Rampion 2 WIND FARM

Rampion 2 Wind Farm

Preliminary Environmental Information – Bolney Substation Extension Works

GoBe APEM Group

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1. Introduction

1.1 Overview

The Proposed Development

1.1.1 Rampion Extension Development Limited (hereafter referred to as 'RED') ('the Applicant') is developing the Rampion 2 Offshore Wind Farm Project (Rampion 2) located adjacent to the existing Rampion Offshore Wind Farm Project ('Rampion 1') in the English Channel in the south of England.

1.1.2 Rampion 2 comprises of both onshore and offshore infrastructure associated with the proposed offshore wind farm including:

- 90 offshore wind turbine generators (WTGs) and associated foundations;
- inter-array cables connecting the WTGs to up to three offshore substations;
- up to four offshore export cables to be buried under the seabed within the final cable corridor;
- a single landfall site connecting offshore and onshore cables using Horizontal Directional Drilling (HDD) installation techniques;
- buried onshore cables in a single corridor for the maximum route length of up to approximately 40.5 km using:
  - trenching and backfilling installation techniques; and
  - trenchless and open cut crossings.
- a new onshore substation that will connect to the existing National Grid substation at Bolney, Mid Sussex; and
- proposed extension to and additional infrastructure at the National Grid Bolney substation to connect Rampion 2 to the national grid electrical network (the subject of this **Preliminary Environmental Information (PEI)**).

1.1.3 Following the publication of the **PEIR** (published as part of Rampion 2's first statutory consultation exercise in September 2021), alternatives and modifications were identified for the onshore part of the original PEIR Assessment Boundary. These have been generated as a result of:

- further design evolution which has been informed by Statutory Consultation;
- having regard to stakeholder and landowner feedback; and
- further engineering considerations and environmental assessment information that has arisen since the publication of the **PEIR** (RED, 2021).

1.1.4 These alternatives and modifications (informed a second Statutory Consultation exercise in October 2022 and are summarised in **Section 1.3** in the **PEIR SIR** (RED, 2022)), published as part of Rampion 2's second statutory consultation

exercise. Following the publication of the **PEIR SIR** and the conclusion of the second Statutory Consultation exercise (18 October to 29 November 2022), a further onshore cable route alternative was identified in response to consultation feedback. This alternative was presented in the **PEIR FSIR** (RED, 2023) to inform a third Statutory Consultation exercise (24 February 2023 to 27 March 2023).

1.1.5 This **PEI** should be read in conjunction with the following documents (also described in **Paragraphs 1.1.3** and **1.1.8**) provided alongside previous Statutory Consultation exercises:

- the **Preliminary Environmental Information Report** (**PEIR**) published in July 2021 (RED, 2021):
- the **Preliminary Environmental Information Report – Supplementary Information Report** (**PEIR SIR**) published in October 2022 (RED, 2022); and
- the **Preliminary Environmental Information Report – Further Supplementary Information Report** (**PEIR FSIR**) published in February 2023 (RED, 2023).

1.1.6 A full description of the Proposed Development is provided in **Chapter 4: The Proposed Development, Volume 2** of the **PEIR** (RED, 2021) and (due to the further design refinement since the publication of the **PEIR**) this should be read in conjunction with the Bolney substation extension works description provided within **Section 2** of this **PEI**. The original PEIR Assessment Boundary used to inform the **PEIR** is shown in **Figure 1.1, Volume 3** of the **PEIR** (RED, 2021).

1.1.7 This document provides preliminary environmental information on the proposed extension works to the existing National Grid Bolney substation that will connect the Rampion 2 onshore cable route into the national grid electricity infrastructure. The design at the Bolney substation location has evolved through design refinement and has been updated to remove part of the original PEIR Assessment Boundary to the north of the Rampion 1 substation and the access from Bob Lane. An area for the Bolney substation extension has been identified within the remaining PEIR Assessment Boundary presented in **Appendix A** that is adjacent to the existing Bolney substation. This area includes the temporary construction compound to enable the construction works. Through the iterative design process, new onshore infrastructure (see **Section 2.2**) has been identified that is required at the existing National Grid Bolney substation to facilitate this connection. This proposal is presented in this **PEI** to inform a fourth targeted Statutory Consultation exercise (28 April 2023 to 31 May 2023). Further information on the targeted Statutory Consultation exercises and supporting preliminary environmental information is provided in **Section 1.2**.

1.1.8 As described in the **PEIR**, **PEIR SIR**, and **PEIR FSIR** (RED, 2021; 2022; 2023), the current description of the Proposed Development is indicative, and a design envelope approach has been adopted to identify key design assumptions. This enables the environmental assessment to be carried out whilst retaining enough flexibility to accommodate refinement during detailed design.

1.2 Preliminary Environmental Information

First Statutory Consultation exercise (2021 and 2022): PEIR

1.2.1 In July 2021, RED published the **PEIR** (RED, 2021) in line with the requirements of Regulation 12 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the 'EIA Regulations 2017'). The EIA Regulations 2017 requires the Applicant to consult on 'preliminary environmental information' (where the proposed development is 'EIA development'), which is information that is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development). **Chapter 4, Volume 2** of the **PEIR** (RED, 2021) therefore set out the preliminary environmental information in respect of the Proposed Development and assessment findings of the EIA based on the available information at the time of publication.

Second Statutory Consultation exercise (2022): PEIR SIR

1.2.2 The **PEIR SIR** (RED, 2022) was prepared to inform a second Statutory Consultation exercise (focused on the onshore parts of the Proposed Development only), which was held from 18 October 2022 to 29 November 2022, for a period of six weeks (RED, 2022). This provided supplementary environmental information associated with new alternatives and modifications to the Rampion 2 onshore part of the original PEIR Assessment Boundary (**Graphic 1-1** illustrates where in the EIA process the **PEIR SIR** (RED, 2022) sits). These design iterations were generated as a result of stakeholder consultation, including Statutory Consultation, engagement with landowners, and further engineering and environmental studies which had taken place since the publication of the **PEIR** in July 2021 (RED, 2021).

Third Statutory Consultation exercise (2023): PEIR FSIR

1.2.3 The **PEIR FSIR** (RED, 2023) was prepared to inform a third Statutory Consultation exercise (focused on a further single onshore cable route alternative), which was held from 24 February 2023 to 27 March 2023, for a period of four weeks (RED, 2023). The **PEIR FSIR** provided supplementary environmental information associated with the new proposed alternative to the Rampion 2 onshore part of the original PEIR Assessment Boundary (**Graphic 1-1** illustrates where in the EIA process the **PEIR SIR** (RED, 2023) sits). The proposed new alternative was identified in response to consultation feedback received since the publication of the **PEIR SIR** in October 2022 (RED, 2022).

Fourth Statutory Consultation exercise (2023): PEI

1.2.4 The fourth targeted Statutory consultation exercise is to allow representations to be made in respect of the proposed extension to and additional infrastructure at the existing National Grid substation at Bolney; the preliminary environmental information for which is presented in this report. This **PEI** report has been prepared to support the fourth targeted Statutory Consultation exercise. The **PEI** provides further supplementary environmental information associated with the

proposed extension works to the existing National Grid Bolney substation that falls within the original PEIR Assessment Boundary (**Graphic 1-1** illustrates where in the EIA process the **PEI** sits). The need for development works at Bolney substation to facilitate Rampion 2 were stated in the **PEIR** (RED, 2021) and it was envisaged that this development would require a separate planning application. Detailed information on the development required was not available at the time and it was proposed that if the development details were available prior to DCO submission it would be included within the cumulative effects assessment. The Applicant has since taken the decision to include the Bolney substation extension works within the DCO application. The proposed extension works include additional above ground infrastructure (**Section 2**) within the PEIR Assessment Boundary that was not included within the **PEIR** (RED, 2021) and has been identified through the iterative design process since the publication of the **PEIR**, **PEIR SIR**, and **PEIR FSIR** (RED, 2021; 2022; 2023). A full description of the proposed extension to and additional above ground infrastructure at the existing Bolney substation is provided in **Section 2**.

1.2.5 Feedback collated from the consultation period will enable final refinements to be made to the onshore design of the Proposed Development to achieve a single onshore cable route and associated infrastructure. The proposed extension works presented in this **PEI**, together with the alternatives and modifications presented in the **PEIR SIR** and **PEIR FSIR** (RED, 2022; 2023), will be further refined to produce the proposed Development Consent Order (DCO) Order Limits. This will include a final set of associated temporary construction and permanent accesses and temporary construction compounds.

Environmental Design Process

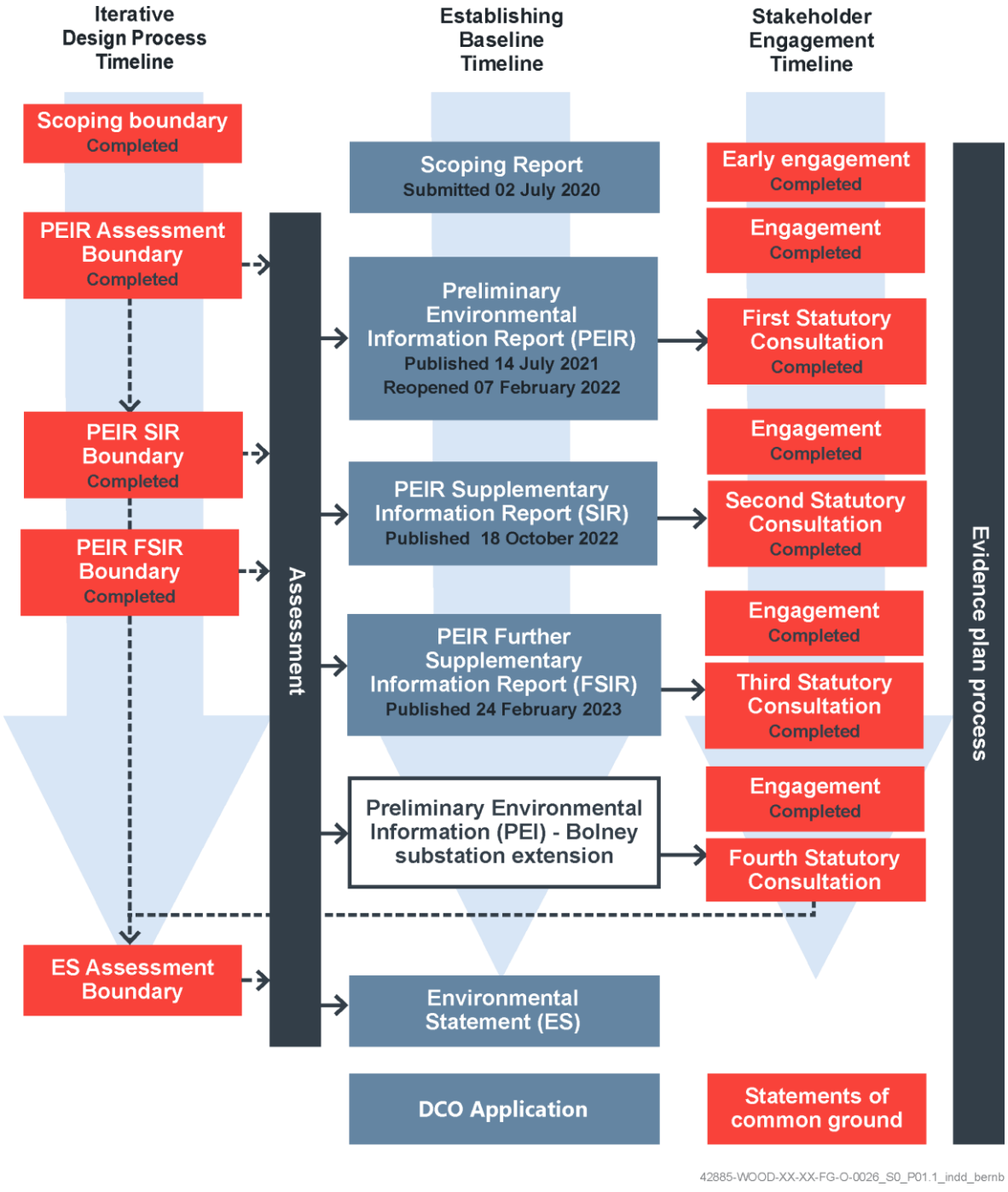
1.2.6 The Rampion 2 iterative environmental design process is a fundamental element of the EIA, as promoted by Guidance (Department for Communities and Local Government (DCLG), 2015), and has allowed opportunities for stakeholders to provide feedback and to understand and influence the design as it progresses. As such, the design of the Proposed Development has had regard to the consultation responses from the first Statutory Consultation period in 2021, the second Statutory Consultation in 2022, the third Statutory Consultation period in early 2023, and further information generated following the publication of the **PEIR** (RED, 2021), **PEIR SIR** (RED, 2022), and **PEIR FSIR** (RED, 2023). Each request for design change has been analysed from an inter-disciplinary perspective to evaluate the benefit of introducing an iteration to the original designs. This process will result in the onshore part of the PEIR Assessment Boundary being updated, with alternatives and modifications identified for assessment and presented within the **PEIR SIR** (RED, 2022), **PEIR FSIR** (RED, 2023), and subsequently this **PEI**. Further changes have arisen through the environmental and engineering work that has been undertaken alongside the consultation and potential changes identified through this process have also been assessed through the design change process.

