

The Great Grid Upgrade

Sea Link

Project overview document

10-minute read

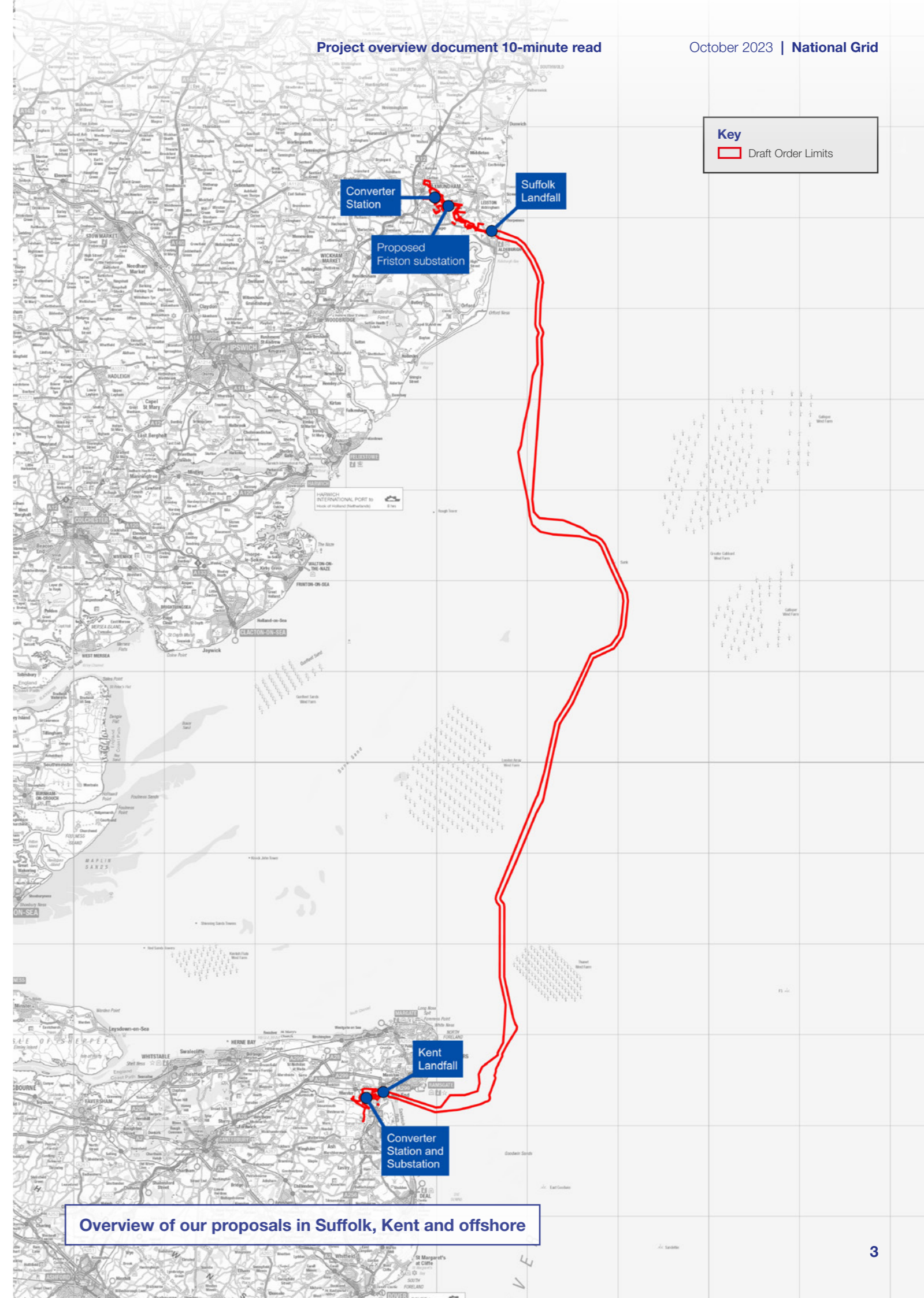
October 2023

nationalgrid



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1. Executive summary

National Grid Electricity Transmission (NGET) needs to upgrade the electricity transmission network between Suffolk and Kent to connect new renewable and low-carbon energy to homes and businesses.

To do this, we are proposing to build a new 2 gigawatt high voltage direct current link approximately 145 kilometres long and primarily offshore. This project is known as Sea Link.

We want to hear what you think of our plans. This will help us develop our proposals before we submit an application for development consent.

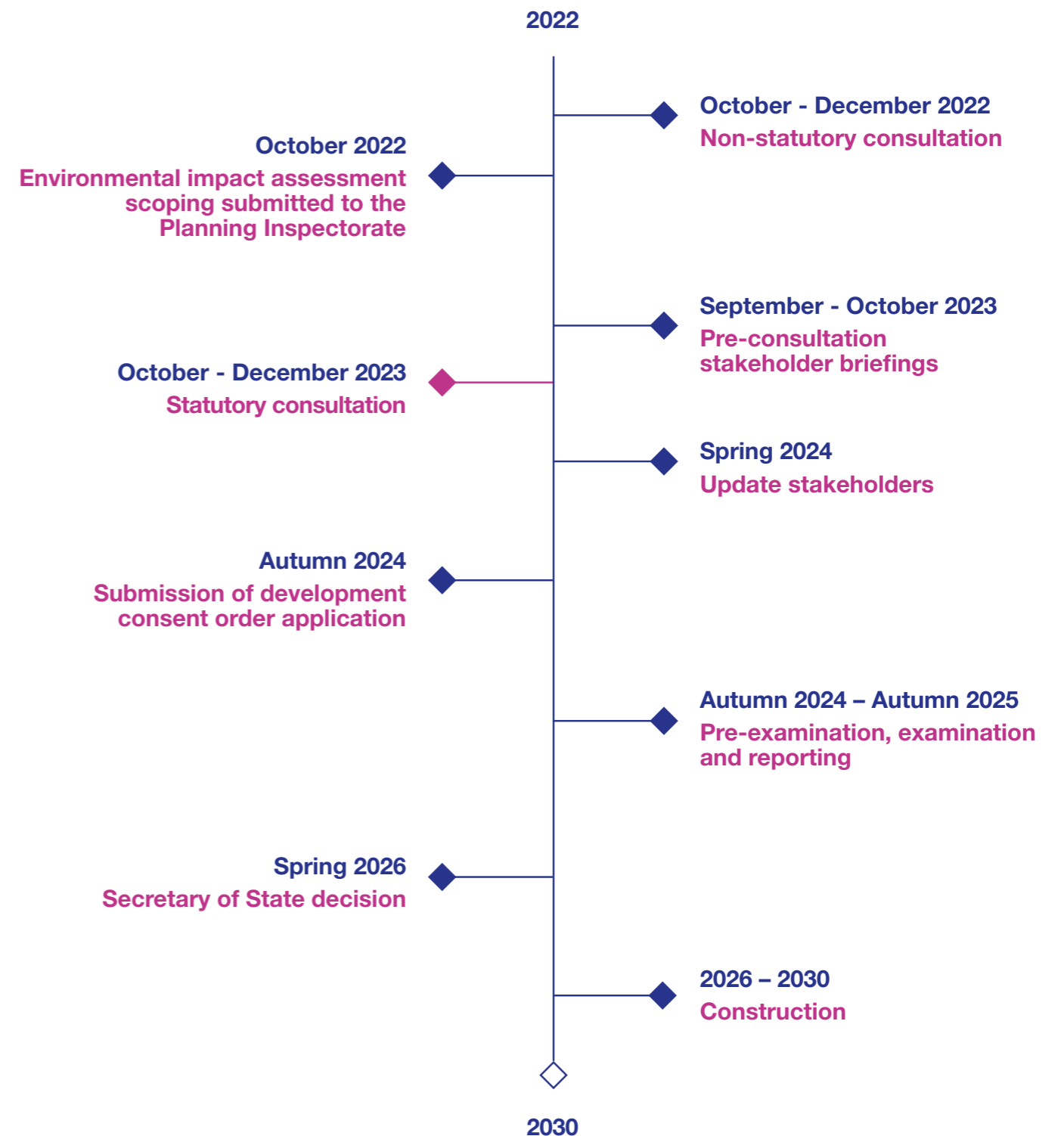
Our consultation is running from 24 October until 18 December 2023. You can take part in the consultation in the following ways:

- **attend a public information exhibition** – taking place across the local area, find out more about our proposals, speak to the team and take away some consultation materials
- **book an in-person, video or telephone appointment to an ‘ask the experts’ session** – book an individual appointment with our project team on our website, over the phone or by email
- **visit our website** – nationalgrid.com/sealink, where you will find detailed maps, information, and our online feedback form
- **attend a webinar** – join one of our webinars by signing up on our project website, over the phone, or by emailing us
- **complete a feedback form** – complete and return a feedback form to us. You can do this on our website, in-person at our public information exhibitions, or by sending a paper copy feedback form to us using our freepost address Freepost SEA LINK (no stamp or further address details are required).

The deadline for feedback is **23:59 on Monday 18 December 2023**. Postal responses will be accepted until Tuesday 2 January 2024.

If you have any questions, or would like to request a consultation document, or paper feedback form, please contact the project team using the details below.

