



SPR EA1N and EA2 PROJECTS

DEADLINE 9 – COMMENTS ON NATIONAL GRID SUBSTATION EXTENSION APPRAISAL

Interested Party: SASES **PINS Refs:** 20024106 & 20024110

Date: 15 April 2021 **Issue:** 1

INTRODUCTION

1. This document sets out SASES comments on the National Grid Substation Extension Appraisal (“Appraisal”) which was prepared by the Applicants following their response to ExQs2 2.0.14 (REP 6–059).
2. It is unclear from the introduction to this document whether it is intended to be a cumulative impact assessment at all. The Applicants seem to be suggesting it is not as they assert there is insufficient information available. This is not the case for the reasons set out in SASES written representations on this topic submitted at Deadline 1 (REP1-354) and its post ISH2 submissions (REP3-139 and REP3-140) and as further explained below. Further, it is not explained whether the document is further environmental information for the purposes of regulation 20 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
3. Aside from the section below relating to the Five Estuaries and North Falls projects this submission focuses on the Appraisal and the NGV Interconnector projects Nautilus and Eurolink.

FIVE ESTUARIES AND NORTH FALLS PROJECTS

4. The Applicants have provided correspondence from the developers in relation to the current status of the connection locations for the Five Estuaries and North Falls windfarm projects. In doing so they confirmed, what had previously been denied, that the connection location for Five Estuaries was to be Friston. However despite the Examining Authorities’ Action Point 1 ISH 10 no confirmation of this has been received from National Grid via its NGESO division. Nor has any confirmation from NGESO been provided in relation to the North Falls project.
5. As is clear from the EA1N and EA2 projects, NGESO changes connection locations for projects. We do not know on what basis National Grid has changed the connection location from Friston for the Five Estuaries and North Falls windfarm projects. It is entirely possible, if not probable, that if the EA1N and EA2 projects are consented together with the National Grid connection hub that the connection location will revert to Friston. In fact it is difficult to see why National Grid’s obligations under the Electricity Act would not inevitably determine that Friston is the most coordinated, efficient and economical connection location, if a connection hub is established at Friston through the current DCO applications.
6. Issues such as this would be much more easily resolvable had the National Grid connection hub been brought forward under a separate DCO application, transparently indicating its potential as the connection location for a series of offshore energy projects. Instead, despite numerous indications to the contrary, the Applicants maintain

that the National Grid infrastructure at Friston will only be used for the EA1N and EA2 projects. This approach is not borne out by the evidence.

7. Further, given the history of other projects being considered for grid connection at Friston, it is clear that the National Grid infrastructure is capable of facilitating further grid connections. The Applicants cannot escape assessing the likely further use of the National Grid NSIP on the basis that they only seek consent for it to meet the needs of their own projects. Put another way, if the National Grid NSIP was promoted as a separate DCO, any environmental assessment would necessarily have had to consider the cumulative effects of the energy projects which would connect to it. The approach to assessment cannot be different simply because the National Grid NSIP is promoted by Applicants for specific generating stations.

AVAILABILITY OF INFORMATION

8. Advice Note 17 sets the expectation that Applicants will gather information and recognises (paragraph 3.3.2) that relevant data is likely to be available “*through direct liaison with...relevant applicants/developers*”.
9. The Applicants repeatedly stress how little information is available to them. However they have taken a passive approach to this. It has not sought proactively to “gather information” and it does not seem to have engaged in any meaningful exercise with National Grid and its divisions in relation to the provision of information. There is no evidence of requests for further information. That is particularly striking because the Applicants are promoting an NSIP on behalf of National Grid, which will facilitate their own projects. No doubt this has involved extensive discussions with National Grid concerning its proposed infrastructure including its construction and operation.
10. As National Grid has stated in a letter dated 24 November 2020 to Save Our Sandlings “*the design parameters for the sub-station have been provided to the Promoter by NGET. These are standard size requirements for the sub-station required to connect to EA1N and EA2 projects*”. Accordingly as the approach is “standard” there must be a substantial body of information relating to construction, design and operational requirements which could be applied to the likely extensions of the National Grid substation.
11. National Grid Ventures has substantial experience of developing interconnector projects. Accordingly there must be a substantial body of information relating to construction, design and operational requirements which could be drawn upon. NGV has drawn upon this in terms of assessing the area and height of the proposed convertor stations – see paragraph 17 below. Further there is publicly available information on the nature of the infrastructure required for other consented or proposed interconnector projects. For example, the AQUIND Interconnector has recently been in examination, and the application includes detail of the proposals for a converter station together with the works required to the existing National Grid substation at Lovedean to accommodate it. National Grid is well aware of the details of these proposals, and they are available on the PINS website¹. Similarly, detailed proposals for the Greenlink Interconnector have been the subject of recent EIA and planning consents.² Both of these schemes will be familiar to the Secretary of State, since he is considering the AQUIND application and recently granted a CPO in respect of the Greenlink proposal.

¹ [AQUIND Interconnector | National Infrastructure Planning \(planninginspectorate.gov.uk\)](https://planninginspectorate.gov.uk/aquind/)

² [Wales - Onshore Planning Application | Greenlink](https://planninginspectorate.gov.uk/wales-onshore-planning-application-greenlink/)

12. The obvious conclusion is that the Applicants and National Grid are only too well aware that such a proactive information gathering exercise will reveal that these three NSIPs will have even more serious impacts, demonstrating even further that Friston is an unsuitable site for major energy infrastructure.
13. In short the Applicants' approach to information gathering is contrary to Advice Note 17 and the underlying legislation.