1.2.7 From the outset, the environment has been central to the design of Rampion 2, and this is demonstrated further through the development of the **Commitments Register** initially presented in the **Scoping Report,** updated in the **PEIR** and **PEIR SIR Appendix F**, and **PEIR FSIR** (RED, 2021; 2022; 2023). This **Commitments**

Register identifies environmental measures that have been made and embedded into the Rampion 2 design, see **Paragraphs 1.3.9** to **1.3.13** for further detail. One addition to the embedded environmental measures (C-254) has been made as a result of this **PEI**, as described in **Section 3**, **Table 3-1.** No further changes to the environmental measures or the **Commitments Register** have been made as a result of this **PEI** and the addition of C-254 will be included in the forthcoming Environmental Statement (ES).

1.2.8 This **PEI** is provided to inform feedback from stakeholders on the new proposed alternative to the onshore design of Rampion 2. This feedback will enable final refinements to be made to the onshore design of the Proposed Development to achieve a single onshore cable route and associated infrastructure. The Bolney substation extension presented in this **PEI**, together with the alternatives and modifications presented in the **PEIR SIR** and **PEIR FSIR** (RED, 2022; 2023), will be further refined to produce the proposed Development Consent Order (DCO) Limits. This will include a final set of associated accesses and temporary construction compounds.

Graphic 1-1 EIA Process for Rampion 2



1.3 PEI Approach

Overview

1.3.1 This **PEI** seeks to be a focused document cross-referencing the **PEIR**, **PEIR SIR**, and **PEIR FSIR** (RED, 2021; 2022; 2023) where relevant to provide additional context. For in-depth information on assessments presented within the **PEIR** and

for understanding the full set of likely significant effects, the documents are available on the Rampion 2 website[1].

1.3.2 There are two design options for the Bolney substation extension, these are described in full in **Section 2** and **Table 2-1** outlines the maximum design assumptions of key parameters that are utilised in the environmental assessment. The **PEI** presents an environmental review of the proposed Bolney substation extension works which has been informed by a desk-based review of publicly available information, mapping and documents, site visits (see **Paragraph 1.3.3**), and environmental information previously collated for the original **PEIR** (RED, 2021). Details regarding the existing evidence base are provided in **Chapters 6** to **28** of the **PEIR** (RED, 2021) for each of the relevant individual environmental aspects.

1.3.3 For all environmental aspects, existing survey results from the ongoing surveys within the original PEIR Assessment Boundary have been utilised to inform this **PEI**, where relevant and available. This is considered to be sufficient to inform robust and reliable environmental review of the outcomes and conclusions presented in this **PEI**. Additional environmental surveys are ongoing, and results will be presented in the ES as appropriate and in line with the proposed DCO Order Limits.

1.3.4 This environmental review does not constitute a full assessment of effects. It determines whether the environmental receptors, the magnitude of change, and/or resulting assessment outcomes presented in the **PEIR** (RED, 2021) have changed as a result of the Bolney substation extension works presented to the onshore part of the original PEIR Assessment Boundary. It also considers whether these changes are likely to give rise to new or different residual significant effects. The outcomes of the Statutory Consultation exercises, including this further consultation, will help inform the proposed DCO Order Limits. A full assessment of the Proposed Development will be presented in the ES which will include a cumulative assessment.

1.3.5 The environmental review presented in this **PEI** has been undertaken in accordance with the assessment methodology set out in **Chapter 5: Approach to the EIA** of the **PEIR** (RED, 2021). Further detailed assessment criteria applicable to specific environmental aspects are detailed within aspect chapters (**Chapters 6** to **28**) of the **PEIR** (RED, 2021). The basis on which survey data has informed the **PEI** has been set out and described in **Paragraph 1.3.3**.

1.3.6 The Bolney substation extension works described in the **PEI** are onshore only and therefore, the environmental review has been carried out for onshore and crosscutting environmental aspects only as follows:

- Socio-economics;
- Landscape and visual impact;
- Air quality;

[1] Available at: https://rampion2.com/consultation-2022/ [Accessed 17 April 2023].

- Soils and agriculture;
- Noise and vibration (onshore);
- Terrestrial ecology and nature conservation;
- Transport;
- Ground conditions;
- Historic environment;
- Water environment;
- Major accidents and disasters; and
- Greenhouse gas assessment.

1.3.7 Descriptions of the extension works being considered as part of this environmental review are provided in **Section 2** of this **PEI**. The description of the Proposed Development presented in **Chapter 4, Volume 2** of the **PEIR** (RED, 2021) will be updated in the ES to reflect the design iteration decisions from all consultations, including the extension works to the National Grid Bolney substation considered in the **PEI**, will be taken forward as part of the design presented at the DCO Application stage. The relevant sections of these chapters and associated figures (**Volume 3**) will be updated to reflect the design of the Proposed Development for the DCO Application and presented in the ES.

1.3.8 The assessment outcomes of the offshore environmental aspects presented in **Chapters 6** to **17, Volume 2** of the **PEIR** (RED, 2021) or associated design updates are not covered in this **PEI**.

Embedded environmental measures

1.3.9 EIA is an iterative process and opportunities for mitigation, referred to as 'embedded environmental measures', have been considered throughout the design development of Rampion 2. The iterative design evolution process followed has been driven by collaborative working between the design, environmental and land interest teams, and in consultation with key stakeholders. Where possible, these embedded environmental measures have been developed with input from key stakeholders, together with appropriate technical standards, policies, and guidance.

1.3.10 These embedded environmental measures include avoidance, best practice, and design commitments, which are classified into primary, secondary, or tertiary measures in accordance with the Institute of Environmental Management and Assessment (IEMA) 'Delivering Quality Development' (2016) definitions and as set out in **Graphic 1-2**. Good practice consideration and application of environmental measures involves a hierarchal approach, considering avoidance of negative effects as the primary objective.

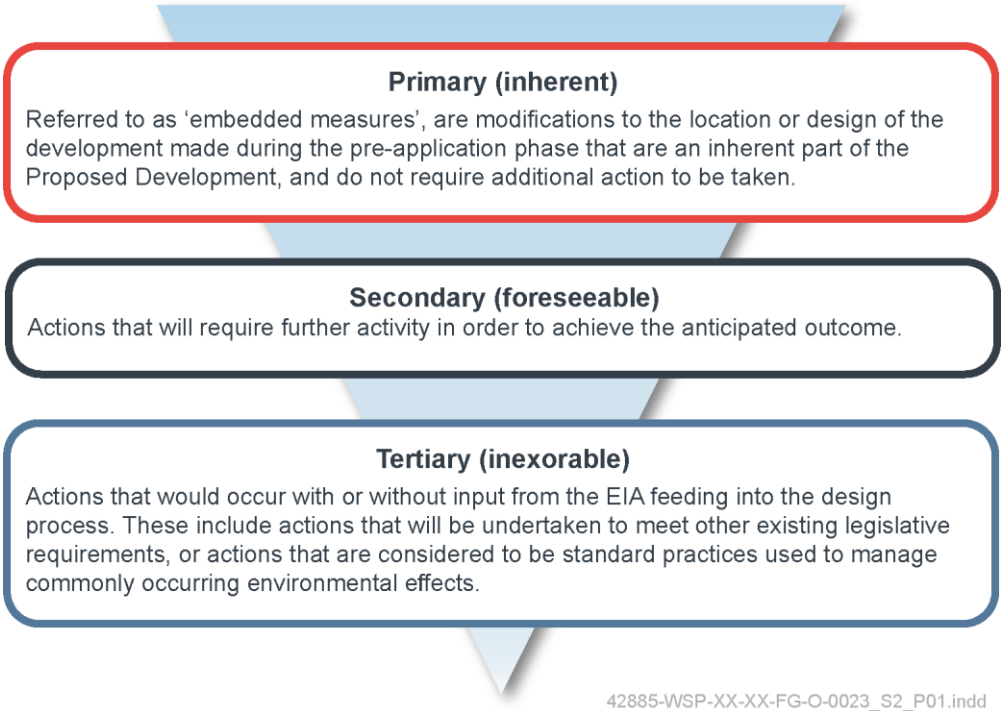
1.3.11 These embedded environmental measures have informed the review for each aspect and are included in the **Commitments Register**. This is used as the primary tool to capture and agree all embedded environmental measures and the mechanism for securing them. As the intention is to implement all embedded

environmental measures as part of the Rampion 2 design, the preliminary assessment of likely significant effects is based on this assumption.

1.3.12 Due to the progress of the design since the original **PEIR** (RED, 2021), some embedded environmental measures have been updated or newly created in relation to the alternatives and modifications, presented in the **PEIR SIR** (RED, 2022). These are presented in full in **PEIR SIR, Appendix F**.

1.3.13 Following this fourth Statutory Consultation exercise, a full and updated list of embedded environmental measures, including how they will be secured, will be included in the ES.

Graphic 1-2 Embedded environmental measures



Approach to the environmental review of the Bolney Substation extension works

1.3.14 The environmental review of onshore environmental receptors associated with the Bolney substation extension works are provided per environmental aspect in **Section 3**.

1.4 Report structure

1.4.1 This **PEI** is structured as follows:

- **Section 1**: Introduction;
- **Section 2:** Bolney Substation extension works;
- **Section 3:** Environmental review – Bolney substation extension works;
- **Section 4**: Summary;

- **Section 5:** Glossary of terms and abbreviations;
- **Section 6:** References;
- **Appendix A:** Figures (PEI Plans);
- **Appendix B:** Statutory and non-statutory environmental designations and other key environmental features; and
- **Appendix C:** Landscape viewpoints wireframe montages.

2. Bolney substation extension works

2.1 Introduction

2.1.1 The **PEIR** (RED, 2021) presented two onshore substation search areas for the siting of an onshore substation. As a result of technical and environmental appraisal, feedback following the first Statutory Consultation exercise and further design evolution, the Bolney Road/Kent Road area was selected (referred to as Oakendene).

2.1.2 The **PEIR** (RED, 2021) included a buried cable connection required from the proposed onshore substation to the existing National Grid Bolney substation as the National Grid interface location. The proposed connection comprises a maximum onshore cable corridor of two circuits with a total of six single core 400kV and four Fibre Optic Cables, all placed within a 50m wide corridor. However, the **PEIR** (RED, 2021) did not include for Bolney substation extension works within the DCO application as it was anticipated that this would be included within a separate planning application. Through the design evolution process and further discussions with National Grid, new infrastructure and extension works required at the existing National Grid Bolney substation to connect the Rampion 2 onshore cable route to the existing National Grid network (see **Appendix A, Figures 1** and **2**) will be incorporated into the DCO Application to ensure grid connection is available immediately upon completion of Rampion 2. The Bolney substation extension works described in this **PEI** are now to be included within and assessed as part of the Rampion 2 project.

2.1.3 There are two types of infrastructure being considered for installation that would require installation as part of the Bolney substation extension works: Air Insulated Switchgear (AIS)[2]; or Gas Insulated Switchgear (GIS)[3]. The Bolney substation extension options are described further in **Section 2.2**. Only one of the Bolney substation extension options (AIS or GIS) will be required in the final Proposed Development. The final choice of infrastructure and its design will be determined by National Grid Electricity Transmission (NGET), this **PEI** considers the design scenarios for each option based on the information available and assesses the maximum design scenario for both options, see **Section 2.2**. Therefore, this **PEI** only provides an environmental overview of the Bolney substation extension works to inform the fourth Statutory Consultation for Rampion 2.

2.1.4 At this stage, the description of the Bolney substation extension works is indicative and a ‘design envelope’ approach has been adopted which takes into account Planning Inspectorate (PINS) Advice Note Nine: Rochdale Envelope, July 2018 (PINS, 2018) to allow for an environmental assessment to be undertaken on the AIS and GIS options proposed. The provision of a design envelope is intended to

[2] AIS – high voltage electrical switchgear infrastructure, whereby the majority of the equipment utilises air as the insulating medium.
[3] GIS – high voltage electrical switchgear infrastructure, whereby the majority of the equipment utilises an inert gas (with strong insulting properties) as the insulating medium.

identify key design assumptions to enable the environmental assessment to be carried out whilst retaining enough flexibility to accommodate further refinement during detailed design. Further details on the use of the Rochdale Envelope as recommended by the National Policy Statement for Renewable Energy (EN-3) (Department of Energy and Climate Change (DECC), 2011) are provided in the **PEIR** (**Chapter 2**, RED; 2021).