Project website: nationalgrid.com/sealink
 Call us: **0808 134 9569** (lines are open Monday to Friday, 9am-5:30pm)
 Email us: contact@sealink.nationalgrid.com
 Write to us: **Freepost SEA LINK**

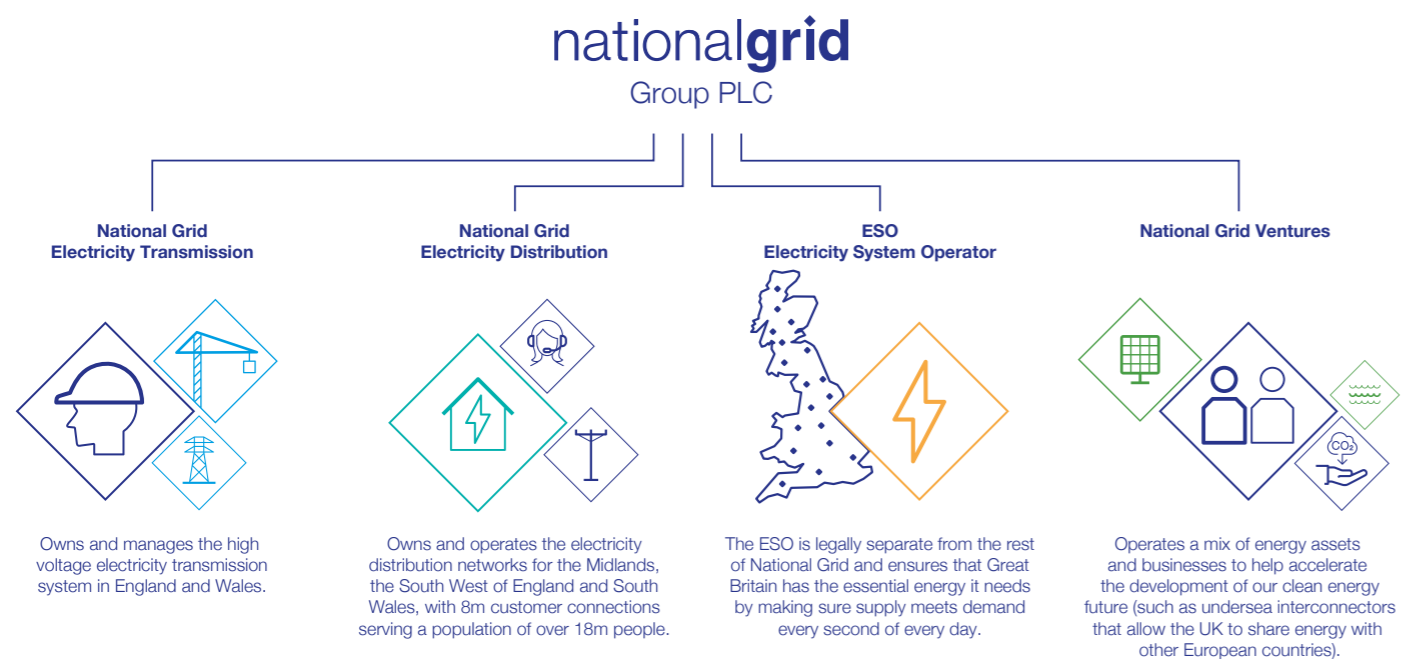


2. About National Grid

National Grid Electricity Transmission owns, builds and maintains the network in England and Wales.

It is National Grid Electricity Transmission (NGET) that is developing plans for Sea Link.

Within the National Grid Group there are distinctly separate legal entities, each with their individual responsibilities and roles.



3. Why we need to build Sea Link

The network in and between East Anglia and the south-east of England needs reinforcing for the following reasons:



Net zero – to reach net zero by 2050 we are generating or sharing more low-carbon electricity through offshore wind, nuclear power and interconnectors.



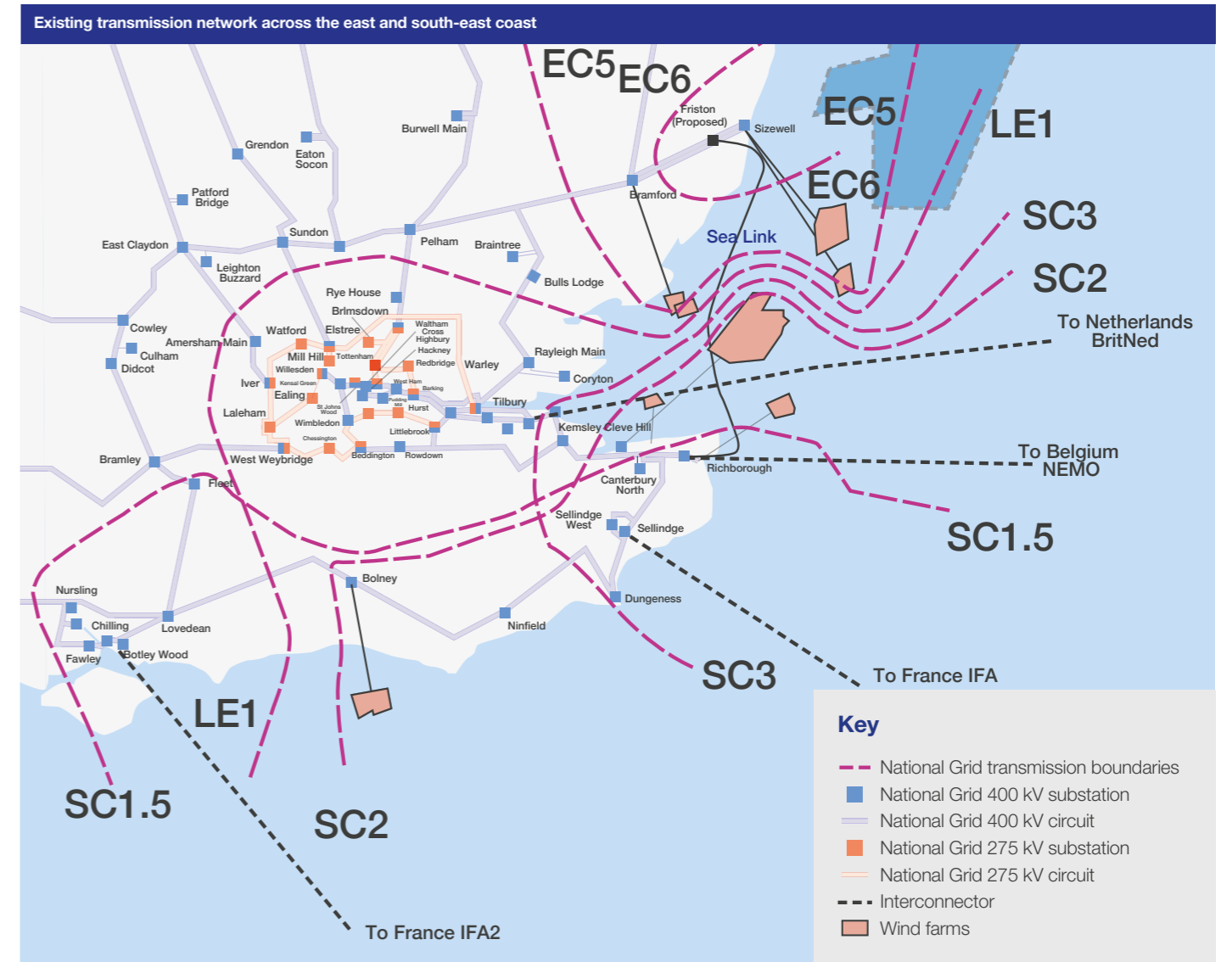
Demand is increasing – electricity demand is forecasted to at least double by 2050, which increases the amount of energy we need to transport to homes and businesses.



Energy generation is changing – the existing electricity transmission network was not designed to transport electricity from where we increasingly now generate it, and more electricity will be generated in the years ahead than the network can securely and reliably transport.



Small scale network change isn't enough – upgrading the existing network, such as through replacing cables to carry more power, will not be enough to carry the amount of future power whilst operating to required standards.



Sea Link will help make sure the grid is ready to transport more secure, cheaper, and cleaner forms of energy and forms part of **The Great Grid Upgrade**, the largest overhaul of the grid in generations.

4. How we have developed our plans for Sea Link

Last year, we held a non-statutory consultation on our emerging proposals for Sea Link.

Based on feedback, further assessments and surveys we have refined our plans. The changes we have made since non-statutory consultation are as follows:

In Suffolk

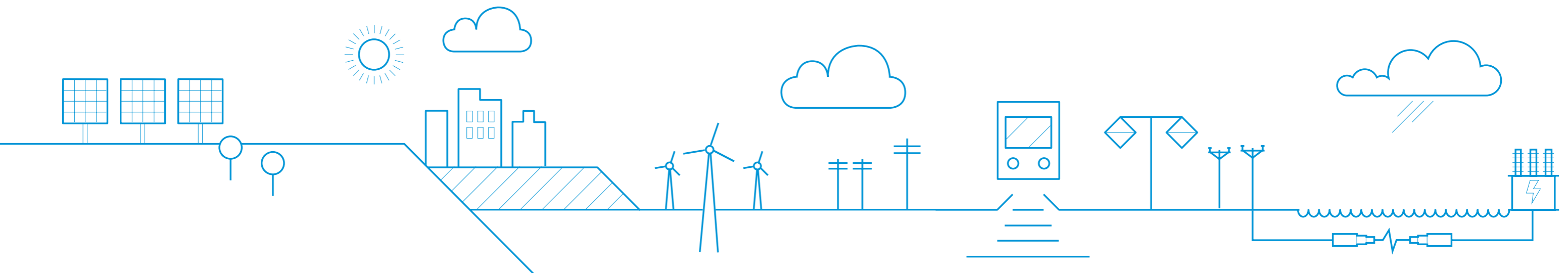
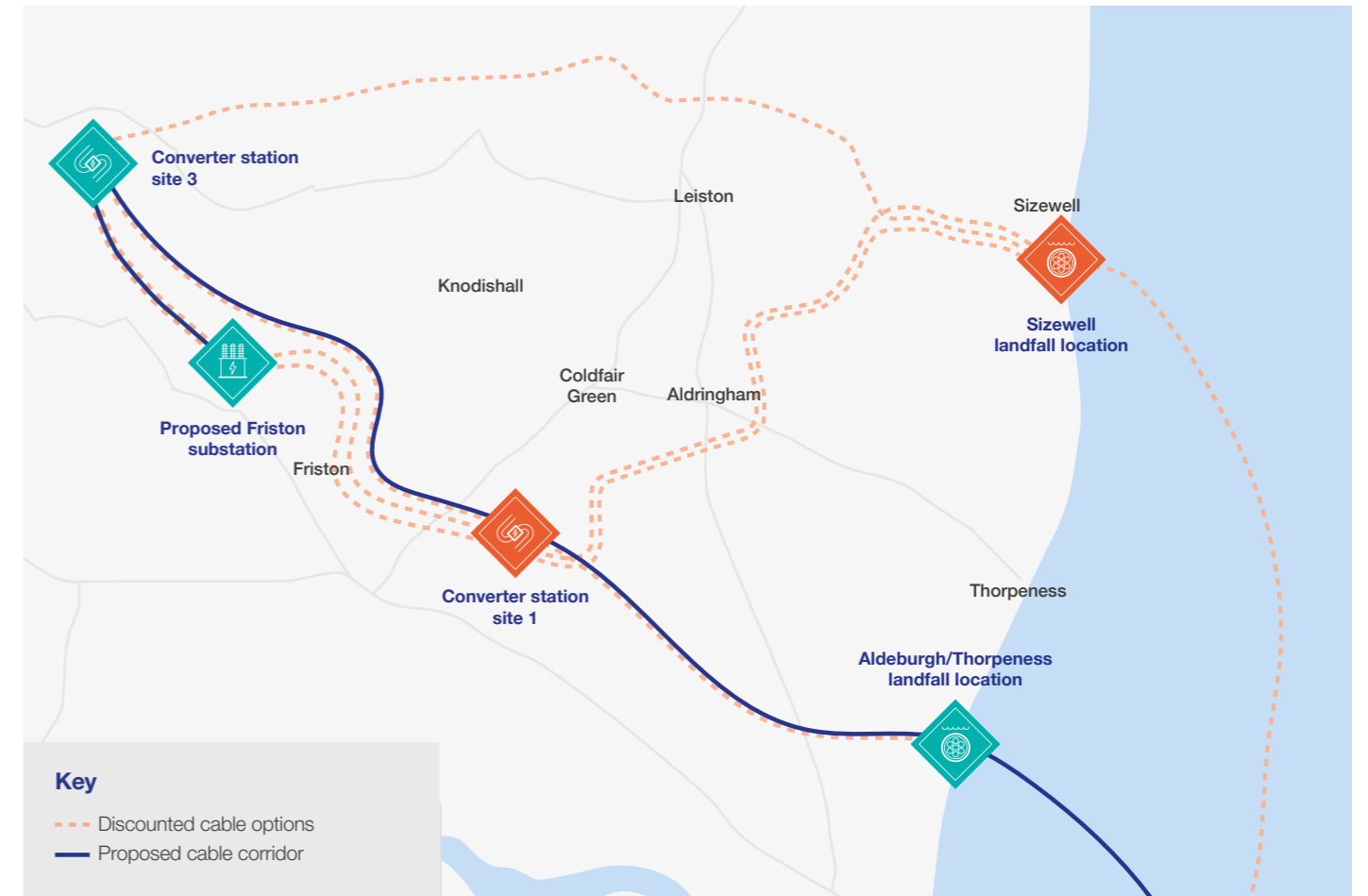
A converter station location near Saxmundham, Site 3 was, on balance, identified as our preferred option to progress, rather than Site 1 south of Coldfair Green. We have also refined our landfall locations from two to one and are progressing a landfall between Aldeburgh and Thorpeness, rather than a landfall at Sizewell.

