

Paper Mill Lane Works

Site-Specific Written Scheme of Investigation

DCO Requirement 20 (1)

(Applicable to Work Numbers 50 and 51)

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1. INTRODUCTION AND SCOPE

1.1. Project Overview

- East Anglia Three Limited (EATL) was awarded a Development Consent Order (DCO) by the Secretary of State, Department of Business, Energy & Industrial Strategy (DBEIS) on 7 August 2017 for the East Anglia THREE Offshore Windfarm (EA THREE). The DCO granted consent for the development of a 1,200MW offshore windfarm and associated infrastructure and is live until 28 August 2022.
- 2. The DCO has now been subject to three non-material variations:
 - In March 2019 EATL submitted a non-material change application to DBEIS to amend the consent to increase the maximum generating capacity from 1,200MW to 1,400MW and to limit the maximum number of gravity base foundations to 100. In June 2019 DBEIS authorised the proposed change application and issued an Amendments Order.
 - In July 2020 EATL submitted a second non-material change application to DBEIS to amend the parameters of its offshore substations (reducing the number of these to one) and wind turbines (a decrease in the number of turbines and an increase in their hub height and rotor radius). On 15 April 2021 DBEIS authorised this proposed change application and issued an Amendments Order.
 - In August 2021 EATL submitted a third non-material change application to DBEIS to amend the consent to remove the maximum generating capacity of 1,400MW and to amend the parameters of its wind turbines (a decrease in the number of turbines and an increase in their hub height and rotor radius). The application is currently in the consultation phase.
- 3. The onshore construction works associated with EA THREE will have a capacity of 1,400MW and transmission connection of 1,320MW. The construction works will be spread across a 37km corridor between the Suffolk coast at Bawdsey and the converter station at Bramford, passing the northern side of Ipswich. As a result of the strategic approach taken, the cables will be pulled through pre-installed ducts laid during the onshore works for East Anglia ONE Offshore Windfarm (EA ONE), thereby substantially reducing the impacts of connecting to the National Grid (NG) at the same location. The infrastructure to be installed for EA THREE, therefore, comprises:
 - The landfall site with one associated transition bay location with two transition bays containing the connection between the offshore and onshore cables;
 - Two onshore electrical cables (single core);
 - Up to 62 jointing bay locations each with up to two jointing bays;
 - One onshore converter station, adjacent to the EA ONE Substation;
 - Three cables to link the converter station to the National Grid Bramford Substation;
 - Up to three onshore fibre optic cables; and
 - Landscaping and tree planting around the onshore converter station location.
- 4. Since the granting of the DCO, the decision has been made that the electrical connection for EA THREE will comprise a high voltage direct current (HVDC) cable rather than a high voltage alternating current cable and, therefore, the type of substation that will be required is a HVDC converter station. The substation will be referred to here as a 'converter station' and this amended terminology has been agreed with the relevant authorities on 15 October 2020. It has also been determined that only one converter station will be constructed rather than two and that the converter station will be installed in a single construction phase.

1.2. Purpose and Scope

5. This Site-Specific Written Scheme of Investigation (WSI) sets out the standards and procedures for undertaking the archaeological investigations required for the Paper Mill Lane Works stage of the EA THREE construction works (Figure 1 Site Location and Figure 2 Site Context Plan) (hereafter "the Works Site"). This document has been produced to discharge DCO Requirement 20 (1) which states:

Archaeology

20.

(1) No stage of the connection works may commence until for that stage a written scheme of archaeological investigation (which accords with the outline written scheme of investigation (onshore)) has, after consultation with Historic England and Suffolk County Council, been submitted to and approved by the relevant planning authority.
 (2) In the event that site investigation is required, the scheme must include details of the following—

- (a) an assessment of significance and research questions; and
- (b) the programme and methodology of site investigation and recording;
- (c) the programme for post investigation assessment;



(d) provision to be made for analysis of the site investigation and recording;

(e) provision to be made for publication and dissemination of the analysis and records of the site investigation;(f) provision to be made for archive deposition of the analysis and records of the site investigation; and(g) nomination of a competent person or persons/organisation to undertake the works set out within the written scheme of investigation.

(3) Any archaeological works or watching brief must be carried out in accordance with the approved scheme.
(4) In the event that site investigation is required, the site investigation and post investigation assessment must be completed for that stage in accordance with the programme set out in the written scheme of archaeological investigation and provision made for analysis, publication and dissemination of results and archive deposition secured for that stage.

- 6. The scope of this Site-Specific WSI relates to the Paper Mill Lane Works Stage, as part of the onshore cable route that runs from the landfall location at Bawdsey to the Converter Station located near Bramford, Suffolk. The works in this stage comprise Work No.s 50 and 51 (Figure 2). WSIs have been produced for each stage of the onshore connection works) and are provided under separate cover.
- The Paper Mill Lane Works will be some of the first works to be undertaken along the cable route. These works have been designated as a stage in their own right to allow the works to commence at this location prior to works commencing along the cable route as a whole (i.e. the main cable works construction phase). The CCS and the access to it will be constructed in Summer 2022 and the remaining works (jointing bay installation, duct proving, cable installation and reinstatement) will be undertaken as part of the main cable works construction phase.
- 8. As per DCO condition 20 (1), the scope of works presented within this document draws upon that presented within the Outline Written Scheme of Investigation (Onshore) (OWSI) produced as part of the original Environmental Statement (Document 8.4; Royal HaskoningDHV 2016). It has also been informed by the 'East Anglia THREE: Desk Based Archaeological Risk Assessment and Mitigation Strategy' (RSK 2020, Appendix 1).

1.3. Legislation and Planning Policy

- 9. East Anglia THREE is a Nationally Significant Infrastructure Project (NSIP), and as such the primary legislation relating to the consent regime for the project is provided by the Planning Act 2008. The Act designates a series of National Planning Statements (NPSs) setting out national policy in relation to NSIPs.
- ^{10.} Those NPS of specific relevance to the project comprise the EN-1 Overarching Energy NPS and EN-3 Renewable Energy Infrastructure both designated in July 2011. Also of relevance is NPPF Section 12: *Conserving and enhancing the historic environment;* this sets out the principal national guidance on the importance, management and safeguarding of heritage assets within the planning process.
- 11. This national guidance provides a framework which:
 - recognises that heritage assets are an irreplaceable resource;
 - requires applicants to provide proportionate information on the significance of heritage assets affected by the proposed project and an impact assessment on that significance;
 - takes into account the desirability of sustaining and enhancing the significance of heritage assets and their setting;
 - places weight on the conservation of designated heritage assets; and
 - requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and impact, and to make this evidence (and any archive generated) publicly accessible.

1.4. Guidance and Best Practice

- 12. Detailed standard and guidance documents for archaeological fieldwork are produced by the Chartered Institute for Archaeologists (CIfA), those relevant to the current works include:
 - Standard and Guidance for Archaeological Excavation (CIfA 2020a)
 - Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (CIfA 2020b)
 - Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (CIfA 2020c)



- 13. Suffolk County Council also has a series of documents that provide the County's expected standards for undertaking archaeological fieldwork. Pertinent to this scope of work is:
 - Requirements for Archaeological Excavation (updated January 2021);
 - Additional Requirements for a Palaeoenvironmental Assessment (updated 2018); and
 - Archaeological Archives in Suffolk. Guidelines for Preparation and Deposition (Updated 2019).
- ^{14.} Guidance set out in 'Standards for Field Archaeology in the East of England' (Gurney 2003) should also be followed, alongside the Good Practice Advice notes by Historic England and the Association of Local Government Archaeological Officers (ALGAO).
- ^{15.} The archaeological works set out within this WSI, and all associated post-excavation work and reporting, will be undertaken in accordance with this WSI by a competent, professional archaeological contractor (the Archaeological Contractor).

ADS	Archaeology Data Service
ALGAO	Association of Local Government Archaeological Officers
ccs	Construction Consolidation Site
DBARAMS	Desk-Based Archaeological Risk Assessment and Mitigation Strategy
DBEIS	Department of Business, Energy and Industrial Strategy
DCO	Development Consent Order
CIfA	Chartered Institute for Archaeologists
CSCS	Construction Skills Certification Scheme
DGPS	Differential Global Positioning System
EA ONE	East Anglia ONE Offshore Windfarm
EA THREE	East Anglia THREE Offshore Windfarm
EATL	East Anglia THREE Limited
HER	Historic Environment Record
HVDC	High Voltage Direct Current
MORPHE	Management of Research Projects in the Historic Environment
MW	Megawatt
NG	National Grid
OASIS	Online Access to the Index of Archaeological Investigations
OWSI	East Anglia Three Outline Written Scheme of Investigation (onshore)
PCCS	Primary Construction Consolidation Site
PPE	Personal Protective Equipment
RO	Registered Organisation (CIfA)
RSA	Regional Science Advisor
SCCAS	Suffolk County Council Archaeology Service
SFB	Sunken Feature Building
SME	Strip, map and excavate
SMS	Strip Map and Sample
SPE	Set piece excavations

2. ABBREVIATIONS



SuDS Sustainable Drainage System	
ИКІС	United Kingdom Institute for Conservation of Historic & Artistic Works
WSI	Written Scheme of Investigation

