The Planning Inspectorate
Yr Arolygiaeth Gynllunio

Application by NNB Generation Company (SZC) Limited for an Order Granting Development Consent for The Sizewell C Project

The Examining Authority's written questions and requests for information (ExQ1)

ExQ1 PART 2 OF 6

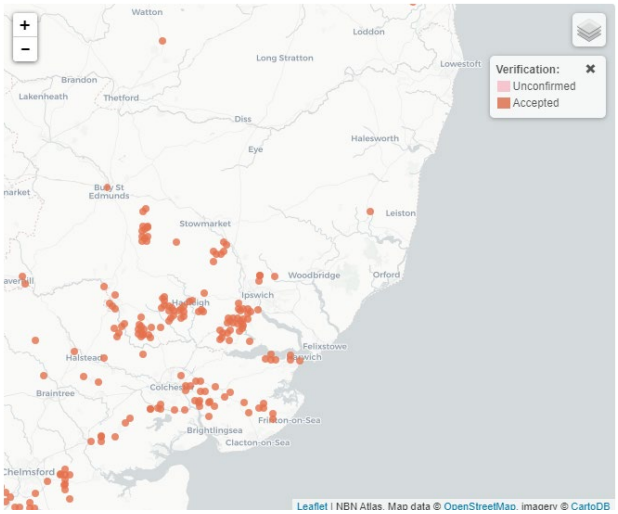
ExQ1	Question to:	Question:
Chapter 7 - Bio.1 Biodiversity and ecology, terrestrial and marine		
Part 1 - Biodiversity and ecology (terrestrial & marine) - General		
Bio.1.13	The Applicant	[APP-394] (Southern Park and Ride) – para 7.6.46. This asserts that because effects on bats are individually not significant they would not create significant inter-relationship effects. The same conclusion is reached at para 7.6.54 in relation to decommissioning. Are these justifiable conclusions? Cannot plural non-significant effects result in one or more significant inter-relationship (or in combination) effect? If the answer is yes, please will the Applicant explain what the inter-relationship effects would be. This is another question which affects a number of documents in the terrestrial ecology chapters of the ES (e.g. [APP-425] paras 7.6.116 and 7.6.161 – the Two Village Bypass) and it should be addressed for each of the cases where it occurs.
	Response by SZC Co. at Deadline 2	A standardised approach to the assessment of inter-relationship effects has been taken across each of the terrestrial ecology and ornithology assessments presented within the **ES** that follows the methods of assessment set out within **Volume 1, Appendix 6J** of the **ES** [APP-171]. Therefore, the assessment presented considers the magnitude of impacts and value/sensitivity of resources/receptors that could be affected in order to classify effects. In the case of the inter-relationship assessment, consideration has been given to the combined magnitude of the different impacts of the proposed development on an individual important ecological feature to identify the inter-relationship effect on the important ecological feature. Inter-relationship effects are known to be difficult to quantify, and in respect of bats several approaches have been employed to ensure potential impacts are mitigated and then to draw assessment conclusions. Firstly, for each impact and for all sites, mitigation is proposed to reduce the resultant effect to a level at which individual impacts are not considered likely to have a significant effect. For example, at each site, given the lighting and noise control measures which will be in place, the risks of individual effects arising at any one time are greatly reduced. In turn, this reduces the likelihood of adverse noise and lighting effects occurring simultaneously and so minimising the potential for significant adverse in-combination or inter-relationship effects.

ExQ1	Question to:	Question:
		Secondly, as is outlined in **Volume 3, Appendix 2.9.B** of the **ES Addendum** [AS-208], a comparable site, Hinkley Point C, was assessed, and the success of the approaches on that site to address noise and lighting impacts were reviewed. This provides additional evidence that in-combination impacts could be kept to a level that will not result in a significant in combination effect. Thirdly, for the main development site, new habitats which are not impacted by noise or light have been created. This will minimise the potential impact upon species populations across the wider EDF Energy estate. Fourthly, for several sites, a suite of monitoring is proposed within the **Terrestrial Ecology Monitoring and Mitigation Plan** [REP1-016], secured by Requirement 4 of the **draft DCO** (Doc Ref. 3.1(C)), which will allow any individual impacts or any unforeseen individual or in-combination impacts to be identified and addressed by remedial measures. In summary, inter-relationship effects on bats relating to noise, lighting and habitat loss are considered to be '*not significant*' due to the primary and tertiary mitigation measures that are embedded into the scheme design. With the implementation of primary/tertiary mitigation and secondary mitigation (monitoring), residual effects (individually, minor adverse or negligible) are not considered to be significant and the inter-relationship of these residual effects, in this instance at the southern park and ride, is not considered to be significant. For barbastelle on the main development site, a moderate adverse (significant) effect is predicted during construction arising from habitat fragmentation. This is due to the proposed removal of an area (Goose Hill plantation woodland) known to be utilised by barbastelle between areas to the north-east and south-west of the construction area. There are retained and new commuting areas through the site meaning that bats will be able to traverse the site, however, one part of the site (Goose Hill) known to be used by barbastelle will be fragmented. This is not considered an in-combination effect, as it is the removal of the habitat in this area that is the primary cause of the fragmentation. As outlined in the updated bat assessment, **Volume 3, Appendix 2.9.B** of the **ES Addendum** [AS-208], in paragraph 8.2.120, the in-combination effect of the lighting and noise upon bats utilising the retained and created commuting routes is considered not significant for the main development site.

ExQ1	Question to:	Question:
	Response by Marlesford Parish Council at Deadline 3	The Applicant argues that the correct methodology has been used to assess impacts on bats and that its primary and tertiary mitigation will result in effects on bat populations in the area of the Southern Park and Ride being "not significant". MPC cannot comment in detail on this assertion by the Applicant, but it feels that the scale of the development and the nature of the lighting would be expected to cause adverse impacts. MPC would have preferred to have seen this question addressed to Natural England as well as the Applicant and we would urge the ExA to seek their view prior to Deadline 4.
	Response by RSPB at Deadline 3	As acknowledged in the Applicant's response 'inter-relationship effects are known to be difficult to quantify' and it is therefore necessary, in our view, for a precautionary approach to be adopted. Our concerns over the assessment of interrelationship (synergistic) effects are outlined in our Written Representations submitted at Deadline 2. For the main development site, there appears to be no in-combination assessment for light, noise and physical fragmentation (e.g. felling of Goose Hill woodland) all together and there has been no attempt to understand the interrelationship between noise and light, especially the likely direct correlation between construction task specific intensive lighting and subsequent noise. For the Sizewell Link Road, little has been done to understand the combined impacts of light, noise and fragmentation together. Our concerns over the data adequacy and analysis, proposed mitigation, lack of confidence that the habitat creation will effectively compensate habitat loss, and the efficacy of the proposed monitoring are detailed at length in our Written Representations submitted at Deadline 2. In response to the Applicant's second point, Hinkley C does not have a comparable bat population from which to base conclusions on potential impacts or effectiveness of mitigation as noted in our Written Representations submitted at Deadline 2.
	Response by SZC Co. at Deadline 5	The current impact assessment addresses the key impacts to barbastelle and other bats species. This includes habitat fragmentation, habitat loss, impacts on roosts and indirect impacts from light and noise. The impacts identified can be addressed separately to maintain favourable conservation status of the bat species concerned. For example lighting impacts do not cumulatively increase the effects of noise and vice versa.

ExQ1	Question to:	Question:
		There are differences in the bat populations and the sites, but there are also similarities (the light sensitive species groups present, and the proposals to retain commuting routes through the site as one of the main mitigation objectives). As discussed in the Updated Bat Impact Assessment [AS-208], there are limited studies available that have assessed in detail the likely impacts of the type of development on the species present at Sizewell (including barbastelle). It is fortunate to have a comparable project, with good quality bat data to contribute to the impact assessment and design of the mitigation, and it is considered appropriate to use this. To inform the ES, SZC Co. used as much information as possible to provide the most robust assessment. The Hinkley Point C scheme is not identical to Sizewell C, but has comparable landscape level effects, similar to the Sizewell C scheme and likely impacts, therefore it is appropriate to use data collected from this project to inform the impact assessment and also provide further confidence in the mitigation approach. It must be noted that the results from Hinkley Point C are only used to contribute to the assessments informed by research and available data.
Bio.1.14	The Applicant	[APP-425] (Two village bypass) – Table 7.4 - please will the Applicant explain why there is no Survey Area for the statutory and non-statutory designated sites. This question applies to this table wherever it appears in the terrestrial ecology chapters of the ES and should please be answered for each of them.
	Response by SZC Co. at Deadline 2	Statutory and non-statutory designated site study areas have been identified in Table 7.4 on page 18 of Volume 5, Chapter 7 of the ES [APP-425]. 'N/A' against the survey area column indicates that information was gathered by desk study only and so a survey area was not relevant.
	Response by FERN at Deadline 3	EDF's ecology surveys were inadequate - - Ponds were listed as 'access not granted' when access was not requested or just missed out at in the Farnham Hall area. After notifying EDF that this had not been done months ago, a call was made by EDF on 20th June to a member of FERN but no action taken as yet.

ExQ1	Question to:	Question:
		- Dormice, a European Protected species were not surveyed for despite there being a 'reasonable case' they would exist at in the Farnham Hall environs as there is a nearby record, and they have also been seen at Farnham Barn - Bats were not surveyed properly as no bat roosts were shown or surveyed for in the DCO documentation (one misleading recording of one 695m away) despite there being 2 listed maternity roosts in the Farnham Hall Estate right by EDF's proposed route and ancient trees were not surveyed properly for roosts. EDF should have done more to consider habitats and species beyond the DCO boundary, especially given the potential for a road to lead to habitat fragmentation effects; bat transects were undertaken but then a failure to consider where all the bats were originating from, which is baffling as this should be part of a proper bat survey.
	Response by SZC Co. at Deadline 5	In respect of ponds, Great Crested Newt (GCN) Surveys undertaken in 2021 have surveyed those ponds that were previously not accessed. During these surveys a number of additional ponds were identified and surveyed. The results of the eDNA testing confirmed that GCN were absent which support the position that there are no GCNs within the two-village bypass site and zone of influence (including Farnham hall area), as detailed within paragraph 1.5.59 of **Volume 5**, **Appendix 7A** of the **ES** [APP-426]. The results of the 2021 surveys will be submitted to the examination at Deadline 7.

ExQ1	Question to:	Question:
		In respect of Dormice, they are generally absent from East Suffolk:  Source: NBN atlas No dormouse surveys have been undertaken. In the unlikely event that they are present locally, they are more likely to be present in the understorey of the ancient woodlands of Palant's Grove and Foxburrow Wood, and so require the connectivity afforded by the connecting woodland that links these two ancient woodlands. Although it is highly unlikely that Dormice are present, a survey will be undertaken in August to enable a report to be submitted at Deadline 7. The most common and widely accepted survey method involves the use of artificial nest tubes to determine presence or likely absence. Nest tube surveys use a weighted scoring system which takes into account the months during which survey is undertaken and survey effort. Nest tubes are ideally sampled at intervals across the active season (April-November) and August is one of the key months for survey. In relation to Bats, as identified in SZC Co's **Response to the ExA's Request for Further Information** [REP4-006] SZC Co is proposing to undertake a Preliminary Bat Roost Assessment of the Farnham Hall/Manor Complex and the Farnham Hall Farmhouse complex and provide a summary of the findings at Deadline 7.

ExQ1	Question to:	Question:
Bio.1.19	The Applicant	[APP-461] – Sizewell Link Road In para 7.6.83 dealing with the effect of light on bats of light, the ExA is told that some bats avoid lit areas; the prey of some bats – e.g. moths for barbastelle – may be negatively affected; and that artificial light may attract insects, thus depriving other areas. Then the ExA reads (para 7.6.84) "*For these reasons the bat assemblage in this location is likely to have a low sensitivity to increases in light levels*". Please will the Applicant unpack this conclusion which does not seem to follow from the preceding material. Is there other material in the ES which the ExA should consider? There is similar but sometimes slightly different reasoning e.g. in the chapter on the freight management facility. Please will the Applicant address this question in relation to those chapters as well, pointing to each of the relevant paragraphs being referred to.
	Response by SZC Co. at Deadline 2	In an earlier paragraph 7.5.4 of **Volume 6, Chapter 7** of the **ES** [APP-461], the primary mitigation in relation to lighting impacts is defined as follows in relation to the Sizewell link road: *"The route of the proposed development would be mostly unlit, thereby maintaining a dark corridor, minimising the potential impacts to nocturnal species. To ensure road safety, lighting would be provided at the A12 and B1122 roundabouts. The remaining junctions would have low minor road flows and be similar to existing unlit rural junctions and would be unlit to minimise light spill. Operational lighting design would be compliant with relevant highway standards, and where possible would be chosen to limit stray light. Guidance within the latest Institution of Lighting Professionals Guidance Note: Bats and artificial lighting in the UK[1] [2] would be followed as far as possible. These measures would minimise impacts on nocturnal species, such as bats that may use the nearby tree lines, or habitats for roosting or foraging, and would also maximise the use of reinstated 'bat crossing points".* Similarly, tertiary mitigation is defined in paragraph 7.5.8 as follows:

[1] B. Pearce et al (2007). Recoverability of Sabellaria Spinulosa Following Aggregate Extraction. Aggregate Levy Sustainability Fund MAL0027. Marine Ecological Surveys Limited. Bath, UK.

[2] Institution of Lighting Professionals (2018). Bats and artificial lighting in the UK. Guidance Note 08/2018. ILP/BCT

ExQ1	Question to:	Question:
		"Construction lighting, where required, would be provided at the minimum luminosity and would be designed, positioned and/or directed so as not to unnecessarily intrude on adjacent ecological receptors or habitats. Such measures could include (but not limited to) shielding of luminaires to reduce backward spill of light or use of sensors or timing devices to automatically switch off lighting where appropriate and provision of closed boarded fencing where the site abuts retained woodland. This would minimise impacts on nocturnal species such as bats that may use the nearby tree lines or habitats for commuting, roosting or foraging." A later paragraph 7.6.83 provides general context to the ways in which artificial lighting affects bats, both positive (e.g. foraging around light sources) or negative (e.g. light avoidance). The mitigation outlined above, will minimise the potential adverse impacts identified. The conclusion drawn in paragraph 7.6.84 and is quoted in the question is that *'For these reasons the bat assemblage in this location is likely to have a low sensitivity to increases in light levels'.* This is based primarily on the extent of the proposed lighting, which is minimal and will be designed to minimise attraction of insects (with warm light with no UV content). The only locations with lighting on the proposed Sizewell link road are the A12 and B1122 roundabouts, with other areas being kept dark. Given this, the sensitivity of bats to the proposed lighting is considered low. The sentence would perhaps have been more appropriately phrased as *'For these reasons the bat assemblage in this location is likely to have a low sensitivity to the lighting proposed'.* This phraseology is used elsewhere in the ES in relation to bats and lighting and in each in case the intent is the same, that being to explain that the sensitivity of bats to the *proposed lighting* is low, as follows: In relation to the rail elements of the Sizewell C Project (**Volume 9, Chapter 7** of the **ES** [APP-555]), the assessment follows the same logic. Paragraph 7.5.4 states: *"Operational lighting would be limited to the B1122 (Abbey Road) level crossing and the level crossing at Buckleswood Road. The remaining rail route extension would be unlit. The lighting design for the proposed development would use light fittings chosen to limit stray light. These measures would minimise impacts on nocturnal species such as bats that may use the nearby tree lines or habitats for roosting or foraging".*

ExQ1	Question to:	Question:
		Paragraph 7.5.7 then states: *"…temporary construction lighting would be controlled to minimise light spill on surrounding habitats. The lighting design would use light fittings chosen to limit stray light and minimise impacts on sensitive species. The lighting would also be designed to minimise the visibility from sensitive receptors off-site. This would minimise impacts on nocturnal species such as bats that may use the nearby tree lines or habitats for commuting, roosting or foraging".* Paragraphs 7.6.45 and 7.6.46 then outline the potential impacts upon bats resulting from lighting in the absence of mitigation. The assessment of the sensitivity of the bats is in relation to the proposed lighting, which will be designed to minimise both attraction of insects and minimise avoidance of lit areas (with warm light with no UV content), by reducing light spill and keeping the majority of areas dark. For the northern park and ride (**Volume 3, Chapter 7** of the **ES** [APP-363]), primary mitigation, as described in **section 7.5** of this chapter, includes a 20m buffer between the site and Little Nursery Wood. The operational lighting design will ensure that light levels along the eastern edge of Little Nursery Wood do not exceed 0.1 lux. Close-boarded fence would be installed to prevent light-spill into adjacent Little Nursery Wood. The lighting design for the proposed development would use light fittings chosen to limit stray light. Paragraph 7.6.40 outlines the potential impact to bats in the absence of mitigation. Considering the mitigation which will be in place, including light of a colour designed to minimise impacts to bats, sensitivity to the proposed lighting is considered low. For the southern park and ride (**Volume 4, Chapter 7** of the **ES** [APP-394]), it is stated in **Table 7.3** that '*Primary mitigation (described in **section 7.5**) has been included so that there is a 10 metre (m) buffer between the proposed development, and any external woodland, and a close-boarded fence wherever the proposed development abuts woodland. The operational lighting design has ensured that light levels at the red line boundary do not exceed 0.1lux'*. The potential impacts outlined in paragraph 7.6.26 present the impacts in the absence of mitigation. Considering the mitigation in place, including light of a colour designed to minimise impacts to bats, the sensitivity of bats to the *proposed* lighting is considered low.

ExQ1	Question to:	Question:
		For the main development site (**Volume 2, Chapter 14** of the **ES** [AS-033]), the Lighting Management Plan (**Volume 2, Appendix 2B** of the **ES** [APP-182]) and the updated bat impact assessment, included in **Volume 3, Appendix 2.9.B** of the **ES Addendum** [AS-208], outlines how light will be controlled. In line with these documents, the impact for lighting has been assessed as minor adverse (not significant). For the two village bypass (**Volume 5, Chapter 7** of the **ES** [APP-425]), Primary mitigation is defined in paragraph 7.5.4 as: "*The route of the proposed development would be mostly unlit, thereby maintaining a dark corridor and minimising the potential impacts to nocturnal species. To ensure road safety lighting would be provided at the A12 western roundabout and the A12/A1094 eastern roundabout extending north to highlight the junction to approaching vehicles. The remaining junctions would have low minor road flows, and be similar to existing unlit rural junctions, and would therefore be unlit to minimise light spill. Operational lighting design would be compliant with relevant highway standards and where possible would be chosen to limit light spill. Guidance within the latest Institution of Lighting Professionals Guidance Note: Bats and artificial lighting in the UK*[3] [4]*would be followed as far as possible. These measures would minimise impacts on nocturnal species such as bats that may use the nearby tree lines or habitats for roosting or foraging*. "Tertiary mitigation is stated in paragraph 7.5.7 as: "*Construction lighting, where required, would be provided at the minimum luminosity and would be designed, positioned and/or directed so as not to unnecessarily intrude on adjacent ecological receptors or habitats. Such measures could include (but not limited to) shielding of luminaires to reduce backward spill of light or use of sensors or timing devices to automatically switch off lighting where appropriate and provision of closed boarded fencing where the site abuts retained woodland. This would minimise impacts on nocturnal species such as bats that may use the nearby tree lines or habitats for commuting, roosting or foraging.*" Paragraphs 7.6.85 and 7.6.86 outline potential impacts from lighting in the absence of mitigation. The potential impacts outlined in paragraph 7.6.26 present the impacts in the

[3] S. Gubbay (2007) Defining and Managing Sabellaria spinulosa Reefs: Report of an Inter-Agency Workshop 1-2 May, 2007. JNCC Report No. 405.

[4] Institution of Lighting Professionals (2018). Bats and artificial lighting in the UK. Guidance Note 08/2018. ILP/BCT

ExQ1	Question to:	Question:
		absence of mitigation. Considering the mitigation in place, including light of a colour designed to minimise impacts to bats, sensitivity of bats to the *proposed* lighting is considered low. For the Yoxford roundabout site (**Volume 7, Chapter 7** of the **ES** [APP-494]), primary mitigation is stated in paragraph 7.4.38 as: "*Operational phase lighting would be designed to achieve a balance between providing lighting appropriate for all road users whilst seeking to minimise light-spill into adjacent habitats. Operational lighting design will be compliant with relevant highway standards and use light fittings chosen to limit stray light. Guidance within the latest Institution of Lighting Professionals (ILP) Guidance Note: Bats and artificial lighting in the UK[5] [6] would be followed as far as possible*." Considering the nature of the Yoxford roundabout works, impacts from lighting are considered not significant. For the freight management facility, (**Volume 8, Chapter 7** of the **ES** [APP-523]), primary mitigation (in paragraph 7.5.4) states: *"Lighting would be provided at the perimeter, and parking areas, for security and safety reasons. Lanterns would utilise LED based light fittings to ensure energy efficiency with zero-degree tilt, and lighting columns along the perimeter would use demountable shields to reduce backward spill of light. To further assist on mitigating obtrusive light, a Central Management System has been proposed for the lighting which would be capable of dimming of parts of the site independently from other parts (with the site envisaged to be divided in 6-8 main sections), as usage changes through the day. Guidance within the latest Institution of Lighting Professionals Guidance Note[7] [8] would be followed as far as possible. These measures would minimise impacts on nocturnal species such as bats that use the nearby tree lines or habitats for roosting or foraging."*

[5] Parliament of the United Kingdom, The Common Fisheries Policy (Amendment etc.) (EU Exit) Regulations 2020

[6] Institution of Lighting Professionals (2018). Bats and artificial lighting in the UK. Guidance Note 08/2018. ILP/BCT

[7] British Standards Institution (2012). B2 5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'

[8] Institution of Lighting Professionals (2018). Bats and artificial lighting in the UK. Guidance Note 08/2018. ILP/BCT

ExQ1	Question to:	Question:
		Paragraphs 7.6.25 and 7.6.26 outline the potential impacts to bats from lighting in the absence of mitigation. Considering the mitigation proposed, the sensitivity of the bats to the proposed lighting is considered low.
	Response by RSPB at Deadline 3	We agree with the ExA the conclusion does not follow from the preceding material presented in the ES. We stated our concerns over the assessment and mitigation of lighting impacts on bats in our Written Representations submitted at Deadline 2. The Applicant's response to Bio.1.19 notes 'Guidance within the latest Institution of Lighting Professionals Guidance Note: Bats and artificial lighting in the UK26 27 would be followed as far as possible'. As stated in our Written Representations submitted at Deadline 2 the use of the phrase 'reasonably practicable' with regard to lighting and other statements suggest that health and safety will determine lighting levels during construction, and implementing adaptive mitigation for impacts on bats may be impossible in practice.
	Response by FERN at Deadline 3	A busy road full of lorries and cars at night will not be a dark corridor; the existing wildlife corridor (including the ancient hedgerow) between AW Pond Wood and AW Foxburrow Wood is where the new route crosses in a 1.2m cutting by Pond Wood going down to 4m when it gets to the Ancient Hedgerow; traffic will still be very visible and audible.
	Response by SZC Co. at Deadline 5	On site mitigation plans informed through the bat monitoring approach (defined in and secured by the **TEMMP** (Doc Ref.9.4 (A)) will identify where adaptive mitigation is required, especially in relation to mobile noise and lighting activities. A hierarchal approach to mitigation will be taken under the supervision of the ecological clerk of works (see **CoCP** (Doc Ref. 8.11(C)). In the first instance this will seek to avoid any temporary impacts, through timing, or if this is not possible through the application of additional mitigation such as noise barriers and lighting management.
Bio.1.23	Mrs Susan Eckholdt [RR-0861], The Applicant	In [RR-0861] Mrs Eckholdt states that the *"State of Nature" report "shows, in grim detail, that almost one in five plants are classified as being at risk of extinction, along with 15% of fungi and lichens, 40% of vertebrates and 12% of invertebrates*". Are any of the plants, fungi, lichens, vertebrates and invertebrates referred to present in the areas

ExQ1	Question to:	Question:
		surveyed for the ES? Are they at risk of extinction and is the risk a likely significant effect of the project? If so, to what extent?
	Response by SZC Co. at Deadline 2	The State of Nature Report[9] has classified species being at risk of extinction as those on the GB specific IUCN Red List which are considered to be Critically Endangered, Endangered or Vulnerable. This Report includes 440 plants, 232 fungi and lichens, 111 vertebrates and 405 invertebrates. The species categorised as at risk of extinction have been cross referenced with the survey results to ascertain how many of these species have been recorded within or adjacent to the site during baseline surveys and if any are species likely to be at risk of a significant adverse effect, in the context of the ES. Of the 1188 species considered at risk of extinction in the State of Nature report, the following have been recorded on the main development site and/or the associated development sites: • Four plant species were recorded within and adjacent to the main development site boundary; Deptford Pink (*Dianthus armeria*), Red-tipped Cudweed (*Filago lutescens*), Divided Sedge (*Carex divisa*) and Tubular Water-dropwort (*Oenanthe fistulosa*). • No lichens or bryophytes that fit this criteria were recorded during baseline surveys of the coastal habitats. • 13 invertebrate species that fit this criteria were recorded within the main development site boundary and adjacent areas; a Carabid beetle (*Ophonus parallelus*), a crane fly (*Erioptera meijerei*), Grayling butterfly (*Hipparchia semele*), Norfolk Hawker dragonfly (*Aeshna isoceles*), orange-horned green colonel soldierfly (*Odontomyia angulata*), a Pompilid wasp (*Evagetes pectinipes*), a Sciomyzid fly (*Anticheta brevipennis*), small spotwing snailkiller fly (*Psacadina vittigera*), white admiral butterfly (*Limenitis Camilla*), white-letter hairstreak butterfly (*Satyrium w-album*), a wolf spider (*Hygrolycosa rubrofasciata*), yellow downlooker snipefly (*Rhagio strigosus*), Zerny's spotwing snailkiller fly (*Psacadina zernyi*). • No reptile species recorded on site fit this criteria.

[9] The State of Nature Partnership. The State of Nature Report. 2019 [Online] Available at: https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf

ExQ1	Question to:	Question:
		• 32 bird species that fit this criteria were recorded within the bird survey areas (boundaries of the main development site and associated development sites and adjacent and wider habitats); black redstart (*Phoenicurus ochruros*), black-headed gull (*Chroicocephalus ridibundus*), black-tailed godwit (*Limosa limosa*), Caspian gull (*Larus cachinnans*), cuckoo (*Cuculus canorus*), curlew (*Numenius arquata*), Dartford warbler (*Sylvia undata*), dunlin (*Calidris alpina*), Eurasian bittern (*Botaurus stellaris*), fieldfare (*Turdus pilaris*), great black-backed gull (*Larus marinus*), greenfinch (*Chloris chloris*), herring gull (*Larus argentatus*), house martin (*Delichon urbicum*), kestrel (*Falco tinnunculus*), kittiwake (*Rissa tridactyla*), little tern (*Sternula albifrons*), marsh tit (*Poecile palustris*), mistle thrush (*Turdus viscivorus*) , moorhen (*Gallinula chloropus*), nightingale (*Luscinia megarhynchos*), northern lapwing (*Vanellus vanellus*), pintail (*Anas acuta*), redshank (*Tringa tetanus*), redwing (*Turdus iliacus*), shelduck (*Tadorna tadorna*), starling (*Sturnus vulgaris*), stone-curlew (*Burhinus oedicnemus*), tree sparrow (*Passer montanus*), turtle dove (*Streptopelia turtur*), woodcock (Scolopax rusticola) and woodlark (*Lullula arborea*). • Four mammal species (European hedgehog (*Erinaceus europaeus*), water vole (*Arvicola amphibius*), serotine (*Eptesicus serotinus*) and barbastelle (*Barbastella barbastellus))* that fit the criteria were recorded or are assumed present within the main development site and, in some cases, the associated development site boundaries. • Fungi species that fit this criteria may be present, however, this is currently unknown. A desk study and field survey are planned for 2021 as set out in response to **Question Bio.1.24** in this chapter. At the main development site, the impacts on the plant, invertebrate, bird and mammal species that fit the criteria are assessed in **Volume 2, Chapter 14** of the **ES** [AS-033]. The assessment considers the effects on these species to be as follows: • The effects on plant species (Section 14.7) considered at risk of extinction are minor adverse, which is considered not significant, except for the effect of direct land take on Deptford Pink, which is moderate adverse (significant). A **Deptford Pink Method Statement** was submitted with the **ES Addendum** (**Volume 3, Appendix 2.9.C1** of the **ES Addendum** [AS-209]) which outlines the plan to translocate this species and which was updated in January 2021. Further details are also provided at **Question Bio.1.71** in this chapter.

ExQ1	Question to:	Question:
		• The effects on invertebrate species (Section 14.8) that fit the criteria in The State of Nature report are mostly minor adverse, and considered not significant. This includes the effect of land take on Norfolk Hawker, the protection of which is described in the **Freshwater Fish and Aquatic Invertebrate Mitigation Strategy** included at **Appendix A** to the **CoCP** (8.11(B)). One species, *Evagetes pectinipes*, A Pompilid wasp which is considered RDB1 (an old classification analogous to IUCN Endangered) is part of the invertebrate assemblage recorded within Sizewell Shingle Beaches where the effect of direct land take is moderate adverse (significant), due to the fragmentation of coastal habitats whilst the sea defence was being built and re-instated. • The effects on the bird species considered at risk of extinction (Section 14.12) are considered no more than minor adverse, and not significant. • Of the mammal species that fit the criteria, European hedgehog were scoped out of the detailed assessment due to its widespread distribution in Suffolk and planned tertiary mitigation measures to safeguard this species (Table 14.68). The effects on water vole are minor adverse, considered not significant (Section 14.14c). The effects on bats (Section 14.13) are considered minor adverse, and not significant, except for fragmentation effects on barbastelle which are moderate adverse, and considered significant, in the short term reducing to not significant after construction. Of the species recorded that are subjected to significant adverse effects: • the **Deptford Pink Method Statement** [AS-209] includes a plan to collect and propagate the seeds of the plant in case translocation fails providing resilience to the success of continued presence within the area (see **Question Bio.1.71** in this chapter). • The habitats that support *Evagetes pectinipes,* while subjected to some fragmentation, are extensive north and south along the coast and so this species is unlikely to become extinct in the local area. • For barbastelle on the main development site, a moderate adverse (significant) effect is predicted during construction arising from habitat fragmentation. This is due to the proposed removal of an area (Goose Hill plantation woodland) known to be utilised by barbastelle between areas to the north-east and south-west of the construction area. During the construction phase, there would be retained and new commuting areas through the site meaning that bats will be able to traverse the site. The fragmentation effects on barbastelle arise only during the construction phase and

ExQ1	Question to:	Question:
		mitigation plans, including retaining dark corridors, will provide routes for this species to cross the site during construction. The habitat restoration and creation will mitigate for this impact in the operational phase. At the associated development sites, the impacts on the species that fit the criteria are assessed in the following documents: • Northern park and ride - **Volume 3, Chapter 7** of the **ES** [APP-363] • Southern park and ride - **Volume 4, Chapter 7** of the **ES** [APP-394] • Two village bypass - **Volume 5, Chapter 7** of the **ES** [APP-425] • Sizewell link road - **Volume 6, Chapter 7** of the **ES** [APP-461] • Yoxford and other Highway improvements - **Volume 7, Chapter 7** of the **ES** [APP-494] • Freight management facility - **Volume 8, Chapter 7** of the **ES** [APP-523] • Rail - **Volume 9, Chapter 7** of the **ES** [APP-555] The assessment considers the effects on these species to be as follows: • The breeding and wintering bird assemblage, which included species that for the extinction criteria, were scoped out of detailed assessment at northern park and ride, southern park and ride, Yoxford roundabout, freight management facility and green rail route. • The effects on the breeding bird assemblage recorded at two village bypass and Sizewell link road, which includes species considered at risk of extinction, are considered to be minor adverse, and not significant. • The effect of habitat loss and disturbance on serotine and/or barbastelle is considered to be minor adverse, and considered not significant. northern park and ride, southern park and ride, two village bypass, Sizewell link road and green rail route • Effects on water vole, recorded within habitats on two village bypass, are minor adverse, and considered to be not significant. • European hedgehog were scoped out of the detailed assessment for each associated development site due to its widespread distribution in Suffolk and planned tertiary mitigation measures to safeguard this species It is concluded than none of the species considered at risk of extinction by the State of Nature report will become extinct on a local scale (or greater scale) as a result of the Sizewell C proposals.