LACK OF COOPERATION BY NATIONAL GRID

14. National Grid makes a distinction between its operating divisions NGET, NGESO and NGV (although it is interesting to note that the NGV Nautilus interconnector project appears on the National Grid Group PLC website. <https://www.nationalgrid.com/group/about-us/what-we-do/interconnectors-connecting-cleaner-future/nautilus-interconnector>
15. The Examining Authorities quite rightly have sought to include National Grid and these three divisions in the examination process including attendance at hearings which they have refused to attend. The only exception was NGET's attendance at compulsory acquisition hearings. This lack of cooperation with the examination process inevitably leads to conclusion that National Grid does not want to be asked about its decision-making, plans and future intentions including in relation to its interconnector projects, the SCD1 and SCD2 interconnector projects and plans to upgrade the Sizewell to Bramford pylon route.

PERMITTED DEVELOPMENT RIGHTS/OPERATIONAL LAND

16. SASES refers to its Deadline 8 submissions in relation to operational land (REP7-088). Any extension of the National Grid substation or any further development of the Friston site should not be enabled by permitted development rights. Extensions to or any other National Grid development should be subject to the appropriate planning regime, for example the NSIP process to which Nautilus and Eurolink are subject.

FAILURE TO ASSESS FULL CUMULATIVE EFFECTS – CONVERTER STATIONS

17. The Applicants provide no information in respect of the likely cumulative effects of the converter stations. They argue that they cannot do so because of the uncertainty as to the precise location of such converter stations. However the Nautilus Interconnector Briefing Pack dated July 2019 and the Nautilus interconnector FAQs dated May 2020, listed as Project documents on on the National Grid Group PLC website

<https://www.nationalgrid.com/group/about-us/what-we-do/interconnectors-connecting-cleaner-future/nautilus-interconnector>

clearly indicate that the location of the converter stations will be in close proximity to the Friston substation site and set out details of the typical size (12 acres) and height (24 metres) of the converter stations.

18. Further, other interconnector schemes have emphasised the need for converter stations to be closely located to the grid connection point, to minimise transmission losses. Further the two recent applications noted above (AQUIND and Greenlink) have provided substantial information on the site requirements for converter stations, together with the impacts of their construction. The AQUIND proposal identifies the

converter station site requirements as 200m x 200m, and the Greenlink proposal obtained planning permission for a converter station site of 185m x 100m. The proposed capacity of the Nautilus and Eurolink interconnectors each lie between the capacity of AQUIND and Greenlink.

19. Since the impact of works to the National Grid substation to accommodate Nautilus and Eurolink are being assessed, it is unreasonable not also to assess the impact of very large converter station sites associated with those projects which will necessarily be in close proximity to the National Grid substation. This is a straightforward failure of assessment.

SCREENING

20. Having limited the scope of the assessment to the expansion of the National Grid substation, the Applicants have carried out a “screening” exercise set out on table 3.1 of the Appraisal. It is split between Cumulative Construction Impacts and Cumulative Operation Impacts.

Cumulative Construction Impacts

21. In relation to every topic the following statements are recited:

“The projects are already constructed and operational and therefore do not contribute construction impacts”

“no detailed information on construction activities or their sequencing is currently available”

22. However these statements do not bear examination for the following reasons.

- a. The National Grid Group PLC website which sets out the details of the NGV interconnector projects currently states that the commencement of construction will take place in 2025. <https://www.nationalgrid.com/group/about-us/what-we-do/interconnectors-connecting-cleaner-future/nautilus-interconnector>
- b. Given the timing of the grant of the DCO, the CfD auction process, the construction periods set out in the Project Description (Section 6.9 of Chapter 6 of the Environmental Statement) , supply chain planning and the fact that each DCO has a period of five years and no doubt other factors, it is highly likely, if not inevitable, that either one or both of the projects will not already be constructed and operational.
- c. National Grid has stated (see paragraph 10 above) that a standard approach is taken to substation infrastructure. No doubt as a result of this construction methods, timings, traffic etc are well understood at least understood sufficiently for cumulative impacts to be assessed. It has clearly been possible to establish the construction impacts of the unextended National Grid substation and cable sealing ends. For the purposes of a reasonable worst case assessment, the information is available from environmental statements from other projects;
- d. They contradict the rationale for the drafting of requirement 38 which contemplates “*grid connection works are being or have been constructed under another development consent order*” (which includes a development consent order which is not the DCO for EA1N or EA2). The question has to be asked

what prompted this drafting and who might seek consent under another DCO which includes the grid connection works. A reasonable conclusion is that this will be NGV as it will want to be sure that the grid connection works are constructed so that the National Grid substation is available to be extended to connect its Nautilus and Eurolink projects. So clearly enough information is available about construction activities and sequencing to have prompted the drafting of requirement 38.

23. Further there is no attempt to analyse the effect of the Interconnector projects in relation to landfall. Although NGV are looking at four alternative locations they are all between Thorpeness and Sizewell and therefore factors relevant to the EA1N and EA2 landfall must be relevant to these potential landfalls and some degree of cumulative assessment carried out.

24. In respect of the initial part of the cable route this is the same as for for EA1N and EA2. In respect of the remainder of the cable route there are essentially two different options although one of those options does contemplate the cable route branching off and going immediately to the south of Friston Village rather than direct to the substation site. On the question of the cable route NGV has been concerned to ensure from early in the process that the cable route would not be “sterilised” by the Scottish Power projects. Please see Planning Inspectorate meeting note dated 25 April 2018, page 2.

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010077/EN010077-Advice-00015-1-EAST%20Anglia%20ONE%20North%20Meeting%20Note.pdf>

25. Accordingly the appraisal of cumulative construction impacts is wholly inadequate. This is a particular concern in relation to drainage and flood risk given the inadequacy of the Applicants’ current flood risk analysis – see SASES Deadline 8 submission Flood Risk and Drainage (REP8-227) and its Deadline 9 submission.

Cumulative Operation Impacts

26. The Applicants’ screening process has eliminated all operational phase cumulative effects with exception of onshore ecology, onshore ornithology, landscape & visual amenity and cultural heritage. In doing so it has ignored cumulative operation impacts in relation to:

- a. water resources and flood risk
- b. land use
- c. noise and vibration.