3. CONSTRUCTION DETAILS

3.1. Cable Works – Overview

- The construction works will be spread across a 37km corridor between the Suffolk coast at Bawdsey and the Converter Station at Bramford, passing the northern side of Ipswich. The cables will be pulled through pre-installed ducts laid during the onshore works for East Anglia ONE. The construction activity within each section along the onshore cable route will be as follows:
 - Any minor temporary modifications to the public road network;
 - Establish the Construction Consolidation Sites (CCSs);
 - Establish accesses to, and temporary haul road to, the jointing bay locations;
 - Establish temporary jointing bay compounds;
 - Excavate jointing bay pit to locate the existing ducts at each of the compounds;
 - Construct jointing bay;
 - Transport of cables to site, pull cables through ducts and undertake jointing;
 - Topsoil replacement and seeding;
 - Remove temporary compounds (jointing bays and CCS); and
 - Reinstate all disturbed land and permanent fences and hedges.
- 17. Some temporary modification of the existing road networks may be required such as localised widening, temporary widening or socketing of street signs and temporary moving of street furniture in order to allow larger vehicles than normal to access the jointing bays. This will be completed prior to the start of the main construction works within relevant sections of the cable corridor route.
- EATL will require up to seven temporary construction compounds to aid in the construction of the proposed East Anglia THREE project. These have been designated as 'Primary Construction Consolidation Site' (PCCS) and 'Secondary Construction Consolidation Site' (SCCS) depending on their uses. Two PCCS and up to five SCCS will be installed, which will all be temporary and will be removed once construction is complete.

Table 3-1 – Construction Consolidation Site Locations

CCS Type	ID	Address
Secondary	Α	Bullen Lane, Bramford, Ipswich, Suffolk IP8
Primary	В	Paper Mill Lane, Claydon, Ipswich, Suffolk IP6 0AP
Secondary	С	Witnesham Road, Ipswich, Suffolk IP6
Secondary	D	Playford Corner, Playford Mount, Ipswich, Suffolk IP6 9DS
Primary	Е	Top Street, Martlesham, Suffolk IP12
Secondary	F	Clappits, Woodbridge Road, Newbourne, Woodbridge, Suffolk IP12 4PA
Secondary	G	Park Lane, Ipswich, Suffolk IP10

19. The PCCSs will:

- Form the main point of access onto the linear construction site;
- Provide areas for the storage of materials and equipment;
- House site administration and welfare facilities for the labour resources;
- Form an interchange hub for deliveries of material, equipment and resources; and
- Allow HGVs to park prior to entering the local road network during peak hours.
- 20. The SCCSs will act as hubs for the delivery of materials, equipment and resources along the route and will enable access to the cable route for construction. They will be of sufficient size to accommodate limited storage of materials, equipment and labour welfare facilities.



- It is anticipated that 29 jointing bays will be required along the 37km cable route, in addition to a transition bay at the landfall. Each jointing bay will comprise a concrete box 10m long by 3m wide by 1.5m high buried so that the base is 2.5m below ground level. A jointing bay construction compound will be required adjacent to each jointing bay and will have hardstanding areas of up to 900m² within the compound which would typically measure 24m x 115m i.e. 2,760m². (in accordance with Requirement 12(11) which stipulates that the footprint must not exceed 3,740m²). The compounds will have hardstanding and accommodate containers, drum trailer movement, parking, and welfare. A typical layout is shown in Figure 2 of the Code of Construction Practice (EA3-LDC-CNS-REP-IBR-000065).
- 22. Existing accesses and farm tracks will be upgraded and used where possible to access the jointing bay locations. Once these accesses reach the cable corridor, the routes to connect to the jointing bays are referred to as 'haul road'. The length of haul road for the cable route is limited by Requirement 12(12) of the DCO to 18.05km.
- In addition, the ducts to be used for EA THREE, which were installed during the EA ONE project construction works, will require to be 'proved' to ensure that they are intact and free of debris. This will be undertaken by the use of foam pigs which will be driven under pressure from jointing bay to jointing bay. Each stretch of duct that was installed using Horizontal Direct Drilling (HDD) will, however, require duct-proving excavations at each end of the HDD, to allow the use of different size foam pigs, due to a difference in the diameter of these compared to the ducting installed using open trench techniques.

3.2. Paper Mill Lane Works

- 24. Paper Mill Lane Works comprise a stage of the onshore connection works and cover Work No.s 50 and 51. The infrastructure within these work no.s comprises:
 - The Paper Mill Lane PCCS in Work No. 51;
 - Jointing Bay 4 in Work No. 50;
 - Two new accesses with the public road (Paper Mill Lane) as follows:
 - Access AP-AF to the east of Paper Mill Lane, to access the PCCS and Jointing Bay 4; and
 - Access AP-AG to the west of Paper Mill Lane to access the ends of the HDD ducts;
 - The access track/haul road required to access the PCCS and Jointing Bay 4;
 - Two stretches of trackway to reach duct proving excavations at the ends of the HDD ducts in the Work No.s to the east and west of the Paper Mill Lane Works; and
 - Turning circle and HGV parking area in Work No 51 to allow HGV movements to be safely coordinated.
- ^{25.} These works are shown on Figure 1.
- ^{26.} Paper Mill Lane PCCS and the two accesses from Paper Mill Lane were used as part of the EA ONE construction works and have now been reinstated, other than part of the access to the east which has been partially reinstated, and so will need to be constructed again under the EA THREE DCO. There are no public rights of way within the site.

3.2.1. Accesses AP-AF and AP-AG, Access Track, Haul Road and Trackway (Work No. 50)

- Paper Mill Lane PCCS and the Jointing Bay will be accessed from Paper Mill Lane using Access AP-AF. This access was used for the EA ONE project and has now been partially reinstated. Planning permission has been granted for the access that remains (Reference DC/20/05669). From Access AP-AF, a new temporary vehicular access track of 180m length and 5.5m width will be used to access the Paper Mill Lane PCCS and also reach the edge of the cable corridor (Work No. 50), where 90m of 5.5m wide haul road will link to the jointing bay. From here, 140m of 5.5m wide trackway will be installed to reach the excavation point on the HDD ducts in Work No. 49. Of this trackway, 90m will be within Work No. 49 and is not part of the Paper Mill Lane Works.
- 28. An access (Access AP-AG) will also be required on the west side of Paper Mill Lane, along with a 185m length of trackway to reach the proposed HDD duct proving excavation in Work No. 52 during the main cable works. Only 33m of this trackway will be within the Paper Mill Lane Works.
- ^{29.} No watercourse crossings will be required for the Paper Mill Lane Works.
- ^{30.} The construction methodologies associated with the access, access track and haul roads are typically as follows:
 - Set out the access and track/haul road with the use of Global Positioning Systems (GPS) Real Time Kinematic (RTK) equipment;



- Locate, divert and cap any existing field drains;
- Set out and install drainage features the length of track to be constructed;
- Remove vegetation, then remove and locally store topsoil material over the working width; seeding topsoil if it is to be stored for longer than 6 months;
- Excavate to formation level and store any excess material;
- Under-track drainage will be installed where necessary and in accordance with drainage requirements;
- Place a geotextile onto existing subsoil to improve the bearing capacity of the sub-soil, depending on ground conditions, programme and landowner requirements;
- Place imported stone in accordance with the design to form the track structure; and
- For the trackway, following the setting out of the route using GPS RTK, the trackmatting would be installed directly on the existing ground surface.

3.2.2. Primary Construction Consolidation Site (Work No. 51)

- ^{31.} The Paper Mill Lane PCCS (CCS B) will be a designated storage and delivery facility and also the main administrative compound for the onshore cable works. The dimensions of the PCCS at Paper Mill Lane will be 90m long by 40m wide covering a surface area of 3,600m², this is in accordance with Requirement 12(9)(a) which limits the size of each PCCS to 3,600m². The Paper Mill Lane PCCS will also be within the area previously used for the EA ONE PCCS in this location.
- 32. The construction of the PCCSs involves stripping of topsoil, importing and laying stone for the compound base and installing cabins and welfare facilities. Construction of the Paper Mill Lane PCCS will take approximately 3 weeks and the methodology will be as follows:
 - The extent of PCCS will be marked out with the use of GPS RTK equipment;
 - Any existing field drains will be located, diverted and capped;
 - Drainage features will be set out and installed as required;
 - Security fencing will be erected around the perimeter of the PCCS;
 - Once vegetation has been removed, topsoil material over the PCCS area will be removed and locally stored and seeded if it is to be stored for longer than 6 months;
 - Any excess material will be excavated to formation level and stored; and
 - Imported stone will be placed in accordance with the design of the PCCS base structure.
- ^{33.} An HGV queuing area (195m²), turning circle (303m²) and parking up area (447m²) will also be required adjacent to the PCCS. This will enable a key part of the EA THREE traffic strategy which requires any HGVs arriving via the strategic road network during peak hours to park up at the Primary CCS, as HGVs will only be permitted to enter the local road network during permitted delivery windows (generally 9am-4.30pm (see Table 6-2 of the Traffic Management Plan (EA3 LDC-CNS-REP-IBR-000039)).
- ^{34.} The Paper Mill Lane PCCS will be constructed first in summer 2022, with the duct proving, jointing bay and cable pull through occurring at a later date (anticipated in 2024). It is intended that the PCCS will provide an early onsite presence for the onshore cable construction works and will be used as a base for mitigation and survey works being undertaken as well as for the construction team to visit site during the later stages of the planning and design process. It will also be used for stakeholder and other site meetings.
- 35. The Paper Mill Lane PCCS will remain in situ for the duration of the onshore cable works, prior to being restored as described in Section 3.2.4.

