



Hornsea Project Four: Consultation Report

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B1.1.16
Version A

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Local information event roller banners

Hornsea Project Four Offshore Wind Farm

Welcome to your local information event

Please come in and have a look around.

Our project team look forward to meeting you and answering your questions.

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Consultation timeline

- 2018**
 - September** Statement of Community Consultation published
 - October** Scoping Report published
 - October/November** We will be holding our local information events and welcoming feedback between 10 October and 21 November
 - Winter** A Scoping Opinion will be published by the Planning Inspectorate
- 2019**
 - Summer** Publication of the Preliminary Environmental Information Report
 - Summer/Autumn** We will be welcoming feedback on our Preliminary Environmental Information Report and further local information events will be held
- 2020**
 - Winter** The Environmental Statement and application documents will be finalised
 - Q1 2020** Anticipated submission date for the Development Consent Order application

*All dates remain indicative

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Communication lines

We want to hear your thoughts throughout our consultation period for Hornsea Project Four. You can get in touch using any of our communication lines listed below.



Send us an email:
contact@hornseaprojectfour.co.uk



Call our Freephone information line:
 0808 169 3030



Visit our website:
www.hornseaprojects.co.uk/hornsea-project-four



Send us a letter:
 Hornsea Project Four Offshore Wind Farm
 c/o Humphrey Laidlaw
 Ørsted UK
 5 Howick Place
 Victoria
 London
 SW1P 1WG



Follow us on Twitter:
 @OrstedUK
 #HornseaProject4

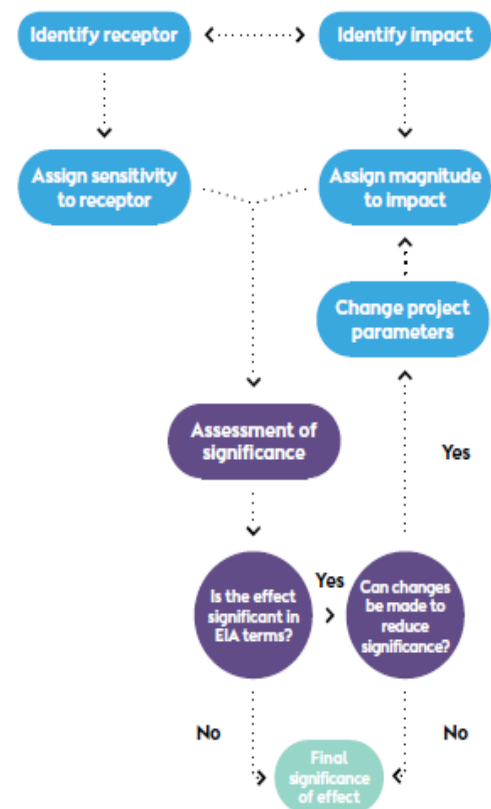


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Environmental Impact Assessment

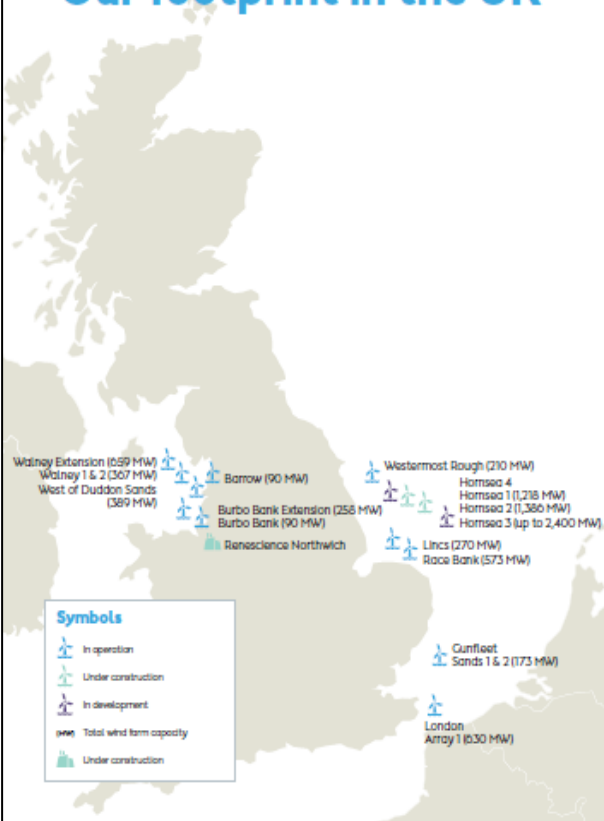
We are undertaking an Environmental Impact Assessment (EIA) of Hornsea Project Four for both offshore and onshore elements.

An EIA is an assessment of the likely positive or negative impacts that a development may have on the environment. It considers environmental, social and economic aspects.



Hornsea 4

Our footprint in the UK



We are investing in people and growing our business with well over 900 direct employees in the UK.



The UK is our largest market and we have invested £8 billion to date. We expect to invest a further £4 billion by 2020.



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Our commitments

Your views are important to us. We want to hear about how you, your local area or the wider environment may be impacted by our design and proposals for Hornsea Project Four.

As part of this we would like to know what commitments we could make to mitigate any impacts which are important to you.

This will help us to deliver an environmentally informed design for Hornsea Project Four.

How you can help to shape our proposals and contribute to our commitments register:



Find out more about our proposals for Hornsea Project Four at today's local information event or online.

www.HornseaProjects.co.uk/Hornsea-Project-Four



Speak to a member of our team about our impacts and effects register and our commitments register.



Tell us which aspects of the project are most important to you and if you have any concerns about the impacts and effects of the design for Hornsea Project Four – this can be done at today's event or by using our communication lines.



Let us know what commitments you would like us to make to address your concerns.

What happens next?



We will review all feedback received and incorporate this into our commitments register.

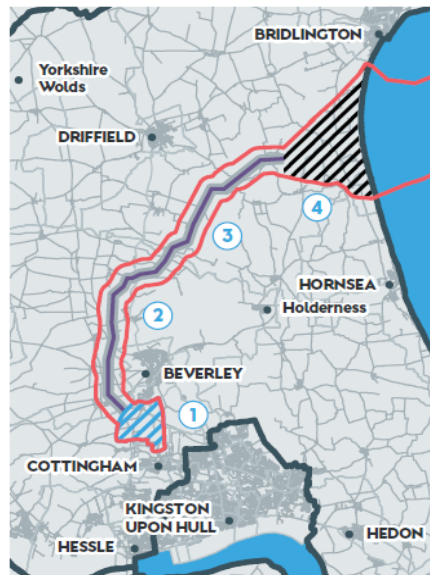


Our Onshore Scoping Boundary



The Onshore Scoping Boundary is the area where the cable route and all onshore infrastructure for the project would be built. We are currently exploring the area highlighted on this map and we would like to hear your thoughts on this. Your local knowledge will be valuable in developing and refining our onshore footprint.