We are including the proposed Friston substation in our proposals, to give us a comprehensive consenting position. We do however expect the proposed Friston substation to be built under the existing Scottish Power Renewables' consents.

Offshore

We are consulting on a single marine corridor which connects to the proposed landfall between Aldeburgh and Thorpeness in Suffolk, removing the alternative northern option which connected to the discounted landfall at Sizewell.

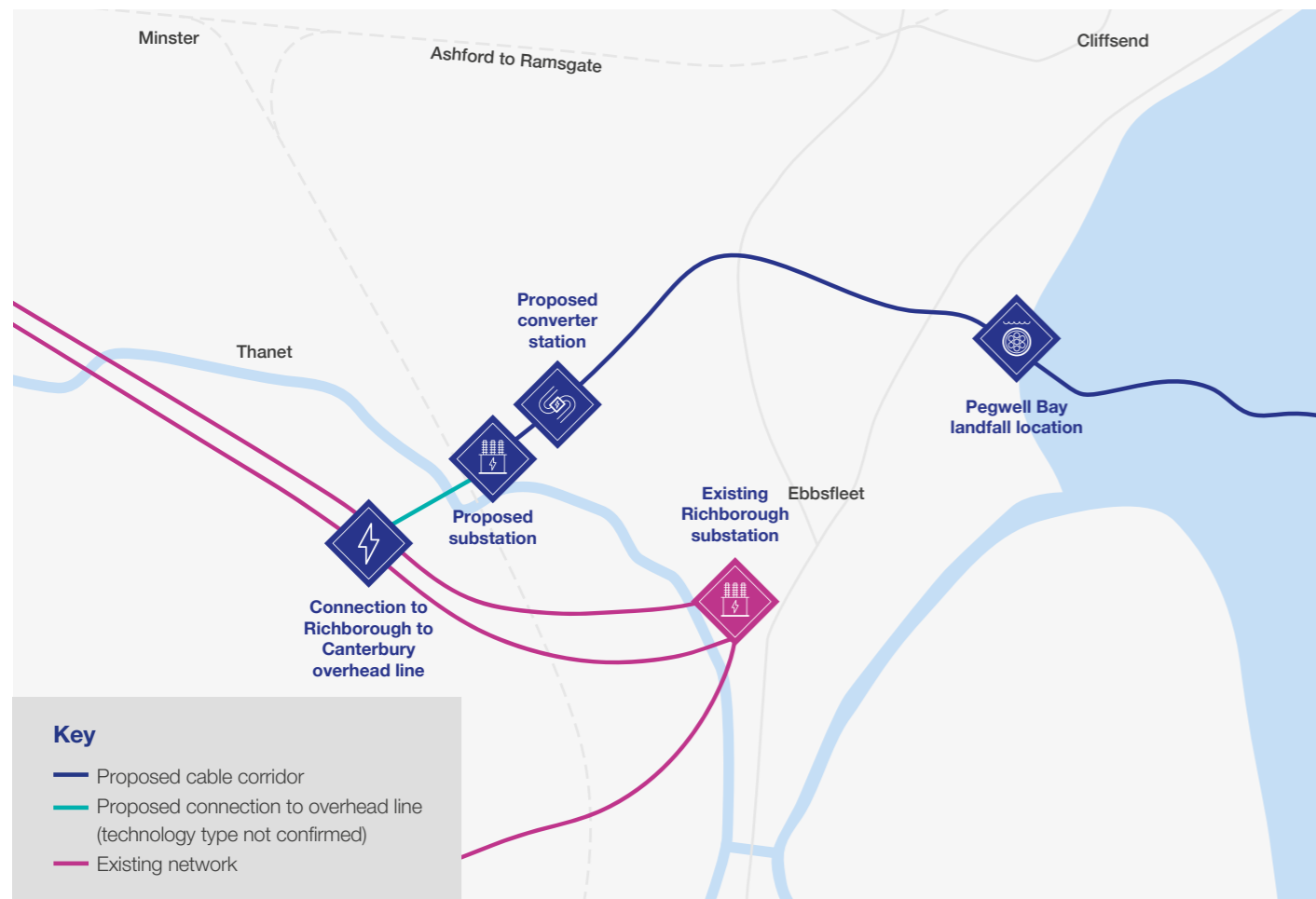
In Suffolk



In Kent

We are consulting on an overhead line connection from the proposed Minster substation into the existing high voltage electricity transmission network.

We are also presenting detailed draft Order Limits for the proposed Project. A draft Order Limit is the anticipated boundary of the entire area within which Sea Link could take place.

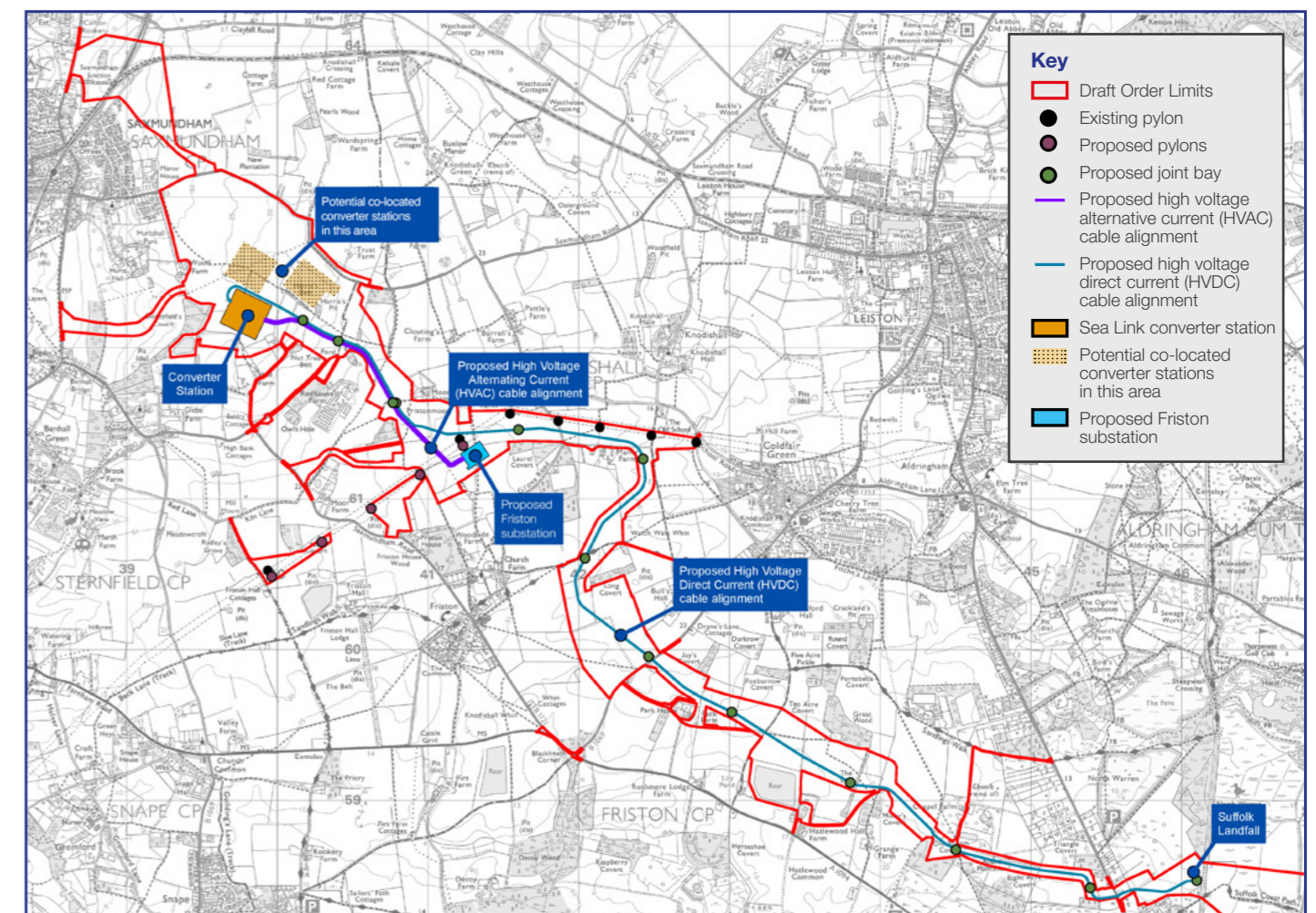


More information about the decisions we have made and consultation feedback can be found in our Project overview document.