3.2.3. Jointing Bay 4 (Work No. 51)

- ^{36.} The jointing bay will be located within Work No. 50, 150m to the southeast of the PCCS at OS Grid Reference 613067, 248933.
- ^{37.} Once the location of the jointing bay compound has been established (using GPS RTK equipment), creation of the compound will commence with erection of temporary security fencing, removal of topsoil layer and installation of hardstanding areas.
- The jointing bay will then be excavated to a depth of up to 2.5m with adequate slope batter or shoring on all sides of the excavation to prevent the soil from collapse. The existing ducts will be uncovered and concrete slabs constructed to provide a level working area. Two sump pits will be included to facilitate drainage and dewatering and water will be treated, where necessary, before being discharged. Installation and jointing of the cables will then take place, along with installation of earthing link boxes and fibre optic cable chambers, before the area is back filled with subsoil.



^{39.} The creation of the jointing bay compound and excavation of the jointing bay will each take a week.

3.2.3.1. Cable Installation

- 40. The electrical transmission cables will be delivered to the CCS, from where they will be transferred to the jointing bay compound when needed. The cable drums will comprise abnormal loads and their delivery will be managed as set out in the Traffic Management Plan (EA3-LDC-ONCS-REP-IBR-000032). Two cable lengths of approximately 1,260m will be required to pull through between each pair of jointing bays. The cable ducts will be proved before the cable is pulled through. Once the cables are received at the jointing bay compound, they will be temporarily stored on the hardstanding area prior to installation in the pre-installed ducts.
- Installation of the cables into the ducts between Jointing Bay 4 and Jointing Bay 3 (not part of the Paper Mill Lane Works) will begin with a cable pulling system being installed into the bay. A steel bond and winching system with free spinning rollers will be installed along the bottom of the bay. Hydraulic jacks will raise the cable drum off the ground and a winch will be used to pull in cable using a pulling rope. A dynamometer will ensure the maximum pulling tension is not exceeded. Tension on the cable will be reduced using a biodegradable water-based lubricant. This process will be repeated for the second cable being installed in the duct. The cables will then be jointed once 2 cable sections (4 cables) have been installed.
- 42. It is expected that pulling and jointing operations would take approximately 2.5 weeks, typically spread over a three to four week period, with approximately five workers for each jointing bay. These works will then be repeated to install the cables between Jointing Bays 4 and 5.

3.2.4. Reinstatement

- Following installation and jointing of the cables, the jointing bay, jointing bay compound, access and haul road will be reinstated with the stored topsoil and subsoil following trenching. If necessary, the subsoil will be 'ripped' prior to placement if compaction had occurred. Topsoil will be spread in such a way as to ensure that it does not become compacted. The topsoil will then be cultivated and reseeded (if required) and suitable hedgerow species replanted during the first appropriate planting season, in accordance with the Landscape Management Pan (EA3- LDC-ONCS-REP-IBR-000064). Temporary fencing around any new planting would be removed once reinstatement was established.
- 44. Trackway will be removed following installation of the cables in the adjacent Work No.s.
- 45. The PCCS will remain in situ for the duration of the cable works and will then be removed and reinstated as outlined above.

4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

4.1. Archaeological and Historic Context

- The earliest evidence of archaeological activity around the Site and wider area, dates to the Pleistocene (about 500,000 years BC), and settlement sites are recorded from the Palaeolithic, Mesolithic, and through to the Neolithic. Most activity is recorded along areas of lighter soils such as The Breakland and The Sandlings, as well as major rivers, but activity is found throughout the area. Neolithic (4000-2200BCE) trade routes are evident between northwest Suffolk and the Lake District, and southwest Suffolk and Cornwall, and while causewayed enclosures and cursus monuments are known, long barrows and henges are largely absent. A total of 825 Bronze Age (2200-700BCE) barrows are recorded in Suffolk, of which 114 are still visible as earthworks, along with 'flat' cremation cemeteries, but little Bronze Age settlement activity has otherwise been recorded. Settlement and growth continued through the Iron Age (700BCE-43AD) uninterrupted, with most settlements remaining undefended, though some fortified settlements were established during the Later Iron Age.
- 47. Romano-British (43-410AD) activity in East Anglia was centred around Caistor St Edmunds in Norfolk & Colchester in Essex, and a steady population growth corresponds with land clearance and management and the creation of several major towns and road systems. Early Medieval (410-1066AD) colonisation is first recorded at the head of the Deben Estuary, and the 8th-9th centuries marked a dramatic increase in population. The area was under Danish rule from AD 870-902, with Danish influence and acculturation still evident in regional placenames today. Following the Norman Conquest of AD 1066, castles and other fortifications were rapidly established, a practice that continued later into the Medieval period (1066-1499AD), with 850 moated sites known throughout Suffolk, the earliest being of early-12th century origin.
- ^{48.} There are many post-Medieval (1500-1799AD) and 19th Century features recorded in Suffolk, including listed buildings and registered parks and gardens, along with many undesignated features such as bridges, dovecotes and tramways etc.



- ^{49.} Significant remains from the modern period (1900AD-Present Day) in East Anglia, are largely associated with World War 1 and World War 2, mostly comprising coastal defences, including pillboxes, trenches, artillery emplacements, and other concrete constructions. In addition, the remains of a Cold War radar station and the Bloodhound Missile Site are located at RAF Bawdsey.
- 50. A number of prehistoric remains have been found within the immediate vicinity of the Paper Mill Lane Works Site (Figure 5). These remains mainly consist of evidence of Iron Age settlement found to the north during the construction of the Claydon by-pass (CLY 005). Finds included numerous coins, brooches, weaving instruments, and quantities of animal bones. These finds were located near multiple un-dated ring ditches (CLY 004, CLY 036), which may be related. Additionally, a Neolithic flint chisel was also recovered in a separate location (CLY 050). An Iron Age coin was recovered to the east of the Works Site (CLY 015).
- Roman activity is also recorded in the area, with a large amount of Roman material found during the construction of the Claydon bypass (CLY 005). Finds include large quantities of pottery, brooches, bone needles and case, a ring, and evidence of metal working. A number of Roman coins have been found nearby (CLY 055, CLY 072, CLY 073, WHI 003, CLY 014), of a variety of dates, as well as a small bronze axe (CLY 064). A metal works scatter, including coins and brooches was found to the east of the Works Site.
- ^{52.} Evidence of Anglo-Saxon occupation was found to the north, at Burnside, Paper Mill Lane, during trial trenching (CLY 031). It was proposed that there may be a sunken-featured building, with associated with early Anglo-Saxon pottery. Other Anglo-Saxon finds include a bronze cruciform brooch (CLY 005) and a Silver Sceat dating between 680-710AD (CLY 013).
- ^{53.} Medieval finds within the vicinity of the Paper Mill Lane Works Site mainly consist of coins, brooches or buckles, and tokens (CLY 052, CLY 056, CLY 072). A medieval green is located to the west (BLL 024).
- ^{54.} There are multiple sites of post-medieval occupation within the vicinity of the Works Site, including the Old Mill Yard watermill to the northwest, (CLY 083), and the 17th and 19th century farmhouses making up Mockbeggars Hall to the south, (CLY 077), within which is the Grade II* listed Mockbeggars Hall (LB433464).
- 55. An area of undated earthworks (CLY037) is identified to the west of the Works Site, and an undated enclosure is identified to the east of the Works Site (CLY 038).

4.2. Archaeological Investigations at the Paper Mill Lane Works Site for EA ONE

- 56. The Works Site has been subject to significant archaeological investigation during the development of the EA ONE project. This investigation has included geophysical survey (Oxford Archaeology 2015) subsequent trial-trenching evaluations (Wessex Archaeology 2016), and a metal detecting survey (Wardell Armstrong 2017). Further mitigation in 2018 included targeted set piece excavations (SPE), strip, map and excavate (SME), and watching briefs (Wardell Armstrong 2018).
- 57. Due to the overlapping development areas, archaeological sites identified during the EA ONE investigations sit within or near the Works Site (Figure 3). Site 48 sits within the Paper Mill Lane Primary Construction Consolidation Site (PCCS) area. Site 5 sits just to the west of Paper Mill Lane, and while it is not in the development area, its archaeological results are important to understanding the potential archaeology of the Works Site. Outside of these archaeological sites, the Work Areas were subject to geophysical survey and trial trenching. Detailed drawings depicting Sites 5 and 48 extracted from the EA1 Updated Project Design¹ are located in Appendix 1.
- For the areas encompassing the PCCS and the jointing bay (Work No.s 51 & 50 respectively), all evaluation trenches outside of Site 48 were empty save for Trenches 102 & 116 which had the same post-medieval ditch running through them, and TR138 which had an Iron Age Pit within it.
- Site 48 is located at the eastern edge of the PCCS (within Work No. 51). The archaeological works here included geophysical and metal detecting surveys, followed by trial trenches and a watching brief. The geophysics picked up a former field boundary in the middle of the site, while the metal detecting survey recovered 2 Roman coins and 5 metal objects, with no distribution pattern. Evaluation trench 120 revealed a north-south oriented ditch, possibly post-medieval. The watching brief revealed two ditches, one Roman, and one Medieval, and a dense spread of material, appearing to be a Roman period midden. This evidence is suggestive of a nearby Romano-British settlement.