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- ① Onshore substation constraints
- ② Onshore cable route 1
- ③ Onshore cable route 2
- ④ Landfall Search Area

Onshore and Offshore Scoping Boundary

This is the area where the onshore and offshore export cable and array cable routes would be located. We are currently assessing potential high-level cable options which would be developed in the Onshore Scoping Boundary for the project.

Onshore Substation Search Area

We are currently in discussions with National Grid over a proposed grid connection at Creyke Beck near Cottingham, in East Riding of Yorkshire. To make this connection we would look to develop an onshore substation for the project in this area.

Indicative Permanent Cable Area (200 m)

This is the area within which the permanent onshore cable route will be located.

Indicative Temporary Works Area (700 m)

This is the indicative area within which the temporary works will take place.

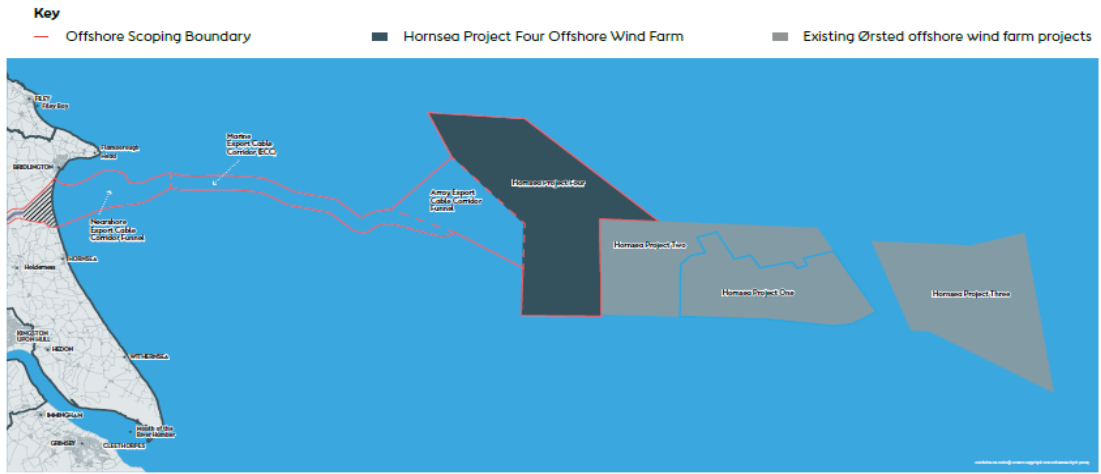
Landfall Search Area

Electricity generated by Hornsea Project Four will be brought ashore via underground subsea cables which will be buried onshore at a point known as 'landfall' before connecting into an onshore substation and the national grid. We are currently exploring potential landfall areas across the East Riding of Yorkshire coastline.

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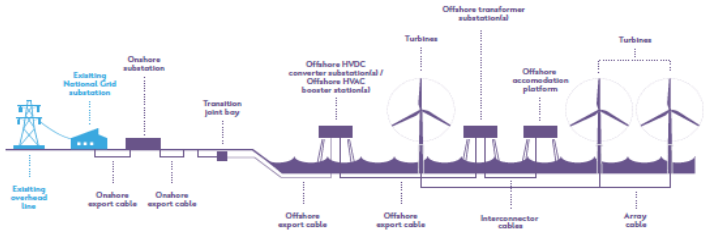
Local information event pop-up banner – offshore proposals

Our proposed project offshore Orsted



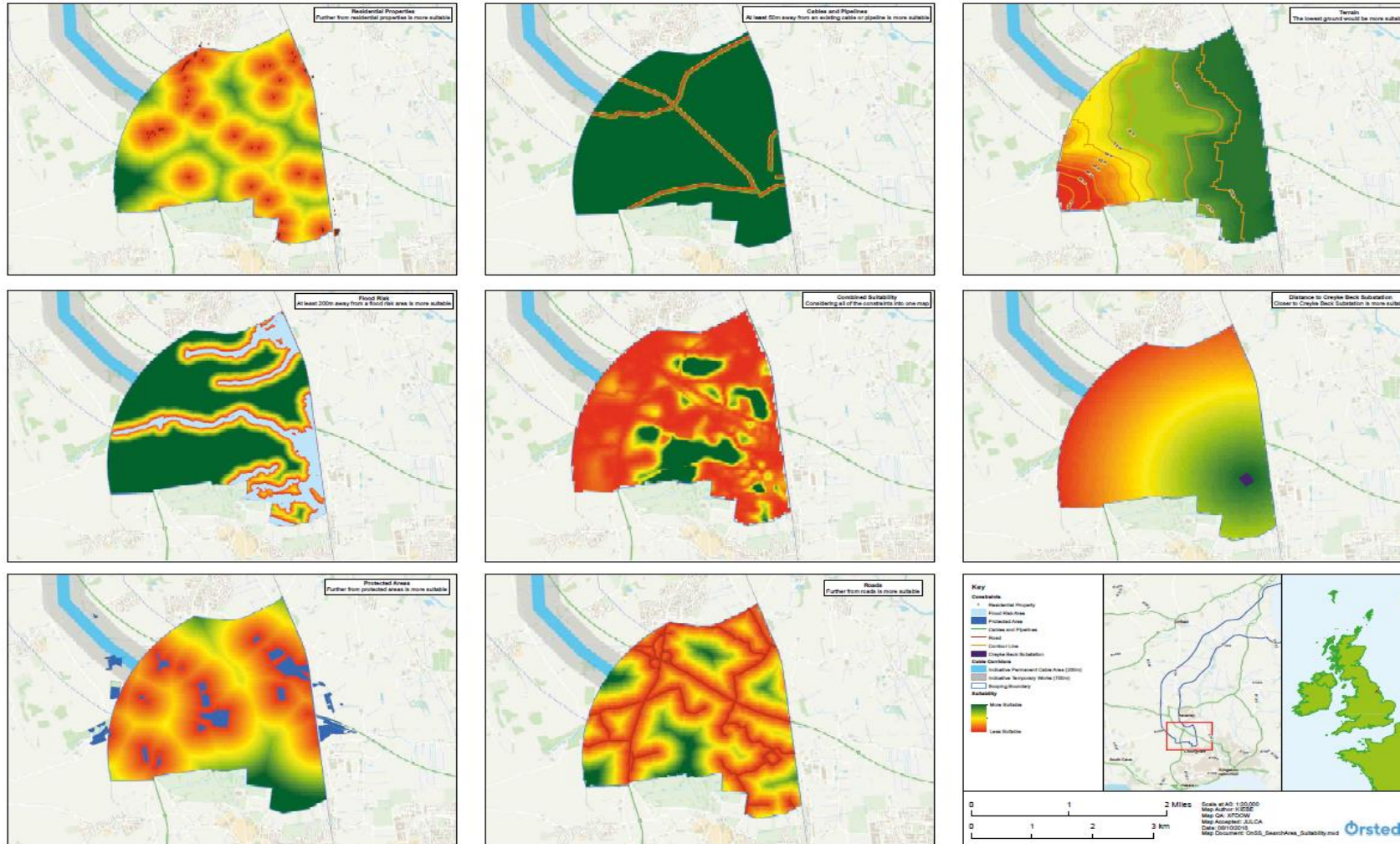
Main components of an offshore wind farm

- Hornsea Project Four will be located approximately 65 km off Flamborough Head on the Yorkshire Coast.
- We are currently exploring an offshore area of 846 km².
- Up to 180 wind turbines could be built.



