

## MULBARTON PARISH COUNCIL

### ONSHORE GRID CAPACITY

18th August 2020

#### Introduction

This contribution considers the onshore grid transmission capacity available to connect the Norfolk Vanguard and Boreas projects to the main centres of energy demand.

#### OWIC evidence

In late 2019 the Offshore Wind Industry Council (OWIC)<sup>1</sup> submitted evidence to Ofgem in the form of a covering letter and report. The evidence suggested that, without integrated offshore transmission, the onshore grid will not have sufficient capacity to accommodate all of the wind farms, power stations and interconnectors currently being planned or built. This conclusion is similar to the main findings of the IOTP (E) feasibility study of 2015.

The OWIC report also identified sea-bed congestion as a cumulative offshore impact of point-to-point connection; i.e. there may no longer be sufficient clear space on the sea bed for the continued use of one export cable for each offshore wind project.

Page 6 from the OWIC report is shown overleaf. The diagram (Figure 2.3) shows the Bramford to Twinstead upgrade, described by National Grid as being necessary to connect the proposed Kings Lynn B power station, the Sizewell C nuclear power station, and East Anglia Wind.<sup>2</sup> This includes the projects now known as Norfolk Vanguard and Boreas.

The Bramford to Twinstead upgrade<sup>3</sup> will double the out-of-region transmission capacity at Bramford from 4.7GW to 9.4GW. Despite this, in the opinion of OWIC, the onshore grid will not have enough capacity for the projected total east to west flow of more than 22GW.

An Offshore Wind Constraints Study, commissioned by The Crown Estate in February 2018, reached a similar conclusion. It highlighted the East Anglia zone as being subject to onshore grid constraints, even after completion of the Bramford to Twinstead upgrade.<sup>4</sup>

#### Conclusion

It appears to be the view of the Offshore Wind Industry Council, and The Crown Estate, that unless integrated offshore transmission is put in place, the full output of the combined Vanguard and Boreas project is unlikely to reach the main centres of energy demand.

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1 The current members of OWIC include Equinor, Ørsted, The Crown Estate, Vattenfall, and others.

2 As described on the National Grid website <http://www.bramford-twinstead.co.uk> on 18th August 2020.

3 Submitted to the Planning Inspectorate by National Grid in February 2013, under reference EN020002.

4 Offshore Wind Constraints Study, Tomas Poffley, The Crown Estate, February 2018, pages 17-18.

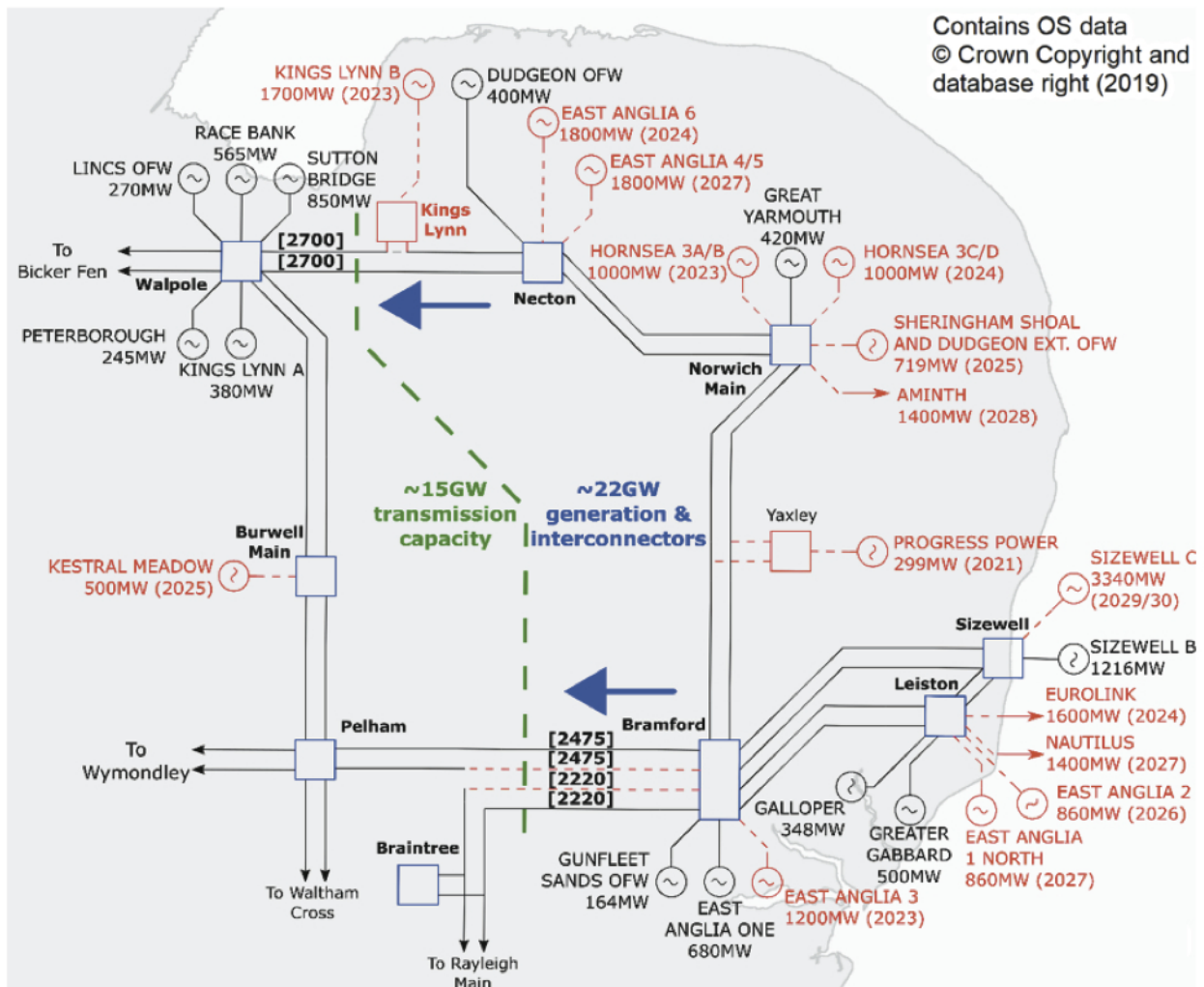
### 2.3 Onshore grid

The onshore transmission grid has hardly changed in terms of geographical layout since the 1970s and was largely developed to connect large thermal plant in the north to demand centres in the South and Midlands. Despite thermal power station closures, it still runs with large north to south power flows, these now being driven by increasing deployment of renewable energy, particularly onshore and

offshore wind in the north of England and Scotland. In addition to this, the increasing deployment of offshore wind is now requiring a grid which can transmit large amounts of power inland from coastal regions. Unfortunately, the planning and development of the transmission system has not kept pace with the changing generation background away from fossil fuels and this is evidenced by the definition of transmission (constraint) boundaries by NGENSO.<sup>8</sup>

**EXAMPLE** – East Anglia has around 22GW of connected and planned generation (mainly offshore wind) and interconnectors but only around 10GW of transmission capacity, west and out of the region at present with plans to upgrade this to around 15GW of transmission capacity by 2030 (lines in red from Bramford in Figure 2.3). Similar issues are apparent in the Humber area and far North East of England meaning the east coast transmission system of England will become heavily constrained unless a solution is proactively found and implemented.

Figure 2.3: East Anglia out of region transmission capacity current and future



## MULBARTON PARISH COUNCIL

### Norfolk Boreas - Deadline 14

22nd August 2020

#### Introduction

The proposed connection of the Norfolk Vanguard and Boreas projects to the onshore grid at Necton would set in motion cumulative impacts in South Norfolk, arising from the displacement of both Hornsea Three, and the Dudgeon and Sheringham Shoal Extension projects, to Swardeston. These cumulative effects are described in more detail below.

Also included are an exchange of correspondence with the Secretary of State on the DCO applications for Hornsea Three, Norfolk Vanguard and Norfolk Boreas, and the latest substation search area for the Dudgeon and Sheringham Shoal Extension projects.

#### Hornsea Three

The representations reproduced on pages 2 to 12 below were submitted to the Hornsea Three examination between 7th February and 20th March 2019, and can be found on the Planning Inspectorate's website under reference EN010080. In our opinion, there was no substantial response from the Applicant to the issues raised in these representations.

