Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Project Website and Virtual Exhibition

August 2022
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APFP Regulation: 5(2)(q)

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Title: **Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects Consultation Report** **Appendix 14 – Project Website and Virtual Exhibition**	
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Prepared by: **Counter Context**	
Approved by: **Jan Trønningsdal, Equinor**	Date: August 2022

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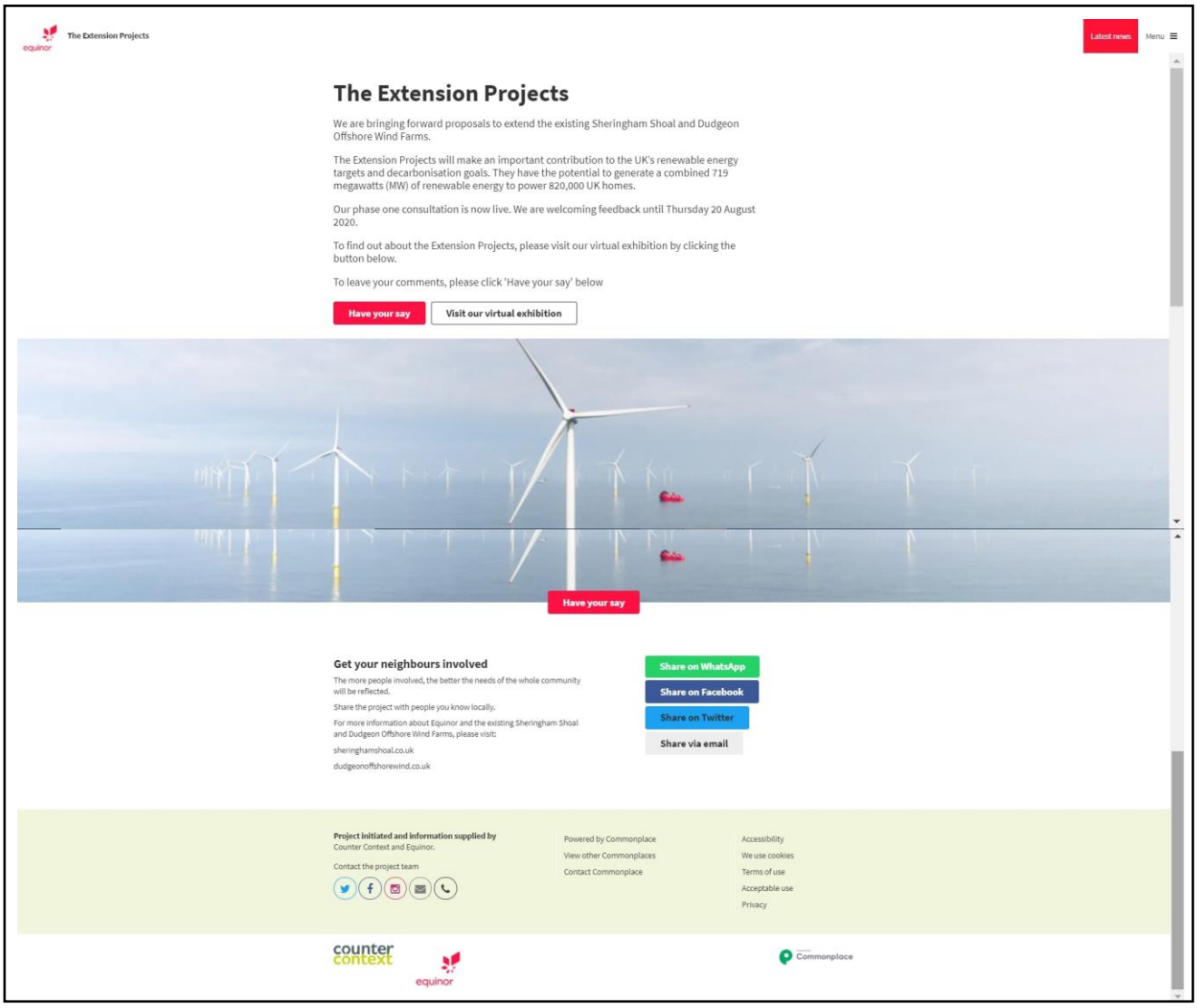

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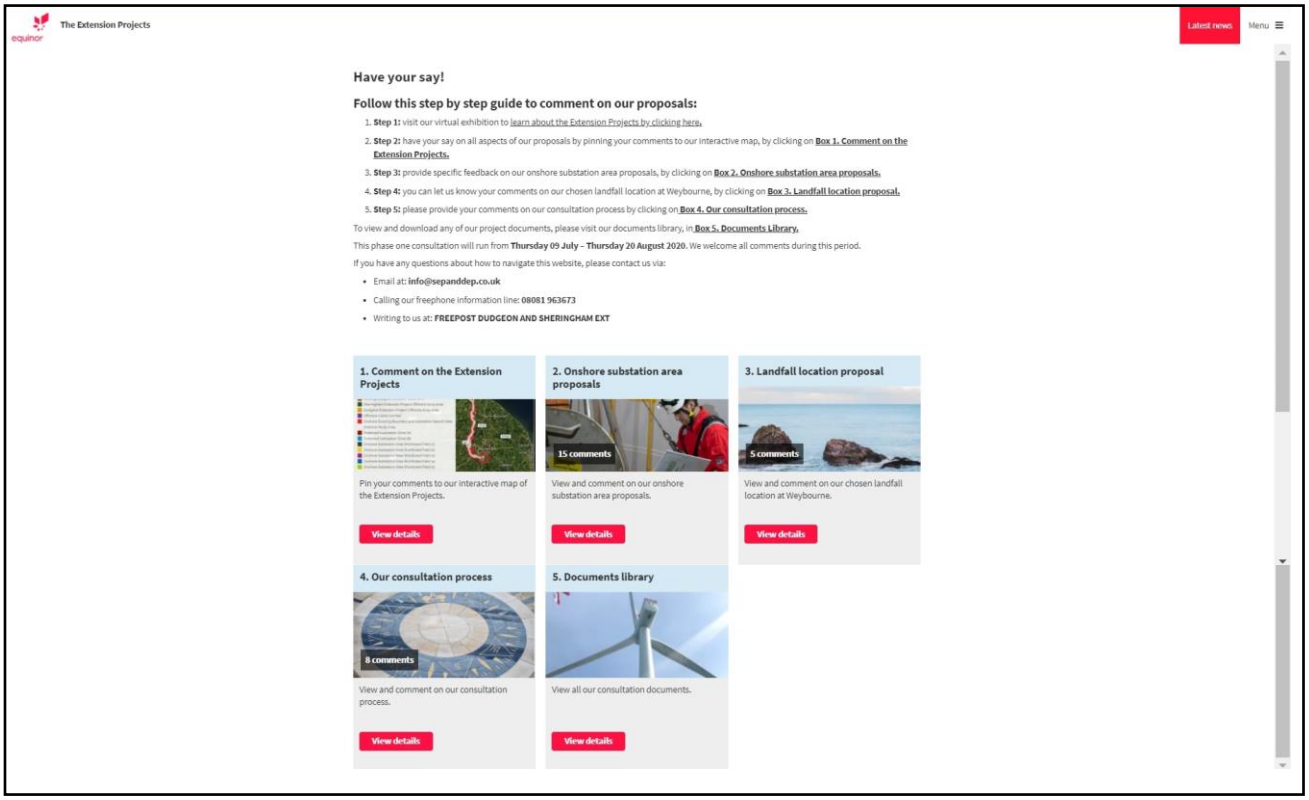

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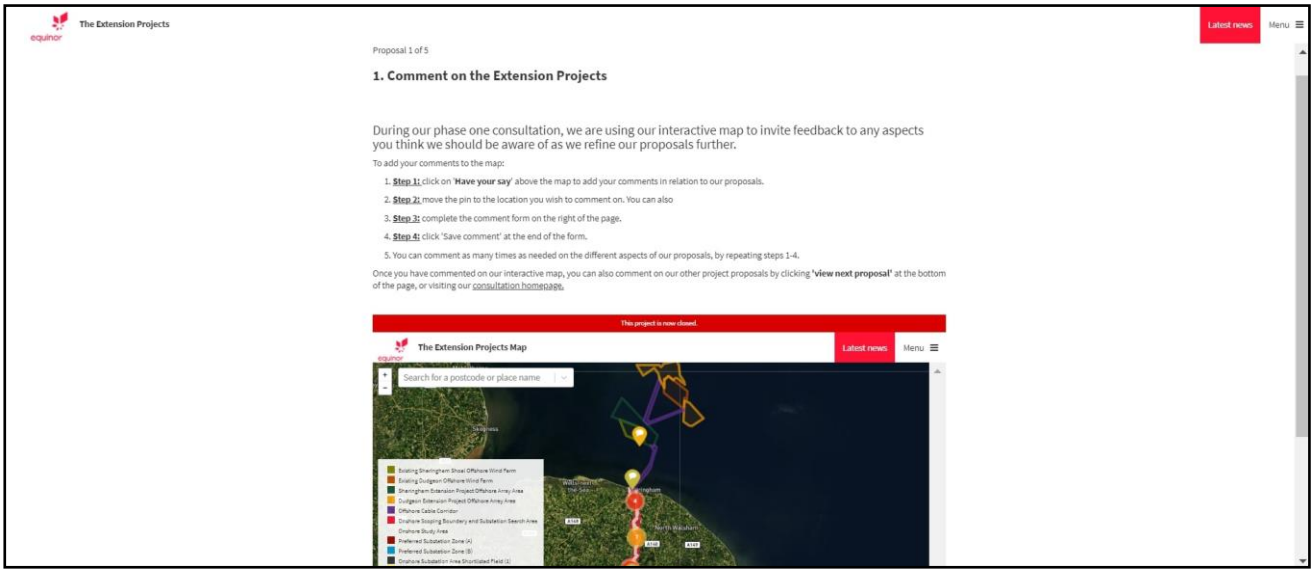

1.4 Substation feedback page

equinor The Extension Projects Latest news Menu

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2. Onshore substation area proposals

15 comments

Please provide your comments to our onshore substation area proposals.

Once you have commented on our onshore substation area proposals, you can also comment on our other project proposals by clicking 'view next proposal' at the bottom of the page, or visiting our consultation homepage.

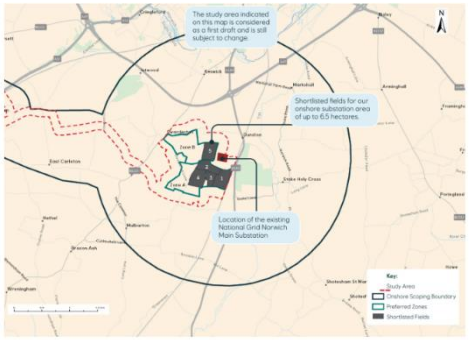
Our onshore substation area proposals

We are in the process of identifying suitable site options for where our onshore substation area could be located.

We have identified two zones, which we are referring to as **Zone A** and **Zone B**, to be most suitable for locating our onshore substation area.

Within these two zones, we have identified a shortlist of **5 potential fields,** which we are referring to as **fields 1-5**, for the substation area. The onshore substation area could be up to 6.5 hectares.

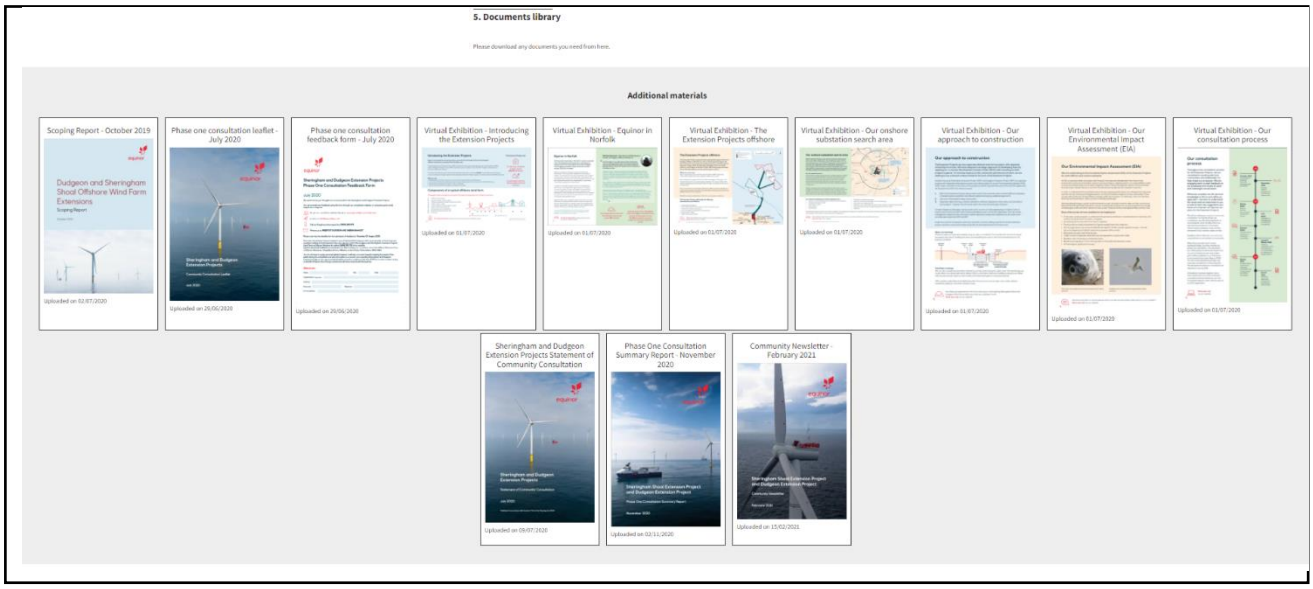
We want to identify **two sites for the onshore substation area** within these fields to take into our phase two consultation in spring 2021.



Our criteria for selecting the most suitable site options will include:

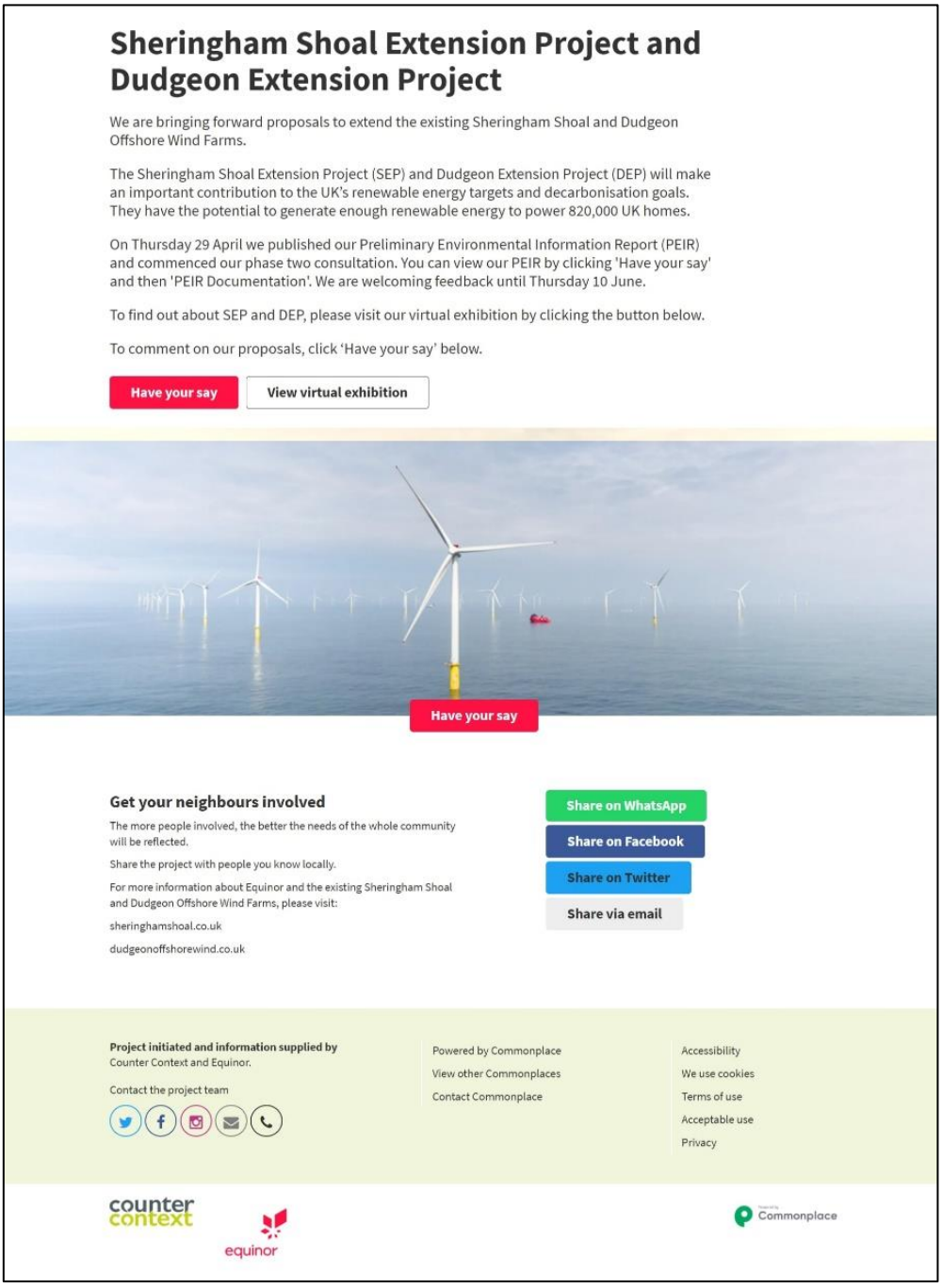
- Proximity to the existing National Grid Norwich Main Substation.
- Transport and access routes
- Public Rights of Way
- Noise impacts
- Visual impact
- Proximity to residential properties
- Impacts to local cultural heritage such as archaeology
- Environmentally designated sites
- Proximity to local conservation areas and Sites of Special Scientific Interest (SSSI)
- Existing and planned high voltage underground electricity cables
- Flood risk

