PLANNING ACT 2008 (AS AMENDED) – SECTION 88 AND THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010 (AS AMENDED) – RULE 6

APPLICATION BY NORTH FALLS OFFSHORE WIND FARM LTD FOR AN ORDER GRANTING DEVELOPMENT CONSENT FOR THE NORTH FALLS OFFSHORE WIND FARM PROJECT

APPLICATION REF: EN010119

SUBMISSION DEADLINE: 4th March 2025

WRITTEN REPRESENTATION OF THE HISTORIC BUILDINGS AND MONUMENTS COMMISSION FOR ENGLAND (HISTORIC ENGLAND)

REGISTRATION ID No: 20051018

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Historic England is the Government's statutory adviser on the historic environment. It is our duty under the National Heritage Act 1983 to secure the preservation and enhancement of the historic environment. This extends to sites and places in, on, or under the seabed within the seaward limits of the UK Territorial Sea adjacent to England. Our objective is to ensure that the historic environment generally, and marine and designated heritage assets especially, are fully considered in the determination of this DCO.

The Historic Buildings and Monuments Commission for England (HBMCE), known as Historic England, is the Government's adviser on all aspects of the historic environment in England including historic buildings and areas, archaeology and historic landscape with a duty to promote public understanding and enjoyment. Historic England is an executive Non-Departmental Public body sponsored by the Department for Culture, Media and Sport (DCMS) and we answer to Parliament through the Secretary of State DCMS. Our remit in conservation matters intersects with the policy responsibilities of a number of other government departments particularly those with responsibilities for planning matters. The National Heritage Act (2002) gave Historic England responsibility for identifying sites for designation within the English area of the UK Territorial Sea (i.e. English Inshore Marine Planning Area). We also provide our advice in reference to how the historic environment is included within marine planning and licensing provisions within the Marine and Coastal Access Act 2009.

We have provided substantive pre-application advice about the scope of environmental assessment and the Preliminary Environmental Information Report. We have also submitted a Relevant Representation (dated 18th October 2024). The applicant has provided an Environmental Statement with supporting appendices and other documentation with the application. We have therefore considered this information, and we hereby provide detailed comments, expanding on the matters highlighted in our Relevant Representation.

Historic England do not object in principle to the Proposed Development and we summarise our position as follows:

i) Our marine concern is in relation to the lack of site-specific geotechnical samples collected to feed into the geoarchaeological baseline and assessment. We have made recommendations below to address this matter.

ii) The application includes an Outline Marine Written Scheme of Investigation (WSI) as a mitigation action which should inform the production of a WSI to support archaeological assessment of further survey data acquired post-consent (should consent be obtained).

iii) We have offered comments in relation to specific DCO documents, clarifications and amendments which will be required in any subsequent document produced from the Outline DCO documents which we have detailed for onshore and marine components separately below.

iv) For the onshore impact assessment, we have concluded that the development would potentially result in a direct permanent and harmful change to a range of designated and non-designated heritage assets. This would be a significant effect.

1. Introduction

1.1 This Written Representation sets out the views of Historic England on the proposed Development Consent Order (DCO) application made by North Falls Offshore Wind Farm Limited for the proposed North Falls Offshore Wind Farm Project.

1.2 The application explains that the size and capacity of Wind Turbine Generators (WTGs) for the Proposed Development will be determined during the final project design stage i.e. post consent, should permission be obtained, and that this Environmental Statement (ES) assess a maximum design scenario for the WTGs as a "worst case" scenario. Inter-array cables will connect the WTGs to a maximum of two Offshore Substations Platforms (OSPs) and/or one Offshore Converter Station (OCP), and that electricity export cables will reach landfall at Kirby Brook on the Essex coast.

1.4 The submitted application includes an ES, dated July 2024, produced to satisfy the requirements of Environmental Impact Assessment (EIA) requirements, under the terms of European Union Directive 2011/92/EU (as amended by Directive 2014/52/EU)) on the assessment of the effects of certain public and private projects on the environment (EIA Directive). The EIA Directive is transposed into English law for Nationally Significant Infrastructure Projects (NSIPs) by The Infrastructure Planning (EIA) Regulations 2017.

1.5 In our Section 56 Relevant Representation (dated) we noted that this development has the potential to impact the historic environment, and that this impact could be significant in relation to a number of heritage receptors and in relation to EIA policy.

1.6 Broadly we are content with the information submitted in relation to marine archaeology to support the application for a DCO. We are pleased to see the inclusion of an Outline Written Scheme of Investigations (WSI), the provision to produce a post-consent WSI within the DCO and associated dMLs.

1.7 Onshore, the proposal lies in a sensitive area for the historic environment and the Environmental Statement (ES) Chapter 25 confirms the proposal will have a negative impact on a wide range of terrestrial heritage asset receptors both designated and undesignated. The baseline and assessment are clearly set out in the accompanying desk-based archaeological assessment (DBA) and accompanying ES chapters. It was agreed during the scoping process that detailed assessment of the impact of the proposal upon the historic environment would be required.

1.9 The ES is broadly adequate for the purposes of the examination, we provided comments during the PEIR stage, and some additional comments are provided below. Given the commitment for co-location and the sharing of infrastructure with the Five Estuaries Offshore Wind Farm project, we are broadly content with the overall approach to onshore archaeology. We are however awaiting a final submission of a suit of documents including versions of the Five Estuaries Archaeological Management Plan and Outline Written Scheme of Investigation.

1.10 We understand North Falls project will adopt a version of these documents and that updated AMS and OSWI documents will be provided once they are available. These will need to be amended to ensure they relate to the Norh Falls scheme and then approved with Essex County Council and Historic England prior to being adopted.

1.11 The wording of the Outline Code of Construction Practice (PINs examination Ref: APP-248) will also need to be updated to make provision for the revised documentation. Any proposed wording will need to be confirmed as appropriate by Essex County Council and Historic England prior to being adopted. The Applicant will also need to confirm how the intend to accommodate a programme geoarchaeological assessment into the development and agree a form of wording for a protocol to address unexpected finds of an archaeological nature.

1.12 We are also anticipating revised wording of the draft DCO requirement before the end of the examination. The revised requirement will need to accommodate separate evaluation and mitigation phases would need to be approved and agree with Essex County Council and Historic England prior to being adopted.

1.13 We are seeking reassurance from the applicant that these documents and revised wording will be submitted prior to the end of the examination. The Examination Authority will also need to be satisfied that these are sufficient to mitigate the negative impacts of the proposal on the terrestrial historic environment, and submission of these revised documents would be essential to this.

1.14 Although we are aware there are proposals to co-locate and adopt a significant amount of the onshore infrastructure with the Five Estuaries project, the strategy for the historic environment will need to be robust and deemed appropriate by the Examination Authority in the event that the five estuaries proposal does not go ahead. Likewise, the revised requirement and updated documents will be needed for those areas where the redline boundary may differ, for example works compounds, jointing bays and the substation site.

2 Comments on Environmental Statement: Volume 3.1, Chapter 5 – Project description (Document Reference: 3.1.7) PINs Exam Reference: APP-019

2.1 We are aware that North Falls is an extension to the existing Greater Gabbard Offshore Wind Farm (GGOW), in the southern North Sea and that it is anticipated that the Operation and Maintenance (O&M) phase could be for 30 years. We also acknowledge the use of a design envelope approach to identify key design assumptions to produce realistic worst-case scenarios. Furthermore, that North Falls Offshore Wind Ltd has applied to the Government's Offshore Coordination Support Scheme (OCSS) in consortium with NGET and VEOWL for an offshore connection to "Sea Link" (a proposed submarine electricity cable between Suffolk and Kent) proposed by NGET as part of their Great Grid Upgrade.