ExQ1	Question to:	Question:
	Response by FERN. at Deadline 3	This does not take into account AW Pond Wood, which is Ash Woodland that is i) ancient ii) showing Ash dieback resistance. Ash supports over 1,000 species. it is a nationally important, yet threatened tree. As Pond Wood is showing disease resistance it is being assessed by Kew Botanic Gardens who are working with other government agencies on a project to preserve Ash trees both in situ (retaining this woodland) and ex-situ by DNA sampling and seed collection for the Millennium Seed bank to be able to keep up its stores of viable and healthy Ash tree seed for future generations. It would be key that this Ancient Ash Woodland does not suffer any changes to its environment that may cause damage.
	Response by SZC Co. at Deadline 5	As identified in SZC Co.'s **Response to the ExA's Request for Further Information at Deadline 4** [REP4-006] there would be no land take from Pond Wood and it will be retained in its entirety.
Bio.1.28	Michael Taylor [RR-0792], The Applicant	Please could Mr Taylor expand and explain the points made in [RR-0792] on the headings (i) Cooling Water Systems and (ii) Ecology. Please use the document numbers from the Examination Library and give the relevant paragraph numbers.
	Response by SZC Co. at Deadline 2	The Applicant makes the following comments: Cooling Water Systems: The Hinkley Point C (HPC) project has identified that installation of an Acoustic Fish Deterrent (AFD) system is not feasible nor required from an environmental perspective and is seeking to vary the Water Discharge Activity (WDA) permit to remove the need to install an AFD. The Environment Agency position is that the AFD is required to ensure no impact on the Severn Estuary European Marine Site (under the Habitats Regulations). An appeal against non-determination of the WDA permit variation is currently in progress with an inquiry start date of 8 June. The Sizewell C Project has not proposed an AFD system on the basis that it is not required to mitigate the effects of the proposed cooling water system. In any event, determination of the DCO application will be based on the environmental information submitted with the application and is independent of the appeal process at HPC. The cooling water system intake and outfall tunnels are buried several tens of metres below the seabed and will be constructed by tunnel boring machines. They can have no impact on coastal processes. Four cooling water intake heads (2 per intake tunnel) and two cooling water outfall heads will be placed >3k from the shore, beyond the Sizewell-

ExQ1	Question to:	Question:
		Dunwich Bank and will not impact coastal processes (as detailed in **Section 20.10** of **Volume 2, Chapter 20** (Coastal Geomorphology and Hydrodynamics) of the **ES** [APP-311]). Dredged material will be disposed of locally in a designated disposal area to be licenced by the Marine Management Organisation (MMO) (as described in Schedule 20 of the **draft DCO** (Doc Ref. 3.1(C)). Sediment quality has been tested to demonstrate that there would be no impact on the local ecology and additional sediment sampling and analysis will need to be conducted prior to disposal. The proposed development has considered and assessed the potential impacts from dredge-related activities and the construction and operation of the cooling water system on marine ecology and fisheries receptors in **Sections 22.6** to **22.11** in **Volume 2, Chapter 22** (Marine Ecology and Fisheries) of the **ES** [APP-317] and the residual effects including mitigation measures are detailed in **Section 22.13** of [APP-317], as updated by **Volume 1, Chapter 2** of the **ES Addendum** [AS-181]. The potential impact of the cooling water system on coastal geomorphology and hydrodynamics receptors is assessed in **Section 20.10** of **Volume 2, Chapter 20** (Coastal Geomorphology and Hydrodynamics) of the **ES** [APP-311]. The effects of future climate change and warming sea temperatures in relation to thermal discharges is also considered in **Sections 22.6** to **22.11** in [APP-317] for marine ecology and fisheries receptors. As stated in [APP-317], future entrainment temperatures were considered for the following scenarios accounting for predicted future warming based on UK Climate Projections 09 (UKCP09) rather than UKCP18 as future sea temperatures are not included in the current UKCP18 marine climate predictions. The potential impacts from the proposed development activities during construction, commissioning and operational phases on marine receptors (including designated features) from an Environmental Impact Assessment (EIA) context have been considered and assessed in [APP-311, APP-314, APP-317 and AS-181]. Designated features in the **shadow Habitats Regulations Assessment** (HRA) [APP-145], as updated by the **shadow HRA Addendum** [AS-173], are assessed in a HRA context against the conservation objectives of each relevant designated site. <u>Ecology</u> An assessment of effects on terrestrial ecology and ornithology is presented within **Volume 2, Chapter 14** [AS-033] and **Volumes 3-9, Chapter 7** of the **ES** [APP-363,

ExQ1	Question to:	Question:
		APP-394, APP-425, APP-461, APP-494, APP-523, APP-555] with additional information submitted to the Examining Authority as summarised within the **ES Addendum** [AS-181 to AS-188]. Whilst SZC Co. recognises that there will be impacts on terrestrial ecology and ornithology, the Project has sought to minimise effects, where possible, and embed mitigation and enhancements within design. During construction, works will be carefully managed to minimise impacts on ecology. Species-specific mitigation plans and method statements have been developed for all protected species found to be using the site. Following completion of construction works, the temporary construction area at the main development site would be restored to a new landscape founded on the concept of establishing the Suffolk Coast and Heaths AONB landscape in microcosm, by creating a mosaic of some of its most valued habitats. Once fully established, this habitat 'mosaic' would have a higher biodiversity value than the existing habitats, specifically as existing extensive arable areas would be replaced with new grasslands, heathland, woodlands and scrub. Further details are set out in the **Main Development Site Design and Access Statement** [APP-585 to APP-587 and Doc Ref. 8.1Ad2] and the **Outline Landscape and Ecology Management Plans** for the main development site [REP1-010], two village bypass [AS-262 and AS-263] and the Sizewell link road [AS-264 and AS-265]. Once the habitats are established, the **Biodiversity Net Gain Reports** (refer to the updated reports included within [REP1-004 ,REP1-017, REP1-018, and REP1-019] demonstrate that a net gain of over 19% across the development would be achieved.
	Response by Michael Taylor at Deadline 2	Please refer to [REP2-372] for full response.
	Response by SZC Co. at Deadline 3	Direct Cooling Water Cefas operate the Wavenet network of buoys, data from which are available on the network's webpage (http://wavenet.cefas.co.uk/Map), as the representation states. EDF Energy has operated a wave buoy off Sizewell from February 2008 to the present day. Live data from the wave buoy are displayed on the Wavenet webpage for public viewing, free of charge, by permission of EDF Energy. On Cefas advising SZC Co, as an executive agency of Defra, Cefas is bound by the civil service code of conduct and must provide impartial advice regardless of whether it is providing advice to government or to a third party. Cefas routinely provides advice to the Marine Management Organisation on all elements of marine licensing, however, to avoid

ExQ1	Question to:	Question:
		perceived conflict of interest Cefas stopped providing technical advice to the MMO on NNB projects. The MMO uses a range of other technical advice, for Sizewell specifically from Hydraulics Research Wallingford and ABP Mer. Cefas are internationally recognised as experts in fisheries science and provide SZC Co with technical advice on the potential impacts of cooling water abstraction on fish. The assessments show that SZC Co without an AFD system fitted will have no significant impact on fish populations, although we acknowledge we are not yet agreed with the Environment Agency and Natural England on all elements of the fish assessments. We are aware of the calculations made by Together Against Sizewell C (TASC) – they do not disprove the Cefas assessments at all. AFD systems have not been installed at offshore locations like the intake headworks of HPC and SZC and are considered an unacceptable safety risk. Regarding dredging, all sediments to be dredged and disposed need to be tested every 3 years for chemical contaminants (including radiological contaminants) and approved for disposal by the MMO. At Hinkley, HPC Co strongly disputes all of the claims made my Mr Deere-Jones. <u>Ecology</u> Specifically in respect of biodiversity net gain, updated reports were submitted at Deadline 2 and further information and clarifications are provided in responses to questions Bio 1.260 onwards (see also below). The compensatory habitat approach for SSSI landtake, including Aldhurst farm. is not included in the Biodiverstiy Net Gain (BNG) metric and this is also covered in the responses by SZC Co. to questions **Bio 1.260** onwards provided at Deadline 2. Specially in response to the felling of Coronation Wood, this was undertaken under a separate planning application as explained in the original answer to **Bio 1.68** at Deadline 2 [REP2-100], with full ecological supervision of the works and under relevant protected species licenses. SZC Co. rejects any suggestion that this '*could have resulted in wildlife crime.*' Specifically in relation to Marsh Harriers, the potential for adverse effects on integrity on the European sites, which includes review of the impacts noted by Mr Taylor, has been fully considered in the **Shadow Habitat Regulations Assessment Report** [APP-145 to

ExQ1	Question to:	Question:
		APP-149, AS-173 to AS-178 and REP2-032] and a number of answers to questions at Deadline 2 provided further clarifications.
	Response by RSPB at Deadline 3	We stated our concerns that an AFD has not been proposed for the Application in our Written Representations submitted at Deadline 2 and requested that evidence and case studies around the use of AFDs are presented in order to consider this more fully. We also recommend that figures comparing levels of predicted impingement and entrainment with and without an AFD are provided in order to assess its potential efficacy and inform the consideration of their inclusion within the mitigation proposals. We support the comments of the Environment Agency on their concerns around underestimation of fish mortality and Natural England around the potential for long term impacts of fish depletion on SPA designation bird species and of both the EA and NE on the need to reconsider the provision of an AFD for this Application.
	Response by SZC Co. at Deadline 5	An AFD system has not been proposed at Sizewell C for several reasons. While AFDs may be considered best practice at riverine and onshore coastal abstraction points, an AFD system has never been installed at an offshore location like Sizewell C. The Environment Agency acknowledges this as does Fish Guidance Systems Ltd (arguably the only supplier able to provide such a system). SZC Co. does not dispute the efficacy of AFD systems but to install, maintain and operate a system at the location of the Sizewell C intakes would require either diver or Remotely Operated Vehicles – neither of which is considered safe and/or feasible. Further detail is provided in the AFD Report (Doc Ref. 9.48) to be submitted at Deadline 5. Case studies and a with/without assessment are not provided because SZC Co considers the installation of an AFD unfeasible. The RSPB concerns are noted and specific comments in the RSPB's D2 written representations have been responded to by the **SZC's Comments on Responses from Earlier Deadlines - Appendix P: Marine Ecology Paper - Response to RSPB and SWT** submitted at Deadline 5 (Doc Ref. 9.54). To address impacts on fish directly and potential indirect effects due to localised changes in fish abundance the Applicant has provided two assessment approaches:

ExQ1	Question to:	Question:
		1. Population level assessment: These assessments determine the effects of the station relative to the relevant population comparator and answer the question of whether the station would cause significant effects on fish populations. The assessment approaches are detailed in TR406.v7 [AS-238]. Impingement predictions with and without mitigation measures are provided throughout the ES allowing full transparency and perceived effectiveness of mitigation measures proposed. The latest tables are available in Appendix 7L of REP2-110. It is noteworthy that the MMO in their Deadline 2 Submission to the Planning Inspectorate determined at paragraph 3.2.7 [REP2-140]: *"Notwithstanding these uncertainties* [LVSE and FRR mitigation effectiveness]*, the entrapment estimates indicate that even in the absence of LVSE and FRR mitigation measures, only 4 species exceed the 1% threshold: bass, for which density adjustment substantially reduces assessment of impact; sand goby, for which mortality rate >1% Spawning Stock Biomass (SSB) is not a concern at population level; thin-lipped mullet, for which value is an artefact of the low level of landings and absence of SSB; and eel, for which the applied Equivalent Adult Value (EAV) of 1 is unrealistically high, and is a species most likely to benefit from the FRR. On this basis, the MMO consider there is a good level of confidence that actual impacts to all fish species will not be significant. Therefore, the MMO support the conclusions of the ES."* To address the uncertainties described by the MMO, a sensitivity analysis will be submitted at Deadline 6 addressing uncertainty in FRR efficiency, confidence intervals in impingement predictions and variation in population sizes. The sensitivity analysis will precautionarily assume no benefit from the LVSE heads. **2. Local depletion assessment:** The local depletion assessment is independent but complementary of the population assessment. Focusing on the most restricted spatial scale of impact, the Greater Sizewell Bay and tidal excursion, this assessment considers the potential for the station to deplete fish in the local body of water. The local depletion assessment can be applied, for example, to determine the potential for changes in the availability of fish prey for SPA designated bird species. The assessment approaches were detailed in SPP103.v3 [AS-238]. Following consultation with the Environment Agency and Natural England, SPP103.v4 was provided to statutory stakeholders along with the calculation spreadsheets. An updated version of SPP103 (.v5) will be submitted at Deadline 6 addressing further D2 submissions from the RSPB/SWT, and Natural England.

ExQ1	Question to:	Question:
Bio.1.30	The Applicant	Many IPs have raised concern over the absence of design of the HCDF. Please will the Applicant either; (a) table the design, or (b) explain why it is acceptable to proceed on the basis of the descriptions provided in the Application, pointing exactly to the material on which the Applicant relies. If the Applicant chooses (b), please will it also supply plans, sections and elevations on an OS base of what could be constructed.
	Response by SZC Co. at Deadline 2	At the time of the DCO submission a more detailed design of the HCDF was not available. This is not unusual and does not prevent the assessment of either its role in flood protection or its potential impacts on the environment because the key parameters that define those assessments *are* known. The design of the HCDF has continued and been refined (for example Change 9 in **Volume 1**, **Chapter 2** of the **ES Addendum** [AS-181]). A document providing the illustrative detailed design, including plans and drawings, has been submitted at Deadline 2 (Doc Ref. 9.13). An additional design principle has been added to the **Design and Access Statement** (Doc Ref. 8.1Ad2 (A)) to minimise its seaward extent and further controls will be secured at a future deadline.
	Response by East Suffolk Council at Deadline 3	The issue here is whether the HCDF and SCDF design, we have only included questions and answers in the table where we have a specific comment to make in response which is sufficiently well developed to allow the Coastal Geomorphological assessment to proceed with confidence that it could identify a Worst Case location plan and profile. ESC's view is that given the changes we have seen in plan position and profile since the DCO submission, the parameters given to the SZC Co. Coastal Geomorphology assessment team by the Engineering design team did not include a sufficient allowance for change risk and therefore has not assessed a realistic worst case scenario. Evidence of ongoing change is the new significant seaward advance at the southern end of the HCDF that may now be further seaward than the BLF promontory. This information was included in the recently released Design Report. The Design report is helpful but not complete. E.g. it does not include comprehensive structure profile information at the critical location of the BLF promontory nor the new southern step forward. ESC welcomes the final point regarding the addition of an `additional design principle to minimise its seaward extent'. However, text in the Design Report makes it clear that no change is possible, so this pledge does not appear likely to result in any tangible benefit.
	Response by SZC Co. at Deadline 5	In respect of coastal process and geomorphic impacts, the location of the HCDF is known in sufficient detail for assessment since the intention is to retain the fronting beach

ExQ1	Question to:	Question:
		seaward of the structure in its present position – the assessments of SCDF viability have assessed the rate of sediment loss from the SCDF (a term which can be taken as functionally equivalent to the fronting beach once the SCDF has begun to supply sediment to the system). The assessments of beach volume also indicate that the volumes at either end of the HCDF designs (as submitted in [REP2-116]) are sufficient for the proposed management measures to achieve this aim. The profile of the HCDF is the same at the tie-in with the Sizewell B sea defences as it is along the rest of the Sizewell C frontage. The only difference in this location is that the rock armour is seismically separate from the Sizewell B defences for safety purposes, as shown in Revision 2 of the **Temporary and Permanent Coastal Defence Feature Plans** submitted at Deadline 5 (Doc Ref. 2.5(A)). The seaward extent of the HCDF has been minimised, as the following revisions are included in the above drawing pack: • Paring back the Permanent HCDF at the intersection with the Permanent BLF by 15m. The beach was previously at its narrowest point in this location. This is made possible by removing a turning and an area of hardstanding that was associated with the Permanent BLF on the Northern Mound. • Paring back the main Permanent HCDF frontage along the beach by 5m. • Reducing the extent of temporary sheet piled HCDF on the northern boundary with Minsmere and replacing it with early implementation of part of the permanent HCDF in this location. Further details are set out in **Appendix A of Written Summaries of Oral Submissions made at ISH6: Coastal Geomorphology (14 July 2021)** submitted at Deadline 5 (Doc Ref. 9.46). The Permanent HCDF is now typically only 3m further seaward than in the May 2020 submission and brings the benefit of not needing adaptation during the lifetime of the power station (including decommissioning), unless climate change occurs beyond the

ExQ1	Question to:	Question:
		"reasonably foreseeable" scenario. Further detail on that scenario is set out in Section 3.3(a) of the **Coastal Defences Design Report** [REP2-116]. As set out in the **Coastal Defences Design Report** [REP2-116], the design of the interface with the Sizewell B defences has been refined since the design phase underpinning the May 2020 DCO submission. The Sizewell C Permanent Sea Defences are to be seismically qualified, whereas it has been confirmed that the existing Sizewell B sea defences are not seismically qualified. It is therefore necessary to separate the two defence structures from one another.
Bio.1.32	The Applicant, Natural England, ESC, SCC	Many IPs raise concerns about the shingle beach, including that it is a County Wildlife Site. Please will the Applicant and NE include in their SoCG the following: (a) a summary of the Applicant's view of the effects on the shingle beach; (b) a summary of NE's view of the same; (c) a statement of areas of disagreement; and (d) a statement of what measures should in the view of (a) the Applicant and (b) NE be taken to overcome any disagreement. It also supports dune and shingle habitats and an invertebrate assemblage of national importance, impacted by direct habitat loss as a result of land take for the main platform and new coastal defences. Can the Applicant point to evidence regarding the successful recreation of vegetated shingle and stabilised sand dunes across a heavily modified foreshore at Sizewell B, as described in ES paragraph 14.7.188? With 38.83ha of habitat loss from the CWS predicted, what is the total area (in ha) of replacement habitat to be provided? Can NE comment on the sufficiency of the Applicant's proposals to mitigate the impacts of habitat loss/change, as described in ES paragraphs 4.7.185 – 4.7.191?

ExQ1	Question to:	Question:
		[APP-224] – Suffolk Shingle Beaches CWS. At para 14.7.190 it is said that there would be a permanent irreversible loss of an area of vegetated shingle and sand dune, assessed at para 14.7.191 as a moderate adverse significant effect. Earlier at para 14.7.188 it is explained that the surface will be safeguarded, stored and replaced. How is there a permanent non-reversible loss given that the habitat is to be reinstated – see e.g. the statement at para 14.7.193? If these matters are already addressed in the SoCG between the Applicant and Natural England which was required by the Procedural Directions in the Rule 6 letter, please say so and direct the ExA to the relevant section of that SoCG. Unless these matters are addressed in the SoCG with ESC and SCC (in which case please respond directing the ExA to the relevant parts) please will the Applicant, ESC and SCC each please respond to this question. The ExA imagines that the Applicant's response may well be to refer the ExA to parts of the SoCG with Natural England, but that is not to limit how the Applicant may wish to respond.
	Response by SZC Co. at Deadline 2	SZC Co. would like to clarify the position presented in the **ES** on amount of habitat loss from the Suffolk Shingle Beaches CWS. The 38.83ha mentioned in paragraph 14.7.187 of **Volume 2, Chapter 14** of the **ES** [AS-033] refers to the size of the entire CWS and not the amount of habitat lost. The construction of the new coastal defences, as well as the establishment of the Sizewell C main platform, would require the removal of the existing habitats within the footprint of these structures. The loss of habitats is estimated to be of approximately 2.91ha of vegetated shingle and 4.04ha of vegetated sand dunes from within the CWS (approximately 18% of the designated area). Primary mitigation, described in paragraph 14.7.188 [AS-033] would store existing surface layers of shingle and sand substrate (and seedbank) to place on the new coastal defence to allow re-establishment and recolonization of habitats. Therefore, in the short

ExQ1	Question to:	Question:
		term, habitat loss is expected to be temporary. Re-instated habitats would approximately amount to 3.95ha of vegetated shingle and 5.08ha of vegetated sand dune (paragraph 14.7.86). Paragraph 14.7.188 describes the success of re-instating coastal habitats following the construction of Sizewell B. A 2008 report 'Environmental Product Declaration of electricity from Sizewell B nuclear power station'[10] notes that: "*The shingle beach in front of the power station was extensively disturbed during construction. The area has been restored and replanted with plant communities taken from the site prior to construction, propagated and then replanted. No regular, comparable botanical monitoring has subsequently been undertaken so it is difficult to assess the success of the project and many factors may have influenced the plant communities which are now present.*" While this report does not assess the success of the re-instatement compared with pre-construction habitats, surveys undertaken on the coastal habitats east of Sizewell B on behalf of Suffolk Wildlife Trust in 2003 (**Volume 2, Annex 14A3.3** of the **ES** [APP-229]) recorded a mosaic of vegetation communities within the shingle habitat which included species indicative of vegetated shingle such as Sea Pea (*Lathyrus japonicus*). While this survey does not elude to the success of the re-establishment of habitats following Sizewell B, they are of similar make up and contiguous with habitats to the north and south of the survey area and therefore success can be assumed. A new coastal defence will be constructed and will also comprise a sacrificial shingle barrier with sandy cap in front of the new main sea defence, used to defend the Sizewell C power station. The role of the sacrificial dune would be to minimise coastal erosion and release sediment to the beach face, which would only be activated during a storm event. It is likely that the dune would occasionally be eroded and require repair in order to maintain its volume (as detailed in paragraph 14.4.12 of **Volume 2, Chapter 14** of the **ES** [AS-033]). Paragraph 14.7.189 sets out the implications of future sea level rises and that in the absence of monitoring and some potential maintenance, the habitats established would

[10] EDF Energy. No date. Environmental Product Declaration of electricity from Sizewell B nuclear power station. [Online]. Available at: https://www.edfenergy.com/sites/default/files/sizewell_epd_full.pdf

ExQ1	Question to:	Question:
		likely be more susceptible to erosion in a shorter timeframe. The long-term implications for the coastal shingle habitats have been considered as part of the assessment and needs to be considered in the context of natural processes associated with predicted sea level rises. The effect of habitat loss, looking at the long term, is moderate adverse which is considered **significant**. This coastal habitat supports important plant species, such as Deptford Pink (*Dianthus ameria*), and invertebrate assemblages of national importance. Deptford Pink surveys are on-going to map the location and extent of the population of this species and mitigation measures proposed in a **Deptford Pink Method Statement** (**Volume 3, Appendix 2.9.C1** of the **ES Addendum** [AS-209]) to translocate this species. **Volume 2, Chapter 14** of the **ES** [AS-033] (paragraphs 14.8.65 – 14.8.67) states the effect of coastal habitat loss on the associated invertebrate assemblages supported within this area would be moderate adverse**,** which is considered **significant**, due to the fragmentation of coastal habitats whilst the sea defence was being built and re-instated. The approach to the reinstatement and monitoring of these habitats will be discussed between SZC Co. and Natural England. However, the scope of Natural England's matters of interest within the SoCG to date, in relation to sites, has been on the statutorily designated sites, such as the relevant SAC, SPA, Ramsar sites and the SSSIs and not the non-statutory sites such as the Suffolk Shingle Beaches CWS. So whilst restoration of the beach habitats is touched upon in the SOCG (Doc Ref. 9.10.7), this is primarily by way of reference to the impacts on coastal processes.
	Response by East Suffolk Council at Deadline 2	Part of the Suffolk Shingle Beaches CWS lies on the eastern side of the proposed Sizewell C platform, with the CWS extending south in front of the Sizewell A and Sizewell B stations. ESC's understanding is that in the proposed plans part of the CWS would be permanently lost due to the construction of the Sizewell C hard coastal defence feature (HCDF) – the loss referred to as permanent irreversible in [APP-224] paragraph 14.7.190, and part would be temporarily lost during construction and then reinstated with stored material over part of the HCDF post construction (referenced in [APP-224] paragraph 14.7.188). The intention being that this reinstatement would then allow shingle flora to re-establish. Whilst this mitigation may in theory be possible initially, sea level rise and coastal change is predicted to result in exposure of the hard defence in the operational lifetime of the power station, with its presence meaning that there is no opportunity for any natural

ExQ1	Question to:	Question:
		rollback of the CWS habitats. Despite this no additional measures are proposed to address this impact. Survey work has indicated that the vegetated shingle habitat is of national importance and ESC therefore considers that appropriate long-term mitigation/compensation measures must be secured. ESC also notes that the change to the original submission in relation to coastal defences moves the hard coastal defence feature closer to the sea, with the requirement for recharge of the soft coastal defence then likely to be required earlier in the operational phase. Dependent on the frequency of such recharge activity it is possible that vegetated shingle flora will never adequately re-establish on the reconstructed CWS area and therefore permanent loss of this part of the CWS will occur even earlier in the operational life of the power station. ESC consider that this will result in a permanent impact of at least Moderate Adverse, Significant level which is not mitigated or compensated for as part of the development proposals, ESC do not consider that this is acceptable.
	Response by Suffolk County Council at Deadline 2	Part of the Suffolk Shingle Beaches CWS lies on the eastern side of the proposed Sizewell C platform, with the CWS extending south in front of the Sizewell A and Sizewell B stations. SCC's understanding is that in the proposed plans part of the CWS would be permanently lost due to the construction of the Sizewell C hard coastal defence feature (HCDF) – the loss referred to as permanent irreversible in APP-224 para. 14.7.190, and part would be temporarily lost during construction and then reinstated with stored material over part of the HCDF post construction (referenced in APP-224 para. 14.7.188). The intention being that this reinstatement would then allow shingle flora to re-establish. Whilst this mitigation may in theory be possible initially, sea level rise and coastal change is predicted to result in exposure of the hard defence in the operational lifetime of the power station, with its presence meaning that there is no opportunity for any natural rollback of the CWS habitats. Despite this no additional measures are proposed to address this impact. Survey work has indicated that the vegetated shingle habitat is of national importance and SCC therefore considers that appropriate long-term mitigation/compensation measures must be secured. We also note that the change to the original submission in relation to coastal defences moves the hard coastal defence feature closer to the sea, with the requirement for recharge of the soft coastal defence then likely to be required earlier in the operational phase. Dependent on the frequency of such recharge activity it is possible that vegetated shingle flora will never adequately re-establish on the reconstructed CWS area and

ExQ1	Question to:	Question:
		therefore permanent loss of this part of the CWS will occur even earlier in the operational life of the power station. We consider that this will result in a permanent impact of at least Moderate Adverse, Significant level which is not mitigated or compensated for as part of the development proposals, we do not consider that this is acceptable.
	Response by Natural England at Deadline 2	Within Natural England's Relevant Representations (PINS ref: RR-0878, our ref: 306236, dated 30th September 2020), we provided some general advice on the consideration of Section 41 priority habitats and species and regional and local sites of ecological importance (e.g. County Wildlife Sites) (Natural England issue reference 22, pp. 69-71). However, as highlighted in that response, we will only be providing detailed advice on statutory protected sites or where impacts may involve protected species for which Natural England will assess via its licensing process. In this matter Natural England defers to East Suffolk Council and Suffolk County Council.
	Response by SZC Co. at Deadline 3	The councils make the point that beach recharge could affect the ability of beach vegetation to become established. The following response is made in the **Comments on Councils' Local Impact Report** (Doc Ref. 9.29) and repeated below: Beach recharge will be undertaken as necessary and this will maintain the substrates necessary for these habitats. Modelling to date shows up to seven recharge events over the lifetime of Sizewell C and whilst these would be at fairly regular intervals, given that erosion is storm driven these events could be somewhat erratic. Erosion would occur in 'pockets' along the frontage and recharge would only be required for those sections (i.e. recharge would not be required along the entire length of the sea defence). Given that species characteristic of shingle beach vegetation communities are adapted to what is a naturally dynamic environment, it is considered that recharge events of this type and frequency would not lead to a substantive loss of shingle beach vegetation. The species present immediately after an area has been subject to recharge would simply be the early colonisers, characteristic of the early stages of vegetation establishment. Early colonisers would be annual and biennial species whilst perennial species would generally establish over subsequent years in areas where sediments become more consolidated. This recolonisation mimics the processes which occur naturally after storm events.
	Response by RSPB at Deadline 3	We support East Suffolk Council's response to this question. We have also provided comments on the Preliminary Design and Maintenance Requirements for SZC SCDF Report

ExQ1	Question to:	Question:
		as part of our Deadline 3 submissions raising further questions in line with our Written Representation e.g. paras 3.100 and 3.108 on the potential shortcomings with the Applicant's conclusions on these issues.
	Response by SZC Co. at Deadline 5	The responses of the Councils at Deadline 2 (and, by extension following their support, RSPB), state that sea level rise and coastal change is predicted to expose the HCDF during the station operational lifetime. This is not the case; this projection was not a prediction (as was made explicit throughout the reporting) and was purely to demonstrate the need for mitigation: the proposed mitigation has been assessed as sufficient to prevent exposure into the decommissioning phase (BEEMS Technical Reports TR545 [REP3-032] and TR545 [REP3-048]) and work is ongoing to assess viability to the end of decommissioning or beyond. It is noted, however that this mitigation does not allow for significant natural rollback in front of the HCDF. However, rollback (once the stable dunes presently backing the Minsmere frontage are entirely removed) is unlikely to sustain a community in the long term, since the beach crest is continually recycled naturally. As stated in the response at Deadline 3, in respect of recharge rates and the prospects for manual recharge/recycling to undermine the stability of a vegetated shingle area, the calculated recharge rates as assessed in TR544 [REP3-032] are absolute worst case – maximum beach retreat rates, combined with minimum beach volumes – and presented as an average requirement for intervention of every 7-9 years including 1:107 year storm conditions (as queried in 5.17 and 5.18 of the Deadline 3 representation). However, it should be emphasised that this is unlikely to apply over the whole area simultaneously (indeed, the majority of the HCDF frontage is not eroding at all at present), but only in small sections. The actual interval between recharges of specific sections is likely to be considerably longer. For all other periods, the beach will function exactly as it would otherwise do (i.e. without SZC) and as it does long the SZA and SZB frontages. Paragraph 3.99 of the RSPB-WR [REP2-506) suggests that "but for the application", there is no reason to believe that additional defences will be required and that the designated sites are not at risk for 50-200 years (whereas, by contrast, modelling presented in TR545 demonstrates that the shoreline just north of SZC will be at significant risk of breach in storm events, which 3.123 specifically cites as a major concern, by the end of this century, even without 'accelerated erosion'). The RSPB deadline 3 submission [REP3-074] paragraph 5.14 reiterates concern over erosion promoted by exposed hard points, but it is already the case that erosion is focused on the Minsmere south frontage due to the

