The Planning Act 2008

Sizewell C (SZC)

Planning Inspectorate Reference: *EN010012*

Deadline 5 – *23 July 2021*

East Suffolk Council comments on Deadline 3 and 4 submissions from the Applicant

East Suffolk Council 20026200

Contents

East Suffolk Council makes the comments below based on the documents submitted at Deadlines 3 and 4 listed above. We have not commented on all documents that were submitted but have focused on those that are most relevant to ESC and our areas of responsibility. We note that further documents are to be submitted by the Applicant at Deadline 5 that may supersede some of the commentary below.

2.5 Temporary and Permanent Coastal Defence Feature Plans – Revision 1.0 [REP3-004]

Noted. See comments on [REP3-032] below.

6.3 Rights of Way and Access Strategy Revision 3.0 [REP3-013]

ESC supports Suffolk County Council (SCC) in their role as the Public Rights of Way authority. A key area of interest for ESC is the maintenance of the Coast Path and ensuring it remains available for use (where safe to do so) during the construction phase. ESC supports SCC in their request for the Coast Path to be relocated to the top of the sea defences post-construction to support longevity of the route.

ESC does not support any additional use of the Aldhurst Farm habitat creation area for public rights of way as this would undermine its primary purpose as ecological and biodiversity habitat.

6.3 Volume 2 Main Development Site - Chapter 3 - Description of Construction - Revision 2.0 [REP3-014]

ESC has reviewed the Applicant's Description of Construction Revision 2.0 which summarises the documents to be used to control construction works on the main development site. ESC notes and is content with the Applicant's revisions and has no further comments to make on this submission or its Appendices at this time.

6.3 Volume 2 Main Development Site - Chapter 3 - Description of Construction - Appendices 3A-3D - Revision 2.0 [REP3-015]

ESC has reviewed Appendices 3A-3D Revision 2.0 which set out the significant construction noise sources covering Phases 1-5, the Land East of Eastlands Industrial Estate and the Green Rail Route. ESC notes the Applicant's revisions and has no comments to make at this time.

6.3 Volume 2 Main Development Site - Chapter 3 - Description of Construction - Appendix 3D - Tracked Changes - Revision 3.0 [REP3-016]

ESC has reviewed the tracked changes version of the Description of Construction document (Appendix 3D). This version highlights what has changed since the earlier revision and ESC has no further comments to make at this time.

6.3 Volume 2 Main Development Site - Chapter 17 Soils and Agriculture - Appendix 17C: Outline Soil Management Plan - Revision 2.0 [REP3-018]

ESC has reviewed Appendix 17C and notes the Applicant's revisions to the previous version of the document. The updated document provides greater clarity on aspects of the project including the return of agricultural land to pre-construction Agricultural Land Classification (ALC), topsoil/subsoil handling, further ALC and soil surveys, soil scientist qualifications, and soil information. This clarity is helpful.

Confirmation of the role of the Agricultural Liaison Officer (ALO) within the Roles and Responsibilities section is also noted and supported. The ALO will be the prime contact for ongoing engagement on practical matters, contactable by all landowners and occupiers during daytime working hours. ESC supports and encourages constructive engagement at every opportunity.

8.3 Associated Development Design Principles - Tracked Changes Version - Revision 2.0 [REP3-023]

ESC notes and is content with the Applicant's revisions to the associated development design principles.

However, we note at Sustainability Principles no. 2 (page 7, 11 and 14) that only 5% of car parking spaces will have active electric vehicle charging points and 5% will include passive electric vehicle charging points. ESC supports SCC in their ongoing request for a commitment for these percentages to be increased.

8.17 Draft Deed of Obligation - Clean Version - Revision 5.0 [REP3-024] and 8.20 Draft Deed of Obligation - Explanatory Memorandum - Tracked Changes Version - Revision 4.0 [REP3-027]

ESC is working with the Applicant on revisions and updates to the Deed of Obligation. At this stage we have nothing further to add into the Examination other than our oral summary of case for ISH1 draft DCO and deed of obligation / s106 which has been submitted to Deadline 5. We understand the Applicant intends to submit an updated version at Deadline 6, upon which ESC will comment in due course.

9.10.12 Statement of Common Ground - East Suffolk Council and Suffolk County Council - Appendix 11A - Revision 1.0 [REP3-031]

ESC have no specific comments to make on this document at this time. Discussions on various issues including noise related elements are ongoing with the Applicant.

9.12 Preliminary design and maintenance requirements for the Sizewell C Coastal Defence Feature - Revision 2.0 [REP3-032]

Introduction:

Presented in table form, this document constitutes ESC's review and findings of the Applicant's report TR543 Ed.2. The review is confined to the subject matter of the impacts of the proposed structures on coastal processes and morphology. In particular, the Review considers the sufficiency of the information provided in TR544 Ed.2 and highlights any particular aspects where clarification, confirmation or further information is sought. We note that we are expecting new plans for the Hard Coastal Defence Feature to be submitted by the Applicant at Deadline 5.

The table comprises:

- First column: the relevant page number (document, not pdf page);
- Second column: a reference (section, figure or table number);
- Third column: relevant source document extract (text or Figure snapshot)
- Fourth column: our observations and/or concerns on the cited extract
- Fifth column: our requested action from the Applicant (see below).

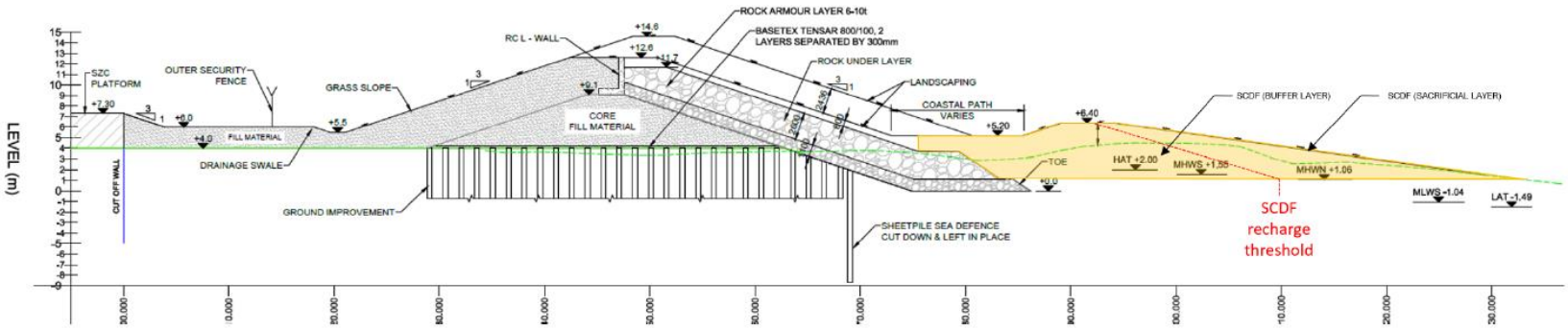
All extracts from TR544 Ed.2 (A), including page, section number, text and footnotes etc. are shown in *italics* in first three columns, including references elsewhere as appropriate.

In Column 5 the action requested from the Applicant takes one of the following three forms, or combinations thereof:

- Observation
- Clarification
- Confirmation
- Further information.

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
1-2	ES	*" even along sections where the SCDF is smallest (adjacent to the permanent Beach Landing Facility)…*	The Applicant has since advised that the previously envisaged projection of the HCDF/SCDF adjacent the permanent BLF will be brought into line with these structures going southwards.	Confirmation of the realignment of the HCDF and SCDF.
2	ES	*BEEMS Technical Report TR545 model results support the coarsening of SCDF sediments, highlighting performance improvements (less erosion and therefore reduced maintenance and recharge requirements) of 7 – 23% for very coarse pebbles (modelled as 40 mm diameter) compared to the modal medium pebbles at Sizewell (modelled as 10 mm diameter), over the operation phase.*	The reduced sediment mobility will reduce the capacity to feed longshore transport (feeding natural beach) and retard the rate of retreat compared with the (otherwise) natural grade beach, gradually causing a mismatched alignment and this an impedance to natural littoral drift.	On the face of it, this does not appear to recognise the need for continuity of the natural longshore transport corridor. Further information is needed to justify this approach and to demonstrate that it will not adversely affect coastal geomorphology.
3	ES	*An important benefit of the SCDF design (and soft defences in general) is its adaptability to future pressures and real-world performance – that is, the specifications and triggers in the CPMMP can, and indeed will, be adjusted relatively easily according to environmental conditions and performance, thereby accounting for any uncertainties in SCDF response or future pressures (e.g., sea level rise).*	This is a strong argument to retain use of a native beach composition in the sacrificial part – at least - of the SCDF.	Given the precautionary approach taken to SCDF degradation assessment and the infrequent maintenance actions identified, further information is required to explain why use of native material in the sacrificial layer is not appropriate.
3	ES	*The risk of HCDF exposure can be effectively mitigated using a well-designed internal cobble layer (initially proposed in Version 1 (Option B)). The aim of a cobble layer being considered is to increase erosion resistance if the fronting SCDF pebbles were fully removed (unlikely during the operation phase).*	Large cobbles are unlikely to prevent exposure of the HCDF in the case that they are exposed to storm conditions for which the 6 to 10 tonne HCDF armour layer was designed. There appears to be a misconception that the overriding objective is to prevent exposure of the	Please address the misconception regarding exposure of the HCDF, and provide further information on the need for the cobble layer if it is considered unavoidable (e.g. for safety) and an explanation of why

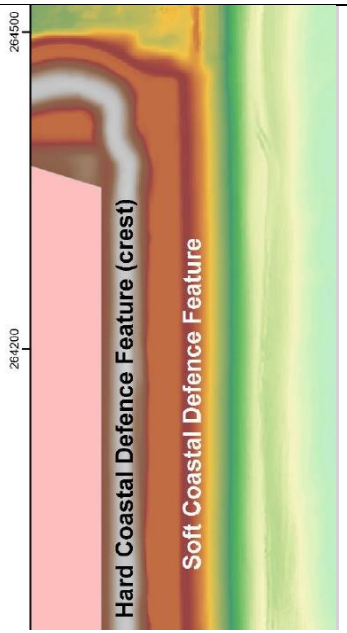
			HCDF. In fact, the objective, from a coastal processes perspective, is to maintain the natural sediment corridor across the installation frontage. If the active shore profile intercepts (exposes) the HCDF then interference with the sediment transport will occur, affecting both updrift and downdrift areas. Adding another ~5m of large cobbles to the HCDF would seem to hasten the time to this unwanted occurrence by shifting the barrier seawards.. If the intention is for a (collapsible) cobble layer to act as a contingent scour protection measure to prevent/delay toe exposure, ESC considers that the Applicant should explore whether the same result could be achieved less intrusively by sinking the toe to a greater depth in the first place.	the alternative measure of sinking the HCDF tow to a greater depth is not considered appropriate.

5	Fig. i	**TR544: PRELIMINARY SCDF DESIGN** **NOT PROTECTIVELY MARKED**  Figure i: Schematic cross-section of the hard and soft coastal defence feature (HCDF and SCDF). The SCDF (yellow) is conceptually divided into two volumes, separated by the dividing SCDF recharge threshold (as the threshold is volumetric, the line is shown for illustrative purposes only, i.e., many different beach profile shapes can produce the threshold volume). The SCDF buffer layer (whose volume is V_{buffer}) sits to landward and is not intended to be exposed, whilst the SCDF sediment to seaward is sacrificial (V_{sac}) and would be replenished once the recharge threshold has been reached. The dashed green line running through the yellow SCDF is the present-day topographic cross-section.		
			<u>Accepting that the diagram is schematic, it nevertheless begs a number of questions:</u> The HCDF structure appears to be drawn to natural scale, e.g. with a 1:3 seaward slope. Equally the seaward face of the Sacrificial layer at ~1:7 is not unreasonable. The principle of "volume definition" is reasonable but the schematic is misleading in respect of the implied SCDF threshold (even with the caveat):	Clarification sought, preferably by production of a more realistic illustration that uses natural scale throughout.

			The caption says that many different profile shapes can produce the threshold volume. However, unless the Buffer layer has a different sediment composition it would follow a similar profile to that of the Sacrificial layer. In practice it would require the buffer to be greater than a minimum set volume to be accommodated to avoid interference with terrestrial features, e.g. coastal path - the suggested 80m3/m could be challenging. Later in the report, reference is made variously to a "sacrificial buffer". Taken to mean the sacrificial layer, this use of mixed terminology has potential to confuse. There is no consideration in report of SCDF viability with an adapted HCDF profile. Two points in relation to "landscaping": The coastal path runs beneath the landscaping! The landscaping runs over the crest at a thickness of 2m or 2.9m if the unlabelled layer beneath it is also landscaping. If not removed before the HCDF becomes an active defence, this material could seriously affect the hydraulic performance of the HCDF (run up and overtopping).	Recognition that there are practical limitations due to the seaward slope assumption for the buffer layer. Clarification of where is the buffer considered to end at its "landfall". Address the use of mixed terminology (buffer/sacrificial) to ensure consistent use throughout the report. Include a Section in the report (or TR545) for design and viability of SCDF fronting an adapted HCDF profile. Clarification on the location of the landscaping in relation to the coastal path. Further information regarding long term future management of the landscaping layer.
6	1.9 Introduction	*Its large (c. 210,000 m3) sedimentary mass <u>is designed to avoid disruptions to longshore transport and the impacts to local beaches which, in its absence, would eventually occur if</u>*	It should also be noted wherever relevant that *<u>disruptions to longshore transport and the impacts to local beaches</u>* could also result from differential	Clarification and recognition in the report that differential retreat of the SCDF (compared to adjacent

		the landward Hard Coastal Defence Feature (HCDF) were to be exposed Its intended purpose is to release sediment into the coastal system when eroded by waves.	retreat of the SCDF with respect to that of adjacent shorelines (N and S of the installation).	shorelines) has the potential to disrupt longshore transport and impact local beaches.
6	1. Intro	*As the SCDF is designed to avoid the impacts of HCDF exposure during the construction and decommissioning phases, it is defined as embedded (primary) mitigation.*	The primary aim of the SCDF is not just to avoid HCDF exposure, as the HCDF can defend itself. It is to minimise the risk of adverse impacts to coastal geomorphology. Surely the 'secondary mitigation' (beach recycling and recharging) is actually the primary mitigation for the SCDF.	Clarify the logic of the primary/secondary mitigation approach.
7	1.1	*Unlike hard defences, which are immobile and tend to reflect wave energy during storms (causing enhanced scour and sediment loss), soft defences work with nature, dissipate energy, supply additional sediment to coastal systems (in the case of the SCDF and beach recharge in general) and therefore benefit local shorelines.*	The point at which the sediment size used in a soft defence warrants the description `hard' is unclear? The cobble layer in the SCDF (V1 option B) appears to have a 'hard' defence design purpose.	Explain how the SCDF cobble layer can be considered to function as a SCDF element and not as an extension of the HCDF.
7	1.1	*…the SCDF will include several erosion resistant features:* • *a large volume* • *high crest* • *coarse particle size* • *surface vegetation*	These erosion resistant features would reduce natural shoreline retreat, and limit sediment yield to adjacent shorelines N and S of the installation. This would appear to be a recipe for differential retreat of the SCDF with respect to that of the adjacent shorelines (as illustrated in TR545). This has the potential to create a partial blockage to natural longshore transport Earlier reporting (e.g. SZC-Bk6-V2-Ch.20-Coastal Geomorphology and Hydrodynamics 2020) made reference to the use of "beach grade sediment" for the SCDF. The Applicant appears to have moved away from this principle in favour of ruggedised SCDF parameters. This is potentially this is a	Further information on how differential retreat of the shorelines of a ruggedised SCDF is to be avoided. Further information on the merits of a ruggedised SCDF (e.g. economy in recharge measures) vs a potentially adverse impact on coastal processes.

			retrograde step in that it is likely to inhibit sediment transport. There is no consideration in the report of SCDF viability with an adapted HCDF profile.	Consideration of the viability and likely impacts of a SCDF with the adapted HCDF profile.
10	2.1	*However, in the very unlikely event that the HCDF is exposed as a result of a sequence of very severe storms in rapid succession without the opportunity to recharge, the HCDF would protrude partly or wholly through the beachface and introduce an artificial obstruction to longshore shingle transport until the SCDF was recharged…..*The SCDF is designed to avoid such impacts by maintaining a blockage-free transport corridor between the HCDF and the sea.	A shoreline that has been misaligned due to differential retreat of the SCDF in relation to the adjacent shorelines to N and S also has the potential to introduce an artificial obstruction to longshore sediment transport.	Assessment / clarification of the risks and impacts of differential retreat of the SCDF compared to the adjacent shorelines to North and South.
16	2.3.1	• *an initial seaward slope of approximately 8.3° (1:7) down to the active beach face (the slope is expected to change as coastal processes naturally rework the beach profile).*	It is not clear how the slope will change (Steepen due to coarseness of material used and uneven uprush/backwash?).	State how the seaward slope is expected to change.

17	Fig. 6		The colour contours clearly show how the SCDF would wrap around the north end of the HCDF, turning westwards / landwards at the end of the developed site. From a safety perspective, the coastal defence cannot be allowed to be breach should shoreline retreat progress up to and beyond the HCDF (outflanking). Were this situation to arise then continuity of natural longshore transport towards Thorpeness would be interrupted (notwithstanding secondary mitigation). The HCDF plan position, does not show the latest HCDF design seen in the Engineering report (3/6) and updated Drawings submitted at D3 that has a seaward kick out at the South end.	Clarify/comment on the how this situation might develop and be countered if/when the situation occurs. Update plans and SCDF volume calculations based upon latest drawings showing HCDF plan position.
20	2.3.2	*Overtopping per se is not of direct concern for the functioning of the SCDF, since its purpose of avoiding disruption to longshore shingle transport due to HCDF exposure will not be affected. However, overwashing of quantities of sediment sufficient to alter or mobilise the crest could lead to breaching and affect the integrity and maintenance frequency of the SCDF. To mitigate this, the crest elevation should be high enough to avoid heavy overwashing.*		Explain how breaching of the SCDF crest will affect the SCDF integrity and maintenance frequency. Clarify / confirm, whether the Vbuffer will be subject to a condition for retention / reconstruction of the designed crest height and width.
20	2.3.2	*(SLR) predictions early in the SZC's decommissioning phase (209925), which are: 0.55 – 0.83 m RCP4.5 (intermediate emissions scenari0, and 0.78 – 1.14 m RCP8.5 (worst-case climate emissions scenario*	Different emissions scenarios.	Clarify why RCP 8.5 is not used in both scenarios.

22	2.4.2	*Option A uses very coarse pebbles (32 – 64 mm diameter; see the modelled 40 mm results in Section 3.1.2.4), which are at the coarse end of the native particle-size distribution, to prolong the longevity of the SCDF (see Figure 4A).*	At 32-64mm diameter the proposed material for the SCDF appears to have changed significantly from the original concept which was to use beach grade material. Whilst the material would provide greater longevity, there appears to have been insufficient consideration of how well it would perform in yielding sediment to the adjacent shores. Both are relevant design criteria.	Further information on the merits of SCDF sediment size in terms of both longevity and sediment yield performance.
28	*3.1.1.2*	*Using the peak 10-year retreat rate (2.23 m/yr) as a preliminary worst case by assuming it persists across the station life rather than cyclical behaviour, and applying Vsac,mon = 42 m3/m as before,* ***gives a recharge interval (RI) of 7 years.*** *Although there is no persistent historical trend at SZC and noting the 2.23 m/yr rate is worse than the average and peak rates of erosion at the S1B5 erosion hot spot (between SZC and Minsmere Sluice; 1.01 and 2.07 m/yr respectively), the total recharge requirement would be c. 270,550 m3 across the operation phase.*	Consideration of how a retreating baseline shoreline profile will affect the function, management, and viability of the SCDF is a key issue for ESC. The report does not appear to include information on how assessment of this risk has been integrated with storm loss impacts. We are also concerned at the disparity between worst case shoreline change assumptions included in this report, i.e. 1.01 to 2.23m/yr, and those in the Design Report i.e. 20-40m total over the station life (assumed 120 years) giving a max rate of 0.33m/yr. We have made similar comments in our feedback on the Design Report.	Clarify where in the report there are RI forecasts that integrate the impacts of both shoreline retreat and storm losses. Add forecast eroded baseline beach profiles, extrapolated to years 2050, 2080, 2110 and 2140 to all drawings that are relevant to the assessment of SCDF management. This is necessary to demonstrate how a retreating baseline shoreline will affect SCDF degradation and replenishment actions.
31	3.1.2.2 Also 3.1.2.4	***XBeach 2D storm erosion modelling (sand) – sea level rise cases*** *XBeach 2D sand modelling simulates cross-shore and alongshore hydrodynamic and morphodynamic processes to estimate the storm erosion during storms.* ***XBeach-Gravel and the effect of particle size on recharge intervals – BEEMS Technical Report TR545***	As a sand model, XBeach will overestimate both cross-shore and longshore movement/changes, with respect to coarser material (pebbles, cobbles), which appears to be the current design intent. As it is the only model representing longshore transport, it is not clear whether there has been an assessment of the more sluggish movement of	Further explanation/assessment of the longshore sediment yield from coarser (than sand) SCDF material, and its performance in respect of sediment feed to adjacent shores.

		The behavioural differences between the sand and gravel models are illustrated by erosion rates of 159 - 464% times greater in the sand model (D_{50} = 0.8 mm) compared to the smallest particle size used in the gravel model (D_{50} = 2mm).	shingle/cobbles. This gives rise to concerns about the precision of sediment yield from the SCDF to the adjacent shores, which would be much reduced when considering coarse shingle compared to sand.	
35	3.1.2.3	***XBeach 2D storm erosion modelling (sand) – receded lateral shorelines*** *In addition to the effect of sea level rise (Section 3.1.2.2), misalignment between the maintained SCDF shoreline and a future, naturally eroded, adjacent coast could further increase erosion pressure on the SCDF. To consider the effects of such lateral shoreline recession on the SCDF, a potential post-decommissioning shoreline[38] was converted into digital bathymetry for XBeach 2D modelling (see BEEMS Technical Report TR545). The expectation was that gradients in longshore transport during storms would preferentially erode the SCDF at its north and / or south extents, increasing the likelihood of localised recharge.*	The focus of the report appears to be on the pressure on the SCDF, with only passing mention of the adjacent shorelines, in this case in respect of localised sediment yield. The impact of misaligned shorelines needs to be properly considered and addressed in the report in terms of mitigation; i.e. elimination of any step change in alignment due to the ruggedisation of the SCDF which could act as a barrier to longshore transport. Recent discussions between the Applicant and ESC have considered this matter with a view to secondary mitigation (most likely beach nourishment) being applied to minimise / avoid shoreline misalignment.	Further information on the triggers, timing, methods and scope of secondary mitigation to offset the impact of misaligned shorelines (i.e between the SCDF and adjacent shores N and S).
38	Fig. 14	-	The Applicant confirmed at ISH6 its intention to bring the more protuberant part of the HCDF/SCDF at the BLF into alignment with that running / going southwards.	To confirm in next revision.
39	3.1.2.4	*Overall the conclusions from this modelling indicate that , the coarser SCDF composition proposed in Sections 2.4.2 and 2.4.3 will increase the longevity of the SCDF and reduce recharge frequency.*	ESC considers that the use of native material as mitigation is shown to be viable and effective in delivering the competing objectives of HCDF protection and longshore transport continuity. . The use of a coarser SCDF may reduce the recharge	Explain why the use of natural material for the SCDF has been discounted in favour of coarser sediment.

