FIVE ESTUARIES
OFFSHORE WIND FARM

FIVE ESTUARIES OFFSHORE WIND FARM

VOLUME 5, REPORT 2, ANNEX 2.3
SELECTED MEETING MINUTES

Application Reference	EN010115
Application Document Number	5.2.3
Revision	A
APFP Regulation:	5(2)(q)
Date	March 2024

Project	Five Estuaries Offshore Wind Farm
Sub-Project or Package	DCO Application
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Revision	Date	Status/Reason for Issue	Originator	Checked	Approved
A	Mar-2024	Application	GoBe	VEOWFL	VEOWFL

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1.1 09/08/2021 PRE SCOPING SHIPPING & NAVIGATION ETG

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OFFSHORE WIND FARM

MINUTES

Shipping and Navigation Evidence Plan

Location:	**MS Teams**
Date:	**09/08/2021**
Time:	**1400 to 1600**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Rachel McCall (VE OWFL)
Cassie Greenhill (VE OWFL)
Sam Westwood (Anatec)
James Milne (Anatec)
Fraser Malcolm (GoBe Consultants)
Sammy Mullan (GoBe Consultants)
Andrew Woods (DP World - London Gateway)
Trevor Hutchinson (DP World – London Gateway)
Andrew Bellamy (Tarmac Marine)
Cathryn Spain (Port of London Authority)
Tenuis Van Vliet (Port of London Authority)
Nick Salter (MCA)
Robert Merrylees (UK Chamber of Shipping)
Trevor Harris (Trinity House)
Dale Rodmell (National Federation of Fisherman's Organisations)

Apologies

Harriet Thomas (VE OWFL)
James Goodfellow (Harwich Haven Authority)
Stephen Vanstone (Trinity House)
Mark Towens (Port of London Authority)
Christopher Matton (Deme group)
Nick Garside (National Federation of Fisherman's Organisations)

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company number 12292474

Item 1: Introductions

Round table introductions were made by all participants. RM provided an overview of the meeting agenda.

Introductions were made by all participants.

RM provided a project update and explained RWE have accepted the grid offer at National Grid's "East Anglia Coastal Substation" (EACS) – see slide 5. RM explained that the exact location of this substation will not be decided until Q1 2022. The array areas remain unchanged but the area for the export cables is still to be defined to enable connection to the new substation.

RM presented the area of search (AoS) for the offshore and onshore infrastructure for Five Estuaries Offshore Wind Farm (VE) – see slides 5 and 6. RM highlighted the key constraints which are associated with the cable routeing, including the Southern North Sea Special Area of Conservation (SAC) and the Outer Thames Estuary Special Protection Area (SPA) – see slide 7. She also noted there are numerous constraints in the AoS including shipping and navigation, aggregates, designations, disposal sites and existing offshore wind farms (OWFs).

She explained that initially the project sought to avoid the Margate and Long Sands SAC but this conflicted with the high density of pilotage operations. Therefore, the cable route was moved south into the tip of the SAC based on the high risk shipping and navigation safety concerns. No contributions were made from any of the attendees regarding the site selection process.

RM presented the programme for the project – see slide 9. She explained that offshore surveys will be undertaken on a corridor and commenced in August 2021. The benthic surveys will follow the geophysical survey. The Scoping Report is anticipated to be submitted for consultation to the Planning Inspectorate in September 2021.

RM presented the proposed scoping boundary – see slide 11. A preferred cable corridor will be presented in the Scoping Report which is encapsulated within the scoping boundary. The geophysical survey has been undertaken on the preferred route.

RMe requested that the slides are shared after the meeting – see actions. RM and SM confirmed that the slides should be treated as confidential and not shared beyond their respective organisations.

Item 2: Development Consent Order Process	FM provided an overview of the Development Consent Order (DCO) and the regime for National Significant Infrastructure Projects (NSIPs). He explained that it is a well-regarded regime and it aims to front load the consultation process and to consult with stakeholders early in the process (pre-application). FM explained that the decision to grant consent is made by the SoS and they will consider the Examining Authorities (ExA) recommendations. FM explained that the DCO provides a single consent for the development including a deemed marine license. FM explained the key elements and stages of the DCO process – see slide 12. FM presented the numerous stages at which stakeholders will be able to consult both formally and informally throughout the DCO process. SW highlighted that early engagement is requested to ensure that there is sufficient time to resolve and adequately address any issues raised.
Item 3: Evidence Plan Process	SM provided an overview of the Evidence Plan process and how this is proposed to be undertaken for VE. She explained that the Evidence Plan process will document all discussions which are undertaken and will be reported within the DCO application. SM explained that the Evidence Plan process was originally designed to inform NSIP Habitat Regulations Assessments (HRA) and that VE (along with numerous other OWF projects) have sought to expand the envelope of topics considered in the Evidence Plan. She explained that PINS fully endorse the Evidence Plan process and will be members of the Steering Group. In addition, she highlighted that Annex H of PINS Advice Note 11 provides further details regarding Evidence plans (in a HRA context), available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2021/02/Advice-Note-11-Annex-H-Evidence-Plans.odt She explained the benefits of the Evidence Plan for all parties, including seeking to agree the evidence required for the Environmental Impact Assessment (EIA) (and HRA) – see slide 14. She highlighted the key aim of the Evidence Plan is to seek to agree the key data sources and methodologies as early in the process as possible. This is intended to benefit all parties by reducing the resource required during examination. SM presented the proposed structure and various groups of the VE Evidence Plan – see slide 15. She explained that ETGs will be held during key milestones in the pre-application process.

	FM explained the role of the Steering Groups was to primarily delivery the Evidence Plan and seeking to resolve any disagreements raised during ETGs – see slide 15. FM explained the role of the ETGs including providing technical and consistent advice for sufficiency of evidence required for the Environmental Impact Assessment (EIA) and the Habitats Regulation Assessment (HRA) – see slide 15. NS highlighted concern that the Evidence Process may duplicate the established consultation. SM provided assurance that this would not be the case and that all the standard NRA consultation will be held in a traditional manner but will be recorded under the Evidence Plan (rather than the Consultation Report). SM explained that the Evidence Plan is governed by agreed Terms of Reference (ToR) (see slide 17). These terms outline the process and general working rules to be adopted under the Evidence Plan. She noted that following agreement with the Steering Group members the ToR would be provided to all Evidence Plan members (including all participants of this ETG) for agreement. SM presented a flow diagram (see slide 18) which presents how the Evidence Plan (and so the NRA consultation) feeds into the development of the project and associated assessments.
Item 4: Consultation to date	FM explained that extensive consultation has been held between Q1 and Q2 2021 to understand the constraints associated with the offshore export cabling. FM explained that VE have consulted numerous bodies including local planning authorities, statutory and non-statutory consultees – see slide 20.
Item 5: Approach to EIA Scoping	FM explained that the purpose of the EIA Scoping Report is to refine the scope of the VE EIA to ensure that all potentially significant impacts have been identified – see slide 17. This will seek to allow the EIA to focus on issues which are likely to be key considerations whilst ensuring that it remains proportionate. FM provided an overview of the consultation process for scoping – see slide 17. FM explained the proposed contents of the VE Scoping Report and its structure – see slide 18. FM noted that the VE Scoping Report is due to be provided to the Planning Inspectorate (PINS) at the end of September 2021. FM highlighted that feedback from consultees on any of the specific questions included in the Scoping Report would be greatly appreciated. Further information available in PINS Advice Note 7:

	https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2017/12/Advice-note-7.pdf
Item 6: Shipping and Navigation Scoping Chapter	SW explained that the slides presented provide a 'heads up' for the VE Scoping Report Shipping and Navigation (S&N) chapter. She requests that information is provided throughout the pre-application/ Evidence Plan process to develop the assessments and mitigations (as required). SW presented the study areas (slide 25). She explained that AIS data will be analysed within the 'traffic study area' (thick black line) consisting of a 10 nautical mile (nm) buffer of the array areas but with the North Hinder routeing measure excluded to prevent skewing of the data. However, to ensure that all routeing measures are captured these will be defined and captured in the 'routeing study area' – dashed line on slide 25. She explained that this has been previously presented to the Sunk VTS User Group, MCA and Trinity House. No comments on the study areas or the associated rationale were made by the attendees. JM presented the data sources considered in the Scoping Report – slide 26, whilst noting that further data will be considered in the detailed assessment. He explained that the Scoping Report presents an analysis of 28 days' worth of AIS data (14 days per season). He explained that the most recent ten years of MAIB data have been considered to define the level of risk and to characterise the baseline for scoping. JM presented the navigational features (slide 27; which will be included in the Scoping Report) and noted the Sunk routeing measure is the key navigational feature in the area. He noted there are deep water routes, wrecks and additional hazards – see actions. JM presented the summer and winter marine traffic (2019) (slides 28 & 29) noting some seasonal variation has been identified. He explained that surveys will be undertaken in two periods to capture this seasonality. SW explained that the surveys will be compliant with MGN 654. SW noted that the S&N and commercial fisheries specialists will work closely to ensure that fishermen are appropriately characterised. JM presented the maritime incidents within the traffic study area based on the MAIB and RNLI data – slide 30. JM presented the guidance documents which will be followed for the development of the NRA – see slide 31. No comments on the marine incidents or

proposed guidance by the parties in attendance.

JM presented the proposed assessment methodology within the NRA (as per the formal safety methodology) which will be used to determine the frequency and consequence of each identified impact – see slide 32. Consultation will be fed directly into the NRA as previously described on slide 18. He explained that a risk matrix will be used to assess the risk and it will be an iterative process to ensure that impacts are appropriately mitigated which would reduce the impact to tolerable or broadly acceptable. NS noted that additional mitigation measures may be required to reach tolerable/ broadly acceptable. SW confirmed that the measures will be discussed with all parties and acknowledged their potential requirement without prejudging the NRA. SW highlighted methodology and matrix presented in the Scoping Report – see actions.

JM presented the identified consultees but noting that additional consultees may be identified throughout the NRA process and will be included - see slide 33. He highlighted that any regular operators identified in the traffic study area will be approached (including ferry operators). SW contributed that additional consultees, such as UK Chamber of Shipping members of relevance, will also be identified and invited to consult as the process develops. Post meeting minute: London Gateway will also be included as a consultee in the NRA process to ensure that their interests regarding vessel access are considered.

JM presented the identified project impacts which are included (and scoped in) within the Scoping Report – see slide 34 – see actions. DR requested that NRA approach is applied to the commercial fisheries assessment – see actions.

JM presented the embedded mitigation which have been identified to date which the Applicant has committed to and will be included in the NRA – slide 35. SW noted that refinements of these mitigations are anticipated. No comments on embedded mitigation measures were raised by the parties in attendance.

JM explained that cumulative impacts will be assessed based on a tiered approach – including status, distance from VE, level of interaction with baseline traffic, consultation and data confidence. JM highlighted notable projects in the vicinity of VE including East Anglia Two and East Anglia One North – slide 37.

JM presented the proposed next steps towards the NRA. He noted that surveys will be undertaken across two periods (November 2021 to March 2022; July to August 2022. No comments on the proposed survey timings were raised by the parties in attendance.

	SW explained a 2nm buffer around the cable corridor will be applied to capture vessel movements using an AIS only dataset.	
Item 7: Any other business	THu asked how the future growth will be accounted for in the NRA. SW noted that it is proposed to apply a future growth value (between 10-20% increase in vessel numbers) and assess this growth both with and without VE present. She noted that there are difficulties with considering port development plans given they are often sensitive and focus on increase in cargo throughput. THu highlighted organic growth isn't appropriate due to the ongoing developments, including additional berths at London Gateway and Tilbury – see actions. SW proposed to assess the future growth in incremental changes to vessel numbers so that the sensitivity to growth and how the risk may change in the study area could be understood and feed into the risk assessment. Increase in vessel sizes is a separate assessment to increases in vessel numbers.	
Actions:	To circulate the meetings slides with the draft minutes	VE OWFL
	Stakeholders to review the figures in the Scoping Report and seek clarification (if required) to ensure that all navigational features are captured.	All parties
	Stakeholders to review the methodology and matrix in the Scoping Report and provide feedback.	All parties
	Stakeholders to provide feedback on the impacts proposed to be scoped in and highlight any additional impacts which should be scoped in.	All parties
	Consideration of a NRA methodology to be applied to the commercial fisheries assessment.	All parties
	Stakeholders to provide feedback on the proposed methodology and information sources for future growth in the Scoping Report.	All parties
	Thu to provide information to Anatec on likely future case increases to vessel numbers and sizes so that it can be assessed appropriately within the NRA.	THu

1.2 09/12/2021 POST SCOPING SHIPPING & NAVIGATION ETG

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MINUTES

Shipping and navigation Expert Topic Group

Location:	**MS Teams**
Date:	**9 December 2021**
Time:	**11.00 to 13.00**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants Ltd**

Attendees

Rachel McCall (RM) (VE OWFL)
Harriet Thomas (HT) (VE OWFL)
Sam Westwood (SW) (Anatec)
James Milne (JM) (Anatec)
Nick Salter (NS) (MCA)
Vinu John (VJ) (MCA)
Stephen Vanstone (SV) (Trinity House)
Trevor Harris (TH) (Trinity House)
Robert Merrylees (RML) (UK Chamber of Shipping)
Teunis VanVliet (TV) (Port of London Authority)
Cathryn Spain (CS) (Port of London Authority)
James Goodfellow (JG) (Harwich Haven Authority)
Andrew Bellamy (AB) (Harbour Master – London Gateway)
Andrew Woods (AW) (London Gateway)
Stephen Fairlie (SF) (DFDS Seaways)
Fraser Malcolm (FM) (GoBe Consultants)
Sammy Mullan (SM) (GoBe Consultants)

Apologies

Cassie Greenhill (VE OWFL)
Mark Towens (Port of London Authority)
Christophe Matton (Deme Group)
Trevor Hutchinson (London Gateway)
Dale Rodmell (NFFO)

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company number 12292474

Item 1: Introductions and aims of the meeting	RM welcomed all participants to the meeting and thanked them for their scoping responses. Round table introductions were made. FM explained that the Evidence Plan ToR comments requested that contact details were shared between the ETG members. He asked if there were any parties that would like their contact details redacted and/ or not circulated – see actions. The aims of the meeting were presented by RM. These were: • Discuss key points raised in the Scoping Opinion; and • Agree next steps for areas of outstanding disagreements.
Item 2: Update on VE	RM presented the geographical location of VE relative to the Galloper, Greater Gabbard and the North Falls offshore wind farms (OWF). RM explained that VE is being developed by RWE, Macquarie led consortium, Siemens Financial Services, ESB and Sumitomo. This means that VE is a separate commercial project and entity from North Falls, despite RWE being shareholders in each. RM presented the various forms of consultation undertaken to date and those proposed as the project develops. She explained that the consultation of the EIA Scoping report and the HRA screening report are complete. The Scoping Opinion was received on 12th November 2022. She explained that the onshore ETGs will be held in Q1 2022 and the offshore ETGs are being held in December 2021. RM highlighted that the first VE newsletter[1] is now available and further newsletters will be produced throughout the project. Public informal engagement will be undertaken in Q2 2022 primarily in relation to the onshore aspects of the project. RM explained that the benthic surveys have been completed and the geophysical surveys are nearing completion. The winter shipping and navigation AIS and radar survey will be undertaken in January 2022, following the completion of the geophysical survey. RM explained that the PEIR is anticipated in Q4 2022 with the DCO application planned for Q3 2023. RM presented the indicative project programme for VE – see slide 7.
Item 3: Scoping responses	Some of the key areas of concerns for the ETG members were: • Sunk departure routes; • The extent of the routeing study area; • Maintaining access to Port of London and Harwich ; and • The installation of export cable resulting in displacement of vessels from the deep water routes and/or disrupting scheduling.

[1] https://fiveestuaries.co.uk/category/newsletters/

Item 4: Key points raised in the Scoping Opinion

SW presented an overview of the feedback received in the SO from PINS on behalf of the SoS:

- Study areas should be presented and justified in the ES and may need to be refined in response to consultee advice.
- Justification for exclusion of portion of traffic study area (10nm buffer) intersecting North Hinder Junction and North Hinder South TSS should be provided and evidence that it has been agreed with MCA and Trinity House.
- Approach to assessment should be agreed with relevant consultation bodies, such as MCA and Trinity House.
- Demonstration of how the project design ensures vessels can safely make passage without significant large-scale deviations.
- Worst case scenario for maximum extent of cable protection should be used.

SW provided a summary of the MCA scoping responses – see slide 11. The key points identified by Anatec were:

- EIA should detail possible impact for both commercial and recreational craft;
- Attention needs to be paid to routeing, particularly in heavy weather;
- Impact on nearby IMO routeing, Sunk VTS and appropriate assessment of distance between boundaries and routes as per MGN 654;
- NRA required including traffic surveys and MGN 654 Checklist;
- Burial Protection Index study required and willing to accept a 5% reduction when the chart datum depth is over 20 meters;
- Implications on SAR resources, need for surveillance and SAR Checklist;
- Array layout will require MCA approval prior to construction; and
- Hydrographic survey requirements.

SW asked if MCA wished to add to the points identified. NS agreed that the slide accurately represented their letter.

SW provided a summary of the Trinity House responses – see slide 12. The points identified by Trinity House were:
Expect the following as part of the NRA:

- Comprehensive traffic analysis in accordance with MGN 654;
- Adequate assessment of possible cumulative and in combination effects on routes;
- Proposed layouts conforming with MGN 654 and significant consideration of existing layouts at Galloper and Greater Gabbard;
- Assessment of how traffic patterns created will interact with North Hinder Junction and North Hinder TSS;
- Development will need to be marked in accordance with IALA Recommendation O-139, noting an update is due;
- Additional aids to navigation may be necessary and should be agreed with Trinity House, as should the marking of any monitoring

equipment;
- Decommissioning plan including potential for obstructions left on-site should be considered;
- Possible requirement for marking of export cables and assessment of cable protection; and
- Currently no plans to relocate any aids to navigation in Sunk TSS East but if changes are needed this should be explored in NRA and discussed with Trinity House.

TH highlighted that the way the traffic interacts, with the TSS, will need to be considered and assessed. SW agreed that this will be a key area in the NRA/ EIA.

SW provided a summary of the UK Chamber of Shipping (CoS) responses – see slide 13. The points identified by CoS were:

- Preference for routeing study area to be extended to the west to cover the northbound and southbound measures in the Sunk TSS in full;
- Suggest review of 20 years of MAIB incident data;
- Note charted anchorage areas at Sunk Inner and Sunk DW and recommend consideration of general anchoring activity through traffic datasets;
- NRA should consider any potential pinch point at eastern extent of northern array area noting the risk could be exasperated by the presence of East Anglia Two; and
- Reduction of emergency response and SAR should be considered for all phases.

It was agreed with CoS that ten years will be built into the model but 20 years of MAIB data will be presented in the NRA. RML raised that the routing areas need to ensure that wider routing is captured, particularly for the cumulative impact.

Study areas

SW confirmed that the vessel traffic surveys will be undertaken in line with the previous agreements.

The traffic study area is the spatial extent in which the vessel traffic data will be analysed. The routeing study area will cover the North Hinder also and utilise Anatec's ShipRoutes[2] database, with consideration of future trends. SW explained that the study areas presented in the EIA scoping are the areas as previously presented to the participants earlier in the development. SW explained that the inclusion of AIS data for the North Hinder has the potential to skew the data analysis in the key project areas, so this has been excluded from the traffic study area.

SW asked RML to what extent the routeing study area should be extended

[2] https://www.anatec.com/key-services/vessel-traffic-surveys

to the west. RML confirmed that the routeing study area should be moved to cover the north bound and south bound measures of the SUNK TSS in full. TVV agreed with RML that the study area should be moved to the west as it also marks the entrance to the SUNK pilot boarding area. It was agreed that Anatec would consider with a mind to approve the suggested amendments to the routeing study area and will provide an update to the ETG – see actions.

Vessel routeing

SW noted that this was a key element of the feedback received. It was agreed that the vessel traffic survey will be undertaken in line with MGN 654.

The long-term AIS data to be analysed as validation of the vessel traffic survey data will be taken from 2019 as it is known that routeing was disrupted in 2020 due to COVID-19. SW asked whether any of the operators wish to submit routes to be considered. TV confirmed that the routes remain unchanged from 2019. SW confirmed that other regular operators have been contacted and will be consulted throughout the NRA process.

SW explained that cumulative projects and transboundary impacts will be considered to understand impacts on traffic including in the North Hinder. The assessment will consider displacement from standard routes, adverse weather routes, collision and allision risk, port access and interference with marine navigation communications. No comments were made by the attendees.

SW asked if there was any initial feedback and/ or concerns the members of the ETG have in relation to VE array areas. RML requested to see the RLB in relation to traffic density. The figure presented in the Scoping Report for summer 2019 was presented in the meeting. SF highlighted that the Felixstowe to Rotterdam route operated by DFDS Seaways that passes through the northern array would require a diversion. SF estimated the diversion would be approximately a 0.5nm extension which "isn't too significant". SW asked whether the project should reach out to the regular operators. RML agreed that it was a sensible approach and suggested that they should be identified initially from the AIS data. RML is willing to assist with regular operator outreach where possible.

SW asked for thoughts relating to traffic within North Hinder due to the presence of the VE array areas. No comments were made by the attendees.

JG highlighted that the main focus is in the pilot boarding areas and the routeing study area should be extended to the west to capture these operations. CS reiterated the point, that the west is a critical area, and the cable route will affect pilots more than the arrays themselves. SW requested that all the ports circulate a letter to any regular operators/ stakeholders which may be affected – see actions. NS encouraged this.

SW highlighted that the draft NRA will be provided in the PEIR and encourage all parties to review this as it enables issues to be resolved – particularly in relation to any data concerns.

Assessment methodology

SW confirmed a full Formal Safety Assessment (FSA) using the MCA methodology and will be included in the NRA. The NRA will use risk assessment terminology rather than environmental impact assessment terminology.

JG raised concerns about the practical implications of assessing cable laying on shipping (including delays into ports) in the NRA. SW confirmed that the NRA will be split into two sections – the arrays and the export cable corridor. SW highlighted that the feedback received during the pre-application consultation will inform the assessment of the export cables installation. Where mitigation is required through the process these can be controlled through conditions in the dML/ DCO. SW confirmed that displacement of shipping associated with the cable installation will be assessed.

CS requested a robust traffic management plan which the SUNK User Group will be critical to input into. She also highlighted early engagement with the contractors undertaking the work is encouraged. It was agreed to consider the provision of a traffic management plan as part of the DCO application submission and agreed that further discussion would be required on this

SW explained that if any part of the project requires any mitigation, then if this could be fed in earlier then it can be considered in greater detail – therefore feedback and engagement from stakeholders would be gratefully received. Additional mitigation will be given due consideration and input on this would be welcomed throughout the pre-application consultation. RM agreed and noted that the earlier the project are aware of issues and requested mitigation then the more detailed the plans could be. RM suggested that the traffic management plan could be based on the equivalent plan for the VE geophysical surveys. JG highlighted that the survey boat "got in the way" and there was room for improvement. He highlighted that cable laying vessels would be more disruptive than a survey vessel. RM requested details of any incidents or potential incidents which occurred during the VE geophysical surveys.

TV highlighted that some ships cannot deviate from the deep water routes and noted the tidal timing restrictions associated with getting larger ships into their allocated berth timeslots.

TV encouraged consultation with the SUNK User Group as they will be the key operators in the area. He highlighted that the next SUNK User Group meeting will be in January 2022 – see actions.

SW explained that the PEIR is a draft of some of the DCO application

	documents. The purpose of the PEIR is to allow stakeholders to provide feedback in order to enable changes to be made before the DCO application is submitted. Therefore, the PEIR gives a "middle step" for stakeholders on Nationally Significant Infrastructure Projects (NSIPS). SW confirmed that the hazard workshop will be undertaken pre-PEIR. SW reiterated feedback to feed into the assessment is key to ensuring that it is representative of local safety/ hazards.	
Item 6: Next steps for the shipping and navigation assessment	SW confirmed that early consultation with regular operators will be undertaken and that letters have been prepared to identify ferry operators in the region. The vessel traffic surveys will be undertaken in January 2022 and July/ August 2022. Each survey will be undertaken for 14 days in line with the MGN 654 requirements.	
Item 7: AOB	FM welcomed any further inputs on the scoping. No comments were made. FM summarised the key elements of the discussion, including: • The routeing study area should be extended to the west which will be considered and circulated for agreement – see actions. • The consideration of traffic in the north east of the array and further work is required by VE to understand the approaches of regular operators and interactions with the North Hinder junction. • Impacts arising from the installation of the export cables and how this would be managed. The production of a cable burial risk assessment, vessel traffic management plan, early engagement with operators would be critical to understand risks and how these could be mitigated. • The traffic study area was agreed by all parties. • There are lessons learnt from the surveys which should be fed into the assessment. TH asked whether the NRA would account for the East Anglia Two decision (due January 2022). SW confirmed that this would be assessed accordingly. RM highlighted that an interim discussion may be required to discuss preliminary assessment outcomes particularly with the SUNK User Group in terms of cumulative impacts of routeing within and near the northern array.	
Actions:	Circulate contact details to all ETG members subject to approval.	VE OWFL
	All attendees to confirm if they would *not* agree to their contact details being shared with the ETG	All attendees
	VE OWFL to consider extending the western extent of the routeing study area and to provide information to the ETG for agreement.	VE OWFL (& Anatec)
	VE OWFL to make contact with all identified regular	VE OWFL (&

operators.	Anatec)
VE OWFL to provide RML with a list of identified operators for review to ensure all relevant consultees have been contacted.	VE OWFL & RML
VE OWFL to request a slot in the Sunk User Group meeting to provide an update and seek feedback.	VE OWFL (& Anatec)

1.3 20/10/2022 PRE PEIR HAZARD WORKSHOP WITH SHIPPING & NAVIGATION ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES
Hazard Workshop

Location:	**London / MS Teams**
Date:	**20 October 2022**
Time:	**10:00 – 15.00**
Minutes taker:	**GoBe**

Attendees

In Person

Rachel McCall (RM) – VE OWFL
Umair Patel (UP) – VE OWFL
Sammy Sheldon (SS) – GoBe
Mike Brosa (MB) – GoBe
Samantha Westwood (SW) – Anatec
James Milne (JM) – Anatec
Vaughan Jackson (VJ) – MCA
Robert Merrylees (RMe) – UK Chamber of Shipping
Prithvi Singh (PS) – Harwich Haven Authority (HHA) – afternoon session only
Lydia Hutchinson (LH) – Port of London Authority (PLA) – afternoon session only
Paul Brooks (PB) – DP World / London Gateway
Ashley Parker (AP) – Port of Felixstowe
James Thomas (JS) – Brightlingsea Harbour Commissioners
Matthew Holmes (MH) – Stena Line
Stephen Fairlie (SF) – DFDS Seaways

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Online

Nick Salter (NS) – MCA
Vinu John (VJo) – MCA
Tony Evans (TE) – MCA / Sunk Vessel Traffic Service (VTS) – afternoon session only
Rick Ballard (RB) – Cruising Association
Nigel Griffiths (NG) – Hanson Aggregates Marine
David Thomas (DT) – Hanson Aggregates Marine – afternoon session only

Apologies

Trevor Harris – Trinity House
Stephen Vanstone – Trinity House
Joe Anderson – Trinity House
Phil Horton – Royal Yachting Association (RYA)
Cathryn Spain – PLA
Bert Broek – Stena Line
Max de Meijer – CLdN
Grant Laversuch – P&O Ferries
Jan Thore Foss – United European Car Carriers (UECC)

Introductions (Start of Morning Session)	RM welcomed all participants to the workshop and a round table of introductions were made. RM thanked all participants for their time. SW presented the proposed agenda and associated timings for the workshop which was split into sessions – a morning session considering the array area and an afternoon session considering the offshore export cable route (ECR). SW presented the aims and objectives of the workshop – see slide 3. SW highlighted the importance of speaking to local operators to provide an on the ground understanding of the potential hazards, the risks associated with them and any mitigation measures which may be required to reduce them. SW explained that all mitigation measures are for discussion and cannot be committed to during the workshop. However, they will be taken away for further consideration. Following the workshop, a draft hazard log reflecting the discussion will be completed and issued for comment. *Post meeting note: Draft hazard log issued alongside minutes.* RM provided an overview of the consultation with shipping and navigation stakeholders undertaken to date – see slide 4. Key consultation began in earnest in January 2021 and has included discussions relating to refinement of the array area and offshore export cable route (ECR). The Environmental Impact Assessment (EIA) and Navigational Risk Assessment (NRA) are currently being drafted. Section 42 will be undertaken in Q1 2023 with DCO submission in Q4 2023. RM and SS provided a brief overview of the Development Consent Order (DCO) process in relation to consultation, emphasising the importance of Section 42 consultation. SW confirmed that the slides presented will be circulated after the workshop. *Post meeting note: Slides provided alongside minutes.*
Project Overview	SW presented a project overview – see slide 7 – in the context of the existing offshore wind farms in the region. The VE array areas are located either side of the Sunk Traffic Separation Scheme (TSS) East. SW explained that traffic data and models relating to traffic patterns have been studied and analysed to reduce the northern array boundary from that considered at Scoping. This analysis led to the refinement of the north eastern portion of the northern array area to run parallel to heavily trafficked commercial ferry routes. This reduction also increases sea room for users of the North Hinder Junction routeing measure and potential users of the sea room between the northern array area and East Anglia Two.

RMe queried the size of the reduction to the northern array area, VE OWFL will confirm.
Post meeting note: The reduction represents a 23% decrease for the northern array area and 14% decrease for the array areas overall.

RM confirmed the southern array area has not been altered from Scoping.

RMe requested the project capacity. RM explained that in February 2017 The Crown Estate invited operators of existing UK offshore wind farms for expressions of interest regarding the possible extension of their projects. The Five Estuaries project is an extension of the existing Galloper project. Under the extensions process the Five Estuaries project was awarded an agreement for lease by The Crown Estate for a 353MW project. Since turbine technology continues to develop the project has considered for the purposes of the two array layouts: 41 Wind Turbine Generators (WTG) and 79 WTGs, with both options across both array areas.

SW presented an indicative project programme – see slide 10 – alongside the key installation elements.

RMe queried whether the entire array area will be buoyed during construction. SW confirmed this was anticipated but will require discussions with Trinity House post consent to confirm and will be assumed in the NRA as an embedded mitigation measure.

SW explained that the worst case will be assessed. SW presented the worst case infrastructure parameters considered for the NRA – see slide 11.

MH asked whether construction ports have been determined. RM confirmed this will be determined post consent. SW added that plans and processes will be in place to ensure that construction vessels are suitably managed and coordinated.

RMe queried the target burial depth. RM stated that specialist Cable Burial Risk Assessment (CBRA) work is being undertaken that considers available geotechnical data, the project specific geophysical survey data, sediment mobility, anchor drag, vessel size and fishing all considerations. The target burial depth will be determined from the (CBRA).

SW presented the points being considered in relation to worst case array layout design – see slide 12. This includes full build out, the maximum number of structures and one consistent line of orientation.

SW presented an indicative worst case array layout. This array layout includes a single line of orientation and places the Offshore Substation Platforms (OSP) at the feasible locations where there is the greatest exposure to allision risk.

Risk Assessment Methodology	SW confirmed that the NRA will be undertaken in line with MGN 654 and the International Maritime Organization (IMO) Formal Safety Assessment (FSA) – see slide 15. SW presented the required steps of the FSA. Terminology used in the NRA will be as per MCA preference (maritime language rather than EIA language). SW noted the refinement of the northern array area is an example of the process, with an unacceptable risk identified and already mitigated.
Future Case Assessment – Array Areas	SW presented the four proposed scenarios that will be considered for the existing base case and future case – see slide 16. Both collision and allision risk modelling will be undertaken for each of the four scenarios. SW explained that typically all traffic types are increased by a set percentage to understand how the risk changes. Increases in traffic volumes by 10% and 20% are suggested but feedback is requested. SF stated that 20% increases in traffic volumes was reasonable. AP was undecided. AP suggested that vessel size increases should be considered. RMe added that in the last 20 years the largest container vessels have shifted from 300 to 400m length. SF agreed. AP added that draught and air draught are also increasing. PB indicated that DP World London Gateway is only 50% constructed. Therefore, port capacity may double in the next 10 years. Development is not time limited and cargo sizes may increase to 30,000 Twenty-Foot Equivalent Unit (TEU) in the next five years. PB confirmed that increases of 50% associated with London Gateway would be a suitable future case. RMe queried whether these volumes account for operation and maintenance vessels for the project. SW confirmed they are not included as they will be controlled. Application of additional rules for entry and exit to/from the array areas will be considered. RMe confirmed this has been used elsewhere and so should be considered. MH agreed. PB noted DP World's involvement in Galloper and Greater Gabbard and from this confirmed that the movement of wind farm vessels requires consideration. AP queried whether operation and maintenance vessels are also increasing in size. RM noted that many projects are adopting use of a Service Operations Vessel (SOV) on site rather than Crew Transfer Vessels (CTV) regularly transiting to/from site. This is a shift from when Galloper and Greater Gabbard were constructed.

Hazard Workshop Overview	SW provided an overview of the hazard workshop approach including the users considered and risk ranking system – see slides 17 to 19. Participants should review the risk rankings assigned in the draft hazard log and confirm whether they agree with the values. **Action: Participants to review draft hazard log.** SW provided examples of embedded mitigation which will be considered and are standard mitigation prior to the need for additional project specific mitigations – see slide 20. SW presented the hazards which are scoped into the NRA – see slide 21. These were informed by the development of the Scoping Report[1] and Scoping Opinion[2]. SW requested the attendees to highlight any additional hazards based on local knowledge. RMe asked for justification for scoping out certain hazards for the construction and decommissioning phases. SW explained that they will be suitably mitigated by standard measures and this removes the requirement for assessment.
Existing Baseline for Array Areas – Study Areas	JM explained that two study areas for the array areas are proposed – see slide 23. These study areas have been defined based on previous consultation. The North Hinder South TSS has been excluded from the traffic study area to ensure that data are not skewed and the routeing study area has been extended to up to 20 nautical miles (nm) to incorporate nearby IMO routeing measures. RMe welcomed this increased study area from Scoping.
Existing Baseline for Array Areas – Navigational Features	JM presented an overview of the key navigational features in the vicinity of the array areas – see slide 24. JM also highlighted East Anglia One (operational), East Anglia Two (consented) and North Falls (west of Greater Gabbard, scoped). The most prominent features are the IMO routeing measures which dictate traffic flows.
Existing Baseline for Array Areas – Historical Incidents	JM presented 10 years of Marine Accident Investigation Branch (MAIB) and Royal National Lifeboat Institution (RNLI) incident data – see slides 25 and 26. The most common accidents identified are accident to person (or person in danger) and machinery failure, most of which have been minor incidents. JM confirmed that the NRA will consider 20 years' worth of MAIB data. RMe requested that MAIB data is analysed based on vessel type – this was

[1] Scoping Report – https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010115/EN010115-000012-5EST%20-%20Scoping%20Report.pdf
[2] Scoping Opinion – https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010115/EN010115-000014-5EST-Scoping%20Opinion.pdf

	agreed to be provided in the NRA.
Existing Baseline for Array Areas – Vessel Traffic Data Overview	JM confirmed that two dedicated vessel traffic surveys, each 14 days, have been undertaken to collect via Automatic Identification System (AIS), Radar and visual observations. These surveys are compliant with Marine Guidance Note (MGN) 654. The survey data will be supplemented by 12 months of AIS data (2019 – pre COVID-19) as well as other data sources. JM presented the vessel traffic data and associated density from the vessel survey data showing the seasonality between the two surveys and the key routeing – see slides 29 to 32 / 39 and 40. Although a busy area in general, there are limited vessel numbers in the array areas. SW highlighted that these data support the reduction in the northern array area. RMe queried the 'other' type vessel present at the southern array area in the summer 2022 survey. *Post meeting note: this was a standby safety vessel associated with maintenance activities for the BritNed Interconnector.* SW asked whether participants had any opinions on whether the Sunk TSS East may require extending. Any case would need to be made to the MCA but local opinion would be helpful. MH suggested that the arrays create a natural corridor and therefore an extension of the Sunk TSS would not be required. The placement of a buoy was suggested on the corners of the array areas. NS agreed and indicated that the MCA are not proposing to pursue a TSS extension on the basis of VE.
Existing Baseline for Array Areas – Vessel Traffic Data by Type	JM presented the cargo vessels (including Roll On-Roll Off (RoRo) and general cargo) – see slides 35 and 36. RMe highlighted the deviation and corridor to be formed between the VE northern array area and East Anglia Two. NS added that it is important to consider deviations and 'squeeze' from the presence of East Anglia Two including use of the Permanent International Association of Navigation Congresses (PIANC) guidance. JM confirmed that the corridor will be considered as part of the cumulative risk assessment including a safety case for a navigation corridor within the NRA. SW added that the 2.9nm gap was a material consideration in the rationale for the northern array area refinement following Scoping and as a worst case full build out of East Anglia Two will be assumed. Any feedback as part of Section 42 would be helpful. RMe requested the typical size of the largest vessels transiting north of the

northern array area. JM confirmed that this will be considered in detail in the safety case and there are two main operators (DFDS Seaways and Stena Line) constitute the majority of this traffic – see slide 36.

SF welcomed the reduction in the northern array area.

JM presented the tankers – see slide 37 – noting the largest (greater than 300m) typically navigate within the Deep Water Route (DWR) at the eastern extent of the traffic study area or east of the array areas (coastal transits).

JM presented the passenger vessels – see slide 38 – which are primarily Stena Line operated Roll On-Roll Off Passenger (RoPax) vessels navigating north of the northern array area or through the Sunk routeing measure.

JM explained that adverse weather routeing was analysed based on the long-term AIS data with two instances of possible alternative routeing identified. JM confirmed that adverse weather routeing will be considered as a hazard in the NRA.
RMe asked whether any feedback has been received to date from the operators of the vessels identified with adverse weather routeing. JM confirmed that the operators had not engaged to date and will confirm their identity.
Post meeting note: The relevant operators (at the time of data collection) were UECC and Holwerda.

JM presented the marine aggregate dredgers and wind farm vessels – see slides 44 and 45. Both vessel types have limited interaction with the array areas, with wind farm traffic associated with Galloper and Greater Gabbard.

RMe requested a CTV strategy is developed as per Galloper and Greater Gabbard. SW noted a SOV strategy may be more likely and can look at other projects for lessons learnt such as Race Bank.

NG welcomed the information presented and noted that future development is the primary concern but aggregate dredgers may not be affected.

JM presented the fishing vessels and recreational vessels – see slides 48 to 53. Fishing vessels are generally engaged in fishing rather than in transit and recreational activity was low relative to coastal areas. However, the Royal Ocean Racing Club (RORC) North Sea Race does pass northbound through the array areas and will be considered in the NRA. SW confirmed that the RORC have not responded to engagement and any additional contacts are welcomed.

RMe asked whether fishing vessels typically broadcast on AIS. JM confirmed the level of AIS coverage is generally good within the traffic study area.

	RB queried how often sailing occurs through existing offshore wind farms. JM confirmed that occasional routeing does occur, and SW explained that sites such as London Array and Rampion experience more transits than are generally observed in this area. Also, MGN 372 is currently being revised. RB added that sailing vessels would likely avoid the array areas but advice on how to transit the arrays would be useful. MH suggested the implementation of recommended routes for small boat owners to provide some segregation from larger commercial vessels in the Sunk TSS East. SW explained that recreational traffic tended to navigate within the area south of the TSS, treating it as equivalent to an inshore traffic zone.
Introductions (Start of afternoon session)	RM again welcomed all participants to the workshop including those joining for the afternoon session only. New participants are requested to review the slides from the morning session and provide any relevant feedback. **Action: Afternoon session only participants to review morning session slides and provide feedback.** RM and SW led a brief overview of some of the content from the morning session that is relevant for the offshore ECR – see slides 56 to 64.
Consultation Relating to Offshore ECR	RM provided an overview of the consultation with shipping and navigation stakeholders undertaken to date in relation to the offshore ECR. As part of this timeline, RM explained that in May and June 2021, the preferred offshore export cable route (ECR) was selected for survey – see slide 66 and 71. There was various engagement with shipping and navigation stakeholders in this period and various route options were reviewed and discussed. For PEIR the scoping boundary has expanded to enable engineering solutions to minimise the potential for cable crossings with North Falls. The preferred offshore ECR passes south of the Sunk pilot boarding station and seeks the deeper water in the Sunk Inner Precautionary Area. SW stressed the importance of Section 42 feedback to support the preferred offshore ECR, RM added that the full offshore ECR will be assessed in the NRA and VE OWFL will be required to show due regard for issues raised in the Section 42 consultation. SW presented the key feedback on the offshore ECR to date used to define the offshore preferred ECR – see slides 67 to 69. This includes consideration of aids to navigation, the Harwich Deep Water Channel, Deep Water Routes, the Sunk pilot boarding station and charted anchorages. AP queried whether the burial depth could be increased in sensitive areas. RM indicated this could be an option, depending on ground conditions, the ongoing CBRA will account for potential future changes to the dredged depth.

	PS stated that cables will need to be buried deeper where there is increased risk from anchorage areas.
Future Case Assessment – Offshore ECR	SW reiterated the four proposed scenarios that will be considered for the existing base case and future case – see slide 70. SW explained that agreement is being sought for the future case in terms of potential increases in vessel numbers for the duration of the construction and operation and maintenance phases of VE, i.e., around 30 years. PS suggested that vessel traffic increases could vary, including greater than 20% although an accurate forecast is difficult given market variations. In recent years vessel draughts out of Rotterdam have increased from 12 to 17m but it is difficult to forecast how this may change in the future. PS noted that currently the deepest vessels use the deepest water available but this could change in the future as the deepest areas change. The Sunk Light Vessel may need to be moved westward. PB suggested a 20% increase is low for the lifetime of VE. Felixstowe could be redeveloped, and Bathside Bay could be developed. A third band for a 50% increase is suggested. RMe agreed. MH noted that the UK is an exporter and this will not change. SW asked whether specific route options should be considered for a higher future case band rather than increasing all routes. AP noted this would be the more accurate approach and there was general agreement. **Action: Anatec to draft a future case traffic strategy.**
Existing Baseline for Offshore ECR – Navigational Features	SW presented an overview of the key navigational features in the vicinity of the offshore ECR – see slides 72 to 74. Relevant navigational features include the pilot boarding stations, Deep Water Routes, Harwich Deep Water Channel, Long Sand Head Two-Way Route, charted anchorage areas, a restricted area, extraction areas and an explosive dumping ground. Additionally, a Special Area of Conservation (SAC) intersects the offshore ECR as it enters the Sunk Inner Precautionary Area – see slide 75. SS noted that the strong advice from Natural England is that the SAC site should be avoided and any crossing of the SAC will need to have strong justification that there is not a suitable alternative option. Based on engagement with shipping navigation stakeholders in 2021, it is understood that shipping and navigation stakeholders support the need to pass south/ within the preferred ECR, due to safety risks associated with installing and operating a cable in the high density pilot boarding areas to the north. SS highlighted that formal written feedback, submitted during Section 42 consultation, will be needed to support this position/ justification as strong resistance is anticipated from the environmental stakeholders. Regarding the SAC, RMe noted the presence of London Array and queried whether there was any evidence of effects on the SAC. RM stated that there

may be information can be used to support the but London Array was built before the SAC was designated.

RM noted that alternative export cable routes have been considered and discarded based on feedback including passing further north. PS noted that the offshore ECR should pass through as far south as possible, noting that the route may jeopardise the ability for some of the area to take the largest vessels in the future. The preferred route is the most desirable in the Sunk Inner Precautionary Area but a cumulative issue exists when North Falls and SEALink are considered.

PS queried the separation of the export cables from those associated with North Falls. RM indicated that a one kilometre (km) swather may be needed for four VE cables in some places and discussions are ongoing with North Falls. PS added that the broad area considered is the main concern and if buried across the full offshore ECR width there would be a problem. LH agreed that the potential for four cables (for VE alone) needs to be accounted for.

SW asked how deep cables will be buried. PS stated the depth required will likely need to be greater than 0.5m in many areas. LH added that the shifting seabed needs to be considered and there needs to be future proofing without the need for scour/ cable protection or remedial burial works in sensitive locations. PB noted that depth of burial is the key issue and maintenance/monitoring of the depth requires consideration.

SW asked if there are particular areas of concern for burial depth. MH suggested that where the offshore ECR crosses the Sunk TSS East needs to be deeper than when following the TSS, the key area is the Sunk Outer Precautionary Area. It was noted that the depth of burial may be the key to resolving issues rather than the location.
ried the likely outcome if a vessel damaged an export cable. RM and UP responded that there would be no significant impact to the vessel and National Grid manage issues associated with maintaining electricity supply.

AP raised the potential for impeding traffic during cable installation and that the greater the burial depth the longer the installation vessel would be on site. RM noted that the assessment considers a range of installation options and the burial assessment will help determine suitable burial equipment for the environment. .

MH noted that a 400m vessel may drag its anchor and this could cause problems, particularly when the anchor is dropped to prevent drifting. RM highlighted that the CBRA will consider this.

PS noted the Sunk Deep Water Route may be extended further inshore in the future, and larger vessels do have to alter from this route on occasion. A vessel turning has scour potential on the seabed from squat.

	RMe raised the anchorage areas. SW confirmed these will be analysed in terms for AIS to understand anchoring activities. PS confirmed that the Harwich Deep Water Channel is currently being dredged down to 16m. RM highlighted the shallow water to get to Dovercourt, caravan park and historic landfill. This area was ruled out as a landfall option. PS stated that this is outside of HHA areas and therefore of less concern to HHA. There was general agreement on the suitability of the offshore ECR inshore of the Rough Sands.
Existing Baseline for Offshore ECR	JM presented a high level overview of the existing baseline in relation to the offshore ECR – see slides 76 to 95. Of particular note, vessel traffic will be characterized primarily using AIS data (within a 2nm buffer of the offshore ECR) with the dedicated surveys from the array areas used to support alongside other sources. PS raised concerns over the accuracy of the MAIB data. VJ confirmed that reporting procedures are followed for MCA. Anatec will check the data presented. **Action: Anatec to review MAIB incident data presented.** The various vessel traffic figures presented by JM indicate heavy commercial use of the Sunk routeing measure, including the Deep Water Routes and Harwich Deep Water Channel. Pilot vessel activity occurs out of Harwich featuring four unique pilot vessels and anchoring activity is largely limited to the charted anchorage areas. Fishing vessel activity is limited and recreational activity is heavy in coastal waters during the summer period. PS noted that more recently vessels have been boarding a pilot at the Rivers Colne and Crouch pilot boarding station. JM presented the vessel draughts identified in the study area and proposed to provide further information on vessel draught in the NRA.
Further Open Discussions for Offshore ECR	PS suggested looking at the lifespan of the export cables and how draughts have increased over the last 30 years to apply a factor. A draught of 20m may be a realistic maximum and would enable vessel to continue accessing the ports. PS and LH agreed that in terms of vessel size changes have been more in relation to air draught and draught in the last 15 years with limited changes to length/width given berth limitations. AP stated that Felixstowe has nine berths currently, but plans are in place for the addition of smaller berths.

	RM raised operational dredging and an interest in how the logistics are managed for Harwich Channel dredging project. PS noted that as part of current agreements two hours of notice is given ahead of any dredging works. LH noted that there will be pinch points where traffic management is critical. SW stated that the NRA will include consideration of traffic management but any feedback would be welcomed. AP indicated that the implementation of such a mitigation measure requires consideration in terms of who has the jurisdiction to manage and direct traffic. TE added that the array areas are outside of the Sunk Vessel Traffic Service (VTS) so present a problem for inbound traffic management. PS urged increased coordination between the projects to minimise the associated cumulative risks. RMe agreed.	
AOB	DT noted that from a small vessel perspective there are not the same draught issues. However, the preference for futureproofing is shared given the traffic volumes and additional cumulative pressure. TE noted that wind farm vessels already cross the Sunk TSS East for Galloper and Greater Gabbard. The presence of VE and North Falls would create further crossings with associated risk for vessels in emergency situations. TE highlighted pressures on pilotage in the Sunk Inner Precautionary Area for Harwich and London Gateway. It is not unusual to have up to four vessels in a short window and this may have to be reduced during the cable installation. PS added that reduced pilotage would not be tenable from a commercial perspective.	
Actions	Afternoon session only participants to review morning session slides and provide feedback. Anatec to draft a future case traffic strategy. Anatec to review MAIB incident data presented.	All Afternoon session participants SW/JM

1.4 25/01/2024 FOLLOW UP HAZARD WORKSHOP WITH SHIPPING & NAVIGATION ETG

Five Estuaries Follow-up Hazard Workshop
Minutes of Meeting

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1 Overview

Date	25/01/2024
Time	14:00
Participants	▪ Rachel McCall (RMc) – Five Estuaries ▪ Emily Griffiths (EG) - Five Estuaries ▪ William Hutchinson (WH) - GoBe ▪ Sam Westwood (SW) - Anatec ▪ James Milne (JM) – Anatec ▪ Iain Kelly (IK) – Anatec ▪ Vaughan Jackson (VJ) – Maritime and Coastguard Agency (MCA) ▪ Vinu John (VJo) – MCA ▪ Pete Lowson (PL) – HM Coastguard ▪ Robert Merrylees (RM) – UK Chamber of Shipping ▪ Tony Evans (TE) – Sunk Vessel Traffic Service (VTS) ▪ Ashley Parker (AP) – Port of Felixstowe ▪ Louise Fennessy (LF) – Harwich Haven Authority (HHA) ▪ Paul Brooks (PB) – London Gateway ▪ Phil Horton (PH) – Royal Yachting Association (RYA) ▪ Rick Ballard (RB) – Cruising Association
Purpose of Meeting	Follow up Hazard Workshop for the Five Estuaries (VE) project.

2 Minutes of Meeting

2.1 Project Updates

- RMc presented a project timeline.
- The Development Consent Order (DCO) submission will be in mid-March 2024, with examination to follow. The DCO decision could be made in 2025 at the earliest.
- JM presented the array areas.
- The array areas have been unchanged since the Preliminary Environmental Information Report (PEIR) stage, still containing up to 79 Wind Turbine Generators (WTG) and up to two Offshore Substation Platforms (OSP).
- The final layout will not be determined until post-consent, and so the analysis to date has been carried out using an indicative layout. This, again, has not changed since the PEIR stage. Search and Rescue (SAR) lanes will be in at least one consistent line of orientation, and if it is not possible for two lines of orientation to be provided then a safety case justification will be made.

- RB asked for the bearing of the lines of orientation. JM replied that there is a north-south alignment of WTGs in the southern array. For the northern array this is northeast-southwest. There is a possibility that there could be multiple lines of orientation for each array, but at this stage the basis worked on is that there will be just one.
- The distance to existing subsea cables will be 1,000 metres (m), and to Galloper will be 1 nautical mile (nm).
- RM asked what the generative capacity of the WTGs will be. RMc replied that VE is planned to have a minimum of 353 megawatts (MW). There is a currently a plan to increase the capacity of UK extension projects such as VE, and so the connection agreement undertaken will be for greater than 353MW.

2.2 Array Areas

- JM presented the vessel traffic data collection to date.
- Automatic Identification System (AIS), Radar, and visual observation data has previously been collected over 28 days, in January (winter) and June (summer) 2022.
- The MCA have granted an extension to the 24-month requirement of data collection by three months. This is due to the additional datasets collected, including 12 months of 2019 AIS data, Anatec's ShipRoutes database, the RYA Coastal Atlas, and consultation feedback.
- The vessel traffic data collected is within a 10nm buffer of the array areas, excluding the North Hinder Traffic Separation Scheme (TSS).
- JM presented vessel traffic survey data.
- Wind farm traffic accessing Galloper and Greater Gabbard can be distinguished, with clear commercial routeing present within the study area to/from TSSs in the area. There is consistent routeing by commercial vessels on a year-round basis despite the seasonality of fishing and recreational vessels.
- A wider study area has been used to identify the 26 vessel routes in the area. Of these, North Hinder TSS contributes to the busiest vessel routes.
- JM presented the navigation corridor between East Anglia Two, which has been consented, and VE.
- The Navigational Risk Assessment (NRA) includes a safety case justification of the gap between the two developments, with compliance of Marine Guidance Note (MGN) 654, World Association for Waterborne Transport Infrastructure (PIANC), and Maritime Institute Netherlands (MARIN) guidance followed.
- The navigation corridor presented at the PEIR stage has since been refined to provide clarity. Comparing the current case (a navigation corridor using the northernmost structure of Galloper on the same orientation as the navigation corridor between VE and East Anglia 2), although there will be slight overlap between the two, vessels will still be able to use the boundary of Galloper as a navigation aid during transit between the developments.

- RM confirmed that it is acceptable for further discussions on the navigation corridor to commence post-consent, noting that additional comments will be provided during examination.
- RMc noted that when discussed with Trinity House and the MCA, there was agreement that further discussions on the navigation corridor can take place post-consent.
- JM presented the previous Hazard Log included at the PEIR stage.
- RM asked if feedback can be provided at a later date. JM confirmed that it can.
- The array allision risk was noted as 'Tolerable' as a worst case for operations and maintenance, assuming both that the array layout will be discussed as part of an ongoing process to identify suitable locations for OSPs, and that internal navigation by commercial vessels will be highly unlikely. RM stated it is unlikely that the consequence of this risk will change, but its frequency could be diminished. PH agreed that the worst-case consequences will likely remain the same.
- RM asked if dedicated entry and exit points in the array areas for project vessels will be taken forward. JM replied that marine coordination mitigation measures as standard have been developed in the description for the Environmental Statement (ES), which specifically refers to a need to consider exit and entry points.

2.3 Offshore ECC

- JM presented updates to the offshore Export Cable Corridor (ECC).
- Since the PEIR stage the offshore ECC has been refined. Revisions have been made to account for the approach to Harwich Deep, crossing of Sunk and Trinity deep-water routes, and the proximity to the Sunk pilot boarding station.
- LF noted concern with the crossing of cables west of the deep-water channel as this may take more time, and so extra work needed during construction in relation to this should therefore be considered. LF also noted that although the offshore ECC has been refined in part due to the Sunk pilot boarding station, pilot boarding in practice may occur 1 – 1.5nm from the location noted in cases of adverse weather. SW noted that individual discussion with ports in the area are currently taking place regarding these points.
- RM deferred the position of the Chamber of Shipping regarding the refinements made to the offshore ECC to the local ports and Sunk VTS. VJ noted that although the refinement of the offshore ECC is acceptable to the MCA, the position of the Sunk User Group is of great importance.
- VJ asked if the Sea Link cable will impact the offshore ECC. RMc replied that Sea Link will be laid at the eastern extent of the offshore ECC. JM remarked that analysis of the interaction between the offshore ECC and Sea Link is high-level at this stage, but the possibility of crossings between the offshore ECC and Sea Link, as well as NeuConnect, will be accounted for.
- JM presented AIS data relevant to the offshore ECC collected over same time periods as for the array area.

- Since the PEIR stage, further long-term data in 2022 focusing on the section of the offshore ECC subject to contention has been collected and analysed, using a study area encompassing the Sunk Inner and Outer areas.
- The prevalence of vessels of large draught (greater than 13m) within the vessel traffic data highlights the need to maintain access of deep-water routes in the area.
- Pilot vessels were recorded interacting with the two pilot boarding stations in proximity to the offshore ECC. The refined offshore ECC area avoids the areas of highest pilot vessel density, especially in proximity to the Sunk pilot station, which is the busiest of the two.
- JM presented an overview of a Navigation Installation Plan (NIP).
- A key additional mitigation at PEIR was a traffic management strategy, to enable project vessel activity to coincide with third-party traffic in proximity to the offshore ECC. The NIP is a means to allow this. It has been developed with input from North Falls, as well as consultation with local ports and the Sunk VTS.
- The NIP will be a separate measure to the standard marine coordination considerations issued post-consent and will minimise the significance of risk associated with shipping and navigation hazards.
- VJ asked if the NIP can be shared. SW replied that the first draft is currently being created in discussion with HHA, PLA, and Sunk VTS. Once this has been agreed upon the next step will be to consult with the MCA, Trinity House, and others.
- RB asked if the NIP will include details on navigation marks. SW replied that navigation marks will be covered separately.
- JM presented the Hazard Log at the PEIR stage for the offshore ECC.
- Displacement with potential for collision was previously noted as 'Tolerable' and 'Broadly Acceptable' for the construction/decommissioning and operations and maintenance phases respectively, with the NIP now included as embedded mitigation. TE noted that, given the number of vessels that may be working on the offshore ECC at any one time, there is concern that any limits on the restriction of number of commercial vessels allowed in proximity will have an effect on local ports. SW asked for requested details around the contents of the NIP from the perspective of local ports to be provided.
- Reduction in under keel clearance was previously noted as 'Tolerable' for the operations and maintenance phase. AP stated that draught may be a concern, as due to the Harwich deep water channel being deepened, it is now being used by vessels of up to 17m in draught. A reduction in draught that would impede such vessels would be unwanted. JM replied that the future case has been addressed within the NRA, with this assuming a realistic worst-case future vessel draught of 20m.
- RM noted that the consequence of vessels unable to drop anchor should be higher than 1, as they may consume additional fuel attempting the manoeuvre. It should therefore be ranked as 2.

2.4 AoB

- RMc stated that time to provide feedback is limited due to the submission date in March, and so although comments are appreciated, feedback that is challenging to resolve will be picked up post-submission.
- RM enquired on the timeline for the plan to increase the capacity of extension developments. RMc replied that current understanding is that plans will conclude towards the end of 2024. Although this is past the submission date, there are extension projects that have been consented that are part of this and so it is not intended for it to interact with the DCO process.
- RB asked if there are any requirement for artificial nesting structures. RMc replied that no offshore artificial nesting structures will be necessary.

3 Actions

Action	Responsible
The presentation, Hazard Log, and minutes to be provided for feedback.	Anatec

2 ETG 2 OFFSHORE ORNITHOLOGY

2.1 18/07/2021 PRE SCOPING OFFSHORE ORNITHOLOGY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Offshore Ornithology Expert Topic Group

Location:	**MS Teams**
Date:	**18 August 2021**
Time:	**1300 to 1500**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Cassie Greenhill (CG) (VE OWFL)
Rachel McCall (RM) (VE OWFL)
Sammy Mullan (SM) (GoBe Consultants)
Fraser Malcolm (FM) (GoBe Consultants)
Mark Trinder (MT) (MacArthur Green)
Ross McGregor (RMc) (MacArthur Green)
Yolanda Foote (YF) (Natural England)
Alan Gibson (AG) (Natural England)
Helen Rowell (HR) (Natural England)
Aly McCluskie (AM) (RSPB)
Andrew Dodd (AD) (RSPB)
Leanne Tan (LT) (MMO)
Joseph Wilson (JW) (MMO)
Sue Hooton (SH) (Essex County Council)
Mark Woodger (MW) (Essex County Council)
Nick French (NF) (Essex County Council)

Apologies

Harriet Thomas (VE OWFL)
Tim Frayling (Natural England)
Christina Platt (Wildlife Trust)
Mark Nowers (RSPB)
Annie Gordon (Essex Wildlife Trust)

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Materials provided in advance of the meeting:

- Aerial survey coverage analysis position paper; and
- Offshore ornithology.

Item 1: Introductions

Introductions were made by all participants.

RM provided a project update and explained RWE have accepted the revised grid offer at National Grid's "East Anglia Coastal Substation" (EACS) – see slide 5. RM explained that the exact location of this substation will not be decided until Q1 2022. The array areas (purple areas on slide 5) remain unchanged but the area for the export cables is still to be defined to enable connection to the new substation.

RM presented the initial areas of search (AoS) for the offshore and onshore infrastructure for Five Estuaries Offshore Wind Farm (VE) – see slides 6 and 7. RM presented the key onshore constraints that were preliminary considerations for the refinement of the AoS to the onshore scoping boundary. RM highlighted the offshore key constraints which are associated with the cable routing, including the Southern North Sea Special Area of Conservation (SAC), the Margate and Long Sands SAC and the Outer Thames Estuary Special Protection Area (SPA) – see slide 7. She also noted there are numerous constraints in the AoS including shipping and navigation, wrecks, cables, aggregates, designations, disposal sites and existing offshore wind farms (OWFs) – see slide 7.

HR asked how far the Outer Thames Estuary SPA was from the array areas. MT confirmed they are a minimum of 17km.

RM presented the longlist of cable routes which the project considered – see slide 8. The grey routes were discounted for various reasons including crossing dredged channels, aggregate sites, cable crossings and interaction with the Traffic Separation Scheme. The project sought to avoid the Margate and Long Sands SAC and noted that it was very challenging to avoid due to shipping and navigational safety constraints. She highlighted that lots of engagement has been undertaken with shipping and navigational stakeholders with regard to shipping constraints and safety concerns. She explained that ultra large container ships (under keel clearance of approximately 14m) use this area through defined shipping channels (~17m deep) and therefore the area has been described to as akin to the Suez Canal. Therefore, Five Estuaries Offshore Wind Farm Limited (VE OWFL) has sought to minimise interaction with pilot boarding areas, deep water channels and the dredged Harwich channel where possible.

AG highlighted that the North Falls project have sought to avoid the Margate and Long Sands SAC in their scoping boundary. AG requested a discussion to be held to understand the difference between the projects – see actions. AG also noted that the difference between the projects will need to be justified in terms of consideration of alternatives.

	RM explained that extensive consultation has been held with the shipping and navigational (S&N) stakeholders. Anatec (VE OWFL's S&N technical specialists) undertook density mapping of the pilotage operations which confirmed that it is a very busy pilotage area (which is used by pilots from PLA and HHA) which is north of the cable route. Interaction with the pilotage operations was highlighted as a safety concern to already risky operations given the nature of pilot boarding and density of traffic. She explained that initially the project sought to avoid the Margate and Long Sands SAC but this conflicted with the high density of pilotage operations. The project then considered a cable route north of the pilot boarding station and the Margate and Long Sands SAC but the S&N stakeholders felt that this remained unacceptable as the cable would have to cross the dense area of pilot boarding. RM presented the key S&N constraints to the participants of the ETG – see slide 9. She presented the NeuConnect cable route and the two way traffic routing measure ('hockey stick'). RM presented the proposed scoping boundary – see slide 11. A preferred offshore export cable route (ECR) will be presented in the Scoping Report which is encapsulated within the scoping boundary. The offshore geophysical surveys have been undertaken on the preferred ECR. AD highlighted that the landfall option at Little Oakley (slide 8) is located in the Bathside Bay Development compensation land. RM thanked AD for this contribution and noted that this landfall option had been removed due to this land conflict and also engineer feasibility considerations. RM presented the programme for the VE DCO application – see slide 10. She explained that offshore surveys will be undertaken on a preferred ECR and commenced in August 2021. The benthic surveys will follow the geophysical survey. The Scoping Report is anticipated to be submitted for consultation to the Planning Inspectorate in September 2021. RM explained that the programme is currently under review to ensure there is adequate time to address any issues raised in Section 42 for the Environmental Statement (ES). Revised dates are being considered for consultation on Alternatives and for PEIR publication. No contributions were made from any of the attendees.
Item 2: Evidence Plan	FM provided an overview of the Evidence Plan process and how this is proposed to be undertaken for VE. He explained that the Evidence Plan process will document all discussions which are undertaken and will be reported within the DCO application. He explained the benefits of the Evidence Plan for all parties, including seeking to agree the evidence required for the Environmental Impact Assessment (EIA) and Habitat Regulations Assessment (HRA) – see slide 13. He highlighted the key aim of the EP is to seek to agree the key data sources

	and methodologies as early in the process as possible. FM presented the proposed structure and various groups of the VE Evidence Plan – see slide 14. He highlighted that the panels in green (see slide 14) will feed into the development of the Habitats Regulation Assessment (HRA) including the offshore ornithology panel. He explained that ETGs will be held during key milestones in the pre-application process. FM explained the role of the Steering Groups was to primarily deliver the Evidence Plan and seeking to resolve any disagreements raised during ETGs – see slide 15. FM explained the role of the ETGs including providing technical and consistent advice for sufficiency of evidence required for the Environmental Impact Assessment (EIA) and the HRA – see slide 15. No contributions were made from any of the attendees.
Item 3: Approach to scoping	FM explained that the purpose of the EIA Scoping Report is to refine the scope of the VE EIA to ensure that all potentially significant impacts have been identified – see slide 17. This will seek to allow the EIA to focus on issues which are likely to be key considerations whilst ensuring that it remains proportionate. FM explained the proposed contents of the VE Scoping Report and its structure – see slide 18. FM noted that the VE Scoping Report is due to be provided to the Planning Inspectorate (PINS) at the end of September 2021. FM highlighted that feedback from consultees on any of the specific questions included in the Scoping Report would be greatly appreciated. He also highlighted that there are numerous opportunities to consult throughout the pre-application (and post) process.
Item 4: Offshore Ornithology	This part of the meeting was presented by MT and RMc of MacArthur Green who are leading on the offshore ornithology assessment for the VE Scoping Report. MT presented the proposed approach to scoping in terms of ornithology – see slide 21. He explained that the Scoping Report chapter has been drafted and will present two years of monthly data to characterise the baseline whilst drawing on additional studies. The Scoping Report presents the SPAs which may have connectivity with the assessment. The Scoping Report also presents the proposed methodology to be undertaken for the PEIR and subsequent ES. He welcomed feedback on the scope and method presented in the chapter when published. MT presented that the project has collected two years of ornithology data within a 4 km buffer area around the VE Area for Lease (AfL) – see slide 22. He presented that the surveys were undertaken between March 2019 and February 2021 providing 24 months of data. He explained that the majority of the surveyed months have 15% coverage (which overlap with the Galloper monitoring site). However those months with a 10% coverage are

still considered sufficient for the purposes of characterisation.