The exchange of correspondence with the Secretary of State shown on pages 13 to 19 took place just before the recent announcements on the Norfolk Vanguard and Hornsea Three projects. It makes reference to the Norfolk Vanguard and Norfolk Boreas projects and the IOTP (East) feasibility study of 2015. The second letter did not receive a reply.

#### Dudgeon and Sheringham Shoal Extensions

The current search area for the onshore substation for the Dudgeon and Sheringham Shoal Extensions is shown on page 20. This will require local communities to take part in a repeat of the Hornsea Three consultation and examination process, in order to identify and respond to the overall cumulative impacts.

In a recent community consultation event on 24th June, Equinor confirmed its interest in using a more rational grid connection point, if it becomes available. It was also confirmed that the current UK regulatory regime does not preclude a licensed offshore transmission operator (OFTO) from selling export cable capacity to more than one offshore wind project.

#### Conclusion

All of these proposals seem to be predicated on the assumption that the Norfolk Boreas DCO application will be approved with an onshore grid connection point at Necton. If the onshore part of the Norfolk Boreas DCO application is not approved as submitted, then it is more likely that the cumulative negative impacts described will be avoided.

The simpler solution may be to connect Hornsea Three at Walpole, and the Vanguard and Boreas projects at Bramford. It would then seem to be in the commercial interest of National Grid to ensure that an offshore transmission link is built between the two projects, and handed over to a licensed offshore transmission operator in the usual manner.

Since these two projects must necessarily cooperate to mitigate their negative onshore impacts, it seems reasonable to extend this cooperation to an offshore transmission link.

# MULBARTON PARISH COUNCIL

## Hornsea Project Three

### Deadline 6

#### Introduction

Mulbarton Parish Council strongly supports Hornsea Project Three, and looks forward to a successful completion of the project.

There is, however, reasonable cause for doubt as to whether the site currently chosen for the onshore converter substation, Option B, is either appropriate, or deliverable.

#### Site selection process

The site selection process is illustrated on page 31 of the relevant document<sup>1</sup>, as shown in Attachment 1. This procedure identified the general area of Option A as being subject to the least number of constraints, but does not appear to have considered the local planning policies applicable to Option B, as shown on the policy map<sup>2</sup> in Attachment 2.

In particular, Option B would seem to be in conflict with three local policy criteria:

- (a) The Norwich Southern Bypass Landscape Protection Zone (NSBLPZ);
- (b) View Cones towards Norwich (the viewing cone from the south-west);
- (c) Undeveloped Approaches (the B1113, to the north of Swardeston).

The effects on heritage assets for both Option A and Option B have been discussed at length by other parties, and would seem to be an important aspect of the position of South Norfolk District Council on the question of AC or DC transmission.

In the case of Option B, it seems unlikely that mitigations by planting would be effective. This is because of the height of the substation building, the density of the planting scheme needed to provide effective screening, the time taken for trees to grow to maturity, and the need to remove up to 430m of roadside frontage to provide for visibility splays and access to the site for abnormal loads ('over-running'). It is not clear how planting can begin until after the delivery of all abnormal loads, which may be required in the second phase of the project; there would also be no planting across the site entrance, or over the cable route.

The positions of Options A and B, and also of Mangreen quarry, are shown on an aerial view in Attachment 3. The northern section of Mangreen quarry was correctly identified in the selection process as 'quarried land', even though it was no longer in use for extraction when the evaluation was carried out. The southern section is not identified at all. Although that section is currently still being worked, there are good reasons to expect that extraction will cease before the currently authorised date of 31st December 2021. The two adjoining sites previously identified for mineral extraction have recently been withdrawn.

The planning history of the area around Mangreen quarry is summarised in Appendix 1. Over the last fifteen years, detailed environmental and archaeological surveys have been carried out in the area, and the larger part of the quarry site has already been excavated. New equipment above 16.5m in height has been approved for installation at Norwich Main.

These considerations suggest that Option A would not be significantly constrained in terms of either temporary or permanent space requirements, maximum acceptable height of installed equipment, or vehicle access to and from the road network.

<sup>1</sup> EN010080-000529-HOW03\_6.1.4\_Volume 1 - Ch 4 - Site Selection and Consideration of Alternatives.pdf

<sup>2</sup> From the South Norfolk planning document: Development\_Management\_Policies\_Document\_Maps.pdf

## Traffic assessment

The traffic impact of the construction phase of the onshore converter substation is given on page 4 of the relevant document.<sup>3</sup> This shows the following impacts on the local road network for Option B, which is currently expected to use access from the B1113 only, whilst also generating some additional HGV traffic on the A140:

	<u>Baseline</u>		<u>Project</u>		<u>Impact</u>	
	Total	HGVs	Total	HGVs	Total	HGVs
B1113	8,594	561	846	528	+ 10%	+ 94%
A140	21,826	2,833	248	142	+ 1%	+ 5%

It seems hardly fair to describe the impact of Option B on the B1113 as 'negligible'. In the case of Option A, whilst there would still be an adverse impact on the A140, this would be much less dramatic, as the total increase in HGV traffic – presumably an increase of up to 670 vehicles per day – would be less than 25% of the baseline estimate.

## Public consultation

The highlighting of Option A until a late stage in the consultation process is likely to have diminished public interest in the project. It is very difficult for the public to appreciate the visual impact of Option B as seen from the local road network, or from any of the protected sites and viewpoints, or from countryside footpaths and bridleways.

The comparison between Option A and Option B in terms of both visual impact and the effect on local roads and traffic was not made clear in the consultation documents. Further, the potential interaction between the selection of the site for the onshore converter station and the choice of AC or DC transmission was not made clear.<sup>4</sup>

## Availability

The applicant has explained that compulsory purchase provisions are required, even for those sites where voluntary agreement is forthcoming, as this may change over time. It is difficult to see how these provisions can be applied to Option B, when a reasonable alternative may be available, in closer proximity to the required termination point.

Option A would appear to offer a greater prospect of public benefit, and a reduced level of harm; thus, the assessment of site availability should presumably still favour Option A.

## Conclusion

In our view, the site currently chosen for the onshore HVAC/HVDC converter substation is unsuitable, and in the absence of a compelling public interest, there is reasonable cause for doubt as to whether it is either appropriate, or deliverable. There does not seem to be sufficient reason to change from the applicant's original preference of the area of Option A, which seems to be less harmful in terms of traffic and environmental impacts.

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3 EN010080-001620-Ørsted Hornsea Project Three (UK) Ltd - Appendix 1 - Appendix G to the Transport Assessment.pdf

4 See for example, para 4.10.7.16 of the Consideration of Alternatives document, which states: 'Due to the early stage of technical investigation at the point of the Phase 1.B consultation events, the specific sites presented in Figure 4.15 were not shown at the consultation events as work was ongoing to determine whether each was considered to be technically feasible. However, the heat mapping exercise was presented to demonstrate the process that Hornsea Three was using to try to identify potential sites.'