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<td>frequency, but it gives rise to concerns about sediment transportation and differential shoreline retreat between the SCDF and the shorelines to the N and S. The predicted frequency of interventions for a SCDF comprised of native materials is not considered to be unduly onerous. The aspiration of reducing interventions (and therefore mitigation costs) should not be prioritised over the need to ensure sediment transportation.</td>
<td>Explain why the report appears to prioritise the reduction in intervention to the SCDF (through the use of coarser material) over the continuation of natural longshore processes (through the use of native material).</td>
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<tr>
<td>41</td>
<td>Table 3</td>
<td>Table 3: The results from the XBeach sand 2D and X-Beach G 1D modelling, showing the sediment losses (and resultant RIs DDM applied in brackets in years) under different conditions. The particle sizes D_{50} = 10mm and 40mm were chosen to represent the mode and coarser end of the native sediment size at SZC respectively. The D_{50}= 0.8mm used XBeach 2D sand modelling is the recommended maximum particle size.
<table>
<tr><th colspan="2">Model Conditions</th><th>Present Day SLR sediment losses (m^3/m)</th><th>2069 SLR sediment losses (m^3/m)</th><th>2099 SLR sediment losses (m^3/m)</th><th>2099 SLR, Receded Shoreline sediment losses (m^3/m)</th></tr>
<tr><td rowspan="3">2D BfE storm</td><td>Mean Loss</td><td>17.0 (106 years)</td><td>23.0 (78 years)</td><td>28.0 (64 years)</td><td>44.0 (40 years)</td></tr>
<tr><td>Mean and 1 STD Loss</td><td>23.5 (77 years)</td><td>32.6 (55 years)</td><td>39.0 (46 years)</td><td>62.8 (28 years)</td></tr>
<tr><td>Maximum Loss</td><td>28.2 (64 years)</td><td>38.0 (47 years)</td><td>45.2 (40 years)</td><td>82.0 (22 years)</td></tr>
<tr><td rowspan="3">1D 1:20 year Hs storm</td><td>D_{50}= 0.8mm (XBS)</td><td>29.9 (20 years)</td><td>(not modelled)</td><td>37.0 (16 years)</td><td>(not modelled)</td></tr>
<tr><td>D_{50} = 10 mm (XBG)</td><td>4.6 (130 years)</td><td>(not modelled)</td><td>14.3 (42 years)</td><td>(not modelled)</td></tr>
<tr><td>D_{50} = 40 mm (XBG)</td><td>4.3 (140 years)</td><td>(not modelled)</td><td>11.6 (52 years)</td><td>(not modelled)</td></tr>
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</td>
<td>The analysis is based around two previous storm events/sequences. Further development of the design needs to include a greater range of conditions including events with higher return periods. This is acknowledged in the report.

What would equivalent loss and RI results be for the neighbouring shores to north and south, of the SCDF frontage?

Outcomes need to be aligned with other practical considerations. What would be likely maximum/minimum intervals between recharges.</td>
<td>Further information on the design conditions to be taken forward to design.

Further equivalent information regarding adjacent shores.

Clarification on rationalising the results in recognition of other practical factors.</td>
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<td>The large SCDF volume, relatively low number of calculated recharge events and relatively small recharge volumes (based on conservative measures) indicate that the SCDF is viable across the operation phase of the station and that the risk of HCDF exposure during this phase is very low.</td>
<td></td>
<td>Confirmation that the site lifetime investment plan includes an allowance for all mitigation arising from the CPMMP including SCDF replenishment of the nature described but not limited to the</td>
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				frequency / volume stated in this report. If there are constraints on mitigation investment, please declare them.
45		*The specifications and triggers in the CPMMP can be adjusted to reflect environmental conditions and performance, thereby accounting for any uncertainties in SCDF response or future pressures (e.g., sea level rise) as part of a structured Adaptive Environmental Assessment and Management process*	This will clearly be necessary. However, a major factor in the design is the selection of the sediment grading(s). This will need to provide the necessary buffer between the seaward shore and the HCDF, as well as, providing sufficient longshore feed to sustain the shorelines to N and S. The present report does not address the latter, instead, illustrating the potential for recessed adjacent shorelines in Figure 13 (more clearly illustrated in TR545). The report does not thoroughly address the impact this would have on coastal processes. This is a major omission.	Further information on the rationalisation of the sediment grading in light of competing factors (recharge intervals vs need to maintain a sustainable supply of sediment to adjacent shores. Further information on the avoidance of recessed shores including application and likely frequency of secondary mitigation.
		General	The assessment period is limited to ~ 2100.	Update the report to include assessment of outputs to the date of expected removal of the HCDF, assumed to be the removal of the Nuclear Waste Facility.

9.17 Bat Roost Surveys in Trees - Main Development Site - Revision 2.0 [REP3-035]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	These comments supersede those made in our Deadline 3 response [REP3- 062] to the previous version of this survey report submitted at Deadline 2 [REP2-120].	N/A
	2	*The aim of the 2021 bat surveys was to inform the required European Protected Species Licence (EPSL) to permit development to proceed.*	The results of the survey are noted, as is the primary purpose of the survey being to inform the Natural England licence process rather than the DCO Examination process (report para. 2.1.1). ESC therefore does not consider that the submitted survey work addresses our concern about establishing the impact of roost loss on bat populations using the roost resource approach set out in the DCO Environmental Statement. This concern is set out in full in LIR paragraphs 8.52 to 8.56 and in this Deadline 5 response to the Applicant's comments on the LIR (applicant's response [REP3-044]).	Further consideration of the wider roost resource is required before it can be concluded that the proposed loss will only have a Minor Adverse, Not Significant impact.
	Para 3.1.4	*The surveys were undertaken between January and April 2021, when broadleaved tree foliage was absent, and consisted of checks of features on trees with the use of ladders and endoscopes, where possible.*	Whilst the tree inspections were undertaken at an appropriate time of year following best practice guidance (Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London), it should be noted that as this is the winter/early spring period (dependent on weather conditions) there is less chance of encountering bats in tree roosts. The number of confirmed roosts will therefore be lower than the actual number of roost features used by bats throughout the year. This is recognised in paragraphs 4.1.3 and 6.1.2 of the survey report.	None – observation on likelihood of finding roosting bats during the survey.

	6	*Section 6 (Discussion)*	As set out in Section 6 of the report, the latest survey work has significantly reduced the number of trees considered to have high or moderate potential bat roost features (e.g., trees of confirmed roost, high or moderate potential in Goose Hill reduced from 111 in 2020 to 20 in 2021). Whilst the use of additional survey techniques (particularly tree climbing inspections) could have resulted in much of the reduction recorded, comparison between the figures and raw data provided in the 2020 report [AS-021] and 2021 report seems to suggest that a number of trees surveyed in 2020 are missing from the 2021 survey. Whilst it is understood that some are outside of the scope of the 2021 survey because it only assessed trees in areas of vegetation to be removed, others (such as trees K9; AF27; AF28; AF37; AF49; AF50 and AF51) are in areas marked as to be removed in the 2021 survey but do not seem to have been assessed. It is therefore unclear to what extent this has resulted in the reduction of the number of moderate or high bat roost potential recorded in the 2021 survey. There are also a number of occasions where trees shown on 2020 survey maps are marked considerably different locations on 2021 survey maps (for example trees G111; G112 and G114 in Goose Hill), these trees have also been 'downgraded' from the 2020 survey to the 2021 survey (e.g. from Moderate to Negligible roost potential). However, given the differences in the maps this raises concerns over whether the same trees have been assessed in both surveys? ESC considers that this must be reviewed and clarified as it has an	Discrepancies between 2020 and 2021 surveys (including trees missing from 2021 survey and trees plotted in different locations) need to be explained and if necessary corrected. Survey of trees within the Sizewell Marshes SSSI should be undertaken.

			important bearing when considering the overall loss of potential roost habitats at the site. It is also noted that trees within the part of Sizewell Marshes SSSI to be lost (as shown on Figure 1 within the report) remain surveyed and therefore their potential for bat roosting remains undefined. This must also be addressed as without it the total actual loss of potential bat roost features as a result of the development remains unknown.	

9.19 Bird Survey Report - Northern Park and Ride - Revision 2.0 [REP3-036]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	ESC notes the updated survey report which now includes the figures missing from the Deadline 2 submission. The Council has no further comments beyond those made in our Deadline 3 submission [REP3-062] on these survey results and conclusions.	N/A

9.20 Bird Survey Report - Southern Park and Ride - Revision 2.0 [REP3-037]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	ESC notes the updated survey report which now includes the figures missing from the Deadline 2 submission. The Council has no further comments beyond those made in our Deadline 3 submission [REP3-062] on these survey results and conclusions.	N/A

9.21 Bird Survey Report - Two Village Bypass - Revision 2.0 [REP3-038]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	ESC notes the updated survey report which now includes the figures missing from the Deadline 2 submission. The Council has no further comments beyond those made in our Deadline 3 submission [REP3-062] on these survey results and conclusions.	N/A

9.22 Bird Survey Report - Sizewell Link Road - Revision 2.0 [REP3-039]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	ESC notes the updated survey report which now includes the figures missing from the Deadline 2 submission. The Council has no further comments	N/A

			beyond those made in our Deadline 3 submission [REP3-062] on these survey results and conclusions.	

9.23 Bird Survey Report - Green Rail Route - Revision 2.0 [REP3-040]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	ESC notes the updated survey report which now includes the figures missing from the Deadline 2 submission. The Council has no further comments beyond those made in our Deadline 3 submission [REP3-062] on these survey results and conclusions.	N/A

9.24 Bird Survey Report - Freight Management Facility - Revision 2.0 [REP3-041]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	ESC notes the updated survey report which now includes the figures missing from the Deadline 2 submission. The Council has no further comments beyond those made in our Deadline 3 submission [REP3-062] on these survey results and conclusions.	N/A

9.29 Comments on Councils' Local Impact Report - Revision 1.0 [REP3-044]

Joint Local Impact Report (LIR) [REP1-045]. ESC has focused its comments on the Applicant's response to the chapters for which ESC is the lead authority.

Chapter 5 Landscape and Visual Impact Assessment (Lead Authority ESC)

6.1.3 ESC maintain that the Natural Environment Fund should reflect the significance of the harm. The Fund will be aimed at mitigating the residual landscape and visual impacts and our proposal for the quantum of the Fund will be based on what can be realistically achieved.

Table 6.1

1e ESC recognises the quality and scale of the OLEMP and the Applicant's long-term commitment to landscape restoration across its estate and looks forward to working with the Applicant to further refine and develop these proposals. The Applicant has committed to providing an Estate-wide Management Plan during the Examination and ESC will comment on this when received.

1f/g ESC hopes that matters relating to associated development highway mitigation planting and the long-term responsibility for this can be swiftly resolved so that a clear way forward for successful delivery can be understood.

Chapter 7 Impacts on the AONB (joint lead authority ESC)

Table 7.1

2a(4) ESC recognises the quality and scale of the OLEMP and the Applicant's long-term commitment to landscape restoration across its estate and looks forward to working with the Applicant to further refine and develop these proposals during the Examination.

7.3.15 ESC acknowledges that the AONB designation was in place at the time the Sizewell C site was identified as a potentially suitable location for a new nuclear power station in NPS EN-6 and that a new nuclear power station cannot be developed here without some long-lasting adverse effects. ESC is keen to work with the Applicant on developing the Natural Environment Fund proposals further in recognition of the need to mitigate and compensate for the residual long-lasting adverse effects, which include adverse effects on the AONB.

Chapter 8 Ecology and Biodiversity (Lead authority ESC)

General Comments

Section 8.1, paragraphs 8.1.2 to 8.1.5 – The Applicant states that they disagree with the statements within the LIR that *"in many cases mitigation and/or compensation measures are proposed to address these impacts, the Councils consider that in a number of cases these measures are either inadequate, too vaguely defined or inadequately secured by the proposed DCO to give certainty that all ecological impacts can be satisfactorily addressed as part of the development proposal"* and that the Councils *"consider that a number of ecological assessments are not fully comprehensive and do not allow for clear conclusions on the level of impact expected and the suitability of the mitigation proposals. In such cases, the Councils have used their specialists' professional judgement to indicate what the expected impact might be. In any event, there remain residual impacts which are not adequately mitigated or avoided as part of the design."*.

Notwithstanding ESC's ongoing concerns with the mitigation/compensation measures proposed for a number of ecological receptors, it should be noted that the Applicant has submitted (and continues to submit) a considerable amount of additional material since the LIR was published. Revisions to the draft DCO and draft Deed of Obligation securing additional mitigation and monitoring measures have also been made. Whilst ESC welcomes the continuing dialogue and updates on these matters, we maintain that the statements made within the LIR were justified.

Section 8.2 – The Council notes that the Applicant has provided responses to the points raised in Table 3 (Summary of impacts – ecology and biodiversity) of the LIR, and whilst these are welcomed the LIR table did only provide a summary of our comments. The Applicant's approach to responding to the LIR has, with the exception of bats where a fuller response is provided, led to a number of LIR points being missed. Where this is has occurred, we have highlighted the omissions in the response table below.

Proposed Natural Environment Fund – The LIR highlighted a number of situations where ESC considered that the proposed Natural Environment Fund could provide a mitigation or compensation route for both residual ecological impacts (as identified in the Environmental Statement (ES)) and for many of the non-significant adverse impacts which the ES has predicted will occur as a result of the development. In their response to the LIR the Applicant has highlighted that where no significant impacts have been identified "*Natural Environment Fund funding to compensate for residual impacts would be unwarranted*". Whilst ESC acknowledges that under Environmental Impact Assessment procedure there is no specific requirement to mitigate non-significant adverse impacts, where, as here, there is a combination of such impacts which results in a material diminution of ecological resource, such mitigation is warranted. Whilst primarily designed to deliver landscape-related mitigation and compensation measures, given the intrinsic link between landscape and ecology the Council considers that the Natural Environment Fund would offer the opportunity to provide mitigation or compensation for these residual impacts in-combination with those identified on the landscape.

ESC responses to Applicant's responses to LIR summary of ecological impacts (Table 8.1)

Ref no.	ESC response to SZC Co. response
3a (HRA)	The Applicant's comment is noted.
3b (HRA)	Whilst the Applicant's comments are noted, details of a number of the mitigation measures are still outstanding at the current time (including details of the European Sites Access Contingency Fund and the Monitoring and Mitigation Plan for the Sandlings (central and south) and Alde-Ore Estuary European Sites) and others (such as the Monitoring and Mitigation Plan for the Minsmere European Sites [REP2-118]) have only recently been submitted to the Examination. It is therefore not possible at present to confirm that all of the mitigation proposed is acceptable and that the conclusions of the Shadow HRA in relation to recreational disturbance impacts are acceptable.
3c (SSSI)	The revisions to the design of the SSSI Crossing structure since the time of the May 2020 DCO application are acknowledged, and as recognised in LIR [REP1-045] we consider that these changes represent an improvement in ecological functionality over that which would have occurred as a result of the original design. The strategies for compensatory measures (Fen Meadow Strategy [AS-209]; Wet Woodland Strategy [REP1-020] and Terrestrial Ecology Monitoring and Mitigation Plan (TEMMP) [REP1-016]) put forward by the Applicant are also acknowledged and comments on these documents have been provided in the LIR (on the Fen Meadow Strategy) [REP1-045] and at Deadline 2 (on the Wet Woodland Strategy and TEMMP) [REP2-173]. We also note that additional information has been submitted at Deadline 3 (Fen Meadow Plan Report – Baseline Report [REP3-051 and REP3-052]) in relation to the baseline conditions at the proposed fen meadow compensation sites. Separate comments on this report have been provided as part of our submissions to Deadline 5. The Applicant's comment in relation to the choice of proposed bridge/embankment structure, rather than the use of a full open span bridge which would result in less SSSI loss, being for project timing reasons is noted.
3d (SSSI)	Please see the above comment on point 3c in relation to the proposed compensation measures for loss of SSSI habitats.

3e (SSSI)	Please see the above comment on point 3c in relation to the SSSI Crossing design and ecological connectivity. ESC notes that further lighting modelling has been submitted by the Applicant at Deadline 3. Comments on this information are provided separately as part of our submissions to Deadline 5.
3f (CWS)	Whilst ESC acknowledges that there will be habitat creation within the proposed order limits post construction, the concern around the time delay between the loss of parts of Sizewell Levels and Associated Areas County Wildlife Site (CWS) and the delivery of these habitats remains. Whilst habitat creation on other parts of the Sizewell Estate is already being undertaken for other ecological receptors (e.g. marsh harrier and reptiles, and at Aldhurst Farm), it is understood that these are not intended to compensate for the loss of parts of the CWS. The intention for the Applicant to submit an Estate-wide Management Plan (EWMP) to the Examination is noted and welcomed. We will provide further comments on this matter once this plan has been submitted.
3g (CWS)	The Applicant's comments in relation to the number of recharge events likely to be required over the lifetime of the power station are noted, as are the comments in relation to the dynamic nature of the habitats present within the Suffolk Shingle Beaches County Wildlife Site (CWS). ESC agrees with the Applicant that the impact on the CWS is Moderate Adverse, Significant, even with the implementation of the mitigation measures described in the application. In particular in the long term given the presence of the hard coastal defence which will potentially inhibit the natural coastal processes (including rollback of habitat as a result of sea level rise) which would otherwise occur. It is also understood that there is a potential risk that the material required to construct the soft coastal defence feature may not be wholly suitable for the re-establishment of vegetated shingle flora, this is a significant concern on which further information is required as it could result in further significant loss or change to the CWS.
3h (Bats)	The submission of further lighting modelling at Deadline 3 is noted. Comments on this information are provided separately as part of our submissions to Deadline 5.

	The Applicant's statement that they do not "*consider that the Council's conclusions in relation to the potential for adverse effects on all bats IEFs is supportable, given the assessment presented in the Appendix 2B of the ES Addendum [AS-208]*" is noted. ESC disagrees with the Applicant's statement on this matter and provides further comments on impacts on bats in the table below which responds to the Applicant's detailed commentary. We would also highlight that following the preparation of the commentary on bat impacts set out in the LIR, the Applicant has submitted a number of pieces of further information in relation to this topic and their proposed mitigation and monitoring measures, including the Terrestrial Ecology Monitoring and Mitigation Plan (TEMMP) (at Deadline 1); tree roost surveys (at Deadlines 2 and 3) and lighting modelling (at Deadline 3), and further information is scheduled to be submitted at future Deadlines.
3i (Natterjack Toad)	It is noted that the Applicant is intending to submit further information on this matter at Deadline 5. ESC will provide further comments at the appropriate Deadline following receipt and review of this information.
3j (Other protected species)	The Applicant's comments on these ecological receptors are noted, as is their intention to submit an updated Reptile Mitigation Strategy to the Examination. We will provide further comments on this matter as required once this information has been submitted.
3k (Residual Impacts)	The Applicant's response to this point is noted but does not address ESC's concern about the effect which the multiple Minor Adverse, Not Significant impacts predicted from the development will have on the biodiversity of East Suffolk. Please see our comments on the potential use of the proposed Natural Environment Fund to address this matter at the start of this section.
3l (Habitat Creation)	The Applicant's comments are noted, including that an Estate-wide Management Plan (EWMP) will be submitted. We will provide further comments on this plan once it has been submitted to the Examination.

3m (Coastal Processes)	The Applicant's intention to submit an updated Coastal Processes Monitoring and Mitigation Plan (CPMMP) at Deadline 5 is noted. We will provide further comment on this matter as required at the appropriate Deadline following receipt and review of the updated plan.
3n (AD Sites – birds)	Whilst the LIR accepts the EIA conclusion of a non-significant impact on breeding and wintering birds at the Northern and Southern Park and Rides and Freight Management Facility, nevertheless it highlights that there will be a local non-significant temporary impact due to habitat loss. Whilst primarily designed to deliver landscape related measures, given the intrinsic link between landscape and ecology the Natural Environment Fund would offer the opportunity to mitigate/compensate these residual impacts in-combination with those identified on the landscape.
3o (2VB and SLR – Bats)	The comments provided by the Applicant do not address the concerns raised in the LIR over the fragmentary impacts of the Two Village Bypass on foraging and commuting bats. Plans for the road indicate the use of vegetation to attempt to create 'bat hop-overs', however as set out in our response to the Examining Authority's First Written Questions (question ref. BIO.1.144 [REP2-176]) we are concerned that these will not be feasible and therefore the necessary mitigation will not be delivered. We note that some additional information has been provided on this matter by the Applicant at Deadline 4 in response to the ExA's request for further information. ESC's comments on this submission are included elsewhere in our Deadline 5 submission.
3p (2VB – CWS)	The Applicant's intention to submit further assessment of the veteran trees on the route and revised mitigation proposals is noted. We will provide further comment on this matter as required at the appropriate Deadline following receipt and review of the new information. With regard to impacts on Foxburrow Wood County Wildlife Site (CWS), the Applicant's response does not address the concern set out in the LIR on the potential for hydrological impacts on the wood as a result of the road cutting. Further assessment of this potential impact is required to demonstrate whether it is likely to result in a significant impact and whether additional mitigation measures are required.

3q (2VB – Flood Plain Grazing Marsh)	The Applicant's comment is noted. ESC have nothing further to add on this matter beyond the comments made in the LIR that the development will result in a net loss of this habitat type.
3r (SLR – Woodland)	The Applicant's comment is noted. ESC have nothing further to add on this matter beyond highlighting the point raised in the LIR with regard to the length of time which it will take newly planted hedgerow and woodland habitats to mature.
3s (NP&R; SP&R; FMF – Bats)	The Applicant's comment is noted. ESC have nothing further to add on this matter as it is was identified as a Neutral point in the LIR rather than a Negative one.
3t (NP&R – GCN)	The Applicant's comment is noted. ESC have nothing further to add on this matter as it is was identified as a Neutral point in the LIR rather than a Negative one.
3u (2VB – River Alde)	The Applicant's comment is noted. ESC have nothing further to add on this matter as it is was identified as a Neutral point in the LIR rather than a Negative one.
3v (SLR – Mammal Culverts)	The Applicant's comment is noted. ESC have nothing further to add on this matter as it is was identified as a Neutral point in the LIR rather than a Negative one.
3w (YR – RNR197)	The Applicant's comment is noted. ESC have nothing further to add on this matter as it is was identified as a Neutral point in the LIR rather than a Negative one.
3x (2VB and SLR – SUDS)	The Applicant's comment is noted. ESC have nothing further to add on this matter as it is was identified as a Positive point in the LIR rather than a Negative one.
3y (SLR – Planting)	The Applicant's comment is noted. ESC have nothing further to add on this matter as it is was identified as a Positive point in the LIR rather than a Negative one.

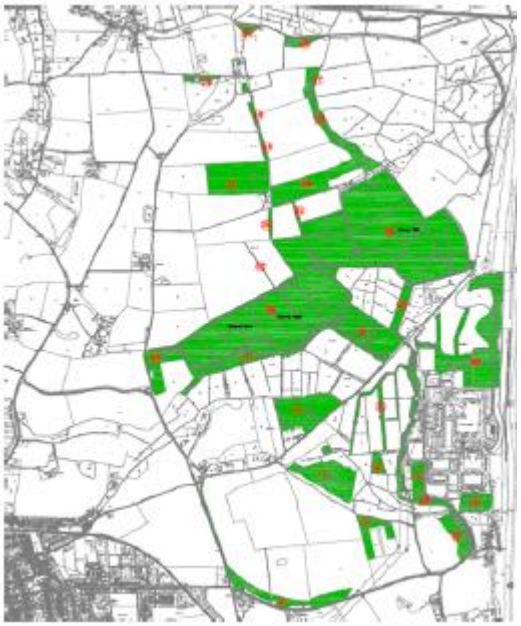
3z (2VB – Planting)	The Applicant's comment is noted. ESC have nothing further to add on this matter as it is was identified as a Neutral point in the LIR rather than a Negative one (with the exception of veteran trees which are discussed in point 3p above).

ESC Response to the Applicant's Response on Bat Impacts raised in the LIR

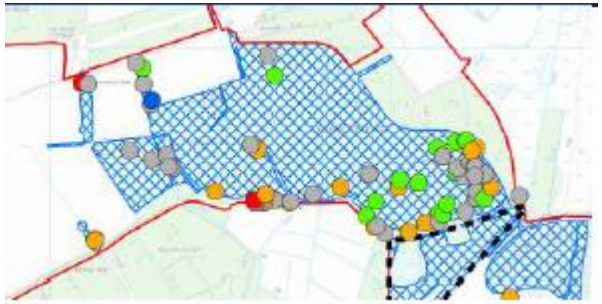
General comment on the proposed construction phase commuting corridors for bats – The bat mitigation strategy relies heavily on the maintenance of three habitat corridors through the site (Western – Bridleway 19; Central – through the Temporary Construction Area (TCA) Water Management Zones (WMZs) and Eastern – through the SSSI Crossing) during the construction phase. Notwithstanding our comments and concerns about the proposed routes set out in the table below, it is noted the Construction Parameter Plans secured by the DCO (most recently [REP2-008]) do not include these corridors. ESC consider that this is a significant omission given the importance placed on these routes for delivering ecological mitigation and request that they are included as part of the plans proposed for approval under the DCO.