Local information event foam boards – constraints and OS maps

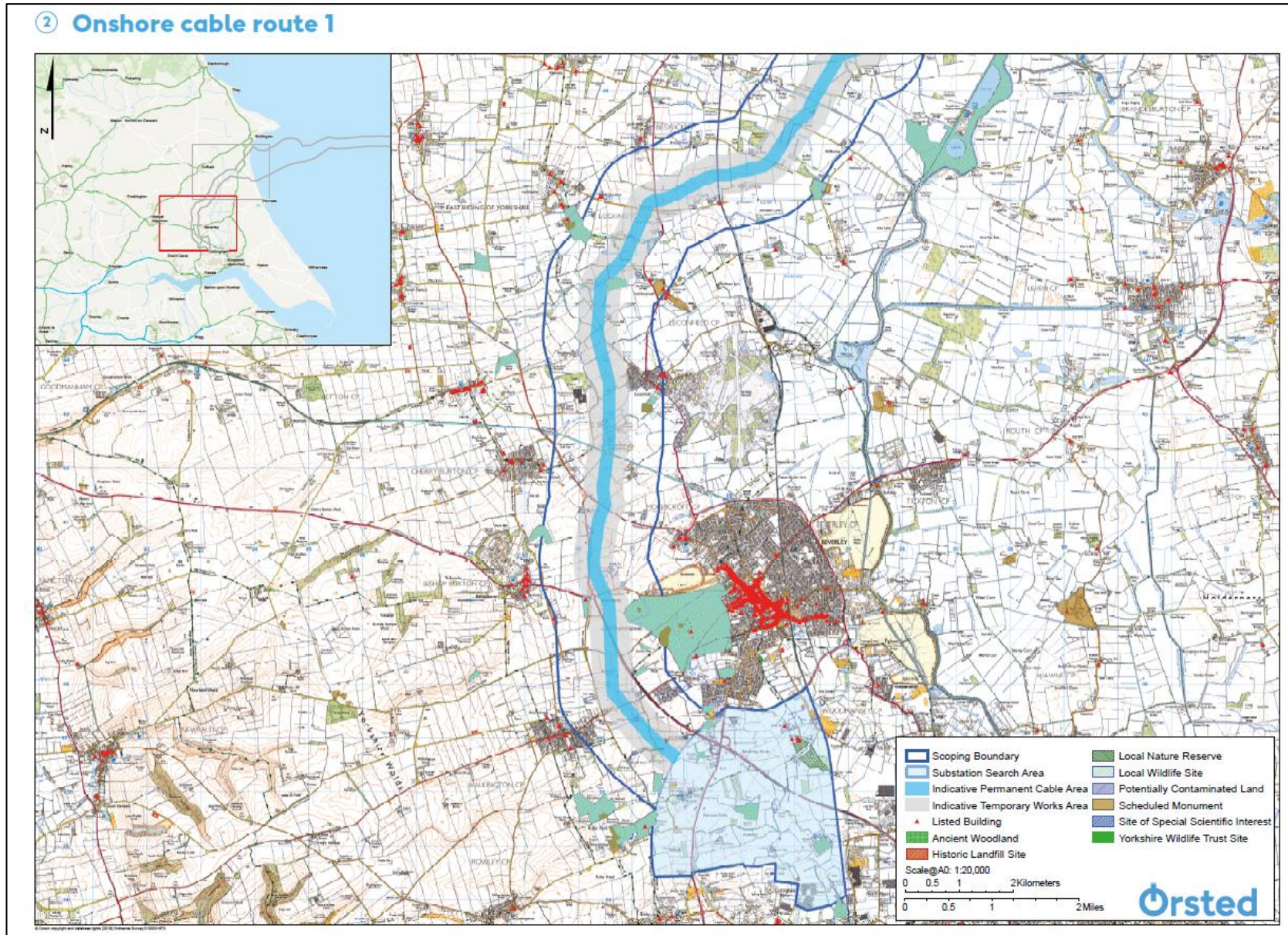
① Onshore substation constraints



Background Mapping, Total Data and Terrain: Data supplied by the Ordnance Survey under the UK Copyright Licence. © Rights Reserved. Flood Risk supplied by the Environment Agency. Substation, Cables and Pipelines supplied under license by The National Grid. All rights reserved. Crown Copyright 2016