2.2 Section 5.5.3 (Offshore infrastructure), details two Wind Turbine Generator (WTG) scenarios within the Project Design Envelope (PDE):

- 57 smaller WTGs (maximum blade tip height 276.4m); and
- 34 larger WTGs (maximum blade tip height 377.4m)

2.3 The proposed development location is described as being located within the southern North Sea with the closest point to the English coastline 40km away. However, we are aware of the proposed Five Estuaries Offshore Wind Farm (presently in examination), which is an extension to the extant Galloper Offshore Wind Farm.

2.4 Section 5.3.1 describes three grid connection options for the North Falls project:

- Option 1 – Onshore National Grid connection point on Tendring peninsula (Essex), with a project alone onshore cable route and substation infrastructure;
- Option 2 – Onshore connection on Tendring peninsula, sharing an onshore cable corridor route, but with separate cable circuits, and co-locating separate project substation infrastructure with Five Estuaries Offshore Wind Farm; or
- Option 3 – Offshore electrical connection supplied by a third party.

2.5 Explains that for "most cases" (paragraph 15) Option 2 represent the worst-case assessment, with the explanation that Option2 includes additional construction activity required to facilitate installation of ducts for Five Estuaries. We note that for offshore works, there is little difference between Option 1 and Option 2 and that Option 3 would mean that no onshore works would be required with impact only in relation to the offshore array area, but also any cabling to connect with the proposed "Sea Link" electricity submarine cable(s).

2.6 Following a commitment by NFOW and VEOWL to seek to co-ordinate and collaborate where practicable to minimise both projects' onshore effects, Option 1 and 2 have been designed with the Five Estuaries project. It is understood that the onshore cable routes for the two projects will run immediately adjacent, with the footprint required for both covered by the onshore project area, to allow either project to install cable ducting for both projects. Furthermore, that any onshore substations could be co-located in the same location west of Little Bromley (Essex). However, given that each project requires separate cables and onshore substations, the possible construction aspects of Five Estuaries is not included within the North Falls DCO application.

2.7 North Falls and Five Estuaries have therefore developed three possible build-out scenarios for both projects:

- Scenario 1 – North Falls proceeds to construction and undertakes the additional onshore cable trenching and ducting works for Five Estuaries as part of a single construction activity (i.e. ducting for four electrical circuits);
- Scenario 2 – Both projects proceed to separate construction, but with overlapping timescales (e.g. 1 and 3 years apart) and utilisation of enabling infrastructure e.g. haul roads/site accesses etc.; or
- Scenario 3 – Five Estuaries does not proceed to construction or both Five Estuaries and North Falls projects proceed to construction on significantly different programmes.

2.8 The ES has assessed different WTG foundations and substructures and that any decision on the type(s) of foundation to be used for either OSPs or WTGs will be made post-consent and could include:

- Monopile (10m diameter for small WTGs or 17m for large WTGs with penetration to 45m);
- Mono suction bucket (38m diameter with 25m penetration);
- Gravity Base Structures (70m seabed preparation diameter);
- Jacket with 3 or 4 legs using pin-piles (6m diameter), suction buckets (15m or 23m) and/or gravity/ballast legs.

2.9 Cabling for the project for the array area could be up to 170km with an average burial depth of 1.2m. Two electricity export cables will be required running 125.4km with average burial depth of 1.2m. Section 5.5.4 (offshore construction methods) states that pre-construction survey will be undertaken in advance of cable and foundation installation works. In particular, that these data will be "…used to plan micro-siting, where appropriate." (paragraph 78)

2.10 It is identified that mobile sand waves could result in exposure and scouring of cables and that "…sandwave levelling may be undertaken…" Furthermore, that the use of Gravity Base Structures will also require a level seabed prior to installation.

2.11 Section 5.6 (Landfall), states that landfall should be between the subtidal Horizontal Directional Drill (HDD) exit/entrance pit and location at which the offshore export cables are connected to the onshore export cables within transition joint bays. It therefore seems that construction works within the Essex intertidal area are not proposed (as summarised in Table 5.25 and section 5.6.4).

3. Comments on Environmental Statement: Volume 3.1, Chapter 7 – Technical consultation (Document Reference: 3.1.9) PINs Reference: APP-021

3.1 This Nationally Significant Infrastructure Project (NSIP) is subject to an EIA produced in accordance with the Infrastructure Planning (EIA) Regulations 2017. We understand that the accompanying ES should explain the predicted likely significant effects (positive and negative) and the scope for avoiding, preventing, reducing, and if possible, offsetting any identified significant adverse effects on the environment (defined as inclusive of archaeological heritage).

3.2 We note the attention given to appreciate the attention given to the use of National Policy Statements (NPS) e.g. EN-1 (Overarching NPS for Energy) and EN-3 (Renewable Energy Infrastructure) as published by government (DESNZ) in November 2023. We also confirm our participation through the Evidence Plan Process (Section 7.3.3) and the use of Expert Topic Groups (ETGs) as summarised in Table 7.4. Historic England has been engaged in pre-application discussions with the applicant's heritage consultants and our engagement is summarised in the ES. The applicant has provided an ES which includes marine and terrestrial heritage chapters and associated appendices.

4. Comments on Environmental Statement: Volume 3.1, Chapter 16 – Offshore and Intertidal Archaeology and Cultural Heritage (Document Reference: 3.1.18) PINs Reference: APP-030

4.1 We understand that this chapter has updated since the Preliminary Environmental Information Report (PEIR) consultation (conducted between May and July 2023), although no new survey data has been collected. We note in Section 16.3 (Scope) the revisions to the offshore project area which has revised and reduced the offshore project area. This has resulted in a reduced number of heritage assets and archaeological contacts being reported within this chapter.

4.2 Given the similarities between the DCO documents and the PEIR submission, we will focus our comments on the changes that have been made or other matters that continue to require attention.

4.3 It is our understand from available information that HMS E6, a Royal Navy submarine, sunk in 1915 with no survivors and designated under the Protection of Military Remains Act 1986, is located within the proposed electricity export cables' corridor. We are therefore concerned with the spatial proximity of any proposed development (North Falls or Five Estuaries), given that HMS E6 is included within Table 16.16 (Known wrecks and unidentified A1 anomalies within the study area)

and therefore its 'protected place' status should have been identified as such in Section 16.5.2 (Maritime and aviation archaeology).

4.4 Within the chapter submitted for the PEIR, the worst-case scenario for archaeology below Mean High Water Springs (MHWS) assumed that the greatest potential footprint represents the greatest potential for direct impacts (e.g. damage/destruction) to surviving archaeological material present on, within or beneath the contemporary seafloor. This assumption did not consider the depths of sedimentary deposits present which could be of geoarchaeological interest. We are pleased to see that consideration of the depths and volume of impacts have been included within Table 16.2.

4.5 Section 16.6 (Assessment of significance) outlines the impacts that have been scoped in for construction, operation and maintenance and decommissioning phases. We are pleased to see that the same impacts set out at the PEIR are still included. However, we note that no amendment has been made to the second part of Impact 3 (sub-section 16.6.1.3 Indirect impact to heritage assets from changes to physical processes). This states that indirect impacts arising from seabed preparation and installation of foundations and cables would have a positive effect. There is no consideration of the negative impacts. We acknowledge that there is potential for sediment mobilisation to have positive effects, but this is by no means guaranteed.