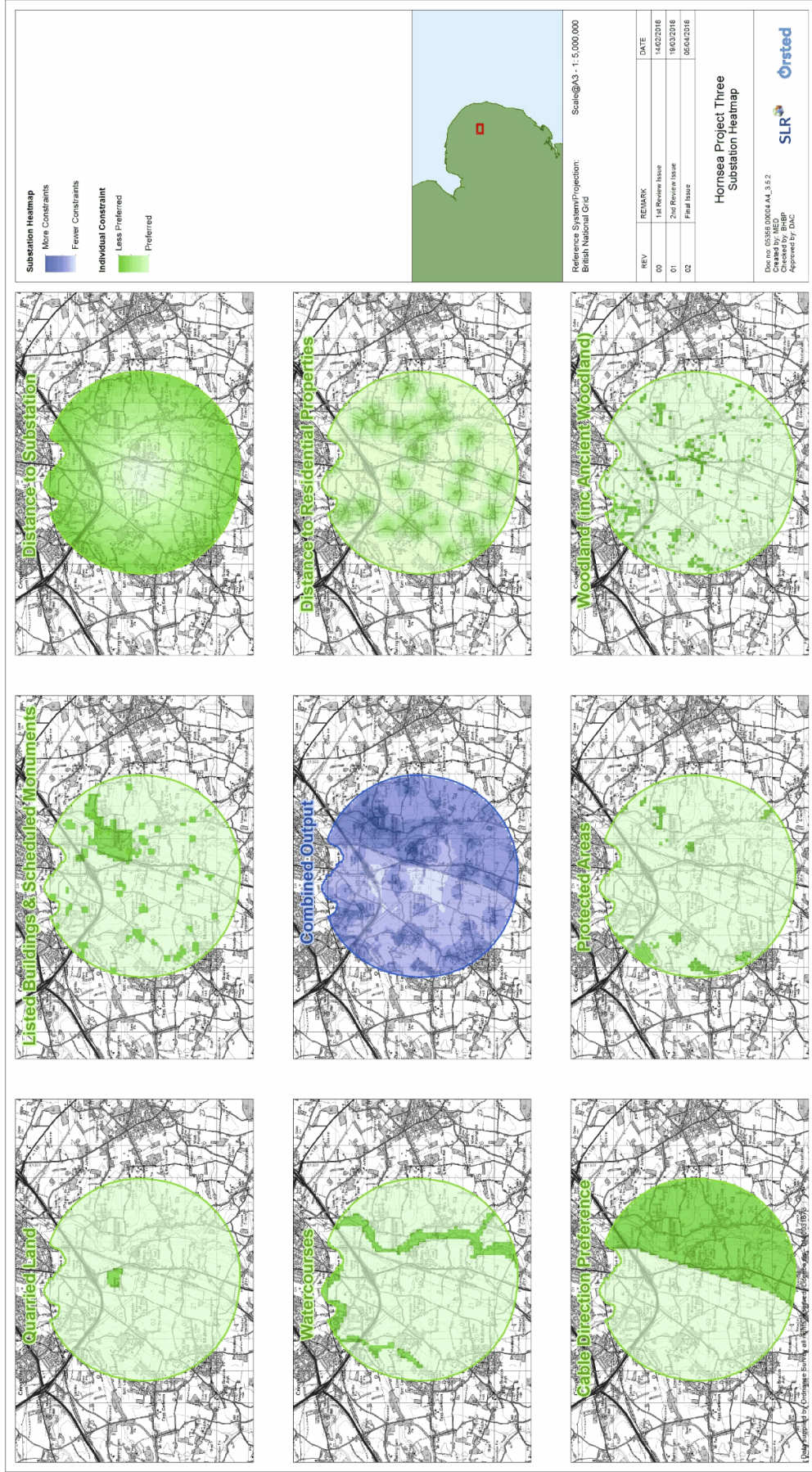
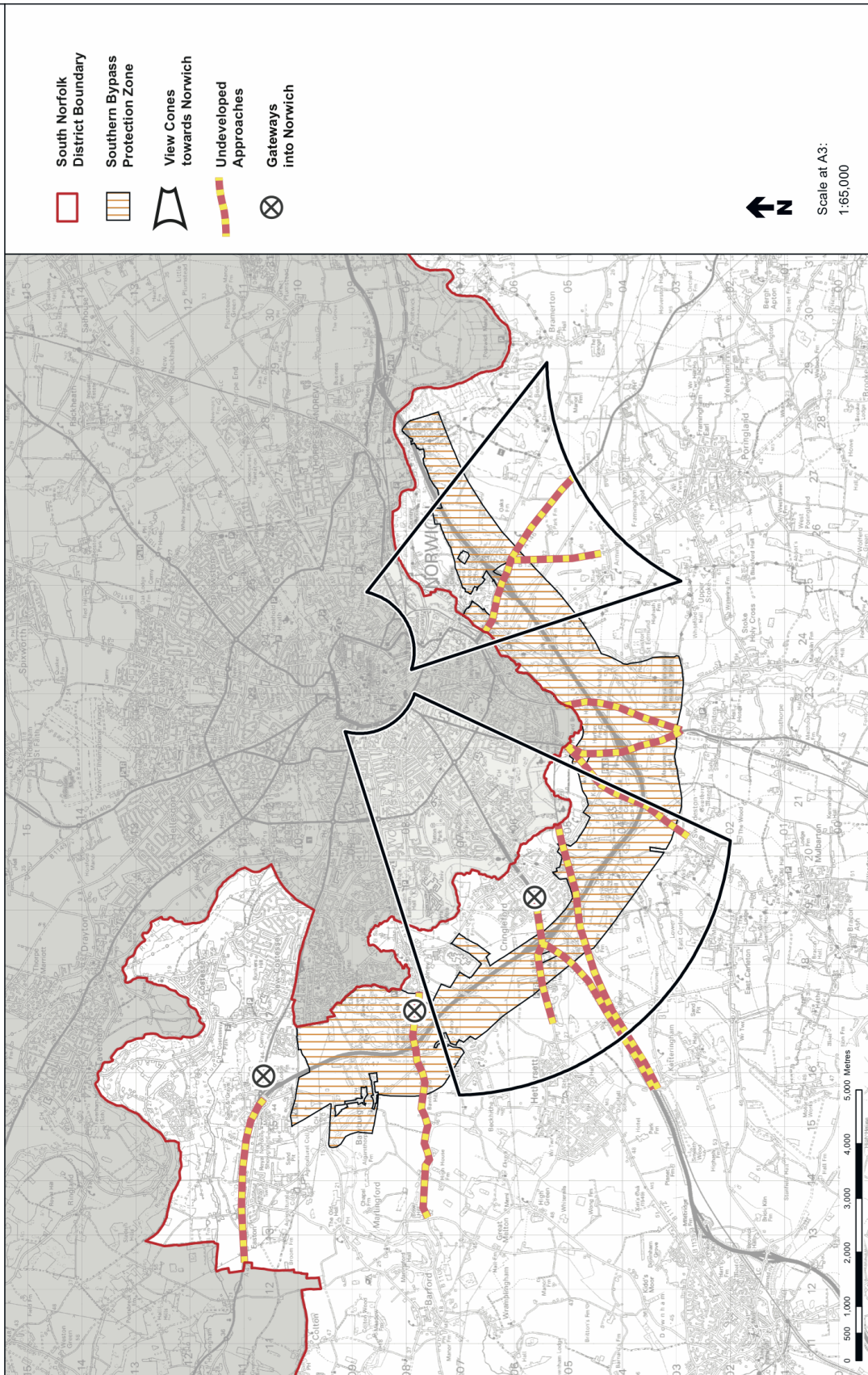


Figure 4.15: Constraints mapping of onshore HVDC converter/HVAC substation search area.



**MAP 4.6** Policy DM.4.6 The Landscape Setting of Norwich - with NSBPZ, Undeveloped Approaches, Viewing Cones & Gateways







Onshore converter substation – Options A and B



## Planning history of the Mangreen quarry area

### Northern section

The main planning application for gravel extraction from the northern part of the site was approved on 14th December 2005 for a period of up to ten years, ending by no later than 13th December 2015. Progressive restoration of the site was initially to be complete within a further two years. (Ref. C/7/2004/7017).

In July 2008 approval was given for the addition of an aggregate bagging plant, to run for the unexpired portion of the original term until 13th December 2015. A condition of this approval was the construction of a left hand ghost island road access for HGV traffic, to and from the A140, with 70m visibility splays in both directions. (Ref. C/7/2007/7037)

This was followed shortly afterwards by the addition of a water storage reservoir for use as part of a pumping scheme. Conditions related to the construction of the water reservoir were discharged later in the same year, including the completion of an archaeological Written Scheme of Investigation, and acceptance of a 5-year post-restoration maintenance period. (Ref. C/7/2008/7010 and C/7/2008/7039)

Permissions were then extended in 2009 to allow the importation of material for use with the aggregate bagging plant. Reduced yield from the northern section of the site may have been a consideration in this decision. (Ref. C/7/2009/7008)

### Southern extension

Plans for gravel extraction on the southern part of the site originally included three new areas, with references MIN 79, MIN 80, and MIN 81, as shown on the site allocations map overleaf. It was anticipated that these would be worked in sequence, starting with MIN 79.

The main planning application for gravel extraction on the southern part of the site was approved on 2nd October 2015 for a period of up to six years, until 31st December 2021. It required progressive restoration of the site by 31st December 2023. (Ref. C/7/2014/7030)

This introduced a new purpose-designed HGV crossing point part way along Mangreen Lane, to give access to and from the southern part of the site. It also identified an under-yield of mineral output from the northern part, and stated that the under-yield had led to an estimated loss of one year's output, with an implied risk of early closure.