1.5 Document library

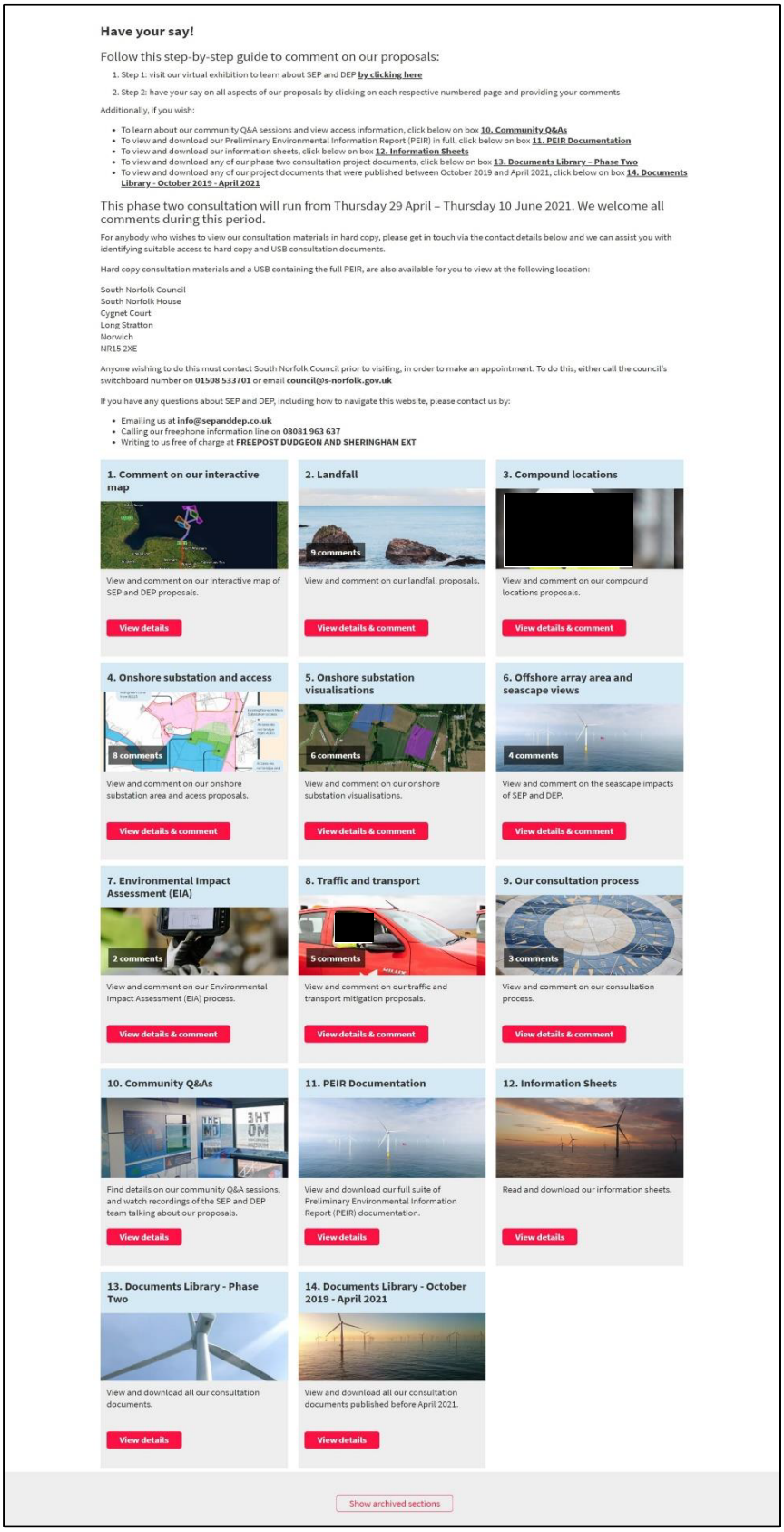


2 Project website at Phase Two consultation

2.1 Project website home page



2.2 Proposal feedback main page



Have your say!

Follow this step-by-step guide to comment on our proposals:

1. Step 1: visit our virtual exhibition to learn about SEP and DEP **by clicking here**
2. Step 2: have your say on all aspects of our proposals by clicking on each respective numbered page and providing your comments

Additionally, if you wish:

- To learn about our community Q&A sessions and view access information, click below on box **10. Community Q&As**
- To view and download our Preliminary Environmental Information Report (PEIR) in full, click below on box **11. PEIR Documentation**
- To view and download our information sheets, click below on box **12. Information Sheets**
- To view and download any of our phase two consultation project documents, click below on box **13. Documents Library – Phase Two**
- To view and download any of our project documents that were published between October 2019 and April 2021, click below on box **14. Documents Library - October 2019 - April 2021**

This phase two consultation will run from Thursday 29 April – Thursday 10 June 2021. We welcome all comments during this period.

For anybody who wishes to view our consultation materials in hard copy, please get in touch via the contact details below and we can assist you with identifying suitable access to hard copy and USB consultation documents.

Hard copy consultation materials and a USB containing the full PEIR, are also available for you to view at the following location:

South Norfolk Council
South Norfolk House
Cygnet Court
Long Stratton
Norwich
NR15 2XE

Anyone wishing to do this must contact South Norfolk Council prior to visiting, in order to make an appointment. To do this, either call the council's switchboard number on **01508 533701** or email **council@s-norfolk.gov.uk**

If you have any questions about SEP and DEP, including how to navigate this website, please contact us by:

- Emailing us at **info@sepanddep.co.uk**
- Calling our freephone information line on **08081 963 637**
- Writing to us free of charge at **FREEPOST DUDGEON AND SHERINGHAM EXT**

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View and download all our consultation documents.
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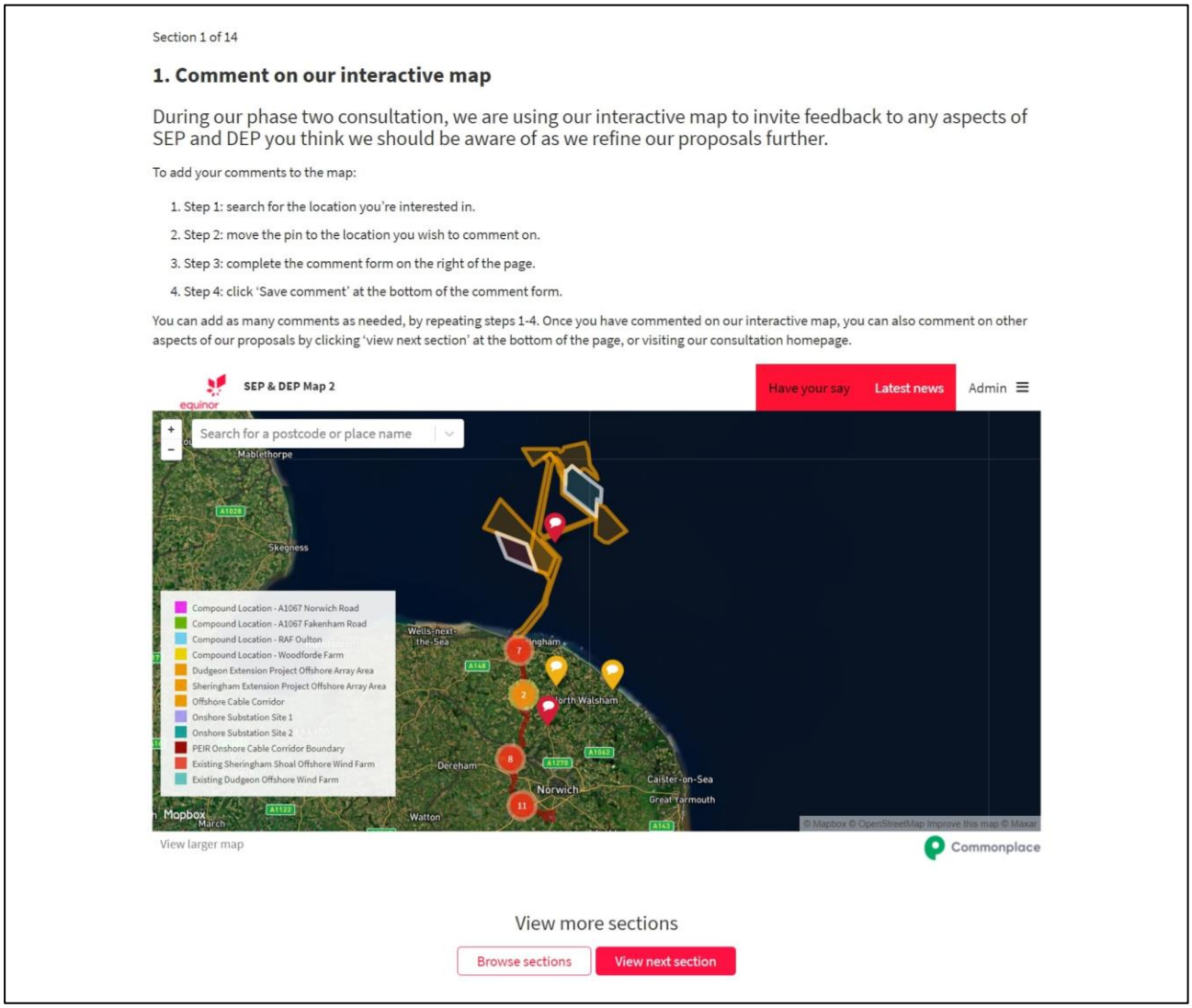
Show archived sections

2.3 Interactive map feedback page



2.4 Landfall feedback page

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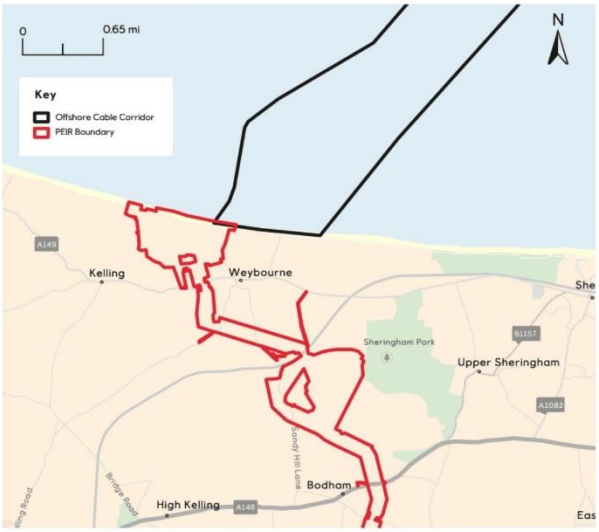
2. Landfall

21 comments

Please view our proposals for landfall below and provide your comments at the bottom of this page.

Once you have commented on our landfall proposals, you can also comment on our other project proposals by clicking 'view next proposal' at the bottom of the page, or visiting our consultation homepage.

Electricity generated by our SEP and DEP turbines offshore will be brought onshore via subsea cables, which will reach the coastline at a point known as the landfall. From the landfall the export cables will be buried underground along a cable route leading to a new onshore substation close to the grid connection point at Norwich Main Substation.



Landfall site selection and Muckleburgh Military Collection

At the time of publishing our Scoping Report in October 2019, two landfall search areas at Weybourne and Bacton were under consideration. However, following a more detailed assessment of each option's technical and environmental constraints, a landfall at Weybourne was selected, to the west of Weybourne beach car park at the Muckleburgh Military Collection. Read more about the selection of the SEP and DEP landfall location in Chapter 4 Site Selection and Assessment of Alternatives of our PEIR, **by clicking here.**

This location benefits from favourable conditions for horizonal directional drilling, to install cable ducts beneath Weybourne beach, minimising disruption to the shoreline and avoiding the need for open trenching within an environmentally sensitive area. The landfall location also benefits from existing access, minimising the need for site access works that would otherwise be required for landfall to the east of Weybourne.

The landfall area comprises a 1,500 metres stretch of coastline that extends west, beyond the preferred drilling location. This provides space for the drilling compound as well as an extended area adjacent to the beach for preparing the ducts within which the cables are installed. The landfall area also extends inland to allow the transition joint bays (where the onshore and offshore cables meet) to be located beyond any areas at risk of natural coastal erosion.

We are in the process of refining the working areas at landfall, including access compound arrangements. We will present a more refined landfall area within our DCO application.

Onshore cable corridor routing from Weybourne to Bodham

We are in the process of refining the onshore cable corridor route from Weybourne to Bodham. Our goal is to select the best route from a balance of technical, environmental and landscape considerations, whilst minimising disruption to local communities.

A number of potential routing options are under consideration through this area, which will be refined down to a single preferred option for the DCO application. The options include:

- Following the alignment of Sandy Hill Lane - the cable(s) would be laid through open cut trenching in the carriageway.
- Following the alignment of Sandy Hill Lane - using trenchless crossing techniques.
- Through commercial forestry (Weybourne Wood) – either by open cut trenching along existing forest tracks, or using trenchless crossing techniques.

It is our preference to use a trenchless crossing beneath Sandy Hill Lane, however more detailed investigation into the ground conditions at this location is required to confirm that this is a feasible option from an engineering perspective. The final option will therefore be based on a balance of technical and environmental considerations as well any feedback received at phase two consultation.

Comment on this section

Do you have any comments on our preferred landfall location, and the routing of onshore cables out of Weybourne?

How do you feel about our proposals at landfall?

Negative Positive

Your comment will be public. Please don't mention any personal details.
By commenting you agree to our terms of use. Read our privacy policy.

Save comment

View more sections

Browse sections View next section

2.5 Compound location feedback page

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3. Compound locations

33 comments

Please view our proposals for construction compounds below and provide your comments at the bottom of this page.

Once you have commented on our main construction compound proposals, you can also comment on our other project proposals by clicking 'view next proposal' at the bottom of the page, or visiting our consultation homepage.

Temporary construction compounds are required to support the onshore cable installation. This will include several secondary compounds along the onshore cable corridor, and up to two main compounds for project offices, welfare facilities, staff parking, and material and equipment storage. In addition, the landfall and substation works would have their own dedicated construction compounds.

We are still in the process of identifying locations for the construction compounds. Key criteria for identifying potential main compound locations include areas with existing infrastructure to reduce the need for initial site establishment works and suitable access to and from the compounds to reduce disruption to the local road network. The size of the main compound(s) will be up to 60,000 metres squared, approximately 14.8 acres, however it may be preferable to use two smaller sites.

In addition to parish council and stakeholder input, key criteria for identifying potential main compound locations included:

- Engineering feasibility – such as proximity to the cable corridor, location along the cable corridor, existing hard standing, available space and existing services.
- Land availability during construction.
- Community / disturbance effects – such as proximity to nearest residential properties, proximity to nearest Public Rights of Way (PRoW) and cumulative community impacts with other similar projects.
- Traffic / transport – such as highway network constraints, access constraints and proximity of access routes to sensitive receptors (schools, retirement homes, residential dwellings, etc).
- Road safety.
- Proximity to sites designated for nature conservation.
- Proximity to sites designated for historic significance.

At this stage, a number of satellite compound locations have been identified, and we have also shortlisted four preferred locations for the main compound, as shown in the map below, from which we will choose up to two main compound locations:

- A1067 Fakenham Road
- Woodforde Farm
- A1067 Norwich Road
- RAF Oulton

The compound site selection report, **available to view and download here**, shows the location of the four shortlisted compound locations in greater detail. Please note that the areas shown in the information sheet are approximate areas, and are not fixed for the proposed main compound locations.

We are welcoming suggestions of additional compound locations which may be suitable for SEP and DEP. These should be areas larger than 20,000 metres squared, with existing hard standing, located in proximity to the onshore cable corridor.