Water resources and flood risk

27. The serious deficiencies in the Applicants’ approach to this topic is the subject of a number of SASES representations including most recently its Deadline 9 Comments on Deadline 8 Flood Risk Submissions. Self-evidently the increasing area of the National Grid substation will further worsen an already serious surface water flood risk problem. In screening out this impact the Applicants do admit that to the south-west extension would encroach “*possibly into the location of the sustainable drainage system (SUDS) basins proposed as part of the projects*”. Based on the Applicants’ own

OODMP the south-west extension will encroach very substantially onto the SuDS basin to the north whether on infiltration basis or on a hybrid basis – see Appendix 1, where figure 1 of the appraisal is overlaid on the plans attached to the latest OODMP. Also the level of encroachment is severe. The Applicants must explain how the further additional flood risk can be mitigated and how the flood risk from the EA1N and EA2 developments will be mitigated given the level of encroachment to the northern SuDS basin. See further the report of GWP consultants attached to SASES' Deadline 9 Submission on Flood Risk referred to above, pages 6 and 7.

Land Use

28. The issue in relation to land use resulting from the substation extensions is broader than simply the substation site although the reference to the extensions being on land acquired for the project does raise again the question of permitted development rights/operational land – see above. The cumulative impact in relation to land use is substantial as set out in SASES written representation on Land Use (REP1-359). In summary each of the converter stations required for Nautilus and Eurolink have a surface area of 12 acres. This is before the land required for landscape mitigation which will be substantial as it is for the Friston development, a site which was regarded as the preferred site by the Applicants despite the alternatives available between the sea and Friston.

Noise and vibration

29. Given the “standard” approach adopted by National Grid it should be easy to establish that there will be no additional plant and equipment installed either on within the extension or within the existing National Grid substation to serve the Nautilus and Eurolink projects which will emit noise. A particular concern is switchgear which makes a loud impulsive sound in operation - see page 9 of SASES Deadline 8 submission on Noise REP8-220.

LANDSCAPE AND VISUAL AMENITY

30. Please see attached at Appendix 2 report from Michelle Bolger, Expert Landscape Consultancy.

CULTURAL HERITAGE

31. Please see attached at Appendix 3 report from Dr Richard Hoggett.

ONSHORE ECOLOGY

32. See Appendix 4

ONSHORE ORNITHOLOGY

33. See Appendix 4

CONCLUSION

34. Advice Note 17 contemplates that the relevant information might be available from the relevant developer, in this case National Grid. It is worth repeating this is not the case

where there are two wholly unconnected developers in different spheres of activity. Scottish Power and National Grid are very closely connected in terms of location, commercial interests and sector and have been in discussion concerning the Nautilus and Eurolink projects given various references in the Application, for example comments in the OLEMS - page 9 last bullet which states:

“The planting and landscape scheme has also been designed in order to not sterilise land for potential future development associated with the National Grid substation”

and requirement 38 in the draft DCOs.

35. In a situation where it is not in any developers' interests for the cumulative impacts of two or more projects to be cumulatively assessed, it is not surprising that limited effort has been made to obtain information as to the likely impacts of the cumulative schemes. However, in addition to that information being in the possession of National Grid, there is extensive publicly available information which has not been considered, including full EIAs of similar interconnector schemes. The Examining Authority is invited to conclude that the Applicants have elected not to consider the full information available to them.
36. The Appraisal cannot be regarded as a reliable assessment of the cumulative effects of the Nautilus and Eurolink projects including for the following reasons:
 - e. the Applicants are equivocal as to whether the appraisal is a cumulative impact assessment or not;
 - f. there is no evidence that the Applicants are engaging in a meaningful information gathering exercise involving National Grid including NGET, NGESO and NGV;
 - g. there is a wholesale failure to consider the impact of converter stations;
 - h. even on the limited assessment carried out, the Applicants are underestimating cumulative effects in respect of some impacts;
 - i. the Applicants are ignoring the cumulative effects in respect of other impacts.
37. Given these deficiencies the Appraisal should not be regarded as a cumulative impact assessment at all.