4.6 Regarding the identification of impacts for the project area, the application of embedded mitigation in all instance's states that "significance of effect has therefore been assessed as minor to negligible and the effect is consequently considered not significant in EIA terms." This is an assumption predicated on mitigation by avoidance, which can only be delivered if adequate archaeological evaluation is completed prior to construction. At present we consider insufficient evaluation has been undertaken to address this point and a programme of further works will be required. Furthermore, it is unlikely that this project would be able to avoid sedimentary sequences of geoarchaeological interest and it should be acknowledged that subsequent access for study will be permanently compromised. The potential magnitude of impact is therefore significant in EIA terms. For example, Section 16.8.3 (Assessment of cumulative effects) acknowledges that "…palaeogeographic features within the offshore export cable corridor for the Five Estuaries, which runs parallel and partially overlaps with the North Falls offshore cable corridor…" It is therefore possible that cumulative effects could occur through multiple unavoidable impacts upon the same features of archaeological importance.

4.7 We note from Table 16.4 (NPS assessment requirement) that no offshore geotechnical surveys have been undertaken for this ES and all geotechnical work will be delivered post consent (subject to permission). It is important to highlight that this approach is at the applicant's own risk and the essential requirement for the geoarchaeological analysis of any geotechnical survey data collected post-consent (should authorisation be obtained) and completed prior to the commencement of construction activities.

4.8 We consider the detail of the Outline Offshore Written Scheme of Investigation (WSI) (PINs Examination Ref: APP-246) prepared for this project is crucial to demonstrate that this work will be undertaken to appropriate standards prior to any impacts occurring because of construction activities. Chapter 16, sub-section 16.6.1.2.3, paragraph 205, presents the specific objectives for targeted geotechnical samples and geoarchaeological assessment. These seem appropriate, but it is our

advice that the dating of these sediments is carefully considered. Some of the sampled deposits may be exceed the upper limit of radiocarbon dating (c.50,000 years) and so alternative techniques may be needed.

4.9 It is also stated in sub-section 16.6.1.2.3 that specialist archaeological input will be incorporated into the planning and implementation of any additional works, in particular sampling programmes for geotechnical material. However, we it is our advice that a geoarchaeologist is allowed direct access to any cores recovered, as it is better to record and assess continuous core sequences rather than isolated deposits as this provides greater confidence in the resulting conclusions. We recommend that this action is formalised as part of the revision programme for the Outline Offshore WSI document post-consent (should to authorisation) and the DCO includes a separate condition for geotechnical sample collection and geoarchaeological assessment of the samples. We are not satisfied that in consideration of the geoarchaeological potential within the proposed development areas, that capacity should be allowed for dedicated cores to be obtained as distinct from "…geotechnical logs acquired as part of engineering-led ground investigation works…" Effective geoarchaeological assessment requires cores to be obtained at locations that best answer *North Sea Prehistory Research and Management Framework* questions (as used in Table 1.11 in the Outline Offshore WSI, which we accept should be obtained during any post-application/post-consent stages of the proposed project.

4.10 Section 16.5.2 (Maritime and aviation archaeology) summarises a series of geophysical surveys that have been carried out as part of the pre-examination works. The data has been archaeologically assessed and classed as being of 'good' quality, thereby providing the highest probability for marine heritage receptors to be identified. A total of 310 anomalies were identified in the array area, and 1,204 within the offshore cable corridor. Of these, 41 are discriminated as "A1" anomalies; there are also 10 "A3" anomalies identified within the project area.

4.11 Section 16.6 states that Archaeological Exclusion Zones (AEZs) will be applied to all "A1" and "A3" classified anomalies, which gives a total of 51 AEZs. It is also stated that "A2" anomalies will not be assigned an AEZ at this time (Sub-section 16.6.1.1.1, paragraph 187), but will be avoided by micro-siting where possible (paragraph 187). High resolution geophysical data will be used to aid the avoidance of these remains and if the remains cannot be avoided, then further assessments have been proposed. It is therefore important to stress that embedded mitigation measures, such as recording archaeology before any loss, would not reduce harm or magnitude of impact. We accept that investigating archaeology at rick of loss or disturbance is essential and when completed to all professional standards, should reduce the loss of knowledge and understanding, but it cannot reduce the actual harm.

4.12 We note a mitigation strategy has been developed in Table 16.27 (Summary of potential impacts on offshore archaeology and cultural heritage) and includes the requirements for a Written Scheme of Investigation (WSI), Archaeological Exclusion Zones (AEZs), Protocols for Archaeological Discoveries (PADs), and further archaeological assessments. We advise that all these mitigation measures are included as conditions within the draft Deemed Marine Licences submitted with this DCO application.

4.13 Monitoring requirements for the historic environment are mentioned within the In-Principle Monitoring Plan (Document Ref 7.10; PINs Examination Ref: APP-245),

but only in reference to identification and monitoring of AEZs. All such monitoring should therefore be proportional to the significance of heritage assets potentially impacted. We recommend that sufficient explanatory information should be included to explain the provision for archaeological monitoring within the Offshore In-Principle Monitoring Plan, as detailed within the Outline Offshore WSI (Section 1.7- Requirements for monitoring).

5 Comments on Volume 3.1, Chapter 25 – Onshore Archaeology and Cultural Heritage (Document Reference 3.1.27) PINs Reference: APP-039

5.1 Section 25.4.2.1 – It is noted that a route wide geophysical survey has been carried out as part of the evaluation work, as well as trial trench evaluation excavations at the onshore substation works area. The results of the geophysical survey have therefore not been ground-truthed or assessed in terms of their significance for most of the area of the proposed scheme. It is therefore possible that the archaeological potential of the proposed scheme area may not be well understood, and that previously unknown remains may be present within the proposed scheme area.

5.2 Section 25.4.2.1 – It is noted that the onshore geophysical survey programme has been carried out in two phases: Phase 1 targeted the priority area, and Phase 2 aimed to cover as much of the proposed scheme area as practicable. Furthermore, that approximately 85% of the proposed scheme area has been covered by the geophysical survey to date, and that the remaining area will be surveyed prior to the detailed design of the scheme.

5.3 25.4.3.1 (paragraph 48) states that the outstanding geophysical work and evaluation trial trenching will be carried out post-consent. Questions would need to be asked about whether the potential impact of the proposed scheme can be understood with additional evaluation works pre-consent.

5.4 25.4.6 (paragraph 78) states that no transboundary effects are anticipated because of the North Falls development. Does this statement consider the potential for the development to alter the local water environment, which may be felt outside of the red-line boundary of the scheme?

5.5 25.5.3 (paragraph 93) states that 240 non-designated heritage assets have been identified within the study area, but it is important to note that they represent the heritage assets *known* to be present. There is the potential for previously unknown remains to also be present within the proposed development area.

5.6 25.5.3 (paragraph 95) states that the heritage assets at risk of direct physical impacts are confined to the onshore project area. It should be noted that changes to the local water environment is classed as a direct impact. These sorts of effects can alter the conditions of nearby archaeological sites and may be felt outside of the red-line boundary.

5.7 25.5.4.1 explains that the geophysical surveys carried out to date have used detailed magnetometry. The proposed scheme area covers a range of different environments and deposits, some of which will be less suited to the use of magnetometry, such as peat and alluvium that may be present within river valleys and floodplains (e.g. Area 5, Area 10, Tendring Green North, Area 12, Little Clacton Road etc.). Alternative approaches may therefore be needed to investigate parts of the scheme, which may include the use of alternative geophysical techniques

(Electromagnetism, Ground Penetrating Radar etc.), borehole surveys or excavation. It is also important to note that deposits such as alluvium can act to mask buried archaeological remains, making it harder to identify remains using some of the evaluation approaches discussed within this document. Furthermore, magnetometry will not identify all archaeological features and remains that may be present, such as organic structures/remains that are made of wood. Alternative approaches would be needed to identify and investigate these sorts of remains.