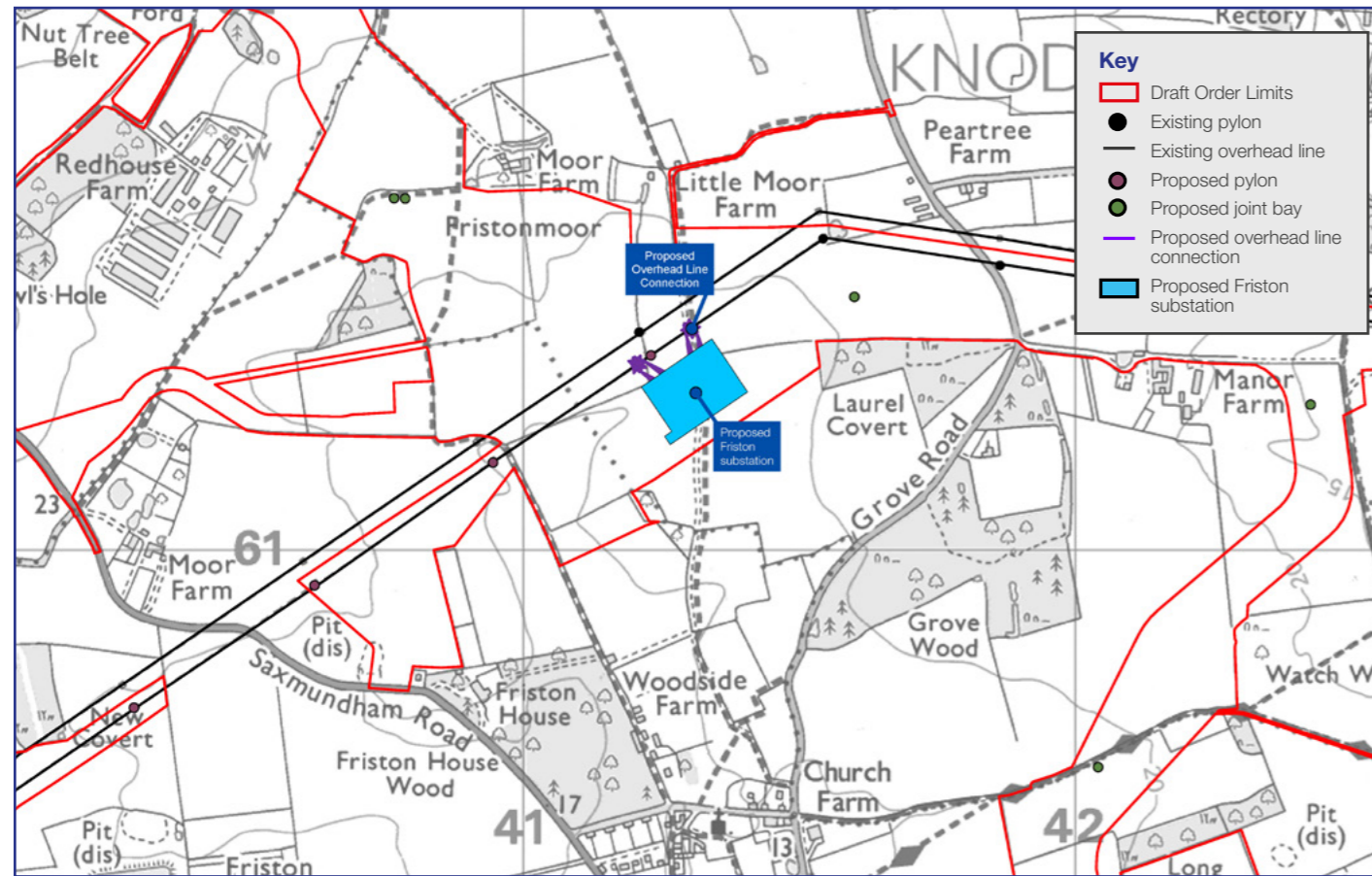
5. Sea Link in Suffolk

In Suffolk, our proposals include:

- a connection from the existing transmission network via the proposed Friston substation, including the substation itself if required
- a high voltage alternating current underground cable of approximately 1.7 km in length between the proposed Friston substation and a proposed converter station
- a 2 GW high voltage direct current (HVDC) converter station up to 26 metres high plus external equipment near Saxmundham
- a HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a transition joint bay approximately 900 metres inshore from a landfall point (below) where the cable transitions from onshore to offshore technology
- a landfall on the Suffolk coast (between Aldeburgh and Thorpeness).



Proposed Friston substation



The proposed Friston substation would be located immediately to the north of the village of Friston. It would be constructed using gas insulated switchgear technology with a footprint of up to 16,800 square metres.

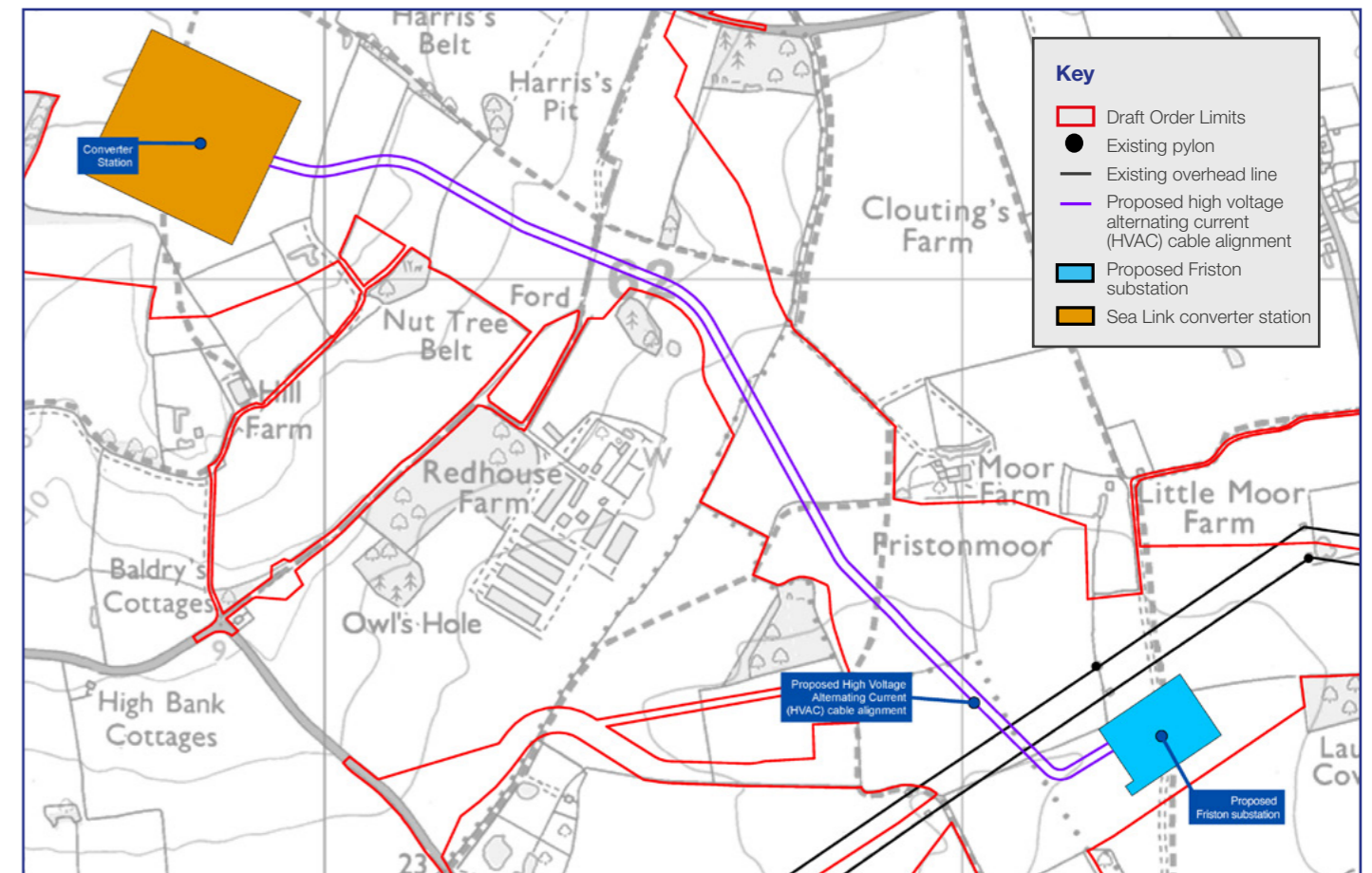
The construction of the proposed substation would also require modification works to the adjacent existing 400 kV overhead line.

Scottish Power Renewables already has consent for the proposed Friston substation as part of its East Anglia One North and East Anglia Two offshore windfarm projects. We are including the entire National Grid Electricity Transmission substation in our proposals for Sea Link, to give us a comprehensive consenting position. We do however still expect the proposed Friston substation to be built under the existing consents.