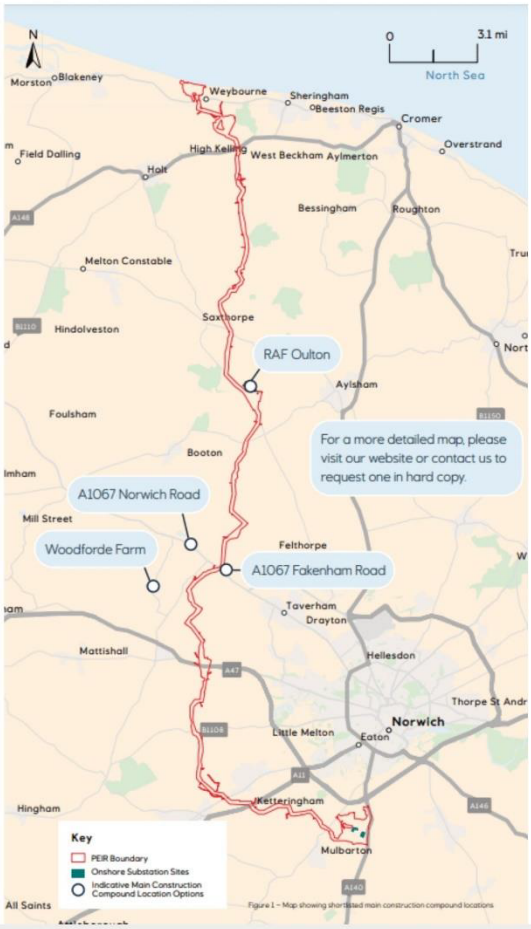
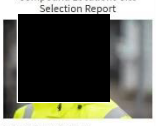


Figure 1 – Map showing shortlisted main construction compound locations

Additional materials

Shortlisted Main Construction Compound Locations Site Selection Report



Uploaded on 21/04/2021

2.6 Onshore substation feedback page

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4. Onshore substation and access

10 comments

Please view our proposals for the onshore substation and access and provide your comments at the bottom of this page.

Once you have commented on our onshore substation and access proposals, you can also comment on our other project proposals by clicking 'view next proposal' at the bottom of the page, or visiting our consultation homepage.

A new onshore substation will be constructed to accommodate both SEP and DEP. We are consulting on two site options close to the existing Norwich Main Substation. Only one of these two options will be taken forward for the DCO application.

In response to your phase one consultation feedback, and further environmental and technical assessment, we have now selected two preferred site options for the location of the onshore substation, as shown in the figure below. Read more about the site selection process for the SEP and DEP onshore substation in Chapter 4 Site Selection and Assessment of Alternatives of the PEIR, **by clicking here.**

Both sites are close to the existing Norwich Main Substation and benefit from existing screening that restricts views from surrounding areas. The sites also allow sufficient space for the Hornsea Project Three connection to Norwich Main Substation.

The onshore substation will require an operational area of up to 6.25 hectares, which will be large enough to accommodate the electrical infrastructure for both SEP and DEP. If only one project comes forward the substation will be up to 3.25 hectares in size. For both scenarios, the maximum building heights within the onshore substation will be 15 m.

Onshore substation access during both construction and operation is an important consideration for determining the final onshore substation location. Our preferred access option is entering via the existing Norwich Main Substation access from the A140, however, this would need to be managed carefully to avoid impacting existing operations at the Norwich Main Substation. Work is ongoing with National Grid to establish the best solution for substation access. As part of this, we are also considering the value of other access routes into the substation area.

We will use the feedback from our phase two consultation, along with further technical and environmental considerations to bring forward one substation site option, along with defined areas for temporary works, permanent and temporary access and landscape mitigation proposals.

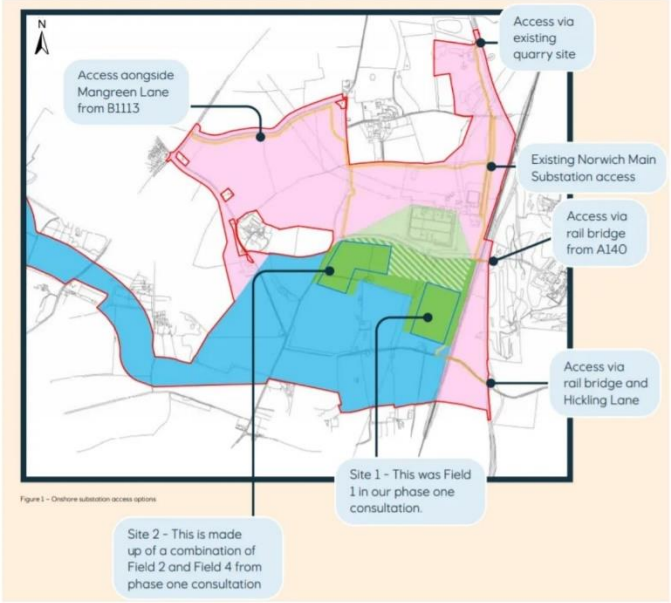

Figure 1 – Onshore substation access options

Comment on this section

Do you have any comments on what it is important for us to consider when refining our onshore substation access options?

Agriculture, recreation and local amenities | Archaeology and local heritage | Ecology and nature conservation | Fisheries and the fishing industry | Landscape and visual impacts | Noise impacts during construction | Tourism and the local economy | Traffic and access during construction | Water resources and flood risk | Other (please detail) | Other

Please elaborate on any important factors for us to take into consideration when refining our access options.

This local knowledge and expertise, alongside ongoing technical, environmental and landscape considerations, will help us select preferred access options as part of our DCO application.

How do you feel about our onshore subtation and access proposals?

Negative — Positive

Your comment will be public. Please don't mention any personal details.
By commenting you agree to our terms of use. Read our privacy policy.

Save comment

View more sections

2.7 Substation visualisation feedback page

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5. Onshore substation visualisations

7 comments

Please view our proposals for onshore substation visualisations below and provide your comments at the bottom of this page.

Once you have commented on our onshore substation visualisation, you can also comment on our other project proposals by clicking 'view next proposal' at the bottom of the page, or visiting our consultation homepage.

Visualisations from key surrounding viewpoints have been prepared for both onshore substation site options. These visualisations are based on worst case design parameters for the onshore substation, without any mitigation in place. It is expected that additional planting to further screen the substation will be identified as part of the final application.

The below map shows the viewpoints from which the substation visual impact was assessed. To view the full Landscape and Visual Impact Assessment, please visit our **PEIR Volume 1 – Chapter 28 Landscape and Visual Impact Assessment**.

The following images show photomontages of the two onshore substation site options that have been considered as part of the SEP and DEP projects

The proposals shown are illustrative schemes and not the final design that would be constructed. No mitigation planting has been included either at the PEIR stage. Both substation and mitigation planting proposals will be determined if development consent is granted. Each photomontage view is accompanied by a photograph of the existing view. The photographs were taken in October and November 2020.

The images are based on the verified visualisations that have been produced in support of the Landscape and Visual Assessment that forms part of the PEIR, but have been adapted so that they can be presented on this consultation platform. This has been achieved through a reduction in image size and resolution.

The verified visualisations that are presented in PEIR Volume 2 – Chapter 28: Landscape and Visual Impact Assessment show clearer photomontages of the two onshore substation site options and have been prepared in accordance with industry guidance on the visual representation of wind farms and development proposals. All of the verified visualisations are available to access via our **PEIR Documentation library**, or directly by visiting **here**.

Visualisations can never exactly match what is experienced in reality. Different lighting, weather and seasonal conditions can affect views on a day-to-day basis.

Viewpoint 2

The below image shows the existing view from viewpoint 2.

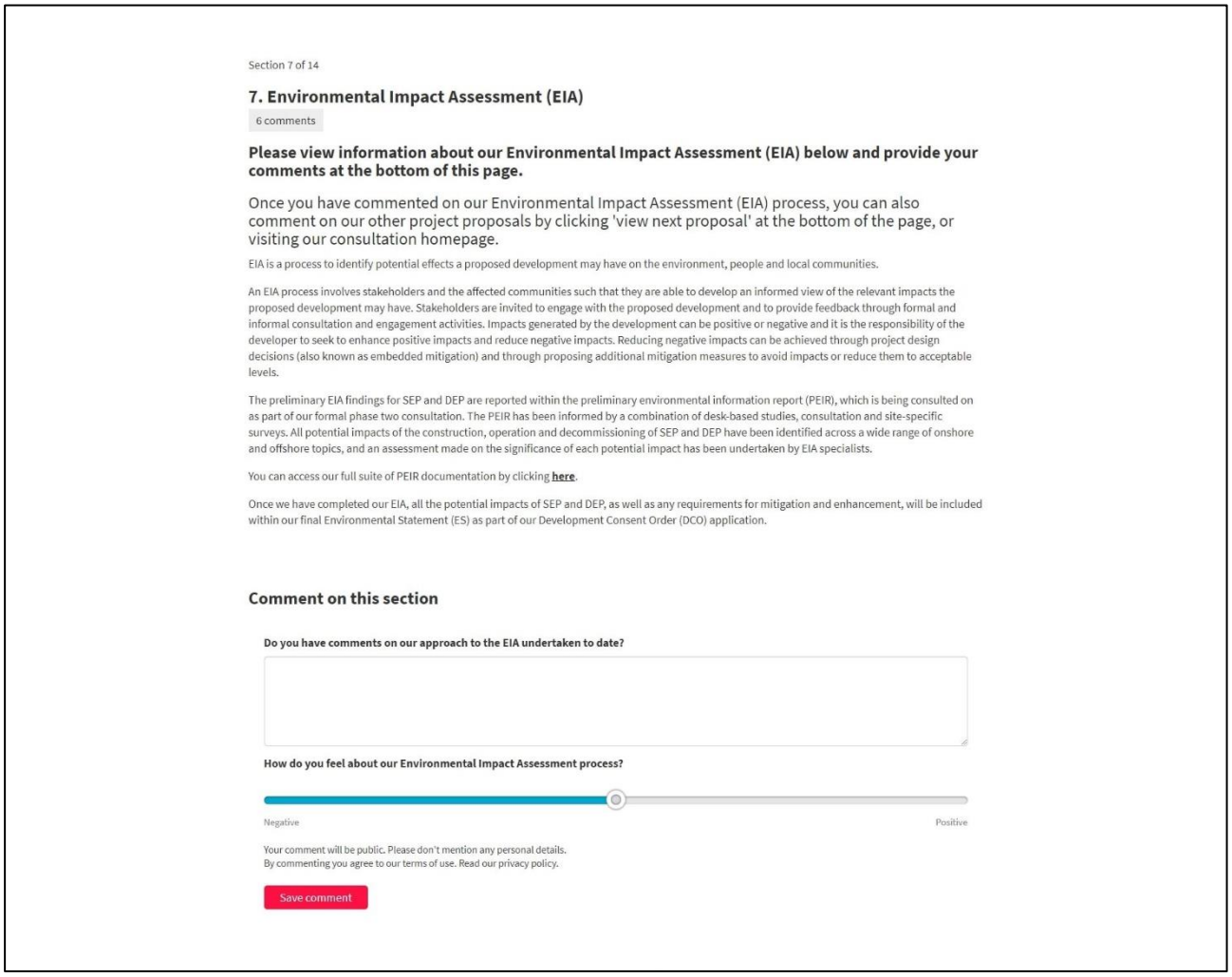
The below slider shows the substation visualisations for site 1 or site 2 from viewpoint 2.

Additional materials

Landscape and Visual Impact Assessment Figures

Uploaded on 27/04/2021

2.8 EIA feedback page



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7. Environmental Impact Assessment (EIA)

6 comments

Please view information about our Environmental Impact Assessment (EIA) below and provide your comments at the bottom of this page.

Once you have commented on our Environmental Impact Assessment (EIA) process, you can also comment on our other project proposals by clicking 'view next proposal' at the bottom of the page, or visiting our consultation homepage.

EIA is a process to identify potential effects a proposed development may have on the environment, people and local communities.

An EIA process involves stakeholders and the affected communities such that they are able to develop an informed view of the relevant impacts the proposed development may have. Stakeholders are invited to engage with the proposed development and to provide feedback through formal and informal consultation and engagement activities. Impacts generated by the development can be positive or negative and it is the responsibility of the developer to seek to enhance positive impacts and reduce negative impacts. Reducing negative impacts can be achieved through project design decisions (also known as embedded mitigation) and through proposing additional mitigation measures to avoid impacts or reduce them to acceptable levels.

The preliminary EIA findings for SEP and DEP are reported within the preliminary environmental information report (PEIR), which is being consulted on as part of our formal phase two consultation. The PEIR has been informed by a combination of desk-based studies, consultation and site-specific surveys. All potential impacts of the construction, operation and decommissioning of SEP and DEP have been identified across a wide range of onshore and offshore topics, and an assessment made on the significance of each potential impact has been undertaken by EIA specialists.

You can access our full suite of PEIR documentation by clicking **here**.

Once we have completed our EIA, all the potential impacts of SEP and DEP, as well as any requirements for mitigation and enhancement, will be included within our final Environmental Statement (ES) as part of our Development Consent Order (DCO) application.

Comment on this section

Do you have comments on our approach to the EIA undertaken to date?

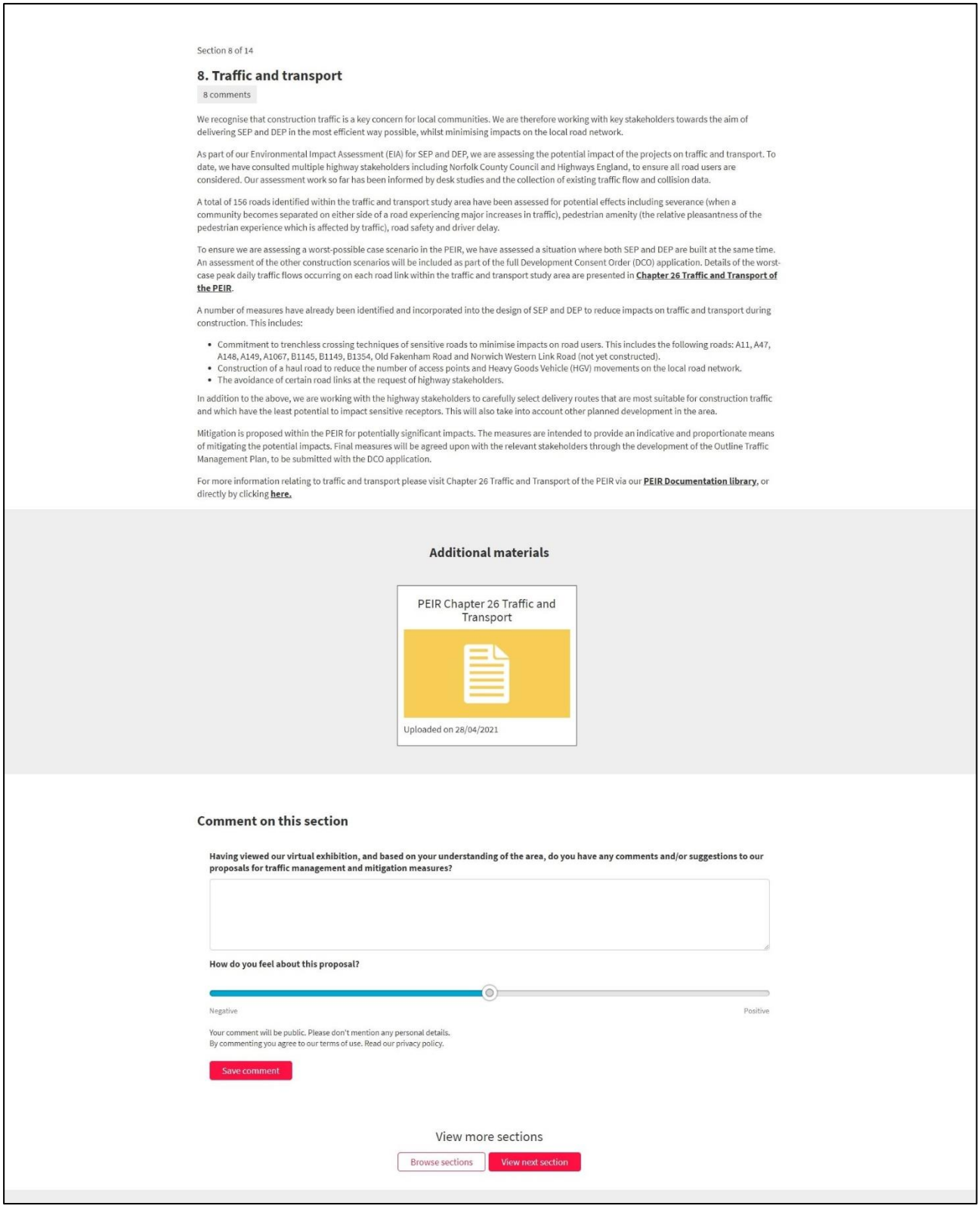
How do you feel about our Environmental Impact Assessment process?

Negative Positive

Your comment will be public. Please don't mention any personal details.
By commenting you agree to our terms of use. Read our privacy policy.

Save comment

2.9 Traffic and transport feedback page



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8. Traffic and transport

8 comments

We recognise that construction traffic is a key concern for local communities. We are therefore working with key stakeholders towards the aim of delivering SEP and DEP in the most efficient way possible, whilst minimising impacts on the local road network.

As part of our Environmental Impact Assessment (EIA) for SEP and DEP, we are assessing the potential impact of the projects on traffic and transport. To date, we have consulted multiple highway stakeholders including Norfolk County Council and Highways England, to ensure all road users are considered. Our assessment work so far has been informed by desk studies and the collection of existing traffic flow and collision data.