5.8 25.5.4.2 (paragraph 211) states that a prehistoric ditch was identified during the evaluation excavations at the proposed substation location. It was noted that the ditch was recorded in isolation as there were no corresponding geophysical anomalies. If the magnetometer survey did not identify the ditch feature as part of the evaluation works, it suggests that there is the potential for further previously unknown archaeological remains to be present within the proposed scheme area.

5.9 25.5.4.3.3 (paragraph 230) explains that the Ardleigh Gravels are highly significant Palaeolithic geoarchaeological resource. It is further stated that any works that may impact these deposits will be assessed through a geoarchaeological watching brief on any Ground Investigation (GI) works (paragraph 231). We recommend that the geoarchaeologists are allowed to feed into the design of the GI works to maximise the potential to investigate these significant remains and to ensure opportunities to recover samples are not missed.

5.10 25.5.4.3.3 (paragraph 232) describes how the Palaeolithic potential of deposits infilling hollows/gullies incised into the Ardleigh Gravels remains uncertain, and that the deposits are undated. We therefore agree with the need to investigate these deposits with stepped geoarchaeological test pits being recommended.

5.11 25.5.7 (paragraph 239) states that the non-designated heritage assets are likely to be low heritage importance. We recommend that this statement is reviewed as additional data is obtained, particularly as trial trench evaluation has not been carried out in most of the proposed scheme area. This would be in-line with the precautionary approach taken for this project, as mentioned in paragraph 241.

5.12 2.5.11 – The geoarchaeological investigations carried out so far have demonstrated the potential of the Palaeolithic and Holocene period sediments to be present within the proposed scheme area, including the potential for archaeological and palaeoenvironmental remains to be preserved. We are pleased to see that the high potential of peat has also been recognised (paragraph 266). We therefore recommend that the preliminary deposit is utilised to help guide the geophysical survey work, as some of the deposits are less well suited to techniques such as magnetometry (e.g. the peat and alluvium). This may help develop a survey strategy that will help target the approaches used to investigate the proposed development area, reducing the risk of using a technique that will not provide the information needed to understand the site.

5.13 25.5.5 – It is clear from the discussion of the archaeological potential that the development of a robust chronology will be important to address some of the research questions. We would recommend that the Historic England document '*Radiocarbon Dating and Chronological Modelling*' (2022) is referred to and that the value of developing the chronology within a Bayesian framework is considered.

5.14 Section 25.5.5 (paragraph 233) We recommend that the choice of dating techniques are carefully considered. For example, some of the periods investigated on the site

may exceed the upper limit of radiocarbon dating (c.50,000 years old) and so alternative techniques would be required. In addition, some fired features have been identified during the evaluation work carried out to date, including possible kilns and ovens. These sorts of features could be dated by techniques such as archaeomagnetic dating, which would require the feature to be excavated in a specific way to ensure that the feature can be sampled. We recommend that appropriate specialists are approached for advice to ensure that opportunities are maximised to understand the archaeology. We also recommend that the materials selected for radiocarbon dating from deposits such as peat are carefully considered. Additional information about the issues associated with dating peat has been included in the Historic England publication *Radiocarbon Dating and Chronological Modelling* (2022).

5.15 2.5.6.1 (paragraph 278) states that the proposed development may interact with the local hydrological processes which may result in indirect impacts to buried archaeological remains. It should be noted that Historic England consider impacts to the water environment, and therefore to the preservation of nearby archaeological sites to be a direct physical impact.

5.16 25.6.1.1 – Outlines the potential direct physical impacts to designated heritage and non-designated (25.6.1.2) heritage. The list of potential impacts includes the majority of what we would expect to see, but we recommend that compression is also considered; this is particularly important for the peat identified across the site.

5.17 25.6.1.1 (paragraph 299) states that it is not possible at this stage to identify each and every heritage asset representative of below ground archaeology that may be impacted by construction works, but that it is possible to develop a clear understanding of the archaeological potential from the evaluation work carried out to date. We would question this as it has been noted that some of the cropmark features were identified within the geophysical survey, and that some remains may be being masked by deposits such as peat and alluvium. There is the potential that some features and remains have not yet been identified. In addition, the findings of the geophysical survey have not been investigated for most of the scheme area through trial trench evaluation excavations, and so it is not clear how effective this technique has been. This leaves a level of uncertainty about the archaeological potential of the scheme area as well as the potential impacts of the proposed project.

5.18 25.6.1.2.1 (paragraph 313) explains that there is uncertainty regarding the precise nature, extent and depth of any alluvial and peat deposits within the landfall area. However, as the cables would be installed using HDD approaches in this area, it is stated that the magnitude of impact would be substantially reduced as a small area of a much more extensive deposit sequence would be impacted. We recommend that this is reconsidered as additional information becomes available because there is uncertainty regarding the significance of these deposits.

5.19 25.6.1.2.3 (paragraph 329) states that the project has committed to additional programmes of survey and evaluation. It is states that the work may indicate the presence of previously unknown buried archaeology, which we feel should be classed a risk for this development. We have previously advised during pre-application consultation that the evaluation work is needed to understand the potential impacts of the proposed scheme and inform the examination process.

5.20 25.6.1.2.3 (paragraph 330) outlines the mitigation approaches that will be utilised, including preservation, excavation, monitoring and condition surveys. A programme

of geoarchaeological monitoring a GI works will also be carried out (paragraph 331). We also agree that avoidance and preservation are the primary methods of mitigation for the proposed development.

5.21 25.6.1.3.1 (paragraph 346) states that the impact to wetter areas of the development area would not be subject to lasting dewatering because of the proposed work, and so no indirect physical effects on the deposits is anticipated. It should be noted that even temporary dewatering activities could impact vulnerable archaeological remains and it is important to consider it will take for conditions to rebound on the site (both in terms of the water levels and the water chemistry).

6 Comments on Volume 3.3, Appendix 15.1: Archaeological Assessment of Geophysical Data (Document Reference: 3.3.17) PINs Reference: APP-109

6.1 This appendix has not been updated since it was submitted as part of the PEIR consultation, and we acknowledge its purpose to support the offshore archaeological impact assessment presented in Chapter 16. However, we are aware that those data presented, comprising Sub-Bottom Profiler (SBP), Side Scan Sonar (SSS), Magnetometry and Multibeam Echosounder (MBES) were acquired in 2021; and although considered to be of "good" quality (as defined in Table 3), the resolution of survey varied across the proposed development areas including the export cable corridor.

6.2 It is therefore apparent that further, more detailed survey campaigns will be required to investigate the archaeological potential of the proposed development areas to ascertain the presence of both known and presently unknown heritage assets (i.e. wreck of historic vessel or aircraft). It is also acknowledged that further work will be needed to investigate the palaeo-landscape features in more detail (Sections 3.2.28, 3.2.39 and 5.1.3). It is therefore apparent that the recommendations made in this appendix remain valid, requiring post-consent participation by professional, accredited and experienced marine archaeological contractors. Such involvement will encompass corroboration between geophysical data interpretation and geotechnical survey planning.