Coordination in Suffolk

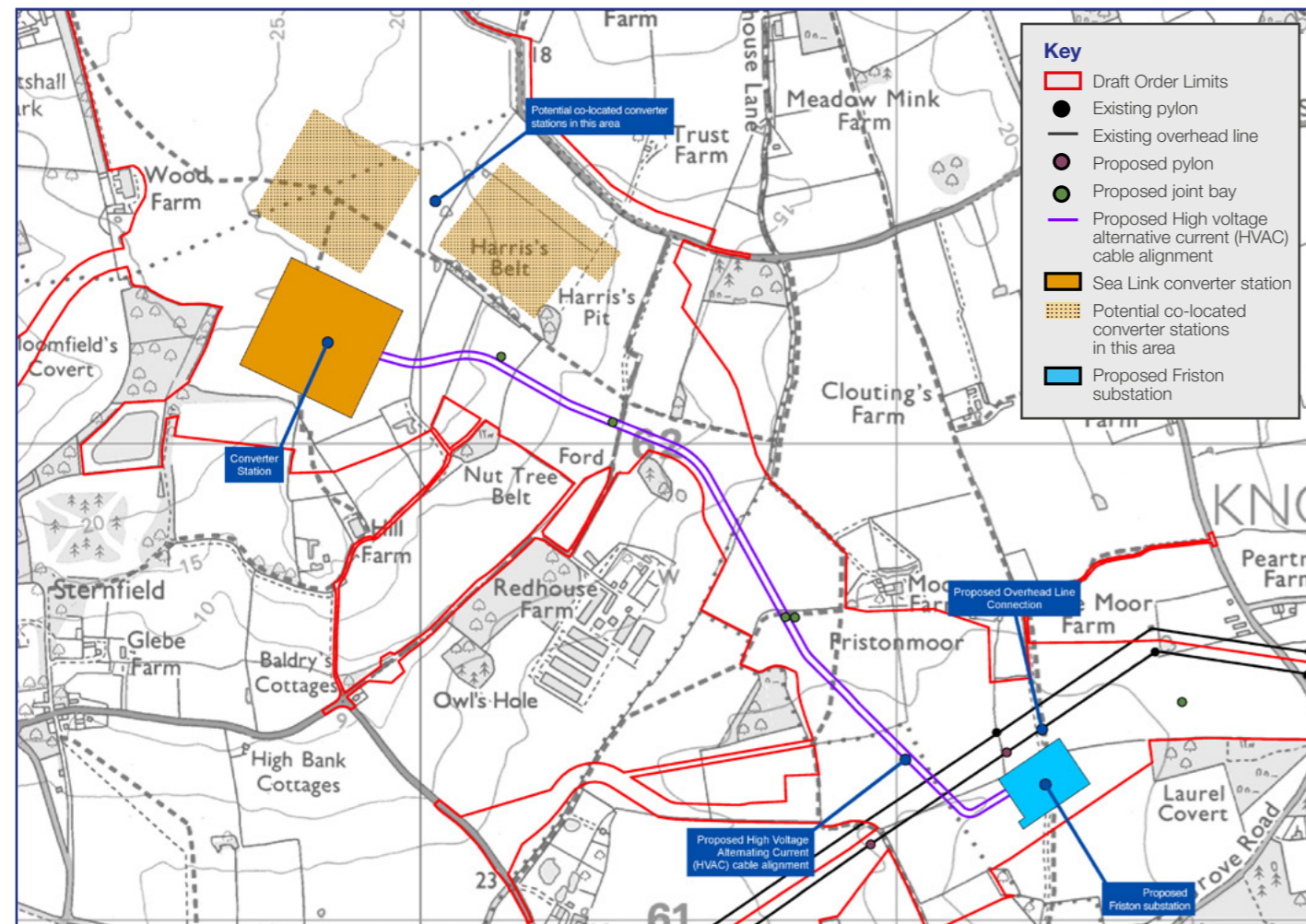
Our proposals in Suffolk have been developed for Sea Link as a standalone project, but also include opportunities to co-locate infrastructure for up to two other projects at the converter station location, cable corridors and the landfall location.

High voltage alternating current cables



From the substation, there would be a stretch of high voltage alternating current (HVAC) underground cable running northwest, south of the B1119 and north of the B1121, towards the converter station (see above). The HVAC cable stretch would be approximately 1.7 km in length.

Converter station



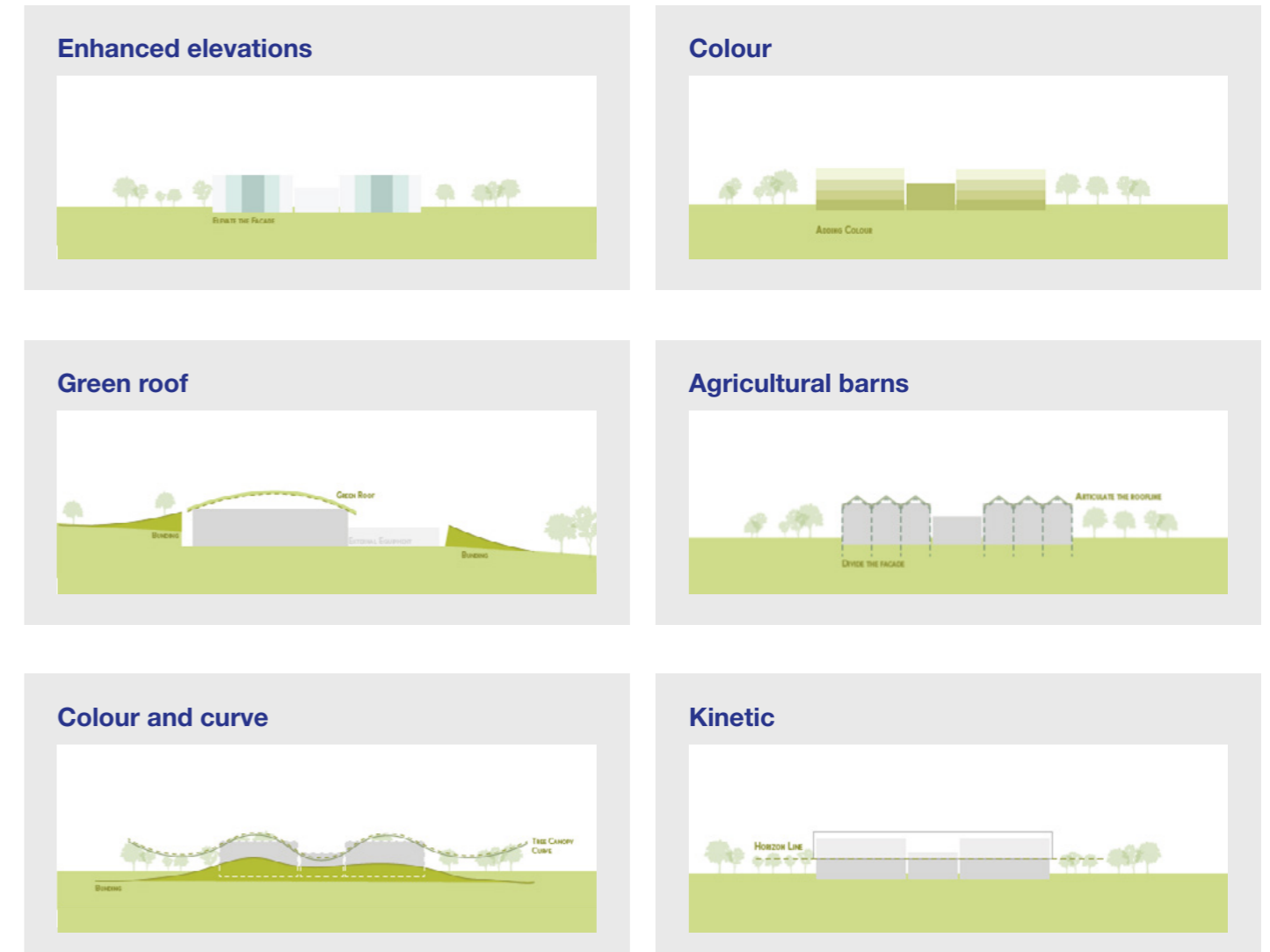
The high voltage alternating current cables would run into the proposed converter station site located to the east of Saxmundham, and to the south of the B1119. Converter stations convert alternating current which transmits power into homes and businesses, into direct current which transports power over longer distances, and vice versa.

The converter station would be up to 26 metres in height plus roof mounted equipment (aerials, walkways etc.).

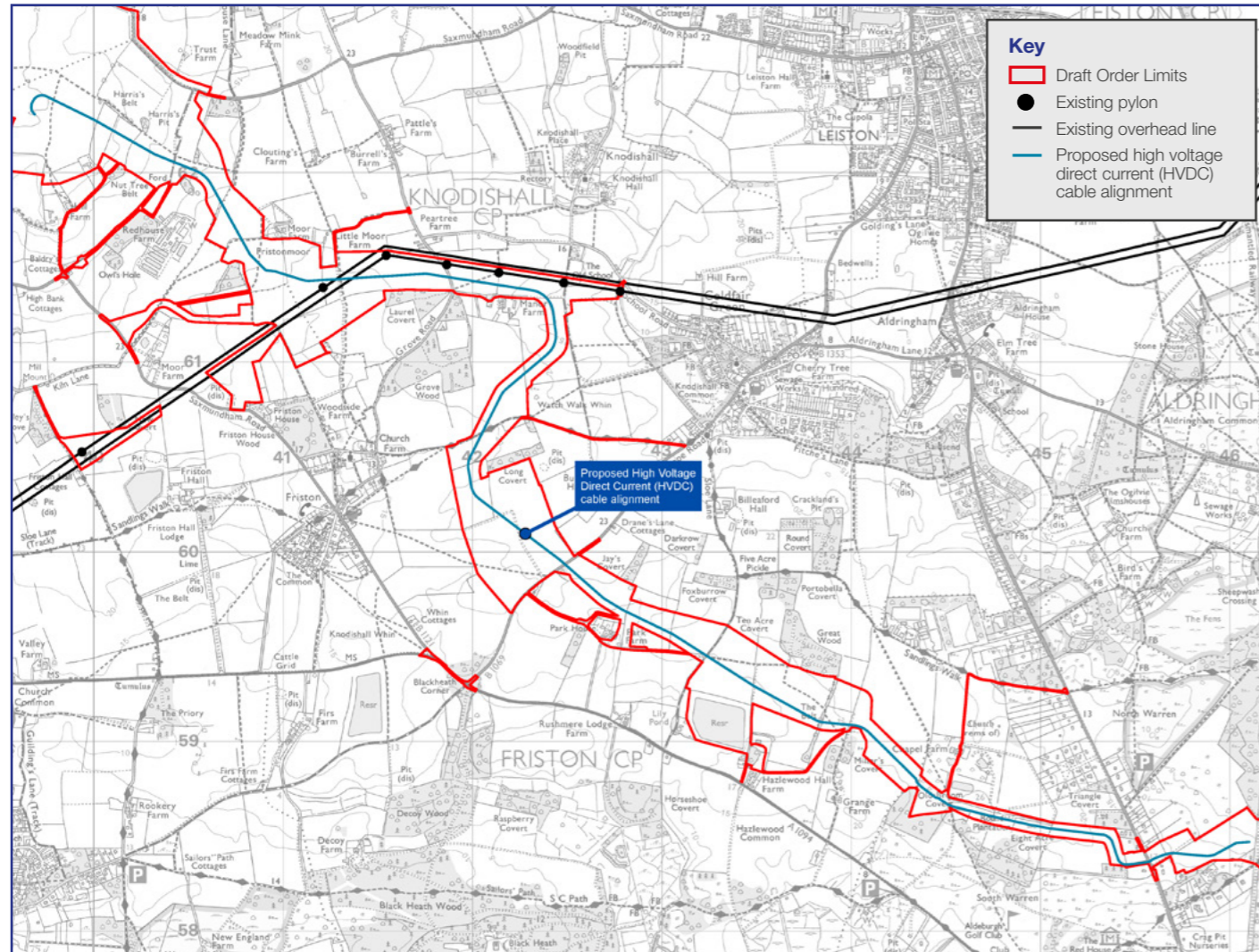
Although a single converter station would be required for the Sea Link project, we are showing illustrative examples of how up to three projects could potentially coordinate with each other and co-locate within the same site.

