



East Anglia ONE North and East Anglia TWO Offshore Windfarms

Applicants' Comments on Suffolk Energy Action Solutions (SEAS) Deadline 1 Submission (Habitats and Biodiversity)

Applicants: East Anglia ONE North Limited and East Anglia TWO Limited

Document Reference: ExA.AS-23.D3.V1

SPR Reference: EA1N EA2-DWF-ENV-REP-IBR-001163

Date: 15th December 2020

Revision: Version 1

Author: SPR / Royal HaskoningDHV

Applicable to East Anglia ONE North and East Anglia TWO





Revision Summary				
Rev	Rev Date Prepared by Checked by Approved by			
01	15/12/2020	Paolo Pizzolla	Lesley Jamieson / Ian Mackay	Rich Morris

	Description of Revisions		
Rev	Page	Section	Description
01	n/a	n/a	First for submission





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Glossary of Acronyms

BGS	British Geological Survey
CSZ	Core Sustenance Zone
DCO	Development Consent Order
EcoW	Ecological Clerk of Works
EMP	Ecologucal Mitigation Plan
MMO	Marine Management Organisation
OCoCP	Outline Code of Construction Practice
OLEMS	Outline Landscape and Ecological Management Strategy
OLMP	Outline Landscape Mitigation Plan
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SEAS	Suffolk Energy Action Solutions
SPA	Special Protection Area
SSSI	Special Site of Scientific Importance
SoCG	Stataement of Common Ground





Glossary of Terminology

Applicant	East Anglia ONE North Limited / East Anglia TWO Limited
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia ONE North windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Generation Deemed Marine Licence (DML)	The deemed marine licence in respect of the generation assets set out within Schedule 13 of the draft DCO.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
Mitigation areas	Areas captured within the onshore development area specifically for mitigating expected or anticipated impacts.
Natura 2000 site	A site forming part of the network of sites made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive.
Offshore cable corridor	This is the area which will contain the offshore export cables between offshore electrical platforms and landfall.
Offshore development area	The East Anglia ONE North windfarm site and offshore cable corridor (up to Mean High Water Springs).
Offshore electrical infrastructure	The transmission assets required to export generated electricity to shore. This includes inter-array cables from the wind turbines to the offshore electrical platforms, offshore electrical platforms, platform link cables and export cables from the offshore electrical platforms to the landfall.
Offshore electrical platform	A fixed structure located within the windfarm area, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which would bring electricity from the offshore electrical platforms to the landfall. These cables will include fibre optic cables.





Onshore cable corridor	The corridor within which the onshore cable route will be located.
Onshore cable route	This is the construction swathe within the onshore cable corridor which would contain onshore cables as well as temporary ground required for construction which includes cable trenches, haul road and spoil storage areas.
Onshore cables	The cables which would bring electricity from landfall to the onshore substation. The onshore cable is comprised of up to six power cables (which may be laid directly within a trench, or laid in cable ducts or protective covers), up to two fibre optic cables and up to two distributed temperature sensing cables.
Onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, landscaping and ecological mitigation areas, temporary construction facilities (such as access roads and construction consolidation sites), and the National Grid Infrastructure will be located.
Onshore infrastructure	The combined name for all of the onshore infrastructure associated with the proposed East Anglia ONE North project from landfall to the connection to the national electricity grid.
Onshore preparation works	Activities to be undertaken prior to formal commencement of onshore construction such as pre–planting of landscaping works, archaeological investigations, environmental and engineering surveys, diversion and laying of services, and highway alterations.
Onshore substation	The East Anglia ONE North substation and all of the electrical equipment within the onshore substation and connecting to the National Grid infrastructure.
Onshore substation location	The proposed location of the onshore substation for the proposed East Anglia ONE North project.





1 Introduction

- This document supports the Examinations of the Development Consent Order (DCO) applications (the Applications) submitted by East Anglia ONE North limited and East Anglia TWO Limited (the Applicants) for the East Anglia ONE North and East Anglia TWO Offshore Windfarm projects (the Projects). It provides the Applicants' comments on the Suffolk Energy Action (SEAS) Deadline 1 submission document (REP1-329). REP1-329 forms part of SEAS's Written Representation and primarily relates to biodiversity and habitats. It should be noted that the oral submissions made during the Hearings by SEAS reflected the submissions made within its Deadline 1 submission.
- 2. This document is applicable to both the East Anglia ONE North and East Anglia TWO applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's procedural decisions on document management of 23rd December 2019. Whilst for completeness of the record this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it again for the other project.



2 The Applicants' Response to SEAS Deadline 1 Submission (Habitats and Biodiversity)

3. **Table 1** presents the main text contained within the SEAS Deadline 1 submission document (REP1-329) along with the Applicants' responses.





Table 1 Applicants' Response to SEAS Deadline 1 Submission (Habitats and Species)