ESC Response to the Applicant's Table 8.2 in REP3-044

LIR Comment	SZC Co. Response	ESC Response to SZC Co. Response
Construction - Habitat Loss (Roosts)*: It is understood that the assessment of impacts on bat roosts as a result of direct loss of habitat during construction is based on consideration of the total roost resource available vs that which will be lost during construction. Whilst the Councils understand the principle of this approach, we are concerned that no quantification of the total roost resource available on the wider Sizewell Estate is included. In the absence of this we do not consider that the assertion that, following mitigation, the loss of roosting habitat will only result in a Minor Adverse, Not Significant impact on all bat IEFs can be evidenced. Even with the implementation of mitigation measures*	A roost resource approach to the assessment of roost loss has been taken within the assessment. This is outlined in **Volume 2**, **Chapter 14** of the **ES** [AS-033] and **Appendix 2B** of the **ES Addendum** [AS-208]. This recognises the fission/fusion roosting ecology (frequent roost switching) demonstrated by many woodland bat species, in particular barbastelle bat. Overall, the amount of roosting resource to be lost is a small percentage of the resource within the Sizewell Estate. Within the estate, 165.65ha of woodland managed (the location of the managed woodlands in the baseline state are presented in the image below) and 70.23ha of vegetation is to be removed. The 70.23 ha includes scrub vegetation, scattered trees and hedgerows	As set out in the LIR, ESC understands the roost resource approach to assessing roost habitat loss which the Applicant has used in the EIA. However, as described in the LIR, our concern remains that the survey data used to inform this assessment only draws on surveys undertaken within (or very close to) the order limits and trees and woodland outside of this area but within the wider Sizewell Estate were not assessed for the contribution that they make to the whole available roost habitat resource for each bat population. The area of SSSI wet woodland to be lost has also not been surveyed so, notwithstanding the comments below, the consideration of roost resource loss within the Order Limits is incomplete. The

(primarily the installation of bat boxes) there is no demonstration that an equal or greater roosting resources is available to all bat species roosting on or adjacent to the development area. *With regard to Goose Hill, the area of greatest woodland loss, the conclusions on roost resource presented in the ES and Updated Bat Impact Assessment appears contradictory. Section 5.3.5 of the Updated Bat Impact Assessment [AS-208] notes that potential roosts of barbastelle (and noctule) have been recorded in Goose Hill. It is additionally noted that Section 8.7.13 of the assessment suggests that there were thought to have been pipistrelle roosts within Goose Hill plantation in 2020. Section 5.3.6 then states that, "Several locations on and close to the site boundary have significant numbers of trees with roosting potential for bats, including (…) Goose Hill (…).". The paragraph notes the principal locations of trees with potential for roosting within the plantation and comments on the lack of suitability of large parts of it due to the (young) age of the trees. This is restated (in part) in Section 8.3.13. In 5.3.7, however, it is stated that Goose Hill offers "minimal roosting resource for bats." The 2020 reports are cross referred in providing an evidence base for this assertion, which is not subject to qualification. Section 8.3.9 further notes that conifer plantation, such as that principally present within Goose Hill, is sub optimal for roosting barbastelle, providing, "limited availability of roost features.". Figure*	which are not included within the figure of 165.65ha for the managed woodlands.  Of the 70.23ha of vegetation to be removed, the majority is in Goose Hill plantation woodland, a largely coniferous plantation with homogenous area of managed pines. These offer limited roosting resource, as stated in **Volume 2**, **Chapter 14** of the **ES** [AS-033] and **Appendix 2B** of the **ES Addendum** [AS-208]. Conifer plantations generally have fewer potential roost features compared to broadleaved woodland and the vast majority of trees within the Goose Hill Plantation Woodland area are of negligible or low value to tree roosting bats. Taking the habitat approach to bat roosting habitat and the quantification of the available roosting resource, the mitigation	assessment provided, and the Applicant's response to the LIR, assume the roost habitat suitability of the retained and surrounding habitats, but it does not quantify them. Only the potential roost resource to be lost has been (incompletely) quantified, but the absence of assessment of the wider retained trees and woodlands means that a quantitative comparison of potential roost resource loss/retention is not possible. The assessment presented instead relies on professional judgement based on the retained habitat types (vs those to be lost). With regard to the Applicant's statement that "*The ES does not state that there is no roosting potential in Goose Hill. Moreover, the surveys conducted to date were not intended to identify every feature that a bat has ever or will ever roost in, this would show a misunderstanding of the ecology of woodland roosting bats*", it appears that the LIR paragraph on this matter has been misunderstood. The LIR does not claim that the ES states that there is no roosting potential in Goose Hill, instead it queried the apparent difference in value assigned to the importance of these roosting habitats in different parts of the ES. ESC notes that the Applicant has submitted a further survey report at Deadline 3 which provides further assessment of the trees with bat roost features present within the Main Development Site Order Limits. We have provided separate comments on this survey as part of our Deadline 5 response; however, we do not

2.9.B.1 appears to show a barbastelle roost in Hilltop Covert, which forms the western block of the Goose Hill plantation (this is separated from Kenton Hills by an access track). However, this location is referred to as being in Kenton Hills in 8.3.50 of the bat assessment, and as being in Nursery Covert (Nursery Covert is the eastern part of Kenton Hills, so these references are not necessarily incompatible. It is less apparent why the roost is shown north of the track, and where Kenton Hills is considered to extend to if the roost is considered to be in Kenton Hills) in Table 8.21. *The ground level tree roost assessment completed by Arcadis in 2020 concluded that there were 104 trees within Goose Hill that offered medium roosting potential for bats, and a further seven with high roosting potential. The statement in Section 5.3.7 (that there is minimal roosting resource for bats) does not therefore appear to accord with this finding, particularly in the absence of details of the wider roosting resource available in the area, and it is unclear what the quoted statement in 8.3.9 means in this context. Overall, the Councils consider that there is insufficient evidence to support the ES conclusion that roost loss (following mitigation) will result in only a Minor Adverse, Not Significant adverse impact on all bat IEFs. Dependent on the roost resource available in the wider area and the actual number of known roosts or suitable roost trees to be lost, the actual impact for some bat IEFs may be significantly greater (even up to*	will ensure no detrimental effect to favourable conservation status of barbastelle and other species that rely on tree roosts. Taking this approach into context with the roost resource available in retained areas of woodland and areas outside the development areas (e.g. Minsmere), it is considered that the roost loss impact following mitigation is minor adverse. With regards to the statement in the relation to the roost resource in Goose Hill: "*The ground level tree roost assessment completed by Arcadis in 2020 concluded that there were 104 trees within Goose Hill that offered medium roosting potential for bats, and a further seven with high roosting potential. The statement in Section 5.3.7 (that there is minimal roosting resource for bats) does not therefore appear to accord with this finding, particularly in the absence of details of the wider roosting resource available in the area, and it is unclear what the quoted statement in 8.3.9 means in this context."* The ES does not state that there is no roosting potential in Goose Hill. Moreover, the surveys conducted to date were not intended to identify every feature that a bat has ever or will ever roost in, this would show a misunderstanding of the ecology of woodland roosting bats. The assessments identified "*104 trees within Goose Hill that offered medium roosting potential for bats, and a further seven with high roosting potential*", and it is the word potential that is important. These trees are in an area with thousands of trees, and the proportion of trees within this area that have any roosting potential is extremely low. Furthermore, additional quantification of the available bat roosting resource being affected by the scheme has subsequently been established through ground and aerial inspections of trees in 2021, building on previous datasets. Within this assessment, all trees with moderate or high roosting potential were climbed and	consider that the submission of this information changes our above comments in relation to how the principle of roost resource assessment has been undertaken. Also, in relation to the Applicant's statement that "*the surveys conducted to date were not intended to identify every feature that a bat has ever or will ever roost in, this would show a misunderstanding of the ecology of woodland roosting bats"*, the Council has never suggested that this is the case. However, in order for each tree's roost potential to be categorised in accordance with published best practice guidance (Collins, J. (ed). (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London) an assessment of potential roost features (PRFs) present has to be made and this is what is referred to in the LIR.

Moderate Adverse, Significant dependent on the particular IEF). *Overall, the Councils consider that there is insufficient evidence presented to support the ES conclusion that roost loss (following mitigation) will result in only a Minor Adverse, Not Significant adverse impact on all bat IEFs. Dependent on the roost resource available in the wider area and the actual number of known roosts or suitable roost trees to be lost, the actual impact for some bat IEFs may be significantly greater (even up to Moderate Adverse, Significant dependent on the particular IEF).*	inspected (with the exception of the trees in the SSSI triangle that could not be accessed and trees that were not possible to climb) to positively ascertain the number and value of the roosting features to be lost. It was ascertained that, of the trees initially identified from the ground as having roosting potential, once climbed many of these features were not suitable for bats. In total, within Goose Hill Plantation woodland, only 14 trees were found when climbed with moderate roosting potential and 1 tree with high roosting potential (within the areas of woodland to be removed). The location of these trees is presented in the image below (red dots are high roosting potential, orange dots are moderate roosting potential, green dots are low roosting potential, and grey dots are negligible roosting potential).  The replacement of roost resource under the mitigation proposals can be guaranteed as the placement of bat boxes is tied to the features to be lost and secured via way of the protected species licence. Appropriate replacement ratios for mitigation potential roost features will be agreed with a minimum of 1:1 replacement, with up to 3:1 replacement for high potential roost features. The mitigation approach will include a combination of bat boxes (cavity and crevice designs), reclaimed potential roost features from felled trees and veteranisation of retained trees.	

In addition to the above, a number of tree roosts have been identified along the northern edge of Kenton Hills. Whilst it is stated in the assessment that these are retained, some figures appear to show them conflicting with the bund to be constructed along this edge. It therefore appears that these trees may also be at risk and that these roosts could potentially be lost which would further increase the impact on bat IEFs.	Within the DCO application, no woodland removal along the north of Kenton Hills is required. The bund can be constructed without the need to remove trees (tree removal presented below in blue).  The presentation of the bund within this area is likely due to the indicative nature of the plans referred to showing the approximate locations of bunds etc. These plans do not have the same spatial accuracy as the drawings used to inform the required vegetation removal.	The Applicant's confirmation on this point is noted and welcomed.
The geographical location and importance of Goose Hill to foraging and commuting barbastelle and Natterer's bat, and the impact of the loss of much of the area will have been a consideration in concluding a significant adverse effect on barbastelle as a result of habitat fragmentation. However, the evidence provided with regard to both species indicates it may well also comprise a locally important foraging area for the respective populations, particularly breeding female barbastelles. In the absence of definitive evidence of how the area is used by different bat species throughout the year, but following the evidence which is available, a precautionary approach needs to be taken. This should be that the area does form an important	It is recognised that all woodland habitat provides a foraging resource to barbastelle and other bat species. Goose Hill is also considered a commuting corridor for barbastelle bats. It is considered that the most significant impact will occur during the construction period. To address these impacts further foraging habitat will be created in the retained woodland areas in particular conifer plantations where glades, and rides will be created (in Kenton Hills) to provide edge habitats which is selected by barbastelle and other bat species. This approach will be explained further in an Estate-wide management Plan (EWMP) which is being developed which will further explain the habitats across the EDF Energy estate and explains how these will be managed. The EWMP will be submitted to Examination.	Whilst the proposed submission of an Estate-wide Management Plan (EWMP) detailing further areas to be managed as bat foraging habitat is noted and welcomed, it must be ensured that these areas not only have connectivity to new and retained roosting and commuting habitat, but also that they are adequately protected from construction impacts such as those arising from noise and lighting. We will provide further comment on this matter at the appropriate Deadline once the EWMP has been submitted and reviewed. With regard to the three proposed dark corridors, it is noted that the Applicant has submitted additional lighting modelling at

foraging area of barbastelle and Natterer's bats for at least part of the year. The Councils consider that this is particularly around the breeding season when female bats will be foraging closer to their maternity roosts, and the area may also be important for newly-volant bats (those just beginning to fly).	Three large dark corridors will also be retained within development area during construction as shown on the indicative lighting plans appended to 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.	Deadline 3. Comments on this modelling are provided as part of our Deadline 5 submission and in the *Construction - Disturbance (Lighting) section* below.
Following this precautionary approach, it is not clear that there is robust data presented in the application to confirm that habitat creation has (or will) offset the reduction in foraging resource currently available. As a result, it would be more robust to conclude a residual significant effect on both species rather than conclude a Minor Adverse, Not Significant effect. *Construction - Habitat Fragmentation: The ES concludes that, with the exception of barbastelle, subject to the implementation of the identified mitigation measures the impact on bat IEFs from habitat fragmentation will be Minor Adverse, Not Significant. For barbastelle the conclusion is that there will be a Moderate Adverse, Significant impact. It is noted that the changes to the project (including the revised SSSI Crossing design and the proposed inclusion of a vegetation link across the Temporary Construction Area between Kenton Hills and Ash Wood) have not altered the applicant's conclusion in relation to this.*	Bats are mobile species and will seek out new roosting and foraging and roosting area where they are created. There are numerous examples of recently created habitats being used by barbastelle bats in fragmented agricultural landscapes. As stated above, in the construction phase there will be loss of 70.23 ha of woodland and scrub vegetation. As stated in **Appendix 2B** of the **ES Addendum** [AS-208], once the construction phase is complete, there will be a significant increase in the availability of foraging habitats of bats. Approximately 250 ha of arable land is being or has been repurposed – the majority of which will be used for creation of habitat types suitable for foraging bats. This will include dry sandlings grassland (a mosaic of grassland, trees and heathland), heathland and shrub, and wetland and woodland habitats. Table 8.6 in the chapter presents the habitat availability for each of the habitats of value for the species present. The most important element of the mitigation approach to bats will be to ensure these new habitats are available to bats from the earliest opportunity. Some habitats of value have already been created. In addition, where practicable there will be some transplantation of existing trees where this is viable, the planting of new tree lines of fast growing native species and an acceptance that such mitigation is aimed at the short term with longer term mitigation such as planting of other species of tree as a second phase of mitigation. This approach will be defined explained in the	Whilst it is acknowledged that bats are mobile and, to varying degrees, inquisitive species, they can also be very site (particularly roost site) faithful. Although "*there are numerous examples of recently created habitats being used by barbastelle bats in fragmented agricultural landscapes*", the role these habitats will be playing in supporting particular barbastelle populations is potentially much more complex than can be determined by simple consideration of presence/absence in an area. The "repurposing" of arable land to semi-natural habitats post construction will in principle allow the creation of a significant amount of habitat suitable for foraging bats, albeit this will take a considerable amount of time to fully establish. However, this needs to be both adequately secured as part of the DCO (such as via the OLEMP) and complimentary to the creation, retention and long-term management of other parts of the Sizewell Estate to ensure that maximum biodiversity value is achieved. ESC therefore welcomes the Applicant's intention to produce an Estate-wide Management Plan (EWMP) and will provide

	EWMP which is being developed which will further explain the habitats across the EDF Energy estate and explains how these will be managed. The EWMP will be submitted to Examination.	further comment on this at the appropriate Deadline. With regard to the Applicant's comment that "*the most important element of the mitigation approach to bats will be to ensure these new habitats are available to bats from the earliest opportunity*", ESC do not agree that this is the case. The proposed development has a long construction period (10 to 12 years) which will encompass multiple generations of each of the bat species recorded at the site. Therefore, it is essential that sufficient roosting, foraging and commuting habitat is retained and protected during the construction period in order to ensure that these populations survive in good enough condition so that they are able to benefit from the new habitats. If this is not achieved and the existing populations (particularly of barbastelle) decline significantly, even if local extinction does not occur, then it will take a considerable amount of time (likely well into the operational life of the power station) for populations to recover to their pre-construction condition. ESC therefore considers that construction mitigation and post-construction habitat creation are equally important in protecting and enhancing bat populations present in the area in the short and long term.
Whilst the Councils agree with the conclusion in relation to the significant impact on barbastelle, we are concerned about the limited detail currently available on a number of the strategic	As stated above, three large dark corridors will be retained within development area during construction as shown on the indicative lighting plans appended to updated **Lighting Management Plan**	The additional information submitted by the Applicant at Deadline 3 in relation to the proposed dark corridors is noted. Comments on the submitted lighting information are provided

mitigation measures proposed. In particular, there is a lack of detail on the parameters of the retained and created habitat corridors along Bridleway 19; across the Temporary Construction Area between Kenton Hills and Ash Wood and in the SSSI Crossing area (in addition linked concerns related to noise and light are set out below). In the absence of knowing how these corridors will be retained, established and managed (including for example widths, vegetation type, vegetation structure) it is not possible to be certain that they will be adequate to maintain the required linkages to prevent significant adverse impacts not just on barbastelle but on other species, particularly Natterer's bat, as well. It is essential that this detail is provided so that stakeholders can be confident that the parameters set will be adequate to provide the commuting habitats required. The lack of a figure showing the proposed link between Kenton Hills and Ash Wood is considered particularly limiting in this respect.	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. One of these corridors is centred on two realigned water management zones with retained and new tree plantings, which will provide a connection between Kenton Hills and the Ash Wood cottages area. This new corridor is shown on the indicative lighting plans appended to updated **Lighting Management Plan** at Deadline 3 (Doc Ref. 6.3 2B (A)). Further commentary is provided in the rows below and long-term habitat proposals are covered in the row above.	in a separate section of this Deadline 5 submission and in the *Construction - Disturbance (Lighting) section* below. The material submitted by the Applicant at Deadline 3 is a Technical Note, not an updated Lighting Management Plan. With regard to the proposed corridors, as set out in the sections below, we remain concerned about the impact which high frequency construction noise will have on their functionality for commuting bats. In the absence of demonstration that they will not be significantly adversely affected by noise we do not consider that it can be certain that they will adequately perform the mitigation function required.
In addition to the above, the Councils do not consider the cumulative impacts from the Main Development Site (including the Temporary Construction Area) and the Sizewell Link Road have been adequately considered (please also see the ecology section of the Sizewell Link Road chapter). Both developments will require the removal of habitats suitable for foraging and commuting bats and, as the two developments connect, it is highly likely that it will be the same bat population which will	Further consideration will be given to this point and a response provided at Deadline 5 if relevant.	The Applicant's comment on this matter is noted, ESC will review the information when it is submitted at Deadline 5 and respond at the next relevant Deadline.

experience this impact. Given that the species most likely to suffer from this impact is barbastelle (and to lesser extent maybe Natterer's bat as well), this will compound the existing conclusion of a Moderate Adverse, Significant level impact and may even give rise to a Major Adverse, Significant level impact.		
Construction - Disturbance (Noise): The Updated Bat Impact Assessment [AS-208] provides detail of noise modelling undertaken at 8kHz and 22kHz and assesses the likely impact on roosting and foraging/commuting bats using 8kHz for roosting and 22kHz for foraging/commuting. However, it is noted that the conclusions on construction noise impacts presented in the ES and ES Addendum only refer to 8kHz and this is used for assessing both roosting and foraging/commuting impacts. The Councils consider that this is a significant discrepancy given that the ES chapter sets out the conclusions in relation to the significance of impact. The Councils agree with the noise assessment methodology set out in the Updated Bat Impact Assessment and the use of the two different frequencies. This should form the basis for the assessment presented in the ES, not the sole use of 8kHz as currently included.	The following figures in the ES Addendum show where noise at both 8khz and 22khz was assessed: • **Figure 2.9.B.5** Barbastelle roosts overlaid onto projected construction noise at 8khz in Phase 1 [AS-208]; • **Figure 2.9.B.6** Natterer's roosts overlaid onto projected construction noise at 8khz in Phase 1 [AS-208]; • **Figure 2.9.B.7** Brown long-eared and other bat roosts overlaid onto projected construction noise at 8khz in Phase 1 [AS-208]; • **Figure 2.9.B.8** Barbastelle roosts overlaid onto projected construction noise at 8khz in Phase 2 [AS-208]; • **Figure 2.9.B.9** Natterer's roosts overlaid onto projected construction noise at 8khz in Phase 2 [AS-208]; • **Figure 2.9.B.10** Brown long-eared and other bat roosts overlaid onto projected construction noise at 8khz in Phase 2 [AS-208]; • **Figure 2.9.B.11** Barbastelle roosts overlaid onto projected construction noise at 8khz in Phase 3/4 [AS-208]; • **Figure 2.9.B.12** Natterer's roosts overlaid onto projected construction noise at 8khz in Phase 3/4 [AS-208];	It is understood that noise at 8khz and 22khz was assessed in appendix to the ES Addendum, however the point in the LIR on the discrepancy is that this assessment was not presented in the appropriate ES or ES Addendum chapter. The difference between the assessment presented in the ES Addendum and its appendix (which included the Updated Bat Impact Assessment) was highlighted by ESC as a potential cause of confusion in considering the overall likely impacts of the development.