7 Comments on Volume 3.3, Appendix 25.1: Cable Landfall Search Area Historic Environment DBA (Document Reference:3.3.48) PINs Reference: APP-144

7.1 Section 3.3.3 (paragraph 27) states that freely available Environment Agency LiDAR data was utilised as part of the evaluation works to investigate the archaeological potential of the study area. As part of Historic England's Scoping Response (dated 12th August 2021), we advised that resolution of 1m is the basic minimum needed for archaeological assessments using LiDAR, but where greater detail is required, higher resolution is preferable. This is in line with Historic England's guidance *Using Airborne LIDAR in Archaeological Surveys* (2018).

7.2 Section 5.2 outlines the topography and geography of the study area. The scheme covers a range of different environments including river valleys and floodplains. This will influence the sort of archaeological activities that may be expected in different parts of the site and the preservation of the archaeology. In addition, the different environments will be associated with different preservation environments as well as challenges and issues that will need to be considered when evaluating the archaeological potential.

7.3 Section 6.1 (paragraph 163) we concur with the statement that there is the potential for palaeoenvironmental deposits containing data relating to the past environment, such as vegetation, climate and coastal changes.

7.4 Section 7.1 (paragraph 174) states that several Areas of Archaeological Sensitivity have been defined based on the results of the aerial photography assessment. We agree that these areas will be avoided if possible. If this is not possible, then it is stated that the remains will be further assessed. This may include additional geophysical surveys (Section 7.2) and/or a walkover survey (Section 7.3) to better qualify the archaeological remains. We also agree that Trial Trenching will be discussed and agreed with the County Council and Historic England.

7.5 Section 7.5 (paragraph 182) explains that a geoarchaeological Desk Based Assessment (DBA) will be carried out at the landfall location to better understand the potential of this area. It is noted that the early GI works will contribute to this work and add information into the development of preliminary deposit model. We recommend that the geoarchaeologists are allowed to feed into the design and implementation of the GI works to ensure that opportunities are maximised to obtain useful information. In addition, we recommend that the geoarchaeologists are allowed direct access to the recovered cores to record and sample deposits of interest. This will add valuable information to the understanding of areas potential and of the deposits that maybe impacted. We also agree with the statement made in paragraph 182 that geophysical techniques, such as resistivity, will be utilised in the former channel of the Gunfleet estuary. The deposit model and further geoarchaeological/GI work proposed for the Scheme will help identify where alternative geophysical techniques may provide valuable information. This will help to define the scope of the additional work that will be required. We also agree that the scope of any further work will be discussed with Historic England.

8 Comments on Volume 3.3, Appendix 25.2: Onshore Cable Corridor(s) and Onshore Substation Zone Historic Environment DBA (Document Reference:3.3.49) PINs Reference: APP-145

8.1 Section 3.3 (paragraph 30) states that freely available Environment Agency LiDAR data was utilised as part of the evaluation works to investigate the archaeological potential of the study area. As part of the Historic England Scoping Response (as dated above), we advised that resolution of 1m is the basic minimum needed for archaeological assessments using LiDAR, but where greater detail is required, higher resolution is preferable. This is in line with Historic England's guidance, as referenced in 7.1 above.

8.2 Section 7.1 (paragraph 231) Geophysical surveys have been recommended for further work, stating that as much coverage as possible of the study area will be covered. We also note that paragraph 232 states that the use of alternative geophysical techniques will be considered for areas where magnetometry may be less successful, which is good to see.

8.3 Section 7.3 states that areas for trial trench evaluation will be discussed and agreed with Historic England. We have recommended in pre-application advice that this work should be carried out to inform the ES, so that the impact of the proposed scheme can be understood.

8.4 Section 7.4 (paragraph 240) explains that a desk-based geoarchaeological assessment has been carried out to gain an understanding of what additional work is required. We are pleased to see that the palaeoenvironmental potential of key deposits has been recognised. We also agree with the statement made in Paragraph 241 that early ground/site investigation works will be able to support the geoarchaeological assessment. In addition, geophysical techniques such as Electromagnetism have been suggested for the Gunfleet Estuary.

9 Comments on Volume 3.3, Appendix 25.6: Geoarchaeological DBA (Document Reference 3.3.53) PINs Reference: APP-152

9.1 This document presents the findings of the updated desk-based geoarchaeological assessment, describing the main deposits present within the Scheme area and their archaeological and palaeoenvironmental potential.

9.2 Section 5.2.1 states that a review of the BGS archive boreholes has identified 51 usable logs, with 17 of these located within or very near the Scheme boundary. The remaining 34 borehole logs provide information about the wider context. The results of the GI have also been included in the assessment, adding an additional 40 logs to the dataset (Section 5.2.3) to develop a preliminary deposit model (Section 5.3.1).

9.3 Section 6.1.10 and Figure 3.1 highlight the uneven spread of the data across the Scheme area, noting that it was not possible to confirm if pre-Anglian, Anglian or post Anglian Thames/Medway deposits, or Pleistocene deposits laid by the Holland Brook were present in the far south of the Onshore Project Area. The limitations in the information available has meant that the archaeological and palaeoenvironmental potential of several of the key units is not currently known

9.4 Section 6.1.23 states that while deposits of alluvium were not recorded within the BGS archive boreholes, it was recorded during the GI monitoring at Frinton Golf Course on the estuarine floodplain of the Holland Brook. This suggests that Alluvium may be present more widely than previously thought (Section 6.1.25) and highlights the limitations in the BGS archive data. We are pleased to see that the potential of the alluvium deposits to contain features and deposit of interest has been acknowledged (Section 6.1.26).

9.5 Section 6.1.27 outlines the peat deposits recorded as part of the GI work carried out to date. We are pleased to see that deposits have been identified, which points to the preservation of deposits in other parts of the Scheme area. The transects shown in Figures 7 to 9 highlight the archaeological and palaeoenvironmental potential of the sampled areas, such as the alluvial sequence that contained peat in Transect C (Section 6.2.15). The transects also highlight where there are gaps in our current understanding that need to be targeted during subsequent phases of evaluation.

9.6 Section 7.2.6 states that no stratigraphic information data is available for GCZ2, and so assessing the survival and potential of the Quaternary deposits is not possible. This highlights the gaps in the current dataset and points to the further work that is needed.

9.7 Table 7 outlines the recommendations for further work for the different GCZ areas. The recommendations seem sensible, but as stated above, there are gaps in our understanding due to a lack of evidence in some areas. This suggests that some

deposits, such as peat may be mapped in other areas and would therefore need to be investigated as well.

10 Comments on Volume 3.3 Appendix 25.8 Archaeological Geophysical Survey Report (Document Reference 3.3.55) PINs Reference: APP-154

10.1 Section 2.3.1 states that a cart-based gradiometer system was used to investigate specific areas of the proposed Scheme area. It would be useful to know if hand-held systems were used in the areas where the cart could not be used.

10.2 The geology of each of the sampled areas has been stated in the report. It is not clear if the discussion of the superficial deposits present in the different areas represents the BGS data or if the recent GI works have been. It has been noted in Appendix 25 that there are limitations in the BGS data, which has been enhanced in some areas by the recent GI works. It is important to consider the findings of the geoarchaeology work to date, as it has highlighted the presence of peat and alluvium in different areas; these sorts of deposits may mask buried archaeological remains and features, which may not be easily identified using gradiometry.

10.3 The impacts of possible weather conditions have not been discussed within the report. Several phases of the survey work were carried out over winter months so it would be useful to understand if this impacted the completion of the survey work or the results in anyway.

10.4 The results of the geophysical survey should be tested with trial-trenching evaluation. We note, for example, that the geophysical survey has, in several locations, failed to define potential archaeological features recorded as cropmarks by air photography.