¹ Wardell Armstrong (on behalf of Scottish Power) (2019) East Anglia One Offshore Windfarm Archaeological Mitigation Works Updated Project Design



Site 5 sits approximately 125m west of the Works Site, but the concentration of archaeological material means it is worth highlighting here. The archaeological works here include geophysical and metal detecting surveys, trial trenching, and SPE. The geophysical survey returned a confusing concentration of anomalies, while the metal detecting returned two possible Anglo-Scandinavian artefacts, and a high number of medieval artefacts, the latter of which appeared to be on an east-west aligned linear pattern. Evaluation trenches 89, 90, 92, and 93 discovered ditches and pits, with artefacts including bone, shell, daub, and medieval pot. The excavation revealed areas of likely medieval occupation, including pits and boundary ditches, possible Sunken Feature Buildings (SFBs), a clay surface related to a medieval building, and associated middens. A series of earlier ditches, possibly Saxon, represent the old features on the archaeological site. A large ditch with a boundary fence to the east of site 5 demarcated the extent of the archaeology.

5. OBJECTIVES AND ADMINISTRATION

5.1. General Objectives

- 61. The general objectives of the programme of archaeological works are to:
 - examine the archaeological resource within the Paper Mill Lane Works Site, including clarifying the presence/absence and extent of any buried archaeological remains;
 - identify, within the constraints of the works, the date, character and condition of any surviving remains within the Paper Mill Lane Works Site;
 - assess the degree of existing impacts to sub-surface horizons and to document the extent of archaeological survival of buried deposits;
 - analyse and interpret the results; and
 - produce reports which will present the results of the works in sufficient detail, including where necessary the information to allow an informed decision to be made concerning further mitigation strategies.

5.2. Specific Objectives

- 62. The specific objectives of the programme of archaeological mitigation works are to:
 - contribute towards the discharge of DCO Requirement 20 (1);
 - record the depth, extent, character and date of any archaeological remains revealed;
 - recover and record a proportionate sample of any artefacts and palaeoenvironmental remains revealed;
 - undertake a proportionate programme of post-excavation analysis;
 - compile a suitably detailed report presenting the results of the programme of archaeological mitigation works;
 - compile a material and documentary archive, and deposit that archive with a suitable repository;
 - if appropriate, publish the results of the programme of archaeological mitigation works in an appropriate peer-reviewed academic journal, or equivalent medium; and
 - if appropriate, and as per the OWSI, contribute to local and regional research strategies as outlined in Research and Archaeology Revisited: A Revised Framework for the East of England (Medlycott 2011), and the subsequent East of England Regional Research Framework (2021)
- ^{63.} The areas and activities to be subject to archaeological mitigation are discussed in Section 6 and depicted on Figure 3.

5.3. Roles and Responsibilities

5.3.1. Archaeological Regulator

^{64.} The Archaeological Regulator responsible for regulating the works undertaken, on behalf of the Local Planning Authority, Mid-Suffolk District Council, is:

Suffolk County Council Archaeology Service (SCCAS)

Bury Resource Centre

Hallow Road, Bury St Edmunds, Suffolk, IP32 7AY

0345 678 9000



5.3.1.1. Monitoring

- ^{65.} The Archaeological Contractor will inform the Archaeological Regulator of the of fieldwork and the progress of the investigations on the Works Site. Reasonable access to the Works Site will be arranged for representatives of SCCAS and Historic England as appropriate for inspection and monitoring visits.
- ^{66.} Variations to this WSI will be agreed in advance with EATL, the Archaeological Consultant to EATL, Historic England and the Archaeological Regulator.

5.3.2. Archaeological Consultant

^{67.} The Archaeological Consultant responsible for project oversight and archaeological strategy is:

Alastair Becket

Associate Archaeologist

+440 131 335 6830 +44 141 353 5037

abecket@slrconsulting.com

SLR Consulting Limited

Floor 2, 4/5 Lochside View, Edinburgh Park, Edinburgh, EH12 9DH

5.3.3. Archaeological Contractor

- ^{68.} The Archaeological Contractor will be appointed following confirmation of the construction programme and project phasing, consistent with the provisions set out in this WSI. The appointed Archaeological Contractor will provide:
 - a suitable risk assessment;
 - a team of suitably qualified archaeologists;
 - progress reports (verbally or by email) to the Archaeological Regulator upon request; and
 - a contractor's method statement confirming the implementation of the archaeological works in compliance with the methods set out in this WSI.

5.3.4. Principal Contractor

^{69.} The appointed Principal Contractor comprises NKT. The Principal Contractor will provide a detailed methodology for the construction groundworks in any areas of additional disturbance; this methodology will be supplied to the Archaeological Consultant and the Archaeological Contractor.

6. FIELDWORK METHODOLOGY

6.1. Scope of Archaeological Mitigation

- 70. All works at the Paper Mill Lane Works have been designed to take place in the footprint of areas previously disturbed or signed off during the construction of EA ONE and should require no further archaeological mitigation.
- 71. If areas of additional disturbance for the Paper Mill Lane Works in Work No.s 50 and 51 are identified beyond those subject to significant disturbance (as detailed within Section 4, above), Strip, Map and Sample (SMS) Excavation is likely to provide the most suitable form of archaeological mitigation. Any such requirement would be agreed with SCCAS in advance of any mitigation or construction works. Though it is not anticipated that any such mitigation works are required, an indicative methodology for SMS is set out in the remainder of this document.

6.2. Strip, Map and Sample Excavation

72. A programme of works will be agreed with SCCAS and the appointed contractor, and reasonable time will be allowed for the excavation of archaeological remains. SMS Excavation is a technique that is often appropriate where archaeological remains are thought or even known to be present, but their specific type(s) and densities are unknown.



- Prior to the commencement of any SMS works, a Parish Code is required to be obtained from the Suffolk HER. This constitutes a Site code for the archaeological works. All finds and Site Archive will be marked with this number, and it will appear on the front cover of any Reports and used as the Site Code in the OASIS Record.
- ^{74.} Overburden will be removed using 360° tracked mechanical excavators fitted with toothless ditching buckets, working under the continuous direct supervision of a suitably experienced archaeologist. A methodology for mechanical excavation will be as follows:
 - overburden² will be removed in spits of no more than 200mm down to the level of the upper archaeological horizon or the natural geology whichever is reached first;
 - spoil will be stockpiled at designated locations. Topsoil and subsoil will be stockpiled separately. All spoil will be compacted and managed to avoid excessive saturation by water. Spoil will be stored at least 10m from any watercourse to avoid run-off of silt. If subsoil is to be stored on previously undisturbed land than geotextile membrane must be used as a barrier between the existing topsoil and the subsoil bund. Topsoil will not be stripped in such locations to facilitate subsoil storage;
 - each mechanical excavator will work backwards from a starting point to avoid tracking over cleared areas. No vehicles will track across stripped areas; and
 - for every plant team, there will be a ratio of one supervising archaeologist per machine.
- 75. Upon completion of stripping, archaeological features and deposits will be identified and defined. These will be mapped using a survey quality GPS device and the resultant working plans (supplied by the appointed contractor in pdf and geo-referenced shapefile formats) will be supplied to and used in discussion with SCCAS to ensure that the excavation strategy is appropriate for the exposed archaeological features (an indicative methodology is provided in Section 6.4.1). A 'sample' of the archaeological features will then be hand-excavated, enough to allow the clear identification of phases of human occupation on the site, where possible, and a full definition of archaeologically sensitive areas within the area to be used. SMS areas will be fully backfilled by the appointed contractor following sign-off from SCCAS and EATL.
- 76. After mechanical excavation, and subject to agreement with EATL and SCCAS, the appointed contractor will aim to start archaeological fieldwork within one week to prevent deterioration of archaeological material. Any delays will require possible mitigation, and SCCAS/Historic England retain the power to pause stripping of archaeological areas if the stripping is more than two weeks ahead of the excavation.
- 77. Following the completion of archaeological mitigation in a site and following sign off from SCCAS, the excavation area will be backfilled under the supervision of the appointed contractor and to the satisfaction of EATL. All equipment will be removed, spoil will be backfilled in the reverse order it was removed, and then compacted. A photographic record will be maintained of the excavation areas prior to, and following, backfilling to document the condition of the land.

6.3. Preservation of Undisturbed areas

78. Where construction activity related to EA THREE has been planned to take place within the previously disturbed footprint, it is critical that activity does not stray beyond the planned activity and into areas with archaeological potential that have not been disturbed. EATL will be responsible for the clear demarcation of these areas on the ground, as well as informing all teams undertaking construction activity as to the necessity of these boundaries.