MT explained that the survey data will be used to calculate density and abundances – these will be used to inform displacement and collision risk. AM asked how design-based and model-based analysis will be combined and sought confirmation that this would not be presented in a piecemeal fashion for each species on a month by month basis (as this complicates interpretation). MT confirmed that analysis will not mix and match design and model based outputs which AM agreed was sensible. MT also noted that the choice of design and model based analysis for each species will be largely dependent on their abundance.

Survey coverage

MT noted that discussions were held previously with Natural England regarding survey coverage and what would be sufficient for site characterisation purposes. To further develop and inform those discussions, MacArthur Green prepared a survey coverage paper in advance of the ETG which was sent to attendees. It was proposed by VE OWFL that a further meeting could be held to discuss this matter further on receipt of written comments on the survey coverage paper – see actions.

MT explained that VE OWFL's position is that 10% coverage is sufficient for the purposes of EIA baseline characterisation and this is obtained using data from half the cameras used on each survey (i.e. each camera on the VE surveys collects coverage at 5%).

MT explained that each of the camera feeds could be further split for analysis purposes, providing coverage at increments of 2.5% from 2.5% to 15%. This allowed investigation into how increasing coverage affects measures of precision. HR requested clarification as to which party split the camera data. MT confirmed that HiDef (the survey company) provided the split. RMc informed that this was in fact standard practice for HiDef for image reviewing and processing as the full width from each camera is too wide for the screens used.

MT explained that to estimate the mean and standard deviation (and thereby the coefficient of variation, CV) the data along the transects were first divided into 500m sections. These sections along each transect were then resampled 1,000 times using a bootstrap routine. HR queried whether the 500m sections were considered as the replicates, which MT confirmed was the case. HR noted that NE's understanding was that we didn't think this is the way HiDef treat their data and that they bootstrap at the transect level. The bootstrapping does weight the transect by length, but it is the whole transect that is the bootstrap sample. She questioned whether the 500m sections could be treated as independent replicates. She also queried whether HiDef had been consulted on the approach taken/were happy with it. MT countered this and suggested this approach was more for convenience and that the approach taken was in fact standard and has

been used widely. (post meeting note: HR was sent materials stating that HiDef also analyse their data by segmenting transects).

MT presented the key findings of the survey coverage paper – see slide 25. He explained that the data were processed as if they were to be included in an EIA assessment (design based method) with the processing repeated 6 times (with an increasing number of 2.5% increments/ percentage coverage). He highlighted that the approach is a standard method and was not novel. The analysis demonstrated that the precision of the density estimates, represented by the CV, declines as the percentage increases (meaning the precision improves), initially in large amounts (from 2.5% to 10%) with smaller further gains thereafter (i.e. diminishing returns in terms of improved precision for higher coverage). Therefore, the analysis has demonstrated that 10% coverage provides robust and representative density estimates and increasing coverage above 10% is not justified on the basis of precision as the gains are minimal and would not materially affect the characterisation of the baseline for the purposes of EIA.

RM asked HR if the survey coverage scenarios make sense in the context of the issue previously raised by Natural England.

HR asked when only two or three cameras were analysed were they always the same ones as she was concerned that a systematic bias may arise. MT explained that the sequence of cameras in the analysis was assumed to be from left to right (the data were provided as numbers 1 to 6), but as there could be up to 8 feeds (4 cameras each split in two) the numbers 1 to 6 did not always correspond to footage collected from the same camera on the HiDef rig so there was some variation.

RMc explained that during initial image review the footage from all four cameras are checked for things that would reduce image resolution, such as condensation on the edge of the lenses. Following this HiDef select the cameras which provide the highest quality imagery and these are the ones provided. MT added that since there was no reason to expect there to be a relationship between the location of birds on the sea and which camera they were recorded on there was no need to randomise the camera sequence.

Assessment methods

MT explained that the density and abundances (when agreed) will be used to inform the collision risk and displacement analysis.

MT explained that the Band model (option 2) is proposed due to flight height concerns. Option 1 could also be provided if requested. He noted that the most appropriate model will be used based on availability at the time and agreement with the ETG. AM highlighted the glitches and use of avoidance rates in the stochastic models have been resolved.

	HR explained that the SNCBs are updating their advice on collision risk modelling. HR recommended using avoidance rates in the analysis undertaken by the BTO which have been largely agreed by SNCBs. MT asked if all the SNCBs will be aligned – HR confirmed that they will very likely be on aspects covered by the updated advice since the guidance will be a joint one across administrations. AM noted that there will be different avoidance rates for deterministic and stochastic model. MT presented that for the assessment of displacement it is proposed that a matrix of percentage displacement and associated mortality rates will be adopted. The mortality rates will be based on the best available evidence . MT proposed that the cumulative assessments will be based on the most recent agreed examples for analogous projects (such as EA1N and EA2). HR highlighted changes in other projects between their submission of PEIR and ES (e.g. Hornsea 4, Dudgeon and Sheringham Extension) should be checked during the preparation of the cumulative assessment. AM raised that there is some debate whether Hornsea 3 should be included due to their proposed compensation. AM noted that RSPB's position is that it should be included until the compensation is proven. Apportioning of birds to SPAs will be undertaken based on connectivity and foraging ranges in accordance with the recent examples from nearby SPR projects. If the 1% threshold is exceeded then MT proposed that population models will be used to inform the assessment (using the NE CEH online tool).
Item 5: Principles of HRA Screening	FM presented the proposed screening criterion for intertidal and offshore ornithology within the HRA screening report – see slide 29. He noted that it is proposed to look at mean-max foraging ranges + 1StdDev (Woodward et al, 2019). HR noted that the most recent advice is a minimum of 10 km displacement of red Throated Diver and supersedes the previously published guidance. FM confirmed that the Outer Thames Estuary SPA will be screened in but will consider these ranges further. FM presented the approach of non-seabird features that may be at risk of collision. He explained that migratory pathways of non-seabird species will be in line with Wright et al, 2012. As such consideration will be given to direction of migratory routes and location of relevant SPAs. FM presented the UK SPA sites to be considered in the HRA screening – see slide 31. FM presented the transboundary sites identified – see slide 32. However, this does not indicate which sites are screened in for a likely significant effect as the processing is on-going. MT presented a high level overview of the approach to compensation –

see slide 33. He anticipates that it is likely that compensation will be requested from stakeholders. This assumption is based on the species present and SPAs with potential connectivity – see slide 33.

HR advised VE OWFL to consider raising the minimum blade height (draught height) by as much as possible as best practice based on recent concerns on cumulative and in-combination effects. She also suggested that evidence/justification (e.g. engineering or technological constraints) are provided for the draught heights arrived at. FM welcomed this advice but noted that VE is very early in the process and do not wish to prejudge outcomes. RM noted that to provide certainty on draught heights is challenging as the project need to future proof and make assumptions on the available technology at the time of build.

AD asked when discussions on derogation "in principle" and the HRA assessment are proposed to be programmed. FM confirmed that a Report to Inform Appropriate Assessment will be prepared to accompany the PEIR. RM highlighted that VE OWFL are fully aware of the SoS's advice to submit without prejudice measures with DCO applications rather than relying on resolving these issues in examination.

AD expressed concerned on the ability to secure sites for compensation measures and that the process is very challenging. AD highlighted that compensation discussions need to be held as early as possible. RM explained that the intention is to have engagement through the ETGs prior to PEIR.

AD noted that the current OWF in-principle measures are too high level and should include evidence of the compensation – such as securing land and ensuring its suitability. AG agreed with the points raised by AD and suggested that all parties should seek to have an agreed compensation plan prior to the DCO application submission.

AG recommended for VE OWFL to view the Boreas and Vanguard submissions when published. RM highlighted that the project are aware that creative solutions are likely to be required as the 'lower hanging fruit' options will be taken by projects further ahead in the consenting process. FM agreed and explained that the intention is to have most detailed plans as possible but they will need to be dynamic to ensure they are deliverable.

AD requested an early exploratory discussion with stakeholders to discuss potential options. RM agreed and suggested this could be held Q4/Q1 2021/2.

RM raised that VE OWFL is mindful of projects and that the process is pressurized due DCO determination process and timescales Therefore, she requested that if there are any emerging views of process/plan/approach based on the SCNBs experience that VE OWFL would appreciate engagement on these.

Item 6: AOB	RM summarised the key points raised and thanked all participants for their engagement and attendance.	
Actions:	To discuss site selection further with Natural England – meeting programmed for 13th September. [Completed – 13th Sept 2021]	VE OWFL & Natural England
	To provide written comment on the coverage paper by 1st September. [Completed by Natural England – 3 Sept 2021]	All parties
	To review and provide any guidance on how to apply the Defra Compensation Guidance. [1]	All parties

[1] Post meeting note: Natural England advised the Boreas and Vanguard submissions and NE's response to them should be reviewed as they contain a significant volume of relevant advice with this regard.

2.2 14/12/2021 POST SCOPING OFFSHORE ORNITHOLOGY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Offshore Ornithology Expert Topic Group

Location:	**MS Teams**
Date:	**14 December 2021**
Time:	**14.00 to 16.00**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Rachel McCall (VE OWFL) (RM)
Harriet Thomas (VE OWFL) (HT)
Sammy Mullan (GoBe) (SM)
Fraser Malcolm (GoBe) (FM)
Alan Gibson (Natural England) (AG)
Yolanda Foote (Natural England) (YF)
Tim Frayling (Natural England) (TF)
Helen Rowell (Natural England) (HR)
Mark Trinder (MacArthur Green)
Rafe Dewar (MacArthur Green)

Apologies

Nicholas French (ECC)
Mark Woodger (ECC)
Tracey Champney (MMO)
Leanna Tan (MMO)
Oriole Wagstaff (RSPB)
Aly McCluskie (RSPB)
Andrew Dodd (RSPB)
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Item 1: Introductions and aims	FM welcomed all participants to the meeting and thanked them for their scoping responses. Round table introductions were made. FM explained that the Evidence Plan ToR comments requested that contact details were shared between ETG members. He asked if there were any parties that would like their contact details redacted and/ or not circulated – see actions. The aims of the meeting were presented by FM. These were: • Discuss key points raised in the Scoping Opinion (SO); and • Agree next steps for areas of outstanding disagreements.
Item 2: Project update	RM presented the geographical location of VE relative to the Galloper, Greater Gabbard and the North Falls offshore wind farms (OWFs). RM explained that VE is being developed by RWE, Macquarie led consortium, Siemens Financial Services, ESB and Sumitomo. This means that VE is a separate commercial project and entity from North Falls, despite RWE being shareholders in each. RM presented the various forms of consultation undertaken to date and those proposed as the project develops – see slide 6. She explained that the consultation of the EIA Scoping report and the HRA screening report are complete. The Scoping Opinion was received on 12th November 2022. She explained that the onshore ETGs will be held in Q1 2022. RM highlighted that the first VE newsletter[1] is now available and further newsletters will be produced throughout the project. Public informal engagement will be undertaken in Q2 2022 which will focus on the onshore aspects of the development. RM explained that the benthic surveys have been completed and the geophysical surveys are nearing completion. She explained that a matrix of data was collected and analysed to inform the selection of the benthic sampling locations. The winter shipping and navigation radar survey will be undertaken in January 2022, following the completion of the geophysical survey. RM explained that the PEIR is anticipated to be published in Q4 2022 with the DCO application planned for Q3 2023. RM presented the indicative project programme for VE – see slide 7. AG noted that the Norfolk Boreas decision was made on 10/12/21 and he highlighted that the compensatory measures are of relevance to VE for both ornithology and the Special Area of Conservation (SAC).

[1] https://fiveestuaries.co.uk/category/newsletters/

Item 4: Summary of key points in the SO	**Key points** MT provided a summary of the key points raised in the EIA Scoping responses received. • MT explained that a further analysis of the survey data to examine the question of appropriate coverage percentage has been circulated to the ETG to account for the comments received previously. In the meeting he proposed to discuss how the additional analysis has sought to address the concerns raised by Natural England. • MT agreed that the Scoping Report only presented high level methodologies. He proposed that further detailed methodology discussions are held through the Evidence Plan process. • MT noted a key point raised in the Scoping Opinion was regarding mitigation measures which will be considered throughout project development, e.g. raising the lower blade height. • Also that the potential Adverse Effect on Integrity should be considered as early as possible in the process in order to identify possible compensation requirements and begin discussions with Natural England. TF confirmed that these points reflected the key themes in the Natural England's scoping response. **Clarifications** MT confirmed that the various additional data sources (such as aerial and tagging surveys) identified in the Scoping Opinion will be used as relevant and appropriate.
Item 4: Aerial survey coverage	MT presented the justification for the 10% (two cameras) aerial survey coverage for the array areas and buffers – see slide 13. Consultation on this subject has been on-going between the VE project team and Natural England - see consultation log. MT explained that because the operational Galloper OWF post construction monitoring surveys had some temporal overlap a higher percentage was captured for VE during 9 out of 12 months of each year. HR requested confirmation why the Galloper and VE surveys have a different percentage coverage. RM confirmed that the difference is due to the purpose of the surveys, i.e. the Galloper monitoring programme provides greater coverage as part of the BACI survey design for pre and post construction surveys, as opposed to the VE surveys which are for EIA characterisation. The VE surveys were therefore carried out at 10% in line with what is considered the industry the standard for similar projects to inform EIA. RM explained that there was a notable cost difference owing to the additional data analysis to process the additional 5% coverage. MT explained that the HiDef camera rig has four cameras, and the imagery from each camera is split into two data feeds by HiDef during their review and object identification analysis (this is standard HiDef

methodology). HiDef normally recombine the split for each camera in the data supplied to clients, but in this case were commissioned by VE to provide the additional split to inform the coverage study undertaken. MT explained that each camera feed represents a 2.5% data coverage, i.e. 3 cameras = 6 data feeds = 15% spatial coverage. By splitting these data feeds it allows further analysis as to the adequacy of data coverage. The metric used to compare the results across different levels of coverage was the co-efficient of variation (CV)[2]. The change in CV with increasing percentage of coverage was presented in the first draft of the position paper. MT explained that the plots (on slide 13) show that the CV reduces with increasing coverage but the slope of the line begins to level off when this reaches 10% (= 2 full cameras or 4 camera feeds). At this point there is little additional reduction in CV (which equates to an increase in precision) with the incorporation of additional data. Therefore, there is little benefit to be gained in terms of the reliability of the abundance estimates when coverage exceeds 10%.

MT explained that in the initial analysis each transect was split into sequential 500 m segments, which were used at the unit for the bootstrap simulations from which the mean and variance of the densities were derived. Natural England's comments on the original paper queried if these segments can be considered as independent samples. The concern was that due to spatial auto-correlation these segments could represent pseudo-replicates and that any summary statistics generated from these data are subsequently biased.

MT then explained the additional analysis undertaken to address this concern (the results are also presented in an appendix to the original position paper which was circulated prior to the meeting – see actions).

MT repeated the above analysis but first removed segments from the data until independence could be assumed, on the basis of auto-correlation analysis (i.e. separate analysis with removal of every other segment, every third segment and every fourth segment). MT explained that the lines on the figures (slide 13) presents a comparison of each dataset with a different level of separation. While the CV value increases as the separation distance (and hence amount of data removed) increased.[3] The trend remained consistent: the CV declines in the same manner, and levels off at 10% coverage in each case. This supports the conclusion that greater than a 10% coverage is not required and is robust

[2] If the coverage is appropriate then the co-efficient of variation should remain very similar with increasing numbers of cameras, i.e. it should level off.

[3] Post meeting minute: It is correct that the 95% CIs around the abundance/ density estimates. However, the relative CV declines in the same manner and then flattens out – demonstrating the diminishing returns obtained in precision for additional percentage coverage.

	for the purposes of EIA baseline characterisation. An action was taken for Natural England to provide written comments on the revised position paper – see actions. HR asked whether reducing the sample size in this manner would affect the confidence intervals (e.g. 95%ile). MT confirmed that they would but that 10% is a robust density characterisation and that the key question is how these results should be applied in the EIA assessment. HR highlighted that the precision and 95%ile confidence based on bootstrapping the transects shown in the HiDef report will be different. MT agreed that this would be the case since the HiDef analysis was conducted at the level of transect. MT presented an autocorrelation plot from the appendix to the report which indicated the extent of spatial autocorrelation for each species. These plots compare the segments relative to the first (0 shows no-correlation, -1 is complete negative correlation and +1 complete positive correlation). At each spatial lag in the data (at 500m increments) a vertical line indicates the degree of auto-correlation. If the line exceeds confidence limits then it is considered to indicate significant correlation at that distance (see pdf pages 29 to 30 in the coverage paper). This was used to determine the segment separation applied in the analysis summarised above. TF queried if there is a potential bias associated with splitting the camera feed, i.e. can the camera splits be treated as independent samples? See actions.
Detailed methods	MT proposed to submit a method statement to the offshore ornithology ETG[4] to provide the detail of the proposed approaches, including raw data analysis and the impact assessment (including CRM, PVA). Provision of a paper was welcomed by Natural England. MT explained that the proposed approaches will be similar to those used in the recent SPR and Vattenfall projects and would use predominately design based density and abundance estimates, supplemented with model-based where feasible and appropriate. The proposed approach for displacement will utilise the SNCB matrix (% displacement x % mortality). No comments on these principles were raised - see consultation log. HR asked if the modelling will use MRSea? MT confirmed this was the case. MT confirmed that design based methods will be used for all species, and model based results will be used as a top up.

[4] It is anticipated that this will be provided in Q1/Q2 2022.

Collision risk modelling	It is proposed to use the Band 2012 CRM model. The sCRM may also be utilised. TF confirmed that the SNCB's are finalising a joint position on all aspects of CRM and this will be provided as part of SNCB advice. The 2014 guidance remains valid at this time. TF confirmed the advice note will cover all aspects of CRM including nocturnal activity and flight speeds. The advice note timelines are to be confirmed. It was agreed that the method statement will be checked against the draft advice note (if not yet published) by Natural England. See consultation log. MT proposed to use the BTO generic flight height data with the HiDef information presented and summarised in the technical report. The HiDef flight height data wouldn't form the basis for the assessment. See consultation log. MT did not know of any further developments by HiDef on their flight height estimation methods that would alter the current situation with regards confidence in the estimates. RM confirmed no further conversations have been held but HiDef have published a paper and the intention is to move forwards with the information provided to VE. Migrant collision considerations will be considered using the BTO tool produced for the SOSS-05 BTO tool – see consultation log.
Collision mitigation	VE is investigating the feasibility in terms of raising blade tip heights. RM confirmed that VE OWFL are talking with other RWE projects which are proposing similar size WTGs and the wider engineering team. RM asked if Natural England were aware of the reason for why East Anglia Three minimum tip height is higher that Boreas (min of 30 m above MHWS or 35 m above MHWS). HR advised that there are differences between projects as to what chart datum has been used. Historically projects have used HAT (Highest Astronomical Tide) however, some projects have used Lowest Astronomical tide (LAT), or Mean High Water Springs (MHWS). The key aspect is to ensure comparability by noting each datum is different and ensuring that it is appropriately translated into the datum VE is using. Natural England's preference would be for all future projects to use the same datum HAT. HR also noted that the mitigation needs to include increasing the draught height to the maximum that can be achieved to reduce the impact on key species.HR requested that a justification for maximum draught height arrived at should be provided including engineering constraints (seabed conditions, overall stability etc.) and construction constraints (jack up barges availability, installation issues etc.). This was agreed – see consultation log.
Compensation	MT agreed that the compensation discussions should commence but noted that the HRA has not yet been undertaken so the scale of

	compensation required cannot be known at this time. He also noted that there are limited compensatory measures available for the likely species of concern and these are fairly well established. MT noted that the Norfolk Boreas decision has been made and includes a requirement for compensation for kittiwake and lesser black-backed gull. This provides some certainty for the project and will be taken into account. It is anticipated that additional projects will have their consent decisions published in early 2022 and this will provide additional information for VE to consider. The identification of compensatory measures will start with a longlist which will be refined. MT welcomed any information or guidance from NE. AG noted that there are some precedents, but the measures are based on a site by site basis and may not be effective for different sites. He recommended 'casting the net wide and keeping options open'. He raised that prey availability should be considered. MT highlighted the difficulties in delivering and securing a prey availability solution. AG agreed that it would need to be considered from an industry and governmental level to be able to deliver. RM explained that an evidence register for various methods which have been considered on other projects has been collated and will be used as a starting point to develop options for VE. VE is relying on previous agreements on evidence bases on other projects and are seeking a pragmatic solution to the required evidence going forwards and would welcome NE view on this. AG agreed that this was sensible but suggested it would be worth continuing to discuss these matters after the upcoming decisions for other wind farms have been made. RM agreed this was sensible, although noted that if these decisions are delayed then the discussions would need to begin without waiting for them. TF noted that this project is expected add to current AEoI for lesser black backed gulls and kittiwake so compensation will be required. MT agreed this was likely but re-iterated it will be important to undertake the assessment and understand the project's contribution and this would influence what measures are proportionate and should be considered.
Next steps	MT explained that a method statement on the assessment will be produced and circulated to the ETG. Following on, then the analysis will begin to generate the technical reports and information to feed into the assessment. The PEIR chapter will then be produced for November 2023 with the DCO application in Q3 2023. The compensatory proposals will be generated alongside the EIA and HRA.
Item 5: AOB	FM explained it proposed that the next phase of ETGs will be summer 2022 to discuss in more detail the proposed methodology. He proposed that the meetings will be timed to make best use of stakeholder's time. FM provided a summary of the actions arising from the meeting.

Actions:	Consultation log to be updated for approval and all ETG members to review and provide written feedback.	VE OWFL and all ETG members
	To confirm if ETG members would rather their contact details were **not** shared with the other ETG members.	All ETG members
	To produce method statement to provide information on the proposed approaches to inform the EIA	MacArthur Green
	To review the coverage paper and associated appendices by the 17th January 2021.	All ETG members
	To provide a detailed justification for the minimum lower tip heights to be provided following feasibility studies.	VE OWFL
	To consider the potential for bias or data gap but splitting camera feeds.	MacArthur Green

2.3 17/11/2022 PRE PEIR OFFSHORE ORNITHOLOGY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Expert Topic Group – Offshore Ornithology

Location:	**MS Teams**
Date:	**17/11/22**
Time:	**14.00 – 15.30**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe**

Attendees

Emily Griffiths (VE OWFL) (EG)
Rachel McCall (VE OWFL) (RM)
Sammy Sheldon (GoBe Consultants) (SS)
James Miles (GoBe Consultants) (JM)
Rafe Dewar (MacArthur Green) (RD)
Mark Trinder (MacArthur Green) (MT)
Richard Berridge (Natural England) (RB)
Harri Morrall (Natural England) (HM)
Justin Hart (Natural England) (JH)
Aly McCluskie (RSPB) (AM)
Yolanda Foote (Natural England) (YF)
Mark Woodger (Essex County Council)(MW)
Nina Crabb (National Trust) (NC)
Rupert Masefield (Suffolk Wildlife Trust) (RMa)

Apologies

N/A

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Item 1: Project update	Introductions of all participants were made. The aims of the meeting were outlined – see slide 2. RM provided an overview of the VE project team and highlighted the changes in the team since the previous ETGS – see slide5. RM presented the red line boundary (RLB) for the offshore Preliminary Environmental Information Report (PEIR) assessments – see slide 6. The offshore ECC has been expanded in two discreet locations to encapsulate all available geophysical project specific survey data. The northern array was reduced by 22% since Scoping which is associated with a shipping and navigational risk identified. This reduction also has additional environmental benefits including impacts on SLVA. RM presented the red line boundary for the onshore PEIR assessments – see slide 7. This boundary has been refined following site selection workstreams and public consultation held in June to August 2022. RM presented the proposed onshore substation search areas in relation to the National grid existing substation and search area for the EA GREEN project – see slide 8. RM provided a high level project update of work undertaken throughout 2022 – see slide 9. RM highlighted that the PEIR assessments are underway following the project refinement and design freeze. RM provided an update on the programme for VE and highlighted that PEIR will be submitted in Q1 2023. The Interim Feedback Report following consultation held in June to August 2022 is available online[1]. RM provided an overview of the consultation undertaken to date with a particular focus on the VE Evidence Plan – see slide 11. RM welcomed bi-lateral meetings with all stakeholders either pre-, during or post-PEIR.
Item 2: EIA and cumulative methodology	SS provided a brief overview of the proposed approach to the Environmental Impact Assessment (EIA) and cumulative effects assessment (CEA) – see slides 13 and 14. Further details were provided in "Proposed Assessment Environmental Impact Assessment Methodology" which was provided to all Evidence Plan members for comment by 6th December. No comments were made by attendees.
Item 3: Offshore ornithology EIA assessment	This section of the meeting was presented by MacArthur Green. MT presented the proposed study area for the offshore ornithology PEIR assessment. He explained that a 4km boundary has been applied to the array areas. The arrays were surveyed by HiDef on a transect basis. No comments on the proposed study area were raised by participants.

[1] https://fiveestuaries.co.uk/wp-content/uploads/2022/10/20221017-Five-Estuaries-Stage-1-Feedback-Report-final.pdf

MT confirmed that a 15% coverage will be analysed, for 24 months, to inform the PEIR following previous discussions with Natural England via the EP. The surveys were undertaken March 2019 to February 2021.

A discussion was held regarding the sufficiency of the number of survey transects – see actions. MT explained that the guidance referred to by NE in this regard was derived from visual aerial surveys conducted as line transects and the need to estimate distance detection functions, for which 16-20 transects is recommended as the minimum (Buckland *et al*. 2001). Digital aerial surveys are conducted as strip transects and object detection is assumed to be 100% (i.e. no need to estimate detection functions) so this recommendation does not apply. RM highlighted that the survey design was agreed with stakeholders prior to the surveys being undertaken – suite of projects.

MT presented the key guidance proposed to inform the PEIR – see slide 18. MT welcomed the NE library as a useful resource. MT proposed to consider the following as major guidance to inform the assessment. No additional guidance was raised by the meeting participants for consideration in the PEIR assessment.

MT proposed to use design based methods to estimate the baseline densities and abundances for the assessment. A bootstrap approach has been developed following consideration of previous NE comments. The proposed methodology takes into account autocorrelation between survey segments. MT explained that if the segments are treated as independent this will reduce the confidence intervals, but this is not a robust assumption as seabirds do not distribute randomly. MT explained that the proposed methodology treats the counts in each segment along a transect as equivalent to time series data. Bootstrap methods for time-series data include a 'blocking' variable which is used to control for auto-correlation. For the current analysis the length of the block is derived for each species by analysing the segment counts and obtaining a measure of auto-correlation along the transect. The advantage of this method is that it can allow for a greater number of data points from which to resample, rather than simply using the transect as the smallest unit. MT explained that this methodology has been discussed with HiDef (Grant Humphreys) and the Centre for Ecological and Evolutionary Modelling at St Andrews (Lindsay Scott-Heyward) who have agreed that it appears to be a sensible approach for bootstrapping DAS data. Interim conversations with NE (Alex Banks) have also been undertaken on this methodology. AM requested see further detail of the proposed methodology. RSPB's preference is for modelled based estimates, as opposed to design based, but will consider the justification provided in the PEIR. MT agreed to consider this further and provide sufficient information in the PEIR.

MT explained that the two array areas have been assessed independently. The biological seasons have been applied as per Furness

report (BDNS, 2015). No comments were raised.

RM requested if there were any particular information the stakeholders would like to be provided in the PEIR to aid agreement of methodology pre-submission of the DCO application. MT explained that the proposed methodology is a more reliable method than previously considered/ presented under the Evidence Plan following consideration of responses received. MT highlighted that the methodologies will be sufficiently detailed to ensure that they would be replicable.

MT presented the key impact assessment methods for the PEIR assessment:

- Displacement will be assessed using matrices using rates as per SNCB advice, plus additional evidence as appropriate
- Collisions – proposed to be assessed using the deterministic CRM model – Band (2012). It was noted that the stochastic model could be considered but since the deterministic and stochastic model now produce identical mean estimates there is less justification for using the stochastic one. He explained that the avoidance rates from the NE guidance will be applied.
- Background mortality. Where a 1% threshold is exceeded then the NE PVA tool will be utilised to understand the changes in background mortality.

Points of note coming from initial results:

MT explained that VE are mindful of the density of RTD in the Outer Thames in the winter. The surveys recorded very few in the study area were recorded which reflects the expected reduction of density with distance offshore. MT highlighted that the VE arrays are 17km at closest point from SPA.

MT highlighted that following the application of the NE interim avoidance rate guidance reduction of collision impacts are anticipated for –

- Gannet
- Kittiwake

MT acknowledged that the number of collisions will increase for large gull species, including LBBG. MT asked the ETG for agreement that the rates should be applied respectively for the cumulative and in-combination assessments. RB confirmed that they should be applied retrospectively.

AM enquired whether the macro-avoidance is applied prior to modelling. MT confirmed that this has been applied. AM requested that gannet collisions are also presented without the macro-avoidance factor for gannet owing to awaiting the publication of the associated report. MT confirmed that the information could be provided in a technical report but not in the assessment for PEIR – this was agreed by AM.

MT requested confirmation that an email alert for any changes to the

	guidance notes on the NE SP. RB confirmed email alerts should be provided.
Item 4: Report to inform Appropriate Assessment methodology	SS explained that a draft Habitats Regulation Assessment Screening Report was provided for consultation in October 2021. Stakeholder consultation responses have been given due regard and an updated HRA Screening Report will accompany the PEIR. A Report to Inform Appropriate Assessment (RIAA) will also accompany the PEIR for formal consultation – see slide 24. JM presented the key screening results for notable bird species in the HRA screening report – see slide 25. JM presented the notable species and sites proposed to be screened out from the RIAA – see slide 26. JM provided justification for the screening out of: • Kittiwake (breeding) based on the ranges presented in Cleasby et al. 2020 • Puffin were not recorded in array or within a 2km buffer • Fulmar - screened out for displacement based on large foraging ranges and large distance of array to FFC • Little gull/terns - during breeding season owing to very low abundances recorded in the site specific surveys. JM presented the proposed methodology assessing displacement in the RIAA. It was proposed that: • The RIAA will present for auks (30-70% displacement and 1-10% mortality) and gannet (60-80% displacement and 1% mortality). • RTD density data in OTE (Natural England survey data) to be used to assess displacement impacts – using 2km buffer around cable-laying vessels (Goodship et al., 2015) JM proposed that during the non-breeding season the apportionment of bired will be based on proportion of Biologically Defined Minimum Population Scales (BDMPS) from each SPA. During the breeding season the following percentage of colony: • Gannet: 100% FFC • LBBG: 100% AOE JM proposed that guillemot, razorbill, and kittiwake are screened out for assessment during the breeding season. JM highlighted that a migratory collision risk analysis and PVA will be undertaken to inform the DCO application. JM presented the proposed data to inform the RIAA – see slide 27. No

	additional sources were proposed by participants.	
Item 5: Any other business	RM provided a summary of the key points of the meeting. JH confirmed that the macro-avoidance review paper is being independently reviewed and is anticipated to be published in the near future. JH requested that auks be assessed for incombination (HRA) and cumulative (EIA) effects. MW requested confirmation that the CRM will consider the worst case turbine parameters. MT confirmed this and explained that generally fewer larger reduce the collision risk.	
Actions:	**To provide a written response to confirm the sufficiency of the data coverage.**	**Natural England**

2.4 04/09/2023 POST PEIR OFFSHORE ORNITHOLOGY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

VE Offshore Ornithology Expert Topic Group

Location: Microsoft Teams
Date: 04/09/2023
Time: 09:30
Facilitator: VE OWFL
Minutes taker: Will Hutchinson

Attendees

Andrew Dodd (AD) – RSPB
Renny Henderson (RH) - RSPB
Aly McCluskie (AM) – RSPB
Mark Woodger (MW) – Essex County Council
Nina Crabb (NC) – National Trust
Yolanda Foote (YF) – Natural England
Alan Gibson (AG) – Natural England
Sophie Sparrow (SS) – Natural England
Martin Kerby (MK) – Natural England
Just Hart (JH) – Natural England, Ornithology Specialist
Richard Berridge (RB) – Natural England
Mike Brosa (MB) – GoBe
Will Hutchinson (WH) – GoBe
Ryan Irvine (RI) – GoBe
Rachel McCall (RM) – Five Estuaries
Emily Griffiths (EG) – Five Estuaries
Rafe Dewar (RD) – MacArthur Green
Mark Trinder (MT) – MacArthur Green
Matt Wilson (MW) – National Trust
Nicola Wilkinson (NW) – MMO
Pip Koomson (PK) – MMO

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Item 1: Introductions and Project Team	A round of introductions was undertaken. RM provided an overview of the VEs project team. It was highlighted that Ian McClean is the new interim VE's Project Manager.
Item 2: Early Adopters Programme	RM provided an overview of the Early Adopters scheme which VE is taking part in (further details available at Planning Inspectorate launches pre-application trial with 7 Nationally Significant Infrastructure Projects - GOV.UK (www.gov.uk)). RM highlighted the three components which VEs are taking part in: - Component 1: Use of program planning - (available at Project Programme - Five Estuaries) - Component 5: Production of policy compliance documents. - Component 10: Use of multipartite meetings (with focus on meetings on compensatory measures and shipping and navigation). Currently PINs are currently joining meetings as observers and providing feedback during monthly meetings. , MK noted it would be good to have advance notice of when PINs would be joining in the future and to provide any feedback from PINs back to stakeholders. RM noted we will provide this for future meetings.
Item 3: Project Update	RM provided a brief overview of the project. It was highlighted that minimal changes have been made since the PEIR in terms of the offshore infrastructure. The key change has been reducing from four cable cables from to two since PEIR. RM noted VE is also part of the Offshore Transmission network Review, however VE project is still progressing with a radial connection as the project base case. RM gave an overview the project timelines, with this being the first set of ETG meetings since PEIR submission in RM provided a brief overview of the onshore export cable corridor (ECC). The project has also been refined to one landfall option, with the northern option being chosen and location SSA West chosen for the onshore co-location substation with North Falls.

Item 4: Offshore Ornithology: EIA

MT highlighted the key issues that were flagged from NE in terms of the EIA.

Methods: NE Comments 1

MT explained the CRM methods which were used – the deterministic and StochLAB models.

MT explained that he would run stochastic CRM models, with comparison between the deterministic, StochLAB and shiny sCRM outputs.

- This will be covered in a few additional appendices. This will cover five key species (gannet, kittiwake, herring gull, lesser black-backed gull, great black-backed gull), not on species where risk is considered low. Comparison appendices of StochLAB model as well.
- There will also be an appendix that demonstrates that the boot strap method developed is appropriate

MK noted there is quite a lot of work to go through and worried about the number of matters that could be dragged into examination. HE queries if NE could have sight of these updated technical appendices ahead of time? [post meeting note: the CRM and boot strap updated appendixes will be provided in October 2023 for review].

JH noted current NE advice is not to accept StochLAB now due to a recent review by JNCC using the shiny app sCRM, and in part NE have been unable to review the new package, and early basic test results by Natural Resources Wales. Therefore, we will have to check and consider these results. MT noted that outputs from sCRM have been compared to those from StochLAB in a document that will be provided as a technical appendix. This work has found no discrepancies between the results from the two methods. Therefore, NE welcomes the project's commitment to undertake further testing as this enables us to assess the merit of this new tools.

AM noted that he is relatively comfortable that StochLAB is the same as the shiny sCRM. Not concerned about the outputs being different, but more concerned about interpreting the results from StochLAB as shiny was designed for a number of users.

Action - MT noted for the benefit of reviewers we will take this away and provide two CRM documents and a Bootstrap document that addresses this point.

Methods: NE Comments 2

MT noted that VE has used a 1% mortality rate for gannet displacement and that NE's response had requested the range of 1-

10%. MT noted that, with the exception of Hornsea 4, 1% has been accepted as the appropriate displacement mortality rate for gannet in previous applications (e.g. SEP/DEP). The reason for the higher rate applied at H4 (up to 10%) was due to its proximity to FFC SPA, which does not apply to VE.

JH noted that NE advises 1-10 %, however may only need 1% from recent decisions. **Action** – JH to check and confirm.

Post meeting note: NE agrees that, in this instance, the range defined as 60 – 80% displacement and 1% mortality can be considered acceptable for gannet, and presenting a range up to 10% would not be necessary.

AM queried if VE has accounted for Gannets diving.

MT noted gannet do not spend a long time underwater so unlikely that more than very small number would be missed, and that would only be the case if there was active foraging taking place (e.g. during the breeding season). RM stated we also have low numbers of Gannet for this project.

AM agreed this may not be critical for this project given the low numbers. MK noted however you can see MM from aerial, and questioned if you can see Gannets diving.

MT will check, but not necessarily for this project.

Methods: NE Comments 3

MT highlighted a number of other comments which NE made which VE are happy to accept.

JH queried if we have the positions for the OSPs.
RM noted that we have assumed worst case locations for S&N assessment purpose. JH queried whether they will be in the array.

RM noted that the project plans to keep the OSPs inside the array.

AG queried how will this commitment for OSP locations be made? RM noted it will explicitly be mentioned that OSPs will be in the array in the dML and elsewhere in the submission.

MT noted for the CEA that projects greater than 500 km will be provided for in the assessment.

Item 5: Offshore Ornithology: HRA/RIAA

RI provided an overview of the key areas of disagreement at section 42 associated with the RIAA.

Apportioning method for LBBG

Ryan highlighted what the project will do to address these comments within the slides, including:

- Presenting both the NE and Project approach at RIAA
- The Project have noted the inclusion of Dutch colonies was not appropriate and have been removed.
- Non-SPA colonies have been included (Felixstowe port/town) and the new apportioning figure is 45% for the AOE.

JH asked VE to present a range of apportioning rather than a single figure. **Action -** RI noted Apportioning note will be updated to include a range.

Post meeting note from NE: In regard to LBBG apportioning from the AOE SPA, it would be helpful if the method of calculation could be provided. We welcome the removal of Dutch colonies. However, it was unclear during the ETG how the new appointment figure was calculated and whether it was derived using apportioning tool or the alternative approach recommended by NE for Galloper.

Post meeting note from VE: LBBG and Gannet apportioning spreadsheet was provided to NE via email on 20 December 2023.

Post meeting note from NE: To improve our understanding of the Project's potential impacts on RTD, it would be very helpful if the anticipated number of days of cable laying activities could be provided, for the OTE SPA.

Assessment of impacts/ displacement mortality rates for RTD

RI noted the RIAA will be updated to include details on methods used to assess the impacts on RTD.

MK - RTD guidance should included in outline vessel management plan and embedded in the outset. Also noted that even with vessel management a seasonal restriction may be needed but NE would need to know the relevant guidance will be followed to assess this.
MK – we have standard text that can be shared.
MK- Needed to have a seasonal restriction for SEP and DEP – this gives a clear indication of what NE would like to see. **Action -** VE check SEP/DEP final documents.

JH noted VE should not just be looking at displacement and mortality

but also habitat loss within the OTE SPA.

Impacts from HPAI

RI is producing a note at the moment based on SEP and DEP submission. VE intend to follow that example.

MK noted SEP and DEP covered last year and he is not sure when we NE will be able to provide info on this breeding season.

S42 Comments on Compensation

RI highlighted key comments re compensatory measures.

Compensation – LBBG

RI provided an overview of the compensation options for LBBG.

High level and unsecured level of progress

RI highlighted progress made with regards to the compensation sites.

AD asked if full details of compensation will be provided before ES submission.

Action – RM noted VE/Gobe are working hard on-site selection and will look at what we can provide in advance.

- The project has selected four sites to survey in/ adjacent to AOE SPA.
- Further sites under consideration with no connectivity (Steep Holm and Outer Trials bank)

Habitat creation

RI agreed wording around this will be updated and shelters will be removed from the implementation plans. However, RI queried if all shelters not worthwhile?

AD – This was suggested by Norfolk Boreas will see if it is working/ worthwhile in terms of railway sleepers.

MK noted sleepers were already in the compound.

Demographic Data for Compensation Calculations

Action – AD check if there is any update on the data – see if there are

any additional years of data and revert

Adaptive Management Plans

RI noted the project will consider developing an adaptive management plan. Any further approaches to consider?

MK highlighted learning the lessons from sites in proximity. If things work, then put them in the straight away e.g., bird calls etc. Required to repost to SoS so management information should be in public domain.

Compensation – Kittiwake

RM provided an update on the compensatory measures for kittiwake. The focus is now on ANS and moving forward on a without prejudice basis. Due to low impact levels VE are focusing on collaborating with other projects – looking at the RWE Gateshead tower. For VE with the small numbers, we have got this is probably the most appropriate root for VE.

MK noted not too much to add – approach seems proportionate to the impacts from VE.

Compensation – Guillemot and Razorbill

RI highlighted that it is harder to compensate for these species, looking into small colonies for management enhancement options.

Further Questions

MK queried what the project was considering for Gannet at FFC SPA?

RI noted impact is so small and relative to SEP and DEP, we didn't think any compensation is required, does NE have any thoughts?

MK responded that it is hard to say, the rational for ruling out compensation on previous projects has been based on a growing population, this may now be under threat due to HPAI. Based on low numbers impacted, collaboration with other projects may be a good option.NE will provide further comment when the picture of the local population becomes clearer.

RI noted the impact was under one bird.

MK noted collaboration may be an option, the challenge is that it is not clear if compensation is required. SEP and DEP were looking at Portuguese waters for bycatch reduction but in the end it was agreed

	compensation isn't required. MT noted from a wildlife diseases perspective, you would not expect HPAI to continue to take a high toll, but rather the population will begin to recover and could well return to its previous size within a few years and that this should be weighed against the lifespan of the project when considering any compensation requirements. MK is not certain how it will pan out – smaller population could be sensitive to other projects potentially. RM queried how the ETG would like to engage next? Planning next set of ETGs early next year. MK noted it would be good to see documents the MT is preparing first for review, including an apportioning note from GoBe to set out what has been done and what NE would like to see. RH noted it would be good to review the compensation plan ahead of any future ETG. AG asked if we would see a draft version of the DCO? RM stated we may provide key aspects of the DCO prior to submission, action to look at what can be provided. **Action –** RM to determine which parts of the DCO can be shared ahead of submission. YF noted an action on NE to provide a combined response for compensation meetings and ETGs.	
Item 6: Statements of Common Ground	RM provided a brief overview of plans for SoCG. Working on the final template and approach.	
Actions:	For the benefit of reviewers we will take this away and provide a set of results/ info that addresses this point	MacAruther Green
	VE/ GoBe are working hard on-site selection and will look at what we can provide in advance.	VE/ GoBe
	Check if NE advises 1-10 %,	NE
	Update apportioning note to include a range	GoBe
	Check if there is any update	RSPB

on the data – see if there are any additional years of data and revert	
Determine which parts of the DCO can be shared ahead of submission.	VE

3 ETG 3 MARINE ECOLOGY, PHYSICAL PROCESSES AND WATER & SEDIMENT QUALITY

3.1 10/02/2020 PRE SCOPING MARINE ECOLOGY, PHYSICAL PROCESSES AND WATER & SEDIMENT QUALITY ETG

Minutes

Five Estuaries (Galloper Extension) – Marine Ecology & Processes ETG (1)

10 February 2020, 10.00 to 16.00
Skype Call

Participants

			Introduction	Phys Processes & WQ	Ornithology	Fish/Shellfish Ecology	Benthic Ecology	Marine Mammals
Anne Westwood	Innogy (chair)	AW	✓	✓	✓	✓	✓	✓
Cassie Greenhill	Innogy	CG	✓	✓	✓	✓	✓	✓
Tom Crawford	Innogy	TC	✓		✓			✓
Nicola Solly	GoBe Consultants	NS	✓	✓	✓	✓	✓	✓
Sammy Mullan	GoBe Consultants	SM	✓	✓	✓	✓	✓	✓
Lizy Gardner	GoBe Consultants	LG	✓			✓	✓	✓
Fraser Carter	GoBe Consultants	FC	✓		✓			
Rafe Dewar	MacArthur Green	RD	✓		✓			
Carol Sparling	SMRU Consulting	CS						✓
Rachael Sinclair	SMRU Consulting	RS	✓					✓
Tony Brooks	ABPmer	TB	✓	✓				
Andy Webb	HiDef Aerial Surveying	AWe			✓			
Martin Scott	HiDef Aerial Surveying	MS			✓			
Alan Gibson	Natural England	AG	✓	✓	✓	✓	✓	✓
Tim Frayling	Natural England	TF	✓		✓			
Rebecca Walker	Natural England	RW						
Richard West	MMO	RWe	✓	✓	✓	✓	✓	✓
Leanne Tan	MMO	LT	✓	✓	✓	✓	✓	✓
Georgina Eastley	Cefas (Fisheries)	GE	✓	✓	✓	✓		✓
Charlotte Reeves	Cefas (Shellfisheries)	CR	✓	✓	✓	✓		✓
Jacqueline Eggleton	Cefas (Benthic ecology)	JE	✓	✓	✓	✓		✓
Dafni Sifnioti	Cefas (Coastal processes)	DS	✓	✓	✓	✓		✓
Rebecca Faulkner	Cefas (marine mammals)	RF	✓	✓	✓	✓		✓
Tania Davey	The Wildlife Trusts	TD						✓
Jacqui Miller	RSPB	JM	✓		✓			
Paul Patterson	East Suffolk Council (Snr Coastal Engineer)	PP	✓	✓				
Graham Gunby	Suffolk County Council	GG	✓	✓	✓	✓	✓	✓
Andrew Rutter	Suffolk County Council	AR	✓	✓	✓	✓	✓	✓
Andrew Murray-Wood	Suffolk County Council (Snr Ecologist)	AMW	✓	✓	✓	✓	✓	✓
Aly McCluskie	RSPB	AM			✓			
Stephen Thompson	Eastern IFCA	ST	✓			✓	✓	

Apologies

Louise Burton	Natural England
Andrew Dodd	RSPB
Sarah Dolman	Whale and Dolphin Conservation
Vicki James	Whale and Dolphin Conservation
Anna Luff	GoBe Consultants
Angie de Burgh	GoBe Consultants
Mark Trinder	MacArthur Green
Elise Quinn	Eastern IFCA
Judith Stoutt	Eastern IFCA
Claire Ludgate	Natural England

Pre-meeting papers provided:

1. Introduction to Five Estuaries Offshore Wind Farm (presentation)
2. Technical slide pack (presentation)
3. Draft Terms of Reference for the Five Estuaries Evidence Plan Process
4. Initial Review Note – Physical Processes
5. Initial Review Note – Offshore Ornithology
6. Initial Review Note – Fish & Shellfish Ecology
7. Initial Review Note – Benthic Ecology
8. Initial Review Note – Marine Mammals
9. Aerial Survey Methodology – Birds & Marine Mammals
10. Draft Benthic Survey Methodology
11. TTS Position Paper

Meeting Agenda

1. Project introduction
    a. Project Overview
    b. Draft Terms of Reference for the Evidence Plan
2. Physical Processes and Coastal Flooding
3. Water Quality
4. Offshore ornithology
5. Fish & Shellfish Ecology
6. Benthic Intertidal/Subtidal Ecology
7. Marine Mammals
8. AOB

All actions are captured in bold.

Agenda Item	Minute / action	Action
1	**Introductions** AW welcomed the meeting participants and thanked them for their attendance. Round table introductions were made. AW introduced the agenda and aims for the meeting. AW noted that the project is still known as Galloper Extension Offshore Wind Farm (OWF) as the name Five Estuaries is not yet in the public domain. The agreement for lease (AfL) was awarded by The Crown Estate in August 2019. **AW to circulate technical slides to all members of the Expert Topic Group (ETG)[1].**	innogy
1a	**Project overview** AW presented an overview of the extension projects which innogy are involved in, including Gwynt y Môr Extension, Five Estuaries and Greater Gabbard Extension. AW noted that the project is in discussions with the Greater Gabbard Extension project team, but that this project is being developed jointly by SSE and innogy and is following a different programme with a separate project team). AW presented the Five Estuaries project design envelope and Area of Search (AoS) being considered for scoping – see slides 3 and 4[2]. AW explained that a project design envelope is being used to future proof the project, this envelope includes a range of wind turbine generator (WTG) sizes and up to two offshore export cables. A grid connection offer was accepted by innogy at Friston. AW presented three broad areas which have potential for the landfall– Dunwich, Sizewell and Bawdsey. AW noted that the National Grid Connection and Infrastructure Options Note (CION) process has not yet completed. This has introduced some uncertainty into the potential AoS for the export cable, however the AfL are remains fixed. It is therefore anticipated that there will be a delay to the original programme, probably in the order of six months. As a result, the publication of the Environmental Impact Assessment (EIA) Scoping Report and the Habitats Regulations Assessment (HRA) Screening Report are currently anticipated in autumn 2020. The programme will be confirmed with the stakeholders at a later date when more information is known. AW noted that	No actions were recorded

[1] Post meeting minute: The technical slide pack was circulated on 11th February 2020 via email.
[2] Of the Introduction to Five Estuaries Offshore Wind Farm presentation

	during the programme delay, innogy are seeking to progress some of the offshore topics further and as such it may be useful to have another meeting with the relevant Export Topic Groups (ETGs). It was agreed that the previously proposed meeting frequency (i.e. another prior to the publications) and correspondence was appropriate. AW noted that shapefiles of the boundaries are available on request.	
1b	**Draft Terms of Reference for the Evidence Plan** The Scoping Report is being led by GoBe Consultants Ltd. NS highlighted that the Scoping Report is being drafted at the time of the meeting however there is sufficient time to incorporate any feedback received during this meeting. NS provided a brief overview of the Evidence Plan (EP) process. She explained that it is a formal tool used to agree the information presented and approach undertaken in the EIA and Development Consent Order (DCO) application. The process provides formal structure and general rules (which are outlined in the draft Terms of Reference) under which agreement will be sought from each of the relevant parties. The project will be seeking to gain consensus on the information which informs the assessment, this will also help to reduce disagreements in the examination phase and the development of the Statements of Common Ground (SoCG). It was noted, as per the draft Terms of Reference (ToR), records of any discussions will be maintained through minutes and an agreement log. It is anticipated that this process will reduce resource requirements during the examination for all parties involved. NS presented the proposed structure for the EP for the Five Estuaries – see slide 7. She noted that all parties are welcomed to attend and join in with any additional ETGs. **All parties to inform innogy (email CG) if they would like information or to participant in additional ETGs[3].** NS presented the roles and responsibilities of the steering group and the ETGs – see slides 8. NS noted that a draft ToR (previously circulated) seeks to set out the process for engagement with stakeholders under the EP. The document includes the proposed parties, roles, responsibilities and general rules of the EP. She highlighted that the project will be seeking agreement on the ToR from each of the parties involved in the process.	All parties

[3] Post Meeting Note: PP has requested to be included in the onshore ETGs which relate to landfall.

	All parties to provide comments and/ or alterations to the draft ToR by 24th February. AW noted that the Whale and Dolphin Conservation (WDC) have been invited to join the ETG but have asked to be a correspondence member only. ST requested clarity as to where commercial fisheries will be consulted. AW confirmed that a commercial fisheries working group has been set-up with the fishermen engaged within the Galloper and Greater Gabbard (GG) OWF groups. It is felt that discussions regarding this topic are best undertaken outside the Evidence Plan due to its commercial nature. AW confirmed that Julian Gregory is attending these working groups on behalf of Eastern IFCA. SSC asked whether a draft DCO will be provided through the EP. AW confirmed that the DCO and conditions would be discussed with group as the project progresses. RWe confirmed that MMO would like to see a draft DCO at PEIR stage. PP requested to join the physical processes ETG as he has an interest in coastal processes and sediment transport in particular. SCC also requested to be included in the physical processes ETG, AW welcomed those that wish to attend the group. TF requested all documents to be provided at least 2 weeks in advance of the meetings. AW confirmed that the project will seek to do this. **SM to update the ToR with this amendment.**	All parties SM
2	**Physical Processes and Coastal Flooding** ABPmer is leading on the physical processes assessment for the Five Estuaries Scoping Report. TB explained that ABPmer undertook the physical processes assessment for the original Galloper and GG OWF EIA. TB provided a brief overview of the physical characteristics of the study area including tidal currents (generally in excess 1 m/s), waves, seabed sediments and morphology; and coastal characteristics. – see slide 2[4]. He noted that there are notable sandwaves within the region. He explained that some areas of the coastline are rapidly eroding and it is a varied coastal environment. TB set out the key baseline data sources that will be used to inform the	

[4] Note: slide numbering from this point onwards refers to the technical slides.

	assessment including the proposed geophysical survey which will be undertaken for Five Estuaries in 2020. These will include – • The previous work undertaken for Galloper and GG OWF (including the modelling work); • The post-consent monitoring for Galloper OWF; and • Publicly available data sources. See slide 3 for more details of the identified data sources. He noted that the list presented was not exhaustive. TB set out the proposed data sources in the initial review note (provided in advance of the meeting). TB requested feedback if there are any other data sources the project should consider: • DS highlighted that the UKCP18 dataset[5] includes waves and wind information which should be included in the analysis; • DS requested that transboundary effects should be considered. TB also confirmed that cumulative effects would be considered for all phases of the project; • PP suggested that the Sizewell C British Energy Estuarine & Marine Studies (BEEMS)(expected to be published in their DCO application) should be reviewed and may be available to inform the Scoping Report. TB confirmed that they will make best use of all the available information; and • PP highlighted that coastal processes studies have been undertaken between Bawdsey and Orford, and can provide a list of these. **PP to provide the coastal processes studies to be considered further within the Scoping Report and EIA.[6]** With inclusion of the data sources listed above, there was agreement that the data to be used in scoping is suitable. A discussion was held regarding any known issues at the Galloper or GG OWFs. No known issues were identified however **AG agreed to follow up within Natural England.** [The key issues identified at other sites by participants were cable exposures and potential impacts associated with Horizontal Directional Drilling (HDD) at the landfalls.] AW explained that innogy will be undertaking a geophysical survey to support the DCO application. The timing of these surveys is currently uncertain owing to uncertainty over the grid connection process, and there is a possibility that they may be undertaken as two separate campaigns (i.e. the array and export cable corridor surveyed separately). More information regarding these surveys will be covered in the benthic ecology section below.	PP AG

[5] https://catalogue.ceda.ac.uk/?q=ukcp18&sort_by=

[6] Post Meeting Note: PP provided this list by email on 11 Feb 2020, and this has been forwarded to ABPmer/GoBe.

	TB set out the proposed assessment approach, noting that the physical processes topic differs slightly from other EIA topics, as much of the focus is on pathways (linking sources to receptors), with impacts on receptors typically considered by other marine topics including water and sediment quality, benthic ecology and fish ecology. TB confirmed that the receptors for physical processes will include the coastline and seabed features (adjacent coastal banks). TB provided an overview of impacts/issues which will be considered in the assessment for the lifecycle of the project (see slide 5). He confirmed that potential changes to waves, tides and sediment transport arising from the presence of structures (i.e. WTGs) will be considered, as well as any associated impacts to identified receptors (e.g. the coast and banks). Cumulative effects (including those with other OWFs and aggregates) will be considered in the EIA (noting that the 'long list' of projects will not be produced for the Scoping Report). PP asked whether the study will include consideration of the reduction in wind energy on the lee side of an array and the potential associated effects on coastal processes. TB agreed that this would be considered and noted the topic had been looked at in recent academic literature. TB noted that the exact assessment approach will be guided by the project design but will make use of the existing evidence base from consented and operational OWFs (such as monitoring data and numerical modelling previously undertaken to support physical processes EIA). This will be augmented by analytical assessments involving, for instance, empirical equations considering scour and spreadsheet-based modelling of sediment plumes and associated deposition). He noted that these techniques have been employed successfully for analogous projects. A method statement for the EIA assessment will be submitted to each ETG and agreement will be sought through the EP process.	
3	**Water and Sediment Quality (and WFD)** This part of the meeting was presented by SM of GoBe Consultants, who will be responsible for drafting the technical chapter of the Scoping Report. SM presented the proposed baseline characterisation data (including the proposed site-specific surveys, data from Galloper and publicly available data sources). **SM will provide the study area (once defined) in shapefile format to Cefas (via the MMO). Cefas to provide any point data within the study area.** SM asked if there were any local sources of contamination that the project	**SM & Cefas**

	should be aware of. GG identified the following potential sources of contamination: • The capital dredged and disposal activities from Felixstowe port; • Ordnance within the area; • Nuclear power stations along the coast; • Sewage works upstream in Stour/Orwell; • Industrial processes including the historical contamination near Felixstowe, Harwich and Ipswich; and • An historic wreck of an oil tanker off Lowestoft. SM explained that the Scoping Report will include details of the WFD compliance assessment which will be undertaken at the preliminary environmental information report (PEIR)/environmental statement (ES) stage. This assessment will be undertaken in line with the Clearing the Waters guidance (Environment Agency, 2017). SM explained that protected sites within 2km buffer of the project boundary would be considered as per the Clearing the Waters guidance. AG suggested it would be useful to have the list of sites provided to the ETG. It was agreed that they would be provided when there is more certainty on the cable AoS. SM explained that the project intends to scope out 'the release of bentonite' as a water quality issue, on the basis that it is inert. AMW noted that a large frack out of bentonite at Martlesham Creek had cause some concerns for benthic ecology/shellfish. SM noted that the release of bentonite is not scoped out for those receptors, only for water quality. It was agreed that bentonite release could be scoped out for water and sediment quality provided that the potential for smothering benthos and impacts on the sub/intertidal habitats are explicitly considered (please see below). **AG will confirm this approach in writing after the meeting once he has checked within Natural England.** SM explained that in line with recent OWF developments it is proposed that transboundary and cumulative effects with other projects and plans will be scoped out. No concern was raised over this. SM questioned whether ETG members would like to see and discuss the findings of the stages of the WFD assessment for the project. It was agreed that these should be circulated via email to the group for discussion, and that a meeting should be convened if necessary.	AG
4	**Offshore ornithology** This part of the meeting was presented by RD of MacArthur Green who are leading on the offshore ornithology assessment for the Five Estuaries Scoping Report.	

	AW to provide the ornithology short note to SSC[7]. AW confirmed that intertidal birds will be covered under the onshore ecology ETG. TF confirmed that he would not be leading on the intertidal ornithology aspects for Natural England. RD provided an overview of the information gathered to date to inform the Scoping Report – see slide 15. RD outlined that the aerial surveys have been undertaken and are due to be completed in 2021. RD presented that several surveys have been undertaken in the area, both project specific and in the wider Thames area. RD presented the wider contextual studies in the region which can be used to inform the baseline characterisation. RD proposed to use the Woodward *et al.,* (2019) foraging ranges in the Scoping Report. RD outlined that the key species for consideration in the EIA are based on their understanding of the species present in the area. These species include Red Throated Diver (RTD), breeding tern species, lesser black back gull (LBBG), gannet, kittiwake, guillemot, razorbill and greater black-backed gull (see slide 17). RD identified that activities during all phases of the project will be considered, including disturbance (construction and decommissioning), displacement (Operation & Maintenance (O&M)), collision risk (O&M) and cumulative (and in-combination) effects – see slide 18. RD presented the main anticipated points of discussion for the assessment under the Evidence Plan – see slide 19. AMW requested that migratory non-seabird species, including passerines, should be assessed in the EIA. AMW noted that species of concern include woodcock, fieldfare and redwing. He noted their presence on the Suffolk coast and that there is a lack of information and evidence on these species. TF noted that Natural England do not usually ask for collison risk analysis of non-seabirds unless there is an indication that there will be a population level impact. RD noted that population level impacts are unlikely. **RD to consider relevant scientific information with regards to potential effects on non-seabird species (collision risk) at the population level and importance of any migratory corridors for particular species found in the wider area.**	**AW** **RD**

[7] This action was completed by AW during the meeting.

	AMW also suggested that migratory bats should be considered in the EIA. AW queried whether this would be a concern for turbines so far offshore. AMW noted a concern over migratory routes. AG noted that anecdotal information about bat migration exists but that it is not a concern which has been raised for other offshore wind projects. **AG will check with colleagues at Natural England to confirm this.** TF noted that there may be some project alone effects on the Alde Ore Estuary Special Protection Area (SPA) relating to LBBG. AW noted that Galloper OWF has been undertaking LBBG tagging surveys as part of the post-construction monitoring programme, and data from this study may be available to inform the assessment. TC explained that an interim report is available and more information on flight heights and avoidance of existing WTGs will be available towards the end of 2020. TF highlighted that Natural England's position on the parameters and approach to modelling collision risk remain unchanged from that expressed n recent OWF projects. He suggested that innogy refer to Natural England's advice for the Norfolk Boreas application since this is the most recent position. He advised that the Offshore Renewables Joint Industry Programme (ORJIP) study and the JNCC BTO follow on work is currently being reviewed by the SNCBs for avoidance rates in order for application in the Band model. The avoidance rates currently advised are outlined in the 2014 SNCB note. TF raised the likelihood of cumulative effects from collision on species where an in-combination and cumulative effect has already been identified and to which future projects would be adding. An example of the in-combination impact of kittiwake from Flamborough and Filey Coast SPA was given. Owing to this, Natural England would like the project to raise the minimum tip height as high as possible to reduce the collision risk to which the project contributes. AW explained the various factors which influence the decision to raise the tip height, including aviation restrictions, seascape, landscape and visual impact assessment (SLVIA) and will need to balance a variety of factors. However, she noted Natural England's request and that it would be considered as the project design develops. *HRA* This section of the meeting was led by FC of GoBe Consultants, who are also preparing the draft HRA screening report. The HRA screening report will be submitted alongside the Scoping Report. FC presented the proposed approach to the HRA screening – see slide 21. FC presented the four criteria which are proposed to be used in the screening of SPAs – see slide 22. FC presented that the project are proposing to utilise	AG

	the Woodward *et al.,* (2019) mean-maximum foraging ranges. AW asked whether participants are happy with the use of Woodward *et al.,* (2019) mean-maximum foraging ranges. TF confirmed that he was happy with this approach. AM suggested where colony specific data is available, it should be utilised in addition to the Woodward *et al., (*2019) ranges. TF agreed with this suggestion and highlighted that the LBBG is a good example of a dataset which could be used. TF noted that he would like to see this data (and proposed apportionment) linked to that. It was agreed to consider this in the more detailed stages of the HRA. TF asked whether others on this call are working across the Greater Gabbard Extension OWF. TF stated that the close proximity of the proposed Greater Gabbard Extension to the Outer Thames Estuary SPA is a concern since displacement of red throated diver is already at a level where Natural England cannot rule out adverse effect. AW confirmed that the project team for Greater Gabbard Extension has not yet been formed. **AW to inform the Greater Gabbard Extension team that Natural England are keen to discuss ornithological aspects as soon as possible.** *Survey methodology* AW sought confirmation that the outstanding area agreement for the aerial surveys is the level of coverage. TF explained that he was broadly happy with the duration (24 months) and the frequency (monthly). His concerns relate to: • Flight height estimation - why HiDef have indicated that their calculated flight heights are not suitable for use in the Band 1 model; • 10-15% survey coverage – what work underpins innogy's assertion that this is adequate. *Flight heights* A detailed discussion was held regarding how flight heights have been determined and how reliable the methodology is. TF requested a more detailed methodology on how flight heights are determined and why the report does not recommend reliance on the flight height distributions. MS explained that the flight height is based on the measurements of the birds within the photographic imagery (the 211-flight height methodology) and applying an algorithm. He noted that the body length is measured (as opposed to the wingspan) using multiple images (which removes contortion). TF thanked MS for presenting this method but asked why the method is not recommended or relied upon for consenting. MS noted that Natural England have not accepted the HiDef calculations previously, and this is why HiDef do not recommend their use to clients. TF stated it was not just an issue for SNCBs	AW

	– there needed to be a transparent and independent validation of whether flight height estimates using this methodology are accurate. TF requested information as to how the method will be validated, for example in comparison with the LBBG tagging work. AM agreed that if additional information was to be provided to support the validation of the flight heights, then it will provide a degree of confidence and may enable reduction in precaution in the assessments. AWe confirmed that there are known large error margins for the flight height as demonstrated in the validation. **Hi-def to review and amend the paper and provide more information/ evidence as to how the information can be validated.** AW was keen to separate the offshore wind industry level issue (i.e. acceptance of HiDef's flight height calculations) from the Five Estuaries project level issue. Innogy are proposing to present outputs from Band 1 and Band 2 modelling in the Environmental Statement. It was agreed that both Band 1 and Band 2 would be used within the PEIR and ES, and presented side by side. LBBG flight height survey data (for flight heights) should be incorporated/considered. TF requested updates throughout the EP on the continued work on the validation methods of the flight height data. *Coverage* AW presented that between 10 to 15% coverage of the area has been collected (15% coverage for 18/24 months and 10% coverage for 6/24 months). TF noted that this coverage has been used on other projects but wished to understand the basis (and analysis undertaken) on which it has been determined that it constitutes adequate coverage. AW explained that the coverage was designed to be adequate for the purposes of site characterisation based on previous experience. TF would be keen to see additional analysis in order to understand whether it is providing adequate characterisation, i.e. would the characterisation change if a higher or lower percentage was analysed. Without this information Natural England will not be able to agree coverage is adequate, and innogy would be proceeding at their own risk. *Other* SSC requested confirmation on whether the surveys are undertaken in different environmental conditions (such as weather windows, timing). It was confirmed that nocturnal surveys have not been undertaken given that they are visual surveys and that the cameras would not be able to detect birds at	Hi-Def

	night. SSC highlighted that some of the nocturnal migrating species would not be captured. AM acknowledged the constraints on when the flights can be undertaken but requested additional information on how much of a spread of the day can be captured (i.e. at different times of day). AWe noted that they would seek to capture the tidal variation over the site and that the main constraint is daylight availability (whilst avoiding sun glare). AM would like to see survey timings included with the Environmental Statement.	
5	Fish & Shellfish Ecology This part of the meeting was presented by SM and the technical chapter of the Scoping Report will be drafted by GoBe Consultants. SM provided an overview of the proposed impacts which are to be scoped in into the PEIR/ES assessment: • Disturbance from underwater noise and vibration; • Habitat loss; • Indirect effects from suspended sediments and the release of sediment contaminants; • Increased hard substrate and structural complexity; and • Impacts on fishing pressure. SM presented an overview of the impacts which are due to be considered in the PEIR/ES. SM confirmed that underwater noise modelling will be undertaken during the EIA assessment phase of the project. ST highlighted that the MMO landing data has limitations in that landings from smaller boats are not be captured. He also noted that "Sea Fisheries Joint Committee" data is actually IFCA data. GE requested that particle size analysis (PSA) is analysed in the EIA, using the marine space methodology for sandeel habitat suitability. SM agreed that this approach would be adopted.[8] GE noted that the likely key issues for fish and shellfish ecology will be disturbance from noise. She highlighted that the key stocks of concern will be the Down herring stocks (spawning season – November to January) and the	

[8] Post meeting minute: SM confirmed internally that the proposed approach for the EIA is that outlined in Latto et al, 2013 which is used to determine suitability of habitats and is also known as the marine space method.