	• **Figure 2.9.B.13** Brown long-eared and other bat roosts overlaid onto projected construction noise at 8khz in Phase 3/4 [AS-208]; • **Figure 2.9.B.14** Key bat commuting and foraging areas (summary) overlaid onto construction noise contours at 22khz or above at Phase 1 [AS-208]; • **Figure 2.9.B.15** Key bat commuting and foraging areas (summary) overlaid onto construction noise contours at 22khz or above at Phase 2 [AS-208]; and • **Figure 2.9.B.16** Key bat commuting and foraging areas (summary) overlaid onto construction noise contours at 22khz or above at Phase 3/4 [AS-208]. Foraging and commuting impacts from noise at 22khz was assessed, within the **Appendix 2B** of the **ES Addendum [AS-208]**, as shown below:	

	8.3.50 → **Table 8.22** below presents potential key commuting and foraging areas (for barbastelle) where modelling of potential high frequency noise is at 65 dB and above at 22khz (noise modelling data and results presented the Bat Mitigation Strategy (**Volume 2**, **Appendix 14C1A** of the **ES** (Doc Ref 6.3) [APP-253])). In this table the peak noise at any Phase of the development is presented. ¶ **Table 8.22:- Barbastelle foraging/ commuting areas with predicted noise levels**¶ dB at 22k Hz Within Site Boundary Outside Site Boundary Below 65 dB Retained area of Goose Hill to the east of the SSSI crossing¶ NOISE LEVEL Lmax (dB) <= 30 30 - 35 35 - 40 40 - 45 45 - 50 50 - 55 55 - 60 60 - 65 65 - 70 ¶ (legend used throughout table)¶ Kenton Hills/ Fiscal Policy/ Nursery Covert complex – remaining woodland complex approximately 50m beyond development site boundary¶  The Grove / Barn Walk – commuting route north from Goose Hill¶	
Notwithstanding the above, we are concerned that the modelling indicates that several of the retained/created habitat links to be used by foraging/commuting bats (see section on habitat fragmentation above) will experience noise levels of above the threshold set for the assessment (above 65dB at 22kHz). This is particularly the case during construction phases 1 and 2. Figures 2.9.B.14 to 2.9.B.16 in the Updated Bat Impact Assessment [AS-208] show the 22kHz noise modelling outputs with important bat foraging and commuting areas overlaid. It is understood that these figures show noise modelling with the mitigation measures described in the application in place (primarily a 5m acoustic fence and/or earth	The use of noise barriers, vegetation/screening and working protocols for mobile work/noise issues will employed to reduce effects to an acceptable level where such impacts occur. The approach of the Sizewell C ES is to incorporate best practice and utilise precautionary assessment of the impact from noise. Within the assessment in **Volume 2**, **Chapter 14** of the **ES** [AS-033], the impact assessment in relation to noise 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 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 noise on barbastelle, however available information has been consulted. Therefore, it is considered that the proposed	As set out in the LIR, it is ESC's understanding that Figures 2.9.B.14 to 2.9.B.16 in the Updated Bat Impact Assessment [AS-208] show the likely construction noise thresholds across the site after mitigation measures have been implemented. The model outputs clearly show that several of the retained/created habitat links intended as mitigation for commuting/foraging bats will experience noise levels above the threshold set for the assessment (above 65dB at 22kHz). This is particularly the case during construction phases 1 and 2. While the Applicant's response to this point makes reference to the monitoring which will be undertaken during construction, if

bund). These appear to indicate that during all construction phases the important habitat linkages at Bridleway 19, the link between Kenton Hills and Ash Wood and the SSSI Crossing area will be exposed to noise levels at or above the threshold set as being disturbing to foraging and commuting bats. Also, the north, south and west edges of Ash Wood, an area known to support a range of bat roosts including maternity roosts for barbastelle, will also experience similar noise levels during all phases, as will the northern edge of Kenton Hills during at least phase 1. Based on this modelling, and acknowledging that it presents a worst-case scenario, we have significant concerns that high noise levels in the range known to the disturbing to foraging/commuting bats will render the strategic mitigation measures put in place to address habitat fragmentation impacts unsuccessful. This is of particular concern for species which will rely on these linkages, including barbastelle for which a population level adverse impact is already predicted from habitat fragmentation.	mitigation measures 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 noise 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 noise control will be via the primary and secondary mitigation, 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 modelling outputs are correct all this will do is confirm that noise levels are above the threshold at which disturbance effects on foraging/commuting bats are considered likely to occur. Given the noise modelling outputs presented by the Applicant, ESC remains concerned that the mitigation measures proposed to address construction habitat fragmentation will not be successful because of the impacts of construction noise (bats will avoid using them due to noise disturbance). If this is the case and the mitigation measures for habitat fragmentation are less successful than predicated, then it is unclear how the conclusion that there will be no significant impacts on bat IEFs from fragmentation (with the exception of barbastelle) can be justified.
The Updated Bat Impact Assessment draws on the results of monitoring at the construction of Hinkley Point C to provide demonstration that bats (including barbastelle) will continue to use corridors around and through construction areas. Whilst the results of this monitoring are interesting, the Councils do not consider that they are directly relatable to the situation at	Monitoring from static bat detectors will be a key component of baseline and future monitoring of bat activity pre-during and post development. Static loggers provide a quantitative method for assessing bat activity levels at different locations over time. However, this is not the only monitoring approach to be employed. For a landscape level response to the development, further radio tracking studies will be undertaken on the barbastelle and Natterer's bat population pre-construction, during and post	In paragraphs 8.141 to 8.148 of the LIR [REP1-045] ESC set out in detail their concerns regarding an overreliance on the use of static detectors to attempt to monitor population level impacts on bat species across the Sizewell Estate. The use of static detectors as the primary tool for this type of monitoring is considered to be flawed as, whilst they will give quantifiable data, it will be limited to the number of bat passes in a particular area at a

Sizewell. At Hinkley the habitats within the construction area are on the fringe of those relied on by that barbastelle population for foraging and commuting, whereas at Sizewell the affected habitats are within the core area understood to be used by the population. There is likely to be a significant difference in population responses to the loss (be it temporary or permanent) of fringe habitat when compared to core habitat. Also, we have reservations on the sole use of static detector surveys for population monitoring, particularly as static detectors have limitations on the data that they can collect and how this can be interpreted - please see the Monitoring Strategy section below for further comment on what we consider these limitations to be.	construction to assess any changes in activity patterns, and overall response to the commencement of construction. Roost mitigation monitoring to assess use/uptake will also be undertaken to provide a holistic approach at both the site and landscape level.	given time. Only limited information on bat behaviour is gathered by static detectors, and it is not possible to assess the numbers of individual bats present or how this relates to the overall population size/status. However, ESC notes and welcomes the confirmation from the Applicant that further advanced survey techniques (including radio tracking) will be undertaken on the barbastelle and Natterer's bat populations pre-construction, during and post construction. We would expect further details of this to be submitted to the Examination as part of an updated Terrestrial Ecology Monitoring and Mitigation Plan (TEMMP).
In addition to the above, it also remains unclear how, in practical terms, unacceptable levels of noise will be defined and mitigated during construction. There appear to be potential conflicts between health and safety and further controls being implemented. At present there is nothing included in the application documentation that could be easily adapted to provide the basis for a Working Method Statement for an Ecological Clerk of Works (team). *Given the concerns set out above in relation to construction noise and the mitigation measures included to address it, the Councils consider that bat IEFs will experience impacts above the Minor Adverse, Not Significant level set out in*	The monitoring proposed in the **TEMMP** [REP1-016] for bats does provide some opportunity for remedial actions, e.g. to reduce noise 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. Noise will be controlled by the measures in the CoCP [REP2-056], which is secured by Requirement. Through discussions with the Councils, further detail may be added to the TEMMP for Deadline 5.	As set out above ESC considers that as currently proposed, adverse impacts from construction noise remain likely. ESC would welcome further discussion with the Applicant and would expect to see an updated version of the TEMMP submitted to the Examination at a suitable Deadline.

the ES. Dependent on the mitigation measures achievable, the actual night-time noise levels generated during the works and the duration of these, it is possible that some bat IEFs may experience an adverse impact of at least a Moderate Adverse, Significant level.		
Construction - Disturbance (Lighting): In relation to impacts arising from construction lighting, whilst the Councils note the additional modelling presented in the Updated Bat Impact Assessment, it is unclear why this has only been undertaken at parts of the site and we are concerned that this hasn't adequately considered lighting at all critical points along the corridors identified as being required to be kept dark. For example, there does not appear to be any detailed modelling of the southern end of Bridleway 19 where the site access plaza will be. Also, the modelling presented for the SSSI Crossing appears to be for the culvert and embankment option not the open span bridge and embankment option, it is therefore not possible to conclude the that the lighting strategy proposed for this area will be adequate to maintain sufficient darkness so that the area does not become a barrier to foraging and commuting bats. As set out in the Habitat Fragmentation section above, details of the parameters for these corridors need to be set out and these should include acceptable light levels. *We are also concerned that reference continues to be made to keeping areas as dark as is*	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. 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 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	ESC notes the submission of updated construction lighting modelling at Deadline 3; however, this is a Technical Note on Indicative Lighting Modelling [REP3-057], rather than an update of the Lighting Management Plan [current version submitted as APP-182]. Whilst it is helpful as an indication of the degrees of lighting that can be achieved at the site, it is not clear how these thresholds are then secured in the DCO. We have provided further comments on the submitted Technical Note in a separate section of this Deadline 5 submission. ESC acknowledge that from the modelling provided, based on the horizontal plane isolux plans submitted, it appears that dark corridors can be maintained along the western (Bridleway 19), and may be possible on the central (through the TCA) route and the eastern (SSSI Crossing) route, although it appears that there may still be light spill onto the central route boundary vegetation and the embankments and entrances at the SSSI Crossing. As set out above, the plans provided do not appear to be secured as part of the DCO and therefore are not fixed thresholds which can be

'reasonably practicable' and that no parameters for acceptable light levels have been set out. This does not provide confidence that bats will be a key driver in terms of limiting / controlling light during construction. It also remains unclear how, in practical terms, unacceptable levels of lighting will be defined and mitigated during construction. There appear to be potential conflicts between health and safety and further controls being implemented. At present there is nothing included in the application documentation that could be easily adapted to provide the basis for a Working Method Statement for an Ecological Clerk of Works (team). The absence of suitable parameters and controls will lead to an impact on bat IEFs greater than the Minor Adverse, Not Significant set out in the ES.	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.	constructed and monitored against. This is a significant concern and must be corrected so that appropriate lighting thresholds are set and secured by the DCO.
***Assessment of Significance of Residual Effects**: Notwithstanding the Council's concerns set out above that construction habitat loss, noise and lighting will result in greater impacts than presented in the ES, no conclusion is drawn in the application documents on what the predicted significant residual effect of habitat fragmentation on barbastelle will mean for the population.*	The fragmentation of habitats within the home ranges of the local barbastelle population has been identified as a significant adverse effect. It is accepted that the construction phase will have the greatest level of effect, however the habitat enhancement created in the long term will be produce a beneficial effect for the barbastelle population. Fragmentation impacts during construction will be addressed through the provision of wide dark corridors at three locations to limit the distances bats will need to travel to retained and created foraging and roost areas. It is considered, based on the activity patterns of barbastelle populations elsewhere, that after a period of habituation barbastelles will continue to use foraging areas initially fragmented by the development. Whilst the mitigation	The Applicant's comment on this point is noted, however it remains disappointing that no conclusion is being drawn in the application documents on what the predicted significant residual effect of habitat fragmentation on barbastelle will mean for the population.

	developed is based on the best information available, there remains a level of uncertainty resulting in a precautionary residual significant moderate adverse effect on the local barbastelle population bat during the construction phase of the scheme.	
For 9-12 years during construction connection of local landscape features known to be used by barbastelle will be affected, as some of these features and linking hedgerows will be within the footprint of the site and its construction area. The construction footprint will result in both east-west and north-south commuting features being lost. This is likely to result in barbastelles taking more circuitous routes to foraging areas: for males, which range considerable distances this may be sustainable; for females, which forage close to roost sites when breeding, and for volant young with limited ranging ability, this may prevent them reaching preferred areas for feeding.	As outlined above the creation of large north south dark corridors will aim to address impacts of fragmentation, limiting the distances travelled by bats between roosts and foraging areas to the south. Furthermore, newly created foraging areas will provide replacement foraging sites.	The Applicant's comment on bats using newly created foraging sites is noted, however it is not clear whether the sites referred to are areas of habitat creation which have been undertaken for other species (e.g. marsh harrier and reptiles) or whether additional habitat creation for bats is proposed (which is alluded to elsewhere in the Applicant's Deadline 3 response). Clarification on this should be provided as soon as possible.
If barbastelle continues to roost within the EDF Estate, there is likely to be a population level effect on the species as a result of this effective displacement of females and young bats from foraging habitats due to the construction area representing a partial barrier to movement. Alternatively, the colony might relocate into the wider area, potentially competing with other colonies for resources. The extent of decline might be possible to model, but how populations will respond cannot be concluded with certainty. In the very worst case, the development could result in the local extinction of the barbastelle population. The lack of	The mitigation approach is to provide access to higher quality and replacement foraging habitats within the existing home ranges of the barbastelle bat population in areas unaffected by the construction. The holistic monitoring approach will assess the use of mitigation areas and be used to make adjustments to mitigation where required.	To the best of ESC's understanding, as currently submitted the development does not include the creation of areas specifically designed to provide high quality bat foraging habitat (although it is acknowledged that some of the areas of habitat creation undertaken for other species will provide improvements for foraging bats over the arable habitats previously present). It is therefore unclear what is meant by the statement that "*The mitigation approach is to provide access to higher quality and replacement foraging habitats within the existing home ranges of the barbastelle bat population in areas unaffected by the*

conclusion on this in the ES and the Updated Bat Impact Assessment is considered to be a significant omission and effects not only consideration of the robustness of the conclusions presented but also consideration of how an adequate monitoring strategy can be designed.		*construction*". Given the impacts on bats will primarily occur during the construction phase, any replacement foraging habitats will need to be established prior to the original habitats being lost in the early stages of construction. ESC would welcome clarification on this as soon as possible so that any such areas can be assessed and their likely success as mitigation considered. With regard to monitoring, as set out above the council considers that the submitted TEMMP [REP1-016] requires updating to reflect the required changes to the monitoring strategy.
For Natterer's bat, the assessment concludes that due to the more generalist habitat preferences of the species, the colony is likely to adapt to habitat fragmentation impacts resulting from construction, but that it will become more 'vulnerable'. It is unclear in this context whether vulnerability could result in a population-level effect as a result of additional impacts arising from the Sizewell Link Road, for example. This, and inherent uncertainty in the conclusions regarding the magnitude of effect on the county-level important population are of significant concern. As with barbastelle, the lack of conclusion on this in the ES and the Updated Bat Impact Assessment is considered to be a significant omission and effects not only consideration of the robustness of the conclusions presented but also consideration of how an adequate monitoring strategy can be designed.	The response for Natterer's bat is the same as for barbastelle.	To the best of ESC's understanding, as currently submitted the development does not include the creation of areas specifically designed to provide high quality bat foraging habitat (although it is acknowledged that some of the areas of habitat creation undertaken for other species will provide improvements for foraging bats over the arable habitats previously present). It is therefore unclear what is meant by the statement that "*The mitigation approach is to provide access to higher quality and replacement foraging habitats within the existing home ranges of the barbastelle bat population in areas unaffected by the construction*". Given the impacts on bats will primarily occur during the construction phase, any replacement foraging habitats will need to be established prior to the original habitats being lost in the early stages of construction. ESC

		would welcome clarification on this as soon as possible so that any such areas can be assessed and their likely success as mitigation considered. With regard to monitoring, as set out above the council considers that the submitted TEMMP [REP1-016] requires updating to reflect the required changes to the monitoring strategy.
Bats – Conclusion*: The ES concludes that, subject to the implementation of the identified mitigation measures, with the exception of the impact of habitat fragmentation on barbastelle, no bat IEFs will experience construction impacts above Minor Adverse, Not Significant. For barbastelle, habitat fragmentation is considered likely to result in a construction impact at a Moderate Adverse, Significant level. For the reasons set out above, the Councils consider that there are a number of limitations in the assessment which undermine these conclusions. Impacts from construction habitat loss, construction noise and construction lighting all have the potential to result in impacts of greater significance than those predicted in the ES. Of additional particular concern is the fact that construction noise and lighting have the potential to adversely impact the mitigation measures being put in place to address impacts arising from fragmentation of connectivity due to habitat loss. In the absence of parameters relating to the retained habitat corridors we do not consider that it is possible to be confident that the habitat mitigation measures identified*	The responses and further information provided above support the conclusions made in the **ES** [AS-033 and AS-208].	Whilst acknowledging the additional information, interpretation and commitment to submitting further details made by the Applicant, for the reasons set out in the sections above ESC maintain their view that the proposed development, as currently submitted, will have a greater impact on bat IEFs than presented in the ES. In particular, concerns remain over: • The assessment of roost resource availability pre and during construction. • The loss of foraging areas in Goose Hill (particularly for barbastelle and Natterer's bats). • The impact of construction noise on the proposed mitigation corridors. • The impact of construction lighting on the proposed mitigation corridors and how the required thresholds are secured by the DCO. • The in-combination effects of the Main Development Site and Sizewell Link Road in relation to habitat fragmentation impacts.

can be adequately implemented. It is the Council's opinion that the failure of these measures would result in adverse impacts for all bat IEFs (particularly foraging and commuting) of at least a Moderate Adverse, Significant level.		• How the proposed construction mitigation corridors are secured by the DCO. • The need for additional monitoring techniques to be secured in the TEMMP (as recognised by the Applicant). • Lack of detail on provision of additional bat foraging habitat as part of the mitigation package (as referenced in the Applicant's response to the LIR [REP3-044].

Chapter 9 Soils and Agriculture (Lead Authority ESC)

ESC has reviewed the Applicant's feedback received and makes the following observations in relation to soils and agriculture impacts (Table 9.1):

Ref 4a - Permanent / Temporary loss of agricultural land	The Applicant's comment is noted. Further consultation with the landowners will be undertaken to reduce impacts on farm businesses.
Ref 4b - Landscaping of former construction land to heathland mosaic	The LIR identified a requirement for landscaping of former construction land to be secured through a Trust. ESC notes the Applicant's response which states that the land within the application boundary will be secured through the Outline Landscape and Ecology Masterplan.
Ref 4c - Permanent loss of agricultural land at Two Village Bypass (Grade 2 and 4) and Sizewell Link Road (Grade 2 and 3)	The Applicant's comment is noted. This refers to 4a above.
Ref 4d - Temporary loss of agricultural land at Freight Management Facility, Northern and Southern Park and Ride sites and LEEIE; Green Rail Route	ESC notes the Applicant's response which states that land required temporarily will be fully restored following construction.
Ref 4e – Contaminated land	The LIR identified a requirement for an appropriate Land Contamination Management Plan to be prepared. ESC acknowledges that the Applicant has developed further information and documentation to address recommendations.

In relation to soils and agriculture requirements and obligations set out in the LIR, ESC notes that all but one of the matters raised have been agreed by the Applicant. However, in reference to Table 9.2 (Ref. 9.29), the Applicant did not agree with the requirement that the loss of agricultural land and soil quality should be compensated through payments to the Natural Environment Fund (secured through obligation). Instead, SZC Co. will seek agreement with landowners individually. ESC notes this position.

The remaining comments provided by the Applicant are generally consistent with ESC's understanding of their position.

Chapter 11 Coastal Change / Geomorphology (Lead authority ESC)

The Applicant's comments on our LIR are generally consistent with ESC's understanding of their position. Many areas remain not agreed and under discussion.

Chapter 12 Historic Environment (Lead authority ESC)

Paragraph 12.3.6, p92 – Abbey Cottage. ESC remain in disagreement with the Applicant regarding the scale of effects arising from the impacts on the setting of Abbey Cottage from associated development. We have considered the counter-argument presented by the Applicant but ESC's opinion is unchanged and is not repeated here. The Applicant's request for suggested enhancements to best protect the significance of Abbey Cottage is welcome. ESC made suggestions as part of our response to the Examining Authority's First Round of Questions [REP2-176]. We suggested mitigation at HE.1.17 (page 128 of the doc) and stated that "with respect to required mitigation, this could include minimising the extent of associated signage to the remodelled junction; reinstatement of hedgerow and new tree planting to the new boundary alignments; and avoiding an overtly urban engineered junction design in terms of materials choices including kerbing, planting, highway boundary fencing, road lining and lighting (if proposed)." It is understood that the hedgerow and tree planting is already proposed by the Applicant; ESC's suggestions regarding the roundabout are to attempt to mitigate its urbanising effect, as this feature will be the source of the harm from ESC point of view.

Paragraph 12.3.8, p92 – Coastguard Cottages. The Applicant has provided comments on the content of NPS EN-1 and ESC's view that non designated heritage assets are not awarded lower significance by it (Ch.5.8 Historic environment). ESC considers that the Applicant is responding to the wrong point here. The point that we have made is in relation to heritage assets that have archaeological interest which are demonstrably of equivalent significance to scheduled monuments but which are not currently designated. Paragraph 5.8.5 of EN-1 makes clear that the absence of designation for such heritage assets does not indicate lower significance. This paragraph of EN-1 mirrors the general protection afforded to unknown buried heritage by the NPPF. The point made by the Applicant in respect of other non-designated heritage assets is accepted and there

is no disagreement on the interpretation of EN-1 here. ESC should clarify that we have not been party to discussions held between the National Trust and the Applicant regarding measures proposed for Coastguard Cottages (in the Trust's ownership).

Paragraph 12.3.14, p94 – Farnham Manor. The planning history of this site is somewhat unclear as the principal listed building is referred to as both Farnham Manor and Farnham Hall in planning records. The building was listed as Farnham Manor in 1951, yet in an appeal decision for the site dating from 1967, the building is referred to as Farnham Hall. Indeed, the 2015 edition of Pevsner's Buildings of England guide to East Suffolk refers to it as Farnham Hall (p218), as do historic Ordnance Survey maps. ESC has no doubt that the Manor and the Hall are actually the same building. The 1967 appeal decision is useful as it confirms that the Hall had already been divided into five dwellings by that date and that outbuildings to the north (it is not clear which) had already been converted into two flats. The appeal decision refers to the seven dwellings as forming an isolated group surrounded by open countryside and this is a good characterisation of the surroundings and setting to Farnham Hall and its associated buildings which persists to this day. In the matter of what is and isn't curtilage listed, we agree to some extent with the Applicant that this is a lesser question, but we must point out that Farnham Barn was first consented for conversion to two dwellings in 1979 and was, presumably, an unconverted barn in 1951. The pattern of buildings at the site that can be seen on the 1st edition Ordnance Survey map (1881), below, is closely similar to the existing pattern of buildings, as illustrated by current mapping supplied by Historic England for the building's list entry and identification, also below. The pattern and position of buildings and some of the buildings themselves are historic and established, and contribute importantly to the significance of the principal listed building (the Hall) by their association as a single group that has evolved over time. This evidence is irrefutable. Note also the historic route from the Hall to Foxburrow Wood.

East Suffolk Council 20026200

First Edition Ordnance Survey

Historic England mapping from List Entry

Paragraph 12.3.15, p95. It is very hard to understand why the Applicant considers that the associated structures at the Hall 'break up the historic coherence of the area around the house' when they very much form part of that historic coherence. This view is not considered to be sustainable. ESC does not accept that the structures detract from its historic interest. Indeed, the opposite is the case from the evidence presented above. The Applicant states that these structures detract by precluding westward views of the Hall (all but elements of its roofline) from its eastern setting. Esc disagrees with this interpretation which seeks to downgrade the value of these ancillary buildings and their important contribution to the significance of the Hall as part of its surrounding historic group.

Paragraph 12.3.16, p95. ESC considers that the difference between the parties relates to whether the Hall's significance is derived from only its own special interest or that interest plus the surrounding group of buildings plus its countryside setting. We do accept – and it is an important point – that the Hall, itself, has principal elevations that are oriented northwards and westwards, but its long south elevation does have an aspect looking out towards the area of the proposed bypass road.

Paragraph 12.3.17, p95. ESC agree with the view of the Applicant that the significance of the Hall can be appreciated within close proximity to it, but then that is true of any heritage asset. However, the experience of the Hall's surroundings in contributing to an understanding of its significance should not be under-estimated. A public footpath, allows one to understand and appreciate very clearly the Hall and also its surroundings because one is permitted to walk through the Hall's setting, past the Hall and back into its setting. These surroundings consist of open countryside, of a traditional, rural farmed landscape that would have enjoyed a longstanding historic and symbiotic relationship with the Hall and its farmstead. These fields are still subject to traditional farm practices, seasonal changes and the comings and goings of agricultural life. This character contributes importantly to an understanding of how the Hall and its farmstead lived off the land – for centuries. The Applicant's proposal will not destroy the Hall's surroundings, but it will erode them in the area to the east of the Hall, from where tranquil and attractive views of it and its building group can be enjoyed. This will result in harm to the Hall's significance.

Paragraphs 12.3.18-19, pp95-96. ESC has no disagreement with the Applicant's assessment of views in these paragraphs.

Paragraph 12.3.20, p96. ESC welcome the Applicant's recognition that the route of the proposed bypass will 'disturb' the grain of the existing field system. We do not agree, however, that it is the network of small woods and copses that contributes most to historic landscape character. This is not a wooded landscape, but a farmed landscape and it is the grain of the field system and historic field boundaries (where they survive) that contributes most to historic landscape character.

Paragraph 12.3.22, p98. ESC agree with the Applicant's conclusions on the aural characteristics of the existing surroundings to the Hall being derived generally from its rural context.

Paragraph 12.3.26, p99. ESC have not assessed the potential harm to Farnham Hall from a tranquillity and noise basis – as the noise would arise from road traffic noise, this is for SCC as local highway authority to be the responsible authority for assessment. ESC does, however, disagree with the conclusion that the contribution of the wider rural landscape to the significance of the Hall is limited. It is hard to understand the

significance of the Hall, its walled garden and farmstead without gaining an appreciation of its setting within the wider rural landscape of which it forms a pre-eminent part as the largest domestic building in the parish.

Paragraph 12.3.29, p99. The Applicant's assessment is predicated on the impact of changes to views arising from the loss of the historic route that connected the Hall with Foxburrow Wood (visible on Hodskinson's Map of Suffolk 1783, for example). However, in the conclusion, it is acknowledged that the character of the route will change when the footbridge over the bypass road is constructed to reinstate the severed link. This is an understatement in relation to the scale and nature of change that will take place which is not otherwise acknowledged. The dramatic change in the character of the footpath that links the Hall to the wood will significantly alter the experience of the Hall within its surroundings in this area of them, and have an urbanising effect which detrimentally affects its significance.

Paragraph 12.3.35, p100 – St Mary's parish church, Farnham. The dense planting that is referred to here changes on a seasonal basis and, therefore, so do levels of visibility; but ESC agree with the general point that it is the church tower that is architecturally pre-eminent and visually prominent.