ExQ1	Question to:	Question:
		combined influence of Minsmere sluice outfall and SZB salient and the evidence presented in TR545 [REP3-032] and TR544 [REP3-048] makes clear that the SCDF mitigation prevents HCDF exposure and represents a source of additional sediment within this erosive embayment. It is worth noting the shingle ridge at northern Minsmere is lower and of a smaller volume than just north of SZC, so overtopping and breaching in the south should be preceded by overtopping and breaching in the north (where overtopping already occurs) – see response to BIO.1.75. Para. 3.104 posits accelerated erosion due to the structures but the ES assessments identified at worst, that there would be no significant negative effect on the defensive properties of the frontage. This will remain the case for as long as the longshore connectivity of the frontage is maintained, as set out in the CPMMP. Further, the SCDF mitigation proposed has the potential to reduce the significant risk of breach at the tank traps, as it is expected to reinforce this (presently weakest) section of the frontage and increase longevity of this part of the habitat by supplying sediment as the beach retreats. The BEEMS Technical Reports TR545 [REP3-032] and TR544 [REP3-048] address the further comments made by the RSPB deadline 3 submission [REP3-074] regarding the alongshore variation in volume in the SCDF (paragraphs 5.19-22), which has been largely reduced by the reduction in the cross-shore extension of the permanent BLF abutment. The RSPB also indicate in paragraph 3.99 [REP2-506] that increased accretion is undesirable (although the Natural England site survey suggests that accretion would be beneficial for SSSI unit 113). However, there is limited risk of significant net accretion at an eroding site i.e., net transport will still be away from this section – any sediment fed out from the SCDF will be removed from the eroding section at the natural rate, with the net effect of simply slowing the rate of retreat. Paragraph 3.108 recognises that coastal protection techniques allowing natural processes to work where possible, relying on soft defences, can create new, stable areas of shingle, but that it does not always follow that this will restore the assemblages that have been lost. Subsequent paragraphs continue this approach of conceding the potential benefit, but suggesting they may not always be effective. Furthermore, paragraph 3.120 decries a 'static' approach to conservation - however, the SMP for the proposed SZC frontage is in any case 'Hold the Line' and the proposed dynamic, 'working with nature' approach as proposed by the Applicant is aligned with RSPB's preferred approach. The RSPB deadline 3 submission [REP3-074] continues to express concerns that the SCDF will be recharged with (very) coarse shingle and little sand, or even cobbles (paragraph 5.23). The proposed

ExQ1	Question to:	Question:
		sacrificial material of the SCDF is not very coarse shingle or cobbles but the coarser end of the natural (fine pebble) spectrum. This will not inhibit the natural transport of finer shingle & sand up the profile and into the supratidal on adjacent shores – this material will continue to be in continual motion and transport alongshore in suspension and bedload under almost all conditions, exactly as at present. Further, this material will be moved into and out of the natural beach face according to the energetic state of the sea. The additional shingle input from SCDF would bolster the volume of the active lower beach and prevent the otherwise rapid natural shoreline retreat from continually squeezing the drift lines on the upper beach. The RSPB deadline 2 written response [REP2-506] paragraph 3.133 suggested that the Applicant is incorrect to state that SSSI unit 113 has been destroyed through coastal erosion – but also quotes the original Natural England survey report [DEFRA MAGIC] "*This unit has been lost through coastal erosion*" and " …*site visit confirmed that all the unit had gone or if deposition had started to occur again no shingle habitat was present*". RSPB [REP2-506] also identified rollback into the perennial vegetation of Unit 112 and describe 'geographical loss' of the unit and the RSPB deadline 3 submission [REP3-074] continues to argue that this was not what the NE survey concluded (despite the report text indicating: "*This ISA concludes that the unit has been destroyed through natural processes*") 113 – it is not clear to the Applicant what the subtleties of this terminology are intended to convey. However, the RSPB deadline 3 submission [REP3-074] presents imagery from subsequent surveys 2015 and 2021 to illustrate vegetation immediately north of the SZC site and suggest that vegetation has fluctuated but remains present. From the perspective of coastal process, this provides a measure of agreement with the Applicant's proposal that preservation of the active beach volume alongshore with sediment from the SCDF can support re-establishment of supra-tidal vegetated features, since it will preserve the processes generating the drift lines north of SZC. RSPB WR comments [REP2-506] on mitigation and monitoring indicated concern over how trigger points will be defined (for beach mitigation, 3.143) The CPMMP will also include more detailed information on the proposed monitoring of annual drift lines using aerial imagery ([REP2-506] paragraph 3.146 and [REP3-074] paragraphs 5.11-13). With respect to trigger points for mitigation ([REP2-506] paragraph 3.155) these are currently defined based on beach volume assessments and the risk of erosion exposing

ExQ1	Question to:	Question:
		the HCDF. However, the same principal (risk-based definitions of buffer requirements) can be applied to preservation of other specific features. Analyses in BEEMS Technical Report TR544 [REP3-032] indicates that substantial buffers can be expected to remain even after very low frequency events. More detailed definitions of trigger volumes are provided in the CPMMP and, as a live document, the sophistication of the triggers will develop over many years.
Bio.1.47	The Applicant	[APP-224] – para 14.4.10 bullet 5 – primary mitigation, the SSSI crossing. Please will the Applicant submit a set of drawings showing the location, plan, elevations, sections and design of the SSSI crossing, together with the context, ecological and landscape. It is appreciated that the design is a work in progress, but the location, plan, elevations and sections of what is proposed should be capable of being fixed now. If this has been done further to the Rule 17 letter of 25 February 2021 [PD-012] there is no need to duplicate the material. Please however submit any material not sent in response to [PD-012] and also state the Examination Library reference(s) for the material which was submitted.
	Response by SZC Co. at Deadline 2	A full set of drawings relating to the current single span bridge proposals included in the **Accepted Changes (April 2021)** [PDA-004 and PDA-005] were submitted in response to the Rule 17 letter of 25 February 2021 [PD-012]. However, as stated in the answer to **Question G.1.32** in **Chapter 2** (**Part 1**) of this report, in response to feedback from stakeholders following the **Accepted Changes (April 2021)**, a design review was commissioned to determine if the structure could be optimised to further reduce impacts on Sizewell Marshes SSSI. In response to ecological concerns raised by stakeholders, SZC Co. has further optimised the design and proposes to reduce the width of the bridge to approximately 15m once the power station has been built. This would be achieved by removing part of the bridge deck. It is also proposed to raise the soffit level of the bridge in response to stakeholder feedback. Updated indicative plans and further details will be submitted at Deadline 4. Requirement 12C of the draft DCO will be updated at the same time to secure primary mitigation. **Appendix 7E** of this chapter provides three figures which provide the ecological context to the location of the crossing. A new set of figures will be provided for Deadline 4 to align with updated design details referred to above.

ExQ1	Question to:	Question:
	Response by RSPB at Deadline 3	We welcome the proposal to reduce the width of the bridge to approximately 15m once the power station has been built. However, we note that the Applicant proposes to submit updated indicative plans and further details at Deadline 4. We are concerned that only indicative plans will be submitted at Deadline 5 and without full details potential impacts cannot be adequately considered and assessed. We also highlight that Deadline 5 is after the biodiversity ISHs on 15 and 16 July where this issue may arise. We therefore request detailed plans are submitted to the Examination at the earliest opportunity and if possible before the ISH, with adequate time for parties to consider.
	Response by SZC Co. at Deadline 5	These plans have been included within SZC Co's submission at Deadline 5 (Doc Ref. 2.5(A)). These plans have also been shared with the RSPB, SWT, Natural England and the Environment Agency in advance of ISH 5.
Bio.1.48	The Applicant	[APP-224], para 14.4.11, bullet 1. Marsh harrier foraging habitat. Please will the Applicant set out the following in one document: (a) The significance of the marsh harrier – this should cover policy, legal, ecological and any other relevant aspects (b) How it is affected by the Proposed Development? (c) the areas over which it forages over the Minsmere South Levels and Sizewell Marshes SSSI and any other areas where its foraging, breeding or other activities are likely to be affected by the proposed development (d) where the permanent foraging habitat referred to in this bullet "is being established and enhanced within the northern part of the EDF Energy estate" (e) the need for and role of any other areas for marsh harriers which are proposed (including Westleton) (f) state clearly whether the fen meadow compensation areas at Halesworth and Benhall (and if the change request is accepted also at Pakenham) play any role in relation to the marsh harrier. (g) How the SofS should decide whether the area at Westleton is required and whether its compulsory acquisition is justified. (In this regard the Applicant is also referred to the Secretary of State's decision letter on Hornsea Three, Section 6.)

ExQ1	Question to:	Question:
		(g) Any uncertainties over the success of replacement foraging (or other) areas for the marsh harrier and the probabilities of success (h) conclusions in relation to the marsh harrier and the relevant policy, legal and ecological aspects. (i) For the avoidance of doubt, this document should cover but not be limited to s.40 of the Natural Environment and Rural Communities Act 2008, s.28G of the Wildlife and Countryside Act 1981, environmental assessment and the Habitats Regulations, EN-1 and EN-6.
	Response by SZC Co. at Deadline 2	Responses to the points raised in this question are provided in Responses to the points raised in this question are provided in **Appendix 7F** of this chapter.
	Response by RSPB at Deadline 3	The RSPB and SWT have set out our concerns regarding the level of compensation provided by the currently proposed 48.7ha area of dry habitats within the EDF Estate in our Written Representations submitted at Deadline 2. Specifically, we have raised concerns about the level of uplift in prey provision that can be achieved through the management of dry habitats and the uncertainty around the Applicant's calculations of the number of small mammals (key prey species for marsh harriers) that can be provided by this area. We agree with Natural England's comments in their Relevant Representations and repeated in their response to question BIO.1.49 that wetland habitat creation is likely to provide optimal compensatory habitat with greater certainty of success (with regard prey provision for marsh harrier) than the management of dry habitats. However, wetland creation and establishment takes time and any habitats created now may not be fully functional by the time construction commences, hence our concerns about the proposed conversion of c10% of the current compensation area to wet habitats raised in our Written Representations and in our comments on the Marsh Harrier Habitat Report, also submitted at Deadline 3. Therefore, our position remains that wetland habitat would represent the most beneficial habitat provision for foraging marsh harriers with a greater certainty of success as compensation, but based on current timelines, the replacement of any of the currently proposed dry habitat compensation with wet habitats would not be desirable unless it can be made functional by the time construction commences. If this is not possible we advocate for wet habitat creation in addition to the currently proposed dry habitats, as in

ExQ1	Question to:	Question:
		the longer term, this would provide greater benefits for the marsh harrier population, whilst retaining the maximum potential compensatory provision from the dry habitats currently proposed (albeit we argue that this potential is lower than the Applicant suggests). For clarity, we also note and agree with the Applicant's point30 that the wetland habitats at Aldhurst Farm are not likely to benefit foraging marsh harriers from Minsmere as this would require overflight of the construction area, which has been assessed to represent a 'barrier' to marsh harrier flight activity.
	Response by SZC Co. at Deadline 5	As detailed in the **Marsh Harrier Compensation Area Design Update to Include Wetland** report [REP2-119], SZC Co considers that the habitat managements being implemented on the compensatory habitat area will provide sufficient increase in prey availability to compensate for the foraging habitats from which marsh harrier are predicted (on a precautionary basis) to be displaced. The dry areas of habitat have been carefully designed to optimise habitat structure and quality and maximise prey abundance. Both Natural England and the RSPB have attended workshops and reviewed design options to identify the preferred design for the layout of the dry habitats and the selected design is currently in establishment. The development of the wetland component within the compensatory habitat area was introduced to support a request from the RSPB to provide wetlands within the design. It is being created in the first winter of the construction period to ensure that there are no noise impacts to breeding marsh harriers during the excavation of the wetland and to ensure the wetland is created as soon as possible once consent is received. The proposed reedbeds within the wetland component would not be fully established in the subsequent summer. However, the wetland is expected to be a shallow open water body at this stage, with some limited marginal vegetation, which will attract small numbers of waterfowl, waders as well as small passerines drinking on its margins. The waterbody will be in close proximity to tree belts (established and new plantings), and existing long grass areas providing ambush opportunities on the wetland margins for marsh harriers. The wetland would therefore provide valuable marsh harrier foraging habitat during this period. By the second summer, the reedbeds can be expected to be well established. In conclusion, the new wetland is expected to benefit the prey provision to marsh harrier even in its immature state.

ExQ1	Question to:	Question:
		A further submission will be made at Deadline 6 in relation to the habitats being created on-site and the contingency location at Westleton, particularly in relation to prey availability.
Part 2 - Biodiversity and ecology (terrestrial) - Main Development Site **Please note. Owing to the length of [APP-171] and the multiple topics and effects it assessed, the ExA asked the Applicant in [PD-005] to identify each of the headings in a way which clarifies both the subject matter and how each section, sub-section, sub-sub-section and so on sits in relation to preceding sections. As the paragraphs already had a number system separate from the headings the ExA suggested a lettering system. The lettered headings version submitted by the Applicant is at [AS-033]. The full list of headings is at electronic pages 372-381 of [AS-033] (hard copy pages 366-375). References to lettered sections in the questions below on [APP-171] are to those sections.**		
The next set of questions address construction effects on plants and habitats, paragraphs 14.7.22 – 14.7.223		
Bio.1.57	The Applicant, Natural England	[APP-224], section C.a.a.c, especially paras 14.7.62; 65 and 67. (a) It appears that avoiding hydrological effects on Minsmere European Site (sic) is dependent on careful monitoring and control measures. Please explain where these are described and how they are secured in the DCO and / or the s.106 agreement. This should include how they are to be funded. Cross-referencing to the Mitigation route map would also be helpful. Is "Minsmere European Site" (e.g. in para 14.7.67) intended to refer to all the European designations – SAC, SPA and Ramsar? There are several uses of the phrase in the singular in the Chapter and in questions below. (b) Is NE content with these measures? (c) To what extent is the continued operation of the Minsmere Sluice needed? (d) The ExA notes that some IPs have suggested the lifetime of the sluice is shorter than the lifetime of the Proposed Development. Please will the Applicant and NE comment on that, indicating whether they agree and what action is needed in relation to that, if any, is needed to ensure the Proposed Development does not have any likely significant effect.
	Response by SZC Co. at Deadline 2	(a) No significant hydrological effects are predicted on the Minsmere European Site or other habitats during either the construction or operational phases (refer to **Volume 2,**

ExQ1	Question to:	Question:
		Chapter 19 of the **ES** [APP-297]. This conclusion is not dependent upon the proposed hydrological monitoring and the implementation of prescriptive control measures. Continued hydrological monitoring is proposed, as outlined in the Sizewell C Water Monitoring and Response Strategy (**Volume 3, Appendix 2.14.A** of the **ES Addendum** [AS-236]). This states that the purpose of continued monitoring is to demonstrate that changes in the water environment are consistent with the impact assessment. Recognising that timely intervention will be required if an unacceptable change is observed, the strategy sets out the approach to mitigation. The Water Monitoring and Response Strategy and the Water Monitoring Plan define the specific measures that will be secured by Requirement 7 of the **draft DCO** (Doc Ref. 3.1(C)), along with the relationship to the environmental permits and licences that would be necessary. The Water Monitoring Plan would be prepared by SZC Co. and submitted to East Suffolk Council for their approval, following consultation with relevant stakeholders. Together these provide a robust and effective framework of controls for the management of water levels for the duration of the project. (b) No response.is required from the Applicant. (c) SZC Co. recognises concerns of stakeholders regarding the long-term viability of Minsmere Sluice. It neither owns the structure nor has included it within the proposed order limits. No significant hydrological effects are predicted in the vicinity of Minsmere Sluice (refer to **Volume 2, Chapter 19** of the **ES** [APP-297]). Minsmere Sluice is an Environment Agency owned and maintained structure that controls drainage from the Minsmere New River, Leiston Drain and Scott's Hall Drain. It provides controls and limits the ingress of salt water and is tide locked when water levels in the North Sea are high. At low tide drainage of the upstream fluvial system via Minsmere Sluice is via gravity. As set out in (d) below, the Minsmere Sluice was refurbished in 2013 with a 50-year design life and the ongoing operation is set out in the coastal policy. (d) SZC Co. notes that the Shoreline Management Plan (SMP) policy[11] for the wider coast (MIN12.3 and MIN12.4) in the vicinity of Minsmere Sluice is managed realignment, whereas the position for Minsmere Sluice is for it to be maintained. Consistent with the

[11] Suffolk Shoreline Management Plan (SMP7). [Online]. Available at: http://www.suffolksmp2.org.uk/policy2/smp7index.php

ExQ1	Question to:	Question:
		policy stated in the SMP, the Environment Agency refurbished Minsmere Sluice in 2013 and this work was completed with a 50 year design life. This is the current policy for coastal management that the Sizewell C Project will need to comply with.
	Response by Natural England at Deadline 2	b) We have addressed groundwater impacts in relation to the Minsmere to Walberswick sites within our Relevant Representations (PINS ref: RR-0878, our ref: 306236, dated 30th Sep 2020): *"Drawdown during the construction phase is limited to the very southern edge of the site adjacent to the platform and is temporary in nature. The drainage strategy and code of construction practice will mitigate against issues of increased discharge or run-off from the MDS during construction and operation. This also applies to the Sizewell Link Road. However, there is an important assumption here that the Drainage Strategy and Code of Construction Practice will be rigorously implemented. We recommend that these mitigation measures are secured in the requirements of the DCO. We advise that there is unlikely to be significant hydrological impacts on the following sites:* • *Minsmere to Walberswick Heath and Marshes SAC* • *Minsmere- Walberswick SPA* • *Minsmere- Walberswick Ramsar site* • *Minsmere- Walberswick SSSI"* d) The Minsmere Sluice is managed and maintained by the Environment Agency who would be best placed to answer this question.
	Response by SZC Co. at Deadline 3	No further comments to add to SZC Co. response for Deadline 2.
	Response by Environment Agency at Deadline 3	(d) The Environment Agency owns and maintains the Minsmere Sluice. The lifetime of the sluice is shorter than the lifetime of the development. The 2013 Minsmere sluice refurbishment project was appraised over 50 years, this does not represent a 50 year design life. The 2013 Project Appraisal Report states: 3.2.12 Due to rising sea levels, it is expected that within 50 years the Minsmere Tidal Sluice will no longer be able to drain the hinterland via gravity. At this point in time a

ExQ1	Question to:	Question:
		change to the existing management approach will be needed (this could be either a pumped system, drainage completely abandoned, an alternative location of the sluice and / or line of defence). There are numerous factors that will contribute to this decision (as outlined in the Minsmere Sea Defences Technical Report, Black & Veatch, 2009), but under the current decision framework it is expected that we will withdraw from flood risk management and allow natural coastal change to happen. To reflect this, we have assumed an appraisal period (in terms of whole life costs) of 50 years, assuming that we continue with the current management approach over this time frame. Objective 1 – Refurbish the Minsmere Tidal Sluice so that it can continue to provide a coastal and fluvial flood risk management function for the Natura 2000 site, in accordance with the Habitat Regulations. Refurbishment works to enable the maintenance frequency to be reduced from annual maintenance to five to eight yearly maintenance. Refurbishment to be sufficient to avoid the need for further capital investment over the next 20 years. The 2013 project refurbished elements of the sluice chamber. The outfall element of the system is likely to need some, potentially significant, works in future years. Our strategic objectives for the site remain in alignment with the Shoreline Management Plan policy. Subject to shoreline erosion rates being as predicted in the Plan and funding availability we anticipate being able to continue maintaining Minsmere Sluice into the long term (<2055). Beyond 2055, coastal erosion or sea level rise (possibly both) will likely render the location unsustainable due to sea flooding frequency or drainage limitations
	Response by RSPB at Deadline 3	(b) We note and support NE's response provided in their relevant representation and repeated in response to ExA Written Question Bio.1.57 groundwater impacts in relation to the Minsmere to Walberswick sites within our Relevant Representations (PINS ref: RR-0878, our ref: 306236, dated 30th Sep 2020): The drainage strategy and code of construction practice will mitigate against issues of increased discharge or run-off from the MDS during construction and operation. However, there is an important assumption here that the Drainage Strategy and Code of Construction Practice will be rigorously implemented. We recommend that these mitigation measures are secured in the requirements of the DCO. We advise that there is unlikely to be significant hydrological impacts on the following sites: • Minsmere to Walberswick Heath and Marshes SAC • Minsmere-Walberswick SPA

ExQ1	Question to:	Question:
		• Minsmere-Walberswick Ramsar site • Minsmere-Walberswick SSSI Therefore, it is imperative that the measures proposed in the Outline Drainage Strategy are rigorously implemented to ensure continued protection of the neighbouring Minsmere to Walberswick SAC, SPA, Ramsar site and SSSI and Sizewell Marshes SSSI. We have provided a response to the Outline Drainage Strategy as part of our Deadline 3 submission identifying a number of items still to be resolved. (d) Our understanding is that all the flood modelling presented has been developed on the basis of the existing drainage including the Minsmere Sluice and does not account for the eventuality of the Minsmere Sluice being potentially unavailable for drainage from 2063 onwards. We also note that gravity drainage of the sluice may be impeded by sea level rise effects ahead of this time. We believe the Applicant's answer has not acknowledged the considerations for hydrological impacts and that their answer addresses coastal processes, which is not relevant to this question. We would welcome further clarification on this, as the potential hydrological impacts relate to the concerns raised in our Written Representation.
	Response by SZC Co. at Deadline 5	(b) SZC Co. has reviewed RSPB's response on the Outline Drainage Strategy and will provide a separate response at Deadline 6. (d) SZC Co. has completed sensitivity testing within the hydraulic modelling, including an assessment of the impact of a 70% blockage of the Minsmere Sluice structure, as part of an assessment approach agreed with the Environment Agency. From this assessment it has been determined that the safety of the Project during extreme events in the future does not rely on the ongoing maintenance, operation or functioning of the Minsmere Sluice. In the future, due to sea level rise, the extreme sea levels will have increased such that the Minsmere Sluice will be tidally locked during extreme events and therefore it will not be operational in these future scenarios. The normal operation and safety of the Project in the future does not rely on the ongoing maintenance, operation or functioning of the Minsmere Sluice. Under each of these conditions there is negligible impact caused by the Project on the operation of the sluice and thus on the designated habitats. The mechanisms are

ExQ1	Question to:	Question:
		considered further in the technical note 'Minsmere Sluice Operation Evaluation Technical Note' which is anticipated to be submitted at Deadline 6.
Bio.1.65	The Applicant	[APP-224] para 14.7.134. Recreation of fen meadow habitat. Please will the Applicant explain the results of the further work to maximise the likelihood of successful fen meadow habitat. If successful establishment cannot be guaranteed, what does the Applicant propose? The ExA recognise that habitat proposed in the change request at Pakenham is what appears to be a fallback. If the change request in relation to Pakenham is accepted, what is the likelihood of success there and what is to happen if that also is unsuccessful? How should the SofS decide whether the area at Pakenham is required and whether their compulsory acquisition is justified. (In this regard the Applicant is also referred to the Secretary of State's decision letter on Hornsea Three, Section 6.) The Applicant and NE will be aware that this is fen meadow issue on which NE have stated in their relevant representation [RR-0878] that they have fundamental concerns which it may not be possible to overcome in the form of the proposals at 30 September 2020. The ExA has asked for an SoCG with NE to cover all matters raised by NE. There is clearly a significant difference between NE and the Applicant. The ExA hopes that NE and the Applicant can come to an agreed position. If the position leaves NE's concern in place the ExA expects the different positions to be fully explained and argued in the SoCG. To the extent that they are not, the response to these questions should set them out, but the ExA prefers to see the arguments in one place, rather than in several documents. The setting out of positions and arguments in an SoCG should not stop the parties from continuing to resolve issues and find common ground.
	Response by SZC Co. at Deadline 2	The answer to this question is presented in three sections below. In response to the first paragraph: The further work referred to in paragraph 14.7.134 of **Volume 2, Chapter 14** of the **ES** [AS-033] is detailed in a **Fen Meadow Strategy** [**Section 2.9D** of AS-209].The further work referred to in paragraph 14.7.134 of **Volume 2, Chapter 14** of the **ES** [AS-033] is detailed in a **Fen Meadow Strategy** [AS-209].

ExQ1	Question to:	Question:

		The **Fen Meadow Strategy** [AS-209] has been prepared to define SZC Co's commitment to provide appropriate compensation measures to mitigate for the loss of fen meadow habitat through the creation of compensatory fen meadow habitats, and the provision of a contingency fund.
		The **Fen Meadow Strategy** [AS-209] provides the following:
		Section 4 describes studies undertaken to date (i.e. the **Fen Meadow Compensation Study** [APP-258]) to identify potential compensation sites, which comprised two phases:
		• Phase 1 comprised a desk based screening exercise which identified five sites for further investigation [Paragraph 4.1.2-4.1.4 in AS-209]
		  • Site No. 10 – Aldecar Lane (Benhall site, in part)
		  • Site No. 11 – Watering Lane (Benhall site, in part)
		  • Site No. 28 – Blyth Road (Halesworth site)
		  • Site No. 33 – Stratford St Andrew, and
		  • Site No. 54 – Pakenham,
		• Phase 2 concluded that each of the sites visited had good potential for the development of fen meadow [Paragraphs 4.1.5-4.1.8 in AS-209]. Detailed site investigations are underway at each site (Paragraph 4.1.9 AS-209);
		Section 4 [AS-209] also describes the development of a Fen Meadow Plan [Paragraph 4.1.10 – 4.1.11 in AS-209].
		• The Fen Meadow Plan will be developed over a series of three reports, with the final Plan drawing upon 12 months of monitoring. The final plan will be submitted for approval, as detailed [Paragraph 4.1.11 in AS-209].
		As stated at 4.1.11, it is proposed that the first draft of the Fen Meadow Plan is submitted later in the examination process.
		Section 5 of the **Fen Meadow Strategy** [AS-209] outlines the approach for delivering compensatory fen meadow habitat, the interfaces with stakeholders and the monitoring and remedial actions which will be deployed to maximise the chances of successfully establishing the habitat [Paragraphs 5.1.1 – 5.1.15 of AS-209].
		Section 6 of the **Fen Meadow Strategy** [AS-209] describes the Test of Success [Paras 6.1.1-6.1.4 in AS-209], and **Section 7** described contingency provisions.

ExQ1	Question to:	Question:
		This Applicant is confident that it will be able to create the appropriate quantum of compensatory fen meadow habitats given the suitability of the sites, in order to further ensure the loss is adequately compensated for, and to recognise the risks which might arise outside of Sizewell C's control, contingency provisions are also detailed [Paragraphs 7.1.2- 7.1.3 in AS-209]. Evidence for successful establishment of fen meadows is provided in the answer to question **Bio.1.86**. The Pakenham site is not a '*fallback'* site and forms an integral part of the proposals in the **Fen Meadow Strategy** [AS-209] and has the same status as the two sites at Benhall and Halesworth. It has been included to increase the quantum of fen meadow delivered, as a result of further engagement with stakeholders and to address their concerns [Paragraphs 4.1.6 in AS-209]. The Pakenham site has good potential for fen meadow habitat (there are two area of existing fen meadow vegetation already present). As well as increasing the quantum of compensatory fen meadow that is created, the use of multiple sites will also reduce any risks of overall delivery as individual sites (or parts of sites) may have unforeseen constraints or not respond to the management interventions. An understanding of the factors which will determine success and evidence for successful establishment of fen meadows at other locations, both of which give SZC Co. confidence that the habitats will be successfully created, are provided in the answer to **Question Bio.1.86** in this chapter. However, should the fen meadow habitat creation not be successful, the contingency provisions referred to in paragraphs 7.1.1-7.1.3 of the **Fen Meadow Strategy** [AS-209] will apply. In response to the second paragraph: The Pakenham site has been included to increase the quantum of fen meadow delivered, as a result of further engagement with stakeholders and to address their concerns [Paragraph 4.1.6 in AS-209]. Specifically, the stakeholders including Natural England [RR-0878] expect the compensatory habitat to extend to nine times the area of fen meadow to be lost from the Sizewell Marshes SSSI. This will require up to 4.5 hectares of replacement habitat. During the Phase 2 investigation, areas of potential for fen meadow habitat were identified as being a primary locus (the area with the greatest potential for fen meadow), or a potential additional area (an area with lower potential within which there was greater uncertainty of success). A total of 3.2ha of primary locus for fen meadow was identified on the Benhall and Halesworth sites (**Volume 2, Appendix 14C4**

ExQ1	Question to:	Question:
		of the **ES** [APP-258]). Stakeholder feedback was that this was insufficient and needed to be increased. Therefore, the Pakenham site has been included, which increases the primary locus for fen meadow by 4.9 hectares, to a total of 8.1 hectares. It is not envisaged that it is possible to deliver fen meadow across all parts of each of the primary loci (see comments on risk above). As noted above the Pakenham site is a third site with the same status as the original two sites and is not a *'fallback'* site. The **Fen Meadow Strategy** [AS-209] requires that 4.5ha is delivered across any combination of the three sites. The Applicant does not envisage the Secretary of State needing to decide whether the Pakenham site is required in preference to the Halesworth or Benhall sites, as the sites have the same status. All three sites are required under the **Fen Meadow Strategy** [AS-209] to deliver the quantum requested by Natural England and others and to reduce risks. In response to the third paragraph: The Natural England relevant representation [RR-0878] requested that the Applicant commit to both a fen meadow strategy and the creation of fen meadow habitat. SZC Co. has subsequently submitted the **Fen Meadow Strategy** [AS-209] in which it commits to creation of compensatory fen meadow habitat and SZC Co will continue to work with Natural England to present an agreed position on fen meadow during the examination and record this though the SoCG process. It is proposed that the **Fen Meadow Strategy** [AS-209] would be secured via way of draft Requirement 14.A of the **draft DCO** (Doc Ref. 3.1(C)).
	Response by RSPB at Deadline 3	We consider the Fen Meadow Strategy does not fully explain 'the results of the further work to maximise the likelihood of successful fen meadow habitat' as requested by the ExA because the monitoring studies are ongoing. The Applicant proposes to submit a first draft of the Fen Meadow Plan later in the Examination and the full monitoring results and final Plan will not be available until after the close of the Examination. This is one of many significant concerns over the fen meadow strategy detailed in our Written Representations submitted at Deadline 2. We note and support Natural England's conclusion that their fundamental concern over the permanent loss of SSSI fen meadow habitat may not be resolved. Due to the many concerns about adequacy, we strongly agree contingency measures should be put in place

ExQ1	Question to:	Question:
		now and recommend proposals are submitted to the Examination, so that they can be taken account of by the ExA. We also agree with Natural England the potential impacts from the proposed Pakenham Fen site on the features of the adjacent Pakenham Meadows SSSI and the potential effects of the proposed Benhall compensation site on the Snape Wetlands (Abbey Farm compensation site) should be assessed. We dispute that Appendix 7H referred to in the answer to question Bio.1.86 contains 'evidence for successful establishment of fen meadows' as claimed by the applicant. The only example of fen meadow (re)creation that the Applicant is able to provide (at Thelnetham) sounds like it has not so far been successful because of dense rush growth & colonisation by Common Reed i.e. they have not been able to provide an example of successful (re)creation of fen-meadow. As the Applicant also points out, a key requisite for the creation & maintenance of botanically rich fen meadow is having suitable hydrology & suitable water chemistry. In Section 1.2.9 of Appendix H they state: 'However this is now achieved via providing a clear water source (where possible) and topsoil removal'. The phrase 'providing a clear water source (where possible)' seems pretty ambiguous. Is the water source of suitable chemical composition and what does 'where possible' mean? We agree with the Applicant the Fen Meadow Strategy [AS-209] should be secured via way of draft Requirement 14.A of the draft DCO, however our view is that a detailed Strategy should be provided now to give the ExA confidence as to the possibility of (re) creation.
	Response by SZC Co. at Deadline 5	The draft Fen Meadow Plan will be submitted at Deadline 6. It will contain a review of the feasibility of the sites and more detailed proposals at each location as relevant, supported by hydrological and ecological data. Natural England stated in comments at Stage 4 pre-application consultation (2019): *'We advise that the extent of compensatory habitat required is 9x that which would be destroyed by the development; this is considered a suitable multiplier given the complexity of habitat type to be lost, the risk and uncertainty involved in the habitat*

ExQ1	Question to:	Question:
		restoration being successful and the time to fully functioning habitat…' The concept of risk of non or partial delivery is therefore built into the multiplier. Natural England in their response to **Bio.1.86** at Deadline 2 [REP2-152] state *'In regard to relevant examples of fen meadow recreation it must be acknowledged that the feasibility of re-creating fen meadow is not well evidenced with only a handful of successful examples within published literature (Larmers et al. 2002; McBride et al. 2011; Larmers et al. 2015; Klimkowska et al. 2019).'* In fact, the 'handful of successful examples' referenced by Natural England, provide helpful evidence of the likelihood of success. The main example used in the SZC Co. response at **Bio 1.86** is at Parkers Piece, Thelnetham in West Suffolk, as noted by the RSPB. At this site restoration work commenced in 2009, when degraded peat on the valley margin was removed prior to the introduction of strewn hay from a nearby fen meadow. The subsequent immature fen meadow is managed by a combination of cutting and mowing, steered by vegetation monitoring. There have been some problems with invading willows and reeds as SZC Co. has acknowledged, but the project is managed by volunteers and resources are clearly constrained. The Sizewell C fen meadow sites would be sufficiently well resourced and management would ensure that such encroachment does not occur. The potential impacts from the proposed Pakenham Fen site on the features of the adjacent Pakenham Meadows SSSI are considered within the **Volume 1, Chapter of the ES Addendum** in January 2021 at paragraph 2.9.84 to 2.9.85 and 2.9.87 [AS-181] and will be further considered as necessary, particularly in relation to any hydrological matters in the draft Fen Meadow Plan. The potential effects of the proposed Benhall compensation site on the Snape Wetlands (Abbey Farm compensation site) have been assessed in **SZC's Comments on Responses from Earlier Deadlines** submitted at Deadline 5 (Doc Ref. 9.54).

