



NORTH FALLS

Offshore Wind Farm

PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

PEIR Addendum

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PRELIMINARY ENVIRONMENTAL INFORMATION REPORT ADDENDUM

March 2024

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Glossary of Acronyms

AIL	Abnormal Indivisible Load
ALC	Agriculture Land Classification
BMP	Best Practicable Means
CoCP	Code of Construction Practice
CS	Countryside Stewardship
CTR	Construction Traffic Receptor
DBA	Desk based assessment
DCO	Development Consent Order
EACN	East Anglia Connection Node
ECC	Essex County Council
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EP1HS	Extended Phase One Habitat Survey
ES	Environmental Statement
FLL	Functionally-linked land
GGOW	Greater Gabbard Offshore Wind Farm
GHG	Greenhouse gas
GNA	Good Neighbour Agreement
HER	Historic Environment Record
HGV	Heavy Goods Vehicles
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management Assessment
IOF	Important Ornithological Features
NFOW	North Falls Offshore Wind Farm Limited
NGET	National Grid Electricity Transmission
NRMM	Non-Road Mobile Machinery
NVSR	Noise and vibration sensitive receptors
O&M	Operation and Maintenance
OSP	Offshore Substation Platform
PAS	Portable Antiques Scheme
PEIR	Preliminary Environmental Information Report
PRoW	Public Rights of Way
TCC	Temporary Construction Compound
WTG	Wind Turbine Generator

Glossary of Terminology

Bentley Road improvement works	Works involving the widening and improvement of the carriageway along Bentley Road, required to facilitate heavy goods vehicle and abnormal indivisible load access to the onshore cable route and the onshore substation.
Haul road	The track along the onshore cable route used by construction traffic to access different sections of the onshore cable route.
Landfall	The location where the offshore export cables come ashore at Kirby Brook
Link boxes	Underground chambers or above ground cabinets next to the onshore export cables housing low voltage electrical earthing links.
Non-Road Mobile Machinery (NRMM)	Any mobile machine or vehicle that is not solely intended for carrying passengers or goods on the road. Generally, this includes all machinery on site, even those with road going registration plates, such as telehandlers and dumpers, as well as those that are not self-propelled, such as generators and compressors.
Onshore cable corridor(s)	Onshore corridor(s) considered at PEIR within which the onshore cable route, as assessed at ES, is located.
Onshore export cables	The cables which take the electricity from landfall to the onshore substation. These comprise High Voltage Alternative Current (HVAC) cables, buried underground.
Onshore cable route	Onshore route within which the onshore export cables and associated infrastructure would be located.
Onshore project area	The boundary within which all onshore infrastructure required for the Project will be located (i.e. landfall; onshore cable route, accesses, construction compounds; onshore substation and cables to the National Grid substation)
Onshore substation	A compound containing electrical equipment required to transform and stabilise electricity generated by the Project so that it can be connected to the National Grid.
Onshore substation works area	Area within which all temporary and permanent works associated within the onshore substation are located, including onshore substation, construction compound, access, landscaping, drainage and earthworks.
Onshore substation zone	The area considered at PEIR, within which the onshore substation will be located.
Temporary construction compound	Area set aside to facilitate construction of the onshore cable route. Will be located adjacent to the onshore cable route, with access to the highway where required.
The Applicant	North Falls Offshore Wind Farm Limited (NFOW)
The Project or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.
Wind turbine generator (WTG)	Power generating device that is driven by the kinetic energy of the wind

Executive Summary

This Preliminary Environmental Information Report (PEIR) Addendum provides a supplementary environmental review of proposed localised changes to the Project's onshore infrastructure since the publication of the PEIR (NFOR, 2023).

This PEIR Addendum provides information on whether the environmental receptors, the magnitude of impact, and/or resulting assessment outcomes presented in the PEIR have changed as a result of the proposed localised changes to the PEIR onshore project area. It also considered whether these proposed localised changes are likely to give rise to new or materially different likely significant effects, following mitigation.

The PEIR Addendum utilises the baseline information previously presented within the PEIR (NFOR, 2023), supplemented by additional new baseline data collected since publication of the PEIR (Appendix 1 – 6) to form preliminary conclusions regarding the likely significant environmental effects predicted as a result of the development of these proposed localised changes.

The proposed localised changes include:

- **Temporary construction compounds (TCC)** – increase from 7 TCCs (as assessed at PEIR) to 11 plus one landfall TCC required in strategic locations along the onshore cable corridor(s) to support the onshore cable installation.
- **11 visibility splays** – proposed where the Project requires a wider area of hedgerow adjustment to ensure safe egress from the cable corridor(s) construction access points.
- **Bentley Road improvement works** – to ensure the carriageway is suitable for the safe passing of two-way HGV movements of the volume required to facilitate the construction of the Project.
- **Minor changes to the compound for the National Grid East Anglia Connection Node (EACN)** – minor additional areas of land outside of the onshore project area have been included to align with land holding boundaries.
- **O&M accesses** – 14 locations where access points for operating and maintaining the onshore electrical connection throughout its lifespan have been identified.
- **Onshore substation zone adjustments** – an additional permanent works area is required to facilitate the onshore cable corridor(s) connection to the onshore substation.
- **Onshore cable corridor(s) adjustments** – additional temporary works area to accommodate amendments to the onshore cable corridor(s) required to facilitate safe construction access, and additional permanent works for additional areas of cabling.

The proposed localised changes are focused on the onshore project area and therefore, the environmental review has been carried out for the onshore and project-wide environmental topics. The conclusions of the review are presented in the table below:

Onshore Topic	Visibility splays	Bentley Road improvement works	EACN	O&M accesses	Onshore substation zone	Onshore cable corridor(s)
Ground conditions and contamination	No new or materially different likely significant effects than those reported at PEIR.					
Air quality						
Water resources and flood risk						
Land use and agriculture						
Onshore ecology						
Onshore ornithology						
Onshore archaeology						
Noise and vibration	No new or materially different likely significant effects than those reported at PEIR.	New and materially different likely significant effects than those reported at PEIR prior to additional mitigation. With mitigation (Section 3.8.1), no new or materially different significant effects than those reported at PEIR are anticipated.	No new or materially different likely significant effects than those reported at PEIR.	No new or materially different likely significant effects than those reported at PEIR.	No new or materially different likely significant effects than those reported at PEIR.	New and materially different likely significant effects than those reported at PEIR, prior to additional mitigation. With mitigation (Section 3.8.2), no new or materially different significant effects than those reported at PEIR are anticipated.
Traffic and transport	No new or materially different likely significant effects than those reported at PEIR.					
Human health						
Landscape and visual impact						
Socio-economics						
Tourism and recreation						
Climate change						
Cumulative effects						
Transboundary effects						
Inter-relationships						

1 Introduction

1.1 Project overview

3. North Falls Offshore Wind Farm Limited (hereafter referred to as 'NFOW') ('the Applicant') is developing the North Falls Offshore Wind Farm Project ('North Falls' or 'the Project') which is an extension to the existing Greater Gabbard Offshore Wind Farm (GGOW), in the outer Thames Estuary. The Project would make an important contribution to UK policies and targets through the generation of clean, low carbon, renewable electricity.
4. North Falls comprises of both onshore and offshore infrastructure associated with the proposed offshore wind farm including:
 - Wind turbine generators (WTG) and their associated foundations;
 - Up to two offshore platforms and their associated foundations to facilitate the export of electricity via the Project's offshore export cables;
 - Subsea cables:
 - Array cables between the WTGs and OSP(s)
 - Interconnector cable between the northern and southern array areas; and
 - Export cables between the OSP(s) and landfall; and
 - Scour protection around foundations and subsea cables where required.
 - The key onshore components considered comprise:
 - Landfall;
 - Onshore export cables and associated link boxes;
 - Onshore substation; and
 - Connection to the National Grid
5. A full description of the Project is provided in Chapter 5 Project Description (Volume I) of the PEIR (NFOW, 2023). The original PEIR onshore project area used to inform the PEIR Addendum is shown in Figure 1.2 (Volume II) of the PEIR.
6. This Preliminary Environmental Information Report Addendum (herein 'PEIR Addendum') has been drafted in order to provide supplementary information to the Preliminary Environmental Information Report (PEIR) published in May 2023 (NFOW, 2023) in relation to a series of proposed localised changes to the project design (herein 'the proposed localised changes'), as described within the PEIR.

7. The PEIR Addendum should be read in conjunction with the original PEIR published in May 2023¹.

1.2 Background to the PEIR Addendum

1.2.1 First statutory consultation exercise (May 2023): PEIR

8. In May 2023, NFOW published the PEIR in line with the requirements of Regulation 12 of the Infrastructure Planning (Environmental Impact Assessment (EIA)) 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). The PEIR (NFOW, 2023), therefore set out the preliminary environmental information and assessment findings of the EIA based on the available information at the time of publication.

1.2.2 Targeted consultation exercise (March 2024): PEIR Addendum

9. Following ongoing design refinement since the publication of the PEIR, a series of proposed localised changes to the Project's design have been identified which require additional land outside of the onshore project area consulted on within the PEIR. In order to ensure these proposed localised changes have been subject to adequate consultation, a targeted consultation exercise is being undertaken between 14 March 2024 to 22 April 2024. This targeted consultation will include the publication of supplementary environmental information associated with the proposed localised changes in order to ensure that relevant parties have had sight of preliminary environmental information in relation to the Project. This PEIR Addendum has been drafted to provide this supplementary environmental information.
10. Plate 1.1 below illustrates where in the EIA process the PEIR Addendum sits. The additional land proposed to be included within the proposed DCO order limits has been identified as a result of feedback received during statutory consultation in 2023 as well as further technical, engineering and environment work following publication of the PEIR in May 2023 (NFOW, 2023). Ongoing coordination and collaboration between North Falls and Five Estuaries has been increasing as designs have progressed. Both parties signed a Good Neighbour Agreement (GNA) in Summer 2023, which has enabled closer liaison, information sharing and joint planning.