Paragraph 12.3.38, p101. The Applicant agrees with ESC that the church tower will be visible from the area of the proposed roundabout adjacent to Parkgate Farm. It is the tower that is designed to be visually prominent within its wide landscape setting and is a principal element of the Grade II* listed building.

Paragraph 12.3.45, p103. Although the submitted document is a response to our Councils' joint LIR, ESC note here that the Applicant has also responded to similar concerns expressed by Historic England in their Written Representation [REP2-138] in terms of illustrated viewpoints and careful assessment, and it is welcome that these have now been provided. On a specific point, ESC accept the Applicant's view that the proposed bypass will not affect the relationship between the church and its village, of which it forms a part; ESC does not accept, however, the conclusion that there will be no effect arising from the development of a roundabout and road bypass within the countryside setting of the parish church of St Mary's. To quote from Historic England's Relevant Representation at p20 "*… we consider the development would be within the setting of the church, particularly as its passes through the agricultural land to the south. In particular, the development would introduce a wholly new and modern form into this landscape. This would in turn result in an erosion of the historic field patterns and a loss of the rural landscape visible from the churches elevated position. In our view the development would have an adverse and negative effect on this asset, and that this has the potential to be a significant effect. In policy terms this is harm to its significance through a development within its setting.*" The submitted assessment fails to address satisfactorily the erosion of the historic landscape character and visual impacts arising from the proposed

development, partly because the Applicant does not show us what they are by way of illustration. ESC note that our views are wholly supported by Historic England.

Paragraph 12.3.48, p104 - Little Glemham Hall. Much of the detailed consideration of the parkland's development here is welcome. However, we cannot agree that Repton's addition of an eastern entrance to Glemham Hall represents a 'tradesman's entrance'. It's rather a lot of bother to go to, to create a back door entrance and, besides, the route from the new entrance crosses the parkland frontage and arrives directly at its principal elevation and not at the complex of service buildings that still partly exists to the immediate south-east of the Hall. ESC does not accept that it is appropriate to downgrade Repton's new entrance and approach in the way expressed by the Applicant.

Paragraph 12.3.50, p105. ESC does not accept the assertion that the north-eastern area of the parkland does not contribute to its historic interest. This downgrading the significance of the heritage asset is unsustainable. As a registered parkland it clearly has historic interest. ESC was able to demonstrate its adjacency to the proposed roundabout at Parkgate Farm to the Examining Authority on the accompanied site visit. Further detail can be found at: GLEMHAM HALL, Little Glemham - 1001461 | Historic England.

Paragraph 12.5.53, p105. ESC remain in disagreement here with the conclusion that there will be no adverse effect arising from the development of the roundabout and road bypass within the eastern setting to the registered parkland, a designated heritage asset.

Paragraph 12.3.55, p106 – Theberton Hall. ESC agree with the Applicant that the degree to which the relict parkland contributes to the setting of Theberton Hall is debatable and we are happy to debate (and potentially disagree) with the Applicant's views here. It is clear on arrival at the principal site entrance to the Hall, that Plumtreehill Covert forms a significant and important element of the extended view across the setting of the Hall. It is quite clearly a designed feature, given the Covert's linear alignment and distinct form of enclosure. ESC disagree with the Applicant that this key element of the relict parkland is not legible. Its function is apparent and unaltered and contrary to the Applicant's view, ESC consider that this wood contributes importantly to the setting of the Hall and thus its significance. Its importance should not be downgraded.

Paragraph 12.3.57, p106. ESC welcome that the Applicant agrees with us that the development of the proposed link road within the former parkland setting will reduce the ability to appreciate the significance of Theberton Hall. The Applicant's argument, however, that the parkland is not legible and that lost access routes (this point has little relevance) reduce the important contribution of the setting to the Hall is not valid. The parkland will never be capable of reinstatement (as is happening at Grove Park in Yoxford for example, where arable fields are being

converted back to parkland) should the link road be developed in this alignment. Overall, there is little serious attempt made here to assess the importance of the setting to the significance of Theberton Hall and its Grade II listed Gateway and the contribution of the relict parkland, including Plumtreehill Covert, to it. On that basis, very little weight should be given to the conclusion here that impacts arising from the link road development will be very low. It is difficult to understand how such a conclusion can be arrived at, given the obvious adverse impacts that will arise from the partial destruction of Plumtreehill Covert and the route of the new road across the former parkland to Theberton Hall. ESC note that our views are wholly supported by Historic England in their Written Representation [REP2-138].

Paragraphs 12.3.59-63, pp106-107 – Hill Farmhouse. ESC welcome the inclusion of the assessment here and consider that it should have been included within the original scoping, particularly as the assessment demonstrates that a minor adverse effect will arise from the development of the two village bypass road within the setting of the Grade II listed building. This is a not dissimilar assessment made by the Applicant for other affected heritage assets. In considering the content of the assessment here, ESC can confirm that we concur with it and its conclusion.

Paragraphs 12.3.64-66, p108 – Leiston Abbey First Site. Comments on this scheduled monument in the LIR arose from SCC's Archaeology Unit and as such, ESC have no response to make to the Applicant here.

Chapter 14 Design (Lead authority ESC)

Table 14.1 Response to summary of design impacts. Ref. no. 11a, p114. ESC welcome that the Applicant is proposing the addition of design principles for the accommodation campus which are to be included in an updated DAS to be submitted at D5. We have already provided the Examining Authority with suggestions for additional Key Design Principles. Those proposed by the Applicant will be with reference to colour in respect of materials and finishes, and sustainable design.

Table 14.1 Response to summary of design impacts. Ref. no. 11b, p114. ESC confirm that the selection of final materials for the Turbine Halls and OSC will be agreed with ESC as Discharging Authority; and that this will be undertaken in consultation with relevant stakeholders (including the AONB Partnership).

Paragraph 14.3.3, p115. ESC welcome the commitment made here to the provision of bespoke design principles for the Main Access Building on the MDS. We have since received confirmation from the Applicant that a new Design Principle will be proposed for inclusion within Chapter 5 of

the DAS as part of the D5 submission. The draft text which we have seen highlights the special purpose of this building and how Reserved Matters will take account of its exterior design and colour choice. ESC can confirm that this is sufficient at this stage. ESC wishes to highlight the particular functional role that this building will perform and to ensure that its design reflects this.

Paragraph 14.3.6, p115. Following completion of Issue Specific Hearing 5 on Landscape and Visual Impacts and Design on July 13th, it appears that the Applicant's position has moved on from the views expressed here. ESC understands from the ISH that the use of some kind of design review panel arrangement could be considered acceptable to the Applicant at Reserved Matters stage, to provide independent scrutiny of detailed design aspects. ESC would encourage the Applicant to engage with this suggestion constructively. We want to see design scrutiny in some form embedded at discharge stage, and design review offers a practical choice, particularly since there is local infrastructure already in place via the RIBA Suffolk Design Review Panel https://www.ribasuffolk.com/suffolk-design-review-panel.

Paragraph 14.3.11, p116. ESC is content to be corrected about the absence of a proposed gradation effect in the turbine hall cladding.

Chapter 17 Access, Amenity and Recreation (Amenity and Recreation Lead authority ESC)

Table 17.1: 19c public footpath more vulnerable to erosion

ESC, along with SCC, maintain that the preference is for the PROW to be relocated to the top of the hard sea defence to ensure its longevity from erosion. We note the Applicant's reference to the hard sea defence providing noise mitigation and minimising intrusion from the power station to users of the Coast Path but its longer-term protection is what we seek. We note that an informal path is proposed on the top of the hard sea defence for those wishing to use it but this does not provide the same level of protection as relocating the formal PROW.

Chapter 18 Noise and Vibration (Lead Authority ESC)

18.2 responses to issues: summary

Table 18.1 response to summary of noise and vibration impacts

Pg No.	Section Ref.	Applicant comment	ESC response
159	20a	Main Development Site construction noise and vibration impacts: *The 24-hour nature of the construction works at*	The construction noise thresholds set out in the Code of Construction Practice (CoCP) [REP2-056 are more onerous that the standard BS5228 -1 ABC

		the Main Development Site was a key factor in the selection of lower thresholds marking the onset of a significant adverse effect, in an *EIA context. The mix of activities, which include what might be considered traditional construction activities, rail movements and* *unloading activities, vehicle movements and earth-moving* *operations, combined with the extended duration of the overall* *works programme and 24-hour working during some periods,* *resulted in the adoption of a precautionary approach in terms of* *setting assessment criteria, which have in turn been incorporated into the Code of Construction Practice (CoCP) [REP2-056].* *Further detail of the proposed noise monitoring and management* *measures will be set out in the 'Noise Monitoring and Management Plans', which will be subject to agreement with ESC.* *The provisions of the Noise Mitigation Scheme [REP2-034]* *remain under discussion between SZC Co. and ESC to determine* *whether a lower eligibility threshold might be appropriate where works are undertaken over extended periods of time.*	thresholds during the day (07.00 to 19.00), aligned with the ABC thresholds at night, but less onerous in the evening period (19.00 till 23:00). Given the nature and duration of the proposed construction works, ESC considers that the contractors should be required to target the lower construction noise thresholds set out in Annex E5 of BS5228-1 for long term construction projects involving significant earth moving activities. These thresholds would not preclude construction activities that generate noise levels above these thresholds but would require the Applicant to demonstrate that best practical means (including timetabling of noisy works outside more sensitive times of day) have been adopted wherever possible.
159	20b	Changes to the existing noise climate in amenity and recreation areas during MDS construction: *The effects of the construction work on the rural noise climate are temporary, albeit long-term, and those effects will cease when the* *construction work ceases.*	ESC note that the draft Deed of Obligation does not include any measures specifically to control noise impacts to amenity areas, which is accepted by ESC. However, this does re-enforce the need to control construction noise and vibration at source as far as is practicable as discussed for residential receivers.

		Measures to minimise noise during construction are set out in the *Code of Construction Practice (CoCP) [REP2-056].* *Further measures to minimise effects on recreational receptors due to changes in noise during construction are set out in section 15.5 of Volume 2, Chapter 15 of the ES [APP-267].* *However, there will be residual adverse effects during construction, and this is reflected in mitigation and compensation measures in the draft Deed of Obligation [REP2-060].*	
160	20c	Noise from the operational power station: *(1) Discussions between SZC Co. and ESC/SCC are ongoing on the appropriateness of the night-time criterion adopted as the LOAEL for operational power station noise.* *The LOAEL was based on the 40dB Lnight value that the World Health Organisation state* *"should be the target of the night noise guideline (NNG) to protect* *the public, including the most vulnerable groups such as children,* *the chronically ill and the elderly."* *Since an external value of 40dB Lnight is considered to provide* *sufficient protection to the most vulnerable groups in society, it* *follows that there is negligible prospect of an adverse effect.* *The World Health Organisation guideline values are levels below which effects can be assumed to be negligible and are not limits above which impacts necessarily occur; significant*	ESC disagrees that 40 dB L_{night} represents "*the level below which there is no prospect of an adverse impact".* This statement (and the 40 dB Lnight criterion) is derived from the WHO Night Noise Guidelines for Europe (2009), which provide guidance for assessing noise effects on sleep but are mostly based on research into the effects of transportation noise, which differs in character to operational power station noise. Instead, ESC believes that a rating level limit (in accordance with BS 4142:2014+A1:2019) of 35 dB $L_{Ar,Tr}$ should be adopted for operational plant noise (including the operational power station), where it is appropriate to consider absolute noise levels as part of the context. A rating level limit means that the characteristics of the sound would be considered and also reflects guidance from the Association of Noise Consultants contained in their technical note on BS 4142 (March 2020) which suggests 35 dB $L_{Ar,\ Tr}$ as the threshold for *'low'* rating levels. The Applicant has already adopted the preferred threshold of 35 dB $L_{Ar,15minutes}$ for the MDS substation (and for mechanical plant equipment serving Associated Development sites). ESC sees no reason why this limit should not also be adopted instead of 40 dB L_{night} for operational power station noise.

		effects are not likely to occur until much higher degrees of exposure. *(2) As set out above, there are ongoing discussions on operational* *noise relating to the LOAEL, which is understood to be the point of concern in respect of operational noise. It is not considered necessary to offer noise insulation below the SOAEL for* *operational noise.*	
161	20d	Continuous plant noise with tonal/other characteristics: *The existing noise climate in the vicinity contains an audible tone from Sizewell B Power Station. The geographical extent of the audibility of a tonal sound is likely to increase due to the operation of Sizewell C and there is no practical way to reduce this tonality off-site; it is an inevitable consequence of the operation of a power station.* *The effects of the operation of the power station on the noise* *climate in the area have been considered in detail, as described in* *the reply to 20b above.*	ESC agree that the existing noise climate in the vicinity of Sizewell B contains an audible tone, and that this is inherent to power generation equipment and largely unavoidable. However, ESC consider that this simply reinforces the view that 40 dB L_{night} is an inappropriate absolute noise limit for night-time power station noise, because it does not take any account of these characteristics. Considering that the potential for medium and high magnitude noise impacts are ultimately decided on the basis of this, ESC believes that a rating level limit of 35 dB $L_{Ar,Tr}$ should be adopted for the operational power station), where it is appropriate to consider absolute noise levels as part of the context.
162	20e	Adverse impacts from rail freight, particularly night-time noise: *(1) The draft Rail Noise Mitigation Strategy [AS-258] sets out the* *proposed operational and physical measures to limit railway noise and vibration, which has effect at properties affected by railway noise irrespective of whether they fall above or below LOAEL or* *SOAEL.* *(2) Discussions continue between SZC Co. and Network Rail to*	The Applicant's comments on this matter are separated into three parts, and ESC's response to these are separated similarly below. (1) ESC understand that the measures listed which form the *draft 'Rail Noise Mitigation Strategy'* are proposed as primary mitigation, and thus the updated assessment summarised in the ES Addendum (Doc Ref 6.14) [AS-258] is reliant on all of these measures being delivered. The Sizewell C / Network Rail *Statement of Common Ground* dated 2 June 2021 (PINS reference EN010012) makes no firm commitment to this and simply states (in paragraph 6.1) that *"both parties are aware of and are working towards the implementation of a Rail Noise Mitigation Strategy (RNMS)"*. If the full prescription of measures in the draft RNMS are not deliverable, then the

		establish the feasibility of further measures. *(2) and (3) The latest version of the Noise Mitigation Scheme [REP2-034] offers noise insulation at a lower level of railway noise than had originally been proposed, and provides a means for* *considering and addressing solutions that go beyond glazing, for* *example in historic buildings. These changes have been made following discussion between SZC Co. and ESC/SCC.*	outcomes of the assessment would presumably change, and many more significant adverse noise and vibration impacts would be expected to occur as a result. ESC therefore requests that once required improvements are confirmed by Network Rail, these need to be secured by requirement or obligation.
			(2) ESC consider that the extent of the current rail noise mitigation proposals would not meet the policy aim of the NPSE to *"mitigate and minimise"* adverse effects above LOAEL, nor the required response in EIA terms to *"avoid, prevent, reduce or, if possible, offset"* any adverse effects. NPS EN-1 states (in paragraph 5.11.12) that engineering is just one form of mitigation which may be applied, and that layout (including *"screening by natural barriers, or other buildings"*) may also be considered. Paragraph 5.11.13 of NPS EN-1 also states that improved sound insulation may be appropriate, but only *"in certain situations, and only when all other forms of noise mitigation have been exhausted"*. In particular, ESC consider that the potential benefits of trackside noise barriers as mitigation should be fully explored. ESC notes that paragraph 6.3 of the current Sizewell C / Network Rail *Statement of Common Ground* dated 2 June 2021 (PINS reference EN010012) states that *"such fencing on Network Rail land is not supported by Network Rail if such fencing was to be at Network Rail's cost. Subject to feasibility analysis such fencing could be supported if costs relating to analysis, construction, maintenance and (if required) removal of the fencing were met by The Applicant."* This suggests that Network Rail would permit noise barriers on their land if they were necessary and paid for by the Applicant. If the Applicant's additional assessments indicate that barriers would help to meet the policy aims, and once the appropriate locations are confirmed with Network Rail, these should be secured by requirement or obligation.
			(3) ESC welcome the lower threshold for improved sound insulation in the draft NMS (in line with both EIA significance and the previously discussed SOAEL) but consider that this would only meet the policy aims set out in NPS EN-1 and the NPSE if the RNMS is delivered and if it is clearly shown that "*all other forms of noise mitigation have been exhausted"*. ESC do not currently

			consider the latter to be the case, most specifically in relation to noise barriers.
162	20f	Benefits of the Two Village Bypass and Sizewell Link Road: *The permanent, long term noise, and wider environmental, benefits of the two-village bypass and the Sizewell link road for the residents of Farnham, Stratford St Andrew, Middleton Moor and Theberton are material and should not be over-looked. The two roads will provide a long-lasting benefit to the residents of these villages by reducing the traffic noise on the A12 at these key locations.*	ESC welcome the Two Village Bypass and Sizewell Link Road and the associated reductions in traffic noise in the bypasses villages. However, this does not detract from the need to minimise and mitigate noise impacts on the receptors which would be adversely affected by noise from the new roads. ESC has requested further information from the Applicant on this matter
163	20g	Associated Developments adverse noise and vibration impacts: *As with any construction works, a level of noise generation and* *potential disturbance is inevitable, however the mitigation and* *control measures in the Code of Construction Practice (CoCP)* *[REP2-056] are considered to be the appropriate steps to mitigate and minimise adverse effects.* *Further detail of the proposed noise monitoring and management measures will be set out in the 'Noise Monitoring and Management Plans', which will be subject to agreement with ESC. The provisions of the Noise Mitigation Scheme [REP2-034] will apply providing noise insulation to those properties that meet the* *qualifying criteria.*	ESC accepts that there is an inevitable level of noise generation and potential disturbance associated with construction works. However, given that the majority of the impacts associated with the AD sites occur on Saturday afternoons, ESC query how necessary it is for the Applicant to include Saturday afternoons within the proposed working hours for these sites ESC has also queried how the Noise Mitigation Scheme would be implemented in practice in instances where the Saturday afternoon construction noise criteria are exceeded given that the caveat for these levels to be exceeded for "10 or more days or nights in any 15 consecutive days or nights; or a total number of days or nights exceeding 40 in any 6 consecutive months." ESC has requested further information from the Applicant on this matter
164	20i	Potential legacy benefits of improved rail infrastructure: *The mitigation stated by the councils as necessary does not relate to the stated impact description, which in this instance, is viewed as a benefit.*	ESC acknowledge that the potential legacy of benefit of rail engineering improvements works (as set out in the draft RNMS) are separate from the need to offer noise mitigation and compensation to residents at an appropriate level. However, ESC would also reiterate (as per comments on topic 20e) that the RNMS is proposed as primary mitigation, so delivery is vital

		The potential long-term benefits for those living in close proximity to the East Suffolk line will primarily derive from improvements to the track infrastructure.	to the reported assessment outcomes, and also that once the required improvements are confirmed by Network Rail, these should be secured by requirement or obligation.
164	20j	Operational noise at Leiston Leisure Centre / Alde Valley Academy: *Mitigation is proposed, in the form of an acoustic fence, to reduce noise from the use of the sports facilities, and subject to that mitigation, no adverse effects are expected from the construction or use of the sports facilities.*	The Applicant has provided a technical response in sections 2.3.13 to 2.3.15. Notwithstanding remaining issues with the alignment of LOAEL and SOAEL for the operational sports facility with the Sport England guidance criterion of 550 dB $L_{Aeq(T)}$ (which is derived from the WHO *'Guidelines for Community Noise'* and very much relates to health and quality of life), ESC support the proposed improvements to the facility and consider that the operational noise impact is likely to be acceptable provided the 2m barrier shown in Appendix C of Volume 2, Chapter 11, Appendix 11E is provided. However, this is not proposed as primary mitigation and the Applicant suggests this would be secured through requirement/obligation. Requirement 12A of the draft DCO (June 2021) [REP2-015] suggests that details of landscape works would be prepared by the Applicant and submitted to ESC for approval, and ESC note that we expect the noise barrier to form part of the proposed design.
165	18.3.1	Initial / Draft 'Statement of Common Ground': *Paragraph 18.8 of the LIR notes that Appendix 2.6 contains technical memoranda that contain a review of elements of the submitted noise and vibration assessments. SZC Co. has responded to the points raised in these technical memoranda, and others, with the responses set out in Appendix 11A of the draft Statement of Common Ground with the Councils [REP2-076].*	ESC consider *"responses to the initial requests for clarification"* to be a more accurate description than *'Initial Statement of Common Ground'*. Specifically, ESC consider the first Statement of Common Ground for noise and vibration to be the tabulated document being prepared in collaboration with the Applicant.
165	18.3.5	Future review and update of existing assessments: *If consented, there are two key controls that will include the facility for reviewing and updating parts of the assessment, but there will not be an ongoing process of updating the entirety of the assessment. The important consequence of updating the assessments, where that is required, is to maintain an appropriate level of mitigation.*	ESC's understanding is that the construction noise assessments will be updated in line with detailed construction methodologies as part of Section 61 applications (or similar bespoke process) and to determine where the actions in the Noise Mitigation Scheme are triggered.