ID	1 Applicants' Response to SEAS Deadline 1 Submission (Habitats and S Written Representation	Applicants' Response
1 Ma	rine, Benthic and Littoral Ecology	
001	Offshore Ornithology Cumulative and In-Combination Collision Risk Update (EA1N_EA2-DWF-ENV-REP-IBR-001106) 1.1.1 SPR includes data from all its current responses to all current applications. This has the effect of muddying the local waters, although it gives the impression of acknowledging a cumulative effect.	The Applicants have discussed the presentation of the in-combination collision risk information with Natural England and the Royal Society for the Protection of Birds (RSPB) and a position has been agreed which allows for a 'common currency' approach (i.e. using the agreed figures from Norfolk Boreas Deadline 8 with updates for events since, such as the refusal of the Thanet Extension).
002	1.1.2 Local red-listed populations include those which nest, live, migrate, overwinter or oversummer at or in the vicinity of the proposed landfall at Thorpeness. These are Red-throated Diver, Tern, and Little Tern, plus Kittiwake, which are nesting closer than 1000 metres from the proposed landfall, and which also nest at Lowestoft, which is within 19 miles of EA2. Nonetheless, Gannet and Cormorant (mentioned for SPR's other applications) are also found in Kessingland (EA2) and use Thorpeness cliffs (EA1N) in their migration behaviour in large numbers. ¹	The Applications have assessed all species of relevance to the Projects and their potential effects in the environmental impact assessment and, where those species relate to Special Protection Areas, in the Habitats Regulations Assessment.
003	1.1.3 SPR suggests it will alter the height of the turbine blades to lower collision mortality. The plan is based on largely theoretical modelling.	Raising of the draught height of turbine blades has been the mitigation proposed by Hornsea 2 (in construction), Norfolk Vanguard (consented), Hornsea 3 (in planning) and Norfolk Boreas (in planning). This mitigation has been requested by Natural England for all projects
		coming forward in recent years.
004	1.1.4 Studies now concur that painting one of three rotor blades black helps counter the problem of avian mortality. Birds experience 'motion smear' in their forward vision, which seems to prevent birds perceiving	The study is interesting, but to date this mitigation has not been proposed by Natural England or RSPB for the Projects. To the best of

¹ Suffolk Naturalists, HABITATS and BIODIVERSITY by SEAS (Suffolk Energy Action Solutions) Ref. No. EA1(N): 2002 4494; Ref. No. EA2: 2002 4496





ID	Written Representation	Applicants' Response
	obstructions ahead. Painting one of three blades a dark colour is shown to reduce avian mortality by 70%, but the process is resource-demanding unless the blades are painted before construction ² .	the Applicants' knowledge this has not been proposed as mitigation for any offshore project to date.
005	SPR Reference: EA1N_EA2-DWF-ENV-REP-IBR-000913 Harm to marine mammals from underwater noise and shock 1.2.1 The applicant acknowledges that it cannot guarantee absence of harm in piling and UXO. 1.2.2 There is currently no overall regulatory mechanism for all projects to avoid in-combination underwater noise impacts.	The Applicants have proposed industry standard mitigation for both injury and disturbance effects on marine mammals. The Applicants are in discussion with the Marine Management Organisation (MMO) and Natural England regarding the proposed management measures. The MMO will manage the effects of all projects within the Southern North Sea Special Area of Conservation (SAC) via the Site Integrity Plan mechanism, which provides an adaptive management framework for construction effects.
006	SPR Reference: EA1N_EA2-DWF-ENV-REP-IBR-000880 Benthic Ecology 1.3.1 Discussion with MMO shows concern about the spread of nonnative, invasive species and on the monitoring of benthic species. This includes determining the locations of Sabellaria reefs (whose resilience is very low after repeated in-combination disturbance) ³ , and intends to protect the spawning of marine species 3 like Herring and Sand Eels from disturbance, sediment pollution and noise pollution. Biodiversity Metrics at risk: a) Habitat Distinctiveness (species richness, diverseness and rarity), b) Habitat Condition (lack of human interference driving habitat and species richness), c) Spatial (ecological risk from removal of a habitat). d) Temporal e) Delivery (no mechanisms in place for delivery)	The Applicants have discussed the non-native issues with the MMO and await their response. The Applicants have agreed all other benthic matters with the MMO through the Statement of Common Ground (SoCG) (see REP1-080). The Applicants have agreed all benthic matters with Natural England through the SoCG (see REP1-056). The Applicants are in discussion with the MMO on herring spawning and will provide additional mapping to close out the issue. The Applicants have agreed all fish and shellfish matters with Natural England through the SoCG (see REP1-056).

² Roel May *et al.*, 'Paint it black: efficacy of increased wind turbine rotor blade visibility to reduce avian fatalities', *Ecology and Evolution, Vol. 10, 16, July 2020* doi.org/10.1002/ece3.6592 ³ Tillin *et al.*, 'Sabellaria alveolata reefs', *Marine Life Information Network*, 2020







ID	Written Representation	Applicants' Response
007	Littoral SPR Reference: EA1N_EA2-DWF-ENV-REP-IBR-001085_0012 1.4.1 The project will stretch from the Alde Estuary to Lowestoft, and make landfall for cables to the north of Thorpeness. This impacts 75% of the Suffolk Coast and Heaths AONB and Suffolk Heritage Coast ⁴ . 1.4.2 This whole coast is eroding and at risk from storms and sea level rise. The cliffs at Thorpeness are friable – the latest recorded death they caused by collapse was of a dog walker on the beach in 2017 ⁵ . The first image shows the tunnels of Sand Martins in Thorpeness cliff; the second shows the cliff, collapsed, on 14th November 2020.	The Projects are over 30km from shore and will not affect the coast aside from at the landfall. All matters with regard to Marine Geology, Oceanography and Physical Processes are agreed with the MMO, and (where relevant) the Environment Agency, Suffolk County Council and East Suffolk Council (the Councils) through the SoCGs with these parties. Clarification has been provided at Deadline 3 (<i>Effects on Outer Thames Estuary SPA Supporting Habitats</i> (document reference ExA.AS-13.D3.V1)) in order to address Natural England's outstanding queries with regard to cable protection and sandwave levelling within the Outer Thames Estuary Special Protection Area (SPA). All other matters are agreed.
008	 1.4.3 The cliffs are home to many protected birds, like Yellowhammer and Sand Martin⁶. The headland formed by the Ness is where seasonal bird counts are made and migrations recorded by the county recorders⁷. 1.4.4 The littoral is part of the SAC and SPA. 	The cliffs will be avoided via the use of a Horizontal Directional Drilling (HDD). The start point for the trenchless crossing will be set back by at least 85m from the cliff top. It will not be necessary to access the shore. The 'punch out' location will be offshore completely avoiding the intertidal zone. The crossing technique is well established and has been agreed in principle as a suitable approach with the MMO, the Environment Agency and the Councils (see the SoCG with the councils (REP1-072) and the Joint Local Impact Report (REP1-132)).