APPENDIX 1


SuDS Basin Overlay Plans

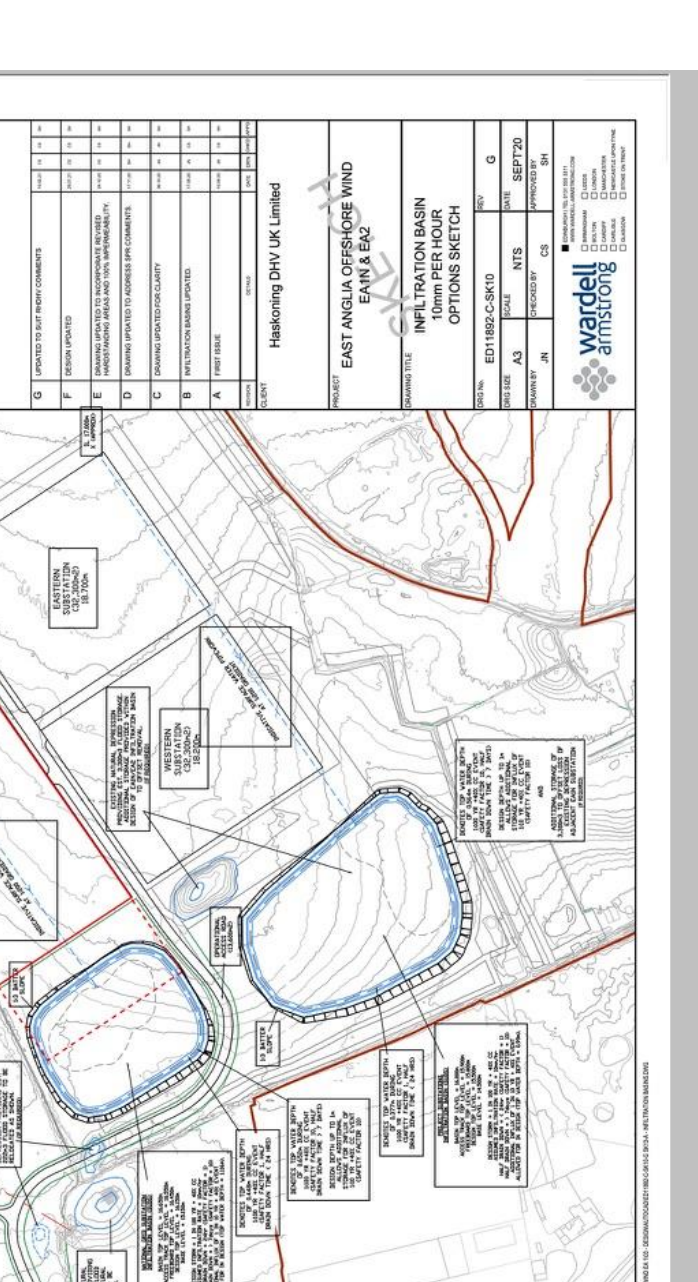
DO NOT SCALE FROM THIS DRAWING

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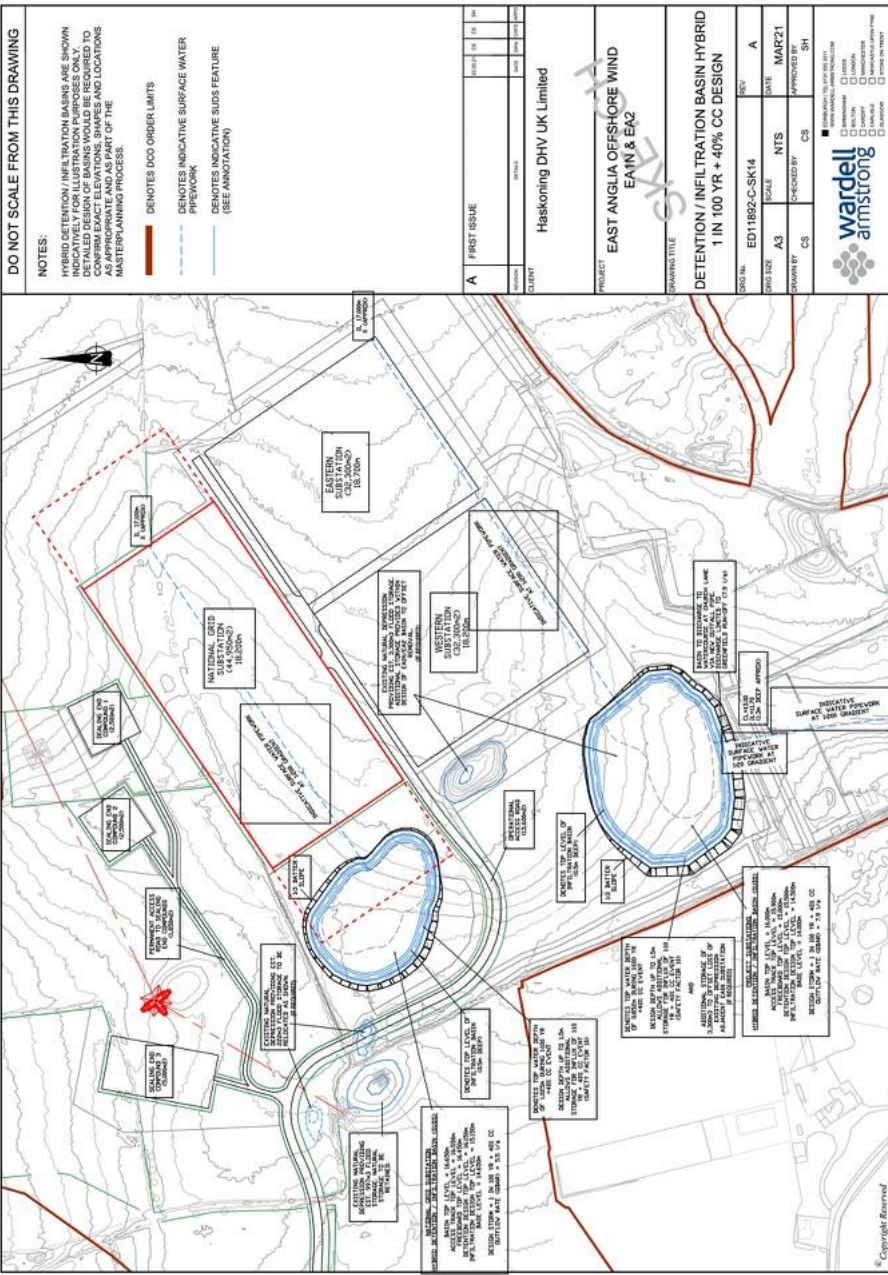
- INFILTRATION BASINS ARE SHOWN INDICATIVELY FOR DESIGN PURPOSES. EXACT SIZES AND LOCATIONS OF BASINS WOULD BE REQUIRED TO CONFIRM EXACT ELEVATIONS, SHAPES AND LOCATIONS AS APPROPRIATE AND AS PART OF THE MASTERPLANNING PROCESS.