We would also like to hear your views on the design approaches for the converter station that we could explore once we enter the more detailed design stages.

The following illustrations show some possible design principles that may work at the converter station site, based on an initial architectural review.

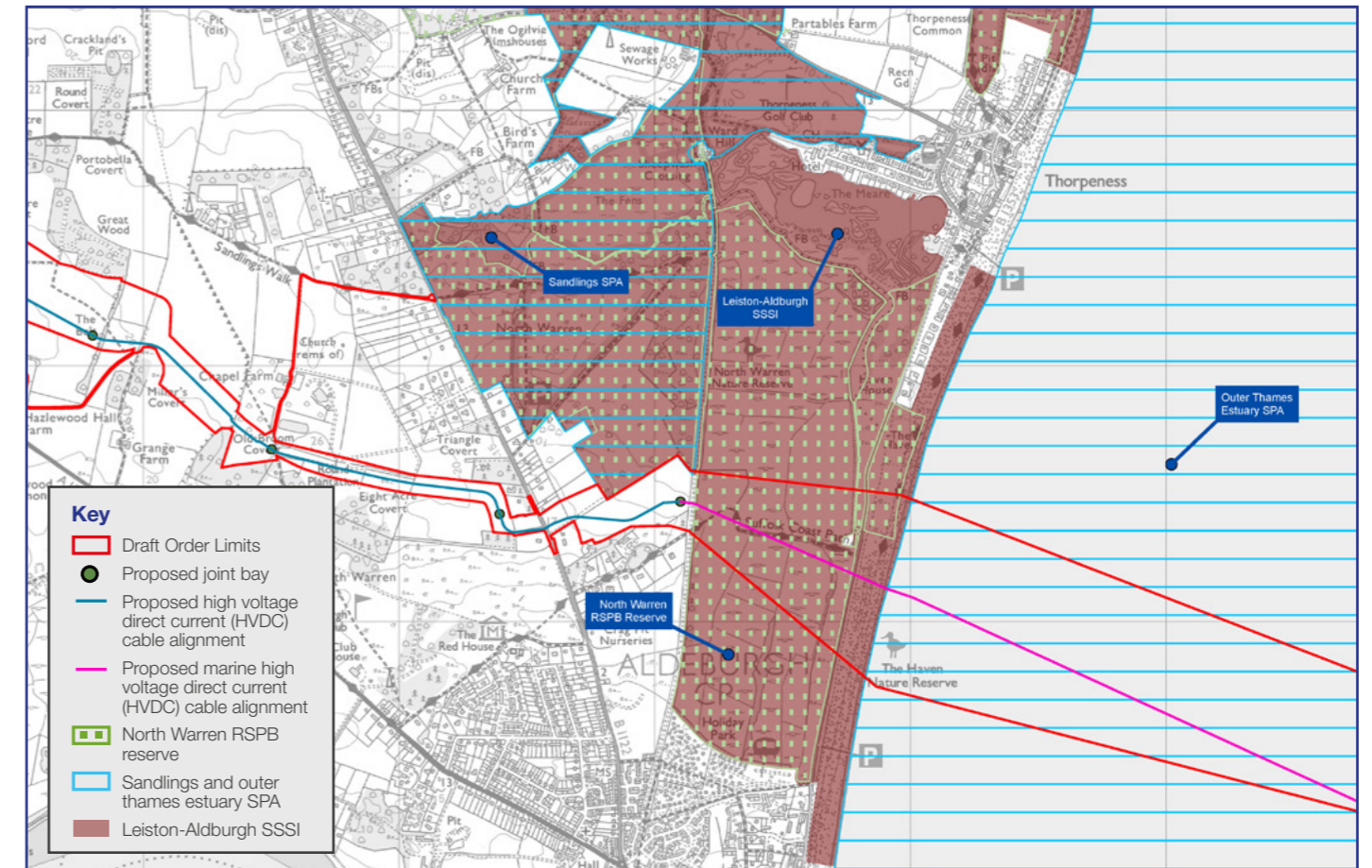


High voltage direct current cables



The high voltage direct current underground cable would leave the converter station site and run in an easterly direction for approximately 10 km, continuing to the transition joint bay which is the underground infrastructure needed to transition onshore cables to offshore.

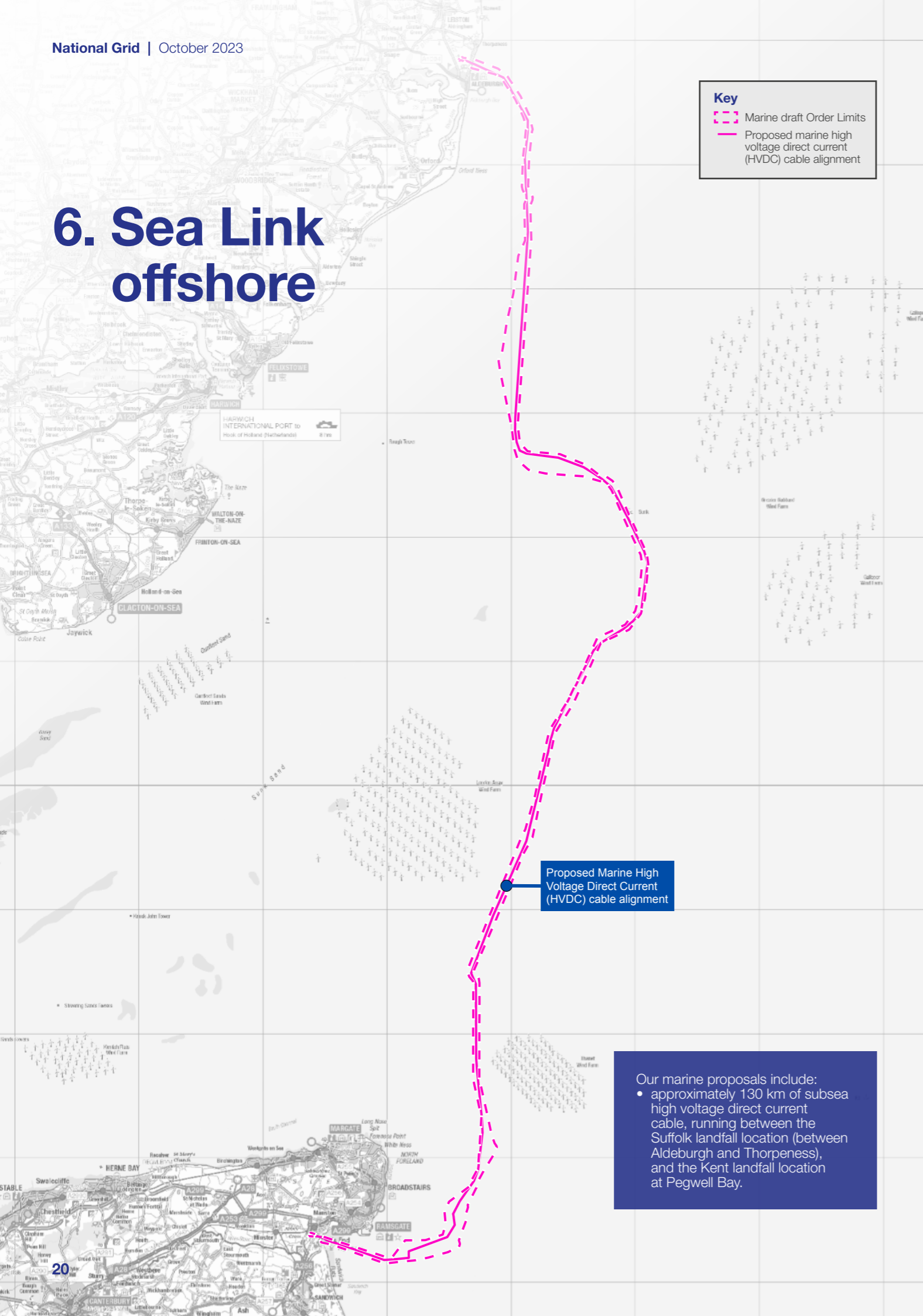
Landfall



The transition joint bay (TJB) would be located to the north of Warren Hill Lane and south of the Sandlings Special Protection Area.

The cable would run east out from the TJB for approximately 900 metres, beneath Thorpe Road, Leiston-Aldeburgh Site of Special Scientific Interest and North Warren RSPB Reserve, and then out to sea.