SCC and Suffolk AONB, 'Seascape sensivity to offshore windfarms', White Consultants, October 2020
 East Anglian Daily Times, 'Disintegrating sea defences spark safety fears', 23 May 2019
 Wardens, situated on the Ness Headland, maintains a list of species observed there. Wardens Trust, Wardens Hall, Sizewell IP16 4UB
 Suffolk Naturalists, Bird Report, Vol.64, Vol. 68.





ID	Written Representation	Applicants' Response
009	1.4.5 The applicant assures us it will provide certain mitigated measures for selected species. However, these measures, to be effective, need to be in place before work begins.	The Applicants have proposed methods of mitigation in line with best practice and established standards. Mitigation and monitoring methods are secured through the requirements of the <i>draft DCO</i> (an updated version has been submitted at Deadline 3, document reference 3.1) and set out in more detail within certified documents such as the <i>Outline Landscape and Ecological Management Strategy</i> (OLEMS) (an updated version has been submitted at Deadline 3, document reference 8.7). Pre-construction, the outline documents provided with the Applications will be developed and will require sign-off from the Councils in consultation with other statutory bodies such as Natural England or the Environment Agency. This is standard practice across Nationally Significant Infrastructure Projects
2 Te	rrestrial Ecology	
011	B-lines and IIA 2.1.1 The Invertebrate Conservation Trust (Buglife), under the umbrella of Natural England, is working to restore connectivity to the fragmented habitat for invertebrates on which soil, pollination, and consequently 'higher' animals depend. The cable plans bisect one of the established 'B-lines' along the coast, then bisects another along its length, which connects the sandy coast to the inland clay soils. This area has also recently been designated IIA (Important Invertebrate Area). 2.1.2 Formally recorded, endangered, above-ground invertebrates of special interest in the cabling's path include the Lunar Yellow-Underwing Moth, the Norfolk Hawker, the Tree Bumble Bee, Large Red-Tailed	No evidence of suitable habitat to support significant populations of invertebrates was noted during the 2018 Extended Phase 1 Habitat Survey, and subsequent 2019 Phase 1 Addendum, within the onshore development area. Furthermore, through the implementation of the embedded mitigation measures regarding species, such areas where invertebrates have been recorded (predominately around the habitats along the coastline) will be avoided wherever possible. The B-Line initiative is a positive one with many important benefits of improving the connectivity of habitat for the UK's invertebrates. The initiative is, however, one seeking to improve future connectivity and is





ID	Written Representation	Applicants' Response
	Bumblebee, Clouded Yellow, Grayling, Glow worm, Wall, Essex Skipper, Garden Carpet, Cinnabar, and Silver Studded Blue. Underground, the biome contains even more invertebrates adapted to the unique area. 2.1.3 The risk posed by SPR's plans to the restoration of viable, connected, diverse populations is grave and contrary to National Biodiversity strategy. 2.1.4 However, Chapter 22, Onshore Ecology, of SPR's Environmental Statement states that there is 'no evidence of suitable habitat to support significant populations of invertebrates' and that these species will not be considered further.	not an existing receptor which required consideration as part of the assessment reported in <i>Chapter 22 Onshore Ecology</i> (APP-070). It should be noted that all important connecting habitats lost during construction (i.e. hedgerows) will be reinstated to an equal or improved standard to what has been removed (see <i>Section 5.3</i> of the <i>OLEMS</i> (an updated version has been submitted at Deadline 3, document reference 8.7)).
012	 Coastal and cliff 2.2.1 Thorpeness cliffs record 508 species observed within 500 metres, including endangered bird species like Swift, Skylark, Sandmartin (which nest in the cliffs), Cetti's Warbler, Swallow, Crossbill, Nightingale, Turtle Dove, Barn Owl, Lapwing, Fieldfare, Redshank and Thrush. 2.2.2 The Ness headland is used by Suffolk Naturalists to perform its seasonal counts of bird populations and migrations, and we have already mentioned the internationally important populations of sea birds there. 2.2.3 The cable path drives straight through these crumbling cliffs and then through a European Union Special Protection Area (SPA) at Thorpeness/Sizewell. 2.2.4 Rare plants and fungi are at risk from the cable path: the very rare and internationally important Earthstar Geastrum Minimum was found at Sizewell in November 2014 and is a Suffolk Priority Species. The applicant proposes no mitigation for fungi, or fungal networks. 	As stated at ID 008, the cliffs will be avoided by the use of a trenchless technique to install the offshore export cables. The Applicants have agreed with Natural England and the RSPB through the Statement of Common Ground (SoCG) process (see REP1-057 and REP1-395 respectively) that the species included in the assessment and the process for screening potentially sensitive species is appropriate. Discussions with Natural England regarding potential mitigation for some ecological receptors are ongoing and the Applicants anticipate resolving outstanding matters during the course of the Examinations.