2.2 Description of Bolney substation extension options

Overview

2.2.1 The Bolney substation extension AIS/GIS option specifications are described in turn below to provide an overview and **Table 2-1** outlines the maximum design assumptions of key parameters that are utilised in the environmental assessment. Only one of the Bolney substation extension options (AIS or GIS) will be required in the final Proposed Development. National Grid are responsible for owning and maintaining the high voltage electricity network in England and will select the most suitable option for the Bolney substation extension based on environmental conditions, feasibility, and engineering cohesion with the existing Bolney substation in discussion with RED. The temporary construction compound and the area for extension works required for either option will be located in a similar location with only the size of the extension works area being larger for the AIS option (see **Appendix A, Figures 1** and **2**). The AIS option utilises air to insulate the switchgear whilst GIS utilises a gas medium to insulate the switchgear. Using a gas medium allows for smaller size equipment to be achieved and so a small extension area footprint would be required for the GIS option. The AIS/GIS options require similar types and scale of construction works the maximum assessment assumptions are presented in **Table 2-1**. The AIS option proposed would be situated outdoors and the GIS option would be situated indoors for the proposed Bolney substation extension.

AIS extension option

2.2.2 The footprint for an AIS substation would be approximately 6,300m^2 (0.63ha). The existing Bolney substation comprised of an area of approximately 109,000m^2 (10.9ha), therefore the AIS option extension would increase the substation area by approximately 5.6%. The AIS extension would comprise electrical components and equipment necessary to connect the electricity generated by Rampion 2 to the existing National Grid network. The infrastructure required for the AIS option would be situated outdoors in the substation extension area. The works to deliver include:

- removal of fencing from existing perimeter and erection of new fencing along the newly established perimeter;
- erection of two new AIS bays to connect the two 400kV circuits from the new onshore substation at Oakendene;
- AIS bays to each include a building of up to 12m in length, 3m in width and 3m in height (each approximately the size of an International Standards Organisation (ISO) container);

- extension of the existing busbars present at the existing National Grid Bolney substation to connect to the two new AIS bays; and
- vegetation screening to minimise views of the extension to the south (as part of C-254).

2.2.3 An indicative location plan for the AIS extension to the existing National Grid Bolney substation is illustrated in **Appendix A, Figures 1** and **2**. The final layout may not entirely align with the indicative layout but will be subject to the maximum design scenario presented in **Table 2-1**.

GIS extension option

2.2.4 The footprint for a GIS substation would be approximately 3,500m^2 (0.35ha). The existing Bolney substation comprised of an area of approximately 109,000m^2 (10.9ha), therefore the GIS option extension would increase the substation area by approximately 3.2%. The GIS extension would comprise electrical components and equipment necessary to connect the electricity generated by Rampion 2 to the existing National Grid network. A majority of the infrastructure required for the GIS option would be housed internally within a building. The works to deliver include:

- removal of fencing from existing perimeter and erection of new fencing along the newly established perimeter;
- erection of a new steel-frame GIS building of up to 35m in length, 20m in width and 12m in height containing two GIS bays to connect the two 400kV circuits from the new onshore substation at Oakendene;
- extension of the existing busbars present at the existing National Grid Bolney substation to connect to the two new GIS bays; and
- vegetation screening to minimise views of the extension to the south (as part of C-254).

2.2.5 An indicative location plan for the GIS extension to the existing National Grid Bolney substation extension is illustrated in **Appendix A, Figures 1** and **2**. The final layout may not entirely align with the indicative layout but will be subject to the maximum design scenario presented in **Table 2-1**.

2.3 Construction phase

2.3.1 Access to the Bolney substation extension for either option (AIS or GIS) will be required during construction. The proposed temporary construction access route will follow an existing access from Wineham Lane to the temporary construction compound. This access will be extended from the temporary construction compound to the AIS or GIS substation extension area. Following construction, access for operation and maintenance will be through the existing Bolney National Grid substation.

2.3.2 A temporary construction compound will be required. This will be located along the temporary construction access on an area of existing hardstanding and will be approximately 3,500m^2 (0.35ha) (see **Appendix A, Figures 1** and **2**). This compound will occupy the same area for either option.

2.3.3 Temporary construction activities for the Bolney substation extension will include enabling works and construction works. Enabling works will prepare the site ahead of construction and include vegetation clearance, access road construction, installation of drainage systems, installation of a temporary construction compound, and delivery of materials, plant, machinery, and fuel.

2.3.4 Bolney substation extension construction will take place during standard construction hours (see **paragraph 2.3.9**) with a requirement only for local task lighting. Construction works for the AIS and GIS options are described in the steps below and are broadly similar, only steps 6 and 8 differ:

1. establishing a temporary construction compound;
2. building a temporary road from the temporary construction compound to the location of the permanent Bolney substation extension area;
3. potential re-routing of existing services buried close to the existing National Grid Bolney substation, where works are planned;
4. extension of the existing National Grid Bolney substation to NGET standards;
5. erection of new fencing along the newly established perimeter;
6. erection of switchgear bays:
   - AIS: erection of a two new AIS bays;
   - GIS: erection of a new steel frame GIS building containing two GIS bays;
7. removal of fencing from existing perimeter;
8. extension of busbars:
   - AIS: extension of the primary and secondary busbars within the existing National Grid Bolney substation to connect to the two new AIS bays; and
   - GIS: extension of the primary and secondary busbars within the existing National Grid Bolney substation to connect to the two new GIS bays.

2.3.5 The Bolney substation extension area is a relatively level site and minimal soil excavation is expected to be required. Any soil excavated will be reused where possible. At this stage, this cannot be confirmed and therefore the maximum design scenario assumes that any excavated soils will be removed from site.

2.3.6 The Bolney substation extension options will utilise concrete foundations for buildings and switchgear (both options), and piled or screwed foundations for busbar brushings (GIS option) or the AIS bays (AIS option). The ground material for both options will consist of a combination of crushed aggregate material overlaid with stone chippings.

2.3.7 Once all temporary construction activities have been carried out, the electrical equipment will be installed, commissioned, and tested for the performance of the connection between the new Oakendene onshore substation and the existing National Grid Bolney substation. Finally, the Bolney substation extension site will be secured, and the temporary construction areas returned to its original use and condition.

2.3.8 It is anticipated that construction traffic movements including heavy goods vehicles (HGVs) and light goods vehicles (LGVs) will be required during the enabling and construction Bolney substation extension works. No abnormal indivisible load movements are expected to be required. The expected movements are detailed in **Table** 2-1.

2.3.9 It is expected that the construction programme for either Bolney substation extension options (AIS or GIS) will be carried out over 12 months. Assumed indicative hours for the construction work and any construction-related traffic movements to or from the existing National Grid Bolney substation extension site are as follows:

- 07:00 to 19:00 hours Monday to Friday; and
- 08:00 to 13:00 hours on Saturday.

2.3.10 No activity outside of these assumed indicative hours, including Sundays, public holidays or bank holidays will take place unless otherwise agreed in writing with the relevant planning authority.

Table 2-1 Maximum assessment assumptions for the Bolney substation extension works

Assessment assumption	AIS value	GIS value
Permanent area of site for all infrastructure	Approximately 0.63ha	Approximately 0.35ha
Temporary construction works area (temporary construction compound and access)	Approximately 0.72ha	Approximately 0.72ha
Maximum building height	3m	12m
Maximum number of buildings	2	1
Maximum length building	12m	35m
Maximum width of building	3m	20m
Maximum height of other infrastructure	12m (busbars)	6m (interface asset to take the existing busbars into the GIS)
Duration of construction	Approximately 12 months	Approximately 12 months
Construction personnel	Approximately 21	Approximately 20
HGV construction traffic movements (two-way)	Approximately 550	Approximately 500

Assessment assumption	AIS value	GIS value
LGV construction traffic movements (two-way)	Approximately 8,000	Approximately 8,000

2.4 Operation and maintenance phase

2.4.1 Unscheduled maintenance or emergency repair visits will typically involve a very small number of vehicles, typically light vans. Infrequently, equipment may be required to be replaced, then the use of an occasional HGV may be utilised, depending on the nature of the repair.

2.4.2 It is anticipated that a monthly inspection of the AIS / GIS infrastructure will be required. Maintenance of the building(s) is anticipated to be carried out annually, with maintenance of AIS / GIS being caried out during substation outage periods, typically every few years.

2.4.3 Lighting during operation and maintenance activities is expected to be minimal. External lighting will be directional and limited to essential security and safety requirements. External works will usually be scheduled during daylight hours. If night working is required, then portable directional task lighting will be deployed.

2.4.4 The Bolney substation extension will only contain the switchgear equipment, and excludes the larger noise emitting equipment (transformers, shunt reactors, or condenser) associated with the Rampion 2 onshore substation located at the Oakendene substation. The operational noise associated with the switchgear equipment for both AIS/GIS options is limited to a ‘click’ noise during the switching process. The duration of the ‘click’ is limited to a couple of seconds. This switching process occurs infrequently and is expected to occur twice a day.

2.5 Decommissioning phase

2.5.1 The Bolney substation extension may be used for repowers or new connections after decommissioning of Rampion 2. If required, this may be subject to a separate planning application, depending on the extent of any further construction works. If it is decommissioned the following will apply:

- AIS: the AIS bays will be disconnected from the busbars and will be disassembled on site then removed from the site by HGV for recycling. The steel structure buildings and their contents will be removed from the site by HGV and recycled; or
- GIS: the GIS bays will be disconnected from the busbars, disassembled on site then removed from the site by HGVs for recycling. The steel-frame building will be disassembled onsite, removed from the site by HGV and recycled. The foundation of the GIS building may be broken up and removed for disposal, in which case the ground level would be reinstated as appropriate.

3. Environmental review – Bolney substation extension works

3.1 Introduction

3.1.1 The environmental review of the Bolney substation extension works (AIS and GIS options) is provided for each onshore environmental aspect below. Only one of the Bolney substation extension options (AIS or GIS) will be required in the final Proposed Development. All assessments will be updated in line with the proposed DCO Order Limits and presented in the ES.

3.1.2 The section has considered the implementation of existing **PEIR** (RED, 2021) and new/updated embedded environmental measures presented in the **PEIR SIR Appendix F** (RED, 2022) and **PEIR FSIR** (RED, 2023). One addition to the embedded environmental measures (C-254) has been made as a result of this **PEI**, as described in **Table 3-1** (C-254 is proposed for both GIS and AID infrastructure). No further changes to the environmental measures or the **Commitments Register** have been made as a result of this **PEI** and the addition of C-254 will be included in the forthcoming ES.

3.1.3 For the overall **PEIR** (RED, 2021) assessment outcomes and conclusions for each aspect, please see the **PEIR** (RED, 2021), and **Summary of Residual Effects, PEIR SIR Appendix G** (RED, 2022).

3.1.4 The environmental review is based on the maximum design scenario described in **Section 2**, **Table 2-1**. The total length of the onshore cable route does not change as a result of the Bolney substation extension works being considered. An indication is provided as to the anticipated change expected to the overall assessment outcomes and conclusions presented in the **PEIR** (RED, 2021).

3.2 Socio-economics

Overview

3.2.1 The socio-economic assessment within **Chapter 18: Socio-economics, Volume 2** of the **PEIR** (RED, 2021) considered the socio-economic receptors across the entire onshore cable corridor and the onshore substation search areas. The Bolney substation extension area and associated temporary construction compound is located wholly within the original PEIR Assessment Boundary (see **Appendix A, Figure 1** and **2**). There are minimal differences between the AIS/GIS options (**Table 2-1**) with regards to the socio-economic assessment and it is considered that the maximum design scenario includes the AIS option for area size and construction traffic, and the GIS option for building size. For operational noise it is considered that the AIS option represents the maximum design scenario as the GIS option will be housed internally, see **paragraph 3.6.5**.

Consideration of onshore recreation receptors

3.2.2 The Bolney substation extension does not introduce any additional socio-economic receptors (i.e. users of Public Rights of Way (PRoW)) (see **Appendix B, Figure 2**) and the Bolney substation extension works will not affect access to and enjoyment of onshore recreation activity of the socio-economic receptors identified in the **Sections 18.9** to **18.15** within **Chapter 18: Socio-economics, Volume 2** of the **PEIR** (RED, 2021).

Consideration of other socio-economic receptors

3.2.3 In addition to onshore recreation, other socio-economics receptors identified in the **Sections 18.9** to **18.15** within **Chapter 18: Socio-economics, Volume 2** of the **PEIR** (RED, 2021) have also been considered for the assessment of socio-economics in this **PEI**. As noted in the **PEIR** (RED, 2021), these are economy (jobs and gross value added (GVA)), tourism economy (onshore and offshore) and recreation (inshore and offshore):

- the impact on the economy is assessed for the UK and Sussex Study Areas and the significance of this impact is not altered by the implementation of the Bolney substation extension works set out in this **PEI** (negligible for UK and Sussex Study Areas – **Not Significant**);
- the impact on tourism economy is considered at the Sussex Study Area and the implementation of the Bolney substation extension works set out in this **PEI** have no impact on the significance assessed at **PEIR** (RED, 2021) (**Not Significant**); and
- the impact on access and enjoyment of inshore and offshore recreation is considered for the inshore part of the PEIR Assessment Boundary (defined as a 250m buffer from mean low water for inshore) and offshore part of the PEIR Assessment Boundary. This is not affected by the implementation of the Bolney substation extension works set out in this **PEI** and therefore the significance is consistent with what was assessed at **PEIR** (RED, 2021) (ranging from **Not Significant** to **Significant**).