Latto, P. L. Reach, I.S. Alexander, D. Armstrong, S. Backstrom, J. Beagley E. Murphy, K. Piper, R. and Seiderer, L.J. (2013) Screening spatial interactions between marine aggregate application areas and sandeel habitat. A Method Statement produced for BMAPA.

	Thames herring stock (spawning season February to May) rather than the timings presented (which are for the Banks herring stock). CR noted that beam trawl data are not appropriate for shellfish and requested that a specific survey for whelks and cockles was undertaken. She also noted that these species wouldn't be represented in the MMO landing data. ST highlighted that he was not aware of cockle fisheries in the area. AW agreed to identify additional landings data for whelk/cockle through the project Fisheries Liaison Officer. CR agreed that this might suffice. **GoBe to identify any available information on the cockle and whelk landings from the Fisheries Liaison Officer (FLO) and the fisheries working group, and incorporate into the Scoping Report. This should include landings and fishing activity of small boats in particular, since these are not covered by MMO landings data.** It was agreed that noise from UXO detonations should be scoped into the EIA and should be explicitly referenced in the Scoping Report. GE confirmed that no additional effects needed to be included in the Scoping Report. SM presented the items proposed to be scoped out in the Scoping Report, these included: • Direct damage (e.g. crushing) and disturbance to mobile demersal and pelagic fish and shellfish species; • Accidental pollution events resulting in potential effects on fish and shellfish receptors; and • Electromagnetic Field (EMF) effects arising from cables. ST, GE and AG disagreed with the potential effects from EMF being scoped out for further assessment, in particular for elasmobranches which are known to be sensitive. Whilst there is no evidence of significant impact they would still like to see it scoped in at this stage. **GoBe to consider approach to scoping impacts of EMF on Elasmobranch species within the scoping report and evidence base available.** AG requested further clarification as to which O&M activities would be proposed to be scoped out in the Scoping Report, e.g. cable reburial or small-scale maintenance. *HRA – fish ecology*	**GoBe** **GoBe**

	This part of the meeting was presented by LG of GoBe Consultants who will be drafting the HRA Screening report. LG presented the approach to assessing the prey species within the HRA screening – see slide 30. LG also presented the proposed approach to the Annex II species – see slide 31. The approach to HRA Screening was agreed.	

6	**Benthic Intertidal/Subtidal Ecology**
	This part of the meeting was presented by SM and the technical chapter of the Scoping Report will be drafted by GoBe Consultants.
	
	SM highlighted that there is a lot of information in the area and that a collation exercise of the information is currently underway. SM presented the available data sources which are proposed to inform the assessment. These include the characterisation and monitoring data for Galloper OWF, EUNIS level 4 model, Outer Thames Estuary Regional Environmental Characterisation and data from other local OWF developments – see slide 33.
	
	SM asked whether there were any other additional data sources which should be considered. JE noted the age of some of the datasets and suggested that a map showing the distribution of data would be useful.
	
	ST highlighted that the proposed data for the characterisation is primarily based on spot samples and may not identify the less common species. He would like to understand how much of the data is from grab samples and how much from trawl samples. **SM agreed to discuss this with AdB[9]**.
	
	AMW requested explicitly that mention of the risk of frack out/ bentonite smothering of benthos and saltmarsh habitat is included within the Scoping Report. It was agreed to include this.
	
	SM outlined the impacts to be scoped out from consideration in the PEIR/ES:
	• Noise pollution on benthic ecology during foundation installation;
	  ○ This is due to literature suggesting that benthic ecology is not sensitive to noise.
	• Accidental pollution
	  ○ This is proposed to be scoped out because a commitment will be made by the project to have appropriate plans in place, including a project environmental management plan (PEMP).
	• Indirect disturbance of benthic species from EMF generated by inter-array and export cables.
		GoBe

[9] Post meeting note: The scoping report characterisation will draw not only on point data but other regional datasets and records including the Regional Environmental Characterisation study and NBN atlas records for sensitive species.

	○ This effect is proposed to be mitigated through burial and therefore no behavioural responses are anticipated. A discussion was held around the target depth of the cable burial and whether this could be committed to. AG highlighted that additional information about the cable burial would be required to justify scoping out EMF. TC confirmed that a cable burial risk assessment (CBRA) would be undertaken post-consent. AW confirmed that a target burial depth couldn't be presented until analysis of the geophysical surveys is undertaken. ST highlighted that crustaceans may be affected by noise (as per Hawkins and Popper *et al.*) and felt that there was insufficient evidence to scope this effect out of the EIA. Cefas also confirmed that sufficient evidence would need to be presented in order to agree to scope this effect out. ST agreed to provide AW with the Hawkins & Popper paper[10]. GoBe to ensure that full evidence base for impacts of EMF and noise on crustaceans is included within the Scoping Report.[11] A discussion was held regarding the principles of the proposed survey methodology. SM presented the key design components of the survey and highlighted that there is an abundance of data available in the region and as such a targeted survey on areas of potential conservation importance was appropriate – see slide 36. JE suggested the Galloper and GG OWF surveys could be used in addition to analysis of the geophysical survey to help define targeted areas. JE also noted that sediment samples for contaminant analysis should be from surface scrap of a separate sample using appropriate gear.	ST GoBe

[10] Post meeting note: ST provided the paper to AW by email on 10/2/2020

[11] Post meeting note: ST has provided additional references for consideration within the Scoping report:

- Hutchison, Z. L., P. Sigray, H. He, A. B. Gill, J. King, and C. Gibson, 2018. Electromagnetic Field (EMF) Impacts on Elasmobranch (shark, rays, and skates) and American Lobster Movement and Migration from Direct Current Cables.
- Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2018-003.
- Scott, K., Harsanyi, P. and Lyndon, A.R., 2018. Understanding the effects of electromagnetic field emissions from Marine Renewable Energy Devices (MREDs) on the commercially important edible crab, Cancer pagurus (L.). Marine pollution bulletin, 131, pp.580-588.

	It was agreed that all parties except Natural England would provide written feedback on the proposed principles and approach to the analysis (in the provided scope document) by 16 March. Natural England will provide a response following a call with their benthic expert scheduled later in February. *HRA –benthic ecology* This part of the meeting was presented by LG and the HRA Screening report will be drafted by GoBe Consultants. LG explained that effects being considered on key receptors are the increases in suspended sediment concentration (SSC) and deposition on key species (see slide 38). No comments were made on this approach.	**All parties except Natural England**
7	**Marine Mammals** This part of the meeting was presented by RS and CS and the technical chapter of the Scoping Report will be drafted by SMRU Consulting. RS identified 3 species which are proposed to be scoped in based on surveys in the area, these are – • Harbour porpoise; • Grey seal; and • Harbour seal. RS noted that it is proposed to scope out all other species, as they are rarely present in the study area. She noted that a detailed justification will be provided for this in the Scoping Report, noting the lack of sightings from previous GyM surveys. RW agreed that the species were appropriate. No comments were made from the Wildlife Trust or Cefas. RS provided an overview of the data which is available to inform the baseline including site specific aerial surveys, Joint Cetacean Protocol (JCP), SCANS III and renewable project specific surveys in the area. She noted that there is a lot of data available in the area. See slide 41 for further details. RW noted that the 2018 SMRU overflight data along the east coast may be available in order to update the pup count for Norfolk. **RS to follow up internally on when the data will be made available and utilise as appropriate within the scoping report.** RW also highlighted the marine ecosystems research programme (MERP) data and if it is available, may be useful. CS noted reservations on the MERP data but would consider the data and discuss the concerns within the PEIR chapter.	**RS**

	RS presented the current marine mammal reference populations and the proposed abundance estimates for the EIA assessment (noting that they may be updated between Scoping and PEIR), see slide 42. No disagreements were voiced over the reference populations and density estimates. RS presented the impacts proposed to be scoped in (and out). Quantitative noise modelling will be undertaken to inform the assessment of permanent threshold shift (PTS) (injury) and disturbance (behavioural disturbance) from piling. *PTS* RS presented the proposed method for assessing PTS including the use of predictive noise modelling and the criteria presented in the guidance - Southall *et al.*, 2019. This modelling will consider both instantaneous and cumulative PTS thresholds. RS suggested that a fleeing speed of 1.5 m/s should be applied to the cumulative PTS assessment. This speed is considered to be precautionary as various studies have suggested that animals can flee at much greater speeds (and sustain them). RF recommended the use of the NOAA guidance species groups (not Southall 2019). RW stated that Natural England had no concerns which guidance was used (NOAA or Southall) so long as it was clear which was being used. RS noted that the recent guidance (National Oceanic and Atmospheric Administration (NOAA) 2016, 2018 and Southall *et al.,* 2019) suggests that noise loses its characteristics with distance and becomes impulsive noise, and so the pulsed noise thresholds are not appropriate for when they become non-impulsive. Initial studies by Hastie *et al.,* (2019) demonstrated this at two OWF sites in the UK. TD noted that this information should be used for illustrative purposes only, noting that the findings are limited (as they are based only on two sites). RS confirmed that it will be highlighted in the Scoping Report and a rationale as to how it could be used in the impact assessment will be included. RS noted that the intention is to further develop this study to include data from more sources, which may be available in time to inform the assessment for this project. *Disturbance* RS presented that the disturbance assessment should be informed by noise modelling and should include a dose response function to understand how many animals may be disturbed. RS proposed to use the Graham *et al.,* (2019) curve for harbour porpoise and Whyte *et al.,* (under review) for both seal species to be applied. RS provided an overview of the other impacts to be scoped in – see slides 43 and 44. RS noted that the potential for PTS and disturbance from UXO detonations is proposed to be assessed but not licenced at this stage. The Scoping Report will	

	note that the UXO assessment should be based on the latest data – work is on-going – and will seek to refine how to assess UXO clearance. RW highlighted that a paper is soon to be submitted soon which looks at the cumulative impacts of cable protection in the Southern North Sea SAC (which reduces harbour porpoise foraging area). RS proposed to scope out (slide 55): • Accidental pollution; • Temporary Threshold Shift (TTS); • Operational noise; and • EMF. RS explained that SMRU have prepared a non-project specific position paper on TTS which has been shared with Natural England, the MMO and Cefas. The approach of presenting TTS ranges and impact areas (but not the significance of the impact) has been agreed with Natural England on previous projects, this includes presenting the areas and ranges but not assessing their significance. RF highlighted that they would like a number of animals which could be affected by TTS to be presented within the assessment. **CS agreed to take this away to discuss with the project** but agreed it was a reasonable request. However, CS noted that it would be inappropriate to assess the significance of TTS. This was agreed by RF and RW. RS noted that there are various studies which demonstrate that marine mammals are not displaced from operational OWFs. EMF has not been shown to effect marine mammal species in UK waters from marine renewable devices. RW noted that there is a data gap associated with the larger WTGs and whether any of the round three projects are undertaking monitoring. **RS agreed to take this away to look into further.** *Mitigation* RS presented the likely mitigation measures which would be considered by the proposed development, see slide 46. RWe confirmed the MMO's guidance for the approach of UXO is to assess but also to seek to licence within the dMLs. He also confirmed that the Site Integrity Plan (SIP) should cover piling only[12]. TD noted that The Wildlife Trusts are not content with the current approach to	CS & innogy RS

[12] Post Meeting Note from Natural England states that: "The SIP should address all noisy activities, including UXO, to avoid the need for 2 SIPs (1 for main and 1 for UXO). It would be better if all the mitigation can be captured within 1 document. Though NE acknowledges the UXO will be applied for separately and will likely need a condition for a SIP, the document could be drafted as such that it is for both consents and thus reduce administrative burden and ensure clarity on the full impact and mitigation requirements."

	managing offshore wind-related UXO detonations. This is an ongoing discussion with the MMO, and is not specific to the Five Estuaries project. *Cumulative assessment* RS presented the typical types of projects which would be considered cumulatively, see slide 47. RS noted that shipping and navigation and fishing are not included in the cumulative assessment as they are considered to be part of the baseline. TD stated that WTs position is that fishing should be considered cumulatively and this will likely be provided in their scoping response. *Transboundary* RS explained that the assessment will consider the size of the management unit (MU) for the cetaceans, i.e. including across the French boundaries - see slide 48. RS presented a map of the special areas of conservation (SACs) which are of relevance to marine mammals– see slide 49. *HRA* LG presented the proposed principles for the screening of marine mammals in the HRA screening. It was agreed that these are appropriate. *Aerial surveys* AW requested confirmation that Natural England (and others) are in agreement with the aerial surveys from a marine mammal perspective. RW asked whether additional cameras could be analysed (if required) to increase the number of individuals identified to enable surface density estimates. AW noted that the costs to analyse the additional data/ cameras would be very high but that the data has been collected and therefore could be undertaken (if required). It was agreed that this could be further considered following the interim survey report. RW requested clarification on whether marine mammal experts have undertaken the marine mammal identification **AW to confirm with hi-def whether they have internal marine mammal experts.** RW requested that some contextualisation is included in the reporting of the data, such as confidence in the identification and sea state. **RW agreed to provide a list of information that would ideally be presented. AW agreed to confirm if these details could be presented in the survey report.**	AW RW & AW

	TD to provide any comments on the marine mammal survey methodology as soon as possible[13].	TD
8	AOB No issues raised.	No actions were recorded.

[13] Post meeting note: TD provided this feedback by email to AW on 10/02/2020, stating no further comments on the methodology.

3.2 12/07/2021 PRE SCOPING MARINE ECOLOGY, PHYSICAL PROCESSES AND WATER & SEDIMENT QUALITY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Marine Processes and Ecology Expert Topic Group

Location:	**MS Teams**
Date:	**12 August 2021**
Time:	**10.00 to 11.30**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Cassie Greenhill (VE OWFL)
Rachel McCall (VE OWFL)
Anthony Brooks (ABPmer)
Anna Luff (GoBe)
Katherine Jones(GoBe)
Sammy Mullan (GoBe)
Fraser Malcolm (GoBe)
Leanne Tan (MMO)
Joseph Wilson (MMO)
Nicholas French (Essex County Council)
Mark Woodger – (Essex County Council)
Georgina Eastley (Cefas - fisheries)
Joe Perry (Cefas - sediment)
Charlotte Reeve (Cefas - shellfish)
Ralph Brayne (Cefas)
Samantha Stout (Cefas)
Jacqueline Eggleton (Cefas - benthic)
John Lindsay (Environment Agency - coastal engineer)
Liam Robson (Environment Agency)
Harvey Johnson (RWE Renewables)
Liam Robson (Environment Agency)

FIVE ESTUARIES
OFFSHORE WIND FARM

Apologies

Harriet Thomas (VE OWFL)
Yolanda Foote (Natural England)
Alan Gibson (Natural England)
Tania Davey (The Wildlife Trusts)
Gemma Allsop (Environment Agency)
Christina Platt (The Wildlife Trusts)
Philip Haupt (Kent and Essex IFCA)
Dominic Bailey (Kent and Essex IFCA)
Gary Guiver (Tendring District Council)
Graham Nourse (Tendring District Council)

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COMPANY NO: Registered in England and Wales
company number 12292474

Item 1: Introductions

Introductions were made by all participants.

RM provided a project update and explained RWE have accepted the grid offer at National Grid's "East Anglia Coastal Substation" (EACS) – see slide 5. RM explained that the exact location of this substation will not be decided until Q1 2022. The array areas remain unchanged but cable landfall, onshore cable route and onshore substation will now be located in Essex and site selection work is ongoing.
RM presented the area of search (AoS) for the offshore and onshore infrastructure for Five Estuaries Offshore Wind Farm (VE) – see slides 5 and 6. RM highlighted the key constraints which are associated with the cable routing, including the Margate and Longsands Special Area of Conservation (SAC) and the Outer Thames Estuary Special Protection Area (SPA) – see slide 7. She also noted there are numerous constraints in the offshore AoS including shipping and navigation features, aggregate extraction, designations, disposal sites and existing offshore wind farms (OWFs).

RM presented the longlist of offshore cable routes which the project considered – see slide 8. The grey routes were discounted for various reasons including crossing dredged channels, aggregate sites, cable crossings and interaction with the Traffic Separation Scheme. The project sought to avoid the Margate and Long Sands SAC and noted that it was very challenging to avoid due to shipping and navigational safety constraints. She highlighted that various engagement has been undertaken with shipping and navigational stakeholders with regard to shipping constraints and safety concerns. She explained that ultra large container ships use this area through defined shipping channels (~17m deep) and therefore the area has been described to as akin to the Suez Canal. Therefore, Five Estuaries Offshore Wind Farm Limited (VE OWFL) has sought to minimise interaction with those deep water channels where possible. There is also a very busy pilotage area (which is used by pilots from Port of London Authority and Harwich Harbour Authority) which is north of the cable route. Interaction with the pilotage operations was highlighted as a potential safety concern in consultation meetings. RM also highlighted that VE OWFL are aware of the North Falls projects proposal for cable routing in a similar area in addition to the proposed National Grid SEALink project (which will connect East Anglia and Kent).

RM presented the key constraints of interest to the participants of the ETG – see slide 9. She presented the Nueconnect cable route and the two way traffic routine measure ('hockey stick'). She explained that initially the project sought to avoid the Margate and Long Sands SAC but this conflicted with the high density of pilotage operations.

	Therefore, the cable route was moved south into the tip of the SAC based on shipping and navigation safety concerns. No contributions were made from any of the attendees regarding the site selection process. RM presented the programme for the project – see slide 10. She explained that offshore surveys will be undertaken on the preferred cable route corridor and commenced in August 2021. The benthic surveys will follow the geophysical survey. The Scoping Report is anticipated to be submitted for consultation to the Planning Inspectorate in September 2021. RM explained that the ensures adequate time to address any issues raised in consultation. Specific dates are being considered for consultation on Alternatives and for PEIR publication, but an outline programme is provided on slide 12. No contributions were made from any of the attendees. RM presented the proposed scoping boundary – see slide 11. A preferred cable corridor will be presented in the Scoping Report which is encapsulated within the scoping boundary.
Item 2: Evidence Plan	FM provided an overview of the Evidence Plan process and how this is proposed to be undertaken for VE. He explained that the Evidence Plan process will document all discussions which are undertaken and will be reported within the DCO application. He explained the benefits of the Evidence Plan for all parties, including seeking to agree the evidence required for the Environmental Impact Assessment (EIA) and Habitat Regulations Assessment (HRA) – see slide 13. He highlighted the key aim of the EP is to seek to agree the key data sources and methodologies as early in the process as possible. FM presented the proposed structure and various groups of the VE Evidence Plan – see slide 14. He explained that ETGs will be held during key milestones in the pre-application process. FM explained the role of the Steering Groups was to primarily deliver the Evidence Plan and seeking to resolve any disagreements raised during ETGs – see slide 15. FM explained the role of the ETGs including providing technical and consistent advice for sufficiency of evidence required for the Environmental Impact Assessment (EIA) and the Habitats Regulation Assessment (HRA) – see slide 15. No contributions were made from any of the attendees.

Item 3: Approach to scoping	FM explained that the purpose of the EIA Scoping Report is to refine the scope of the VE EIA to ensure that all potentially significant impacts have been identified – see slide 17. This will seek to allow the EIA to focus on issues which are likely to be key considerations whilst ensuring that it remains proportionate. FM provided an overview of the consultation process for scoping – see slide 17. FM explained the proposed contents of the VE Scoping Report and its structure – see slide 18. FM noted that the VE Scoping Report is due to be provided to the Planning Inspectorate (PINS) at the end of September 2021. FM highlighted that feedback from consultees on any of the specific questions included in the Scoping Report would be greatly appreciated. MW requested clarification that the location of the EACS from National Grid would not be available to inform the VE Scoping Report. FM confirmed this was correct and highlighted that detailed studies, by technical consultants on behalf of VE OWFL, are being undertaken in the background to inform site selection.
Item 4: Marine and coastal processes	This section of the presentation was presented by ABPmer who will be leading the physical processes assessments for VE. AB noted that ABPmer were heavily involved with both the Galloper and Greater Gabbard OWF EIAs. AB explained that the array areas are in a mesotidal area and with relatively fast tidal currents. A high level of sediment mobility is present as evidenced by the presence of sandwaves both in the arrays and the ECR. He explained that ABPmer have been undertaking a seabed mobility study for VE OWFL to understand the potential changes in bed levels throughout the project life cycle. AB explained that the coastal characteristics are varied with some areas highly susceptible to erosion. AB presented the key proposed data sources which will formulate the baseline characterisation and subsequently feed into the EIA assessment (slides 21). AB explained that the project specific geophysical surveys will inform the baseline characterisation for the production of the PEIR (and subsequent Environmental Statement (ES) chapter). He also highlighted that there is a wealth of information available in the study area. He noted that consideration of climate change will also be included in the assessment– including UKCP18 projections. AB explained that the physical processes chapter will primarily focus on the pathways (rather than effects) and therefore the significance in EIA terms (for these pathways) will not be presented in the chapter

	– see slide 22. However, the information about the potential changes in pathways will subsequently inform related topics in the EIA – including benthic ecology, fish ecology and marine water and sediment quality (MW&SQ). An impact assessment on the effects of changes in physical processes on identified receptors (sand banks and coastlines), and conclusions of significance will be presented. AB presented the potential changes to be considered in the VE Scoping Report and subsequent EIA – see slide 23. He explained that the assessment of the operational and maintenance (O&M) phase tends to be focused on blockage from the presence of the infrastructure and the potential for morphological change as a result. He noted that cumulative effects will be considered including other planned OWFs (including the East Anglia projects) and aggregate sites. AB presented the proposed desk based assessment (DBA) approach to inform for the assessment of physical processes. He explained that the existing evidence base from existing OWFs including monitoring data from Galloper and will be augmented with analytical DBAs. This approach will ensure that seabed mobility and bedform recovery (e.g. following sandwave clearance) will be quantified along with their temporal recovery. He explained that it is proposed that spreadsheet modelling is undertaken to quantify suspended sediment concentrations (SSC) and the associated changes in bed levels. He explained that these models were successfully applied to numerous round 2 and 3 OWF EIAs. AB noted that scour will be quantified using empirical equations and will feed into other assessments such as the benthic impact assessment. No contributions on the proposed approach were raised by the meeting participants.
Item 5: WQ	This part of the meeting was presented by SM of GoBe Consultants, who will be responsible for drafting the water quality chapter of the Scoping Report. SM presented the proposed baseline characterisation data (including the proposed site-specific surveys, data from Galloper and publicly available data sources) – see slide 27. SM asked if there were any local sources of contamination that the project should be aware of. JP highlighted that evidence of PAHS, PCBs and novel brominated flame retardants are present in the sediments in the Thames Estuary. JP explained that Cefas hold monitoring data for disposal sites and port developments which could be used to further supplement the baseline characterisation. SM

	thanked JP for his contribution and agreed to request these data to inform the PEIR (and subsequent ES) (see actions below). SM confirmed that the project specific surveys would be collecting the full suite of Cefas Action Level 1 contaminants as recommended on the MMO's website[1] including PAHs, PCBS and organotins. This was welcomed by JP. SM presented an overview of the proposed impact to be scoped into the PEIR (slide 28) and queried if any additional impacts should be considered. No additional impacts were identified by participants. SM explained that in line with recent OWF developments it is proposed that transboundary and cumulative effects with other projects and plans will be scoped out. No concern was raised over this. SM explained that the Scoping Report will include a commitment to undertake a WFD compliance assessment which will be included in the PEIR (and subsequently ES). This assessment will be undertaken in line with the Clearing the Waters guidance (Environment Agency, 2017) and Advice Note 18 (PINS, 2017). SM explained that protected sites within 2 km buffer of the project boundary would be considered as per the Clearing the Waters guidance.
Item 6: Benthic, Subtidal and Intertidal Ecology	This section was presented by KJ of GoBe Consultants who will be leading the benthic, subtidal and intertidal scoping and EIA assessments. KJ presented the key identified data sources which have been identified to inform the PEIR and subsequent ES – slide 32. JE requested that the One Benthic tool to be utilised and to ensure that the most recent data are used. FM agreed and will ensure all data on the portal are captured. KJ presented all impacts proposed to be scoped into the EIA. She presented the potential impacts across all phases of the development – see slide 33. KJ requested feedback on any potential impacts to be scoped in. KJ presented the proposed impacts to be scoped out – see slide 34. She noted that it was proposed to scope out EMF for benthos and this is supported by current industry understanding. However, shellfish and fish will include an assessment of the impacts of EMF. JE raised that EMF should be scoped in the EIA for benthic ecology. FM agreed to consider this further and will consider its inclusion within the proposed impacts to be scoped into the EIA. KJ presented an overview of site specific surveys which includes the collection of geophysical, particle size analysis, benthic infauna

[1] https://www.gov.uk/guidance/marine-licensing-sediment-analysis-and-sample-plans

	grabs, drop down videos (DDV) and contaminants analysis – see slide 35. KJ explained that the principles and scope of the benthic survey plan had previously been provided to Natural England, Environment Agency and the MMO (and Cefas) for comment were agreed. JE queried how the epifauna components will be characterised noting that they are bit yet included in the OneBenthic tool. FM confirmed that the epifaunal will rely on the DDV information and presence will be recorded. JE highlighted that data from previously collected samples should also be used in the characterisation. FM agreed and will ensure that survey data from existing projects in the area will be considered including any existing beam trawls.
Item 7: Fish and shellfish ecology	This section was presented by AL of GoBe Consultants who will be leading the fish and shellfish ecology scoping and EIA assessments. AL presented the key aims of the baseline characterisation and the identified data sets – see slides 37 to 39. The key datasets proposed include Galloper OWF ES (and supporting data) and other developments, spawning maps, International Herring Larval Survey data and, the Kent and Essex IFCA data and reports. She explained that PSA data will be used to inform the potential for spawning. She noted that the identified data provided a comprehensive data set for fish and shellfish. As such no additional VE surveys are proposed. Cefas fisheries advisors were content that no additional fisheries surveys are required to inform the site characterisation for fisheries and fish ecology (with the exception of sediment grab samples to be collected as part of the benthic surveys, which will be used for PSA to inform seabed habitat suitability for herring and sandeel). AL presented the proposed impacts to be scoped into the EIA for each phase of the development – see slide 41. CR highlighted that direct impacts/ damage on shellfish for sedentary species should be included[2]. AL agreed to consider this further outside the meeting. GE agreed with CR and noted that it would be particularly important during construction. AL presented the proposed impacts to be scoped out – see slide 42. GE noted that there is limited data on the Thames stocks but offered to provide (if available) copies of Cefas' data and recent advice.

[2] Post meeting note: Cefas fisheries advisors do not support the scoping out of direct impacts/ damage for fish for the EIA. They have provided further comments on this in our scoping advice (Consultation 1, dated 20th October 2021) which also highlights their concerns regarding other impacts which have also been scoped out for various stages of the development.

	NF raised the local oyster farm industry and that it was a key consideration in the Bradwell B consideration. This information was welcomed by VE OWFL and will be explored further.	
Item 8: Principles to HRA	FM confirmed that a HRA Screening report will be circulated along a similar program to the VE Scoping Report. This report will report the Stage 1 LSE test for any relevant National Site Network (NSN) designations. FM explained that to identify NSN sites were to look at sites with benthic qualifying features within 50km of the offshore scoping boundary. Once the long list had been identified then increases in SCC (a precautionary zone of influence (ZoI) of 20 km was applied) were then considered for connectivity. FM presented a map of the sites which have been screened in for LSE with benthic qualifying features – see slide 45. No transboundary sites which benthic qualifying features within the 20 km ZoI were present. FM explained that effects on Annex II migratory fish species have been considered in the HRA Screening report. The approach to screening considered a 100 km buffer and considered any upriver species of relevance to the assessment. He outlined the key prey species effects that have also been considered. FM presented a map of the sites which have been identified within 100km of VE – see slide 47. He noted there were no UK sites but there were transboundary sites identified which are designated for lamprey and shad. Further detail on Likely Significant Effects on these impacts will be presented in the HRA Screening. No comments from participants were made on this agenda item.	
Item 8: Any other business	No comments or discussions raised.	
Actions:	To provide a method statement for the proposed approaches for the physical processes assessment	ABPmer

3.3 20/07/2021 PRE SCOPING MARINE MAMMALS ETG

MINUTES

Marine Mammals Expert Topic Group

Location:	**MS Teams**
Date:	**20/07/21**
Time:	**09:30 – 10:30**

Attendees

Cassie Greenhill (CG)	Five Estuaries Offshore Wind Farm Ltd (VE OWFL)
Rachel McCall (RM)	VE OWFL
Fraser Malcolm (FM)	GoBe Consultants
Sammy Mullan (SM)	GoBe Consultants
Rachael Sinclair (RS)	SMRU Consulting
Yolanda Foote (YF)	Natural England
Alan Gibson (AG)	Natural England
Ophelie Humphrey (OH)	Natural England
Leanne Tan (LT)	Marine Management Organisation (MMO)
Joseph Wilson (JW)	MMO
Rebecca Faulkner (RF)	Cefas
Christina Platt (CP)	The Wildlife Trusts

Apologies:

Harriet Thomas (VE OWFL)

Introductions	Introductions were made and the agenda for the meeting was presented.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Project update	RM presented the area of search for the offshore and onshore infrastructure for Five Estuaries Offshore Wind Farm (VE) – see slides 4 and 5. RM highlighted the key constraints which are associated with the cable routing, including the Southern North Sea Special Area of Conservation (SAC) and the Outer Thames Estuary Special Protection Area (SPA) – see slide 6. RM provided a project update and explained RWE have accepted the grid offer at National Grid's "East Anglia Coastal Substation" (EACS) – see slide 7. RM explained that the exact location of this substation will not be decided until Q1 2022. The array areas remain unchanged but the area for the export cables is still to be defined to enable connection to the new substation. RM presented the proposed scoping boundary – see slide 8. A preferred cable corridor will be presented in the Scoping Report which is encapsulated within the scoping boundary.	

Actions	**No actions were taken for this agenda item.**	**N/A**
Programme update	RM presented the programme for the project – see slide 7. She explained that offshore surveys will be undertaken on a corridor and due to commence in Q2 2021. The Scoping Report is anticipated to be submitted for consultation to the Planning Inspectorate in September 2021. RM explained that the programme is currently under review to ensure there is adequate time to address any issues raised in Section 42 for the Environmental Statement (ES). Revised dates are being considered for consultation on Alternatives and for PEIR publication. No contributions were made from any of the attendees.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Evidence Plan Process	RM provided an overview of the Evidence Plan process and how this is proposed to be undertaken for VE. She explained the benefits of the Evidence Plan for all parties, including seeking to agree the evidence required for the Environmental Impact Assessment (EIA) and Habitat Regulations Assessment (HRA) – see slide 9. RM presented the proposed structure and various groups of the VE Evidence Plan – see slide 10. She explained that the majority of the Expert Topic Groups (ETGs) have been scheduled over July/August 2021 with a few needing to be re-scheduled owing to availability. RM explained the role of the steering groups including primarily delivering the Evidence Plan and seeking to resolve any disagreements raised during ETGs – see slide 11. RM explained the role of the ETGs including providing technical and consistent advice for sufficiency of evidence – see slide 11. RM explained that the Terms of Reference for the Evidence Plan have been provided to the Steering Group members initially. The document will be amended and subsequently circulated for other members of the Evidence Plan. No contributions were made from any of the attendees.	
Actions	**To provide a revised version of the ToR to all parties of the Plan.**	**CG**
Previous EPP update	RM presented the previously agreed aspects – see slide 14. These included species to be scoped in, use of the 2018 SMRU overflight, the approach to Temporary Threshold Shift (TTS) in the EIA, approach to screening marine mammals for the HRA and for the project to investigate noise monitoring for larger turbines. No contributions were made from any of the attendees.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Approach to scoping	RM explained that the purpose of the EIA Scoping Report is to refine the scope of the VE EIA to ensure that all potentially significant impacts have been identified – see slide 13. RM provided an overview of the	

	consultation process for scoping. RM explained the proposed contents of the VE Scoping Report and its structure.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Marine Mammal baseline	This part of the meeting was presented by RS and the technical chapter of the Scoping Report will be drafted by SMRU Consulting. RS identified 3 species which are proposed to be scoped in based on surveys in the area, these are – • Harbour porpoise; • Grey seal; and • Harbour seal. RS noted that it is proposed to scope out all other species, as they are rarely present in the study area. She noted that a detailed justification will be provided for this in the Scoping Report, noting the lack of sightings from site specific surveys. RS provided an overview of the data which is available to inform the baseline including two years of site specific aerial surveys, Joint Cetacean Protocol (JCP), SCANS III and renewable project specific surveys in the area. She noted that there is a lot of data available in the area - see slide 15 for further details. RS explained that it is proposed that the habitat preference maps (Carter et al., 2020) will replace the at-sea usage maps for harbour and grey seals (Russell et al 2017) as these are considered the best source of data. RS presented the current marine mammal reference populations (the appropriate management units) and the proposed abundance estimates for the EIA assessment (noting that they may be updated between Scoping and PEIR), see slide 16. No disagreements were voiced over the reference populations and density estimates. **Impacts to be scoped in** RS presented the impacts proposed to be scoped in – see slide 17. Quantitative noise modelling will be undertaken to inform the assessment of permanent threshold shift (PTS) (injury) and disturbance (behavioural disturbance) from piling. A dose response approach is proposed for disturbance. Population modelling will be undertaken if a significant effect for the project alone is identified in the EIA. RS presented the proposed method for assessing PTS including the use of predictive noise modelling and the criteria presented in the guidance for both piling and UXO - Southall et al., 2019. No disagreements over the criteria were voiced. SMRUC stated that they would use noise modelling to quantitatively assess disturbance, if the relevant information was available. If the	

information was not available, then they would use the EDRs. No disagreements to this proposed approach were voiced. It is proposed that the latest scientific evidence will be used to support the disturbance on marine mammals from vessels (e.g. vessel disturbance data from the Moray Firth – Benhemma-Le Gall et al, in review).

RM explained that the project's preference is to assess UXO in the EIA but not seeking to licence UXO detonation within the DCO/dML. LT agreed that this approach is consistent with the majority of recent projects. AG explained that NE's preference would be to assess but not licence owing to the uncertainties until the post-consent phase. AG explained that EA1N/2 have taken a slightly different approach and have sought to licence UXO detonation. LT highlighted that a SIP will be required – RM agreed. AG highlighted that the SIP becomes very complicated if UXO are licenced under the DCO and would require many revisions or schedules.

Impacts to be scoped out

RS proposed to scope out (slide 18):

- Accidental pollution on the basis of the implementation of the appropriate plans (MMMP, CoCP, MCMP etc);
- Operational noise – scientific evidence indicates that marine mammals actively forage in operational OWF and so are not being disturbed; and
- EMF – EMF has not been shown to effect marine mammal species in UK waters from marine renewable devices.

OH recommended that operational noise should not be scoped out, as operational turbines as the data available on the noise levels of operational turbines is from notably smaller turbines (<6MW) than those being proposed for this project. RF was also supportive of this. RS agreed to scope in this impact and keep under review if new data becomes available in respect of larger operational turbines.

RF explained that there is a risk of PTS for other construction activities, including dredging. RS agreed that this could be scoped into the EIA however she anticipates that it will not be significant in EIA terms.

Mitigation

RS presented the likely mitigation measures which would be considered by the proposed development, see slide 19.

AG highlighted that conditions for the use of a MMMP for UXO should not be included in the dML. He requested whether there will be a co-operation plan with NF to avoid simultaneous piling of the two projects. He highlighted that this was secured by EA1N/2 as a condition in the dML. RM discussed that VE will review the status of other activities occurring within the SAC as part of the development of the piling plan, highlighting that NF and VE are separate legal entities and will seek to co-operate where possible. RM agreed to review the EA1N/2 dML

	condition as suggested by AG. AG asked whether the project will consider simultaneous piling (for the project alone). RM & RS explained that this is likely to be included in the project envelope and so would form the spatial worst case for piling PTS and disturbance in the EIA. AG raised concerns over the potential for simultaneous piling and/ or piling and UXO detonations occurring at the same time. ***Cumulative assessment*** RS presented the typical types of projects which would be considered cumulatively, see slide 20. RS noted that shipping and navigation and fishing are not included in the cumulative assessment as they are considered to be part of the baseline. No contributions from parties were made on the proposed cumulative sources. ***Transboundary*** RS explained that the assessment will consider the size of the management unit (MU) for the cetaceans, i.e. including other EU countries - see slide 21. No contributions from parties were made on the potential scale and transboundary SACs.	
Actions	**No actions were taken for this agenda item.**	**N/A**
HRA Screening	This part of the meeting was presented by FM and the HRA Screening report will be drafted by GoBe Consultants. FM explained that the HRA Screening Report will be submitted alongside the EIA Scoping Report. The Screening Report will present the Likely Significant Effects (LSE) test, identify features within the zone of influence of the project and identify transboundary impacts – see slide 22. The HRA screening report will be prepared in line with Advice Note 10. FM presented the proposed approach to marine mammal HRA screening – see slide 22. He explained that harbour porpoise SACs within the North Sea MU and all bottlenose dolphin SACs within the Greater North Sea MU will be Screened. For seals all SACs within the south east management unit will be screened, additionally the screening exercise will also consider SACs or SCIs where there is evidence of connectivity between the project Zone of Influence and each seal species. OH requested clarification on the MUs for grey seals . FM confirmed the first step would consider sites within the SE England MUs, however, where there is evidence of connectivity from sites further afield these will also be screened. FM presented the identification of all of the SACs which are proposed to be considered within the HRA Screening – see slide 24. FM presented that the potential for LSE will consider: • Underwater noise; • Vessel disturbance; • Collision risk;	

	• Accidental pollution; • Changes to prey; • Habitat loss; and • Disturbance of seals at haul out sites.	
Actions	**No actions were taken for this agenda item.**	**N/A**
AOB	CP asked whether the requirement for marine mammal monitoring has been considered. FM explained that as the project is in the initial stages no requirements for monitoring have been identified yet. However, he explained that the requirements for monitoring will be discussed under the Evidence Plan as the EIA develops. CP also requested that there may be benefits from having collaborative marine mammal monitoring between VE and North Fall projects. It was agreed to be considered further as the project develops.	
Actions	**No actions were taken for this agenda item.**	**N/A**

3.4 09/12/2021 POST SCOPING MARINE ECOLOGY, PHYSICAL PROCESSES AND WATER & SEDIMENT QUALITY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Marine Processes and ecology ETG

Location:	**MS Teams**
Date:	**9 December 2021**
Time:	**14.00 – 16.00**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Rachel McCall (VE OWFL) (RM)
Harriet Thomas (VE OWFL) (HT)
Tracey Champney (MMO) (TC)
Liam Robson (Environment Agency) (LR)
John Lindsay (Environment Agency) (JL)
Jeremy Pile (Environment Agency) (JP)
Mark Woodger (Essex County Council) (MW)
Nicholas French (Essex County Council) (NF)
Nadine Balmond-Atchinson (Natural England) (NBA)
Magnus Axelsson (Natural England) (MA)
Yolanda Foote (Natural England) (YF)
Alan Gibson (Natural England) (AG)
Philip Haupt (Kent and Essex IFCA) (PH)
Georgina Eastley (Cefas) (GE)
Maria Gamaza (Cefas) (MG)
Fraser Malcolm (GoBe) (FM)
Sammy Mullan (GoBe) (SM)
Kat Jones (GoBe) (KJ)
David Lambkin (ABPmer) (DL)

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WEBSITE: www.fiveestuaries.co.uk
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Windmill Hill Business Park
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COMPANY NO: Registered in England and Wales
company number 12292474

FIVE ESTUARIES
OFFSHORE WIND FARM

Apologies

Anna Luff (GoBe)
Anthony Brooks (ABPmer)
Tracey Siddle (VE OWFL)
James Carr (Environment Agency)
Leanne Tan (MMO)
Christina Platt (TWT)

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Item 1: Introductions and aims	FM welcomed all participants to the meeting and thanked them for their scoping responses. Round table introductions were made. FM explained that the Evidence Plan ToR comments requested that contact details were shared between ETG members. He asked if there were any parties that would like their contact details redacted and/ or not circulated. It was agreed that all participants are happy to have their contact details shared with other members of the ETG. The aims of the meeting were presented by RM. These were: • Discuss key points raised in the Scoping Opinion (SO); and • Agree next steps for areas of outstanding disagreements.
Item 2: Project update	RM presented the geographical location of VE relative to the Galloper, Greater Gabbard and the North Falls offshore wind farms (OWF). RM explained that VE is being developed by RWE, Macquarie led consortium, Siemens Financial Services, ESB and Sumitomo. This means that VE is a separate commercial project and entity from North Falls, despite RWE being shareholders in each. RM presented the various forms of consultation undertaken to date and those proposed as the project develops. She explained that the consultation of the EIA Scoping report and the HRA screening report are complete. The Scoping Opinion was received on 12th November 2022. She explained that the onshore ETGs will be held in Q1 2022. RM highlighted that the first VE newsletter[1] is now available and further newsletters will be produced throughout the project. Public informal engagement will be undertaken in Q2 2022 which will focus on the onshore aspects of the development. RM explained that the benthic surveys have been completed and the geophysical surveys are nearing completion. She explained that a matrix was undertaken to inform the selection of the benthic sampling locations. The winter shipping and navigation radar survey will be undertaken in January 2022, following the completion of the geophysical survey. RM explained that the PEIR is anticipated to be published in Q4 2022 with the DCO application planned for Q3 2023. RM presented the indicative project programme for VE – see slide 7.
Item 3: Benthic and geophysical surveys	RM and FM presented this section of the meeting. RM explained that the geophysical surveys are well progressed and a grid using all equipment has been produced to inform the benthic survey. The side scan sonar (SSS) and multi-beam (MBES) is on-going due to weather delays. There will be 100% coverage of SSS and MBES in the export cable corridor (ECR) and arrays.

[1] https://fiveestuaries.co.uk/category/newsletters/

RM explained that the benthic surveys were completed in November 2021. The surveys were undertaken in accordance with the agreed scope of works provided to ETG members earlier in 2021.

FM presented the rationale utilised to identify benthic sampling locations. The samples sought to be representative across the full survey area and within areas of distinct acoustic reflectivity based on the SSS data. Day grab stations were selected in areas where SSS indicated greater fine sediment or mud content for contaminants analysis. The drop down video (DDV) locations were allocated based on the likelihood of features of conservation being present or hard substrate that would prohibit grab sampling. FM explained that visibility in the inshore areas has been problematic, but some footage in the survey area was successfully collected. The rationale applied for selection of the sample stations was consistent with the scope provided to Natural England, Cefas and the Marine Management Organisation.

Slide 12 presents the sampling locations within the survey area. Two day grabs were taken in the inshore coastal waters and the remainder were then spread at a relatively equal distribution throughout the survey area taking into account the potential presence of finer sediments.

FM presented some representative sample locations – see slides 13 to 16 and the associated grabs undertaken. He detailed the rationale applied to the selection of these representative benthic samples.

MA asked about the quality of the DDV imagery obtained. FM confirmed that a still survey image has been examined and they were quite clear further offshore. The images are very mixed inshore, and some stations do not have useable images.

Natural England expressed a concern regarding the time of year the survey was carried out (i.e. November 2021). This concern particularly related to the DDV surveys, since they were undertaken in November 2021, with poor visibility, low quality imagery, and a small number of images/video footage clips obtained, in addition to the high percentage of sites with no imagery at all. Natural England also asked whether Five Estuaries would undertake any further survey work at a different time of year to ensure collection of good quality data and to improve the coverage.

FM explained that Fugro have done a lot of surveys in the area and were not able to obtain clear images in the summer months either at similar locations. Therefore, imagery collected in another season is unlikely to be any more successful given the naturally turbid environment and therefore there were no further DDV surveys planned pre-consent. MA asked whether a standard camera or freshwater lens had been used. FM confirmed that where visibility was poor, a freshwater lens was used but in some cases was still unsuccessful.

Item 4: Physical processes

FM asked whether the attendees wished to raise any key issues detailed in their scoping responses. No contributions were made.

DL presented those specific physical processes scoping responses that were provided by Natural England, MMO, the Environment Agency, Essex County Council (ECC) and Historic England. DL thanked all attendees for their feedback to date.

DL presented the key themes of the scoping responses:

- The extent of the study area and the associated justification for the extent of the Zone of Interest;
    - He explained that it is a large area currently which will be refined.
- Sufficiency of the baseline information;
- Geophysical survey specification;
    - DL noted that it is a key dataset for the physical processes assessment.
- The Shoreline Management Policy at the landfall.
    - DL noted agreed that the policies will be considered in the assessment.
- The justification for no new numerical modelling for both suspended sediment concentrations (SSC) and blockage effects.
- Cumulative blockage effects with Galloper and Gabbard.

DL provided an overview of the baseline understanding of the seabed – see slide 22. He noted that the geophysical survey will provide 100% coverage of SSS and MBES in the array areas and the ECR. These data will be used to map and quantify the sediment type and, the distribution and presence of features.

Geotechnical data from the Greater Gabbard and Galloper projects will be used to characterise the underlying sediments and to validate the sub-bottom profiler (SBP) data being collected as part of the VE geophysical surveys.

DL explained that the offshore area is a highly and intensively surveyed area for the purposes of navigational safety. DL presented the existing data from the UKHO, Galloper OWF and EA LiDAR data (see slide 23) which can be used to validate the site specific data and provide information on the mobility of the seabed. DL stated that these data in conjunction with the site specific survey data will provide sufficient information for a robust characterisation for the purposes of EIA.

YF enquired whether there is an intention to undertake geotechnical sampling data offshore. RM confirmed that offshore geotechnical surveys are not planned. However, a cable burial risk assessment (CBRA) is currently being undertaken which will be informed by the geophysical data, sub-bottom profiler (SBP) data, and the existing Galloper geotechnical data. RM explained that geotechnical samples are

undertaken post-consent as they are extremely expensive and data needs to be collected for the specific foundation locations to facilitate pile design. The position of the WTGS will be unknown pre-consent. Therefore, it would be inappropriate and of limited value to be undertaken pre-consent when there is various data for the surrounding area as well as site specific SBP data and particle size analysis. RM queried what benefits it is expected that collecting geotechnical data at this stage would provide.

YF asked about the geotechnical data distribution from Galloper and how close these cores are to VE. YF suggested that these would be required to validate the geophysical data. It was agreed that the geotechnical data from Galloper would be used for validation purposes. RM stated that geotechnical data will not be collected for VE pre-consent and added that the surface sediments will be ground truthed from grabs, allowing the validation to be extrapolated to surrounding areas and SBP data has been collected to provide details of sediment horizons beneath the surface sediments. In addition, assumptions can be made with regards to grain sizes for assessment of sediment plumes and deposition.

JP asked confirmation that SBP would be undertaken. RM confirmed that SBP has been collected to provide an indication of sediment horizons below the surface.

Evidence Based Assessment methodology

A method statement detailing the proposed Evidence Based Assessment (EBA) was submitted to the ETG on 23rd November 2021 for review prior to the meeting. Written comments on this paper are due by 21st December 2021 – see actions.

DL provided an overview of the EBA approach for waves, hydrodynamics and impacts caused by sediment plumes – see slide 25. He explained the sediment spreadsheet models would quantify the dilution and dispersion of sediment plumes and will be informed by representative conditions from the site. An EBA assessment will be undertaken for scour, sandwave levelling and cable protection. DL explained that there is some evidence of sandwave recovery within the study area.

DL highlighted that the landfall will be assessed using a DBA by an experienced geomorphologist.

YF noted that modelling of sediment plumes and deposition provide good visualisations of the areas of impact. DL explained that advice provided on other projects will be adhered to, such as providing visualisations of the extents and suspended sediment concentration (SSC) results based on the spreadsheet models. The impacts on currents will be highly localised in the near vicinity of the foundations. DL explained that EIAs are undertaken on worst case assumptions and when modelled analogous projects do not demonstrate measurable effects. Therefore, it is unclear why modelling

would be required. No further rationale for the requirement for modelling was provided.

DL presented wind and wave roses (see slide 26) and explained that it is rare that waves come from east and south-east, which could theoretically result in changes in waves at the coast and adjacent sandbanks, having been attenuated by the array. DL explained that the array is not aligned to the coastline with respect to the dominant wave directions (which are from the north and south). DL also noted that both Greater Gabbard and Galloper wind farms are located either on or immediately adjacent to sand banks and that, as far as is known, no adverse effects to bank morphology have been observed.

YF requested whether there is any modelling which could be used to justify why further modelling isn't required. DL explained that the EBA methodology has been applied on numerous OWFs with information in the public domain for both consented (including Hornsea Three). Further details and links to the Hornsea Three information are provided in the position paper – see actions. DL encouraged YF to access the information in the public domain and the links for this information are provided in the EBA paper. He also noted that constructed projects which used the EBA methodology have not recorded effects greater than those presented in their EIAs for physical processes.

JP asked what the traffic separation scheme (TSS) and gap it creates between turbines, reveals in terms of impacts on physical processes. DL explained that monopiles are relatively wide spacing and models would indicate that there would be no measurable effect on wave climate through the OWFs or the TSS. YF asked if the presence of the windfarms or TSS are measurable in the wave data and data collected after construction of Galloper and Greater Gabbard. YL suggested further metocean data should be collected for the VE site. DL noted the large distance from coastline, meaning any changes to waves at the coast would be immeasurable – for this reason the EBA is considered appropriate, and no further data collection is required. DL directed the attendees to the Awel y Mor PEIR[2] where there are lots of windfarms, closer to shore, and there is no measurable effects on wave height at the coast. The Evidence (and modelling) has consistently shown this to be the case, and this will be presented in the EIA. DL agreed to collate information and present prior to the next ETG. A full justification for this position is provided in the position paper. RM asked if there are any particular concerns over NE requesting additional data. YF confirmed that there is nothing specific.

YF asked that nearby receptors at the coast be considered along with sandbanks and designated sites. DL agreed this would be done as standard practice.

[2] https://exhibition.awelymor.cymru/peir/

YF wished to ensure there is sufficient data to ensure that there is an adequate baseline characterisation. DL reassured her that extensive hindcast models exist which will be used to describe the baseline environment. RM raised that post-construction monitoring confirms that the impacts on physical processes are highly localised. RM requested any information the ETG can provides that suggests this may not be the case. ETG advised they currently have no specific evidence as little monitoring post construction is undertaken for recent projects but would provide any that comes up where they can. AG noted round 1 and 2 project monitoring is now quite old and recommend caution. AG explained that no recent projects have been monitored and so no effects have been measured.

YF requested that anticipated maximum sediment plume spatial extent, concentration, persistence and related bed level changes be shown visually on representative locations on the export cable route particularly in relation to Margate and Long Sands SAC, nearshore, the Hamford Water SPA and in the array. YF requested that where applicable, concurrent activities should be assessed. DL agreed that concurrent activities would be assessed based on the spreadsheet modelling. Furthermore, it will be possible to provide illustrations to inform the assessments and the interpretation. YF requested that they also show the sensitive receptors in relation to the plumes. This was agreed.

YF requested that a clear explanation of the pathways is provided in the PEIR chapter. In addition, she requested that receptors should consider designated sites (such as Margate and Long Sands SAC) if there is a potential impact pathway.

YF highlighted that an assessment of the ancillary infrastructure at the landfall will be required and assessed for the lifetime of the project. DL agreed that once developed the project design will be examined and assessed for any potential nearshore activities and infrastructure. YF highlighted concerns of the presence of cable crossing on the hydrodynamics and sediment transport. DL agreed that cable crossings will be considered in the PEIR. RM confirmed that there are no cable crossings proposed in Margate and Long Sands SAC.

YF requested confirmations whether VE were intending to make a commitment to not install cable crossings in the nearshore/or shallow water. RM explained that a commitment hasn't been made at this stage but will be reviewed against other constraints as the project progresses. It was agreed that the worst case would be assessed in the absence of a commitment.

Cumulative assessment

DL presented the OWFs within the study area including operational and proposed projects – see slide 27. He explained that proposed (but as yet unbuilt) projects will be considered in the cumulative assessment as

	standard. He proposed to present the baseline with built OWFs and the cumulative assessment with all built and proposed OWFs. DL sought agreement on this approach and noted that a justification is provided in the EBA position paper. JP stated that his preference was for the baseline to have no OWFs. YF and JP agreed to provide a position in writing following review of the EBA position paper. **Next steps** DL presented the proposed next steps for the physical processes assessment including review of geophysical survey data, preparing the technical baseline, review of modelling outputs and prepare the PEIR. No comments were made on the proposed next steps. GE noted that a Cefas coastal processes expert was not in attendance. It was agreed that slides and minutes to be provided for comment – see actions.
Item 5: Marine water and sediment quality	SM stated that the SO included responses from Natural England, the MMO and the Planning Inspectorate with regard to marine water and sediment quality. She requested confirmation that Environment Agency had no comments on the marine water aspects. LR confirmed that the Environment Agency had not commented at this stage. SM confirmed that a WFD assessment will be prepared to support the PEIR and DCO application. No comments were made by attendees. SM confirmed that a disposal site characterisation report will be prepared to support the DCO application. She confirmed that the MMO (and Cefas) would be consulted to ensure that the proposed disposal site(s) (when determined) do not overlap with any open disposal sites etc. No comments were made by attendees. SM provided an overview of the agreed positions for Marine Water and Sediment Quality (MWSQ): • The requirement to undertake sediment contaminant analysis to inform the risk of contamination present; • The Applicant has agreed to scope in the potential for deterioration in water quality during the O&M phase; • The Applicant has agreed to scope in the potential for deterioration in water quality cumulatively with other plans and projects; • Transboundary impacts have been scoped out of the EIA for MW&SQ; and • The potential for the spread of invasive non-native species (INNS) will be considered explicitly in the WFD assessment. No explicit areas of disagreement have been identified to date – see consultation log. No comments were made by attendees.

	SM presented the justification for securing the provision of a Project Environmental Management Plan (PEMP) through a condition in the deemed Marine License in order to provide certainty for stakeholders. She explained that an outline PEMP would only have limited information and therefore would be of limited value. AG agreed to provide a written response for the requirement to submit an outline PEMP as an application submission. SM provided an overview of the next steps for the assessment including reviewing the contaminant sampling data and preparation of the PEIR chapter. No comments were made by attendees. SM offered to provide a written submission to the ETG detailing the findings of the screening and scoping for the WFD assessment. No comments were made by attendees.
Item 6: Benthic ecology	KJ provided an overview of the key feedback received on benthic ecology in the SO. These included: • Agreement on the majority of impacts scoped in; • Inclusion of SPA designations which support bird features; • Accidental pollution to be scoped in; • Information on UXO to be included; and • Transboundary INNS to be scoped out. KJ requested confirmation that converting the biotopes codes into the EUNIS equivalent was acceptable by all ETG members. TC agreed to confirm this but agreed in principle – see actions. KJ provided an overview of the key comments for discussion in terms of benthic ecology. KJ highlighted that VE OWFL consulted with NE, MMO and Cefas on the scope of the benthic surveys in the summer. MA raised concerns over the number of samples where high quality DDV imagery was acquired noting the earlier comment that visibility was limited inshore. He enquired if further DDV surveys were planned FM confirmed there is no intention to collect any further data and noted that it is a particularly turbid area and difficult to obtain imagery. He added that additional surveys would provide limited value for the purposes of baseline characterisation as the representative habitats have been appropriately sampled. He also highlighted that the survey scope was agreed prior to the mobilisation of the survey with the MMO (and Cefas) and Natural England. RM asked if there were any concerns over the survey strategy utilised to characterise the baseline. MA confirmed that his concerns related to the potential lack of imagery at the DDV stations rather than the survey more generally. RM explained that the geophysical data, SBP, and PSA grabs

	are sufficient for the purposes of characterisation. The DDV imagery were to validate areas identified as being high risk of being particularly sensitive habitat/habitat of conservation importance from the SSS data. Therefore, in the absence of confirmation the assessment will be undertaken on a precautionary basis. MA confirmed this query was regards to ensure there was sufficient DDV imagery rather than the survey strategy. RM also confirmed that 11 out of 20 DDV were successful, and no further surveys are planned. KJ presented that the Planning Inspectorate have agreed that INNS as a transboundary effect may be scoped out of the EIA. However, if there is a risk of significant transboundary effects then these would be considered further. TC agreed in principle with this rationale but would confirm – see actions. KJ provided an overview for the next steps for the benthic ecology assessment – see slide 40. No comments from participants were made.
Item 7: Fish and shellfish ecology	FM explained that scoping responses were received from the Planning Inspectorate, Natural England and the MMO (and Cefas). The scoping responses were largely in agreement with the Scoping Report. However, the following impacts are requested to be scoped into the EIA: • Direct damage and disturbance to mobile demersal and pelagic fish and shellfish species (all phases); • Operational impacts from underwater noise and vibration; • Operational impacts from SSC and deposition; and • Temporary habitat loss/physical disturbance (all phases). FM agreed to scope in the impacts from SSC and deposition during the operational phase into the EIA – see consultation log. FM confirmed that the potential for INNS to colonise installed infrastructure will be considered under the increased hard substrate impact. No comments were made by attendees. Seabass was identified as a key species in the SO. VE will undertake a review to understand the distribution and seasonality of seabass. These will be presented in the PEIR. No comments were made by attendees. FM sought clarification on "*to the direct removal of shellfish from the fishery*". He explained that the proposed activities do not require the direct removal of shellfish, but any removal or mortality would be inherently considered in the PEIR under the 'Direct damage (e.g. crushing) and disturbance to mobile demersal and pelagic fish and shellfish' impact. GE agreed to seek clarification from Cefas colleagues – see actions. Post meeting minute: Cefas confirmed via email (19/01/22) – "By direct removals from the fishery, we are referring to any mortality caused to shellfish as a result of the work, therefore reducing the numbers of shellfish available to the fishery. As mortality to shellfish will be considered in the

	PEIR we consider this point addressed and are happy to consider this under direct damage." FM explained that there was a request to consider the impacts of noise on fish as a stationary receptor. FM explained the proposed approach is to undertake modelling on them as both stationary and fleeing and assess the most ecologically appropriate threshold. GE welcomed stationary receptors to be modelled particularly for fish species which rely on the area as a spawning habitat. GE highlighted that fleeing receptor modelling is not supported by peer-reviewed evidence as fleeing speeds assume the fish are swimming in a straight line. However, GE raised no objection to both stationary and fleeing being presented but Cefas will base their review on the stationary only. GE agreed to further discussion on underwater noise assessment – see actions. PH agreed to share the IFCA's data following a submitted data request but cautioned it may be limited in the array areas. FM provided a summary of the next steps of the fish and shellfish assessment. No comments were raised by attendees. FM extended an invitation to all ETG members to join the marine mammals and underwater noise ETG meeting – see actions.	
Item 8: Summary and AOB	FM provided a summary of the meeting held: • Physical processes – the projects position is that there is sufficient information for the purposes of characterisation. • Physical processes – EBA paper has been circulated and the methods were discussed. • Physical processes – the cumulative methodology for the assessment of existing OWFs. • MW&SQ – PEMP would be conditioned in the dML and therefore an outline plan is not required to provide certainty. • Benthic – NE raised concerns for the poor quality of footage in the inshore areas and VE seek to address through detailed consideration of the SSS and grabs. • Fish – consideration of the fleeing vs stationary receptors in the modelling.	
Actions:	To provide written comment on the physical processes EBA position paper by 21st December 2021. To provide the slides and minutes to the Cefas coastal process team for comment. Action complete – see post meeting minutes below	All ETG members GE TC

To agreed that biotope codes should be converted into the EUNIS equivalent.	TC
To consider that INNS may be scoped out of the EIA in line with the SO.	GE
To provide clarification of the request to assess 'direct removal of shellfish from the fishery'.	VE OWFL
To provide the minutes and slides from the marine mammals and underwater noise ETG to Cefas.	

Post meeting notes:

Coastal processes

The physical processes method document provides a detailed account on how a baseline characterisation of the area will be provided. The Cefas Coastal Processes team agree with the comments and queries raised by the Natural England in the meeting minutes – such as ensuring that sediment plumes are illustrated within the assessments and interpretations and ensuring worst case scenarios are assessed (especially in regard to cable crossings in the shallow/nearshore water).

From the minutes, the Environment Agency expressed a preference that when regarding cumulative assessment, the baseline should include no OWFs (rather than the Applicant's suggestion of including built OWFS as part of the baseline conditions). The Cefas Coastal Processes team would agree with the Environment Agency and suggest built and proposed OWF's should be discussed as part of the cumulative assessment.

Benthic ecology

The Cefas Benthic Renewables team note that in the presentation it states that Natural England previously asked for the Applicant to ensure that there is robust site-specific data collected. The map presented in the PowerPoint presentation only shows the location of samples collected during the most recent site-specific survey. The Cefas Benthic Renewables team therefore request that the Applicant provide a map showing all samples to be used in the characterisation along with the habitats identified during the geophysical survey for further consultation.

The Cefas Benthic Renewables team note the low number of samples in both Arrays and would like to understand whether this is due to the homogeneous nature of the sediments/habitats identified during the geophysical survey? If there are several habitats present within the Array and along the export cable corridor, The Cefas Benthic Renewables team would like assurance that these have been sampled in sufficient quantity for the characterisation. Slides 13-16 of the PowerPoint presentation provide examples of individual sampling stations located within each habitat type (distinct acoustic signature), but it is unclear how many samples were collected from each habitat type in total. The Applicant should provide confirmation on this point.

The Applicant confirms that the sample selection had been informed by SSS to ensure adequate sampling across all habitat types and seabed features. This process was undertaken in line with the principle document previously circulated.

The Cefas Benthic Renewables team agree with NE on the use of one classification system i.e. EUNIS.

The Cefas Benthic Renewables team are happy that marine INNS will be assessed, and transboundary effects will be reviewed.