ID	Written Representation	Applicants' Response
	2.2.5 Rare animals, including mammals, reptiles, amphibians, and birds are at risk from the cable path. The applicant proposes no credible mitigation.	
013	2.2.6 The applicant claims that Nightingale and Turtle Dove will survive the removal of habitat required by cable laying in one season. They add that the birds' habitat comprises scrubland with established shrubs, bramble and grasses — but a significant proportion of these will be removed. The British Trust for Ornithology's research suggests that the optimal habitat includes particular ages of coppiced woodland and a well-defined structure of scrubby thicket in which to set up their territories. Removing and opening up scrubland, as the cable-laying will do, will make the landscape too open for the secretive bird. It will take some years to restore scrub, and even longer to achieve anything like a canopy, as in the BTO's suggested and successful mitigation diagram below. 2.2.7 Turtle Dove is Britain's fastest declining species. In the UK, Turtle Doves usually nest in tall, dense mature scrub or hedgerows, especially if they contain standard trees, thorny shrubs, tall hedgerow shrubs and climbers. Dense, thorny vegetation provides the birds with a safe place to build their nest. Good Turtle Dove nesting habitat can take a long time to develop from scratch, so it's essential to protect what's there. Removing habitat is therefore a grave procedure and is not rapidly reversed. 2.2.8 The applicant notes that the baseline for this area was assessed within Chapter 23 of the ES (APP-071) as not providing optimal habitat for Nightjar and Woodlark. Yet, the BTO observes that these birds have started to colonise set-aside farmland, but that heathland and young tree plantations remain optimal for breeding. It is therefore hard to accept the dismissal of the presence of a species by the applicant on the grounds of 'unsuitable' heath and grassland of the SPA and outside it.	An <i>Outline SPA Crossing Method Statement</i> (REP1-043) was submitted at Deadline 1. Construction works associated with crossing the SPA which are within the SPA and within 200m of the SPA boundary will take place outside the breeding season. Elsewhere, construction works within 200m of the SPA that are not associated with the crossing may still occur during the breeding season. These will be subject to monitoring by an Ecological Clerk of Works (ECoW) and measures contained within a Breeding Bird Protection Plan. Regarding turtle dove, foraging habitat may potentially be lost close to the SPA / Site of Special Scientific Interest (SSSI), as well as nesting habitat within the SPA crossing location. As such, a supplementary feeding area (Work No. 14) will be created, maintained and monitored. This area is in close proximity to the area of habitat being lost. It is located within 300m of previously recorded turtle dove territories in the RSPB datasets as was recorded as being used by turtle dove during the 2018 pre-application surveys. Hedgerows within this area will be managed to promote turtle dove usage. Habitat along cable route will be restored after construction. The proposed mitigation follows good practice guidance on turtle dove habitat creation (published by the Operation Turtle Dove initiative). Timing of the works will ensure that habitat is created and available prior to any loss of existing habitat. Locating the management area in close proximity to the area of habitat loss will maximise chance of uptake.





ID Written Representation

2.2.9 Sandlings heathland is one of the rarest surviving habitats and Suffolk's heaths represent an important proportion of the world's sandlings. It takes around 300 years for a heathland to form. Even a grazed sandling heathland retains its character because of the unique strata of the podzol, above bands of particulates, atop iron pan. The preferred, proposed, trenching will remove these centuries old strata.

2.2.10 The trenching of the SPA and SSSI and adjacent land impacts Habitat Distinctiveness, Spatial Risk (as it will remove, wholesale, an Ecological Habitat), Habitat Condition, and Temporal challenges (it will take many years to restore), plus Delivery Risk owing to the applicant's lack of detailed preparation, and therefore does not provide Biodiversity Net Gain.

Applicants' Response

Regarding nightingale, micro-siting at the detailed design stage will work to avoid suitable nesting habitat when trenching through the SPA / SSSI, where possible.

Potential nesting and foraging habitat will be lost within the SPA crossing location if an open trench technique is used. Work No. 12A has been identified to mitigate this. This mitigation will be managed for a period of five years from completion of construction works within Work No. 12. This aims to provide functional breeding habitat. Preparation of the area will occur during the non-breeding season in the calendar year prior to the SPA crossing works commencing and will involve:

- · Thinning or removal of bracken or maintenance of scrub; and
- Retention of a dense field margin around scrub by avoiding mowing during the breeding bird season.

Habitat along cable route would be restored after construction.

The proposed mitigation follows good practice management for creation and maintenance of nightingale habitat in British Trust for Ornithology guidance. Locating the management area in close proximity to the area of habitat loss will maximise chance of uptake.

014 | Hedgerows and Woodlands

- 2.3.1 The cable path cuts through a European Union Special Protection Area (SPA), as we have seen, and removes mature hedgerow there, which is a significant Biodiversity Risk. This is shocking enough, but wildlife and special ecology is not confined to reserves.
- 2.3.2 Moving westwards from the sea, SPR proposes to remove around 11km of hedgerow, most of which appears on maps published in the

As presented in the *OLEMS* (an updated version has been submitted at Deadline 3, document reference 8.7), all habitats will be reinstated as far as possible, or replanted where reinstatement cannot be undertaken. This includes all woodland, hedgerows and watercourse beds and banks following the completion of construction (Sections 5.2 - 5.6).

The hedgerow reinstatement approach outlined in the *OLEMS* (paragraph 149 (an updated version has been submitted at Deadline 3,