A total of 156 roads identified within the traffic and transport study area have been assessed for potential effects including severance (when a community becomes separated on either side of a road experiencing major increases in traffic), pedestrian amenity (the relative pleasantness of the pedestrian experience which is affected by traffic), road safety and driver delay.

To ensure we are assessing a worst-possible case scenario in the PEIR, we have assessed a situation where both SEP and DEP are built at the same time. An assessment of the other construction scenarios will be included as part of the full Development Consent Order (DCO) application. Details of the worst-case peak daily traffic flows occurring on each road link within the traffic and transport study area are presented in **Chapter 26 Traffic and Transport of the PEIR**.

A number of measures have already been identified and incorporated into the design of SEP and DEP to reduce impacts on traffic and transport during construction. This includes:

- Commitment to trenchless crossing techniques of sensitive roads to minimise impacts on road users. This includes the following roads: A11, A47, A148, A149, A1067, B1145, B1149, B1354, Old Fakenham Road and Norwich Western Link Road (not yet constructed).
- Construction of a haul road to reduce the number of access points and Heavy Goods Vehicle (HGV) movements on the local road network.
- The avoidance of certain road links at the request of highway stakeholders.

In addition to the above, we are working with the highway stakeholders to carefully select delivery routes that are most suitable for construction traffic and which have the least potential to impact sensitive receptors. This will also take into account other planned development in the area.

Mitigation is proposed within the PEIR for potentially significant impacts. The measures are intended to provide an indicative and proportionate means of mitigating the potential impacts. Final measures will be agreed upon with the relevant stakeholders through the development of the Outline Traffic Management Plan, to be submitted with the DCO application.

For more information relating to traffic and transport please visit Chapter 26 Traffic and Transport of the PEIR via our **PEIR Documentation library**, or directly by clicking **here.**

Additional materials

PEIR Chapter 26 Traffic and Transport

Uploaded on 28/04/2021

Comment on this section

Having viewed our virtual exhibition, and based on your understanding of the area, do you have any comments and/or suggestions to our proposals for traffic management and mitigation measures?

How do you feel about this proposal?

Negative Positive

Your comment will be public. Please don't mention any personal details.
By commenting you agree to our terms of use. Read our privacy policy.

Save comment

View more sections

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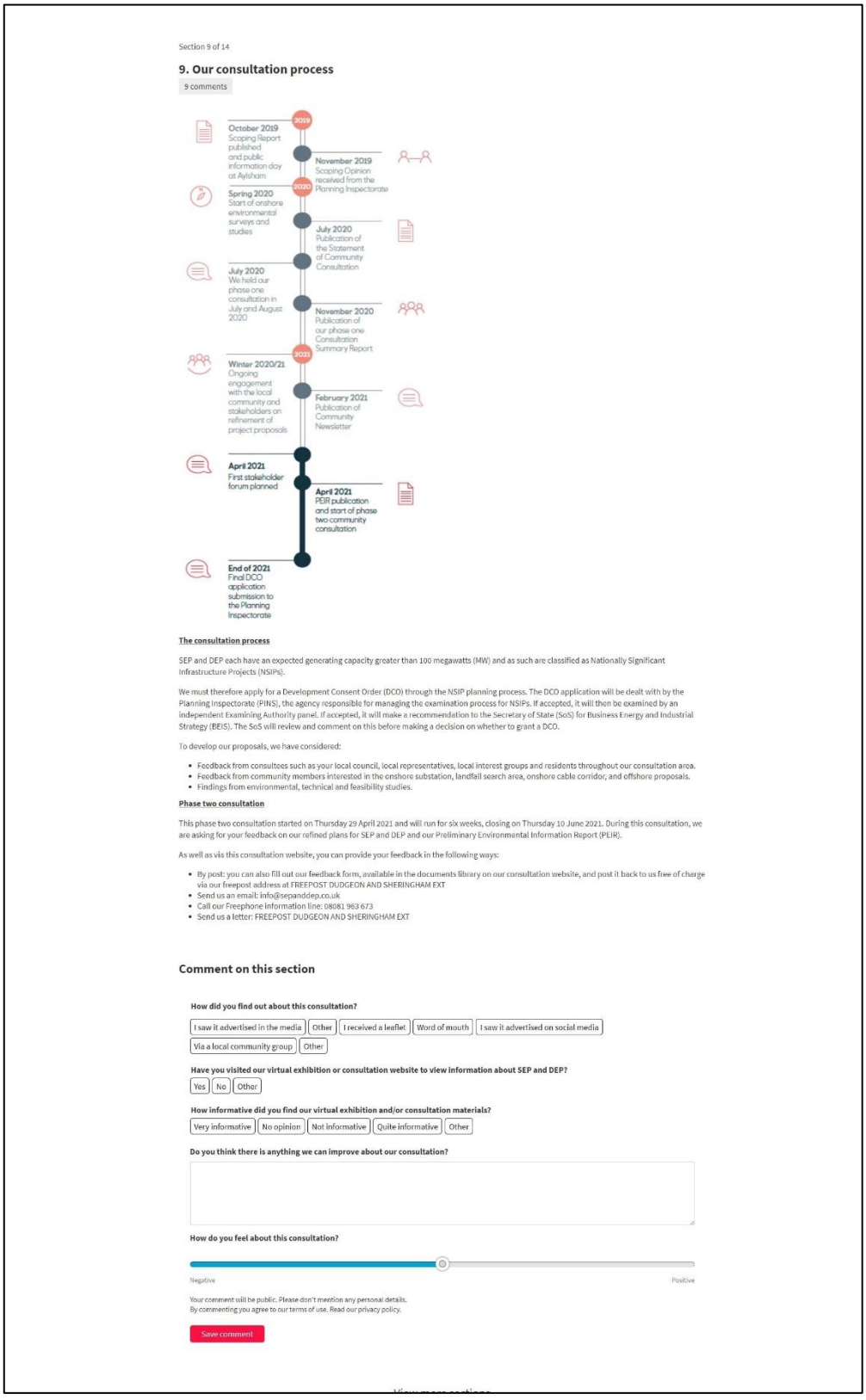
2.10 Consultation process feedback page



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9. Our consultation process

9 comments

The consultation process

SEP and DEP each have an expected generating capacity greater than 100 megawatts (MW) and as such are classified as Nationally Significant Infrastructure Projects (NSIPs).

We must therefore apply for a Development Consent Order (DCO) through the NSIP planning process. The DCO application will be dealt with by the Planning Inspectorate (PINS), the agency responsible for managing the examination process for NSIPs. If accepted, it will then be examined by an independent Examining Authority panel. If accepted, it will make a recommendation to the Secretary of State (SoS) for Business Energy and Industrial Strategy (BEIS). The SoS will review and comment on this before making a decision on whether to grant a DCO.

To develop our proposals, we have considered:

- Feedback from consultees such as your local council, local representatives, local interest groups and residents throughout our consultation area.
- Feedback from community members interested in the onshore substation, landfall search area, onshore cable corridor, and offshore proposals.
- Findings from environmental, technical and feasibility studies.

Phase two consultation

This phase two consultation started on Thursday 29 April 2021 and will run for six weeks, closing on Thursday 10 June 2021. During this consultation, we are asking for your feedback on our refined plans for SEP and DEP and our Preliminary Environmental Information Report (PEIR).

As well as via this consultation website, you can provide your feedback in the following ways:

- By post: you can also fill out our feedback form, available in the documents library on our consultation website, and post it back to us free of charge via our freepost address at FREEPOST DUDGEON AND SHERINGHAM EXT
- Send us an email: info@sepanddep.co.uk
- Call our Freephone information line: 08081 963 673
- Send us a letter: FREEPOST DUDGEON AND SHERINGHAM EXT

Comment on this section

How did you find out about this consultation?

I saw it advertised in the media | Other | I received a leaflet | Word of mouth | I saw it advertised on social media | Via a local community group | Other

Have you visited our virtual exhibition or consultation website to view information about SEP and DEP?

Yes | No | Other

How informative did you find our virtual exhibition and/or consultation materials?

Very informative | No opinion | Not informative | Quite informative | Other

Do you think there is anything we can improve about our consultation?

How do you feel about this consultation?

Negative — Positive

Your comment will be public. Please don't mention any personal details.
By commenting you agree to our terms of use. Read our privacy policy.

Save comment

View more sections

2.11 Community Q&As page

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10. Community Q&As

We are holding a series of virtual Community Q&A Sessions during our phase two consultation period to provide you with the opportunity to learn about our proposals from the project team and ask them your questions.

These events are themed around different aspects of our proposals that have been highlighted by the community as important. However, if you are unable to attend your preferred event, your questions will be answered at any session.

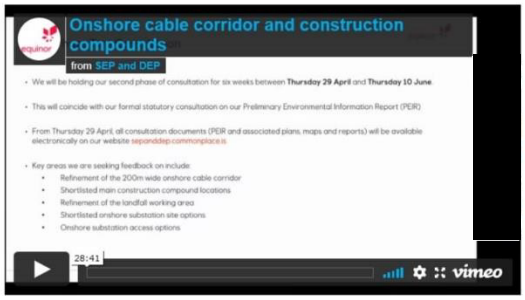
The Community Q&A Sessions will be held through an accessible online platform, with the option for attendees to dial in via phone. The Community Q&A Sessions will be attended by the SEP and DEP project team, and presentations on the Q&A topics are available to watch below, prior to the sessions.

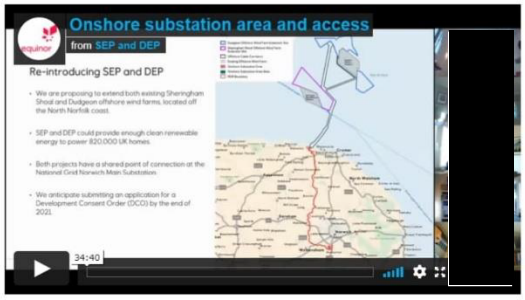
A detailed step-by-step guide for how to access our community webinars, along with webinar links, telephone dial-in details, and topic presentations, is available at the bottom of this page.

Community Q&A dates, topics and webinar links:

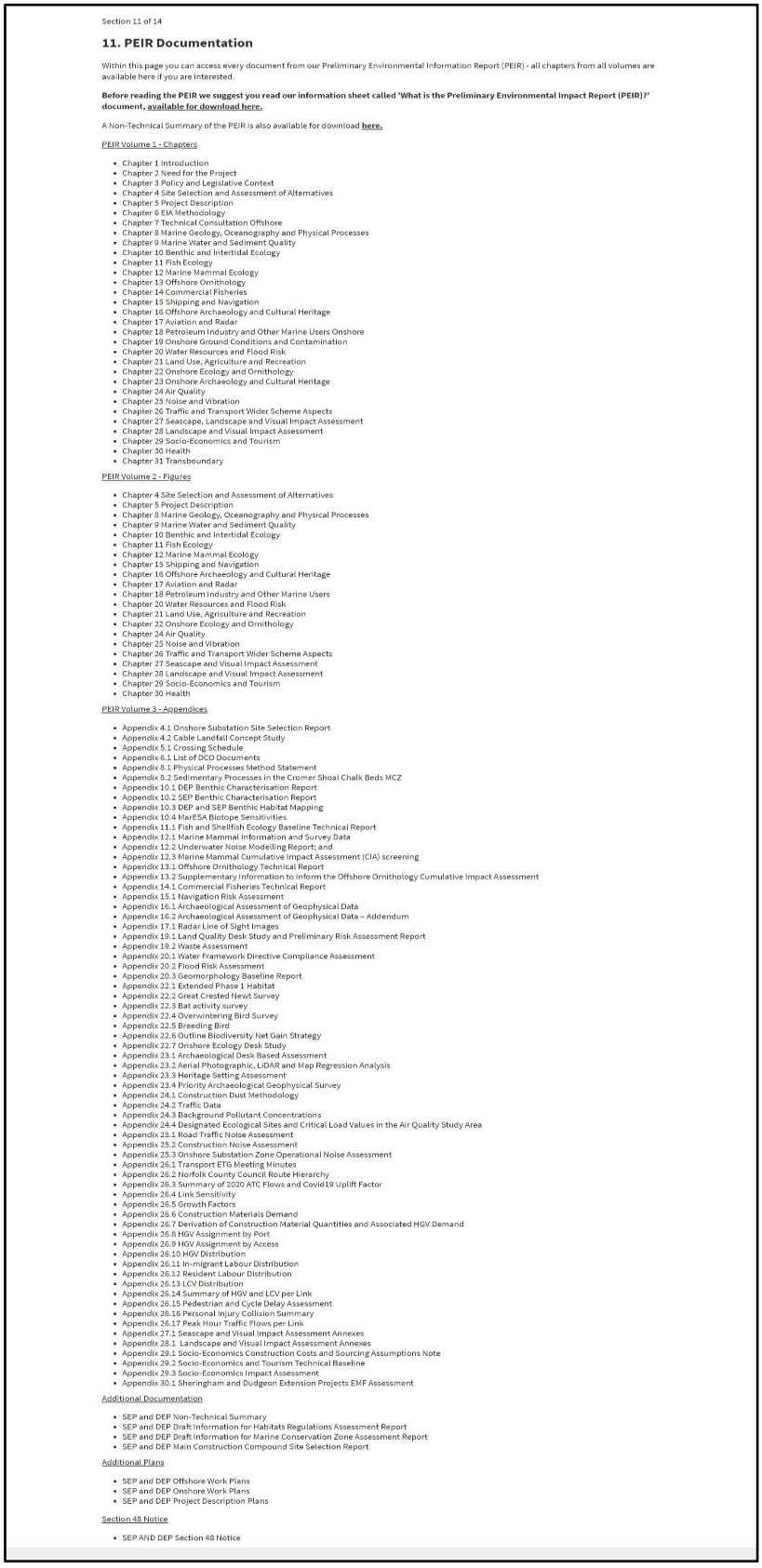
- **Tuesday 11 May 2pm – 4pm – Onshore substation and the grid connection** [redacted]
- **Tuesday 18 May 6pm – 8pm – Landfall**: [redacted]
- **Tuesday 25 May 10am – 12pm – Onshore cable corridor:** [redacted]
- **Thursday 27 May 6pm – 8pm – Offshore proposals and seascape impacts**: [redacted]
- **Wednesday 2 June 6pm – 8pm – Onshore cable corridor** [redacted]

Before attending our Community Q&A Sessions, we recommend watching the relevant recording of the presentations given by the SEP and DEP project team to elected members during the webinars held from Monday 26 - Wednesday 28 April.





2.12 PEIR Documentation page



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11. PEIR Documentation

Within this page you can access every document from our Preliminary Environmental Information Report (PEIR) - all chapters from all volumes are available here if you are interested.

Before reading the PEIR we suggest you read our information sheet called 'What is the Preliminary Environmental Impact Report (PEIR)?' document, available for download here.