6.4. Fieldwork Techniques

6.4.1. Sample Hand Excavation

- ^{79.} Any archaeological remains revealed, if required, will be cleaned and excavated by hand. This will be undertaken in accordance with standards and guidance set out by CIFA (2020a) and SCCAS (SCC 2021), as well as with all due industry and professional standards.
- ^{80.} The following samples will be excavated:
 - 100% excavation of each sampled stake hole;
 - 100% excavation of each sampled post hole;

² Overburden is defined as topsoil; including plough soil and subsoil including colluvium and alluvium where they occur only above archaeological deposits.



- 100% excavation of all features relating to structural remains, cremations, and ritual deposits;
- 50% excavation of each pit (if >0.4m diameter) up to 1.5m diameter;
- a minimum 25% excavation of each sampled pit above 1.5m diameter, to include one complete cross section to obtain the feature's profile;
- a minimum of 20% excavation of sampled linear features up to 5m in length; and
- the sampling of longer features will be agreed with the SCCAS once their full extent within the excavation area has been established.
- ^{81.} Percentages referred to are based upon the surface areas of those parts of any archaeological features that lie *within* the archaeological monitoring and recording area, and not upon the entire known extent of any such features. In any specific instance, should the above percentage excavation(s) not yield sufficient information to enable the form and function of archaeological remains to be determined to an extent proportionate to their significance, further excavation of such remains may be required.

6.4.2. Metal Detecting

- 82. All areas requiring archaeological mitigation will be subject to a metal detecting survey ahead of topsoil/subsoil stripping in line with SCCAS guidance (SCC 2021). The Contractor will be responsible for supplying metal detectors and suitably qualified personnel.
- 83. Only finds from the surface/topsoil will be recovered. All significant artefacts will be recovered, and their locations mapped using a survey quality GPS, and will be supplied by the Contractor in pdf and geo-referenced shapefile formats.
- ^{84.} Cut features will be detected before excavations, and spoil heaps shall be scanned regularly. If necessary, stratified layer deposits (e.g., dark earth) will be subject to metal detecting whilst hand excavation takes place.

6.4.3. Significant Remains

- 85. Where significant remains are revealed, additional detailed recording, specialist environmental sampling, and / or scientific dating may be required. The scope of and methodology for any such detailed recording would be agreed in advance between the client, the client's Archaeological Consultant and the Archaeological Regulator. A sample strategy for significant remains, informed by English Heritage (Historic England) (2011) could consist of:
 - large samples (20lts) from waterlogged/anoxic deposits for the purpose of recovering plant and invertebrate remains, as well as small vertebrates and marine molluscs;
 - monolith/Kubiena samples for the analysis of pollen, spores, diatoms and foraminifera;
 - core samples to be taken where monolith and section samples are not possible, for the recovery of microfossils; and
 - small samples taken from individual contexts, 10-50g for ostracod and geoarchaeological analysis, and 10-20mm² for pollen and spore analysis.

6.4.4. Non-archaeological Remains

^{86.} Where features are found to derive from naturally occurring events e.g. tree throws, plant holes, animal burrows, solution holes etc., a sample sufficient only to confirm that interpretation will be hand-excavated.

6.4.5. Variations to Strategy

87. Any variations to the above sampling strategy would be approved in advance by the Archaeological Regulator, following on-site discussion.

6.5. Archaeological Recording

- 88. Archaeological site recording will include the following:
 - a pro-forma context record for each stratigraphic unit revealed³;
 - a record of any areas identified as being devoid of archaeological remains and of any features investigated and confirmed to be of natural origin;

³ Typically, this would relate to any individual 'context' identified within a single archaeological intervention. However, there may be occasions where a context evidently recurs within multiple interventions, most commonly in relation to linear features. In such instances, it may optimise the intelligibility of the information derived, and aid in its interpretation, for a single context record to be compiled.



- a 'Harris Matrix' diagram to elucidate any complex stratigraphic sequences;
- site plans, either DGPS-recorded, or hand-drawn at a scale of 1:100, and depicting:
- the extent of the mitigation area, tied into the Ordnance Survey National Grid and located on a 1:2,500 scale plan;
- the extent of all stratigraphic units revealed;
- appropriate detail identified within stratigraphic units;
- plans of stratigraphic units at a minimum scale of 1:20, unless specific circumstances dictate an optimal scale;
- sections of stratigraphic units at an appropriate scale. Unless specific circumstances dictate an optimal scale, then this should be a minimum of 1:20. For areas of detailed, significant or complex stratigraphy the scale used should be a minimum of 1:10⁴;
- A photographic record comprising recognised industry-quality digital SLR photographs⁵; numerical indices of all context records, drawings, photographs, samples and small finds, checked and cross-referenced as necessary; and
- a diary record of the progress of the archaeological work, including details of liaison and monitoring meetings, site visits, and a record of staff on site.
- 89. All of the above records will form part of the eventual project archive, to be deposited with the SCCAS Conservation Team.
- ^{90.} All archaeological recording will be undertaken in accordance with industry best practice, including standards and guidance set out by CIFA (2020a) and SCCAS (SCC 2021).

6.6. Artefact Recovery

- 91. Archaeological artefacts will be collected, stored and processed in accordance with accepted national and regional methodologies, guidelines and standards.
- ^{92.} 'Bulk finds' will be collected and recorded by context. 'Small finds' will be recorded three-dimensionally using DGPS or equivalent survey equipment. Each artefact within any identified artefact scatters will also be recorded three-dimensionally.
- 93. All artefacts (apart from modern finds) will be collected and retained, unless otherwise agreed in advance with the Archaeological Regulator.
- ^{94.} Where required, artefacts will be stabilised, conserved and stored in accordance with the guidance of the United Kingdom Institute of Conservators (UKIC). If necessary, a conservator will visit the Works Site to undertake 'first aid' conservation treatment of finds prior to their removal from site.

6.7. Environmental Sampling

- The sampling strategy will be agreed with SCCAS and the Historic England Regional Science Advisor, as required. Particular attention will be paid to the recovery of samples from any waterlogged deposits present. Where appropriate, samples will be taken for floatation for the purpose of recovering material including charred plant remains, charcoal, and small mammal and fish bones. Samples for floatation will consist of 40-60 litres, or 100% of smaller features. Recovery and sampling of environmental remains will be in accordance with guidelines prepared by English Heritage (now Historic England) (2011) and SCCAS (SCC 2018):
 - samples will be recovered from cleaned surfaces, using clean tools and placed in clean containers;
 - samples will be appropriately recorded and labelled, and a register of all samples recovered will be maintained; and
 - the samples will be stored safely in a sufficiently secure location prior to their delivery to the appropriate specialist.
- ^{96.} Any sample strategy adopted will consider information obtained during the EA ONE archaeological works that might inform as to the preservation/condition of any environmental remains and their potential to address specific archaeological questions.
- 97. For Paper Mill Lane, the most significant samples taken were from Site 5, though Sample <2> from Site 48 was recommended for further analysis due to its potential to inform about land management practices in the Roman Period. Site 5 had one of the greatest palaeoenvironmental assemblages of EA ONE, with a total of 555 samples taken. The assemblage is considered high in its potential for informing as to the archaeobotany of the Ipswich hinterland, and recommendation has been suggested for a wide variety of further work including charred plant analysis, analysis of shell and marine shell, as well as several opportunities of radiocarbon dating.

⁴ All scale drawings will include spot heights relative to the Ordnance Datum in metres, correct to two decimal places.

⁵ Alongside individual archaeological contexts / stratigraphic units, general site shots will also be taken to give an overview of the site and progress of the archaeological works programme.



The high potential for productive sampling demonstrated in Site 5, and the comparatively low potential in Site 48, gives an insight into the possible environmental assemblages that might be encountered. Post-excavation analysis of the EA ONE material is ongoing.

- 98. Secure contexts will be sampled for dating purposes as appropriate (whether on site or as sub-samples of processed bulk samples). This will include C14 dating, archaeomagnetic dating and dendrochronological dating. Any concentrations of charcoal or other carbonised material recovered on site will usually be retained. Samples for archaeomagnetic dates will be taken on site by the relevant specialist (English Heritage, now Historic England, 2006). Samples for dendrochronological dates would be taken either on site or from recovered timbers by the relevant specialist in accordance with published guidelines (English Heritage, now Historic England, 1998). Samples would be processed after initial post-excavation assessment.
- ^{99.} Should any palaeoenvironmental deposits of particular interest be revealed, the Historic England Regional Science Advisor (RSA) will be contacted, and their advice sought in respect of an appropriate further sampling strategy. The RSA for East Anglia is:

Zoe Outram Historic England (Cambridge Office) Tel: 01223 582 707 Email: <u>zoe.outram@HistoricEngland.org.uk</u>

Any sampling would be undertaken in accordance with Historic England's 'Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record' (2015a). Geoarchaeological survey strategies will be agreed with SCCAS and the Historic England RSA and could consist of sampling of layers of geoarchaeological significance such as colluviums and alluviums through the employment of specialist techniques such as hand-augering or borehole survey.