ID	Written Representation	Applicants' Response
	1800s. In Aldringham, SPR will grub up section CS19-CS20 of Hedgerow 20 beside PROW path E-106/065/0, and Hedgerow 21 alongside E-260/007/0 Fitches Wood, Aldringham. 2.3.3 SPR will fell areas of mature, broadleaf woodland and protected parkland on both sides of the River Hundred, which it will cut in two. 2.3.4 The riparian wood to the east of the river on Aldeburgh Road (B1122) is not recorded in the proposal. The trees in this rewilded, mature, broadleaf woodland are upwards of 150 years old and contain some older specimens in decay, which provide hollows for bees, birds and bats, and refuge for declining invertebrates like the Stag Beetle. The river bank passing through the wood is home to several struggling species of invertebrate, including the Glowworm.	document reference 8.7)) is considered overall to improve the quality and connectivity of the hedgerows, especially in areas where the hedgerows are defunct or species-poor prior to removal. The vast majority of hedgerows to be removed to facilitate construction of the Projects (67 of 76) are species-poor. Additional habitat is being created as part of the Outline Landscape Mitigation Plan (OLMP) (included within the <i>OLEMS</i>). This includes the replanting of hedgerows along the cable route using species of local origin, improving the quality of species-poor hedgerows, plus the creation of new areas of native woodland, species-rich hedgerow and species-rich and wet grassland at the substation site. No evidence of suitable habitat to support significant populations of invertebrates was noted during the 2018 Extended Phase 1 Habitat Survey, and subsequent 2019 Phase 1 Addendum, within the onshore development area. Furthermore, through the implementation of the embedded mitigation measures regarding species, such areas where invertebrates have been recorded (predominately around the habitats along the coastline) will be avoided wherever possible.
015	 2.3.5 The applicant will then fell several more acres of protected parkland trees, by Raidsend (Aldringham Court Residential Home) and also its woodland, to the west of the B1122, on which 45 species of lichen, including <i>lecanora expallens</i>, have been recorded. Wildlife at present passes between the woods on both sides of the B1122 and uses both habitats as one. Hedgehogs, for instance, have been observed both crossing the road and as roadkill. 2.3.6 The Aldringham works destroy all 5 chances of achieving Biodiversity Net Gain: a) Habitat Distinctiveness (species richness, diverseness and rarity), b) Habitat Condition (lack of human interference driving habitat and 	Impacts to woodland and trees have been considered within <i>Chapter 22 Onshore Ecology</i> (APP-070) <i>section 22.6.1.4</i> (Impact 4). As part of the embedded mitigation, the onshore infrastructure will avoid areas of woodland where practicable. <i>Table 22.18</i> of <i>Chapter 22</i> (APP-070) states that 1.1ha of semi-natural broadleaved woodland could potentially be affected by the construction of the Projects. With the implementation of additional mitigation measures (<i>section 22.6.1.13</i>), the residual impact on woodland is assessed as <i>minor adverse</i> significance. Mitigation measures are set out in the <i>OLEMS</i> (an updated version has





ID	Written Representation	Applicants' Response
	species richness), c) Spatial Risk (ecological risk from removal of a habitat), d) Temporal Risk (the mismatch between loss of biodiversity and time to offset mitigation - in this instance, none is proposed), and e) Delivery Risk — there is no possible mitigation, as the same area has been selected for haul roads, and woods cannot be replanted atop cables, even if we had 150 years to wait. 2.3.7 Two acres of Aldringham Wood (Fitches Wood) will be felled. This is an old bluebell wood, which supports breeding Nightingales, Turtle Doves, Hedgehogs and Lesser Stag Beetles (not recorded by SPR).	 been submitted at Deadline 3, document reference 8.7). With respect to woodland: Following the construction phase, woodland habitat will be fully reinstated as far as possible; Where full reinstatement is not possible surrounding the above ground operational infrastructure (onshore substation and National Grid infrastructure), planting and landscaping has been proposed which seeks to, among other objectives, benefit ecological species surrounding the onshore substation and National Grid infrastructure (for further details please see the <i>OLEMS</i>); Post-consent a final Landscape Management Plan (LMP) will be produced and agreed with the Local Planning Authority. Planting of woodland blocks will provide habitat for local wildlife, including protected species such as badgers. These areas of woodland may also provide roosts for bat species as individual trees mature. Also, see response to 014.
016	 2.3.8 The cable corridor then turns southwards to continue across agricultural land but still skirting the wood's edge, towards Friston, thereby disturbing the important bat corridor used by the recorded Barbastelle, Brown Long-Eared Bat, Lesser Horseshoe Bat and Pipistrelle from the B1122 to Billeaford Hall, and affecting the 24 hunting grounds of the Barn Owl. 2.3.9 The southern end of the agricultural land's margins have been given over to pollinator strips and there is some restoration of hedges in 	Chapter 22 Onshore Ecology (APP-070) provides an assessment of the impact of construction of the Projects on the foraging habitat for bats (paragraphs 215-221). The time lag between removal of the hedgerow and the point at which it is provides equivalent habitat value to that removed is noted within the assessment (paragraph 224). For this reason, the residual impact following mitigation is concluded to be moderate adverse in the short





ID	Written Representation	Applicants' Response
	progress, already extending the favourable environment for hedgerow creatures as well as removing pesticide treatments on the arable field. Several pairs of Skylark, Woodlark, and Hare now nest or forage there. The pollinator strips also provide supplies of Yellow Necked Mice for the hunting owls, which include Barn Owl, Tawny, and Little Owl, plus prey for Buzzard, Hobby, Kestrel and Harrier. The number of species recorded in this 1km radius is 11,610, from the edge of the fields to Billeaford Hall and Aldringham Woods. 2.3.10 The removal of hedgerow continues between Knodishall and Friston, with the suggestion that Grove Wood can become a mitigation habitat. Grove Wood is already a Local Wildlife Site and Ancient Woodland. However, this year the Forestry Commission granted Felling Licences. Grove Wood can no longer be adequate mitigation habitat, if it ever was.	term, reducing to minor adverse after 3-7 years (i.e. after the hedgerows mature) (paragraph 225). Following public consultation undertaken in October 2018, a commitment has been made by the Applicants to retain Grove Wood to address public concerns around the removal of this woodland. This commitment is captured within <i>Chapter 22 Onshore Ecology</i> (paragraph 117) (APP-070). The retention of Grove Wood is not considered within <i>Chapter 22</i> (APP-070) as mitigation for the purposes of reducing adverse impacts. Any activities being undertaken within the woodland currently have no bearing on the assessment presented in <i>Chapter 22</i> (APP-070).
017	 2.3.11 The function of agricultural land includes being dug up, and agricultural methods can quickly restore it to modern agricultural use. However, the ancient biome of woodland and hedgerow cannot be restored so easily, if ever. 2.3.12 "Just over half a hectare of one wood might not sound much but every inch of soil in an ancient woodland is precious. When you consider ancient woodland is irreplaceable, accounts for just 2.4% of land cover in the UK, and is probably the richest habitat we have, this will be devastating for the myriad of species that rely on it for survival. We are in the midst of a climate and nature emergency, with Government saying it is committed to being the first to leave the environment in a better state than they found it." Luci Ryan, Woodland Trust, September 2020. 	The <i>OLEMS</i> (an updated version has been submitted at Deadline 3, document reference 8.7) sets out the restrictions for tree planting in the vicinity of onshore cables during reinstatement (paragraph 102). This includes planting of hedgerow species only above the cables, with canopy species planted at least 6m from the cables.