A Non-Technical Summary of the PEIR is also available for download **here.**

PEIR Volume 1 - Chapters

- Chapter 1 Introduction
- Chapter 2 Need for the Project
- Chapter 3 Policy and Legislative Context
- Chapter 4 Site Selection and Assessment of Alternatives
- Chapter 5 Project Description
- Chapter 6 EIA Methodology
- Chapter 7 Technical Consultation Offshore
- Chapter 8 Marine Geology, Oceanography and Physical Processes
- Chapter 9 Marine Water and Sediment Quality
- Chapter 10 Benthic and Intertidal Ecology
- Chapter 11 Fish Ecology
- Chapter 12 Marine Mammal Ecology
- Chapter 13 Offshore Ornithology
- Chapter 14 Commercial Fisheries
- Chapter 15 Shipping and Navigation
- Chapter 16 Offshore Archaeology and Cultural Heritage
- Chapter 17 Aviation and Radar
- Chapter 18 Petroleum Industry and Other Marine Users Onshore
- Chapter 19 Onshore Ground Conditions and Contamination
- Chapter 20 Water Resources and Flood Risk
- Chapter 21 Land Use, Agriculture and Recreation
- Chapter 22 Onshore Ecology and Ornithology
- Chapter 23 Onshore Archaeology and Cultural Heritage
- Chapter 24 Air Quality
- Chapter 25 Noise and Vibration
- Chapter 26 Traffic and Transport Wider Scheme Aspects
- Chapter 27 Seascape, Landscape and Visual Impact Assessment
- Chapter 28 Landscape and Visual Impact Assessment
- Chapter 29 Socio-Economics and Tourism
- Chapter 30 Health
- Chapter 31 Transboundary

PEIR Volume 2 - Figures

- Chapter 4 Site Selection and Assessment of Alternatives
- Chapter 5 Project Description
- Chapter 8 Marine Geology, Oceanography and Physical Processes
- Chapter 9 Marine Water and Sediment Quality
- Chapter 10 Benthic and Intertidal Ecology
- Chapter 11 Fish Ecology
- Chapter 12 Marine Mammal Ecology
- Chapter 13 Shipping and Navigation
- Chapter 16 Offshore Archaeology and Cultural Heritage
- Chapter 17 Aviation and Radar
- Chapter 18 Petroleum Industry and Other Marine Users
- Chapter 20 Water Resources and Flood Risk
- Chapter 21 Land Use, Agriculture and Recreation
- Chapter 22 Onshore Ecology and Ornithology
- Chapter 24 Air Quality
- Chapter 25 Noise and Vibration
- Chapter 26 Traffic and Transport Wider Scheme Aspects
- Chapter 27 Seascape and Visual Impact Assessment
- Chapter 28 Landscape and Visual Impact Assessment
- Chapter 29 Socio-Economics and Tourism
- Chapter 30 Health

PEIR Volume 3 - Appendices

- Appendix 4.1 Onshore Substation Site Selection Report
- Appendix 4.2 Cable Landfall Concept Study
- Appendix 5.1 Crossing Schedule
- Appendix 6.1 List of DCO Documents
- Appendix 8.1 Physical Processes Method Statement
- Appendix 8.2 Sedimentary Processes in the Cromer Shoal Chalk Beds MCZ
- Appendix 10.1 DEP Benthic Characterisation Report
- Appendix 10.2 SEP Benthic Characterisation Report
- Appendix 10.3 DEP and SEP Benthic Habitat Mapping
- Appendix 10.4 MarESA Biotope Sensitivities
- Appendix 11.1 Fish and Shellfish Ecology Baseline Technical Report
- Appendix 12.1 Marine Mammal Information and Survey Data
- Appendix 12.2 Underwater Noise Modelling Report; and
- Appendix 12.3 Marine Mammal Cumulative Impact Assessment (CIA) screening
- Appendix 13.1 Offshore Ornithology Technical Report
- Appendix 13.2 Supplementary Information to inform the Offshore Ornithology Cumulative Impact Assessment
- Appendix 14.1 Commercial Fisheries Technical Report
- Appendix 15.1 Navigation Risk Assessment
- Appendix 16.1 Archaeological Assessment of Geophysical Data
- Appendix 16.2 Archaeological Assessment of Geophysical Data – Addendum
- Appendix 17.1 Radar Line of Sight Images
- Appendix 19.1 Land Quality Desk Study and Preliminary Risk Assessment Report
- Appendix 19.2 Waste Assessment
- Appendix 20.1 Water Framework Directive Compliance Assessment
- Appendix 20.2 Flood Risk Assessment
- Appendix 20.3 Geomorphology Baseline Report
- Appendix 22.1 Extended Phase 1 Habitat
- Appendix 22.2 Great Crested Newt Survey
- Appendix 22.3 Bat activity survey
- Appendix 22.4 Overwintering Bird Survey
- Appendix 22.5 Breeding Bird
- Appendix 22.6 Outline Biodiversity Net Gain Strategy
- Appendix 22.7 Onshore Ecology Desk Study
- Appendix 23.1 Archaeological Desk Based Assessment
- Appendix 23.2 Aerial Photographic, LiDAR and Map Regression Analysis
- Appendix 23.3 Heritage Setting Assessment
- Appendix 23.4 Priority Archaeological Geophysical Survey
- Appendix 24.1 Construction Dust Methodology
- Appendix 24.2 Traffic Data
- Appendix 24.3 Background Pollutant Concentrations
- Appendix 24.4 Designated Ecological Sites and Critical Load Values in the Air Quality Study Area
- Appendix 25.1 Road Traffic Noise Assessment
- Appendix 25.2 Construction Noise Assessment
- Appendix 25.3 Onshore Substation Zone Operational Noise Assessment
- Appendix 26.1 Transport ETG Meeting Minutes
- Appendix 26.2 Norfolk County Council Route Hierarchy
- Appendix 26.3 Summary of 2020 ATC Flows and Covid19 Uplift Factor
- Appendix 26.4 Link Sensitivity
- Appendix 26.5 Growth Factors
- Appendix 26.6 Construction Materials Demand
- Appendix 26.7 Derivation of Construction Material Quantities and Associated HGV Demand
- Appendix 26.8 HGV Assignment by Port
- Appendix 26.9 HGV Assignment by Access
- Appendix 26.10 HGV Distribution
- Appendix 26.11 In-migrant Labour Distribution
- Appendix 26.12 Resident Labour Distribution
- Appendix 26.13 LCV Distribution
- Appendix 26.14 Summary of HGV and LCV per Link
- Appendix 26.15 Pedestrian and Cycle Delay Assessment
- Appendix 26.16 Personal Injury Collision Summary
- Appendix 26.17 Peak Hour Traffic Flows per Link
- Appendix 27.1 Seascape and Visual Impact Assessment Annexes
- Appendix 28.1 Landscape and Visual Impact Assessment Annexes
- Appendix 29.1 Socio-Economics Construction Costs and Sourcing Assumptions Note
- Appendix 29.2 Socio-Economics and Tourism Technical Baseline
- Appendix 29.3 Socio-Economics Impact Assessment
- Appendix 30.1 Sheringham and Dudgeon Extension Projects EMF Assessment

Additional Documentation

- SEP and DEP Non-Technical Summary
- SEP and DEP Draft Information for Habitats Regulations Assessment Report
- SEP and DEP Draft Information for Marine Conservation Zone Assessment Report
- SEP and DEP Main Construction Compound Site Selection Report

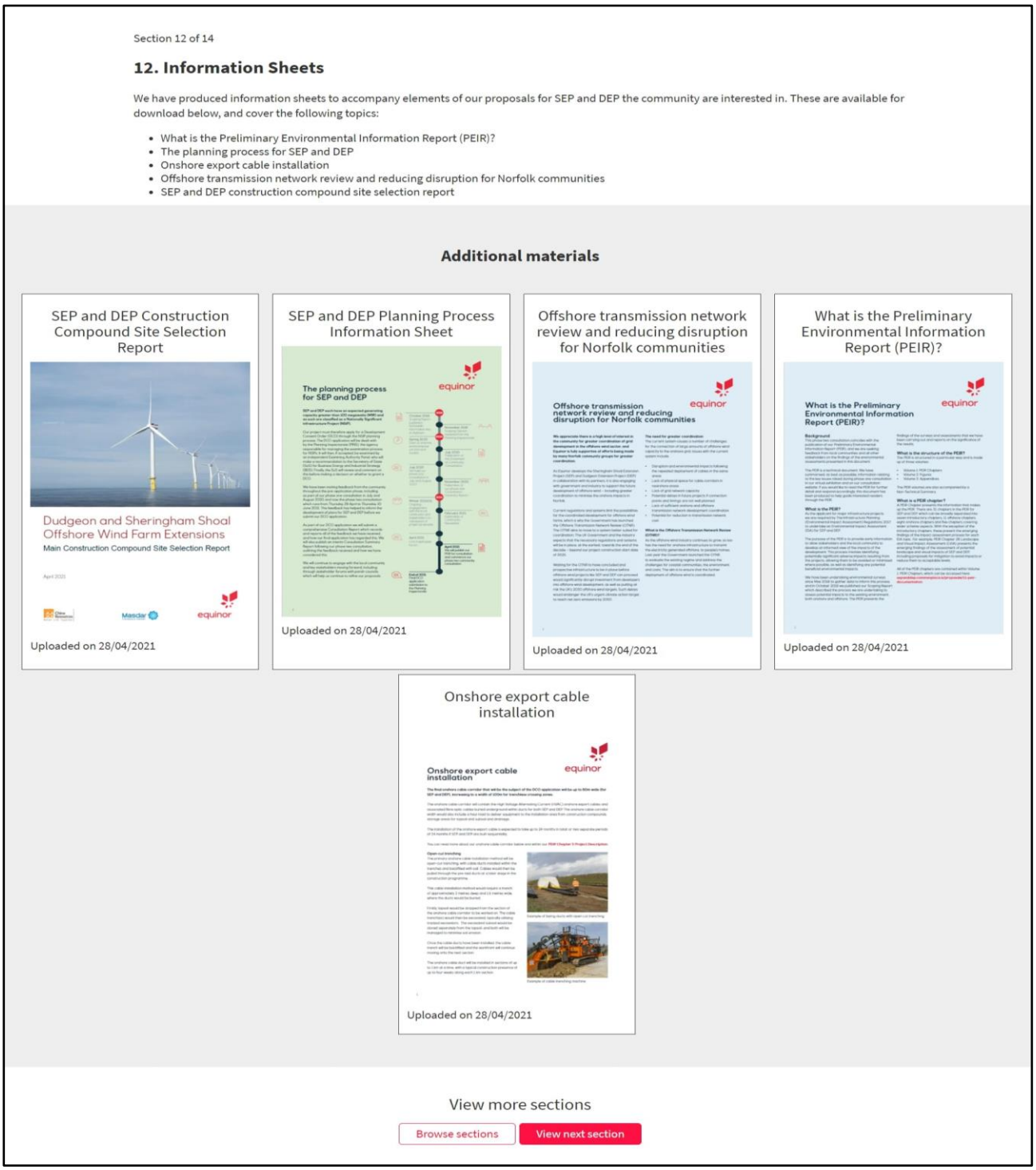
Additional Plans

- SEP and DEP Offshore Work Plans
- SEP and DEP Onshore Work Plans
- SEP and DEP Project Description Plans

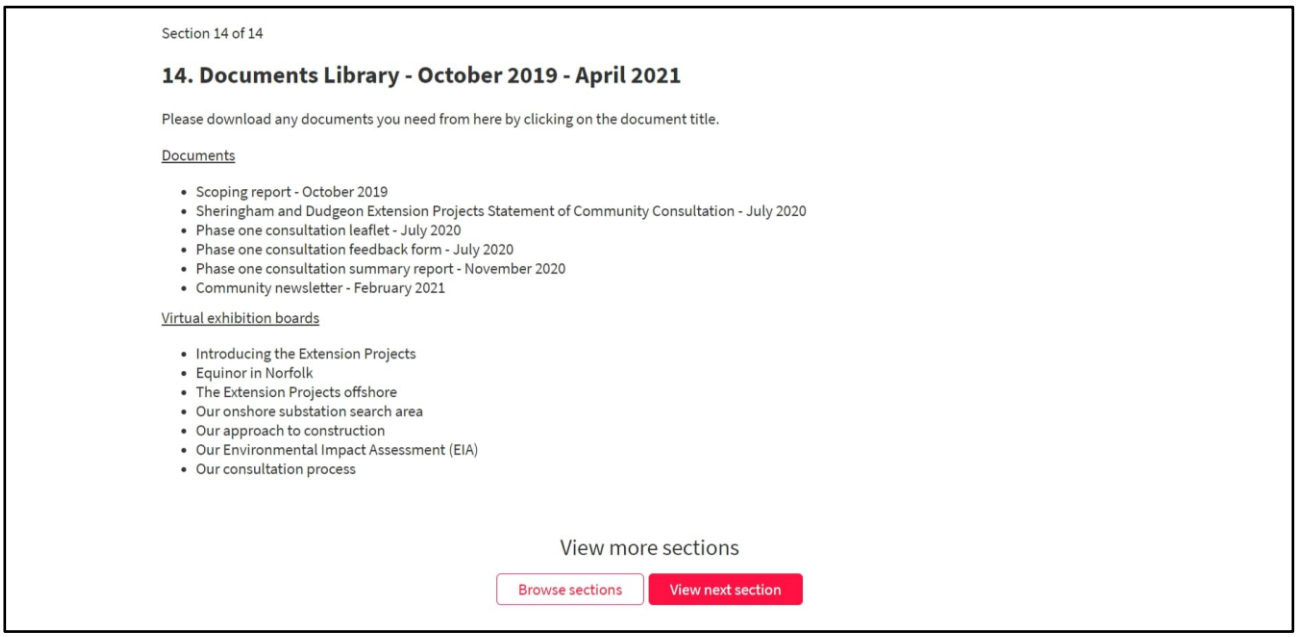
Section 48 Notice

- SEP AND DEP Section 48 Notice

2.13 Information Sheets page



2.14 Documents library – October 2019 – April 2021 page



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14. Documents Library - October 2019 - April 2021

Please download any documents you need from here by clicking on the document title.

Documents

- Scoping report - October 2019
- Sheringham and Dudgeon Extension Projects Statement of Community Consultation - July 2020
- Phase one consultation leaflet - July 2020
- Phase one consultation feedback form - July 2020
- Phase one consultation summary report - November 2020
- Community newsletter - February 2021

Virtual exhibition boards

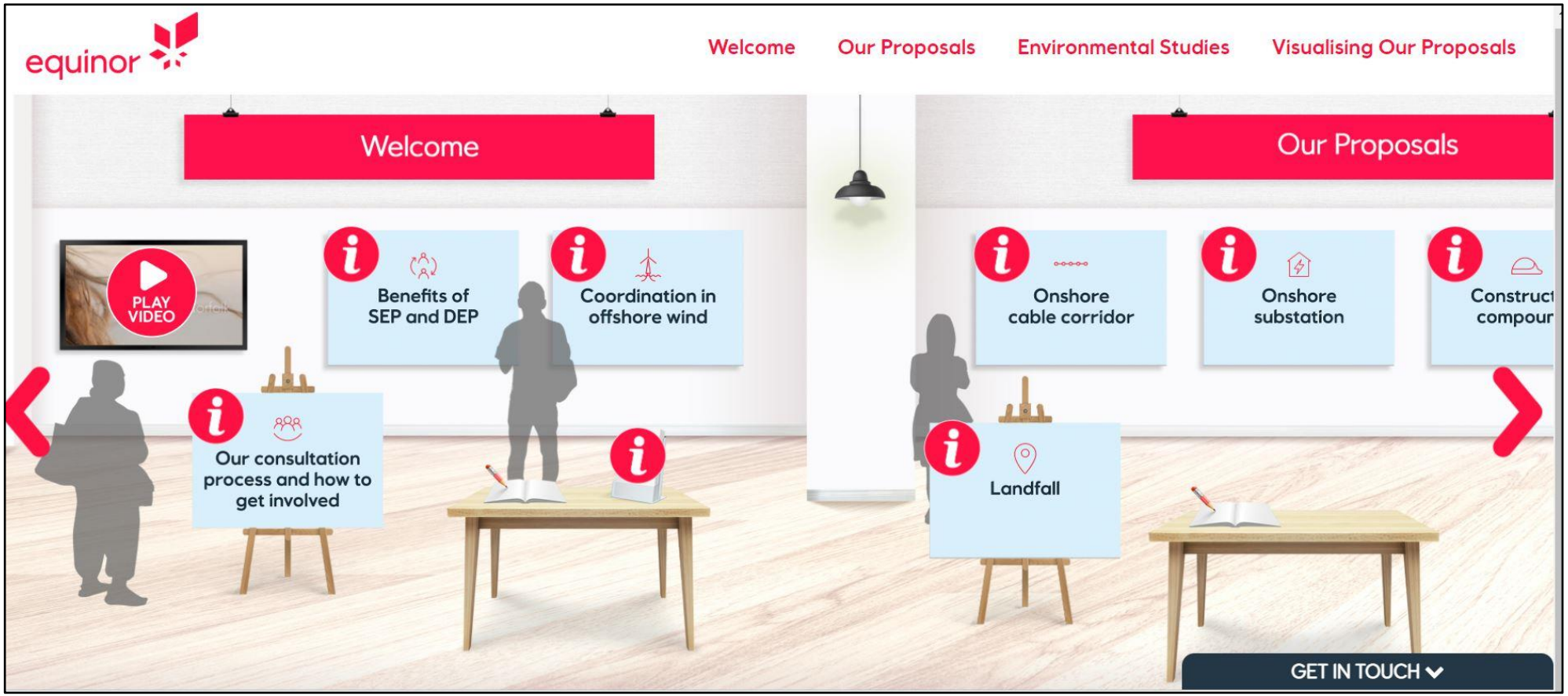
- Introducing the Extension Projects
- Equinor in Norfolk
- The Extension Projects offshore
- Our onshore substation search area
- Our approach to construction
- Our Environmental Impact Assessment (EIA)
- Our consultation process

View more sections

Browse sections | View next section

3 Virtual Exhibition

3.1 Virtual Exhibition home



3.2 Benefits of SEP & DEP

Benefits of SEP and DEP

Equinor is a long-term partner for Norfolk and has been an active member of the community for over a decade through the Sheringham Shoal and Dudgeon wind farms it operates off the Norfolk coast.

Equinor is the operator of the existing Sheringham Shoal and Dudgeon Offshore Wind Farms and is now proposing to extend these assets on behalf of their two operational partnerships. By proposing to extend both offshore wind farms, Equinor is contributing towards achieving the UK Government's ambition of 40 gigawatts (GW) of offshore wind capacity by 2030. This will help the UK to address climate change and reach its target of net-zero carbon emissions by 2050.

Dudgeon Offshore Wind Farm and Sheringham Shoal Offshore Wind Farm

Dudgeon Offshore Wind Farm is owned by Equinor, Masdar and China Resources. **Sheringham Shoal Offshore Wind Farm** is owned by Equinor, Equitix and Green Investment Group.