ExQ1	Question to:	Question:
Bio.1.72	The Applicant	[APP-224] – Construction, Inter-relationship effects, paras 14.7.222 – 223. Please explain the level of significance of inter-relationship effects and how the manipulation of water levels referred to in para 14.7.223 is secured in the DCO / s.106 and the tests and criteria for intervention.
	Response by SZC Co. at Deadline 2	There is potential for the inter-relationship effect to be significant in the absence of the mitigation stipulated. Due to the mitigation measures which have been detailed, the inter-relationship effects are not anticipated to be significant. In the absence of mitigation, the botanical assemblage of the Sizewell Marshes SSSI could be affected and potential changes to local hydrology and air quality could act together to cause changes to vegetation structure, type and composition which could be significant and adversely affect the nationally important site. The local hydrological changes are considered to be the most significance. Para 14.7.278 of **Volume 2, Chapter 14** of the **ES** [AS-033] states that the fen meadow habitats within the Sizewell Marshes SSSI have been subject to a long running monitoring programme undertaken on behalf of the Suffolk Wildlife Trust and SZC Co. During construction and operation of Sizewell C, this monitoring programme would continue, in particular recording the extent of the two sensitive plant assemblages within the Grade 1 and 2 fen meadow, namely low growing species and species indicative of nutrient poor conditions. The botanical monitoring is secured through the **Terrestrial Ecology Monitoring and Mitigation Plan** (TEMMP) [REP1-016] that was submitted at Deadline 1 and is secured under Requirement 4 of the **draft DCO** (Doc Ref. 3.1(C)); the approach and the potential interventions are described in **Table 3.1**. The **Fen Meadow Strategy** included at **Appendix 2.9.D** of the **ES Addendum** [AS-209] outlines the approach for delivering compensatory fen meadow habitats. It states that an Environment Review Group would be established under the terms of the **Draft Deed of Obligation** (Doc Ref. 8.17(C)) and would be responsible for overseeing the establishment of the compensatory habitat works including the delivery of the Fen Meadow Plan. The **Fen Meadow Strategy** [AS-209] also established an approach to site establishment and ongoing management between years 2 and 5 and years 6 and 10 which include monitoring of water levels and habitat monitoring. Continued hydrological monitoring is proposed, as outlined in **Volume 3, Appendix 2.14.A** (Water Monitoring and Response Strategy) of the **ES Addendum** [AS-236]. This

ExQ1	Question to:	Question:
		states that the purpose of continued monitoring is to demonstrate that changes in the water environment are consistent with the impact assessment. The **Water Monitoring and Response Strategy** [AS-236], together with and Requirement 7 of the **draft DCO** (Doc Ref. 3.1(C)), commits to the development of a Water Monitoring Plan, which would include trigger/action levels to be agreed with stakeholders. Recognising that timely intervention will be required if an unacceptable change is observed, the strategy sets out the approach to mitigation. The **Water Monitoring and Response Strategy** defines the specific measures that will be secured by Requirement 7 of the **draft DCO** (Doc Ref. 3.1(C)) and which will be incorporated into a water monitoring plan, along with the relationship to the environmental permits and licences that would be necessary. The Water Monitoring Plan would be prepared by SZC Co. and submitted to East Suffolk Council for their approval, following consultation with relevant stakeholders. Together these provide a robust and effective framework of controls for the management of water levels for the duration of the project.
	Response by RSPB at Deadline 3	Our concerns over potential hydrological impacts on the fen meadow habitats within the Sizewell Marshes SSSI are detailed in our Written Representations submitted at Deadline 2. We also refer the ExA to the detailed consideration of the issues in Friends of the Earth and their Experts (Dr Rob Low, Dr David Mould and Jon Graham) Written Representations: "A critical review of Sizewell C Co's site characterisation, impact assessment, and proposals for impact mitigation, in relation to risks posed to the ecohydrological integrity of Sizewell Marshes SSSI."
	Response by SZC Co. at Deadline 5	SZC Co. refer the ExA to the response provided within Section 15.4 of SZC Co.'s **Comments on Written Representations** [REP3-042].
The next set of questions addresses operational effects on plants and habitats, paragraphs 14.7.224 – 14.7.269		
No further comments received at Deadline 3.		
The next set of questions address mitigation and monitoring for plants and habitats, paragraphs 14.7.270 - 280		

ExQ1	Question to:	Question:
Bio.1.77	The Applicant	[APP-224] – para 14.7.272. Please will the Applicant explain how it will choose between the three opportunities at para 14.7.271 and explain where the detail of those proposals is set out. In relation to the wet woodland strategy proposed in para 14.7.272, it seems to the ExA at this stage that this is likely to need to be secured by a requirement, which is likely to have to incorporate goals, criteria and tests (and is likely to be complex). Please will the Applicant and Natural England, address this in the SoCG for Deadline 2. The ExA notes that the Mitigation Route Map [APP-616] MDS TE42 states that the Applicant "will develop further its wet woodland strategy in discussion with Natural England and other ecological stakeholders". Please will the Applicant and Natural England indicate progress on that, here or in the SoCG?
	Response by SZC Co. at Deadline 2	The Applicant shared a draft **Wet Woodland Strategy** with ecological stakeholders, discussed this in a workshop, revised the document as appropriate and submitted the strategy into Deadline 1 [REP1-020]. The consensus was reached that the preferable approach is to provide additional wet woodland (above the 0.7ha proposed on site) at the Fen Meadow compensation sites, although not at the expense of fen meadow habitats proposed at these locations. This approach avoids the need to use newly created reedbed habitats, which would have habitat value in their own right, and purposely transition them to wet woodland. With the confirmation that the Pakenham site now forms part of the application, the Applicant can confirm that under the **Wet Woodland Strategy** [REP1-020], at least 2.36ha of wet woodland (to create a total of 3.06ha, with the 0.7ha on site provision) would be delivered at Benhall and / or Pakenham. At both sites areas of wet Alder woodland are immediately adjacent to the sites and could be extended into the site by manipulating water levels and/or or by some local shallow excavation of topsoil. The Applicant will seek to agree the **Wet Woodland Strategy** [REP1-020] with Natural England via the SoCG. The Applicant confirms that the **Wet Woodland Strategy** [REP1-020] is suitable for securing under requirement and a draft requirement 14B in the **draft DCO** (Doc Ref. 3.1(C)) is designed for this purpose.

ExQ1	Question to:	Question:
	Response by RSPB at Deadline 3	Our concerns over the Wet Woodland Strategy are detailed in our Written Representations, submitted at Deadline 2. We agree with Natural England that DCO requirement 14B should include timing for approval of a wet woodland strategy before vegetation clearance commences. We also raised concerns the wet woodland will not be functional for at least 10 years following loss of the SSSI habitat in our Written Representations submitted at Deadline 2. Compensation habitat should be functional before habitat loss occurs.
	Response by SZC Co. at Deadline 5	SZC Co. has provided a response to this query within paragraph 11.39.14 of **Comments on Written Representations** [REP3-042] in response to Issue 48-50 raised by Natural England [REP2-153]. Requirement 14B was updated at Deadline 2 to prevent vegetation clearance within the Sizewell Marsh SSSI until a Wet Woodland Plan has first been submitted and approved by ESC, following consultation with Natural England. This plan would include a timetable for the proposed wet woodland works, consistent with the RSPB and Natural England's request.
Bio.1.78	The Applicant, ESC, SCC, Natural England	[APP-224] para 14.7.274, para 14.7.280. Is there a threshold for requiring local mitigation measures? Who are the "local land managers"? What happens if they do not agree to the measures? Where is this secured? The ExA would like to understand the way in which the monitoring and any measures needed, depending on the results of the monitoring, are to be secured in the DCO / s.106, how the work is to be regulated, what are the current criteria and how they are kept under review if appropriate. The ExA would be grateful if ESC and SCC in particular would explain how they see enforcement working. NE should also give their view.
	Response by SZC Co. at Deadline 2	Impacts of Local (or below) 'significance' are dealt with through the implementation of best practice measures and mitigation to avoid and minimise adverse effects. As detailed in the methodology sections of each of the Environmental Statement chapters, the CIEEM approach has been adopted. However, a threshold has been set at Local Level

ExQ1	Question to:	Question:
		(or lower) that effects would not be significant due to the best practices approaches to be implemented as noted above. These are detailed in the **CoCP** (Doc Ref. 8.11(B)), **TEMMP** [REP1-016] and **oLEMP** [REP1-010] and secured by Requirements 7, 4 and 14 of the **draft DCO** (Doc Ref. 3.1(C)) respectively. The **TEMMP** [REP1-016] has been informed by stakeholder feedback and the **oLEMP** [REP1-010] will be further detailed in the Landscape and Ecology Management Plan that will be prepared alongside the landscape details secured by Requirement 14 of the **draft DCO** (Doc Ref. 3.1(C)). These documents will also be supplemented by protected species licensing conditions (where appropriate). For the associated development sites, any mitigation or enhancements on third party land which is to be returned to landowners would be secured as set out in the **Draft Deed of Obligation** (Doc Ref. 8.17(C)). However, the majority of the mitigation measures implemented would be located within the operational scheme boundary to safeguard these ecological requirements. On the main development site, these measures would remain within EDF Energy ownership and control.
	Response by East Suffolk Council at Deadline 2	ESC considers that it is unlikely that there is a single threshold for requiring the implementation of further local mitigation measures as it will be dependent on exactly what impact is occurring and which habitat or species is being affected. ESC understand that local land managers include the RSPB and the National Trust who own and/or manage a large part of the relevant designated sites. ESC also understand that both of these organisations are engaged in the examination in relation to this matter. In relation to securing the required monitoring and mitigation measures, it is ESC's understanding that the S106 will secure the necessary measures and their funding (as part of the Minsmere and Sandlings (north) Mitigation Measures; the Minsmere and Sandlings (north) Contingency Fund; the Minsmere and Sandlings (north) Recreational Monitoring Plan; the European Sites Mitigation Measures; the European Sites Access Contingency Fund and the European Sites Recreational Monitoring Plan). The implementation of these mitigation and monitoring measures will be overseen by the Ecology Working Group and the Environmental Review Group, both of these groups include representatives from ESC, SCC and NE. Whilst ESC are content with the principle of the mechanisms described for delivering this particular mitigation and monitoring, ESC have not yet seen the details for the mitigation and monitoring plans or the contingency funds. ESC therefore reserves the right to make further comments on this topic once this information is available.

ExQ1	Question to:	Question:
	Response by Suffolk County Council at Deadline 2	SCC considers it unlikely that there is a single threshold for requiring the implementation of further local mitigation measures as it will be dependent on exactly what impact is occurring and which habitat or species is being affected. We understand that local land managers include the RSPB and the National Trust who own and/or manage a large part of the relevant designated sites. We also understand that both of these organisations are engaged in the examination in relation to this matter. In relation to securing the required monitoring and mitigation measures, it is our understanding that the S106 will secure the necessary measures and their funding (as part of the Minsmere and Sandlings (north) Mitigation Measures; the Minsmere and Sandlings (north) Contingency Fund; the Minsmere and Sandlings (north) Recreational Monitoring Plan; the European Sites Mitigation Measures; the European Sites Access Contingency Fund and the European Sites Recreational Monitoring Plan). The implementation of these mitigation and monitoring measures will be overseen by the Ecology Working Group and the Environmental Review Group, both of these groups include representatives from ESC, SCC and NE. Whilst we are content with the principle of the mechanisms described for delivering this particular mitigation and monitoring, we have not yet seen the details for the mitigation and monitoring plans or the contingency funds. We therefore reserve the right to make further comments on this topic once this information is available.
	Response by Natural England at Deadline 2	Where they relate to designated site mitigation, we would expect these measures to be captured in the Recreational Monitoring and Mitigation Plan (where we understand an updated will be submitted by the Applicant shortly) and managed strategically through the Suffolk Coast Recreational Disturbance Avoidance Mitigation Strategy by ESC and SCC. Our detailed comments on this are set out in our Written Representations (Our Ref: 350822, dated 2nd June) and SoCG.
	Response by SZC Co. at Deadline 3	In the Deadline 2 response above, SZC Co. answered the point generically in relation to 'local mitigation measures'. However, having reviewed the responses from the councils and Natural England and revisited the original paragraphs, SZC Co. confirms that the 'local mitigation measures' referred to, in this context, are those measures included within the Minsmere and Sandlings North Recreational Displacement Monitoring and Mitigation Plan,

ExQ1	Question to:	Question:
		submitted at Deadline 2 [REP2-118], and any further measures provided through the Suffolk Coast Recreational Disturbance Avoidance Mitigation Strategy by ESC and SCC.
	Response by RSPB at Deadline 3	As set out in our Written Representation submitted at Deadline 2 we are concerned by so much detail within plans and strategies being left for after the Examination. For the ExA to be able to reply on e.g. mitigation measures they must be able to judge whether they are ecologically, legally and financially feasible and able to be secured. A particular concern is with mitigation and enhancements on third party land where agreement with the landowner has yet to be secured (for example, the Minsmere Monitoring and Mitigation Plan for recreational pressure) and what would happen if that third party landowner refused. We would suggest that this also applied to protected species licensing requirements and any conditions associated with them.
	Response by SZC Co. at Deadline 5	The RSPB state that *'we are concerned by so much detail within plans and strategies being left for after the Examination.'* The particular plan of relevance here is the Minsmere and Sandlings North Recreational Displacement Monitoring and Mitigation Plan, submitted at Deadline 2 [REP2-118] which is infront of the examination and is being updated, following further discussions with the RSPB, at Deadline 5. It contains extensive details of monitoring approaches, locations, trigger levels, embedded mitigation measures and additional mitigation measures which could be deployed. The Minsmere Monitoring and Mitigation Plan [REP2-118] was submitted at Deadline 2 and an update is provided within Deadline 5 (Doc Ref. 9.15(A)). This provides the monitoring and mitigation measures proposed. This is proposed to be secured to the Draft Deed of Obligation [REP3-024]. SZC Co. is in discussions with interested parties regarding the details set out within this plan and is working to seek agreement where possible. SZC Co. considers that the MMMP provided at Deadline 5 (Doc Ref. 9.15(A)) provides an appropriate level of detail that should provide confidence to the ExA and interested parties that the proposals are ecologically feasible and deliverable. They are also secured in a robust way.
The next set of questions address Tables 14.12 and 14.13 – summary of effects, construction and operation respectively		
No further comments received at Deadline 3.		

ExQ1	Question to:	Question:
The next set of questions addresses invertebrates, section 14.8.		
Bio.1.86	The Applicant, Natural England	[APP-224] – para 14.8.44 and elsewhere (e.g. para 14.8.50) which address some of the effects on invertebrate assemblies in Compartment 3 and the fen meadow strategy. This is Appendix 14C4, [APP-258]. Fen meadow recreation and a fen meadow strategy are important components of the Sizewell C project. Whilst [APP-258] examines potential sites and makes recommendations, the ExA notes that for one of the selected sites included in the Application, it says there would be water management difficulties and that the site is "less preferable" (Site 11, part of the Benhall proposal) and that in all cases the site recommendations are "subject to the results of further studies and detailed conceptualisation". In the case of Pakenham (Site 54 and part of the change request) "there are significant issues relating to groundwater supply and to the poor condition of surface peats". The ExA is also having difficulty seeing where in the document [APP-258] a strategy is set out. It appears rather to be a site selection report. Please will the Applicant say what further studies and conceptualisations have been carried out, where they may be found if they have been carried out, and what is the strategy. Please will the Applicant also submit a summary which should include , with hyperlinks to relevant documents in the Examination Library. If the summary could be limited to 2,000 words that would be helpful. Please will Natural England give their view on the fen meadow strategy, its role within the Application both for invertebrates and as a whole, and on document [APP-238]. At for example paras 14.8.44 and 45 of [APP-224] the Applicant concludes that for Compartment 3 the loss of habitat including fen meadow is minor adverse and not significant as a result of the inclusion of a fen meadow strategy said to be set out at [APP-238]. There is a similar conclusion for Compartment 12 (where the land take is much less).

ExQ1	Question to:	Question:
		Please will both the Applicant and Natural England give relevant examples of successful recreation of fen meadow habitats, comment on them explaining how they are relevant any difficulties found in the process, and how they were overcome (or not).
	Response by SZC Co. at Deadline 2	*Response to first para:* No response from the Applicant is required. *Response to second para*: Although no response from the Applicant is required, the following clarification is made in respect of these observations: The comments referred to in the second paragraph were made in the context of the key characteristics for the potential sites, and that 'Ideally, the chosen site will not require significant engineering/construction activities' as indicated in **Section 1.2** of the **Fen Meadow Compensation Study** [APP-258]. The **Fen Meadow Strategy**, provided in **Volume 2, Appendix 14C4** of the **ES**[AS-209] however indicates SZC Co's preparedness to undertake more invasive works than the concluding statement of **Section 1.2** of the **Fen Meadow Compensation Study** [APP-258] suggests. *Response to third para:* The ExA is directed to the **Fen Meadow Strategy** [AS-209], which has been prepared to define SZC Co's commitment to provide appropriate compensation measures to mitigate for the loss of fen meadow habitat through the creation of compensatory fen meadow habitats, and the provision of a contingency fund. *Response to fourth para:* Paragraphs 4.1.1 – 4.1.12 of the **Fen Meadow Strategy** [AS-209] detail: • the studies undertaken to date to identify potential fen meadow compensation sites, • the further studies on-going on the fen meadow sites; and • the development of a Fen Meadow Plan, which will be developed over a series of three reports, with the final Plan drawing upon 12 months of monitoring. The final plan will be submitted for approval, as detailed [Paragraph 4.1.11 in AS-209]. *Response to fifth para:* No response from the Applicant is required. *Response to sixth para:*

ExQ1	Question to:	Question:
		This answer is provided in **Appendix 7H** of this chapter.
	Response by Natural England at Deadline 2	This is an ongoing area of concern for Natural England and one which we have engaged with the Applicant on within the Statement of Common Ground and have provided a detailed response within our Written Representations (Our Ref: 350822, dated 2nd June). We welcome the submission of the Fen Meadow Strategy by the applicant since our Relevant Representations (Doc Ref. 6.14) where it is recognised that the fen meadow habitat within Sizewell Marshes SSSI is of National/High importance (para 3.1.4). It is also acknowledged that the conclusion reached in the ES that there would be no significant effect on this SSSI habitat is subject to the Fen Meadow Strategy being successfully delivered (para 3.1.3). We welcome the submission of the Fen Meadow Strategy by the applicant since our Relevant Representations (Doc Ref. 6.14) where it is recognised that the fen meadow habitat within Sizewell Marshes SSSI is of National/High importance (para 3.1.4). It is also acknowledged that the conclusion reached in the ES that there would be no significant effect on this SSSI habitat is subject to the Fen Meadow Strategy being successfully delivered (para 3.1.3). Having discussed this further with the applicant through focussed meetings and workshops, our advice on the Stage 4 pre-application consultation (2019) was 'We advise that the extent of compensatory habitat required is 9x that which would be destroyed by the development; this is considered a suitable multiplier given the complexity of habitat type to be lost, the risk and uncertainty involved in the habitat restoration being successful and the time to fully functioning habitat…We understand that EDF Energy are currently undertaking further detailed feasibility studies for these compensation sites. Once these studies have been completed, we would be keen to provide further advice at the earliest opportunity' (Natural England comment reference 8).

ExQ1	Question to:	Question:
		Contrary to our pre-application advice, a sufficient amount of compensatory fen meadow habitat was not proposed by the applicant within the DCO application as submitted (May 2020) and we raised this omission within our Relevant Representations (RR-EN010012, September 2020). Through the applicant's Proposed Changes application, an additional site (Pakenham) has now been proposed which, in addition to the Benhall and Halesworth sites, could potentially provide the full required amount of compensatory habitat (minimum of 4.5ha). However, we are unable to advise as to whether or not this is likely to be successfully delivered until we have been able to review the detailed site feasibility studies for all three sites (Benhall, Halesworth and Pakenham). We understand that the applicant proposes 'a 'Fen Meadow Plan' be prepared in accordance with this Fen Meadow Strategy and be subject to a DCO Requirement'. If this is the document which will contain the detailed site feasibility studies, then we advise that this should be provided now and not left to a requirement given the importance of that information in determining significance of impacts to a nationally important SSSI. This is therefore a significant omission which needs to be addressed through the submission of further information. In terms of the contingency measures to be put in place should the compensatory fen meadow habitat creation attempts fail, we advise that potential compensation sites further afield (i.e. not restricted to Suffolk) should be investigated. The SSSI habitat to be lost is important at a national level and, if necessary, the compensation options should therefore be explored at that scale to ensure the overall amount of this habitat type is not reduced nationally. In regard to relevant examples of fen meadow recreation it must be acknowledged that the feasibility of re-creating fen meadow is not well evidenced with only a handful of successful examples within published literature (Larmers et al. 2002; McBride et al. 2011; Larmers et al. 2015; Klimkowska et al. 2019).

ExQ1	Question to:	Question:
		Creating compensatory habitat of the same quality to that which will be destroyed will therefore be extremely difficult, if not impossible. Holistic headwater seepage, floodplain and river restoration is likely to be the most successful and sustainable approach to providing compensatory fen meadow habitat at the sites which have been proposed by the Applicant. Even if successful, it should be acknowledged that these sites are functionally removed from Sizewell Marshes SSSI which is a limitation of this approach. Although this particular feature of the SSSI may be re-created there, the complex ecological interactions with other features which will be lost at Sizewell Marshes would not be. In regard to invertebrate our advice is that the mosaic habitat that supports the invertebrate assemblage at Sizewell Marshes SSSI is an important objective of this mitigation package. Creating invertebrate rich wet woodland close to the M22 fen meadow habitats will in part replicate the existing situation at Sizewell. Shrub and ground flora layers of alder-sedge (Alnus glutinosa – Carex paniculata) woodland (NVC W5) will often reflect the nearby open habitat stands so this can add diversity. A key point to highlight note is that high quality wet woodland will develop in the same situations as high-quality fen meadow (i.e. the absence of elevated nutrients and permanently high water table but without cutting or grazing). Consequently, many of the same activities are likely to be required at these sites including topsoil removal if enriched. Given the rarity and continued losses of M22 fen meadow in the UK – the Guidelines for Grassland SSSI Selection report less than 10000 ha (the true figure for England is likely to be less than 5000 ha) – and the known difficulty of restoring species-rich fen/fen meadow habitat, we advise that the maximum multiplier needs to be applied here, i.e. area to be lost × 9. This will result in compensation areas of either 4.5 ha, 6.3 ha, or more, depending on severity and potential long-term impact of temporary land-take. Given the hydrological complexity of high value wetland habitats, it is anticipated that a larger extent of wetland restoration/compensation would be required in order to provide the conditions required specifically by the M22 fen meadow. Restoration will likely give

ExQ1	Question to:	Question:
		rise to areas of wetter conditions and drier conditions that do not support M22, given natural hydrological, topographical and substrate variation within sites. In particular, the stated desire to avoid engineering/groundworks is likely to significantly reduce the likely success of restoration works, given the published literature on fen restoration, including the findings recently published based on a review of European restoration projects, which suggested that both topsoil removal and re-wetting/hydrological manipulation were necessary to restore functioning fen habitat. Given this lack of confidence in the outcomes of any compensatory fen meadow restoration, based on both lack of detail on area needed/to be provided and techniques/methods, it is not possible to conclude that the loss of fen meadow from Sizewell Marshes SSSI is not significant. Klimkowska A, Goldstein K, Wyszomirski T, Kozub Ł, Wilk M, Aggenbach C, et al. (2019) Are we restoring functional fens? – The outcomes of restoration projects in fens re-analysed with plant functional traits. PLoS ONE 14(4): e0215645. https://doi.org/10.1371/journal.pone.0215645 Lamers, L. P., Smolders, A. J., & Roelofs, J. G. (2002). The restoration of fens in the Netherlands. Hydrobiologia, 478(1), 107-130. Lamers, L. P., Vile, M. A., Grootjans, A. P., Acreman, M. C., van Diggelen, R., Evans, M. G., ... & Smolders, A. J. (2015). Ecological restoration of rich fens in Europe and North America: from trial and error to an evidence-based approach. Biological Reviews, 90(1), 182-203. McBride, A. Diack, I. Droy, N Hamill, B. Jones, P. Schutten, J. Skinner, A. and Street. M. (2011) The Fen Management Handbook. Scottish Natural Heritage, Perth.
	Response by SZC Co. at Deadline 3	As noted above under the supplementary response by SZC Co. to **Bio 1.79** at Deadline 3, the conclusion of no significant effect on Sizewell Marshes is predicated on the success of the compensatory fen meadow and wet woodland habitat creation.

ExQ1	Question to:	Question:
		Further evidence for successful fen meadow habitat creation was submitted at Deadline 2, in SZC Co's response to ExQ1 **Question Bio 1.86** [REP2-100] **Appendix 7H** [REP2-110]. SZC Co. has committed to the preparation of a draft Fen Meadow Plan (see also Natural England response above) in accordance with the **Fen Meadow Strategy** [AS-209], to be submitted during the examination, which will provide further detail of the proposals. The draft Fen Meadow plan will provide proposals for the each of the sites, informed by baseline data to that point. Baseline hydrological and ecological reports for the three sites are submitted to examination at Deadline 3. SZC Co. considers that the draft Fen Meadow Plan will be sufficient for relevant parties and the Secretary of State to understand the proposals at each site and the extent to which the impacts to fen meadow habits on Sizewell Marshes SSSI will be fully compensated. Further, the final fen meadow plan will be in general accordance with both the Fen Meadow Strategy and the draft Fen Meadow Plan, must be approved by East Suffolk Council in consultation with Natural England under requirement 14A of the Draft DCO before any vegetation clearance of the SSSI is carried out. Natural England state '*the stated desire to avoid engineering/groundworks is likely to significantly reduce the likely success of restoration works, given the published literature on fen restoration, including the findings recently published based on a review of European restoration projects, which suggested that both topsoil removal and re-wetting/hydrological manipulation were necessary to restore functioning fen habitat*.' SZC Co recognises that topsoil removal is likely to be required (see **response to Question ExQ1 Bio 1.86** [REP2-100] **Appendix 7H** [REP2-110]) and the draft Fen Meadow Plan will be fully reflective of the need for this management intervention.
	Response by RSPB at Deadline 3	As mentioned above (Bio.1.65) we question whether Appendix 7H contains the 'evidence for successful establishment of fen meadows' claimed by the Applicant. The only example of fen meadow (re)creation that the Applicant is able to provide (at Thelnetham) sounds like it has not so far been successful (as commented on in more detailed above – Bio1.65). To repeat this is one of many significant concerns over the fen meadow strategy detailed in our Written Representations submitted at Deadline 2 and support Natural England's

ExQ1	Question to:	Question:
		conclusion that fundamental concerns over the permanent loss of SSSI fen meadow habitat may not be resolved. We agree with Natural England the Fen Meadow Plan should be provided now and not left to a requirement given the importance of that information in determining significance of impacts to a nationally important SSSI.
	Response by Suffolk Coastal Friends of the Earth at Deadline 3	The ExA's question asks specifically for relevant examples of successful re-creation of fen meadow habitats. It is well known that fen meadow is notoriously difficult to restore, let alone create from scratch. Our members would like to say that we have ourselves searched through the literature and also asked our expert advisers for such examples but have been unable to find any. We would like to make the following additional points: 1.1.5 of SZC Co's response refers to 'restoration in Europe', however 'restoration' and 'conservation' are not the same as re-creation. With careful monitoring and management, it is indeed possible to maintain and even improve existing fen meadow, such as that at Sizewell Marshes SSSI, which has been well cared for by Suffolk Wildlife Trust. This involves cutting in the traditional way and grazing. As pointed out in Suffolk's 'Fens Local Habitat Plan' (www.suffolkbis.org.uk) there is a lack of livestock in this arable area for sustainable maintenance through grazing, which poses a problem for the three proposed compensation sites. SZC Co need to establish that cattle would be available for grazing. 1.2 This section covers the conditions required for fen meadow habitat and is simply a 'recipe', describing how to establish such conditions. There is no guarantee that fen meadow will result, the essential point being that the ecohydrological conditions must be right in the first place. Alternatively, it might be possible to manipulate water levels, but this must be independently sustainable in the long term, without requirements for pumping. This leaves the question of water quality, that needs to be low in nutrients for fen meadow plant and invertebrate communities to flourish. As local people, we know that the proposed site at Benhall, for example, is high in phosphates due to regular flooding from the sewage works. It is our view that this would not be suitable for fen meadow creation. 1.2.7 As part of the 'recipe', topsoil removal is recommended. We would like to point out that this may not be possible at Pakenham as the ground is so waterlogged, it is unlikely that heavy machinery could be driven on to it.

ExQ1	Question to:	Question:
		1.3.3 This gives the example of Parkers Piece at Thelnetham. This is the Little Ouse Headwaters Project and is not a fen meadow creation project but is simply a restoration project. This is a charitable organization and relies on local volunteers to restore and maintain the fen. It is a constant battle to prevent succession into rush, reed and willow scrub. In conclusion, SZC Co has been unable to answer the ExA's question by providing examples of successful creation of fen meadow. Nor has the company demonstrated to our Friends of the Earth members that such creation is indeed possible.
	Response by SZC Co. at Deadline 5	Response to **RSPB:** These points are noted. In respect of submission the Fen Meadow Plan, a draft Fen Meadow Plan is to be submitted at Deadline 6. Response to **Suffolk Coastal Friends of the Earth:** Please see response to **Question Bio.1.65**. Response to **Suffolk Coastal Friends of the Earth** additional points: 1.1.5: Thank you for your observation on cattle availability. SZC Co. will work with the landowners and/or potential graziers to secure appropriate livestock. 1.2: Noted 1.2.7: Noted. Ground conditions are always a consideration in respect of the use of machinery. 1.3.3: Please see response to **Question Bio.1.65**
Bio.1.95	The Applicant	[APP-224] – para 14.10.32, re natterjack toads. This refers the reader to a "natterjack toad mitigation strategy (Appendix 14C7A of this volume) as well as a draft Natural England European Protected Species licence (Appendix 14C7B of this volume)". These are listed in the Examination Library as [APP-262] and [APP-263] respectively.