▬ DENOTES DDO ORDER LIMITS
▬ DENOTES INDICATIVE SURFACE WATER PIPEWORK
▬ DENOTES INDICATIVE SUDS FEATURE (SEE ANNOTATION)

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APPENDIX 2

Landscape and Visual Amenity

Landscape Briefing Note 10

Project: 1080 East Anglia One North and East Anglia Two
Date: 1st April 2021
Purpose: Notes responding to SPR's Deadline 8 submission on Extension of National Grid Substation
Reference: 1080 BN010 Responses to Deadline 8 submissions.docx

Submissions Reviewed

Extension of National Grid Substation Appraisal ExA.AS-32.D8.V1

EN010077-004685-ExA.AS-28.D8.V1 01 EA1N National Grid GIS Substation Photomontages Figure 29.13 Update VP1

EN010077-004674-ExA.AS-31.D8.V1 02 EA1N&EA2 Photomontages with Potential National Grid Extensions Bays Figure 29.17 VP5

EN010077-004675-ExA.AS-31.D8.V1 03 EA1N&EA2 Photomontages with Potential National Grid Extensions Bays Figure 29.20 VP8

EN010077-004687-ExA.AS-28.D8.V1 05 EA1N National Grid GIS Substation Photomontages Figure 29.21 Update VP9

ANnLhX-EN010077-004677-ExA.AS-28.D8.V1 06 EA1N&EA2 National Grid GIS Substation Photomontages CHVP3 (Appendix 24.7 - Fig 8)

EN010077-004688-ExA.AS-31.D8.V1 04 EA1N&EA2 Photomontages with Potential National Grid Extensions Bays CHVP3 Appendix 24.7 Fig 8.

EN010077-004678-ExA.AS-28.D8.V1 07 EA1N&EA2 National Grid GIS Substation Photomontages CHVP4 (Appendix 24.7 - Fig 9)

EN010077-004689-ExA.AS-31.D8.V1 05 EA1N&EA2 Photomontages with Potential National Grid Extensions Bays CHVP4 Appendix 24.7 Fig 9.pdf

1. The Extension of National Grid Substation Appraisal acknowledges that the NG substations extensions would result in further landscape and visual harm as a result of '*additional physical effects on landscape features; an intensification of effects on local landscape character and some increase in the lateral spread and influence of development.*'³ I agree that there would be an intensification of effects, in particular an intensification of the severance of the landscape to the north of the substations from the village

³ Paragraph 38

of Friston.

2. The Extension of National Grid Substation Appraisal acknowledges that ‘*An increase in the lateral spread and influence of is notable in Viewpoint 2 near Friston, due to the western potential future expansion being visible on the skyline and interrupting the view towards Moor Farm, Fristonmoor.*’⁴ I agree that the lateral spread and influence is notable, The Photomontage from LVIA Vp 2 show that the western NG extension would be visible from this location and would extend the impact of the development across the whole of the open horizon. Even at 15 years mitigation planting will not have fully screened the substation. This is a particularly sensitive location.
3. I do not agree with the Extension of National Grid Substation Appraisal that from the north and west the infrastructure would be largely subsumed within the overall massing of the National Grid substation. In the following paragraphs I identify the notable additional adverse effects on the landscape to the north. There would be increased visual harm in particular and an exacerbation of the adverse impacts already identified.
4. I consider that there would be major adverse landscape and visual effects on the landscape to the north of Friston as a result of the SPR substations and the single NG substation, and that the mitigation planting would do little to compensate for the loss of the existing landscape character or the loss of the existing extensive rural views across that landscape. The extensions to the National Grid substation would increase the severity of these major adverse effects.
5. The Photomontage from LVIA Vp 5 shows that the western NG extension would ‘fill’ the area between the western substation and the sealing end compound, where the additional pylon is located. This would solidify the extent of the industrial landuse across the view. It would sever any possible remaining visual connection with Friston Church and the edge of Friston. Any remaining appreciation of the relationship between the village and the wider landscape would be lost.
6. The location of the western NG extension would overlap with the proposed area for one of the SUDS the drainage basin. This would be true for the drainage basin as currently shown on the OLMP and there would be an even greater overlap if the larger infiltration ponds were implemented.⁵ This

⁴ Paragraph 41

⁵ Outline Operational Drainage Management Plan - Version 03 24/02/21 REP6-017

would raise issues regarding where they could be relocated.

7. Vp 5 represents the area from which there will be one of the most significant adverse impacts due to:
 - Proximity to the substations
 - The extent of development across the landscape visible a single viewpoint; and
 - The restrictions on planting under the overhead lines.
8. The western NG extension would exacerbate all these factors.
 - It would be closer to Vp 5 than any of the other substations, although not closer than the sealing end compound.
 - It would be visible in what is currently a 'gap' between the western substation and the sealing end compound.
 - It would be located immediately beyond a line of mitigation planting that does very little to limit views of the substations.
9. The NG extensions would exacerbate the landscape and visual harm that would result from the development. In particular it would exacerbate the harm experienced in the landscape to the north of the development, from where there is a network of PRoW. This harm would be difficult to mitigate, especially on the western side (Vp 5) from where the mitigation planting will not be able to adequately screen either the development currently proposed or the potential NG extensions.
10. Further photomontages have been submitted showing the GIS option for the NG substation, both LVIA and CH viewpoints. CHVP3 and CHVP4 are taken from PRoWs close to the location of LVIA Vp 5. A revised photomontage showing the GIS option LVIA Vp 5 was submitted at Deadline 6 and commented on in MBELC Briefing Note 7.
11. Taken together, the photomontages from LVIA Vp 5, CHVP3 and CHVP4 show the extent of the harm to the landscape in this area. In particular they show the harm to the visual amenity of the network of footpaths which will be severed visually from the village of Friston; current views of the church tower as seen on the edge of the village will be further obscured.

12. Comparing the photomontages that have been prepared for the GIS versus AIS NG substation it is clear that what may be an advantage from one viewpoint is a disadvantage from another. For example, in MBELC Landscape Briefing Note 8 we noted that for LVIA Vp 5 the landscape and visual effects of the AIS substation were greater than the GIS substation. However, from CHVP 4 the bulk of the buildings within the GIS station are particularly intrusive and difficult to mitigate. Similarly, whilst the western NG extension would be most harmful from LVIA VP 5 it is the eastern NG extension that would exacerbate the visual spread of the development from CHVP 4.