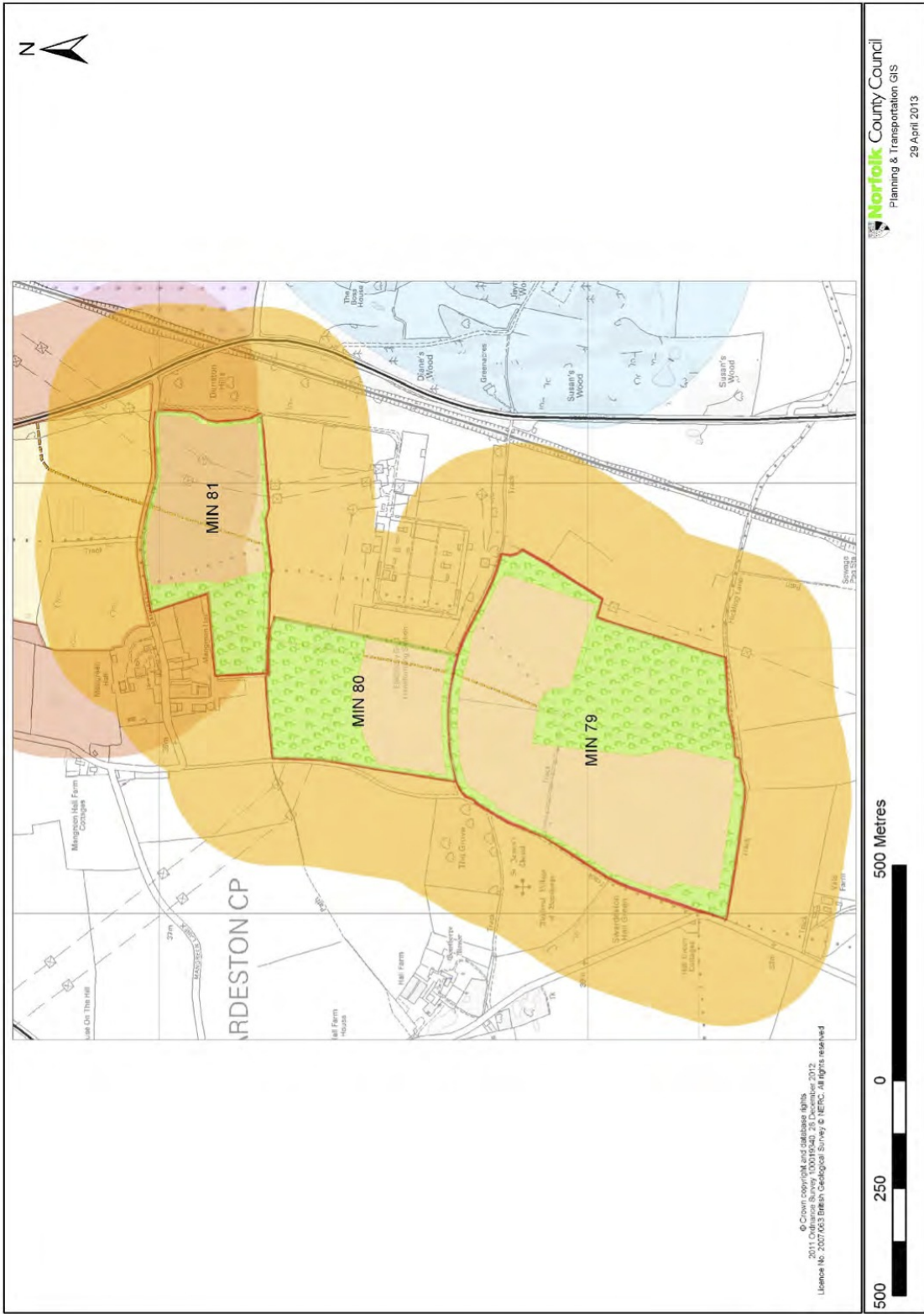
Approval for gravel extraction on the southern part of the site was limited to the area of MIN81. By implication, it would then be very difficult to continue with MIN79 and MIN80, to the south of MIN81. No planning applications have been submitted for extraction on those two sites, and in December 2018 they were withdrawn from the site allocation process.

### Norwich Main

A number of planning applications for the Norwich Main site have been approved over the years. Much of the installed equipment is above 16.5m in height. (Ref. 2000/2003)

A more recent application has taken advantage of the independent HGV access route to and from the A140, for installation, and for long term maintenance. (Ref. 2018/2017)

There is no evidence of any major issues having being raised over the last 25 years in connection with the installation of equipment with a height of more than 16.5m.



## **MULBARTON PARISH COUNCIL**

### **Hornsea Project Three**

#### **Onshore Substation – Option E**

##### **Introduction**

This submission describes an alternative site for the onshore substation, centred around Mangreen quarry. For convenience, this is described as Option E. The general location of this option is shown overleaf, and some of its potential features are discussed below.

##### **Main features**

The northern part of the site, which lies to the north of Mangreen Lane, would be used as a temporary working area, and for all vehicle access during construction. It would use the existing access to and from the A140, which has already been widened at this point to include a right turn lane for southbound HGV traffic. The existing 70m visibility splays may be adequate, except for the delivery of abnormal loads, which may require 'over-running'.

After construction, this area would be restored to agriculture and nature conservation, in keeping with the restoration plan already agreed for its previous use for gravel extraction. The existing access to the A140 would then be removed, and the visibility splays replaced by roadside landscaping and planting. These arrangements would be fully consistent with the location of this area within the Norwich Southern Bypass Landscape Protection Zone.

The onshore substation would be built alongside the existing Norwich Main site, to the south of Mangreen Lane. During construction, access from the northern part of the site to the southern part would use the existing road crossing over Mangreen Lane, which would then be removed when construction is complete. This would ensure that HGV construction traffic keeps to the primary road network and does not use minor roads or country lanes.

In the longer term, routine maintenance access to the onshore substation would be from Mangreen Lane itself, following the example currently in use for Norwich Main.

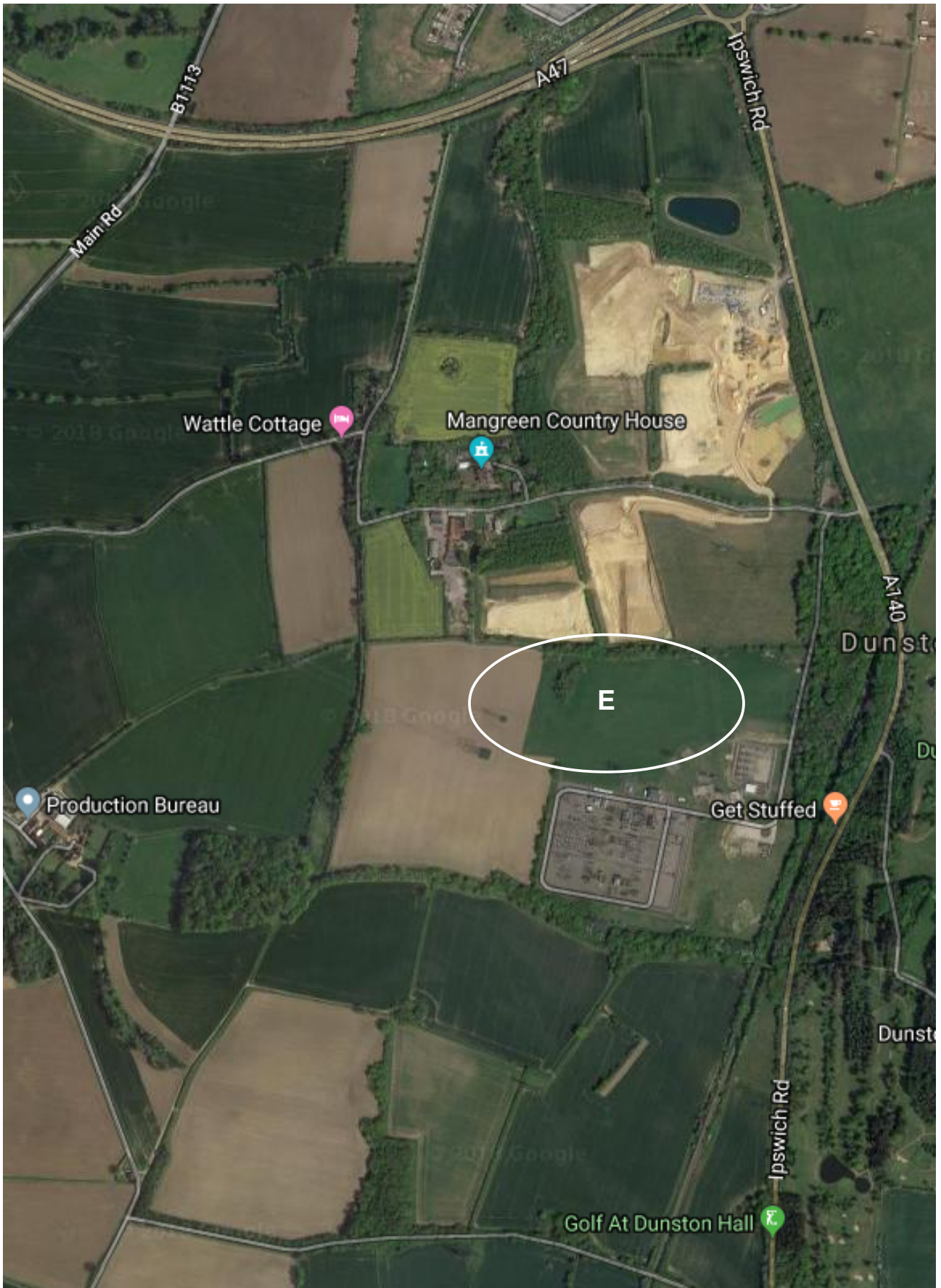
The original site of Norwich Main was carefully chosen, and the installation of additional equipment has been generally accepted over many years. The onshore substation would be larger than the existing installation, but its close proximity to the original site could lead to the least overall degree of negative impact.

