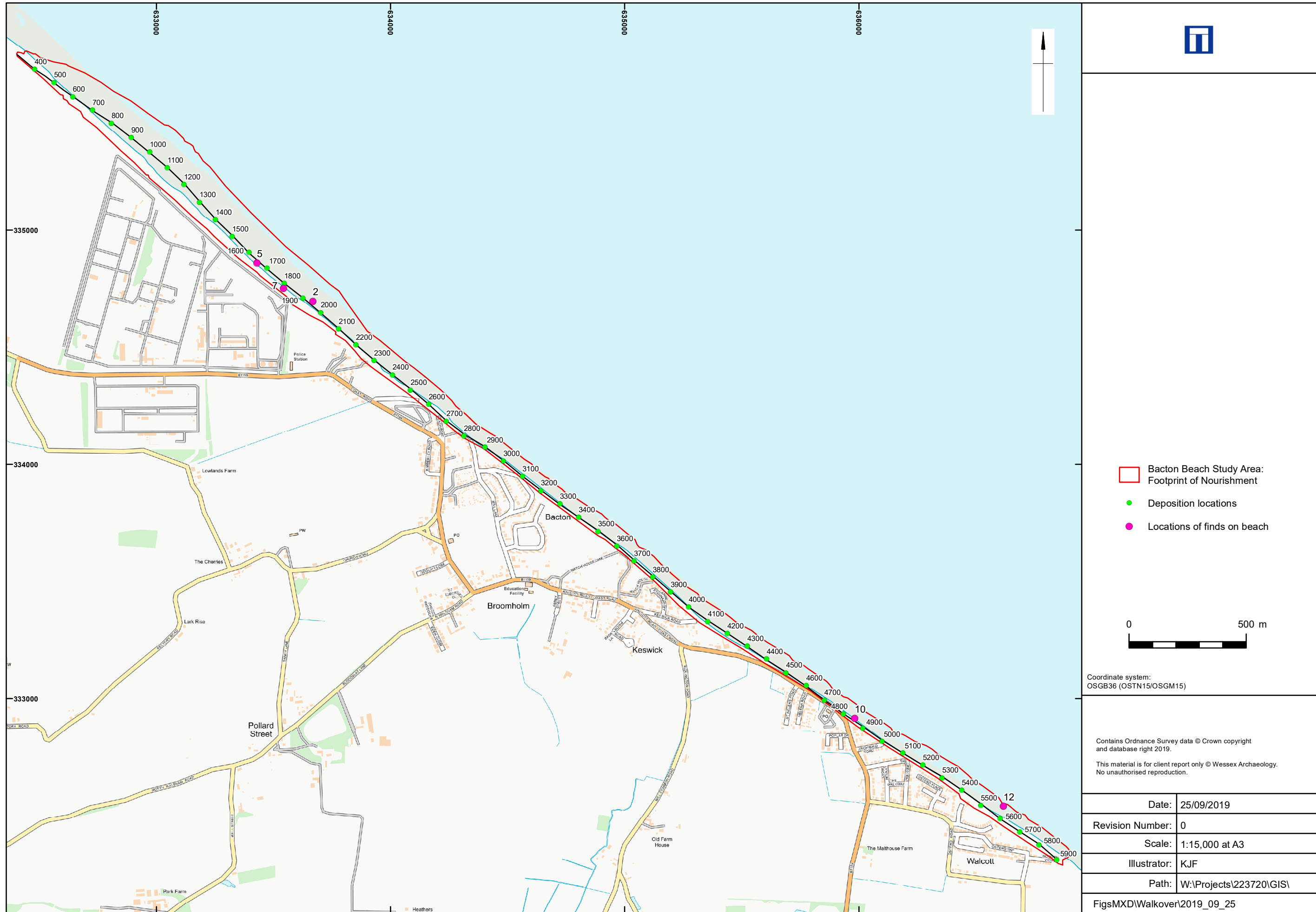
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Coordinate system:
WGS84 UTM Z31N