3.2.4 The Bolney substation extension works for either option will not change the overall assessment outcomes and conclusions presented in **Sections 18.9** to **18.15** within **Chapter 18: Socio-economics, Volume 2** of the **PEIR** (RED, 2021). Overall whole project/project-wide socio-economic effects, including cumulative effects will be further assessed in the ES.

3.3 Landscape and visual impact

Overview

3.3.1 The landscape and visual impact assessment (LVIA) within **Chapter 19: Landscape and visual (onshore), Volume 2** of the **PEIR** (RED, 2021) considered each environmental receptor across the entire onshore cable corridor and the onshore substation search areas. In the **PEIR** (RED, 2021), the LVIA included the assessment of the onshore substation search area options which

included the Bolney substation extension area and associated temporary construction compound, as this falls within the PEIR Assessment Boundary (see **Appendix A, Figures 1** and **2**). There are minimal differences between the AIS/GIS options (**Table 2-1**) with regards to the LVIA assessment, it is considered that the maximum design scenario includes the AIS option for area size, construction traffic, and busbar height and the GIS option for building size and height. No additional landscape or visual receptors have been identified for either construction or operational phases of the Bolney substation extension works for Rampion 2.

3.3.2 A site visit has been undertaken to establish the visual envelope and any potential views into the Bolney substation extension. Additional viewpoint photography was taken in April 2023 which has been used to produce a wireline montage detailing the Bolney substation extension illustrated in **Appendix C**. **Appendix C** shows the difference in proposed building and infrastructure height for both options, the GIS option has the larger building size (12m) however the AIS option would include busbars up to 12m in height. As the AIS option has a larger footprint, it has been utilised for the height parameter in the maximum design scenario. Appendix C shows that both AIS/GIS options would be partially visible through intervening vegetation during winter months. The whole project/project wide landscape and visual effects, including cumulative effects will be further assessed in the ES.

Landscape receptors

3.3.3 The Bolney substation extension will take place within one Landscape Character Area (LCA; J3: Arun to Adur Scarp Footslopes) and is not within the South Downs National Park (SDNP). As the Bolney substation extension falls within the onshore substation search area options included in the **PEIR** (RED, 2021), the landscape receptors have not changed as a result of the substation refinement in this **PEI**.

3.3.4 In total the Bolney substation extension (including the temporary construction compound and the temporary construction access, which is the same for both options) crosses up to four field / land use boundaries and comes close to other existing field boundaries which include hedgerows, trees, and woodland. All of these will be subject to embedded environmental measures (C-103, C-115, C-220; **PEIR** and updated in the **PEIR SIR** (RED, 2021; 2022) to reduce loss of vegetation/habitat.

3.3.5 The scale and geographical extent of the landscape effects resulting from construction, operation and maintenance, and decommissioning will be tightly contained to within the influence of the existing National Grid Bolney substation and in seen in the same context. This is due to the layers of existing intervening vegetation screening that already contain the existing National Grid Bolney substation and the Bolney substation extension (see **Appendix A, Figure 3**). As such there would be no significant change to the existing landscape character.

3.3.6 The nature of these effects will be both direct and indirect, adverse and in some cases cumulative with the offshore elements of the Proposed Development. The duration of these effects will be short term (during the construction and decommissioning phases) and permanent during the operation and maintenance phase.

3.3.7 In terms of landscape effects, the Bolney substation extension, for either option will not introduce any additional receptors that were not previously identified and will not change to the outcome and conclusions of the landscape assessment provided within **Chapter 19** of the **PEIR** (RED, 2021).

Visual receptors

3.3.8 The Bolney substation extension area for both options is bounded on two sides by a mixture of mature trees, hedgerows, and woodland which in practice limits visibility of the area to the immediate boundary in most cases. On the other two sides the Bolney substation extension is bound by the existing National Grid Bolney substation, and the existing Rampion 1 onshore substation are well screened beyond roadside trees and perimeter mitigation planting (see **Appendix A, Figure 3**).

3.3.9 To the north, theoretical visibility is restricted by woodland and intervening mature hedgerows to within 500m (limited fragmented visibility beyond Coombe House). The AIS option represents the maximum design scenario for views towards the Bolney substation extension. Due to height of the busbars, including the temporary construction access and temporary construction compound. As a result of this, views may be seen from PRoW at Coombe House and PRoW 1T. There may also be seasonal visibility during the winter months from Wineham Lane and the residential properties at Old Doctors and Coombe House, although both of these are well screened by existing perimeter vegetation (see **Appendix A, Figure 3**).

3.3.10 Views from the east are also limited by successive layers of intervening trees, woodland, field boundaries, and Rampion 1 onshore substation with theoretical visibility becoming more fragmented beyond 1km distance at Twineham Green and again at Hickstead and along the A23 at 2km distance. At these distances, views are largely restricted due to existing vegetation screening (see **Appendix A, Figure 3**).

3.3.11 In the **PEIR** (RED, 2021), PRoW 8T would fall along the eastern boundary of the onshore substation search area. As a result of the design evolution refinement of the Bolney substation extension area, the substation extension area would not extend to PRoW 8T and so is no longer routed along the substation works boundary. Open views of the onshore substation search area were outlined in the **PEIR** (RED, 2021), however due to the design refinement open views of the Bolney substation extension for either option from PRoW 8T will be limited along the PRoW to those through gaps in existing vegetation. Mitigation landscape planting is proposed to provide screening and once matured, will screen views from PRoW 8T. To ensure the additional landscape planting for the Bolney substation extension is secured, a new commitment has been proposed (C-254) and this will be included within the DCO application (see **Table 3-1**).

Table 3-1 Updated PEI commitment

Commitment reference ID	Aspect	Commitment
C-254	Landscape	A detailed landscape plan will be developed in agreement with NGET for the screening of the extension works to the National Grid Bolney Substation in accordance with the further principles and indicative landscape design included in the **Design and Access Statement**. The detailed landscape plan will be provided to Mid-Sussex District Council for approval.

3.3.12 Theoretical visibility from the south is also largely restricted by woodland surrounding the existing National Grid Bolney substation. Bob Lane for example is well wooded with very limited seasonal views through dense vegetation towards the existing National Grid Bolney substation and the proposed Bolney substation extension for either option, located beyond (see **Appendix A, Figure 3**). Theoretical visibility from the west is similarly very limited by intervening vegetation along Wineham Lane with the proposed Bolney substation extension located beyond the existing National Grid Bolney substation.

3.3.13 PRoW 1T between Old Doctors on Wineham Lane and Coombe House was located adjacent to the original PEIR Assessment Boundary. As a result of the design evolution refinement presented in this **PEI**, the proposed Bolney substation extension is no longer adjacent to PRoW 1T. However, PRoW 1T would still be crossed by the onshore cable route, as reported in the **PEIR** (RED, 2021)) as the onshore cable route has not changed as a result of the information presented in this **PEI**, see **Appendix B, Figure 1**.

3.3.14 In terms of visual effects, the Bolney substation extension for either option will have no significant (beneficial or adverse) visual effects on settlements or residential properties, transport routes, tourist attractions, Open Access Land, or PRoWs.

3.3.15 In terms of visual effects, the Bolney substation extension for either option will not introduce any additional receptors that were not previously identified and will not change to the outcome and conclusions of the landscape assessment provided within **Chapter 19** of the **PEIR** (RED, 2021).

3.4 Air quality

3.4.1 The air quality assessment within **Chapter 20: Air quality, Volume 2** of the **PEIR** (RED, 2021) considered each environmental receptor across the entire onshore cable corridor and the onshore substation search areas. The Bolney substation extension area and associated temporary construction compound is located wholly within the original PEIR Assessment Boundary. There are minimal differences between the AIS/GIS options (**Table 2-1**) with regards to the air quality assessment and it is considered that the maximum design scenario includes the AIS option for construction traffic. No additional receptors have been identified for

the construction, operational and maintenance, or decommissioning phases of the Bolney substation extension works for Rampion 2.

3.4.2 The Bolney substation extension works (for either option) will result in a change in construction traffic generation (as outlined in **paragraph 2.3.3** and **Table 2-1**). However, no changes are anticipated to the overall assessment outcomes and conclusions of the construction traffic assessments presented in **Sections 20.9** to **20.15** within **Chapter 20: Air quality, Volume 2** of the **PEIR** (RED, 2021).

3.4.3 No additional residential receptors have been identified as a result of the Bolney substation extension works (for either option) and so there will be no change to the outcome of the construction dust assessment and overall conclusions provided in **Sections 20.9** to **20.15** within **Chapter 20** of the **PEIR** (RED, 2021).

3.4.4 The construction dust assessment, construction traffic and construction plant item modelling will be updated in line with the proposed DCO Order Limits and in the ES.

3.5 Soils and agriculture

3.5.1 The soils and agricultural land assessment within **Chapter 21: Soils and agricultural land, Volume 2** of the **PEIR** (RED, 2021) considered the entire onshore cable corridor and the onshore substation search areas. The Bolney substation extension area and associated temporary construction compound is located wholly within the PEIR Assessment Boundary. There are minimal differences between the AIS/GIS options (**Table 2-1**) with regards to the soils and agricultural assessment and it is considered that the maximum design scenario includes the AIS option for area size the temporary construction area is the same for either option. No additional soil or agricultural land receptors have been identified for the construction, operational and maintenance, or decommissioning phases of the Bolney substation extension for Rampion 2.

3.5.2 The Bolney substation extension introduces an additional area of permanent development, with a maximum design scenario up to 0.63ha (AIS option), comprising land east of the existing National Grid Bolney substation (see **Appendix A, Figures 1** and **2**). In addition, the temporary works area (either AIS or GIS) would be up to 0.72ha including a temporary construction compound and temporary construction access. Within the permanent works area, substation infrastructure would be installed, the size of this will depend on the Bolney substation extension option selected. The land that the proposed substation works is proposed to be built on is not currently in agricultural use and comprises landscaped grounds surrounding the existing substation and is currently vegetated with grass, shrubs, and trees. Soil resources are present within the Bolney substation extension area. However, land to the north east of the existing substation has previously been used for construction works at the substation and some of the soil present will have been reworked during these activities, whilst some may have been permanently removed, and made ground may also be present. This soil could also be affected by contaminants from the surrounding area, see Ground conditions section (**Paragraphs 3.9.1** to **3.9.4**) for further details.

3.5.3 The proposed temporary construction access and temporary construction compound for either option (0.72ha, see **Table 2-1**) will utilise previously developed land (with hardstanding still present). It is assumed that the topsoil will have been excavated and removed where hardstanding is present, during the previous construction works for the existing National Grid Bolney substation (**Table 2-1**). Therefore, there are no potentially significant effects on soils or agricultural land associated with these elements of the Bolney substation extension works. A soil survey will be required to establish the soil resources present within the proposed area of permanent development to inform soil reuse options and soil handling measures.

3.5.4 The provisional Agricultural Land Classification (ALC) Grade of the land and surrounding area is Grade 3. Soil or ALC surveys have not been undertaken on the Bolney substation extension area, however land to the south of the Bolney substation has been surveyed and was identified as sub-grade 3b (see **Appendix B, Figure 2**). Soil and ALC Survey has been completed for 409.30ha of the Onshore ES Boundary (43.34% of the total area), in accordance with Revised Guidelines and Criteria for Grading the Quality of Agricultural Land, published by Ministry of Agriculture, Fisheries and Food (MAFF) in 1988. This found that most of the surveyed agricultural land within the PEIR Assessment Boundary is Grade 3a or lower, indicating that an average grade of 3a applied over the entire proposed DCO Order Limits for the temporary soil disturbance associated with onshore cable construction is suitably conservative. This is stated in **Sections 21.9** to **21.13** within **Chapter 21: Soils and agriculture, Volume 2** of the **PEIR** and assessment in the **PEIR SIR** (RED, 2021; 2022) that assume that all ALC Grade 3 agricultural land is sub-grade 3a (best and most versatile) providing a conservative assessment.

3.5.5 The Bolney substation extension introduces an additional area of approximately 0.72ha (AIS and GIS option) potentially subject to temporary disturbance during the construction phase, and up to 0.63ha (AIS option) potentially subject to permanent soil removal / soil sealing that is additional to the assessment provided within the **PEIR** (RED, 2021). Although there is an increase in area of agricultural land potentially affected by the Proposed Development, given that the extent of the works proposed are relatively small in the context of the entire onshore infrastructure, there is no change to the environmental receptors or the embedded environmental measures (**Appendix F** of the **PEIR SIR** (RED, 2022)). The Bolney substation extension works do not change the overall assessment outcomes and conclusions (see **Table G-9** in **Appendix G** of the **PEIR SIR**) provided in **Sections 21.9 to 21.13** within **Chapter 21** of the **PEIR** (RED, 2021). The soils and agriculture assessment will be updated in line with the proposed DCO Order Limits.