166	18.3.6	Future review and update of existing assessments: *The two key documents that will facilitate a review and, if appropriate, an update of the assessments are:* *• The Noise Mitigation Scheme [REP2-034], which requires a* *refreshed assessment, based on up-to-date information, to identify properties likely to be eligible for noise insulation. The Noise Mitigation Scheme also includes provision for further updates should conditions or construction methods change.* *• The 'Noise Monitoring and Management Plans', which form part of the Code of Construction Practice (CoCP) [REP2-056], will facilitate the implementation of appropriate mitigation and control measures, recognising any changes to construction methods.*	ESC's expectation is that the *Noise Monitoring and Management Plans* will include provision for noise monitoring as part of a complaints handling process, where there is reasonable expectation that the levels associated with the development are higher than those predicted. ESC look forward to reviewing the Applicant's draft *Noise Monitoring and Management Plan* when this is received.
166	18.3.7	Assessment uncertainty: *At paragraph 18.12 of the LIR the Councils acknowledge that there is a high level of uncertainty in the noise and vibration assessment, however, the Councils suggest that this uncertainty may have led to an under-estimate of the potential noise or vibration levels in the assessments.*	It is recognised that the Applicant has generally sought to assess reasonable worst-case scenarios, which is welcomed, but ESC would also note that there is inherent uncertainty in predictive assessment, in almost any case. This is not intended as a criticism but does emphasise the importance of identifying appropriate mitigation thresholds as part of the NMS, and the thresholds at which contractors will be required to demonstrate Best Practical Means (BPM) as part of the NMS. ESC has asked for some clarification of the uncertainty in relation to predictions of groundborne noise and vibration form rail freight movements.
166	18.3.8	Assessment uncertainty: *It is SZC Co.'s opinion that the opposite is more likely, that where there are elements of uncertainty regarding, for example, particular working methods, durations, or timings, the adopted assumptions were generally overly cautious and the resultant calculated noise or vibration levels are likely to be over-estimated rather than under-estimated.*	
167	18.3.14	The relevance and equivalence of the stated precedence cases: *The discussions with the Councils suggest that the LIR may no longer reflect their view on this point. It is noted that in*	Based on the information provided by the Applicant, ESC accept that there are situations where it may be appropriate to separate significance (in EIA terms) from the concept of significant adverse effect (SOAEL), such as is proposed in this case, and this can be a reasonable approach provided the

		its responses to ExQ1 NV.1.75(iv) and NV.1.18, ESC does not actively dispute SZC Co.'s approach on this point.	proposals achieve the principles of the EIA regulations and the overarching policy aims. ESC would, however, note that this does not necessarily indicate broad acceptance of the equivalence of the Thames Tideway Tunnel decision and Cranford Agreement Appeal for Heathrow Airport to the proposed development, but consider that the local community would be best served by focusing ongoing discussions on practical solutions (such as for mitigation and monitoring) to ensure adequate protection for receptors, regardless of whether the DCO application looks to align or separate EIA significance from SOAEL.
167	18.3.16	Management and control of construction noise and vibration: *The broad principles of the liaison and cooperation between SZC Co. and their contractors, and the Councils, with respect to the management and control of the construction works have been discussed and the 'Noise Monitoring and Management Plans', which form part of the Code of Construction Practice (CoCP) [REP2-056], will include provisions to formally document that process. A complaints resolution process will also* *be included in those documents.*	ESC welcomes ongoing discussion with Applicant to develop appropriate arrangements for community engagement and complaints handling. ESC has requested further information from the Applicant on this matter.
168	18.3.17	Relationship of impacts and mitigation to policy and regulations: *Paragraph 18.38 of the LIR seeks to relate impacts and mitigation only to the policy tests of LOAEL21 and SOAEL, overlooking the important role that significant adverse effects, in an EIA context, play in the assessment.*	ESC accepts that there is precedent for the separation of EIA significance thresholds from policy tests (LOAEL & SOAEL) and the primary concern remains with the practical measures adopted to control noise impacts and offer the best protection practically achievable to receptors. However, the Applicant's focus on significant adverse effects, in an EIA context, does not detract from the overarching aims of NPS EN-1 and the NPSE.
168	18.3.20	The influence of the updated DMRB on assessment methodology: *Following the release of the updated DMRB in November 2019, it was clear that the significant observed adverse effects on health and quality of life in policy terms, and*	ESC note that the release of the updated DMRB in November 2019 was a factor in the decision to change the previously proposed assessment methodology to an approach separating EIA significance from the policy concept of SOAEL. However, ESC disagree that the updated DMRB makes it "*clear that the significant observed adverse effects on health and quality of*

		significant adverse effects in an EIA context, were not equivalent, and previous planning decisions (Thames Tideway Tunnel and the Cranford Agreement Appeal for Heathrow Airport) which drew a distinction between the two, outlined the appropriate approach.	*life in policy terms"*. DMRB sets out the requirements for assessing and reporting the effects of highways noise and vibration, which are often distinct from other types of noise and vibration, and this does not necessarily mean that the separation of EIA significance from the concept of SOAEL which is set out in DMRB *'clearly'* justifies the same approach in all situations. ESC also maintain that alignment of the two (for sources other than road noise and vibration) means that the thresholds at which significant adverse effects are likely to occur are more clearly and easily understood, which is not only an established approach but also aids the Examination process. Furthermore, as already noted in relation to paragraph 18.3.14, ESC's acceptance of the Applicant's reasoning for adopting this methodology does not indicate wholesale acceptance of the equivalence of the Thames Tideway Tunnel decision and Cranford Agreement Appeal for Heathrow Airport to the proposed development, but ESC consider that the community's interests would be best served by focusing discussions on practical solutions to ensure adequate protection for receptors, regardless of whether the assessment looks to align or separate EIA significance from SOAEL.
168	18.3.24	The implications of separating EIA significance from SOAEL: *Overall, differentiating between a significant adverse effect in an EIA context and a significant observed adverse effect on health and quality of life in a policy context has not reduced the rigour of the noise assessment, nor materially affected the conclusions of the ES, but does better reflect the policy framework. Neither has it materially affected the approach to mitigation.*	ESC's position on the separation of SOAEL from the threshold of EIA significance is clearly set out above in relation to paragraph 18.3.20. However, ESC does not entirely agree that this approach has materially affected the approach to mitigation to that previously discussed. For example, for night-time airborne rail noise on the East Suffolk Line (ESL) the previously discussed threshold for both EIA and noise policy significance (SOAEL) was set at the same level for medium sensitivity receptors; 70 dB L_{AFmax}, dB. As a result, the level to be avoided in both policy and EIA terms would clearly have been 70 dB L_{AFmax}, dB. By comparison, in the ES a significant adverse effect in EIA terms (medium magnitude, medium sensitivity receptor) would occur at the same level (70 dB $L_{Amax,}$ dB) but the SOAEL is set at 77 dB L_{AFmax}, free field, which was aligned with the threshold for night-time rail noise originally proposed in the Noise Mitigation Scheme, which was 80 dB L_{AFmax}, façade. Clearly, this shows a significant increase in the threshold for mitigation, which ESC consider to give rise to a material

			effect on the approach to mitigation. ESC acknowledge that this threshold has since been lowered to fall in line with EIA significance in the current draft NMS [REP2-034], which is welcomed.
169	18.3.27	Updated threshold for rail noise in the Noise Mitigation Scheme: *The first draft of the Noise Mitigation Scheme [REP2-034] proposed a façade LAFmax threshold of 80dB as the trigger value for noise insulation for railway noise, and that has now been reduced to a façade LAFmax threshold of 73dB. This is equivalent to reducing the trigger threshold from the SOAEL to the level at which a significant adverse effect occurs in an EIA context. This approach exceeds the requirements of policy and is in any event, a more generous threshold than is applied in the Noise Insulation Regulations22 for railways, which do not recognise a trigger threshold based on maximum noise levels.*	ESC acknowledge that the threshold for night-time rail noise mitigation has been lowered from that originally proposed in the ES, which is welcomed, not least because this in line with the previously proposed SOAEL value of 70 $L_{AFmax,}$ dB, which would have needed to have been avoided to comply with policy aims.
170	18.3.31	Worst-case construction activity occurring outside normal hours: *At paragraph 18.40 of the LIR, the Councils identify certain types of construction work that they would not expect to occur outside normal working hours, including sheet piling, vibratory roller/compaction plant, surface breaking, and bulldozer movements.*	ESC's expectation is that the construction noise assessments will be updated in line with detailed construction methodologies as part of Section 61 applications (or similar bespoke process) and that these types of exception construction activities will be identified as part of this process. ESC look forward to consultation with the Applicant on the Noise Monitoring and Management Plans.
170	18.3.32	The process for agreeing worst-case construction activity outside normal hours: *A process for agreeing the measures required to control such works, including their timing, will be set out in the 'Noise Monitoring and Management Plans', which form part of the Code of Construction Practice (CoCP) [REP2-056].*	

Table 19.1: Summary response to the principal points raised
Ref: AQ1 (line 21g in the LIR Table 21) – Stratford St Andrew AQMA - ESC maintains that there is still a risk to air quality within Stratford St Andrew and across Suffolk until the measures in the document 'Sizewell C Project: Management of Engine Emissions' are formally agreed and submitted to the Examining Authority.

Table 19.1: Summary response to the principal points raised
Ref: AQ2 (line 21b in the LIR Table 21) - NRMM – disparity between what Sizewell C state and what the Councils said in the LIR:

The Applicant's Summary of LIR – 'The Councils are seeking a commitment to the use of Stage IV NRMM where practical and available, with a cap on the maximum proportion of non-Stage IV plant to be specified and reasons given.'

Actual LIR - 'Commitment requested to use Stage V NRMM where practicable and available. In the event that Stage V NRMM is not available, plant/equipment with the highest available NOx and PM emission standards should be used. A cap on the maximum proportion of non-Stage IV / V plant should be specified. If Stage IV/V NRMM is not available, ESC requests that the reasons for this should be provided to ESC, and any such NRMM should be deployed in locations as far away from sensitive receptors as practicable.'

Current Position - Discussions have progressed and ESC considers that Stage IV plant may be acceptable in some settings, but that stage V plant may be needed to ensure minimisation of PM emissions and for ensuring that emission limits apply to NRMM with power output above 560kW. Therefore, there should be a commitment to use Stage V NRMM where practicable and available, and Stage IV elsewhere. In the event that Stage IV/V plant is not available, ESC considers that plant with the highest available NOx and PM emission standards should be used. We support the Applicant's commitment that a cap on the maximum proportion of non-stage IV/V plant will be specified.

Table 19.1: Summary response to the principal points raised

AQ3 (line 21h in the LIR Table 21) – Electric/Diesel Powered Plant - ESC requests an explanation of the position in relation to offsite ADs, and requests further details of when deployment of electrical supply will occur in the construction programme to understand the potential impacts before electrical supply is provided.

Table 19.1: Summary response to the principal points raised
AQ4 (line 21a in the LIR Table 21) – Dust Management - Discussion ongoing between ESC and the Applicant.

Table 19.1: Summary response to the principal points raised

Ref: AQ5 (line 21e in the LIR Table 21) – Electric Charging Points - ESC continues to support SCC in their request for a greater number of electric charge points to be provided. ESC would also encourage the use of electric or ultra-low emission buses for the park and rides.

Table 19.1: Summary response to the principal points raised

AQ6 (line 21f in the LIR Table 21) – Emissions from HGVs across the network – ESC is still in discussion with the Applicant to ensure that suitable monitoring and management of HGV routes is undertaken.

Chapter 20 Coastal flood risk, potable water (Lead authority ESC)

ESC has reviewed the Applicant's feedback in relation to flood risk (20.3a) for properties on Valley Road, Leiston. The Applicant confirms that the proposed development would not result in a negative off-site impact on either residential or non-residential properties. The Applicant's position is noted on this matter.

In relation to proprietary drainage solutions (20.3b), the LIR states that the use of such solutions as a primary method of treatment is not acceptable to the Councils. The Applicant's response and justification for such uses is noted, however our position set out in the LIR remains unchanged.

In relation to monitoring and maintenance (20.3c), the LIR states that the regular monitoring and maintenance of sub-optimal SuDS solutions is not an approach supported by the Councils. ESC acknowledges the Applicant's position on this which states that this does not represent a sub-optimal solution as a form of mitigation. However, the view expressed in the LIR remains unchanged on this matter.

In relation to Order Limits (20.3d), the Applicant has confirmed that they recognise the balance that must be struck between the efficient use of land and the land requirements of extensive SuDS solutions. The Applicant is confident that a SuDS-led strategy can be delivered efficiently negating any need to extend the Order Limits. This is noted.

In relation to operational drainage (20.3e), legacy benefits (20.3f) and non-potable water supply (20.3g), the Applicant's comments are noted.

The remaining comments provided by the Applicant are generally consistent with ESC's understanding of their position. ESC therefore has no further comments to make in reference to the Applicant's LIR Chapter 20 feedback.

Chapter 21 Sustainability

Table 21.1, p.182: reaffirms commitments to minimising the project's carbon emissions, which ESC welcomes.

Chapter 22 Major Accidents and Disasters

Paragraph 22.1.2, p.184: the Applicant notes a new emergency planning Requirement 5A was introduced within the Draft DCO [REP2-015] submitted at Deadline 2 in response to ESC's request for a new DCO requirement.

Paragraph 22.1.3, p.184: the wording of the Requirement 5A is under discussion between the Applicant and ESC/SCC. Wording to be agreed through the Statement of Common Ground.

Chapter 23 Economic, skills and employment strategy (Lead authority economic development and supply chain ESC)

23.2.3 – 23.2.4 – 23.2.5 ESC considers that there is evidence to support our position as set out in Chapter 23 of the LIR. ESC notes that the impacts of lift and shift and boom and bust have been proven in other developments. Lift and shift of non-unique suppliers within the Hinkley Point C supply chain, which risked undermining local economic opportunities both with the build and in legacy is particularly worthy of note. ESC draws upon monitoring reports from Hinkley Point C assessed in the NNLAG report [REP1-089] and evidence from the local area including Suffolk Chamber of Commerce and the jointly commissioned Hardisty Jones report [REP1-096]. ESC also has a concern around the boom-and-bust effect that the local economy may suffer whilst hosting such a significant major project. Within the joint LIR this is written as a negative operational impact, however, this effect may be experienced during any point of the construction period when a phase demobilises (e.g., when Civils demobilise) so possible mitigation needs to be available in line with the timing of the risk.

ESC considers that provided a robust and correctly resourced Supply Chain Strategy is secured via the deed of obligation, (which sets out clearly the Applicant's objectives, approach, measures, governance, and monitoring alongside the role of regional and local partners), this will ensure that negative impacts are mitigated adequately, and that the region capitalises on the catalytic effect of hosting new nuclear developments. The current objectives of the Supply Chain Strategy (Document 8.9, Appendix B [APP-611]) fail to encompass the matters which ESC consider should be included, as set out in the LIR and during all stages of consultation. It also fails to provide enough detail of how the strategy, will be delivered, monitored and the measures used.

ESC consider these items essential to be included in a revised Supply Chain Strategy:

- Introduction – it is important to recognise that a Supply Chain Strategy is wider than the facilitation of engagements through a programme of developing activities.
- Objectives – Inclusion of:
    - An objective that recognises there is a need to mitigate the impacts set out above,
    - An objective that recognises the significant catalytic opportunity that this project will be for Suffolk and Norfolk,
    - An objective to support the region's commitment to driving the transition to net zero, with a supply chain strategy that enhances the region's clean growth credentials.
- Replication – Clear commitment that where applicable replication does not lead to lift and shift of non-unique elements of goods or services
- Local/Regional Supply Chain – Cleary define the measures that have been and will be implemented to deliver the primary goals of assisting local businesses in successfully contracting for supply of goods and services and attracting inward investment. Currently the strategy only contains commitments for:
    - A supply chain website
    - A managed portal that would broker business support without making it clear how and who funds this brokered support
    - Promotion of consortia opportunities without making clear how and who builds this consortia
    - Promotion of local and regional suppliers to Tier 1 contractors without clearing identifying how this will be done and what will compel this request.
- Monitoring and reporting as set out in the strategy is merely an exercise in recording and reporting UK content. There is nothing specific set out that would be useful to the partners to either act as a measure of actual impact of the negative and positive impacts discussed.

23.2.6 ESC note that the Applicant engaged with local authorities involved with Hinkley Point C on a series of economic impact mitigation measures, both through the S106 and collaboratively. This funding of £3m over ten years was to reinforce the local economy, indirectly support businesses furthest away from the project and provide advice and support on recruitment, business resilience, marketing and finance. This provides evidence that socio economic impacts should and can be addressed collaboratively with the Applicant and local authorities. ESC is in discussion with the Applicant about potential economic development support in the deed of obligation.

23.2.7 ESC confirm that discussions with the Applicant to confirm the content, scope and operation of workforce development strategies, supply chain, education, skills, and employment are ongoing with the aim to ensure these will sufficiently mitigate any negative impacts.

23.2.8 ESC is still in discussions with the Applicant about the supply chain strategy and hope that further information and detail on development of the supply chain strategy will be provided to give ESC confidence that the strategy will reduce adverse risk on the local economy. A robust and correctly resourced Supply Chain Strategy, secured via the deed of obligation, (which sets out clearly the Applicant's objectives, approach, measures, governance and monitoring alongside the role of regional and local partners) will ensure that negative impacts are mitigated adequately, and that the region capitalises on the catalytic effect of hosting new nuclear. The current objectives of the Supply Chain Strategy (Document 8.9, Appendix B [APP-611]) fails to encompass any of the points that have been raised by ESC during the Examination and previous stages of consultation. It also fails to provide enough detail of how the strategy, as set out, will be delivered, monitored and the measures used.

23.2.9 ESC is still in discussion with the Applicant about its request for the further support to mitigate negative aspects of the workforce development strategy, the supply chain strategy, the education, skills, and employment strategy.

23.1 Response to Summary of Response to Economic, Skills and Education Strategy

Ref No.	Issue	ESC Response to SZC. Co. Response
23.3	Employment, skills and education commitments	ESC and the Applicant are still discussing matters relating to these issues as we are not yet in agreement.
23.4	Churn, displacement and other sectors	Discussed at Chapter 25.
23.18 (Annex D)	Economic development principles	ESC does not agree with the assertion of inaccuracies by the Applicant.
23.20	Scale of regional / local benefits	ESC agrees that the activity of the Supply Chain will be of benefit, but does not currently concur with the Applicant about their proposed Supply Chain Strategy as it fails to state the Applicant's objectives, approach, measures, governance and monitoring alongside the role of regional and local partners will

		ensure that negative impacts are mitigated adequately, and that the region capitalises on the catalytic effect of hosting new nuclear. It also fails to provide enough detail of how the strategy, as set out, will be delivered, monitored and the measures used.
23.21	Age and economic profile	ESC have not received a commitment from the Applicant that a percentage or number of these local jobs will be guaranteed or prioritised to go to local people or those furthest from employment.
23.23	Legacy of Sizewell B	ESC note that the Applicant comments that deprivation in Leiston is not the result of Sizewell B, however, reputational damage to the town from the development, due to Crime and Disorder which occurred alongside the construction period, will have affected the town's economic fortunes. Despite the presence of two nuclear power stations, there has not been the social mobility enablement of the population that ESC would like to see in the Sizewell C development to take up higher skilled roles within the completed power station.
23.24-23.26	Spatial direction of mitigation / enhancement	ESC note that there is still no specific commitment to prioritise numbers or percentages of people to be employed by the Applicant from the cohort of those geographically closest to the site, although they do concur with the Applicant about opportunities being created and offered as stipulated in the draft Deed of Obligation, Schedule 7.
23.27	Detail on proposals	ESC and the Applicant are still in discussion about the content of these measures.
23.32-23.37	Monitoring	ESC and the Applicant are still in discussion about the content and scope of this monitoring and are not currently in agreement.
23.29 Appendix 2.9	Recommendations for mitigating actions	ESC would like to see the Applicant encourage and incentivise their contractors to employ local people as a preference to ensure that economic benefits and social mobility are achieved. ESC and the Applicant are still in discussion as to the content and scope of these measures.

Chapter 24 Economic and Supply Chain (Lead Authority ESC)

24.2.2. Please see response at **23.2.3 – 23.2.4 – 23.2.5** above.

24.2.4 Please see response at **23.2.6** above.

24.2.5 ESC and the Applicant are still not yet in agreement as to the content and monitoring measures proposed for the Workforce Development Strategy.

24.2.6 ESC and the Applicant are still not yet in agreement as to the content and monitoring measures proposed for the Education, Skills and Employment Strategy. However, we defer to SCC to respond as lead authority on skills and education.

23.1 Response to Summary of Response to Economic and Supply Chain

Ref No.	Issue	ESC Response to SZC. Co. Response
24.5	Maximising supply chain benefits	ESC and the Applicant are not yet in agreement as to the content and scope of the Supply Chain Strategy, and do not agree that the current proposals reflect consultation findings, as stated above in the response to 23.2.3.
24.12-24.9	Supply chain 'displacement'	ESC does not agree with the Applicant, as the current Supply Chain Strategy which would work to prevent displacement, does not reflect current consultation findings, as stated above in the response to 23.2.3.
24.11	Workforce 'displacement'	As set out in the LIR Chapter 24, ESC is concerned that the project will create high levels of labour market churn, where further, increased level of skilled labour leave their current job to work on the project. When this happens in high levels negative displacement may occur which could lead to employers struggling to fill vacancies causing a reduction in economic activity within the existing local economy. Effective monitoring to understand demand will be crucial to ensure that the Education, Skills and Employment measures delivers the highly demand skilled people to the employment market at the right time to ensure that high churn levels do not manifest as local displacement. Monitoring is also equally important as we are working from a best practice model that contains many assumptions, exacerbated, by the long-time frame for the project. Therefore, it is imperative that we have a flexible dynamic approach informed by a continuously updated and in-depth understanding of local conditions, project demand and regional/national strategy.
24.8 (i to viii)	Opportunities for maximising benefits	ESC and the Applicant are still in discussions as to what maximising benefits should look like and are not yet in agreement.

24.6	Long-term benefits	ESC concurs with the Applicant.
24.7	Workforce spending	ESC wishes to work in partnership with the Applicant on how to maximise worker spend in the local economy.
24.10 to 24.13	Replication of HPC	ESC wishes to see a Supply Chain Strategy which reflect comments in 23.2.3 and are in discussion with the Applicant about this.
24.14 to 24.15	Economic Cost of Congestion	ESC and the Applicant are still in discussions about the Economic Costs of Congestion and are not yet in agreement.
24.20	Boom and Bust	ESC notes that the impacts of lift and shift and boom and bust have been proven in other developments. Lift and shift of non-unique suppliers within the Hinkley Point C supply chain, which risked undermining local economic opportunities both with the build and in legacy. ESC also has a concern around the boom-and-bust effect that the local economy may suffer whilst hosting such a significant major project. Within the joint LIR this is written as a negative operational impact, however, this effect may be experienced during any point of the construction period when a phase demobilises e.g., when Civils demobilise. ESC and the Applicant are in discussions as to what economic development support to minimise this impact may look like.
24.21 to 24.27	Proposed mitigation / enhancement	ESC and the Applicant are still in discussions as to what a range of Economic Development Support might look like.

Chapter 26 Tourism (Lead authority ESC)

26.2.9 ESC agrees that a Tourism Fund is a reasonable and sensible way to be precautionary about risks and that the Fund should be used to promote, enhance and market the area.

26.11 – 16.12, and 26.4 ESC note that Applicant does not consider it likely that there will be a residual effect at the end of the construction phase, however, ESC working with partners suggests that the Tourism Fund should operate at least 12 months pre and 12 months post-construction to ensure the Fund is working most effectively for the coast during the later years winding down of construction and early operational period. The details and magnitude of the Tourism Fund are under discussion with the Applicant.

26.3.1 a) ESC note that the Applicant does not accept the methodology of the survey commissioned by the DMO. ESC has referred to that survey in our LIR but also the Applicant's own survey which reaches comparable conclusions to the DMO survey in terms of the likely impact of the construction works on visitor perceptions. In order to estimate the magnitude of the Tourism Fund, ESC will have to make some quantifiable estimate of costs from the available data.

Chapter 28 Community Impacts

28.2.1 ESC notes that the Applicant considers we have not provided the necessary evidence to demonstrate the likely impacts of the influx of non-home based workers on community cohesion and safety. Further evidence has been added as an annex to our oral summary of case for ISH4. In addition, ESC is in discussion with the Applicant regarding a Public Services Resilience Fund contribution to bolster existing community safety provision in the locality during the construction phase.

28b, 28.67, 28.2, 28.25 ESC note the Applicant's reluctance for the Workers Code of Conduct to be directly secured, albeit at ISH4 the Applicant appeared to acknowledge that it may be appropriate to secure a Workers' Code of Conduct through a requirement on the DCO. We note the intention for it to be shared with the Community Safety Working Group prior to finalisation and we welcome that. We are also happy to work with the Applicant on integration opportunities for the workforce into the local community.

We note there are a number of areas where the Applicant does not agree with the LIR, however, we are agreed that an appropriately funded Public Services Resilience Fund will mitigate the majority of highlighted concerns, the magnitude of this Fund is under discussion with the Applicant.

Chapter 29 Accommodation and Housing (Lead authority ESC)

29.3 and 29.53 to 29.54 delivery of campus and caravan park at the LEEIE

As stated in ISH1 and ISH4 and our oral summary of case, ESC seeks a commitment from the Applicant for the caravan site at the LEEIE to be completed and available for use within 6 months of construction commencing and for the accommodation campus to be fully operational prior to 7,000 workers being employed on the site. The rationale for this request is set out in ESC's summary of its oral submissions at ISH4. ESC do not consider these requests to be unduly onerous on the Applicant and we are hopeful we can agree common ground in these two areas.

Chapter 30 Quality of Life and Wellbeing

Table 30.1: the Applicant agrees with the Councils' statement in the LIR that the Community Fund would be an appropriate tool to address residual effects on quality of life and wellbeing during the construction phase.

Table 30.1: the Applicant notes the Councils' position that impacts on quality of life will vary across the population, and states the precautionary approach taken will not mask or underplay impact on quality of life.

Chapter 32 Cumulative (Lead authority ESC)

ESC has reviewed the Applicant's feedback provided on cumulative matters set out in the LIR. In relation to impacts (Table 32.1), ESC makes the following observations:

Construction Phase	
Cu.1 - Project-wide effects on bats.	The Applicant's comments are noted. ESC's position on bats remains unchanged as discussed at ISH 7 held on Friday 16 July 2021.
Cu.2 - Cumulative effects on farmland birds.	ESC notes that Applicant's response in relation to mitigation for the cumulative impact with EA1N and EA2 on farmland birds during early years construction. The Applicant has stated that separate mitigation funding would be appropriate in this instance.
Cu.3 - Coastal processes, CPMMP.	ESC's position remains unchanged, as set out at ISH 6 held on Wednesday 14 July 2021.
Cu.4 – Thorpeness Village	ESC's position regarding the need to include Thorpeness Village within the area of monitoring remains unchanged, as set out at ISH 6 held on Wednesday 14 July 2021.
Cu.5 - Cumulative impacts on the A12.	ESC supports the Applicant's commitment to regular engagement during design and construction phases with EA1N and EA2 as set out in the SoCG between the Applicant and SPR. ESC would also support similar commitments to coordination with the operators of other cumulative schemes along the A12.
Cu.6 – Freight Management Strategy.	ESC acknowledges the Applicant's position in the unlikely event that delivery is delayed, there are a number of measures embedded in the DCO to prevent adverse effects, including particularly the binding limits on HGV numbers. However, ESC's position remains unchanged. There is a risk that sea and rail freight is too difficult to deliver, exacerbating cumulative road impacts.
Cu.7 - Delay to the delivery of A12 improvement.	The Applicant's comments are noted.