11 Comments on Volume 3.3 Appendix 25.9: Five Estuaries Archaeological and Geoarchaeological Monitoring of Ground Investigation Works Report (Document Reference 3.3.56) PINs Reference: APP-156

11.1 This report presents the findings from the archaeological and geoarchaeological monitoring of three geotechnical boreholes recovered from the Onshore Cable Corridor, approximately 1km to the southwest of Frinton-on-Sea.

11.2 Section 5.1 states that all three boreholes identified deposits of peat that are classed as being of high paleoenvironmental potential. Section 5.2.6 states that the differences between the thicknesses and heights of the identified peat layers within the Site indicated that they formed at a time prone to localised changes due to channel migrations within an estuarine tidal environment. It will therefore relevant to compare and contrast the dating and palaeoenvironmental evidence obtained from these three layers to understand these localised changes.

11.3 We are pleased to see that samples have been recovered from the peat deposits (Section 6.2.5). We would recommend that these samples are assessed to understand their potential and their significance, and to inform the assessment of the impact of the proposed Scheme.

12 Comment on Volume 3.3 Appendix 25.10: Five Estuaries and North Falls Onshore Substation Area Archaeological Evaluation Report (Phase 1) (Document Reference 3.3.57) PINs Reference: APP-157

12.1 Section 1.1.1 This report provides the results of the archaeological evaluation of an 18.5 ha parcel of land located in north of Little Bromley Road, Little Bromley. This covers part of the land of the proposed Onshore Substation as only certain areas of the site was available for investigation. A second phase of evaluation works will be completed in due course.

12.2 Section 7 presents the results of the environmental sampling strategy. It is stated in Section 7.1.1 that eight bulk samples were recovered in total from the excavations, all of which sampled the cremation burial identified in Trench 22. It is not clear why other features were not sampled as part of the evaluation works to understand the archaeological potential of the wider area, and for a wider range of features. Focusing all the attention on one feature will not help guide the sampling strategy for the future excavation phase of investigations.

12.3 Appendix 4 (Geoarchaeological Report) presents the findings of the Palaeolithic Archaeological Evaluation (Phase 1). A total of 11 machine-dug test pits were investigated from the area of the OnSS (Sections 1.1.2 & 1.2.1).

12.4 Section 4.3.5 states that no deposits suitable for sampling were encountered and no samples were taken.

12.5 Section 4.3.6 states that the potential for deposits to be dated using luminescence dating was considered. It was noted that suitable deposits were identified but they occurred at depths that were not accessible. If these deposits will be impacted by the proposed development, approaches will need to be considered to allow these deposits to be sampled safely.

12.6 Section 8.2.3 highlights that hollows and gullies incised into the Ardleigh Gravel have not previously been identified and are undated. The Palaeolithic potential of these deposits is therefore unknown. We are therefore pleased to see that should these deposits be impacted on by development proposals, it is recommended that they are further investigated as part of post-consent archaeological mitigation works, with provision for the recovery of luminescence samples for dating.

13 Comments on Volume 3.3 Appendix 25.12: Five Estuaries & North Falls Onshore Substation Area Palaeolithic Evaluation Report: Phase 2 (Document Reference 3.3.59) PINs Reference: APP-159

13.1 This report presents the findings of a second phase of Palaeolithic geoarchaeological evaluation on land located just north of Little Bromley Road, Little Bromley. A program of test pitting was carried out as part of this work, with a total of 19 machine-dug test pits being investigated from the area of the proposed OnSS.

13.2 Section 5.4.1 states that 2 samples were collected from TP225 for palaeoenvironmental assessment. Samples were recovered from fluvial sands and gravels that have the potential to contain microfossil remains such as diatoms, ostracods and/or foraminifera (Section 6.4.2).

13.3 Section 5.4.3 states that no samples were recovered for scientific dating, but it was noted that sand layers and lenses within the Sand and Head-Gravel would be suitable for luminescence dating. Unfortunately, the Sands were not encountered during the Phase 2 evaluation and the Head-Gravel deposits could not be safely accessed. If these deposits will be impacted by the proposed development, approaches will need to be considered to allow these deposits to be sampled safely.

13.4 Section 5.4.3 also states that sands and silts were also recorded within the Ardleigh Gravel, but these sediments exceed the maximum upper limit currently available from luminescence dating techniques. If these deposits will be impacted by the proposed Scheme, alternative dating techniques will need to be utilised.

13.5 Section 8.2.4 states that if the Ardleigh Gravel will be impacted by the proposed development, that they should be assessed through a borehole survey. In addition, should any Ground Investigation works (including boreholes) be carried out in the Site, it is recommended that these are geoarchaeologically monitored. This seems sensible an appropriate.

13.6 Section 8.2.5 states that the evaluation has identified the localised presence of sediments with palaeoenvironmental potential in the top 3m of the Ardleigh Gravel. These have been sampled as part of the evaluation, but they have not been assessed. This could be classed as a missed opportunity at this stage as the samples would help to establish the deposits potential and therefore the impacts of the proposed development. It is stated that the assessment of the two samples taken to date would represent sufficient mitigation. We would recommend that this statement should be reassessed once the samples have been analysed.

13.7 Section 7.1.1 states that two bulk samples were collected from undated pits 8303 and 10103. It is not clear why other features were not sampled as part of the evaluation works to understand the archaeological potential of the wider area, and for a wider range of features. This would help develop a sampling strategy for the next phase of excavation works.

14 Draft Development Consent Order, Volume 6 (Document Reference: 3.1), PINs Reference: APP-005

14.1 All advice is offered here without prejudice to any decision as might be made whether or not to grant consent for this proposed development.

14.2 We note an Outline Code of Construction Practice (CoCP, PINs Reference APP-248) and an Outline Offshore Written Scheme of Investigation (PINs Reference APP-246) has been prepared in consultation with the statutory consultees which sets out details of post-consent assessment and mitigation measures.

14.3 Following discussion with the applicant it has been agreed that these will be updated, and new wording adopted from the Five Estuaries proposal. We have recommended amendments to conditions within the draft deemed Marine Licences (Schedules 8-10) to include provision for the collection of geotechnical material post-consent but pre-construction. This should include a timeframe for the collection of material prior to the commencement of construction and the provision for access to the material by an archaeological contractor to complete geoarchaeological assessment of an appropriate manner. This is to ensure that this work is completed, given that no geoarchaeological assessment has been undertaken to inform the ES.

14.4 We have also recommended amendments to conditions within Schedules 8-10 regarding the replacement of all references to the NHRE with the NMHR.

15 Comments on Volume 7 Outline Project Environmental Management Plan, dated July 2024 (Document Reference: 7.6), PINs Reference: APP-245

15.1 We are pleased to see that Historic England are listed in section 3.2 under Regulators and Stakeholders. However, we recommend that in Section 7, it would be useful to include marine archaeology and reference to the Outline Offshore WSI in Section 8.

16 Comments on Outline Offshore Written Scheme of Investigation for archaeology, Volume 7 (Document Reference 7.11) PINs Reference: APP-246

16.1 We have identified several errors in this document which serves to demonstrate how it can only the considered as “outline”. For example, in the Glossary of Acronyms, BMAPA is given as “Marine Aggregates Reporting Protocol for Archaeological Discoveries”, which is incorrect – BMAPA is the British Marine Aggregate Producers Association. Additionally, the NHER is given as Essex Historic Environment Record, which is also incorrect, and the NMHR is duplicated. The EHER is also incorrect in Table 1.2.