6.8. Human Remains

- ^{101.} Should human remains be encountered, they will initially be left in situ, suitably covered and secured, in compliance with industry best practice. The Archaeological Contractor will notify the Archaeological Consultant, who will then inform both EATL and the Archaeological Regulator.
- ^{102.} Following this initial consultation, the removal of human remains will only take place in accordance with a Ministry of Justice exhumation license, the appropriate Environmental Health regulations and the Burial Act 1857.
- ^{103.} The Archaeological Contractor will be responsible for applying for an exhumation license from the Ministry of Justice, and, once in receipt, for ensuring that the provisions of that license are complied with.
- ^{104.} If exhumation is to occur it will be undertaken in compliance with Historic England's '*The Role of the Human Osteologist in an Archaeological Fieldwork Project*' (2018). The document states:

"Recovery strategies should ensure adequate retrieval of small bones, calcified fragments (for example, arterial plaques, bladder stones etc) and small artifacts. This will normally require wet-sieving and sorting of soil retrieved from the base of the grave after lifting the skeleton. Detailed strategy will depend upon the specific nature of the soil and buried remains at the site in question, but recovering basal grave soil in three sub-samples, corresponding to the head, torso and leg /foot area, helps preserve information as to the approximate location in the grave of recovered material. Infant remains may be block lifted." (p11)

6.9. Treasure Act

- ^{105.} Should any treasure be discovered, it will be removed, if possible, to a secure location. Where removal is not practical on the same working day as the discovery, suitable security measures will be put in place to protect the find from damage, loss and theft.
- ^{106.} Upon discovery of any treasure, the Archaeological Contractor will immediately inform the Archaeological Consultant, the local coroner, and the Portable Antiquities Finds Liaison Officer for Suffolk.
- 107. In accordance with the provisions of the Treasure Act 1996 Code of Practice (2nd Rev.), the local coroner for Suffolk is:

Mr Nigel Parsley Senior Coroner The Coroners Court and offices



Beacon House, Whitehouse Road Ipswich, IP1 5PB Tel: 0345 607 2040 Email: admin.coroners@suffolk.gov.uk

108. The Portable Antiquities Finds Liaison Officers for Suffolk are:

Anna Booth Finds Liaison Officer for Suffolk Anna.Booth@Suffolk.gov.uk

Phil Hughes Finds Liaison Officer for Suffolk Phil.hughes@suffolk.gov.uk

Portable Antiquities Scheme (SUFFOLK), Suffolk County Council Archaeological Service, Bury Resource Centre, Hollow Road, Bury St Edmunds, IP32 7AY

^{109.} The Archaeological Contractor will ensure that the Treasure Act regulations are complied with and that all relevant parties are kept informed. A list of finds which have been collected and which fall under the Treasure Act will be included within the fieldwork report.

7. POST-EXCAVATION AND REPORTING

7.1. General

- ^{110.} The post-excavation and reporting programme will be agreed with the Archaeological Regulator and undertaken in accordance with the procedures set out in Historic England's Management of Research Projects in the Historic Environment (MORPHE 2015b) guidelines. The following sequence of post-excavation tasks will be undertaken:
 - preparation of the site archive;
 - preparation of a post-excavation assessment;
 - post-excavation analysis consistent with the assessment;
 - preparation of a grey-literature report;
 - preparation of a publication; and
 - deposition of finds and archive in an appropriate museum.

7.2. Timescales

- 111. The following timescales will apply, unless otherwise agreed to in writing by the Archaeological Regulator:
 - delivery of an interim report to the County Historic Environment Record (HER) within one month;
 - delivery of a post-excavation assessment, covering all phases of the archaeological mitigation works, to the Archaeological Regulator within six months; and
 - post-excavation analysis to be complete and a draft publication report compiled within one year, as required.

7.3. Finds Processing and Material Archive

- All finds will be processed promptly following completion of the fieldwork. Retained finds will be washed (where appropriate, see below), marked, bagged and recorded within a database (e.g. MS Access or GIS DBASE), and will include the location from which they were recovered in National Grid and Ordnance Datum, accurate to two decimal places. Finds that have the potential for preserved residues should not be washed, as recommended in Historic England's 'Organic Residue Analysis and Archaeology: Guidance for Good Practice' (2017).
- ^{113.} The finds assemblage will be treated, labelled and stored in accordance with the appropriate Historic England guidance documentation, all relevant local authority guidelines and the United Kingdom Institute for Conservation of Historic & Artistic Works (UKIC) guidelines.



114. In accordance with English Heritage (Historic England) (2011, pg. 7), environmental samples will be:

"Processed as part of the data collection and recovery stage of a project, so that the specialist can clearly see the full range of material and judge its potential to meet project aims and objectives."

- ^{115.} Samples will be stored in a cool dark environment, and processed as soon as possible after being taken, in order to limit the risk of decay to organic remains.
- ^{116.} The Archaeological Contractor will ensure that the processing of all assemblages recovered is also undertaken in accordance with the requirements of the agreed repository.
- ^{117.} Where appropriate, each category of find, or each material type, will be examined by a suitably qualified archaeologist or specialist, with the results of that analysis incorporated into the fieldwork report.

7.4. Paper Archive

^{118.} Upon completion of the archaeological fieldwork, the archive of written, drawn and photographic records generated on site will be reviewed by a suitably experienced archaeologist. The archive will be ordered and checked to ensure that it is complete, and that the information recovered is of the required standard and is suitably intelligible ahead of its analysis.

7.5. Reporting

- ^{119.} The full (grey literature) technical report will include the following:
 - a non-technical summary;
 - a site location plan;
 - archaeological and historical background;
 - aims and objectives;
 - methodology;
 - results (including full description, assessment of condition, quality and significance of all archaeological features, as relevant);
 - interpretation of the results within a wider context;
 - conclusions on the significance of the remains identified and a statement of their potential provided;
 - publication proposals, if warranted;
 - summary of archive, storage and curation;
 - general and detailed plans illustrating the location(s) of the investigations, accurately plotted onto an OS base map to an appropriate scale;
 - detailed scaled plans and sections of features/deposits as appropriate, including OD heights;
 - a complete matrix (either site-wide, or for each area of activity identified);
 - summary data tables;
 - a cross-referenced index of the project archive; and
 - specialist assessment and/or analysis reports.

7.6. Report Dissemination

- 120. A draft of the report will be submitted to the Archaeological Consultant and EATL for review ahead of finalisation.
- ^{121.} One bound and one digital version of the report (complete with illustrations) will be produced by the Archaeological Contractor within one week of the receipt of any comments issued on the draft. Digital text will be in Microsoft Word format, and illustrations will be in PDF format.
- ^{122.} On finalisation of the report, a digital copy in PDF/A format will be provided to the Archaeological Regulator and SCCAS (HER). EATL and the SCCAS HER will also be provided with any relevant geo-referencing data, including final excavation plans, showing the location of features and sections, in .shp format (for SCCAS), and according to agreed data standards (for EATL). Digital data and reports will be managed in accordance with guidance set out in the Dig Digital project (DigVentures 2019).
- ^{123.} The Archaeological Contractor will complete an Online Access to the Index of Archaeological Investigations (OASIS) form in relation to the report, to include a digital version of the report itself. The full report will include the OASIS ID number.



7.7. Publication

124. If the results of the programme of archaeological mitigation are considered sufficiently significant as to warrant wider public dissemination, then a suitable format and forum will be identified in liaison with the Archaeological Regulator. As a minimum, this might include a short article in a local peer-reviewed journal.

8. ARCHIVING

8.1. Composition

- ^{125.} The compilation of an integrated and ordered project archive will be undertaken by the Archaeological Contractor in accordance with the provisions of the following:
 - Historic England's MoRPHE guidance;
 - SCCAS Archaeological Archive Standards (SCC 2019);
 - the requirements of the local repository; and
 - this WSI.
- 126. The archive will include:
 - all recovered artefacts and significant samples (material archive);
 - all written, drawn, photographic and other records generated during the fieldwork (site archive); and
 - all digital data, including that which is digital in origin⁶, and any digital copies made of the primary site records⁷, including images.
- 127. Once prepared, the Archaeological Contractor will store the archive in a suitable and secure location prior to its deposition.

8.2. Discard Policy

- The guidelines set out in Selection, Retention and Dispersal (Society of Museum Archaeologists 1993) will be followed, which allows for the discard of selected artefact and ecofact categories which are not considered to warrant any future analysis. Any discard of artefacts will be fully documented in the project archive. The Discard Policy will be agreed in writing with the SCCAS Archive in advance of action being taken.
- ^{129.} The guidelines set out in Selection, Retention and Dispersal (Society of Museum Archaeologists 1993) will be followed, which allows for the discard of selected artefact and ecofact categories which are not considered to warrant any future analysis. Any discard of artefacts will be fully documented in the project archive.
- 130. The discard of environmental remains and samples will follow nationally recommended guidelines (SMA 1993; 1995; English Heritage 2011).

8.3. Security Copy

In line with current best practice (e.g. Brown 2011), on completion of the project a security copy of the written records will be prepared, in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.

8.4. Deposition

- ^{132.} The hardcopy archive will be deposited for long-term curation with the SCCAS Archive. In depositing the archive, the Archaeological Contractor will:
 - contact the SCCAS Archive at an early stage, in order to obtain their acceptance, in principle, of the archive for long-term storage and curation;

⁶ Including email correspondence, images, survey data and other site data collected through digital/electronic means.