3.6 Noise and vibration (onshore)

3.6.1 The noise assessment within **Chapter 22: Noise and vibration, Volume 2** of the **PEIR** (RED, 2021) considered each noise receptor across the entire onshore cable corridor and the onshore substation search areas. The Bolney substation extension area and associated temporary construction compound is located wholly within the PEIR Assessment Boundary (see **Appendix A, Figures 1** and **2**). With regards to the noise assessment, there are differences between the maximum

design scenario for the AIS/GIS options and it is considered that during the construction phase the maximum design scenario would be similar for either option due to the works required and that both would require a 12 month construction programme, however the AIS option will require the larger amount of construction traffic (**Section 2.3**). For the operation phase it is considered that the AIS option represents the maximum design scenario as the GIS option would be house internally, see **paragraph 3.6.5**.

3.6.2 No new noise sensitive receptors have been identified within 50m of the Bolney substation extension, consequently this does not change the overall assessment outcomes or conclusions of the onshore cable installation (trenched) assessment provided in **Section 22.9** within **Chapter 22** of the **PEIR** (RED, 2021). The onshore cable installation (trenched) assessment will be updated in line with the proposed DCO Order Limits and presented in the ES.

3.6.3 The Bolney substation extension introduces a temporary construction access for both options. This temporary construction access does not introduce additional noise sensitive receptors within 20m. Consequently, the temporary construction access does not change the overall assessment outcomes and conclusions in the assessment of temporary construction accesses in **Section 22.9** within **Chapter 22** of the **PEIR** (RED, 2021). The assessment of temporary construction and permanent accesses will be updated in line with the proposed DCO Order Limits and presented in the ES.

3.6.4 The extension will result in changes to construction traffic flows on the surrounding road network during the construction phase, with the AIS option requiring a larger amount of construction traffic (as outlined in **Section 2**). However, the change in construction traffic flows will result in a negligible impact on receptors. Therefore, there is no change to the overall assessment outcomes and conclusions in the assessment of construction traffic noise, as provided in **Section 22.9** within **Chapter 22** of the **PEIR** (RED, 2021). The construction traffic assessment will be updated in line with the proposed DCO Order Limits and presented in the ES.

3.6.5 The Bolney substation extension does not introduce any new noise sensitive receptors identified in the **PEIR** (RED, 2021). The larger noise emitting equipment associated with the Rampion 2 onshore substation will be located at the Oakendene substation (see **paragraph 2.4.4**). Therefore, both AIS/GIS options will only include noise generating equipment associated with the 'switchgear', of which the associated operational noise emissions are limited to a 'click' noise during the switching process. The duration of the 'click' is limited to a couple of seconds. This switching process occurs infrequently and is expected to occur a couple times a day. It is considered that the operational ('click') noise is unlikely to be audible outside of the existing Bolney substation. The GIS option will house the operational noise generating equipment within a building that will reduce any operational noise emissions to the atmosphere. The AIS option will host the operational noise generating equipment outdoors, the equipment will only include the switchgear. Due to the nature of the operational ('click') noise generated, the limited geographical extent, and the frequency it is unlikely to increase the existing operational noise level of the existing Bolney substation, therefore the operational noise emissions for both AIS and GIS options are considered **negligible** which is **Not Significant** in EIA terms. Consequently, the operational noise of the Bolney substation extension is not anticipated to result in additional noise effects. The

operational noise assessment will be updated in line with the proposed DCO Order Limits and presented in the ES.

3.6.6 The existing embedded environmental measures described in the **PEIR** updated in the **PEIR SIR Appendix F** (RED, 2022) will be applicable. These will be applied to the Bolney substation extension for either option as appropriate. Therefore, on the basis of the above, the Bolney substation extension for either option does not change the overall assessment outcomes and conclusions of no significant effect provided in **Sections 22.9** to **22.15** within **Chapter 22** of the **PEIR** (RED, 2021). The construction noise predictions and modelling will be updated in line with the proposed DCO Order Limits in the noise and vibration assessment and presented at ES.

3.7 Terrestrial ecology and nature conservation

3.7.1 The terrestrial ecology assessment within **Chapter 23: Terrestrial ecology, Volume 2** of the **PEIR** (RED, 2021) considered each ecological feature across the entire onshore cable corridor and the onshore substation search areas. The Bolney substation extension area and associated temporary construction compound is located wholly within the PEIR Assessment Boundary (see **Appendix A, Figures 1** and **2**). Additional surveys are ongoing in 2023 to record further details on habitats and species in this area. There are minimal differences between the AIS/GIS options (**Table 2-1**) with regards to the ecology assessment and it is considered that the maximum design scenario includes the AIS option for area size and construction traffic, and the GIS option for building size. No additional receptors have been identified for the construction, operational and maintenance or decommissioning phases of the Bolney substation extension works for Rampion 2.

3.7.2 The Bolney substation extension works, for both options including the temporary construction compound and temporary construction access, lie within an area of hardstanding associated with the existing National Grid Bolney substation, neutral/semi-improved grassland, broadleaved woodland, and scattered scrub (see **Appendix B, Figures 1** and **4**). The proposed temporary construction access route will follow an existing access from Wineham Lane to the temporary construction compound, and this access will be extended from the temporary construction compound to the AIS or GIS option, with losses (e.g., for extending the access) expected for construction vehicles to be confined to grassland habitats with young trees planted in the area. This area is not noted within the Priority Habitat Inventory and does not overlap with any Local Wildlife Sites or other ecological designations, however the area around the existing National Grid Bolney substation (including the AIS / GIS extension area) supports reptiles, great-crested newts, and badgers as presented in the **PEIR** (RED, 2021).

3.7.3 The existing embedded environmental measures described in the **PEIR** (RED, 2021) updated in the **PEIR SIR Appendix F** (RED, 2022) will be applicable. These will be applied to the additional area required to deliver the AIS or GIS option but noting that there is a small additional increase in permanent land use within the DCO application compared to that considered previously in the same location presented at **PEIR** (RED, 2021), as the Bolney substation extension works are

now included within the DCO application instead of forming a subsequent application (see **paragraph 1.2.4**).

3.7.4 Therefore, given that the extent of the options proposed are relatively small in the context of the entire onshore infrastructure and are smaller than the broader area considered for a new substation within the PEIR, the resultant effects on grassland, scrub, woodland, and legally protected or notable species will be less than those previously considered. Further, the inclusion of more detailed embedded environmental measures enables these effects to be avoided, mitigated and compensated appropriately. Overall (i.e., applied at the scale of the Proposed Development), the conclusions drawn for these ecological features remains as reported in **Chapter 23** of the **PEIR** (RED, 2021).

3.8 Transport

3.8.1 The transport assessment within **Chapter 24: Transport, Volume 2** of the **PEIR** (RED, 2021) considered receptors across the entire onshore cable corridor and the onshore substation search areas and this was updated in the **PEIR SIR, Appendix J** (RED, 2022), this did not include construction traffic associated with the Bolney substation extension works.

3.8.2 It is expected that the construction traffic HGV movements associated with the Bolney substation extension works, for both AIS and GIS options, will generate two additional two-way HGV movements per day for the 12 month construction period, the AIS option will require the larger amount of construction traffic (see **Table 2-1**). The additional HGV movements are considered to constitute a negligible change to the transport assessment provided in the **PEIR** (RED, 2021), and **PEIR SIR** (RED, 2022).

3.8.3 The Bolney substation extension works for either option will affect similar highway links as have been identified in the **PEIR** (RED, 2021) and **Appendix J** of the **PEIR SIR** (RED, 2022), most likely the A272 and A23. In the **PEIR** and **Appendix J** of the **PEIR SIR** (RED, 2021; 2022) the traffic count points were located principally on A and B roads. Given the small size and scale of the Bolney substation extension works and the fact that it is located at one end of the total proposed onshore cable route, there are no additional highway links for which it is deemed necessary to include traffic data beyond those already covered in the **PEIR** (RED, 2021), and **Appendix J** of the **PEIR SIR** (RED, 2022).

3.8.4 Construction traffic trip generation data will be further updated in detail in the ES, however at this stage the construction traffic trip generation is expected to be of a comparable level of magnitude to that presented at **PEIR** (RED, 2021) and **PEIR SIR Appendix J** (RED, 2022) stages.

3.8.5 The temporary construction access route for either option will follow an existing access from highway link 26 (Wineham Lane) to the temporary construction compound and this access will be extended from the temporary construction compound to the Bolney substation extension area. The assessment of effects provided in **Appendix J** of the **PEIR SIR** (RED, 2022) concludes for the highway link 26 that the significance of residual effects is **Significant** in EIA terms. A summary of residual effects table for the highway link is provided in **Section 8** of **Appendix J** of the **PEIR SIR** (RED, 2022). The inclusion of the Bolney substation

extension works fall within the maximum design scenario previously considered in the **PEIR SIR** and with consideration to the overall assessment outcomes and conclusions (see **Table G-12** in **Appendix G** of the **PEIR SIR**) provided in **Sections 24.10** to **24.15** within **Chapter 24** of the **PEIR** which are unchanged and remain valid (RED, 2021; 2022). Updated traffic flows associated with the proposed Bolney substation extension will be assessed as part of the ES. This temporary construction access will also be reflected in the updated **Outline Construction Traffic Management Plan (CTMP)** provided alongside the DCO Application. The assessment of transport effects will be updated in line with the proposed DCO Order Limits in the **Outline Public Rights of Way Management Plan (PRoWMP)**, **Outline CTMP**, and the ES submitted alongside the DCO Application.

3.8.6 No new additional PRoWs have been identified for consideration as part of the Bolney substation extension works, for either option, that have not already been considered in the **PEIR** (RED, 2021) or **PEIR SIR** (RED, 2022), see **Appendix B, Figure 1**. All PRoWs will be incorporated into the updated **PRoWMP** provided alongside the DCO Application.

3.8.7 The Bolney substation extension works may alter the construction traffic generation and distribution presented in the **PEIR** and **PEIR SIR** (RED, 2021; 2022). However, the construction traffic generation impacts associated with the Bolney substation extension works for either option are expected to be no greater than those provided in the revised maximum design scenario outlined in the **PEIR SIR** (RED, 2022). Therefore, the assessment of the Bolney substation extension works for both options fall within the maximum assessment outlined in **Appendix J** of the **PEIR SIR** (RED, 2022). As such, the assessment of effects provided in **Appendix J** of the **PEIR SIR** (RED, 2022) concluded following the implementation of embedded environmental measures, the significance of residual effects is negligible which is **Not Significant** in EIA terms. This is considered alongside the remaining overall assessment outcomes and provided in the **Sections 24.10** to **24.15** within **Chapter 24** of the **PEIR** (RED, 2021) which are unchanged and remain valid. A fully detailed transport environmental assessment will be completed at the ES stage considering the final Proposed Development.

3.9 Ground conditions

3.9.1 The ground conditions assessment within **Chapter 25: Ground conditions, Volume 2** of the **PEIR** (RED, 2021) considered sources of contamination, environmental receptors and minerals sites and safeguarding areas across the entire onshore cable corridor and the onshore substation search areas. The Bolney substation extension area and associated temporary construction compound is located wholly within the PEIR Assessment Boundary (see **Appendix A, Figures 1** and **2**). There are minimal differences between the AIS/GIS options (**Table 2-1**) with regards to the ground assessment and it is considered that the maximum design scenario includes the AIS option for area size, and the GIS option for building size. No new ground condition sources of contamination or receptors for land contamination or minerals safeguarding areas or sites have been identified for the construction, operational and maintenance, or decommissioning phases of the Bolney substation extension works for Rampion 2.

3.9.2 The **PEIR** (RED, 2021) identified that the existing National Grid Bolney Substation was a potential source of contamination for the onshore substation search area (Wineham Lane North). A maximum design scenario was considered in which potential contamination from the existing National Grid Bolney substation extended into the onshore substation search area.

3.9.3 Whilst this potential source of contamination is outside of the land required for Bolney substation extension works for either option, the proximity of the extension is closer to the existing National Grid Bolney substation than considered for the onshore substation search area (Wineham Lane North) in the **PEIR** (RED, 2021) and this increases the potential for encountering contamination during construction. However, based on the design parameters described in **Section 2,** ground disturbance as a result of the Bolney substation extension works for both the AIS and GIS options is unlikely to be significant, and therefore this potential increase for encountering contaminated land is unlikely to be significant.

3.9.4 The existing embedded environmental measures for ensuring land is suitable for the proposed use and having a protocol for encountering unexpected contamination are described in the **PEIR** (RED, 2021) and updated in the **PEIR SIR Appendix F** (RED, 2022). These will be applied to the works required to deliver the Bolney substation extension works for either option. On this basis, the conclusions drawn for ground conditions remain as reported in **Chapter 25** of the **PEIR** (RED, 2021).