APPENDIX 3

Cultural Heritage

Cultural Heritage Assessment: Second Addendum

Dr Richard Hoggett (Richard Hoggett Heritage), April 2021

1. Introduction

- 1.1 This is a further addendum to the *Cultural Heritage Assessment* prepared by Richard Hoggett Heritage for SASES, dated October 2020 and submitted at Deadline 1, and the first *Cultural Heritage Assessment: Addendum*, dated January 2021 and submitted at Deadline 3. This document addresses the likely effects of the extension of the proposed National Grid substation and associated infrastructure intended to be located at Friston.
- 1.2 Details of these proposed extensions are set out in the *Extension of National Grid Substation Appraisal*, submitted by the applicant at Deadline 8 (REP-IBR-001029). Produced in response to questions from the Examining Authority, the Appraisal considers the potential effects of extending the National Grid substation to accommodate future projects connecting to the grid in this location, specifically the Nautilus and Eurolink projects.
- 1.3 The submitted Appraisal presents a brief and high-level assessment of the likely impacts of the expansion of the National Grid substation, and as such represents something of a cumulative impact assessment. It specifically addresses the impact on Cultural Heritage, together with other impacted areas. The need for such an assessment, and its omission from the submitted DCO application documents, was highlighted in my original *Cultural Heritage Assessment*, although until now the applicants have stated that such an assessment would not be possible. Clearly this has not proved to be the case, and the acknowledgement of cumulative impact is to be welcomed, although as is discussed further below, with regard to Cultural Heritage, I do not support its conclusions.

2. The Proposed Extension

- 2.1 Given the information available to date, the applicants conclude that there is a 'degree of certainty' that the connecting projects will result in the expansion of the proposed National Grid substation. Their submitted Figure 1 indicates that this expansion will result in the enlargement of the National Grid substation to the south-west and the north-east by a distance of some 90m in each direction, representing an approximate 50% increase in the footprint of the proposed National Grid substation.
- 2.2 These additional areas also have the effect of expanding the footprint of the substation beyond the western and eastern extents of the proposed EA1N and EA2 substations located immediately to the south, making the expanded National Grid substation a larger landscape feature than the other two substations and therefore potentially much more visible from the surrounding area.
- 2.2 In terms of infrastructure, it is assumed by the applicants that the expanded areas would effectively replicate the infrastructure proposed for the main body of the substation, and this is illustrated in the series of updated photomontages submitted in support of the Appraisal at Deadline 8.

3. Cultural Heritage Impact

- 3.1 In screening for potential impacts of the proposed expansion, the applicants identify that Cultural Heritage is a material concern and state that 'The National Grid substation extensions would enlarge the footprint of the National Grid substation, potentially increasing the level of visual change in the setting of adjacent heritage assets. This could result in additional harm to the significance of these assets.
- 3.2 In their more detailed assessment of the Cultural Heritage impacts of the expansion of the substation, the applicants identify that 'The simultaneous operation of the National Grid substation and the National Grid substation extensions would create a potential for cumulative impacts on the significance of heritage assets resulting from change in their settings.' In terms of which designated heritage assets might be affected, the applicants acknowledge that 'Cumulative impacts could potentially be experienced by any heritage asset already predicted to be impacted on by the Projects due to change in their settings.' As has been discussed at length in previous documents and during oral submissions, the list of affected heritage assets comprises seven listed buildings which surround the site:
- Church of St Mary, Friston (1287864, Grade II*);
 - Friston War Memorial (1435814, Grade II);
 - Little Moor Farm (1215743, Grade II);
 - High House Farm (1216049, Grade II);
 - Friston House (1216066, Grade II);
 - Woodside Farmhouse (1215744, Grade II); and
 - Friston Post Mill (1215741, Grade II*).
- 3.3 Based on the submitted photomontages, the applicants identify that the extended National Grid substation would be primarily seen from the north and therefore would be most visible in the settings of Little Moor Farm and High House Farm. However, elements would also be visible as far south as the northern edge of Friston Village and therefore appear in the settings of Woodside Farmhouse and the church of St Mary.
- 3.4 Regarding the **church of St Mary**, the applicant concludes that the extended substation would be visible in the setting of the church, but only to a limited extent and only from the northern edge of the churchyard in views looking north. They conclude that this level of change would not result in any cumulative impact on the significance of the church and the predicted impact would remain one of low magnitude. As has been rehearsed at length in written and oral submissions during the course of this hearing, I do not agree with the applicants' identification of a low magnitude impact of the main proposals on the church of St Mary, instead identifying a high magnitude of impact equating to a major significance of effect. In planning terms, this would equate to 'less than substantial harm' at the upper end of the scale, and this is an opinion shared by many of the respondents with heritage expertise in this case. It therefore follows that any assessment of the of the cumulative impact of the expanded National Grid substation must take this level of harm as its starting point and that the additional visual impact of the expanded National Grid substation, would increase this harm further, although it would not take the level of harm beyond 'less than substantial', as the physical fabric of the building is not affected.