¹ Preliminary Environmental Information Report available at: <https://www.northfallsoffshore.com/peir/>

EIA process for North Falls

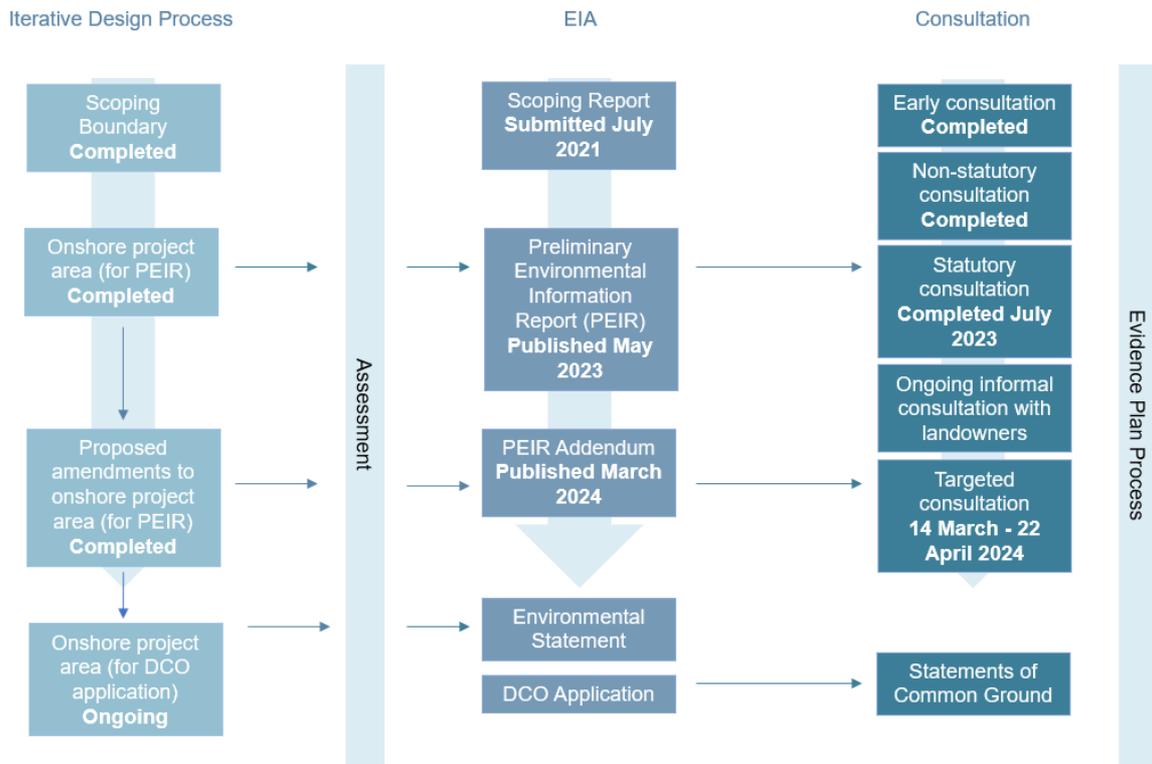


Plate 1.1 EIA Process for North Falls

1.3 PEIR Addendum Approach

1.3.1 Supplementary environmental review

11. The PEIR Addendum is focused solely on the proposed localised changes to the Project's onshore infrastructure and draws on the information provided in the PEIR (NFOW, 2023) to form preliminary conclusions regarding the likely significant environmental effects predicted to arise as a result of the development of the proposed localised changes. For in-depth information on the assessments reported in the PEIR and for details of the associated preliminary likely significant effects associated with the onshore project area consulted on at PEIR, the PEIR documents are accessible on the North Falls website².
12. This PEIR Addendum provides information on whether the environmental receptors, the magnitude of impact, and/or resulting assessment outcomes presented in the PEIR (NFOW, 2023) has changed as a result of the proposed localised changes to the PEIR onshore project area. It also considers whether these amendments are likely to give rise to new or materially different residual

² Available at: <https://www.northfallsoffshore.com/peir/> [Accessed 21 February 2024].

likely significant effects. This assessment is referred to herein as the 'supplementary environmental review').

13. A summary of residual effects for each onshore technical chapter is provided in Chapters 19 to 33 (Volume I) the original PEIR (NFOW 2023). The assessment outcomes of the offshore environmental aspects presented in Chapters 8 to 18 (Volume I) of the PEIR, or associated design updates are not covered in this PEIR Addendum as the targeted consultation is relevant to the onshore boundary of North Falls only.
14. The environmental review presented in this PEIR Addendum has been undertaken in accordance with the assessment methodology set out in Chapter 6 EIA Methodology (Volume I) of the PEIR (NFOW, 2023). Further detailed assessment criteria applicable to specific environmental aspects are detailed within technical chapters, Chapters 19 to 33, of the PEIR (NFOW, 2023).
15. As with the PEIR, the PEIR Addendum assesses the realistic worst case scenario when drawing preliminary conclusions regarding the likely significant effects of the development of the proposed localised changes. It treats the proposed localised changes as a potential addition to the PEIR onshore project area without taking account of any future refinement of the onshore project area and Development Consent Order (DCO) Order Limits as they will be presented within the Project's DCO application.
16. The PEIR Addendum utilises the baseline information previously presented within the PEIR, supplemented by additional new baseline data collected where required, as detailed in Section 1.4, from the following sources:
 - desk-based review of publicly available information, mapping and documents (Appendix 1);
 - additional Extended Phase 1 Habitat Survey data for the proposed localised changes (Appendix 2);
 - additional archaeology field data collected since PEIR publication, including:
 - Geophysical Surveys (Appendix 3);
 - Archaeological Evaluation (Appendix 4);
 - Geoarchaeological Desk-based Assessment (Appendix 5);
 - updated noise and vibration modelling (Appendix 6).
17. The evidence base has, and will continue to be, regularly discussed with relevant stakeholders to ensure that it is appropriate. This evidence base used to inform the PEIR Addendum is considered to be sufficient to inform robust and reliable environmental review of the outcomes and conclusions presented in this PEIR Addendum. Additional environmental surveys are ongoing, and results will be presented in the Environmental Statement (ES) as appropriate and in line with the proposed DCO Order Limits, once confirmed following targeted consultation and in advance of DCO application submission.
18. The proposed localised changes are focused on the onshore project area and therefore, the environmental review has been carried out for the following onshore and project-wide environmental topics:

- Ground conditions and contamination;
 - Air quality;
 - Water resources and flood risk;
 - Land use and agriculture;
 - Onshore ecology;
 - Onshore ornithology;
 - Onshore archaeology and cultural heritage;
 - Noise and vibration;
 - Traffic and transport;
 - Human health;
 - Landscape and visual impact;
 - Socio-economics;
 - Tourism and recreation; and
 - Climate change.
19. A summary of the effect of the proposed localised changes on the conclusions regarding cumulative, transboundary effects and inter-relationships are also considered below.
20. Descriptions of the proposed localised changes being considered as part of this environmental review are provided in Section 2.
21. The outcome of the first Statutory Consultation exercise including this second consultation will help to inform the proposed DCO Order Limits. Ongoing design refinement will lead to changes and updates to the onshore project area assessed at PEIR and in this PEIR Addendum. An environmental impact assessment of the Project will then be presented in the ES, which will also include a cumulative effects, transboundary effects and inter-relationships assessment.

1.3.2 Embedded mitigation measures

22. EIA is an iterative process, and opportunities for mitigation build into the Project's design, referred to as 'embedded mitigation measures', has been considered throughout the design development of North Falls. They have also been considered in the assessment undertaken for the original PEIR (NFOW, 2023), and the supplementary environmental review undertaken for this PEIR Addendum. Where possible, these embedded mitigation measures have been developed with input from key stakeholders, together with appropriate technical standards, policies and guidance.

1.4 Additional baseline collected since publication of the PEIR

1.4.1 Additional ecological surveys

23. Additional Extended Phase 1 Habitat Surveys (EP1HS) have been completed during Summer 2023 to cover the unsurveyed areas for the additional land proposed for the improvements and widening of Bentley Road to facilitate the Project's construction, as well as potential use of Bentley Road for maintenance during the Project's operational lifespan.
24. The updated baseline for onshore ecology is provided in an Addendum to the EP1HS Report (Appendix 23.1 of Chapter 23 Onshore Ecology (Volume I) of the PEIR (NFOR, 2023)) and appended to this report as Appendix 2.

1.4.2 Historic environment surveys

25. Additional historic environment surveys have been undertaken since PEIR within the onshore substation zone. Therefore, an updated version of the archaeological geophysical survey report (Appendix 25.8 (Volume III) of Chapter 25 Onshore Archaeology and Cultural Heritage (Volume I) of the PEIR is provided in Appendix 3 of this report. Archaeological trial trenching has also been carried out at the onshore substation zone (Appendix 4), and an updated version of the geoarchaeological desk-based assessment presented at PEIR is also provided in Appendix 5 of this PEIR Addendum.

1.5 Report structure

26. The PEIR Addendum is structured as follows:
 - Section 1: Introduction;
 - Section 2: The proposed localised changes;
 - Section 3: Review of likely significant effects reported in the PEIR in light of the proposed localised changes;
 - Section 4: Summary;
 - Section 5: References;
 - Appendices:
 - Appendix 1 Figures;
 - Appendix 2 Extended Phase 1 Habitat Survey Report Addendum;
 - Appendix 3 Geophysical Survey Report;
 - Appendix 4 Archaeological Evaluation Reports;
 - Appendix 5 Geoarchaeological Desk Based Assessment; and
 - Appendix 6 Bentley Road Improvements Construction Noise and Vibration Modelling.

2 The proposed localised changes

27. The proposed localised changes described below can be viewed on Figure 1, Appendix 1 of this PEIR Addendum.

2.1 Temporary construction compounds

28. Temporary construction compounds (TCC) are required to support the onshore cable installation. There will be a requirement to have TCCs in strategic locations along the onshore cable corridor(s). At PEIR, it was assessed that a maximum of seven compounds would be required (100x100m footprint per TCC), including one main construction compound. Construction compounds would also be required at landfall and at the onshore substation.

29. The TCCs will provide the Project with facilities to service the installation of approximately 24km of onshore cable, build the Project's onshore substation and store construction materials and plant.

30. The proposed locations of TCCs have been updated to include:

- East of B1032/Clacton Road;
- West of B1032/Clacton Road;
- South of B1033/Thorpe Road;
- North of B1035/Tendring Road, south of Swan Road;
- North of B1035/Thorpe Road, west of Swan Road;
- South of A120 off B1035/Thorpe Road;
- North of A120, east of B1035/Clacton Road;
- North of A120, west of B1035/Clacton Road;
- East of Bentley Road;
- West of Bentley Road, north of onshore cable corridor(s); and
- West of Bentley Road, south of onshore cable corridor(s).

31. Plus, an additional Landfall TCC off Short Lane.

32. Chapter 5 Project Description (Volume I) of the PEIR provides further detail on the construction of TCCs, construction accesses to the compounds and reinstatement.

33. The inclusion of TCCs within the onshore project area was assessed as part of the PEIR, and the refinement of the indicative locations of these TCCs has not materially affected the nature of the TCCs as described within the PEIR. As such, TCCs are not considered further within the supplementary environmental review in Section 3.

34. The ES will include an updated assessment on the environmental effects arising from the TCCs.

2.2 Visibility splays

35. Visibility splays outside of the onshore project area are proposed where the Project requires a wider area of hedgerow adjustment to meet the visibility requirements of road safety audits. The visibility splays shown on Figure 1, Appendix 1 are needed to provide drivers with forward visibility of oncoming traffic and therefore safely access and egress the onshore cable corridor(s), thereby reducing the potential for adverse highway safety effects and to allow safe movement of traffic between the public highways and the onshore cable corridor(s).
36. At the time of drafting the PEIR (May 2023), road safety audits for the Project's proposed construction accesses had not been undertaken, therefore the required visibility splays to ensure safe egress from the cable corridor(s) construction access points had not been identified.
37. 11 visibility splays have now been added, some of which sit within the onshore project area and some that sit without the onshore project area. Works in these areas are restricted to vegetation strimming / removal down to ground level for the duration of construction.
38. The following 11 visibility splays have been considered as part of the PEIR Addendum (as shown on Figure 1, Appendix 1):
 - Little Clacton Road;
 - Thorpe Road;
 - Sneating Hall Lane;
 - Damant's Farm Lane;
 - B1414 / Landermere Road;
 - Golden Lane;
 - Stones Green Road;
 - A120 / B1035 roundabout;
 - Bentley Road;
 - Payne's Lane; and
 - Ardleigh Road.