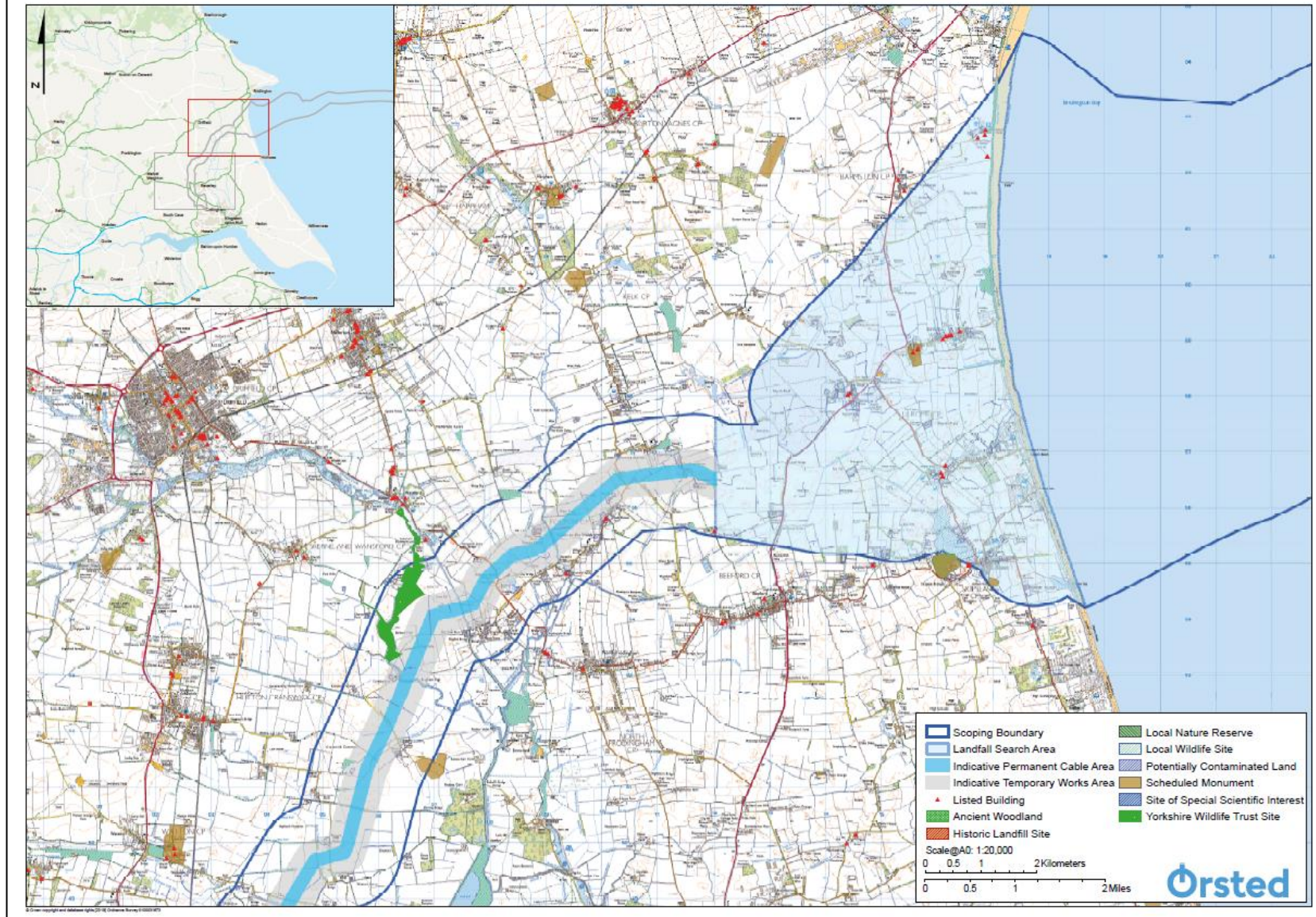
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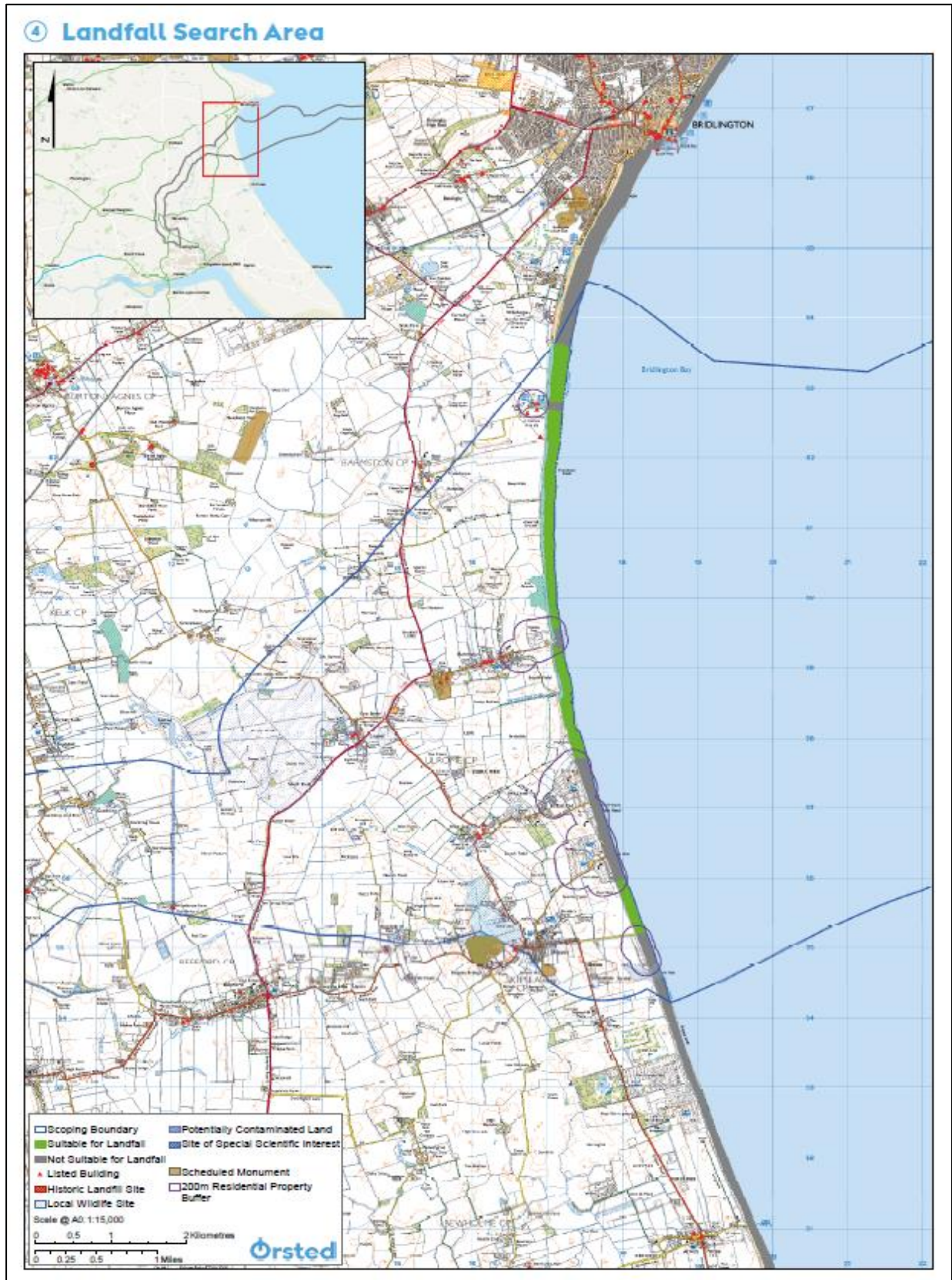
② Onshore cable route 1