3.5 14/12/2021 POST SCOPING MARINE MAMMALS AND UNDERWATER NOISE ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Marine mammals Expert Topic Group

Location:	**MS Teams**
Date:	**14 December 2021**
Time:	**11.00 to 13.00**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Rachel McCall (VE OWFL) (RM)
Harriet Thomas (VE OWFL) (HT)
Sammy Mullan (GoBe) (SM)
Fraser Malcolm (GoBe) (FM)
Rachael Sinclair (SMRU Consulting) (RS)
Tim Mason (Subacoustech) (TM)
Tracey Champney (MMO) (TC)
Alan Gibson (Natural England) (AG)
Yolanda Foote (Natural England) (YF)
Maja Nimak-Wood (Natural England) (MNW)
Ophelie Humphrey (Natural England) (OH)
Rebecca Faulkner (Cefas) (RF)
Holly Buckley (Cefas) (HB)

Apologies

Charlotte Reeves (Cefas)
Leanne Tan (MMO)
Christina Platt (The Wildlife Trusts)

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company number 12292474

Item 1: Introductions and aims	FM welcomed all participants to the meeting and thanked them for their scoping responses. Round table introductions were made. FM explained that the Evidence Plan ToR comments requested that contact details were shared between ETG members. He asked if there were any parties that would like their contact details redacted and/ or not circulated - see actions. The aims of the meeting were presented by FM. These were: • Discuss key points raised in the Scoping Opinion (SO); and • Agree next steps for areas of outstanding disagreements.
Item 2: Project update	RM presented the geographical location of VE relative to the Galloper, Greater Gabbard and the North Falls offshore wind farms (OWF). RM explained that VE is being developed by RWE, Macquarie led consortium, Siemens Financial Services, ESB and Sumitomo. This means that VE is a separate commercial project and entity from North Falls, despite RWE being shareholders in each. RM presented the various forms of consultation undertaken to date and those proposed as the project develops – see slide 6. She explained that the consultation of the EIA Scoping report and the HRA screening report are complete. The Scoping Opinion was received on 12th November 2022. She explained that the onshore ETGs will be held in Q1 2022. RM highlighted that the first VE newsletter[1] is now available and further newsletters will be produced throughout the project. Public informal engagement will be undertaken in Q2 2022 which will focus on the onshore aspects of the development. RM explained that the benthic surveys have been completed and the geophysical surveys are nearing completion. She explained that a matrix was undertaken to inform the selection of the benthic sampling locations. The winter shipping and navigation radar survey will be undertaken in January 2022, following the completion of the geophysical survey. RM explained that the PEIR is anticipated to be published in Q4 2022 with the DCO application planned for Q3 2023. RM presented the indicative project programme for VE – see slide 7.
Item 3: Key aspects of scoping response	AG on behalf of Natural England – Natural England is broadly content with the approach to the evidence gathering. However, they have requested more information on the assessment methodology and underwater noise (UWN) modelling. Natural England would like temporary threshold shift (TTS) to be scoped in noting that limited assessment can be undertaken. Natural England also raised some concerns about the scoping out the potential for barrier effects on marine mammals. TC on behalf of the Marine Management Organisation (MMO) and Cefas

[1] https://fiveestuaries.co.uk/category/newsletters/

	– The MMO agreed that TTS should be scoped in for the marine mammal EIA assessment. HB agreed that the assessment ranges and the numbers of animals within them should be presented with regards to TTS but a full assessment with significance does not need to be included. The MMO also requested that non-piling activities should be assessed on fish and marine mammal receptors. HB also noted that this potential impact should be considered for implications on prey species for marine mammals.
Item 3: Marine Mammals	RS presented the key scoping responses points including: • Agreement has been reached on baseline datasets – see consultation log. • Agreement has been reached on the key species, management units and the relevant protected areas (for the EIA) – see consultation log. • The scope of the assessment was agreed with the exception of barrier effects and TTS – see details below for proposed approach. • Further information relating to the proposed assessment methodologies – see details below for proposed approach. • It was agreed that the cumulative assessment should consider the worst case – see consultation log. No clarifications on the Scoping responses were requested from participants. **Barrier effects** This was requested to be assessed more completely and not just from piling but also from vessels during all phases of the project. RS proposed to include the potential for barrier effects within the assessment of disturbance and displacement. Slide 12 provides a list of the literature proposed to inform the barrier effect assessment, including ship noise. It was agreed that barrier effects will be included in the assessment as part of the disturbance and displacement impacts – see consultation log. RS requested comments on proposed approach. No comments were received from participants. **TTS onset** RS confirmed that the EIA will include an assessment of TTS arising from piling, unexploded ordnance (UXO) detonations and other construction activities. It was agreed that the TTS assessment would present the ranges and the number of animals within those ranges – see consultation log. This proposed approach aligned with Natural England's and MMO's (and Cefas's) comments on the EIA Scoping Report. RS requested comments on proposed approach. No comments were received from participants. **Operation noise assessment** RS confirmed that the potential for permanent threshold shift (PTS) and TTS arising from operational noise will be assessed. RS explained that if available, monitoring data from similar sized wind turbine generators (WTG) to those proposed for VE will be used to inform the assessment. In

	the absence of data, then data from existing smaller WTGS will be extrapolated to inform the assessed of larger WTGs. OH asked whether the Project was aware of any projects where monitoring is being undertaken. TM confirmed that data are available for 6MW WTG data, but he is not aware of any larger WTGs being monitored presently. RS confirmed that VE OWFL will also confirm if data are available from other RWE projects. **Next Steps** RS outlined the next steps proposed and noted that there was limited methodological information in the Scoping Report but confirmed that the method will be detailed in the PEIR chapter. RS outlined the next steps for the marine mammals assessment. RS confirmed that the marine mammals baseline report will include the requested literature in the Scoping responses and sightings data. RS requested comments on proposed approach on the proposed next steps. No comments were made. It was agreed that the VE Evidence Plan consultation log would be updated and each organisation would review alongside the minutes to confirm agreement – see actions.
Item 4: Underwater Noise	This section was presented by TM who will be leading the UWN modelling for the VE EIA. He explained that the proposed methodology is similar to that of recent DCO applications for offshore wind farms (OWFs). **Piling modelling** TM confirmed that the INSPIRE model would be utilised and this will produce site specific contours for each of the modelled locations. At least two modelling locations will be modelled. The proposed locations will be chosen based on the anticipated worst case which will be a function of water depth and proximity to designated sites (SACs and MCZs). The INSPIRE modelling will be undertaken for the worst case design scenario for both monopiles (with the greatest diameter) and jackets. The cumulative modelling (to derive the SELcum) will consider the soft start/ the blow energy ramp up to derive the PTS and TTS contours. No comments were received from participants. TM confirmed that TTS will be modelled and will consider the worst case (maximum) hammer energy. A realistic scenario will also be modelled which will consider the likelihood of achieving 100% of hammer energies based on the local ground conditions through consultation with the project engineers. No comments were made. TM proposed to use Southall et al. 2019 criteria for TTS and PTS as these have become the standard noise categories. No comments were made. TM confirmed that fleeing animal model speeds will be modelled as per the industry standard - 17. A fleeing model for marine mammals and both stationary and fleeing model will be run for fish species in accordance with previous OWF assessments to show the potential range of the effects.

If simultaneous piling is proposed, then this will be modelled as the worst case. The simultaneous scenario would entail two piles in two different areas being undertaken concurrently in the model. Sequential piling for jackets will be modelled where multiple piles could be installed within 24 hours. No comments were made.

TM presented a graph showing the noise calculation level – see slide 18. The plot demonstrates the relationship, applied in the INSPIRE model, between the blow energy, water depth and the source level. TM highlighted that the INSPIRE model is updated usually once or twice a year to account for recent piling data. No comments were made.

Operational noise modelling

TM explained that the proposed approach to operational noise is an improvement on the previously used model, which used considerable extrapolation. The proposed model is based on the methodology defined in Tougaard *et al*., 2020, referring also to Thomsen *et al*., 2021, and additional parameters. TM explained that if a WTG has a gear box, then this is typically much louder (by approximately 10 dB) than a direct drive WTG. It is expected that most of the proposed OWFs will be utilising direct drive models, although this is to be confirmed.

OH asked for confirmation for operational noise approach differs from previous assessments by Subacoustech. TM confirmed this was the case and that the proposed methodology was based on more data and the latest scientific understanding. OH requested that the new method results are presented against previous method to see the potential difference between the two methods. TM noted this comparison was possible but felt it would be of limited value as the previous method was based on extrapolation of much smaller WTGs. Furthermore, the new method is based on more data and takes further parameters into account such as wind speed. See actions.

UXO

TM proposed to use a standard methodology using the typical generic calculation to assess the worst case scenario, which is typically the largest charge anticipated. He noted that quieter UXO methodologies, such as deflagration and low order detonations, will be considered. No comments were made.

Other noise sources

TM propose to use the SPEAR model to inform the noise assessments of dredging, trenching, rock dumping and vessel noise. No comments were made.

Item 5: AOB	FM proposed that the next phase of ETGs will be summer 2022 to discuss in more detail the proposed methodology. He proposed that the meetings will be timed to make best use of stakeholder's time. FM provided a summary of the actions and key discussion points from the meeting. RM asked the ETG for feedback on the Evidence Plan process and whether detailed written submissions prior to or in place of meetings would be more efficient to reach agreements. TC noted that the discussions are helpful, and these can be followed by written feedback from stakeholders. AG highlighted that the approach would need to be changeable to the topic and matters being discussed. However, generally it is useful to have short discussions prior to the submission of papers to the ETG. It was agreed to maintain the existing format and submit further documentation as required.	
Actions:	Consultation log to be updated for approval and all ETG members to review and provide written feedback.	VE OWFL and all ETG members
	To confirm if ETG members would rather their contact details were **not** shared with the other ETG members.	All ETG members
	Review the Tougaard et al. 2020 paper (Post meeting minute: confirmation that the action was completed was emailed on 11/01/22).	Natural England
	To consider if contextual comparisons for operational noise modelling is required to agree the proposed methodology.	OH

Post meeting note:
Natural England confirmed their position on contextual comparisons for operational noise – *"We understand that the applicant is proposing to use a new method to determine the sound levels produced by operational wind turbine generators. The new method is based on two recent peer-reviewed papers (Tougaard et al., 2020; Thomsen et al., 2021). Natural England are supportive of using new methods based on the latest peer-reviewed science and are confident that, with sufficient detailed explanation of the method, assumptions, limitations etc., we will be able to consider the outputs of this new method as the best estimate for sound levels. Nevertheless, the proposed method does differ from the method used in previous offshore wind farm assessments, therefore we would like to have an understanding of what the results would have been using the old method, for context and comparison to previous OWF ESs. We therefore request that the applicant present the results only of the old method, in addition to the more detailed assessment using the new method. A summary of the old method could be presented in an Appendix if deemed necessary."*

VE OWFL welcomes this response from Natural England and the support of new methods based on the latest peer-reviewed science. VE OWFL will consider the request, to present the results using the former methodology to provide context to the findings, during the preparation of the PEIR and will consult with the ETG on this matter further.

3.6 31/10/2022 PRE PEIR BENTHIC ECOLOGY, PHYSICAL PROCESSES AND WATER & SEDIMENT QUALITY ETG

MINUTES

Physical Processes, Water Quality / Sediment Quality & Benthic Ecology

Location:	**MS Teams**
Date:	**31/10/2022**
Time:	**14:00**

Attendees

Anthony Brooks	AB	ABPmer
David Lambkin	DL	ABPmer
Jacqueline Eggleton	JE	CEFAS
Gemma Allsop	GA	Environment Agency
James Carr	JC	Environment Agency
Jeremy Pile	JP	Environment Agency
Mark Woodger	MW	Essex County Council
Rachel Langley	RL	Essex Wildlife Trust
Angie de Burgh	AdB	GoBe
Mike Brosa	MB	GoBe
Sammy Sheldon	SS	GoBe
Pip Koomson	PK	Marine Management Organisation
Tracey Champney	TC	Marine Management Organisation
Harri Morrall	HM	Natural England
Yolanda Foote	YF	Natural England
Rupert Masefield	RMa	Suffolk Wildlife Trust
Emily Griffiths	EG	VE OWFL
Rachel McCall	RM	VE OWFL

Item 1: Introduction and Project Update

The meeting commenced with a round of introductions from all attendees. See attendee list above.

RM noted that the key aims of the meeting were to provide an update of the project and agree the methodology to undertake the EIA.

RM provided a general update of the VE project, explaining that the PEIR Red Line Boundary (RLB) has reduced, since Scoping, in the northern array to address shipping and navigation issues, with added benefit of improvement to seascape visual impact. The offshore export corridor has widened at locations where additional geophysical data is available allowing potential to move to

	areas to reduce total number of cable crossings. RM explained that the RLBs both onshore and offshore are now frozen, that the project has reached a design freeze allowing PEIR to progress. PINS has undertaken a transboundary screening assessment[1]. An update of consultation was provided and it was noted that the Interim Consultation Feedback Report is available on the Project Website. RM provided a brief outline of the project timeline indicating that PEIR submission and S42/47/48 consultation will be in Q1 2023 and DCO submission later in 2023 Q3/4.	
Actions:	**No actions with associated with agenda item 1**	**N/A**
Item 2: EIA and CEA Methodology	SS provided an overview to the General EIA Methodology (slide 12) and CEA Methodology (slide 13), noting that a detailed Proposed Environmental Impact Assessment Methodology will be circulated for comment and that Longlists of cumulative impact sources are available on request. Post-meeting note: The methodology paper was circulated on 8th November 2022 and comments have been requested by 6th December 2022.	
Actions:	**Send out Proposed Environmental Impact Assessment Methodology for comment by ETG members**	**VE OWFL**
Item 3: Physical Processes	DL provided an overview the scope of assessment (slide 15) indicating that the scope was the same as that proposed at the Scoping Phase in the Scoping Report. No concerns were raised in regard to the proposed scope of assessment by the attendees. DL described the study area for Physical Processes (slide 16), highlighting contributing factors, that it is highly precautionary and will be refined with any new findings. No concerns were raised in regard to the proposed study area by the attendees. YF welcomed the level of detail of the characterisation of sediment transport within the study area. DL highlighted the key guidance proposed to inform the assessment(slide 17). YF suggested ABPmer guidance prepared for Natural Resources Wales to be included. DL agreed that recommendations and aspects of particular relevance will be taken on board, noting a difference in geographical regions mean that it will not be directly applicable to VE in all cases. DL provided an overview of the baseline characterisation and features in the area of the arrays (slides 19-23) as well as bathymetric data (slides 26-29).	

[1] Can be provided on request and will be included in the PEIR documentation.

	Features were described as largely immobile in terms net sediment transport over a decadal analysis. DL described the baseline characterisation and features in the area of the offshore export cable corridor (slides 23-25) as well as bathymetric data (slides 26-29). It was noted that there is a thin veneer of sediment in the export cable corridor and so the PEIR will provide information of the underlying geomorphology. There is however, some indication of migration of sediment features in the export cable corridor. DL confirmed that waves, tidal and regional sediment transport modelling will be performed. DL indicated that spreadsheet based models will be used to inform SSC model. This will be provided as a collated table and figure for PEIR. This will not include detailed quantification based on previous experience on analogous projects. YF highlighted concerns regarding the age of some of the bathymetric datasets (2003). TB explained that 2003 data was used to provide initial regional context providing a longterm overview and background understanding. Recent local data has also been collected and analysed to provide detailed information within the project boundary. TB also noted that the study area is one of the most surveyed areas in the world owing to the density of shipping. YF noted that an output from sediment plume modelling should include a deposition footprint map at indicative and representative locations in the array and export corridor – see actions. Additionally, this would ideally include different sediment fractions. YF requested that maps should include designated sites to show plume dispersion, providing context for the source of plume and possible effects on designated sites. YF queried whether large geomorphological features can be shown as static or mobile and requested that seabed mobility study should be included in PEIR DL confirmed that the relevant findings of the study will be utilised to inform the baseline characterisation of the EIA. YF raised the question of whether beach access for landfall been considered. RM confirmed that HDD is proposed for landfall and therefore limited beach access is required. YF queried if cofferdams would be required for HDD. SS confirmed that cofferdams are included in the design envelope for the project.	
Actions:	**DL to include relevant parts of ABPmer NRW guidance in the assessment** **YF to provide examples of sediment plume maps that have been helpful to NE previously**	**DL** **YF**

Item 4: Marine Water and Sediment Quality	SS provided an overview of the scope of assessment and confirmed that it was the scope that was agreed at the Scoping Phase (slide 35). SS noted that water quality will be captured in the cumulative assessment (slide 35). No concerns were raised in regard to the proposed scope of assessment by the attendees. SS presented the proposed study area for the Marine Water and Sediment Quality (MW&SQ) assessment. No concerns were raised in regard to the proposed study area by the attendees. SS explained that nearfield sediment plumes are likely to impact the nearfield only (slide 36). SS outlined key data sources and limitations in the available information. No concerns were raised in regard to the proposed data sources by the attendees. SS detailed the methodology approach for the MW&SQ assessment (slide 39). YF requested that Cefas Action Levels (CAL) and Canadian Sediment Quality Guidelines should be presented for completeness of comparison. SS confirmed that both will be presented. SS described the sediment contaminant analysis performed (slide 40). RM added that a MMO and CEFAS accredited laboratory had been used to analyse the samples and provide results. SS provided an overview of the sediment contamination results (slide 41) and described how some arsenic concentrations were above CAL1, however this was typical within the context of the regional Outer Thames Estuary. SS described the approach to the Water Framework Directive Assessment and that a signposting document will be provided within the PEIR. GA requested that marine and freshwater ecology be assessed separately. SS agreed to this.	
Actions:	**CEFAS Action Levels and Canadian Sediment Quality Guidelines to be presented with the results in the PEIR/ES** **A WFD assessment will be provided with PEIR**	**SS** **SS**
Item 5: Benthic Ecology	AdB presented the scope of the benthic ecology assessment (slide 44), indicating that this was the same as detailed at the Scoping Phase. JE suggested that long term habitat loss should be assessed as a permanent impact. AdB agreed to change the terminology used and explained that the assessment had accounted for it as a permanent impact. AdB presented the proposed study area for the benthic ecology assessment (slide 45). No concerns were raised in regard to the proposed study area by the attendees. AdB described the data sources used in the assessment (slide 46). JE suggested that OneBenthic Database should be included. AdB agreed to check the latest OneBenthic Database and include any data which are additional. YF commented that there may be some additional information that can be taken from Margate and Long Sands SAC data – see actions.	

	AdB described relevant site specific surveys undertaken to date (slides 48-49) and highlighted presence of Piddock and Stony Reef in survey data. AdB presented the methodology approach to the impact assessment of benthic habitats (slide 51). No concerns were raised in regard to the methodology by the attendees. AdB described the relevant Valued Ecological Receptors and features of SACs. AdB presented the designated sites and key receptors in the study area (slide 54). SS confirmed that MCZ assessment will be provided at PEIR. AdB described embedded mitigation which have been considered in the PEIR assessment (slide 55).	
Actions	**Update terminology to describe long term habitat loss as permanent** **Check OneBenthic Database for latest information** **Check Margate and Longsands SAC information for anything relevant to the project**	**AdB** **AdB** **Natural Engalnd**
Item 6: Next Steps and Concluding Remarks	RM thanked all attendees for their contributions to the discussions on viewpoints and provision of useful feedback. SS noted that meeting minutes and updated consultation log will be developed and a copy of the PowerPoint presentation will be circulated to all ETG members. SS mentioned that all comments are welcome and ETG members are welcome to contact the project at any time in the future.	
Actions	**Meeting minutes to be written sent out to ETG members together with a copy of the PowerPoint presentation**	**VE OWFL**

3.7 01/11/2022 PRE PEIR MARINE MAMMALS, FISH & SHELLFISH & UNDERWATER NOISE ETG

MINUTES

Underwater Noise, Fish & Shellfish Ecology and Marine Mammals

Location:	**MS Teams**
Date:	**01/11/2022**
Time:	**14:00**

Attendees

Mark Woodger	MW	ECC
Annie Gordon	AG	Essex Wildlife Trust
Anna Luff	AL	GoBe
Josie Brown	JB	GoBe
Mike Brosa	MB	GoBe
Sammy Sheldon	SS	GoBe
Pip Koomson	PK	MMO
Tracey Champney	TC	MMO
Harri Morrall	HM	Natural England
Maja Nimak-Wood	MNW	Natural England
Nadine Atchison-Balmond	NAB	Natural England
Yolanda Foote	YF	Natural England
Rachael Sinclair	RS	SMRU Consulting
Tim Mason	TM	SubAcoustech
Emily Griffiths	EG	VE OWFL
Rachel McCall	RM	VE OWFL

Item 1: Introduction and Project Update

The meeting commenced with a round of introductions from all attendees. See attendee list above.

It was noted that Maja Nimak-Wood from Natural England is the new VE OWFL case officer for marine mammals

RM noted that the key aims of the meeting were to provide an update of the project and agree the methodology to undertake the EIA.

RM provided a general update of the VE project, explaining that the project Red Line Boundary (RLB) has reduced in the northern array due to shipping and navigation concerns due to high numbers of vessels, with added benefit of improvement to seascape visual impact. The

	export corridor has widened at locations where additional geophysical data is available allowing potential to reduce total number of cable crossings should this be appropriate/possible RM explained that the RLBs both onshore and offshore are now frozen for PEIR, and that the project has reached a design freeze on key project parameters allowing PEIR to progress. PINS has undertaken a transboundary screening assessment. An update on consultation events undertaken in the summer in Essex was provided and it was noted that the Interim Consultation Feedback Report is available on the Project Website. RM provided a brief outline of the project timeline indicating that PEIR submission and S42/47/48 consultation in Q1 2023 and DCO submission later in 2023 Q3/4.	
Actions:	**No actions associated with agenda item 1.**	**N/A**
Item 2: EIA and CEA Methodology	SS provided an overview to the General EIA Methodology (slide 13) and CEA Methodology (slide 14), noting that a detailed Proposed Environmental Impact Assessment Methodology will be circulated for comment and that Longlists of cumulative impact sources are available on request. MW requested onshore cumulative impact assessment long list. AG asked if commercial fisheries impacts have been considered cumulatively. SS Commercial fisheries are considered in the baseline of the commercial fisheries chapter, so not considered cumulatively with impacts associated the VE project.	
Actions:	**Send out Proposed Environmental Impact Assessment Methodology for comment by ETG members** **Provide onshore cumulative Long List to MW**	**VE OWFL** **VE OWFL**
Item 3: Underwater Noise	TM provided an overview of the scope of assessment (slide 16) indicating that the scope was the same as that proposed at the Scoping Phase in the Scoping Report. TM described the key guidance used (slide 17). TM gave an overview of data sources (slide 18). Data sources are from direct measurements and previous projects, and then built in to the INSPIRE model. TM explained that the largest piles and hammers being considered do not yet exist, however the model can extrapolate to larger sizes and no issues have been noted with this approach to date. TM described the study area for UWN (slide 20), highlighting contributing	

	factors, and that it is highly precautionary and represents the worst case. TM presented the methodology of assessment (slide 21). TM confirmed that operational noise modelling considers multiple turbines in an array not just a single turbine. No concerns with the approach or methodology were raised by stakeholders. MW commented that in combination effects of noise will occur with VE construction and other windfarms being constructed at the same time. TM confirmed that in-combination effects with NF will be covered. MW commented that noise period could be extended if one project starts construction partway through the other construction period and then continues. TM noted that this would be covered by fish and marine mammals specialists in the relevant cumulative assessments as appropriate . MW commented that UXO may be present based on unpublished information. SS explained that this will be assessed in the EIA/PEIR but that further permission/consent will be sought post consent i.e. outside of the DCO application as a separate marine licence application.	
Actions:	**Investigate likelihood of incombination/cumulative impact of NF and VE constructing simultaneously**	**VE OWFL**
Item 4: Fish and Shellfish Ecology	AL provided an overview of the scope of assessment and confirmed that it was the scope that was agreed at the Scoping Phase (slide 23). AL described the study area zone of influence (slide 24) AL provided an overview of key data sources (slides 25, 26 & 27) AL described the methodology explaining that PSA data is used as a proxy for sandeel and herring spawning areas (slides 28, 29 & 30). AL presented key data gaps that will be detailed in the technical report (slide 31) AL described the methodology for assessment (slide 32) AL detailed the key receptors designated sites (slides 33 – 35) No concerns with the baseline, approach or methodology were raised by stakeholders. SS Fish and Shellfish Ecology Technical Report sent out for review by ETG members, please return any comments by 15th November.	

Actions:	Comments on Fish and Shellfish Ecology Technical Report	ETG members
Item 5: Marine Mammals	RS presented the scope (slide 39) and explained that this is the same scope as was agreed at scoping. No concerns were raised by stakeholders regarding this approach. RS explained that baseline technical data and underwater noise impact assessment has progressed since scoping. RS provided an overview of site surveys and described the study area (slide 40). RS presented the baseline for harbour porpoise, grey seal and harbour seal (slides 41 – 44). AG commented that ZSL has published recent data on harbour porpoise surveys in the Thames Microsoft Word - Harbour porpoise report 2022_V3 (zsl.org). SS commented the MM technical baseline can be provided in advance of PEIR. MNW responded to say that this would be welcome. MNW commented that best practice is to use the highest density data. RS explained that the various densities used are described in the baseline report. Graham et al. 2017 data will be used, which is based on the initial piling activity at Beatrice. Since it has been shown that disturbance responses decrease over the piling period, it is considered conservative to use the disturbance responses from the initial piling for the assessment. Grey seals will use harbour seal data, this is conservative as studies show grey seals are less sensitive than harbour seals to piling noise. RS confirmed that barrier effects will be assessed at PEIR. RS confirmed that the worst case piling scenarios have been modelled and assessed.	
Actions	**Provide MM Baseline Technical Report to ETG members prior to PEIR**	**VE OWFL**
Item 6: Next Steps and Concluding Remarks	RM thanked all attendees for their contributions to the discussions on viewpoints and provision of useful feedback. SS noted that meeting minutes will be developed and a copy of the PowerPoint presentation will be circulated to all ETG members. SS mentioned that all comments are welcome and ETG members are welcome to contact the project at any time in the future.	
Actions	**Meeting minutes to be written sent out to ETG members together with a copy of the PowerPoint presentation**	**VE OWFL**

3.8 05/09/2023 POST PEIR MARINE MAMMALS, FISH & SHELLFISH & UNDERWATER NOISE ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Five Estuaries Underwater Noise, Marine Mammals and Fish and Shellfish Ecology ETG

Location: Microsoft Teams
Date: 05/09/2023
Time: 09:30
Facilitator: VE OWFL
Minutes taker: Will Hutchinson and Francesca King-Keast

Attendees

Rob Dryden (RD) - Environment Agency
Alan Gibson (AG) – Natural England
Maja Nimak-Wood (MW) – Natural England
Sophie Sparrow (SP) – Natural England
Annie Gordon (AG) – The Wildlife Trust
Rupert Masefield (RMa) – The Suffolk Wildlife Trust
Yolanda Foote (YF) – Natural England
Pip Koomson (PK) – The MMO
Megan Johnston (MJ) – MMO
Nicola Wilkinson (NW) – MMO
Katherine Stewart (KS) – Kent and Essex IFCA
Gemma Allsop (GA) – Environment Agency
Liam Robson (LR) planning team
Rachel McCall (RM) – Five Estuaries
Emily Griffiths (EG) – Five Estuaries
Josephine Brown (JB) - GoBe
Rachael Sinclair (RS) – SMRU Consulting
Tim Mason (TM) – Subacoustech
Phil New (PN) – GoBe
Mike Brosa (MB) – GoBe
Will Hutchinson (WH) - GoBe
Francesca King-Keast (FK) – GoBe

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FIVE ESTUARIES
OFFSHORE WIND FARM

Rosalyn (CEFAS)

Apologies

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company number 12292474

Item 1: Introductions and Project Team	A round of introductions was undertaken. RM provided an overview of the VE project team. It was highlighted that Ian McClean is the new interim VE Project Manager.
Item 2: Early Adopters Programme	RM provided an overview of the Early Adopters scheme which VE is taking part in. RM highlighted the three components which VE are taking part in: • Component 1: Use of program planning • Component 5: Production of policy compliance documents. • Component 10: Use of multipartite meetings. Currently PINs are joining compensatory measures and shipping and navigation meetings as observers, but the hope is they can provide more detailed feedback in the future on certain aspects.
Item 3: Project Update	RM provided a brief overview of the project. It was highlighted that minimal changes have been made since the PEIR in terms of the offshore infrastructure. RM noted VE is also part of the Offshore Transmission Network Review, however this project is still progressing with a radial connection as the base case. RM highlighted the project timelines, with this being the first set of ETG meetings since PEIR submission in March 2024. RM highlighted that a key change has been reducing from four export cables from to two, since PEIR. RM provided a brief overview of the onshore export cable corridor and the onshore substation. The project has also been refined to one landfall option, with the northern option being chosen.
Item 4: Underwater Noise	TM provided a brief overview of the updated modelling that is being undertaken. There have been tweaks made to parameters associated with the monopiling and the project is now undertaking sheet piling modelling for the intertidal area at landfall. **Underwater Noise (1st Slide)** TM provided further justification as why the estimated maximum

charge weight of 698 kg was used. He stated that 698 kg is the quantity of explosive in a German ground mine and understood to be the largest UXO that is likely to be found in the area.

TM provided further clarity on the 24hr SELcum injury threshold. He noted that although 4 X 7.5 hours does exceed 24 hours, the threshold is retained as precautionary and the difference to the assessment would be minimal.

Underwater Noise (2nd Slide)

TM provided further clarification on the modelling locations. He stated that the distance between northern edge and NE corner modelling locations are negligible relative to the modelling location in the Southern Array, the calculated impact ranges from the N Edge and the NE corner are almost identical, and the north edge was more representative of the site than the extremes of the NE edge.

Underwater Noise (3rd Slide)

TM provided more clarification on the lack of data for larger piles. He acknowledged the lack of data regarding this, but Subacoustech have found that the increase in pile sizes and hammer energies lead to an increase towards an asymptote, which is why the noted increase appears small. The results included remains, the best prediction based on available data, and we are not too concerned of under predicting based on this extrapolation.

Underwater Noise (4th Slide)

TM provided further clarification on the degree of overlap regarding the in-combination areas. He noted that the MMO have presumed correctly that the in-combination areas will vary based on the potential overlap. Where two areas are small and well separated, Area1+Area2=Area(Combined). Where the two areas are close to each other and blend, Area1+Area2<Area(Combined). If the two areas are very large and overlap strongly, Area1+Area2<Area(Combined).

RMa requested further clarification, where there are areas which are not overlapping i.e., contours not overlapping, will there still be an in-combination impact?

TM noted that there will still be an in-combination impact regardless of if the contours do not overlap. However, what it doesn't do is add anything extra to that effect.

RP noted that perhaps for clarity we could add a column to any

	table with results for area 1, area 2 and area combined. TM agreed that could be done.

Item 5: Fish and Shellfish Ecology	PN highlighted updates to modelling as TM had previously highlighted.
	
	PN also highlighted key S42 comments:
	
	- Underwater noise assessment
	  o Behavioural impacts
	  o Mitigation measures
	- Increased SSC and deposition assessment
	- Temporary habitat disturbance and habitat loss assessment
	- Cumulative impacts assessment
	
	Underwater Noise Assessment (1st Slide)
	
	PN addressed the MMO's comment regarding presenting modelling for the received levels of single strike sound exposure levels (SELss) at the herring spawning ground/s (Downs and Thames/Blackwater herring spawning grounds) based on 135dB threshold.
	
	PN noted that the project maintains the 135 dB is overly precautionary, and not appropriate to determine the potential for behavioural effects of herring in the SNS.
	
	PN highlighted we therefore propose to present the potential behavioural impact ranges as 5dB increments from the piling source.
	
	Underwater Noise Assessment (2nd Slide)
	
	PN highlighted the comment from the MMO regarding a potential piling restriction. He noted that the project is considering this in light of further information coming from the updated modelling, but a decision has not been made yet.
	
	Increased SSC and Deposition
	
	PN highlighted the MMO concerns with regards to the impacts arising from increased SSC and deposition. He noted that fish and shellfish assessment will be updated to present suitable herring spawning substrates in line with the Marine Space et al. (2013) approach (as advised by the MMO), and site-specific geophysical survey data will be used to take into consideration the availability of suitable spawning substrates, and conclusions will be amended accordingly.

	Temporary habitat disturbance and long-term habitat loss assessment PN adressed the MMO's concerns with regards to the assessment for temporary habitat disturbance and long-term habitat loss. PN noted that that the assessments will be updated to take into account the availability of suitable herring and sandeel spawning habitat within the array area in accordance with the MarineSpace (2013a and 2013b) methodology as suggested by the MMO, considering site-specific geophysical survey data, and the conclusions will be amended accordingly. RP queried if the assessment would include different species. PN confirmed that other species would be covered in the literature review.

Item 6: Marine Mammals	RS highlighted a number of updates which will be the assessment at the ES stage and include:
	
	Baseline
	
	- Latest SCOS report will be included which will include the latest seal haul out reports and counts.
	- Hoping to include Scans IV report, however it is due end Aug/Sept but have not yet received.
	- Will include the cofferdam sheet piling modelling and a refinement of soft start and ramp-up piling parameters, plus update the CEA.
	- Associated documents will also be included and updated:
	  - MMMP (Piling and UXO)
	  - VMP
	  - SIP
	
	Key S42 comments
	
	RS highlighted key S42 comments:
	
	- TTS inclusion in assessment
	- Assessment of PTS from UXO
	- Assessment of disturbance from low-order UXOs
	- Magnitude and sensitivity scores for harbour porpoise
	
	Inclusion of TTS
	
	RS highlighted the MMO comments regarding the inclusion off

an assessment of TTS.
RS noted the comments, and as agreed in previous ETGs, TTS impact ranges and number of animals presented are presented in the assessment and there is no further action required.

Disturbance from UXO clearance

RS noted there is no empirical data from low order UXO clearance and therefore no exact EDR for low order clearance. Therefore, in previous EIAs a 5 km EDR was assumed for low order detonations. The expectation is that the EDR would be significantly smaller than for high order detonations.

Similarly, RS agreed with the MMO that there is no data to include regarding the 5 km EDR and low order detonations. Sofia OWF attempted low order detonation, but the low order method was unsuccessful. However, Moray West UXO were cleared with the EODEX method with a 100% success rate. UWN monitoring was conducted for first 30 detonations. The data hasn't been analysed yet, but indications show that low order was showing noise levels much lower than what was modelled.

Therefore, RS proposed to progress with the 26 km EDR for High Order (HO) and 5km EDR for low order (LO) and TTS as a proxy for both high and low order clearance.

RS queries if NE can provide further low order advice?
MW stated they are not able to provide further info at the moment.

RP noted she had contacted the MMO and is hoping to produce a joint position statement between NE & MMO re EDR for LO.

Post meeting note from NE: NE is in discussion with Cefas and other relevant bodies regarding EDR for low order detonations. A joint statement position is yet to be produced, but we will issue this to VE OWF as soon as it is finalised.

PTS from UXO Clearance

RS highlighted NE comment re the assignment of a low magnitude for PTS from UXO clearance.
RS noted the magnitude score of negligible was assigned after the consideration of the UXO MMMP, which will reduce the risk of PTS to negligible levels.
RS noted that the ES chapter will clearly state the magnitude score both before and after mitigation .

MW noted this was understood and helped address one of their key concerns on the assessment.

Post meeting note from NE: NE notes that the Project's explanation that the magnitude scores presented in the assessment are assigned after consideration of mitigation. However, as NE have not had sight of the mitigation plan for UXO clearance, we cannot agree that the magnitude score will be sufficiently reduced to the levels the Project is suggesting. Therefore, we would like to see the magnitude presented before the measures and after the mitigation measures, as suggested by VE.

Magnitude and Sensitivity Scores

RS highlighted the comment from NE regarding the magnitude and sensitivity of the impacts being downplayed.

RS noted the sensitivity scores match those that have been accepted for previous projects e.g., HOW04. It is considered there is no additional published material that would change the sensitivity for harbour porpoise in the assessment. Unsure why the sensitivity scores are no longer considered acceptable by NE? Asked NE to provide further detail and reasoning.

MW noted NE provide advice on a case-by-case basis and our advice evolves. However, we can provide more detail in writing after the meeting. **Action** – NE to respond to comments following the meeting.

Post meeting note from NE: We e note that there is an action on Natural England to respond to comments made during the ETG meeting. Natural England assesses each project on a case-by-case basis, using the information presented by the Project, alongside current evidence and understanding. Therefore, we believe that it is not appropriate to compare projects like for like. However, in this instance and for illustrative purposes, we have compared the two projects. With regards to the sensitivity scores used in Hornsea 4 (HOW4), Natural England notes that HOW4 used a 4 level scale: very high, high, medium and low. VE also uses a 4-level scale but with different definitions: high, medium, low and negligible. Consequently, Medium in HOW4 is equivalent to Low in VE. Regardless of whether the definitions are the same or not, the terminology is different, and this appears to lead to a downplaying of the impact. Having looked into this comparison further, our main concern is how sensitivity and magnitude are taken forward to the impact matrix. For example, in the HOW 4 impact matrix, a

combination of a moderate magnitude and a medium sensitivity determines the impact to be significant. In the VE impact matrix, however, the equivalent combination (low sensitivity and medium magnitude) determines that the impact is not significant. Consequently, we advise that this 'pick and choose' comparison of one project with another, is not appropriate. Regardless of the comparison with HOW4, Natural England still has concerns regarding the downplaying of impacts within the assessment. We would also like to reiterate our comments on the Preliminary Environmental Information Report (PEIR) regarding the lack of a hierarchy between high and low impact activities with regards to the sensitivity scores. Thus, we continue to advise that the assigned sensitivity/magnitude and significance matrices scores, should be revised.

RIAA Comments (1st Slide)

JB highlighted NE concerns with regards to the daily threshold for the SN SAC being exceeded. She noted the project will update the in-combination assessment based on the best available evidence regarding other projects timescales. The project will also submit a draft SIP and MMMP detailing possible in-combination scenarios and mitigation methods.

AG queries if any pre consultation on the MMMP and SIP will take place.

RM noted we may circulate a draft SIP at a future ETG. The project is looking at further detail with regards to NAS, but we cannot commit to a specific system now.
AG noted NE can engage with what should be included in the SIP document and advise what would be good to do and therefore like opportunity to review a draft pre-submission.

RIAA Comments (2nd Slide)

JB highlighted NE's comment regarding the maximum area overlap being used to calculate the seasonal habit loss. JB highlighted that guidance on the SNS SAC conservation objectives and advice on operations document (JNCC, 2019) states for the temporal assessment that 'an average of 10% of the relevant area of the site over a season' therefore average spatial area will be brought into the temporal assessment

This aligns with previous assessments that have been accepted by Natural England and is the approach taken across pre-consent and post-consent projects. JB queried if NE had any further comments.

	Action - MW replied stating NE will discuss internally and provide any further comment in written advice. Post meeting note from NE: Calculating the average area of EDR overlap by using maximum and minimum daily overlap would be representative in cases where there is an even distribution of turbine locations. Given that VE consist of two array areas, such average might not be truly representative. For more accuracy, we advise that ideally EDRs around all known turbine locations should be used to calculate the average overlap with the SAC. Such approach would make the assessment more accurate and avoid any downplay in calculation of seasonal threshold. AG noted that NE have not sent over advice on the Fish RIAA, however this should be sent over this week.	
Item 7: Statements of Common	RM noted Statements of Common Grounds (SoCGs) will focus on areas where we essentially have areas of disagreement. Will be in contact with NE with next few weeks to send over an initial structure and the projects thoughts. AG highlighted when it comes to SoCG, NE will only look to sign them twice, preferring to resolve the issues during examination and then sign off at the end. **Further Comments** RM queried if NE were aware of any further guidance coming forward on UWN, MM and Fish Ecology at the moment? AG noted this and will take it back. MW/RP noted slides in advance in would be welcome.	
Actions:	NE to respond to comments regarding magnitude and sensitivity following the meeting.	Natural England
	NE will provide any further comment in written advice re the daily threshold for the SNS SAC.	Natural England

3.9 07/09/2023 POST PEIR BENTHIC ECOLOGY, PHYSICAL PROCESSES AND WATER & SEDIMENT QUALITY ETG

MINUTES

Five Estuaries Benthic Ecology, Physical Processes and Marine Water and Sediment Quality ETG

Location:	**Online**
Date:	**07/09/2023**
Time:	**09:30**
Facilitator:	**VE OWFL**
Minutes taker:	**Will Hutchinson and Francesca King-Keast**

Attendees

Rachel McCall (RM) – Five Estuaries
Emily Griffiths (EG) – Five Estuaries
Will Hutchinson (WH) – GoBe
Fran King-Keast (FK) – GoBe
Angie de Burgh (AB) – GoBe
David Honey (DH) – GoBe
David Lambkin (DL) – ABPmer
Anothony Brooks (AB)- ABPmer
Gemma Allsop (GA) – Environment Agency
Jacqueline Eggleton (JE) – Cefas
Annie Gordon (AG) – Essex Wildlife Trust
Katherine Stuart (KS) – IFCA
Pip Koomson (PK) – MMO
Nicola Wilkinson (NW) – MMO

Apologies

Natural England

Item 1: Early Adopters Programme	RM provided an overview of the Early Adopters scheme which VE is taking part in (further details available at Planning Inspectorate launches pre-application trial with 7 Nationally Significant Infrastructure Projects - GOV.UK (www.gov.uk)). RM highlighted the three components which VEs are taking part in: - Component 1: Use of program planning (available at Project Programme - Five Estuaries) - Component 5: Production of policy compliance documents. - Component 10: Use of multipartite meetings (with focus on meetings on compensatory measures and shipping and navigation). Currently PINs are joining meetings as observers and providing feedback during monthly meetings.
Item 2: Project Update	RM provided a brief overview of the project. It was highlighted that minimal changes have been made since the PEIR in terms of the offshore infrastructure. The key change has been reducing from four cables to two since PEIR. RM noted VE is also part of the Offshore Transmission Network Review, however VE project is still progressing with a radial connection as the project base case. RM gave an overview of the project timeline, highlighting the progress made since the last ETGS held in November 2022 with VE progressing work towards the DCO submission date expected to be Q1 2024. EG provided a brief overview of the refined onshore export cable corridor (ECC). The project has also been refined to one landfall option, with the northern option being chosen and location SSA West chosen for the onshore co-location substation with North Falls
Item 3: Benthic Ecology	AB outlined the key S42 comments from PEIR: sandwave levelling; sampling density; pre-construction monitoring; paint flakes; and Margate & Long Sands (MLS) SAC **Sandwave levelling** AB highlighted that VE are developing a mitigation plan for the MLS SAC. Results of Cable Burial Risk Assessment (CBRA) will be included in the ES, with an aim to reduce pressures on benthic features. A without prejudice compensation case is being developed in the event an AEoI is concluded.

Site-specific Sampling Density

AB noted the 17 benthic sampling points within the array. AB noted that with the 17 sampling points in addition to regional habitat mapping, seabed substrates are relatively homogenous across the array areas, which is confirmed by site specific data.

RM asked if Cefas have any thoughts regarding the MMO S42 response.

JE responded that Cefas did not have any specific issues with the provided sampling densities. Cefas will however have to assess geophysical data against number of samples and will provide written response once meeting minutes and slides are circulated – **Action**

Paint flakes

AB explained that the impact will be de-minimus based on the size of the water body, this is more of a concern for ports than OWF.

JE outlined that paint flakes are something Cefas have noticed as a potential emerging issue in the literature, especially due to cumulative number of OWFs undergoing maintenance. JE queried if there is any mitigation that can be developed as Cefas are trying to reduce plastic input into the water?

AB noted VE would take back to engineers to discuss further.

Benthic Mitigation/ Compensation

AB highlighted that VE ECC crosses MLS SAC. The ECC overlaps with 0.11% of the site (the tip of the most northerly of the 9 sandbanks identified within the SAC being located within the offshore ECC).

RM noted why the cable is where it is – S&N issues associated with HHA pilot boarding area and levels and importance of shipping that uses this area. Main pilot boarding starts north of the SAC, advice from HHA is the presence of a cable could result in a potential slowdown in reaction times when emergency anchoring.

JE notes it will be helpful to explain why VE have had to move the ECC further south as a result of S&N in the application

documentation.

SAC S42 Responses

AB highlights the NE S42 response for VE to take into account existing pressures on MLS SAC as already hindering the conservation objectives of the site. NE confirmed there is no recent evidence on this but it is their opinion based on current activities.

AB referred to RM re cable protection – CBRA suggest cable protection won't be needed in SAC but taking precautionary approach. Need cable protection in case something occurs in installation so VE are including for rock protection in the SAC. NE welcomed this approach.

MLS SAC – Mitigation

AB mentioned a number of mitigation measures suggested by NE.
AB noted VE are preparing a "without prejudice case" in relation to potential adverse effects on integrity at the SAC. AB highlighted what steps VE have been going through/ approach being taken. AB noted it is quite a complex and challenging space.

GA noted she would provide these details to physical processes expert.

Extending SAC

AB outlined VE looking into extending SAC and/ or protecting a new area for benthic habitats. Looking to work collaboratively with other projects. NE supportive of measure. JE noted a recent DEFRA ministerial decision not to progress SAC extensions as compensation.

Redundant infrastructure

AB notes removal of redundant infrastructure is being taken forward to roadmap/ feasibility phase. Noted the ecological feature needs to be impacted by the infrastructure. NE advice was to reinvestigate other anthropogenic pressures e.g. aggregates.

Marine debris removal

AB highlights that VE are considering this but understand problems that other projects have had with this measure

	JE notes experience with HOW3, NE doesn't consider this as a compensation measure
An Item 4: Physical Processes	DL highlighted the key S42 comments: more wave data; cable laying evidence base; profile and types of potential cable protection; sandwave levelling; construction related impacts due to simultaneous operations at NF; more site-specific and recent data for the scour assessment; and impact of wind energy interruption by the turbine array on lee side wave energy. **More wave data** DL explained VE not limiting assessment to short term data. Understanding comes from hindcast database, and ABPmer SEASTATES. At least 30 years of hourly data is used to describe long term wind. This is a standard approach and the hindcast model is validated using historical wave data. **Cable laying evidence base** DL outlined that new studies are becoming available and will be reviewed and included as part of ES. Assessments presently rely mainly on fundamental physical processes with conservatively realistic assumptions where needed. ABPMer are involved in related project work in this regard and those results will come into the public domain. DL queried if there are any other studies we should be aware of? **Profile type(s) of potential cable protection** AL outlined that a CBRA will be developed. VE are working on a mitigation plan which aims to reduce pressures on benthic features. **Sandwave levelling** DL noted the temporary nature of the impact. Only 50% of material within the trench profile may become fully ejected as purpose of trench is to bury cable, a large proportion of material is retained in trench by design, so VE propose to stick to 50% as it is a realistic maximum design scenario. This approach has been taken on many projects so far, would be unduly unrealistic to change to 100%. **Construction related impacts due to simultaneous operations at**

	NF DL noted that for the ES more information is available from NF from their PEIR, VE will continue to refine/ expand description of NF and other cumulative projects being as realistic as we can about present designs. The potential for overlapping sediment disturbance effects is inherently limited by the relative orientation and location of the two projects across the tidal current axis. NF and VE are adjacent, tide moving along axis of each site, not towards each other so limited possibility of overlapping sediment deposition. **More site-specific and recent data for the scour assessment** DL notes that this is a fair comment in some ways but Galloper and Greater Gabbard are as different to each other as they are to VE. Although geographically close, they are different in terms of sediment location and water depths. Very much looking at wider evidence base – specific examples of scour come from Scroby Sands are relevant. **Impact of wind energy interruption by the turbine array on lee side wave energy** DL explained that the effect is not significant and therefore not scoped in. We do not expect enough change in the wind field to have an effect on the coast based on available evidence.
Item 5: Marine Water and Sediment Quality (and WFD)	DH highlighted Key S42 comments received during the PEIR consultation: sediment sampling; sample analysis; MW&SQ impact assessment; and WFD compliance assessment. **Sediment sampling** DH explained the sampling across the array area for contaminants, 8 samples collected. Flagged those that were tested were associated with "fines." DH noted that VE engaged with MMO, CEFAs and NE on the survey scope of works. Noted 12 day grabs across the full study area. From a containment's perspective, the survey is provides point source data to provide greater detail on a broad geographical area. More grabs are location in the ECC due to geographical spread. DH highlighted PSA data. Noted contaminant samples were low in contaminant levels. DH highlighted sampling with the ECC was greater as finer

material was seen inshore than in the array – two samples in shore were analysed. Some samples in mid corridor had higher proportion of fines.

Sample analysis

DH outlined contaminant levels are below the relevant guidelines.

JE raised concern on number of samples in array and interconnecting area.

DH noted consistently coarse sediment types in area. Unlikely additional samples will provide further clarity or additional information in terms of levels of contamination. Consistently low contaminants are seen across the region and highlighted the point source nature of the sampling.

RM queried if this is acceptable - JE?

JE would have to check with the regulatory assessment team - **Action**

PBDEs

DH outlined PBDEs are an emerging contaminant, was included in analysis but limited laboratories so not included in PEIR but now available and will be included in ES.

WFD Assessment

DH outlined that the WFD Compliance Assessment will follow EAs 'clearing the water for all' guidance to assess compliance of activities within transitional and coastal water bodies. DH queried if consultees are able to provide examples of potential enhancements that would be considered beneficial in terms of inland surface water bodies, for example, at a crossings?

GA will take that back to EA team. **Action** – email GD re potential enhancements to waterbodies.

DH queried if there is any update for the classifications referred to in our assessment? **Action** - email EA on this.

Actions:	Cefas to assess geophysical data against number of samples (Benthic Ecology)	Cefas

Check sample analysis with regulatory assessment team (MS&WQ)	Cefas
Provide examples of potential enhancements that would be considered beneficial in terms of inland surface water bodies (WFD)	GoBe to email Cefas
Is there any update for the classifications needed? (WFD)	GoBe to email EA

4 ETG 4 ONSHORE BIODIVERSITY, HYDROLOGY AND GROUND CONDITIONS

4.1 14/01/2020 PRE SCOPING ONSHORE BIODIVERSITY, HYDROLOGY AND GOUND CONDITIONS ETG

Minutes

Five Estuaries (Galloper Extension) – Evidence Plan – Hydrology and Ecology

14th January 2020, 09.00 to 12.30
Meeting – Novotel Ipswich Centre, Grey Friars Road, Ipswich, IP1 1UP

Participants

Nicola Young (innogy)	NY	Alan Mitchell (SLR)	AM
Cassie Greenhill (innogy)	CG	Jess Colebrook (SLR)	JC
Nicola Solly (GoBe Consultants)	NS	Martin Baines (SLR)	MB
Sammy Mullan (GoBe Consultants)	SMU	James Appleby (SLR)	JA
James Meyer (ESC)	JM	Duncan Watson (SLR)*	DW
Lisa Chandler (ESC)	LC	Lizy Gardner (GoBe)*	LG
Bethany Rance (ESC)	BR	Fraser Carter (GoBe)*	FC
Simone Bullion (SWT)	SB		
Jacob Devenney (SWT)	JD		
Jacqui Miller (RSPB)*	JMI		
Matt Williams (SCC)	MW		
Andrew Murray-Wood (SCC)	AMW		
Isacc Nunn (SCC)	IN		
Graham Gunby (SCC)	GG		
Barbara Moss-Taylor (Environment Agency)	BMT		

* Dialled-in

Apologies

Gemma Allsop (Environment Agency)

Pre-meeting papers provided:

- *Slide pack (Five Estuaries Info Pack - Jan 2020 - Ecology & Hydrology.pdf)*
- *Evidence Plan Terms of Reference (Five Estuaries Draft Evidence Plan ToR rev1.docx)*
- *Agenda (Onshore Ecology Hydrology 14.01.20 – AGENDA.pdf)*

Meeting Agenda

1. Introductions
2. Project overview
3. Scoping Report
4. Draft Terms of Reference for the Evidence Plan
5. Ecology
6. Hydrology
7. Land quality
8. HRA
9. AOB

All actions are captured in bold.

Agenda Item	Minute / action	Action
1	**Introductions** NY welcomed the meeting participants and thanked them for their attendance. Round table introductions were made. NY introduced the agenda and aims for the meeting. NY noted that the project is still known as Galloper Extension Offshore Wind Farm (OWF) as the name Five Estuaries is not yet in the public domain. The Area for Lease for the project was awarded from The Crown Estate in August 2019.	No actions recorded
2	**Project overview** NY highlighted that the project is in the early stages of development and explained the project team structure, including consultants for the EIA Scoping and site selection and alternatives. NY presented the Five Estuaries Area of Search (AoS) being considered for scoping – see slide 4. NY noted that this is an initial area of search which is being considered for refinement but noted that the project is at a very early stage. She also acknowledged that the area is heavily designated. NY presented the potential for the three broad areas where landfall could be made – Dunwich, Sizewell and Bawdsey. These have primarily been selected to avoid direct impacts on designations as far as possible or considered alternative methods to avoid direct impacts (such as trenchless methods of cable installation). NY highlighted areas of the Sandlings SPA which have been 'cut-out' in the southern portion of the onshore AoS. NY confirmed that innogy have accepted a National Grid connection offer at Friston and that innogy would seek to have the Five Estuaries substation as close as possible to the proposed new NG substation at Friston. NY presented the area of search for the substation (the red line on slide 5). LC enquired why 3 km radius had been selected. NY confirmed that this was because RHDHV felt that there were numerous locations within that radius where a substation could be sited. She also explained that this is being considered in more detailed at the moment in particular how those locations could be connected to the landfall. NY provided an overview of the project programme (see slide 6). The final Scoping Report and the preliminary HRA Screening report will be available in March/ April 2020. NY explained that formal consultation on the cable route options will be undertaken in April/May 2020. The submission of the PEIR	

	and Application are anticipated in Q3 2021 and Q4 2022. The aim is that the project would be operational in 2030. A discussion was held about the potential construction period. Construction is anticipated to commence circa 2027. LC requested confirmation that the project is seeking to meet a CfD round. NY confirmed that this is the correct. LC highlighted the risk associated with if a substation location is ultimately selected which is beyond the 3 km AoS, this won't have been considered in the Scoping Report. NS confirmed that fact that the scoping report will only have considered a 3km substation, won't prevent an alternative siting if considered in the EIA. NY agreed and noted that the Scoping Report will have characterised the cable routing areas which lie immediately adjacent to the substation AoS so 'new' effects are unlikely to arise if an alternative location is chosen. It was agreed that SCC are welcome to copy Natural England in on any responses provided to innogy. NY confirmed that innogy are engaging with Natural England however, Natural England do not currently have a team established to take on the additional project work. innogy will look to arrange a separate call with Natural England once their team has been established (anticipated to be end of January 2010). **CG to provide a copy of the presentation and draft minutes to all invited participants (including Natural England and IDB).**	CG Post meeting note – this has been completed
3	**The Scoping Report** The Scoping Report is being led by GoBe Consultants Ltd. NS highlighted that the Scoping Report is approximately 70% complete at the time of the meeting however there is sufficient time to incorporate any feedback received during the meeting. NS presented a high-level overview of the scoping study being undertaken. The Scoping Report seeks to define the scope of the subsequent EIA process (i.e. what should be scoped in or out) and identify potential significant effects (in EIA terms) at an early stage and ensure that the EIA assessment is proportionate and robust. The Scoping Report will also propose further survey requirements, mitigation and methodology for the EIA assessment. NS highlighted that the HRA Screening report will be submitted for consultation at the same time as the Scoping Report for consultation. The Scoping Report is programmed to be submitted to PINS in March 2020 for consultation under the formal PINS process. This includes 28 days for stakeholders to provide their consultation responses to PINS which will be	No actions were recorded

	fed into the Scoping Opinion. NS provided an overview of the structure of the Scoping Report including the general introductory and technical chapters (separated by onshore and offshore elements). She noted that a summary of impacts to be scoped in and out will be provided in the Scoping Report. NS provided an overview of what aspects will be covered within the technical chapters in the Scoping Report, including the baseline, methodology for EIA, items to be scoped in (and out) and proposed embedded mitigation. She also noted that project specific questions will be included, which are directed to consultees, which innogy is seeking feedback on.	
4	**Draft Terms of Reference for the Evidence Plan** NS provided a brief overview of the Evidence Plan (EP) process. She explained that it is a formal tool to agree the information presented and approach undertaken in the EIA and Development Consent Order (DCO) application. The process provides formal structure and general rules (outlined in the Terms of Reference) under which agreement will be sought from each of the parties. The project will be seeking to gain consensus on the information which informs the assessment which will help to reduce disagreements in the examination phase and the development of Statements of Common Ground (SoCG). It was noted, as per the Terms of Reference (ToR), records of discussions will be maintained through minutes and an agreement log. It is hoped that the process will reduce resource requirements for all parties for all during examination. NS presented the proposed structure for the Evidence Plan for Five Estuaries. She noted that all parties are welcomed to attend and join any additional Expert Topic Groups (ETGs). **All parties to inform innogy (email CG) if they would like information or to participate in additional ETGs.** NS presented the roles and responsibilities of the steering group and the Expert Topic Groups (ETGs) – see slides 11. NS noted that a draft ToR (previously circulated) seeks to set out the process for engagement with stakeholders under the EP. The document includes the proposed parties, roles, responsibilities and general rules of the EP. She highlighted that the project will be seeking agreement on the ToR from each of the parties involved in the process.	All Parties

	All parties to provide comments and/ or alterations to the draft ToR by 14th February. LC raised concerns regarding the wording in the ToR regarding the authority to speak on behalf of the organisations. SM explained that it is understood to be an evolving process and that agreements made are based on the information available at the time and that the ToR seek to be a tool under which all parties are happy to work under. It was agreed that some caveat/ additional wording was required in the ToR regarding the advice provided is based on the best available information at the time and that the process is not legally binding. BMT raised potential timescale issues and agreed to provide feedback on the ToR.	All Parties ToR – 14th Feb
5	**Onshore Ecology** The onshore ecology (including intertidal birds) assessment for the EIA scoping will be undertaken by SLR Consulting; this part of the meeting was presented by JC and DW. JC provided an overview of the publicly available ecological data which has sought to inform the EIA Scoping Report. JC requested confirmation whether any additional data should be considered. GG confirmed that East Anglia One and Three projects should also be reviewed when characterising the baseline. JC requested whether there are any habitat improvement schemes which the project should be aware of. It was suggested that the project should contact National Trust and the Forestry Commission due to their land holdings within the AoS. SB provided a contact for the Forestry Commission. **Innogy to consult with the National Trust and Forestry Commission regarding relevant data for their land holdings and potential habitat improvement schemes.** JC presented the impacts which have been considered in the Scoping Report for onshore ecology – see slide 15. She noted that given the large area currently being considered it is hard to refine the scope, however she requested that if there are any key issues or priorities to please make the project aware. AMW requested that Suffolk priority species and habitats are included explicitly within the Scoping Report – **JC agreed to include this in the Scoping Report**. JC presented the proposed impacts to be scoped out – see slide 16. It was agreed that a precautionary approach will be taken and where there is doubt then potential impacts would be scoped into the EIA.	Innogy JC

	JC presented the potential surveys which could be scoped out, such as reptiles, where appropriate mitigation could be implemented to avoid impacts. SB highlighted that adders are sensitive species and severance from hibernation areas should be considered. SB noted that adder should be considered specifically as opposed to an umbrella term such as reptiles – **JC agreed to include this in the Scoping Report**. It was agreed that cumulative effects need to be scoped into the EIA. JM requested a timescale for a revised AoS in order to undertake the surveys. NY confirmed that this will be Q2 2020 to enable land access agreements to occur prior to surveys in the summer of 2020. JC presented the site specific surveys to inform the EIA – see slide 17 for further details. She noted that the final methodologies would be agreed with the ETG following the refinement of routes but would seek to agree principles of the surveys in this meeting. It was agreed that areas would be surveyed for great crested newts, within a 250 m buffer around the Red Line Boundary (to be defined) for temporary habitat loss and 500 m for permanent loss, using eDNA in the first instance. JM highlighted natterjack toad populations are present and are subject to monitoring. The wildlife trust are the site manager and the habitat/ scheme is part of the EDF development. A discussion was held around the requirements for dormouse survey. SB highlighted that scrub. hedgerows and woodland habitat must be considered for survey and evaluated for the potential for dormice. JC agreed this would be the case. JC outlined the proposed approach for bat surveys. JM highlighted the potential for light disturbance, for example at water course crossings, and that these areas should be considered for survey.[1] **JM agreed to provide evaluation criteria for bat activity levels from previous projects for important species.**	JC JM

[1] Post meeting minute: East Anglia ONE North and East Anglia TWO have used the following criteria for assessing hedgerows important for bats:

- Any hedgerow within 200 or more bat passes recorded; or
- Any hedgerow with 1 or more barbastelle bat passes.

We would suggest you consider incorporating the same into your assessments.

	NY requested whether there are any active local wildlife groups. JM confirmed that there are and that they submit their data to Suffolk Biodiversity Information Service (SBIS). SB confirmed the local mammal group has focus on badgers. JC outlined that best practice for surveying water voles and otters would be adopted - survey within 250 m upstream/ downstream of watercourse crossings if evaluated to be potentially suitable habitat. Badger survey would be conducted at areas within 30m of the ECR boundary and substation. Invertebrate survey and rare plant surveys would be targeted based on likelihood of presence/known records/habitat types affected. DW presented the proposed survey approach for intertidal birds. He noted that the proposal will be for targeted surveys of over-wintering and breeding birds. He noted that there are numerous sensitive species within the AoS but he is keen to focus the surveys on areas likely to support sensitive species which could be significantly affected by the works. He explained that this in line with the EIA Regulations (2017) which seek to focus EIAs on key issues which may result in significant effects. He provided an example of refining surveys of wintering birds to significant populations in estuarine areas. JMI noted that additional information on the landfall areas has been provided by innogy to RSPB since the call with them on 12th December. She highlighted that a significant part of the Minsmere RSPB Reserve lies within the AoS. JMI went on to note that stone curlew have been recorded in the northern part of the AoS. JMI explained that RSPB hold data on the area which they may be able to provide on request. DW noted his understanding that there were records of honey buzzards near Dunwich. DW requested any information on this species as these may require specific surveys. JMI confirmed that honey buzzards have not been confirmed to be breeding in the area but have been seen displaying and holding territory in recent years. SB highlighted the seasonal requirement (in the spring) for turtle dove surveys. DW proposed that breeding bird surveys are undertaken in 2021 to enable the surveys to be undertaken over a single breeding season. Winter surveys would take place in winter 2020/21. Habitat surveys and more detailed desk study would be undertaken in summer 2020 to inform the detailed scope of survey work required. This was agreed as a reasonable approach. AM confirmed that the survey principles will be outlined in the Scoping Report for formal consultee feedback.	

	A discussion was held with regard to appropriate seasons for surveying invertebrates. JC explained that this would be informed by an entomologist and based on a habitat assessment. NY proposed a preference to undertake late summer surveys in 2020 due to identification time requirements, with further surveys to be carried out in spring/ early summer 2021, if required. JC requested confirmation whether any additional species should be surveyed in addition to those on slide 17. No additional species were identified. AM requested any lessons learnt and good case studies for reinstatement from other schemes in the area. LC noted that the monthly implementation meetings for East Anglia ONE had been useful. AM asked if it was effective to discharge the DCO requirements. LC noted that it was helpful due to the development being situated across the two council boundaries. AM highlighted that it could be useful to attend to discuss the potential of cumulative impacts within the area. LC highlighted the Suffolk Coast Forum meeting which innogy have been invited to attend. NY confirmed innogy are aware and will be attending at an appropriate point in the project as it may be a little early to attend the next proposed meeting. JM highlighted that East Anglia ONE North and Two have committed to avoid the Sandlings SPA outside the breeding season which was welcomed. DW queried the suggested inclusion of the Stour and Orwell Estuaries SPA/Ramsar in the initial comments from ESC/SCC. JM noted that this was a precautionary comment having not seen the AoS. JC confirmed that the AoS lies 7.3km from the SPA/Ramsar and it was agreed that significant effects were therefore unlikely. JM highlighted the potential for cumulative vessel disturbance from Harwich and the potential effects on intertidal birds. This was noted.	
6	Hydrology The hydrology assessment for the EIA scoping will be undertaken by SLR Consulting; this part of the meeting was presented by MB. MW to provide IDB contact details (this action was completed during the meeting). Giles Bloomfield (giles@wlma.org.uk) was provided as the contact name to be included in the Evidence Plan from the Internal Drainage Board. MB noted that the AoS is large and so the approach is high level at this	MW

	stage. MB presented an overview of the AoS, including the substation search area, relative to the hydrological designations (such as EA flood zones, source protection zones) – see slide 20. He noted that the area is typically flat and drained by numerous major watercourses. He noted that the East Suffolk internal drainage board manage numerous areas, in the lower areas of land, and in some cases pump catchment discharges into the Main Rivers (and out to sea). **innogy to check that East Suffolk IDB were invited into the ETG meeting and provide all relevant materials.** MB presented the proposed approach to characterising the baseline, including previous assessments/publicly available data (such as Galloper OWF, EA data (WFD, WQ, abstractions, discharges, zones), BGS data and IBD data) - see slide 21. MB noted that the ESC will be consulted for any private water supply data records held during the development of the EIA. He noted the importance of the inter-relationships between ecology and hydrology and noted that the two specialist teams are working together, in particular for the marsh and estuarine areas. MB asked if there are any unique water catchment pressures which SLR should consider in their baseline. BMT suggested that they would class East Anglia as an over-abstracted area and noted high levels of diffuse pollution from farmland. IN noted that water scarcity can be an issue. MW confirmed that the project would seek to prioritise water re-use in the hierarchy wherever possible. BMT noted that the EA will not dis-apply any abstraction licences. **BMT agreed to confirm whether the Environment Agency hold any data/ information on diffuse pollution programmes in the area.** MB presented the potential impacts which have been considered in the Scoping Report – see slide 22. MB noted that surface water modelling is being undertaken in the proximity of Friston. MW highlighted that Friston suffered from multiple surface water flood events, and so SCC are creating a SWMP based on the current baseline (i.e. without development) and considering potential mitigation for the future. MW confirmed that the model data could be made available to innogy to inform the EIA. MW confirmed that the topography survey could	Innogy BMT

	be provided to innogy on request. [2] MW explained that the flooding is affecting residential properties (near Friston) but they are seeking to draw on the SPR community fund to implement SuDS measures and to consider the feasibility of potential mitigation measures (such as encouraging farmers to capture and pump water for arable farming). MB noted that a draft CoCP would be included in the application and would include guidance principles of how the site is to be managed (such as emergency procedures for spillage, control of potential pollutants and managing stockpiles). MW requested whether a full SuDS system would be used during construction - MB confirmed. A discussion was held around the requirement to de-water. MB confirmed that the requirement is currently unknown. BMT noted that on other schemes Transition Joint Bays (TJBs) were installed prior to other works and surface waters built up in them which were in some cases contaminated by the concrete. She suggested consideration of phasing of works to prevent this occurring. MB noted the presence of source protection zones within the substation search area. MB requested whether there were any water management schemes in the study area. LC highlighted the Aldhurst Farm habitat management scheme which has controlled water levels and recreated reed beds. In addition, Minsmere sluice should be considered. Mark Kemp (mark.kemp@eastsuffolk.gov.uk) was provided as the contact name for information regarding private water supplies. MB presented the potential impacts to be scoped out – see slide 23. MB requested whether a CoCP would be sufficient to be appropriate and to provide sufficient mitigation. MW highlighted the cross-over period during construction and O&M phases. MW agreed that the CoCP would be suitable for works relating to surface water management outside of the substation. It was agreed that the specific requirements for the substation should be considered further and may require a separate surface water management plan.	