- 3.5 The applicants do not consider that the enlarged National Grid substation will be visible within the setting of the **Friston War Memorial**, which they have previously identified as experiencing a negligible magnitude of impact under the proposed scheme. In my own previous assessments, I have disagreed with the applicants' conclusions regarding both the extent of the setting of the memorial and the degree to which that setting contributes towards its significance, identifying instead a medium magnitude of impact resulting in an moderate significance of effect, equating to 'less than substantial harm'. Again, I would argue that this should be the starting point for any cumulative impact assessment, and on the basis of the submitted material would conclude that the additional scale and visibility of the enlarged substation would result in additional harm to this monument, although not so much as to increase the results of my initial assessment.
- 3.6 Regarding **Little Moor Farm, High House Farm and Woodside Farmhouse**, the applicants conclude that the cumulative impact would marginally increase the change in landscape character and impact on the significance of these assets. However, they do not consider this to be sufficient to change the assessment findings which would remain adverse impacts of medium magnitude for Little Moor Farm and low magnitude for High House Farm and Woodside Farmhouse.
- 3.7 With regard to **Little Moor Farmhouse**, as I have stated previously, I agree with the applicants' assessment of the impact which the proposed scheme would have upon this heritage asset. However, I do not agree that the cumulative impact of the expansion of the National Grid substation would not result in the increase of this magnitude. The National Grid substation lies closest to Little Moor Farm and the applicants' 'marginal increase' in change of landscape character equates to a 50% enlargement of the substation and an additional 180m of the northern frontage facing Little Moor Farmhouse, as is captured in the submitted photomontages. I conclude that the expansion of the National Grid substation would result in the elevation of the identified harm from medium to high, resulting in a major significance of effect equating to 'less than substantial harm' towards the upper end of the scale.
- 3.8 With regard to **High House Farm**, the applicant has consistently assessed the impact of the proposed scheme as being of lower impact than on neighbouring Little Moor Farm, despite the similarities of history and setting, and this has been routinely challenged in written and oral submissions made by me and other parties. As with Little Moor Farmhouse, I have identified that the proposed scheme would result in the same medium magnitude of impact resulting in an moderate significance of effect, equating to 'less than substantial harm'. This, then, should be the starting point for any cumulative impact assessment, and again I would conclude that the expansion of the National Grid substation would result in the elevation of the identified harm from medium to high, resulting in a major significance of effect equating to 'less than substantial harm' towards the upper end of the scale.
- 3.9 With regard to **Woodside Farmhouse**, the applicant has consistently assessed the impact of the EA1N (western) substation as being greater than that of the EA2 (eastern) substation, with mitigation reducing that impact further. As I have argued previously, I do not consider this to be the case, with both configurations of the EA1N and EA2 substations resulting in the same medium magnitude of impact resulting in an moderate significance of effect, equating to 'less than substantial harm'. I do not consider that the proposed mitigation will reduce this impact further. It is encouraging to see the submission at Deadline 8 of an updated photomontage visualisation of the applicants' Cultural Heritage Viewpoint 5, which now shows the full extent of the proposed development of the substations, including an overlaid impression of those elements of the scheme which were screened from view by the selectively chosen

viewing location in the initial submissions. This medium impact of moderate significance is therefore the starting point for a cumulative impact assessment, and I would conclude that the expansion of the National Grid substation would result in the elevation of the identified harm from medium to high, resulting in a major significance of effect equating to 'less than substantial harm' towards the upper end of the scale.

- 3.10 With regard to **Friston House**, the applicants conclude that the western extension would be visible from the outer edge of the woodland that surrounds the house. However, they do not consider that this would materially change the overall appearance of the substations from Friston House, and continue to identify a negligible impact. As has been discussed previously, I disagree strongly with the applicants' identification of the setting of Friston House and their assessment of the contribution which setting makes to the significance of the heritage asset. I have previously identified a low magnitude of impact resulting in a minor significance of effect, equating to 'less than substantial harm'. This should be the starting point for any cumulative impact assessment, and on the basis of the submitted material would conclude that the additional scale and visibility of the enlarged substation to the north of Friston house would result in additional harm to this heritage asset and elevate the identified magnitude of impact to medium, resulting in a moderate significance of effect. This equates to 'less than substantial harm' towards the middle of the scale.
- 3.11 With regard to **Friston Post Mill**, I agree with the applicant that the proposed scheme results in a negligible magnitude of impact causing a minor significance of effect, and do not consider that this will be changed by the proposed expansion of the National Grid substation.

4. Conclusion

- 4.1 The applicants' acknowledgement that there are other projects which would potentially want to connect to the National Grid at Friston and that these would result in the enlargement of the National Grid substation is to be welcomed. The need for this to be recognised and properly assessed has been highlighted consistently since the outset of these proceedings. The applicants indicate that such projects would result in the enlargement of the National Grid substation's footprint by some 50%.
- 4.2 On the basis of the assumptions made, the applicants do not consider that the enlargement of the National Grid substation will have sufficient material impact upon the settings of the identified heritage assets to alter the assessments of heritage impact put forward in their initial submissions for the proposed EA1N, EA2 and National Grid substations. I disagree with these conclusions for two main reasons.
- 4.3 As I have set out at length previously, and have reiterated here, I do not agree with some of the conclusions reached by the applicants in their initial heritage impact assessment, particularly with regard to their assessments of the impact on the church of St Mary and the surrounding farmhouses. Therefore, I do not agree with the baseline heritage impact assessments which have been used to inform the cumulative impact assessment, and would place many of these higher on the scale of harm than does the applicant. My position on these issues are set out alongside those of the applicant in the table below.
- 4.4 Neither do I support the conclusion that the increased footprint, visual impact and change of landscape character brought about by the proposed expansion of the National Grid substation will result in no change to the initial assessments of heritage impact. As discussed, there will be additional impacts on heritage assets located to the south of the EA1N and EA2 substations, past which elements of the protruding National Grid substation would be visible, but there will be a considerably greater impact upon the settings of Little Moor Farmhouse, High House Farmhouse, Woodside Farmhouse and Friston House, which surround the site to the north and west and which would experience much greater exposure to the new substation elements within their settings. My position on this is also set out in the table below.

Heritage Asset	Heritage Importance	Applicant's Assessment		My Assessment		My Cumulative Impact Assessment	
		Magnitude of Impact	Significance of Effect	Magnitude of Impact	Significance of Effect	Magnitude of Impact	Significance of Effect
Church of St Mary	High (II*)	Low	Moderate	High	Major	High	Major
Friston War Memorial	Medium (II)	Negligible	Minor	Medium	Moderate	Medium	Moderate
Little Moor Farm	Medium (II)	Medium	Moderate	Medium	Moderate	High	Major
High House Farm	Medium (II)	Low	Minor	Medium	Moderate	High	Major
Friston House	Medium (II)	Negligible	Minor	Low	Minor	Medium	Moderate
Woodside Farmhouse (EA1N)	Medium (II)	Medium	Moderate	Medium	Moderate	High	Major
Woodside Farmhouse (EA2)	Medium (II)	Low	Minor	Medium	Moderate	High	Major
Friston Post Mill	High (II*)	Negligible	Minor	Negligible	Minor	Negligible	Minor

APPENDIX 4

ONSHORE ECOLOGY AND ORNITHOLOGY

Comments are made in blue against the Applicants' Appraisal

Onshore Ecology

28. As presented in **Chapter 22 Onshore Ecology** of the ES (APP-070), the only statutory designation within 2km of the onshore substation and National Grid substation locations is the ancient woodland of Grove Wood. This habitat will be unaffected by the Projects and would not be impacted by the National Grid substation extensions.