There would be a good chance of effective mitigation by landscaping and planting, and the opportunity could also be taken to improve the visual screening of the combined area from sensitive sites to the north, west and south.

##### **Conclusion**

In our view, Option E may be in the best interests of all parties. It could offer the least degree of public harm, and there could be a cost benefit advantage arising from the use of infrastructure already in place. It should therefore be given serious consideration.





Onshore converter substation – Option E

# **MULBARTON PARISH COUNCIL**

## **Hornsea Project Three**

### **Onshore Converter Substation**

#### **Introduction**

Appendix 1 overleaf provides a comparison of alternative sites for the onshore converter substation. This is discussed further below, building upon the interested party submission of July 2018 (RR-049), and later submissions.

Mulbarton Parish Council has also received independent advice. This is contained in a separate representation by letter to the Examining Authority, dated 20th March 2019.

#### **Comparison of sites**

Option E has three important advantages:

- compliance with national and local planning policies;
- a cost benefit advantage from the use of existing infrastructure;
- scope to resolve long-standing objections to the use of DC transmission.

The implications of DC transmission are far-reaching. As other parties have pointed out, it offers a much reduced level of public harm across the whole of Norfolk. For example, the AC booster station at Little Barningham would not be required, and fewer onshore cables would be laid. This in turn has an impact on vehicle movements. There would still be many important benefits if the project is built in two phases, with the first using AC transmission, and the second DC transmission, as may prove to be the case.

Options A and E offer further benefits in conjunction with landscaping and mitigations, and the effect on local heritage assets. These are highlighted, for example, in some of the statements of common ground, where agreement with the applicant has not been reached, partly due to the specific location and topography of the site (Option B). On the other hand, it is fair to suggest that not enough information is available to properly compare the relative merits of Option A and Option E.

By contrast, Option B does not seem to be a suitable location for the site of the onshore converter substation. It is difficult to convey to members of the public when, why, or how it has come to be considered, when other private companies are now receiving permission to install new equipment alongside Norwich Main.

#### **Conclusion**

Option B is an unsuitable location for the onshore converter substation, and does not need to appear within the Development Consent Order. It is not required for the successful completion of the project, is unlikely to be effectively mitigated, and weighs against the use of DC transmission. There is no overall compelling public interest to justify its inclusion.

**Onshore Converter Substation  
Comparison of Options**

	<b>Option A</b>	<b>Option E</b>	<b>Option B</b>
<u>Topography</u>			
Height of ground above sea level	25 rising to 30m	30 rising to 35m	30 rising to 35m
Site orientation (direction of gradient)	Facing south	Facing south	Facing north-west
Visual impact	Low	Moderate	High
<u>Heritage</u>			
Number of sites potentially affected	2	2	4
Mitigation effectiveness	Good	Moderate	Poor <sup>1</sup>
<u>Construction access</u>			
Main access route for HGV movements	A47 A140 -	A47 A140 -	A47 A140 B1113
Local traffic impact (increase in HGVs)	+ 25%	+ 25%	+ 94%
Site entrance for construction	Existing (from A140)	Existing (from A140)	New (from B1113)
Hedgerow removal for visibility splays	Minimal (over-running only)	Minimal (over-running only)	430m (plus over-running)
<u>Other factors</u>			
Cost benefit advantage	Moderate	Good	Poor
Policy compliance	Yes	Yes	No
DC transmission	Yes	Yes	No
<u>Summary</u>			
Ranking	2	1	3

<sup>1</sup> With limited pre-planting (Ref. EN010080-001883), and site gradient facing towards key heritage assets.



Mulbarton Parish Council  
The Common  
Mulbarton  
NR14 8AE

25th May 2020

The Rt. Hon. Alok Sharma MP  
Secretary of State for Business,  
Energy and Industrial Strategy

Dear Mr Sharma,

### **Hornsea Three and Norfolk Vanguard**

We understand that a decision is due on these two projects on Monday 1st June 2020.

Naturally, we all want to see these projects go ahead, but no-one - developers, local communities, or electricity consumers - wants to see all the unnecessary disruption and devastation across the county of Norfolk that would arise from the proposed radial connection schemes currently planned for these two projects. Better choices are available, which would surely have widespread support from all of the participants in the planning process.

Specifically, we object in the strongest possible terms to the proposed building of a sub-station in Swardeston for Hornsea Three. We can see no good reason to bring the output of this project into the national grid at this location in South Norfolk. Furthermore, if either Hornsea Three or Norfolk Vanguard goes ahead on a radial basis, then the Dudgeon and Sheringham Shoal extension projects will surely follow in their wake, bringing yet more disruption and another large industrial complex to Swardeston. Attached is a discussion paper which sets out our position in more detail.

The potential use of an offshore connection scheme was not fully considered at the Hornsea Three enquiry. Had local communities been informed about this option, the outcome of the enquiry might have been quite different, and the ground could have been better prepared for future developments.

We ask that these two decisions be delayed, if only by a few weeks, to provide sufficient time for a proper exploration of the benefits of a coordinated scheme of offshore transmission infrastructure.

The Norfolk Boreas enquiry has recently been extended to October of this year, and we suggest that this could well be a suitable timeframe.

All of us want to see these important renewable energy projects move forward. We hope you will give serious consideration to allowing more time to find the best way to do so.

Kind regards,

Anne Phillips  
Parish Clerk

On behalf of Mulbarton Parish Council

cc: Mr. Gareth Leigh  
Head of Energy Infrastructure Planning  
Dept. for Business, Energy and Industrial Strategy

## MULBARTON PARISH COUNCIL

### OFFSHORE WIND FARMS

25th May 2020

#### Introduction

Figure 1 shows how Norwich, and most homes and businesses in Norfolk, receive their electricity. The main supply is from the north, through the existing national grid sub-station at Walpole, near Kings Lynn. There is a second link from Bramford, near Ipswich. Norwich itself does not use enough electricity to justify a direct connection to the national grid.

Renewable energy is supplied by two recently built offshore wind farms off the Norfolk coast at Dudgeon and Sheringham Shoal, and nuclear power from Sizewell is fed into the national grid at Bramford. These facilities are more than enough to supply the local area.

Several new offshore wind farm projects are being planned to supply renewable energy to London and the south-east. In total, these Round 3 projects will produce 6,720 MW - a significant proportion of the total UK peak demand of about 40,000 MW.

#### Offshore ring main

In August 2015 the electricity supply industry, under the supervision of the government regulator Ofgem, carried out a feasibility study to find the best way to bring this additional energy ashore, and to feed it into the national grid connections at Walpole and Bramford.