[2] Post meeting minute – It was confirmed that these surveys are available for request.

	MW highlighted that silt run-off could be an issue and will need to be considered and the project should assume conservative set-back from sensitive watercourses. **BMT agreed to provide lessons learnt from previous OWF cabling works and a preferred set-back distance.** MB presented the proposed scope for site specific surveys – see slide 24. These would be reviewed and refined as the AoS is narrowed. MB confirmed that if any private or public water abstractions had the potential to be interacted with then a full survey would be undertaken; noting that these will be avoided where possible. MW highlighted that the Leiston catchment is in the substation AoS and the catchment also has notable surface water flooding issues (as well as Friston). He highlighted that the model report is available online but the actual model (and additional information) for this catchment could be made available on request. MB highlighted that assessment of water quality would be informed by the EA data. No WQ sampling or measurements are anticipated at this point but could be undertaken in especially sensitive areas. BMT confirmed that this was a standard approach for similar projects.	BMT
7	**Land quality** The land quality for the EIA scoping will be undertaken by SLR Consulting; this part of the meeting was presented by JA. JA presented the data which has been considered to inform the baseline characterisation to inform the Scoping Report – see slide 27. He noted that an evaluation of potential sources of contamination (from publicly available data), and the potential for these to be linked to sensitive receptors via an exposure pathway would be undertaken. JA also noted that the assessment will consider whether any activities could create pathways linking sources and receptors. JA presented the impacts which have been considered in the Scoping Report - see slide 28. AM asked if there had been any interaction with any UXO onshore with the other projects in the region. AMW confirmed that the area had airfields and there is a risk of ordnance left on sites following both world wars. AM and JA noted that avoidance of UXO will be an important consideration of the site selection process.	

	LC noted that windblown dust can be an issue in particular near Bawdsey. AM noted there is a standalone air quality chapter and will detail how dust will be mitigated and managed. JA highlighted the importance to liaise with the air quality specialist when undertaking the EIA to ensure that appropriate mitigation measures are put in place. LC highlighted that complaints were received with regard to East Anglia ONE where dust was created and blew into a water course. She noted that the remedial works are on-going. MW noted that suppression using water may not be feasible to obtain sufficient water supply to undertake the method. However, he noted that it could be a proven and appropriate method of dust suppression. . Sizewell C will have a large water demand if consented. If required, he suggested that the project engage with the local water suppliers early in the process to ensure that potential demands upon supply could be met. BMT noted that other projects have staggered construction to limit dust generation impacts. CG welcomed the feedback and noted that innogy as an organisation focus on lessons learnt from previous projects and have significant experience with mitigation and managing dust generation. LC confirmed that plans of any landfills within the AoS are held by ESC. JA highlighted where a pathway/pollutant linkage is not present then some receptors may be scoped out for further consideration in the EIA. JA presented the impacts which have been proposed to be scoped out in the Scoping Report - see slide 29. He noted that the potential for significant effects is anticipated to be limited to construction and decommissioning, as opposed to O&M. JA highlighted that the CoCP will contain procedures if locally contaminated land is discovered during works, including appropriate PPE and safe working practices. JA noted that soil should be managed as a resource and so stockpile management, covering and handling should be considered to prevent degradation. JA noted that mineral deposits are not considered to be likely within the AoS. IN requested further consideration and disagreed with them being scoped out at this stage. IG provided details of relevant information available on the SCC website including the Core Minerals Strategy and Suffolk Minerals Local Plan. The Suffolk Biodiversity Information Service were also identified as maintaining records of Regionally Important	

	Geological/Geomorphological Sites (RIGS). JA presented that targeted intrusive investigations could be required if localised, potentially significant sources of contamination are identified in the refined AoS. This would enable the recovery of samples for analysis and quantitative risk assessment. It is agreed that the first step should be DBA to understand whether there are any source > pathway > receptor linkages and, in accordance with current guidance, that these should be presented in a conceptual model. AM noted that surveys would only be required in exceptional circumstances as typically cabling would avoid higher risk sites. SB enquired how compaction is dealt with. JA confirmed that traffic movements and stockpiling should be limited. AM highlighted that SLR have been influential in best practices for soil storage, height, slopes, re-seeding from previous quarry works. AM suggested that the project will seek to adopt good practices to negate the need to import soil for regeneration. MW noted that infiltration testing of soils and groundwater monitoring may also be requested. IN noted that mineral testing may also be requested to ascertain whether any deposits disturbed by the final ECR would be suitable for reuse as part of the wider OWF project. Testing to classify excavated minerals would need to reference the current Specification for Highway Works (SHW) Series 600 and supporting British Standards such as BS EN13242 (Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction).	
8	HRA The HRA Screening will be undertaken by GoBe Consultants; this part of the meeting was presented by LG and FC.[3] LG presented the onshore HRA considerations which have been considered in the preparation of the HRA Screening report – see slide 32. She explained that direct impacts are being considered within the AoS. The impacts are anticipated to be highly localised and so a buffer of 100 m has been applied to the AoS has been used to identify non-SPA sites – see slide 32. LG presented the receptor groups, there are six onshore SAC/Ramsar sites for which potential interactions (and potential LSE) cannot currently be discounted, based on the location of these sites within the onshore Application Boundary. Particular sensitivities include the woodland features within Staverton Park SAC and the marine, freshwater and marshland habitats within Minsmere Walberswick Ramsar and the associated	

[3] Post meeting minute: The offshore aspects of EIA and HRA were detailed in the Evidence Plan meeting held on 10th February 2020, including proposed (benthic ecology) and on-going surveys (such as offshore ornithology and marine mammals).

	nationally-scarce plant species and invertebrates of this site and also the Alde-Ore Estuary Ramsar A number of feature groups can however be excluded from the site selection (and Screening) process – see slide 33 – based on a lack of spatial connectivity as defined by the parameters presented. FC presented the ornithological considerations for the HRA screening report. He proposed a criteria based approach to screen in sites – see slide 34. FC presented the key sites for ornithological receptors, for the project, but noted that additional sites will also be screened into the HRA screening report – see slide 35.	
9	AOB **CG to circulate proposed dates for the next ETG meeting (w/c 16th or 23rd March).** It was agreed that a detailed agenda and information will be provided in advance of the next meeting. It was agreed to try and arrange the EP workshops back to back to help with resourcing constraints. LC offered that landscape officers could arrange a substation AoS site visit prior to refinement. She highlighted that ESC are keen to be involved in the early stages of site selection and alternatives. This was noted.	**CG – post-meeting note: placeholders have been sent for w/c 23rd March**

4.2 03/08/2021 PRE SCOPING HYDROLOGY AND GOUND CONDITIONS ETG

MINUTES

Hydrology and Ground Conditions Expert Topic Group (ETG)

Location:	**MS Teams**
Date:	**03/08/2020**
Time:	**10:00am**
Minutes taker:	**Fraser Malcolm**

Attendees

Cassie Greenhill (CG)	Five Estuaries Offshore Wind Farm Ltd (VE OWFL)
Nicola Young (NY)	VE OWFL
Fraser Malcolm (FM)	GoBe Consultants
Sammy Mullan (SM)	GoBe Consultants
Shaun Fisher (SF)	SLR Consulting
Colin Duncan (CD)	SLR Consulting
Matthew Scott (MS)	SLR Consulting
Annie Gordon (AG)	Essex Wildlife Trust
James Carr (JC)	Environment Agency
Laura Driver (LD)	Environment Agency
Liam Robson (LR)	Environment Agency
Mark Woodger (MG)	Essex County Council
Tim Simpson (TS)	Essex County Council
Apologies:	
Harriet Thomas (HT)	VE OWFL
Yolanda Foote (YF)	Natural England
Alan Gibson (AG)	Natural England
Nick French (NF)	Essex County Council
Gemma Allsop (GA)	Environment Agency
Mark Nowers (MN)	Royal Society for the Protection of Birds (RSPB)

Introductions	Attendees provided an introduction and CG reviewed the proposed meeting agenda.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Project Update	CG presented a general project update including a summary of the ongoing site selection process (Slides 5 – 7). NY noted that National Grid had previously confirmed an onshore grid connection location in Friston, Suffolk. This offer was subsequently revised to the East Anglian Coastal Substation (EACS), and National Grid are currently undertaking their own site selection work for their substation. National Grid advised the new connection would be in the vicinity of Clacton-on-Sea. Constraints analysis, detailed desk studies and site selection work has sought to avoid various designations which has led to Holland Haven being identified as the preferred location for landfall. A summary of the current programme was presented noting that site selection, offshore surveys and onshore surveys have now commenced (Slide 8). It was noted that submission of the Scoping Report to the Planning Inspectorate is scheduled for September 2021. CG confirmed the scoping boundary for the project (Slide 9). MW queried the location of the current Clacton substation and noted that a wind farm current connects there. CG confirmed that this is the connection point for Gunfleet Sands.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Evidence Plan Process and Approach to Scoping	SM provided a summary of the proposed Evidence Plan Process (EPP) that will be followed to facilitate consultation and discussion on key elements of the project. SM noted the EPP is typically used to discuss Habitats Regulations Assessment (HRA) issues but this has been expanded to VE to incorporate a range of key EIA topics. See Slide 11 for more information. The EPP will be used as a tool to agree evidence that is required for a robust EIA, and to agree that the information incorporated is the best available. Ultimately a Evidence Plan report will be submitted to PINS outlining discussion and agreements. The structure of the EPP and relevant ETGs was presented (Slide 12) and the roles and responsibilities of the Steering Group and ETGs were described (Slide 13). SM confirmed that VE OWFL are currently finalising the Terms of Reference (ToR) for circulation. SM also provided a summary of the proposed aims and approach to scoping (Slide 15). VE OWFL aim to formally agree key datasets and assessment approach through the Scoping Opinion. The Scoping Report is schedule to be submitted to PINS in late September 2021and consultees will have 28 days to respond.	

	SM summarised the structure and proposed content of the Scoping Report (Slide 16). The technical chapter will review what VE OWFL are proposing to scope into the EIA and scope out presenting justification for scoping out where relevant. The chapters will have questions for stakeholders to assist in providing responses to key areas.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Hydrology, Hydrogeology and Flood Risk	MS presented details of the study area relevant to Hydrology, Hydrogeology and Flood Risk. MS noted that within the study area there are not many areas at high risk of impact from a hydrological, hydrogeological and flood risk perspective. The study area aligns with Holland Brook and the main flood risk areas are perceived to be around the coastal area in the vicinity of Holland Haven Marshes. Fluvial flood risk follows the watercourse of the Holland Brook. The top of the catchment is covered by an area of Zone 3 of the groundwater source protection zone mapping. Sources of groundwater are located to the north of the catchment. There is low risk impact to public water supplies within the catchment area. There are a number of private boreholes within the study area used for local domestic or agricultural supply. These are mostly located in the northwest of catchment. **Baseline characterisations** MS presented a list of data sources (Slide 20). The current data under consideration uses publicly available data from web mapping services and aerial imagery to provide an overview of the study area at an appropriate scale. As the cable routing and substation is selected more detailed site specific data will be used to characterise specific areas. This more detailed review of data will focus on areas that can potentially be impacted by the cable and substation infrastructure. This data has been used to identify likely hydrological connectivity with infrastructure and sensitive and designated receptors. Receptors that have been identified are Holland Haven Marshes and some areas of ancient woodland. Consideration has also been given to designated areas that border the survey area. **Potential Impacts** MS presented the potential impacts of the project noting the following in relation to the impacts presented on Slide 21. Construction impacts include: - Generation of turbid runoff which could enter the water environment with particular focus on surface water and groundwater; - Changes to surface water runoff patterns which could affect flood risk with a particular focus at the substation relating to activities such as	

vegetation removal, compacting sediment, watering of excavation;
- Potential for damage to flood defence or surface water drainage infrastructure particular flood defences at the coast and where water course crossings are required; and
- Pollution or disruption of flow to groundwater through ground excavations or piling. This impact is impact likely to be relatively small, considering there is no public water supplies in study area. Groundwater resource is relatively disparate but MS is cognisant that there are local private water supplies which is the main reason for inclusion.

MS noted the following Operational impact:
- Changes to surface water drainage at the onshore substation location and noted that this was restricted to the location of the onshore substation and changes to surface water drainage that could be caused by this. Mitigation will be considered in the form of Sustainable Urbans Drainage Solutions.

Decommissioning impacts were noted to mainly relate to turbid runoff as detailed on Slide 21.

MS presented the scoped out impacts as follows (slide 22):
- During operation impacts related to land within the cable route corridor which will be fully reinstated following construction, therefore there will be no changes to hydrological regimes and therefore it is proposed that operational impacts can be scoped out.

- Impacts relating to accidental spills and leakages of contaminants is also proposed to be scoped out on the basis that the principal and robust implementation of a Code of Construction Practice (COCP) will adequately mitigate and mange risks.

MS invited comments on impacts scoped in and scoped out of EIA.

JC noted concerns over scoping out 'Accidental spillages and leakages of oils, fuel and other polluting substances which could potentially enter the water environment' due to the risk of Impacts relating to the impact of bentonite release from HDD under watercourses. There have been issues under SSSIs which have resulted in long term impacts.

TS also raised that it was premature to scope out impacts of flood risk where they may relate to any built structure associated with the substation including, for example, areas of carparking.

MS noted both points with regards to scoped out impacts.

Site specific surveys to inform the EIA
MS summarised the site-walkover surveys would be undertaken over areas of focus following identification of a more refined onshore cable

	route and preferred substation site(s). This would confirm information gained from available mapping and also identify any unknowns not visible or missed from aerial mapping/imagery. The surveys will broadly seek to verify the mapping data and identify any additional features that could be impacted. MS noted that there will be particular focus at the landfall, and to make sure there is no interruption to hydrological processes that could have implications downstream. SM requested clarification if TS would be content for the linear features (cables) to be scoped out of WFD, and scope in the substation? TG confirmed that in principal there is less concern over linear features as long as the areas are reinstated. Channelling for cables will primarily be of concern during construction. TS confirmed that the built environment including road access, car parking or substations should be considered. LR highlighted that Tendring will assess the surface water aspects.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Ground Contamination and Soils	CD confirmed that he would be working very closely with colleagues working on hydrology and hydrogeology to understand impacts and ensure it aligns with the assessment on Ground Contamination and Soils. CD noted that the assessment on ground contaminations and soils will consider geology and land quality. Ground conditions within the study area are not considered to be overly sensitive and preliminary indications are impacts are all manageable. *Baseline Characterisation:* CD stated that initial characterisation will use the data sources presented on Slide 26. CD noted that additional data sources will be identified through consultation from LPAs, EA and other relevant stakeholders will be incorporated. Datasets will be used to try and identify any historical contaminated sites. The main cable routes will be designed to avoid main urban areas as far as possible. The majority of the study area is rural. MG – Essex County Council's Minerals and Waster Authority will hold records of historical and existing landfill sites. Invited CD to request data through MG who will pass to relevant colleagues. CD is conscious of gravel pits and brick works in the area and notes there may be historical landfill locations within the study area. *Potential Impacts* To inform impacts scoped in CD considered locations that could adversely impact ground conditions within the study area, and potentially sensitive environmental receptors. See Slide 27 for list of scoped in impacts.	

	Scoped out impacts are detailed on Slide 28. These scoping considerations will be supported by implementation of a robust CoCP. Information from Essex Country Council will ensure mineral deposits are not sterilized. MG noted that Essex County Council are currently in the process of reviewing the Minerals Local Plan and it will identify areas where mineral deposits will be safeguarded from future development, this is likely to extend across much of Essex. Essex County Council will welcome conversations on impacts in relation to the published plan. MG also noted that proximity to local communities will need to be taken into account. MG queried the landfall / HDD location and how long the HDD bore is going to be. NY noted that as the project is still in early phase development there is limited detail available at present but engineers will aim to keep the HDD as short as possible and will be drilled from shore. The drill rig/location will not be located within the SSSI. The HDD options and route are subject to further engineering feasibility work. More information will be circulated once available. CD noted from other project experience that HDD underneath Carnoustie golf course found spot to put the drill rig and disturbance was minimal. Key thing is to manage the rig and drill fluids. MG accepted that tunnelling can be precise and accurate. JC considers it premature to scope long term risk to human and environmental sectors without further detail. There is experience of impacts elsewhere and considers it too early to scope items out. SM – queried the timescales for publication of the revised Minerals Local Plan to MG. MG took an action to provide a likely publication date. Post Meeting: MG confirmed there is no fixed timescale but the plan will likely be in place at the time of DCO submission. *Site Specific surveys to inform the EIA* CD noted that the aim is to identify cable routes that avoid area of concerns. If areas of concern are identified and overlap with cable routes then intrusive surveys would be undertaken. These will be informed by the desk top study and information provided by local authorities.	
Actions	**To submit request for data from MG who will seek to identify relevant data from the Mineral and Waste Authority** **Confirm timescales for publication and implementation of the Minerals Local Plan – completed.**	**CD** **MG**

Concluding Remarks	CG concluded the meeting by thanking all attendees for their time and participation. SM noted that following this meeting VE OWFL would seek availability for holding a further round of ETGs post-scoping to try and get date identified as early as possible. MG requested that the scoping report be circulated to stakeholders as early as possible as the formal scoping window requires a tight turnaround for formal consultation. FM took an action to confirm if the Scoping Report can be issued to consultees early. Post-meeting clarification – VE OWFL will aim to issue the Scoping Report to consultees at the same time as issuing to PINS to try and provide additional review times for consultees. FM reviewed the actions from the meeting.	
Actions	**To confirm if local planning authorities can be issued with the Scoping Report prior to formal issue by PINS – COMPLETED (See above).**	**FM**

Post meeting minutes:

The Environment Agency provided the following guidance:

- Requirement for Flood risk Permits (EPR) – https://www.gov.uk/guidance/flood-risk-activities-environmental-permits
- Fluvial climate change for main rivers - https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances
- Flood risk assessments: New tidal climate change allowances - Anglian Area – Essex, Norfolk and Suffolk

4.3 12/08/2021 PRE SCOPING ONSHORE BIODIVERSITY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Onshore Ecology Expert Topic Group (ETG)

Location:	**MS Teams**
Date:	**12/08/2021**
Time:	**13:00**
Minutes taker:	**Fraser Malcolm**

Attendees

Cassie Greenhill (CG)	Five Estuaries Offshore Wind Farm Ltd (VE OWFL)
Nicola Young (NY)	VE OWFL
Sarah Edwards (SE)	VE OWFL
Fraser Malcolm (FM)	GoBe Consultants (GoBe)
Shaun Fisher (SF)	SLR Consulting (SLR)
Richard Arnold (RA)	SLR
Duncan Watson (DW)	SLR
James Carr (JC)	Environment Agency
Laura Driver (LD)	Environment Agency
Liam Robson (LR)	Environment Agency
Mark Woodger (MG)	Essex County Council
Nick French (NF)	Essex County Council
Sue Hooton (SH)	Essex County Council
Mark Nowers (MN)	Royal Society for the Protection of Birds (RSPB)

Apologies:

Harriet Thomas (HT)	VE OWFL
Yolanda Foote (YF)	Natural England
Alan Gibson (AG)	Natural England
Gemma Allsop (GA)	Environment Agency
Annie Gordon (AG)	Essex Wildlife Trust
Gary Guiver (GG)	Tendring District Council
Graham Nourse (GN)	Tendring District Council

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Windmill Hill Business Park
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COMPANY NO: Registered in England and Wales
company number 12292474

Introductions	Attendees provided an introduction and CG reviewed the proposed meeting agenda.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Project Update	CG presented a general project update including a summary of the ongoing site selection process (Slides 5 – 9). CG noted that National Grid had previously confirmed an onshore grid connection location in Friston, Suffolk. This offer was subsequently revised to the East Anglian Coastal Substation (EACS), and National Grid are currently undertaking their own site selection work for their substation. CG provided an overview of the site selection process and provided a summary of the key constraints that lead to the preferred landfall option and offshore export cable route. CG presented the current programme (Slide 10). Noting that desk-based preliminary environmental appraisal (PEA) work has commenced, and field work will be starting imminently. It was noted that submission of the Scoping Report to the Planning Inspectorate is scheduled for September 2021. CG noted slides will be issued post meeting. MN asked what size the onshore substation was likely to be. NY responded that an area of 5 ha is the size being considered during site selection. This would include the construction area and landscaping. The size of the substation itself has not yet been determined. MN queried if the sensitivity of red throated diver offshore had been considered. FM noted the Outer Thames Estuary SPA had been considered and confirmed that an offshore ornithology ETG would be taking place on the 18 August 2021. NY confirmed that HDD would be used in sensitive or constrained areas only, such as sensitive habitats, watercourses, roads, and railways. HDD will also be used at the landfall location.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Evidence Plan Process and Approach to Scoping	FM provided a summary of the proposed Evidence Plan Process (EPP) that will be followed to facilitate consultation and discussion on key elements of the project. FM noted the EPP is typically used to discuss Habitats Regulations Assessment (HRA) issues but this has been expanded to VE to incorporate a range of key EIA topics. See Slide 12 for more information. The EPP will be used as a tool to agree evidence that is required for a robust EIA, and to agree that the information incorporated is the best available. Ultimately an Evidence Plan report will be submitted to PINS outlining discussion and agreements.	

	The structure of the EPP and relevant ETGs was presented (Slide 13) and the roles and responsibilities of the Steering Group and ETGs were described (Slide 14). FM confirmed that VE OWFL are currently finalising the Terms of Reference (ToR) for circulation. FM also provided a summary of the proposed aims and approach to scoping (Slide 15). VE OWFL aim to formally agree key datasets and assessment approach through the Scoping Opinion. The Scoping Report is scheduled to be submitted to PINS in late September 2021and consultees will have 28 days to respond. SM summarised the structure and proposed content of the Scoping Report (Slide 16 and 17). The technical chapter will review what VE OWFL are proposing to scope into the EIA and scope out presenting justification for scoping out where relevant. The chapters will have questions for stakeholders to assist in providing responses to key areas.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Item 3: **Onshore Ecology**	**Baseline Characterisation** RA provided a summary of the baseline data that will be used to inform the baseline characterization for EIA. RA noted that the baseline data is comprehensive but not yet complete. Additional work is ongoing to fill gaps. RA presented international sites and noted that a 15 km buffer was used to identify international designated sites for the purposes of HRA screening. There are no direct overlap with any international designations and the current onshore Area of Search (Scoping boundary). The scoping boundary is clipped to avoid Hamford Waters SPA. RA ran through scoped in international sites. See Slide 20 for more details. RA noted that the designated features are not confined to the respective designated site and so impacts on those qualifying features are considered. MN asked if golden plover is considered including nocturnal distribution? RA noted that this would be addressed in future slides. RA invited comments on the 15 km buffer, no comments were received from attendees. National sites (i.e. Sites of Special Scientific Interest (SSSI) which are not included within SPA, SAC or Ramsar sites) within 2 km of the scoping boundary have also been considered. RA noted, that Holland Haven Marshes SSSI at landfall overlaps with the scoping boundary. See slide 21 for SSSIs inside and adjacent to the scoping boundary. Some SSSIs on the map are geological SSSIs. Holland Haven Marshes SSSI supports many of the qualifying features of the international sites already mentioned (e.g. bird species which are	

listed as qualifying interest for nearby SPA and Ramsar sites are also known to occur within Holland Haven Marshes SSSI).

RA invited any comments on the 2 km buffer. No comments were received from attendees.

RA reviewed slide 22 (north of scoping boundary) and slide 23 (south of scoping boundary) which displays local designated sites and ancient woodland with a 2 km buffer. There is a spread of local designation across the area. Including 36 local wildlife sites. Ardley Reservoir supports some wintering bird species and so this has been considered within the assessment. RA noted that the majority of priority habitats were covered by designated sites.

MN queried if the onshore cabling would be buried. FM confirmed that all VE OWFL cabling would be buried.

SH noted that several quarries in the area will need to be avoided. RA would welcome information that can be provided in this regard; SH agreed to pass on details on the locations of quarries within the Essex council region.

RA confirmed that there a lot of records of protected and notable / priority species. A lot of records come from designated sites. The records also include f widely occurring farmland species that are typical of this area including great-crested newts, barn owl, corn bunting.

MN noted that the Tendring peninsula is a relative stronghold for Corn Bunting. He also confirmed that RSPB would be concerned about any loss of scrub, particularly for Turtle Dove.

SH also noted the presence of dormice from local records and stated that they have been found in hedgerows. RA noted that these align with local records. SH confirmed that these have been found more widely outside of designated / protected / priority areas.

Potential impacts

RA presented the potential impacts that will be considered within the scoping report (Slide 25 and 26); noting that at this stage nothing has been scoped out due to limited design information. This may change as the design develops.

SH queried if designated geological sites will be considered by another ETG? SF confirmed these are covered within the ground conditions / hydrology ETG.

Site specific surveys to inform the EIA

RA summarised the approach to PEA. PEA will be undertaken initially

through review of aerial imagery augmented with existing datasets. Ground truthing surveys will be undertaken to corroborate conclusions from aerial imagery.

Wintering bird surveys will also be undertaken. This will encompass: (i)intertidal habitats where the AoS meets the coast; (ii)agricultural fields known to support, or have the potential to support, dark-bellied brent geese within the AoS plus 250 m and (iii)agricultural fields potentially suitable for flocks of waterbirds such as lapwing, golden plover and curlew and/ or subject to regular flooding, where located within the AoS plus 250 m.

The wintering bird survey will be completed twice a month from September 2021 to March 2022 in intertidal areas and areas which support dark-bellied brent geese, while surveys of other agricultural fields will be undertaken once a month. MN queried if the intertidal surveys will be low to high and then high to low. RA noted that it would be a mixture to ensure all phases and movements of the tide are captured.

MN asked if the survey area will cover a cable route or a wider area. RA noted it will cover the wider area which may be refined as the project progresses. MN asked how long cable burial will take. FM confirmed this level of information isn't known yet.

MN also noted that black-tailed godwit is present in internationally important numbers region in April and July. MN suggested that consideration should be given to SPA species and when the features will be present. Surveys may be important beyond the wintering months. This was noted by RA.

MN noted that pylons or burying cables can impact / disturb, golden plover and that golden plover can distribute differently under the cover of darkness. This wouldn't be picked up during day-time surveys. DW responded that the vast majority of construction will take place during the day. Ground disturbance will be very small and there will be limited effects during the night. DW accepted that this this may not be the case at the substation where there is permanent habitat loss. DW doesn't consider night-time survey necessary to account for nocturnal distribution on this basis given the minimal impact expected at night and the difficulty and uncertainty of undertaking night-time surveys.

MN noted that his main concern was over the impact of pylons impacting golden plover at night but confirmed that this is not a concern with buried cables.

RA noted that the PEA will produce an updated habitat map and then SLR will look in more detail at important plants including arable weeds. Targeted species for important invertebrate species will be

completed if there is habitat at risk of impact. For great crested newt, SLR would be looking at ponds within 250 m of a cable route.

SH noted that District level licensing for great crested newt is now available for Essex. RA confirmed district level licensing will be used as a mitigation for great crested newt if required and E-DNA samples will be used unless there is existing survey data.
An assessment of habitats for their suitability for common reptile species will be undertaken, followed by presence/ absence surveys for areas of moderate or high suitability habitat with potential to be subject to moderate or large-scale impacts.

Breeding birds will be done within a 100 m of the preferred locations and route corridors based on the habitat assessments in areas where (i) specially protected species could occur i.e. those listed on Schedule 1 of the Wildlife and Countryside Act, as amended, and those listed in Annex 1 of the EC Birds Directive; (ii) wetland, scrub and woodland habitats potentially supporting sensitive and declining species such as turtle dove, nightingale, breeding waders or notable wildfowl could occur; and (iii) permanent above ground infrastructure will be built.

Surveys will ensure adequate and robust characterisation with a particular focus on areas where there will be permanent above ground infrastructure.

RA confirmed the following surveys would be undertaken Badger surveys, and dormice surveys will be undertaken. Given the point raised by SH, dormice surveys will also consider presence in hedgerows. SH added that the result of badger surveys should be provided in a confidential appendix.

Bat surveys will include roost inspections from the ground and then roost inspection of bats from height, followed by emergence surveys of all trees/ structures that could be removed or damaged which are confirmed as having moderate or high suitability on close inspection. Hibernation surveys will be undertaken if required. SH noted that some trees provide appropriate hibernation roosts for bats. RA agreed but noted that potential hibernation locations would be avoided in the first instance.

Otter surveys will be conducted within 250 m of any cable routes where suitable habitat exists. Water vole surveys will be conducted within 200 m of the cable corridor where appropriate habitat exists.

MN suggested that turtle dove surveys should commence early in the morning, dawn starts would be required. For corn bunting, surveys should consider an extended summer season. Some corn bunting are still on eggs at this time of year (August 2021). MN noted that the main concern is for turtle dove and corn bunting due to their

	specific nesting requirements. RA queried if there are there any particular areas of importance for corn bunting / turtle dove that MN has in mind? MN responded that the RSPB are aware of some areas that attract turtle dove but he is not aware of any in the Tendring area. MN noted that due to the status of the species all breeding pair of turtle doves are important. MN suggests a data search from local data sources would be a good start. MN noted that results from RSPB's national turtle dove survey will be available soon. MN recommended that the Essex field club and Essex Biological Record Centre should both be consulted. RA noted that SLR are seeking records from both groups and noted that turtle dove and corn bunting have been recorded in the study area.	
Actions	**To circulate location of quarries within the region.**	**SH**
Item 4: Approach to HRA Screening	RA discussed the broad approach to HRA screening. See slides 29 to 30 for principles. VE OWFL will aim to design out any pathways for Likely Significant Effect (LSE). SH queried if Natural England has agreed to a 15km screening distance instead of 20km for HRA? DW disagreed that 20 km is standard but noted that increasing to 20 km wouldn't make much difference. Checks further afield were undertaken to see if there was any potential for connectivity. RA checks for bats were completed for example. RA noted that the table on Slide 30 confirms what pathways will be taken forward to the next stage of HRA.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Item 5: Closing Remarks	CG thanked all participants for their attendance and engagement and noted minutes would be circulated following the meeting for review.	
Actions	**No actions were taken for this agenda item.**	**N/A**

4.4 26/04/2022 POST SCOPING ONSHORE BIODIVERSITY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Onshore Biodiversity Expert Topic Group

Location:	**MS Teams**
Date:	**26 April 2022**
Time:	**10.00 to 12.00**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Harriet Thomas (VE OWFL) (HT)
James Eaton (VE OWFL) (JE)
Nicola Young (VE OWFL) (NY)
Mark Woodger (Essex County Council) (attended until 10.30) (MW)
Sue Hooton (Essex County Council on behalf of Tendring District Council) (SH)
Deana Atkins (Natural England) (DA)
Yolanda Foote (Natural England) (YF)
Christine Hipperson-Jervis (Natural England) (CHJ)
Alan Gibson (Natural England) (AG)
James Carr (Environment Agency) (JC)
Annie Gordon (Essex Wildlife Trust) (AG)
Shaun Fisher (SLR) (SF)
Jess Colebrook (SLR) (JCo)
Duncan Watson (SLR) (DW)
Fraser Malcolm (GoBe) (FM)
Sammy Sheldon (GoBe) (SS)

Apologies

Oriole Wagstaff (RSPB)
Andrew Dodd (RSPB)
Gemma Allsop (Environment Agency)
Gary Guiver (Tendring District Council)
Graham Nourse (Tendring District Council)

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Item 1: Introduction, aims and objectives	Round table introductions were made. FM presented the aims and objectives of the meeting – see slide 5. The key agenda items were – • Discussion on Scoping Opinion; • Findings of the Preliminary Ecological Appraisal (PEA); • Scope of the upcoming surveys; and • Proposed programme for on-going engagement.
Item 2: Project update	FM provided a project update – see slides 7 and 8. FM presented the various forms of consultation undertaken to date and those proposed as the project develops. The Scoping Opinion[1] was received on 12th November 2021. FM highlighted that the first VE newsletter[2] is now available and further newsletters will be produced throughout the project. Public informal engagement is currently anticipated for summer 2022 primarily in relation to the onshore aspects of the project. FM explained that the PEIR is currently anticipated in Q4 2022 with the DCO application planned for Q3 2023. FM presented the key milestones for onshore biodiversity (see slide 8): • Detailed Onshore Species and Habitat Surveys (April 2022 – November 2022) • Share Preliminary Ecological Appraisal (PEA) Report (Anticipated May 2022) • Receive feedback on the PEA (May - June 2022 (subject to circulation date)) • Ongoing engagement with Natural England (May – September 2022) • Pre-PEIR ETG (July – September 2022 (TBC)) FM explained that bi- monthly wintering bird surveys were undertaken between September 2021 to March 2022. FM also confirmed that the breeding bird surveys commenced in April 2022. FM also explained that onshore geophysical surveys are underway. The geotechnical surveys/ boreholes at the landfall area of search have also commenced. FM explained that the PEA report will be circulated to all attendees for comment. It is anticipated that the PEA report will be circulated in May and timescales will be consistent with those set out in the Evidence Plan Terms of Reference.

[1] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010115/EN010115-000014-5EST-Scoping%20Opinion.pdf
[2] https://fiveestuaries.co.uk/category/newsletters/

	MW noted that the East Anglia Green Energy Enablement (GREEN) consultation is live and shows lines coming into and out of Tendring with an associated substation. MW asked if the project had any further insights into the proposed location of the National Grid's (NG) substation FM noted that a search area has been provided which gives a general indication – this aligns with the publicly available materials. NY confirmed that the project have been briefed on the East Anglia GREEN consultation materials and they are currently under review. NY explained that VE OWFL have been looking over a large area, within the scoping boundary to site their substation. To inform this selection and the wider project detailed information has and is being gathered at risk whilst the project awaits confirmation of the site selected for the NG substation. FM highlighted the further risk of differing DCO timescales between VE and NG and therefore the potential for limited information from National Grid. FM highlighted that the focus of the meeting on 4th May will be on onshore site selection.
Item 3: EIA Scoping Responses	DW provided an overview of the key themes provided in the Scoping Opinion. DW thanked participants for their responses. DW confirmed responses were received from: • The Planning Inspectorate; • Natural England; • Essex County Council; and • Tendring Parish Council. DW noted that a query from Natural England was raised regarding a 400 m survey buffer for wintering birds. DW queried this as it has been previously agreed in 2021[3] that a 250 m was appropriate – see actions. DW asked for the justification for the requested change to the buffer – see actions. He noted that in many places the surveys likely covered a larger area than 400m anyway, following subsequent route refinement. DW highlighted that the Scoping Opinion noted that rare plants and arable weeds should be considered as part of the ecology surveys and the subsequent EIA. DW confirmed the intention is to identify areas where rare species may be present during the habitat survey, with additional survey at other times of year undertaken if necessary. DW agreed with the features to be considered including Local Wildlife Sites (LoWS), Ancient Semi-Natural Woodland (ASNW),

[3] See Natural England advice issued on 10th June 2021, (Natural England reference: DAS/14393/353393.)

veteran trees and turtle doves.

DW noted that candidate LoWS were requested to be assessed. He requested confirmation if there are any candidate LoWS in the area or if this was a more generic request. He noted that none have been identified by the project in the desk study to date (which included all records held by Essex Field Club and a review of the Tendring Local Plan). SH explained that there are candidate LoWS sites elsewhere in Essex but didn't know whether there are any within the project area – see actions.

DW noted that reference to an unpublished paper which detailed that survey seasons for dormice in East Anglia may be later than the rest of the UK was raised in the Scoping Opinion. DW requested clarification whether this has been published – see actions. SH confirmed that dormice in the east breed later than is shown in the National Handbook. DW noted that the proposed dormice surveys will continue through till November. This was welcomed by SH. SH agreed that the published paper would be helpful to justify the survey scope in the DCO application.

Various comments were raised on Biodiversity Net Gain (BNG) in the Scoping Opinion. DW noted it is a rapidly evolving issue. DW proposed that this will be subject to further discussions as the project progresses.

DW noted that for European Protected Species licensing the need for letters of no impediment (LONI) will need to be discussed and agreed with Natural England. DW proposed that this should be addressed when further project design information is available. DW noted that district level licensing will also be considered for Great Crested Newts (GCN) as an alternative to agreeing a letter of no impediment but this would be dependent on routes and survey findings. DW confirmed that GCN will be surveyed this spring. AG re-iterated not to leave the agreement of LONI too late to ensure the licenses are in place. AG recommended a call to discuss the programme for these licenses. DW welcomed this suggestion and suggested that this meeting should likely be held in early 2023. DW also noted the full survey reports will not be available until Q4 2022 and so will not be available for the PEIR.

NY confirmed that geotechnical works (boreholes) are underway to determine feasibility of Horizontal Directional Drilling (HDD) at the landfall. JC noted that major incidents had occurred elsewhere so the geotechnical information will be key – see actions. JC noted that the pollution events, in Martlesham Creek on the Deben Estuary, from drilling mud had created films

	and areas previously used by birds were now avoided. FM asked if the pollution events, in Martlesham Creek, were a result of frack out, or accidental spills. JC note he was unsure but the pollution was significant and persistent in areas of saltmarsh and mudflats. JC requested that drilling depths and controls to minimise the risk of pollution on SSSI are included in the EIA. AG noted that Natural England had undertaken a site visit to Holland Haven and now have lesser concerns about sink holes and frack out. Natural England's preference was for the HDD to go under the sea defense by the golf course (i.e. where it is flat). JC highlighted the Environment Agency's preference to avoid any areas with high erosion and where ground conditions may be unconsolidated. JC noted that the Environment Agency has been actively maintaining the foreshore from coastal erosion. DW asked if anyone has any specific concerns in regard to transboundary effects on onshore ecology. No concerns were raised.
Item 4: PEA	JCo presented the approach to Preliminary Ecological Assessment (PEA) – see slide 14. JCo explained that the PEA report will be circulated to the ETG for consultation and to aid agreement of the detailed survey scopes. The circulation date is due TBC but expected in May 2022. JCo explained that interpretation of aerial imagery and ground truthing from Public Rights of Way (PRoW) was undertaken as part of initial survey visits. The PEA has informed the detailed survey scopes and the site selection process. Full or nearly full survey access is anticipated in 2022 for the detailed surveys. JCo sought information from as many sources as possible – see slide 15. Essex Field Club provided information of protected species as well as local groups. JCo requested any additional local or recently published sources of information. No additional sources were identified in the meeting. JCo explained that the PEA sought to identify the potential features for assessment based on the refined search area. The refined area of search (AoS) links the area from landfall zone to the substation zones – see slide 17. JCo confirmed that the refined AoS avoids ASNW and PAW but they do occur within 100m.

Important ecological features	JCo presented the important ecological features (IEFs) to be assessed in (/ scoped into) the PEIR (see slide 18 for more information): • Statutory Designated Sites; • Non-statutory Designated Sites; • Habitats; • Plant Species; • Invertebrates; • GCN and common toad; • Reptiles; • Breeding Birds; • Non-Breeding Birds; • Bats; • Badger; • Otter; • Water Vole; • Dormouse; and • Other Section 7 mammal species. JCo asked if any additional IEFs which should be included within the assessment – see actions. JCo presented the identified statutory designations identified for further assessment (see slides 19 to 21 for more detail): • Hamford Water SSSI NNR SAC SPA and Ramsar; • Stour and Orwell Estuaries SSSI SPA and Ramsar; • Colne Estuary (Mid-Essex Coast Phase 2) SSSI SPA and Ramsar, and part of Essex Estuaries SAC; • Essex Estuaries SAC; • Abberton Reservoir SPA Ramsar SSSI; • Blackwater Estuary (Mid-Essex Coast Phase 4) SPA Ramsar SSSI NNR; and • Holland Haven Marshes SSSI LNR. JCo presented the non-statutory sites within 100 m or hydrologically linked to the site – see slide 22.
Survey scopes	JCo presented the key details of each of the proposed survey scopes – see slides 23 to 31. These details are summarised below. For each of the survey types JCo presented the survey principles. Further details are provided within the slides. ***Section 41 Habitats, plus areas that may meet Annex 1 definitions – see slide 23*** All section 41 habitats, subject to access, will be surveyed within 100 m of the site. These habitat surveys will include protected or

notable plant species (including non-native plants).

No concerns were raised by attendees.

Protected or notable plant species – see slide 23
Habitat survey of all areas within 100m of the onshore infrastructure options that were not accessible in 2021 is proposed in 2022.

No concerns were raised by attendees.

Protected or notable invertebrate species – see slide 24
Except for Fisher's estuarine moth, additional survey for invertebrate species is not proposed given that most habitat loss will be temporary in nature and will affect a relatively small proportion of the available habitats in the wider area. Fisher's estuarine moth will be surveyed in Holland Haven Marshes along with the presence of hog's fennel – the host plant of Fisher's estuarine moth.

CHJ asked whether aquatic inverts will be surveyed. JCo confirmed that no surveys are proposed: assessment of impacts to this species group would be the same as for terrestrial invertebrates and will be via a precautionary habitat-based assessment, focusing on a) areas where permanent habitat loss is likely and b) areas that are known or suspected to support potentially important populations of rare/notable species.

CHJ requested a justification for the 100 m buffer which had been applied. JCo explained that this buffer ensured that any additional land that may be indirectly affected is also surveyed.

GCN and common toad – see slide 25
All ponds within 250m of the onshore infrastructure options will be subject to Habitat Suitability Index (HSI) survey and presence/absence survey using eDNA (mid-April and the end of June). Unless existing desk study data confirms presence in one of the last five breeding seasons (i.e. 2017-2021). Presence will be assumed if GCN have been recorded within the last five years.

Population size class surveys, where required, will be undertaken between mid-March and mid-June.

No concerns were raised by attendees.

Reptiles – see slide 26
The habitat survey has indicated that moderate or highly suitable reptile habitat occurs at many locations within the

Survey Area. More detailed habitat suitability assessment will be undertaken (with the exception of Holland Haven Marshes SSSI as an HDD will be used) with presence/ absence survey undertaken at areas where permanent habitat loss and/ or significant impacts to populations are possible.

No concerns were raised by attendees.

Breeding birds – see slide 27
Survey is proposed for the full survey area, excluding the area at and near the landfall. In this case, given that most effects on breeding bird species will be temporary in nature and given also the very large scale of the survey area, four (rather than 6) visits between early April and July are proposed. Survey methods will follow the methods set out by the 2021 Bird Survey Guidelines.

No concerns were raised by attendees.

Non-breeding birds – see slide 28
Surveys of wintering birds covering inter-tidal areas at the landfall, plus a 500m buffer have now been completed. Surveys took place twice per month, from September 2021 to March 2022 inclusive. Surveys of wintering birds across inland parts of the Survey Area, excluding areas covered at the landfall in winter 2020-21.

No concerns were raised by attendees.

Bats – see slide 29
Preliminary roost assessment to determine if trees have potential roost features (PRF) will be undertaken at trees within 100m of the onshore infrastructure options. Trees with moderate or high potential to support bats would be subject to an at-height PRF inspection (where safe to do so) during the active season (May – September) to determine the roost potential and gather evidence of roosting bats (if present). These trees may be subject to further presence/ absence survey depending on the potential for impacts.

No concerns were raised by attendees.

Badgers – see slide 30
Survey of all areas (with the exception of Holland Haven Marshes SSSI) within at least 30m of the onshore infrastructure options that were not accessible in 2021 is proposed in 2022.

	No concerns were raised by attendees. **Otter & Water Vole – see slide 31** Otter survey is proposed at suitable watercourses (with the exception of Holland Haven Marshes SSSI) crossing the onshore infrastructure options, plus 250m up and downstream. Water vole survey is proposed following standard methods, at suitable watercourses (with the exception of Holland Haven Marshes SSSI) crossing the onshore infrastructure options, plus 200m up and downstream. No concerns were raised by attendees. ***Dormice – see slide 31*** Habitat based assessment of hedgerows and woodland within the Survey Area is proposed. Nest tube survey would then be undertaken following standard methods, at all hedgerows that may be breached and which are potentially suitable for use by dormice. No concerns were raised by attendees. **Other Section 41 Mammal Species – see slide 31** Detailed surveys are not proposed as part of onshore assessment. Habitat-based assessment will be undertaken for these species and used as a basis for impact assessment. No concerns were raised by attendees.
Potential mitigation or compensation measures	JCo explained that mitigation/compensation proposals will be subject to detailed, species and location-specific refinement, once all necessary data have been obtained, with full details provided in the PEIR and ES and Outline Ecological Management Plan (OEMP). For further information see slide 33. JCo welcomed ETG input into how to approach BNG for the project. She proposed the development of a bespoke approach based on the application of the Defra metric. AG said that NE has no objection to a bespoke approach in principle but would need to see details of what is proposed. AG agreed to discuss the approach further – see actions. DW noted that the majority of the route comprises arable land which will only experience temporary impacts during cable laying and a bespoke approach may more appropriate for these areas.
Item 5: Next steps	FM presented the next steps: • Produce ETG Minutes; • Share the PEA report (TBC);

	• ETG members provide comments (timings TBC once PEA is shared); • April - November 2022: Detailed species and habitat surveys; • August – September 2022: Next ecology ETG meeting to provide an update on survey findings and any issues raised, plus a discussion regarding the approach to BNG; • Q4 2022 - PEIR to be presented. This will be prepared based upon the findings of the PEA survey and other surveys to date and will detail the anticipated impacts, based upon the final route selection.	
Actions:	To confirm position from advisor on the change in buffer requested from 400m to 250m for the non-breeding bird surveys.	Natural England
	To review letter dated 10th June 2021.	Natural England
	To confirm if any candidate LWS in the Tendring area.	SH
	To confirm if paper relating to later dormouse breeding in East Anglia is available.	SH
	To provide relevant details of previous pollution incidents resulting from HDD and any associated lessons learnt.	JC
	To confirm in writing, if any additional IEFs which should be included within the assessment and provide comments on the survey scope presented in the slides.	Natural England (and all parties)
	Include BNG approach as an agenda item for the next ETG and to provide materials (i.e. initial proposed approach to BNG assessment) in advance of the meeting.	VE OWFL

4.5 01/11/2022 PRE PEIR HYDROLOGY AND GOUND CONDITIONS ETG

MINUTES

Hydrology and Land Use

Location:	**MS Teams**
Date:	**01/11/2022**
Time:	**09.30**

Attendees

Zahida Yousaf	ZY	ECC
Andy Salmon	AS	Environment Agency
Cameron Webb	CW	Environment Agency
Gemma Allsop	GA	Environment Agency
Laura Driver	LD	Environment Agency
Mike Brosa	MBr	GoBe
Sammy Sheldon	SS	GoBe
Harri Morrall	HM	Natural England
Yolanda Foote	YF	Natural England
Annissa-Kay Dryden	AD	SLR
Clare Garfield	CG	SLR
Martin Baines	MB	SLR
Siobhan Hall	SH	SLR
Emily Griffiths	EG	VE OWFL
James Eaton	JE	VE OWFL
Kieran Somers	KS	VE OWFL
Victoria Harrison	VH	VE OWFL

Item 1: Introduction and Project Update	The meeting commenced with a round of introductions from all attendees. See attendee list above. JE noted that the key aims of the meeting were to provide an update of the project and agree the methodology to undertake the EIA. JE provided a general update of the VE project, explaining that the project Red Line Boundary (RLB) has been refined onshore for the upcoming statutory consultation (Q1 2023), Indicative locations for the substations would be shown.. JE explained that the RLBs both onshore and offshore are now frozen, that the project has reached a design freeze allowing PEIR to progress. An update on consultation was provided and it was noted that the Interim Consultation Feedback Report is available on the Project Website. This summarises the findings from the non-statutory consultation undertaken over the summer (30 June to 12 August). It was noted that PINS has undertaken a transboundary screening assessment. JE provided a brief outline of the project timeline indicating that S42/47/48 consultation (including PEIR) in Q1 2023 and DCO submission later in 2023 Q3/4.	
Actions:	**No actions associated with agenda item 1.**	**N/A**
Item 2: EIA and CEA Methodology	SS provided an overview to the General EIA Methodology (slide 13) and CEA Methodology (slide 14), noting that a detailed Proposed Environmental Impact Assessment Methodology will be circulated for comment and that Longlists of cumulative impact sources are available on request.	
Actions:	**Send out Proposed Environmental Impact Assessment Methodology for comment by ETG members**	**VE OWFL**
Item 3: Hydrology	MB provided an overview the scope of assessment (slide 16) indicating that the scope was the same as that proposed in the Scoping Report. MB described the study area for Hydrology (slide 17), highlighting contributing factors and a 2km buffer. This may be extended with consideration of downstream receptors. Some receptors may be scoped out of 2km buffer following initial review. MB described the key guidance used (slide 18). Key data sources (slide 20). MB explained that data requests with EA and Essex County Council are ongoing (slide 21). MB proposed that Flood Risk Assessments for the onshore cable corridor and the onshore substation will be presented as two separate reports (slide 22). This	

	will include consideration of SuDS and surface water management for the substation. The principles of surface water management during construction will be included in the CoCP. MB explained that liaison with landowners is ongoing to understand abstraction points, including uses and irrigation pipework (slide 23). This has also been informed by a site walkover. ZY commented that flood incidents have been recorded and recommended that information is requested from ECC. Section 19 reports are also available. MB confirmed ECC mapping tool has been analysed for flood incidents. ZY recommended to request report as not all are publicly available. ZY queried if any additional minor water courses had been identified that were not previously mapped. MB explained that this was the primary reason of the walkover and that all field boundaries and ditches are recorded. CW recommended sourcing groundwater and Source Protections Zones data from the EA. No further concerns were raised on data sources, guidance or study areas.	
Actions:	**Request Section 19 flood risk reports from ECC** **Follow up on data requests to EA and ECC/SCC** **Request groundwater data from the EA**	**MB** **MB** **MB**
Item 4: Ground Conditions & Land Use	SH provided an overview the scope of assessment (slide 26) indicating that the scope was the same as that proposed in the Scoping Report. SH described the study area for Ground Conditions & Land Use (slide 28). Noting a 500m buffer around proposed substation search areas. 250m buffer around landfall and ECC. This was considered highly precautionary and no pathways beyond are anticipated. Impact to agricultural land and soils will be considered in the RLB only. SH described the key guidance used (slide 29). AS commented that LCRM should be referenced as 2021 (initial publication 2020) SH presented the key data sources (slide 30). AS suggested checking the EA website for the latest ground conditions and land use data, much of which is open source and can be downloaded from the website. Find open data - data.gov.uk SH confirmed stage 1 DBA for mineral resource assessment is currently being undertaken (slide 31). SH confirmed that two historic landfills have been identified. SH requested further information on these two sites or additional sites. GA can provide further detail	

	from EA with provision of PEIR boundary shapefile. JE asked if the EA has any experience of the 2022 IEMA guidance *A New Perspective on Land and Soil in Environmental Impact Assessment*. HM will revert once they have spoken with colleagues at Natural England.	
Actions:	**Update LCRM guidance reference to 2021 (initial publication 2020)** **Check EA website for latest data relating to ground conditions and land use** **Provide PEIR boundary shapefile to EA for landfill data** **Experience of IEMA 2022 guidance to be provided by Natural England**	**SH** **SH** **SH** **HM**
Item 6: Next Steps and Concluding Remarks	JE thanked all attendees for their contributions to the discussions and provision of useful feedback. SS noted that meeting minutes will be developed and a copy of the PowerPoint presentation will be circulated to all ETG members. SS mentioned that all comments are welcome and ETG members are welcome to contact the project at any time in the future.	
Actions	**Meeting minutes to be written sent out to ETG members together with a copy of the PowerPoint presentation**	**VE** **OWFL**

4.6 22/11/2022 PRE PEIR ONSHORE BIODIVERSITY ETG

MINUTES

Onshore Biodiversity

Location:	**MS Teams**
Date:	**22/11/2022**
Time:	**14.00**

Attendees

Gemma Allsop	GA	Environment Agency
Rob Dryden	RD	Environment Agency
Mark Woodger	MW	Essex County Council
Sue Hooton	SH	Essex County Council
Annie Gordon	AGo	Essex Wildlife Trust
Mike Brosa	MB	GoBe
Sammy Sheldon	SS	GoBe
Alan Gibson	AGi	Natural England
Christine Hipperson-Jervis	CHJ	Natural England
Yolanda Foote	YF	Natural England
Joseph Beale	JB	RSPB
Shaun Fisher	SF	SLR
Duncan Watson	DW	SLR
Jess Colebrook	JC	SLR
Emily Griffiths	EG	VE OWFL
James Eaton	JE	VE OWFL
Kieran Somers	KS	VE OWFL
Victoria Harrison	VH	VE OWFL

Item 1: Introduction and Project Update	The meeting commenced with a round of introductions from all attendees. See attendee list above. JE noted that the key aims of the meeting were to provide an update of the project and agree the methodology to undertake the EIA. JE provided a general update of the VE project, explaining that the project Red Line Boundary (RLB) has been refined onshore for the upcoming statutory consultation (Q1 2023), Indicative locations for the substations would be shown. JE explained that the RLBs both onshore and offshore are now frozen, that the project has reached a design freeze allowing PEIR to progress. An update on consultation was provided and it was noted that the Interim Consultation Feedback Report is available on the Project Website. This summarises the findings from the non-statutory consultation undertaken over the summer (30 June to 12 August). It was noted that PINS has undertaken a transboundary screening assessment. JE provided a brief outline of the project timeline indicating that S42/47/48 consultation (including PEIR) in Q1 2023 and DCO submission later in 2023 Q3/4.	
Actions:	**No actions associated with agenda item 1**	**N/A**
Item 2: Onshore Biodiversity	Preliminary Ecological Appraisal JC provided an overview and explained that the Preliminary Ecological Appraisal was provided to ETG members in May 2022. JC outlined the responses that were received on the first draft. JC detailed the key points raised by each of the organisations (slides 15 & 16). JC explained how the bat surveys undertaken were representative and precautionary, providing sufficient data and coverage (slides 17 - 18). The full scope of the surveys will be reviewed by ETG members once received. JC explained that any moderate or high potential roost features for bats will be assumed to include roosting bats and will be mitigated accordingly. The mitigation will be secured through the DCO requirements. JC explained that pre-construction surveys will be undertaken to inform the final mitigation measure requirements for VE. JC asked NE to confirm that the bat survey scope is sufficient for impact assessment. YF responded to say that NE will consider its response once the full survey scope is available to review. JC confirmed that the majority of planned onshore ecology surveys have been undertaken and that data are being collated presently before reporting fully on the results (slide 19). JC provided high level findings of the surveys for which data have been initially analysed. JC presented the likely important ecological features that will be included at PEIR – designated areas and protected or notable species and habitats.	

Important Sites & Habitats

JC presented the key findings of the surveys on maps (including GCN presence, priority ponds, hedgerows, section 41 habitats) – slides 21 to 25.

MW asked why the National Grid Substation search areas were not surveyed by VE and how the project will assess cumulative effects. JC confirmed that a cumulative assessment will be undertaken. JE explained that public domain information available at the time of DCO submission will be used to inform on assessment of third party projects.

Non-breeding birds

DW provided an overview of the non-breeding bird survey findings. DW explained that the surveys have been undertaken at two locations – landfall area and the onshore ECC and substation search areas (slide 27). DW confirmed that the non-breeding bird survey findings will be included in the PEIR. DW confirmed that the landfall surveys cover the RLB and a 400 m buffer (and greater in the majority of locations). DW explained that the survey information for the onshore ECC and substation areas is shared between VE and North Falls (NF). DW confirmed that the >95% of the RLB + 400 m buffer has been surveyed.

AG asked when the winter surveys were undertaken. DW explained that winter surveys took place from October to March and included two visits per month. DW explained that in addition, VE surveyed the landfall in September. DW confirmed that NF also surveyed Autumn passage birds at the landfall in August / September. DW confirmed that brent goose would have been recorded if seen during breeding bird surveys in April or May.

DW noted the key findings at the landfall included dark-bellied brent geese and European white-fronted geese – primarily on the agricultural fields. The numbers were highly variable but several records of presence were recorded. DW highlighted there were few records of SPA qualifying species in the onshore ECC and substation zones survey area. Lapwing and golden plover were recorded.

DW presented the VE and NF survey areas for non-breeding birds (slide 29). DW explained that the survey area boundary generally provides coverage beyond the 400 m buffer. However, there are a few discrete locations where the full extent of the 400m buffer is not covered (<5%). All birds were recorded in fields which straddle the survey area boundary so gaps in coverage of the 400m buffer are likely to be smaller than shown.

DW requested agreement on the sufficiency of the survey coverage of the non-breeding birds from all parties. CHJ requested a map showing the areas with no coverage – DW will provide figures and Natural England will confirm in writing whether they agree that the spatial and temporal coverage is sufficient.

RD asked whether thermal imaging for hard to survey species such as jack snipe has been utilised. DW explained that marsh areas will be avoided and/or HDD'd under and therefore specific survey for jack snipe was not considered necessary.

SH stated that Natural England specifically requested nocturnal wintering bird surveys for the nearby Garden Community – which identified Lapwing/ Golden Plover. DW explained that nocturnal surveys have not been undertaken as a requirement for nocturnal surveys has not been raised by stakeholders as a requirement for VE to date. Furthermore, even using new thermal imaging technology it would be very difficult to obtain meaningful survey results over such a large area. DW commented that robust assessment would be undertaken based on the presence of lapwing and golden plover during the day, with an assumption that similar numbers may be present in potentially suitable fields at night. This is a precautionary approach (assume presence in any suitable fields, not just where recorded during the day) and therefore nocturnal surveys are not required for the ES characterisation.

JE Working hours will typically be limited – not 24/7. There may be some discrete activities which require continuous working (such as HDD) but the assessment will assume presence of golden plover and lapwing in these cases.

Breeding Birds

DW confirmed that surveys at the landfall were shared with NF and that they were undertaken in 2021 and 2022 (slide 30). Notable species were identified in the landfall survey area. RLB and minimum 100m buffer were surveyed.

DW explained that breeding surveys for the onshore ECC and substation will not be reported in PEIR but will be available to support the DCO application. DW noted that hobby, corn bunting and barn owl have been recorded. However, no turtle doves have been recorded.

Principles for mitigation, compensation and enhancements

JC confirmed that a Landscape and Ecology Design Principles Plan will be provided at PEIR and that an Outline Landscape and Ecology Management Plan will be provided to support the DCO application (not PEIR) (slide 32).

JC explained that if badgers, bat roosts or other ecological features are identified to be at risk of direct impacts at the substation site then these will be mitigated/compensated for within the RLB at the OnSS area.

JC explained that an EPSL may be required for temporary works affecting GCN, bats and/ or dormouse along the cable corridor. Mitigation would be undertaken within the RLB as close as possible to the impact.

JC requested details of any specific measures to assist existing initiatives or local conservation aims that could be incorporated in the OnSS areas (slide

33). It was agreed that all attendees would confirm if there are relevant projects that could be complemented by compensation and enhancements for VE:

- CHJ – confirmed would encourage involvement with other projects and will provide details of any relevant projects.
- GA – will confirm any EA projects.
- MW – holland haven country park initiative by TDC – suggested a meeting to be set-up to see whether VE could potentially contribute.
- AG- suggested opportunity to create some targeted habitats for turtle doves
- JB – will look for potentially suitable RSPB projects and respond
- VH confirmed that landowners have been contacted, via questionaries, and requested details of any enhancement projects within their land ownership.

Proposed approach to BNG

JC explained that although BNG assessment will not be provided at PEIR, as there is insufficient information, the habitat surveys have been undertaken in a way that will enable the data to inform a BNG assessment at the application stage, once the project has been refined.

JC confirmed that the Defra metric 3.1 (or its successor) will be utilised.

JC explained that the area to be included in BNG assessments will comprise the direct project construction footprint plus the areas for compensation and mitigation (slide 35). JC explained that much of the area within the RLB may not be impacted and this will therefore not be included in the calculations. Feedback was requested. CHJ requested clarification that the compensation areas will be included. All attendees are requested to provide confirmation. In principle it was agreed that the staged approach to BNG assessment was acceptable and that the RLB will not form the basis of the assessment.

JC noted that temporary impacts to cropland, which would last for less than two years before return to its original condition, would be treated as retained and not be included in the metric. Those habitats for which reinstatement to original condition would take beyond two years will be considered as a loss in the metric tool. JC explained that no management of cropland is proposed. Hedgerows will be subject to post re-instatement visits to ensure successful establishment of habitat up to five years after scheme completion. Thereafter, it will be assumed that the landowner shall continue to maintain/use the area as they deem fit. These areas will be specifically excluded from a 30-year monitoring and management plan. JC sought agreement to the approach.

CHJ asked whether BNG currently not being mandatory affected the need for a 30 year management plan. CHJ to confirm.

MW asked why there is a proposed difference in the length of post-reinstatement management. Where land is to be controlled by the project, e.g. at the substation, it is proposed to have longer term management (30

years). Where land is returned to landowners, shorter post-reinstatement management is proposed, and VE will restore hedgerows & trees.

A discussion was held around the practicalities of consideration of BNG for cumulative impacts for all of the relevant projects forthcoming in the area.

GA highlighted the need to consider additionality when selecting sites. GA acknowledged the difficulty of seeking agreements with farmers in perpetuity, experience suggested that 10 years was more acceptable/usual. GA welcomed further separate discussion about experience from delivering pilot BNG projects in Essex.

JC presented the proposed approach to BNG via a flow chart for each stage of the project (slide 37). A BNG calculation will be provided to accompany the ES based on the indicative footprint/ design at that time – to confirm whether BNG can be delivered in the RLB. A final BNG calculation will be provided post-consent, including where/when/how, when the final project footprint is known. JC asked for comments on this approach and no comments were received.

MW queried whether VE will achieve up to 10%, 10%, or more than 10% BNG. JC confirmed that all statutory requirements, in terms of percentage, will be met.

RD commented that enhancements should be as close to possible to the area of impact, and not concentrated at the substation sites. Therefore the 30 year management plan would ideally include the hedgerows. JC explained that VE will follow mitigation hierarchy. DW explained that the substation site is where the greatest permanent impacts will occur and the project is likely to have greatest control on the land so is likely to be the best starting place onsite for BNG.

RD asked whether all information required to carry out the BNG assessment has been collected. Does this include MoRPh surveys of any watercourses that will be crossed? JC confirmed that these surveys were undertaken.

GA highlighted the multipliers used to calculate BNG accounting for distance from the RLB.

GA asked what the ball park number of ha/ units to be created for BNG are. JC explained that the scheme is at an early phase and that information will be shared when available.

<u>HRA update</u>

SS explained that the original draft was circulated in Oct 21. This will be updated for PEIR in line with the consultation responses received and revised project boundaries.

SS confirmed that a revised HRA screening and RIAA will be provided at statutory consultation alongside the PEIR.