ExQ1	Question to:	Question:
		Those however appear to be two identical set of Figures relating to natterjack toads but which are not a strategy nor a draft licence. Please will the Applicant clarify and point the ExA to where the documents referred to in para 14.1.32 may be found in the Application documents. Para 14.10.42 also refers to the strategy and licence. The Applicant will appreciate that the SofS requires the ExA to report on whether there is an impediment to such licenses being granted subsequently by Natural England.
	Response by SZC Co. at Deadline 2	The initial mitigation strategy for natterjack toads has essentially been superseded by the natterjack toad draft protected species licence application. This application comprises a two-part method statement/ document as well as associated figures and is included as **Volume 3, Appendix 2.9.C3** and **2.9.C4** of the **ES Addendum** [AS-209]. The approach to the protected species licenses and natterjack toads in particular is explained more fully in the response to **Question Bio 1.97** in this chapter.
	Response by RSPB at Deadline 3	Our concerns relating to inadequacy of the proposed mitigation are detailed in our Written Representations submitted at Deadline 2.
	Response by SZC Co. at Deadline 5	SZC Co. submitted a Natterjack Toad Protected Species Licence to Natural England on the 22nd July and included a copy within the Deadline 5 submission (Doc Ref. 6.3 14C7B (A)). This includes details of a package of mitigation measures, including four new ponds, new hibernation locations and terrestrial habitat enhancements to strengthen the linkages towards habitats on the RSPB Minsmere reserve to the east. The measures are aligned with the proposals brought forward by Suffolk Wildlife Trust. .
The next set of questions addresses reptiles, section 14.11.		
No further comments received at Deadline 3.		
The next set of questions addresses ornithology, section 14.12.		
Bio.1.108	The Applicant, Natural England	[APP-224] paras 14.12.25 and 14.12.39; also paragraph 14.12.166. Marsh harrier. (a) Notwithstanding the provision of habitat referred to in para 14.12.24, and the conclusion of no significant effect in para 14.12.25 the Applicant proposes further marsh

ExQ1	Question to:	Question:
		harrier foraging habitat at Westleton. What is the effect on the assessment of effect at para 14.12.25 and why has it been omitted? Please will NE also comment. (b) When we get to para 14.12.39 and the discussion of wintering marsh harrier, additional marsh harrier habitat is described, but evidently not the habitat at Westleton. Please will the Applicant clarify what is being referred to and why it is not referred to at para 14.12.25. (c) Please will the Applicant set out a short statement of the totality of new marsh harrier habitats already created, or to be created with cross-references to the paragraphs of Chapter 14 [APP-224] where they are referred to and a conclusion as to their function and result in mitigating effects. This should deal with conclusions not only under EIA but also under HRA. (d) When we get to inter-relationship effects from construction at paragraph 14.12.166 the report states: "*The main interrelationship effect identified is that some of the habitat creation that has already been undertaken or is in the process of being undertaken may be compromised initially by noise disturbance during the first two phases of the construction programme. This may prevent usage by breeding and foraging bird species temporarily for the first two to three years of construction*". Whilst this is concluded to be a minor adverse not significant effect, please will the Applicant spell out the reasoning in relation to the marsh harrier.
	Response by SZC Co. at Deadline 2	The following responses are provided in relation to each of the points raised by the ExA: (a) Marsh harrier foraging habitat in EIA context: The potential for providing compensatory habitat at Westleton is not related to the issues considered in paragraphs 14.12.24 and 14.12.25 of **Volume 2**, **Chapter 14**, of the **ES** [AS-033]. These paragraphs concern the loss of wetland habitat in the Sizewell Marshes SSSI and the mitigation provided in relation to the wider marsh harrier population by the wetland habitats created at Aldhurst Farm. (b) Wintering marsh harrier and additional foraging habitat: The additional foraging habitat referred to in paragraph 14.12.39 of **Volume 2**, **Chapter 14**, of the **ES** [AS-033], which would become available to wintering marsh harrier (as well as breeding marsh harriers), is the 48.7ha of compensatory foraging habitat within the EDF Energy estate, which is located in the northern part of the EDF Energy estate. Details of this foraging habitat are provided above in the response to

ExQ1	Question to:	Question:
		Bio.1.107, as well as in the response to **Bio 1.48**, and are as shown in **Figures 6.3 – 6.5** in the **Shadow HRA Report** [APP-145]. This habitat is not referred to in paragraph 14.12.25 of **Volume 2**, **Chapter 14**, of the **ES** [AS-033] because it is Aldhurst Farm which provides the specific mitigation for the loss of wetland habitat in the Sizewell Marshes SSSI, as explained in the responses to **Questions Bio 1.105** and **Bio 1.107** in this chapter and this is also relevant to wintering (as well as breeding) marsh harriers. (c) Totality of new marsh harrier habitat to be created: (i) *Compensatory foraging habitat within the EDF Energy estate* The key area of habitat creation for marsh harrier is the 48.7ha of compensatory foraging habitat within the EDF Energy estate, located immediately adjacent to the north-east of the main development site (and detailed in the responses to **Questions Bio 1.48** and **Bio.1.107** in this chapter). The location of this area is shown in **Figures 6.3 – 6.5** in the **Shadow HRA Report** [APP-146]. This compensatory habitat is aimed specifically at increasing the foraging resource available to marsh harrier during construction, via habitat management, that will increase both the abundance and availability of a range of potential prey species. The requirement for this area of compensatory foraging habitat arises from the conclusion in **Section 8.8 d) v.** (at paragraph 8.8.557) of the **Shadow HRA Report** [APP-145] that the possibility of an adverse effect on the Minsmere-Walberswick SPA breeding marsh harrier population resulting from noise and visual disturbance associated with the construction activities at the main development site cannot be discounted. This potential effect arises from predictions of the 'loss' of wetland foraging resource during the construction period to SPA marsh harrier due to displacement and a possible barrier effect (which is assumed to prevent access to the entire Sizewell Marshes SSSI). It is considered that the assessment is highly precautionary in predicting the extent of the foraging resource which would be 'lost' (both in terms of the area affected and the assumed duration over the entire construction period, with predictions based on modelled noise levels for the worst-case phases of construction which will not actually extend over the full (approximately) 10 year period). The predicted displacement and barrier effect occur

ExQ1	Question to:	Question:
		on habitats which are functionally linked to the SPA, as opposed to any habitats within the SPA (or Ramsar site) itself. It is considered that this 48.7ha area of compensatory foraging habitat will be sufficient to compensate for the potential loss of foraging resource which is predicted to occur. The justification for this is set out in paragraphs 8.8.245 – 8.8.260 in the **Shadow HRA Report** [APP-145]) (ii) *Westleton* As described in the response at (a) above, the marsh harrier compensatory foraging habitat created within the EDF Energy estate is considered sufficient to compensate for the potential loss of foraging resource to the Minsmere-Walberswick SPA (and Ramsar site) population. The Westleton site would only form part of the habitat compensation proposals and only in the shadow HRA context, if the Secretary of State determines that additional habitat is required to compensate for the potential habitat loss. If the SoS agrees with the Applicant that the permanent marsh harrier foraging habitat within the EDF Energy estate is sufficient compensation, it would follow that the area of additional land at Westleton is not required. In those circumstances the Applicant would expect the SoS to omit Work No. 8 (Marsh Harrier Habitat, Westleton) from the DCO and not to include powers for the compulsory acquisition of that land. The Westleton site would not be required in any circumstance related to the EIA and the landtake impacts of wetlands from Sizewell Marshes and related impacts on marsh harriers. The compensatory habitats for those impacts are provided by the new Aldhurst Farm wetlands explained immediately below and in responses to **Questions Bio 1.105** and **1.107** in this chapter. (iii) *Aldhurst Farm* See response to **Questions Bio 1.105** and **1.107** in relation to Aldhurst Farm. The new Aldhurst Farm wetlands lie to the south of the proposed temporary construction area and are not part of the marsh harrier habitat compensation area in the HRA context. This is because marsh harriers nesting in the SPA at Minsmere would have to overfly the 'barrier' formed by the TCA to forage at Aldhurst Farm. However, the new Aldhurst Farm reedbeds have supported breeding marsh harriers since 2019 and so the new habitats have helped to increase the local population. This is likely to increase the resilience of the local population to any possible adverse impacts of construction of Sizewell C. In the EIA context, the Aldhurst Farm wetlands can be

ExQ1	Question to:	Question:
		regarded as providing successful compensatory habitats for marsh harriers as a species. (d) Interrelationship effects and construction noise disturbance: In relation to marsh harrier, the issue of potential noise disturbance compromising the benefits from habitat creation is relevant to the 48.7ha area of compensatory foraging habitat immediately adjacent to the north east of the main development site. During phase 1 and (to a much lesser extent) phase 2 of the construction period there is limited encroachment of the modelled 70dB L_{Amax} noise contour onto this area of compensatory habitat (see **Figures 8.3** and **8.4** of the **Shadow HRA Report** [APP-147]). The 70dB L_{Amax} noise contour represents the threshold noise level above which displacement of foraging marsh harrier may occur. As a consequence of this, construction noise for the north-east part of the main development site was examined in more detail by considering the different construction phases within a series of narrower timescales. This more detailed investigation demonstrated that the maximum extent of encroachment of the 70dB L_{Amax} noise contour onto the area of compensatory habitat was considerably less than as estimated in **Figure 8.3** of the **Shadow HRA Report** [APP-147], whilst the duration of any significant encroachment (e.g. > 2ha of the total area) was for a relatively short part of phases 1 and 2 of the construction period. This detailed investigation of the predicted noise emissions on the area of compensatory habitat is described in paragraphs 8.8.188, 8.8.189, and 8.8.195 – 8.8.197 of the **Shadow HRA** [APP-145], with the maximum predicted extent of encroachment of the 70dB L_{Amax} noise contour onto this area shown in **Figure 8.9** of the **Shadow HRA Report** [APP-147]. The conclusion of a minor adverse, not significant, effect for marsh harrier in the ES in relation to these interrelationship effects is on the basis of these more detailed investigations of potential noise disturbance.
	Response by Natural England at Deadline 2	a) As we understand it the habitat at Westleton has been secured as a contingency should the proposed habitat compensation area adjacent to the MDS be deemed insufficient. As we are yet to see detailed plans for either of these areas, we are unable to comment further at this time.

ExQ1	Question to:	Question:
		Please see are full detailed comments under issue 27 within our Relevant (PINS ref: RR-0878, our ref: 306236, dated 30th Sep 2020) and Written Representations (Our Ref: 350822, dated 2nd June) and Statement of Common Ground.
	Response by SZC Co. at Deadline 3	In response to Natural England's points made on the two sites, SZC Co makes the following comments: • Marsh Harrier habitat compensation area on the EDF Energy estate – an updated habitat report and detailed habitat plan (which includes the new wetland component) was submitted at Deadline 2 [REP2-119]. • Westleton site - Given that SZC Co does not consider that this area is likely to be required, a detailed habitat proposal plan had not originally been prepared. However, in order to assist the ExA, SZC Co has prepared a habitat plan for this location, which is submitted at Deadline 3 (Doc Ref. 9.35).
	Response by RSPB at Deadline 3	We have no additional comments in relation to points (a) and (b). Our comments on BIO.1.48 (above) are relevant to point (c). With regard point (d), we raised concerns about constraints affecting the compensatory habitats in our Written Representations submitted at Deadline 2, including concerns about construction noise affecting the compensation area itself. Whilst we note the Applicant's additional refinement of the modelling of these potential effects based on more detailed timelines, we are concerned that construction timelines are typically prone to slippage and that the Construction Noise Assessment itself notes the lack of certainty regarding timelines as a constraint, therefore we still consider that noise effects on the compensation area during construction cannot be ruled out.
	Response by SZC Co. at Deadline 5	In relation to the concerns expressed on the Applicant's additional refinement of the noise modelling, SZC Co. has provided a response to this in paragraphs 14.5.12 to 14.5.15 of its **Comments on the Written Representations** as submitted at Deadline 3 [REP3-042].
Bio.1.115	The Applicant	Noise levels, Barbastelle – para 14.13.88 – adopting 65dB as the level for foraging impacts. Is this at 8 kHz? If not, please will the Applicant explain.

ExQ1	Question to:	Question:
	Response by SZC Co. at Deadline 2	For foraging and commuting bats, the volume of noise at a frequency of 22khz+ is considered as this is considered likely to impact upon the ability of bats to echolocate and interfere with this behaviour. 8khz is utilised for roosting bats. Approaches to assessing the impact of noise is provided in further detail in the updated bat impact assessment at **Volume 3, Appendix 2.9.B** of the **ES Addendum** [AS-208].
	Response by RSPB at Deadline 3	Our concerns over the assessment of impacts to bats are detailed in our Written Representations submitted at Deadline 2.
	Response by SZC Co. at Deadline 5	No further response proposed
Bio.1.116	The Applicant	Noise levels and roosts, barbastelle – Table 14.40 and para 14.13.95. The table uses 60dB as the threshold, but para 14.13.95 uses 65dB. Which is correct please and will the Applicant explain why.
	Response by SZC Co. at Deadline 2	These are typographical errors and in this paragraph the threshold of 60dB should have been referenced given that this is discussing roosting impacts. All assessments of noise upon roosting and foraging/commuting bats are presented with updated noise contours in updated bat impact assessment at **Volume 3, Appendix 2.9.B** of the **ES Addendum** [AS-208]. This is should be referred to for the corrected figures.
	Response by RSPB at Deadline 3	We noted discrepancies in noise thresholds between AS-208 and AS-033 (which superseded AS-224) and consider it important to have confidence the correct noise thresholds are used for impact assessments on bats. Please could the Applicant confirm the data and figures in the updated bat impact assessment are correct and where this assessment supersedes the impact assessment in AS-033.
	Response by SZC Co. at Deadline 5	The data and figures presented in the **updated Bat Impact Assessment** [AS-208] are correct and this is a new assessment and supersedes the bat impact assessment in [AS-033]. SZC Co can also confirm that the thresholds used in the **updated Bat Impact Assessment** [AS-208] use 65db or above at 22 khz+ for foraging and commuting bats and 60db or above at 8 khz + for roosting bats.

ExQ1	Question to:	Question:
Bio.1.119	The Applicant	Para 14.13.121. (a) predicting the impacts from lighting with proposed mitigation. It is stated that this cannot be done accurately and that monitoring is proposed. Will the Applicant please comment on the appropriateness of this in the light of the case law in *R v Cornwall County Council ex parte Hardy* (2001) Env LR 473 and subsequent cases including *R (on the application of PPG11 Ltd) v Dorset County Council* [2003] EWHC 1311, *R v Rochdale Metropolitan Council (ex parte Milne)* [2001] Env LR 22. The ExA would find it helpful if the Applicant would also comment on the remarks of the Examining Authority on this subject in the recommendation report on the Northampton Gateway NSIP - TR050006 - (largely at paras 11.4.20 and following). (b) Para 14.13.140 concludes, despite this uncertainty, that "Overall, once mitigation is applied, the impact of lighting on the barbastelle population would have a minor adverse effect which is considered to be not significant". How is this conclusion justified in the light of para 14.12.121? (c) There is a similar point at paras 14.13.223 – 225 (d) The point occurs again at para 14.14.69 in relation to water voles, which states that a monitoring programme "would be required for water vole to determine any long-term impact on the water vole populations, to assess the effectiveness of the mitigation and to inform any changes that may be required to the management of habitats". (e) When dealing with (c) and (d) the Applicant should please address the questions asked at (a) and (b) to the specific factual circumstances and differences in (c) and (d).
	Response by SZC Co. at Deadline 2	(a) Paragraph 14.13.121 of **Volume 2**, **Chapter 14** of the **ES** [AS-033] states *'It is not possible to accurately predict the impact from lighting once the mitigation measures proposed (as outlined in The Bat Mitigation Strategy Appendix 14C1A of this volume) are applied. As such, a suite of monitoring measures is proposed throughout the construction*

ExQ1	Question to:	Question:
		phase. These are outlined in the Bat Non-licenced Method Statement (Appendix 14C1B of this volume)'. The intent of paragraph 14.12.121 was to provide context for the assessments that follow and to acknowledge the difficulty in determining the future behaviour of bats to the proposed lighting. As stated in Stone (2013)[12] it is important to note that this paragraph is intended to outline how uncertainties relating to faunal responses to lighting will be addressed and this should have been made clearer within the text. Predicting the impacts of lighting on bats: This is an emerging and complex area of research with many knowledge gaps remaining. There are many aspects of ecological light pollution which are yet to be investigated, such as the impacts of polarized light on wildlife (Horvath et al. 2009)[13], and so a precautionary approach is important. Paragraph 14.12.121 would have more appropriately been phrased as follows: *'It is not possible to quantify precisely the impact from lighting on bats.....However it is possible to use professional judgement to draw conclusions in relation to the likely response of bat populations, without being able to precisely quantify that response'.* An extensive suite of surveys have been conducted to ascertain the likely environmental effects arising as a result of the Sizewell C Project. The Applicant considers that the information presented in the **Volume 2**, **Chapter 14** of the **ES** [AS-033] is sufficient for a decision maker to determine likely significant effects, and is in line with accepted practice. An appropriate level of assessment of lighting and related impacts has been made. and the gathering of information by means of the resultant monitoring. There is sufficient information to enable an informed judgment to be reached on that matter. The monitoring in the **TEMMP** [REP1-016] is not to provide further understanding in relation to the impact of lighting, but to confirm that the assessment which was conducted was accurate and that mitigation measures proposed (which are in line with accepted practice) are successful in mitigating impacts. The proposed approach does not therefore give rise to any conflict with the principle established in the ex p Hardy case. The courts have made clear that the issue addressed in ex p Hardy is to be distinguished from circumstances in

[12] Stone EL, Jones G and Harris S, 2013, Mitigating the Effect of Development on Bats in England with Derogation Licensing, Conservation Biology, Volume 27, Issue 6 p. 1324-1334

[13] Horvath G, Farkas R, Bernath B, Kriska G, 2009, Degrees of polarization of reflected light eliciting polarotaxis in dragonflies (Odonata), mayflies (Ephemeroptera) and tabanid flies (Tabanidae) Journal of Insect Physiology, Volume 55, Issue 12, December 2009, Pages 1167-1173

ExQ1	Question to:	Question:
		which the purpose of the relevant provision is to gather information after the grant of consent so as to inform mitigation measures etc. A condition or requirement imposed for the latter purpose is entirely lawful and legitimate (see R v. Rochdale MBC, ex p. Milne [2001] Env LR 22, per Sullivan J at paras. 114 and 132; R (Jones) v. Mansfield DC [2003] EWHC 7 (Admin); and R (PPG 11 Ltd.) v. Dorset County Council [2003] EWHC 1311). It is therefore considered that the proposed approach to monitoring and mitigation of impacts on barbastelle roosts is not contrary to the case law referred to in this question. R v Rochdale Metropolitan Council (ex parte Milne) [2001] Env LR 22 is considered to have some relevance to the question 1.119. This case is in relation to evidence which was provided to outline 'likely significant effects' that was challenged by the Applicant. As in R v Rochdale Metropolitan Council (ex parte Milne) [2001] Env LR 22, it is considered that in respect of Sizewell C, the ES [AS-033] and the ES Addendum [AS-208] do present the necessary data and assessment to 'identify and mitigate the 'likely significant effects'', with the monitoring proposed to identify effects that are not foreseeable from the project, resulting from the paucity of applicable studies and unpredictability of faunal receptors. The recommendation document for Northampton Gateway NSIP - TR050006 refers to the information provided in relation to a project to allow a decision maker to determine the likely significant effects. Within the Application, all surveys and assessments to inform the impact assessment have been undertaken according to current best practice and understanding have been conducted and reported as part of the **ES** and the subsequent updated bat impact assessment include in the **ES Addendum** [AS-208]. (b)(c)(e) The statement in 14.13.140 concludes: 'Overall, once mitigation is applied, the impact of lighting on the barbastelle population would have a minor adverse effect which is considered to be not significant'. It is not considered that this conflicts with the statement in paragraph 14.12.121 of **Volume 2**, **Chapter 14** of the **ES** [AS-033] for the same reasons as given above under (a) and with the suggested revisions to paragraph 14.12.121. The approach of the Sizewell C ES is to incorporate best practice and utilise precautionary assessment of the impact from lighting. Within the assessment in **Volume 2**, **Chapter 14** of the **ES** [AS-033], the impact assessment in relation to lighting is considered to have applied the level of information that could be reasonably expected at this stage. The monitoring is designed to confirm the effectiveness of the best practice mitigation

ExQ1	Question to:	Question:
		employed to address the effects (as such mitigation is expected to be effective), but where wider research is not entirely conclusive. Few peer reviewed studies have been conducted specifically in relation to the impact of lighting on barbastelle, however available information has been consulted, and there are examples / observations of barbastelles foraging 25m from street lights where vegetation screening is present (*communication with barbastelle ecologist Ian Davidson-Watts*). Therefore, it is considered that the proposed dark corridors will allow impacts to be controlled, however the ES acknowledges monitoring will need to confirm the success of the implemented mitigation. This is a strength of the application approach, wherein any impacts which are not foreseeable under current understanding can be identified and addressed. The monitoring proposed in the **TEMMP** [REP1-016] for bats does provide some opportunity for remedial actions, e.g. to reduce lighting levels, but these measures are to provide confidence that active mechanisms are in place and are secured to ensure that impacts are controlled, rather than a reliance being placed on them. The primary mechanism of lighting control will be via the relevant section of the **Lighting Management Plan** [APP-182], which is secured by Requirement. The monitoring will also support any necessary modifications to mitigation that can be made to achieve or further the objectives of the mitigation strategy. Clearly updating surveys etc over time for various stages (i.e. licensing) is also appropriate, however the overall impacts and mitigation strategy has been developed with the significant level of survey information gained to date that provides confidence in the effectiveness of the mitigation, and the assessment of no significant effect. The paragraphs 14.13.222 – 14.13.225 are presented below: *'14.13.222 Given the duration of the construction phase, there is the potential for artificial lighting to reduce the ability of the light-averse Natterer's bat to use and move between habitats within the site and the immediate surroundings.* *14.13.223 It is not possible to accurately predict the impact from lighting once the mitigation measures proposed (as outlined in The Bat Mitigation Strategy Appendix 14C1A of this volume) are applied. As such, a suite of monitoring measures is proposed throughout the construction phase. These are outlined in the Bat Non-licenced Method Statement (Appendix 14C1B of this volume).*

ExQ1	Question to:	Question:
		14.13.224 In addition, control measures, including directional lighting, light attenuation and monitoring are proposed as outlined in the bat non-licensed method statement (Appendix 14C1B of this volume). *14.13.225 Overall, the impact of lighting on the Natterer's bat population would have a minor adverse effect, which is considered to be not significant.'* Paragraph 14.13.222 outlines the potential impact upon Natterers' bats in the absence of mitigation. Paragraph, 14.13.223 acknowledges the known limitations in current understanding of the impacts of lighting on certain faunal receptors, but as for barbastelle, a suite of mitigation measures (in line with accepted practice are proposed), and the monitoring as outlined in the **TEMMP** [REP1-016] will allow for any unforeseen effects to be captured and addressed. The suggested revisions to paragraph 14.12.121 described under (a) are again relevant in this case. Paragraph 14.13.224 is a brief outline of some of the construction phase mitigation which will achieve the low light levels required, as specified and evidenced within the Lighting Management Plan [APP-182]. As such, it is not considered that these statements are contradictory, or that the case law stated in question (a) is applicable. (d)(e) In relation to the paragraph 14.14.69 of **Volume 2**, **Chapter 14** of the **ES** [AS-033], the statement that the monitoring programme 'would be required for water vole to determine any long-term impact on the water vole populations, to assess the effectiveness of the mitigation and to inform any changes that may be required to the management of habitats' does not refer to monitoring in order to address an deficiency with the baseline data used to inform the EIA or mitigation. As such, the case law in R v Cornwall County Council ex parte Hardy (2001) Env LR 473 is not applicable in this instance. The mitigation proposed follows accepted practice although the response to mitigation of a species such as water vole, with dynamic population cycles, cannot be predicted with precision, given the variables involved. Given this, monitoring is proposed to monitor the success of the mitigation measures, accepting the inherent uncertainty when dealing with faunal receptors. This is a precautionary approach to allow any required interventions to unforeseen outcomes to be addressed and to ensure favourable conservation status of water voles is achieved. For example, the creation of water vole habitats at Aldhurst Farm will need to be maintained in a state that ensures the long term viability of the population. This maintenance is outlined in the existing management plan for the site, but will also

ExQ1	Question to:	Question:
		need to be informed by monitoring, as it may also need to take into account changes relating to climate, unforeseen events, or public disturbance.
	Response by RSPB at Deadline 3	We question the adequacy of the information collected to inform judgement on the likely response of bat populations to lighting. We detailed our concerns over data adequacy, analysis and assessment of impacts from lighting on bats and the proposed mitigation in our Written Representations submitted at Deadline 2. We are also concerned that uncertainties relating to faunal responses to lighting have not been addressed. The Applicant quoted an example that barbastelle have been observed foraging within 25 metres of street lights (pers. comm., Ian Davidson-Watts) and yet (Bio 1.124), 'where lighting is proposed parallel to commuting routes/flightpaths a 10 metre buffer zone will be left'. Given this applies to many areas across the site of importance (e.g. Ash Wood), we question how a buffer of only 10 metre can be considered adequate based on the Applicant's expert's observations. This plus other challenges with predicting possible impacts (which we do appreciate) continue to cause us concerns. Whilst we of course understand the need for and use of professional judgment, and welcome further surveying, monitoring and offer of more mitigation if needed, we do question the Applicant's statement in its response to aspects of the Rochdale Envelope caselaw "it is considered that in respect of Sizewell C, the ES [AS-033] and the ES Addendum [AS-208] do present the necessary data and assessment to 'identify and mitigate the 'likely significant effects'', with the monitoring proposed to identify effects that are not foreseeable from the project, resulting from the paucity of applicable studies and unpredictability of faunal receptors." And whether a precautionary approach has been taken at this stage. Our concerns over the Applicant's approach are detailed in our Written Representations submitted at Deadline 2 and we conclude 'Due to inherent uncertainty over noise and light impacts on barbastelle, there is a lack of a precautionary approach around key areas of the site.' We note the proposed mitigation measures and monitoring. Our concerns over the proposed mitigation and lack of a detailed monitoring strategy are detailed in our Written Representations submitted at Deadline 2. For example, '3.663 A monitoring protocol needs to consider the ecology of the key bat populations and how they behave at

ExQ1	Question to:	Question:
		different ages and stages in the breeding cycle. It needs to consider what are the actual impacts on barbastelle and Natterer's bat and how they reflect those predicted in the ES. 3.681 In our view, there needs to be a condition in place on the development that a detailed Bat Monitoring Strategy is produced prior to any construction taking place, with clear objectives, as a headline of maintaining a breeding population of barbastelle. This should include protocols for monitoring, method statements, identification of triggers for light and noise impacts (for further mitigation) and evidence based examples of possible future mitigation and must be secured through the DCO. Funding for possible future mitigation must be secured through the DCO.'
	Response by SZC Co. at Deadline 5	The response provided at Deadline 2 addresses most of the points made by the RSPB and no further comment is required to most points. However, in relation to lighting, lighting model plots were provided at Deadline 3 which demonstrate how dark corridors and boundaries, of under 0.1 LUX, can be delivered on the main development site, so maintaining connectivity for bats through and around the site. In relation to monitoring, the **Terrestrial Ecology Monitoring and Mitigation Plan** has been updated at Deadline 5 (Doc Ref. 9.4(A))and now includes an expanded commitment to monitoring, which includes radio-tracking of barbastelle and Natterer's bats.
Bio.1.122	The Applicant	Para 14.13.287 refers to roosts already created and to be created. Please explain how and where the provision and maintenance is secured.
	Response by SZC Co. at Deadline 2	The commitments made in relation to monitoring of sites, habitats and species and also the monitoring of the success of mitigation measures such as habitat establishment and bat boxes are described in the **Terrestrial Ecology Monitoring and Mitigation Plan** (**TEMMP**) [REP1-016], submitted at Deadline 1 and secured under Requirement 4. The Applicant believes that this document serves to address the question in full. In response to example given left and specifically in relation to bats, for the main development site, the approach is defined in **Table 4.4,** on page 45, as follows [adapted from table format]: **'Construction (Years 1-12 inclusive):**

ExQ1	Question to:	Question:
		Bat boxes and the bat barn will be monitored on an annual basis during the construction phase. The surveys will be to confirm presence/ absence and the species assemblage present. [Undertaken] Annually in September All monitoring will be conducted by an appropriately licensed bat ecologist. Monitoring will consist of a check of the feature for evidence of use, such as droppings, smoothing, feeding remains, smell, staining and bat fly (Nycteribiid) pupae. Locations will include: • Sites where roosts are known to be present, e.g., Natters roost identified in 2020 (>40 bats in each box) • Monitoring of bat boxes erected for barbastelle already (45 boxes distributed already around the site). • Any newly installed bat boxes to mitigate for any further identified roost loss in trees. Temperature and humidity data loggers will be placed inside the bat barn to measure the environmental conditions match those within the structures where roosts have previously been identified. Success criteria will include the uptake of occupation by bats and whether the number of bats present increases or remains consistent throughout the construction phase. In the event of the bat boxes not being occupied within three years of installation, consideration will be given to moving them to alternative sites nearby, to be determined by a licensed bat ecologist. In the event of the bat barn not being occupied within three years of installation, consideration will be given to modifications which might be acceptable within the context of the DCO, with the modifications to be determined by a licensed bat ecologist and in agreement with Natural England.' The proposed approach to monitoring of the bat boxes and the bat barn during the operational phase is then described in the next row of the table.
	Response by RSPB at Deadline 3	Although para 14.13.287 refers to Leisler's bat and Nathusius' pipistrelle we do wish to comment since the Applicant's response is also relevant to barbastelle and Natterer's

ExQ1	Question to:	Question:
		bats. We highlighted our concerns over the adequacy of roost provision in our Written Representations submitted at Deadline 2.
	Response by SZC Co. at Deadline 5	No further response provided.
Bio.1.124	The Applicant	Para 14.13.470 on inter-relationship effects contains the following somewhat Delphic assessment: *"However, it is possible to state that when increased levels of task-specific lighting do correlate with higher noise levels, these events are likely to be of short duration relative to the construction period and are unlikely to be more significant than either impact pathway in isolation"*. Please will the Applicant state unequivocally its view on the likelihood and significance of the impact.
	Response by SZC Co. at Deadline 2	As explained in the answer to **Question Bio 1.13** in this chapter, a standardised approach to the assessment of inter-relationship effects has been taken across the each of the terrestrial ecology and ornithology assessments presented within the ES that follows the methods of assessment set out within **Volume 1**, **Chapter 6** of the **ES** [APP-177] and the terrestrial ecology and ornithology specific assessment methodology in **Volume 1 Appendix 6J** of the **ES** [APP-171]. The assessment presented considers the magnitude of impacts and value/sensitivity of resources/receptors that could be affected in order to classify effects. In the case of the inter-relationship assessment, consideration has been given to the combined magnitude of the different impacts of the proposed development on an individual important ecological feature to identify the inter-relationship effect on the important ecological feature. Inter-relationship effects are known to be difficult to quantify, and in respect of bats several approaches have been employed to ensure potential impacts are mitigated and then to draw assessment conclusions. Firstly, for each impact and for all sites, mitigation is proposed to reduce the resultant effect to a level at which individual impacts are not considered likely to have a significant effect. Secondly, for the main development site, as is outlined in the Updated bat impact assessment included at **Volume 3, Appendix 2.9.B** of the **ES Addendum** [AS-208], a comparable site, Hinkley Point C, was assessed, and the success of the approaches on that site to address noise and lighting impacts were reviewed. This provides additional