2.3 Bentley Road improvement works

39. To ensure that the construction haul road west of Bentley Road can be used for both Heavy Goods Vehicles (HGV) and Abnormal Indivisible Load (AIL) access to the onshore substation during construction, North Falls are proposing to undertake improvement works to Bentley Road to ensure that the carriageway is suitable for the safe passing of two-way HGV movements of the volume required to facilitate construction of North Falls, and to minimise the effects on any non-motorised road users. These upgrade works may also be utilised by Five

Estuaries (and potentially National Grid Electricity Transmission (NGET), for the construction of the East Anglia Connection Node (see Plate 2.2 and Plate 2.1).



Plate 2.2 Indicative HGV to be used on Bentley Road following improvement works (Source: Siemens, 2018)



Plate 2.1 Indicative HGV to be used on Bentley Road following improvement works (Source: RWE, 2024)

40. The improvement works entail the following:
 - Improvements to the turn-off from the A120;
 - Widening of the carriageway to 6.5m along the length of Bentley Road from the A120 to the new construction access to the west off Bentley Road;
 - Creation of a new temporary, segregated non-motorised user route along the length of Bentley Road from the A120 to the new construction access to the west off Bentley Road (if required).
41. These works are proposed to be serviced using the TCCs.
42. These works, with the exception of the footway and cycleway, are proposed to be secured and handed over to Essex County Council (ECC) for adoption following the completion of construction, as a legacy of benefits of the works, subject to ECC agreement and therefore available for public use. Bentley Road may also be used for maintenance during the Project's operational lifespan.
43. The additional area required for the Bentley Road improvement works sit without the onshore project area and were not considered within the PEIR. It is only the footprint of the improvement works outwith the onshore project area assessed at PEIR that is considered as part of the PEIR Addendum.

2.4 National Grid East Anglia Connection Node

44. The Project's 400kV export cable connection will be comprised of underground circuit(s) running from the new North Falls onshore substation to the National Grid connection point located at the new proposed East Anglia Connection Node (EACN) 400kV substation (herein 'EACN') to be constructed on the Tendering Peninsula. Minor changes to the EACN compound boundary have resulted in minor additional areas of land outside of the onshore project area which are considered as part of this PEIR Addendum (as shown on Figure 1, Appendix 1).

2.5 Operation and maintenance accesses

45. Operation and maintenance (O&M) accesses to the onshore cable corridor(s) have been further defined since PEIR.
46. Fourteen locations where access points for operating and maintaining the onshore electrical connection throughout its lifespan have been identified and included within the onshore project area are as follows:
 - Fields south of Short Lane;
 - Field south of Little Clacton Road;
 - Field north of Little Clacton Road;
 - Southern part of field north and field south of the railway (Sunshine Coast Line);
 - Field west of Pork Lane;
 - Fields north and south of Pork Lane;

- Field south of eastern reservoir and field south of western reservoir (south of the woodland)
 - Field south of Golden Lane;
 - Fields around Tendring Brook;
 - Fields south Wolves Hall Lane;
 - Fields north of Wolves Hall Lane;
 - Fields north of Stones Green Road;
 - Fields south of the A120; and
 - Field east of Bentley Road.
47. The 14 proposed O&M access points that fall outside the onshore project area will utilise existing field access points, rather than accessing along the onshore cable corridor(s) from the public highway, therefore minimising any potential damage to crops in agricultural fields. The use of O&M access points is intended to be limited to infrequent use by light vehicles in the event of emergency repairs and routine maintenance.

2.6 Onshore substation zone adjustments

48. An additional permanent works area is required to facilitate the onshore cable corridor(s) connection to the onshore substation, in order to ensure the required cable bend radii to connect into an onshore substation in the northern part of the onshore substation zone can be achieved. This land is now considered within the onshore substation works area and is available for landscaping as well as cable routing.

2.7 Onshore cable corridor(s) adjustments

49. 10 locations where the Project requires additional land to make localised changes to the onshore project area to accommodate the onshore cable corridor(s) at Little Clacton Road, south of Walton Road, north of Tendring Road, and between Barlon Road and Spratts Lane, as well as access to temporary construction haul roads.
50. These proposed localised changes will also enable access to the proposed temporary haul roads required to construct the Project. Section 2.7.1.1 describes the temporary works relation to the temporary construction haul roads, and Section 2.7.1.2 describes the permanent works relating to the onshore cable route, which will remain in place for the Project's operational lifespan.

2.7.1.1 Temporary works

51. Additional temporary works areas have been proposed to accommodate amendments to the onshore cable corridor(s) required to facilitate safe construction access. These are summarised in Table 2.1.

Table 2.1 Description of minor amendments to the onshore cable corridor(s) for temporary works

Temporary works	Description
North of Great Holland	Crossing of hedgerow kept as far east as practicable to avoid archaeological feature. Haul road needs to go further east to target gaps on the same hedgerow.
South of the railway line (Sunshine Coast Line)	Temporary construction haul road crossing of watercourse required to access the onshore cable corridor(s). Included to cross ditch at existing culvert and at an allowable shallow gradient.
Golden Lane	Temporary construction haul road required to avoid horse paddocks and minimise the impact to the field in order to access the onshore cable corridor(s).
North of Tendring Road	Additional section of temporary construction haul road to connect to the onshore cable corridor(s) while avoiding the horse paddocks near Golden Lane. To better align haul road with the onshore cable newly proposed cable route.
South of the A120 / B1035 roundabout	Access from the public highway into the onshore cable corridor(s) off the B1035, south of Horsley Cross. Included due to access requirements to enter the TCC off the public highway.
Bentley Road	Due to the volume of traffic accessing the onshore substation along the onshore cable corridor(s) haul road, a separate marshalling area to the south of the onshore cable corridor(s) is required to keep traffic using the haul road in a safe manner.

2.7.1.2 Permanent works

52. Additional areas of cabling to accommodate the proposed localised changes to the onshore cable corridor(s) (e.g. to avoid obstacles identified through the PEIR) are summarised in Table 2.2 below. Cables may be buried in these locations.

Table 2.2 Description of minor amendments to the onshore cable corridor(s) for permanent works

Permanent works	Description
Little Clacton Road	Inclusion of a slightly wider area at the western crossing of Little Clacton Road to prevent additional works, including further topsoil strips and temporary construction haul roads. The slightly wider area enables avoidance of archaeological features north of Little Clacton Road.
South of Walton Road	Incorporated to prevent a small amount of land being severed between the O&M access point and the onshore cable corridor(s) in this area. This change offers the potential to move the onshore cable corridor(s) as close to nearby reservoirs as possible, therefore mitigating any potential effect on a nearby proposed housing development.
North of Tendring Road	Moved permanent works further north, closer to the field boundary, based on feedback received to avoid mature trees to the south of the onshore cable corridor(s) as far as possible.
Between Barlon Road and Spratts Lane	Moved further south to avoid potential archaeological feature found in onshore cable corridor(s).

Permanent works	Description
North Falls and Five Estuaries' proposed co-located onshore substation zone	Incorporated to facilitate a more efficient access of the cable corridor(s) into the northern onshore substation due to engineering constraints to allow for co-ordination with Five Estuaries.

3 Review of likely significant effects reported in the PEIR in light of the proposed localised changes

53. Sections 3.1 – 3.14 below set out the conclusion of the supplementary environmental review of the proposed localised changes for each onshore and project-wide environmental topic. Each section provides conclusions as to whether development of the proposed localised changes is likely to lead to materially different environmental effects during construction and operation from those assessed at within the PEIR.
54. As assessed at PEIR, it is anticipated that the decommissioning impacts will be no worse than those assessed for construction.

3.1 Ground conditions and contamination

3.1.1 Visibility splays

55. The visibility splays outlined in Section 2.2 represent small scale and minor changes in isolated areas along the route of the onshore cable corridor(s). A waste exemption is located adjacent to the visibility splay at Little Clacton Road, and licensed discharges to controlled waters are located <250m from the splay at Thorpe Road, Bentley Road and Landermere Road. A heap containing unspecified material is located adjacent to the splay at Stones Green Road. Due to the nature of the works, and small areas that may be impacted, the area impacted is considered to be minimal.

3.1.2 Bentley Road improvement works

56. The proposed localised changes to the Bentley Road improvement works outlined in Section 2.3 are located within an area of agricultural land with a licensed discharge to controlled waters and potentially infilled pits or ponds located within 250m. Due to the nature and scale of the construction works required to complete the Bentley Road improvement works, and its small scale operational footprint, the additional area of potentially disturbed ground is considered to be minimal in the context of the Project.

3.1.3 EACN

57. The amendments to the EACN, as outlined in Section 2.4, has resulted in a reduction of the area and slightly outside the boundary assessed within the PEIR. There are no additional potential sources of contamination or new receptors to consider. Therefore, the EACN amendment represents no change to the assessment presented within the PEIR.

3.1.4 O&M accesses

58. The proposed O&M accesses outlined in Section 2.5 represents small scale and minor changes in isolated areas along the route of the onshore cable corridor(s). The following access routes are located within 250m of potentially contamination sources:
- Church Lane - licensed discharge to controlled waters and an historical tank;
 - Little Clacton Road is adjacent to a historical sand and gravel pit which may have been infilled;
 - Walton Road, Wolves Hall Lane and Bentley Road - waste exemption sites;
 - Wolves Hall Lane - licensed discharge to controlled waters;
 - Lodge Lane - a heap containing unspecified materials;
 - Park Lane - electricity substation.
59. Due to the nature of the works, and small area that may be impacted, should excavations be required the area impacted is considered to be minimal.

3.1.5 Onshore substation zone adjustments

60. The proposed areas to accommodate additional temporary works areas at the onshore substation, as outlined in Section 2.6 are located within an area of agricultural land with no additional potential sources of contamination identified within 250m. Due to the nature of the works required to develop the temporary works areas, and small area that may be impacted, should excavations be required the area impacted is considered to be minimal.

3.1.6 Onshore cable corridor(s) adjustments

61. The temporary and permanent works areas as outlined in Section 2.7 represents small scale changes in isolated areas along the route of the onshore cable corridor(s). The temporary works located along Clacton Road are within 250m of waste exemptions and an intensive poultry farm.

3.1.7 Conclusion

62. Best practice mitigation measures to minimise impacts to ground conditions and contamination receptors during construction and operation will be implemented, as outlined in Section 19.3.3 of Chapter 19 Ground Conditions and Contamination (Volume I) of the PEIR. As such, there are no new or materially different likely significant effects on ground conditions and contamination receptors than those reported in the PEIR as a result of the development of the proposed localised changes set out in Section 2.

3.2 Air quality

3.2.1 Visibility splays, EACN and O&M accesses

63. The construction, operation and maintenance of the proposed localised changes outlined in Section 2.2, 2.4 and 2.5 will not result in a change in the assessment of likely significant effects presented in Chapter 20 Onshore Air Quality (Volume I) of the PEIR:

- Construction dust and fine particulate matter;
- Non-Road Mobile Machinery (NRMM)³ emissions; and
- Project-generated road vehicle emissions.

3.2.2 Bentley Road improvement works, onshore substation adjustments and onshore cable corridor(s) adjustments

64. The proposed localised changes outlined in Section 2.3, 2.6 and 2.7 have the potential to give rise to additional construction dust and fine particulate matter. It is not considered likely that the proposed localised changes will change the worst-case scenarios for human and ecological receptors which were identified and assessed as set out in Chapter 20 Onshore Air Quality (Volume I) of the PEIR. Therefore, there is no greater risk of construction dust and fine particulate matter as a result of the proposed localised changes. With the implementation of the mitigation measures included in Section 20.6.1.1.5 in Chapter 20 Onshore Air Quality (Volume I) of the PEIR, which will be secured in the final Code of Construction Practice (CoCP), the residual effects of the proposed localised changes are considered to be not significant, in accordance with Institute of Air Quality Management (IAQM) guidance (2016).