Cu.8 - Delay to the delivery of rail mitigation.	The Applicant's comments are noted.
Cu.9 - Unresolved noise mitigation from overnight rail movements.	ESC's concerns relating to the unresolved or mitigated issue of noise on sensitive receptors from overnight rail paths remains unchanged.
Cu.10 - Rail impacts on the Port of Felixstowe.	The Applicant's position is noted, stating that the SoCG with Network Rail confirms that capacity is available for Felixstowe operations.
Cu.11 – Impacts on skills demand.	The Applicant's comments are noted.
Cu.12 – Accommodation.	ESC's concern remains unchanged, noting that unauthorised encampments across the district could appear if pressures on the local market are not alleviated by the Housing Fund measures.
Cu.13 – Tourism and quality of life.	The Applicant's comments are noted.
Operational Phase	
Cu.14 - Impact on Minsmere Sluice outfall.	The Applicant's comments are noted; however, ESC's position remains unchanged.
Cu.15 - Management of Blyth harbour entrance structures.	The Applicant's comments are noted; however, ESC's position remains unchanged.
Cu.16 - Decommissioning of Sizewell B nearshore outfall.	The Applicant's comments are noted.
Cu.17 - Removal of Sizewell A and B platforms and flood defences.	The Applicant's comments are noted.
Cu.18 - Management of Minsmere coastal frontage.	The Applicant's comments are noted.
Cu.19 - Dunwich Village geotextile-bag defence.	The Applicant's comments are noted.

Required Mitigation (construction and operation)	
Cu.20 – A12 corridor.	The Applicant's comments are noted.
Cu.21 - Transport communication plan.	The Applicant's comments in relation to the Construction Traffic Management Plan (CTMP) which includes a commitment for the Applicant to establish an email notification process are noted and supported.
Cu.22 - Economic development and skills.	The Applicant's comments are noted.

The remaining comments provided by the Applicant are generally consistent with ESC's understanding of their position.

9.29 Comments on Councils' Local Impact Report Appendices - Revision 1.0 [REP3-045]

ESC notes that these comments are focused on the HPC Freight Management Strategy and the Calculation of Road – Jetty Split for Hinkley Point C. We have no specific comment we wish to make at this stage and will defer to SCC as local highway authority should they choose to comment.

9.31 Storm Erosion Modelling of the Sizewell C Coastal Defence Feature - Revision 1.0 [REP3-048]

Introduction:

Presented in table form, this document constitutes ESC's review and findings of the Applicant's report TR545 Rev.1.

TR545 "*uses the XBeach storm erosion modelling suite (XBeach-Sand 1D & 2D and XBeach -Gravel 1D) to investigate the response of the proposed SCDF to storm wave conditions. The 2D XBeach-S model is used to assess loss (erosion) from the SCDF, whilst the 1D XBeach-S and XBeach-G models are used to investigate the sensitivity of the SCDF to differing sediment sizes. The modelling will inform decisions made in BEEMS Technical Report TR544 and the Coastal Processes Monitoring and Mitigation Plan on the recharge threshold, the typical expected recharge intervals (i.e., SCDF maintenance requirements) and the SCDF composition (particle sizes). The main benefit of the 2D modelling is it allows for the inclusion of longshore transport as well as the cross-shore transport, allowing for a more accurate prediction of erosion.*"

The table comprises:

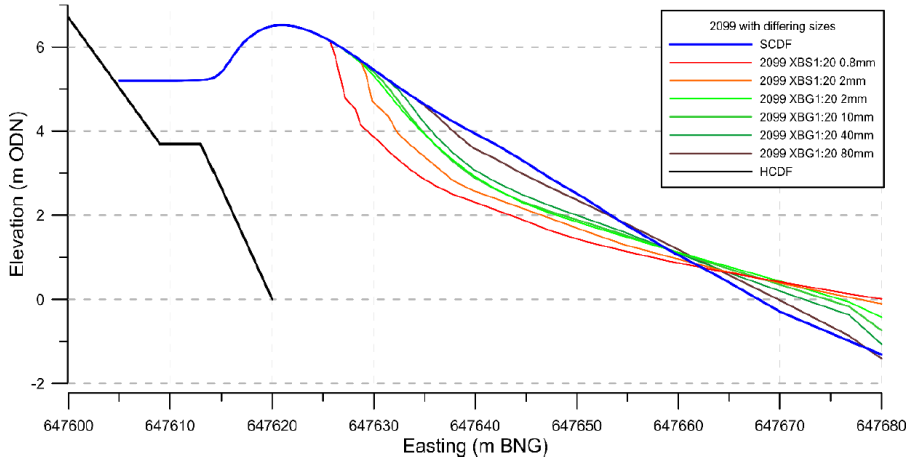
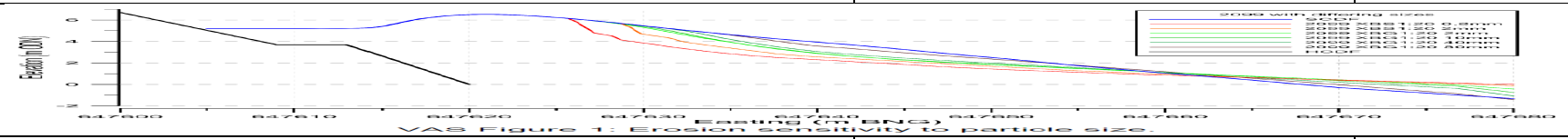
- First column: the relevant page number (document, not pdf page);
- Second column: a reference (section, figure or table number);

- Third column: relevant source document extract (text or Figure snapshot)
- Fourth column: our observations and concerns on the cited extract
- Fifth column: our requested action upon the Applicant (see below).

In Column 5 the requested advice from the Applicant takes one of the following forms, or combinations thereof:

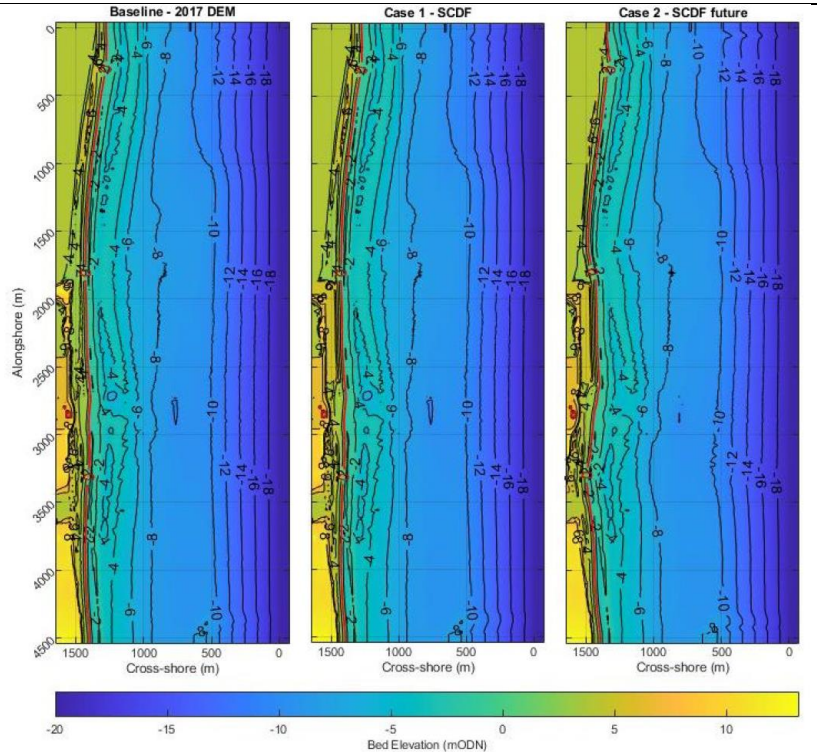
- Observation
- Clarification
- Confirmation
- Further information.

Pg. No	Ref.	Relevant text / illustration	Observations and Concerns	Requested:
2	-	*The scenarios modelled in the 1D grain size sensitivity tests indicate that using a larger particle size for the SCDF will increase its resilience to wave erosion arising from storms (see VAS Figure 1). Using very coarse sand/fine pebbles (D50 = 2 mm) resulted in 3-6 times less volumetric erosion of the SCDF (above 0 m ODN) than coarse sand (D50 = 0.8 mm), while medium pebbles (D50 = 10 mm) resulted in 3-9 times less SCDF erosion, and very coarse pebbles (D50 = 40 mm) resulted in 3-12 times less SCDF erosion. Although the design has not been finalised, it is considered most likely that the sediment used to construct and recharge the SCDF will be approximately in the 10 – 40 mm range, as this coincides with the native particle size distribution. Fine cobbles (D50 = 80 mm) show a dramatic increase in erosion resistance, with 18-35 times less erosion of the SCDF predicted than with coarse sand.*	Whilst the approach would appear to economise on SCDF recharge campaigns, it may have the effect of impeding longshore sediment transport corridor across the frontage, should the natural corridor be held back at the SCDF whilst the shoreline continues to retreat more rapidly on either side of it. i.e. effectively acting like a groyne.	Further information on the impacts of differential migration of the SCDF alongside that of the shoreline to either side of it.
2	-	*The wave runup heights from the modelled storms indicate that the proposed SCDF feature is resistant to overtopping for nearly all of the cases investigated.*	For a shingle beach to roll back it must be overtopped such that sediment is transferred from the seaward face to the landward face.	Allied to above note, further information on the impact on the coastal processes of having an unnaturally high SCDF.

			This may act as a further inhibitor to the natural migration of the SCDF in relation to the natural shoreline.	
3	*Vaz Fig. 1*	 VAS Figure 1: Erosion sensitivity to particle size.	The example shows only erosion (cliffing) of the SCDF sea face and deposition lower down the slope. Because the v/h dims. of the diagram are distorted (for visualisation purposes), they do not readily convey the actual slope and shape. A stretched profile (closer to natural scale) to demonstrate this is reproduced below. All the eroded shingle, is transported down the slope with no up-slope (shingle) deposition. It is noted that this topic is dealt with later in the report. However, this is an important factor as the process of erosion / deposition is key to the landward migration of the SCDF relative to that of the natural beach.	Clarification/explanation regarding the illustrated behaviour of the SCDF, and the impacts this might have on differential retreat (SCDF vs natural beach).
	Ditto cont'd			
12	*Exec. Sum'ry*	*To prevent HCDF exposure by progressive, unmitigated, natural erosion, the SCDF would be maintained or 'topped up' (primarily by recharge) once the beach volume reduces to a threshold value, which will be set in the Coastal Processes Monitoring and Mitigation Plan (BEEMS Technical Report TR523).*	Prevention of exposure of the HCDF is not the only objective. The SCDF is required to maintain the natural sediment corridor across the installation frontage. Exposure of the HCDF would obviously be a further hindrance to achieving this, but it is not the sole factor.	Observation: please recognise and acknowledge the broader objectives of the scheme.
12	*Exec. Sum'ry*	*The calibrated XBeach-S 2D model[1] is used to investigate how present and future conditions affect SCDF erosion during severe storms.*	Noting that a "G" version of the model is also applied and described later in the report, this is an important aspect of the work with	Observation and request for report to provide

		1 XBeach-S is a sandy beach erosion model that has both 1D (i.e., a beach profile) and 2D (i.e., a beach area) versions.	significant implications for the functionality of the SCDF. The report is very focussed on the model processes, which it describes very well. What matters is how this work translates into satisfying the design objectives. The report should draw on a Design Basis for the project, and be clear on how objectives are satisfied, in particular the non-interruption of sediment transport across the frontage, and the avoidance of exposure of the HCDF structure.	greater focus on the design objectives.
12	*Exec. Sum'ry*	*The modelling also considered a future severely receded shoreline adjacent to Sizewell C (north and south), based on the postulated shoreline at or toward the end of the decommissioning phase without an increase in sediment supply ..*	This suggests that the adjacent shorelines have retreated relative to the SCDF. This would suggest that the SCDF will adversely affect coastal processes by impeding the transportation of sediment.	Clarify the relevance and significance of this statement and explain whether the Applicant considers that the proposed SCDF is likely to adversely affect sediment transport and whether it considers that there is a reasonable likelihood that the HCDF and SCDF will result in a future severely receded shoreline adjacent to Sizewell C, to the north and south.
15	*1.1*	*The SCDF is a maintained and volumetrically enlarged beach seaward of the hard coastal defence feature (HCDF) that is designed to prevent exposure of hard coastal defences (BEEMS Technical Report TR544).*	See p12 above	See p12 above

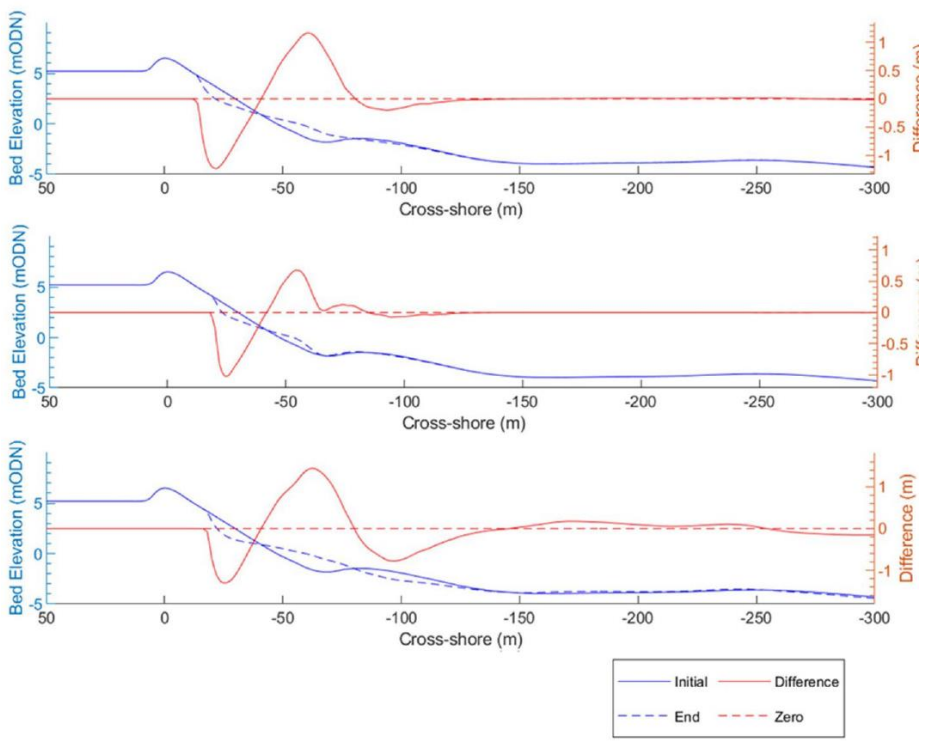
15	*1.1*	*This report develops further 1D and 2D sand models using XBeach Sand (herein, 'XBeach-S') as well as a 1D XBeach gravel model (herein, 'XBeach-G').*	Implies there is no 2D XBeach-G. This may be due to an inability to model mixed beach longshore.	Please advise/confirm.
17	*2.1*	*XBeach-S includes formulations for bed load and suspended load sediment transport, whereas XBeach- G only includes bed load formulations because suspended load transport is negligible at gravel beaches.*	It is unclear how the stated (G model) compromise affects the predicted cross-shore movement of shingle given that short lived suspension of (small) shingle can/does occur during the energetic (forward) wave breaking process, whilst becoming minor/negligible in the post broken draw down (a process by which the shingle beach can rebuild/advance over time). i.e. it's not nil.	Clarification sought on important point.
19	*2.2.1*	*… and therefore it is expected that some degree of 'outflanking' may occur at the southern and northern ends of the SCDF in future. This is because the natural coastline either side of the SCDF would be free to retreat landward with sea level rise… while the maintained frontage of the SCDF would not retreat landward. The expected result is therefore a shoreline that bends inland at the northern and southern ends of the SCDF in future.*	In such a case the outflanked part of the SCDF would become an obstruction to sediment transport – in short, it would give rise to a similar effect to that of the exposed HCDF. This is undesirable and undermines the basic objective of maintaining natural sediment transport across the frontage.	Further information to explain how an outflanked SCDF would affect natural sediment transport along the frontage and the necessary mitigation to avoid the SCDF impeding natural sediment transport.

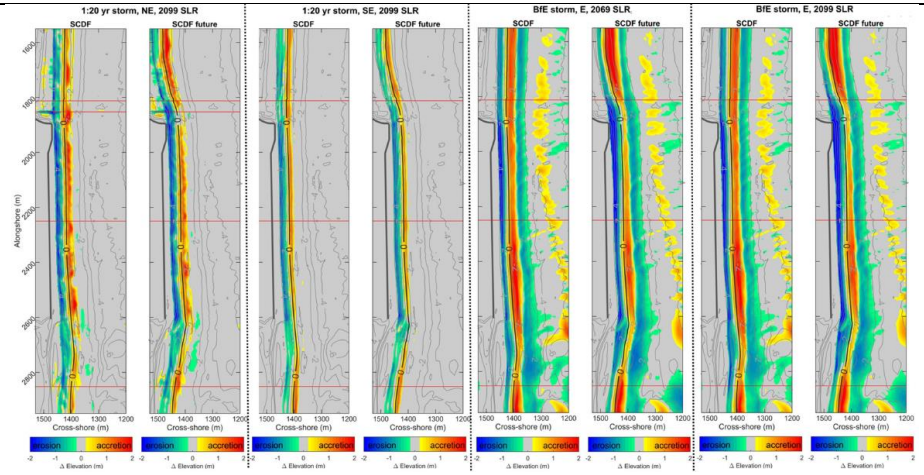
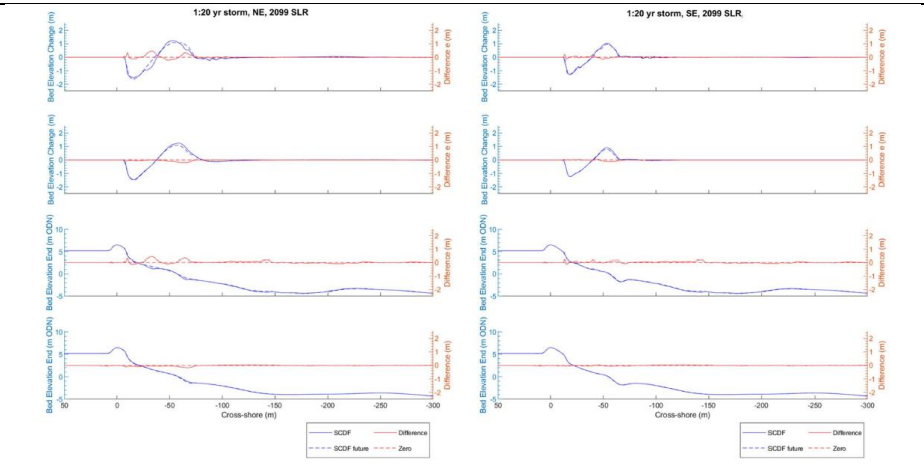
20	*Fig. 2.1*		Case 2 shows that part of the longshore transport corridor up to > -2mODN is obscured by both the HCDF and the SCDF (forming a bay to the north)	Clarification of what is shown on this figure and if it is correct that the longshore transport corridor is obscured/obstructed by the HCDF and SCDF, an assessment of the implications of this for continuity of longshore transport.
21	*2.2.2.1*	*9 days of low wave conditions were removed from the middle of the 26 day forcing timeseries (Figure 2-3.) to make computation of the three storm peaks feasible, including only periods where wave height remained > 1 m. <u>Removal of these periods is expected to have minimal impact on the final predicted beach morphology</u> as beach evolution under such conditions is small.*	Why was this data removed? What would have been the impact on the result if left in? +/- In terms of precautionary approach, should an allowance/f.o.s have been included to cover the missing waves?	Further information sought.
24		*Due to the mobilisation time (under COVID rules 9), storms with predicted wave heights above 2 m for a duration of 12 hours were targeted.*	The reasoning is noted. The footnote does not fully explain the rationale for omitting conditions below 2m though.	Clarification/further information sought.

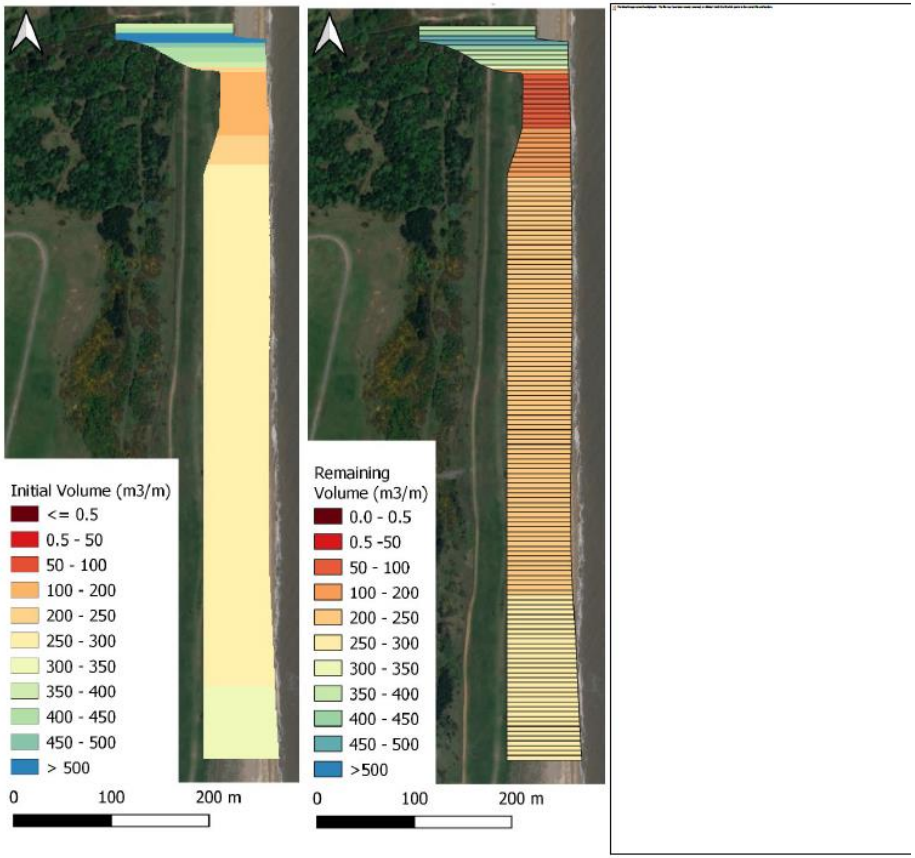
			In terms of precautionary approach, ESC queries whether an allowance/f.o.s should have been included to cover the missing waves.	
28	*2.3.4*	*In the measured data, conspicuous berm/ridge build up is visible at places on the supra-tidal beach (Figure 2-5 to Figure 2-8), in addition to beach erosion on the intertidal profile. This is a typical response seen on beaches with coarse material (…..) but is not reproduced by the calibrated XBeach-S model, which is not expected to recreate the behaviour of the coarsest particles at Sizewell.*	See earlier comments in this table where we highlighted the potential risk of this occurring.	Provide further information regarding the suitability of the model assumptions/running parameters in relation to the actualised behaviour of the shingle beach (and postulated SCDF).
33	*Figs. 2.5-2.8*	(Figs not reproduced here)	On the face of it, the models do not follow the RPA differences particularly well, being contradictory in some respects. This might be due in part to the missing wave sequences when Hs fell below the cut off value.	Further information regarding the comments to left.
36	*2.4.2*	*Forcing Conditions….* *A single storm scenario was used for the 1D grain size sensitivity simulations. The forcing conditions for the1-in-20 year NE event (Section 2.2.2) were used, including the same water levels, and UKCP18 RCP4.5 sea level rise scenarios for 2021, 2069, and 2099*	UKCP18 RCP8.5 was used as a worst-case in report TR544.	An explanation of why RCP8.5 was not used here

37	*Table 2-3*	Table 2-3. 2D model scenario summary.	These parameters match those used for the calibration/validation runs. It is not clear whether these test runs have been used for the purposes of design. If so, it is not clear why the conditions are not extended to more/different JP extreme conditions than 1-in-20 years.	Clarification or further information sought.