6. Sea Link offshore



Key

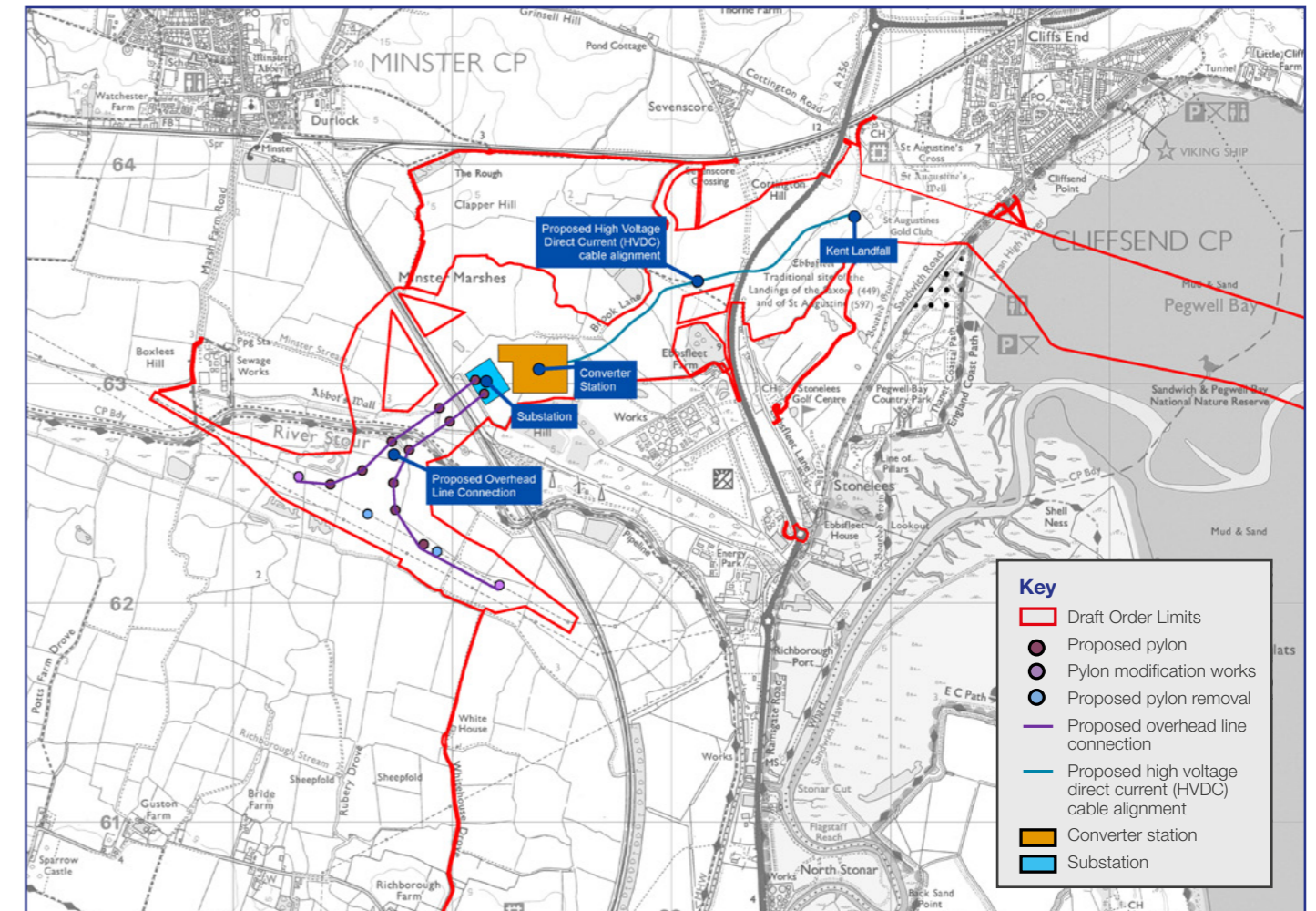
- Marine draft Order Limits
- Proposed marine high voltage direct current (HVDC) cable alignment

Proposed Marine High Voltage Direct Current (HVDC) cable alignment

Our marine proposals include:

- approximately 130 km of subsea high voltage direct current cable, running between the Suffolk landfall location (between Aldeburgh and Thorpeness), and the Kent landfall location at Pegwell Bay.

7. Sea Link in Kent



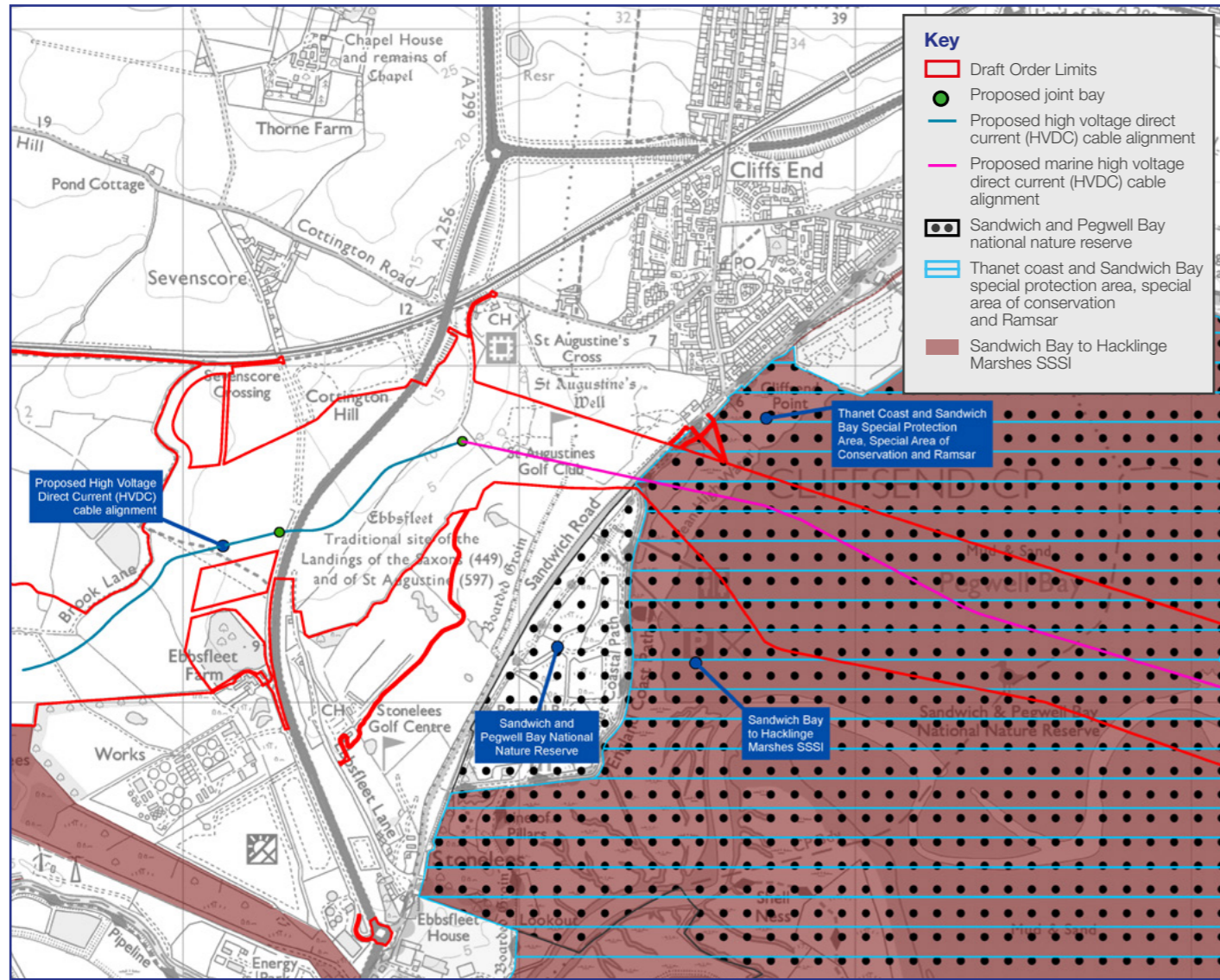
Key

- Draft Order Limits
- Proposed pylon
- Pylon modification works
- Proposed pylon removal
- Proposed overhead line connection
- Proposed high voltage direct current (HVDC) cable alignment
- Converter station
- Substation

In Kent, our proposals include:

- a landfall point on the Kent coast at Pegwell Bay
- a transition joint bay approximately 800 metres inshore to transition from offshore high voltage direct current (HVDC) cable to onshore HVDC cable, before continuing underground for approximately 2 km to a proposed new converter station
- a 2 GW HVDC converter station up to 26 metres high plus external equipment near Minster. A new substation would be located immediately adjacent
- removal of up to 1 km of existing high voltage alternating current (HVAC) overhead line, and installation of approximately 2.25 km of new HVAC overhead line from the converter station and substation near Minster and the existing Richborough to Canterbury overhead line.

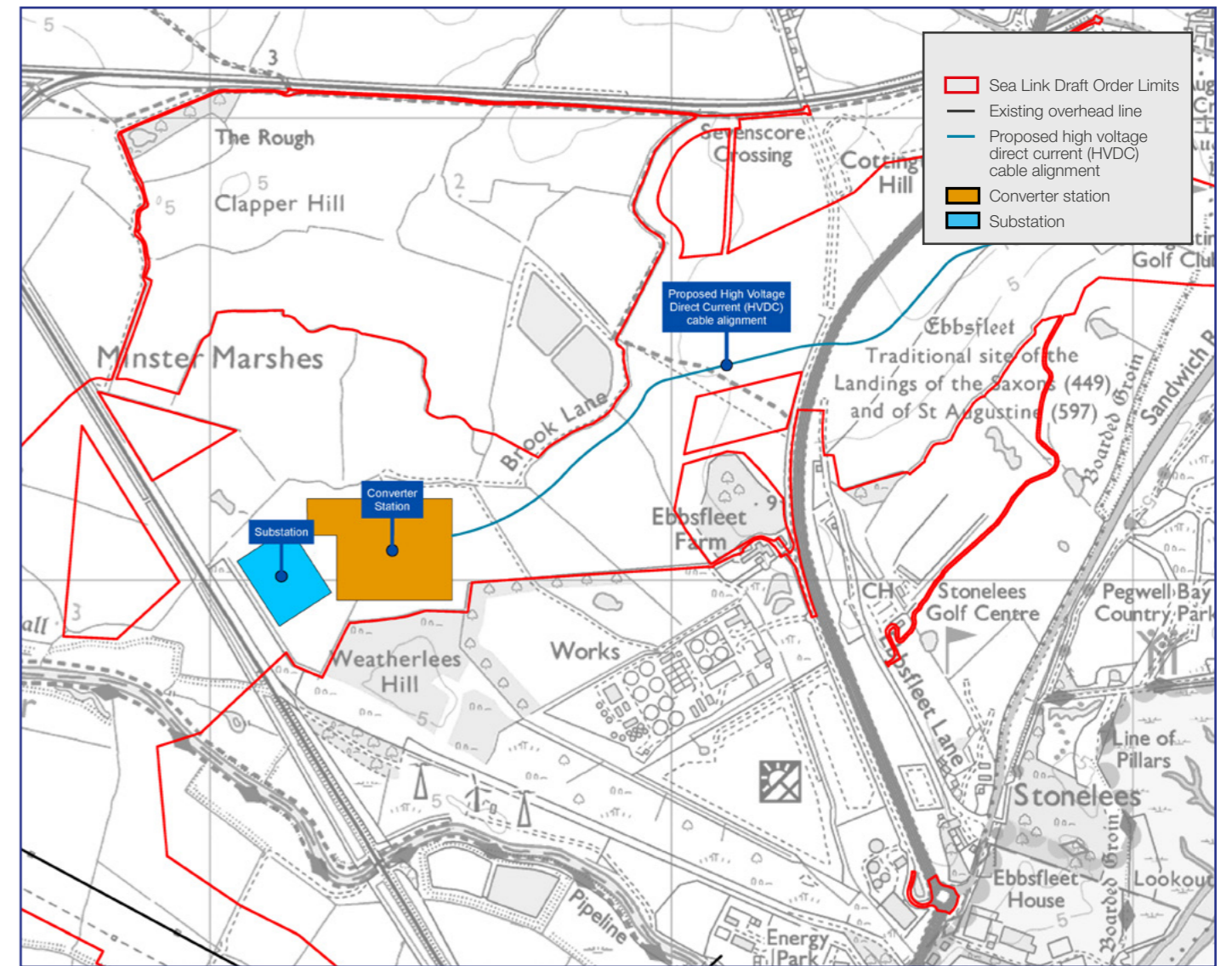
Landfall



The proposed landfall is located within Pegwell Bay, to the south of Cliffsend. The HVDC cables would cross under St Augustine's Golf Course and Stonelees Golf Centre approximately 800 metres inland to the transition joint bay where the HVDC cable transitions from offshore to onshore technology.