65. The proposed localised changes identified for works in Section 2.3, 2.6 and 2.7 may generate additional emissions from the use of NRMM during construction. However, the amendments to the onshore cable corridor(s) are minor (Section 2.7) and therefore the emissions generation potential from NRMM as a result of these works are minimal. Indicative images of the type of NRMM used for the Bentley Road improvement works are provided in the images below.

66. Indicative images of the typical construction plant for the proposed Bentley Road improvement works are provided in Plate 3.1, Plate 3.2 below.

³ NRMM includes excavators (earthworks and hydraulic breakers), dozers, air compressors, dump trucks, generators, hard soil breakers, truck mixers with pump, grinders, asphalt spreader with support lorry, vibratory rollers, grader, mobile crane, MEWP, forklift trucks, pneumatic chipper/drill, tarmac scarifier, dumper, shredder, tow tractor and mini boring rigs (for survey works i.e. ahead of main construction).



Plate 3.1 Indicative haul road construction with a bulldozer in the foreground (right) and a roller in the background (left) (Source: Siemens, 2018)



Plate 3.2 Indicative yellow plant with a bucket (right) and a hydraulic breaker (left) used during construction of Triton Knoll (Source: RWE, 2020)

67. With regards to sensitive receptors which could be impacted by NRMM emissions as a result of the proposed localised changes detailed in Section 2.3 and 2.6, there is one residential receptor and no designated ecological sites located within 200m of the additional temporary works areas at the onshore substation (Section 2.6). There are eight residential receptors located within 25m of the Bentley Road improvement works, and no ecological receptors within 200m.
68. Defra technical guidance (Defra, 2022) states that emissions from NRMM used on construction sites are unlikely to have a significant impact on local air quality where relevant control and management measures are employed (as detailed in Table 20.3 in Chapter 20 Onshore Air Quality (Volume I) of the PEIR).
69. It is not anticipated that NRMM required for the works detailed in Section 2.3 and 2.6 would be in excess of that required on a 'standard' construction site due to the number of items of each type of plant which are anticipated to be active for each activity in the vicinity of receptors. In addition, background pollutant concentrations are less than 50% of the relevant air quality Objectives. Therefore, it is unlikely that NRMM would have a significant impact on local air quality with the relevant control and management measures employed (see Table 20.3 in Chapter 20 Onshore Air Quality (Volume I) of the PEIR). Therefore, the impacts of the works outlined in Section 2.6 and 2.7 do not change the outcome of NRMM emissions assessment included in Chapter 20 Onshore Air Quality (Volume I) of the PEIR.
70. The increase in road vehicle movements as a result of the proposed localised changes is anticipated to be minimal in the context of the total Project-generated traffic assessed in Chapter 20 Onshore Air Quality (Volume I) of the PEIR. Therefore, the significance of effect of project-generated road vehicle emissions on human and ecological receptors remains unchanged from the PEIR.

3.2.3 Conclusion

71. There are no new or materially different likely significant effects than those reported in Chapter 20 Onshore Air Quality (Volume I) of the PEIR as a result of the proposed localised changes set out in Section 2.

3.3 Water resources and flood risk

3.3.1 Visibility splays

72. The proposed visibility splays, outlined in Section 2.2, would involve vegetation strimming/removal works. These are extremely small scale and isolated. There could be some minor disturbance of soils and sediment, but there are no new or materially different likely significant effects than those reported in Chapter 21 Water Resources and Flood Risk (Volume I) of the PEIR.

3.3.2 Bentley Road improvement works

73. The proposed localised changes to the Bentley Road improvement works outlined in Section 2.3, are located in the catchment of Holland Brook. No additional watercourse crossings would be required for the works (including crossings to provide temporary access over watercourses), which means there

will not be any direct disturbance of surface water bodies. Due to the small scale construction work and small operational footprint, the additional area of potentially disturbed ground would be minimal. The works would cross several small areas of surface water flood risk, which could locally alter surface water flows, but catchment scale impacts on flood risk are considered very unlikely. Furthermore, in relation to surface water flood risk, the mitigation measures to be adopted during construction for the wider Project will also be relevant to these amendments. As such, there are no new or materially different likely significant effects than those reported in Chapter 21 Water Resources and Flood Risk (Volume I) of the PEIR for construction and operation due to the proposed localised changes to the Bentley Road improvement works.

3.3.3 EACN

74. The proposed change in the boundary of the EACN in Tenpenny Brook's catchment, outlined in Section 2.4, is very minor. No direct disturbance of surface water bodies will occur. As such, there are no new or materially different likely significant effects on sediment supply, the supply of contaminants and changes to surface and groundwater flows than those reported in Chapter 21 Water Resources and Flood Risk (Volume I) of the PEIR.

3.3.4 O&M accesses

75. The O&M accesses outlined in Section 2.5 intend to utilise existing field access points, rather than accessing along the onshore cable corridor(s) from the public highway. The use of O&M access points is intended to be limited to infrequent use by light vehicles in the event of emergency repairs and routine maintenance during operation. No additional watercourse crossings would be required for the works (including crossings to provide temporary access over watercourses) and the accesses are very minor in scale. As such, there are no new or materially different likely significant effects on the supply of contaminants and changes to surface and groundwater flows during operation than those reported in the PEIR.

3.3.5 Onshore substation zone adjustments

76. The proposed localised changes to the onshore substation zone (extra temporary works areas) in the catchment of Tenpenny Brook, outlined in Section 2.3, are planned to be used during construction of the Project only. The change in area of the catchment affected during construction would be extremely small (approximately 0.05km²) and would not directly disturb any surface water bodies. Additional areas of disturbed ground that could contribute increased sediment supply and the supply of contaminants would be minimal. The temporary works area crosses a fragmented surface water flood risk flow path, which could locally alter surface water flows, but catchment scale impacts on flood risk are considered very unlikely. Furthermore, in relation to surface water flood risk, the mitigation measures to be adopted during construction for the wider Project will also be relevant to these amendments. As such, there are no new or materially different likely significant effects during construction than those reported in the PEIR due to the proposed localised changes to the onshore substation zone.

3.3.6 Onshore cable corridor(s) adjustments

77. Temporary works along the onshore cable corridor(s), outlined in Section 2.7.1.1, are to accommodate amendments to the onshore cable route (e.g. to avoid obstacles identified through PEIR). One temporary watercourse crossing, for the haul road, would be required in the Holland Brook catchment. Any impacts on the Ordinary Watercourse would be temporary and highly localised. The temporary works cross several surface water flood risk flow paths, which could locally alter surface water flows, but catchment scale impacts on flood risk are considered very unlikely. Furthermore, in relation to surface water flood risk, the mitigation measures to be adopted during construction for the wider Project will also be relevant to these amendments. Areas affected by the temporary works are extremely small, therefore there are no new or materially different likely significant effects on sediment supply, the supply of contaminants and changes to surface and groundwater flows than those reported in the PEIR.
78. Permanent works along the onshore cable corridor(s), outlined in Section 2.7.1.2, are additional areas of cabling to accommodate amendments to the onshore cable route, and cables may be buried in these locations. No direct disturbance of surface water bodies will occur. As such, there are no new or materially different likely significant effects on sediment supply, the supply of contaminants and changes to surface and groundwater flows than those reported in the PEIR as a result of the proposed additional areas of cabling.

3.3.7 Conclusion

79. There are no new or materially different likely significant effects than those reported in Chapter 21 Water Resources and Flood Risk (Volume I) of the PEIR as a result of the proposed localised changes set out in Section 2.

3.4 Land use and agriculture

3.4.1 Visibility splays

80. The proposed visibility splays, outlined in Section 2.2, would involve vegetation strimming/removal and are extremely small in scale, and isolated. There could be some minor disturbance of agricultural land and soil resource but there are no new or materially different significant effects than those reported in Chapter 22 Land Use and Agriculture (Volume I) of the PEIR.

3.4.2 Bentley Road improvement works

81. The proposed Bentley Road improvement works outlined in Section 2.3 are located on land classified as Agricultural Land Classification (ALC) Grade 2, which represents a high sensitivity receptor when considering permanent loss of agricultural land. The proposed localised changes will result in a 1.68ha increase in the size of agricultural land take (Grade 2), which is a minimal change in terms of Project's overall land take, and in the context of the available agricultural land. As such, there are no new or materially different likely significant effects than those reported in Chapter 22 Land Use and Agriculture (Volume I) of the PEIR

for construction and operation due to the proposed localised changes to the Bentley Road improvement works.

3.4.3 EACN

82. The proposed change in the boundary of the EACN, as outlined in Section 2.4, is very minor. No direct disturbance of agricultural land or soils will occur and as such, there are no new or materially different likely significant effects on agricultural land, the soil resource, agri-environment schemes and utilities, than those reported in the PEIR.

3.4.4 O&M accesses

83. The 14 proposed O&M access points that fall outside the onshore project area assessed at PEIR intend to utilise existing field access points, rather than accessing along the onshore cable corridor(s) from the public highway, therefore minimising any potential damage to crops in agricultural fields. The use of O&M access points is intended to be limited to infrequent use by light vehicles in the event of emergency repairs and routine maintenance during operation.
84. Due to the infrequency of use of the O&M accesses and the fact no agricultural land is affected, there are no new or materially different likely significant effects than those reported in Chapter 22 Land Use and Agriculture (Volume I) of the PEIR.

3.4.5 Onshore substation zone adjustments

85. The proposed localised changes to the onshore substation zone outlined in Section 2.6 are proposed to be used during construction of the Project only. The proposed localised changes will not result in an overall increase in the size of the TCC required to facilitate the construction of the onshore substation, and no additional land overall is proposed to be taken out of use to facilitate the proposed localised change.
86. The proposed localised change to the onshore substation zone is proposed on land classified as ALC Grade 1, which when taken out of land use permanently, represents a high sensitivity receptor. The existing land proposed for inclusion within the onshore substation zone is ALC Grade 1, therefore the proposed localised change represents no new or materially different likely significant effects than those reported within the PEIR.
87. The proposed localised change to the onshore substation zone does not cross any Countryside Stewardships. The existing land proposed for inclusion within the onshore substation zone is ALC Grade 1, therefore the proposed localised change represents no new or materially different likely significant effects than those reported within the PEIR.

3.4.6 Onshore cable corridor(s) adjustments

88. The proposed localised changes to the onshore cable corridor(s) outlined in Section 2.7 will not change the overall onshore cable corridor(s) length, and it is still proposed that construction of the onshore cable route will require the

installation of up to 196 link boxes, located up to every 500m along the onshore cable corridor(s).

89. The proposed localised changes to the onshore cable corridor(s) are located on land that varies between ALC Grades 1-4, but the majority of the land area is comprised of ALC Grade 3, which represents a high sensitivity receptor when considering permanent loss of agricultural land. The existing land proposed for inclusion within the onshore cable corridor(s) is ALC Grade 1-4, therefore the proposed localised change represents no new or materially different likely significant effects than those reported within the PEIR.
90. Best practice mitigation measures to minimise impacts to agricultural soils and Countryside Stewardship (CS) during construction and operation will be implemented, as outlined in Section 22.6 of Chapter 22 Land Use and Agriculture (Volume I) of the PEIR. Where indirect impacts to an CS cannot be avoided, these will be dealt with through the Rural Payments Agency, including compensation provisions to reimburse a landowner's financial losses where appropriate. Collaboration with the landowners at the onshore substation will be ongoing in relation to access, soil management and cable routing, to minimise impacts to the agricultural land.