ID	Written Representation	Applicants' Response
	2.3.13 SPR claims it will replant, though it admits it cannot replant trees on top of the cables.	
018	2.4.1 The doomed woodland has taken at least 150 years to achieve its current state. Its trees have hollows, and grooves suitable for bats, and standing older trees have cavities for birds, like owls, and insects, like wild bees. 2.4.2 Core Sustenance Zones are areas around breeding animals, where the habitat affects the resilience of the colony. The zone is different for each species but ranges from 1km to 6km, for bats (28). This shows that development work can impact breeding animals in terms of foraging and commuting and suggests the 50 metre buffer zone adopted by SPR for bats (and the 100 or 200m zone for breeding birds) is dangerously insufficient. 2.4.3 Bats seem more important to SPR towards the western end of the route, with roosts within Grove Wood, and in Friston, perhaps because the applicant attempted a survey of their presence on their substation site, which is their primary focus. SPR's Environmental Statement 6.2.22.7 (APP-280) describes at least 6 bat-roosting sites in the substation site, plus with hedgerows and parcels of land forming commuting and foraging routes. Most of this will be removed. The sightings of bats in this area include the Barbastelle. 2.4.4 Again, the construction and operation of the substations will interfere with the core sustenance zone of these bats. Tree loss, culvert and bridge alterations, will adversely affect roosting opportunities, and the culling of hedges and loss of vegetation will deplete the insect population on which bats rely.	The Core Sustenance Zones (CSZs) are most useful when analysing desk based information, for working out which species may be present within a site. For example, if a biological records search has return evidence of maternity roosts for five bat species within 3km of works, and all of these species' CSZs are 3km or greater, then mitigation for any loss of these species' habitats of importance should be considered when designing the scheme. The Projects have gone beyond the desk-based assessment and undertaken extensive bat activity survey data for the onshore development area. This dataset has yielded precise information on which species not only could be present within the onshore development area, but are present, which means habitat reinstatement and creation to support these species can be more appropriately targeted. The species recorded during the bat surveys include Barbastelle, Common pipistrelle, Lesser horseshoe, Myotis spp, Noctule, Serotine / Leisler, Soprano pipistrelle and Nathusius' pipistrelle. These species have a range of habitat preferences, including broadleaved woodland, woodland edges, tree-lined roads, wet meadows, riparian habitats and grazed pasture (as set out in the Bat Conservation Trust's Core Sustenance Zones and Habitats of Importance (2020)). The habitat creation measures outlined in the <i>OLMP</i> (APP-401) include provision for the first four of these habitat types, increasing the overall habitat provision within the commuting and foraging range for the species recorded during the bat survey (APP-507). The 50m buffer zone is not the assumed maximum extent an individual bat might travel to the habitat present within the onshore development area, but is a potential disturbance buffer around potential bat roosts,





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2.4.5 Artificial lighting used for security in construction and maintenance creates barriers between roosting sites and foraging areas. Lighting tends to delay the emergence of bats from roosts. This shortens the time for foraging and therefore affects the health of pregnant females in particular and the bat population in general.

2.4.6 SPR's bat survey has been a calamity since it suffered an equipment failure and 26% of the results are missing. Despite identifying a Lesser Horseshoe Bat not far from Billeaford Hall and close to the cable route, SPR has declined to investigate further (only one other sighting in the last 100 years has happened in Suffolk. Yet it admits that there is "the potential for significant impacts during construction without mitigation".

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and any light spill / noise / works which might affect tree roots which occurs within this 50m buffer is considered with regard to the potential impact it might have on active roosts.

Mitigation to reduce the effects of lighting on roosting and commuting bats is presented within the *OLEMS* (paragraph 202-206) (an updated version has been submitted at Deadline 3, document reference 8.7). Following this mitigation, the impacts upon bats are predicted to be moderate adverse in the short term, and minor adverse in the medium term (paragraph 225, APP-070).

The recording success of bat activity surveys is vulnerable to equipment malfunctions, adverse weather conditions, and other factors (in this instance changes in access permission) – this is one of the reasons why such extensive survey coverage is attempted for surveys of this nature. Therefore, when some data are not available, there is a large baseline which can be used on which to base assessment conclusions. 162 days of survey data across seven sites is a substantial dataset and is sufficient to have confidence in the results derived from it.

The limitations and validity of the data collected is described in full in section 22.4.4 of Appendix 22.6 Bat Survey Report (APP-507).

019 Reptiles

2.5.1 SPR identified several areas of suitable reptile habitat, however they have not carried out any reptile surveys, as they say in paragraph 152 that the areas are considered to be of an inappropriate size to support large populations.

2.5.2 The Sandlings and wetlands of the SSSI support Slow Worm, Adder, Grass Snake, Green Lizard and Common Lizard.

Heathland, sandy scrubland and grassland are not common habitat types within the onshore development area. The onshore development area is predominately arable land (comprising 89%), with areas of woodland, hedgerow, scrub, and poor-quality grassland (i.e. species-poor with a homogenous sward). The habitat mosaics recorded are all small and localised, consisting of vegetation piles, areas of scrub, woodland edges, arable field margins and grassland areas (*Table A22.6* and *Table*





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2.5.3 As we observed in the previous response, SPR plans to leave it to individual operatives to adopt a 'Precautionary Method of Working'. This means that it is left to untrained workers, many of whom are unfamiliar with reptiles, and may find them frightening, to not harm the creatures. This is completely irresponsible. An account of operatives killing Slow Worms in the way of a development made ITV national news just over a month ago.