Figure 2 shows the basic principle of the many different options that were analysed and costed. This offshore connection approach has the advantage of lower transmission losses and potentially lower costs for the consumer. It also avoids the need for extensive onshore cable works and the construction of very large industrial buildings across Norfolk.

#### Radial connections

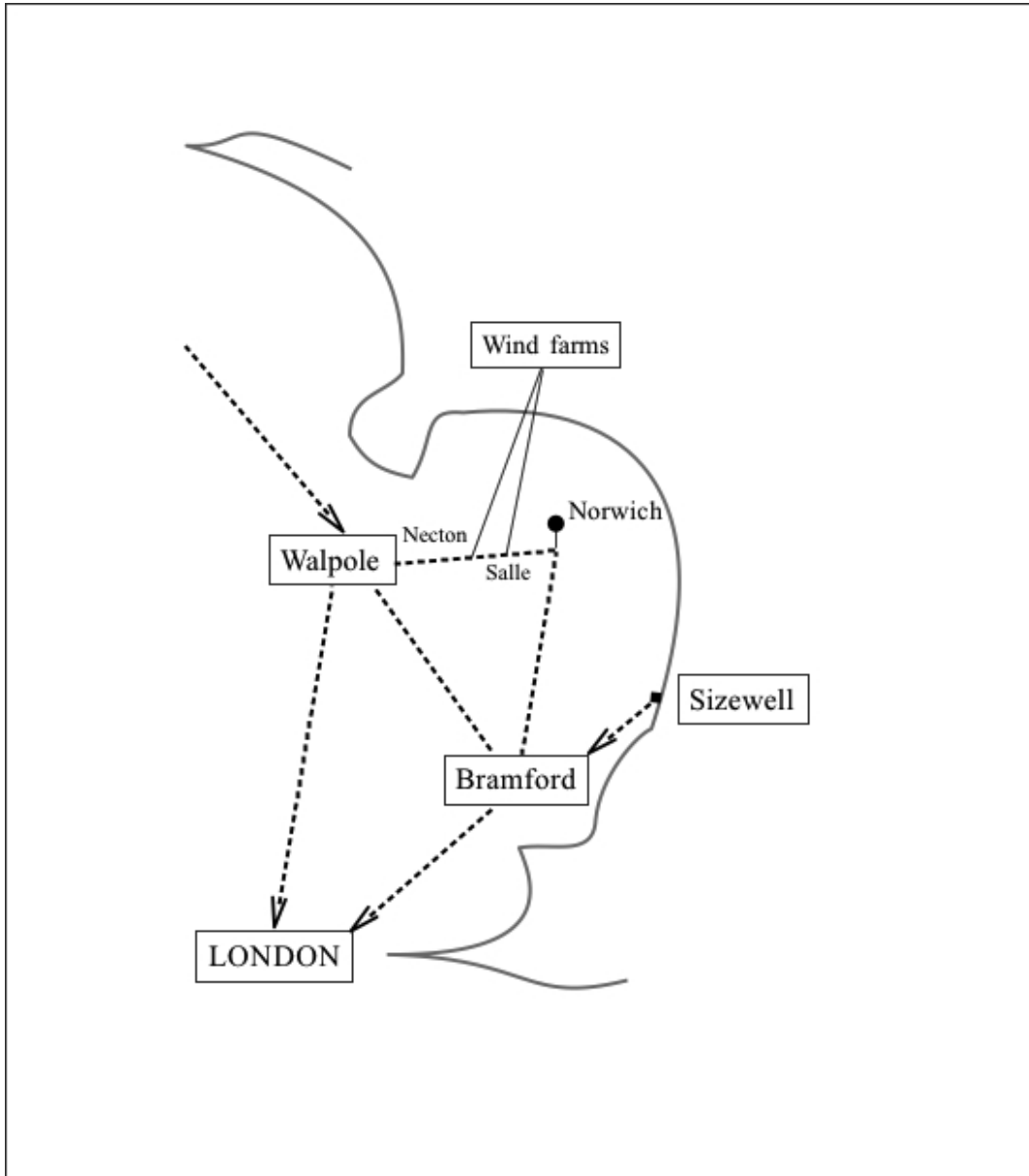
Figure 3 shows the current plans of four specific projects, if approved as they stand.

Hornsea Three will dig up the Norfolk countryside not once, but twice, in making its way down to Swardeston. Given the choice of a disused gravel pit with trunk road access, the applicant chose instead a site on a hill with no vehicle access except from a local B road, bringing a 94% increase in heavy goods vehicle traffic. The proposed sub-station would be by far the largest building in this part of the county, visible for miles around, and breaching established local planning policies with no real prospect of mitigation.

Under the radial connection scheme, the Norfolk Vanguard and Norfolk Boreas projects would bring disruption and devastation to many ancient and tranquil areas of Norfolk, and would irreparably damage local communities. Then, the Dudgeon and Sheringham Shoal Extension projects would follow on, bringing more years of disruption to rural Norfolk and a second large substation at Swardeston.

#### Conclusion

It is difficult to see any benefit from delivering such a large part of the national supply of renewable energy into rural Norfolk. The local interest, the national interest, the aspirations of the offshore wind energy companies, and also of the final electricity consumer, are all pulling in the same direction. With more wind farms likely to be built offshore, now is the time to establish a proper scheme of offshore connection to the national grid.



**Figure 1: Supply of electricity from the national grid to Norwich**

Notes:

The main electricity supply to Norwich is from Walpole, with an alternative link from Bramford.

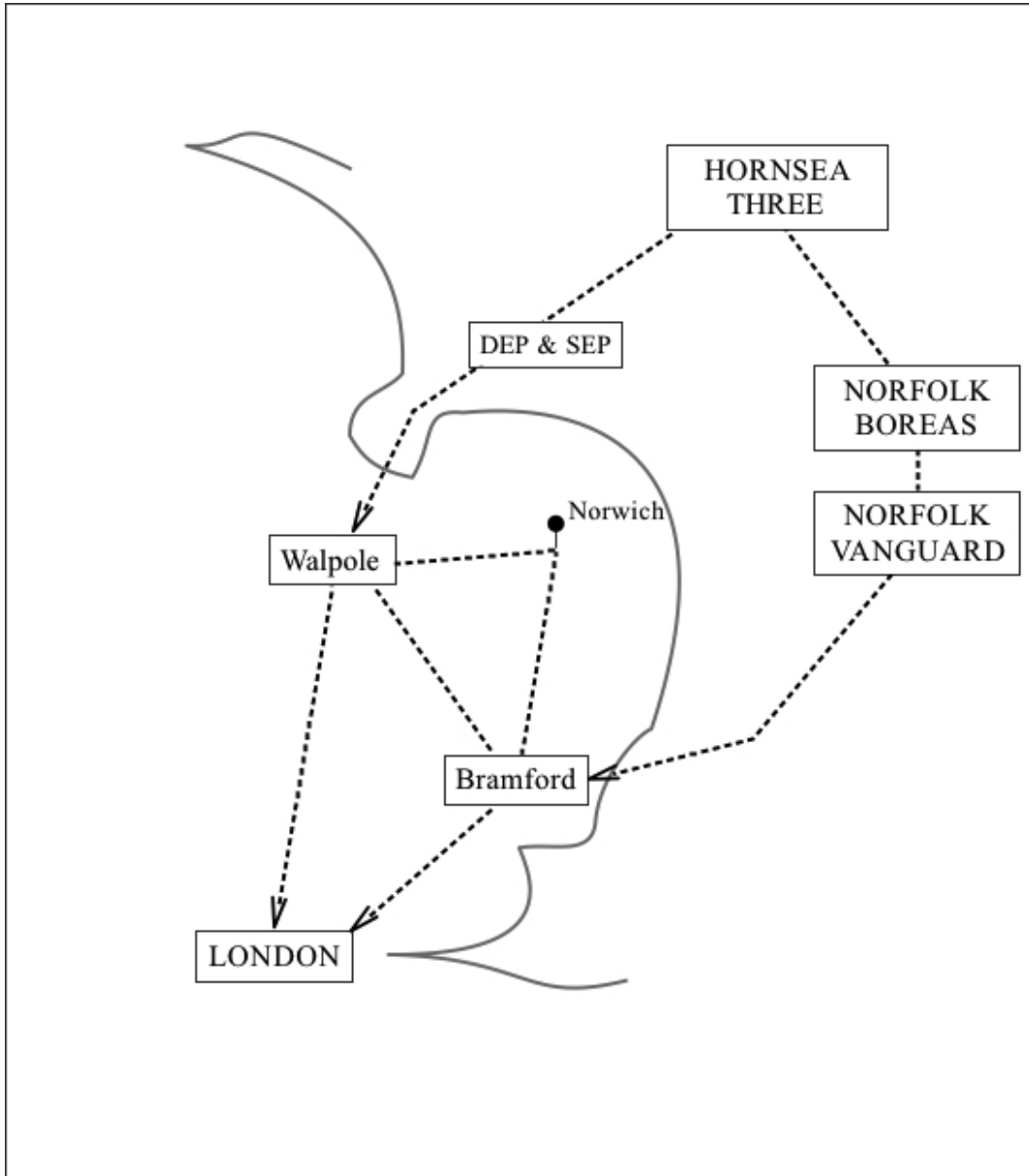
There are two small wind farms off the Norfolk coast, already in operation. They are connected to the high-voltage national grid at Necton and Salle. The nominal output of these two wind farms, rated at 720 MW, is already more than the demand for Norwich, which is approximately 600 MW.