ExQ1	Question to:	Question:
		evidence that in-combination impacts could be kept to a level that will not result in a significant in combination effect. Thirdly, for the main development site, new habitats which are not impacted by noise or light have been created. This will minimise the potential impact upon species populations across the wider EDF Energy estate. Fourthly, for several sites, including the main development site, a suite of monitoring is proposed within the **TEMMP** [REP1-016], secured by Requirement 4, which will allow any individual impacts or any unforeseen individual or in-combination impacts to be identified and addressed by remedial measures. The assessment relies on the robust available data, and the overall impacts and mitigation strategy were developed with the significant level of survey information gained to date, which that provides confidence in the effectiveness of the mitigation proposed based on current best practice and research. However, there is limited research available for some impacts on some bat species, particularly in combination effects and bats, as living things, do not always behave as expected. Finally, the potential of high levels of light and noise occurring at the same time was considered. The statement in paragraph 14.13.470 [AS-033] refers to the nature of noise and lighting in relation to construction activity. High levels of noise are primarily anticipated during the daytime, when the majority of on-site activity will occur. Lighting, as outlined in the **Lighting Management Plan** (**Volume 2**, **Appendix 2B** [APP-182]) will be controlled through a number of measures, stated below (relevant sections of paragraphs 8.2.79 – 8.2.89 in **Volume 3, Appendix 2.9.B** of the **ES Addendum** [AS-208]: • All lighting installed shall have some form of control to suit the tasks being undertaken and ensure energy is not wasted with lights being in operation 24hrs a day. • In general task lighting will only be used during specific times at specific locations and will typically be provided by portable units which will have manual switching. If the units are to be in place for a prolonged period it would be beneficial for the unit to have a photo electric control cell which will automatically turn the lighting on at dusk and off again at dawn when natural lighting levels have increased or reached pre-determined levels. • Ambient lighting – Ambient lighting will be more permanent and will be required to operate dusk to dawn, so the most suitable method of control will be via a photo

ExQ1	Question to:	Question:
		electric control cell possibly with pre-programmed dimming or via a central management system (CMS). • Access control points – At access control points there will be the need to boost the ambient lighting when there is the need to undertake an inspection etc. This would best be controlled via a local switch either at the check point or in a control centre. It is important to consider the light source when instant boost lighting is required as most light sources other than LED will need some form of run up time to reach full output. • Where lighting in proximity to a bat roost or commuting route/flightpath is unavoidable then, in addition to the points made [in the Mitigation Measures section], the following additional mitigation measures shall be adopted for both fixed and temporary lighting: o use a light source that has a narrow spectrum with no UV content; o use a warm colour temperature (2700K and below); and o use a tuneable LED luminaire. • Where the interconnected network crosses a lit area these areas shall be kept dark by introducing a gap in the lighting design where safe to do so. For example, if they are dissected by a road, a gap of approximately 30m will be left beyond the design spacing of any lighting. Where lighting is proposed parallel to commuting routes / flightpath a 10m buffer zone will be left. Given the lighting and noise control measures which will be in place, listed above, the risks of individual effects arising at any one time are greatly reduced. In turn, this reduces the likelihood of adverse noise and lighting effects occurring simultaneously and so minimising the potential for significant adverse in-combination or inter-relationship effects. In summary, inter-relationship effects on bats relating to noise, lighting and habitat loss are considered to 'not significant' due to the primary and tertiary mitigation measures that are embedded into the scheme design. With the implementation of primary/tertiary mitigation and secondary mitigation (monitoring), residual effects (individually, minor adverse or negligible) are not considered to be significant and the inter-relationship of these residual effects, is not considered to be significant. For barbastelle on the main development site, a moderate adverse (significant) effect is predicted during construction arising from habitat fragmentation. This is due to the

ExQ1	Question to:	Question:
		proposed removal of an area (Goose Hill plantation woodland) known to be utilised by barbastelle between areas to the north-east and south-west of the construction area. There are retained and new commuting areas through the site meaning that bats will be able to traverse the site, however, one part of the site known to be used by barbastelle will be fragmented. This is not considered an in-combination effect, as it the removal of the habitat in this area that is the primary cause of the fragmentation. As outlined in the updated bat assessment, **Volume 3, Appendix 2.9.B** of the **ES Addendum** [AS-208], in paragraph 8.2.120, the in-combination effect of the lighting and noise upon bats utilising the retained and created commuting routes is considered not significant.
	Response by RSPB at Deadline 3	We outline our concerns over the assessment of inter-relationship effects on bats in our Written Representations submitted at Deadline 2. The Applicant answer to Bio.1.119 quotes an example that barbastelle have been observed foraging within 25 metres of street lights (pers. comm., Ian Davidson-Watts) and yet (Bio 1.124), 'where lighting is proposed parallel to commuting routes/flightpaths a 10 metre buffer zone will be left'. Given this applies to many areas across the site of importance (e.g. Ash Wood), we question how a buffer of only 10 metre can be considered adequate based on the Applicant's expert's observations.
	Response by SZC Co. at Deadline 5	As identified within SZC Co.'s **Comments on the Councils' Local Impact Report** [REP3-044], "*The approach of the Sizewell C ES is to incorporate best practice and utilise precautionary assessment of the impact from lighting. Within the assessment in the **ES Addendum** [AS-208] the impact assessment in relation to lighting is considered to have applied the level of information that could be reasonably expected at this stage. As stated above, three large dark corridors will be retained within development area during construction as shown on the indicative lighting plans appended to the updated Lighting Management Plan at Deadline 3 (Doc Ref. 6.3 2B (A)). These corridors will ensure bats have the ability to commute from roosting grounds in the north and foraging areas to the south, whilst dark boundaries will also ensure bats can move around the boundaries of the development.* *The monitoring proposed is designed to confirm the effectiveness of the best practice mitigation employed to address the effects (as such mitigation is expected to be effective), but where wider research is not entirely conclusive. Few peer reviewed studies*

ExQ1	Question to:	Question:
		have been conducted specifically in relation to the impact of lighting on barbastelle, however available information has been consulted, and there are examples / observations of barbastelles foraging 25m from street lights where vegetation screening is present (IDW pers. obs.). Therefore, it is considered that the proposed dark corridors will allow impacts to be controlled, however the ES acknowledges monitoring will need to confirm the success of the implemented mitigation. This is a strength of the application approach, wherein any impacts which are not foreseeable under current understanding can be identified and addressed. *The monitoring proposed in the TEMMP [REP1-016] for bats provides some opportunity for remedial actions, e.g. to reduce lighting levels, but these measures are to provide confidence that active mechanisms are in place and are secured to ensure that impacts are controlled, rather than a reliance being placed on them. The primary mechanism of lighting control will be via the Section 1.3 of the Lighting Management Plan (Doc Ref. 6.3 2B (A)), which is secured by Requirement.* *The monitoring will also support any necessary modifications to mitigation that can be made to achieve or further the objectives of the mitigation strategy. Clearly updating surveys etc over time for various stages (i.e. licensing) is also appropriate, however the overall impacts and mitigation strategy has been developed with the significant level of survey information gained to date that provides confidence in the effectiveness of the mitigation, and the assessment of no significant effect*."
Bio.1.125	The Applicant	Bats, operation, monitoring. Para 14.13.515 explains that "*If bat boxes have not been occupied within three years of installation, consideration would be given to moving them to alternative sites nearby, to be determined by a licensed bat ecologist"*. Please explain where this is secured, the objectivity of the assessment and the enforcement of the result of the "consideration".
	Response by SZC Co. at Deadline 2	The commitments made in relation to monitoring of sites, habitats and species and also the monitoring of the success of mitigation measures such as habitat establishment and bat boxes are described in the **Terrestrial Ecology Monitoring and Mitigation Plan** (**TEMMP**) [REP1-016], submitted at Deadline 1 and secured under Requirement 4. The Applicant believes that this document serves to address the question in full.

ExQ1	Question to:	Question:
		Further details are given in the response to **Questions Bio 1.122** and **Bio 1.145** in this chapter and are relevant here.
	Response by RSPB at Deadline 3	The TEMMP paragraph 4.5.7 notes 'Bat boxes in retained woodland areas will be monitored on an annual basis during the construction phase of Sizewell C from one year after installation. Boxes will continue to be monitored for five-years beyond the completion of construction. This monitoring will clarify the presence/absence of bats and the use of the bat boxes. Further details are provided in Table 4.4 below.' Table 4.4. notes 'In the event of the bat boxes not being occupied within three years of installation, consideration will be given to moving them to alternative sites nearby, to be determined by a licensed bat ecologist. In our view the Applicant should explain the objectivity of the assessment and enforcement of the result of the 'consideration' to answer the ExA question. The Applicant should explain the process for reviewing and moving bat boxes and ensuring they are in suitable locations.
	Response by SZC Co. at Deadline 5	Table 4.4 of the **TEMMP** (Doc Ref. 9.4(A)) has been updated to address this comment and provides additional details on the reviewing and moving bat boxes. This includes a role for the Environmental Review Group within the process.
Bio.1.133	The Applicant	[APP-425] – Table 7.3 – consultation responses, RSPB, 23 Sept 2019. Please will the Applicant set out a specific response to each of the points raised by the RSPB.
	Response by SZC Co. at Deadline 2	The responses are set out under each of the points made by the RSPB, here in italics: 1. **RSPB '***We are concerned about the proximity of Foxburrow Wood CWS. Whilst it is difficult to determine from the map, we assume there will be no net loss from the site. Even so, in our view the likely impact would require mitigation.'* **The Applicant's Response**- Foxburrow Wood CWS ancient woodland will be retained in its entirety. A buffer distance of 15m from earthworks would be applied to prevent impacts to the trees on the edge of the woodland. Some limited footpath works would however be required at the edge of this zone.

ExQ1	Question to:	Question:
		2. **RSPB:** 'A *cut through, with ancillary footbridge for the public footpath would, in our view, not be enough to mitigate impact and the loss of ecological functionality across the landscape. Therefore, we strongly advise the construction of a green bridge at this location to help retain connectivity with several locally important hedge lines."* **The Applicant's Response**- SZC Co. has considered the design of the proposed Foxburrow Wood footbridge in light of discussions with and representations from the RSPB and Suffolk Wildlife Trust (SWT), and conversations with Natural England (NE). Details of these meetings are summarised in **Volume 5**, **Chapter 7** of the **ES** [APP-425]. Whilst a green bridge would be of some ecological benefit, the inclusion of a green bridge would not link or re-establish a linkage between two areas of existing high value, such as two areas of designated ancient woodland or a County Wildlife Site (CWS). The ancient woodland of Foxburrow Wood is of high value but the existing small areas of (non-ancient) woodland and mature trees in the Farnham Hall area to which it would become linked have no special designation, either nationally or locally (it is not a County Wildlife Site (CWS)). As a result, a green bridge would not serve to lessen the significance of any of the adverse ecological effects identified in the ES. Given it would not re-establish existing links between two high value habitats, and the ES demonstrates a net gain in biodiversity overall, it was not considered that a green bridge is necessary in ecological terms. In terms of landscape and visual impacts of the proposed Foxburrow Wood footbridge, the landscape and visual impact assessment chapter in the ES (**Volume 5**, **Chapter 6**) [APP-421] predicts significant landscape effects during construction and for the medium-long term once the two village bypass is operational. The planting mitigation proposed will, once matured, be sufficient to screen the footbridge from the wider landscape. This is unlikely to be achieved until Year 15 but 15 years is relative to the fact that the bridge would be a permanent structure and a legacy benefit of the scheme. The propose footbridge has been designed to be as small as possible, but within Design Manual for Roads and Bridges (DMRB) guidelines, to limit its visual impact. Whilst a green bridge may blend into the landscape sooner than the proposed

ExQ1	Question to:	Question:
		planting will allow, the additional scale of such a structure would provide little overall benefit, given it would not reconnect two high value habitats. The Green Bridge Guidance published by the Landscape Institute in January 2016 following research commissioned by Natural England presents several types of wildlife bridges, which are significantly more substantial in size than the proposed Foxburrow Wood footbridge. It states that green bridges aiming to achieve connections at a landscape / ecosystem level should be over 80m in width. Where the aim is to achieve connections for species at a population level, the bridge should be around 50m wide (published guidance recommendations range from 25m-80m, with an average of 50m). As a general rule, a width to length ratio over 0.8 is recommended. Given the Foxburrow Wood footbridge has been designed to be as short a structure as possible to limit its impacts, the above 0.8 ratio would mean that the 43m long footbridge would need to be 34.4m in width to be a viable green bridge in accordance with the guidance, which would make it a substantially larger structure. Given the visual impact of the proposed footbridge would be greatly reduced once the proposed mitigation planting has matured, and that this planting has been assessed to result in a net gain in biodiversity, the benefits of upgrading to a green bridge would be marginal. The additional scale of the structure would not appear to provide enough of a benefit to be a reasonable alternative to the proposed Foxburrow Wood footbridge. It is also likely to take longer to construct (at much greater cost) which could have a negative impact on programme overall but also on the reopening of the existing footpath crossing the two village bypass, and other PRoW connections in the vicinity. There are, therefore, significant disbenefits to a Green Bridge to weigh against a marginal benefit. 3. **RSPB:** *'The drainage infiltration basins will need habitat surveys and protected species surveys prior to works. However, we believe these basins could be designed in such a way as to provide opportunities for Net Gain and request that careful thought is given to this.'* **The Applicant's Response**- Pre-construction surveys will be carried out across all sites. Planting and landscaping design will be of such to maximise Net Gain opportunities and are aligned with the Biodiversity Net gain Report [REP1-018]. The

ExQ1	Question to:	Question:
		oLEMP [AS-263] and **TEMMP** [REP1-016] include long-term management and monitoring measures. 4. **RSPB:** *'The areas of grass could be planted with wild flower and/or pollen and nectar mixes and managed in a sensitive way.'* **The Applicant's Response**- This point is covered in the bullet above 5. **RSPB: '***There are also options to include skylark plots. Again, careful thought over the long-term management of these areas could contribute to Net Gain.'* ***The Applicant's Response***- The **oLEMP** [REP1-010] and the **TEMMP** [REP1-016] include long-term management and monitoring approaches and are aligned as relevant with the **Biodiversity Net Gain Report** [REP1-018]. The proposed habitats along the road corridor, which include acid and neutral grasslands are likely to be suitable for foraging skylarks, but they are probably unlikely to nest within the fenced boundaries of the highway. The proposed approach to enhancing the flood plain grasslands around the River Alde is likely to be more valuable to nesting skylarks. *6.* **RSPB:** *'We also have significant concerns on the loss of ecological connectivity along the river corridor as a result of the crossing. More detail is required to determine this and we expect mitigation in terms of mammal passes and related protected species surveys.'* **The Applicant's Response**- Section 7.6.118 specifies mitigation to be implemented to minimise and / or avoid fragmentation effects such as the offsetting of the bridge abutments and the retention of the River Alde channel banks as well as the provision of other mitigation such as the inclusion of an otter ledge to ensure the area is passable at times of high-flow. A second pass for mammals will also be provided through the eastern embankment of the River Alde overbridge. 7. **RSPB:** *'Furthermore, more evidence is required to understand how the by-pass might affect hydrology and the relationship between the river and its floodplain and consequently, the local wet meadows. If there is an effect, considerable effort will be needed to meet Net Gain, over and above what is currently being proposed.'* **The Applicant's Response-** Section 7.6.118 defines the mitigation to be implemented to minimise impacts upon the local hydrological features and to retain (or improve where practicable) value for local biodiversity. A full hydrological assessment is provided in **Volume 5**, **Chapter 1**2 [APP-441]. An updated

ExQ1	Question to:	Question:
		Biodiversity Net Gain Report for the two village bypass [REP1-018] was submitted at Deadline 1.
	Response by RSPB at Deadline 3	Please note these comments should be attributed to Suffolk Wildlife Trust from its Stage 4 consultation response. SWT and the RSPB continued to advocate the provision of an innovatively designed green bridge linking Foxburrow Wood County Wildlife Site with the woodland to the west in paragraph 3.811 of our Written Representations submitted at Deadline 2 as this would provide habitat enhancements for protected species of bats and birds. Please refer to our comments on net gain in section 5 of our Written Representations submitted at Deadline 2.
	Response by FERN at Deadline 3	The more easterly route would also retain AW but not affect Nuttery Belt which may be AW. The buffer zone for the DCO route is inadequate. The footpath diversion proposal by EDF in the DCO not only goes close to but will further compress the root zone at Foxburrow Wood and will affect the peaceful nature of the western side of AW Foxburrow Wood that is part of the Wildlife corridor between all the sites at Farnham Hall Estate and elsewhere.
	Response by SZC Co. at Deadline 5	**Response to FERN** There will be no land take of any designated ancient woodland at any location with the proposed two village bypass route or across the Sizewell C development proposals as a whole. Nuttery Belt is not designated as ancient woodland by Natural England, nor likely to be ancient. Ancient Woodland is defined in the NPPF (Annex 2) as*"An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites".* SZC Co. has reviewed Hodskinson's map of Suffolk (dated 1783), and a historic map dated 1825. Neither of these maps show Nuttery Belt, and the earliest map that SZC Co. has identified which shows woodland in the location occupied by Nuttery Belt is the Ordnance Survey 1 Inch to the Mile map dated 1837, with the earliest detailed depiction being in the Tithe Map, dated 1838 (IR/30/33/155). Therefore, SZC Co. considers that there is no evidence that the area of

ExQ1	Question to:	Question:
		Nuttery Belt has been continuously wooded since 1600 AD and therefore it could not be designated as Ancient Woodland on the basis of cartographic evidence. There is a 15m buffer zone between the western edge of Foxburrow Wood and the excavations to create the cutting for the bypass to the west. Paragraph 5.6.7 of Volume 1, Chapter 5 of the ES Addendum [AS-184]. As stated within ES Volume 5, Chapter 7 [APP-425] there would be no impact on the ancient woodland during construction of the development due to the primary and tertiary mitigation measure in place. During the operational phase the assessment of effects for Foxburrow Wood would remain of minor beneficial (not significant) for habitat fragmentation.
The next set of questions address bats on the Main Site, section 14.13 of [APP-224]		
Part 3 -Biodiversity and ecology (terrestrial) - Northern Park and Ride		
No further comments received at Deadline 3.		
Part 4- Biodiversity and ecology (terrestrial) – Southern Park and Ride		
No further comments received at Deadline 3.		
Part 5- Biodiversity and ecology (terrestrial) - Two Village Bypass		
Bio.1.144	The Applicant, Natural England, SCC	[APP-425] – para 7.6.154 – habitat loss and fragmentation, bats. Road crossing points for bats are mentioned. It has been widely reported that the bat hop-overs (which are often said to resemble 11kv transmission lines) on the A11 near Thetford are ineffective. Please will the Applicant point the ExA to where in the ES the measures are described and any evidence in the ES of their demonstrable success elsewhere. Is the "not significant" assessment justified?

ExQ1	Question to:	Question:
	Response by SZC Co. at Deadline 2	The structures described as resembling 11kv transmission lines on the A11 near Thetford are 'Bat gantries', which can be ineffective. These structures are not proposed in the construction or operational phases for the two village bypass or the Sizewell link road. Bat 'hop-overs' are proposed and are advocated as a simple method to guide bats safely across roads[14] [15]. The aim of hop-overs is to maintain existing bat commuting routes and to increase or keep the bats at height above the traffic when they cross the road. A hop-over consist of tall trees, preferably deciduous trees, as close to the road margins as possible (with due consideration for vehicle safety) on either side of a road to narrow the gap in the bat commuting route which is created by the new road. In ideal circumstances and in the longer term, the canopy meets over the road to create a continuous canopy. This approach is more viable for single carriageway roads (as in the proposed two village bypass and the Sizewell link road) rather than dual carriageways. Planters containing trees are proposed to maintain connectivity at night during the construction period.
	Response by East Suffolk Council at Deadline 2	ESC's understanding is that the proposed 'bat hop overs' would take the form of allowing canopy vegetation to close over the road rather than being physical structures. This is described in paragraph 7.6.154 of [APP-425]. ESC does not consider that relying on vegetation growth in this way as mitigation for the loss of connectivity for bats is acceptable (particularly given the time it would take for trees to grow to such a size) and it does not seem practical (or safe) from a highway perspective either. It therefore seems unlikely to be sufficient to maintain the required landscape connectivity and justify the "Not Significant" ES conclusion. As recognised by the ExA, the available evidence on the use of bat gantries (which are often structures with strung wires across the carriageway) suggests that they are unlikely

[14] Limpens HJGA, Twisk P, Veenbaas G. 2005. Bats and road construction. Brochure about bats and the ways in which practical measures can be taken to observe the legal duty of care for bats in planning, constructing, reconstructing and managing roads. Dutch Ministry of Transport, Public Works and Water Management Directorate-General for Public Works and Water Management, Road and Hydraulic Engineering Institute, Delft, the Netherlands and the Association for the Study and Conservation of Mammals, Arnhem, the Netherlands.

[15] Stratmann B 2006. Zur Kollisionswahrscheinlichkeit fliegender oder jagender Fledermäuse bei der Querung von Verkehrswegen. Nyctalus 11, pp. 268-276.

ExQ1	Question to:	Question:
		to be a successful mitigation measure (details on studies supporting this conclusion are available here: https://www.conservationevidence.com/actions/978 (accessed 07/05/2021)). ESC considers that better connectivity for bats across the carriageway would be achieved by construction of the proposed footbridge as a 'green bridge' which would include vegetation planting both on the bridge itself and connected to existing vegetation corridors at each end (including linking to Foxburrow Wood CWS). Whilst ESC acknowledges that the published evidence of the use of green bridges by bats is limited (details available here: https://www.conservationevidence.com/actions/979 (accessed 07/05/2021)), nevertheless ESC considers it to be much more likely to be successful mitigation than bat gantry type structures.
	Response by Suffolk County Council at Deadline 2	SCC's understanding is that the proposed 'bat hop overs' would take the form of allowing canopy vegetation to close over the road rather than being physical structures. This is described in paragraph 7.6.154 of [APP-425]. We do not consider that relying on vegetation growth in this way as mitigation for the loss of connectivity for bats is acceptable (particularly given the time it would take for trees to grow to such a size) and it does not seem practical (or safe) from a highway perspective either. It therefore seems unlikely to be sufficient to maintain the required landscape connectivity and justify the "Not Significant" ES conclusion. As recognised by the ExA the available evidence on the use of bat gantries (which are often structures with strung wires across the carriageway) suggests that they are unlikely to be a successful mitigation measure (details on studies supporting this conclusion are available here: https://www.conservationevidence.com/actions/978 (accessed 07/05/2021)). SCC considers that better connectivity for bats across the carriageway would be achieved by construction of the proposed footbridge as a 'green bridge' which would include vegetation planting both on the bridge itself and connected to existing vegetation corridors at each end (including linking to Foxburrow Wood CWS). Whilst we acknowledge that the published evidence of the use of green bridges by bats is limited (details available here: https://www.conservationevidence.com/actions/979 (accessed 07/05/2021)), nevertheless we consider it to be much more likely to be successful mitigation than bat gantry type structures.
	Response by Natural England at Deadline 2	As these measures are proposed to mitigate impacts on licensable protected species these will be assessed by Natural England through our licensing process. For the progression of this issue the applicant must submit draft protected species licence applications to Natural

ExQ1	Question to:	Question:
		England for review. If agreed Natural England may provide LoNIs to ensure the ExA has the required certainty in this regard. Further engagement on this issue will therefore be undertaken as part of the licensing process.
	Response by SZC Co. at Deadline 3	SZC Co notes Natural England's comments and confirms that it is following the process outlined by Natural England in its response for Deadline 2 above, for bats and other relevant protected species. SZC Co also notes and agrees with the councils' point that 'bat gantries' are unlikely to be successful and notes the limited evidence that bats would use green bridges.
	Response by RSPB at Deadline 3	We recommended the design and location of road crossing points for bats should follow best practice in our Written Representations submitted at Deadline 2.
	Response by SZC Co. at Deadline 5	The point raised by the RSPB is noted but addressed already in SZC Co.'s responses at Deadlines 2 and 3.
Bio.1.145	The Applicant	[APP-425] – para 7.7.8 – monitoring and bat boxes. This paragraph states: *"If bat boxes have not been occupied by year 5 following installation, consideration would be given to moving them to alternative sites nearby, to be determined by a licensed bat ecologist*". It is one of a number of examples where the following questions arise: (i) where is this secured? (ii) what are the criteria? (iii) how are disputes settled? (iv) what happens if the boxes are not occupied in their new locations. Please will the Applicant address these questions for each place where these proposals are made in the ES and Application documentation.
	Response by SZC Co. at Deadline 2	The commitments made in relation to monitoring of sites, habitats and species and also the monitoring of the success of mitigation measures such as habitat establishment and bat boxes are described in the **Terrestrial Ecology Monitoring and Mitigation Plan** (**TEMMP**) [REP1-016], submitted at Deadline 1 and secured under Requirement 4. The

ExQ1	Question to:	Question:
		Applicant believes that this document serves to address the question in full including the point (ii) around disputes In response to example given left and specifically in relation to bats, for the associated development sites, the approach is defined in **Table 5.2**, on page 67, as follows: **Construction (Years 1-3):** *'Bat boxes will be monitored on an annual basis during the construction phase.* • *The surveys will be to confirm presence/ absence and the species assemblage present. Annually in September (optimal time)* • *All monitoring will be conducted by an appropriately licensed bat ecologist.* • *Monitoring will consist of a check of any bat boxes installed for evidence of use, such as droppings, smoothing, feeding remains, smell, staining and bat fly (Nycteribiid) pupae.* • *Requirements as detailed in the draft non-licensable method statement or Natural England Bat Development Licence.* • *Success criteria will include the uptake of occupation by bats, the number of bats present increases or remains consistent throughout the construction phase.* • *In the event of the bat boxes not being occupied within three years of installation, consideration will be given to moving them to alternative sites nearby, to be determined by a licensed bat ecologist.'* **Operation (Years 4-8):** *'Boxes will continue to be monitored for five-years beyond the completion of construction.* • *The surveys will be to confirm presence/ absence and the species assemblage present.* • *Annually in September (optimal time)* • *All monitoring will be conducted by an appropriately licensed bat ecologist.* • *Monitoring will consist of a check of any bat boxes installed for evidence of use, such as droppings, smoothing, feeding remains, smell, staining and bat fly (Nycteribiid) pupae.* • *Requirements as detailed in the draft non-licensable method statement or Natural England Bat Development Licence.* • *Success criteria will include occupation by bats and the number of bats present increases or remains constant.*

ExQ1	Question to:	Question:
		• *In the event of the bat boxes not being occupied within three years of installation, consideration will be given to moving them to alternative sites nearby, to be determined by a licensed bat ecologist.'*
	Response by RSPB at Deadline 3	The TEMMP paragraph 4.5.7 notes 'Bat boxes in retained woodland areas will be monitored on an annual basis during the construction phase of Sizewell C from one year after installation. Boxes will continue to be monitored for five-years beyond the completion of construction. This monitoring will clarify the presence/absence of bats and the use of the bat boxes. Further details are provided in Table 4.4 below.' Table 4.4. notes 'In the event of the bat boxes not being occupied within three years of installation, consideration will be given to moving them to alternative sites nearby, to be determined by a licensed bat ecologist.' In our view the Applicant should explain the objectivity of the assessment and enforcement of the result of the 'consideration' to answer the ExA question. We request details of the process for reviewing bat box location and ensuring bat boxes are in suitable locations.
	Response by SZC Co. at Deadline 5	Please refer to the response provided for **Question Bio.1.125.**
Bio.1.147	The Applicant	[AS-184] Similarly, at section 5.2 b)i)c), paras 5.2.27 and following, additional floodplain mitigation is described. Bearing in mind the statement at para 5.2.29 that the original ES stated that there was no significant effect on floodplain grasslands, and the tests for requirements in a DCO please will the Applicant indicate how the changes are incorporated and secured in the DCO. Please will Natural England, ESC and SCC explain the justification for their incorporation bearing in mind the same matters.
	Response by SZC Co. at Deadline 2	The introduction of floodplain grassland mitigation was introduced to address a concern from ecological stakeholders that the landtake of floodplain grasslands was not being mitigated, irrespective of the conclusion in the original ES that there was no significant effect on floodplain grasslands. The determination of no significant effect was based on

ExQ1	Question to:	Question:
		the fact that the grasslands subject to landtake are of very poor quality (in ecological terms), being of improved pasture of the 'MG7 community' of the National Vegetation Classification. The new floodplain grassland mitigation is secured via way of its inclusion in the **two village bypass oLEMP** [AS-263], which is secured by Requirement 22A of the **Draft DCO** (Doc Ref. 3.1(C)).
	Response by East Suffolk Council at Deadline 2	As set out in paragraph 8.119 of the LIR [REP1-045], ESC welcomes that the impact of the loss of this habitat is now fully acknowledged in the ES. Flood plain grazing marsh is a UK Priority habitat under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) and therefore impacts on it must be appropriately addressed following the mitigation hierarchy. However, we remain concerned that whilst the mitigation proposed could result in a qualitative improvement in the remaining flood plain grazing marsh habitat, there will still be a net loss of area of this habitat type. As set out in LIR paragraph 8.111, we are also concerned that whilst it is proposed to secure this qualitative improvement though a Landscape and Ecology Management Plan (LEMP), no such document has yet been submitted into the Examination and therefore interested parties are not able to comment on it in more detail.
	Response by Suffolk County Council at Deadline 2	As set out in paragraph 8.119 of the Local Impact Report [REP1-049], SCC welcomes that the impact of the loss of this habitat is now fully acknowledged in the Environmental Statement. Flood plain grazing marsh is a UK Priority habitat under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) and therefore impacts on it must be appropriately addressed following the mitigation hierarchy. However, we remain concerned that whilst the mitigation proposed could result in a qualitative improvement in the remaining flood plain grazing marsh habitat, there will still be a net loss of area of this habitat type. As set out in LIR paragraph 8.111, we are also concerned that whilst it is proposed to secure this qualitative improvement though a Landscape and Ecology Management Plan (LEMP), no such document has yet been submitted into the examination and therefore interested parties are not able to comment on it in more detail.
	Response by SZC Co. at Deadline 3	An Outline Landscape and Ecology Management Plan (oLEMP) for the Two Village Bypass was submitted with the change request application in January 2021 [AS-263] and an updated version is due to be submitted at Examination at Deadline 5.