	SS explained that screening matrices will not be provided as part of the consultation as these are only relevant to PINS. SS asked for comments, no further comments were made by attendees regarding this.	
Actions:	**SLR to provide figure to show gaps in survey coverage for 2021-22 wintering bird survey for the cable corridor and substation areas**	**DW**
	Natural England to provide written confirmation detailing the sufficiency of birds survey coverage on receipt of figure showing gaps in survey coverage	**Natural England**
	Arrange call with Environment Agency (GA) to discuss experience of BNG	**VE OWFL**
	All ETG members to confirm existence of conservation initiatives or projects that VE could assist with to help achieve mitigation/compensation aims at OnSS areas	**All ETG members**
	All ETG members to confirm agreement to the BNG assessment area comprising onshore project footprint and compensation and mitigation areas.	**All ETG members**
	Natural England (CHJ) to provide further detail on whether BNG currently not being mandatory affects the need for a 30 year management plan.	**CHJ**
	All ETG members to provide details of projects that may be helpful for the local community and VE in terms of achieving BNG goals.	**All ETG members**
Item 3: Next Steps and Concluding Remarks	JE thanked all attendees for their contributions to the discussions on viewpoints and provision of useful feedback. SS noted that meeting minutes will be developed and a copy of the PowerPoint presentation will be circulated to all ETG members. SS mentioned that all comments are welcome and ETG members are welcome to contact the project at any time in the future.	
Actions	**Meeting minutes to be written sent out to ETG members together with a copy of the PowerPoint presentation**	**VE OWFL**

4.7 19/09/2023 JOINT NORTH FALLS AND VE POST PEIR HYDROLOGY AND GROUND CONDITIONS ETG

MEETING MINUTES

North Falls & Five Estuaries Joint Hydrology & Ground Conditions Expert Topic Group (ETG) Meeting

Location: **Online / MS Teams**
Date: **19/09/2023**
Time: **14:00 – 16:00**
Facilitator: **Mike Brosa**

Attendees

Name	Initials	Organisation
Barbara Moss-Taylor	BMT	Environment Agency
Alison Vaughan	AV	Essex CC
Mark Woodger	MW	Essex CC
Mike Brosa	MBr	GoBe
Cormac Rooney	CR	NF OWFL
Ashleigh Holmes	AH	RHDHV
Caroline Martin	CM	RHDHV
Ellen Shields	ES	RHDHV
Helena Wicks	HW	RHDHV
Kari Dennis	KD	RHDHV
Simon Foulds	SF	RHDHV
Joanna Freyther	JF	SLR
Martin Baines	MB	SLR
Siobhan Hall	SH	SLR
James Eaton	JE	VE OWFL
Victoria Harrison	VH	VE OWFL

Apologies

Name	Organisation
Andy Salmon	Environment Agency
Anna Sharpin	Environment Agency
James Carr	Environment Agency
Gemma Allsop	Environment Agency
Liam Robson	Environment Agency
Elizabeth Hesp	Environment Agency
Zahida Yousaf	Essex CC
Yolanda Foote	Natural England
Alan Gibson	Natural England
Deanna Atkins	Natural England
Hari Morral	Natural England
Gary Guiver	Tendring DC
Graham Nourse	Tendring DC

Purpose of the meeting	***To:*** 1. ***Provide stakeholders with an update on the Projects and details of the emerging collaboration strategy.*** 2. ***Discuss Preliminary Environmental Information Report (PEIR) feedback and agree the approach to the Development Consent Order (DCO) assessment.*** 3. ***Agree a future engagement strategy.***
Session: **Speaker:** **Detail:**	**1. Introductions** **Mike Brosa (GoBe)** MBr welcomed all participants and initiated a round of introductions before introducing the purpose and agenda for the meeting.
Session: **Speaker:** **Detail:**	**2. Update from the Projects** **Cormac Rooney (NF OWF)** CR provided an overview of recent project events (slide 5): • VE Statutory Consultation including PEIR: 14 March to 12 May 2023 • NF Statutory Consultation including PEIR: 16 May to 14 July 2023 • Review of consultation feedback – ongoing • Good Neighbour Agreement • Design refinements Upcoming activities: • Ongoing review of consultation feedback Q3 2023 • Onshore Project Design Freeze Q3 • Further ETG prior to DCO submission – Q4 2023 • DCO submissions VE Q1 2024, NF dates TBC • DCO Examinations – 2024 • Earliest construction – 2027 CR explained that the onshore cable route has been refined in coordination between both NF and VE following stakeholder feedback and additional study (slide 6). The route is now narrowed compared to PEIR with a maximum 45m working width at Horizontal Directional Drill (HDD) locations, the working width will be narrower along open cut trenching sections. There will be a permanent easement of up to 18m for each project. Both NF and VE have announced a reduction from four circuits to two circuits per project. Both projects are currently looking at more detailed engineering refinements along the onshore cable route. Temporary Construction Compound (TCC) refinement has also been undertaken looking at optimising the size and location of TCCs for delivery. CR described the process of co-locating NF and VE substations, positioned within the previous western search area (SSA West) from VE PEIR and in relatively close proximity to National Grid Electricity Transmission's (NGET) proposed substation zone for connection to the National Electricity Grid (slide 7). NF and VE are currently in discussion with National Grid regarding co-ordination for construction and operational access. CR mentioned that NF and VE are working collaboratively since the Good Neighbour Agreement was signed and that consideration of substation co-

location is leading to several efficiencies. Both projects are also consulting with bodies on design reviews (Design Council).

CR explained that both NF and VE are exploring the opportunity for joint delivery of construction. Both NF and VE will have a design freeze which allows both projects to undertake their assessments for the Environmental Statement (ES).

During these ETGs, NF and VE aim to close off some of the comments raised by consultees as part of their Section 42 responses.

Session: **3. Hydrology, Hydrogeology & Flood Risk**
Speaker: **Maritn Baines (SLR) Simon Foulds (RHDHV)**
Detail:

MB welcomed the opportunity to discuss hydrology on the project and thanked members for their comments on the PEIR. MB provided an overview of surface water crossed along the ECC route to the substation zone (slide 9). These include coastal catchment areas, Holland Brook, Wrabness Brook and Tenpenny Brook.

MB described surface water flood risk along the route (slide 10 & 11) and explained that it is closely aligned to flood zone risk categories.

MB provided an overview of groundwater bodies including private water supplies (PWS) (slide 12). MB mentioned that assessment of impacts and mitigation for PWS is ongoing and will be provided at DCO application.

MB provided an overview of data sources (slide 13). MB provided an overview of the local policies and guidance used to inform the baseline and assessments, including those relevant to climate change (slide 14).

MB described the common themes and similarities in potential hydrogeological impact from construction through to decommissioning that both projects have assessed and will update for ES (slide 15).

MB provided an overview of receptor sensitivity levels agreed between both projects with examples from some the most sensitive water bodies in the study area (slide 16).

MB described the mitigations that have been applied to the project design (slide 17), including route refinement to avoid receptors as much as possible, HDD under the majority of water crossings along the export cable route, control of surface water run off and reinstatement of existing drainage, assessment of risk to groundwater before any works commence.

MB described the key issues raised in PEIR consultation responses (slide 18) and highlighted the work that will be done to address these concerns. The flood risk at watercourse crossings will be mitigated and controlled through HDD under main rivers (FZ2 & 3) and use of best practice for trenched crossings. The flood risk related to drainage and sewerage will be mitigated through controls included in the Code of Construction Practice; and Operational Surface Water Drainage Plans for the substations. Potential

impact on abstractions will be investigated through a hydrogeological risk assessment for groundwater abstractions across the onshore project area. Impact to designated sites (Hamford Water) will be avoided through refinement of the project area and further work ongoing for assessment of the haul road at this location.

MB described the similarities in the assessments between both projects (slide 19) and explained that neither project anticipate conclusions of significant impacts to the water environment.

MB recapped on work to be updated as part of the next steps and additional data that will be incorporated into the Flood Risk Assessment (FRA) (slide 20).

AOB

Critical Drainage
AV: Will you be crossing any critical drainage areas?

MB: This will be considered within the FRAs and then any that require further consideration will be taken into the ES chapter and assessed. It was confirmed in the meeting that no critical drainage areas are crossed by either project.

Section 23
AV: Section 23 consents, will these be applied for at the DCO consent stage?

VH: Both projects will discuss a common approach to this and we will let you know once a decision has been reached.

Session:	**4. Geology & Ground Conditions**
Speaker:	**Siobhan Hall (SLR) / Kari Dennis (RHDHV)**
Detail:	SH described the topics covered by both projects and how the presentation of data varies slightly between the projects (slide 22). i.e. VE has a chapter for geology, land use and impact of contamination, and another chapter for hydrogeology, hydrology and flood risk. NF has a chapter for geology, hydrogeology, hydrology and impact of contamination, and another chapter for land use and agriculture. SH provide an overview of the Section 42 comments and proposed responses (slide 23). In terms of mineral sterilisation, VE and NF are looking to align their approaches where possible, VE has a commitment to submit a Mineral Resource Assessment with their DCO. NF had a comment relating to Safeguarding Waste Infrastructure, NF will provide an updated waste assessment for DCO. SH highlighted the key mitigation proposed for both projects (slide 24). Namely, targeted ground investigations, hydrogeological risk assessments, development of, and adherence to, a Code of Construction Practice.

If applicable, a written scheme dealing with contamination of any land and groundwater will be submitted and approved by the relevant planning authority before construction activities.

SH presented the next steps. There is a refined project boundary that both projects will use to update their assessments. NF to update Geo-Environmental Preliminary Risk Assessment with hydrogeological information. VE will develop Soil Management principles within its CoCP and a Minerals Resource Assessment.

AoB

Minerals Safeguarding

MW: Regarding Essex CC minerals reserve, around 95% of Essex is safeguarded for minerals. We will work together to find a practical and environmentally correct approach.

SH: Thank you, we look forward to discussing the minerals safeguarding assessment with you.

4.8 10/10/2023 POST PEIR ONSHORE BIODIVERSITY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Five Estuaries Onshore Biodiversity ETG

Location:	**Online**
Date:	**10/10/2023**
Time:	**11:00**
Facilitator:	**VE OWFL**
Minutes taker:	**Francesca King-Keast**

Attendees

Mike Brosa (MB) – GoBe
Francesca King-Keast (FK) – GoBe
Victoria Harrison (VH) – RWE
Jess Colebrook (JC) – SLR
Gemma Allsop (GA) – Environment Agency
Annie Gordon (AG) – Essex Wildlife Trust
Andrew Hartley (AH) – Natural England
Yolanda Foote (YF) – Natural England
Alan Gibson (AG) – Natural England
Harri Morrall (HM) – Natural England
Sophie Sparrow (SS) – Natural England
Alison Collins (AC) – Natural England

Apologies

Mark Woodger (MW) – Essex County Council

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COMPANY NO: Registered in England and Wales
company number 12292474

Item 1: Introduction and Aims	MB outlined the aim of the evidence plan and the aims of the meeting: to discuss changes in the project from PEIR to ES; and section 42 consultation comments received and responses to them.
Item 2: Early Adopters	VH explained that VEs is part of the early adopter's programme run by PINs (Planning Inspectorate launches pre-application trial with 7 Nationally Significant Infrastructure Projects - GOV.UK (www.gov.uk) and highlighted the different components of the programme which VE is part of: - COMPONENT 1: Use of Programme Planning (see Project Programme - Five Estuaries) - COMPONENT 5: Production of Policy Compliance Document - COMPONENT 10: Use of multipartite meetings
Item 3: Project Update	Project team update – Ian Maclean as interim project manager. Updated RLB and onshore cable route. Route development has progressed taking account of further studies and consultation feedback. RLB significantly narrower than PEIR boundary. Indicative OnSS co-located design. Preferred OnSS area at SSA West. South/ western landfall option being removed for DCO and area has been refined.
Item 4: S42 Comments	JC discussed Essex County Council's S42 comments. JC provided responses to Essex County Council's S42 comments: Green Infrastructure will be covered in the OLEMP, in a similar fashion to the BNG indicative design stage report. Clarity in respect of timescales will be provided in the ES and OLEMP. Roles and responsibilities for delivery of measures included in ES and OLEMP will be included within the documents and CoCP. An arboricultural feasibility report will be provided that identifies the constraints associated with trees within and adjacent to the PEIR boundary and EACN Access Road buffer area.

Further details in respect of habitat creation and enhancement will be included in the ES and OLEMP.

JC discussed that Essex Wildlife Trust consider water voles within the study area are likely to be of regional importance and request LEDPP applies to the entire onshore component.

JC responded that Water vole survey will be appended in the ES and clarity in ES and OLEMP on LEDPP, difference between areas on route where project has long term control.

JC discussed Environment Agency S42 comments:

Queried the 5-year maintenance period vs 30-year management requirement for BNG.

No net loss of water volve habitat should apply throughout the development site and HDD preferred option for all watercourse crossings.

JC responded that in order to meet requirements of BNG Metric 4.0 additional hedgerow planting will be implemented to ensure at least a 10% net gain in this habitat type. Details will be included in the OLEMP.

JC stated that based on latest scheme design, there is no loss of water vole habitat anticipated.

JC discussed the Forestry Commission, Tendring District Council and Woodland Trust's concerns about proximity to ASNW, other woodland and veteran trees. JC responded that the project has committed to avoiding all woodland and veteran trees (via scheme design and HDD) and implementing a minimum 15 m buffer or tree Root Protection Zone (whichever is greatest).

JC discussed that Natural England:

- Advises HDD should be used outside HHM SSSI
- Requests that SSSI features not covered by a HRA are assessed within the ES
- Aerial imagery should be ground truthed prior to application submission
- Requests further detail in terms of RIAA/ HRA
- Requests that the project provide BNG in line with NPPF and that Defra metric 4.0 may be used

JC responded that no HDD will occur within the SSSI

	RIAA was submitted to NE for comment after PEIR All SSSI features that could be potentially impacted by the scheme will be included in the ES chapter All accessible areas have been subject to ground truthing and/or detailed survey. Any areas where this is not possible will be highlighted as such within the ES chapter, and a precautionary approach applied when assessing potential impacts Nocturnal surveys have not been undertaken (for the reasons described in PEIR paragraph 4.7.6). Clarification on working hours to be provided in the ES. Nocturnal working during the winter should be minimised and mitigation measures applied where it is unavoidable and golden plover/lapwing could be affected (as set out in PEIR Table 4-11) Once 2022-23 surveys of the cable route/substation are reported, there will be two years of survey data for all areas. NE are correct that detailed surveys of the intertidal zone were only carried out over one winter, however the intertidal area was also covered by North Falls' surveys over two winters; this will be clarified in the ES. Data from the suite of bat surveys will be reported within the ES. This includes bat activity survey data at onshore locations, which includes Nathusius pipistrelle records. The intention is to provide BNG within the project RLB, and potentially also at other areas subject to voluntary agreement. Full details based upon the indicative scheme design will be included within the Biodiversity Net Gain Indicative Design Stage Report, which will be provided as part of the DCO application. The requirements for auditing against the BNG objectives will be set out within an appendix to the OLEMP, or similar document. JC queried if any comments? No comments received from attendees.
Item 5: Summary of survey results not reported in PEIR	JC states that all survey work to inform the EIA has been completed and will be reported within the ES. The majority of the RLB has been accessible for ecological and ornithological survey. Late-stage amendments to the RLB to facilitate co-ordination with NGET have resulted in some areas not being surveyed in detail: these are sufficiently small in extent that the

	lack of survey information at this stage is not considered to affect the assessment of ecological or ornithological impact for the scheme. Field surveys have confirmed the presence of water vole on Tendring Brook, Holland Brook and at Holland Haven Marshes SSSI. No evidence of otter has been found. Dormice are present within hedges at several locations south of the A120; north of the A120 no evidence of dormouse has been recorded. Badger setts are present within the RLB. Eight species of bat have been recorded foraging/commuting at the site, including barbastelle and Nathusius pipistrelle. Day roosts for common pipistrelle, soprano pipistrelle, noctule and Natterers bat have been located within the survey area. A common pipistrelle roost with 7 bats emerging was also recorded and is considered to be a satellite or maternity colony. "Good" populations of common lizard, "low" populations of grass snake and incidental records for adder and slow worm have been recorded.
Item 6: Proposed mitigation	JC discussed scope to co-ordinated with NF in the event both projects are granted consent. Therefore, mitigation proposals remain preliminary, since the final design will not be known until post DCO. Mitigation is being developed on the following basis: - Update pre-construction/pre-commencement surveys will be undertaken for all protected species considered likely to be present. - Commitment to HDD almost all hedgerows and areas of priority habitat; this includes all those that are "important", that are a priority habitat or which support protected species. Limited number of such hedges may require a haul route access through; these will be microsited to avoid mature tree and use existing gaps as far as practicable. - No direct impacts to Holland Haven SSSI or any LWS. - No direct impacts to ponds are anticipated, all ponds with GCN recorded are more than 100m from the indicative layout used to inform the ES. Reasonable Avoidance Measures (RAMS) and/or an EPSL (DLL) will be used as necessary where impacts to GCN are anticipated.

- 10 bat roosts occur within 50m of the proposed footprint, no direct impact to confirmed bat roosts is anticipated. However, approximately 30 trees with moderate of high potential could be affected. An EPSL is therefore not currently anticipated to be necessary and RAMS will be employed to minimise the risk to bats when felling trees. Mitigation is proposed for loss of all potential roost features such that there is no net loss of the potential roost resource. Mitigation will include habitat enhancement and/or box installation as close as possible to the impact, within or adjoining suitable habitat.
- Temporary mitigation along the route corridor will primarily comprise habitat management (dead hedging) for the benefit of foraging bats that could be impacted via flightline loss or fragmentation.
- Two hedgerows that are in areas where dormice have been recorded may require a haul route access through. Impacts would be temporary (until such time as hedges are reinstated and established); RAMS and/or an EPSL will be used as necessary. If an EPSL is necessary then mitigation will include habitat enhancement and/or box installation as close as possible to the impact.
- No significant impacts to other protected species are predicted and no other licences or translocation measures are considered necessary. This would be subject to update and review after the pre-commencement surveys are complete, and RAMS used to minimise risks.
- For the substation site, where permanent impacts would occur, an indicative design will be presented, sited within the western part of the OnSS zone. Note that the OnSS may actually be sited anywhere within the OnSS zone, and may be co-located with an OnSS for North Falls. The indicative design is considered to be a fair representation of the types of impacts that would occur and how they would be mitigated in the event VE only is granted consent.
- We are keen to discuss with ETG members the types of mitigation and compensation measures that could be incorporated into these locations in order to complement existing projects and build into the green infrastructure network, local and national planning policies, as well as minimise impacts to local biodiversity.

VH important to understand that project can be delivered under co-located scenario, but DCO will only seek permission for VE mitigation. Discussion with legal team how we clearly

	present this in ES, so it doesn't create confusion and work with other project so that work does not overlap. But assessment is under assumption for co-location as worst-case scenario but only proposing mitigation for VE as it the only project we are applying for under DCO application
Item 7: BNG metric 4.0	JC set out the proposed approach the project will take when using Defra Metric 4.0, including key assumptions necessary in view of design uncertainty. JC sought clarification: In its consultation response dated 18 November 2022 NE stated that since 30 years management cannot be secured for affected hedgerows along the cable corridor, for the purpose of the Metric they must be deemed lost (regardless of commitments for them to be replaced with native species rich hedgerows). Can NE please confirm if this remains its stance as this has not been noted to be the case for other NSIP schemes. AC confirmed that NEs stance remains as per the 18th November. Highlighted a need for appropriate mechanism to secure long-term management with landowners. AC then provided initial comments from NE in respect of the assumptions outlined: AC queried if area is within RLB it should be treated as onsite and offsite is anything outside of the RLB regardless of ownership JC reminded attendees that on site and off site definitions were as per the BNG approach previously provided/discussed. JC also highlighted that projects using Rochdale envelope will have land within RLB which won't ever be developed so why need to provide 10% over and above footprint that it doesn't retain control over. AC set out that habitat provided as mitigation for protected species, SUDS etc could count towards no net loss of biodiversity, but not count toward gain. Highlighted a need to discuss what is mitigation for loss and then what is 10% on top of that. JC noted that this may be theoretical in terms of protected species until such time as final design is known. AC quite a bit that still needs to be unpacked in the BNG meeting

	JC will take those points away and will discuss further at BNG **Action** – JC/VH will send over definitions for BNG terminology before meeting next week JC Does Essex County Council/another organisation operate a scheme within Essex for off site offsetting? **Action** – GA will find out and get back to you AC are you splitting up between other councils? JC only within Essex.	
AOB	GA it would be good to see the metric for BNG once available. GA in relation to HDD crossing of sea wall is there any more information on where you are going to drill? VH showed schematic of long and short HDD which shows depths. This is subject to where we land from offshore cable route to onshore. **Action** – VH - We have engineering drawings which can be forwarded on, will add to the back of this slide pack when we send them out AG – a lot presented in slide pack and reserve right to address comments in the next week or two.	
Actions:	Send NE proposed BNG terminology ahead of BNG meeting	VE
	Enquire re. scheme in Essex for biodiversity offsetting	GA
	Add schematic of long and short HDD which shows depths to back of slide pack	VE

5 ETG 5 SLVIA, LVIA, ONSHORE & OFFSHORE ARCHAEOLOGY

5.1 15/01/2020 PRE SCOPING SLVIA, LVIA, ONSHORE & OFFSHORE ARCHAEOLOGY ETG

Minutes

Five Estuaries (Galloper Extension) – Seascape, Landscape, Cultural Heritage and Archaeology Expert Topic Group

15 January 2020, 09.00 – 12.00
Meeting – Novotel Ipswich Centre– Novotel, Grey Friars Road, Ipswich,
IP1 1UP

Participants

On Skype/Phone

Nicola Young (innogy)	NY	Alan Mitchell (SLR)	AM
Cassie Greenhill (innogy	CG	Gavin Kinsley (SLR)	GK
Anne Westwood (innogy)	AW	Simon Myers (SLR)	SM
Nicola Solly (GoBe Consultants)	NS	Lynda Thomson (Op-En)	LT
Sammy Mullan (GoBe Consultants)	SMu	Christin Heamagi (MA)	CH
Lisa Chandler (ESC)	LC	Rebecca Ferreira (MA)	RLF
Bethany Rance (ESC)	BR	Elizabeth Holmes (SLR)	EH
Nicholas Newton (ESC)	NN		
Eloise Limmer (ESC)	EL		
Phil Watson (SCC)	PW		
Andrew Rutter (SCC)	AR		
Abby Antrobus (SCC)	AA		
Graham Gunby (SCC)	GG		
Simon Amstuz (AONB – Suffolk)	SA		
Will Fletcher (Historic England) *	WF		
James Albone (Historic England) *	JA		
Nina Crabb (National Trust)	NC		

*dialled in

Apologies

N/A

Pre-meeting papers provided:

- *Slide pack (Five Estuaries Info Pack - Jan 2020 - Seascape, Landscape & Archaeology.pdf)*
- *Evidence Plan Terms of Reference (Five Estuaries Draft Evidence Plan ToR rev1.docx)*

Meeting Agenda

1. Introductions
2. Project overview
3. Draft Terms of Reference for the Evidence Plan
4. Seascape
5. Landscape
6. Maritime Archaeology
7. Onshore Archaeology and Cultural Heritage
8. AoB

All actions are captured in bold.

Agenda Item	Minute / action	Action
1	**Introductions** NY welcomed the meeting participants and thanked them for their attendance. Round table introductions were made. NY introduced the agenda and aims for the meeting. NY noted that the project is still known as Galloper Extension Offshore Wind Farm (OWF) as the name Five Estuaries is not yet in the public domain. The agreement for lease (AfL) was signed by The Crown Estate in August 2019.	No actions recorded
2	**Project overview** NY presented an overview of the extension projects which innogy are involved with, including Gwynt y Môr, Five Estuaries and Greater Gabbard Extension. NY noted that the project is in discussions with Greater Gabbard Extension project team, but they are running to a different programme and is a separate project (and has different shareholders). NY presented the Five Estuaries Area of Search (AoS) being considered for scoping – see slide 4. NY presented the onshore AoS – see slide 5. NY noted that this is an initial area of search which is being considered for refinement but noted that the project is at a very early stage. She also acknowledged the that the area is heavily designated. NY presented the potential for the three broad areas which landfall could be made – Dunwich, Sizewell and Bawdsey. These have primarily been selected to avoid direct impacts on designations and protected areas as far as possible. NY confirmed that innogy have accepted a National Grid connection offer at Friston and that innogy would seek to have the substation as close as possible. NY presented the area of search for the substation (see the red line on slide 5) which has been refined from a 3 km radius from the Friston connection point. GG requested confirmation of what information is in the public domain. AW confirmed that the acceptance of the National Grid offer at Friston is in the public domain and so is the AfL. However, the project name and AoS boundaries are not currently in the public domain. WF requested confirmation as the consenting requirements, for the Five Estuaries project, for the National Grid Friston substation given that the site has not yet been consented. NY confirmed that the substation at Friston (and their specific substation) is currently being sought for consent under SPR's Development Consent Order (DCO). WF requested confirmation of the	No actions recorded

	distance from Friston. NY confirmed that the search area for the substation is 3 km radius from the National Grid Friston substation location. WF requested the status of the site selection process – NY confirmed that the landfall, cables and substation location studies are on-going. NY provided an overview of the project programme (see slide 6), including the finalisation of the Scoping Report in March/ April 2020. NY explained that formal consultation on the cable route options will be undertaken in April/May 2020. The aim is that the project would be operational in 2030.	
4	The Scoping Report The Scoping Report is being led by GoBe Consultants Ltd. NS highlighted that the Scoping Report is approximately 70% complete at the time of the meeting however there is sufficient time to incorporate any feedback received during the meeting. NS presented a high-level overview of the scoping study being undertaken. The Scoping Report seeks to define the scope of the subsequent EIA process (i.e. what should be scoped in or out) and identify potential significant effects (in EIA terms) at an early stage and ensure that the EIA assessment is proportionate and robust. The Scoping Report will also propose further survey requirements, mitigation and methodology for the EIA assessment. NS highlighted that the HRA Screening report will be submitted for consultation at the same time as the Scoping Report for consultation. The Scoping Report is programmed to be submitted to PINS in March- April 2020 for consultation under the formal PINS process which includes 28 days for stakeholders to provide their consultation responses to PINS which will be fed into the Scoping Opinion. NS provided an overview of the structure of the Scoping Report including the general introductory and technical chapters (separated by onshore and offshore elements). She noted that a summary of impacts to be scoped in and out will be provided in the Scoping Report. NS provided an overview of what aspects will be covered within the technical chapters in the Scoping Report, including the baseline, methodology for EIA, items to be scoped in (and out) and proposed embedded mitigation. She also noted that project specific questions will be included, which are directed to consultees, which innogy is seeking feedback on.	No actions recorded
3	Draft Terms of Reference for the Evidence Plan NS provided a brief overview of the Evidence Plan (EP) process. She explained that it is a formal tool to agree the information presented and approach undertaken in the EIA and Development Consent Order (DCO) application. The process provides formal structure and general rules (outlined in the Terms of Reference) under which agreement will be sought from each of the parties.	

	The project will be seeking to gain consensus on the information which informs the assessment which will help to reduce disagreements in the examination phase and the development of Statements of Common Ground (SoCG). It was noted, as per the Terms of Reference (ToR), records of discussions will be maintained through minutes and an agreement log. It is hoped that the process will reduce resource requirements for all parties for all during examination. NS presented the proposed structure for the Evidence Plan for Five Estuaries. She noted that all parties are welcomed to attend and join any additional expert Topic Groups (ETGs). **All parties to inform innogy (email CG) if they would like information or to participant in additional ETGs.** NS presented the roles and responsibilities of the steering group and the Expert Topic Groups (ETGs) – see slides 11. NS noted that a draft ToR (previously circulated) seeks to set out the process for engagement with stakeholders under the EP. The document includes the proposed parties, roles, responsibilities and general rules of the EP. She highlighted that the project will be seeking agreement on the ToR from each of the parties involved in the process. **All parties to provide comments and/ or alterations to the draft ToR by 14th February.** SA requested whether PPA will be entered into with organisations. NY confirmed that they have with some organisations and are amenable to entering into agreements with other parties. NY confirmed the programme is based on applying for CfD. SA expressed concerns of resourcing constraints and the required response times for consultation/ responding to PINS with their concerns. **SA to email NY to initiate the PPA process.**	**All parties** **All parties** **AONB – Suffolk post meeting note: discussion have been initiated**

4	**Seascape** The SLVIA assessment for the EIA scoping study will be undertaken by Optimised Environments (Op-En); this part of the meeting was presented by LT. LT presented the study area (in which any significant effects (in EIA terms) may arise) – see slide 13. She noted that the study area includes EA ONE and EA TWO proposed Order Limits and is partly within Dutch and Belgian waters. LT presented the characterisation information to be utilised to inform the Scoping and EIA – see slide 14. PW confirmed that the Suffolk Landscape Assessment by SCC has been updated in 2018 as per information provided in correspondence, however, the updates which are largely to the coastal areas, are not obvious. LT presented the landscape planning designations - see slide 16. SA noted that the AONB management plan has been updated, i.e. 2013- 2018 is now out of date. Version 1.8 2018-2023 is the current version. LT presented the proposed viewpoints which will be presented in the Scoping Report – see the table on the slide 17. It was agreed that these viewpoints would be taken away for future consideration and will be discussed further under the Evidence Plan. Gunhill Southwold was suggested as an alternative to Southwold Promenade (by PN, SA and GG) as an additional viewpoint to be included. WF highlighted that cultural heritage assets are also of interest which should be considered in determination of the viewpoints – this was agreed and noted. In addition, PW pointed out that both illustrative and representative viewpoints will be required for the ES. Post Meeting Note (PW) – viewpoints at Languard, Shotley and Harwich likely to be required. LT presented the visual receptors, which is based on the Zone of Theoretical visibility (ZTV) which has been refined as 50 km. Sensitive receptors will be identified within the ZTV – see slide 18. LT confirmed that the maximum tip height being considered is 332m which has been used to develop the ZTV. The closest part of the coast is 37.3 km to the proposed development. LT provided context of heights and distances of other OWFs in the area, such as Galloper OWF and the proposed developments (EA One and EA TWO). NN confirmed that the Orfordness Lighthouse is at risk of 'falling into the sea'. Post Meeting Note (LC) – the lighthouse is now in the process of being demolished rather than allowing it to fall into the sea.	

	PW noted in addition to frequency, the times of day when they are visible is also an important factor. LT confirmed that the assessment will be prepared on the worst case basis, i.e. under high visibility conditions. PW noted that the worst case visibility is likely to be late afternoon in the summer months. AW stated that a large envelope of WTGs and high number is being considered (67 WTGs) at this stage. Innogy is seeking to future proof the project so are applying for large heights and the design envelope is currently worst case and is likely to be refined downwards by PEIR. LT provided paper copies of the wirelines for the participants to review. LT presented the impacts to be considered in the Scoping Report – see slide 22. This includes cumulative effects with the other OWFs, and Sizewell C. LT confirmed that Sizewell A and B would be included in the baseline. LT confirmed that the proposed scoping out of other offshore developments did not include offshore wind farms, which would be included unless otherwise advised. SA remarked that the England Coast Path location (which is anticipated to be on the cliff) will be known by the time of the project application. Timetable is available on the England Coast Path website and is expected imminently. **LT to ensure that the Scoping Report is updated to include "Suffolk Coast Path".** GG highlighted that NE should be involved in the seascape and landscape discussions. AW confirmed that Natural England have been resource constrained. innogy are intending to hold a separate call with Natural England, and their team will be attendance at the offshore ETG in Feb 2020. AW confirmed that Natural England have received the topic notes and have seen the AoS boundaries. It was confirmed that innogy is happy for the councils to discuss this with Natural England. **CG to provide a copy of the presentation and draft minutes to all invited participants (including Natural England).** PW and GG highlighted the key concern of EA One North and TWO and highlighted the need to discuss the cumulative effect with these OWFs. LT presented the effects proposed to be scoped out from the assessment – see slide 22. PW felt that night time effects should not be able to be scoped out this stage until more clarity is available on the turbine lighting requirements. PW felt that views on offshore receptors such as recreational craft could not be	Op-En innogy

	scoped out, given the importance of recreation to the AONB designation. LT presented the site specific surveys to inform the EIA, these will focus on ground truthing the theoretical and actual visibility. PW noted that time of day should be a considered during the surveys. SA highlighted the route of the England Coast Path and should be considered as a linear receptor – this was noted.	
5	**Landscape** The LVIA input to the EIA scoping study will be undertaken by SLR Consulting; this part of the meeting was presented by SM. SM presented the information which is proposed to be utilised to characterise the baseline in the Scoping Report (and EIA) – see slide 26. SM requested confirmation that the Suffolk Coastal Landscape Character Assessment (2018) is the most appropriate document to focus on for the baseline landscape character (also using other published character assessment for background information) – PW confirmed that this was appropriate. SM presented the relevant designations relative to the AoS– see slides 28 and 29. He highlighted that the onshore substation is proposed to be outside the AONB. SM questioned the potential relevance of the Special Landscape Areas given these are not included the policy context in the emerging local plan, with more emphasis being given to a landscape character based approach. NN confirmed this was the approach being taken by East Suffolk Council. It would be known if this approach has been upheld by the local plan inspector in the near future (likely to be the next couple of months). SM presented the AoS relatively to the character areas – see slides 30 and 31. Site selection – ESC and SCC emphasised the expectation that the site selection process for the substations should be open and transparent, and all-encompassing over as wide a range of the key siting issues as possible. **ESC (NN) to investigate if GIS file of the character areas are available and can be provided to innogy (and their consultants).** SM presented the considerations for the key visual receptors (including settlements, cultural heritage assessments and tourist attractions) – see slide 32. SM highlighted that the AoS have been assessed relative to receptors (including paths and cycle routes). PW highlighted the hierarchy of paths and cycles routes and should be considered in the sensitivity in the LVIA – this was agreed. SA noted that the AONB also promote certain routes and paths on their websites.	ESC

	The emerging England Coast Path was discussed. SM identified that that the route in the potential cable route and substation had not yet been defined. SA agreed that this was the case and thought the proposed route of England Coast Path in this part of Suffolk would be published during 2020. **SA to send email received from Natural England regarding the potential timeframe for publishing Coastal Access Reports.** SA has forwarded the email, which suggests that the Coastal Access Reports for the area in the vicinity of the potential cable route and substation would be published in late January or February. SM presented the impacts which have been considered in the Scoping Report – see slide 35. He noted that the effects on changes in character will be considered for temporary changes. He noted that the effects related to the substation will be a key consideration as it is a permanent structure. SM proposed 1 km (either side) for the cable route and 5 km from the substation as study areas for the purpose of the LVIA. Initial feedback on this during the meeting was positive, but it was agreed that formal feedback will be provided on the proposed study areas. SM noted that previously some effects were proposed to be scoped out, however these are under consideration following feedback from the councils. SM explained that these were proposed to be scoped out based on experience of similar projects and seeking to focus the assessment on the significant effects. A discussion was held through the feedback provided. SM noted that beneficial effects can be introduced from schemes SA requested confirmation that cumulative impacts will be considered. SM confirmed that cumulative effects will be considered and will be a key issue for the assessment. GG highlighted the need for mitigation. This was agreed and could be considered as the project design is refined and during the EIA process. SM presented the site specific surveys proposed to inform the EIA – see slide 36. These would include the photomontages and visualisations and will be undertaken in line with the current guidance from the Landscape Institute and Scottish Natural Heritage. It is proposed that the same approach to the	AONB – Suffolk

	presentation of photomontages and visualisations is adopted for both the onshore and offshore components of the project to ensure there is consistency.	
6	**Maritime Archaeology** The marine archaeology assessment for the EIA scoping will be undertaken by Maritime Archaeology; this part of the meeting was presented by CH and RLF. WF noted that Chris Pater will be the Historic England lead for maritime archaeology, possibly supporting Pip Naylor. **WF to confirm the Historic England team when they are in post, and to seek feedback from Chris Pater/Pip Naylor regarding the EIA Scoping Approach.** CH presented the baseline characterisation data which have been identified to inform the Scoping Report (and EIA) - see slide 39. CH requested whether any additional data sources should be considered. No comments were made. CH explained that the geophysical and geotechnical data collected for the project will be assessed for archaeological interests and features. This analysis will inform the EIA baseline. CH presented the impacts proposed to be scoped into the EIA for both direct and indirect impacts – see slide 40. The impacts will be considered for both known and unknown features (such as wrecks). CH presented the proposed impacts to be scoped out – see slide 41. These effects include where the embedded mitigation, such as adherence to AEZ, will prevent significant impacts on historical assets. She presented an example of a known wreck – see slide 41. **WF to confirm the scoping out approach with the Historic England marine team.** CH presented the proposed approach to designing the mitigation methodology – see slide 43. She noted that a WSI will be developed for the project and AEZs will be established (where no works including anchoring will occur). The project has committed to undertake a geophysical review and will seek to microsite around identified key receptors. CH noted that early engagement is a key part of the process and thanked the attendees for their early engagement. GG raised the issue of the UXO and noted they are likely to be prevalent in the	**Historic England** **Historic England**

	area. AW confirmed that preliminary geophys surveys will be undertaken in summer 2020 and the potential for UXO will be assessed (in addition to archaeological features). Innogy are keen to utilise the knowledge learnt from the construction of the Galloper OWF (and other projects). CG noted that avoidance is the preferred approach to UXO mitigation. CH presented the proposed next steps for the archaeological assessment - see slide 44.	
7	Onshore Archaeology and Cultural Heritage The onshore archaeology and cultural heritage assessment for the EIA scoping will be undertaken by SLR Consulting; this part of the meeting was presented by GK. GK presented the AoS, ZTV and cultural heritage receptors – see slide 47. He noted that the scheduled monuments and listed buildings are widespread and distributed through the study area. He also noted the high density of non-designated archaeological sites. He noted that the EIA will be based on a more refined project design including defined routes and substation locations. In discussion of the Op-En scoping report ZTV and viewpoints, WF asked that selected cultural heritage assets be included in the viewpoints. EL confirmed that ESC does not retain a list of assets with heritage value (i.e. non-designated) and would require the assessment would provide information to the council. EL noted that ESC has a criteria for identifying assets of cultural heritage – GK agreed to utilise this criteria. Post meeting note: ESC and SCC confirmed that they have criteria for the identification of non-designated heritage assets (focused on buildings and structures) that should be used when considering heritage impacts. They agree that assets can be grouped by function when considering the impact of the turbines on onshore heritage assets, all assets with a functional relationship with the sea should be considered (SPR used a 100 m buffer that was arbitrary and missed some key assets). GK presented the proposed baseline characterisation information proposed to inform the Scoping Report (and EIA) – see slide 48. GK requested confirmation if there are any additional assets which should be considered in the scoping study. LC highlighted the concern of onshore infrastructure in particular in the Friston area - this was noted. Historic receptors with a significant maritime connection: WF highlighted that	

	Martello towers, fortification sites and church towers used as navigation markers could have cultural cognisance with the sea and views from such assets should be assessed –EL agreed. Post Meeting Note: Orford Ness Lighthouse (Grade II) is a designated asset that is at risk from erosion. Work to demolish it is imminent (Building Control have served a dangerous building notice). EL noted seaside towns such as Southwold should also be included. AM explained that a framework for the methodology will be provided in the Scoping Report but the intention is to agree the methodology with the ETG as the project is refined. EL noted that looking at types of assets would be key – military, seaside etc. WF highlighted that some assets with views form the sea can be set back quite a long way back so a simple buffer approach may not be appropriate. GK agreed that the screening of assets should be based on functional criteria as opposed a buffer. AM confirmed that a ZTV could be utilised in addition to a criteria of maritime significance to create an initial list for discussion. EL noted that if the significance of the asset is influenced by maritime views, then it needs to be considered regardless of position relative to the coast. EL requested that Conservation Areas are considered as a designated asset in their own right. GK outlined a proposed methodology of assessing clusters of assets and it is proposed as a more robust approach to deal with a group. Post meeting note: ESC and SSC clarified that they are content for assets to be grouped by type when considering the impact of the turbines on coastal assets but conservation areas should be included when looking at designated heritage assets rather than just focusing on listed buildings. GK asked if any designated assets are being eroded. AA noted the mediaeval town at Dunwich which has be inundated in the past. Post meeting note: AA confirmed that David Seer at University of Southampton has done surveys of the seabed. The HER has a copy of the reports but no primary data. http://www.dunwich.org.uk/ CH confirmed that the scope of the study will cover up to mean high water and GK will cover to mean low water to ensure overlap of the intertidal area and that assets/ features are covered. GK and AA discussed the site of Rendlesham which is currently not designated. AA highlighted that disturbance of the site would be unacceptable.	

	AA agreed to provide a list/ further information on non-designation sites in the study area. Innogy (and team) to present the proposed method to the ETG going forwards and proposed list of identified assets Innogy (and team) agreed to discuss within the project team to create a more detailed/ accurate ZTV once the project design is refined. GK presented the proposed effects to be scoped in – see slide 49. GK presented the proposed effects to be scoped out – see slide 50. GK highlighted where non-visual indirect impacts could be scoped out. EL noted that assessments for the individual properties needs to be undertaken in the Friston area in terms of setting of the wider area. AM requested any observations on the SPR assessment for the substation setting. EL noted that the setting of the designated heritage assets around the substation site needs to be considered in accordance with Historic England's guidance ('The Setting of Heritage Assets') and reflecting the definition of 'setting of a heritage asset' are set out in the NPPF. EL confirmed that feedback will be provided in the Relevant Representation and Local Impacts reports for SPR. Post meeting note: ESC and SSC consider that SPR's assessment has failed to fully appreciate the contribution that the wider landscape made to the significance of the listed buildings, including views from within the asset, within the grounds of the asset and of the asset from across the open countryside. GK to review the draft LIR from the ESC website. AM requested confirmation on the expected geophysical survey requirements of the cable route. AA would anticipate a survey would be required to inform the impact assessment and mitigation development. AM highlighted that the site selection process will seek to avoid known (and designated) archaeological features. He suggested that once the cable routes are defined then further discussions could be undertaken to understand the survey requirements. AA noted that HER information would inform this process. She highlighted that the Suffolk Heritage Explorer is an online source of information for intertidal high-level searching (but not recommended that this is a planning tool as it is different to the live version). It was noted that SPR undertook targeted geophysical surveys but did not undertaken trial trenching or earthwork surveys Their approach was not supported by SCC.	SCC Innogy/ SLR Innogy/ Op-EN SLR

	GK outlined the proposed approach to field surveys to inform the EIA – see slide 51. GK requested what stakeholders would request prior to submission of the DCO application. AA suggested that geophysical and trial trenching should be undertaken to enable a robust survey/ assessment. GK confirmed the requested extent of trail trenching, the key point is that the geophysical survey trial trenching and earth work were required. AA suggested that it should be systematic to identify unknown features. She also suggested an earthworks survey based on a detailed DBA and to identify non-designated built/upstanding heritage (especially but not exclusively WWS) which might be impacted. AA asked how wide the cable route will be. AM provided an overview of the cable installation methodology including soil stripping, trenching, HDD. AW confirmed that possibility of AIS or GIS substations are included in the design envelope. AA suggested that a detailed DBA should be undertaken prior to the determination of cable routes. AM noted that as such a wide area is under consideration it would not be feasible to undertake over such a detailed assessment over the wide study. **Innogy to confirm if RH DHV intend to purchase data to inform archaeology considerations of the site selection and alternatives.** GK asked if any participants had any study areas/ buffer areas for indirect effects. No buffers were suggested. Post meeting note: SCC would be happy to discuss suitable buffers and size of search as the project progress (c2k from limits but may need tailoring to enable characterization to be made, depending on the resource). Portable Antiquities Scheme data and National Monument Mapping Programme data (from aerial photograph interpretations) are available as part of an HER search. EL noted that mitigation for SPR is unlikely to mitigate the effects for the setting near Friston. WF raised that noise and lighting should be considered as indirect effects on the setting of assets.	innogy
8	**AoB** It was agreed that a detailed agenda and information will be provided in advance of the meeting. SA requested that future meeting commence at 9.30am.	

	It was agreed to try and arrange the EP workshops back to back to help with resourcing constraints. **CG to circulate proposed dates for the next ETG meeting (w/c 16th or 23rd March).** LC offered that landscape officers could arrange a substation AoS site visit prior to refinement. **LC also noted that she considered the substation search area at 3km from the connection point to be too small. NY advised that this information would be passed on to RHDV.** LC highlighted that ESC are keen to be involved in the early stages of site selection and alternatives. This was noted.	**CG post meeting note: a placeholder has been circulated for w/c 23rd March**

5.2 11/07/2021 PRE SCOPING SLVIA, LVIA, ONSHORE & OFFSHORE ARCHAEOLOGY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

SLVIA, LVIA, Marine Archaeology, Archaeology and Cultural Heritage Expert Topic Group

Location:	**MS Teams**
Date:	**11 August 2021**
Time:	**0930 to 1330**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Cassie Greenhill (CG)	VE OWFL
Rachel McCall (RM)	VE OWFL
Nicola Young (NY)	VE OWFL
Harvey Johnson (HJ)	RWE
Sammy Mullan (SMu)	GoBe Consultants
Fraser Malcolm (FM)	GoBe Consultants
Simon Martin (SiM)	OpEn
Heather Anderson (HA)	Maritime Archaeology
Shaun Fisher (SF)	SLR Consulting
Emily Peel Yates (EPY)	SLR Consulting
Simon McCudden (SMc)	SLR Consulting
Mark Turner (MT)	Wessex Archaeology
Marie Kelleher (MK)	Wessex Archaeology
Chris Pater (CP)	Historic England
Jess Tipper (JT)	Historic England
Sheila Stones (SS)	Historic England
Leanne Tan (LT)	Marine Management Organisation
Joseph Wilson (JW)	Marine Management Organisation
Mark Woodger (MW)	Essex County Council
Nicholas Newton (NN)	East Suffolk Council

FIVE ESTUARIES
OFFSHORE WIND FARM

Nicholas French (NF)	Essex County Council
Richard Havis (RH)	Essex County Council
Bethany Rance (BR)	East Suffolk Council
Naomi Goold	East Suffolk Council
Grahame Stuteley	East Suffolk Council
Graham Gunby (GG)	Suffolk County Council
Andrew Rutter (AR)	Suffolk County Council
Beverley McClean (BM)	Suffolk Coast and Heaths AONB
Phil Watson (PW)	Suffolk County Council

Apologies

Harriet Thomas	VE OWFL
Sarah Edwards	VE OWFL
Yolanda Foote	Natural England
Alan Gibson	Natural England
Nina Crabb	National Trust
Simon Amstutz	Suffolk Cast and Heaths AONB
Zoe Outram	Historic England
Graham Nourse	Tendering District Council
Gary Guiver	Tendering District Council

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Item 1: Introductions

Attendees provided an introduction and NY gave an overview of the proposed meeting agenda.

NY noted that National Grid had previously confirmed an onshore grid connection location in Friston, Suffolk. This offer was subsequently revised to the East Anglian Coastal Substation (EACS), and National Grid (NG) are currently undertaking their own site selection work for their substation. She explained that NG have indicated that their substation could be located anywhere along the 132 KV line (between Clacton and Ardleigh Road) and therefore the EACS will not necessarily be located along the coast. This elongated area has therefore been captured with the onshore Scoping Boundary. She explained that Five Estuaries (VE) are trying to capture as much information as possible in the area to inform the site selection process following NG's decision. The preliminary work sought to avoid various designations which led to a stretch of the Holland Haven coastal area being identified as the preferred location for landfall.

RM presented the offshore key constraints which are associated with the cable routing, including the Southern North Sea Special Area of Conservation (SAC) and the Outer Thames Estuary Special Protection Area (SPA) – see slide 7. She also noted there are numerous constraints in the AoS including shipping and navigation, wrecks, cables, aggregates, designations, disposal sites and existing offshore wind farms (OWFs) – see slide 8. She highlighted that various engagement has been undertaken with stakeholders, including Natural England and shipping and navigation stakeholders, with regard to identified constraints. RM presented the Scoping Boundary – see slide 9. She explained that a preferred offshore export cable route (ECR) will be presented in the Scoping Report which is encapsulated within the scoping boundary. The offshore geophysical surveys are underway for the preferred ECR.

RM presented the indicative project programme – see slide 10. Onshore surveys are due to begin this summer and will continue into 2022. The offshore surveys were commencing at the time of the meeting. She explained that a longlist and shortlist site selection process have been undertaken.

She explained that the viewpoints for the seascape assessment photography will be undertaken in August and September 2021. RM provided a summary of the previous consultation regarding viewpoints held in July 2021.

Item 2: Evidence Plan Process	FM explained that the Evidence Plan process will be undertaken throughout the pre-application process. He explained that the EPP is a tool which seeks to document agreements throughout the process and provides a record of consensus throughout the process. It encourages early engagement and identification of a robust evidence base to inform the EIA. It enables dialogue and will form the basis of the SoCG (produced post-application) and seeks to reduce resource requirements for all parties. FM presented the broad structure of the proposed VE Evidence Plan – see slide 13. He explained that PINS will attend the Steering Group meetings and they will have an independent chair. He presented the various proposed ETGs and highlighted the relevant panel for this meeting. He explained that the key role of the steering group is to oversee the delivery of the plan and seek to resolve contentious and specific issues – see slide 14. FM explained the role of the ETGS which is primarily to review the evidence provided and the sufficiency of the data. GG enquired when the location of EACS will be provided from NG. FM confirmed the location is anticipated to be known in Q1 2022. Thereafter, VE will then identify their onshore shortlist. VE OWFL will be consulting as part of the alternative consultation in Q1/2 2022. More information will be provided when available.
Item 3: Approach to the EIA Scoping	FM explained that the purpose of the EIA Scoping Report is to refine the scope of the VE EIA to ensure that all potentially significant impacts have been identified – see slide 16. This will seek to allow the EIA to focus on issues which are likely to be key considerations and ensures that it remains proportionate. FM provided an overview of the consultation process for scoping. FM explained the proposed contents of the VE Scoping Report and its structure – see slide 75. FM noted that the VE Scoping Report is due to be provided to PINS at the end of September 2021. FM highlighted that feedback on any of the specific questions included in the Scoping Report would be greatly appreciated. FM highlighted that further information on scoping and the associated consultation is available in: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2017/12/Advice-note-7.pdf

Item 4: Cultural Heritage

This section of the of the presentation was presented by SMc and the Scoping Report chapter will be prepared by SLR Consulting.

SMc presented the identified baseline data sets which have been identified to date – see slide 66. He enquired if there are any designated heritage assets of concern. No concerns were raised from the meeting's participants.

SMc presented the onshore scoping boundary relative to the heritage assets (grade I, II, registered parks and gardens) – see slide 67. He also highlighted that there are archaeological interests such as those below ground which may not be known. He noted that a key consideration will be determination of significance for those interests. He highlighted that the onshore and offshore consultants will work collaboratively to ensure consistency and to cover any spatial overlap.

SMc presented the potential impacts which have been identified to date – see slide 68. SMc requested information of non-designated assets in the scoping boundary from the consultees. No further assets of concerns were raised by the meeting's participants.

SMc presented the proposed impacts to be scoped out from EIA, as significant effects in EIA terms are not anticipated based on the receptors identified and the proposed activities. He also presented the commitments which the Applicant has made to date (see slide 69) including avoidance of designated sites and preservation by record. He noted that avoidance is preferable and preservation by record would be the last resort.

SMc presented the site specific surveys which are proposed to inform the EIA – see slide 70. He explained that where appropriate non-intrusive surveys should be utilised and that LiDAR surveys may be very helpful.

SMc requested feedback on the information presented.

JT requested clarification on the evaluation techniques, such as geophysical and trial trenching. SMc agreed that the geophysical surveys will be a key survey to inform the assessment and combined with a desk based assessment (DBA). JT noted that it needs to be high resolution LiDAR to detect archaeological remains. FM explained that the project are in the process of developing a scope of works for the onshore geophysical surveys and the proposed

	methods will be consulted further upon with the ETG to ensure their sufficiency for baseline characterisation. MH highlighted that the requirements for archaeological evaluation which will need to include trial trenching will form an essential part of the assessment work to be completed pre submission. The identification of the archaeological deposits and an understanding of their extent and significance will be essential for the understanding of the impact of the scheme, especially in the area of the landfall, cable corridor and sub-station.
Item 5: Marine Archaeology	This section of the presentation was provided by Maritime Archaeology (MA) and they will be preparing the technical assessment in the Scoping Report. HA presented the identified baseline data which have been considered during the scoping assessment – see slide 73 . She noted that there are no designations or protections for palaeolandscapes within the MA study area at this time. She presented that 75 wrecks,22 obstructions and fouls were found to have been identified in the study area – see slide 74. She presented that 41 records[1] were identified within the marine archaeology study area – see slide 75. She noted that 25 Essex Historic Environment Records have been identified in the study area (slide 76) noting the majority are on the foreshore. She explained that site specific surveys will be non-intrusive techniques and the proposed methodology was provided to Historic England in June. She provided an overview of the proposed techniques – see slide 77. She presented the impacts which are proposed to be considered in the EIA – see slide 78. She noted that no impacts are proposed to be scoped out at this time. She explained that the provision of a Written Scheme of Investigation (WSI) will be included in the deemed Marine Licence. She presented the proposed embedded mitigations (see slide 79) including exclusion zones and archaeological review of the geophysical data to inform further analysis and mitigations required (such as additional exclusion zones) as well as the provision of a protocol of archaeological discoveries. Post meeting minute: At this stage impacts on marine archaeological assets have been scoped into the EIA. Historic England raised the point in relation to embedded mitigation and recognising the difference between adaptive/ further mitigation. The EIA will take

[1] The records were from the National Record of the Historic Environment.

	account embedded mitigation and apply further adaptive mitigation where required to minimise the risk to marine archaeological assets. HA presented the proposed next steps for the development of the EIA– see slide 80. These include baseline characterisation, production of a PEIR chapter and outline WSI provision. CP asked if there is any intention to undertake geotechnical works in support of the application. RM confirmed that geotechnical works are not proposed in the offshore environment but is likely to be undertaken in the onshore environment. CP asked if there is pre-existing geotechnical work which will be included in the DBA. HA confirmed that there is not much data in the marine study area but all identified sources in the wider area will be used to characterise the study area. CP requested confirmation that all impacts are scoped in. HA confirmed that they were. CP noted that the details of the archaeological exclusion zones are being prepared through analysis in the existing data sources. He noted that lots of activity and archaeology is likely to exist which there are no records of. He wished to stress that the assessment is highly likely to reveal potential for significant archaeological interest. HA agreed and noted that having the geophysical data so early in the process allows identification of previously non-recorded interests. CP noted that the subtle distributions of anomalies should be analysed during the design of the project. He requested that assessment of magnetometer survey data is included in the EIA. CP noted there is guidance for historic seascape characterisation but there has been notable development since their production. The assessment should consider how to qualify seascape character and its capacity and ability to accommodate change. He also requested that detailed linkages, integration of seascape and landscape are included particularly at the interface.
Item 6: Seascape, Landscape and visual	This section of the presentation was presented by OpEn and will be preparing the technical scoping chapter. SiM explained that pdf copies of the ZTV and the wirelines have been provided to the participants in advance of the meeting. SiM presented the proposed SLVIA study area – see slide 20. He noted

that the indicative layout which has been used in the preparation of the scoping is presented along with the operational OWF sites (situated in both UK and non-UK waters). He noted that it is a large study area and noted that it currently extends as a 60 km buffer surrounding the array areas. He highlighted that a 50 km buffer is a typical precedent for analogous developments but has been extended for VE based on the theoretical visibility of the proposed turbines.

SiM presented the proposed study area relative to the Zone of Theoretical Visibility (ZTV) – slide 21. He noted that this ZTV is based on a 398 m tip height which is higher than previously presented (in July 2021). He explained that the viewpoints and study area have been considered relative to this increased tip height. He explained the main areas of visibility will be open coastal views and will become more fragmented further inland as the turbines will be increasingly screened by river valleys and rising landforms. Therefore, the actual visibility inland will become further screened by vegetation, settlements and landforms.

SiM presented the proposed principal baseline data sources which have been identified – see slide 22. He highlighted that it is proposed for SLVIA to utilise the Suffolk, South Norfolk and North Essex Seascape Character Assessment (2018). However, he noted that the Tendering District character assessments will be considered further in the landscape assessment (see below).

SiM presented the impacts to be scoped into the EIA – see slide 23. These included the effects of seascape chapter, landscape character, special qualities of designated landscapes (in particular the Suffolk Coast & Heaths AONB), night time effects and cumulative effects relative to other projects in the study area. He explained that the operational offshore wind farms will be considered in the baseline and the cumulative will include non-operational offshore wind farms (e.g. East Anglia Two and North Fall).

SiM presented the impacts to be scooped out of the EIA – see slide 23. These impacts were principally seascapes outside the study area owing to no potential for visibility, impacts of night time lighting and visual effects associated with the installation of offshore cable routing.

SiM presented the baseline characterisation of the seascape character types – see slide 24. He explained that the southern portion

of the study area will be characterized by the MMO character types.

He explained that modelling, site visits and photomontages would be used to determine the significance of the change. SiM presented the baseline landscape character – noted the receptors identified will be presented explicitly in the Scoping Report and summarized on slide 26.

PW raised concern over scoping out SCT2 due to setting of the key viewpoints onshore. He highlighted that there is lots of industrialization in those waters and would suggest that the potential of significant change should be included – in particular southern part of the Suffolk Coast & Heaths AONB.

PW raised that the setting of AONBs is included the new National Policy Planning Framework[2]. PW noted that as the ZTV has been increased Covehithe and potential viewpoint further north should be included to avoid any gaps. SiM agreed to consider an additional viewpoint further.

SiM asked PW if the landscape character types are the most appropriate ones to be scoped in. SiM proposed a simple screening assessment of all landscapes type in the PEIR. PW agreed that this was a reasonable approach.

NN raised lighting on seascape at night should be scoped in owing to introducing new lighting and could be a change to the night time character (/darkness). SiM noted primarily a visual matter (with people being the receptors) rather than character. NN raised additional receptors for consideration (such as on vessels) which have the potential to be changed. SiM agreed to consider this further.

SiM presented the closest distances to the designated landscapes from the array areas – see slide 26. He explained that each of the special qualities will be considered in more detail during the PEIR assessments and therefore hasn't been focused upon within the Scoping Report. He noted there is potential for the northern grouping of VE's turbines to be visible between Galloper and East Anglia Two OWFs. So, there is the potential to impact the special qualities and character in the setting of the Suffolk Coast & Heaths AONB – albeit the distance from shore of the VE turbines will be 37.3 km at the closest point (see slide 20).

[2] https://www.gov.uk/government/publications/national-planning-policy-framework--2

BM raised that the Suffolk Coast & Heaths AONB will require the impacts of the special qualities to be considered in the PEIR. BM also supported further consultation on the matter and discussions regarding how best the detail of the assessment would be progressed. This was welcomed by SiM.

SiM noted there are not many other designations which have been identified to be scoped in with the exception of Bawdsey Manor which has a proposed illustrative viewpoint close by on the coast. SiM has sought to scope Kent and County ash have been scoped out owing to the distance and therefore visibility is not anticipated based on the ZTV analysis.

SiM highlighted the assessment will be prioritised on the coastal aspects of the identified AONBs and a general decrease in significance is anticipated moving southwards. GG asked if Kent County Council (KCC) will also be consulted. SiM confirmed that KCC will be consulted and invited to the ETG.

PW raised the recent examiner discussions regarding the heritage status of Suffolk Coast & Heaths AONB during the Sizewell C examination – see actions.

SiM presented the 12 proposed viewpoints which are included in the Scoping Report – see slide 27. SiM noted that two additional VPs had been added since the previous consultation based on analogous projects, the revised ZTV and the produced wirelines. The two additional viewpoints were Dunwich Heath (at the coast guard cottages) and Burrow Hill (on the Suffolk Coastal Path). Furthermore, refinement of the previously identified viewpoints have been included. All of the viewpoints will have a detailed assessment in the PEIR (and subsequent ES). The illustrative viewpoints will also be included in the PEIR – see slide 28. He proposed that the illustrative viewpoints show limited or restricted visibility and that photomontages will be provided but not full written assessment.

GG raised that Suffolk County Council have provided a detailed response to the North Falls viewpoints and requested that the two projects co-ordinate – see actions. GG highlighted that similar comments are likely to be provided to the VE Scoping Report. SiM agreed that consistency should be applied across both projects.

SiM noted that the feedback provided on the viewpoints is very

much welcomed as the photography is proposed in August/ September. RM noted that VE sit behind the existing projects and whilst the North Falls comments will be useful; the two projects may require different viewpoints given the projects' spatial locations. SiM concurred and presented VE relative to North Falls.

MW noted that there will be some duplication between VE and North Falls in viewpoints and highlighted that ECC are responding the North Falls Scoping Report. He explained their scoping response will include recommendations where North Fall viewpoints should be taken from – see actions. MW noted commonality of views will be useful in particular for the cumulative situation (i.e. if one were built and the other not). RM welcomed any feedback to ensure that all required viewpoints are included in the PEIR.

SiM requested feedback on the proposed viewpoints in Essex from MW, including those proposed in Harwich, the Naze and Clacton which are the closest coastal points. SiM presented the wireline from VP12 (The Naze), noting the turbines sit behind Galloper and Gabbard but may be visible in good visibility. MW requested that photography is undertaken during good visibility conditions. SiM noted that they are cognizant of those requirements, and that the visibility conditions are fundamental to whether there will be an effect. SiM noted that it is intended to use the Met Office's visibility data to understand how frequent (i.e. what percentage of time) that there would be sufficient long range visibility for the turbines to be visible. MW agreed with the proposed approach.

SiM highlighted that it is proposed to undertake summer photography during the afternoon/ evening. As the sun will be in the south west (so the turbines will be front lit) providing maximum visibility as per the GLVIA3 guidance[3]. SiM explained that the night time photography will be undertaken from certain viewpoints to capture the potential effect of aviation lighting. SiM suggested an urban and rural view in Suffolk and The Naze in Essex for the night time photography. He requested any feedback on appropriate night time viewpoints.

SS reiterated that further information would be required before providing definitive information. SiM agreed in particular relation to the cultural heritage assessment. SS noted that SLVIA and cultural heritage are not mutually exclusive. MT noted that in PEIR it is the intention to include appropriate viewpoints from a cultural heritage

[3] https://www.landscapeinstitute.org/technical/glvia3-panel/

	perspective including a separate landscape perspective. MT provided assurance that further discussions will be held and associated refinements throughout the development of the assessment. MT confirmed that the cultural heritage and SLVIA specialist will work closely together to ensure that the approaches are integrated. JT noted that this is very helpful and noted that there may be additional cultural heritage assets to be identified. SiM presented the proposed next steps for SLVIA assessment including agreeing viewpoints and undertaking the photography – slide 52. Written feedback was requested by 18th August 2021.
Item 7: Onshore Landscape assessment	This section of the presentation was presented by SLR consulting who will be producing the Scoping Report chapter for this topic. EPY presented the profile for the National Landscape Character Areas and the key landscape planning designations – see slide 55 within the study area. EY presented the national landscape and Tendring District Landscape Character areas (TDLCA) – see slides 57 and 58. It can be observed that the TDLCA provides a much higher resolution and she proposed that these should be used to inform the landscape assessment. She requested feedback on this proposal – no comments were received. EY presented the proposed key visual receptors which have been identified for the EIA – slide 60. She noted that there will be a consideration of the setting of cultural heritage assets and ecological designations (due to the importance as visitor locations/landscape value). She requested if there are any designated local areas which should be further considered. She presented the leisure receptors (including the Holland Haven Country Park), Public Rights of Way (PRoW)(including two long distance walking routing routes and one national cycle routes) – see slide 60. EPY requested if any parties had any additional receptors which should be identified in the Scoping Report based on local knowledge. BM highlighted the Dedham Vale AONB near Lawford. EPY confirmed that this will be included in the Scoping Report as an identified receptor. EPY noted there are minimal landscape designations within the onshore area of search but did identify some areas of common land in additional to Holland Haven Country Park– see slide 62. EPY presented the impacts which are proposed to be considered in

the EIA – see slide 61. She noted that there will be a cross over with other disciplines – see slide 62. EPY highlighted that some of the impacts would be temporary and associated with the construction only – such as the presence of the construction compounds. She noted that it is proposed that the landscape photography will be undertaken when the trees are not in leaf following the National Grid decision – ideally in spring 2022.

EPY presented the proposed impacts to be scoped out of the EIA – see slide 61. MW requested further justification for the scoping out of construction traffic and residential amenities as a landscape impact. He highlighted that as the locations of the development (compounds, routes, substations) are unknown he does not feel these can be scoped out at this time. He requested that they are scoped in and could be discussed further as the project design evolves. BM highlighted setting issues on the Suffolk Coast & Heaths AONB. EPY proposed a 5 km buffer around the substation (when the location is known – NB this is unlikely to be known for the purposes of scoping report as it will be dependent on the location of the National Grid substation but would be included in the PEIR and LVIA where appropriate and in the event that the 5km buffer extends beyond the onshore area of search). If this buffer includes the AONB then it would be assessed further. No other key issues were raised by stakeholders.

EPY presented the potential for cumulative impacts with other substations including NG's and North Fall's. She asked if there are any additional developments that are known at this time. SMu added that VE OWFL will devise a longlist which will be short listed on a topic (and receptor basis). The longlist and shortlists could be made available to ETG members, as part of the Evidence Plan, to discuss further prior to the publication of the PEIR.

EPY presented the proposed next steps included specific surveys in accordance with GLVIA3. EPY also proposed that the photomontage and visualisations will be prepared in accordance with SNH's Visual Representation of Wind Farms[4].