3.4.7 Conclusion

91. There are no new or materially different likely significant effects on land use and agriculture receptors than those reported in Chapter 22 Land Use and Agriculture (Volume I) of the PEIR as a result of the proposed localised changes set out in Section 2.

3.5 Onshore ecology

92. During the construction and operation phases of the proposed localised changes detailed in Section 2, no new or materially different likely significant effects will occur on the following impacts assessed in Chapter 23 Onshore Ecology (Volume I) of the PEIR:
 - Impacts on statutory and non-statutory designated sites (including Holland Haven Marshes SSSI and LNR);
 - Permanent and temporary loss of saltmarsh, coastal floodplain and grazing marshes, good quality semi-improved grassland, rivers, ponds and reedbeds;
 - Permanent or temporary impacts on badgers, water voles, otters and fish;
 - Impacts from the spread of invasive non-native species;
 - Impacts from maintenance activities during operation;
 - Impacts from onshore substation operational light and noise;
 - Impacts from biodiversity enhancements; and
 - Impacts on migratory Nathusius' pipistrelles *Pipistrellus nathusii*.

3.5.1 Visibility splays

93. The proposed visibility splays described in Section 2.2 may result in additional hedgerow removal in small sections across the onshore project area, as shown in Figure 2, Appendix 1. The total length of hedgerow loss across all visibility splays would be less than 200m. Impacts on commuting/ foraging bats, terrestrial great crested newts and hazel dormice (all species who commonly rely on hedgerows) from these hedgerow losses are unlikely to result in new or materially different likely significant effects, due to their small scale.

3.5.2 Bentley Road improvement works

94. The proposed localised changes to the Bentley Road improvement works outlined in Section 2.3 will result in less than 0.2ha of habitat loss in order to facilitate the widening of Bentley Road for the substation operational access, as shown in Figure 2, Appendix 1. Namely, there will be small losses of:

- Semi-improved neutral grassland (JNCC code B2.2);
- Other tall herb and fern (C3.1);
- Wet (G1) and dry ditches (J2.6);
- Arable land (J1.1) and associated arable field margins;
- Amenity grassland (J1.2); and
- Hedgerows (J2.1.2, J2.2.2, J2.3.1 and J2.3.2).

95. Three trees due to be removed as part of the Bentley Road improvement works were deemed to have moderate suitability for roosting bats, however were not surveyed to confirm their roosting status (Figure 3, Appendix 1). All three trees with moderate roosting bat suitability will be retained, and therefore no direct impacts on roosting bats will occur from the Bentley Road improvement works. Impacts on commuting/ foraging bats may also occur due to the additional loss of hedgerow habitats associated with the Bentley Road improvement works. These additional hedgerow losses will not result in new or materially different likely significant effects than those reported in Chapter 23 Onshore Ecology (Volume I) of the PEIR.

3.5.3 EACN

96. The proposed localised changes to the EACN set out in Section 2.4 will have negligible impacts on ecological receptors, as the area affected remains as predominantly arable land, which has an overall low ecological value. As such, there are no new or materially different likely significant effects than those reported in Chapter 23 Onshore Ecology (Volume I) of the PEIR.

3.5.4 O&M accesses

97. One of the O&M access areas, coming off of Pork Lane, is directly adjacent to a confirmed common pipistrelle *Pipistrellus pipistrellus* roost, and therefore may cause indirect disturbance from operational vehicle noise (Figure 3, Appendix 1). Additional disturbance on this common pipistrelle roost is unlikely to change the

outcome of Chapter 23 Onshore Ecology (Volume I) of the PEIR, as road use already occurs in the area so roosting bats will be accustomed to a baseline level of disturbance.

98. Another O&M access area passes directly through a reptile survey area (TN426 of Figure 3, Appendix 1), where there was confirmed presence of common lizard *Zootoca vivipara* and grass snake *Natrix helvetica*. There is a risk that reptiles may experience habitat loss in the creation on the O&M access in this area, as well as increased risk of mortality from vehicles utilising the O&M access.
99. As such, there are no new or materially different likely significant effects than those reported in Chapter 23 Onshore Ecology (Volume I) of the PEIR due to the proposed localised changes to O&M accesses.

3.5.5 Onshore substation zone adjustments

100. The proposed localised changes to the onshore substation zone outlined in Section 2.6 are to be used during construction of the Project only (Figure 2, Appendix 1). The habitats present in this area, arable land and improved grassland, are not considered to be ecologically sensitive and therefore their temporary loss does not result in any new or materially different likely significant effects than those reported in Chapter 23 Onshore Ecology (Volume I) of the PEIR.

3.5.6 Onshore cable corridor(s) adjustments

101. The proposed cable corridor(s) amendments described in Section 2.7 primarily avoid receptors of high ecological value through their design. However in some areas cable corridor(s) amendments will require additional removal of hedgerows (Figure 2, Appendix 1). This could result in loss of habitat for commuting/ foraging bat species and hazel dormice. These additional hedgerow losses will not occur at levels significant enough to change the outcomes of Chapter 23 Onshore Ecology (Volume I) of the PEIR. Removal of 0.13ha of broadleaved semi-natural woodland is required as part of cable corridor(s) amendments to the north of the A120. However, this woodland removal is part of the temporary works area and will be reinstated post-development.
102. Best practice mitigation measures to minimise impacts on ecological receptors during construction and operation will be implemented, as outlined in Section 23.6 of Chapter 23 Onshore Ecology (Volume I) of the PEIR. Permanent and temporary hedgerow losses, impacts on hazel dormice and impacts on bats remain moderate adverse in the short-term, however will be moderate beneficial in the long-term due to hedgerow enhancements and planting incorporated in project mitigation and compensation measures, as concluded in the PEIR. The number of vehicles using the O&M access areas will be infrequent, and therefore the risk to the reptile population present at TN426 (Figure 3, Appendix 1) will be minimal. Therefore, the impacts on reptiles remain minor adverse, as concluded in the PEIR.

3.5.7 Conclusion

103. As such, there are no new or materially different likely significant effects than those reported in Chapter 22 Land Use and Agriculture (Volume I) of the PEIR as a result of the proposed localised changes set out in Section 2.

3.6 Onshore ornithology

3.6.1 Visibility splays

104. The proposed visibility splays described in Section 2.2 may result in additional vegetation removal in small sections across the onshore project area, as shown in Figure 1, Appendix 1. The locations of these visibility splays, alongside existing roads and human habitation, and their small spatial extents, suggest that no habitat loss or disturbance effects on breeding or non-breeding Important Ornithological Features (IOFs) scoped in Chapter 24 Onshore Ornithology (Volume I) of the PEIR would likely occur. As such, there are no new or materially different likely significant effects than those reported in the PEIR due to the proposed localised changes for visibility splays.

3.6.2 Bentley Road improvement works

105. The proposed localised changes to the Bentley Road improvement works outlined in Section 2.3 would result in loss of some habitat (see Section 3.5) in order to facilitate the widening of Bentley Road. This is not considered to occur within an area recognised as being of importance for non-breeding IOFs (see Figures 24.10 to 24.14 of the PEIR) and is unlikely to host any territories of breeding IOFs, occurring in proximity to existing road and human habitation. No significant disturbance or habitat loss effects are therefore likely to occur. As such, there are no new or materially different likely significant effects than those reported in Chapter 24 Onshore Ornithology (Volume I) the PEIR due to the proposed localised changes for the Bentley Road improvement works.

3.6.3 EACN

106. The proposed localised changes to the EACN set out in Section 2.4 are minimal compared to those assessed in Chapter 24 Onshore Ornithology (Volume I) of the PEIR. As such, there are no new or materially different likely significant effects on breeding and non-breeding IOFs than those reported in Chapter 24 Onshore Ornithology (Volume I) the PEIR due to the proposed localised changes for the EACN.

3.6.4 O&M accesses

107. O&M access along existing routes, as outlined in Section 2.5, is considered unlikely to have any disturbance impacts on breeding or non-breeding IOFs, and with Chapter 24 Onshore Ornithology (Volume I) of the PEIR already concluding negligible O&M effects for all IOFs across the whole onshore project area, this would be unchanged.

3.6.5 Onshore substation zone adjustments

108. The additional temporary works areas required within the onshore substation zone (Section 2.6) may result in an increase in extent of short-term habitat loss and/or disturbance to IOFs, in particular corn bunting and skylark (see e.g., PEIR Figure 24.14). The limited size of these additional areas (Figure 1, Appendix 1) means however that the significance of effects are unlikely to change for any IOF, compared to those predicted in Chapter 24 Onshore Ornithology (Volume I) of the PEIR.

3.6.6 Onshore cable corridor(s) adjustments

109. Additional temporary and permanent works areas to accommodate amendments to the onshore cable corridor(s) (Section 2.7) are small in extent and mainly in proximity to existing roads and tracks and human habitation. As such any temporary disturbance or temporary/permanent habitat loss impacts would be at worst negligible to all IOFs, and no significant effects are predicted.
110. Embedded best practice mitigation measures to minimise impacts on all bird species would be implemented during construction, which are also applicable to the proposed localised changes. These measures include avoiding vegetation removal during the breeding bird season where possible, undertaking pre-construction surveys, and presence of an Ecological Clerk of Works (ECoW). Additional mitigation measures such as use of screening for particular construction activities in sensitive areas would also take into account the proposed localised changes.

3.6.7 Conclusion

111. As a result, there are no new or materially different likely significant effects predicted for IOFs than those reported in Chapter 24 Onshore Ornithology (Volume I) of the PEIR due to the proposed localised changes.

3.7 Onshore archaeology and cultural heritage

112. All heritage assets discussed below are presented on PEIR Figures 25.1a-i and 25.2a-j (Chapter 25 Onshore Archaeology and Cultural Heritage (Volume I) of the PEIR).

3.7.1 Visibility splays

113. The proposed localised changes to visibility splays will be limited to vegetation strimming and removal for the duration of construction. As such the works would have no impact on below ground archaeological remains, any impacts to setting would be temporary and reversible and therefore represent no change to the assessment presented within the PEIR (Impacts 5 & 6, Section 25.7, Chapter 25).

3.7.2 Bentley Road improvement works

114. There are no designated heritage assets within the footprint of the proposed localised changes to Bentley Road improvement works outlined in Section 2.3. Two Historic Environment Records (HER) fall within the footprint of the proposed localised changes; these include an area of cropmarks of parish and field boundaries (EHER 17318 and 17321). These assets are of low heritage importance and the majority of these features are outside of the footprint of the Bentley Road improvement works. The proposed localised change represents no change to the assessment presented within the PEIR (Impacts 2 & 4, Section 25.7 Chapter 25 of the PEIR).

3.7.3 EACN

115. The proposed localised changes to the EACN set out in Section 2.4 are minimal compared to those assessed in the PEIR and as such, there are no new or materially different likely significant effects than those reported in PEIR.