3.10 Historic environment

3.10.1 The historic environment assessment within **Chapter 26: Historic environment, Volume 2** of the **PEIR** (RED, 2021) considered each environmental receptor across the entire onshore cable corridor and the onshore substation search areas. The Bolney substation extension area and associated temporary construction compound presented above is located wholly within the PEIR Assessment Boundary (see **Appendix A, Figures 1** and **2**). There are minimal differences between the AIS/GIS options (**Table 2-1**) with regards to the historic environment assessment and it is considered that the maximum design scenario includes the AIS option for area size and construction traffic, and the GIS option for building size. For operational noise it is considered that the AIS option represents the maximum design scenario as the GIS option would be housed internally, see **paragraph 3.6.5**.

3.10.2 No new receptors or changes to magnitude of effects on known receptors have been identified, and the residual effects are comparable to those identified in the **PEIR** (RED, 2021).

3.10.3 The nearest listed building (Twineham Court Farmhouse, Grade II 1025579) is located approximately 270m east of the Bolney substation extension works for either option (see **Appendix B, Figure 1**). There is existing vegetation screening between the Bolney substation extension works and the listed building. Any audible changes during construction phase, which may be perceptible from the asset, are not expected to change the assessment outcome in the **PEIR** (RED, 2021). Due to intervening distance, topography, planting and built infrastructure, construction of the Bolney substation is not expected to change the assessment outcome for other receptors identified in the **PEIR** (RED, 2021). Operation of the

Bolney substation extension for the AIS option, is not anticipated to introduce visual or audible changes to the setting of Twineham Court Farmhouse (Grade II 1025579) or other receptors identified in the **PEIR** (RED, 2021) due to intervening topography, planting and built infrastructure.

3.10.4 The Bolney substation extension (temporary construction access, temporary construction compound, and substation infrastructure for both AIS/GIS options) does not intersect with any previously recorded buried heritage assets. Archaeological survival is generally anticipated to be low within the Bolney substation extension area due to former ground disturbance associated with previous works for the existing National Grid substation and tree planting. However, buried deposits with archaeological potential are likely to survive in the agricultural field occupied by the east/southwest of the Bolney substation extension area for either option. The proposed temporary construction access route will follow an existing access from Wineham Lane to the temporary construction compound, and where this will be extended to the AIS or GIS substation extension area, this will follow the route of a former construction access associated with the existing National Grid substation. The temporary construction compound will be located on an existing area of hardstanding. Therefore, impacts to potential archaeology due to the temporary works area is not anticipated. Therefore, the Bolney substation extension for either option, following the implementation of embedded environmental measures presented in the **PEIR** (RED, 2021) and updated in the **PEIR SIR Appendix F** (RED, 2022), are expected to be comparable to the overall assessment outcomes and conclusions presented in the **PEIR** (RED, 2021). A detailed baseline and the overall assessment for historic environment receptors will be provided in the ES.

3.11 Water environment

3.11.1 The water environment assessment within **Chapter 27: Water environment, Volume 2** of the **PEIR** (RED, 2021) considered each environmental receptor across the entire onshore cable corridor and the onshore substation search area. The Bolney substation extension area and associated temporary construction compound presented above is located wholly within the PEIR Assessment Boundary (see **Appendix A, Figures 1** and **2**). There are minimal differences between the AIS/GIS options (**Table 2-1**) with regards to the water environment assessment and it is considered that the maximum design scenario includes the AIS option for area size, and the GIS option for building size.

3.11.2 The nearest groundwater Water Framework Directive (WFD (2017)) water body is the Adur and Ouse Hastings Beds (GB40702G502000) situated approximately 500m from the Bolney substation extension. None of the potentially water dependent conservation sites, ponds, or springs have a potential connection to the Bolney substation extension area for either option. The majority of registered water resources receptors do not have a potential connection to the Bolney substation extension area for either option, other than P18 which is a Private Water Supply (PWS) surface water abstraction on the Adur (East) watercourse branch situated 1.4km downgradient from the Bolney substation extension that was identified in the **PEIR** (RED, 2021) (see **Appendix B, Figure 3**). Each of these receptors were identified in the **PEIR** (RED, 2021) and therefore, the Bolney substation extension

does not introduce new water environment receptors beyond those already identified in the **PEIR** (RED, 2021).

3.11.3 The Bolney substation extension for both options will require an additional area of hardstanding, due to the size and scale of the hardstanding required it does not change the conclusions of the water environment as reported in **Chapter 27** of the **PEIR** (RED, 2021). This hardstanding area will be incorporated into the outline drainage strategy and water environment assessment in line with the proposed DCO Order Limits in the ES.

3.11.4 The existing embedded environmental measures for the water environment aspect described in the **PEIR** (RED, 2021) and updated in the **PEIR SIR Appendix F** (RED, 2022) will be applicable. These will be applied to the area required to deliver the substation extension for either option. The conclusions drawn for water environment remain as reported in **Chapter 27** of the **PEIR** (RED, 2021).

3.12 Major accidents and disasters

3.12.1 In relation to major accidents and disasters, the Bolney substation extension works (for either option) are within the bounds of the major accidents and disasters assessment carried out in the **PEIR** (RED, 2021) and fall within the original PEIR Assessment Boundary. It does not run through the consultation distances of any new Control of Major Accident Hazard (COMAH) facilities, nor does it introduce any significant new hazards or receptor populations. Therefore, the Bolney substation extension works do not significantly alter the baseline, environmental receptors, or the overall outcomes and conclusions presented in **Sections 28.6** to **28.11** within **Chapter 28: Major accidents and disasters, Volume 2** of the **PEIR** (RED, 2021).

3.13 Greenhouse gas assessment

3.13.1 The Bolney substation extension works (for either option) will result in a change in construction traffic generation (as outlined in **paragraph 2.3.3** and **Table 2-1**) and the amount construction material required for Rampion 2. The proposed Bolney substation extension works (for either option) do not change the baseline, environmental receptors, or the overall assessment outcomes and conclusions presented in **Appendix 5.2: Greenhouse gas assessment, Volume 4** of the **PEIR** (RED, 2021). The Greenhouse Gas (GHG) emissions associated with the construction of the Bolney substation extension will be incorporated into the GHG assessment in line with the proposed DCO Order Limits in the ES.

3.13.2 In accordance with IEMA guidance for GHG assessments (IEMA, 2022), activities that do not significantly change the result of the assessment can be excluded from the assessment where expected emissions are less than 1% of total emissions. Although there will be an increase in GHG emissions (associated with the gases used for the GIS option), it is anticipated that this increase will be minor, and not alter the position to scope out the operational emissions defined at the scoping stage.

4. Summary

4.1 Summary

4.1.1 This section summarises the conclusions of the high-level environmental review of the Bolney substation extension, associated construction compound and works. The Bolney substation extension will not introduce any additional sensitive receptors compared with those presented in in the **PEIR** (RED, 2021).

4.1.2 Considering the implementation of embedded environmental measures (**PEIR** and **PEIR SIR Appendix F** (RED, 2021; 2022)), no new significant residual effects have been identified that alter the assessment outcomes and conclusions presented in the **PEIR** (RED, 2021). One addition to the embedded environmental measures (C-254) has been made as a result of this **PEI**, as described in **Section 3**, **Table 3-1**. No further changes have been made to the embedded environmental measures previously identified (**PEIR** and **PEIR SIR Appendix F** (RED, 2021; 2022)).

4.1.3 As the design is finalised prior to the DCO Application, further update and refinement of the maximum design scenario and embedded environmental measures will inform the environmental assessments presented in the ES.

Review summary for Bolney Substation extension

Green Cells	As a result of the alternative or modification to the onshore part of the original PEIR Assessment Boundary, there is no change to overall assessment outcomes and/or conclusions presented in the **PEIR** (RED 2021). Text is provided to clarify where appropriate, including notable changes to environmental receptors since **PEIR** where relevant.
Orange Cells	As a result of the alternative or modification to the onshore part of the original PEIR Assessment Boundary, there has been a potential change in magnitude of impact leading to a potential increase in the overall assessment of significance presented at **PEIR** (RED, 2021). Text is provided where appropriate, indicating whether there is likely to be a change to the assessment of significance.
White Cells	As a result of the alternative or modification to the onshore part of the original PEIR Assessment Boundary, there has been a potential change in magnitude of impact leading to a potential reduction in the overall assessment of effects presented at **PEIR** (RED, 2021). Text is provided where appropriate, indicating whether there is likely to be a change to the assessment of significance.

4.1.4 **Table 4-1** provides a summary of the environmental review; it states the overall summary for the environmental aspect based on the maximum design scenario described in **Section 3**. Unless necessary, the summary does not specify which option presents the maximum design scenario and it should be considered that the summary describes both options.

Table 4-1 Review of Bolney Substation extension works

Aspect	Bolney substation extension works
Socio-economics	No new socio-economic receptors identified and no change to the assessment conclusions in the PEIR (RED, 2021).
Landscape and visual	Wireframe montages have been produced for the Bolney substation extension options; they show that both options would be partially visible through intervening vegetation mainly in winter. There are layers of existing intervening vegetation screening that contain the existing Bolney substation that will screen the Bolney substation extension and construction compound. As a result of the design refinement open views of the Bolney substation extension from PRoW 8T would be limited with mitigation landscape planting (secured through the additional commitment C-254) screening this once matured, and PRoW 1T does not interact with the Bolney substation extension area. No new landscape and visual receptors identified and no change to the assessment conclusions in the PEIR (RED, 2021).
Air quality	No new air quality receptors have been identified as a result of the Bolney substation extension works, however it will result in a change to construction traffic generation. This change will not change to the assessment conclusions in the PEIR (RED, 2021).
Soils and agriculture	No new soils and agricultural land receptors have been identified as a result of the Bolney substation extension, however it will result introduce an additional area of temporary and permanent development. Given the extent of the works proposed, no change to the assessment conclusions in the PEIR (RED, 2021) is anticipated.
Noise and vibration (onshore)	The Bolney substation extension would change the construction traffic flows however this change does not introduce any additional noise sensitive receptors and does not change the assessment conclusions in the PEIR (RED, 2021). The Bolney substation extension will only include noise generating equipment associated with the switchgear, and noise emissions are limited to a ‘click’ noise during the switching process. The switching process occurs infrequently and is unlikely to be audible outside of the existing Bolney substation. Due to the nature of the operational (‘click’) noise generated, the limited geographical extent, and the frequency it is unlikely to increase the existing operational noise level of the existing Bolney substation, it considered negligible which is Not Significant in EIA terms for both options.

Aspect	Bolney substation extension works
Terrestrial ecology and nature conservation	Bolney substation extension temporary construction access lies within existing hardstanding associated with previous construction at Bolney substation, and the permanent works lie within neutral/semi-improved grassland, broadleaved woodland, and scattered scrub. The area is not within any Local Wildlife Sites or the Priority Habitat Inventory. No new terrestrial ecology receptors identified and no change to the assessment conclusions in the **PEIR** (RED, 2021).
Transport	No new transport receptors have been identified as a result of the Bolney substation extension works, however it will result in a change to construction traffic generation. Given the small size and scale of the Bolney substation extension and that it is located at one end of the proposed onshore cable route, this does not change the assessment conclusions in the **PEIR** (RED, 2021).
Ground conditions	No additional ground condition sources of contamination or receptors for land contamination or minerals safeguarding sites have been identified for the Bolney substation extension works. The existing Bolney substation is a potential source of contamination, as ground disturbance is expected to be minimal the potential increase for encountering contaminated land is unlikely to be significant and there is no change to the assessment conclusions in the **PEIR** (RED, 2021).
Historic environment	The Bolney substation extension does not introduce any new historic environment receptors, and there is existing vegetation screening between the substation and the receptors identified in the **PEIR** (RED, 2021). It is not expected that the temporary construction access and compound or permanent works will impact buried archaeology due to the former ground disturbance associated with previous construction at Bolney substation. There is no change to the assessment conclusions in the **PEIR** (RED, 2021).
Water environment	The Bolney substation extension does not introduce any new water environment receptors. The works will require an additional area of hardstanding, and this will be incorporated into the drainage strategy, due to the size and scale of the works proposed there is no change to the assessment conclusions in the **PEIR** (RED, 2021).
Major accidents and disasters	No new major accidents and disasters receptors identified and no change to the assessment conclusions in the **PEIR** (RED, 2021).
Greenhouse gas assessment	No new greenhouse gas receptors identified and no change to the assessment conclusions in the **PEIR** (RED, 2021).