[4] https://www.nature.scot/visual-representation-wind-farms-guidance

AOB	MW noted commonality between VE and North Falls and recommended that VE OWFL review the North Falls Scoping Opinion prior to submission. RM thanked MW and confirmed that the team will review and may have a raise specific queries. MW requested Scoping Report at time of submission to PINS. Post meeting minute: VE OWFL can confirm that a copy of the Scoping Report will made to stakeholders at the same time as PINS on request.	
Actions:	To provide the relevant Sizewell C ExA's questions and VE OWFL to review and consider in the development of EIA.	PW & SiM
	To provide the detailed North Falls scoping responses provided to PINS. VE OWFL to review and consider in the development of EIA.	GG, MW (complete) & VE OWFL[5]
	Re-circulate wirelines after the meetings	VE OWFL (circulated with minutes)

[5] Post meeting minute: completed during the preparation of the Scoping Report

5.3 07/12/2021 POST SCOPING SLVIA AND OFFSHORE ARCHAEOLOGY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

SLVIA and Marine Archaeology Post-Scoping Expert Topic Group

Location:	**MS Teams**
Date:	**07 December 2021**
Time:	**1100 - 1300**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Rachel McCall (RM)	VE OWFL
Harriet Thomas (HT)	VE OWFL
Sammy Mullan (SMu)	GoBe Consultants
Fraser Malcolm (FM)	GoBe Consultants
Simon Martin (SiM)	OpEn
Cristin Hermagi (CH)	Maritime Archaeology
Heather Anderson (HA)	Maritime Archaeology
Louise Burton (LB)	Natural England
Alan Gibson (AG)	Natural England
Yolanda Foote (YF)	Natural England
Chris Pater (CP)	Historic England
Jess Tipper (JT)	Historic England
Mark Woodger (MW)	Essex County Council
Teresa O'Connor (TO)	Essex County Council
Grahame Stuteley (GS)	East Suffolk Council
Nicholas Newton (NN)	East Suffolk Council
Graham Gunby (GG)	Suffolk County Council
Beverley McClean (BM)	Suffolk Coast and Heaths AONB
Simon Amstutz (SA)	Suffolk Coast and Heaths AONB
Phil Watson (PW)	Suffolk County Council

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COMPANY NO: Registered in England and Wales
company number 12292474

FIVE ESTUARIES
OFFSHORE WIND FARM

Apologies

Cassie Greenhill (CG)	VE OWFL
Nicola Young (NY)	VE OWFL
Leanne Tan (LT)	Marine Management Organisation
Joseph Wilson (JW)	Marine Management Organisation
Tracey Champney	Marine Management Organisation
Andrew Rutter (AR)	Suffolk County Council
Nicholas French (NF)	Essex County Council
Bethany Rance (BR)	East Suffolk Council
Lisa Chandler (LC)	East Suffolk Council
Nina Crabb	National Trust
Zoe Outram	Historic England
Graham Nourse	Tendering District Council
Gary Guiver	Tendering District Council

Item 1: Introductions	RM welcomed all participants to the meeting and thanked them for their scoping responses. Round table introductions were made. FM explained that the Evidence Plan ToR comments requested that contact details were shared between the ETG members. He asked if there were any parties that would like their contact details redacted and/ or not circulated – see actions. The aims of the meeting were presented by RM. These were: • Discuss key points raised in the Scoping Opinion (SO); and • Agree next steps for areas of outstanding disagreements. AG – noted that sharing of contact details should also be confirmed with the MMO and others who were unable to join the call.
Item 2: Project Update	RM presented the geographical location of VE relative to the Galloper, Greater Gabbard and the North Falls offshore wind farms (OWF). RM explained that VE is being developed by RWE, Macquarie led consortium, Siemens Financial Services, ESB and Sumitomo. This means that VE is a separate commercial project and entity from North Falls, despite RWE being shareholders in each. RM presented the various forms of consultation undertaken to date and those proposed as the project develops. She explained that the consultation of the EIA Scoping report and the HRA screening report are complete. The Scoping Opinion was received on 12th November 2022. She explained that the onshore ETGs will be held in Q1 2022 and the offshore ETGs are being held in December 2022. RM highlighted that the first VE newsletter[1] is now available and further newsletters will be produced throughout the project. Public informal engagement will be undertaken in Q2 2022 primarily in relation to the onshore aspects of the project. RM explained that the benthic surveys have been completed and the geophysical surveys are nearing completion. The winter shipping and navigation radar survey will be undertaken in January 2022, following the completion of the geophysical survey. RM explained that the PEIR is anticipated to be published in Q4 2022 with the DCO application planned for Q3 2023. RM presented the indicative project programme for VE – see slide 7.
Item 3: Scoping Response	A participant from each organisation was invited to summarise key items from their respective scoping responses. The following key points were raised: GS on behalf of East Suffolk Council: Their primary consideration is the visual impacts along the Suffolk coast and in particular on the Suffolk Coast and Heaths AONB (SCHAONB). Key

items for consideration were:

- The importance of timing for photography and visualisation to ensure an assessment of maximum effect in late summer. This was supported by the inspectorate in the Scoping Opinion (SO).
- Highlighted additional literature which should be incorporated into the EIA and noted the importance of the qualities of the SCHAONB and how these should be considered against the statutory purpose of the AONB.
- Sequential effects for users on the Suffolk / England coastal path.
- Curtaining effects on the horizon resulting from cumulative effects.
- Scoping out of construction impacts was not supported due to the fact the this is a hot spot for new developments and projects.
- GS also encouraged collaborative working with adjacent developers.

MW on behalf of Essex County Council:

- Generally satisfied with the high level methods presented in the Scoping Report, but more detailed methods are required to understand how the magnitude and sensitivity of impacts and significance of effects will be determined in the EIA. MW requested that this be provided as soon as possible.
- Assessment should take into account Technical Guidance Note 02-21.
- In relation to viewpoints MW noted that it would be useful to have a specific viewpoint at Clacton Pier.
- Sequential impacts on the Jaywick to Harwich component of the England / Essex coastal path should be considered.
- Receptors with visibility of the cable corridor and substation on onshore LVIA receptors noting that this is beyond the scope of the meeting.
- Approach to viewpoint photography should consider elevated locations back from beach or cliff and should be taken later in the afternoon to consider the worst-case scenario.
- MW noted that the accumulation of non-significant impacts from the cable route should consider sequential / in-combination effects. VE / North Falls need to be assessed together.
- Night time lighting effects should be assessed on a reasonable worst case basis.

PW on behalf of Suffolk County Council

- Endorse everything already stated by ECC and ESC.
- Raised a query as to whether there is potential for viewpoints located further to the north of the study area to be affected.
- Impacts on the setting of coastal heritage assets onshore need to be considered.

- Queried the scoping out of international ports and approaches. This is primarily as the upper reaches of the rivers are utilised by recreational users and the experience may be affected as not all of port and approaches landscape character type is industrial in setting .
- Sequential impacts on England coastal path network need to be considered.
- PW drew attention to the draft NPS EN-3 as there is reference to the importance of seascape as a contribution to AONBs / NPs. This should be considered.

SA on behalf of the SCHAONB

- SCHAONB did not submit a scoping response as they are not a statutory consultee however they will be engaging in the alternative consultation.
- Impacts on AONB defined characteristics including: landscape and scenic quality, wildness and tranquillity.
- Cumulative impacts in combination with other projects should be robustly considered.
- Changes to the experience people have when visiting from the emerging route of England Coast Path and existing Suffolk Coast Path should also be considered.

JT on behalf of Historic England

- Settings assessment should be preceded by consultations on viewpoints.
- Advised a 70 km study area with regards to cultural setting would be appropriate to pick up Dengue peninsula / St Peters and Athona for highly designated assets.
- Concerns over the onshore scoping owing to the size of the onshore Area of Search.

CP on behalf of Historic England –

- Concurred with no impacts being scoped out.
- Look forward to seeing the detail in PEIR.
- Requested confirmation that the project site specific geophysical survey data will be utilised to inform the PEIR. This was confirmed.
- Important that specialist archaeologist input is incorporated into identification of anomalies and subsequent avoidance strategies/mitigation (including investigation). The identification of anomalies of possible archaeological interest in the survey data will be in addition to any confirmation of known (charted) wrecks.

AG on behalf of Natural England (NE) –

	- NE noted an error within their Scoping Response to PINS under the heading 'Chapter 16' paragraph '(i) Height and location of turbines'. AG confirmed that the missing text introduces the italicised text taken from advice that NE provided to the Crown Estate (TCE) in July 2018. The italicised text was not intended to represent Natural England's specific advice to VE. AG advised that he would send clarification in an email to place the text within the VE scoping response in its correct context and copy this to PINS. - NE support the use of a 60 km study area. - NE has some concern over the curtaining effect between VE and East Anglia Two (EA2). The PINS decision deadline for EA2 is January 2022, NE suggested that VE should consider the outcome of the DCO decision once published. - NE made a holding note that landscape and visual impacts will need to be considered and further consultation undertaken once an onshore route corridor is identified.
Item 4: SLVIA	SMa noted agreement with many of the key points raised within the SO and noted that all comments will be addressed. SMa summarised the key areas of agreement (Slides 10 and 11). SMa confirmed that summer viewpoint photography was completed in September 2021 following the methods and at the list of viewpoints agreed during the viewpoint consultation in August and at the pre-scoping ETG meeting. SMa confirmed that photography was taken during a period of good weather with very good visibility achieved. An example photo was presented (slide 12) from Aldeburgh. PW raised a question in the MS teams chat around issues with personal information displayed on the imagery? Post-meeting note: Where people are in the image looking directly at the camera faces will be blurred out, as will car registration plates. SMa noted that further information can be provided to scope out a number of receptor groups as detailed on Slide 13. A preliminary assessment of some of these receptors will be undertaken and circulated for consultation to justify scoping out. A high level assessment of the character types listed will be undertaken. The intention will be to engage the ETG further on these receptors when further information is available. Lighting effects will be considered as a visual impacts, i.e. effects on people and their view at night. It is not intended to assess lighting on landscape and seascape character. Further context will be provided to support this position.

SMa invited comments on the requirement for viewpoints further inland. The indication from the scoping exercise and ZTV is that the effects are primarily coastal. SMa queried if VE need to evidence this further?

PW suggested the need to illustrate extent of effect to facilitate an answer to this question. PW considered that additional viewpoints further in-land may illustrate the lack of effect that SMa suggests (comment from MS Teams chat). It was discussed that until initial assessment is completed for already agreed view points it is difficult to determine if further view points will be needed to demonstrate lack of effect. Therefore, the next step needs to be to proceed with the assessment based on the view points agreed to date and the photography for these locations.

PW suggested that there is a relationship between SLVIA and tourism and recreation. If there is no consideration of inshore waters then there might be an evidence gap from a recreational / tourism perspective. If something is categorised as 'International ports and approaches' it doesn't mean that this is the only use or landscape character type. Typography/categorisation may mask the recreational aspect / use of the river, but VE OWFL should be conscious of moorings and marinas that could be impacted.

MW highlighted the potential additive impacts with the onshore and offshore construction activities being undertaken, particularly on onshore receptors.

JT noted that cultural heritage assets further inland may need be to be picked up where there are views out to sea. It was discussed that until initial assessment is completed for already agreed view points it is difficult to determine if further view points will be needed to assess impacts on cultural heritage further inland. Therefore, the next step needs to be to proceed with the assessment based on the view points agreed to date and the photography for these locations.

SMa confirmed that Wessex Archaeology [onshore archaeology and cultural heritage specialist on VE OWFL] intend to progress cultural heritage asset viewpoint identification exercise within the search area. The strategy will aim to narrow down heritage assets through presentation of a preliminary assessment making use of some of the SLVIA work undertaken to date. JT confirmed that this seemed like a sensible approach.

SMa summarised key elements that will be considered within the EIA and

reported in the PEIR (Slide 14).

SMa asked if the English coast path documents covering the Jaywick to Harwich area will be available soon? MW noted that they would be publicly available by the time the DCO is submitted but couldn't provide a specific date.

PW posted the following link in the MS Teams chat which provides a map of the English Coast Path and the status of each stretch: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1032575/ECP-essex-map.pdf

MW noted that the map key states this is approved in whole but not yet open, in practical terms the whole of the path which is shown on the Tendring coast can be walked from Seawick and Frinton as far as the settlement of Frinton, and is already shown on the ECC footpath map as being accessible.

SMa then summarised some advice raised in the SO that Op-En and VE OWFL are considering how best to address (see slide 15). SMa noted that one of these issues it the potential in-combination impacts and the curtaining effect raised by NE. SMa requested clarification on the concerns of the curtaining effect and if it is considered that mitigation would be required.

AG noted that the key consideration is that the 400 m turbines are100 m taller than originally considered when TCE identified the AfL. In addition the curtaining effect should be considered although it is agreed that assessment may indicate this is not significant. AG noted he does not expect mitigation preventing development in the northern array will be necessary. AG noted again that there was key wording missing from the NE response to the formal Scoping consultation.

RM requested if a copy of the missing information could be circulated to VE OWFL and requested that PINS be copied into any correspondence. RM asked for clarity if NE advice related to development in the northern part of the site. AG confirmed that that was not the intention of the advice but noted that application of additional mitigation should be considered if necessary. It was agreed that curtaining and in-combination effects should be fully considered in the PEIR/ES but may not be significant due to distance from shore.

SMa invited further comments on the curtaining effect? A map showing the relevant viewpoints where the gap between EA2 and VE may be

'closed' was presented (slide 15). Turbines are largely viewed behind existing turbines from adjacent projects and don't necessarily increase spread across the horizon. Where the gap may be closed these are from viewpoints to the north within Suffolk at longer distances. Wirelines from two representative viewpoints were presented showing the potential curtaining effect and the turbines viewed behind the existing wind farms (slide 17 and 18).

SMa then requested clarification on a number of points raised in the SO (slide 19-23). Viewpoint photography was taken at all locations listed on slide 19. There was feedback for additional viewpoints on additional sites on English coastal path. MW advised that he would consider feedback on the requirement for additional viewpoints but the initial approach would be to use the existing viewpoints and assessment of those determine the need for any further. SMa presented the route of the coastal path and the five viewpoints that have been selected on the route in Essex. SMa stated that current viewpoints pick up on key locations along the coastal path.

MW requested clarification for why there is a reason that a viewpoint at the Holland-on-Sea has not been included, especially as the cable route comes onshore at this location. SMa accepts there may be considerations around inter-related effects and will consider how best to address this in relation to the interface between the onshore and offshore assessment.

SMa asked if stakeholders are content that required night-time viewpoints have been selected. PW suggested that there may not be adequate night-time viewpoints in Essex.

MW asked if night-time visualisations could be completed from viewpoints in Essex. SMa responded that it was unlikely that the additional lighting would extend visible lighting from behind existing wind farm locations and therefore further viewpoints are not necessary. SMa would like to reach to agreement on this position as the PEIR will need to present justification. MW suggested that visualisations would be required to make a judgment. It was agreed that initial assessments would be progressed as planned to determine if any further night time viewpoints would be required in Essex.

BM queried if the viewpoint at Dunwich Heath would pick up the issue around the curtaining effect of visible lights in views at night. SMa suggested a viewpoint further south, such as at Aldeburgh as already proposed, would also potentially demonstrate these effects.

SMa noted that PINS requested a written assessment for illustrative viewpoints. SMa requested if participants were supportive of the use of illustrative viewpoints. PW is content with that approach and considers it, appropriate to have a mix of illustrative and representative viewpoints. It helps consultees and public in understanding the effects.

SCC requested a viewpoint at Covehithe and SMa requested justification for the additional viewpoint. PW noted that specific viewpoints need to take account of the cultural heritage aspect and assess accordingly. SMa acknowledged that further work is required in relation to cultural heritage assets.

PINS made a comment on the requirement for winter viewpoint photography. SMa raised the question if stakeholders consider it necessary to undertake photography in winter as there is no influence from leaf cover. SMa does not consider this to be necessary. NN and PW agreed, no further objections were received from participants.

SCC noted within their scoping response that cumulative effects with two beach landing facilities associated with Sizewell C should be considered during construction:

- SMa noted that there is limited interaction between the facilities as VE are at such distance and not close to the VE landfall. This is therefore a potential offshore cumulative impact. SMa requested confirmation on what the areas of concern are specifically.
- PW suggested that there may be a lot of activity on the beach for an extended period of time, and that there could be jack up vessels / heavy lifts operating offshore for an extended period of time in succession with other projects. NN noted that the beach landing facility will be distracting for anyone at coast and so this would limit any interaction. NN suggested it is the construction period for VE that will be most relevant. NN suggested that this is more likely to be an issue for the North Falls project. PW suggested that as there will be a lot of activity both onshore and offshore so this needs to be considered. NN suggested that it's unlikely to be significant then it may be prudent to assess and conclude so.
- HT noted that activity offshore will be limited as there will only be one or two large vessels with large cranes at the offshore site at any one time, due to availability and consideration / mitigation for other topics, i.e. marine mammals.
- PW stated that it will be necessary to consider the overall construction timelines with Sizewell C timelines.

SMa noted that consideration of Historic Seascape Character (HSC) has

	not typically been used in SLVIA EIA before. Any advice or thoughts would be appreciated on how this should be considered. CP noted that the primary role of HSC is to provide context by providing spatial perception of historic character. A national methodology is available which should be used by this project to produce their HSC in consideration of the proposed development. However, since the HSC methodology was produced numerous marine developments have occurred which now need to be included, as spatial data, within any new HSC conducted. Perceptions of change in HSC should be presented in the PEIR. CP explained that HSC is a separate assessment to consideration of visual impact and is focused on recognising and describing changes over time and how change brought about by this proposed project can be accommodated. It is for the project consultants to determine what should be included to produce an assessment of historic character within both onshore and offshore cultural heritage chapters of the PEIR. SMa rounded off the SLVIA topic by summarising the next steps in respect of the SLVIA. See slide 24.
Item 5: Marine Archaeology	HA thanks stakeholders for the comments received in the SO and acknowledged that there is broad agreement on all comments received. HA summarised the feedback received within the Scoping Opinion - see slides 26 to 28. HA noted that there were not aspects of the SO requiring clarity. HA presented a number of items for discussion with stakeholders (slide 30). HA noted that a draft offshore Written Scheme of Investigation (WSI) will be produced and provided for comment. The WSI will aim to set out mitigation for future surveys, approach to future data analysis and include research questions. CP queried what surveys would be forthcoming that would be covered by the proposed WSI. FM noted that no further pre-application surveys would be undertaken and that no offshore geotechnical surveys were currently planned. CH noted that for the recent geophysical survey a method statement was circulated for comment to HE outlining how the data would be collected and analysed. The advice received was incorporated into the final survey methods. RM added that aerial Lidar surveys have been undertaken at the landfall and will be assessed for archaeological information by the onshore archaeological contractor.

	CP queried if the preparation of the WSI/PAD will be part of the PEIR? RM noted that this is still to be confirmed but will it accompany the final DCO application. CP stated that seemingly minor anomalies identified on/within the seabed could represent presently unknown archaeology sites. CP noted that a detailed WSI is required to explain the survey methodologies and techniques to identify heritage assets so that risks can be managed. TO stated that Clacton Channel (Middle Pleistocene)deposits need to be further understood as they are internationally important. TO noted that some element of field work may need to be undertaken or required to determine the presence of terraces / channels. TO asked what field work would be carried out in the intertidal area. FM noted that intertidal geotechnical site investigations are being undertaken and noted that VE OWFL will consult on the proposed plans and requirements for an archaeological watching brief. FM noted that the scope of any site investigation works can be circulated for consultation if requested. RM noted that sampling for PSA and Lidar is being completed to understand surface sediments. RM explained that offshore geotechnical survey is not planned pre-submission and this is typically undertaken post-consent due to the expense and the depth of geotechnical borehole sampling required to understand underlying geology for the purposes of foundation design. Detailed analysis of geophysics including sub-bottom profiler will be used to understand paleo channels to support the DCO application. TO asked if this would be enough to characterise paleo channels. CH explained that the SBP should be capable of picking up paleochannels down to approximately 5 m. This understanding would also be supplemented with any existing information where there is vibrocores / boreholes in the wider area (e.g. Galloper OWF). At PEIR stage, a full deposit model would not be presented. Presently available information will be included in the draft WSI and it will specify the geo-archaeological analysis methodologies to be used in the planning of any geotechnical survey campaigns conducted post-consent/pre-construction, should consent be obtained. HA summarised the next steps in respect of the assessment on marine archaeology (Slide 31).
AOB	FM and RM thanked all stakeholders for their participation and contributions to discussions. FM noted that VE OWFL plan to hold another round of pre-PEIR ETGs in the summer of 2022 and the timings would be optimised to align with any preliminary assessment work to get the most out of any discussions.

Actions:	Natural England to re-issue the corrected scoping response to VE OWFL (cc'ing the PINS)(completed 14/01/22).	AG
	Confirm status of intertidal site investigations and ensure ECC is consulted on scope and requirement for archaeological watching brief.	FM
	Provide detailed assessment method/ preliminary assessment for review to determine if any additional assessment or photography is required.	VE OWFL

Post meeting minutes

Natural England confirmed via email that the that section was from an earlier draft and the entire section was intended to have been replaced with the following:

"It is noted that the maximum turbine height has increased from 300m to 400m, as considered during the early pre-application engagement. However, Natural England welcomes the use of a 60km Zone of Theoretical Influence, as proposed within the scoping document, due to the use of turbines up to 400m tall. Additionally we note that there is a potential for in-combination effects with the proposed East Anglia Two (EA2) and East Anglia One North (EA1N) Offshore Wind Farm developments and advise that this should be considered within any assessment."

This revised text will be provided to PINS as an update.

5.4 02/11/2022 PRE PEIR SLVIA, LVIA, ONSHORE & OFFSHORE ARCHAEOLOGY ETG

MINUTES

SLVIA, LVIA, Archaeology and Cultural Heritage

Location:	**MS Teams**
Date:	**02/11/2022**
Time:	**13:30**

Attendees

Grahame Stuteley	GS	East Suffolk District Council
Nicholas Newton	NN	East Suffolk District Council
Lewis Reynolds	LR	ECC
Maria Kitts	MK	ECC
Mark Woodger	MW	ECC
Richard Havis	RH	ECC
Ryan Mills	RMi	ECC
Sue Hooton	SH	ECC
Teresa O'Connor	TO	ECC
Sammy Sheldon	SS	GoBe
Mike Brosa	MB	GoBe
Chris Pater	CP	Historic England
Jess Tipper	JT	Historic England
Sheila Stones	SSt	Historic England
Zoe Outram	ZO	Historic England
Christin Heamagi	CH	Maritime Archaeology
Heather Anderson	HA	Maritime Archaeology
Nina Crabb	NC	National Trust
Alan Gibson	AG	Natural England
Anna Bush	AB	Natural England
Anna Oliveri	AO	Natural England
Deanna Atkins	DA	Natural England
Harri Morrall	HM	Natural England
Yolanda Foote	YF	Natural England
Jo Phillips	JP	OP-EN
Simon Martin	SM	OP-EN
Andrew Rutter	AR	SCC
Graham Gunby	GGu	SCC
Phil Watson	PW	SCC
Simon Amstutz	SA	SCC
Gary Guiver	GG	Tendring District Council

Graham Nourse	GN	Tendring District Council
Emily Griffiths	EG	VE OWFL
James Eaton	JE	VE OWFL
Kieran Somers	KS	VE OWFL
Rachel McCall	RM	VE OWFL
Victoria Harrison	VH	VE OWFL
Andy Reid	ARe	Wessex Archaeology
Marie Kelleher	MKe	Wessex Archaeology

Item 1: Introduction and Project Update	The meeting commenced with a round of introductions from all attendees. See attendee list above. RM noted that the key aims of the meeting were to provide an update of the project and agree the methodology to undertake the EIA. RM provided a general update of the VE project, explaining that the project Red Line Boundary (RLB) has reduced in the northern array to address shipping and navigation concerns. This has the added benefit of improvement to seascape visual impact. The export corridor has widened at locations where additional geophysical data is available allowing potential to move to areas to reduce total number of cable crossings. JE gave an overview of the evolution of the RLB, this included the original scoping boundary for the development, the onshore project boundary which was taken forwards for non-statutory consultation (30 June to 12 August 2022). JE explained that one of the routes (NW1) was removed following this consultation, further engineering development and landowner feedback. The onshore RLB that will be used for the PEIR (slide 7), includes the same substation search areas, noting that indicative locations and footprints of the substations will be presented in PEIR to provide sufficient context and scale for the proposed infrastructure. (slide 8). JE explained that the RLBs both onshore and offshore are now frozen, that the project has reached a design freeze allowing PEIR to progress. An update on consultation was provided and it was noted that the Interim Consultation Feedback Report is available on the Project Website. This summarises the findings from the non-statutory consultation undertaken over the summer (30 June to 12 August) It was noted that PINS has undertaken a transboundary screening assessment. JE provided a brief outline of the project timeline indicating that PEIR submission and S42/47/48 consultation in Q1 2023 and DCO submission later in 2023 Q3/4. MW queried the alignment with the RLB for PEIR and the figures included in the draft Statement of Community Consultation (SoCC). JE confirmed that the SoCC would include revised maps reflecting the PEIR RLB.	
Actions:	**Check SoCC areas for alignment with the current boundary**	**VE OWFL**

Item 2: EIA Methodology	SS provided an overview to the General EIA Methodology (slide 13) and CEA Methodology (slide 14), noting that a detailed Proposed Environmental Impact Assessment Methodology will be circulated for comment and that Longlists of cumulative impact sources are available on request. PW commented that assessment of accumulation of moderate effects should be addressed in cumulative assessment. SM will include this in the detailed narrative.	
Actions:	**Send out Proposed Environmental Impact Assessment Methodology for comment by ETG members** **Post meeting note: Methodology circulated on 08.11.2022.**	**VE OWFL**
Item 3: SLVIA (Seascape, Landscape and Visual Impact Assessment)	SM noted that pre-meeting materials were circulated – visualisations from the summer consultation, which were shown at the public exhibitions. This included day and night-time visualisations. No comments were received on these. SM provided an overview of the public consultations to date and key feedback received (slides 17 & 18). SM explained that key issues raised in the Scoping Opinion have been resolved. SM explained that there was generally a low level of public concern raised. JE noted that the focus of the events was onshore cable routeing, but specific engagement activity is proposed with parish councils on the Suffolk coast in early 2023 with "pop-up" events included within the SoCC for the statutory consultation. PW commented that engagement with coastal communities will require engagement materials. JE explained that an online briefing and meetings with local councillors will be arranged for Q1 2023. SM confirmed that photomontages will be available as printed copies following the publication of the PEIR. SM detailed written feedback received from the AONB in response to the Summer 2022 consultation. SM noted that the PEIR will seek to address the concerns raised in the written feedback, including assessing the special qualities of the AONB. SA welcomed the review of the written feedback and statutory purpose of the AONB being assessed. SM highlighted that Natural England has issued a correction to PINS in relation to curtaining effect and the Scoping Opinion advice. SM confirmed that in-combination effects will be undertaken. RM explained that Natural England's response to the Scoping Report had been updated with revised wording. RM will check with PINS as to whether the update can be circulated. [post meeting note: NE has provided the following info, which has also been provided to PINS "*heading '(Chapter 16: Seascape, Landscape and Visual Impact Assessment) (i) Height and Location of turbines)'. The text within this section is incorrect and should be*	

replaced with the following; "It is noted that the maximum turbine height has increased from 300m to 400m, as considered during the early pre-application engagement. However, Natural England welcomes the use of a 60km Zone of Theoretical Influence, as proposed within the scoping document, due to the use of turbines up to 400m tall. Additionally we note that there is a potential for in-combination effects with the proposed East Anglia Two (EA2) and East Anglia One North (EA1N) Offshore Wind Farm developments and advise that this should be considered within any assessment."

SM presented the worst-case scenarios which the EIA will be undertaken on. SM noted that there has been an increase in the maximum tip height and a reduction of array area since Scoping. The reduction of the northern array will reduce the number of WTGs in the space between Galloper and EA2, i.e., a reduction of any curtaining effect.

RM confirmed that the layout is illustrative and indicative which provided a realistic worst-case layout. The positions of infrastructure could change and be microsited, but this would be determined post-consent. However, the heights will not be exceeded. SM noted that the layout is worst case in terms of northern spread.

GG requested that the worst-case parameters of other developments are captured in the cumulative assessment. This was agreed and will be included in the PEIR assessment.

SM explained that the ZTV has been re-assessed based on the increased tip height (slide 20).

SM proposed a 60km study area which will encapsulate LSE in EIA terms. The study area was informed by the ZTV. The VPs remain unchanged from previous consultation (slide 21). No further VPs are proposed.

NC welcomed VPs at Dunwich Heath and Ordford Ness.

SM presented the wirelines of VE (slides 23 – 36). Generally, a low impact is expected and noted that the visualisations are based on days with exceptional visibility. SM explained the curtaining effect may be apparent from Aldeburgh (slide 23, the red WTGs are associated with VE). The curtaining effect reduces further south through the AONB as the WTGs are viewed as sitting behind the existing developments. GG welcomed the consideration of a curtaining effect. SM confirmed that it will be reported in the PEIR for consultation.

SM explained that photomontages will include Aldeburgh as a VP. SM confirmed that night-time views will be produced – two in Suffolk and two in Essex.

PW requested a VP further north than Southwold given the increased height and spread issue. SM noted this for further consideration.

	GS queried whether lighting for aviation safeguarding had been considered. VH confirmed that aviation lighting is being considered. SM presented the proposed approach to methodology (slide 37). SM presented a revised matrix which is proposed for the SLVIA assessment. SM explained that the 'simple assessment' of receptors is progressing, using desk-based information and ZTV analysis. Those receptors that are more likely to be significantly affected will then require a 'detailed assessment'. Detailed assessment will include primary baseline data collection (e.g., site surveys), modelling such as ZTV analysis and wireline/photomontage visualisations. Existing wind farms will be considered as part of the baseline and on character/qualities of the landscape (including SCHAONB). SM presented the proposed scope of the assessment (see slides 38 and 39). No feedback was received. SM presented the key issues as understood based on previous consultation and professional experience (slide 40). No feedback was received. SM confirmed that the PEIR will include justification, where appropriate, to illustrate that no significant effects will occur at additional receptors identified through the Scoping Opinion (slide 41). SM presented the next steps for the SLVIA assessment for the production of PEIR (slide43).	
Actions:	**Arrange online briefing Q1 2023**	**VE OWFL**
	Provide printed visualisations at PEIR, one set per organisation on request	**VE OWFL**
	Check with PINS as to whether updated NE wording on curtaining effects can be circulated	**VE OWFL**
	Include worst case of other developments for cumulative assessment in PEIR	**SM**
	Consider including a VP further north than Southwold accounting for increased tip height and width	**SM**
Item 4: LVIA (Landscape and Visual Impact Assessment)	JP provided an overview of the scope of assessment and confirmed that there had been no changes to that agreed at the Scoping Phase (slides 45-47). The proposed impacts will consider all phases of the project. JP explained that effects on any receptors beyond a 5km radius are proposed to be scoped out. JP outlined the methodology that will be used for the LVIA study, consistent with that which was proposed in the Scoping Phase (slide 48). JP explained that the methodology is similar to that for SLVIA in terms of	

key principles.

JP presented the worst-case parameters for assessment in the PEIR – comprising VE project specific substation, cable route, landfall infrastructure and the construction period (slide 49).

JP presented the ZTV of the project onshore substation, for the two potential search areas, including proposed VP locations. JP explained that existing vegetation provides some screening which has been considered in the determination of VPs (slides 50 – 51).

JP presented the bare ground ZTV which is based only on landform, with no vegetation, which shows a broad extent of theoretical visibility but is less representative of the actual visibility (slides 52 – 53). JP presented the ZTV in the context of the Dedham Vale and Suffolk Coast and Heaths AONBs (slides 54 – 55).

AO queried visibility from the PRoW in the Dedham Vale. JP confirmed that PRoW will be investigated through site visits and that based on previous site visits, visibility is not anticipated. AO to provide the PRoW. AO commented that there may be further visibility on bridleways based on the raised height.

AO completed the action during the meeting: The ZTV picks up intervisibility on four paths / PRoWs within the area of Tendring district, Lawford Parish:

- PROW 170_31 (Bridleway),
- PROW 170_49 (Bridleway),
- PROW 170_33 (footpath), and
- PROW 170_31 (footpath).

AO suggested additional VPs representative of the above locations, with the highest intervisibility – suggesting a site visit to check. SA agreed with AO particularly in relation to a bridleway at 2.5km distance. JP agreed that suggested viewpoints would be investigated and included in the DCO application where relevant to the assessment.

SA requested further detail on cumulative assessments. JP provided an overview of the proposed tiering of cumulative projects and plans. JP explained that PEIR will utilise publicly available information for other developers, which will provide an indication of the level and extent of cumulative effects. It is anticipated that further certainty and detailed information will be provided for the DCO application.

AO enquired on the level of coordination with other projects. VH confirmed that ongoing discussions are taking place with other projects. VH explained that the level of certainty associated with other developments is currently limited and that only information in the public domain is to be considered in the PEIR.

	JP explained that a Gas Insulated Substation scenario will be assessed as a worst case with electrical infrastructure contained in a larger massed building. JP explained that an indicative model will be included in the photomontages to be submitted with the PEIR. MW highlighted that cumulative impacts, associated with multiple substations, need to be provided. JP explained that these developments will be considered based on publicly available information and the tiering approach. PW requested the relative footprints of an AIS vs GIS substation is provided to understand the impact on landscape fabric. JP explained that GIS will be the worst case given the increased height of the buildings within the GIS designs, whilst the AIS substation does have a slightly larger footprint. Further information is included within the PEIR. GG highlighted that vegetation has slower growth rates in the region as it is typically arid. JP explained that research of climate resilient planting has been undertaken and that VE will ensure mitigation is appropriate. GG offered to provide previous experience and recommendations on planting. JP presented the next steps for the LVIA assessment. JP highlighted that mitigation planting considerations will be designed in consultation with ecology specialists (slide 59) and indicative proposals and principles would be included within PEIR for comment and feedback. JP confirmed that the impacts on historic buildings and assets will be considered in the onshore archaeology assessment.	
Actions:	**Additional VPs representative of visibility from PRoWs identified by AO VE to undertake site visit to confirm whether to include** **GG to provide previous experience and recommendations on planting for the local area**	**JP** **GG**
Item 5: Onshore Archaeology and Cultural Heritage	MK presented the scope (slides 61-62) and explained that this was broadly the same as agreed at scoping, noting the extended designated heritage assets precautionary study area to 70km. MK noted that direct and indirect as well as temporary and permanent effects will be captured in the PEIR. MK presented the proposed study areas for the assessment (slide 63): • 500m Archaeology Study Area • 500m Designated Heritage Assets Study Area (effects associated with the Onshore Export Cable Corridor) • 5km Designated Heritage Assets precautionary Study Area (from effects associated with the Onshore substation) • 70km Designated Heritage Assets precautionary Study Area (from	

effects associated with the Offshore Array Areas). This is extended from the proposal included in the Scoping Report.

MK presented the key guidance which is proposed for consideration in the assessment (slide 64).

MK presented the key data sources proposed to inform the baseline characterisation for the assessment (slide 65). MK confirmed good coverage from site walkovers, which has been used to inform the archaeology and settings assessments.

MK highlighted that desk-based studies are predictive and are limited to known archaeology therefore professional experience is required to interpret (slide 66). MK explained that geophysical surveys are ongoing, with large areas undertaken in the spring and autumn and the preliminary findings are anticipated to be available to PEIR.

MK presented the proposed methodology to undertake the onshore archaeology and cultural heritage assessment (slide 67). It was proposed that effects to heritage significance of a heritage asset, where heritage significance is the 'value' of an asset minus the sum of its interests. MK highlighted that LVIA and SLVIA disciplines will inform the assessments.

MK confirmed that an Archaeological Desk-Based Assessment and Geoarchaeological Desk-Based Assessment will be undertaken and will accompany the PEIR for consultation (slide 68).

MK presented the proposed approach to assessing the effects to heritage as a result of the onshore activities and infrastructure. This has been informed by the walkover studies (slide 69).

MK presented the proposed approach to assessing the effects to heritage as a result of the offshore infrastructure. A staged approach has been undertaken to identify heritage assets to be considered in further detail in the PEIR (slide 70).

TO enquired as to whether the walkovers covered intertidal area. MK confirmed that the intertidal area was surveyed and that findings will be presented in the PEIR. TO suggested that the area is revisited for great temporal coverage. This was noted for further consideration.

JT requested VPs to be provided in advance of the PEIR. MK explained that SLVIA and LVIA VPs will be utilised to inform the assessments and suggested a post-PEIR meeting to discuss if further VPs are required. JT recommended that visualisations should be taken from height. SM confirmed there is no public access to the Martello Tower. JT indicated that it could be accessible in the future so may need to be considered.

MW requested that construction effects such as access roads and use of machinery are considered on heritage assets. MK confirmed that this was

	part of the assessment.	
Actions	**Provide MM Baseline Technical Report to ETG members prior to PEIR** **Consider the need for revisiting intertidal walkover** **Consider revisiting Martello Tower if access is available**	**VE OWFL** **MK** **SM**
Item 6: Offshore Archaeology and Cultural Heritage	HA explained that the presentation will focus on how the PEIR has sought to address the Scoping Opinion comments. HA presented the key guidance which is proposed to be utilised to inform the assessment (slide 72). These included the guidance recommended as part of the Scoping Opinion. HA presented the proposed study area of the marine archaeology assessment (slide 73). HA presented the proposed scope of the assessment (slides 74-75). It is proposed that transboundary effects are scoped out from further consideration. HA explained that the Scoping Opinion requested an Outline Marine Written Scheme of Investigation to be produced (slide 76). HA confirmed that an outline marine WSI will be submitted with the PEIR. HA presented the proposed mitigation which have been considered in the development of the PEIR (slide 77), including: • Archaeological Exclusion Zones (AEZ) • Protocol for Archaeological Discoveries (PAD) • Archaeological assessment of available data • Post-construction monitoring plan HA presented the spatial extent of the project specific geophysical survey (see slide 78) and explained that the anticipation is that these gaps will either be filled or supplemented with data prior to DCO submission. RM confirmed that the array areas and the preferred export cable corridor have been subject to geophysical surveys. RM explained that the baseline characterisation will be updated following PEIR for the areas but full coverage for DCO application cannot be guaranteed. CP requested confirmation that geotechnical surveys will be undertaken post-consent. RM confirmed this.	

HA presented the identified anomalies from the geophysical data. Many of which correlate with known records.

HA presented findings of the SBP and the potential for paleoenvironmental sequences of interests. CP requested that narrative and an illustration of the paleochannels and the SBP data. CH confirmed that the SBP data show good alignment with the understanding of the positions of the paleochannels – (slide 80). CH confirmed that this will be discussed in the desk-based assessment to accompany the PEIR.

HA presented SSS and MBES imagery of anomaly MA0029 which corresponds with the recorded location for unidentified aircraft (UKHO14995) (slide 81). HA confirmed that the anomaly was within the offshore ECC close to the landfall. CP requested that this is appropriately assessed given the potential for human remains or dispersion of the aircraft resulting from crashing, and that this should be coordinated with the MOD. MA agreed and will coordinate with the MOD.

HA presented SSS and MBES imagery of other example anomalies (slides 82-85):

- MA0002 which corresponds with the recorded location for the wreck of SS Nico (UKHO14513)
- MA0003, possibly the wreck of MV Janny, (UKHO14461)
- MA0232 which corresponds with the record for HMS Hastfen (UKHO70049)
- MA0022 which corresponds with the record for the wreck of SS Morar (UKHO14525)

CP highlighted that is rare to identify specific known wrecks with specific survey findings and should be treated with caution. RM highlighted that the area has been heavily surveyed by the UKHO and local ports as it is a highly mobile area for sediments. Therefore, recorded locations for wrecks are likely to have a higher confidence than in other areas. However, numerous anomalies were identified which have not been attributed to known wrecks.

CP highlighted the level of risks with considering navigational surveys to interpret:

- Methodologies and design of surveys
- Identification of navigational hazards based on height above the seabed

RM recommended a post-PEIR meeting to discuss the cable

	routeing constraints (other than archaeology). GG requested consideration of archaeological finds to be preserved and potentially displayed. RM confirmed that all finds will be treated in an appropriate way. CH confirmed that any lifts would be subject to an agreed plan. However, avoidance is the primary mitigation approach and that the WSI would include methodologies for surveys and finds.	
Actions	**Analyse anomaly MA0029 further and coordinate with the MOD if appropriate**	**MA / VE OWFL**
Item 7: Next Steps and Concluding Remarks	RM thanked all attendees for their contributions to the discussions on viewpoints and provision of useful feedback. SS noted that meeting minutes will be developed, and a copy of the PowerPoint presentation will be circulated to all ETG members. SS mentioned that all comments are welcome and ETG members are welcome to contact the project at any time in the future.	
Actions	**Meeting minutes to be written sent out to ETG members together with a copy of the PowerPoint presentation**	**VE OWFL**

5.5 04/09/2023 POST PEIR SLVIA AND OFFSHORE ARCHAEOLOGY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

SLVIA and Offshore Archaeology ETG

Location:	**Online**
Date:	**04/09/2023**
Time:	**13:30**
Facilitator:	**VE OWFL**
Minutes taker:	**Francesca King-Keast**

Attendees

Graham Gunby (GG) – Suffolk County Council
Andrew Rutter (AR) – Suffolk County Council
Luciana Rigano (LR) – Essex County Council
Will Fletcher (WF) – Historic England
Teresa Oconnor (TO) – Essex and Tendring Councils
Mark Woodger (MW) – Planning officer
Grahame Stuteley (GS) – East Suffolk Council
Nicholas Newton (NN) – East Suffolk Council
Maria Kitts (MK) – Essex County Council
Isolde Cutting (IC) – Suffolk County Council
Rachel McCall (RM) – Five Estuaries
Emily Griffiths (EG) – Five Estuaries
Simon Martin (SM) – OPEN
Heather Anderson (HA) – Maritime Archaeology
Christin Heamagi (CH) – Maritime Archaeology
Mike Brosa (MB) – GoBe
Will Hutchinson (WH) - GoBe
Francesca King-Keast (FK) – GoBe

Apologies

Christopher Pater – Historic England
Zoe Outram – Historic England

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Windmill Hill Business Park
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COMPANY NO: Registered in England and Wales
company number 12292474

Item 1: Introductions	A round of introductions was undertaken. RM provided an overview of the VEs project team. It was highlighted that Ian McClean is the new interim VE Project Manager.
Item 2: Early Adopters Programme	RM explained that VEs is part of the early adopter's programme run by PINs (Planning Inspectorate launches pre-application trial with 7 Nationally Significant Infrastructure Projects - GOV.UK (www.gov.uk) and highlighted the different components of the programme which VEs is part of: • COMPONENT 1: Use of Programme Planning (see Project Programme - Five Estuaries) • COMPONENT 5: Production of Policy Compliance Document • COMPONENT 10: Use of multipartite meetings AG queried if use of multipartite meeting is more for pre-examination or during examination. RM replied stating that it is focused on pre-application (as per the early adopters process) pre-examination, but she can see that multipartite meetings could also be useful during examination. .
Item 3: Project Update	RM provided a brief overview of the project. It was highlighted that minimal changes have been made since the PEIR in terms of the offshore infrastructure. RM noted VE is also part of the Offshore Transmission network review, however this project is still progressing with a radial connection at this time due to uncertainty in the OTNR process. RM highlighted the project timelines, with this being the first set of ETG meetings since PEIR submission in March 2023. RM highlighted that a key change has been reducing from four cable to two, since PEIR. RM provided a brief overview of the onshore export cable corridor and the onshore substation. The project has also been refined to one landfall option, with the northern option being chosen.

Item 4:
Marine Archaeology Slides

Avoidance as a preferred mitigation measure

HA highlighted that feature-specific AEZs will be applied to the seen extent for all anomalies of archaeological potential identified in the geophysical data and all recorded losses – noting the Export Cable Corridor (ECC) is constrained in places, thus avoidance may be a challenge in some locations.

TO questioned if mitigation will include preservation in-situ?

HA confirmed that preservation in situ is included in the Embedded mitigation (Archaeological Exclusion Zones) and is the preferred mitigation, however should avoidance not be possible for any reason the WSI outlines that other mitigations strategies can be applied, these will always be undertaken on a case-to case basis and will be preceded by a Method Statement which will be submitted to HE.

Data gaps

HA noted both VE and NF have now assessed and reported on their respective geophysical survey data. The NF reports will be used and referred to in the ES.

TO queried some of the gaps in the data that were not covered by the geophysical survey. They noted the assessment is about providing all the relevant information on the same map. Have further geophysical surveys taken place? TO stated maps can be misleading if areas haven't been surveyed.

HA responded that gaps relevant to project design have been filled by NF which will be used for the assessment. HA agreed any other areas not assessed can be highlighted.

Figures

HA noted a figure will be produced to present all AEZs within the study, with also specific close ups of certain areas being provided. Larger scale figures will be produced to illustrate high potential anomalies. We will also include magnetometer data and side scan sonar.

WSI

HA noted in response to HE S42 comment, specialists will be identified, and relevant archives will be specified. The WSI will be updated to provide clarity on proposed mitigation measures.

Inclusion of research questions

HA noted these will be included in ES and any Method Statements. The NSPRMF will be used in ES and MS.

Study area

HA outlined in response to NE S42 comment that the 1km buffer study area has been used for desk-based assessment. Clarification of the use and extent of study areas will be included in ES. References to the Physical Processes chapters and assessments will be included where relevant.

Geotechnical surveys

HA noted that areas of geoarchaeological potential will be expanded upon and updated in line with new data where possible. Areas of potential will be targeted for archaeologically specific core samples, where it is considered that such areas may be impacted by installation. HA noted however, that any further geotechnical surveys will be undertaken post-consent – as is typical for offshore wind projects.

TO wanted clarification whether there will be no further fieldwork planned pre-consent?

HA confirmed this.

TO outlined concerns for how paleo landscapes in terms of archaeology, can be mitigated/ compensated for and preserved in-situ?

TO human activity will be on the sides of the channels. How are you going to identify and preserve potential paleo environments?

CH confirmed that the focus in for the ES, as presented in the PEIR was to confirm where channel or valleys are located, within the areas of impact by assessing geophysical data. This information will be utilised at future geoarchaeological campaigns as outlined in the WSI and specified within the embedded mitigation. The geoarchaeological assessment is a staged process and will lead to dissemination of the results and

any relevant research. The mitigation will therefore not completely avoid deposits of geoarchaeological potential but offset the impact by data collection and research. This was detailed in the PEIR marine archaeology technical report section 5.5 and is in line with existing guidance.

WF agrees with TO, worried about impacts. Difficult to reach but very valuable information if recovered.

CH confirmed the project is not collecting cores offshore at this stage in the project. Potential Impacts to these environments as currently understood have been presented in the technical report and the marine archaeology chapter. Impacts to potential Holocene sediments and palaeolandscapes are scoped in and mitigation presented.

Post meeting note: The impact (on deposits) is assessed within the ES as we know where the channels/valleys are and can map them as well as compare the data to previous assessments in the area. We also know the extent of the impact from the maximum design scenario. What we can't confirm without collecting cores is the archaeological potential of the deposits that might be impacted. The current assessment of potential in the ES has been undertaken using geophysical data and relating this to known scientific research as presented in column 5 in table 43. The assessment does not however capture detailed information on macro and micro fossils or a specific dating sequence from within the sediments.

WF outlines how geotechnical data can be used for archeological data. More information upfront would be useful and considers what is missing is project specific information to reach a conclusion of significance.

TO noted it is hard to determine significance with the current information so far doesn't give significance. More information is needed to base any further decision now that the area is narrowed for the ECC. TO is worried that VE will have to run through archaeological areas as there will be no other design options.

CH noted a geotechnical campaign will be undertaken pre construction and relevant results will be reported on in line with good practice guidance, with it generally considered that the mitigation in this case to add the archaeological record.

	MW noted the DCO is based on information predetermination. MW queries that there won't be enough data, so we are unable to make decision pre DCO application? What happens if VE runs into something that does have an impact? HA confirmed geotechnical cores are usually collected post-consent. Incorporated into mitigation and will be reiterated more clearly though the ES that archaeological cores will be collected and assessed in line with the WSI. HA noted core assessments aren't usually looking for objects, and instead build ideas of how environments were interacted with by people, plants and animals and provides context of how different locations were used and when. **Ground Truthing** HA noted a specific Method Statement will be produced and agreed prior to any ground truthing or any further survey work. Archaeological objectives to further our understanding of the area will be included in any forthcoming Method Statements. Additionally, provisional details for high resolution surveys and ground truthing investigations will be included in the WSI. **Maximum Design Parameters** HA noted the maximum design scenario will be updated in line with project updates. The depths of dredging required for the placement of gravity base jacket foundations will be included in the ES. Seabed prep already detailed in Project Design and will be cross referenced where relevant. **Historic seascape characterisation** HA outlined the approach to HSC assessment will be updated for the ES. The capacity for change in the HSC will also be added.
Item 5: **SLVIA Slides**	**Viewpoint locations** SM outlines that viewpoint locations are widely agreed upon. Essex County Council request Clacton-on-Sea pier to be included. This is outside of the 60km study area which was agreed with PINS. However, SM noted there is one viewpoint within the area of Clacton which is just inside the 60km study area. MW noted that if there is this equivalent viewpoint near Clacton then please send over and I will send it to landscape team.

Action – SM to send additional information to MW with regards to the viewpoint near Clacton.

SM queries if baseline photography is needed from Covehithe to accompany the wire line? It is one of the furthest viewpoints, around 50km. Theoretical visibility is possible to guage from the wire line and photography would not change the assessment.

AR noted if there is theoretical visibility for completeness it should be included. NN noted it may be the case of proving a negative effect i.e., there is no effect.

HE request for heritage specific visualizations

WF queries if historic viewpoint photographs will be taken? He outlined that it is possible to access the Martello tower, particularly those ones used for holiday accommodation when there are no occupants. WF notes that there are very specific views relevant to cultural significance.

RM noted it would be helpful to understand what the elevated viewpoint would provide to HE, that we have not already included in the assessment.

AR noted Martello's provide a defensive viewpoint and you get a different perspective from the elevated position. Long ranging views as possible higher better elevations and we are looking to understand the significance.

Effects on special qualities of the AONB

SM noted ESC and the AONB missed the assessment of the AONB special qualities.

GS ESC accept that you have assessed the AONB special qualities and we amend our earlier position on this - however we don't accept that there will be no impact on the AONB. There will be residual impacts. SCC, ESC and the AONB Partnership commissioned an update to the Suffolk seascape sensitivity study (which was undertaken by White Consultants) regarding offshore wind turbine visual impacts on the Suffolk coastline, this report update concluded that wind turbines in excess of 400m located within 40km of the coast will have a greater than median magnitude impact on visual receptors. It is therefore expected that residual impacts will be observed from the AONB and appropriate compensation will be required. It is also worth noting that the original White report is embedded in government policy - specifically cited in Draft EN-3 - so our

report update uses that same methodology.

SM The applicant welcomes that ESC accept that AONB special qualities have been adequately assessed in the PEIR. The PEIR assessment does not find there be no impact on the AONB, rather that effects (to the qualities) would fall below the significant effect threshold, for the reasons set out in full in the PEIR assessment and summarised in the ETG meeting slides. The conclusion of the SLVIA (pages 315 – 320) is that the assessed effects to the special qualities of the SCHAONB would not undermine the statutory purpose of the SCHAONB and would not compromise the purposes of SCHAONB designation. The applicant notes the findings of the updated Suffolk seascape sensitivity study, but highlights a number of limitations with this study (as presented in the ETG meeting slides) and that it should not substitute for project specific assessment (which is presented in the PEIR).This assessment finds that the VE array areas would have less than a medium magnitude of change, because of their long distance offshore and their position behind operational WTGs, such that impacts fall below the significant effect threshold. The concerns of ESC are however noted, and the Applicant took an action to review the height of the WTGs and consider the proximity of the closest parts of the array area to the Suffolk coast.

Regarding the White Consultants study, SM noted its usefulness as providing a rule of thumb for buffers. Looking at VE maximum design scenario (MDS) turbine layout in greater detail a lot of the reporting talks about the closest part of site being at 37km. When looking at the MDS layout the closest turbine is on the 40 km buffer rather than the 37 km closest point to shore figure.

SM outlined 7 WTGs sit within the 42km buffer. This is very close to the White Consultants threshold, and the matter may come down to difference in professional opinion. SM noted that although the White report is evidence based, it isn't a site-specific assessment and uses mathematical rule of thumb.

AR outlined that White report is specific to Suffolk Coast and Heaths AONB and turbine heights. Follows draft NPS EN-3. Following this methodology, SSC considers is the impacts are significant.

RM stated that feedback from NE and AONB was similar. NE have suggested revision which would lead to a reduction of another 20% of the site. The reason for the choice of 420 m high turbines was due to predicting where technology will advance

to in the future. RM highlighted the risk of EA2 not getting built and reducing our project size unnecessarily. RM it was unlikelyt VE can make any further revisions.

GG noted EA2 got consent (albeit under challenge). One possible area for discussion could be mitigation. Landscape enhancement funds in AONB could be a way forward. RM outlined the same concerns as previously mentioned and that a CfD for EA2 has yet to be awarded.

IC queried is it not safer to steer on the side of caution and include it as a significant effect. Additionally, as VE is behind Galloper, this can lead to a clutter effect.

SM outlined VE doesn't add to lateral spread as EA2 did and that the PEIR assessment finds it to fall below the significant effect threshold.

IC stated that design needs to be optimized as much as it can. Needs to be suitable for location, which is a part of good design and needs to be given a little bit more weight.

SM outlined that RWE is not prepared for further limit northern boundary as already 16% reduction to developable area made between Scoping and PEIR.

IC stated that the northern most corner hasn't changed from scoping.

RM outlined that VE's ability to maneuver is restricted due to defunct cables and various other constraints.

RM explains VE are including EA2 in cumulative assessment but revision to boundary is challenging to take forward in regard to certainty of EA2 final build parameters. It would be unfortunate if VE mitigate for an impact that does not materialize in full, especially with the site being so far from shore.
IC states boundary reduction would be useful regardless of EA2 being built.

SM queries if this is merited compared to the magnitude of significance? There are projects much closer to shore with wider lateral impacts that are being consented.

AR queries if there is a reason why VE haven't done methodology based on draft national policy which is going to be government recognized methodology in EN-3.

SM pushed back in terms of limitations of White report being useful as rule of thumb and relying on mathematical extrapolation of findings. It doesn't include for any baseline survey work, there needs to be project specific assessments which have been undertaken in the PEIR.

AR queries if section 111 going to be considered at all? due to having >400 m WTGs within >40 km

SM that the obvious opportunity is area >40km where there isn't any WTGs in the layout presented at PEIR. If VE changes 37 km WCS to 40 km it could be an improvement and align with the 40km buffer for 400m turbines presented in OESEA.

RM agrees. However, need to consider other factors, ability to get internal sign off for a change which may not be proportionate to scale of effect. RM noted the feedback is helpful and will be taken back to engineers.

AR queries if VE have been talking to NF? RM confirms constant contact.

MW queries locations of turbines not being fixed due to Rochdale envelope?

SM agreed, but they are realistic MDSW for assessment.

MW understands that bigger turbines are needed for net zero, but if turbines could creep under 40 km within the Rochdale envelope, going into DCO, and if this doesn't comply with EN-3, then VE may need to reconsider.

SM states it would be nice to reach common ground. AR confirms SCC wanting areas of agreement, hopefully we can do meaningful work before stage of agreeing to disagree.

SM agrees that further commentary on the findings of the White report will be presented within the ES.

IC states that VE's ES needs to disprove the White Report rather than say it isn't applicable.

RM reminded that EN-3 is still in draft, VE are taking it into account but not sure what the outcome is going to be.

IC reiterates that VE's ES needs to address the findings of White Report 2023.

	AONB statutory purpose SM outlines that the AONB statutory purpose was considered, the PEIR looked at precedence of EA2 and Sizewell C, based on these VE array area's location >40km offshore from the AONB, would not comprise the overall purpose of the AONB designation. IC states that while effects of VE's may be less than Sizewell, effects of wind farms on the coast are always more and more due to the cumulative impact.	
Actions:	Check equivalent viewpoint to Clacton pier with landscaping team.	MW
	Speak to Wessex Archaeology about Martello tower viewpoint	VE

5.6 27/09//2023 POST PEIR LVIA AND ONSHORE ARCHAEOLOGY ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Five Estuaries Onshore Archaeology, Cultural Heritage and LVIA ETG

Location:	**Online**
Date:	**27/09/2023**
Time:	**14:00**
Facilitator:	**VE OWFL**
Minutes taker:	**Francesca King-Keast**

Attendees

Mike Brosa (MB) – GoBe
Francesca King-Keast (FK) – GoBe
Victoria Harrison (VH) – RWE
Marie Kellher (MK) – Wessex Archaeology
Jo Phillips (JP) – OPEN
Teresa O'Connor (TO) – Essex and Tendring Council
Will Fletcher (WF) – Historic England
Catherine Bailey (CB) – Essex County Council
Luciana Rigano (LR) – Essex County Council
Maria Kitts (MKi) – Essex County Council
Mark Woodger (MW) – Essex County Council
Zoe Outram (ZO) – Historic England
Graham Gunby (GG) – Suffolk County Council (Left as onshore)

Apologies

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Item 1:
Project Team and project update

VH updated on Ian Maclean as interim project manager.

VH noted NF removal of their northern array area, taken from NF latest update on their website.

VH outlined reduction in RLB ongoing, landfall option the eastern of the two included in PEIR.

Item 2:
LVIA

JP outlined key updates: collaborative approach with NF and National Grid, fixed layout for landfall and onshore cable route, selection of single location for onshore substation, fixed layout for onshore substation on Ardleigh Road/ Grange Road, co-location with NF with co-ordinated approach to site layout, site work undertaken with additional viewpoint taken in AONB, section 42 responses

JP highlighted NE advise for site visit for visual impacts on Dedham Vale AONB. Photomontages being worked up to illustrate very limited and localised visibility.

JP Planting closer to visual receptors to create screening effect.

JP described how visualisations are using indicative model of the GIS option. Mitigation planting will be added to represent 15 years of growth – industry standard. Cumulative assessment in respect of the onshore substation will focus on interactions with co-located North Falls substation and neighbouring National Grid substation. In respect of the onshore ECC cumulative effects confined to construction phase. Mitigation: looking for opportunities for planting pre-construction and will look at nurse, fast-growing species and longer-term species that will give legacy woodland and hedgerows which will give longer term screening. This ties in with BNG. Ensuring to design holistically with VE and NF providing continuity with green networks both onsite and around about. Thinking about climate resilient planting.

WF questioned growth rate of screening and whether it is realistic and appropriate

JP worked on the EA projects, retrospectively what we were proposing was realistic, growth is slow in the first 5 years and picks up exponentially as time goes on.

WF suggested taking the lower end of achievable spectrum.

JP not realistic to underestimate so need to get right level.

CB queried if only viewpoints on substation and not along the ECC, will you be describing the effects on Onshore ECC?

JP yes, HDD has reduced impact, farmland is arable which has reduced impacts. There will be a process for replacement planting which will tie in with the Landscape and Ecological Monitoring Plan (LEMP).

CB queried with the design of the substation are you looking at colour factors as will be on view for the first 15 years?

JP NF are leading consultations with design panel. Working on Norfolk Projects to produce environmental colour assessment, understanding relationship between colours and landscape. We have experience and this will be applied in the development of the project.

MW stated that Essex is known to be a dry county as such landscape in certain areas does struggle to become established. Note looking at preparing diagrams with 15 years of growth – what is going to be your commitment to maintain this landscape as is proposed as in requirements in DCO? The standard 5 year would not be sufficient

JP not something we can answer at this point, an issue that will need to be raised post-consent.

MW the contract must follow the DCO, all DCO's we are involved in we have said 5-year aftercare is wildly insufficient. It has to be set out in DCO and not in contractual agreements

JP advised we should we make reference in the LEMP – may be where we set this out.

MW queries use of Rochdale envelope, need to ensure not increasing RLB as create big problems.

MW queries use of bunding at substations.
JP outlines there will be an element of bunding as there are excavations. Can be a problem for soil stability and planted areas drying out. To mitigate this, shallow bunds over a large area. Does elevate slightly to aid with screening.

Item 3: Archaeology and Cultural Heritage

MK outlined key S42 comments and responses. For archaeology, will include details of further works in Outline WSI. The remaining areas for walkover will be undertaken for the ES. Results of surveys will be presented as annexes to the chapter.

MK the significance of effect at the PEIR was based upon the information available at the time, will revise if necessary to take onboard new information. Approach to trenching has taken place along substation areas, avoiding archaeological remains where possible which as influenced design based on geophysical survey and aerial photographs. Further assessment will be undertaken post consent to inform specific mitigation measures.

MK ZTV prepared by OPEN at PEIR and will be used for the heritage assessment for the ES. This will be cross referenced in both the chapter and annexes. OPEN preparing ZTV for NF and National grid substations, which will also be used.

MK assessment of Ardleigh Cropmarks and Little Bromley Henge. Additional assessment of these two assets will be provided within the technical annex which will follow the steps outlined in the HE guidance. Visualisations will be prepared from these two monuments to support the assessment, to also include the cumulative schemes.

MK effects from offshore array. Due to large number of assets within the 70 km study area, it was agreed at the scoping stage that these could be considered as coastal asset groups. Some additional assets outside of these groups were also considered for individual assessment where these were identified as being highly graded, to provide a representative sample of effects to a range of assets

MK comment from HE that viewpoint not taken from gun platform of the Slaughden Martello Tower. Acknowledged the importance of view and undertaken site specific heritage site visit as well as using the SLVIA visualisation from Aldeburgh to inform the assessment at PEIR. The SLVIA visualisation and site visit were considered adequate information on which to base the PEIR assessment. Taking onboard comments and producing a wire line from the height of the gun platform to be included within the ES.

MK comment from HE recommending visualisation from Naze Tower. Heritage specific site visit and SLVIA visualisation taken from ground level adjacent to the tower were used for the assessment at PEIR. Given the distance of the array from the tower, the only change to the visualisation by increasing the

height would be that more of the base of the WTG becomes visible. As this was not expected to change the assessment of effects over the 53 km distance, a visualisation from the top of the tower was not prepared for PEIR. Taking on board the comments we are proposing a wire line from the height of the top of the Naze tower to inform ES assessment

MK HE comment that the assets at Bawdsey had not been included. These assets had not previously formed part of the coastal asset groups identified at scoping but will be added to the technical annex for the ES.

MK HE comment that Landguard Fort had been scoped out of detailed assessment and recommend visualisation. Additional assessment will be provided in the technical annex. A heritage specific site visit and SLVIA visualisation from Landguard Fort peninsula were used for the assessment at PEIR. Due to distance of 53km to the array the difference in position/height between a visualisation from the fort was not considered to affect the assessment. Taking on board comments, a wireline will be prepared from one of the battery installations at the fort.

MK comment from HE recommends a visualisation from the most prominent asset at Harwich. Assets at Harwich are 55 km from the array, PEIR assessment was based upon SLVIA viewpoint from Harwich and heritage specific visits to the assets. Taking on board comments, a wireline is proposed from the High lighthouse at Harwich

MK comment from HE that Clacton on Sea had been scoped out of assessment and no visualisations presented. Clacton was including for preliminary assessment in the technical annex but scoped out of detailed assessment as no likely significant effects predicted. The assets like over 60km from the array and as such heritage specific visualisations were not considered necessary. The PEIR assessment was based upon SLVIA visualisation from Clacton Seafront and specific heritage site visits.

WF the principal is about including evidence whether it is positive or negative. Need to present significant information to justify what your position is, anything with a coastal view it is important to consider the specific rather than general viewpoints as part of their significance lies on the view.

MK agreed, should be able to address this with the proposed wirelines

WF requested list of wire lines proposing – **Action**

CB queried artistic significance of the coast and if there is any point in Suffolk coast where cannot see wind turbines, not sure the technical analysis look at that in any way any more

WF it came up in EA1 and EA2

MK in terms of assessment we look at the interest of the assets that make up their significance on case by case basis if there are artistic heritage interest in an asset we would consider these as the assessment of that asset but not sure about the coast as a whole

CB won't be able to get the same experience as writers and artists 50 or 100 years ago in sense of nature and remoteness

VH will respond in the minutes of the meeting after speaking to SLVIA consultant – **Action**

Post Meeting Note:

We will review wirelines from these assets and once produced we will circulate and reach out for comment. - **Action**

MW in terms of archaeological assessments are you looking at the haul route as well?

VH will get back to you once checked with wider project – **Action**

Post Meeting Note:

At this stage we have done limited trial trenching at key points where risk of archaeological risk found by geophysical surveys results, there has been around the substation and north of little Clacton Road, where we had a potential large prehistoric feature.

All routes have been covered by geophysics surveys to look into this further work and mitigate this risk ahead of the DCO submission.

Following consent outline method will be shown within the WSI and where required there will be an archaeological watching brief with an appointed ACoW and treated the same as the construction area for the project and trial trenches will be undertaken

TO The deposit model previously presented was lacking in logs and bore hole information at PEIR, how many more bore holes have been looked at?

MK 3 in 2022 and 7 in 2023. Will be a deposit model for the scheme

TO not enough information really for a deposit model. Needed every 30 m. is there any other bore hole information, BGS information? Worried that the deposit model won't be useful and is a concern for areas of the HDD. I don't think what you've done so far is enough to create an accurate deposit model. Are we going to see this information before you submit it to ES?

MK it is the plan, certainly with the phase 2 trial trenching reports – **Action**

VH fair points to make at this stage. The scale of getting all that information and disruption of current land use on a project that is not consented which can cause issues with relationships with land owners. Appreciate that it is a small amount but if we went full hog would cause a lot of disruption to a lot of people when planning application has not been determined. We will include in ES proposed surveys that we will carry out pre-construction, post-consent. Are there other areas along the route that you are specifically concerned about? This can be highlighted through the DCO application. Also will be done alongside NF so that information is not duplicated.

TO my concern is that we don't know very much about this location and more information is required to draw final conclusions. So, the deposit model could be used to infer, but not make conclusions.

TO queried what an engineering pinch point is from VE point of view? Is there still flexibility?

VH balance between physical constraint and archeological constraint. NTS and consultation report will outline how we came to these decisions that have lead to the design in this way. Planning application has to demonstrate that we are not banking land, we have to reduce it down but still give the project a little bit of flexibility within the DCO red line boundary

WF we are aware of the potential constraints that could arise.