3.7.4 O&M accesses

116. There are no intrusive works involved in the proposed localised changes for the O&M access. One of the O&M access routes passes through part of the Great Holland Conservation Area. No other access routes pass through any other designated heritage assets. These access tracks will be used during the operation and maintenance phase of the Project with no physical works proposed along these routes. Any impact to the Great Holland Conservation Area would be temporary and negligible with O&M traffic anticipated to be limited to ad hoc use by light vehicles in the event of emergency repairs and routine maintenance. As such there will be no change to the assessment presented within the PEIR (Impacts 1, 3, 5 & 7 Section 25.7, Chapter 25 of the PEIR).

3.7.5 Onshore substation zone adjustments

117. There are no designated heritage assets within the footprint of the proposed localised changes to the onshore substation zone outlined in Section 2.3. Additional non-designated records have been recorded in these areas, comprising a Portable Antiquities Scheme (PAS) findspot of Medieval date (EHER 17486), cropmarks of a double-ditched rectangular enclosure, with entrances, a curvilinear enclosure, trackways, linear features, a Roman road (PRN 2631) and field boundaries (EHER 17110, APS_30). The locations of these cropmarks and assets have been further confirmed by geophysical survey and two phases of archaeological trial trenching, with likely agricultural land division features falling within the proposed localised changes footprint (Appendix 3 & 4). These assets are of low to medium heritage importance, dependant on the extent and state of preservation. With the application of mitigation as outlined in Section 25.7 (Chapter 25 Onshore Archaeology and Cultural Heritage (Volume I) of the PEIR), the proposed localised change to the onshore substation zone represents no change to the assessment presented within the PEIR (Impacts 2 & 4, Section 25.7, Chapter 25 Onshore Archaeology and Cultural Heritage (Volume I) of the PEIR).

3.7.6 Onshore cable corridor(s) adjustments

118. There are no designated heritage assets within the proposed temporary and permanent works areas along the onshore cable corridor(s). The known non-designated heritage assets within these areas have all been identified in the baseline presented in the PEIR, however there is the potential for previously unrecorded remains in these areas. With the application of further investigation and mitigation as outlined in Section 25.7 (Chapter 25 Onshore Archaeology and Cultural Heritage (Volume I) of the PEIR), the proposed temporary and permanent works areas along the onshore cable corridor(s) represents no change to the assessment presented within the PEIR (Impacts 2 & 4, Section 25.7, Chapter 25 Onshore Archaeology and Cultural Heritage (Volume I) of the PEIR).

3.7.7 Conclusion

119. There are no new or materially different likely significant effects than those reported in Chapter 25 Onshore Archaeology and Cultural Heritage (Volume I) of the PEIR as a result of the proposed localised changes set out in Section 2.

3.8 Noise and vibration

120. The construction, operation and decommissioning phases of the proposed localised changes outlined in Section 2 will not result in any additional impacts for the following assessed in Chapter 26 Noise and Vibration (Volume I) of the PEIR:

- Noise of landfall and nearshore works (Impact 1);
- Noise of onshore substation works (Impact 3)
- Construction vibration (Impact 5); and
- Onshore substation noise (Impact 6)

121. The proposed localised changes outlined in Section 2.3 introduce an additional impact which was not assessed at PEIR (noise and vibration from Bentley Road improvement works). The amendments outlined in Sections 2.6 and 2.7 are considered to have the potential to change the impacts identified in PEIR from onshore cable construction noise (Impact 2) and noise from offsite construction traffic (Impact 4); hence, updated assessments are provided in Sections 3.8.2 and 3.8.3.

3.8.1 Bentley Road improvement works

122. The proposed Bentley Road improvement works will result in construction noise and vibration impacts which were not assessed at PEIR. The construction activities consist of:

- improvements to the junction between Bentley Road and the A120, which will last around four weeks;

- widening of Bentley Road (which includes addition of the non-motorised user route), anticipated to start once the junction improvements are complete and progress at a rate of around 12m per day; and
- use of a hard soil breaker throughout the works which, if required, would be located in the closest TCC.

3.8.1.1 Updated noise and vibration sensitive receptors

123. The noise and vibration sensitive receptors (NVSRs) with the potential to be impacted by the Bentley Road improvement works have been identified, including seven labelled Construction Traffic Receptors (CTR), which have not changed since Chapter 26 Noise and Vibration (Volume I) of the PEIR, and three new additional NVSRs, labelled BRR. These are presented in Table 3.1 and shown in Figure 4, Appendix 1.

Table 3.1 Onshore NVSRs included in the assessment

NVSR identifier	Coordinates		Classification	Sensitivity
	X	Y		
Construction Traffic				
CTR1	611274	226570	Residential	Medium
CTR2	611220	226577	Residential	Medium
CTR3	611136	226669	Residential	Medium
CTR4	610919	226875	Residential	Medium
CTR5	610883	226905	Residential	Medium
CTR6	610697	227055	Residential	Medium
CTR7	610645	227079	Residential	Medium
Bentley Road improvement works				
BRR1	610401	227159	Residential	Medium
BRR2	611304	226522	Residential	Medium
BRR3	611242	226344	Residential	Medium

3.8.1.2 Construction noise

124. Assumptions regarding construction plant for each activity are provided in Appendix 6 Bentley Road Improvements Construction Noise and Vibration Modelling.

125. 3-d noise modelling has been undertaken to identify the noise level that will be exceeded during the worst-case 10-days in any 15 during the works at the identified NVSRs (BRR1 to BRR3 and CTR1 to CTR7). Table 3.2 details the modelling results.

Table 3.2 Bentley Road improvement works noise modelling results

NVSR location	Maximum construction noise level predicted to be exceeded for at least 10-days in any 15 (dB $L_{Aeq,T}$)	Magnitude of impact
CTR1	70	Medium
CTR2	72	High
CTR3	76	High
CTR4	73	High
CTR5	75	High
CTR6	75	High
CTR7	69	Medium
BRR1	60	Negligible
BRR2	74	High
BRR3	56	Negligible

126. The cause of the predicted worst-case impacts at CTR1 to CTR7 and BRR1 is the works widening Bentley Road. At BRR2, the cause of the impacts is the A120 junction improvements. At BRR3, the predicted noise impacts are similar from both activities. The noise from the hard soil breaker is not a significant contributor to the overall predicted noise level except at BRR1.
127. The identified NVSRs are all residential properties which are medium sensitivity receptors. None of the additional factors identified in BS 5228-1 are considered relevant to the identified impacts. Hence, without mitigation, the predicted construction noise impacts of medium (CTR1 and CTR7) and high magnitude (CTR2 to 6 and BRR2) result in effects of moderate and major significance respectively, which is considered significant in EIA terms.
128. The contractor responsible for undertaking the works will review the construction information used to inform these calculations against the detailed design. If the construction information has changed significantly, the mitigation requirements will be updated as required to prevent significant adverse effects, any such additional assessment work will be presented in the final CoCP.
129. The current noise level predictions indicate that mitigation is likely to be required to avoid significant effects on the identified NVSRs, typically this would take the form of screening via temporary site hoarding. The calculations of impact magnitude due to noise have not accounted for any screening. Assuming temporary site hoarding is implemented, this can achieve 5 to 10 dB of screening. 5 dB of screening would reduce impacts to no worse than minor adverse at CTR1, CTR2, CTR4 and CTR7. To avoid significant effects at CTR3, CTR5, CTR6 and BRR2, it would be necessary to mitigate construction noise levels by 6 to 8 dB. It is reasonable to assume such mitigation could be implemented if required (e.g. through the screening outlined above), as will be identified in the final CoCP. Hence, residual effects are considered not significant in EIA terms.

3.8.1.3 Construction vibration

130. The vibratory compaction works are predicted to cause high magnitude impacts on human receptors when the compactor is used within 7m of an NVSR (i.e. during the Bentley Road improvement works). These high impacts could therefore occur at CTR1 to CTR7 and BRR2. The duration of these works within 7m of an NVSR is not known but is likely to be extremely short, nevertheless, whilst they are undertaken, vibration levels in the property are unlikely to be tolerable. Hence, without mitigation, these effects are considered to be of moderate adverse significance, therefore significant in EIA terms.
131. Building damage impacts due to vibration are predicted to be of no worse than low magnitude; hence, worst-case effects will be of minor significance, which is considered not significant in EIA terms.
132. Disturbance due to vibration during the Bentley Road improvement works are expected. Additional vibration mitigation measures which could be implemented are the following:
- Choosing alternative, lower impact equipment (e.g. a roller with a single drum, a drum amplitude of less than 0.5mm and/or a wider drum, ideally at least 2m) or methods (e.g. non-vibratory ground compaction) wherever possible;
 - Scheduling the use of vibration-causing equipment at the least sensitive time of day;
 - Routing, operating or locating high vibration sources as far away from sensitive areas as possible;
 - Sequencing operations so that vibration-causing activities do not occur simultaneously; and
 - Keeping equipment well maintained.
133. If it is not possible to apply any of the above mitigation, then a good working relationship with the occupants of the dwellings should be able to manage any disturbance, e.g. by providing prior notification of the works, evidence that building damage will not occur and/or undertaking the works at the closest approach to the property when the occupants are not present, where feasible.
134. The final CoCP will identify the final package of mitigation measures to be implemented as required.
135. Following the implementation of Best Practicable Means (BPM) and any additional mitigation measures identified in the final CoCP, the construction vibration effects are expected to be no greater than minor adverse significance, which is considered not significant in EIA terms.

3.8.2 Onshore cable corridor(s) adjustments (Impact 2)

136. Changes to the Project footprint have the potential to reduce the distance between onshore cable corridor(s) works and NVSRs. The number of medium sensitivity NVSRs potentially exposed to impacts of medium or high magnitude from onshore cable corridor(s) construction works was identified in Table 26.24

(without mitigation) and Table 26.26 (with mitigation) of Chapter 26 Noise and Vibration (Volume I) of the PEIR.

137. The changes to the pre-mitigation impacts identified in the PEIR are as follows:
- No NVSRs will change from low to medium impact during the daytime;
 - 1 NVSRs will change from medium to high impact during the daytime during both site preparation and during trenching activities;
 - 3 NVSRs will change from low to medium impact during the evening and weekends; and
 - 1 NVSRs will change from low to high impact during the evening and weekends.
138. The PEIR stated that construction noise mitigation measures would be identified in the Control of Noise and Vibration Management Plan (CNVMP), to include the following where applicable and practicable:
- Limiting working hours to avoid the most noise-sensitive times such as weekends;
 - Selection of quieter plant, equipment or working methods;
 - Use of additional silencers and/or enclosures around noisy equipment;
 - Reduced numbers of plant during sensitive periods;
 - Reduced on-time of plant during sensitive periods;
 - Increased separation distance between works and NVSRs;
 - Interspersion of noisy works between quieter works to provide periods of respite;
 - Phasing of the works to ensure that the noisiest operations are performed during the least sensitive times and vice-versa;
 - Review of the construction programme to minimise the duration of the works at the closest approach to properties where possible to give periods of respite; and
 - Temporary screening, where required.
139. With the mitigation incorporated into the PEIR, no new or materially different likely significant effects than those reported in the PEIR are anticipated.

3.8.3 Noise from offsite construction traffic (Impact 4)

140. The A120/Bentley Road junction improvement and widening of Bentley Road are expected to require additional construction traffic to that which was assessed at PEIR. However, as outlined in Section 3.9, these works will not overlap with other construction works. Traffic associated with other construction works will not be able to pass while these works are undertaken, and construction traffic flows associated with the improvement works will be lower than those required for other construction works. Therefore, the proposed localised changes are not

anticipated to result in offsite construction traffic noise impacts that are any worse than those identified in the PEIR.