ExQ1	Question to:	Question:
	Response by East Suffolk Council at Deadline 3	In our response to this question we incorrectly stated that an Outline Landscape and Ecological Management Plan (oLEMP) for the Two Village Bypass had not been submitted to the examination, we acknowledge that an oLEMP has been submitted as an Additional Submission document under examination reference AS-263. We also acknowledge the inclusion of Requirement 22A in the latest version of the draft DCO [REP2-014] submitted at Deadline 2 which secures initial delivery of the measures described within the oLEMP. However, our concern over the final adoption of the areas of landscaping along the route (as set out in our answer to the Examining Authority's First Written Questions ExQ1 question BIO.1.149 [REP2-176]) remains.
	Response by SZC Co. at Deadline 5	An updated Two village bypass Landscape and Ecology Management Plan has been submitted at Deadline 5 (LEMP)(Doc Ref 8.3 A (A)). Section 6 of the LEMP sets out the monitoring requirements and the party responsible for the creation and subsequent management of the habitat or feature. As detailed in the SZC Co. response to Bio.1.149 at Deadline 2, "*The oLEMP and subsequent LEMP will be managed by the Undertaker until any such time as the road is adopted by the Highways Authority*." At this point the local highways authority would then be responsible for the ongoing maintenance of the landscape, who are expected to continue to manage the areas in line with the LEMP. In the event there were to be a refusal to adopt the road, the LEMP would be managed by the Undertaker.
Bio.1.150	The Applicant	[AS-263] – TVB OLEMP – para 4 .1.2 states that where possible Foxburrow Wood, Pond Wood and Nuttery Belt would be retained. Please will the Applicant clarify whether the Application and DCO (a) propose or (b) permit the removal of those features.
	Response by SZC Co. at Deadline 2	Foxburrow Wood and Pond Wood will be retained and the statement which includes the *'where possible'* caveat in section 4.1.2 of the **two village bypass oLEMP** [AS-263] is incorrect. The retention of these woodlands is also clearly shown on the vegetation retention plans on **Figures 5.2.6** and **5.2.7** of **the ES Addendum** [AS-197]. These retained woodland would be protected using mitigation measures defined in the **CoCP** (Doc Ref. 8.11(B)) such as the installation of appropriate protective fencing to ensure no

ExQ1	Question to:	Question:
		encroachment on the woodlands and to ensure construction traffic and personnel remain excluded from these areas. In relation to Nuttery Belt, the statement which includes the *'where possible'* caveat in **section 4.1.2** of the **two village bypass oLEMP** [AS-263] is correct and needs to be retained. Some loss of Nuttery Belt has been identified in **section 7.6.65** of **Volume 5**, **Chapter 7** of the **ES** [APP-425]. However there may be a need for additional visibility splays of 215m. This is considered unlikely but requires approval from SCC as Highways Authority. If such visibility splays were required, there would be some further tree removal from Nuttery Belt. In **section 5.2.23**, **Volume 1**, **Chapter 5** [AS-184], the worst case loss from Nuttery Belt has been assumed in the **ES Addendum.** The application proposes some loss of Nuttery Belt but the extent of loss will vary as described above. The DCO would provide consent for removal of the woodland to the extent required, in accordance the vegetation removal plans, as shown in **Figures 5.2.6** and **5.2.7** of **Chapter 5** of the **ES Addendum** [AS-197].
	Response by FERN at Deadline 3	There has always been land take of Nuttery Belt intended in EDFs' plans yet it was never assessed on the very dubious ground of 'access not granted'; It is quite possibly AW.
	Response by SZC Co. at Deadline 5	SZC Co.'s response at Deadline 2 remains valid although further details on Nuttery Belt are given in SZC Co.'s Deadline 5 response at **Question Bio 1.133** above.
Bio.1.154	The Applicant	[APP-461] – para 7.5.4 third bullet, fourth tiret. Should the reference be to the East Suffolk Line? Ninth bullet – reads: "*Crossing points (bat hop-overs) to facilitate the passage of bats across the road alignment have been incorporated in the design where foraging or commuting routes have been identified".* What is the evidence for the success of these facilities? It has been widely reported that the bat hop-overs (which resemble 11kv transmission lines) on the A11 near Thetford are ineffective. See e.g. https://www.bbc.com/news/uk-england-34605886

ExQ1	Question to:	Question:
		What measures are to be used on the SLR and what evidence is there of success elsewhere? Please will the Applicant comment and explain why the measures proposed are likely to be successful. Is a "not significant" effect assessment justified?
	Response by SZC Co. at Deadline 2	The answer to **Question Bio 1.144** is also directly relevant. The structures described as resembling 11kv transmission lines on the A11 near Thetford are 'Bat gantries', which can be ineffective and these are not proposed in the construction or operational phases for the two village bypass or the Sizewell link road. Bat 'hop-overs' are proposed and are advocated as a simple method to guide bats safely across roads[16] [17].The aim of hop-overs is to maintain existing bat commuting routes and to increase or keep the bats at height above the traffic when they cross the road. A hop-over consist of tall trees, preferably deciduous trees, as close to the road margins as possible (with due consideration for vehicle safety) on either side of a road to narrow the gap in the commuting route which is created by the new road. In ideal circumstances and in the longer term, the canopy meets over the road to create a continuous canopy. Given the road widths, this approach is more viable for single lane highways rather than dual carriageways.

[16] Limpens HJGA, Twisk P, Veenbaas G. 2005. Bats and road construction. Brochure about bats and the ways in which practical measures can be taken to observe the legal duty of care for bats in planning, constructing, reconstructing and managing roads. Dutch Ministry of Transport, Public Works and Water Management Directorate-General for Public Works and Water Management, Road and Hydraulic Engineering Institute, Delft, the Netherlands and the Association for the Study and Conservation of Mammals, Arnhem, the Netherlands.

[17] Stratmann B 2006. Zur Kollisionswahrscheinlichkeit fliegender oder jagender Fledermäuse bei der Querung von Verkehrswegen. Nyctalus 11, pp. 268-276.

ExQ1	Question to:	Question:
		As stated in Altringham and Berthinussen[18], although the effectiveness of bat hop-overs has not been assessed, Russell et al. (2009)[19] observed that bat flights across a 20m road gap were at greater heights where bats approached the road along flight routes with taller roadside vegetation and Berthinussen & Altringham (2012b)[20] found a positive correlation between road-crossing height and the height of the roadside embankment. Planters containing trees are proposed to maintain connectivity at night during the construction period.
	Response by RSPB at Deadline 3	We recommended the design and location of road crossing points for bats should follow best practice in our Written Representations submitted at Deadline 2.
	Response by SZC Co. at Deadline 5	The point raised by the RSPB is noted and no further response is proposed.
Part 6 - Biodiversity and ecology (terrestrial) - Sizewell Link Road		
No further comments received at Deadline 3.		
Part 7 -Biodiversity and ecology (terrestrial) - Yoxford Roundabout		
No further comments received at Deadline 3.		
Part 8 - Biodiversity and ecology (terrestrial) - Freight Management Facility ("FMF")		
No further comments received at Deadline 3.		
Part 9 - Biodiversity and ecology (terrestrial) - Rail		
No further comments received at Deadline 3.		

[18] Altringham J. and Berthinussen A - Bats, roads and railways https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiavKXv27fwAhUAQxUIHX7LBEkQFjAAegQIBBAD&url=http%3A%2F%2Fsciencesearch.defra.gov.uk%2FDocument.aspx%3FDocument%3D12676_WC1060AppendixA.pdf&usg=AOvVaw1LuzP_KTJFtRg0YYxUrxy_

[19] Russell AL, Butchkoski CM, Saidak L, McCracken GF. 2009. Road-killed bats, highway design, and the commuting ecology of bats. Endangered Species Research 8, 49-60.

[20] Berthinussen A, Altringham J. 2012b. Do bat gantries and underpasses help bats cross roads safely? PLoS ONE 7, e38775.

ExQ1	Question to:	Question:
The following questions are all addressed to Natural England, and in some cases to other parties. They address all or more than one of the Main Site and Associated Sites		
Part 10 - Biodiversity and ecology (marine) - General **Please note. Owing to the length of [APP-317] and the multiple topics and effects it assessed, the ExA asked the Applicant in [PD-005] to identify each of the headings in a way which clarifies both the subject matter and how each section, sub-section, sub-sub-section and so on sits in relation to preceding sections. As the paragraphs already had a number system separate from the headings the ExA suggested a lettering system. The lettered headings version submitted by the Applicant is at [AS-035]. The full list of headings is at electronic pages 694-724 of [AS-035] (hard copy pages 679-709). References to lettered sections in the questions below on [APP-317] are to those sections.**		
No further comments received at Deadline 3.		
Part 11 - Biodiversity and ecology (marine) - Plankton		
No further comments received at Deadline 3.		
Part 12- Biodiversity and ecology (marine) - Benthic Ecology		
Bio.1.218	The Applicant, MMO	[APP-317] Construction discharges of un-ionised ammonia, section C.c.f, para 22.7.151. Please will the Applicant explain why the magnitude of the impact is assessed as low "as discharges could occur throughout the construction phase". That duration suggests the opposite. The ExA also notes the criteria in table 1.3 of appendix 6R [APP-170] where the Applicant says: "Medium - Medium-term temporary impacts, one to 12 years". "Low - Short-term temporary, less than a year". Please will MMO also comment.
	Response by SZC Co. at Deadline 2	Various factors are considered when assessing impact magnitude: spatial extent, amount of change and the duration of the pressure (see **Volume 2, Chapter 22** of the **ES** [APP-317], **Table 22.3**). For this assessment, the spatial extent of the pressure is very small (i.e., EQS concentrations are exceeded only up to 6.3m from the point of discharge; see [APP-317], paragraph 22.7.150), which would generally mean that impact magnitude is

ExQ1	Question to:	Question:
		very low. However, as the pressure could last for the duration of the construction phase, the impact magnitude has been increased to *low*.
	Response from the MMO at Deadline 2	The MMO has received and reviewed the Applicant's response. We are satisfied with the applicant's response, the spatial extend of EQS exceedance is very small.
	Response from SZC Co. at Deadline 3	No further comments to add to SZC Co. response for Deadline 2.
	Response by Environment Agency at Deadline 3	Any proposed water discharge activities (WDAs) related to or generated by construction or cold commissioning related activities at SZC will be subject to separate environmental permit applications by the Applicant. The Applicant is yet to submit any construction or cold commissioning related WDA permit applications, although preapplication discussions between the Applicant and Environment Agency are on-going. Once the application(s) has been submitted to us and has been duly made, the environmental impact of any potentially hazardous chemicals or elements within the proposed construction related WDAs will be assessed during the determination of the permit application. We may consider any supporting information provided regarding construction or cold commissioning related activities as part of the in-combination assessments for the The Conservation of Habitats and Species Regulations 2017 and The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 for the SZC operational WDAs permit application, which is currently in determination by the Environment Agency. The SZC operational WDAs permit application takes into account the proposed discharges related to/generated by hot functional testing and operational activities.

ExQ1	Question to:	Question:
	Response by SZC Co. at Deadline 5	Noted, no further comments to add to SZC Co. response for Deadline 2.
Part 13- Biodiversity and ecology (marine) - Fish		
Bio.1.244	The Applicant, MMO	[APP-317] Section D.c.c.c Assessment of impingement losses, Table 22.113. Please will the Applicant explain why it has drawn seabass and thin-lipped grey mullet into this table. The figures for seabass seem simply to be 10% of those in Table 22.112. The figures for grey mullet are the same as in the table. The ExA notes the reference to Appendix 22I. Please will the Applicant summarise the point being made on this by that Appendix and give the paragraph and page numbers which are relevant. Please will the MMO also comment.
	Response by SZC Co. at Deadline 2	We agree the title of **Table 22.113 of Volume 2, Chapter 22** of the **ES** [APP-317] is not explicit in describing what it shows. **Table 22.113** [APP-317] reflects additional species-specific assessment steps - these are detailed in Section 6.5 (Further consideration of impingement effects on eel, bass and thin-lipped grey mullet) of Report Number TR406 (see **Chapter 2, Appendix 2.17.A** (Supplementary Information on Fish Assessments) of the **ES Addendum** [AS-238] which provides an update to the version provided in **Volume 2, Appendix 22I** of the **ES** [APP-326]. Please see also **Appendix 7L** of **this Chapter**. Report TR406 [AS-238] provides updated impingement estimates for both species accounting for the estimated thin-lipped grey mullet SSB and provides estimates of seabass SSB effects with/without the distribution in the GSB accounted for. In both cases impingement estimates are provided with and without mitigation measures. Further summary for each species is provided here: <u>Seabass</u> Seabass are not uniformly distributed across the GSB with evidence suggesting juvenile seabass are attracted to the warm water effluents of Sizewell B in winter. Sampling was undertaken inside and outside of the Sizewell-Dunwich Bank, and close to and distant from the current and proposed intake/outfall locations of Sizewell B and C, respectively. The survey identified a statistically significant difference in seabass distribution in the GSB with 95% of seabass recorded inside the Sizewell-Dunwich Bank. The attraction of juvenile

ExQ1	Question to:	Question:
		seabass to thermal discharges and in relation to an operational Sizewell C is considered in more detail in the Report TR406 at section 7.2.4 [AS-238]. The assessment accounts for the reduction in impingement due to the offshore location of the intake headworks which is considered to be 90%. Grey mullet There is not a directed commercial fishery for grey mullet in the southern North Sea and therefore the landings data (120 t in Report TR406 [AS-238]) will substantially underestimate the SSB. The mean length in the commercial catch has been estimated to be in the range 36 to 42cm. At this size the annual natural mortality (M) is in the range of 0.5 to 0.4 and the calculated sustainable harvesting rate is approximately 33% - 39% SSB (Section 5.1.1 of Report TR406 [AS-238]). Mullet impingement numbers at SZB show no significant trend over the period 2009-2017 and provide no evidence that fishing on the stock is unsustainable. It is therefore considered unlikely that mortality on the stock is 33%+ in the southern North Sea and instead a conservative assumption has been made that landings represent 20% of SSB. Resulting in a conservative SSB prediction of 600t against which a population estimate is made in **Table 22.113** [APP-317].
	Response from the MMO at Deadline 2	The MMO have received and reviewed the response by the Applicant and are content with the response provided by the Applicant and with the additional assessment information provided by the Applicant in the ES Addendum.
	Response from SZC Co. at Deadline 3	No further comments to add to SZC Co. response for Deadline 2.
	Response by Environment Agency at Deadline 3	Grey mullet We do not consider that there is sufficient evidence made available to justify the decision to use a SSB prediction of 600t. We cannot confirm that this is sufficiently precautionary or that there will not be a potential for a decline in WFD status.
	Response by SZC Co. at Deadline 5	The Applicant is aware that the population abundance of widely distributed thin-lipped grey mullet remains undetermined. The thin-lipped grey mullet of the North Sea area is described in the published literature as largely unexploited and its population recently began to expand in range to Norway and Poland. However, species-specific stock

ExQ1	Question to:	Question:
		assessment and time-series data do not exist. Consequently, landings statistics form the only guide of the relative abundance of the species. The Applicant has provided evidence that fishing mortality rates of 10-20% are sustainable for commercially exploited fish stocks (see **Volume 3 Chapter 2 Appendix 2.17A** Section 5.1 pdf page 121) [AS-238]. This rate of 20% was applied to North Sea commercial landings of grey mullet only (mean of approximately 120t) to estimate the SSB from landings. This assumes that the stock is commercially exploited and ignores recreational catches that were estimated in the UK as a mean of 216t annually. At the time of assessment, most of the recreational catch (86%) was released with unknown mortality. Across the UK, the mean recreational catch was 43% higher than the average commercial landings of 151t in 2006-2017 as reported by MMO. Mullet was not a heavily targeted species but in recent times the demand and price for mullet has increased. Given the relatively low exploitation level of thin-lipped grey mullet in the North Sea, the Applicant considers the assumed SSB of ca. 600t to be highly precautionary. As such there are not concerns regarding the impacts of the station on the sustainability of thin-lipped grey mullet populations. This position was echoed by the MMO in their Deadline 2 submission (para. 3.2.7 [REP2-140]), emphasis added: *"Notwithstanding these uncertainties, the entrapment estimates indicate that even in the absence of LVSE and FRR mitigation measures, only 4 species exceed the 1% threshold: bass, for which density adjustment substantially reduces assessment of impact; sand goby, for which mortality rate >1% Spawning Stock Biomass (SSB) is not a concern at population level; thin-lipped mullet, for which value is an artefact of the low level of landings and absence of SSB; and eel, for which the applied Equivalent Adult Value (EAV) of 1 is unrealistically high, and is a species most likely to benefit from the FRR. On this basis, the MMO consider there is a good level of confidence that actual impacts to all fish species will not be significant. Therefore, the MMO support the conclusions of the ES."* In relation to the Environment Agency concern pertaining to a potential decline in WFD status, the Applicant addressed these concerns as part of the supplementary fish information submitted in January 2021 (see Volume 3 Chapter 2 Appendix 2.17: SPP108) [AS-238] and presented the results to the Environment Agency. The Environment Agency previously raised concerns about reductions in thin-lipped grey mullet and the

ExQ1	Question to:	Question:
		consequences for the transitional fish classification index (TFCI), a measure of the fish quality of the Alde-Ore under the WFD. One of the scenarios tested by the Applicant involved artificially removing all thin-lipped grey mullet and all Dover sole from the TFCI. Such a manipulation falls beyond the bounds of 'reasonable worst-case'. Irrespective of this, the status of the water body (as determined by the TFCI) remained 'good' showing a 4% reduction in the TFCI metric. It can therefore be concluded that the impacts of the station on thin-lipped grey mullet would not impact the WFD status.
Bio.1.248	The Applicant, MMO	[APP-317] Section D.e.a Commissioning discharges of hydrazine on fish discharged from the FRR, para 22.8.842. "*The duration of the exceedance is short, with concentrations exceeding the acute PNEC for no longer than 3.25 hours at a time."* What is the time gap between such concentrations? What would be the minimum acceptable gap?
	Response by SZC Co. at Deadline 2	Hydrazine discharges would not be continuous. The treatment tanks would be discharged once a day meaning the plume could be transported towards the FRR once within a 24-hour period depending on the direction of the tidal currents during release. Whilst the FRR is at an *in-situ* location the discharged fish that survive FRR passage are mobile, either transported by the tide or actively swimming. Therefore, an acceptable exposure gap is not strictly applicable in this instance as fish are highly unlikely to be at the same location at the FRR outfall at the time of the subsequent plume passage, approximately 24 hours later. Instead, fish sensitivity to hydrazine toxicity for the exposure conditions, assuming they are released into the passing plume, is considered based on model outputs of the plume behaviour. The Canadian Federal Water Quality Guidelines for hydrazine in the marine environment is 200ng/l for low likelihood of adverse effects and this threshold was never exceeded during the model simulation at the surface or the seabed. Maximum predicted concentrations at the seabed are less than 10% of those at the surface. At the surface, the acute PNEC is predicted to be exceeded a maximum of 21 occasions during the month-long model simulation, for a duration of between 0.25 and 3.25 hours at a time. At the seabed, the

ExQ1	Question to:	Question:
		acute PNEC is exceeded a maximum of 15 occasions during the modelled month for a duration of between 0.75 and 2.75 hours at a time. The total duration above the acute PNEC at the FRR represents 5.1% of the month-long simulation and is not continuous. The acute PNEC is based on data for the most sensitive group of organisms tested (algae) and is derived from continuous exposure for up to 6 days. Available evidence suggests that fish are one of the less sensitive groups to hydrazine exposure. Therefore, the short duration of exposure and relatively low concentration would result in limited toxicity. Furthermore, hydrazine has low bioaccumulate potential (paragraph 22.6.147 of **Volume 2, Chapter 22** of the **ES** [APP-317]). Whilst para. 22.8.842 acknowledges that fish exposed to impingement stress may be less tolerant to chemical stress, the low concentrations and transitory nature of the plume, indicates additional mortality would be minimal.
	Response from the MMO at Deadline 2	The MMO have received and reviewed the response by the Applicant and are content with the response provided by the Applicant.
	Response from SZC Co. at Deadline 3	No further comments to add to SZC Co. response for Deadline 2.
	Response by Environment Agency at Deadline 3	Any proposed water discharge activities (WDAs) related to or generated by construction or cold commissioning related activities at SZC will be subject to separate environmental permit applications by the Applicant. The Applicant is yet to submit any construction or cold commissioning related WDA permit applications, although preapplication discussions between the Applicant and Environment Agency are on-going. Once the application(s) has been submitted to us and has been duly made, the environmental impact of any potentially hazardous chemicals or elements within the proposed construction related WDAs will be assessed during the determination of the permit application. We may consider any supporting information provided regarding construction or cold commissioning related activities as part of the in-combination assessments for the The Conservation of Habitats and Species Regulations 2017 and The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 for the SZC

ExQ1	Question to:	Question:
		operational WDAs permit application, which is currently in determination by the Environment Agency. The SZC operational WDAs permit application takes into account the proposed discharges related to/generated by hot functional testing and operational activities.
	Response by SZC Co. at Deadline 5	Noted, no further comments to add to SZC Co. response for Deadline 2.
Bio.1.249	The Applicant, MMO	[APP-317] Section D.e.b Interaction between thermal discharges and chlorine toxicity, para 22.8.845. This para closes with the following: "*Therefore, no further consideration is made of the possible synergistic effects for seabed plumes*". Why is this? Please will the Applicant unpack this. 25.8 ha at the seabed will be >23°C (though below 28°) with both stations operating, which is said to be a "limited" area. With respect all areas are limited. And EQS for the TRO plume will be exceeded.
	Response by SZC Co. at Deadline 2	This point is fully addressed below, please see the response provided to **Question Bio.1.250**.
	Response from the MMO at Deadline 2	The MMO have received and reviewed the response by the Applicant and are content with the response provided by the Applicant.
	Response from SZC Co. at Deadline 3	No further comments to add to SZC Co. response for Deadline 2.
	Response by Environment Agency at Deadline 3	The environmental impact of any thermal or potentially hazardous chemicals or elements within the proposed SZC operational discharges are currently being assessed as part of the Environment Agency's determination of the SZC operational WDA permit application. This will include the review and assessment of any thermal and chemical plumes and mixing zones to determine whether or not there will be any areas of EQS (or alternative assessment value i.e. Predicted No-effect Concentration) exceedance at the sea surface and seabed.

ExQ1	Question to:	Question:
		We have yet to determine whether or not the proposal is acceptable as the operational SZC WDA permit application is still in determination.
	Response by SZC Co. at Deadline 5	Noted, no further comments to add to SZC Co. response for Deadline 2.
Bio.1.250	The Applicant, MMO	[APP-317] Section D.e.c, Assessments of effects on fish receptors: thermal discharges and chlorine toxicity, para 22.8.849 concludes that *"The inter-relationship of the TRO and thermal plumes is not predicted to increase the significance of effects concluded for the pressures alone"*. How does the evidence point to this?
	Response by SZC Co. at Deadline 2	Temperature dependent toxicity is suggested to be a result of increased uptake rates and physiology at higher temperatures. A 5°C increase in temperature has been shown to halve the LC_{50} concentration of free chlorine and chloramine in 30-minute exposures in some planktonic invertebrates[21]. The concentrations tested in this study were in the 100s of microgram range and temperatures near the thermal tolerance[22]. Temperature elevation has been shown to increase toxicity of chlorine TRO in fish. In one case an approximate halving of the lethal concentration of TRO was observed with an increase of temperature between 10 and 20°C[23]. However, the studies reviewed generally report temperature effects on toxicity in acute studies with durations of hours to a few days and with exposure concentrations in the 100s of micrograms. In the same review, in

[21] Capuzzo, J. M., (1979). The effect of temperature on the toxicity of chlorinated cooling waters to marine animals — a preliminary review. — Marine Pollution Bulletin, 10, 45–47.

[22] Capuzzo, J. M., (1979). The effect of temperature on the toxicity of chlorinated cooling waters to marine animals — a preliminary review. — Marine Pollution Bulletin, 10, 45–47.

[23] Cooke, S.J. and J.F. Schreer (2001). Additive Effects of Chlorinated Biocides and Water Temperature on Fish in Thermal Effluents with Emphasis on the Great Lakes. Reviews in Fisheries Science, 2001, 9 (2), pp. 69–113.

ExQ1	Question to:	Question:
		some cases fish were reported to actively avoid much lower TRO concentrations than would be lethal over several days' continuous exposure[24]. At the immediate point of discharge the maximum temperatures at the surface are between 7.5 and 8°C above ambient. As a 98th percentile the 5°C above ambient temperature contour is 30.6ha in a relatively symmetrical position around the outfalls. Within this area TRO concentration above 50µg/l and 20µg/l occur over sea surface areas of ~9ha and 98ha, respectively as a 95th percentile. In small areas of the thermal plume with temperatures of 5°C above background and in which TRO concentrations are >20ug/l increased TRO toxicity may occur. However, the plume conditions sufficient to cause synergistic effects are transient and exposure times of actively mobile organisms or those passively moving with the tides would be short. Therefore, synergistic effects are feasible over limited spatial areas. Furthermore, mobile fish species may be able to avoid TRO plumes (paragraph 22.8.741 of **Volume 2, Chapter 22** of the **ES** [APP-317]). The conclusion that "*The inter-relationship of the TRO and thermal plumes is not predicted to increase the significance of effects concluded for the pressures alone"* is considered appropriate.
	Response from the MMO at Deadline 2	The MMO have received and reviewed the response by the Applicant and are content with the response provided by the Applicant.
	Response from SZC Co. at Deadline 3	No further comments to add to SZC Co. response for Deadline 2.
	Response by Environment Agency at Deadline 3	The environmental impact of any thermal or potentially hazardous chemicals or elements within the proposed SZC operational discharges are currently being assessed as part of the Environment Agency's determination of the SZC operational WDA permit application. This will include the review and assessment of any thermal and chemical plumes and mixing zones to determine whether or not there will be any areas of EQS (or alternative assessment value i.e. Predicted No-effect Concentration) exceedance at the sea surface and seabed.

[24] Cooke, S.J. and J.F. Schreer (2001). Additive Effects of Chlorinated Biocides and Water Temperature on Fish in Thermal Effluents with Emphasis on the Great Lakes. Reviews in Fisheries Science, 2001, 9 (2), pp. 69–113.

ExQ1	Question to:	Question:
		We have yet to determine whether or not the proposal is acceptable as the operational SZC WDA permit application is still in determination.
	Response by SZC Co. at Deadline 5	Noted, no further comments to add to SZC Co. response for Deadline 2.
Bio.1.251	The Applicant, MMO	[APP-317] Section D.e.f Assessments of effects at the sea-area or regional stock/population level: hydrazine and temperature changes, para 22.8.852. This states: "*The inter-relationship of the hydrazine and thermal plumes is not predicted to increase the significance of effects concluded for the pressures alone. This conclusion applies to all fish receptors assessed".* Please will the Applicant explain how it reaches this conclusion. The ExA notes that in the previous paragraph it is recorded that "Considering the decay of hydrazine, increases in water temperature were found to enhance the toxicity of the compound for fish taxa". Does the assessment of no significant effect in the last sentence of para 22.8.853 to change as a result and if not please explain why. Can the MMO throw any light on this?
	Response by SZC Co. at Deadline 2	Hydrazine would be discharged into the cooling water flow at the seal pit in a single daily pulse of approximately 2.32h duration resulting in an initial hydrazine concentration of 69ng/l in the cooling water flow or as the alternative daily discharge scenario of 4.6h of 34.5ng/l. In both cases the concentration in the cooling water discharge itself is below the Canadian Federal Water Quality Guidelines for low likelihood of adverse effects toxicity of hydrazine in the marine environment (200ng/l). Once in the receiving waters, dilution and decay results in the acute PNEC (4ng/l as a 95th percentile) occurring over areas of 17.4ha and 13.8ha for the 34.5ng/l and 69ng/l discharge scenarios, respectively. Increases in water temperature have been shown to increase toxicity of hydrazine to fish, however, effect concentrations are orders of magnitude above the acute PNEC. As stated in **Question Bio.1.248**, the acute PNEC is based on data for the most sensitive group of organisms tested (algae) and is derived from continuous exposure for up to 6 days. Available evidence suggests that fish are one of the less sensitive groups to hydrazine exposure. At Sizewell, seasonal chlorination would be applied. When hydrazine is added to chlorinated seawater, the hydrazine is oxidized to nontoxic nitrogen, sodium chloride and

ExQ1	Question to:	Question:
		water. An initial hydrazine concentration of 69ng/l fell to 8.4 ng/l in the presence of chlorinated seawater at the planned TRO concentrations for SZC (**Volume 2, Appendix 21E** of the **ES** [APP-315]). The combination of elevated temperature and chlorine TRO would increase hydrazine degradation. The elevated temperature and presence of TRO has the potential to enhance the interactions between the stressors. However, as hydrazine exposure occurs for short periods the dynamic interaction between TRO, hydrazine and temperature causing a reduction in hydrazine concentration but also potentially contributing to synergistic effects would be temporally as well as spatially limited. Synergistic effects on the toxicity of hydrazine to fish in the receiving waters would only occur in the very near field and have negligible difference beyond the effects already assessed for the pressures individually. The sensitivity of fish to operational hydrazine discharges is assessed in paragraph 22.8.788 onwards of **Volume 2, Chapter 22** of the **ES** [APP-317]; the effects of fish sensitivity to thermal discharges are assessed in paragraph 22.8.673 to 22.8.787. The assessment of localised displacement due to the synergistic effects of hydrazine and temperature changes in paragraph 22.8.853 of **Volume 2, Chapter 22** of the **ES** [APP-317] are not anticipated to be greater than for the pressures alone. Localised behavioural responses to thermal discharges would override any behaviours to hydrazine.
	Response from the MMO at Deadline 2	The MMO have received and reviewed the response by the Applicant and are content with the applicant's response. The discharge of hydrazine will occur a maximum of once per day for a few hours. The modelling that has been undertaken is conservative and the Predicted No Effect Concentrations (PNEC) is also conservative. On this basis it is extremely unlikely that any significant effects will occur to fish that might be exposed to the intermittent plume. As the applicant notes, reported effects concentrations for fish are orders of magnitude greater than the PNEC. On this basis synergistic effects between hydrazine and the thermal plume are considered extremely unlikely.
	Response from SZC Co. at Deadline 3	No further comments to add to SZC Co. response for Deadline 2.
	Response by Environment Agency at Deadline 3	The environmental impact of any thermal or potentially hazardous chemicals or elements within the proposed SZC operational discharges are currently being assessed as part of the Environment Agency's determination of the SZC operational WDA permit application. This will include the review and assessment of any thermal and chemical plumes and

ExQ1	Question to:	Question:
		mixing zones to determine whether or not there will be any areas of EQS (or alternative assessment value i.e. Predicted No-effect Concentration) exceedance at the sea surface and seabed. We have yet to determine whether or not the proposal is acceptable as the operational SZC WDA permit application is still in determination.
	Response by SZC Co. at Deadline 5	Noted, no further comments to add to SZC Co. response for Deadline 2.
Bio.1.252	The Applicant, MMO	[APP-317] Section D.e.g, Assessments of effects of localised displacement: hydrazine and temperature changes, para 22.8.853. This simply states that "*It is unlikely that this inter-relationship would increase the significance of the effects of localised displacement*". Please will the Applicant explain why. Can the MMO throw any light on this?
	Response by SZC Co. at Deadline 2	The thermal discharge is anticipated to be the overriding factor causing the stimulus for fish displacement behaviours. Concentrations of hydrazine even in close proximity to the outfall are very low (please see response to **Question Bio.1.251**) therefore the assessment of displacement due to thermal discharges remains appropriate. For clarification para. 22.8.853 should read: *"It is unlikely that this inter-relationship would increase the significance of the effects of localised displacement, beyond the effects predicted for the pressures* [of hydrazine and temperature changes individually]*. This conclusion applies to all fish receptors assessed. Effects are not significant at the sea or regional stock/population level."*
	Response from the MMO at Deadline 2	The MMO has received and reviewed the Applicant's response and are content with it. As the Applicant notes, reported effects concentrations for hydrazine for fish are orders of magnitude greater than the PNEC. On this basis synergistic effects between hydrazine and the thermal plume are considered extremely unlikely.
	Response from SZC Co. at Deadline 3	No further comments to add to SZC Co. response for Deadline 2.