Both wind farms have established community funds of **£100,000** per year which in total have awarded over £1 million to projects in Norfolk.

The funds were set up to provide grants to **Norfolk community groups**, including schools and non-governmental organisations (NGOs), seeking financial assistance for initiatives that focus on renewable energy, marine environment and safety, sustainability, or education.

Through educational outreach with schools and the Sheringham Shoal Information Centre at the Mo, we have been engaging with young people and the public about our offshore wind activities and operations for more than a decade.

For further information, please continue to look around our exhibition space.

If built, SEP and DEP will:

Increase opportunities for the local supply chain and economy.

Save a total of approximately **810,000** tonnes of CO_2, which is the equivalent of taking **365,000** petrol cars off the road.

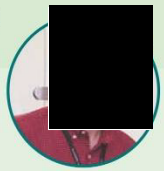
Provide clean, renewable energy to power **820,000** UK homes.

Help the UK reach its ambitious net zero targets by **2050**.

Aim to deliver a biodiversity net gain onshore by working with stakeholders to identify good projects.

Help the UK meet its target of 40 GW of offshore wind capacity by **2030.**

Karl Butler - Power Plant Manager at Sheringham Shoal Offshore Wind Farm



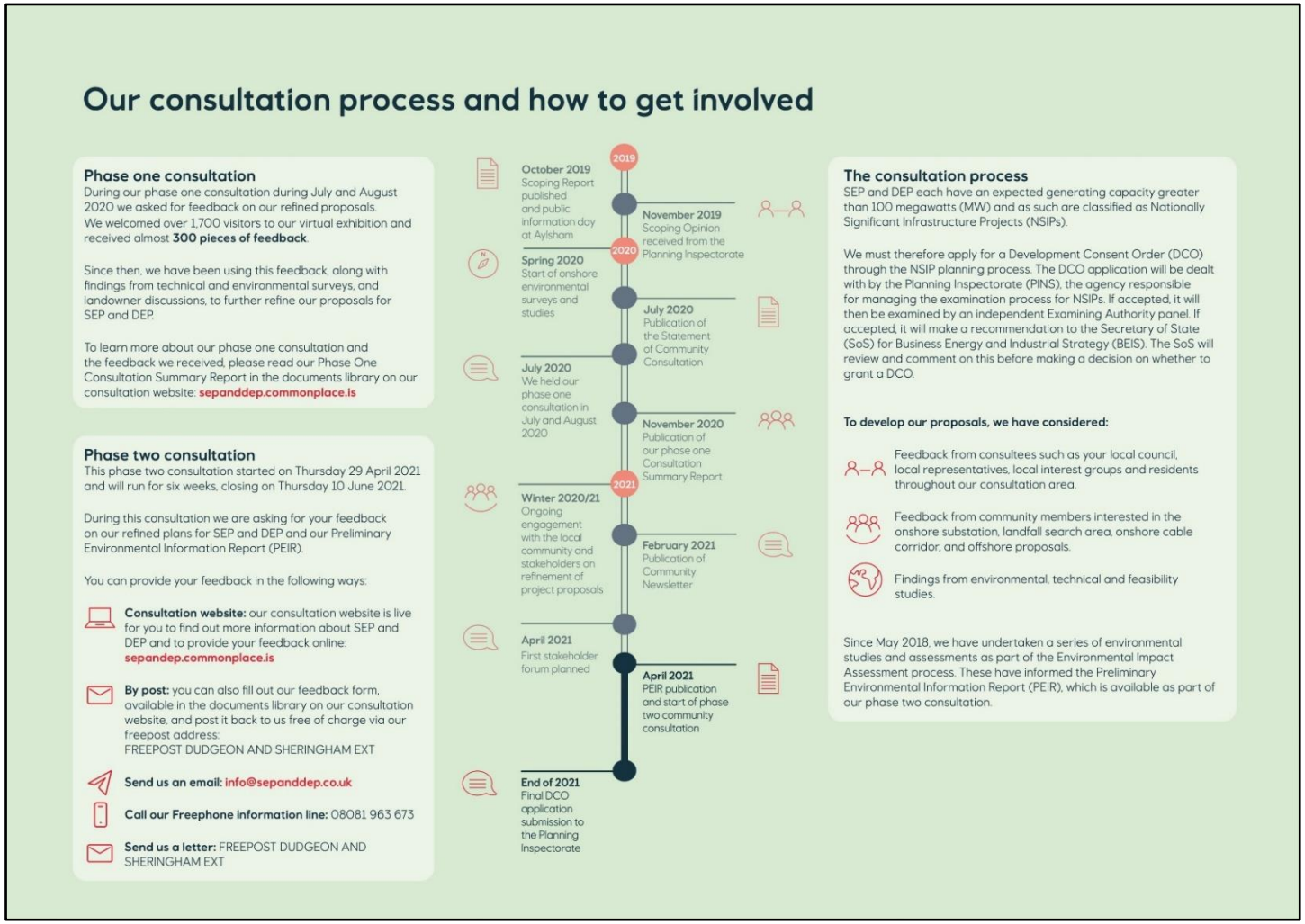
"I work for Equinor as the Power Plant Manager of the Sheringham Shoal Offshore Wind Farm based in Egmere. The day to day variety within my role is extremely motivating and engaging. One morning, I can be discussing budgets, and then in the afternoon, be meeting members of the community or presenting in a school!

I joined the renewables industry in 2013 following 12 years' service within The Royal Air Force, leaving with the rank of Corporal. My first role was as Health and Safety Site Representative. After two years, I moved into the role of Maintenance Manager and I moved into my current role as Power Plant Manager in 2018. In this role, I have responsibility for Safe and Efficient operations of the wind farm, which includes everything from risk ownership and management, budgeting, people management and leadership all the way through to stakeholder management and community engagement.

To achieve Safe and Efficient Operations, I have a team of highly skilled and motivated individuals based here in Norfolk, covering all aspects of the business and operations including marine and logistics, finance and control, safety security and sustainability, procurement and operations and maintenance. We collaborate closely with our suppliers and receive support from the wider Equinor organisation.

I particularly enjoy engaging with the community and schools to help inspire the next generation to carry the renewable energy torch. Through my involvement with the Sheringham Shoal community fund, I really appreciate meeting members of the community, and seeing the extent of people's ingenuity and ideas in support of a sustainable future."

3.3 Our consultation process



Our consultation process and how to get involved

Phase one consultation

During our phase one consultation during July and August 2020 we asked for feedback on our refined proposals. We welcomed over 1,700 visitors to our virtual exhibition and received almost **300 pieces of feedback**.

Since then, we have been using this feedback, along with findings from technical and environmental surveys, and landowner discussions, to further refine our proposals for SEP and DEP.

To learn more about our phase one consultation and the feedback we received, please read our Phase One Consultation Summary Report in the documents library on our consultation website: **sepanddep.commonplace.is**

Phase two consultation

This phase two consultation started on Thursday 29 April 2021 and will run for six weeks, closing on Thursday 10 June 2021.

During this consultation we are asking for your feedback on our refined plans for SEP and DEP and our Preliminary Environmental Information Report (PEIR).

You can provide your feedback in the following ways:

- **Consultation website:** our consultation website is live for you to find out more information about SEP and DEP and to provide your feedback online: **sepandep.commonplace.is**
- **By post:** you can also fill out our feedback form, available in the documents library on our consultation website, and post it back to us free of charge via our freepost address: FREEPOST DUDGEON AND SHERINGHAM EXT
- **Send us an email:** info@sepanddep.co.uk
- **Call our Freephone information line:** 08081 963 673
- **Send us a letter:** FREEPOST DUDGEON AND SHERINGHAM EXT

2019

October 2019
Scoping Report published and public information day at Aylsham

November 2019
Scoping Opinion received from the Planning Inspectorate

2020

Spring 2020
Start of onshore environmental surveys and studies

July 2020
Publication of the Statement of Community Consultation

July 2020
We held our phase one consultation in July and August 2020

November 2020
Publication of our phase one Consultation Summary Report

2021

Winter 2020/21
Ongoing engagement with the local community and stakeholders on refinement of project proposals

February 2021
Publication of Community Newsletter

April 2021
First stakeholder forum planned

April 2021
PEIR publication and start of phase two community consultation

End of 2021
Final DCO application submission to the Planning Inspectorate

The consultation process

SEP and DEP each have an expected generating capacity greater than 100 megawatts (MW) and as such are classified as Nationally Significant Infrastructure Projects (NSIPs).

We must therefore apply for a Development Consent Order (DCO) through the NSIP planning process. The DCO application will be dealt with by the Planning Inspectorate (PINS), the agency responsible for managing the examination process for NSIPs. If accepted, it will then be examined by an independent Examining Authority panel. If accepted, it will make a recommendation to the Secretary of State (SoS) for Business Energy and Industrial Strategy (BEIS). The SoS will review and comment on this before making a decision on whether to grant a DCO.

To develop our proposals, we have considered:

- Feedback from consultees such as your local council, local representatives, local interest groups and residents throughout our consultation area.
- Feedback from community members interested in the onshore substation, landfall search area, onshore cable corridor, and offshore proposals.
- Findings from environmental, technical and feasibility studies.

Since May 2018, we have undertaken a series of environmental studies and assessments as part of the Environmental Impact Assessment process. These have informed the Preliminary Environmental Information Report (PEIR), which is available as part of our phase two consultation.

3.4 Coordination in offshore wind

Supporting coordination in offshore wind

The UK Government has set a target of reaching net zero by 2050, with the goal of producing 40 gigawatts (GW) of offshore wind by 2030 to support this aim. However, they have also recognised the need to balance these goals with the desire for greater coordination in the sector.

Equinor is fully supportive of efforts for greater coordination and we are continuing to work with trade body RenewableUK, the teams at the Department for BEIS, Ofgem and National Grid, to feed into the Government's ongoing Offshore Transmission Network Review (OTNR). This review expects the necessary shared infrastructure to be in place by 2030 at the earliest, which will be too late to serve SEP and DEP, with both SEP and DEP estimated to be constructed prior to this date.

Our preferred option is to develop SEP and DEP as an integrated project, with an integrated grid option, providing electrical infrastructure which services both wind farms. This strategic approach will particularly benefit the planning and construction of the electrical infrastructure system, and is likely to reduce the overall environmental impact, as well as responding to concerns regarding the lack of a holistic approach to offshore wind development in general.

However, because each project has different ownership, a separated grid option (i.e. infrastructure which allows each project to transmit electricity separately) will allow SEP and DEP to be constructed in a phased approach, if necessary. Therefore, the DCO application will seek consent for alternative development scenarios, including the development of either SEP or DEP in isolation, or both SEP and DEP developed together; either at the same time or one after the other.

The need for greater coordination

The current system causes a number of problems for the connection of large amounts of offshore wind capacity to the onshore grid. Issues with the current system include:

- Disruption and environmental impacts following the repeated deployment of cables in the same areas
- Lack of physical space for cable corridors in nearshore areas
- Lack of grid network capacity
- Potential delays in future projects if connection points and timings are not well planned
- Lack of sufficient onshore and offshore transmission network development coordination
- Potential for reduction in transmission network cost

What is the Offshore Transmission Network Review (OTNR)?

The OTNR was launched in 2020 to to look into the existing regime and address the challenges for coastal communities, the environment, and cost. The aim is to ensure that the further deployment of offshore wind is coordinated.

How is Equinor contributing to the OTNR?

We are engaging with authorities in the early opportunities workstream in order to:

- Accelerate thinking about future frameworks
- Deliver early insights into how coordination between projects can be achieved
- Pioneer the aim for better coordination between projects

Read more about how Equinor is supporting coordination in offshore wind on our information sheet in this **virtual exhibition.**

3.5 Landfall

Landfall

Electricity generated by our SEP and DEP turbines offshore will be brought onshore via subsea cables, which will reach the coastline at a point known as the landfall. From the landfall the export cables will be buried underground along a cable route leading to a new onshore substation close to the grid connection point at Norwich Main Substation.

Landfall site selection and Muckleburgh Military Collection

At the time of publishing our Scoping Report in October 2019, two landfall search areas at Weybourne and Bacton were under consideration.

However, following a more detailed assessment of each option's technical and environmental constraints, a landfall at Weybourne was selected, to the west of Weybourne beach car park at the Muckleburgh Military Collection.

This location benefits from favourable conditions for horizonal directional drilling, to install cable ducts beneath Weybourne beach, minimising disruption to the shoreline and avoiding the need for open trenching within an environmentally sensitive area. The landfall location also benefits from existing access, minimising the need for site access works that would otherwise be required for landfall to the east of Weybourne.

Click here to read more about the selection of the SEP and DEP landfall location in Chapter 4 Site Selection and Assessment of Alternatives of our PEIR.

The landfall area comprises a 1,500 metres stretch of coastline that extends west, beyond the preferred drilling location. This provides space for the drilling compound, as well as an extended area adjacent to the beach for preparing the ducts within which the cables are installed. The landfall area also extends inland to allow the transition joint bays (where the onshore and offshore cables meet) to be located beyond any areas at risk of natural coastal erosion.

We are in the process of refining the working areas at the landfall, including compound and access arrangements. We will present a more refined landfall area within our DCO application.

Click here to read more about the landfall proposals in Chapter 5 Project Description of our PEIR.

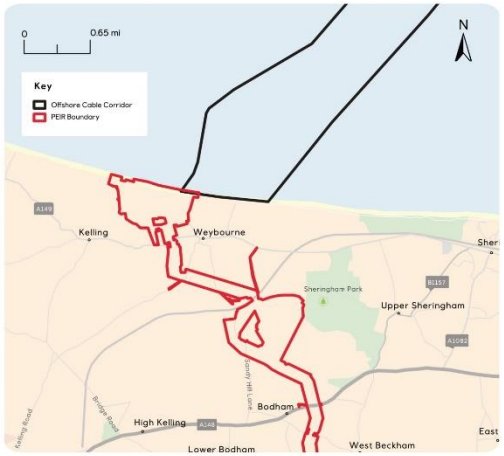


Figure 1 - Map of landfall location

What do you think it is important for us to consider as we refine our landfall proposals? **Have your say here.**

Onshore cable corridor routing from Weybourne to Bodham

We are in the process of refining the onshore cable corridor route from Weybourne to Bodham. Our goal is to select the best route from a balance of technical, environmental and landscape considerations, whilst minimising disruption to local communities.

A number of potential routing options are under consideration through this area, which will be refined down to a single preferred option for the DCO application.

The options include:

- Following the alignment of Sandy Hill Lane – the cable(s) would be laid through open cut trenching in the carriageway.
- Following the alignment of Sandy Hill Lane – using trenchless crossing techniques.
- Through commercial forestry (Weybourne Wood) – either by open cut trenching along existing forest tracks, or using trenchless crossing techniques.

It is our preference to use a trenchless crossing beneath Sandy Hill Lane, however more detailed investigation into the ground conditions at this location is required to confirm that this is a feasible option from an engineering perspective. The final option will therefore be based on a balance of technical and environmental considerations as well any feedback received at phase two consultation.

3.6 Onshore cable corridor

Onshore cable corridor

Electricity generated by SEP and DEP offshore will be brought onshore via subsea cables, which will reach the coastline at a point known as landfall. To avoid the use of permanent overground infrastructure, the cables are then buried underground, along a cable route leading to an onshore substation close to the grid connection point.

The onshore cable corridor is the area between the landfall and the onshore substation, within which the onshore export cables will be installed along with other temporary works for construction.

In parallel with the identification of the landfall location, a process to identify the onshore cable corridor was undertaken. This process initially involved the identification of an onshore cable corridor between both potential landfall locations (i.e. Weybourne and Bacton) and the grid connection point at Norwich Main Substation.

Weybourne was selected as the preferred landfall location in early 2020 and therefore ongoing refinement of the onshore cable corridor for the PEIR focused on the route between Weybourne and Norwich Main Substation.

We have now identified an onshore cable corridor between landfall and the onshore substation that is 60 kilometres long and typically 200 metres wide. This has been refined using phase one consultation feedback, inputs from landowner discussions, environmental surveys, and engineering studies.

Read more about how the refinement of the onshore cable corridor in Chapter 4 Site Selection and Assessment of Alternatives of our PEIR.

Following phase two consultation, the onshore cable corridor will be further refined to a width of 60 metres for the DCO application (except for trenchless crossing zones, such as main rivers and A roads where the width will be 100m). This will be informed by phase two consultation feedback, as well as further technical studies and ongoing environmental survey and assessment work.

Read more about how the onshore export cables would be installed and the anticipated construction timescales in Chapter 5 Project Description of our PEIR.

To view a more detailed map of our proposals, and give your feedback on the refinement of our 200 metre wide onshore cable corridor, please visit our consultation website: **sepanddep.commonplace.is**.

3.7 Onshore substation

Our onshore substation sites

A new onshore substation will be constructed to accommodate both SEP and DEP. We are consulting on two site options close to the existing Norwich Main Substation. Only one of these two options will be taken forward for the Development Consent Order (DCO) application.

Our site selection process

In April 2019 National Grid made Equinor a grid connection offer at Norwich Main Substation that would accommodate both SEP and DEP.