The output of the Sizewell B nuclear power station in Suffolk, rated at 1,200 MW, is twice the total demand for the city of Norwich and its surrounding communities.

The output from any further offshore wind farm projects will not be used in Norfolk; it is destined for consumption in the main centres of population in London and the south east, and partly in the East Midlands (Humberside).

The electricity supply industry therefore carried out feasibility studies to examine the use of a direct offshore connection scheme. It produced a fully detailed report in August 2015.





**Figure 2: Supply of electricity from offshore wind farms to London**

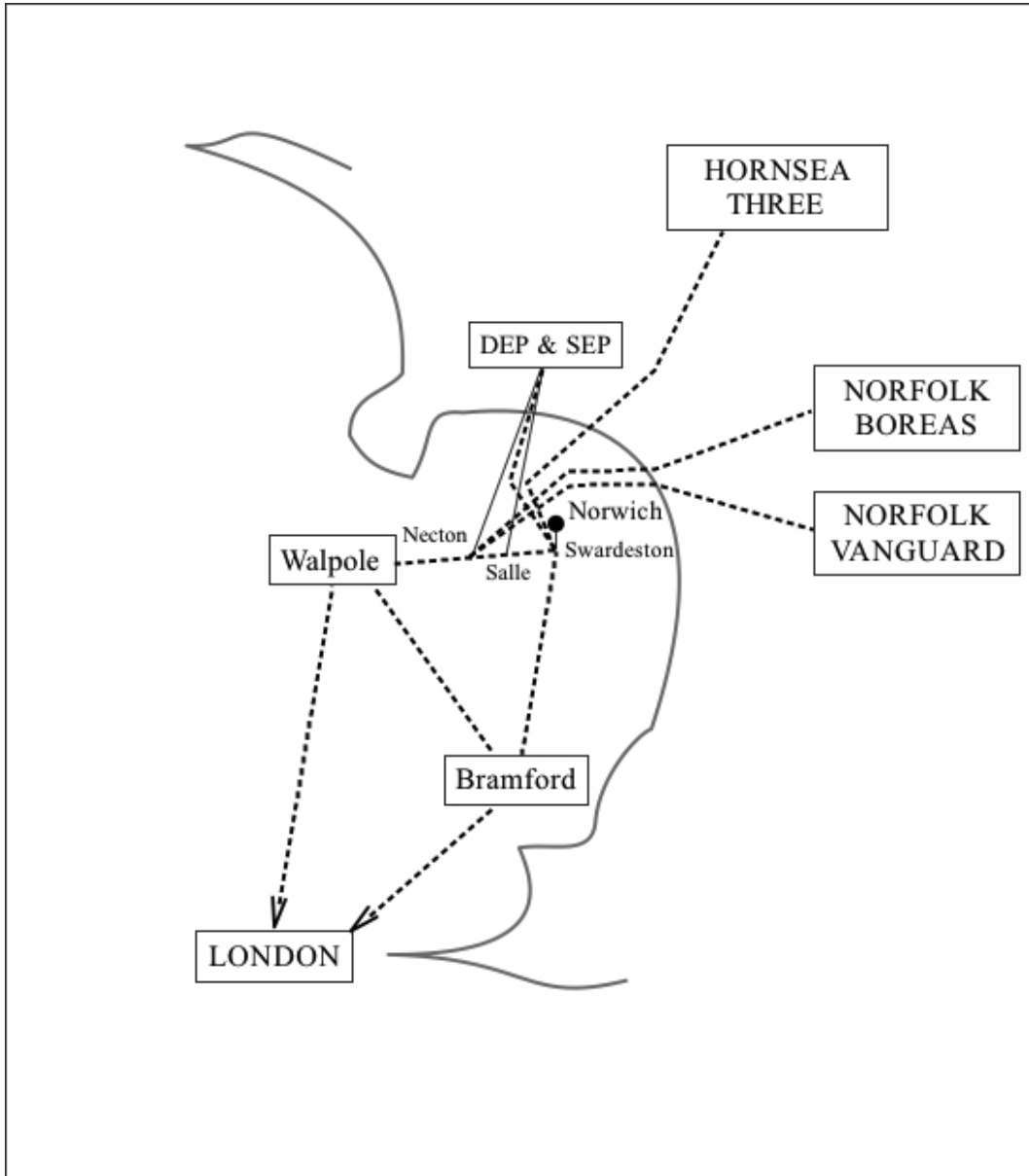
Notes:

The nominal output of the four projects currently in planning is:

Hornsea Three	2,400 MW
Norfolk Vanguard	1,800 MW
Norfolk Boreas	1,800 MW
Dudgeon and Sheringham Shoal Extensions *	<u>720 MW</u>
<b>Total</b>	<b>6,720 MW</b>

\* The combined Dudgeon Extension Project (DEP) and Sheringham Shoal Extension Project (SEP).

The output from all these projects will pass through Walpole and Bramford on its way to London and the south-east. The diagram shows an example of an offshore connection scheme, joining the national grid at these two points, and avoiding unnecessary negative impacts in Norfolk.



**Figure 3: Proposed onshore radial connection points in Norfolk**

Notes:

The connection points put forward in the planning applications for the four projects are:

Hornsea Three	Swardeston
Norfolk Vanguard	Necton
Norfolk Boreas	Necton
Dudgeon and Sheringham Shoal Extensions	Swardeston

Electricity generated by these projects will still pass through the national grid connection points at Walpole and Bramford on its way to the main centres of demand in London and the south-east.

The use of a radial connection for each project introduces many negative social, economic and environmental impacts. It may also be more expensive, with additional costs passed on to the final consumer. These difficulties would be avoided by the use of an offshore connection scheme.

BAU - Hornsea Three and Norfolk Vanguard Consent Orders - BEIS response  
Enquiry Unit <Enquiries@beis.gov.uk>  
Fri 05/06/2020 11:38  
To: Mulbarton Parish <mulbartonparish@btconnect.com>

Dear Ms Phillips

Thank you for your email about offshore wind dated 27 May, addressed to the Secretary of State. I have been asked to respond on his behalf.

The UK has provided more support for offshore wind than any other country in the world. The UK is the world leader with around 10GW of installed, operational capacity which will rise to around 19.5GW by the middle of the decade. The UK has the largest amount of installed offshore wind capacity in the world, representing around one third of all installation. This support and certainty has enabled the industry to invest and we are seeing the benefits in both cost reduction and jobs across the UK.

We are maintaining our position as a global leader in offshore wind in support of a modern industrial strategy securing over 3 GW of new offshore wind capacity in the most recent Contract for Difference auction. Prices have fallen showing that the UK is an attractive place to invest with a record amount of renewable capacity secured to power our homes and a significant reduction in the cost to consumers.

The Industrial Strategy, published on 27 November 2017, identified Clean Growth, as one of the Grand Challenges to put the UK at the forefront of the industries of the future, ensuring that the UK takes advantage of major global changes, improving peoples live's and the country's productivity. The Government will continue to work closely with the offshore wind industry to further drive down the costs of clean power, while building UK supply chains. The dramatic reduction in the cost of offshore wind is an example of how business innovation can be supported through effective market design.