2.5.4 SPR urgently needs to develop a robust protocol for identifying and protecting these at-risk species, and a management structure that will implement it.

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A22.13, APP-503), none which were part of larger habitat networks capable of supporting large populations of reptiles.

Delivery of the Precautionary Method of Working (the written details of which will be included within the Ecological Management Plan (EMP) under Requirement 21 of the *draft DCO* (an updated version has been submitted at Deadline 3, document reference 3.1) and must be approved by the relevant planning authority in consultation with the relevant statutory nature conservation body prior to works) will be supervised by the ECoW to ensure compliance (paragraph 229 of the *OLEMS* (an updated version has been submitted at Deadline 3, document reference 8.7)).

The ECoW will hold the necessary qualifications and level of competence to ensure legislation afforded to reptiles is upheld.

020 Badgers

2.6.1 SPR has identified 5 occupied badger setts, 4 of which are on the substation site at Friston and will be removed. SPR says, however, that it will somehow avoid disturbing badger setts, or badgers. The 'substation' population is significant and viable, with latrine, pathways, snuffle holes, and a disused sett. SPR suggests artificial setts will be sufficient to translocate them, along with the same 'Precautionary Methods of Working' to which it has consigned the reptiles: in other words, the badgers will be in the hands of SPR's construction subcontractors. There is no transparent management mechanism for applying any precautions that SPR may or may not eventually come up with.

2.6.2 Elsewhere SPR appears to have forgotten that it suggested artificial setts and says they will be moved out prior to construction. The consequence will be that the badgers will be culled or left without habitat.

The four outlier setts at the onshore substation locations are proposed to be closed, as they are located within areas currently proposed for landscaping within the *OLEMS* (an updated version has been submitted at Deadline 3, document reference 8.7).

The one main sett is located within the onshore cable corridor and will be avoided during construction, therefore avoiding the need to close this sett. However, as this was not confirmed at the time of reporting within *Chapter 22 Onshore Ecology* (APP-070), it had been assumed that the sett will be closed as a worst case.

The badger mitigation measures are secured in the same way as the other commitments in the *OLEMS* (an updated version has been submitted at Deadline 3, document reference 8.7), which is that under Requirement 21 of the *draft DCO* (an updated version has been submitted at Deadline 3, document reference 3.1) an EMP must be







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		produced which accords within the OLEMS , and which must be carried out as approved by the relevant planning authority.
		All badger mitigation works will be undertaken in accordance with an approved method statement and badger mitigation licence obtained from Natural England.
		As noted in Section 10.2 of the OLEMS (an updated version has been submitted at Deadline 3, document reference 8.7), the ECoW will have responsibility for ensuring that all measures that are set out within the EMP are adhered to during construction.
021	The River Hundred 2.7.1 The River Hundred is now a slow-moving, narrow water course, although its flood plain, and the Bronze Age burial mounds situated high on the ridged edges of this, show that it was once a navigable river with its estuary somewhere south east of Thorpeness Mere, where there was, until Tudor times, a port. Until this year the River Hundred in Aldringham was designated SLA. 2.7.2 SPR's trenching plans will bisect River Hundred for around 100m. 2.7.3 The closure is within 1000m north of the lush, wetland meadows that it irrigates in its valley, where horses, cattle and sheep graze, and orchids grow. A little distance downstream, beyond Bird's Farm and River Hundred (House), the river enters the wetlands and fen of the SSSI and SPA, south and east of the bisection. 2.7.4 Much of these areas are managed by RSPB North Warren and contain nationally important wildlife. I can find no mention of RSPB North Warren in the surveys. I am at a loss to know why such a huge omission	An <i>Outline Watercourse Crossing Method Statement</i> (document reference ExA.AS-3.D3.V1) has been submitted at Deadline 3. This acknowledges that although the river itself is not designated, its lower reaches flow through the Sandlings SPA and Leiston – Aldeburgh SSSI downstream of the crossing point. The Applicants have developed a number of outline design and mitigation measures for the crossing works in order to protect the SPA and SSSI and these are set out in the method statement. A 50m working width per project will be required at the crossing point. However, each cable route itself will only directly interact with a maximum width of 25m of the river bank and bed. RSPB survey data (2009-2018) for the part of North Warren that overlaps with the onshore ornithology study area were obtained during the desk-study undertaken for <i>Chapter 23 Onshore Ornithology</i> (APP-071) and inform the assessment presented therein.





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	reserve (Annex) which nonetheless shows its proximal interdependence with the River Hundred at the pinchpoint.	
022	 2.7.5 Despite its narrow aspect, and thanks to the riparian woodland, the River Hundred is able to support Kingfishers, Otters, Grass Snakes, and other hunting aquatic species as well as Water Voles, very close to, or at the bisection point. An absence of records of fish, crustaceans and European Eels (another endangered species) does not mean that fish, crustaceans and eels are absent: the predators would simply not survive without them. 2.7.6 The River Hundred sits inside a typical wetland from the pinch point southwards. Wetlands are the barrier between land and water and provide an exceptionally rich environment since they remain moist and humid at all times. A wetland biome is richer than any other biome. The 872 species recorded at the pinch point is characteristic. Wetlands typically absorb rainfall, and release it to the river as needed, thus helping to control flooding. However, increasing rainfall with climate change has raised the risk of flooding in recent years, leaving dwellings historically flooded in Coldfair Green and Aldringham at greater risk. 2.7.8 Wetlands ecosystems are very sensitive to disturbance from outside influence, particularly by human development and environmental damage. 	The Applicants have agreed through consultation with the Environment Agency to update the <i>Outline Code of Construction Practice</i> (OCoCP) (APP-578) to include the following: • A commitment to undertake a pre-construction water features survey (visual inspections) where required. This will be used to ensure that water features are identified and subject to hydrogeological risk assessments as necessary prior to works commencing; and • A commitment to undertake a hydrogeological risk assessment for works that could cause changes to aquifer flow or affect aquifer quality within 500m of groundwater dependent habitats within ecological sites (i.e. international, European, national and county designations). A screening exercise will be undertaken (utilising desk-based information such as British Geological Survey (BGS) borehole records, solid and superficial geological mapping and Ordnance Survey mapping, site citations, Natural England's Priority Habitats Inventory and Phase 1 habitat survey data where available) to determine whether or not identified ecological sites have features / habitats that are likely to be groundwater fed. Where features / habitats that are likely to be groundwater fed are within 500m of works that require excavations below 1m, a hydrogeological risk assessment will be undertaken.