16.2 It is stated that the depth of sedimentary sequences of archaeological interest at the landfall location will be further clarified through the geoarchaeological assessment of geotechnical data post-consent, with will inform the design of the HDD and nearshore cable installation (Section 1.2.4). Until this work is carried out, the significance of the deposits that may be damaged remains unknown as well as the level of impact of the proposed scheme.

16.3 Section 1.4, paragraph 56 sets out the responsibilities of the retained archaeologist. This should include provisions for providing training to project delivery contractors, as a part of the implementation of a Protocol for Archaeological Discoveries (PAD).

16.4 Section 1.5 outlines the methods that will be utilised for further site investigations. This includes the collection of high-resolution geophysical survey data (pre-construction) within the proposed offshore project area (Section 1.5.1). It is correct that archaeological specialists will be allowed to input into this programme of work (Section 1.5.1, paragraph 65), and that Historic England will be consulted on the proposed works (Section 1.5.1).

16.5 It is important to see acknowledgment of the limitations of geophysical survey recognised, stating that some remains may not be identified, such as wooden vessels (Section 1.5.1), given the risk that previously unknown remains could be present in the areas covered by the evaluation works.

16.6 It is stated that no geoarchaeological surveys have been undertaken for North Falls to date, but that there is a commitment to collect this data post-consent (Section 1.5.2, paragraph 71). This means that the significance and potential of the features identified to date have not been ground truthed, and so it is difficult to understand the levels of impact of the proposed development.

16.7 We are pleased to see that the method statement for the geoarchaeological work will be prepared in consultation with Historic England and that there will be geoarchaeological input into the geotechnical survey (Section 1.5.2). However, it should be noted that the geotechnical cores are not always positioned to sample the features of greatest archaeological interest. The potential to recover purposive cores for geoarchaeological and palaeoenvironmental assessment should also be considered, particular in high potential areas such as could be impacted by this proposed development. We therefore recommend that the geoarchaeological specialists are allowed direct access to cores, as it is better to record and assess continuous core sequences rather than isolated deposits, as this allows for greater reliability and confidence in the resulting conclusions.

16.8 We are pleased to see the specific objectives have been identified for the features identified within the offshore area (Section 1.5.2, paragraph 73). This includes the dating and palaeoenvironmental assessments. We recommend that the choice of dating techniques is carefully considered, as some of the sediments may exceed the upper limit of radiocarbon dating. In addition, it is important to consider the material selected for dating, particularly for the organic deposits such as peat. This is because the different fractions of peat (e.g. plant macrofossils, humin fraction, humic acid fraction etc.) can return different radiocarbon dates.

16.9 It is apparent that the Outline Offshore WSI will require amendment, should a DCO be obtained, to produce a specific WSI as necessary to deliver the proposed development. For example, detail about the different techniques and approaches (palaeoenvironmental, chemical or biological assessment and scientific dating) and remains (plant remains, pollen, insects, diatoms, ostracods, foraminifera etc.) that will be investigated. This will ensure that it is clear what is expected in the work post-consent and pre-construction, but also to identify any issues that will need to be addressed. For example, the issues discussed above about the choice of scientific dating technique as well as how samples will be recovered, stored and assessed.

16.10 The Outline WSI acknowledged that no geoarchaeological assessments have been carried out at the proposed electricity export cables landfall location on the Essex coast (Section 1.5.2, paragraph 74). At this stage, it is therefore not clear what deposits may be impacted by this work or their significance.

16.11 The Outline WSI states that some features and remains may need to be investigated using a diver or an ROV if they cannot be avoided (Section 1.5.3). Corroboration will therefore be required with those anomalies identified from geophysical survey to be ground truthed and to clarify the extent of the remains (Section 1.5.3). It is therefore relevant that the method statements for the diver/ROV work will be prepared following consultation with Historic England. It is also relevant that archaeological input will be provided at the planning stage of this work (Section 1.5.3, paragraph 90), and that an archaeologist will be onboard the vessel when areas of high archaeological potential are being surveyed.

16.12 We agree that avoidance forms the primary method of mitigation through the use of AEZs (Section 1.6.1. Section 1.6.2 states that a Protocol for Archaeological Discoveries (PAD) will be implemented as part of the mitigation strategy to deal with any unidentified sites or unexpected discoveries. To support the programme of training for project staff, we recommend the inclusion of materials as they appear when first discovered (i.e. when wet and muddy). We also recommend that the PAD provides for additional archaeological assessments to be carried out if significant remains are identified.

16.13 Table 1.11 provides the indicative research framework questions that may be addressed by this work. The inclusion of this detail is very important as the relevant research questions have been reviewed by experts and are maintained through a professional online portal. Consequently, development-led investigations, using the North Sea Prehistory Research and Management Framework have the potential to address key archaeological questions and thereby directly contribute to new knowledge and understanding. We agree that all reports prepared for each archaeological work package will be distributed to the MMO and to Historic England (Section 1.7, paragraph 127).

16.14 We concur that specialist conservation advice should be made when unexpected, unusual or extremely fragile and delicate objects are recovered (Section 1.8). We also recommend that a relocation and recovery strategy should be developed as part of any delivery WSI should consent for this project be secured.

16.15 Table 1.9 states that when embedded mitigation has been carried out for "A2" anomalies (additional mitigation to reduce or offset impacts) that the residual effect can generally be classed as being 'minor adverse'. We recommend that this is reassessed as new information becomes available as at this stage the results of the geophysical survey have not been tested/ground truthed.

16.16 Section 1.9.4, paragraph 166 outlines the post-fieldwork assessments that will be carried out. This section will require updating to state the sort of remains that will be assessed as part of the palaeoenvironmental characterisation work so that it is clear. For example, will the samples be assessed in terms of the presence, absence and condition of remains such as plant macrofossils, charcoal, insect remains, pollen, ostracods, diatoms, foraminifera etc.

16.17 There is no Protocol for Archaeological Discoveries (PAD) appended to the Outline WSI. It is therefore essential that the consent provisions to produce a WSI post-consent (should permission be forthcoming) will stipulate the inclusion of a (draft) PAD in any Offshore WSI subsequently produced.

17 Comments on: Outline Onshore Written Scheme of Investigation (WSI), Volume 7 (Document 7.12) PINs Reference: APP-247

17.1 This document sets out the proposed approaches and commitments to archaeological investigations to be undertaken post-consent. It will form the basis of detailed WSIs for onshore archaeology.

17.2 Section 3.3 (paragraph 24) states that 240 non-designated heritage assets are recorded within the 500m non-designated heritage assets study area, but it is important to note that this represents the *known* assets. There is the potential for additional remains to be present which have not been identified through the evaluation work carried out to date.

17.3 Section 6.2 states that access issues restricted the application of the gradiometer survey, which meant that 85% of the Scheme area was surveyed as part of the pre-application work. Additional survey work is therefore required to complete the coverage of the proposed Scheme area, and we are pleased to see that there is a commitment to achieve this.

17.4 It is stated in Appendix 25.1 that alternative geophysical survey techniques may be needed at key areas of the route, where magnetometry may be less effective due to the deposits or types of archaeology that may be present. This has not been discussed in Section 6.2 within the Outline WSI and should be included so that it is clear what work is expected post-consent.

17.5 Section 6.3 states that geotechnical works will be monitored for archaeological and geoarchaeological purposes. It is correct that this work will be assessed to ensure that opportunities to gather information of archaeological and palaeoenvironmental value will be maximised. It is also stated that the requirements for purposive geoarchaeological boreholes will be determined based on the results of the geoarchaeological monitoring. It should be noted that geotechnical cores are not always positioned to sample the exact area of interest for archaeological studies.