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③ Onshore cable route 2

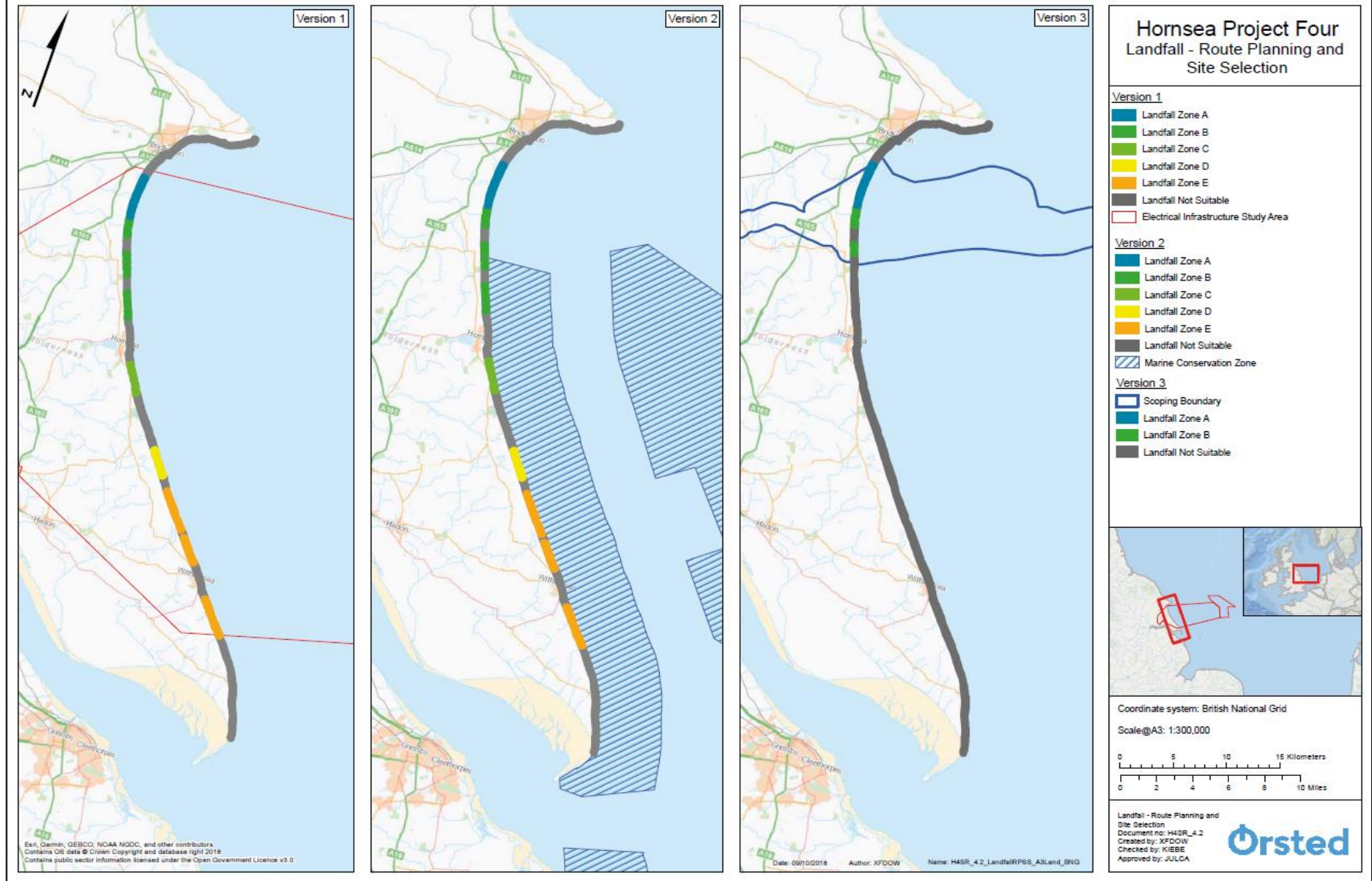




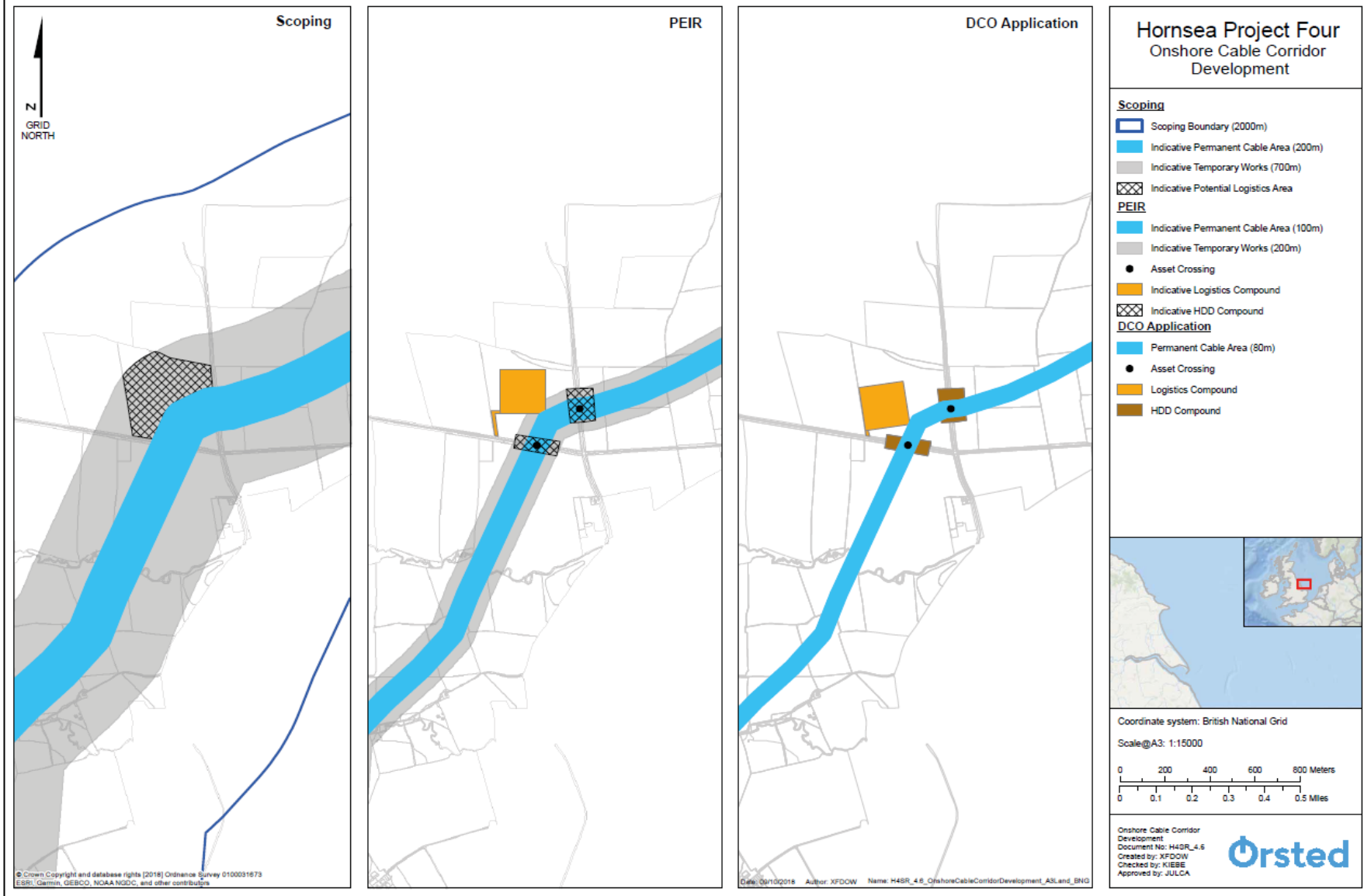
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Speak to a member of our team to find out more about this process