⁷ Including relevant drawn and written data created during fieldwork (context sheets, sample sheets, finds records, drawings/plans/sections/sketches, all indices, earthworks surveys, and any notes that contribute to the interpretation and understanding of the site and its recording) and relevant records/data produced as part of the post-excavation assessment or analysis etc.



- be responsible for identifying and adhering to any specific policies or requirements provided by the repository in respect of archive preparation and submission;
- obtain a written agreement from the landowner to transfer title to all items in the material archive to the SCCAS Archive (on their behalf) ⁸; and
- grant license to copyright for documentary material (both physical and digital) to EATL, for transfer to the relevant repository.
- ^{133.} The Accession Numbers for the project will be the Parish Codes which will be obtained by the Suffolk HER prior to the commencement of any fieldwork.
- ^{134.} In the event that the fieldwork does not reveal deposits of archaeological interest and produces little or no artefactual material, there would be no requirement for an archive to be deposited. In these circumstances, the Archaeological Contractor will obtain written agreement from the Archaeological Regulator that this is the case.

8.5. Deposition of Digital Archive

- ^{135.} Currently, the only suitable repository for digital archives is the Archaeology Data Service (ADS). The digital archive must therefore be compiled in accordance ADS standards and requirements.
- ^{136.} Should the archive repository confirm that they do not require the hardcopy archive, then once the digital archive has been transferred to the ADS, the Archaeological Contractor may retain, disperse or dispose of the primary hardcopy items. This may entail physical destruction of the primary record.

8.6. Notification

^{137.} The Archaeological Contractor shall promptly notify the Archaeological Regulator when the archive of records and finds has been deposited with the appropriate repository.

8.7. Copyright

- The Archaeological Contractor will assign copyright in all reports, documentation and images generated during the project to EATL. The Archaeological Contractor will retain the right to be identified as the author/originator of the material. It is the responsibility of the Archaeological Contractor to obtain such rights from any sub-contracted specialists.
- ^{139.} The Archaeological Contractor may apply in writing to use or disseminate any part of the project archive, documentation or images, and such permission will not be unreasonably withheld.
- ^{140.} EATL will own all Intellectual Property Rights to photographs and documentation prepared for this project by or on behalf of the Archaeological Contractor.

9. GENERAL DETAIL

^{141.} The Archaeological Contractor will undertake the works in accordance with this WSI and any subsequent written variations agreed with the Archaeological Regulator. No variation from, or changes to, this WSI will be undertaken except by prior agreement with the Archaeological Consultant or EATL, in consultation with the Archaeological Regulator where appropriate.

9.1. Personnel

- ^{142.} All archaeological personnel involved in this project will be suitably qualified and experienced professionals. Prior to commencement of the programme of archaeological mitigation, the Archaeological Contractor will provide the Archaeological Consultant, on behalf of EATL, with the following staff details:
 - Project Manager CV;
 - Project Officer and / or Site Supervisor CVs; and
 - a list of other archaeological personnel proposed for deployment on the project, including summary detail of professional field experience and any relevant specialisms.

⁸ If ownership of any or all of the artefactual material is to be retained by the landowner, then provision must be made for its time-limited retention by the Archaeological Contractor to facilitate its full analysis and specialist recording.



- ^{143.} The composition of the archaeological team will be notified in writing to SCCAS, including the names of Project Officers/Site Supervisors, alongside insurance details.
- ^{144.} The Archaeological Contractor's Project Manager will be a Member of the CIfA or will be able to demonstrate an equivalent level of experience and competency in managing archaeological field projects of a comparable nature and scale.
- ^{145.} Specialist staff, including those engaged specifically for post-excavation assessment, analysis, and report-writing, will be suitably qualified and, where appropriate, will be supervised by personnel with additional relevant expertise.
- 146. Specialist staff will be available at 48 hours' notice, for the duration of the fieldwork, in order to provide specialist advice.

9.2. Access Arrangements and Welfare

- 147. Site access is to be restricted at all times, with only authorised personnel admitted.
- 148. The Archaeological Contractor will liaise with EATL and Principal Contractor in order to agree:
 - site access and egress;
 - the location(s) of compound facilities, and any relevant operational detail relating to those facilities; and
 - a spoil management strategy.
- ^{149.} The Archaeological Contractor will be responsible for ensuring that all personnel are made aware of, and adhere to, any site arrangements and regulations defined by EATL and Principal Contractor.
- ^{150.} The Principal Contractor will be responsible for providing site welfare facilities of a suitable size and standard, and for the maintenance of those facilities.

9.3. Health and Safety

- ^{151.} Prior to commencement of the programme of archaeological mitigation, the Archaeological Contractor will:
 - provide the Archaeological Consultant and EATL with details of their public liability and professional indemnity insurance;
 - submit a copy of their Health and Safety policy, compiled in accordance with national guidelines and all relevant Health and Safety legislation, to the Archaeological Consultant and EATL; and
 - complete a Risk Assessment detailing any project-specific Health and Safety ecological and environmental considerations, measures and requirements, and submit a copy to the Archaeological Consultant, EATL and, where necessary, the Principal Contractor.
- Prior to preparation of the site-specific Risk Assessment by the Archaeological Contractor, either EATL or the Principal Contractor will provide the Archaeological Contractor with any and all information obtained in relation to existing services within the Works Site. This will include the most accurate information available on the nature and locations of those known services.
- 153. Health and safety measures implemented will be proportionate to the work and risks involved. For example, areas of archaeology may require to be fenced off to allow for safe demarcation of the working area. Individual features, however, would not typically be fenced off unless a specific health and safety issue is identified.
- ^{154.} During the course of the programme of archaeological mitigation, the Archaeological Contractor will ensure:
 - the adherence of all on-site archaeological personnel engaged on the project to the Principal Contractor's Safety Standards and CDM Health and Safety rules;
 - the implementation and management of the Archaeological Contractor's own Health and Safety Policies;
 - dissemination of the site-specific Risk Assessment to all on-site archaeological personnel engaged on the project, ensuring that
 it is reviewed and the content acknowledged, prior to the admission of any archaeological personnel to any working areas and
 prior to their undertaking any other work-related tasks;
 - that the identity of any on-site First Aiders is made known to all archaeological personnel engaged on the project;
 - that the location(s) of First Aid boxes and fire extinguishers is made known to all archaeological personnel engaged on the project; and



- that all archaeological personnel engaged on the project are in possession of, and wear at all times (as required), the necessary Personal Protective Equipment (PPE), which, as a minimum, should include a hard hat, a hi-vis vest, safety gloves and site-appropriate footwear⁹.
- ^{155.} All archaeological personnel engaged on the project will be in possession of a valid Construction Skills Certification Scheme (CSCS) card.
- ^{156.} Where required, all archaeological personnel engaged on the project will attend a Health and Safety Induction coordinated by the Principal Contractor.
- 157. The Archaeological Contractor will leave the site in a tidy and professional condition and will remove all materials that it has introduced onto the site, unless specifically agreed otherwise with the Principal Contractor.

9.4. Confidentiality and Publicity

- All communications regarding the archaeological works will be directed to the Archaeological Consultant and EATL.
- ^{159.} The Archaeological Contractor will not comment upon any aspect(s) of the project to members of the public or any other parties, unless specifically authorised to do so by the Archaeological Consultant or EATL.
- ^{160.} The Archaeological Contractor will not disseminate images or information associated with the project, either for information or publicity purposes, without the prior written consent of Archaeological Consultant or EATL.

9.4.1. Community Liaison

- 161. EATL will manage public relations with local residents and businesses that may be affected by the proposed construction works, and will maintain public relations in accordance with the Paper Mill Lane Works Code of Construction Practice (EA3-LDC-CNS-REP-IBR-000065).
- ^{162.} A designated EA THREE Community Liaison Officer will field and respond to any public concerns, queries or complaints. A local liaison group will also be established to deal with specific issues, e.g. avoiding disruption to the harvest.
- ^{163.} A timetable of works, a schedule of working hours, the extent of the works, and relevant contact details will be provided to local Parish Councils and the local liaison group, in advance.

⁹ Any additional PPE, such as safety glasses/goggles, ear defenders, dust-masks etc., should be issued and worn, as required.