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		These commitments are included in the updated outline CoCP (an updated version has been submitted at Deadline 3, document reference 8.1).
		A specific hydrogeological risk assessment will also be undertaken regarding works associated with crossing the Hundred River as secured in the <i>Outline Watercourse Crossing Method Statement</i> (document reference ExA.AS-3.D3.V1) submitted at Deadline 3. The <i>Outline Watercourse Crossing Method Statement</i> considers the potential impact of the Projects on the Hundred River and the features it supports, and includes a number of mitigation measures developed to ensure the works do not result in unacceptable adverse impacts. These measures can be summarised as follows:
		 Pre-construction surveys for eel, fish, otter and water vole will be undertaken. Survey results will inform the final construction method selected;
		The results of pre-construction surveys will inform specific ecological mitigation measures within the final EMP prepared to discharge Requirement 21 of the <i>draft DCO</i> (an updated version has been submitted at Deadline 3, document reference 3.1);
		Where pre-construction surveys identify the presence of fish or eels, provision will be made for the upstream / downstream migration;
		Periods of low flow will be chosen to undertake the crossing works wherever practicable;
		Where there is a risk of sediment run-off, sediment interception techniques would be used;





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		Any over-pumping at the Hundred River crossing would be undertaken in a manner that ensures the flow rate downstream of the crossing is the same as upstream;
		Following laying of the duct or onshore cables, subsoil and topsoil will be replaced, and the riverbank reprofiled and replanted. The specification will be set out in the final Watercourse Crossing Method Statement; and
		The construction footprint of the crossing will be reinstated as soon as practicable following completion of the crossing works.
		A final Watercourse Crossing Method Statement will be prepared post-consent in accordance with this <i>Outline Watercourse Crossing Method Statement</i> (ExA.AS-3.D3.V1) in line with Requirement 22 of <i>the draft DCO</i> (an updated version has been submitted at Deadline 3, document reference 3.1). The Applicants will consult with Natural England and the Environment Agency during the preparation of the final Watercourse Crossing Method Statement to ensure the appropriate mitigation measures are incorporated within the works.
		The final Watercourse Crossing Method Statement will provide greater detail on the crossing of the Hundred River and detail the mitigation measures (informed by pre-construction surveys) to be adopted.
023	2.7.9 The trenching also cuts through the incipient wetlands at the pinch point. The geology of this area means that the water table rises very high, as do the aquifers. The trenching is unlikely not to disturb them and the risk of environmental impact is great, if not inevitable.	See response to 022 regarding the various mitigation measures set out in the <i>Outline Watercourse Crossing Method Statement</i> (document reference ExA.AS-3.D3.V1) submitted at Deadline 3.





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	2.7.9 Animals will not be able to pass upstream or downstream, and the trenching will require a temporary bridge or culvert for the haul road, as well as temporary dams, flumes and pumps to minimise upstream impoundment and maintain flows downstream, all with the attendant risk of flooding and surface water pollution.	
	2.7.10 Nonetheless, SPR's assessment states that any spills will be unlikely, and suggests in any case spills and pollution would be low impact, being absorbed back into the ecosystem. Unfortunately, most studies agree that poisoning from agricultural run-off and industrial pollution are extremely damaging to sensitive wetlands. SPR points out that the Hundred's water quality is not optimal (though it is improving) because of agricultural pollution, but does not allow that its own project will bring inevitable industrial pollution, and disturbance to the water table and aquifers, on a scale the SSSI and Reserve has not seen before.	
024	Confirm that species remain absent? 2.8.1 This phrase has been often repeated throughout this process. SPR's surveys have concluded that animals requiring special provision are absent from the areas where they are normally found by other surveys and are known to thrive by those of us who live here. 'Confirm absence' has been used as a catch all to deal with the problem of the Otter and Water Vole in the River Hundred, as well as the Nightjar, Nightingale, Turtle Dove, reptiles and various endangered bats along the cable corridor. Yet these creatures exist, even if overlooked in an incomplete survey. 2.8.2 It is illegal to remove or harm these endangered creatures without expert guidance. Leaving identification, handling and re-siting to subcontractors is not acceptable.	As stated in the <i>OLEMS</i> (an updated version has been submitted at Deadline 3, document reference 8.7), acknowledging the potential for species to move into the onshore development area since submission of the Applications, a number of pre-construction surveys will take place prior to any construction works commencing. These will cover the following: • Vegetation / invasive species; • Badger; • Bat; • Great crested newt; • Reptile;

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	2.8.3 SPR should re-do their surveys with the help of local experts, and	Wintering and breeding birds (focussing on Schedule 1 species);
	plan proper management of their workforce accordingly.	• Eel;
		• Fish;
		Otter; and
		Water vole.
		The Applicants note that pre-construction ecological surveys will inform each EMP (and the Breeding Bird Protection Plan) produced under Requirement 21 of the <i>draft DCO</i> (an updated version has been submitted at Deadline 3, document reference 3.1).