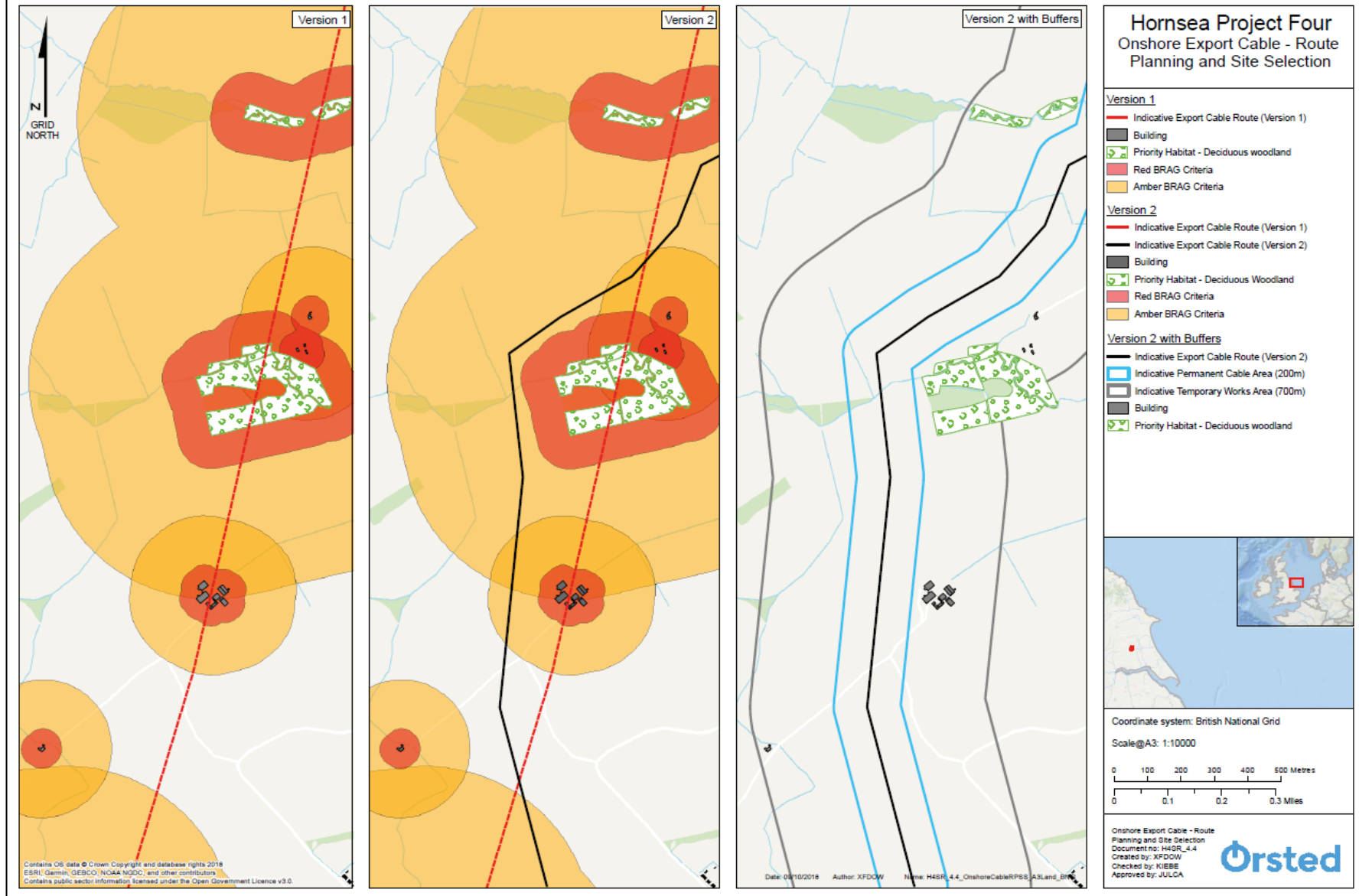
Speak to a member of our team to find out more about this process




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Speak to a member of our team to find out more about this process






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Horizontal Directional Drilling (HDD)

The cable route for Hornsea Project Four may need to cross a number of structures such as roads and rail crossings.

To minimise disturbance to the local community and to reduce the need for diversions or road closures, we employ a trenchless cable laying method called Horizontal Directional Drilling (HDD).

HDD involves installing ducts beneath the relevant structure through which the cable can be pulled.



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Our commitments

We have already committed to:

-  Route the cable to avoid residential properties by at least 50 m
-  Locate construction access roads at least 150 m away from residential properties
-  Install above-ground high voltage infrastructure at least 50 m away from residential properties
-  Avoid sensitive sites such as listed buildings, National Trust land, designated sites and historic landfill
-  Avoid environmentally sensitive areas such as ponds, RSPB reserves, ancient woodland and wildlife sites

Speak to a member of our project team today to better understand how you can input into our commitments register.



Phase one section 47 consultation feedback form



Hornsea Project Four Offshore Wind Farm Feedback Form

You do not have to supply personal details, however doing so will help us to work towards meeting the needs of the public during the consultation period and enable us to contact you with updates on our project. Your personal details will be stored in compliance with the GDPR by Counter Context acting on behalf of Ørsted.

Name Title Date

Organisation:
(if applicable)

Address

Postcode Telephone

Email

How would you describe your interest in Hornsea Project Four Offshore Wind Farm?

- Landowner Local resident Local representative Statutory body
 Local business Other (please specify)

If you are representing an organisation/business, please state above.

Based on what you have seen today, what is your opinion of our proposals?

- Strongly agree Agree Disagree Strongly disagree Don't know

Which aspect of the project is most important to you?

Tick all that apply and elaborate on the impacts or effects that you are concerned about using the text boxes provided. If your further comments relate to a specific location please let us know.