17.6 Section 6.4 (paragraph 74) explains that a programme of trial trench evaluation excavation will be carried out post-consent that will target anomalies identified following the geophysical, aerial photography and lidar surveys. It also states that some trenches may be targeted on apparent blank areas, but we would recommend that this is something that is needed. Several areas of the proposed Scheme area include deposits, such as peat and alluvium that can mask buried archaeological remains. There is the potential that the approaches used to evaluate the Scheme area to date may not have identified some of the features and remains. It is therefore important that apparent blank areas are investigated.

17.7 Section 7.3 (paragraph 98) states that there will be an agreed mechanism established to allow archaeological investigation during the watching brief, which is good to see. It is also stated that while substantial archaeological remains are generally not found in areas that have been identified for watching brief it is still possible. We would agree with this statement and that time will need to be built into the programmes to ensure that any unexpected discoveries are adequately assessed. We would also recommend that a mechanism is established to allow sites to be upgraded in terms of the level of investigation if warranted (e.g. from watching brief to excavation).

17.8 Section 7.4 outlines the proposed preservation strategy for key sites. We would recommend that the Historic England document ‘Preserving Archaeological Remains’ (2016) is referred to. This document presents the decision making process that helps to decide is a site can and should be preserved. A management strategy may also need to be developed that states how the site will be preserved.

17.9 Section 7.6 outlines the Protocol for Archaeological Discoveries proposed for areas where archaeologists may not be on site to monitor all elements of the intrusive groundworks. It is stated in paragraph 112 that construction teams would be provided with appropriate training, which is essential. Training in what different archaeological remains expected to be present look like is important, particularly how they may appear when they are newly discovered (i.e. covered in mud). We would recommend that training is provided, and relevant guides provided for reference. We would also recommend that provisions are made to halt works on site if remains of archaeological significance are identified. This could relate to remains or features of archaeological interest, or structures including remains such as fish traps or wooden trackways. Some of the remains could be quite ephemeral in nature and so it will be important to obtain archaeological input/advice if remains are identified.

17.10 *Appendix A: Example (model) Clauses – Mitigation Works Specification: Archaeological Excavation and Archaeological Monitoring/Watching Brief.* Section A1.2, para 127 references all the previous editions of the Regional Research Framework for the East of England. It should be noted that the edition published online in 2021 represents the most up to date one, superseding the previous editions. References should therefore be amended throughout the document to the most recent version of the Research Frameworks, and to the research questions presented within this document.

17.11 Section A1.4 outlines the stripping of archaeological sites. We would recommend that the time that stripped sites can remain exposed prior to excavation is agreed with Essex County Council to ensure that sites and archaeological remains are not damaged by exposure (e.g. weathering, bioturbation, erosion etc.).

17.12 Section A1.5, paragraph 145 states that structures, such as sunken floor buildings or kilns will be 100% excavated. We would recommend that a sampling strategy is developed to investigate any floor surfaces, such as the collection of spatially distinct samples or soil science (e.g. magnetic susceptibility, pH, loss-on-ignition, lipids etc.) to investigate the use of space. We also recommend that kilns are not 100% excavated until the potential for the application of techniques, such as archaeomagnetic dating are considered. This technique requires the collection of *in situ* samples of fired clay and so the excavation of the structure would remove the material of interest. We would also recommend a sampling strategy is developed to investigate these sorts of remains to understand their function and use.

17.13 Section A1.5, paragraph 147 explains that appropriate methodologies will be developed to investigate deep features, such as shafts or wells. We recommend that the potential for waterlogged remains and structures to be preserved within these sorts of features is considered, and appropriate sampling approaches are utilised. For example, if waterlogged wooden remains of a well structure are discovered, it may be helpful to allow a wood specialist to visit the site to provide advice, and to start recording the remains *in situ* before they are recovered. These sorts of features may also preserve stratified organic deposits of high archaeological and palaeoenvironental potential and should be sampled carefully. We would expect to see a sampling strategy that outlines the sort of remains that will be assessed (e.g. plant remains, charcoal, insects, pollen etc.) and the sort of approaches that will be used (e.g. radiocarbon dating).

17.14 Section A1.7 (paragraph 167) explains that all artefacts will as a minimum be washed. We would recommend that this is considered on a case-by-case basis to ensure that opportunities to recover and assess remains is not removed. For example, organic residues can be damaged during the washing process and we recommend that the processes outlined in the Historic England document ‘Organic Residues Analysis and Archaeology’ (2017) are followed.

17.15 Section A1.8 outlines the soil sampling strategy, stating that samples will be recovered from a range of contexts and phases encountered on the site. We agree that the sampling strategy will be informed by the results of the evaluation works (paragraph 172). We also recommend that the Historic England publication *Radiocarbon Dating and Chronological Modelling* (2022) is used. In particular, we recommend that the potential value of Bayesian models is considered in order to develop robust chronologies. We would also recommend that material selected for dating from organic deposits, such as peat is considered carefully as the different

organic fractions available (e.g. plant macro-remains, humin fraction and humic acid fraction) may not return the same calibrated date.

17.16 Section A.1.9 states that a licence will be obtained if human remains are discovered, but there is not mention of how these sorts of remains will be investigated and sampled. We recommend that a specific sampling strategy for the investigation of human remains is developed that states the sorts of samples that will be utilised. For example, the Historic England publication *The Role of Human Osteologist in Archaeological Fieldwork Projects* (2018) that spatially distinct samples from the head, torso and foot area of a grave should be recovered.

18 Comments on Volume 7 Outline Code of Construction Practice, dated July 2024 (Document Reference: 7.13), PINs Reference: APP-248

18.1 Table 1.2 'Plans, schemes and strategies to be read alongside the Outline CoCP' includes the Outline Onshore Written Scheme of Investigations. It should also include the Outline Offshore WSI.

19 Historic England Written Representation: Conclusions

19.1 Historic England do not object in principle to the Proposed Development.

19.2 There is an accepted risk that this project could encounter presently unknown elements of the historic environment which could be subject to a high level of harm.

19.3 We understand from the submitted application that to date no geotechnical samples have been collected as a part of this development project or to inform this ES. We wish to highlight that this approach is at the applicant's own risk. This work must be completed prior to the commencement of construction activities and in line with the project's agreed Offshore WSI. As this is unusual for DCO applications to be made without supporting geotechnical data, we recommend that it is separately secured within the DCO/dMLs for geotechnical work and its geoarchaeological assessment. We further recommend that the condition should specify the completion of stages of analysis prior to construction to ensure that sufficient material across the project area is collected before any impacts occur.

19.4 We have made recommendations for amendments to the draft DCO and Outline Offshore WSI which should be agreed prior to the finalisation/certification of these documents.

19.5 For the onshore impact assessment, we have concluded that the development would potentially result in a direct permanent and harmful change to a range of designated and non-designated heritage assets. This would be a significant effect.

19.6 The applicants have given this matter consideration and have provided information to inform the examination via the historic Environment chapters of the ES. Further information and documents are however required to establish an appropriate programme of evaluation and mitigation for non-designated heritage assets.

19.7 We consider this information is necessary to fully inform the decision-making process, and the planning balance as set out in the relevant policies, and

recommend the applicant is asked to provide the additional wording and documents we have set out above. This would need to be before the end of the examination.

19.8 An appropriate programme of mitigation is required in relation to the geoarchaeology and a mechanism for managing this work needs to be provided. We recommend additional palaeoenvironmental and geoarchaeological works are also included AMP and a specific WSI created to inform this area of work.

19.9 We also recommend Historic England is also given the opportunity to comment on the revised documents and wording alongside Essex County Council's archaeological specialists.