5. Glossary of terms and abbreviations

Table 5-1 Glossary of terms and abbreviations

Term	Definition
Agricultural Land Classification (ALC)	ALC categorises land into five different grades based on the extent to which physical or chemical characteristics inflict long term limitations on an agricultural site.
ALC Grade 3	The Grade 3 ALC classification indicates good to moderate agricultural land, meaning land with moderate limitations affecting choice of crops, timing, type of cultivation, harvesting and level of yield. Grade 3 land is divided into two subgrades designated as 3a and 3b. Grade 3a (good quality agricultural land) is defined as best and most versatile (BMV) land, while Grade 3b (moderate quality agricultural land) is not BMV.
Best and Most Versatile (BMV)	The term BMV refers to the Best and Most Versatile agricultural land value from a soils and agriculture perspective.
Development Consent Order (DCO)	This is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects, under the Planning Act 2008.
Development Consent Order (DCO) Application	An application for development consent to undertake a Nationally Significant Infrastructure Project, under the Planning Act 2008, made to the Planning Inspectorate. The Planning Inspectorate will consider the application and make a recommendation to the Secretary of State for Business, Energy, and Industrial Strategy, who will decide on whether development consent should be granted for the Proposed Development.
Environmental Impact Assessment (EIA)	The process of evaluating the likely significant environmental effects of a proposed project or development over and above the existing circumstances (or 'baseline').
Environmental measures	Measures which are proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible, remedy identified effects.

Term	Definition
Environmental Statement (ES)	The written output presenting the full findings of the Environmental Impact Assessment.
Gross value added (GVA)	The measure of the value of goods and services produced in an area, industry or sector of an economy.
Horizontal Directional Drill (HDD)	Horizontal Directional Drill (HDD) is a trenchless crossing technique. HDD is a process whereby a tunnel is drilled under an obstacle and a cable duct is pulled through the drilled underground tunnel. It avoids the need for trenches, and enables minimal disruption to routing cables through rivers, roads, drains and other obstacles.
Landscape Character Area (LCA)	These are single unique areas which are discrete geographical areas of a particular landscape type.
Local Wildlife Site (LWS)	Local Wildlife Sites are non-statutory designations conferred by local planning authorities and given weight through local planning policy. These sites are selected through a selection of criteria (criteria are area dependent) aimed at identifying “substantive nature conservation value”.
Ministry of Agriculture Fisheries and Food (MAFF)	The former Ministry of Agriculture, Fisheries and Food (MAFF) was a United Kingdom government department created by the Board of Agriculture Act 1889, now Department for Environment, Food & Rural Affairs (Defra).
Nationally Significant Infrastructure Project (NSIP)	Nationally Significant Infrastructure Projects (NSIPs), under the Planning Act 2008, are major infrastructure developments in England and Wales which are consented by DCO. These include proposals for offshore wind farms with an installed capacity greater than 100MW.
Outline Construction Traffic Management Plan (CTMP)	The outline Construction Traffic Management Plan (CTMP) which will be provided alongside the DCO application.
PEIR Assessment Boundary	The PEIR Assessment Boundary combines the search areas for the offshore and onshore infrastructure associated with the Proposed Development at the PEIR stage. It is defined as the area within which the Proposed Development and

Term	Definition
	associated infrastructure will be located, including the temporary and permanent construction and operational work areas.
Preliminary Environmental Information Report (PEIR)	The Preliminary Environmental Information Report (PEIR) is the written output of the Environmental Impact Assessment undertaken to date for the Proposed Development. It is developed to support formal consultation. The PEIR presents the preliminary findings of the assessment to allow an informed view to be developed of the Proposed Development. The PEIR provides an overview of the assessment approach that has been undertaken, along with the preliminary conclusions on the likely significant effects of the Proposed Development and environmental measures proposed. The original Rampion 2 PEIR (RED, 2021) was published in July 2021 in support of Section 42 consultation under the Planning Act 2008.
Preliminary Environmental Information Report (PEIR) Supplementary Information Report (SIR)	The PEIR Supplementary Information Report (SIR) identifies and provides additional supporting preliminary environmental information associated with proposed alternatives and modifications to the onshore part of the original PEIR Assessment Boundary which have been identified since the publication of the original PEIR (RED, 2021) in July 2021.
Preliminary Environmental Information Report (PEIR) Further Supplementary Information Report (FSIR)	The PEIR Further Supplementary Information Report (FSIR) identified and provides further preliminary environmental information associated with the proposed alternative route option identified since the publication of the original PEIR and PEIR SIR in July 2021 and October 2022 respectively (RED, 2021; 2022).
Private Water Supply (PWS)	PWS refers to Private water supply" or "private supply of water" meaning a supply of water other than a supply provided directly by a water undertaker or licensed water supplier, and which is comprised of all physical assets from the point of abstraction to the point of use, including associated pipes, fittings, and tanks.
Public Right of Way (PRoW)	A path, road or track that is open for use by anyone.

Term	Definition
Outline Public Rights of Way Management Plan (PRoWMP)	The outline Public Rights of Way Management Plan (PRoWMP) is a document which will be provided alongside the DCO Application.
Rampion 1	The existing Rampion Offshore Wind Farm located in the English Channel in off the south coast of England.
RED	Rampion Extension Development Limited
SDNPA	South Downs National Park Authority
Statutory Consultation	Statutory Consultation is consultation required under Section 42 and Section 47 of the Planning Act 2008 with the relevant consultation bodies and the public on the preliminary environmental information.
The Proposed Development/ Rampion 2	Rampion Extension Development Limited (RED) is developing the Rampion 2 Offshore Wind Farm Project (Rampion 2) located adjacent to the existing Rampion Offshore Wind Farm Project ('Rampion 1') in the English Channel in the south of England. Rampion 2 comprises of both onshore and offshore infrastructure associated with the proposed offshore wind farm.
Water Framework Directive (WFD)	The Water Framework Directive (WFD) is referred to in legislation as Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.
WTG	Wind Turbine Generators
Zone of Theoretical Visibility (ZTV)	A map, usually digitally produced, showing areas of land within which, a development is theoretically visible.

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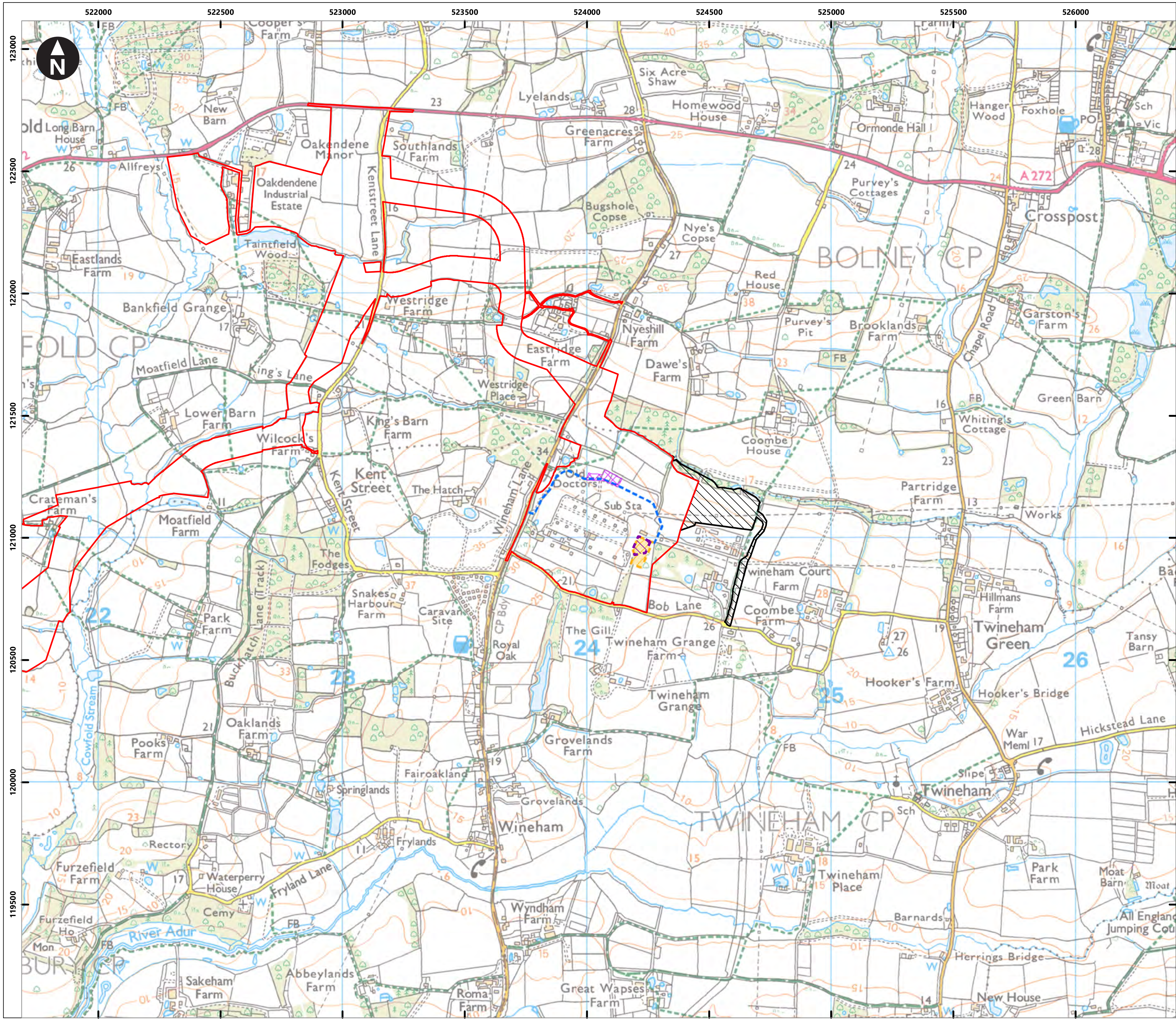
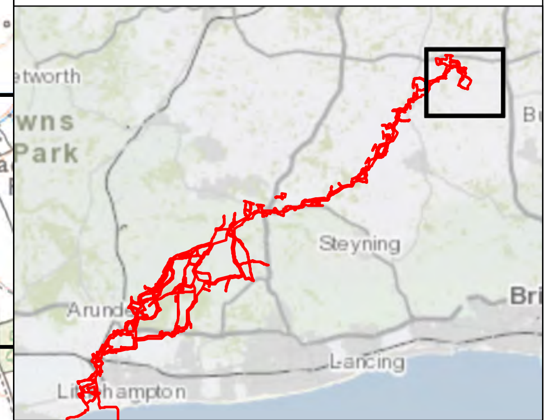
Appendix A
Figures (PEI Plans)





Service Layer Credits: Contains OS data © Crown Copyright and database right 2020
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Key

Label Abbreviations:
AIS - Air Insulated Switchgear
GIS - Gas Insulated Switchgear

- PEIR Assessment boundary and new areas of land affected (PEIR SIR and PEIR FSIR)
- Removed Bob Lane access from the PEIR Assessment Boundary
- Bolney Substation extension (GIS)
- Bolney Substation extension (AIS)
- Bolney Substation extension construction compound
- Temporary construction access

Kilometres
0 0.075 0.15 0.3 0.45 0.6
1:15,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Appendix A, Figure 1. Preliminary Environmental Information (PEI) – proposed Bolney substation extension (1:15000)

System Identifier:				Version:
42285-WSPE-PE-CC-FG-O-4229				1.0
Company: WSP	Drawn By: SUTET	Chk/Aprvd: RANDR	Drawn Date: 19/04/2023	Status: FINAL

 ISO A3 Landscape

523500
524000
524500
121500
121000
120500
N
Pond
Tank
Pond
Pond
Pond
ETL
Westridge Place
29.6m
Pond
0.91m RH
28.3m
Post
Priorsbush
Issues
Def
Drain
Ponds
Little Farm
The Bungalow
House
Und
Und
0.91m RH
0.91m RH
Pond
Def
Old
Pond
CS
Pond
Tennis Court
Sparrows
Co Const
Drain
Path
Pond
The Hatch
Pond
Pond
Track
Def
EL
Tank
Bolney Substation
GP33.5m
The Lodge
Substation
ETL
Track
Pond
Pond
Pond
Farm
Pond
Pond
36.6m
TK
30.2m
GP
Path
Lodge
Country Park
Pond
BOB'S LANE
EB
Issues
Pond
Farm
27.7m
29.0m
North Lodge
26.2m
26.1m
Track
The Gill
Dell
Downsview
Woodpeckers
Grange
Pond
CR
WINEHAM LANE
(PH)
Pond
House
Pond
Twineham Grange
Pond
Drain
Farm
Grange
Track
EL

Service Layer Credits: Contains OS data © Crown Copyright and database right 2020
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Key

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AIS - Air Insulated Switchgear
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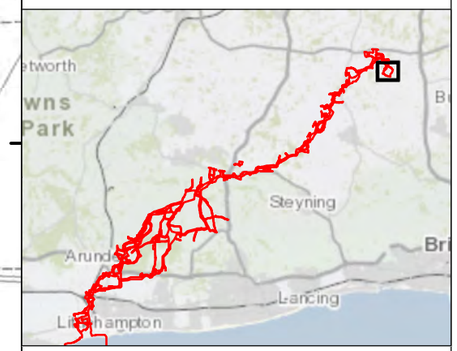
- Bolney Substation extension (GIS)
- Bolney Substation extension (AIS)
- Bolney Substation extension construction compound
- Temporary construction access



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British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Appendix A, Figure 2. Preliminary Environmental Information (PEI) – proposed Bolney substation extension (1:5000)

System Identifier:	Version:
42285-WSPE-PE-CC-FG-O-4229	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	SUTET	RANDR	19/04/2023	FINAL