Regarding the Orsted and Vattenfall offshore wind farm projects, the Planning Act 2008 set legislative processes that must be followed and which gave interested parties, including Friends of North Norfolk, CPRE Norfolk and River Glaven Conservation Group, an opportunity during the examination process to question the Applicant's technology choice and to put forward any concerns on the environment impacts of the proposed developments.

-

We are considering an appropriate framework for offshore transmission in the context of our increased ambition. The current approach to designing and building offshore transmission was developed when offshore wind was a nascent technology and was designed to de-risk the delivery of offshore wind by leaving the project developers in control of building the transmission assets. This approach has contributed to the maturing of the sector, the significant reduction in costs of offshore energy and has helped position the UK at the forefront of offshore wind deployment.

However, it is becoming increasingly clear that this approach may not be appropriate for the increased scale of deployment that we now expect from the sector and it is right that we ensure the framework can help support the delivery of our net-zero ambition. We are currently considering an appropriate framework for offshore transmission and will be engaging with key stakeholders to explore alternatives to the current approach that can enable significant deployment of offshore wind, while minimising where possible the costs to consumers and impacts on the environment.

Sincere regards

David

David James Claydon  
Enquiry Unit Advisor  
Department for Business, Energy & Industrial Strategy  
1 Victoria Street, London SW1 0ET

Mulbarton Parish Council  
The Common  
Mulbarton  
NR14 8AE

15th June 2020

The Rt. Hon. Alok Sharma MP  
Secretary of State for Business,  
Energy and Industrial Strategy

Dear Mr Sharma,

### **Hornsea Three and Norfolk Vanguard**

Thank you for the reply to our letter of 25th May, sent to us by Mr David Claydon on your behalf on 5th June 2020. We are delighted to hear that an urgent review is under way.

As Mr Claydon has pointed out in the reply, “the Planning Act 2008 set legislative processes that must be followed and which gave interested parties an opportunity during the examination process to question the Applicant’s technology choice and to put forward any concerns on the environment impacts of the proposed developments.”

Local communities were not aware, during the Hornsea Three examination, that a feasibility study had already been carried out, as long ago as August 2015, to address the specific requirements for connecting Round 3 offshore wind farms to the national grid.

The feasibility study report was accepted by the examining authorities in the Norfolk Vanguard and Norfolk Boreas examinations. It is equally relevant to Hornsea Three, also a Round 3 offshore wind farm, and fully takes into account the fastest possible rate of offshore wind development.

The grid connection points proposed in the DCO applications for both Hornsea Three and Norfolk Vanguard are contrary to the feasibility study, and would work against the government’s increased ambition. The feasibility study report makes clear that the faster the pace of de-carbonisation, the greater the benefits to the public, environment, and the final consumer of following its approach.

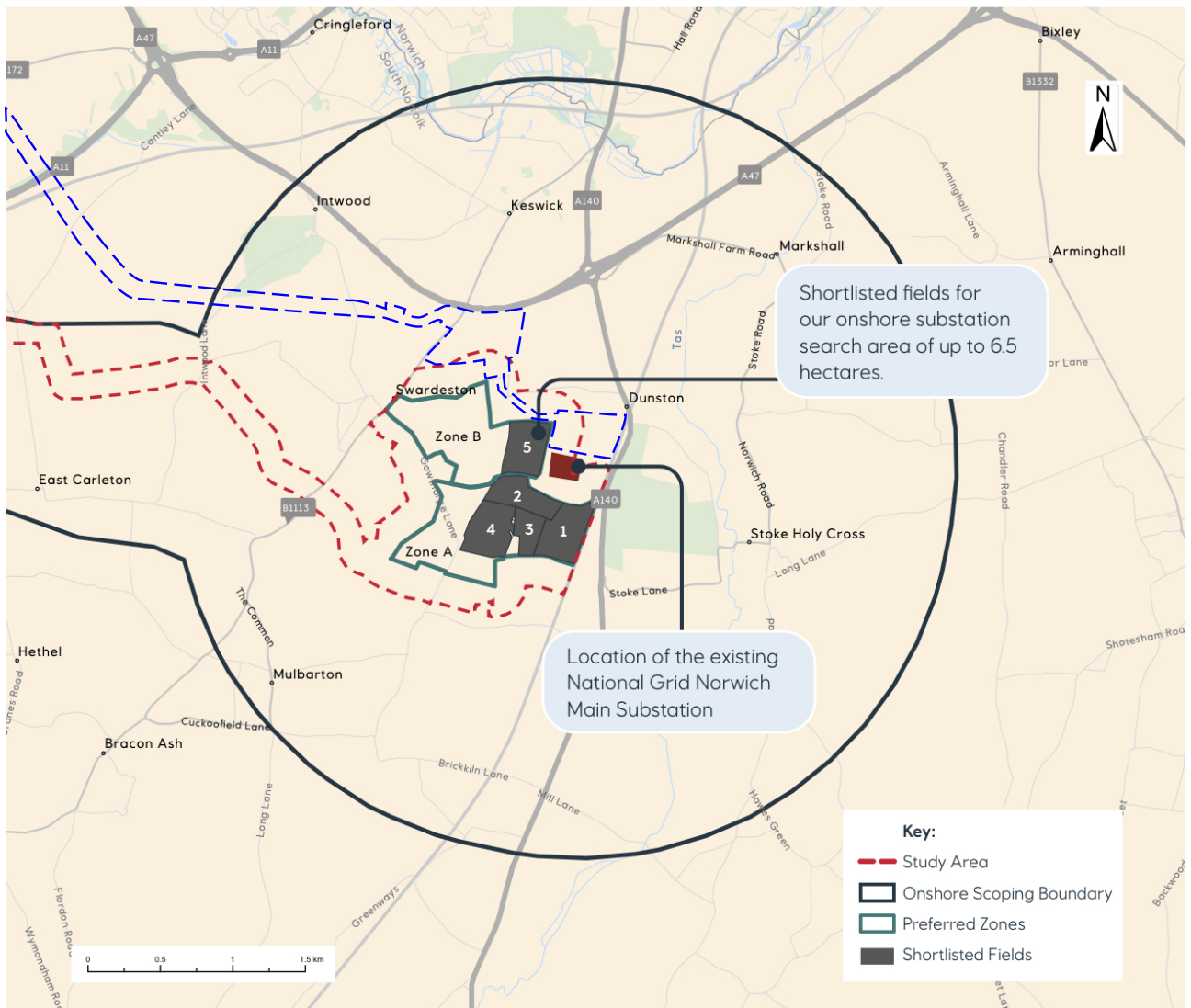
Thank you for taking a close interest in this matter. We hope that speedy progress can be made.

Kind regards,

Anne Phillips  
Parish Clerk

On behalf of Mulbarton Parish Council

cc: Mr. Gareth Leigh  
Head of Energy Infrastructure Planning  
Dept. for Business, Energy and Industrial Strategy  
  
Mr. David Claydon  
Enquiry Unit Advisor  
Dept. for Business, Energy and Industrial Strategy



## Dudgeon and Sheringham Shoal Extensions

### Onshore substation search area

#### Notes:

This diagram is reproduced from the Equinor community consultation of July 2020. It shows the cumulative impacts of Hornsea Three and the Dudgeon and Sheringham Shoal Extension projects (DEP and SEP) near the village of Swardeston, if the Norfolk Boreas DCO application is approved.

The red line indicates the proposed onshore cable corridor and substation search area for DEP and SEP. The shortlisted fields numbered 2, 3, 4 and 5 correspond to the mineral extraction areas, now withdrawn, identified as MIN79 and MIN80 on page 8 above. The blue line has been added to show the approximate outline of the area required by the Hornsea Three DCO application.

Access to the A140 trunk road does not seem to be included within the search area for DEP and SEP, increasing the likelihood of a second access on the B1113, alongside that for Hornsea Three. This would lead to further cumulative impacts, very likely to be in breach of local planning policies.

Some degree of cooperation will therefore be required between the two offshore wind projects to mitigate the negative onshore impacts. As has been shown, mitigation is unlikely to be effective.

The additional impacts of the proposed Aminth UK-Denmark interconnector are not yet known.