	We know there is going to be archaeology within your corridor, so please share the info you have with us. VH suggested follow up meeting on the information before DCO submission. Encouraging as much engagement as possible before finalisation of chapters. TO more information on engineering pinch points before next ETG VH will invite Ian Maclean to the chat MK outlined the next steps: reporting ongoing surveys; updates to documents prepared for PEIR; complete outstanding area of walkover; close working with Offshore Archaeology team to ensure overlap areas are dealt with MK queried who would like to be involved in next meeting? WF, TO, CB, LR, MW, GS east Suffolk **Action** to send slide pack to CB for offshore SLVIA WF queried management agreement for cultural assets? This would be a public benefit for the proposal such as bringing Ardleigh crop marks out of cultivation VH RWE can do these things, will need to first agree with NF. Will come back separately - **action**	
Actions:	Send proposed wireline locations to WF	VE
	Respond in post meeting note to CB query on coastline viewpoint – speak to SLVIA specialist	VE
	Check if looking at archaeological assessment for haul routes	VE

Share reports with stakeholders once available	VE
Send CB slide pack for SLVIA meeting	VE
Further discuss cultural heritage fund	VE
Hold meeting to discuss wirelines once they have been produced	VE

6 ETG 6 TRAFFIC & TRANSPORT, AIR QUALITY, SOCIOECONOMICS, NOISE, PUBLIC HEALTH

6.1 11/08/2021 PRE SCOPING TRAFFIC & TRANSPORT, AIR QUALITY, SOCIOECONOMICS, NOISE, PUBLIC HEALTH ETG

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Traffic, Transport, Air Quality, Noise, Health & Socio-economics ETG

Location:	**MS Teams**
Date:	**11/08/21**
Time:	**14:30**
Minutes taker:	**Fraser Malcolm**

Attendees

Cassie Greenhill (CG)	Five Estuaries Offshore Wind Farm Ltd (VE OWFL)
Nicola Young (NY)	VE OWFL
Sarah Edwards (SE)	VE OWFL
Rebecca Neal (RN)	VE OWFL
Fraser Malcolm (FM)	GoBe Consultants
Sammy Mullan (SM)	GoBe Consultants
Shaun Fisher (SF)	SLR Consulting
Trevor Olver (TO)	SLR Consulting
Ben Turner (BT)	SLR Consulting
Daniel Moran (DM)	SLR Consulting
Anne Dugdale (AD)	SLR Consulting
Mark Woodger (MW)	Essex County Council
Matthew Bradley (MB)	Essex County Council
Nick French (NF)	Essex County Council
Hassan Shami (HS)	Essex County Council
Andrew Rutter (AR)	Suffolk County Council
Graham Gunby (GG)	Suffolk County Council
Matt Jones (MJ)	Suffolk County Council
Beverley McClean (BM))	Suffolk County Council
Naomi Goold (NG)	East Suffolk Council
Shamsul Hoque (SH)	Highways England

Apologies:

Harriet Thomas (HT)	VE OWFL

PHONE: 0333 880 5306
EMAIL: fiveestuaries@rwe.com
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REGISTERED OFFICE: Five Estuaries Offshore Wind Farm Ltd
Windmill Hill Business Park
Whitehill Way, Swindon, Wiltshire, SN5 6PB
COMPANY NO: Registered in England and Wales
company number 12292474

FIVE ESTUARIES
OFFSHORE WIND FARM

Graeme Bradlock (GB)	SLR Consulting
Lisa Chandler (LC)	Suffolk County Council
Gemma Allsop (GA)	Environment Agency

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Introductions	Attendees provided an introduction and CG reviewed the proposed meeting agenda. Post meeting note: the agenda was amended during the meeting to accommodate attendee availability. Slide references below may not run sequentially.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Project Update	NY provided a general project update including a summary of the ongoing site selection process (Slides 5 – 9). A summary of the constraints considered from an onshore and offshore perspective was presented. Constraints analysis, detailed desk studies and site selection work has sought to avoid various designations which has led to the Holland Haven coastal area being identified as the preferred location for the landfall. NY noted that National Grid had previously confirmed an onshore grid connection location in Friston, Suffolk. This offer was subsequently revised to the East Anglian Coastal Substation (EACS), and National Grid are currently undertaking their own site selection work for their substation. National Grid advised the new connection would be in the vicinity of Clacton-on-Sea. The National Grid substation location is unknown however, VE OWFL were advised that the EACS is likely to be located adjacent to the 132 kV line from Clacton substation to Ardleigh road substation. Therefore, the refined area of search / scoping boundary considers a 3 km buffer along the 132 kV line excluding some constrained areas. NY confirmed the scoping boundary for the project (Slide 9). NY provided a summary of the current programme noting that site selection, offshore surveys and onshore surveys have now commenced (Slide 10). It was noted that submission of the Scoping Report to the Planning Inspectorate is scheduled for September 2021.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Evidence Plan Process and Approach to Scoping	SM provided a summary of the proposed Evidence Plan Process (EPP) that will be followed to facilitate consultation and discussion on key elements of the project. SM noted the EPP is typically used to discuss Habitats Regulations Assessment (HRA) issues but this has been expanded to VE to incorporate a range of key EIA topics. See Slide 12 for more information. The EPP will be used as a tool to agree evidence that is required for a robust EIA, and to agree that the information incorporated is the best available. Ultimately an Evidence Plan report will be submitted to PINS outlining discussion and agreements. The structure of the EPP and relevant ETGs was presented (Slide 13) and the roles and responsibilities of the Steering Group and ETGs were	

	described (Slide 14). SM confirmed that VE OWFL are currently finalising the Terms of Reference (ToR) for circulation. SM also provided a summary of the proposed aims and approach to scoping (Slide 16). VE OWFL aim to formally agree key datasets and assessment approach through the Scoping Opinion. The Scoping Report is scheduled to be submitted to PINS in late September 2021and consultees will have 28 days to respond. SM summarised the structure and proposed content of the Scoping Report (Slide 17). The technical chapter will review what VE OWFL are proposing to scope into the EIA and scope out presenting justification for scoping out where relevant. The chapters will have questions for stakeholders to assist in providing responses to key areas. SH noted that impacts on traffic sometimes follows broad EIA methodologies and noted that the assessment should align with the following guidance document: DfT's Circular 02/2013 guidelines for Highways England, The strategic road network and the delivery of sustainable development.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Traffic and Transport.	DM presented a review of the approach to scoping for Traffic and Transport. **Baseline characterisation** DM reviewed the baseline information considered, see slide 25. Feedback was requested on the relevant period for assessment in relation to road safety data, to take into account any traffic changes that may have resulted from the COVID pandemic. DM also requested any additional data sources that may be available not already included within the current scoping exercise. MB noted that Essex County Council have a development management policy that seeks to limit direct access onto certain routes. There are exceptions for nationally important projects if they meet certain design principles. MB also stated that there is known seasonality within Essex and so baseline information would need to consider holiday periods. MB recommended that roads should be of adequate width to take certain vehicles associated with VE. SH recommended that traffic associated with peak agricultural activity should be considered as well as tourism. Highways England have a separate team that deal with abnormal loads and they should be approached as required. DM requested a lead contact and SH advised that he can be contacted in the first instance and he will pass any queries to the relevant leads within Highways England.	

Potential Impacts
DM presented the potential impacts to be scoped in on Slide 26.

DM noted the following relevant guidance document that will be used to inform the assessment on Traffic and Transport:

- Guidance for Environmental Assessment of Road Traffic (GEART)
- Department for Communities and Local Government (DCLG) Planning Practice Guidance; and
- DMRB LA 112 Population and Human Health

SH noted that there may be other large projects in the region that will need to be considered cumulatively.

MB agreed with scoped in impacts.

DM noted that there would be more detail on how these impacts will be assessed within the scoping report.

DM reviewed the scoped out impacts as presented on slide 27. The potential impact for noise is scoped out of the Traffic and Transport assessment to avoid duplication as this will be considered in the airbourne noise and vibration assessment. Decommissioning impacts are scoped out due to the uncertainty in identifying an appropriate baseline. Impacts on rail services have been scoped out as installation will use a Horizontal Directional Drilling technique for construction under any railway lines. Post meeting minute: At this time, vehicles associated with the construction of the onshore VE infrastructure are not anticipated to prejudiced/impact the delivery of vehicles via the railways in Tendring. However, if there is the potential for a significant impact this will be discussed with the ETG as the project design evolves.

SH noted that a separate licence is required from Highway England for HDD under roads.

Site specific surveys to inform the EIA
DM summarised the proposed site specific surveys as detailed on Slide 28. DM noted that junction capacity assessments will only be undertaken should sensitive junctions be identified and/or the number of peak hour vehicle movements require this.
PROW user data will be sought from Essex County Council if available.

MB noted that traffic surveys within Essex County Council have not been permitted over the last 18 months but will be permitted from September. MB also stated that PRoW should be avoided as far as possible and tracks that have shared use are best avoided.

MB also noted that in terms of design standard there is a reliance on measured speed of traffic and DMRB would be applied for speeds above 37 mph.

Actions	**No actions were taken for this agenda item.**	**N/A**
Air Quality	**Baseline Characterisation** BT reviewed the proposed data sources for baseline characterisation of Air Quality (See slide 31). BT proposes to use existing data collected by local authorities and DEFRA. The suitability and adequacy of this data will be reviewed throughout the development phase. BT noted that there is an air quality management area 4 km away. BT noted that the final identification and refinement of sensitive receptors will be confirmed following completion of the site selection process. **Potential impacts** BT noted that impacts will primarily be related to the construction phase. BT reviewed the Impacts that will be scoped in with reference to relevant guidance / criteria as presented on Slide 32. BT noted that for traffic related impacts data will be used as compiled for the Traffic and transportation chapter. BT then reviewed the impacts to be scoped out. BT noted that impacts associated with Emissions generated from the operation of Non-Road Mobile Machinery (NRMM) during the construction phase will be negligible due to suitable controls applied during construction. Operational phase traffic movements and other works/activities are scoped out noting that any impacts would be infrequent. Decommissioning effects are scoped out due to lack of details on this phase of the project; this will be addressed within a Decommissioning Programme. **Site specific surveys** BT confirmed that the assessment would be informed by a desk based study at present due to uncertainty around onshore infrastructure requirements. Once the area is refined, BT will review adequacy of the data with statutory consultees to agree requirements for additional site specific survey work.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Item 6: Socioeconomics	AD reviewed the socioeconomics approach to scoping. **Baseline Characteristics** AD noted that in respect of the assessment on socioeconomics in relation to VE there is the potential for beneficial impacts which can affect a number of different geographic scales. Socioeconomics is therefore considered across a number of different socioeconomic scales as detailed on Slide 20. GG noted that Suffolk County Council has a local policy relating to skills development. He noted it may specifically refer to skills training in particularly along the 'energy coast'. This should be considered in any future assessment. The policy aims to group projects together and consider them across a broad region. Some operators / developers have	

signed a Memorandum of Understanding (MoU) to enhance skills training. AD asked if the MoU is in the public domain. GG confirmed that it was and added that there is one signed with Scottish Power Renewables and Sizewell [EDF]. AD noted that cumulative impacts are what builds the skills base so it will be considered within the assessment.

GG added that experience with Sizewell C and East Anglia projects indicated that there is a perceived impact on the coastal tourist trade. There are various agreements with EDF and SPR in respect of tourism. GG noted that as a lot of viewpoints are in Suffolk there are some potential impacts there.

GG explained that the Suffolk Growth Partnership has been looking at the perceived impacts on tourism. There is a perception that construction activities may have a potential impact on tourism. MJ took an action to put VE OWFL and AD in contact with colleagues that have considered public perception on tourism from Sizewell C impacts that may occur during construction.

Potential impacts

AD summarised the proposed impacts scoped into the assessment (See slide 21) and invited questions or comments.

NG noted that due to the presence of the windfarm, consideration of impacts resulting from perception during construction should be included. AD hasn't previously considered perception during construction and asked if this was a concern? NG explained that when a lot of projects are constructing at the same time there is potential that increased activity could deter individuals from the area and recommended that the issue of perception be considered during the construction.

HS sought clarity on whether employment effects including labour supply disruption, and skills supply disruption is considered under the first bullet on slide 21, Economy. AD confirmed that it was and noted that it also considered potential cumulative effects

SH also noted that experience from previous large projects showed workers from outside of the local area relocated within the project area. This could affect staff movements due to different start / finish times and could also result in road closures that could impact the local economy and traffic and transport. AD confirmed that the socioeconomic assessment will draw on outputs of other assessments including traffic, LVIA, noise, etc, where relevant.

SH asked what the height of the substation is likely to be. NY confirmed that there are no design details as yet, but the project are looking at Landscape and Visual Impacts as part of the site selection process. VE OWFL will be placing contracts soon to explore substation design. SH noted that there can be impacts from glare from the sun, on traffic. NY confirmed there will be more information circulated once sites are confirmed and additional design details are available.

MW noted that some areas of Tendring are low on the deprivation scale. MW referenced a number of nationally important infrastructure projects that will all construct around the same timescales. This will result in a large draw for potential employees at the same time. It would be Essex County Council's preference to use local workforce and consider local skills training. Large power stations, such Sizewell A, B and C, can attract a large sphere of influence with people travelling a significant distance for work, it has the potential to impact locations such as Clacton. ME explained that there is a lot of rental accommodation in Tendring and noted that enhanced rental demand could impact local residents and tourism rentals. MW also stated that Tendring has invested a lot of money on local beaches and these are well used. There are areas along the full Tendring coast that are well used for tourism.
AD queried if there was any available data on usage of pathways / cycle routes. MW is not aware of any data other than anecdotal information. AD speculated that the England coastal path network may be used more. MW agreed that coastal pathways are likely to be well used by local tourism. MB added there are no data covering the entire area but there is some data collection although this focuses on urban areas predominately. MB provided the following contact details who may be able to help with provision of data:

- Shirley.anglin@essexhighways.com may be able to assist with any Public Rights of Way user data for coastal footpaths
- julian.sanchez@essex.gov.uk may be able to comment on any other walking/cycling data held (not PROW).

AD reviewed the scoped out impacts as detailed on slide 22.

MJ queried if the assessment should take into account any considerations or implications of the COVID-19 pandemic, and whether it should be tentatively considered in some way. AD will consider how this could be incorporated or considered in the wider assessment. NY added that in some situations construction workers are considered key workers.

MW is aware there is a golf course south of Frinton in the vicinity of the landfall location and there is also Holland Haven country park. Tendring District Council have plans to enhance facilities here to increase visitors to that area. MW confirmed that he can advise in more detail on specific proposals such as enhancement at the country park and extended the offer to make the relevant introductions.

Site specific surveys
AD confirmed that there are no plans to undertake specific surveys at this stage. The assessment will use information gathered for other topics. Socioeconomics will rely on published information and proposals.

NG noted that as a neighbouring authority [East Suffolk Council] she is interested mainly in the cumulative experience. Based on experience NG noted that it is very difficult to undertake a detailed assessment without

	collecting data on perception impacts. AD noted that given the project location, behind existing wind farms, and as the impact relate to perception VE is not likely to be high on peoples agenda. She queried what is being done on other projects in relation to socioeconomic / perception. NG confirmed that research has been undertaken by Destination Management Organisations (DMOs) on perception impacts in relation to the East Anglia projects and Sizewell C. The results did illustrate that there would likely be impacts on perception due to works during construction. NG stated that she thought it would be difficult to understand the potential impacts without first carrying out a perception study. Sizewell C did undertake a perception study. NG stated that perception studies can be useful in identifying appropriate mitigation packages, if required.	
Airborne Noise and Vibration	**Baseline Characterisation** TO reviewed the key datasets to inform the baseline characterisation for airborne noise and vibration (See slide 38). TO stated the baseline would be informed by a desk based review of existing data until a preferred onshore cable route and substation location has been identified. Noise surveys will be undertaken following route refinement. The Environmental Health Officer will be consulted to identify and agree sensitive receptors, monitoring locations and durations. **Potential impacts** TO presented the proposed impacts that will be scoped into the assessment (Slides 39 and 40) and scoped out of the assessment (Slide 41). **Proposed Mitigation Measures** TO presented the approach to identifying appropriate mitigation for the project in line with the 'best practicable means' concept (See Slide 42). TO invited comments from attendees on the various slides. No further comments were received.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Public Health	**Approach to EIA** SM presented the broad approach that will be used to assess potential impacts on public health (See Slide 44). The chapter within the PEIR and ES will signpost to relevant chapters and assessments detailed elsewhere within the application documents. Baseline information will rely on the various technical disciplines and cross reference as appropriate. **Potential impacts** SM reviewed the potential impacts that will be considered in the EIA (See Slide 45). SM confirmed that the public health chapters will also consider the implications of COVID-19. MW noted that it was very useful to include slides on Public Health and to see its inclusion in the EIA.	

	SM also reviewed impacts to be scoped out of further assessment (see Slide 46). Post meeting minute: Disruption to local road network reducing access to healthcare services and amenities is proposed to be scoped in for the construction phase but scoped out during the operational phase of VE due to the different scale of vehicles required between the two stages. This is consistent with the proposed Traffic and Transport assessment scope.	
Actions	**No actions were taken for this agenda item.**	**N/A**
Concluding remarks	NY thanked all for their attendance and participation at the ETG noting that further engagement would be undertaken as the project progresses. **Post-meeting note:** Following the ETG VE OWFL were contacted by Jane Taylor (JT) from the North East Essex Clinical Commissioning Group of the National Health Service (NHS) requesting they be consulted on the various aspects of the project. These meeting minutes will be circulated to JT for information and she will be invited to participate in future ETGs for VE.	
Actions:	**No actions were taken for this agenda item.**	**N/A**

6.2 03/11/2022 POST-SCOPING TRAFFIC & TRANSPORT, AIR QUALITY, SOCIOECONOMICS, NOISE, PUBLIC HEALTH ETG

MINUTES
Human Environment

Location:	**MS Teams**
Date:	**03/11/2022**
Time:	**14:00**

Attendees

Andrew Cuthbert	AC	AECOM (on behalf of NH)
Catherine Durbin	CD	AECOM (on behalf of NH)
Richard Carter	RC	Bow Acoustics (SLR)
Ben Hughes	BH	ECC
Hassan Shami	HS	ECC
Mark Woodger	MW	ECC
Matthew Bradley	MB	ECC
Mike Brosa	MBr	GoBe
Sammy Sheldon	SS	GoBe
Mark Norman	MN	National Highways
Nigel Allsopp	NA	National Highways
Shamsul Hoque	SHo	National Highways
Jane Taylor	JT	NHS
Simon Amstutz	SA	SCC
Anne Dugdale	AD	SLR
Ben Wyper	BW	SLR
Benjamin Turner	BT	SLR
Daniel Moran	DM	SLR
Jamie Munro	JM	SLR
Shaun Fisher	SF	SLR
Siobhan Hall	SH	SLR
Graham Nourse	GN	Tendring District Council
James Eaton	JE	VE OWFL
Kieran Somers	KS	VE OWFL
Victoria Harrison	VH	VE OWFL

Item 1: Introduction and Project Update	The meeting commenced with a round of introductions from all attendees. See attendee list above. JE noted that the key aims of the meeting were to provide an update of the project and agree the methodology to undertake the EIA. JE provided a general update of the VE project, explaining that the project Red Line Boundary (RLB) has reduced in the northern array for shipping and navigation safety issues, with added benefit of improvement to seascape visual impact. The export corridor has widened at locations where additional geophysical data is available allowing potential to move to areas to reduce total number of cable crossings. JE gave an overview of the evolution of the RLB, this included the original scoping boundary for the development, the onshore project boundary which was taken forwards for non-statutory consultation (30 June to 12 August 2022). JE explained that one of the routes (NW1) was removed following this consultation, further engineering development and landowner feedback. The onshore RLB that will be used for the PEIR (slide 7), includes the same substation search areas , noting that indicative locations and footprints of the substations will be presented in PEIR to provide sufficient context and scale for the proposed infrastructure.(slide 8). VH confirmed that cabling is underground from landfall to connection and that there are therefore no pylons. JE explained that the RLBs both onshore and offshore are now frozen, that the project has reached a design freeze allowing PEIR to progress. PINS has undertaken a transboundary screening assessment. An update on consultation was provided and it was noted that the Interim Consultation Feedback Report is available on the Project Website. This summarises the findings from the non-statutory consultation undertaken over the summer (30 June to 12 August). It was noted that PINS has undertaken a transboundary screening assessment. JE provided a brief outline of the project timeline indicating that PEIR submission and S42/47/48 consultation in Q1 2023 and DCO submission later in 2023 Q3/4.	
Actions:	**No actions raised in Item 1**	**N/A**

Item 2: **EIA Methodology**	SS provided an overview to the General EIA Methodology (slide 13) and CEA Methodology (slide 14), noting that a detailed Proposed Environmental Impact Assessment Methodology will be circulated for comment and that Longlists of cumulative impact sources are available on request.	
Actions:	**Send out Proposed Environmental Impact Assessment Methodology for comment by ETG members**	**VE OWFL**
Item 3: **Health and Climate Change**	Due to prior commitments and availability of JT, Health and Climate Change was covered first representing a change to the agenda. SF confirmed that a signposting approach will be taken as agreed with MW at ECC, this will form a chapter in the PEIR (slide 62). SF explained that the health profile will include the local area, Essex and some of Sussex for workforce. SF confirmed that following scoping comments, a major disasters section will be included. JT enquired about jobs and skills in the area and requested that this is covered in the assessment. SF commented that this is similar to previous comments and that it would be covered. SF commented further to say that due to feedback from consultation, a climate change signposting chapter will be included too, as this crosses over a number of topics in a similar way to Health.	
Actions:	**No actions from Item 3**	**N/A**
Item 4: **Traffic and Transport**	DM provided an overview of the scope of assessment and confirmed that it was agreed at the Scoping Phase (slide 16). DM outlined the study area (slide 17), explaining that core access routes for construction had been considered including the use of the haul road and crossing points to minimise use of the highway network wherever possible SHo queried whether SRN junctions study area covers the A12/A120 junction 29, as this is a key sensitive area. DM stated consideration of this would be set out in the traffic and transport chapter. DM outlined the key guidance used (slide 18). DM described the key data sources (slide 19). DM explained that ATCs were installed in a neutral month and August to take account of tourism	

	and agricultural traffic (20-30 automated traffic counters as agreed in previous consultation.) DM presented data uncertainties (slide 20). MB commented that this was broadly acceptable but would like to see the data. DM agreed that this could be provided and will be set out in the baseline technical report and traffic and transport chapter. DM provided a summary of the baseline information (slide 21). SHo queried whether the peak hours were the same with the addition of seasonal traffic. DM will check and confirm validity of survey periods and set out in the baseline tehcnal report and traffic and transport chapter MN commented that actual numbers may be more indicative than percentages. DM confirmed that both would be provided in the PEIR. DM described the methodology for the assessment (slides 22 - 24). SHo queried if new access roads are proposed from A120 to substation locations. DM confirmed that no new roads are proposed for access from A120. B roads will be used for direct access to substations. HDD of cables will avoid disruption to A120. SHo requested use of two-way trips (not percentage) for peaks. DM confirmed that this would be the basis for the assessment. JT queried how emergency vehicle access is being assessed. DM confirmed that the worst case would be considered and assessed e.g. temporary lane or road closure. MB noted that operating hours are relatively long and questioned if it was realistic in winter months? DM confirmed that this would be considered in the PEIR. Additional questions where raised by MB: • Road closures, permitting team, how we might approach this? • Data collection in August, there may be a number of tourists in September still, does it match with agricultural traffic? DM lost internet connection. VH suggested arranging a later meeting to discuss remaining points.	
Actions:	**Provide slides to SHo detailing the study area, with specific regard to the A12/A120 Junction 29.** **Provide HGV traffic data to MB.** **Check whether peak periods are the same with seasonal traffic. Provide a response to SHo.** **Arrange additional meeting with ECC to discuss remaining queries.**	**DM** **DM** **DM** **VH / DM**

	Position Paper circulated to Essex Highways and National Highways for comments.	
Item 5: Noise and Vibration	RC outlined the scope of assessment and confirmed that it was agreed at the Scoping Phase (slide 26). RC explained that construction noise is typically louder than decommissioning so decommissioning is scoped out of the assessment, on the basis that the impact would be less. RC described the study area (slides 27-28), explaining that the study area may change as project parameters are refined, however, a 500m buffer for landfall applies in general. RC explained that the substation buffer is up to 1km and that the assessment will not include all dwellings in that area, only the worst-case receptors. SHo commented that construction noise assessment for the substations should consider receptors along the A120 and cumulative impact with North Falls. RC confirmed that the cumulative assessment will look at all other developments (NF, NG substations) individually and in combination. RC described key guidance (slide 30), key data sources (slide 31), which included the use of shared baseline data with North Falls, and uncertainties (slide 32). RC described the methodologies used for Construction noise & vibration (slides 33 – 34), Construction traffic (slide 35) and operational noise (slide 36). RC described the baseline noise survey (slides 37-39) and indicated that shared data with North Falls provided good coverage and that most fall into category A which is most stringent. RH stated that the noise baseline survey approach had been agreed through technical note with the Tendring DC EHO. VH queried if category A recorded noise levels are quieter than category B recorded noise levels. RC explained that B is noisier, there are different thresholds depending on whether it is day / night or weekend for example. The A120 is busy at night and therefore shows a relatively high background noise level at night.	
Actions	**No actions from Item 5**	**N/A**

Item 6: Air Quality	BT outlined the scope of assessment and confirmed that it was agreed at the Scoping Phase (slide 41). BT confirmed that a detailed technical note will be provided to relevant ETG members. BT described the baseline evaluation (slide 43) and data sources. BT described the guidance for assessment of air quality through construction from various sources of air emissions (slides 45-49). BT outlined our approach and confirmed we will not be assessing offshore vessels associated with ports in the assessment. BT agreed that designated sites and important sites should be assessed and results fed into the RIAA. BT explained that decommissioning is unlikely to exceed construction level impacts and therefore it is screened out of the assessment. A decommissioning strategy and assessment will be refined at an later stage. BT outline the next steps for the air quality assessment (slide 52).	
Actions	**Provide detailed air quality technical note to ETG members** **Include designated and important sites in the assessment to inform the RIAA**	**BT / VE OWFL** **BT**
Item 7: Socio-Economics, Tourism and Recreation	AD presented the proposed scope of the assessment (slide 54). AD highlighted that information from other PEIR chapters will be considered to inform the assessment. AD stressed that duplication will be avoided by drawing on the information rather than re-presenting it in the socio-economic chapter. AD described the key themes of the Scoping Opinion (slide 56). AD explained that the scope has been broadened to include decommissioning effects, skills and education. AD presented the proposed study areas for the assessment (slide 57): • Local Area of Influence – 5km buffer; and • Wider Study Area – Essex and Suffolk council areas. AD explained that there is no industry standard and	

	presented the guidance which the assessment will have due regard to. For example, guidance from NPSs to be used in lieu of other existing guidance. AD presented key data sources (slide 58). AD asked if Tendring green skills guidance is due to be published. HS confirmed that this will be shared as a draft in two weeks. AD presented the methodology for the socio-economic assessment (slide 59). AD presented the Baseline Characterisation for the assessment (slide 60). AD commented that the assessment would welcome any feedback from consultees. For example, availability and capacity of accommodation for workforces? VH will follow up with JT and MW to gather additional feedback.	
Actions	**Provide green skills guidance documents to VE** **Arrange follow up meetings with JT (NHS) and MW (ECC) on jobs and skills next year**	**HS** **VH**
Item 7: Next Steps and Concluding Remarks	VH thanked all attendees for their contributions to the discussions and provision of useful feedback. SS noted that meeting minutes will be developed and a copy of the PowerPoint presentation will be circulated to all ETG members. SS mentioned that all comments are welcome and ETG members are welcome to contact the project at any time in the future.	
Actions	**Meeting minutes to be written sent out to ETG members together with a copy of the PowerPoint presentation**	**VE OWFL**

6.3 20/09/2023 POST PEIR JOINT NORTH FALLS AND VE TRAFFIC & TRANSPORT, SOCIOECONOMICS, AND PUBLIC HEALTH ETG

MEETING MINUTES

North Falls & Five Estuaries Joint Socioeconomics & Human Health Expert Topic Group (ETG) Meeting

Location: Online / MS Teams
Date: 20/09/2023
Time: 14:00 – 16:00
Facilitator: Mike Brosa

Attendees

Name	Initials	Organisation
Ashleigh Holmes	AH	RHDHV
Chris Crisell	CC	NHS, SNEE ICB
Cormac Rooney	CR	NF OWFL
Ellen Shields	ES	RHDHV
Emily Griffiths	EG	VE OWFL
Gemma Keenan	GK	RHDHV
Hassan Shami	HS	Essex County Council
Isabel O'Mahoney	IO	RHDHV
Jack Mitchell	JM	Essex County Council
Joanna Freyther	JF	SLR
John Drabble	JD	VE OWFL
Joshua Skyers	JS	Quod
Mark Woodger	MW	Essex County Council
Michael Veasey	MV	Essex County Council
Mike Brosa	MB	GoBe
Mike Humphrey	MH	Quod
Oliver Chapman	OC	Hatch
Sean Leach	SL	Hatch
Victoria Harrison	VH	VE OWFL

Apologies

Name	Organisation
Cormac Rooney	NF OWFL
Deborah Day	SLR
Gordon Campbell	RHDHV
Graham Nourse	Tendring District Council
Grahame Stuteley	East Suffolk District Council
James Eaton	VE OWFL
Joanna Ludlow	Essex County Council
Jon Haworth	NHS
Kieran Somers	VEOWFL

Naomi Goold	East Suffolk District Council
Paul Wormington	Suffolk County Council

Purpose of the meeting	***To:*** ***1. Provide stakeholders with an update on the Projects and details of the emerging collaboration strategy.*** ***2. Discuss Preliminary Environmental Information Report (PEIR) feedback and agree the approach to the Development Consent Order (DCO) assessment.*** ***3. Agree a future engagement strategy.***
Session: **Speaker:** **Detail:**	**1. Introductions** **Mike Brosa (GoBe)** MBr welcomed all participants and initiated a round of introductions before introducing the purpose and agenda for the meeting.
Session: **Speaker:** **Detail:**	**2. Update from the Projects** **Victoria Harrison (VE OWFL)** VH provided an overview of recent project events (slide 5): • VE Statutory Consultation including PEIR: 14 March to 12 May 2023 • NF Statutory Consultation including PEIR: 16 May to 14 July 2023 • Review of consultation feedback – ongoing • Good Neighbour Agreement • Design refinements Upcoming activities: • Ongoing review of consultation feedback Q3 2023 • Onshore Project Design Freeze Q3 • Further ETG prior to DCO submission – Q4 2023 • DCO submissions NF/VE late Q4 2023 – dates TBC • DCO Examinations – 2024 • Earliest construction - 2027 VE explained that the onshore cable route has been refined in coordination between both NF and VE following stakeholder feedback and additional study (slide 6). The route is now narrowed compared to PEIR with a maximum 45m working width at Horizontal Directional Drill (HDD) locations, narrower along open cut trenching locations and an 18m permanent easement. Both NF and VE have announced a reduction from four circuits to two circuits per project. Both projects are currently looking at more detailed engineering refinements along the onshore cable route. Temporary Construction Compound (TCC) refinement has also been undertaken looking at optimising the size and location of TCCs for delivery. VE described the process of potentially co-locating NF and VE substations, positioned at the previous western search area from VE PEIR and in relatively close proximity to National Grid Electricity Transmission's (NGET) proposed substation for tie-in to the National Electricity Grid (slide 7). NF and VE are currently in discussion with National Grid regarding operational access and routing.

	VE mentioned that NF and VE are working collaboratively since the Good Neighbour Agreement was signed and that consideration of substation co-location is leading to several efficiencies. Both projects are also consulting with bodies on design reviews (Design Council) so that NF and VE reach the most efficient design possible for their substations. The Design Guide is being prepared as project neutral. VE explained that both NF and VE are exploring the opportunity for joint delivery of construction. Both NF and VE will have a design freeze which allows both projects to finish their assessments for the Environmental Statement (ES). During these ETGs, NF and VE aim to close off some of the comments raised by consultees.
Session: **Speaker:** **Detail:**	**3. Socioeconomics & Tourism** **Sean Leach / Oliver Chapman (Hatch), Mike Humphrey (Quod)** OC welcomed the opportunity to discuss socioeconomics and tourism on the project and thanked members for their comments on the PEIR. OC provided an overview of the key Section 42 comments received on both projects (slide 9). MH commented that VE had scoped accommodation out of the assessment and had received no direct responses relating to it. <u>Data Collection</u> SL provided and update on data collection for both projects (slide 10) and asked members if there had been any recent additions to data and policy. HS commented that the Essex Local Skills Improvement Plan had been published. HS provided a link to the Plan post meeting. <u>Community Benefit Fund</u> SL and MH provided an overview of comments received in relation to Community Benefits Fund (slide 11) and stated that this will be further considered separate to socioeconomics assessment. Further discussion with members in relation to Community Benefit Funds is welcomed by both projects. MW agreed that Community Benefit Fund and socioeconomics should be considered separately. MW commented that Essex had plans to develop a policy for Community Benefit Fund and that a national document is out for consultation. MW welcomed the opportunity to discuss the matter further at a later date. <u>Outline Skills and Employment Plan</u> SL and MH described comments received and proposed actions to address concerns relating to outline skills and employment plans (slide 12). Both projects will work collaboratively and in consultation with local stakeholders to understand local labour market intelligence and skills priorities, with the aim of maximising local employment and skills benefits. SL enquired as to whether the members had any recent key data in relation to employment

and skills.

HS commented that a single point of contact could be provided to coordinate the projects with existing employment and skills groups.

Cumulative effects assessment

SL and MH provided an overview of comments received regarding cumulative effects and proposed actions to address them (slide 13). The projects will include any additional cumulative projects since PEIR in the update to ES and work collaboratively with other NSIPs to understand employment and skills locally. It is anticipated that there will be a positive effect providing local employment to a substantial existing labour market. Further details will be provided in the respective ESs and outline skills and employment plans.

MV confirmed that there are additional NSIPs across Essex. SL confirmed that these will be included.

OC asked if any additional information is available for these projects relating to employment and skills and timeframes. MV this is being looked at presently.

MW shared concerns that a number of large NSIPS are coming forward including highways projects and construction of Sizewell C. Details of all labour and skills requirements is needed for planning.

MH agreed that there is an opportunity to coordinate and maximise local employment. MW this would allow for greater local employment and reduced travel from outside the area.

Workforce and accommodation

SL and MH provided an overview of comments and proposed actions to address concerns relating to workforce and accommodation (slide 14). SL described how the ES will provide information to detail why the workforce (which is temporary) is unlikely to bring their families into the area based on previous OWF experience. SL explained that an analysis of required accommodation types will be included in the ES and is likely to be modest demand due to existing availability of visitor accommodation in the area.

MH confirmed that no comments had been received for VE relating directly to accommodation as it was scoped out of the assessment, however, all additional information will be taken into consideration. MH confirmed that the projects will continue to engage with local healthcare providers and potentially monitor the workforce to enable forward planning.

SL asked if Essex County Council can provide additional detail on 'safeguarded sites' and the relevant policy?

MW confirmed that he would make enquiries to feed back.

SL asked if local stakeholders hold any other information on the supply of visitor accommodation and occupancy rates which could be shared for

the assessment? No feedback received from the ETG.

SL provided an overview of the potential for onshore works to impact Suffolk accommodation (slide 15) and commented that this will be addressed in the tourism assessment. Focus will be placed on the potential cumulative impact in combination with other proposed developments.

SL queried if the response answered Suffolk's concern? No comment received from the ETG

Tourism

OC and MH described comments relating to tourism in general and provided proposed responses (slide 16). The ES will use available information to assess churn and impacts on tourism employment, as well as recovery of the tourism sector following Covid-19 pandemic and further emphasise the evidence to show that the onshore visual impact of the projects will not negatively affect tourism or local AONBs. A preliminary assessment of the offshore aspects of the project on the Dedham Vale AONB will be included in the ES.

OC described the offshore infrastructure concern for NF from Suffolk and Essex County Councils and the impact on seascape and visitor numbers (slide 17). OC described how the ES will be updated to address this based on previous OWF experience and draw on evidence from other chapters such as SLVIA and Cultural Heritage. The cumulative effects assessment will only consider planned wind farms. Existing wind farms will be considered as part of the baseline,

OC described the onshore infrastructure concern for NF from Essex County Council and the impact on tourism (slide 18). OC described how the ES will be updated to address this accounting for local characteristics, use of embedded mitigation and drawing on information from other chapters such as traffic and transport and airborne noise. A worst case approach will be considered in terms of assessing at peak tourism times, however tourism monitoring cannot be committed to at this stage.

OC asked if the ETG had further information on visitor churn and displacement, and concerning aspects of seasonality?

MV responded to say that tourism in the Clacton area has not recovered to pre-pandemic levels and that summer beach tourism is the main seasonal factor. Email of the manager at Essex provided for further coastal tourism statistics (Lisa.Bone@essex.gov.uk). MV also expressed surprise by some Section 42 comments as the windfarm long way offshore and unlikely to have a significant impact.

MW: will make enquiries and pass on any additional information relating to tourism numbers. Contact details for Sarah Daniels provided (sdaniells@tendringdc.gov.uk).

OC: Tourism monitoring cannot be committed to by NF

	VH: copies of these slides will be provided with updated landfall and corridor information, which may help to allay concerns over tourism. Impact on the enjoyment of Public Rights of Way (PRoW) OC described the comments received on PRoW (King Charles III England Coast Path, National Sustrans Cycle Network) and proposed actions to address them (slide 19). Namely, the ES will consider all impacts to PRoW and mitigation will include diversion of footpaths to maintain overall routes and appointment of a PRoW officer for the project who will liaise with local authorities. OC asked if there are any additional PRoW of concern? No comments received. Other Matters OC and MH provided an overview of general comments received and highlighted that any relevant findings from traffic and transport assessments will be taken into account and the ES will include a detailed community-level summary of effects and mitigation. Next Steps OC provided an overview of the next steps for the socioeconomics assessments which included further collaboration between the projects and joint meetings with stakeholders.
Session: **Speaker:** **Detail:**	**4. Outline Employment, Skills and Education Strategy** **Emily Griffiths (VE OWFL)** EG provided an overview of the future workforce and need for a skills strategy (slide23). EG described the approach to the Outline Employment, Skills and Education Strategy (slide 24). EG highlighted the next steps to the Outline Employment, Skills and Education Strategy, including further collaboration between the projects and joining existing working groups. EG asked the ETG who would like to attend a follow up working group meeting. HS responded to say that he will provide a central contact and information on established local working groups.
	5. Human Health & Major Disasters **John Drabble & Isabel O'Mahoney (RHDHV) and Deborah Day (SLR)** IO described the updates from PEIR to now and work that will be done to update the final ES (slide 27). This will account for Section 42 feedback on the PEIR, design changes, baseline updates drawing on other chapters and adherence to the latest IEMA guidance (Pyper et al. Nov 2022).

6.4 02/10/2023 POST PEIR JOINT NORTH FALLS AND VE AIR QUALITY, NOISE AND CLIMATE CHANGE ETG

MEETING MINUTES

North Falls and Five Estuaries Air Quality, Noise and Vibration and Climate Change Expert Topic Group (ETG) Meeting

Location: Online / MS Teams
Date: 02/10/2023
Time: 14:00 – 16:00
Facilitator: Ellen Shields

Attendees

Name	Organisation	Job Role
Aleksandar Bogdanov	Essex County Council	Environment Project Officer
Joanna Ludlow	Essex County Council	Essex County Council's NSIPs response to Five Estuaries and North Falls
Katie Wesley-Smith	Tendring District Council	Environmental Protection Manager
Emily Griffiths	Five Estuaries Offshore Wind Farm Limited	Consents Manager
Kieran Somers	Five Estuaries Offshore Wind Farm Limited	Senior Consents Manager
Joanna Freyther	SLR Consulting	Coordinator for Five Estuaries
Mike Brosa	Gobe Consultants	Lead EIA Consultant and climate change specialist for Five Estuaries
Richard Carter	Bow Acoustics	Noise and vibration specialist for Five Estuaries
Ben Turner	SLR Consulting	Air quality lead for Five Estuaries
Jamie Munro	SLR Consulting	Air quality specialist for Five Estuaries
Cormac Rooney	North Falls Offshore Wind Limited	Onshore Consents Manager
Tim Britton	Royal HaskoningDHV	Noise and vibration lead for North Falls
Elizabeth Whittall	Royal HaskoningDHV	Air quality lead for North Falls
Joe Parsons	Royal HaskoningDHV	Climate change lead for North Falls
Isabel O'Mahoney	Royal HaskoningDHV	Climate change specialist for North Falls
Ellen Shields	Royal HaskoningDHV	Interim Onshore EIA Co-ordinator for North Falls
Ashleigh Holmes	Royal HaskoningDHV	Onshore Assistant EIA Co-ordinator for North Falls
Jasmine Vallabh	Royal HaskoningDHV	Minute taker

Apologies

Name	Organisation	Job Role
Mark Woodger	Essex County Council	Principal Planner
James Bates	Tendring District Council	Environmental Protection Officer
James Eaton	Five Estuaries Offshore Wind Farm Limited	Onshore Consents Manager
Victoria Harrison	Five Estuaries Offshore Wind Farm Limited	Consents Manager

Name	Organisation	Job Role
Sam Gill	SLR Consulting	Climate change specialist for Five Estuaries
Bonia Leung	SLR Consulting	Climate change specialist for Five Estuaries
Alun McIntyre	Iron Brand Consulting	Air quality specialist for North Falls

Session:	**1. Introductions**
Speaker:	**Ellen Shields (Royal HaskoningDHV)**
Detail:	Ellen Shields (ES) led introductions and outlined the purpose of the Expert Topic Group (ETG) meeting: 1. To provide stakeholders with an update on the projects and details of the emerging collaboration strategy. 2. To discuss Section 42 Preliminary Environmental Information Report (PEIR) feedback from statutory stakeholders and agree the approach to the Development Consent Order (DCO) assessment.
Session:	**2. Project Update – Current Status**
Speaker:	**Cormac Rooney (North Falls)**
Detail:	Cormac Rooney (CR)outlined the recent project events. Statutory Consultation for both Five Estuaries (VE) and North Falls (NF) is now complete: • VE Statutory Consultation including PEIR ran from 14 March to 12 May 2023 • NF Statutory Consultation including PEIR ran from 16 May to 14 July 2023 Both projects are reviewing consultation feedback and this process is ongoing. NF and VE have signed a Good Neighbour Agreement (GNA) to enhance collaboration between the projects and aid design refinements. CR outlined the upcoming activities for the projects: • NF/VE - Ongoing review of consultation feedback Q3 2023; • VE – Onshore Project Design Freeze Q3 2023; • Further ETG prior to DCO submission – Q4 2023 (planned but TBC); • DCO submission NF Q2 2024 – dates TBC; • DCO submission VE Q1 2024 – dates TBC; • DCO Examinations – 2024/5; and • Earliest Construction – 2027. CR shared the onshore export cable corridor coordination which has been developed jointly between NF and VE. CR explained that the bold purple line shows the refined Red Line Boundary (RLB) for both projects. The RLB has been refined under the GNA and in response to the Section 42 comments received from stakeholders. CR added that refinements have included reducing the working width and revising all Temporary Construction Compounds (TCCs) and their access points. CR stated that NF and VE have listened to the consultees leading to a more refined cable route, and further work is ongoing for TCCs.

	CR shared the indicative co-located substation for NF and VE. Both projects have worked together to refine the substation site and the refinement process is ongoing (particularly for TCCs) and both projects have come to a decision to co-locate and work together to reduce the impact of construction.
Session:	**3. Noise & Vibration**
Speaker:	**Richard Carter (Bow Acoustics) and Tim Britton (Royal HaskoningDHV)**
Detail:	<u>Section 42 responses</u> Richard Carter (RC) highlighted that Essex County Council (ECC) asked for noise assessments and Tendring District Council (TDC) and Little Bromley Parish Council have raised concerns over construction and operational noise. RC mentioned that full construction and operational noise assessments will be undertaken for the Environmental Statement (ES). RC added that nothing specific was raised on the PEIR assessment methodologies for NF or VE. <u>Assessment methodology – construction noise</u> Tim Britton (TB) stated that NF and VE have identified where the PEIR chapters were different and have worked together to align as much as possible to provide consistency. TB explained that NF and VE have preliminary construction plant information to do their predictions, and that criteria was adopted based on BS 5228-1, although the criteria is different depending on when the works are undertaken. If the predicted noise level meets the level on this table (slide 10), then NF and VE need to think about the duration to consider if this has a significant effect on the receptors. TB explained that impacts lasting less than 10 days (evenings or nights) out of 15 days, or 40 days (evenings or nights) in 6 months, are considered not significant. Predictions at up to 650m from the works have been identified to be the approximate worst-case Significant Observed Adverse Effect Level (SOAEL) for night-time works. The approximate distance for significant adverse effects is 48dB for receptors that are 650m from the works. <u>Assessment methodology - construction vibration</u> TB stated that NF and VE are not intending to produce predictions at individual receptors. Calculations of vibration levels from Horizontal Directional Drilling (HDD) and ground compaction are to be calculated at distances of up to 100m from the construction works. As the substation construction works are further than 100m from the receptors, the construction vibration levels are not considered further in the assessment. <u>Assessment methodology – construction noise and vibration</u> TB explained that works are planned to be undertaken from 07:00 to 19:00, Monday to Saturday, with no noisy activities on Sundays or bank holidays. Any works undertaken on a Saturday will be assessed against the lower criteria. TB explained the potential for night working at complex HDDs where the operator (for example, National Rail) dictates that drilling continues until the drill is complete, or is undertaken during night time (or engineering

hours[1]) for safety reasons.
At this stage, both projects can only provide preliminary construction information as the final construction contractor has not yet been appointed.
TB explained that preliminary construction plant information has been used to undertake the modelling of construction noise, using the methodology in BS 5228-1.
Control / mitigation measures will be included in the Code of Construction Practice (CoCP). A draft CoCP was provided for VE as part of the PEIR documentation and included in VE's statutory consultation. A CoCP will be provided for NF as part of the DCO application documents.

TB noted that both NF and VE have a contractor who have provided information to date but that is not necessarily the final construction contractor.
NF and VE will provide mitigation based on the impacts that are predicted, these impacts and what mitigation measures will be set out in the CoCP.

Assessment methodology - operational noise
Operational noise has been assessed using BS4142.
TB explained that the table (slide 13) is useful and important, but NF and VE are in a location where the rural area and baseline sound levels are very low. In this scenario, the assessment is based on determining whether noise levels do not exceed a suitable fixed limit which will prevent disturbance effects irrespective of the baseline sound level. NF and VE propose a criterion of 35dB to the substation sound rating level, which is taken from the 1997 version of BS 4142 and the Association of Noise Consultants (ANC) Good Practice Guide to the Application of BS 4142. It is key to note that this is highly conservative so it is a good news story because the substation impact will be reduced from that presented in the VE PEIR. TB explained that the lower limit (35dB) approach is to be taken for NF and VE to ensure people would not be disturbed.

Assessment methodology - construction road traffic noise
TB explained that NF have changed their approach, as such, where the baseline flow of vehicles is less than 1000 over 18 hours, this is to be treated as a construction haul route and an assessment for construction noise should be used. Where baseline vehicle flow is greater than 1000 over 18 hours, criteria from the Design Manual for Roads and Bridges will be used.

Cumulative operation noise level
TB explained that there are two proposed co-located substations as well as a National Grid substation, therefore NF and VE are undertaking discussions on how to manage the cumulative impacts of all three projects. There is a limit of 35dB apportioned between the three projects, so combined noise should not exceed 35dB to avoid disturbance of nearby residential properties. The approach is a robust and worst-case approach that should limit disturbance as a result of substation noise.

[1] Network Rail have a specific period called "engineering hours" which usually runs from 23:00-05:00 which is when works can be undertaken safely on the railway lines as they are not in use.

	Assessing and managing cumulative effects for construction noise and vibration RC explained that construction delivery scenarios are not yet confirmed, and both simultaneous project construction (representing a maximum peak in potential impacts to receptors) and sequential project construction (representing a maximum duration of potential impacts to receptors) are under assessment. Next steps RC explained that assessments are continuing to progress and dialogue is continuing between the projects, with data being shared where relevant. There is to be a consistency in method of assessment between projects for the Environmental Impact Assessment (EIA). Kieran Somers (KS) added that in relation to construction scenarios, one of the options considered for both projects is that NF and VE use a single contractor that constructs the ducts for both projects. It is important to note that this is not the worst-case scenario, however it is an option, and it is the intention for both DCOs to present this as one of the construction scenarios. Katie Wesley-Smith (KWS) noted that TDC are keen to see the conservative level of 35dB being used and thanked NF and VE for using this lower limit.
Session: **Speaker:** **Detail:**	**4. Air Quality** **Lizzie Whittall (Royal HaskoningDHV)/ Ben Turner and Jamie Munro (SLR Consulting)** Progress to date Ben Turner (BT) explained that both assessments have gone through rounds of consultation which has influenced the scope. Section 42 consultation comments BT outlined that both NF and VE are undertaking separate construction dust assessments to reduce the risk and the effects of construction dust. BT explained that both projects are considering the impacts on Ancient Woodlands which will be considered in the ES. The NF PEIR incorrectly stated that there were no exceedances of the annual mean NO_2 air quality objective in Tendring District Council between 2016-2020. This will be corrected in the ES but will not affect the ES outcomes. Mitigation and controls BT explained that separate assessment outcomes will inform the mitigation and controls. Both projects have committed to collaborate in order to minimise the human and ecological effects from construction dust (2023 IAQM Construction Dust) and minimise construction combustion emissions (2022 DEFRA LAQM.TG(22)). Next steps BT outlined the next steps for NF and VE, which involves: • Validating the PEIR assessment scope; • Reviewing the design data; • Considering updates to policy, guidance and baseline datasets;

- Defining the Maximum Design Scenario (MDS) which is to be used for the cumulative assessment; and
- Issuing separate technical notes to agree ES methodology and granular details.

BT also highlighted the opportunities for alignment, including the progression of discussions between NF and VE with regards to determining construction scenarios, exchanging data and ensuring robust cumulative assessments.

Session: **5. Climate Change**

Speaker: **Isabel O'Mahoney and Joe Parsons (Royal HaskoningDHV)/ Mike Brosa (Gobe)**

[Aleksandar Bogdanov (AB) joined at 14:42]

Detail:

Key updates

Mike Brosa (MB) talked through the key updates (slide 24), which include incorporating any design changes since PEIR and assessing these in the ES, and changes to the Climate Change section within each chapter.

Both projects will have standalone Climate Change chapters within the ES which will encompass:

1. A Climate Change Resilience Assessment (CCRA) which will assess the impact of climate change to the project and resilience of the project to climate change. Key guidance used for the CCRA includes the IEMA EIA Guide to Climate Change Resilience and Adaptation, local climate policies and expectations set out in NPS EN-1.
2. A Lifecycle Greenhouse Gas (GHG) assessment which will assess the impact of the project to climate change including:
   - Carbon-dioxide equivalent (CO_2e) per unit of power as a metric to compare to other offshore wind farms.
   - 'Pay back' period compared to a 'without project' scenario.

MB also mentioned that the ES chapters will be updated to address the Section 42 comments received from stakeholders.

Section 42 response from Essex County Council

Based on ECC's Section 42 response regarding GHG emissions (including embodied and operational carbon as well as considering the impact on Essex and the various commitments by ECC), MB outlined the projects' proposed way forward for the GHG assessments (slide 25).

MB noted that offshore wind is a recognised climate change mitigation and is a low carbon form of power generation that effectively offsets emissions from more traditional sources. Offshore wind power also facilitates further mitigation, adaptation, and growth, allowing clean electrification of cooling/heating, transportation and industrial processes for example. Offshore wind also provides jobs in a sustainable sector.

MB added that the lifecycle GHG assessments will be based on conservative assumptions, for example the use of virgin/new materials

(rather than recycled materials). The assessments will also account for local policy as well as national targets, and carbon will be reduced in the design through the use of best available techniques.

MB highlighted some of the project refinements since PEIR for both projects, including:

- The export cables have been reduced from 4 to 2; and
- The onshore substation footprint has been reduced from 8 ha to 6 ha per project.

MB added that plans will seek to further minimise GHG emissions through efficient design, for example through offshore vessel management plans and onshore traffic management plans. MB noted that realistic distances for shipping and importations of materials will be used.

Joe Parsons (JP) stated that the updated GHG assessment will consider an updated design where there have been reductions in the volume of materials used, which will have a knock-on effect to reduce embodied carbon of the project. In addition, the efficient use of vessels and road vehicles will reduce GHG emissions.

Based on ECC's Section 42 response on energy storage (slide 26), MB discussed through the projects approaches to potential energy storage options (including hydrogen and battery storage).

<u>NF's approach to energy storage</u>
NF will not include battery storage, as this was discounted as an option. The project will not directly generate hydrogen; however, it is anticipated that the electricity generated could end up in the electrolysis supply chain.

<u>VE's approach to energy storage</u>
The project is assessing plans for battery storage and other innovative solutions to assist in grid stability (due to the intermittent nature of renewable energy currently) which will be incorporated into the substation design. However, neither large scale battery storage nor green hydrogen production is included for the following key reasons:

- A large-scale battery storage scheme would effectively comprise an adjacent separate project – requiring a separate application.
- The transmission part of the project is likely to be sold to an Offshore Transmission Owner (OFTO) after construction, therefore the regulatory interface of a battery storage scheme would be challenging.
- In the case of hydrogen, the technology is immature and uncertain particularly from a regulatory perspective.

JP confirmed that a climate change resilience assessment (CCRA) will be undertaken for NF and presented in the ES, in accordance with IEMA Guidance 'EIA Guide to Climate Change Resilience and Adaptation' (slide 27).

	Next steps (slide 28) MB updated stakeholders on the next steps which includes: • GHG assessment (new for VE and update for NF). • Analysis of climate change effects to the projects. • Adapting to any potentially significant climate change impacts to the projects. • Completing the chapters for the ES to capture all updates.
Session: **Speaker:** **Detail:**	**6. Summary of Actions and Next Steps** **Ellen Shields (Royal HaskoningDHV)** ES explained that RHDHV will issue the ETG minutes and the updated agreement log within 2 weeks of this ETG meeting for stakeholder review. NF and VE will also continue to collaborate to aid further refinement and alignment. The noise, air quality and climate change chapters will be updated for ES, considering stakeholder feedback and updated project information.

Meeting close: 14:54

7 ETG 7 STEERING GROUP & OVERARCHING

7.1 13/08/2020 STEERING GROUP MEETING

FIVE ESTUARIES
OFFSHORE WIND FARM

MINUTES

Steering Group meeting

Location:	**MS Teams**
Date:	**13 August 2020**
Time:	**1300 to 1500**
Facilitator:	**VE OWFL**
Minutes taker:	**GoBe Consultants**

Attendees

Stuart Curry (Meeting Chair) (SC)
Cassie Greenhill (VE OWFL) (CG)
Rachel McCall (VE OWFL) (RM)
Sarah Edwards (VE OWFL) (SE)
Sammy Mullan (GoBe Consultants) (SM)
Fraser Malcolm (GoBe Consultants) (FM)
Helen Lancaster (Planning Inspectorate) (HL)
Joseph Wilson (Marine Management Organisation) (JW)
Yolanda Foote (Natural England) (YF)
Alan Gibson (Natural England) (AG)
Nick Salter (Maritime Coastguard Agency) (NS)
Mark Woodger (Essex County Council) (MW)
Nicholas French (Essex County Council) (NF)

Apologies

Harriet Thomas (VE OWFL)
Nicola Young (VE OWFL)
Leanne Tan (Marine Management Organisation)
Gary Guiver (Tendring District Council)
Graham Nourse (Tendring District Council)
Gemma Allsop (Environment Agency)
Chris Pater (Historic England)

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company number 12292474

Item 1: Introductions

SC welcomed all participants to the meeting. He introduced the Five Estuaries Offshore Wind Farm (VE) project and noted its role in net zero and linkages to the recently published IPCC Annual Report[1].

MW explained that Essex County Council (ECC) have entered a memo of understanding with Tendering District Council. Therefore, ECC will provide representations on behalf of both councils.

RM provided a project update and explained Five Estuaries Offshore Wind Farm Ltd (VE OWFL) have accepted the grid offer at National Grid's "East Anglia Coastal Substation" (EACS) – see slide 5. RM explained that the exact location of this proposed substation will not be known until Q1 2022. The array areas remain unchanged, but the area for the export cables is still to be defined to enable connection to the new onshore substation.

RM presented the area of search (AoS) for the offshore and onshore infrastructure for the Five Estuaries Offshore Wind Farm (VE) – see slides 5 and 6. RM highlighted the key constraints which are associated with the cable routing, including the Southern North Sea Special Area of Conservation (SAC), the Margate and Longsands SAC and the Outer Thames Estuary Special Protection Area (SPA) – see slide 7. She also noted there are numerous constraints in the AoS including shipping and navigation, aggregates sites, national designations, disposal sites and existing offshore wind farms (OWFs).

RM presented the longlist of cable routes which the project considered – see slide 8. The grey routes were discounted for various reasons including that they would cross dredged navigation channels, aggregate sites, cables and interact with the Traffic Separation Scheme. The project has sought to avoid the Margate and Long Sands SAC and noted that it was very challenging to avoid due to shipping and navigational safety constraints. She highlighted that lots of engagement has been undertaken with shipping and navigational stakeholders with regard to shipping constraints and safety concerns. She explained that ultra large container ships use this area through defined shipping channels (~17m deep) and therefore the area has been compared to the Suez Canal in terms of its importance for commercial shipping interests (Felixstowe being Britain's biggest and busiest container port). Therefore, Five Estuaries Offshore Wind Farm Limited (VE OWFL) has sought to minimise interaction with these deep water channels where possible. There is also a very busy pilotage area, the Sunk pilot station, which is used by pilots from Port of London Authority and Harwich Harbour Authority, located north of the cable route. Interaction with the pilotage operations was highlighted as a potential safety concern. RM also highlighted that VE

[1] https://www.ipcc.ch/report/ar6/wg1/

	OWFL are aware of the North Falls projects proposal for cable routing in a similar area in addition to the proposed National Grid SEALink project (which will connect East Anglia and Kent). RM presented the key constraints of interest to the participants of the ETG – see slide 9. She presented the proposed Neuconnect cable route and the two way traffic routing measure ('hockey stick'). She explained that initially the project sought to avoid the Margate and Long Sands SAC but this conflicted with the high density of pilotage operations. Therefore, the proposed cable route was moved south into the tip of the SAC to mitigate shipping and navigation risk while seeking to minimise its extent within the SAC. No contributions were made from any of the attendees regarding the site selection process. RM presented the proposed scoping boundary – see slide 11. A preferred cable corridor will be presented in the Scoping Report which is encapsulated within the scoping boundary. The Scoping Report is anticipated to be submitted for consultation to the Planning Inspectorate in September 2021. RM explained that the programme is currently under review to ensure there is adequate time to address any issues raised in Section 42 and to be regarded in the Environmental Statement (ES). Therefore, revised dates are being considered for consultation on Alternatives and for the Preliminary Environmental Information Report (PEIR) publication. No contributions were made from any of the attendees. HL asked whether the Applicant is undertaking additional consultation alongside the formal scoping process. RM confirmed that VE OWFL are not intending to undertake any additional consultation, including with parish councils, during the Scoping consultation period. However, the project would hold expert topic groups (ETGs) at key project milestones, including after receipt of the Scoping Opinion. SM confirmed that a Habitats Regulation Assessment (HRA) Screening report is being prepared on a similar programme to the Scoping Report, but acknowledges that this will not be covered in the Scoping Opinion. MW requested that the Scoping Report be provided in advance of formal issue by the Planning Inspectorate (PINS). Post meeting minute: The Scoping report will be provided directly from the Applicant to those parties which request it in advance of its issue from PINS.
Item 2: Approach to EIA Scoping	FM explained that the purpose of the EIA Scoping Report is to refine the scope of the VE Environmental Impact Assessment (EIA) to ensure that all potentially significant impacts have been identified – see slide 14 and to propose some matters that can be scoped out of an EIA. This will seek to allow the EIA to focus on issues which are likely to be key considerations and ensure that it remains proportionate. FM provided an overview of

	the consultation process for scoping. FM explained the proposed contents of the VE Scoping Report and its structure – see slide 15. FM noted that the VE Scoping Report is due to be provided to PINS at the end of September 2021. FM highlighted that feedback on any of the specific questions included in the Scoping Report would be greatly appreciated. HL highlighted that it is likely that less meaningful feedback will be provided on the onshore matters given the wide Area of Search and no proposed substation location. MW noted that it is ECC's position that all potential impacts should be scoped in at this stage given the wide area at this stage. HL agreed that a conservative approach should be adopted. FM welcomed the feedback. MW acknowledged the uncertainties associated with EACS but noted there will be notable refinement work on the onshore AoS is still to be undertaken.
Item 3: Evidence Plan Process	SM provided an overview of the Evidence Plan process and how this is proposed to be undertaken for VE. She explained that the Evidence Plan process will document all discussions which are undertaken and will be reported within the DCO application. SM explained that the Evidence Plan process was originally designed to inform Nationally Significant Infrastructure Project HRAs and that VE (along with numerous other OWF projects) have sought to expand the envelope of topics considered in the Evidence Plan. In addition, she highlighted that Annex H of PINS Advice Note 11 provides further details regarding Evidence Plans (in a HRA context), available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2021/02/Advice-Note-11-Annex-H-Evidence-Plans.odt SM explained the benefits of the Evidence Plan for all parties, including seeking to agree the evidence required for the Environmental Impact Assessment (EIA) and HRA – see slide 13. She highlighted the key aim of the Evidence Plan is to seek consensus between all parties on the evidence which needs to be collected and the issues to be addressed in the application. SM presented the proposed structure and various groups of the VE Evidence Plan and highlighted the panels in green will feed into the development of the HRA – see slide 19. She explained that Expert Topic Groups (ETGs) will be held during key milestones in the pre-application process. SM explained that the Evidence Plan is governed by a Terms of

	Reference (ToR) (see slide 18) for which stakeholders' agreement will be sought. These terms outline the process and general working rules to be adopted under the Evidence Plan. SM explained that the ToR document has been updated with feedback received in 2019/20 and was being updated to account for feedback from Steering Group members in Q3 2021. She noted that following agreement with the Steering Group members the ToR would be provided to all Evidence Plan members (including all participants of the ETGs) for agreement. HL queried whether the ToR had been sent to PINS earlier in the year. During the meeting CG ensured that a copy had been sent to all Steering Group members and that the revised ToR will be sent out for any further comments– see actions. SM presented the invited members of the VE Steering Group – see slide 20. SM explained the role of the Steering Group was primarily to oversee delivery of the Evidence Plan and to seek to resolve any disagreements raised during ETGs – see slide 21. FM explained the role of the ETGs included providing technical and consistent advice for the sufficiency of evidence required for the Environmental Impact Assessment (EIA) and the Habitats Regulation Assessment (HRA) – see slide 21.
Item 4: ETG Update	FM provided an update on the Evidence Plan meetings held to date – see slide 23. He explained that the majority the ETG panels have been held as pre-scoping meetings in July/ August 2021 and that all will be completed prior to scoping. He explained that the ETGs were previously held in 2019/20 when VE previously intended to make landfall in Suffolk. FM provided a summary of the materials provided to the Evidence Plan members to date - – see slide 24. FM noted that ETG meetings have typically covered project introductions and updates at present. He presented the key themes of information across ETGs – see slide 25. He noted lots of discussions have been undertaken around the scope of the EIA, especially noting the broad onshore AoS. FM provided an update that the onshore ecology ETG provided an opportunity to discuss the principles of survey methods. A useful discussion with LPAs and RSPB was held and the feedback will be considered in the Preliminary Environmental Appraisal (PEA) and field survey planning. FM provided an update that the PEA surveys were starting imminently. FM explained that offshore and intertidal surveys have been consulted on with Cefas, Natural England and the Environment Agency. The agreed methods were presented at the relevant ETGs. Post meeting minute: A summary meeting for Natural England has been arranged for 6th September to provide updates for the ETGs that they were unable to attend.

	FM provided an update that useful discussions about potential impacts across the various council areas had arisen in the onshore human environment ETGs, including tourism and the perception of a cumulative impact from the construction of projects in the region. FM noted that feedback was received on how best to consider future baseline scenarios in respect of commercial shipping from the Shipping and Navigation stakeholders and detailed discussions were held on the list of viewpoint locations for SLVIA. SC highlighted that revised National Policy Statements (NPS) were expected to be coming out shortly. HL confirmed the revised NPSs are coming and could have implications on VE. FM presented the next steps for the SG – see slide 26. FM explained that the roadmap dates are a best current projection but are subject to change. All programme changes will be provided to stakeholders to allow Evidence Plan members to plan resourcing. AG enquired whether a discussion on compensation (on a non-prejudicial basis) would be included in EP process? He also suggested a strategic approach with other projects for any required compensation might be appropriate. RM explained that VE OWFL are currently deciding how best to include compensation discussions with adequate time in the programme without prejudging the assessment. She confirmed that the project will consult in due course. MW agreed with AG's comments and would encourage projects to engage in a commonality of approach to compensation. HL strongly advised that if required, a compensation package is fully worked up and submitted as part of the DCO application. She highlighted that if a package were incomplete, or lacking detail, it would be a risk to the project. RM welcomed this advice.	
Item 5: AoB	No further items raised.	
Actions:	All parties to provide feedback on the ToR circulated. To provide timescales for the revised ToR to be circulated to the Evidence Plan members.	All steering group members VE OWFL

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