Tick	Topic area	Further comments
<input type="radio"/>	Onshore ecology (e.g. animals, birds and plants) Please indicate any animal, bird or plant species of particular importance to you.	
<input type="radio"/>	Flood risk	

Continued overleaf

Tick	Topic area	Further comments
<input type="radio"/>	Landscape and visual impact onshore	
<input type="radio"/>	Historic environment (e.g. archaeology and local heritage)	
<input type="radio"/>	Land use and recreation (e.g. Public Rights of Way and tourism)	
<input type="radio"/>	Traffic and transport	
<input type="radio"/>	Socio-economic factors (e.g. employment and economy)	
<input type="radio"/>	Noise and vibration	
<input type="radio"/>	Offshore ecology (e.g. marine mammals, birds, fish and shellfish) Please indicate any marine mammals, birds, fish or shellfish species of particular importance to you.	
<input type="radio"/>	Landscape and visual impact offshore	
<input type="radio"/>	Marine archaeology	
<input type="radio"/>	Other (please detail)	

Are you aware of our Impacts and effects register and our commitments register?
Please speak to a member of the team if you would like more information.

Yes No Don't know

Our commitments register is the primary way for you to input into the project design.

We want to reduce impacts that are important to you, your local area and the local environment.

Please tell us below what commitments would you like us to make in order to achieve this.

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Do you have any further comments on our proposals for the project?

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The UK is committed to reducing its greenhouse gas emissions by at least 80% by 2050, compared to 1990 levels. Please indicate how much you agree with the following statement: 'Offshore wind has the potential to contribute significantly towards the UK's low carbon transition.'

Strongly agree Agree Disagree Strongly disagree Don't know

How did you find out about our local information events?

Consultation leaflet Advertisement Local media Local representative

Other (please specify)

How informative did you find this local information event?

Very informative Quite informative Not informative No opinion

Continued overleaf

Please indicate how much you agree with the following statement:
 'My views will be considered as the proposals for the project develop.'

Strongly agree
 Agree
 Disagree
 Strongly disagree
 Don't know

If you answered 'disagree', 'strongly disagree' or 'don't know', please let us know your suggestions for improving our consultation process.

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We would like to keep you updated by post and email on our proposals for Hornsea Project Four Offshore Wind Farm. If you agree to being contacted via these methods, please tick the relevant boxes below. Your personal data will be used to help us to develop our consultation and distribution areas which will help us to ensure that the local community is fully informed of the project's activity.

Email
 Post

Thank you for taking the time to complete this questionnaire, your input is very important to us.

A short Consultation Summary Report will be produced following these events. This will summarise all of the feedback received and will be available on our website:

www.Hornseaprojects.co.uk/Hornsea-Project-Four

To provide your feedback via post, please send your completed form to:

Hornsea Project Four Offshore Wind Farm
 c/o Humphrey Laidlaw
 Ørsted UK
 5 Howick Place
 Victoria
 London
 SW1P 1WG

Hornsea 4 Environmental Impact Assessment (EIA) The proportionate approach

The purpose of the EIA process is to inform the Secretary of State and the Planning Inspectorate of the likely significant effects associated with the development during its construction, operation and maintenance, and decommissioning.

What is the proportionate approach?

The EIA should be undertaken and presented in a manner that would satisfy both legal and consenting requirements whilst being suitably brief and providing an adequate assessment of the likely significant effects.

Delivering proportionate EIA for Hornsea Project Four will be a progressive activity that has started with scoping and will proceed through the Evidence Plan process and consultation. The outcome will be presented in the Preliminary Environmental Information Report and Environmental Statement.

How will we deliver?

A number of approaches which aim to deliver a proportionate EIA have been adopted for Hornsea Project Four:

- route planning and site selection
- the impacts register
- capitalising on the existing evidence base
- early adoption of mitigation
- the commitments register
- a tiered approach to define an appropriate level of assessment

One key aspect of the approach to scoping is the initial identification of the likely significant effects of Hornsea Project Four. This assessment is supported by a combination of:

- knowledge acquired by the EIA team on baseline conditions at this stage in the development process
- definition of the project up to this point
- national policy and standards
- the evidence base and experience of similar projects passing through the consenting system
- topic-specific criteria for impact magnitude and receptor sensitivity to impacts



Route planning site selection aims to avoid or reduce impacts by committing to avoid the most sensitive, important or valuable features early in project design. In so doing, it reduces the scope of the Hornsea Project Four EIA and the amount of assessment required.

Impacts and effects

A cornerstone of the approach to delivering proportionate EIA is the development of an impacts and effects register (the 'impacts register'). This provides a high-level impact assessment (magnitude, sensitivity and significance) of possible environmental impacts as a result of the project. The register lists mitigation measures embedded in or committed to design. It also lists additional mitigation options identified in the EIA process which require sign-off by Hornsea Project Four to reduce effects.

Commitments

For each topic, the EIA process has taken into consideration mitigation measures which Hornsea Project Four has already adopted. These mitigation measures include avoidance, best practice and design commitments which are classified into primary, secondary or tertiary measures:

- **Primary (inherent) mitigation:** measures which form an intrinsic part of the design, which are described in the design evolution narrative and included within the project description (e.g. reducing development heights to reduce visual impact).
- **Secondary (foreseeable) mitigation:** measures which require further activity in order to achieve the anticipated outcome (e.g. development of the optimal reinstatement measures for restoring a disturbed sensitive natural habitat).
- **Tertiary (inexorable) mitigation:** measures which will be required regardless of the EIA process as they are imposed (e.g. as a result of legislative requirements and/or standard industry practices such as a Construction Environmental Management Plan or a Code of Construction Practice).

Scoping out

As a result of the above approaches adopted for the EIA scoping stage for Hornsea Project Four, some matters can be justifiably scoped out of any further assessment. Other matters can be assigned with an appropriate level of assessment methodology (broadly 'simple' or 'detailed') as part of a tiered approach to EIA.

This process began within the impacts register, which assigned provisional levels for assessment for each impact. These were then tested further in the scoping process.

More information on this can be found in the Scoping Report for the project which is available on our website: www.Hornseaprojects.co.uk/hornsea-project-four

Hard copies of the scoping report are also available at today's local information event.



Hornsea 4 Horizontal Directional Drilling (HDD)

All onshore cables for Hornsea Project Four will be installed by open-cut trenching and/or Horizontal Directional Drilling (HDD). When developing our proposals for the project, consideration has been given to the onshore construction methods which are employed and ways in which disturbance to the local community can be minimised.

What is Horizontal Directional Drilling (HDD)? **Impacts and mitigation**

HDD is a trenchless drilling method used to install ducts beneath the ground through which cables from the offshore wind farm can be pulled.

The process involves drilling an initial hole known as a pilot borehole through a predetermined bore path. Subsequent hole enlargements then follow the path set out by the pilot bore from the surface. HDD provides minimum disturbance to the surrounding area and is a less intrusive method than the more commonly used open-cut trenching.