Since then, we have been conducting a site selection process to identify the best possible location for the onshore substation. This process began with a three kilometre search area from the existing Norwich Main Substation, within which a total of 17 fields were identified as potential sites for the substation. Following a comparative assessment of these options, five different fields for the onshore substation were shortlisted and presented during our phase one consultation.

In response to your phase one consultation feedback, and further environmental and technical assessment, we have now selected two preferred site options for the location of the onshore substation, as shown in **Figure 1.**

Both sites are close to the existing Norwich Main Substation and benefit from existing screening that restricts views from surrounding areas. The sites also allow sufficient space for the Hornsea Project Three connection to Norwich Main Substation.

Read more about the site selection process for the SEP and DEP onshore substation in Chapter 4 Site Selection and Assessment of Alternatives of the PEIR, by clicking here.

Our current proposals

Visualisations from key surrounding viewpoints have been prepared for both onshore substation site options. These visualisations are based on worst case design parameters for the onshore substation, without any mitigation in place. It is expected that additional planting to further screen the substation will be identified as part of the final application.

To view our onshore substation photomontages, please see the 'Visualising our proposals' section of this virtual exhibition.

The onshore substation will require an operational area of up to 6.25 hectares, which will be large enough to accommodate the electrical infrastructure for both SEP and DEP. If only one project comes forward, the substation will be up to 3.25 hectares in size. For both scenarios the maximum building heights within the onshore substation will be 15 metres.

Which aspects of SEP and DEP are important to you as we select and design our preferred onshore substation site? **Have your say here.**

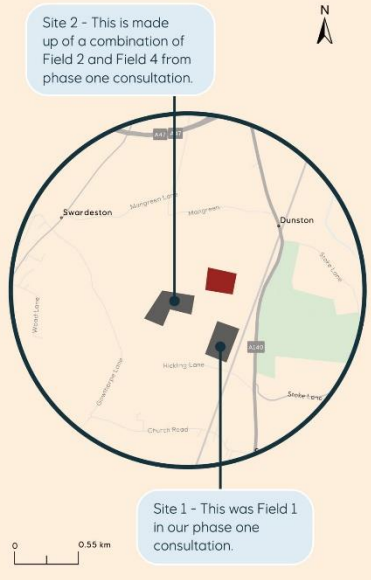


Figure 1 – Map of SEP and DEP shortlisted onshore substation sites

Our onshore substation site access

Onshore substation access during both construction and operation is an important consideration for determining the final onshore substation location.

Our preferred access option is entering via the existing Norwich Main Substation access from the A140, however this would need to be managed carefully to avoid impacting existing operations at the Norwich Main Substation. Work is ongoing with National Grid to establish the best solution for substation access. As part of this, we are also considering the value of other access routes into the substation area.

We will use the feedback from our phase two consultation, along with further technical and environmental considerations, to bring forward one substation site option, along with defined areas for temporary works, permanent and temporary access and landscape mitigation proposals.

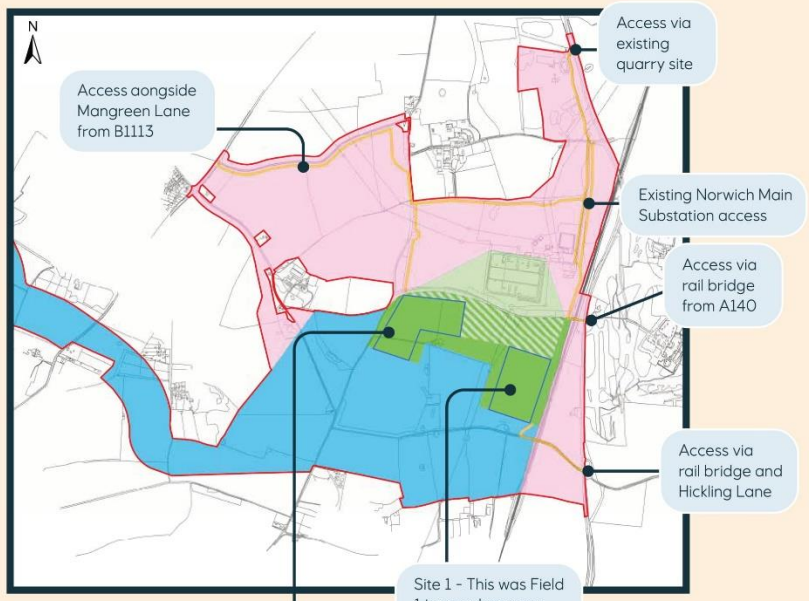


Figure 1 – Onshore substation access options

Key:

- PEIR Boundary
- Onshore Substation Sites
- Onshore Substation (Permanent/temporary Works)
- Connection to Norwich Main Substation (400kV)
- Onshore Substation/Connection to Norwich Main substation
- Onshore Cable Corridor
- Temporary Access Route
- Temporary Works (Contingency)

Do you have any comments on what it is important for us to consider when refining our onshore substation access options?
Have your say here.

3.8 Construction compounds

Construction compounds

Temporary construction compounds are required to support the onshore cable installation.

This will include several secondary compounds along the onshore cable corridor, and up to two main compounds for project offices, welfare facilities, staff parking, and material and equipment storage. In addition, the landfall and substation works would have their own dedicated construction compounds.

We are still in the process of identifying locations for the construction compounds. Key criteria for identifying potential main compound locations include areas with existing infrastructure to reduce the need for initial site establishment works, and suitable access to and from the compounds to reduce disruption to the local road network. The size of the main compound(s) will be up to 60,000 metres squared, approximately 14.8 acres, however it may be preferable to use two smaller sites. The full site selection report is viewable in the information sheets section of this virtual exhibition.

In addition to parish council and stakeholder input, key criteria for identifying potential main compound locations included:

- Engineering feasibility – such as proximity to the cable corridor, location along the cable corridor, existing hard standing, available space and existing services
- Land availability during construction
- Community/disturbance effects – such as proximity to nearest residential properties, proximity to nearest Public Rights of Way (PRoW) and cumulative community impacts with other similar projects
- Traffic/transport – such as highway network constraints, access constraints and proximity of access routes to sensitive receptors (schools, retirement homes, residential dwellings, etc.)
- Road safety
- Proximity to sites designated for nature conservation
- Proximity to sites designated for historic significance

At this stage, a number of satellite compound locations have been identified, and we have also shortlisted four preferred locations for the main compound, as shown in the adjacent map, from which we will choose up to two main compound locations:

- **A1067 Fakenham Road**
- **Woodforde Farm**
- **A1067 Norwich Road**
- **RAF Oulton**

The compound site selection report, available in the information sheets section of this virtual exhibition, shows the location of the four shortlisted compound locations in greater detail. Please note that the areas shown in the information sheet are approximate areas, and are not fixed for the proposed main compound locations.

We are welcoming suggestions of additional compound locations which may be suitable for SEP and DEP. These should be areas larger than 20,000 metres squared, with existing hard standing, located in proximity to the onshore cable corridor.

View our full main compound site selection report here.

Do you have any additional information or feedback on our four shortlisted sites for us to consider as we select our final one or two main compound locations?
Have your say here.

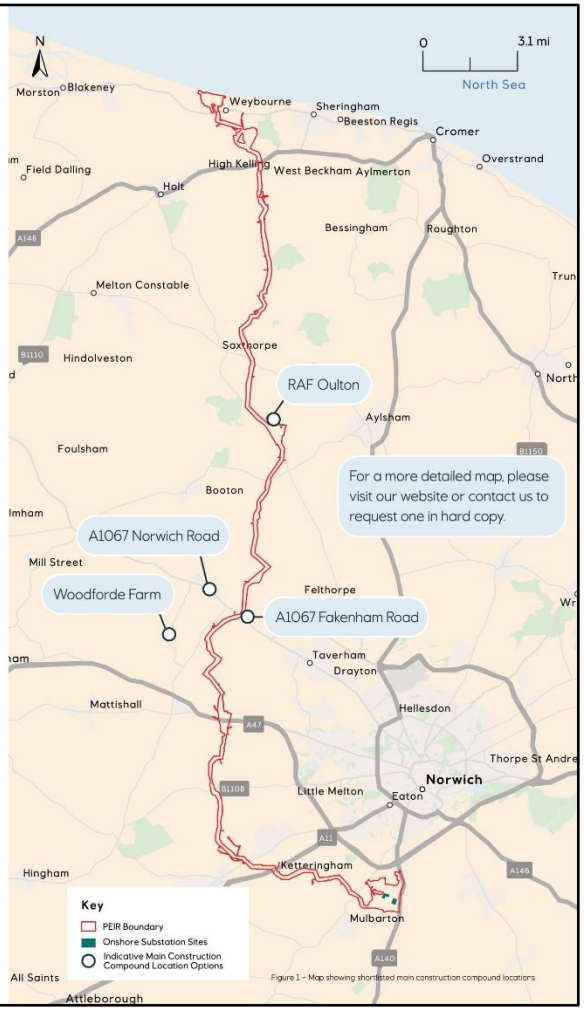


Figure 1 – Map showing shortlisted main construction compound locations

3.9 Offshore array area and seascape views

Offshore array area and seascape views

SEP and DEP will be located approximately 14 kilometres (8.7 miles) and 25 kilometres (15.5 miles) offshore at the nearest point to shore, respectively. We are investigating offshore generating areas of up to 190 kilometres squared in total, where 30 to 56 turbines could be located.

Offshore array area

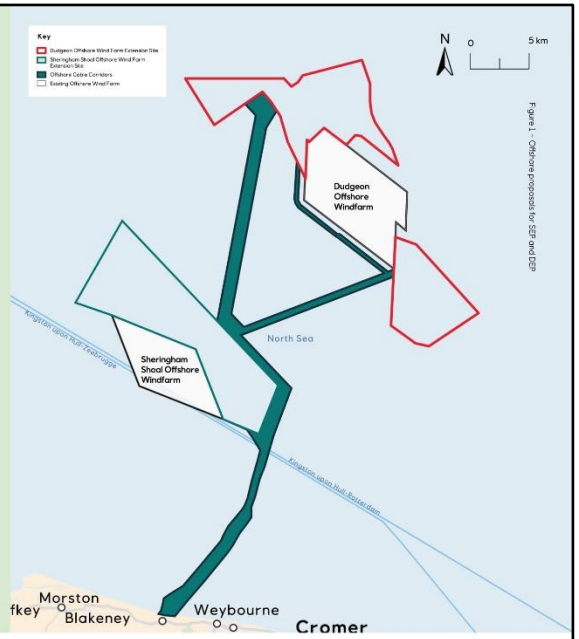
We currently have a range of scenarios for the turbine heights and generating capacities for the projects. Each offshore turbine could be between 14 and 26 megawatts (MW) in capacity and be between 246 and 330 metres in height. The larger the installed capacity per turbine, the less turbines we will need to use.

The refinement of our offshore array areas will be based on a balance of technical, visual and environmental considerations. For example, we will need to balance how we minimise impacts on ornithology and navigation with the visual impacts for coastal communities.

SEP and DEP will include the following new infrastructure offshore:

- Turbines and associated foundations
- Array cables and interlink cables to connect the offshore wind turbines to an offshore substation
- Up to two offshore substations and associated foundations
- Subsea export cables
- Cable and scour protection

Click here to read more about the offshore proposals in Chapter 5 Project Description of our PEIR.



Seascape impact

As part of our Environmental Impact Assessment (EIA), we have undertaken a Seascape Visual Impact Assessment (SVIA) specific to how the offshore infrastructure will look from different locations on the coastline. The full SVIA has been included in our PEIR, which is viewable on our consultation website.

The SVIA considers the potential visual effects of SEP and DEP from a number of coastal viewpoints, which have been agreed with the relevant local authorities and other stakeholders. Visualisations of the proposed offshore array areas can be viewed in the 'Visualising our proposals' section of this virtual exhibition.

Additionally, we have created a video of our offshore proposals for SEP and DEP. These can also be viewed in the 'Visualising our proposals' section of this virtual exhibition.

Do you have any comments on our offshore array area and proposals presented as part of our PEIR? **Have your say here.**

3.10 EIA process

Our Environmental Impact Assessment (EIA) process

EIA is a process to identify potential effects a proposed development may have on the environment, people and local communities.

An EIA process involves stakeholders and the affected communities such that they are able to develop an informed view of the relevant impacts the proposed development may have. Stakeholders are invited to engage with the proposed development and to provide feedback through formal and informal consultation and engagement activities. Impacts generated by the development can be positive or negative and it is the responsibility of the developer to seek to enhance positive impacts and reduce negative impacts. Reducing negative impacts can be achieved through project design decisions (also known as embedded mitigation) and through proposing additional mitigation measures to avoid impacts or reduce them to acceptable levels.

The preliminary EIA findings for SEP and DEP are reported within the preliminary environmental information report (PEIR), which is being consulted on as part of our formal phase two consultation. The PEIR has been informed by a combination of desk-based studies, consultation and site-specific surveys. All potential impacts of the construction, operation and decommissioning of SEP and DEP have been identified across a wide range of onshore and offshore topics, and an assessment made on the significance of each potential impact has been undertaken by EIA specialists.

Once we have completed our EIA, all the potential impacts of SEP and DEP, as well as any requirements for mitigation and enhancement, will be included within our final Environmental Statement (ES) as part of our Development Consent Order (DCO) application.

Development scenarios

Whilst SEP and DEP are each Nationally Significant Infrastructure Projects (NSIPs) in their own right, a single application for development consent will be made covering both wind farms, and the infrastructure required to connect SEP and DEP to the grid. A single planning process is intended to provide for consistency in the approach to the assessment, consultation and examination.

Furthermore, Equinor will seek to develop SEP and DEP as an integrated project, with an integrated grid option providing transmission infrastructure which serves both of the wind farms being the preferred option. This strategic approach will particularly benefit the planning and construction of the electrical infrastructure system, is likely to reduce the overall environmental impact and disruption, and responds to concerns regarding the lack of a holistic approach to offshore wind development in general.

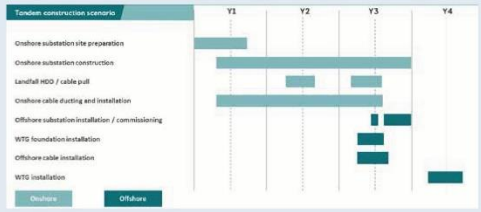


Figure 1 – Construction timeline if SEP and DEP are built concurrently

However, given the different ownership arrangements for SEP and DEP, a separated grid option (i.e. transmission infrastructure which allows each Project to transmit electricity entirely separately) will allow SEP and DEP to be constructed in a phased approach, if necessary. Therefore the DCO application will seek consent for alternative grid solutions in the same overall corridors to allow for both the integrated and separated grid options.

The PEIR has therefore considered the following development and build out scenarios:

- Build SEP or build DEP in isolation
- Build SEP and DEP concurrently (Figure 1) – reflecting the maximum peak effects
- Build SEP and DEP sequentially (Figure 2) with a gap of up to four years between the start of construction of each project – reflecting the maximum duration of effects

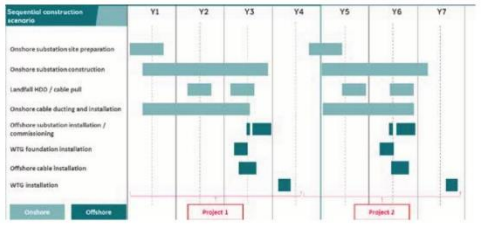


Figure 2 – Construction timeline if SEP and DEP are built sequentially

3.11 Offshore ecology

Offshore ecology

As part of our Environmental Impact Assessment (EIA) for SEP and DEP, we are assessing the potential impact of our projects on offshore ecology, including ornithology (birds), benthic communities and marine mammals. In our Preliminary Environmental Information Report (PEIR), we have published the results of the offshore ecological surveys we have undertaken to date.

We have consulted multiple stakeholders as part of this process, including Natural England, the Marine Management Organisation (MMO), RSPB, Cefas, Wildlife Trusts, and Eastern Inshore Fisheries and Conservation Authority.

We carried out project specific aerial surveys over two years, conducted at least monthly. These surveys covered the SEP and DEP offshore areas and surrounding waters and have been used to inform our understanding of the presence of birds and marine mammals. We have also carried out a benthic ecology survey with particular focus on the Cromer Shoal Marine Conservation Zone (MCZ).

Our assessments looked at how:

The planned activities, with focus on direct impacts such as collision risk, displacement, barrier effects and indirect impacts through effects on habitats and prey species, will overall have a low impact on seabirds. The assessment concludes that significant impacts to offshore ornithology would not occur.

Marine mammals are impacted through noise generation, increased vessel traffic and general disturbance. The assessment concludes that significant impacts to marine mammals would not occur. However, we will include measures to reduce the impact with particular focus on minimizing impact from underwater noise.

Benthic habitats and communities may be impacted by our activities. Although we have assessed the impacts on benthic communities in the entire project area, we have had particular focus on the Cromer Shoal MCZ. The assessment concludes that significant impacts to offshore ornithology would not occur. However, we will continue to focus on the Cromer Shoal MCZ to minimize impact to the extent possible by focusing on cable installation techniques and cable protection.