3.8.4 Conclusion

141. The updated assessments have shown that the noise and vibration effects of the Project reported within the PEIR are not altered by the inclusion of the proposed localised changes. The only exception to this is the Bentley Road improvement works, which introduce additional requirements for mitigation. With the proposed mitigation in place, residual effects from these works are not significant.

3.9 Traffic and transport

3.9.1 Visibility splays

142. Section 2.2 outlines that amendments to the onshore project area are required to provide room to create visibility splays at temporary accesses and crossings. These visibility splays are required to provide drivers with forward visibility of oncoming traffic and therefore safely access and egress the works area, thereby reducing the potential for adverse highway safety effects.

3.9.2 Bentley Road improvement works

143. The proposed Bentley Road improvement works outlined in Section 2.3 would involve widening of the existing road which will facilitate the safe passage of two HGVs. These works would reduce the potential for collisions between passing vehicles and reduce the potential for driver delay (from HGVs slowing to pass).
144. The provision of a footway and cycleway alongside Bentley Road would allow pedestrians and cyclists who currently have to walk/cycle along the road/ walk in the verge to be segregated from vehicular traffic. This would provide an enhancement to highway safety for the existing users of Bentley Road and would also mitigate severance and amenity effects.
145. The inclusion of the Bentley Road improvement works would result in the requirement for additional construction traffic movements, however these would be scheduled to occur prior to the commencement of construction of the Project and therefore there would be no overlap with the main construction works traffic. These movements would also be significantly less than those originally reported within the PEIR (NFOW, 2023) along Bentley Road for the Project's construction phase.
146. The construction of the Bentley Road improvement works would require the installation of temporary traffic management measures (to be discussed with Essex County Council) to manage the potential for conflict between vehicles with pedestrians and cyclists.
147. On balance, the provision of the Bentley Road improvement works would facilitate a reduction in the overall magnitude of effect upon all traffic and transport impacts compared to those reported at PEIR. As such, there are no new or materially different likely significant effects than those reported in Chapter 27 Noise and Vibration (Volume I) of the PEIR for construction and operation due to the proposed localised changes to the Bentley Road improvement works.

3.9.3 EACN

148. The proposed localised changes to the EACN zone outlined in Section 2.4 represent minor changes to the boundary and will therefore not result in a material change in the numbers of vehicle movements (and therefore significance of effects) presented within the PEIR.

3.9.4 O&M accesses

149. Section 2.5 outlines locations for O&M access will be defined in the onshore project area. The use of O&M access points is intended to be limited to infrequent use by light vehicles in the event of emergency repairs and routine maintenance during operation. Recognising the type and volume of traffic that would be generated by the O&M phase, the PEIR concluded that there would be no significant traffic and transport operational effects. As such, the inclusion of defined access points for operating and maintaining the Project in the onshore project area would not result in new or materially different likely significant effects than those reported in Chapter 27 Traffic and Transport (Volume I) of the PEIR.

3.9.5 Onshore substation zone and onshore cable corridor(s) adjustments

150. The proposed localised changes to the onshore substation zone and onshore cable corridor(s) (outlined in Section 2.6 and 2.7) would not result in a material change in the numbers of traffic movements presented within the PEIR (and therefore significance of effects).

3.9.6 Conclusion

151. In conclusion, there are no new or materially different likely significant effects upon traffic and transport receptors than those reported within Chapter 27 Traffic and Transport (Volume I) of the PEIR by the inclusion of the proposed localised changes.

3.10 Human health

152. The proposed localised changes as set out in Section 2 do not change the baseline, environmental receptors or the overall assessment outcomes and conclusions presented in Chapter 28 Human Health (Volume I) of the PEIR.

153. The technical topics which underpin the human health assessment are as follows:

- Ground conditions and contamination;
- Air quality;
- Noise and vibration;
- Traffic and transport; and
- Tourism and recreation.

3.10.1 Conclusion

154. As the assessments for the topics listed above have not materially changed, following application of additional mitigation for noise and vibration, therefore there are no new or materially different likely significant effects than those reported in Chapter 28 Human Health (Volume I) of the PEIR due to the proposed localised changes.

3.11 Landscape and visual impact

3.11.1 Visibility splays

155. The proposed localised changes to visibility splays outlined in Section 2.2 will result in the removal of roadside vegetation to ensure safe access. Many of the small areas identified for visibility splays contain no vegetation, and so no changes will occur. A small number of visibility splays contain sections of hedgerow that will be removed. The Project is committed to the replacement of all hedgerows following completion of the construction works, as set out in the PEIR. As such, there are no new or materially different likely significant effects than those reported in Chapter 30 Landscape and Visual Impact (Volume I) of the PEIR due to the proposed localised changes to visibility splays.

3.11.2 Bentley Road improvement works

156. The proposed localised changes Bentley Road improvement works outlined in Section 2.3 will involve changes to the carriageway of the existing road. Roadside trees will be retained and protected as far as possible, though sections of roadside hedgerow and a small number of trees may need to be removed. Roadside hedgerows and trees will be replaced following completion of the construction works, in line with mitigation commitments set out in the PEIR. As such, there are no new or materially different likely significant effects than those reported in Chapter 30 Landscape and Visual Impact (Volume I) of the PEIR due to the proposed localised changes to the Bentley Road improvement works.

3.11.3 EACN

157. The proposed localised changes to the EACN zone outlined in Section 2.4 represent minor changes to the boundary only. As such, there are no new or materially different likely significant effects than those reported in Chapter 30 Landscape and Visual Impact (Volume I) of the PEIR due to the proposed localised changes to the EACN.

3.11.4 O&M accesses

158. The proposed localised changes to O&M accesses outlined in Section 2.5 intend to utilise existing field access points, rather than accessing along the onshore cable corridor(s) from the public highway. The use of O&M access points is intended to be limited to infrequent use by light vehicles in the event of emergency repairs and routine maintenance during operation. Therefore, no changes to landscape elements will occur. As such, there are no new or materially different likely significant effects than those reported in Chapter 30 Landscape and Visual

Impact (Volume I) of the PEIR due to the proposed localised changes to O&M accesses.

3.11.5 Onshore substation zone adjustments

159. The proposed localised changes to the onshore substation zone outlined in Section 2.6 will be used during construction of the Project, and in the longer term for landscape planting, access and drainage. No permanent above-ground infrastructure will be sited in these areas. The amendments will enable a more coherent approach to landscape treatment around the onshore substation, resulting in more effective mitigation. Details of the landscape mitigation will be set out in the ES.
160. As such, there are no new or materially different likely significant effects than those reported in Chapter 30 Landscape and Visual Impact (Volume I) of the PEIR for construction and operation due to the proposed localised changes to the onshore substation zone.

3.11.6 Onshore cable corridor(s) adjustments

161. The proposed localised changes to the onshore cable corridor(s) outlined in Section 2.7 will be used during construction of the Project only. Following completion of the construction works, these areas will be reinstated and returned to agricultural use, with replacement of any hedgerows that are removed.
162. The proposed localised changes to the permanent works outlined in Section 2.7.1.2 will ensure flexibility for the onshore cable to avoid obstacles. The only permanent works in these areas will be buried cables. The ground over the cables will be reinstated, with replacement of any hedgerows that are removed.

3.11.7 Conclusion

163. In conclusion, there are no new or materially different likely significant effects on landscape and visual receptors than those reported within Chapter 30 Landscape and Visual Impact (Volume I) the PEIR as a result of the inclusion of the proposed localised changes.

3.12 Socio-economics

3.12.1 Visibility splays, EACN, O&M accesses, onshore substation zone and onshore cable corridor(s) adjustments

164. The other proposed localised changes identified for works in Section 2.2, 2.4, 2.5, 2.6, and 2.7 will have a negligible impact on expenditure on the local supply chain and the peak construction workforce. Therefore, the socio-economic assessment of economic benefits and effects associated with increased non-resident construction workforce will remain unchanged from the PEIR assessment (not significant).

3.12.2 Bentley Road improvement works

165. The proposed Bentley Road improvement works outlined in Section 2.3 will generate additional construction activity and demand for construction workers. However, the increase in local supply chain expenditure and subsequent employment (measured by full time equivalent jobs) and economic value (measured by gross value added) benefits will be marginal in the context of the benefits set out in Chapter 31 Socio-economics (Volume I) of the PEIR and therefore the assessment of significance of effect on employment and economic value remains unchanged from the PEIR.
166. The proposed localised change to the Bentley Road improvement works will have no impact on the scale of peak construction workforce quantified in Chapter 31 Socio-economics (Volume I) of the PEIR as the Bentley Road improvement works will take place before the period for which peak construction occurs.
167. The other proposed localised changes identified for works in Section 2.2, 2.4, 2.5, 2.6, and 2.7 will have a negligible impact on expenditure on the local supply chain and the peak construction workforce. Therefore, the socio-economic assessment of economic benefits and effects associated with increased non-resident construction workforce will remain unchanged from the PEIR assessment (not significant).
168. In addition, wider impacts on the tourism economy of Essex and Suffolk will be unaffected by the proposed localised changes (this was assessed in Chapter 31 of the PEIR but will be considered in the tourism and recreation chapter in the ES).
169. No additional social infrastructure receptors have been identified within 500m of the proposed localised changes to those that were identified in the PEIR 'local onshore cable area of influence' study area. The proposed localised changes identified in Section 2 increases the size of the study area used for the socio-economic assessment and decreases the distance of a limited number of socio-economic receptors from the PEIR onshore project area, as set out in the bullets below:
- Churches: All Saints Church is located approximately 200m from the proposed localised change O&M access on Church Lane, this is closer than the church was to the original onshore project area, however this does not change the assessment of effects set out in the PEIR.
 - Greenspaces: Tendring Meadows is located approximately 360m from the proposed localised change to the O&M access off Wolves Hall Lane, this is marginally closer than the meadows were to the original onshore project area. This does not change the assessment of effects set out in the PEIR.
 - Police stations: No police stations located within 500m of the proposed localised changes are located closer to the proposed localised changes than the original onshore project area.
 - Health services: No health services located within 500m of the proposed localised changes are located closer to the proposed localised changes than the original onshore project area.

- Education services: No education services located within 500m of the proposed localised changes are located closer to the proposed localised changes than the original onshore project area.
- Leisure services: No leisure services located within 500m of the proposed localised changes are located closer to the proposed localised changes than the original onshore project area.

170. Based on the construction and O&M activities associated with the proposed localised changes, distances from the social infrastructure receptors and associated effects outlined above the assessment of effect on social community infrastructure remains unchanged from the PEIR assessment (not significant).

3.12.3 Conclusion

171. There are no new or materially different likely significant effects on socio-economic receptors than those reported within Chapter 31 Socio-economics (Volume I) of the PEIR by the inclusion of the proposed localised changes.

3.13 Tourism and recreation

172. During all development phases the proposed localised changes detailed in Section 2 will have no impact on the following impacts assessed in Chapter 32 Tourism and Recreation (Volume I) of the PEIR:

- The visual impacts on marine and coastal tourism and recreational assets due to offshore works;
- Disruptions to marine tourism and recreational activities;
- Marine water quality;
- Reductions in tourist accommodation availability due to a non-resident workforce (as there will be no impact on peak construction workforce, as set out in Section 3.12).