522500 523000 523500 524000 524500 525000 525500 526000 526500 527000

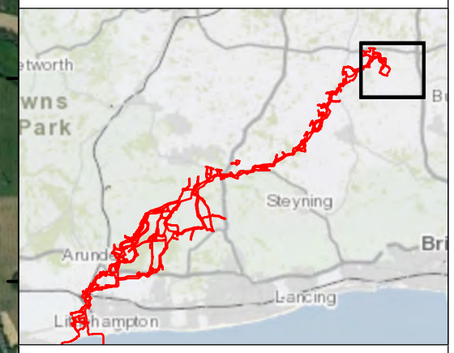
123000 122500 122000 121500 121000 120500 120000 119500

N

Key

Label Abbreviations:
AIS - Air Insulated Switchgear
GIS - Gas Insulated Switchgear

- PEIR Assessment boundary and new areas of land affected (PEIR SIR and PEIR FSIR)
- Removed Bob Lane access from the PEIR Assessment Boundary
- Bolney Substation extension (GIS)
- Bolney Substation extension (AIS)
- Bolney Substation extension construction compound
- Temporary construction access



Kilometres
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1:15,100

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Appendix A, Figure 3. Preliminary Environmental Information (PEI) – proposed Bolney substation extension (Aerial imagery 1:15000)

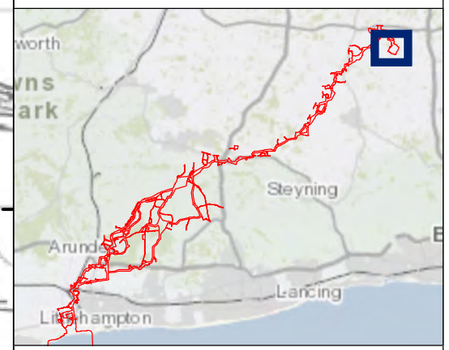
System Identifier:	Version:
42285-WSPE-PE-CC-FG-O-4229	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	SUTET	RANDR	19/04/2023	FINAL

Appendix B
Statutory and non-statutory environmental designations and other key environmental features

Label Abbreviations:
AIS - Air Insulated Switchgear
GIS - Gas Insulated Switchgear

- PEIR Assessment boundary and new areas of land affected (PEIR SIR and PEIR FSIR)
- Removed Bob Lane access from the PEIR Assessment Boundary
- Bolney Substation extension (GIS)
- Bolney Substation extension (AIS)
- Bolney Substation extension construction compound
- Temporary construction access



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1:7,500

Rampion Extension Development

Rampion 2 WIND FARM

Environmental Designations and other environmental features

Listed Buildings
- Grade I
- Grade II
- Grade II*

Public Rights of Way
- Bridleway
- Byway
- Restricted byway
- Footpath

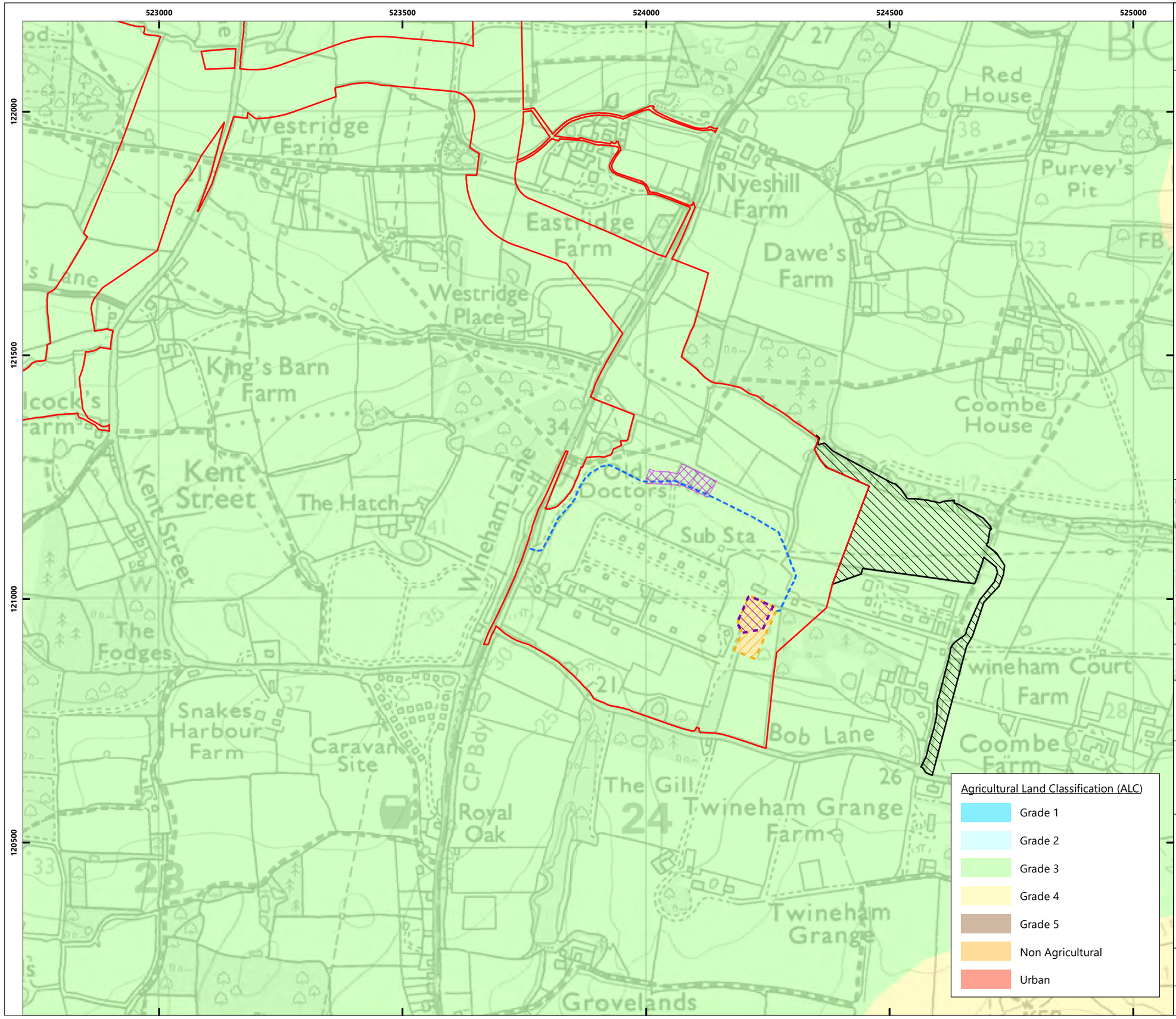
- Scheduled Monument
- Sites of Special Scientific Interest
- Historic Landfill
- Local Wildlife Site
- Archaeological Notification Area
- Ancient Woodland
- Watercourse

Rampion 2 Offshore Wind Farm

Appendix B, Figure 1. Statutory/non-statutory environmental designations and other key environmental features – Bolney substation extension

System Identifier:	Version:
42285-WSPE-PE-CC-FG-O-9989_OTHER	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	SUTET	ZAPYJ	19/04/2023	FINAL



Label Abbreviations:
AIS - Air Insulated Switchgear
GIS - Gas Insulated Switchgear

- PEIR Assessment boundary and new areas of land affected (PEIR SIR and PEIR FSIR)
- Removed Bob Lane access from the PEIR Assessment Boundary
- Bolney Substation extension (GIS)
- Bolney Substation extension (AIS)
- Bolney Substation extension construction compound
- Temporary construction access

0 0.075 0.15 0.3 km
1:7,500

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

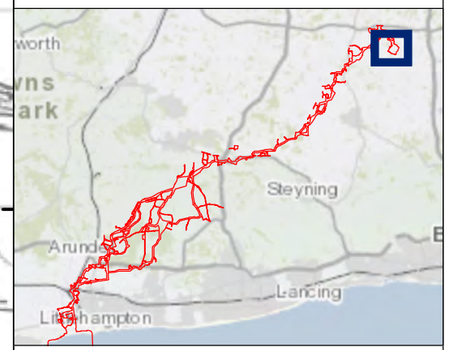
Appendix B, Figure 2. Statutory/non-statutory environmental designations and other key environmental features – Bolney substation extension

System Identifier:	Version:
42285-WSPE-PE-CC-FG-O-9989_ALC	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	SUTET	ZAPYJ	19/04/2023	FINAL

Label Abbreviations:
AIS - Air Insulated Switchgear
GIS - Gas Insulated Switchgear

- PEIR Assessment boundary and new areas of land affected (PEIR SIR and PEIR FSIR)
- Removed Bob Lane access from the PEIR Assessment Boundary
- Bolney Substation extension (GIS)
- Bolney Substation extension (AIS)
- Bolney Substation extension construction compound
- Temporary construction access



0 0.075 0.15 0.3 km
1:7,500

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Appendix B, Figure 3. Statutory/non-statutory environmental designations and other key environmental features – Bolney substation extension

System Identifier:	Version:
42285-WSPE-PE-CC-FG-O-9989_HYDROLOGY	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	SUTET	ZAPYJ	19/04/2023	FINAL

Hydrological features

Source Protection Zones

- Source Protection Zone 1
- Source Protection Zone 2
- Source Protection Zone 3
- Spatial Flood defence
- Watercourse

Flood Zones

- Flood zone 2
- Flood zone 3

Appendix C
Landscape viewpoint wireframe montages

View flat at a comfortable arm's length

N

0 km 0.5 km 1 km 1.5 km 2 km
Scale 1:5,000

Photograph Parameters Viewpoint SB1 PRoW 34Bo south of Coombe House:

Location grid reference:	E524 836, N121 321	Distance:	661m
GPS location accuracy:	+/- 3m	Camera:	Canon EOS 5D Mk2
Horizontal field of view:	90° (cylindrical projection)	Lens:	50mm (Canon EF 50mm f/1.8)
Paper size:	841mm x 297mm (½ A1)	Camera height:	1.5m AGL
Correct printed image size:	820 x 250mm	Date and time:	05/04/2023 08:45

Note: Figure produced to accord with the Landscape Institute's Technical Guidance Note 6/19: Visual Representation of Development Proposals.

Indicative locations of the onshore elements of the Proposed Development

- Extent of existing National Grid Bolney substation partially visible through intervening vegetation, mainly in the winter
- Extent of onshore substation extension (GIS option) partially visible through intervening vegetation, mainly in the winter (12m maximum building and infrastructure height)
- Extent of onshore substation extension (AIS option) partially visible through intervening vegetation, mainly in the winter (12m maximum building and infrastructure height)

Note: The exact location of the building / infrastructure has not yet been confirmed within the site area, therefore this figure presents the maximum height of proposed building / infrastructure across the entire site area to provide an indication of the maximum design scenario.

100% Enlargement

TYPE 1 VISUALISATION

Company:	WSP
Drawn By:	BRYCC
Chk/Aprvd:	SINHR
Drawn Date:	24/04/2023
Status:	FINAL

Rampion 2 Offshore Wind Farm

Appendix C – Bolney substation extension
Figure 1
Viewpoint SB1: PRoW 34B south of Coombe House

Rampion 2 WIND FARM

42285-WOOD-PE-ON-FG-OL-SB1

N

0 km 0.5 km 1 km 1.5 km 2 km

Scale 1:5,000

Photograph Parameters Viewpoint S1 Bob Lane:

Location grid reference:	E524 086, N120 730	Distance:	191m
GPS location accuracy:	+/- 3m	Camera:	Canon EOS 5D Mk2
Horizontal field of view:	90º (cylindrical projection)	Lens:	50mm (Canon EF 50mm f/1.8)
Paper size:	841mm x 297mm (½ A1)	Camera height:	1.5m AGL
Correct printed image size:	820 x 250mm	Date and time:	05/04/2023 09:28

Note: Figure produced to accord with the Landscape Institute's Technical Guidance Note 6/19: Visual Representation of Development Proposals.

Indicative locations of the onshore elements of the Proposed Development

- Extent of existing National Grid Bolney substation partially visible through intervening vegetation, mainly in the winter
- Extent of onshore substation extension (GIS option) partially visible through intervening vegetation, mainly in the winter (12m maximum building and infrastructure height)
- Extent of onshore substation extension (AIS option) partially visible through intervening vegetation, mainly in the winter (12m maximum building and infrastructure height)

Note: The exact location of the building / infrastructure has not yet been confirmed within the site area, therefore this figure presents the maximum height of proposed building / infrastructure across the entire site area to provide an indication of the maximum design scenario.

100% Enlargement

TYPE 1 VISUALISATION

Company:	WSP
Drawn By:	BRYCC
Chk/Aprvd:	SINHR
Drawn Date:	24/04/2023
Status:	FINAL

Rampion 2 Offshore Wind Farm

Appendix C – Bolney substation extension
Figure 2
Viewpoint SB7: Bob Lane

Rampion 2 WIND FARM

42285-WOOD-PE-ON-FG-OL-SB7

Rampion 2
WIND FARM

GoBe
APEM Group

WSP