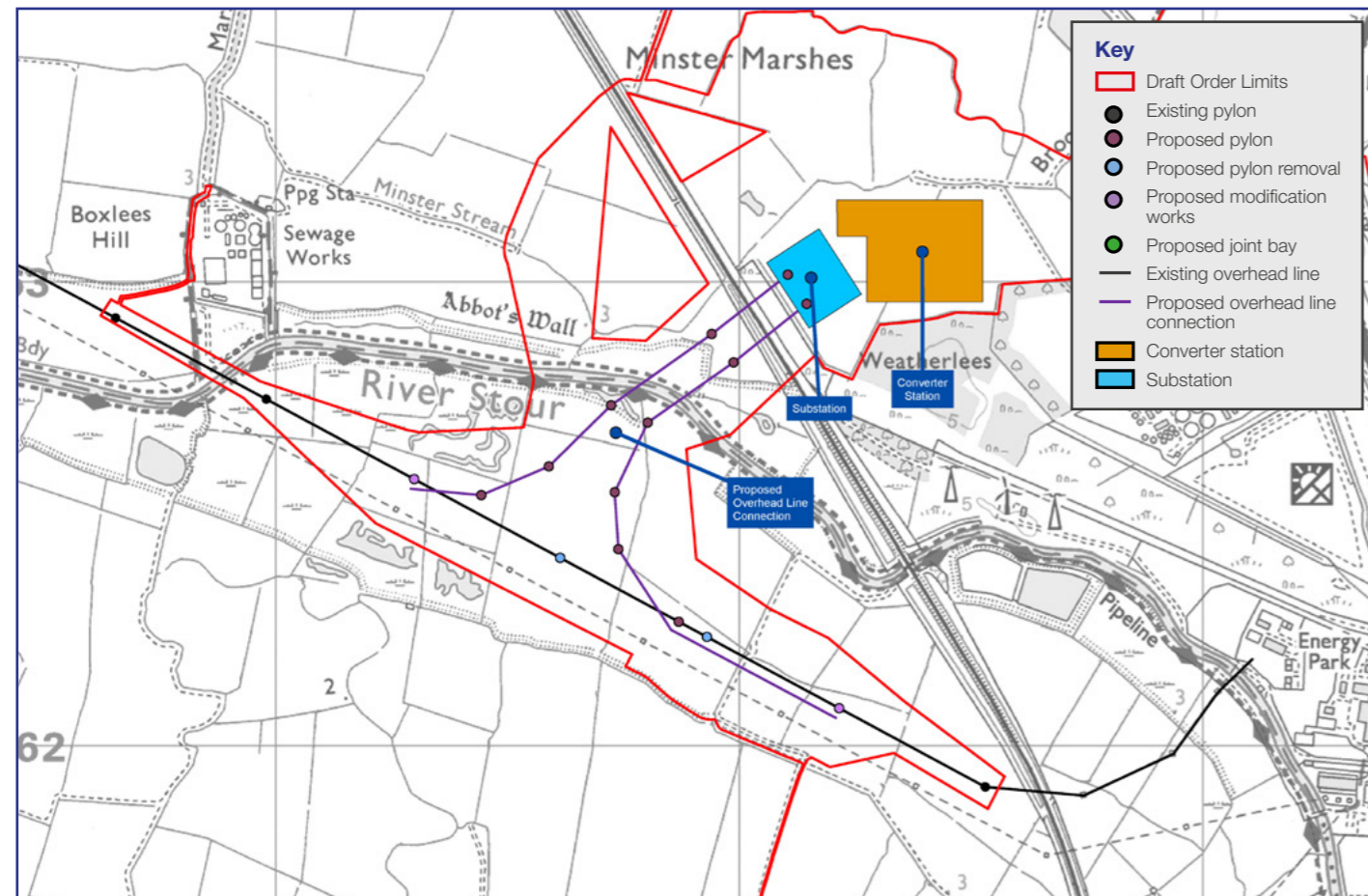
We would utilise trenchless crossing techniques for installing cable beneath the saltmarsh habitat within Pegwell Bay.

High voltage direct current cables



From the transition joint bay, the high voltage direct current (HVDC) cable would pass under the A256/Richborough Way and continue west for around 2 km towards the proposed substation.

Substation and converter station



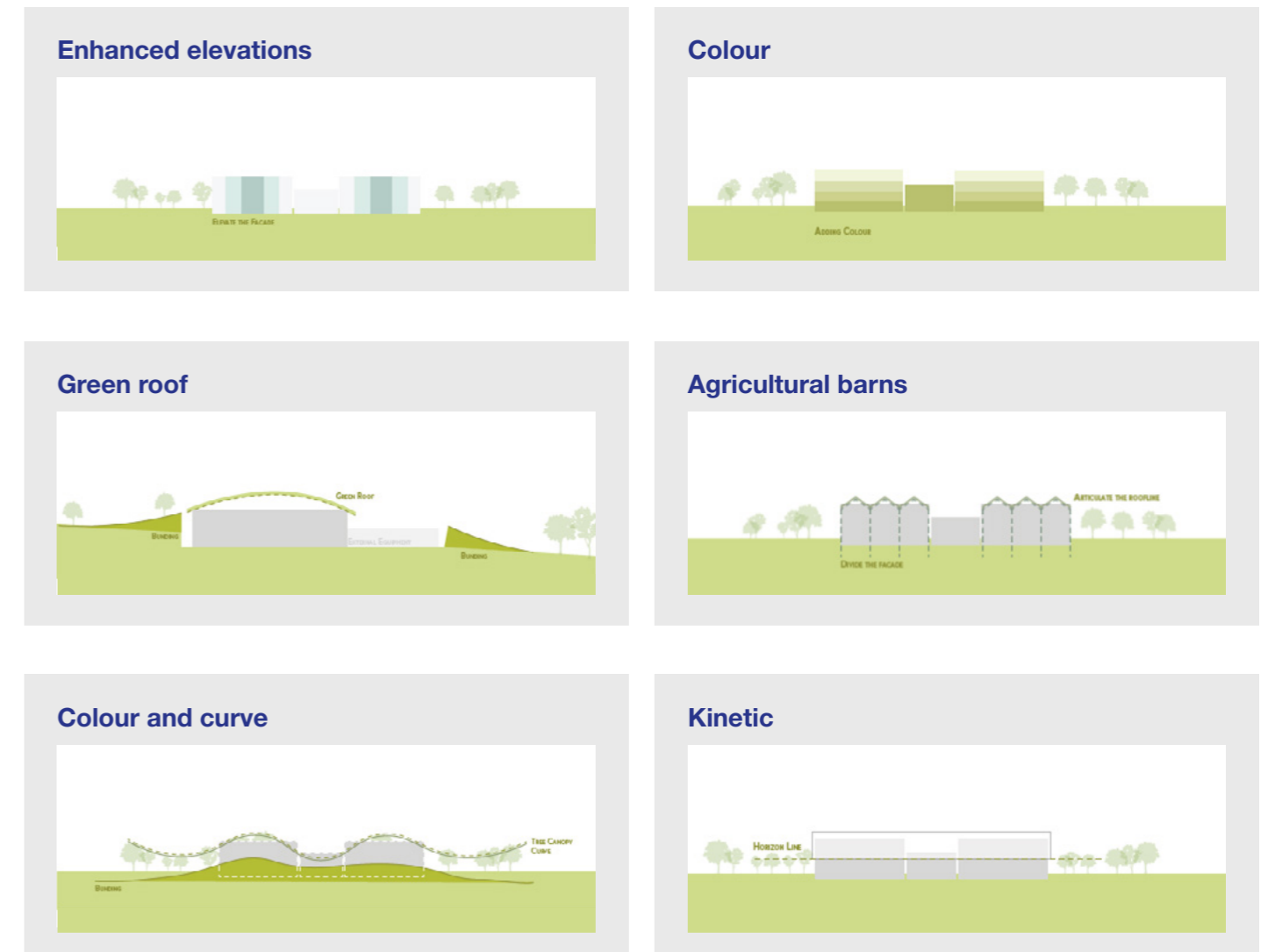
The proposed 400 kV substation and converter station would be located to the north of Richborough Energy Park in Minster.

Converter stations convert alternating current which transmits power into homes and businesses, into direct current which transports power over longer distances and vice versa.

The proposed converter station would be up to 26 metres in height plus roof mounted equipment (aerials, walkways etc.).

We would also like to hear your views on the design approaches for the proposed converter station that we could explore once we enter the more detailed design stages.

The following illustrations show some possible design principles that may work at the converter station and substation site, based on an initial architectural review.



8. Constructing Sea Link

To facilitate Sea Link, we would need a range of temporary and permanent facilities and accesses.

Our proposals include works that will prepare the land for construction, such as diverting utilities and services and undertaking drainage works to prevent flooding.

The construction phase would involve a range of temporary construction activities, including:



Overall, we expect the construction of Sea Link to span from 2026-2030.

9. Landscape, planting and biodiversity net gain

We are committed to leaving behind an enhanced local environment and delivering on biodiversity net gain.



Options for new hedgerows, native tree planting or funding local wildlife groups.



At least 10% biodiversity net gain.

The construction phase also includes opportunities for environmental mitigation, compensation and enhancement. This means we would reduce and avoid impacting the local environment as far as possible. Where this is not possible, we would look to offset the impact of (compensate for) our activities by planting or enhancing the environment in a different location.

Preliminary environmental information report

Our Preliminary environmental information report considers the likely significant effects of our proposals on the environment, along with the measures we are proposing to mitigate these impacts. The report, along with a non-technical summary of its findings, is available from our project website, nationalgrid.com/sealink.

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