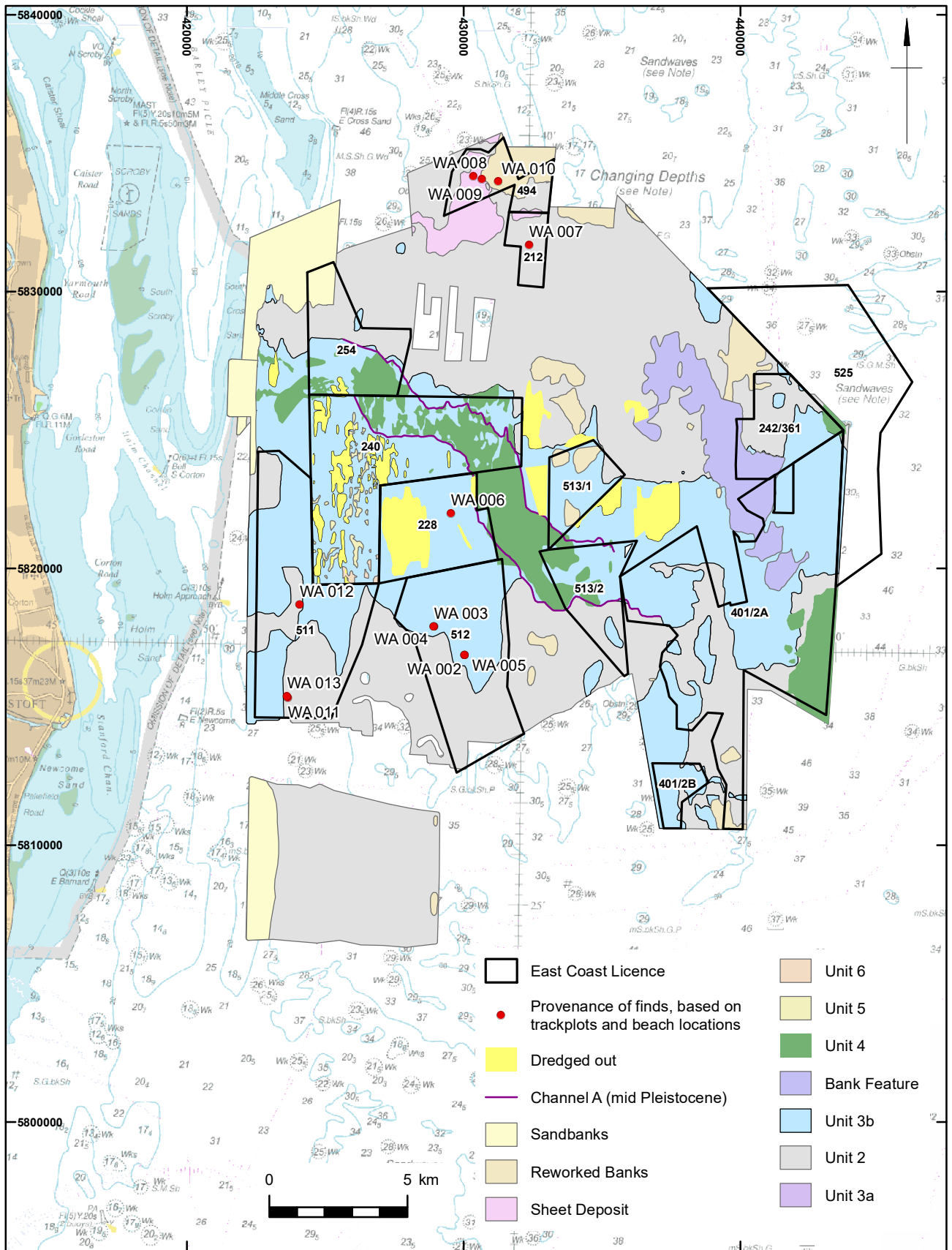
East Coast licence areas

Figure 2



Find spots from Bacton Beach

Figure 3



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Scale:	1:200,000 at A4	Illustrator:	KJF
Path:	W:\Projects\223720\GIS\Figs\MXD\Walkover\2019_09_25		

 Coordinate system:
WGS84 UTM Z31N

Find spots in East Coast licence areas

Figure 4



Plate 1: WA 007 – natural flint



Plate 2: WA 006 – iron rudder gudgeon


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Plate 3: WA 008 – possible aircraft material



Plate 4: WA 009 – small sheave


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Plate 5: WA 010 – unknown semi-circular wooden object



Plate 6: WA 003 and WA 004 – 8 inch naval shells, dating to the Second World War


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Plate 7: WA 012 – piece of peat



Plate 8: WA 002 – natural flint


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Plate 9: WA 005 – natural flint



Plate 10: WA 011 – part of a small wrought iron anchor



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Plate 11: WA 013 – modern sheave

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