173. At a more localised level the proposed localised changes could impact tourism and recreation receptors directly interacting or within close proximity to the onshore project. Therefore, impacts at this scale are considered in more detail below.

3.13.1 Bentley Road improvement works

174. The Bentley Road improvement works do not interact directly with any tourism and recreation receptors. However the works may include additional provisions for cycle infrastructure that may temporarily improve the infrastructure for cyclists during construction, this potentially positive effect will be considered in more detail in the Tourism and Recreation chapter of the ES.

175. There are several accommodation receptors that are located within proximity of the proposed localised changes:

- Great Mill, The Granary, situated at the end of Mill Lane – There will be an O&M access at the junction of Mill Lane and Little Clacton. There is also a

small additional area of permanent works around 50m to the North of the cottage building. Assessment remains unchanged.

- Olds Manse Cottage – The proposed localised change to the O&M access is located just over 500m from the Olds Manse Cottage and will therefore result in no additional impacts.
- Periwinkle Cottage is located 50m from the proposed localised change to the O&M access from Colchester Road. Disruption will be limited to vehicles using the operations & maintenance access and as such the effect on Periwinkle Cottage will remain not significant.
- The Rock Hotel is not located close to any of the proposed localised changes and therefore the assessment remains unchanged (not significant).

176. As noted in Chapter 32 Tourism and Recreation (Volume I) of the PEIR, a more detailed assessment on the interactions above will be undertaken in the ES. However, it is anticipated that use of embedded mitigation measures will reduce any potentially significant effects to non-significant levels.

177. The additional interactions of Public Rights of Way (PRoW) which will be considered in the EIA are set out below:

- PRoW Frinton and Walton 6: Adjacent to visibility splay at junction of Mill Lane and Little Clacton Road.
- PRoW Frinton and Walton 11: Proposed localised change is to increase the land used for permanent works, PRoW Frinton and Walton interacts with this small area of land as well as the crossing original PEIR onshore cable corridor(s).
- PRoW Thorpe le Soken 4: Crosses temporary works area located next to Tendring travel coach hire, located off Golden Lane. In addition, the visibility splay located on Golden Lane is located approximately 60m from PRoW Thorpe le Soken 4.
- PRoW Little Bromley 17: proposed localised change is to use PRoW Little Bromley 17 as permanent works area.
- PRoW Wix 32: proposed localised change for an area of temporary works is located adjacent to PRoW Wix 32.
- The following PRoWs (or parts of them) will be used for proposed localised changes for operations & maintenance access:
 - PRoW Frinton and Walton 5.
 - PRoW Frinton and Walton 3 (Short Lane).
 - PRoW Frinton and Walton 10.
 - PRoW Tendring 8 (two separate parts of the PRoW).
 - PRoW Wix 32.
 - PRoW Wix 14.

178. Based on the construction and O&M activities associated with the proposed localised changes, and interactions with tourism and recreation receptors

outlined above the assessment of effect on tourism and recreation receptors located onshore and interacting with the proposed localised changes remains unchanged from the PEIR assessment (not significant).

3.13.2 Conclusion

179. As such, there are no new or materially different likely significant effects on tourism and recreation receptors than those reported in Chapter 32 Tourism and Recreation (Volume I) of the PEIR are not altered by the inclusion of the proposed localised changes.

180. As noted in Chapter 32 Tourism and Recreation (Volume I) of the PEIR, a more detailed assessment on the interactions above will be undertaken in the ES. However, it is anticipated that use of embedded mitigation measures will reduce any likely significant effects to non-significant levels.

3.14 Climate Change

3.14.1 Bentley Road improvement works

181. The proposed Bentley Road improvement works outlined in Section 2.3 will generate additional construction activity, resulting in the release of greenhouse gas (GHG) emissions from road vehicles, use of onsite plant and equipment, and consumption of construction materials. However, the increase in GHG emissions as a result of these construction activities is anticipated to be minimal in the context of the total GHG emissions for the Project, as set out in Chapter 33 Climate Change (Volume I) of the PEIR, where the majority of emissions were associated with offshore elements of the Project. Therefore, no new or materially different likely significant effects of the GHG assessment than those reported within the PEIR are anticipated.

3.14.2 Visibility splays, EACN, O&M accesses, onshore substation zone and onshore cable corridor(s) adjustments

182. The other proposed localised changes identified for works in Section 2.2, 2.4, 2.5, 2.6 and 2.7 may also generate additional construction activities, and emissions from the same sources as listed above. However, the increase in GHG emissions as a result of these works is anticipated to be minimal in the context of the total GHG emissions for the Project, as set out in Chapter 33 Climate Change (Volume I) of the PEIR, and therefore the significance of effect for the GHG assessment remains unchanged from the PEIR.

3.14.3 Conclusion

183. As such, there are no new or materially different likely significant effects on the receptor for the GHG assessment (the global atmosphere) than those reported within the PEIR by the inclusion of the proposed localised changes. No new or materially different residual significant effects have been identified as a result of these proposed localised changes.

184. As stated in Chapter 33 Climate Change (Volume I) of the PEIR, the impacts of climate change to the Project will be considered in a climate change resilience

assessment at the ES stage and this assessment will take into consideration any relevant proposed localised changes.

3.15 Cumulative effects

185. After mitigation, as described above, the proposed localised changes, as described in Section 2, represent no change to the cumulative effects assessment presented within the PEIR.

3.16 Transboundary effects

186. The proposed localised changes, as described in Section 2 represent no change to the transboundary effects assessment presented within the PEIR.

3.17 Inter-relationships

187. The proposed localised changes, as described in Section 2, represent no change to the inter-relationships assessment presented within the PEIR.

4 Summary

188. This section and Table 4.1 summarise the conclusions of the supplementary environmental review of the proposed localised changes to the onshore project area presented within the PEIR Addendum.

Table 4.1 Summary of conclusions of supplementary environmental review of the proposed localised changes to the onshore project area

Onshore Topic	Visibility splays	Bentley Road improvement works	EACN	O&M accesses	Onshore substation zone adjustments	Onshore cable corridor(s) adjustments
Ground conditions and contamination	No new or materially different likely significant effects than those reported at PEIR.					
Air quality	No new or materially different likely significant effects than those reported at PEIR.					
Water resources and flood risk	No new or materially different likely significant effects than those reported at PEIR.					
Land use and agriculture	No new or materially different likely significant effects than those reported at PEIR.					
Onshore ecology	No new or materially different likely significant effects than those reported at PEIR.					
Onshore ornithology	No new or materially different likely significant effects than those reported at PEIR.					
Onshore archaeology and cultural heritage	No new or materially different likely significant effects than those reported at PEIR.					
Noise and vibration	No new or materially different likely significant effects than those reported at PEIR.	New and materially different likely significant effects than those reported at PEIR, prior to mitigation. With mitigation (Section 3.8.1), no new or materially different significant effects than those	No new or materially different likely significant effects than those reported at PEIR.	No new or materially different likely significant effects than those reported at PEIR.	No new or materially different likely significant effects than those reported at PEIR.	New and materially different likely significant effects than those reported at PEIR, prior to additional mitigation. With mitigation (Section 3.8.2), no new or materially different significant effects than those

Onshore Topic	Visibility splays	Bentley Road improvement works	EACN	O&M accesses	Onshore substation zone adjustments	Onshore cable corridor(s) adjustments
		reported at PEIR are anticipated.				reported at PEIR are anticipated.
Traffic and transport	No new or materially different likely significant effects than those reported at PEIR.					
Human health	No new or materially different likely significant effects than those reported at PEIR.					
Landscape and visual impact	No new or materially different likely significant effects than those reported at PEIR.					
Socio-economics	No new or materially different likely significant effects than those reported at PEIR.					
Tourism and recreation	No new or materially different likely significant effects than those reported at PEIR.					
Climate change	No new or materially different likely significant effects than those reported at PEIR.					
Cumulative effects	No new or materially different likely significant effects than those reported at PEIR.					
Transboundary effects	No new or materially different likely significant effects than those reported at PEIR.					
Inter-relationships	No new or materially different likely significant effects than those reported at PEIR.					

189. Due to the nature of the works required for the 11 visibility splays, and the small areas that may be impacted, the effects on onshore environmental receptors reported within the PEIR are not altered by the inclusion of the proposed localised changes.
190. The Bentley Road improvement works will introduce an additional impact which was not assessed at PEIR for noise and vibration. The proposed localised changes to the onshore substation (Section 2.6) and the minor amendments to the onshore cable corridor(s) (Section 2.7) are considered to have the potential to change the impacts identified at PEIR for onshore cable construction noise (Impact 2) and noise from offsite construction traffic (Impact 4). Updated assessments for Impact 2 and Impact 4 are provided in Section 3.8.2 and Section 3.8.3 respectively. With the proposed mitigation in place, as set out in Section 3.8.2 and 3.8.3, residual effects from these works are not significant.
191. As the proposed localised changes to the EACN represent minor changes to the boundary, therefore there is no material change to the environmental receptors detailed in Section 3 since the PEIR.
192. The proposed O&M accesses do not involve works, only the right to route vehicles down these routes during the operation of the Project. Therefore, the effects on onshore environmental receptors reported within the PEIR are not altered by the inclusion of the proposed O&M accesses.
193. The proposed localised changes to the onshore substation zone outlined in Section 2.6 are proposed to be used during construction of the Project only. The proposed localised changes will not result in an overall increase in the size of the TCC required to facilitate the construction of the onshore substation, and no additional land overall is proposed to be taken out of use to facilitate the proposed localised change. Therefore, the effects on onshore environmental receptors reported within the PEIR are not altered by the inclusion of the proposed additional works areas at the onshore substation zone.
194. Minor amendments to the onshore cable corridor(s) will introduce new environmental receptors, minor losses of agricultural land and hedgerows. However, these additional receptors and losses will not occur at levels significant enough to change the outcomes of environmental assessments set out in Chapters 19 to 33 of the PEIR.
195. The review for each environmental aspect of all the proposed localised changes (comprising visibility splays, Bentley Road improvement works, EACN, O&M accesses, changes to the onshore substation and minor amendments to temporary and permanent works for the onshore cable corridor(s)) in Section 3 identifies no changes in the overall assessment and conclusions outlined across the Chapters 19-33 (Volume I) of the PEIR. As the design becomes finalised prior to the DCO Application, further update and refinement of the realistic worst case scenario and embedded measures will inform the environmental assessments presented in the ES.

5 References

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Appendix 1 Figures

Available on the North Falls Offshore Wind Farm Limited website:
<https://www.northfallsoffshore.com/>

Appendix 2 Extended Phase 1 Habitat Survey Report Addendum

Available on the North Falls Offshore Wind Farm Limited website:

<https://www.northfallsoffshore.com/>

Appendix 3 Geophysical Survey Report

Available on the North Falls Offshore Wind Farm Limited website:
<https://www.northfallsoffshore.com/>

Appendix 4 Archaeological Evaluation Reports

Available on the North Falls Offshore Wind Farm Limited website:
<https://www.northfallsoffshore.com/>

Appendix 5 Geoarchaeological Desk Based Assessment

Available on the North Falls Offshore Wind Farm Limited website:

<https://www.northfallsoffshore.com/>

Appendix 6 Bentley Road Improvement works Construction Noise and Vibration Modelling

Available on the North Falls Offshore Wind Farm Limited website:
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NORTH FALLS

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