For more information relating to offshore ecology, please visit the following chapters of the PEIR in our PEIR library:

- **Chapter 10 - Benthic and Intertidal Ecology**
- **Chapter 11 - Fish Ecology**
- **Chapter 12 - Marine Mammal Ecology**
- **Chapter 13 - Offshore Ornithology**

Figure 1 – Harbour porpoise

Figure 2 – Sandwich tern

Figure 3 – Seal

3.12 Onshore ecology

Onshore ecology and nature conservation

For the onshore elements of SEP and DEP we will work with stakeholders to identify opportunities to deliver a positive contribution to biodiversity.

As part of our Environmental Impact Assessment (EIA) for SEP and DEP, we are assessing the potential impact of the projects on local onshore ecology. We have consulted a wide range of stakeholders as part of this process, including Natural England, RSPB, Norfolk Wildlife Trust and the Environment Agency. So far, we have undertaken the following surveys:

- Extended Phase 1 Habitat surveys (including the collection of biodiversity net gain baseline data)
- Wintering and breeding bird surveys
- Bat activity surveys
- Great crested newt surveys.

Figure 1 – Barbastelle bat

Figure 2 – Great crested newt

These surveys will continue in summer 2021 and will include surveys for breeding birds, bats, water voles, otters, white-clawed crayfish, reptiles, invertebrates, great crested newts and badgers.

What we are doing

In addition to our extensive surveys, we have also outlined a number of mitigation measures in our PEIR, a selection of which are listed below:

To avoid direct impacts on the internationally designated River Wensum, we will be crossing this area using a trenchless crossing technique. The site includes species such as the white-clawed crayfish, Desmoulin's whorl snail, brook lamprey and bullhead. A number of other main rivers will also be crossed using trenchless crossing techniques to avoid direct interaction with the watercourses.

We have routed our onshore cable corridor to avoid woodland habitat wherever possible, such as Mossymere Wood (in the Civil Parishes of Itteringham and Corpusty and Saxthorpe), Colton Wood (in the Civil Parish of Marlingford and Colton) and Smeeth Wood (in the Civil Parish of Ketteringham).

Where the onshore cable corridor crosses through woodland and hedgerows, the working corridor would be reduced to a typical working width of 20 metres. The reinstatement of hedgerows would occur during the first planting season following completion of construction.

In addition to the above, our commitment to reducing impacts to onshore ecology will strongly influence the next phase of onshore cable corridor refinement to a typical width of 60 metres. For example, we will seek to:

- Avoid woodland that is currently within the PEIR boundary
- Avoid locally designated sites for nature conservation (such as County Wildlife Sites)
- Avoid trees with bat roost potential, ponds, grassland habitat and other features of ecological importance

Our aim to improve biodiversity onshore

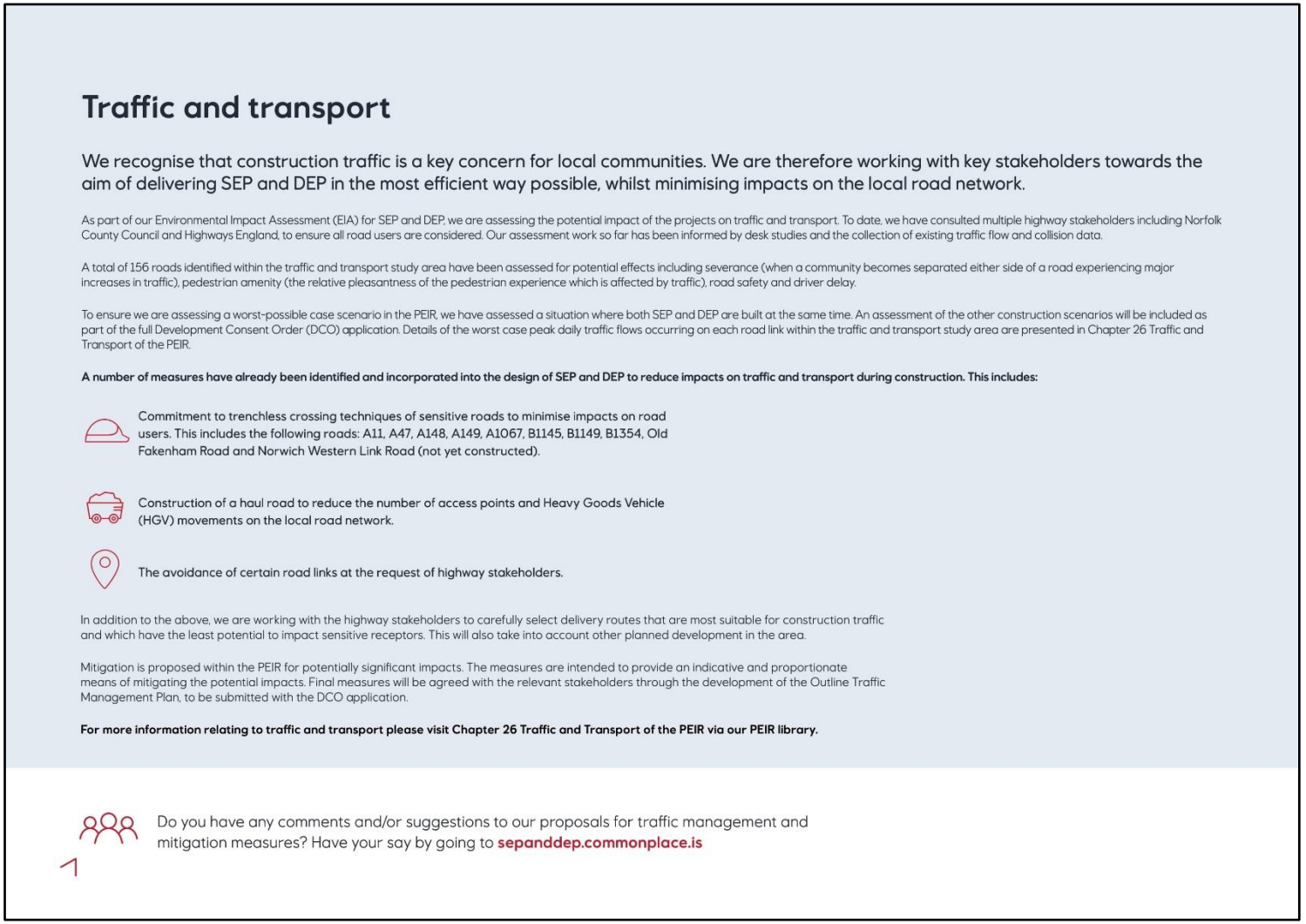
'Net gain' is a term which is used to describe an approach to development that leaves biodiversity in an overall better state than it was before. Although there is no requirement on Nationally Significant Infrastructure Projects (NSIPs) to deliver a biodiversity net gain, we see it as our responsibility to improve biodiversity wherever we can, and so Equinor has made a voluntary commitment to achieve a biodiversity net gain for the onshore elements of SEP and DEP.

Opportunities to deliver a biodiversity net gain for SEP and DEP include woodland planting, field boundary improvements and grassland habitat restoration. We have begun engaging with Natural England and other key stakeholders on this topic, however we are also asking for suggestions from the wider community of any local environmental initiatives that could assist in our aim of delivering a positive contribution to biodiversity.

If you have any suggestions for opportunities to deliver biodiversity net gain, please visit our consultation website at **sepanddep.commonplace.is**

For more information relating to onshore ecology and biodiversity net gain please visit **Chapter 22 Onshore Ecology and Ornithology of the PEIR via our PEIR library.**

3.13 Traffic and transport



Traffic and transport

We recognise that construction traffic is a key concern for local communities. We are therefore working with key stakeholders towards the aim of delivering SEP and DEP in the most efficient way possible, whilst minimising impacts on the local road network.

As part of our Environmental Impact Assessment (EIA) for SEP and DEP, we are assessing the potential impact of the projects on traffic and transport. To date, we have consulted multiple highway stakeholders including Norfolk County Council and Highways England, to ensure all road users are considered. Our assessment work so far has been informed by desk studies and the collection of existing traffic flow and collision data.

A total of 156 roads identified within the traffic and transport study area have been assessed for potential effects including severance (when a community becomes separated either side of a road experiencing major increases in traffic), pedestrian amenity (the relative pleasantness of the pedestrian experience which is affected by traffic), road safety and driver delay.

To ensure we are assessing a worst-possible case scenario in the PEIR, we have assessed a situation where both SEP and DEP are built at the same time. An assessment of the other construction scenarios will be included as part of the full Development Consent Order (DCO) application. Details of the worst case peak daily traffic flows occurring on each road link within the traffic and transport study area are presented in Chapter 26 Traffic and Transport of the PEIR.

A number of measures have already been identified and incorporated into the design of SEP and DEP to reduce impacts on traffic and transport during construction. This includes:

- Commitment to trenchless crossing techniques of sensitive roads to minimise impacts on road users. This includes the following roads: A11, A47, A148, A149, A1067, B1145, B1149, B1354, Old Fakenham Road and Norwich Western Link Road (not yet constructed).
- Construction of a haul road to reduce the number of access points and Heavy Goods Vehicle (HGV) movements on the local road network.
- The avoidance of certain road links at the request of highway stakeholders.

In addition to the above, we are working with the highway stakeholders to carefully select delivery routes that are most suitable for construction traffic and which have the least potential to impact sensitive receptors. This will also take into account other planned development in the area.

Mitigation is proposed within the PEIR for potentially significant impacts. The measures are intended to provide an indicative and proportionate means of mitigating the potential impacts. Final measures will be agreed with the relevant stakeholders through the development of the Outline Traffic Management Plan, to be submitted with the DCO application.

For more information relating to traffic and transport please visit Chapter 26 Traffic and Transport of the PEIR via our PEIR library.

Do you have any comments and/or suggestions to our proposals for traffic management and mitigation measures? Have your say by going to **sepanddep.commonplace.is**

3.14 Other key issues

Water resources and flood risk

Our experience of working in the area for over ten years has shown us that flood risk is an issue that is important to the community.

As part of our Environmental Impact Assessment (EIA) for SEP and DEP, we are assessing the potential impact of the projects on water resources and flood risk using data from the Environment Agency and Internal Drainage Boards, as well as our own data from walkover surveys at key watercourse crossings.

Our preliminary impact assessment has considered potential impacts to watercourses such as the disturbance of rivers and streams during cable duct installation, increased soils entering watercourses due to run off from exposed ground and the risk of accidental fuel spills. Overall, the impacts to rivers will be short-term and would be reversible once activities have been completed.

Both of the onshore substation site options have been located within Flood Zone 1, which represents a low risk of flooding (less than 0.1% chance of flooding in any year). Furthermore, a Flood Risk Assessment (FRA) has been undertaken, which concludes that SEP and DEP is appropriate in terms of flood risk and is in accordance with the relevant national policy on flood risk for new developments.

The findings of the impact assessment summarised above takes into account a range of measures that we are proposing to manage issues relating to water resources and flooding. This includes:

- Crossing the most sensitive rivers and streams by using trenchless crossing techniques, rather than trenching through them.
- Appropriately storing and managing soils during excavation works.
- Installing drainage systems to manage excess water.
- Capturing surface water at the onshore substation and discharging it in a controlled manner, mimicking the run-off rate for the existing land.

For more information relating to water resources and flood risk please visit **Chapter 20 Water Resources and Flood Risk of the PEIR via our PEIR library.**

Figure 1 – Image of the River Wensum taken during walkover surveys

Figure 2 – Image of the Inlwood Stream taken during walkover surveys

Archaeology and local heritage

As part of the Preliminary Environmental Information Report (PEIR), we have published the emerging findings from our archaeology and local heritage research. We also set out how we will avoid and mitigate any impacts on archaeology and local heritage.

As part of our Environmental Impact Assessment (EIA) for SEP and DEP, we are assessing the potential impact of the projects on onshore archaeology and local heritage. We are doing this through desk-based assessments, aerial photographic assessments and non-intrusive surveys to identify potential archaeological features underground.

The avoid and mitigate any direct impacts on archaeology and local heritage we are:

- Avoiding all direct physical impacts on designated heritage assets such as Scheduled Monuments and Listed Buildings.
- Analysing archaeological data from non-intrusive surveys to inform the refinement of the onshore cable corridor.
- Committing to a programme of post-consent survey to further inform our understanding of potential archaeology and heritage assets – such as targeted field-walking, metal detecting and the excavation of shallow trenches to investigate any features identified.

Indirect impacts also have the potential to occur, such as impacts to the setting of a heritage asset. The heritage setting assessment work is ongoing, and the final impact assessment conclusions have not yet been determined. The settings assessment work will, however, be progressed and reported in full in the DCO application.

For more information relating to archaeology and local heritage please visit **Chapter 23 Onshore Archaeology and Cultural Heritage of the PEIR via our PEIR library.**

Figure 1 – The south-western extent of the Caistor St Edmund Roman Fort is one kilometre north-east of the proposed substation locations (Image Source: Norfolk Archaeological Trust)

Other key issues

Noise and vibration

Noise modelling was undertaken as part of our Environmental Impact Assessment (EIA) in order to determine any potential impacts relating to the construction and operation of SEP and DEP at agreed locations. The key findings of the noise impact assessment are summarised below.

Noise assessments found potential noise impacts from construction works in a small number of locations along the onshore cable corridor. However, acoustic screening and other best practice measures to reduce noise impacts would be implemented to avoid significant impacts at these locations. No impacts from vibration have been identified in the assessment.

The operation of the onshore substation has the potential to generate noise that would represent a disturbance during night time at the nearest residential properties for both substation site options. However, there are many proven mitigation options that can be combined to ensure that noise levels at the nearby properties remain below the night time noise levels agreed with the local planning authority. These includes noise reduction technologies in the form of equipment housing and refining the layout of the substation during the detailed design process.

The assessment also found no impact on residential properties that were included in the operational noise impact assessment for the Hornsea Project Three substation. Therefore, no cumulative noise impacts at these receptors were identified as a result of SEP and DEP.

For more information relating to noise and vibration please visit **Chapter 25 Noise and Vibration of the PEIR via our PEIR library.**

Electromagnetic Fields (EMFs)

An EMF study has been undertaken for SEP and DEP to demonstrate compliance with relevant standards

As with any electrical current carrying device, the buried cable system associated with SEP and DEP will produce EMFs. However, calculations performed by National Grid have shown that the level of EMFs produced by SEP and DEP will be significantly lower than the thresholds set by Public Health England, above which there is the potential for human health effects.

This has been demonstrated through a project specific EMF study performed by National Grid in accordance with relevant standards to provide impartial, accurate and reliable analysis. The study assessed the potential worst-case strength of EMFs, which will be applicable to all areas along the onshore cable corridor.

The study concluded that there would be no effect from SEP and DEP alone, or cumulatively with other projects to population health due to EMFs.

Read the full study undertaken by National Grid as part of **Chapter 30 Health of the PEIR via our PEIR library.**

Other key issues

Commercial fisheries

Impacts of SEP and DEP on commercial fishing activity has been assessed as part of our Environmental Impact Assessment. Commercial fishing activity has been characterised using landings statistics, vessel monitoring, surveillance data, and consultation with the fishing industry.

The key fishing fleets considered in the assessment included:

- UK potters targeting lobster, brown crab and whelk
- UK beam trawlers targeting brown shrimp
- French demersal and midwater trawlers targeting whiting and mackerel
- Dutch beam trawlers and fly shooting targeting sole, plaice and mixed demersal finfish species
- Belgian beam trawlers targeting sole, plaice and mixed demersal finfish species
- Danish demersal trawlers targeting sand eel throughout the North Sea with occasional effort overlapping the project area

The assessment has established that the UK potting fleet is likely to be moderately impacted as a result of reduction in access to, or exclusion from, established fishing grounds, and displacement from the wind farm site leading to increased pressure on adjacent grounds. However, potential impacts on the UK potting fleet will be mitigated through justifiable disturbance payments in line with the Fishing Liaison with Offshore Wind and Wet Renewables Group best practice guidance, reducing the significance of residual impacts.

For more information relating to commercial fisheries please visit **Chapter 14 Commercial Fisheries of the PEIR via our PEIR library.**

Public Rights of Way (PRoWs)

The SEP and DEP onshore cable corridor will cross numerous public rights of way (including footpaths, bridleways and byways) and some National Trails and cycle paths. This includes key routes such as the Peddars Way and Norfolk Coast Path and the Marriott's Way.

We have committed that access along public rights of way and other recreational routes will be maintained throughout construction through methods such as appropriately fenced crossing points. If a temporary closure is required a suitable diversion will be agreed in advance with the Countryside Access Officer at Norfolk County Council. Our commitment to bring the cables onshore at the landfall using horizontal directional drilling (HDD) will also minimise disruption to users of Weybourne beach.

Figure 1 – Marriott's Way Public Right of Way

For more information relating to PRoWs and other recreational routes please visit **Chapter 21 Land Use, Agriculture and Recreation of the PEIR via our PEIR library.**