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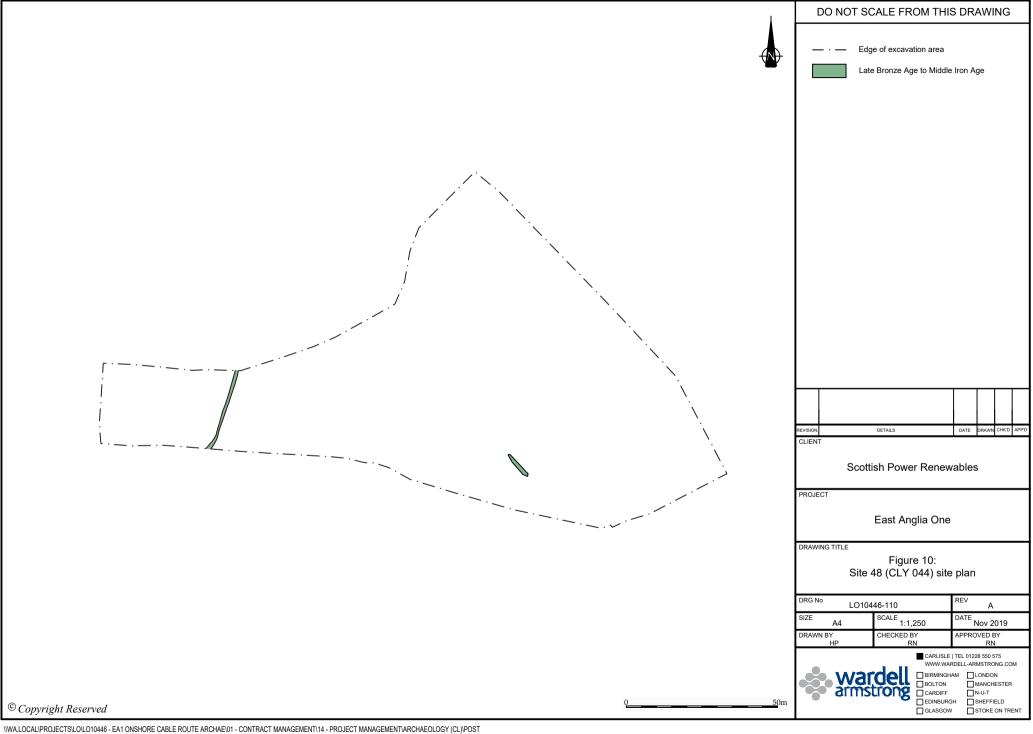
APPENDIX 1 – EXTRACTS FROM EAST ANGLIA ONE OFFSHORE WINDFARM ARCHAEOLOGICAL MITIGATION WORKS UPDATED PROJECT DESIGN

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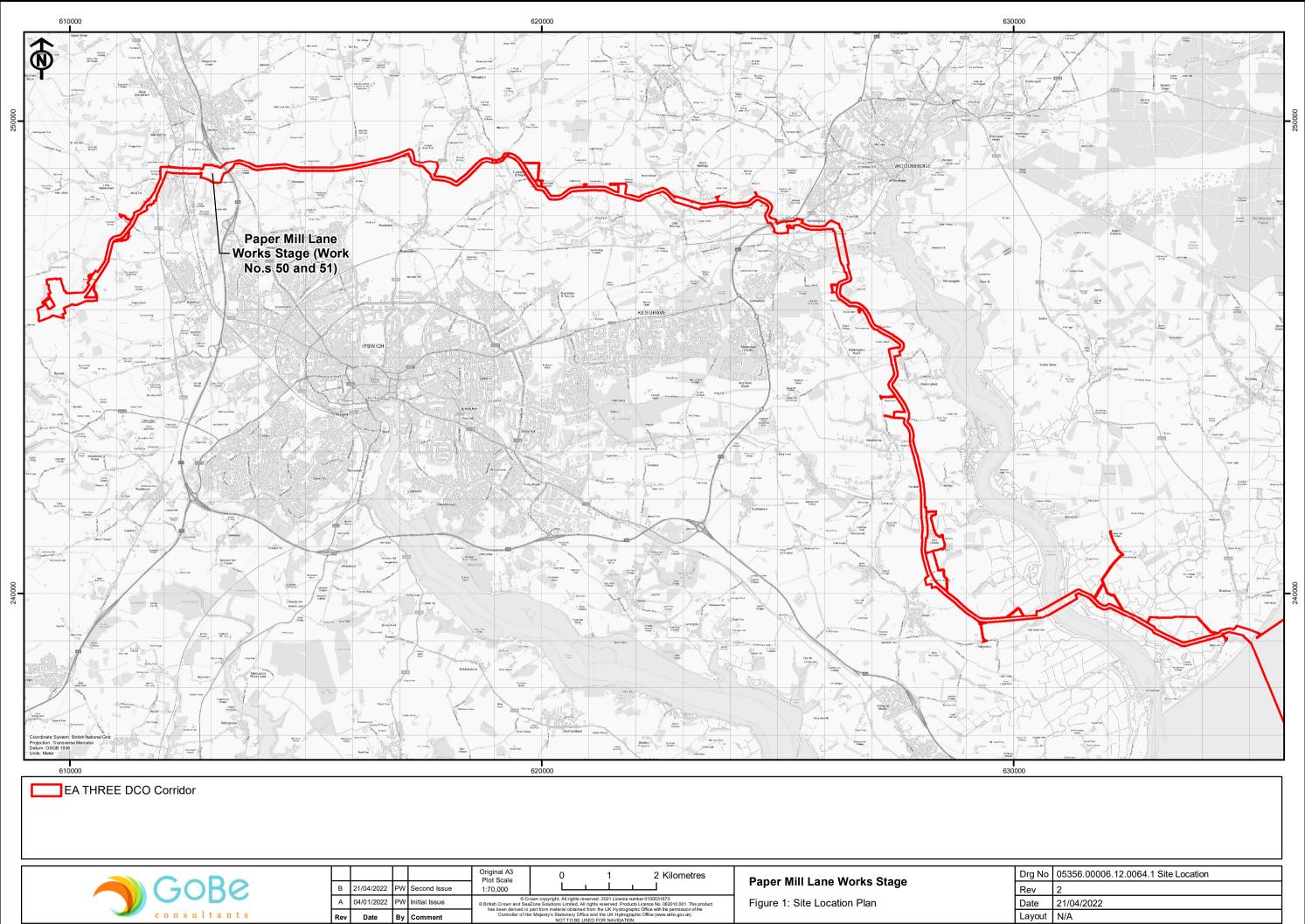
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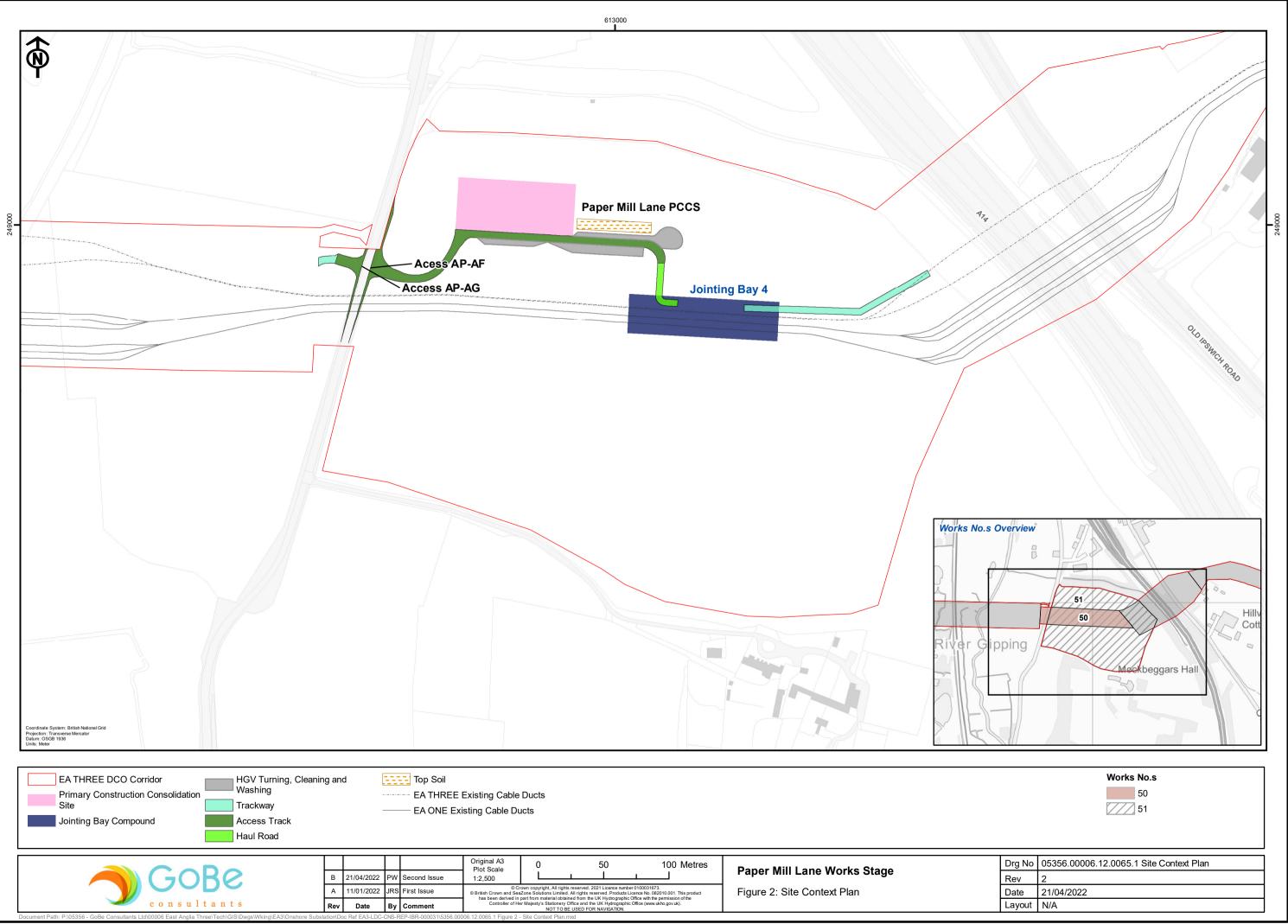
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FIGURES



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