The largest ecological effect on Grove Wood will be to its high bat population. Any increase in size of the development with associated light and noise will be detrimental. In this respect the eastern extension of the NG substation encroaches on Laurel Covert which is also a bat-roosting and foraging site.

29. The footprints of the National Grid substation extensions will result in the additional loss of agricultural land, which as presented in **Chapter 22** (APP-070), is of low ecological value. The cumulative land take for both Projects (both onshore substations and National Grid infrastructure including landscaping) is 37.2ha which is considered negligible; the loss of an additional 2.48ha will not materially alter this assessment.

Agricultural land is not necessarily of low ecological value. Farmers are encouraged to plant hedges, re-wild field margins and maintain waterbodies. The projects already involve a substantial loss of important hedgerows and the extensions to the NG substation run directly along an existing hedgerow and watercourse. On what basis is the assessment of negligible made? If this relates to the previous comparison with the total amount of agricultural land in Suffolk, then it is unsound.

30. The eastern extension will potentially result in the direct loss of the north-eastern corner of Laurel Covert. This is assuming that no mitigation will be applied, and the extension requires the full footprint shown on **Figure 1**.

See comment on para 28 regarding bats.

31. The National Grid substation extensions will result in the loss of a length of hedgerow additional to the Projects along the field boundary between the National Grid substation and the corner of Laurel Covert. However, it is considered that potential impacts on ecological receptors such as foraging / commuting bats would not increase to those already assessed for the Projects as similar mitigation as presented in **Chapter 22** would be required for the National Grid substation extensions.

There is also a substantial hedge on the western side of the substation which would be lost. At present this hedge extends to the flood alleviation depression which is surrounded by woody scrub and is home to many creatures, particularly deer, with foraging routes radiating along landscape features.

In terms of disturbance effects from noise or lighting, an Artificial Light Emissions Management Plan will be developed for the final design for the permanent infrastructure, as secured under the requirements of the DCO, which will include measures to minimise light spill following the

recommendations regarding birds set out in the Bat Conservation Trust's guidance within Artificial Lighting and Wildlife (2014). Lighting will be required for operation and maintenance activities at the onshore substation and National Grid substations only, and under normal conditions the substation would not be permanently lit. The addition of the National Grid substation extensions would not add any requirement for additional lighting, and therefore the conclusion on cumulative impact would remain as per the ES

Any lighting will have an adverse impact on nocturnal creatures, such as bats and badgers, which are prolific on the site.

Onshore Ornithology

33. The habitats around the onshore substation and National Grid substation locations are of low conservation value for birds, dominated by large arable fields, with small blocks of woodland and hedgerows hosting some common breeding species. With the exception of barn owl, the EIA for the Projects did not record the potential for any of the scoped in Important Ornithological Features (IOFs) in the vicinity of the onshore substations and National Grid substation locations.

The substation site has large numbers of Skylarks, which are on the Red-List. Natural England has expressed its concerns that the Applicants have failed to consider farmland bird protection (REP8-162) NE's Update and Comments to Terrestrial Ecology Documents, para 22.

34. During the 2018 surveys, one occupied barn owl nest box was recorded within the ornithology study area (as a Schedule 1 species³ the location is deemed confidential). The nest box is within a working farmyard and, based on a recommended protection zone from construction disturbance of up to 175m (Shawyer, 2011⁴), direct cumulative during operation disturbance to nesting birds is considered unlikely.

Barn Owls require a huge territory, in winter this is up to 5,000 hectares whereas in summer when there is more food about it can be just 350 hectares (Information from the Barn Owl Trust (www.barnowltrust.org.uk/barn-owl-home-range/)). See the following extract as to why the home range is important:

*“Staying in one area enables Barn Owls to develop a highly-detailed ‘mental map’ of their home range. They memorise where the best hunting places are, favoured roost sites, their nest site, and the clear flight paths that connect them all. Indeed, the main way in which nocturnal owls manage to avoid flying into things in the dark is by remembering clear flight paths. This accumulated knowledge can mean the difference between life and death, especially during **winter hardship** or when they have a **brood of young** to feed”* and

“Crucially the home range must also contain adequate foraging habitat and no death-traps, such as major roads.” Electrical equipment is another such hazard.

It is clear therefore that any development or extension within the substation site will severely impact on the habitat of Barn Owls, which the Applicants recognise is a Schedule 1 species.

35. Breeding barn owls are likely to use the local farmland area around the onshore substation and National Grid substation locations for foraging purposes, and so a cumulative direct loss of habitat due to infrastructure could result from the addition of the National Grid substation extensions. However, given the small footprint of the extensions (2.48ha) this would not change the conclusions presented in **Chapter 23 Onshore Ornithology** (APP-071).

See above.

36. In terms of disturbance effects from noise or lighting, **Chapter 23** (APP-071) notes that barn owl is tolerant of human presence. As noted in **section 4.1**, an Artificial Light Emissions Management Plan will be developed for the final design for the permanent infrastructure, as secured under the requirements of the DCO. Additionally, the National Grid substation extensions would not add any requirement for additional lighting at the National Grid substation.

Barn Owls are particularly sensitive to high-frequency sound. The Applicants have been asked to supply data on high frequency sound from the projects which also affects other species, such as bats. The Applicants have avoided supplying such information by saying it is not available. The Applicants should be required to submit such information.