Where will HDD be carried out?

We are in the process of refining our Indicative Permanent Cable Area and our Indicative Temporary Works Area which lie in the project's Onshore Scoping Boundary. HDD and all construction activities will take place within our Indicative Temporary Works Area.

Indicative HDD compounds will be presented within the Preliminary Environmental Information Report (PEIR) which will be published in Summer/Autumn 2019. This report will present a refined Temporary Works Area (200 m) as part of the Development of Consent Order (DCO) application.

Up to 18 onshore cables will be laid in six trenches within the 200 m Indicative Permanent Cable Area. Cables will be installed either by direct lay or pulled through installed ducting (e.g. at HDD crossings). The Temporary Works Area for the onshore cables will be 80 m wide, increasing at HDD locations, and will include a haul road and topsoil and subsoil storage areas.

The landfall for Hornsea Project Four will be achieved by eight HDD crossings at a location within the Landfall Search Area.

Where practicable, HDD will be employed to cross environmentally sensitive water courses, major roadways and railways. All natural watercourses including main rivers and ordinary watercourses, main roads and railways will be crossed by HDD or other trenchless technology where technically feasible.

All major watercourses will be crossed using HDD techniques. The impacts on major watercourses from construction activities involving the use of HDD techniques are considered negligible. On account of the nature of the technique, the method ensures that there is no interaction between the works and the watercourse to be crossed, and as such, no potential pathway for an impact is created.

The use of HDD at the landfall section of the cable route will significantly reduce the area of impact and therefore reduce the potential magnitude of coastal erosion and impacts on the integrity of the cliff section to negligible.

The locations and extents of activities will be refined as progress is made regarding route planning, site selection and design for the project, allowing avoidance in some instances and development of other solutions (e.g. HDD crossing of roads) elsewhere.

More information on this can be found in the Scoping Report for the project which is available on our website: www.Hornseaprojects.co.uk/hornsea-project-four

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Horizontal Directional Drilling (HDD)



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To minimise disturbance to the local community and to reduce the need for diversions or road closures, we employ a trenchless cable laying method called Horizontal Directional Drilling (HDD).

HDD involves installing ducts beneath the relevant structure through which the cable can be pulled.

Hornsea 4 Project Infrastructure & Construction

Two main transmission technologies are being considered for Hornsea Project Four, defined by the type of current: High Voltage Alternative Current (HVAC) and High Voltage Direct Current (HVDC). The project will decide on which transmission type it will use during the detailed design and procurement stage post-consent, based on a range of factors including project economics and technology risk.

Offshore infrastructure

The offshore components of a wind farm include:

- **Wind turbines and foundations**
- **Substations**
- **Accommodation platform**
- **Array and interlink cables**
- **Scour and cable protection**
- **Export cables**
- **HVAC booster stations (if required)**

The foundation type and design for wind turbine generators, offshore substations and offshore accommodation platforms will depend on final site investigations and procurement negotiations which will be completed post-consent. The project has allowed for a maximum of 180 wind turbines.

The electrical transmission system for Hornsea Project Four is likely to consist of several offshore and onshore cables and substations. The system will collect the power produced by the wind turbines and transport it to the UK electricity transmission network.

Onshore infrastructure

The onshore components of a wind farm include:

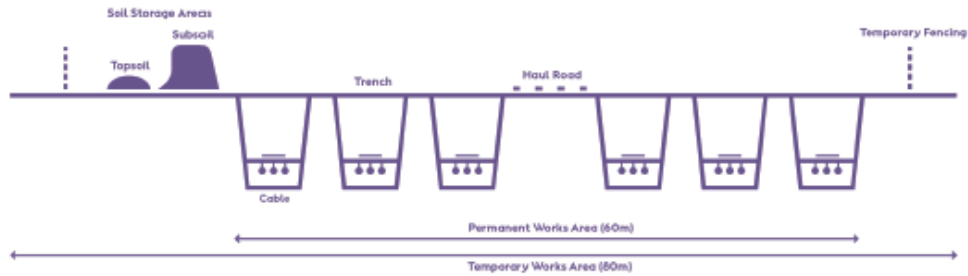
- **Export cables**
- **Onshore substation**
- **Energy balancing infrastructure**
- **Grid connection**



Example image of an onshore substation

The onshore substation contains the electrical components required to transform the power supplied by the wind farm to 400 KV. This power is then supplied to the National Grid. The maximum design scenario for the onshore substation will be set out in the Preliminary Environmental Information Report (e.g. max height, footprint, number and type of buildings).

Onshore cable installation uses well-established techniques and incorporates environmental management and mitigation measures as standard practice. Precise installation methods will differ according to the nature of the environment through which the cable is being installed. The indicative onshore cable arrangement is illustrated in a typical trench cross-section overleaf.

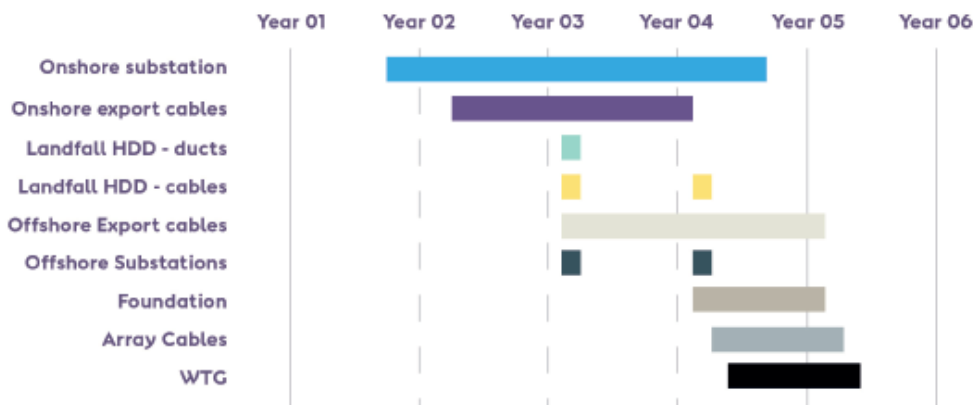


Energy balancing equipment is becoming increasingly widespread. Effective and cost-efficient balance between the supply and demand of electricity within the electrical transmission network increases the overall reliability of the system.

The offshore wind industry is constantly innovating and a range of technologies are currently under development. These will be considered and assessed at a later stage of the development process.

Construction programme

The indicative high-level construction programme shown below provides an overview of the anticipated duration associated with the installation of some of the main project elements. This programme assumes that Hornsea Project Four will be built in a single construction campaign.



More information on this can be found in the Scoping Report for the project which is available on our website: www.Hornseaprojects.co.uk/hornsea-project-four

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