ExQ1	Question to:	Question:
	Response by Environment Agency at Deadline 3	The environmental impact of any thermal or potentially hazardous chemicals or elements within the proposed SZC operational discharges are currently being assessed as part of the Environment Agency's determination of the SZC operational WDA permit application. This will include the review and assessment of any thermal and chemical plumes and mixing zones to determine whether or not there will be any areas of EQS (or alternative assessment value i.e. Predicted No-effect Concentration) exceedance at the sea surface and seabed. We have yet to determine whether or not the proposal is acceptable as the operational SZC WDA permit application is still in determination.
	Response by SZC Co. at Deadline 5	Noted, no further comments to add to SZC Co. response for Deadline 2.
Part 14- Biodiversity and ecology (marine) - Marine Mammals		
No further comments received at Deadline 3.		
Part 15- Biodiversity and ecology (marine) - Indirect Effects and Food Webs		
No further comments received at Deadline 3.		
Part 16- Biodiversity and ecology (marine) - Mitigation		
No further comments received at Deadline 3.		
Part 17- Biodiversity Net Gain – unless stated otherwise, references are to the Applicant's Biodiversity Metric Calculations document [APP-266]		
Bio.1.260	The Applicant, Natural England, ESC	Please will the Applicant set out its understanding of the Government's current policy on biodiversity net gain. Please will Natural England and ESC do the same. In ESC's case, please will it include its own policy as well. In all cases, please provide the necessary references and internet addresses.
	Response by SZC Co. at Deadline 2	A summary of legislation and policy is provided in the cover note for the latest reports. Please see **Appendix 7M** of this chapter. The *'25 Year Plan for the Environment and the National Planning Policy Framework'* requires new developments to identify and pursue opportunities for securing measurable

ExQ1	Question to:	Question:
		net gains for biodiversity and for the wider environment. The Environment Bill 2019-2021[25] which was first introduced on 15 October 2019, was re-introduced to parliament following a general election on 30 January 2020. The Environment Bill is viewed as helping deliver the government's manifesto commitment to '*delivering the most ambitious environmental programme of any country'*. The Environment Bill introduces a mandatory requirement for biodiversity net gain for new developments to ensure that they enhance biodiversity and create new green spaces for local communities to enjoy. Integrating biodiversity net gain into the planning system will provide a step change in how planning and development is delivered. The Environment Bill 2019-2021[26] has passed its second reading in the House of Commons and is has been at reporting stage since 26 January 2021. The Bill still needs to undergo a third reading in the House of Commons and be passed to the House of Lords. In the reporting stage amendments to the Bill can still be made. The Environment Bill in its present form includes a mandatory Biodiversity Net Gain of 10% for development and this needs to be maintained for a minimum of 30 years. National Significant Infrastructure Projects (NSIP) are excluded from mandatory Biodiversity Net Gain. Biodiversity Net Gain cannot be used to mitigate for the loss of habitats in statutory designated sites or irreplaceable habitats such as Ancient Woodland. The NPPF, sets out how the planning system should protect and enhance nature conservation interests. Section 15, paragraph 170d discusses biodiversity net gain. The relevant parts include: Planning policies and decisions should contribute to and enhance the natural and local environment by: • minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

[25] UK Parliament, Environment Bill 2019-2021, https://bills.parliament.uk/bills/2593

[26] UK Parliament, Environment Bill 2019-2021, https://bills.parliament.uk/bills/2593

ExQ1	Question to:	Question:
		Then paragraph 174b, to protect and enhance biodiversity and geodiversity, states plans should: • promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species: and identify and pursue opportunities for securing measurable net gains for biodiversity Finally, paragraph 175d, which specifies the approach to be used when determining planning applications, local planning authorities are expected to apply the following principles: • development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.
	Response by East Suffolk Council at Deadline 2	ESC's understanding is that the Government's current position is that mandatory Biodiversity Net Gain (as it is intended in the forthcoming Environment Bill (https://bills.parliament.uk/bills/2593)) does not apply to NSIPs (Net Gain – Summary of responses and government response (DEFRA, July 2019) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819823/net-gain-consult-sum-resp.pdf). However, Section 5.3.4 of National Policy Statement EN1 states that developments should conserve and enhance biodiversity and ESC would therefore expect to see this adequately addressed in the application. In relation to Biodiversity Net Gain, the East Suffolk Council Suffolk Coastal Local Plan policy (SCLP10.1) (https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-andLocal-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-LocalPlan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf) states in paragraph three that "*New development should provide environmental net gains in terms of both green infrastructure and biodiversity. Proposals should demonstrate how the development would contribute towards new green infrastructure opportunities or enhance the existing green infrastructure network as part of the development. New development must also secure ecological enhancements as part of its design and implementation, and should provide a biodiversity net gain that is proportionate to the scale and nature of the proposal.*"

ExQ1	Question to:	Question:
		The Applicant has presented a Biodiversity Net Gain assessment for the development as part of the application, and ESC understand that this is being updated to reflect accepted scheme changes. Whilst ESC considers that the use of the metric (currently DEFRA Metric v2.0) designed to measure Biodiversity Net Gain is a sensible approach to providing some quantification of the amount of ecological loss/gain delivered by the project, the deficiencies of the metric must also be accounted for when determining whether genuine gain is being delivered. In particular, as acknowledged in the Applicant's Biodiversity Net Gain report, the metric calculations cannot account for impacts on designated nature conservation sites (on which the ES identifies direct impacts) and nor can it account for impacts on species or more subtle ecological impacts such as fragmentation of connectivity caused by habitat removal during construction (even if these habitats are eventually replaced). Given that there is the potential for the project to have unmitigated residual biodiversity impacts, ESC considers that the conclusions presented in the Applicant's Biodiversity Net Gain report must be used as only part of the consideration of the overall ecological impact of the project.
	Response by Natural England at Deadline 2	We welcome the inclusion of BNG in the DCO application. This is something we had pushed for in previous discussions and consultations with EDF Energy and are glad that they have embraced it in advance of it potentially being a statutory requirement for NSIPs in future. The Environment Bill does not currently include making BNG mandatory for NSIPs. The BNG consultation referenced a longer-term ambition to extend BNG to major infrastructure projects and Natural England continues working to encourage and incentivise net gain outcomes across major infrastructure developments. The BNG approach has been developed to not only help halt declines in wildlife by conserving what habitats and species are left but begin the task of restoring some of what has been lost. In simple terms, BNG calculations should, ideally using the recently released Defra biodiversity net gain metric, compare the current biodiversity value of the habitats within the project red line boundary to be lost (excluding designated sites and ancient woodland) with the biodiversity value of the habitats forecast to be created

ExQ1	Question to:	Question:
		following development, with the intention being to demonstrate an overall increase in biodiversity (minimum 10 %). The government recently announced in June 2019 that it would legislate for net zero greenhouse gas emissions by 2050. Achieving net zero emissions globally is essential to meeting commitments under the Paris Agreement to hold the level of climate change to substantially less than 2 °C and pursue efforts to limit it to 1.5 °C above the pre-industrial average. Creation of semi-natural habitats can help mitigate climate change by adopting practices which promote carbon storage and reduce emissions. In addition to enhancing the biodiversity value of the local area, semi natural habitats take up and store significant amounts of carbon in soils and vegetation and act as a 'Natural Climate Solution'. See Carbon storage by habitat: Review of the evidence of the impacts of management decisions and condition of carbon stores and sources (NERR043) for more information. In addition to the considerable ecological benefits, such an approach would also be hugely important as a landscape and visual mitigation measure in this part of the Suffolk Coast and Heaths AONB, commensurate with its nationally designated status. Establishing a strong landscape character which reinforces and lifts the landscape quality can help to indirectly mitigate those significant impacts of the scheme which cannot be directly mitigated by altering the design or location of buildings or by screening. This is therefore the only way in which the Sizewell C project can provide for landscape net gain. However, it is imperative that the project as a whole avoids, mitigates and/or compensates for impacts internationally designated sites (SACs, SPAs, Ramsar sites), nationally designated sites (SSSIs) and that the necessary measures are agreed and secured through the relevant statutory requirements (e.g. Habitats Regulations, Wildlife and Countryside Act etc.. The BNG approach is therefore dependent on all relevant parties, including Natural England, agreeing that the project represents no 'biodiversity net loss' in these regards; this necessarily requires all designated site issues within the statement of common ground be classified as 'green' before the project is consented.

ExQ1	Question to:	Question:
		For our full detailed comments can be found under issue 23 within our Relevant (PINS ref: RR-0878, our ref: 306236, dated 30th Sep 2020) and Written Representations (Our Ref: 350822, dated 2nd June) and Statement of Common Ground.
	Response by SZC Co. at Deadline 3	SZC Co considers that given that Biodiversity Net Gain approach specifically excludes SSSI landtake (and related compensatory habitats), the SZC development does generate an overall biodiversity net gain as **determined by the metric**. The updated Biodiversity Net Gain reports for the main development site [REP1-004], two village bypass [REP1-018], Sizewell link road [REP1-017] and Yoxford Roundabout [REP1-019] were submitted at Deadline 1. However, SZC Co does acknowledge the need to compensate for the landtake of the SSSI habitats and this is done using a parallel approach, i.e. through the delivery of wetland habitats (reedbeds, ditches) at Aldhurst Farm, the Fen Meadow Strategy and the Wet Woodland Strategy. All of the habitats delivered as compensatory habitats are excluded from the Biodiversity Net Gain calculations. As noted at Bio 1.79 above, the conclusion of no significant effect on Sizewell Marshes is predicated on the success of the compensatory fen meadow and wet woodland habitat creation. It is worth noting that the UK Treasury (14th June 2021) issued a press release which states that '*New Nationally Significant Infrastructure Projects in England, such as future transport and energy projects, will as a result need to provide a net gain in biodiversity and habitats for wildlife - through an amendment to be made to the Environment Bill*.' It is not clear when the Environment Bill will be amended or become law, or whether it will affect existing applications such as Sizewell C. See: Government commits to 'nature-positive' future in response to Dasgupta review - GOV.UK (www.gov.uk) MASTER_Dasgupta_Response__web.pdf (publishing.service.gov.uk)
	Response by RSPB at Deadline 3	As we have said in our Written Representations, submitted at Deadline 2, we agree planning decisions should minimise impacts on and provide net gains for biodiversity [NPPF, paragraph 170 and 175d] however as paragraph 175, NPPF also clearly states development likely to have an adverse effect on a SSSI should not normally be permitted unless the benefits clearly outweigh its likely impact:

ExQ1	Question to:	Question:
		When determining planning applications, local planning authorities should apply the following principles: a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;' As we have said in our Written Representations, submitted at Deadline 2, and in the RSPB's Relevant Representations we do not agree the Application can achieve net gain due to direct adverse impacts on Sizewell Marshes SSSI from loss of a significant proportion of the SSSI. We agree with Natural England's views regarding mitigation and compensation for impacts on species and sites and raised these concerns in our Written Representations submitted at Deadline 2. We therefore strongly support their advice that: 'it is imperative that the project as a whole avoids, mitigates and/or compensates for impacts on sites and species of existing high value which sit outside the BNG considerations' and 'there should be a clear distinction in the project documents as to which habitats are being created for mitigation and/or compensation purposes and which are being delivered as BNG uplift. We advise that such clarity is needed to avoid double counting.' 1.1. Table 1 of Appendix M refers to the National Planning Policy Framework (NPPF) (2019). As we have noted in our Written Representations, submitted at Deadline 2, planning decisions should minimise impacts on and provide net gains for biodiversity (NPPF, paragraph 170 and 175d) however paragraph 175 also clearly states development likely to have an adverse effect on a SSSI should not normally be permitted unless the benefits clearly outweigh its likely impact

ExQ1	Question to:	Question:
		When determining planning applications, local planning authorities should apply the following principles: a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; 1.2. As we have said in our Written Representations, submitted at Deadline 2, and in our Relevant Representations106 we do not agree the Application can achieve net gain due to direct adverse impacts on Sizewell Marshes SSSI from loss of a significant proportion of the SSSI. 1.3. Paragraph 3.1.2 of Appendix M notes In some areas, the baseline for the main development site is a historic baseline (approximately 14 to 6 years ago, depending on the area) and prior to advance habitat creation works which have been undertaken specifically to support the Sizewell C proposals. Such an approach is in accordance with Natural England approaches which encourage habitat creation in advance of development thus improving the value of the mitigation and minimising construction impacts. 1.4. We raised concerns the baseline policy is directly at odds with the biodiversity gain system to be introduced by the Environment Bill in our Written Representations submitted at Deadline 2. 1.5. The biodiversity gain system set out in the Environment Bill, sets the baseline at the point of the planning application for on-site delivery (Schedule 14, 5(2) as currently drafted) and the point set out in the biodiversity site gain register for off-site delivery (Schedule 10, 1(b) as currently drafted). 1.6. The Applicant's policy to apply different on-site baseline data dates to each on-site delivery area (Studio Fields complex, Aldhurt Farm and the marsh harrier compensation area), all of them prior to the point of planning application (paragraph 2.3.2 to 2.3.8 of

ExQ1	Question to:	Question:
		REP1-004) is at odds with Schedule 5 of the Bill which has no provision for different baseline data dates across the on-site delivery areas. The Applicant has also applied a baseline data date prior to the point of planning application to the off-site delivery areas. As there is currently no biodiversity site gain register, it would not be possible for the Applicant to claim an earlier baseline for offsite delivery under the biodiversity gain system.
	Response by SZC Co. at Deadline 5	In the latest reports the distinction is made clear that the assessment demonstrates an increase in biodiversity units, rather than claiming 'biodiversity net gain'. This point was also responded to in the response to section 5.2 of the RSPB/SWT written representation [REP2-506] within Response to RSPB and SWT on BNG in **SZC's Comments on Responses from Earlier Deadlines** (Doc Ref 9.54): "*The calculations demonstrate an increase in biodiversity units post development. In the most recent calculations, this distinction is clear, with an increase in biodiversity units highlighted, the client is not claiming 'biodiversity net gain' as a statutory requirement but to evidence the efficacy of the mitigation, compensation and enhancement proposed. Sizewell Marshes SSSI have been excluded from the calculation.*" The mitigation areas for individual receptors are presented in the draft licences. A response to the point regarding 'double counting' is provided in the response to section 5.6 within Response to RSPB and SWT on BNG (Doc Ref 9.54): "The biodiversity unit assessment is a habitat centric metric for demonstrating change in biodiversity. It assesses the site before and after proposed development and (except for non-tradable habitats) includes all habitats before and after proposed development. Areas for mitigation, compensation and enhancement are designed to benefit a range of species and ideally to maximise ecosystem service benefits. They are not compartmentalised into a single area for reptiles, a single area of bats and so on. In protected species licences elements of mitigation proposed need to demonstrate that they will deliver favourable conservation status for European Protected Species. The carrying capacity of the habitat is assessed to ensure that it does deliver, multiple species are likely to coexist in these habitats. The same habitat may also deliver mitigation, compensation or enhancement commitments made in the ES.

ExQ1	Question to:	Question:
		This is not double or triple counting, the biodiversity unit assessment merely demonstrates the overall status of the site before and after development with regards to the distinctiveness, extent and quality of the habitats. A response to the point regarding the temporal baseline is provided in the response to sections 5.6 within the Response to RSPB and SWT on BNG (Doc Ref 9.54): "The calculation has been undertaken as per the guidance within the metric calculator for all habitats. For example, where habitats have been created in advance and are matured, neither the time to target condition nor the risk has been reduced or eliminated. Similarly, the time to target condition has not been altered where there is to be a delay in their creation. The Biodiversity Metric is designed to assess the baseline and end states of developments. The protected species licensing, legislation and ES ensures that the habitat is suitable to deliver the legal and policy requirements. Therefore, while developers are not penalised for creating habitats ahead of time, under the current biodiversity unit assessment guidelines using the biodiversity metric, nor do they benefit from the reduced risk and time to target condition that these advance works achieve. They are treated the same in the metric even though this does provide greater earlier benefit for biodiversity. and 5.51-5.53 within the Response to RSPB and SWT on BNG (Doc Ref 9.54): The baseline was taken to be the time point before which any advance habitat interventions had begun (for example, at Aldhurst Farm and the Studio Field Complex). The time points were specific for each of these areas, depending on when habitat interventions began. Advance habitat creation represents good practice by ensuring that the habitats are in place ahead of when they are required with time to mature. The applicant should not be penalised for carrying out habitat improvement works ahead of the application. The calculations demonstrate an increase in biodiversity units post development. The client is not claiming 'biodiversity net gain' to fulfil a statutory requirement but to evidence the efficacy of the mitigation, compensation and enhancement proposed. Sizewell Marshes SSSI and related compensatory habitats have been excluded from the calculation.

ExQ1	Question to:	Question:
		As discussed above, the Biodiversity Unit calculations are a holistic assessment of the development, so the nomenclature of mitigation or compensation is not relevant to the Biodiversity Unit calculations." In May 2021 an amendment to the proposed Environment Bill was announced, requiring an additional legally binding target for species for 2030, aiming to halt the decline of nature and expanding the biodiversity net gain requirement to all new nationally significant infrastructure projects. While this legislation is not yet passed, Biodiversity Net Gain calculations have been carried out to assess the efficacy of the proposed landscape strategy.
Bio.1.264	The Applicant	Executive summary. The achievement of the scores is reliant on creation and management plans. Please specify where these are secured in the DCO and which they are of the plans submitted.
	Response by SZC Co. at Deadline 2	The achievement of the scores is reliant on the Outline Landscape and Ecology Management Plans (oLEMPs). The **oLEMP for the main development site** [REP1-010] is secured via draft Requirement 14. The LEMPs in respect of the two village bypass site [AS-263] and Sizewell link road site [AS-264] are secured via draft Requirement 22A, where they are referred to as 'Ecology Management Plans'. These include management plans for the target habitats and these habitats are in accordance with the habitats assessed in the BNG Reports [REP1-018 and REP1-017]. The Undertaker, acting on behalf of the Applicant, will be required to establish and manage the required habitats in general accordance with the oLEMPS and LEMPs.
	Response by RSPB at Deadline 3	We agree the achievement of the metric scores is reliant on habitat creation and management plans. We detailed our concerns that the Applicant does not appear to have identified a legal mechanism for securing a 10% metric score in their mitigation strategy in our Written Representations submitted at Deadline 2.
	Response by SZC Co. at Deadline 5	The detailed design of the landscape for the main development site, is secured by Requirement 14. The landscape and ecology scheme for the main development site needs to be developed in general accordance with the detailed design principles set out in the

ExQ1	Question to:	Question:
		Design and Access Statement and for a Landscape and Ecology Management Plan to be prepared in general accordance with the oLEMP [APP-588]. The landscape and ecology scheme would be approved by ESC, following consultation with Natural England, which means that the biodiversity improvements that are assumed within the Biodiversity Net Gain Assessment [REP1-004] commitments are secured in a robust and legally enforceable way. At Deadline 3, in the Response to the LIR [REP3-044] SZC Co said: "*Across the wider EDF Energy estate habitats have been or are being established in accordance with the Aldhurst Farm Management Plan, the Marsh Harrier Habitat Report [REP2-119] and the Reptile Mitigation Strategy. In addition, an Estate-wide management Plan (EWMP) is being developed which will further explain the habitats across the EDF Energy estate, including those defined in all of the named plans and explains how these will be managed. The EWMP will be submitted to examination."* The EWMP provides a mechanism for securing the management of the habitats across the wider EDF Energy estate, in accordance habitats assessed within the Biodiversity Net Gain assessment, and will be submitted at Deadline 6.
Bio.1.265	The Applicant	Executive summary – "It is recommended that post planning, additional surveys are undertaken". Where is this secured in the DCO?
	Response by SZC Co. at Deadline 2	This comment is not present in the latest reports [REP1-004 ,REP1-017, REP1-018, and REP1-019]. Further survey work has now been undertaken and is reported in the updated report.
	Response by RSPB at Deadline 3	We detailed our concerns that the biodiversity value of existing habitats has not been adequately considered and taken account of in our Written Representations submitted at Deadline 2. It is our view that further surveys are required to establish the baseline biodiversity value of existing habitats and that this requirement should be secured within the DCO.
	Response by SZC Co. at Deadline 5	A response to the point regarding the valuation of existing baseline is provided within Response to RSPB and SWT on BNG in **SZC's Comments on Responses from Earlier Deadlines** (Doc Ref 9.54) in the response to sections 5.6 of the RSPB/SWT written

ExQ1	Question to:	Question:
		submission for Deadline 2: "*Surveys have been carried out of the Sizewell Estate for many years, with large amounts of habitat and protected species data collected. Designs for mitigation and compensation were based on enhancing the existing habitats for the species that they support. Detailed condition assessments of existing habitats have also been undertaken.*"
Bio.1.268	The Applicant	Para 2.10 – recommendation to conduct "ground-truthing surveys". (i) Where is that secured; (ii) what happens if they show the net biodiversity calculation is wrong?
	Response by SZC Co. at Deadline 2	This comment is not present in the latest reports [REP1-004 ,REP1-017, REP1-018, and REP1-019]. Further survey work has now been undertaken and is reported in the updated report.
	Response by RSPB at Deadline 3	(i) We detailed our concerns that the biodiversity value of existing habitats has not been adequately considered and taken account of in our Written Representations submitted at Deadline 2. It is our view that further surveys are required to establish the baseline biodiversity value of existing habitats. (ii) We detailed our concerns relating to the Applicant's approach to biodiversity net gain in our Written Representations submitted at Deadline 2. We do not agree the Application can achieve net gain due to direct adverse impact on Sizewell Marshes SSSI from loss of a significant proportion of the SSSI, nor the amount claimed by the Applicant.
	Response by SZC Co. at Deadline 5	A response to the point regarding the assessment of the biodiversity baseline of the site is provided within Response to RSPB and SWT on BNG in **SZC's Comments on Responses from Earlier Deadlines** (Doc Ref 9.54) in response to sections 5.6: "*Surveys have been carried out of the Sizewell Estate for many years, with large amounts of habitat and protected species data collected. Designs for mitigation and compensation were based on enhancing the existing habitats for the species that they support. Detailed condition assessments of existing habitats have also been undertaken.*" The response to Para. 5.105-5.106: "*The calculations used third party data in addition to existing baseline data previously collected by site survey. Detailed habitat survey data was collected for the Sizewell Link Road (2019 and 2020) site that was used to inform the*

ExQ1	Question to:	Question:
		Biodiversity Unit assessments of this area. The BNG report contains the rationale behind the habitat categorisation and the condition assessments for the baseline and post-development states. Further evidence is provided in the Phase 1 habitat surveys [APP-461, APP-462, APP-463 and AS-036].” and the response to Para. 5.96-5.97 of the RSPB/SWT written submission for deadline 2: “*The calculations used third party data in addition to existing baseline data previously collected by site survey. Detailed habitat survey data was collected for the Two Village Bypass (2019) site that was used to inform the Biodiversity Unit assessments of this area. The BNG report contains the rationale behind the habitat categorisation and the condition assessments for the baseline and post-development states. Further evidence is provided in the Phase 1 habitat surveys [APP-425, APP-426 and APP-427].*” A response to the point regarding the achievement of net gain is provided in the **Question Bio.1.260**, above.
Bio.1.269	The Applicant	Para 2.10 “*Should a target be set for percentage net gain of biodiversity units, it is recommended that …*”. Has such a target been set, is it in the DCO and if so, where? Is the remainder of this assumption met?
	Response by SZC Co. at Deadline 2	The BNG assessments have been undertaken on a voluntary exercise. NSIPs are also currently excluded from any future mandatory requirement, based on the current proposals within the Environment Bill[27] (see also **Question Bio 1.260** above). These assessments have been undertaken to address stakeholder requests and no targets have been set. Updated Biodiversity Net Gain Reports [REP1-004, REP1-017, REP1-018, and REP1-019] clarify this position.
	Response by RSPB at Deadline 3	In our Written Representations submitted at Deadline 2 we concluded, based on our concerns and the information available at present, we do not agree the Application can achieve net gain due to direct adverse impact on Sizewell Marshes SSSI from loss of a significant proportion of the SSSI, nor the amount claimed by the Applicant.

[27] UK Parliament, Environment Bill 2019-2021, https://bills.parliament.uk/bills/2593

ExQ1	Question to:	Question:
	Response by SZC Co. at Deadline 5	A response to the points raised above is provided in the section **Question Bio.1.260**, above, and in the response to section 5.114 of the RSPB/SWT written submission for Deadline 2, the following response is provided within **Response to RSPB and SWT on BNG in** SZC's Comments on Responses from Earlier Deadlines **(Doc Ref 9.54)**: *"The BNG assessment was a robust, holistic assessment of the change in habitats present within the sites undertaken using the latest metric and guidance available at the time. The assessments draw upon large available datasets, in the case of the main development site spanning many years. The assessment was undertaken to demonstrate the efficacy of the mitigation, compensation and enhancement and is not a planning or statutory requirement".*
Bio.1.270	The Applicant	Para 5.1 and Table 13. (i) Please clarify which are the "interventions" referred to a being changed. (ii) Have not some of the changes already been made, for example the Aldhurst Farm areas? (iii) If so, is it valid to take them into account?
	Response by SZC Co. at Deadline 2	(i) Details of the off-site interventions are presented in **sections 2.3.3** to **2.3.8** and **Figures 1** and **2** of the updated main development site report [REP1-004]. (ii) Changes have already been made in some of these areas (see also Bio 1.51 above) as advanced creation of habitats is considered best practice. This approach minimises development effects by ensuring mitigation or compensatory habitats are either partially or fully established prior to construction impacts occurring. The baseline in the BNG assessments was taken prior to any habitat mitigation or compensation works relating to Sizewell C taking place. (iii) This approach is valid and is in accordance with Natural England approaches which encourage habitat creation measures in advance of development. The approach improves the value of the habitats and minimises effects related to landtake of habitats (discussed in BNG cover note (Appendix 7M of this chapter) and main development site executive summary [REP1-004]). This approach is also in

ExQ1	Question to:	Question:
		accordance with Natural England's consultation response[28], which states the proposal '*to include an option within the final Metric that will enable Time to Target Condition to be reduced by the relevant number of years to take account of habitats created ahead of a development*.' This approach, using historic baseline states has been used for the assessments undertaken for Sizewell C.
	Response by RSPB at Deadline 3	(ii) and (iii) We raised concerns the baseline policy is directly at odds with the biodiversity gain system to be introduced by the Environment Bill in our Written Representations submitted at Deadline 2. The Applicant's policy to apply different on-site baseline data dates to each on-site delivery area, all of them prior to the point of planning application (paragraph 2.3.2 to 2.3.8 of REP1-004) is at odds with Schedule 5 of the Bill which has no provision for different baseline data dates across the on-site delivery areas. As there is currently no biodiversity site gain register, it would not be possible for the Applicant to claim an earlier baseline for off-site delivery under the biodiversity gain system.
	Response by SZC Co. at Deadline 5	A response to the points raised above is provided in the **Question Bio.1.260**, above.
Bio.1.272	The Applicant	Conclusion – para 10. Post-planning additional surveys are recommended to inform detailed design, habitat creation and management plans. Where is this secured in the DCO?
	Response by SZC Co. at Deadline 2	This comment is not present in the updated reports [REP1-004 ,REP1-017, REP1-018, and REP1-019]. Further survey work has now been undertaken to address these matters and is reported in the updated reports.
	Response by RSPB at Deadline 3	We detailed our concerns that the biodiversity value of existing habitats has not been adequately considered and taken account of in our Written Representations submitted at Deadline 2. It is our view that further surveys are required to establish the baseline biodiversity value of existing habitats.

[28] Natural England, The Biodiversity Metric 2.0 – Beta Test Version Consultation Response. August 2020. [Online]. Available at: http://publications.naturalengland.org.uk/file/5724981218770944

ExQ1	Question to:	Question:
	Response by SZC Co. at Deadline 5	A response to the points raised above is provided in the **Question Bio.1.268** above.
Chapter 8 - HRA.1 Habitats Regulations Assessment		
HRA.1.8	The Applicant	The Shadow HRA Report: Compensatory Measures [APP-152] contains limited information on the specifics of the proposed habitat management measures at Section 3.4 (c). There are also limited cross-references to other submission documents that may be being relied upon for the HRA compensatory measure package. Could the Applicant confirm where any further detailed information on the proposed management measures for the delivery of HRA compensatory measures are to be found in the application documents and/or additional submissions. The ExA notes ES Chapter 14 Terrestrial Ecology and Ornithology Appendix 14C5 Marsh Harrier Mitigation Area Feasibility Report [APP-259]; however, this report dates from April 2019 and does not include information relating to the change to the water resource storage area and the subsequent inclusion of wetland habitats as part of the HRA compensation proposals for marsh harrier. Could the Applicant confirm where information on the proposed management measures, including the proposed wetland habitats, is to be found or provide this information. Furthermore, Appendix A (figure) to [APP-152] has a note that states it is to be revised in final design to include the enhanced compensatory habitat comprising wet woodland area and temporary water storage area. Could the Applicant provide an updated figure to show the proposed compensatory measures area, including the proposed wetland habitats, and the relationship of the area to the Order Limits. It would appear to the ExA that part of the land shown on the figure in Appendix A of [APP-152] lies outside of the order limits as shown on Sheet 1 of the Works Plans [AS-285]. The broad category of 'marsh harrier habitat' in the mitigation route map addendum [AS-276] refers to securing mechanisms of the Section 106 (Implementation Plan), Requirement 14 (MDS: Landscape works), and DCO Article 3 (Scheme design). Could the Applicant confirm which of these mechanisms (if any) relate to the HRA compensatory measures proposals.

ExQ1	Question to:	Question:
	Response by SZC Co. at Deadline 2	Proposed future management measures will be set out in an EDF estate-wide management plan, which will explain the long-term management of the marsh harrier compensation habitat area. **ES, Volume 2, Chapter 14** (Terrestrial Ecology and Ornithology), **Appendix 14C5: Marsh Harrier Mitigation Area Feasibility Report** [APP-259] is updated by [REP2-119], which includes the proposed wetland habitats. **Appendix B** to Doc Ref. 9.16 includes an updated figure to show the proposed compensatory measures area, including the proposed wetland habitats, and the relationship of the area to the Order Limits. The revised proposals, which now include transforming 10% of the compensation area to wetland, represent a positive enhancement of the previously proposed design reported in the **Marsh Harrier Mitigation Area Feasibility Report** [APP-259] given the high suitability of wetland habitats for foraging marsh harriers. Therefore, the wetland creation will augment the previously proposed management that was focussed solely on enhancing prey abundance and availability on 'dry' habitat. The high suitability of wetland habitats for foraging marsh harriers is a point recognised throughout the discussions on the design of the compensation area and acknowledged by Natural England in its relevant representation; Part II, item 27.
	Response by East Suffolk Council at Deadline 2	ESC is eager to ensure that the compensatory measures set out in the Shadow HRA Report: Compensatory Measures, and in any other documents, are appropriately secured through the provisions of the draft DCO. As such, ESC would welcome confirmation from the Applicant that such provisions are secured in the draft DCO, alongside an explanation of the mechanism by which they are secured. This is not currently clear to ESC.
	Response by SZC Co. at Deadline 3	An Estate-wide management Plan (EWMP) is being developed which will further set out the habitats across the EDF Energy estate, including those defined within the Order Limits, for Marsh Harriers and explains how these will be managed. Details will be secured as necessary to ensure the marsh harrier habitats are established in accordance with the habitat plan identified above, submitted at Deadline 2 [REP2-119].
	Response by East Suffolk Council at Deadline 3	ESC maintains its previous position: please could the Applicant confirm and demonstrate that the compensatory measures set out in the Shadow HRA Report are secured through the draft DCO.

ExQ1	Question to:	Question:
	Response by SZC Co. at Deadline 5	Please refer to SZC Co.'s response to **Question Bio.1.264**.