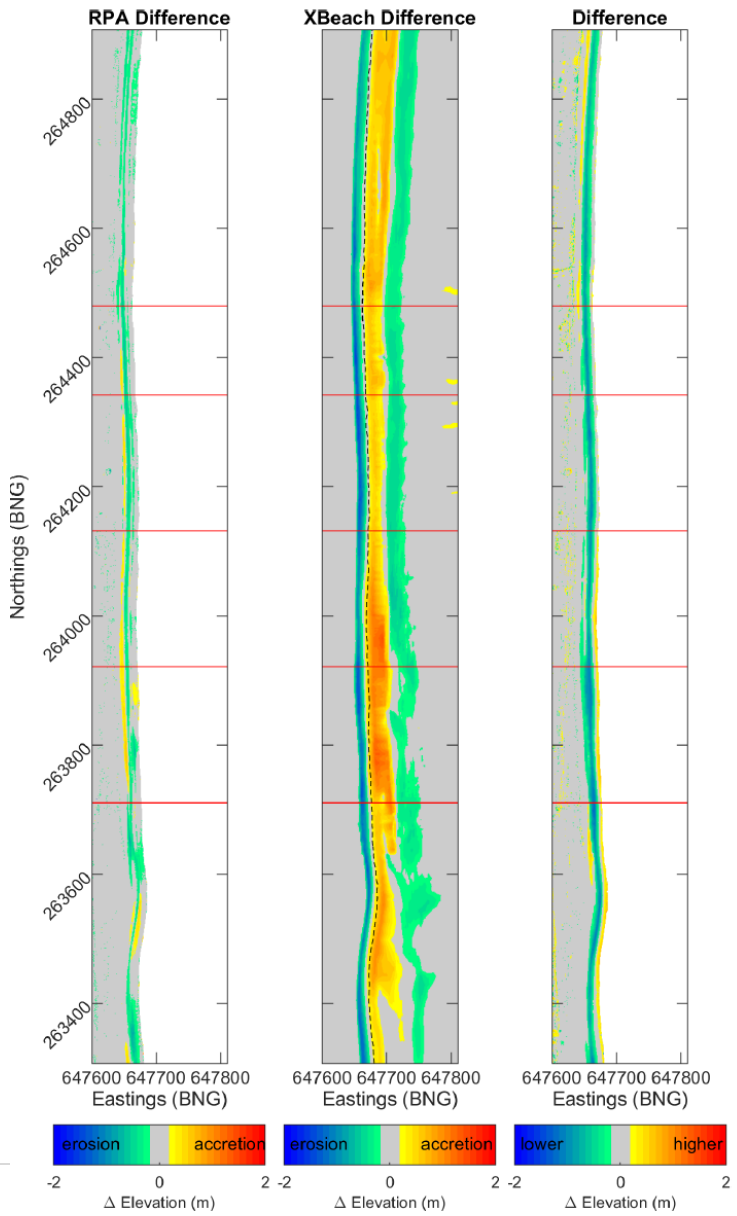
Scenario	Description	Model Domain	Storm	SLR Year	SLR correction (m)
10	BfE storm, E, present SL	SCDF DEM	BfE	2018	0.000
2	1-in-20 year storm, NE, present SL	SCDF DEM	NE	2021	0.007
4	1-in-20 year storm, SE, present SL	SCDF DEM	SE	2021	0.007
13	BfE storm, E, 2069 SLR	SCDF DEM	BfE	2069	0.413
14	BfE storm, E, 2069 SLR	SCDF-future DEM	BfE	2069	0.413
15	1-in-20 year storm, NE, 2069 SLR	SCDF DEM	NE	2069	0.400
16	1-in-20 year storm, SE, 2069 SLR	SCDF DEM	SE	2069	0.400
11	BfE storm, E, 2099 SLR	SCDF DEM	BfE	2099	0.714
12	BfE storm, E, 2099 SLR	SCDF-future DEM	BfE	2099	0.714
5	1-in-20 year storm, NE, 2099 SLR	SCDF DEM	NE	2099	0.701
7	1-in-20 year storm, SE, 2099 SLR	SCDF DEM	SE	2099	0.701
6	1-in-20 year storm, NE, 2099 SLR	SCDF-future DEM	NE	2099	0.701
8	1-in-20 year storm, SE, 2099 SLR	SCDF-future DEM	SE	2099	0.701

40	*3.1.1* *Fig. 3-1*		The figures are very well presented. It would be useful to remind the reader of all the relevant key parameters applying to these run plots. In particular what grain size is being used. Same applies elsewhere. It is otherwise assumed to be a sand grade, judging by the form of erosion. It would help to match up the figures with the respective Scenarios as presented in tables 2-3 and 2-4.	Clarification on parameters sought – see to left.

48	*Fig. 3-7*		The results show an uncomfortable situation in the eighth panel where erosion is apparent right upon the HCDF. Even the SCDF (present?) is not encouraging in this respect. With a shore which is more retracted to the north, this would suggest the exposure of a hard point with potential to interrupt littoral drift.	Further explanation required.
49	*Fi. 3.8*	 Figure 3-8.Cross sections of bed level change for the North East 1-in-20 year storm, 2099 Sea Level (left panels) and South East 1-in-20 year storm, 2099 Sea Level (right panels) for the SCDF with present-day ('SCDF') and future eroded shorelines ('SCDF future'). Top panels: Comparison of changes in bed elevation during the simulated storms at the middle of the SCDF frontage (Y_2). Second from top panels: Comparison of changes in bed elevation during the simulated storms averaged along the SCDF frontage ($Y_{average}$). Third from top panels: Comparison of post-storm bed elevations during the simulated storms at the middle of the SCDF frontage (Y_2). Bottom panels: Comparison of post-storm bed elevations averaged along the SCDF frontage ($Y_{average}$). The red solid line in each panel shows the difference between the cases with present-day and future eroded shorelines.	The caption reads thus: *3-8.Cross sections of bed level change for the North East 1-in-20 year storm, 2099 Sea Level (left panels) and South East 1-in-20 year storm, 2099 Sea Level (right panels) for the SCDF with present-day ('SCDF') and future eroded shorelines ('SCDF future'). Top panels: Comparison of changes in bed elevation during the simulated storms at the middle of the SCDF frontage (Y2). Second from top panels: Comparison of changes in bed elevation during the simulated storms averaged along the SCDF frontage (Yaverage). Third from top panels: Comparison of post-storm bed elevations during the simulated storms at the middle of the SCDF frontage (Y2). Bottom panels: Comparison of poststorm bed elevations averaged along the SCDF frontage (Yaverage). The red solid line in each panel shows the difference between the cases with present-day and future eroded shorelines.*	The change profiles as highlighted show essentially nil change between the present day and future cases (both with SCDF). Although depicting some change it is also negligibly small for the NE storm. Please clarify how this can be so.

54	*Fig. 3-12*	 Figure 3-12. Volumetric map of the SCDF frontage (above 0 m ODN), pre-storm (left), and remaining pos storm beach volume (middle) and percentage (right) for the worst-modelled storm scenario: BfE event, 20 SLR, with future eroded shoreline position. The 5 m polygon bins visible in the middle and right panels we used to calculate volumetric changes over the SCDF frontage for all 2D simulations run (Table 3-1).	The model clearly shows a marked loss of volume at the "bulge" in the HCDF. Recent discussions between ESC and the Applicant on this matter have concluded that the "bulge" will be moved back so as to create a linear uninterrupted frontage. The attached diagram makes clear the benefit of this both in terms of economy in maintenance (SCDF recharge), and reduced/latent risk of impact of an exposed SCDF.	Observation open to further clarification.
64	*4.3.2*	*Particle size…* *The increased runup height and decreased erosion predicted in the D50 = 2-80 mm XBeach-G simulations compared to the D50 = 0.8-2 mm XBeach-S simulations illustrates the importance of considering processes relevant to steeper beaches with coarse grains.*	Coarser grains (80mm) will yield a steeper, more reflective beach, with potentially greater wave run-up than a sandy shore.	Further information on how a steeper than native beach may impact upon: Sediment transport potential

				Public access Habitat value.
66	*4.6.2*	*While the SCDF is predicted to be resilient to erosion under the modelled storm events, overtopping may occur if finer particles (D50 ≤ 2 mm) are used to construct the SCDF. It is recommended that further wave overtopping analysis is undertaken for the SCDF design, including a range of combined wave events and water levels (e.g. at least 1-in-50 year and 1-in-100 year return periods), either using a 1D XBeach-G model(phase-resolving) or using empirical wave runup formulae from the literature appropriate to gravel beach settings (Poate et al., 2016). Such assessment may, for example, identify that a higher SCDF crest height is required to ensure resilience of the SCDF crest to overtopping/overwashing under extreme combinations of waves and water levels.*	We agree with the highlighted section being followed through, not just for overtopping but for other considerations, in particular, DESIGN. The pre-set conditions for this report endeavoured to simulate actual events. For design purposes a greater range of conditions combining to yield return periods of 1 to 100 years, and greater (as may be required by nuclear safety regulators). Another condition that might be replicated is that of the 1953 storm surge.	Further information on the Design Basis for carrying this work through to a design standard, suitable for the circumstances (nationally important asset / nuclear infrastructure).
69	*Conc's*	*With the receded shoreline, sediment eroded from the SCDF was predicted to feed the beach areas immediately north and south of the SCDF, but further modelling of multi-decadal longshore transport and shoreline change would be required to better understand the cumulative influence of the SCDF on the adjacent shorelines.*	This would appear to be a worthwhile extension to the modellers work, together with examining a broader range of design case parameters (from design basis)	Further information.

30	*Fig. 2.5*		The RPA Differences (pre and post storm) shows a narrow yellow band at the landward side, which appears to be consistent with a small landward migration of sediment. This does not appear in the XBeach Difference, thus highlighting again the sand-like behaviour of the modelled sediment as distinct from the coarser sediment in the Xbeach case. Confusing headings - would be useful to make clear what is different from what.	Observation / clarification.

9.34 Fen Meadow Plan Report 1 Baseline Report - Part 1 of 2 and Part 2 of 2 - Revision 1.0 [REP3-051] [REP3-052]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	ESC defers detailed comments on the technical requirements of creating the fen meadow compensation sites to Natural England. However, we remain significantly concerned that the full suite of information required to demonstrate that the proposed compensation sites are feasible for the delivery of this type of habitat creation is not yet available (and in the case of the Pakenham site is unlikely to be available before the end of the Examination). Given the importance of the success of the proposed habitat creation, it is essential that it is adequately demonstrated that the selected sites can deliver the required habitat creation as part of the Examination process. The Applicant's timetable for the production of further reports detailing the establishment plan for fen meadow compensation habitats set out in paragraph 1.1.6 of Part 1 of the Baseline Report is noted and we will provide further comment once these are available.	Complete investigative surveys of the proposed compensations sites are required to inform the likelihood of the proposed habitat creation being successful.
11	Para. 2.1.19	*The grassland and woodland habitats present qualify as coastal and floodplain grazing marsh and deciduous*	Whilst it is acknowledged that the search criteria for the proposed fen meadow compensation sites	Consideration that the development of the proposed compensation

		woodland respectively, habitats of principal importance listed under Section 41 (S41) of the Natural Environment and Rural Communities Act 2006.	(as set out in REP4-007) did not exclude sites which contained UK Priority habitats (under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)) such as floodplain grazing marsh, and it is understood why this was the case. Nevertheless, the survey information provided for the site at Benhall identifies that creation of the proposed SSSI compensation habitat will result in the loss of floodplain grazing marsh UK Priority habitat. Consideration of this loss is required as part of the proposal, including of any mitigation or compensation measures required.	habitat at this site will result in some loss of existing UK Priority habitat and what measures are required to address this.
14	Para. 2.1.36	*The habitats present qualify as coastal and floodplain grazing marsh, a habitat of principal importance listed under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006.*	Whilst it is acknowledged that the search criteria for the proposed fen meadow compensation sites (as set out in REP4-007) did not exclude sites which contained UK Priority habitats (under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)) such as floodplain grazing marsh, and it is understood why this was the case. Nevertheless, the survey information provided for the site at Halesworth identifies that creation of the proposed SSSI compensation habitat will result in the loss of floodplain grazing marsh UK Priority habitat. Consideration of this loss is required as part of the proposal, including of any mitigation or compensation measures required.	Consideration that the development of the proposed compensation habitat at this site will result in some loss of existing UK Priority habitat.
15-17	Section 2C	*Pakenham Site.*	This proposed compensation site is outside of the administrative boundary of ESC, we therefore defer any comments on this site to SCC.	N/A
26-105	Appendix A	*Whole appendix*	From the information presented in the report it is unclear whether the Applicant considers that any additional species-specific surveys are required at	Clarify whether any further species-specific surveys are required at the site.

			the site to either inform the impact assessment or identify mitigation measures (for both construction and operational phases). This should be clarified and if further surveys are required thy must be undertaken prior to the close of the Examination. Please also see our comment below on the need to secure any construction mitigation measures in an approved document.	Undertake any required surveys prior to the close of the Examination.
107-182	Appendix B	*Whole appendix*	From the information presented in the report it is unclear whether the Applicant considers that any additional species-specific surveys are required at the site to either inform the impact assessment or identify mitigation measures (for both construction and operational phases). This should be clarified and if further surveys are required thy must be undertaken prior to the close of the Examination. Please also see our comment below on the need to secure any construction mitigation measures in an approved document.	Clarify whether any further species-specific surveys are required at the site. Undertake any required surveys prior to the close of the Examination.
N/A	N/A	*Whole report*	At present it does not appear that any of the necessary mitigation measures for protected species at the fen meadow compensation sites are described or secured within the application documents. These measures should be included in a secured document (such as the Code of Construction Practice (CoCP)), following completion of all necessary surveys at the sites and input from relevant ecological stakeholders.	Inclusion of necessary construction mitigation measures in Code of Construction Practice (CoCP) (or similar approved document).

9.35 Marsh Harrier Compensatory Habitat Report - Revision 1.0 [REP3-053]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	The submission is noted. As this relates to mitigation for impacts on European designated sites, we defer comment on this matter to Natural England.	N/A

9.38 Technical Note on Indicative Lighting Modelling - Revision 1.0 [REP3-057]

One of ESC's concerns is the management of issues should they arise, such as nuisance from lighting. This document does not address this nor does the Lighting Management Plan. Given that the Applicant will have an exemption from statutory nuisance, our request is that the Code of Construction Practice (assumed to be the umbrella document for the Lighting Management Plan) should include the following commitment:

In the event that temporary construction lighting or permanent operational lighting causes impacts to sensitive receptors and in relation to residential receptors impacts akin to statutory nuisance the Applicant should investigate and where an issue is found to be occurring (either from their own or a local authority investigation) will take steps to resolve the problem or where this is not possible due to factors such as health and safety or security, to improve the situation as far as it reasonably practicable.

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole report.*	ESC notes the submission of updated construction lighting modelling at Deadline 3; however, this is a Technical Note on Indicative Lighting Modelling, rather than an update of the Lighting Management Plan [APP-182]. Whilst it is helpful as an indication	The Lighting Management Plan secured by draft DCO Requirement 9 needs to secure appropriate lighting thresholds for sensitive areas so that lighting in these areas can be

			of the levels of lighting that can be achieved at the site, it is not clear how these thresholds are then secured in the DCO. Elsewhere in their Deadline 3 submissions [REP3-044, Table 8.2], the Applicant makes reference to these controls being in section 1.3 of the Lighting Management Plan [APP-182], secured by Requirement 9 (which specifically references section 1.3 of the Lighting Management Plan), however this section does not appear to set specific thresholds for lighting in sensitive areas and therefore does not provide the necessary details that can be monitored against.	adequately installed, controlled and monitored.
21-22	Appendix C.1	*Figures in Appendices C.1.1 to C.1.3*	From the detail provided in the Note we acknowledge that, based on the horizontal plane isolux plans submitted, it appears that in principle dark corridors can be maintained along the western (Bridleway 19) and central (through the TCA Water Management Zones (WMZs) area) routes, although it appears that there may be light spill onto the boundary vegetation alongside the WMZs which may limit the effectiveness of this area for bat foraging/commuting. It also appears that it may also be possible to achieve a dark corridor along the eastern (SSSI Crossing) route, although this area is much more heavily lit and due to the elevated nature of the SSSI Crossing structure it appears that there may be some light spill down towards the bridge entrances which could compromise its use by commuting bats unless the detailed design can reduce this to an acceptable level. The modelling also shows considerable light spill on to the southern boundary of Ash Wood,	Further refinement of the design of the final construction lighting layout is required to ensure that the three proposed 'dark corridors' are kept adequately dark so that they properly function for commuting bats. Also, proposed lighting levels along the southern boundary of Ash Wood need to be reduced to acceptable levels (less than 1 lux) to prevent adverse impacts on forging, commuting and roosting bats in this area.

			potentially impacting on both its value for foraging and commuting bats, and bats roosts (particularly of barbastelle) which are present in the southern part of the wood.	
8	2.4.1	*Those areas which have been identified as important foraging, commuting and roosting areas for bats are hi-lighted pink on **Plate 1** below. Where practicably possible these areas are to be kept as dark as possible, whilst considering the health and safety of those on site.*	Finally, whilst ESC understand and accept the imperative need for the site to be safe for workers, the use if phrases such as "where practicably possible these areas are to be kept as dark as possible" in the Technical Note (e.g. paragraph 2.4.1) continue to raise concern. We consider that in the first instance works that require significant lighting should avoid areas which need to be retained/maintained as dark corridors.	The correct balance between site safety and the need to retain dark corridors for protected species (such as bats) needs to be struck. Given the size of the Temporary Construction Area (TCA) the areas identified as needing to be retained as dark corridors should be maintained as such.

2.8 Two Village Bypass Plans For Approval - Revision 3.0 [REP4-003]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole document.*	The content of the plans is noted. From an ecological perspective, we remain concerned that the plans do not include adequate features which will maintain bat commuting routes through the area crossed by the road.	Plans need to show necessary bat crossing points of the road with details of how this will be achieved.

8.5 Consolidated Transport Assessment - Revision 4.0 [REP4-005]

ESC has no comment to make on this version, we defer comment to SCC as local highway authority.

9.39 Applicant's Response to the ExA's Request for Further Information at Deadline 4 [REP4-006]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
4	2.2	Applicant's response to ExA Request One.	The plan provided by the Applicant identifying the veteran, ancient and notable trees to be removed and retained is noted.	N/A
5	3.2	Applicant's response to ExA Request Two.	The information provided by the Applicant in relation to Foxburrow Wood CWS and the proposed Two Village Bypass is noted. Whilst ESC has always acknowledged that the proposed route would not result in the loss of any of the CWS, as set out in paragraph 8.115 of the LIR [REP1-045] we remain concerned about the potential for hydrological impacts on the wood as a result on the cutting which is to be constructed within 15m of the boundary. We maintain the opinion that further information is required to demonstrate that the cutting will not result in an adverse impact on the CWS.	Assessment demonstrating that the construction of the proposed road will not result in hydrological impacts on Foxburrow Wood CWS.
5	4.2	Applicant's response to ExA Request Three.	ESC notes the Applicant's response to this request and has no further comment at this time.	N/A
6-7	5.2 and Appendix B	Applicant's response to ExA Request Four.	ESC notes the conclusions presented in the Applicant's Survey Overview Note (Appendix B of REP4-006), including that a number of 2021 survey results are still outstanding and will be presented to the Examination at later Deadlines. We will provide further comments on this material when it is available. In relation to the information	Proposed 2021 surveys to be completed and results be made available to the Examination. Consideration of the impacts resulting from the loss of veteran/ancient/notable trees and

			submitted in this report, we have the following comments. Consideration of impacts on veteran/ancient trees: Section 3.1 b) (Plants and Habitats) does not consider impacts on veteran trees, and as identified in the LIR paragraph 8.117 [REP1-045] this has not been addressed in the submitted Environmental Statement. ESC notes the Applicant's intention set out in REP3-044 to submit further information on this at a later Deadline. The Council will provide further comment on this information when it is available. Assessment of impacts on bats (roosting, foraging and commuting): The information provided by the Applicant includes some initial survey results from 2021 in relation to roosting bats in trees and commuting/foraging activity along hedgerows to be crossed by the road. However, as these surveys are incomplete it is not possible to provide detailed comments at this stage. For the crossing point surveys, Figure 6 in the report identifies the locations of these, however it does not appear that the east-west hedgerow between Mollett's Farm and Friday Street Farm is included. ESC considers that this is a significant omission given that is an Important hedgerow (under the Hedgerow Regulations (1997)) and also contains several veteran trees and therefore is potentially highly suitable for commuting and foraging bats. It is also unclear over what time period the surveys will be undertaken. Paragraph 2.3.19 suggests that surveys will be undertaken in	any compensation measures which can be achieved. Crossing point surveys for bats to include the east-west hedgerow between Mollett's Farm and Friday Street Farm. All surveys to be undertaken in accordance with published best practice guidance. Figure 6 to be appropriately labelled so survey points can be cross-referenced to survey results.

			April, May, June and July 2021, however it is not clear why surveys are not being undertaken into at least August and potentially September/October, in line with published best practice guidance (Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London). Paragraph 2.3.18 also does not detail the number of survey visits per month that have been/will be undertaken at each crossing point, and whether these are in accordance with published best practice guidance. Any deviation from published best practice should be adequately justified to demonstrate that it does not cause a significant limitation in the final assessment conclusions. Finally, it is also noted that Figure 6 does not label the points that are being surveyed and therefore it is not possible to understand where the interim results in Table 4 relate to. This must be corrected for the final results.	

5.10 Shadow Habitats Regulations Assessment Addendum Appendices 1A – 10A Part 5 of 5 [REP4-004]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole document.*	ESC understand that the submission relates to the inclusion of three plans which were missing from the previous version. The Council therefore has no comment on this document.	N/A

9.40 Fen Meadow Compensation Study 2018 Phase 1 Report - Revision 1.0 [REP4-007]

Pg. No.	Section Ref.	*Relevant text / illustration*	Observations and concerns	Requested:
N/A	N/A	*Whole document.*	The contents of the report detailing the screening and selection criteria for the proposed fen meadow compensation sites is noted.	N/A
29-30	3.2	*Once a decision is made on taking sites to Phase 3 then more detailed site conceptualisation and feasibility assessment work would be undertaken. Conceptual models of sites would need to be developed for the site(s) based on detailed data review and investigations and would likely include:* • *Detailed ecological survey;* • *Review of available groundwater level data (including output from the Environment Agency model for high, low and average groundwater level conditions) and the seasonal variation in groundwater levels. Also effects of groundwater abstraction on groundwater levels below the site;* • *Collection of surface water level and groundwater level data to determine the relationship between groundwater and surface water levels on site; and* • *Collection of hydrochemical data.* *Assessment of feasibility of restoration of fen meadow habitat and preliminary conceptual design of the preferred option(s) will consider:*	ESC notes that the 'Next Steps' identified in section 3.2 are yet to be completed. As set out in our previous comments (including in response to REP3-051 and REP3-052 above) it is essential that the investigative surveys are completed, and the information submitted to the Examination.	Complete required investigative site surveys to confirm likelihood of success of proposed compensation sites.

		• *Most appropriate restoration methods;* • *How water levels could be managed (if needed);* • *To what extent earthworks will be required. As indicated earlier, EDF would ideally prefer to avoid significant earthworks as this would be costly, would likely require loss of existing habitats/start from scratch and hence introduce significant uncertainty into the outcome.* *Additionally, it will be possible during Phase 2 to consider whether a scheme to deliver compensatory fen meadow habitat could also deliver benefits under the Water Framework Directive for example, where adjacent watercourses are in need of restoration (i.e. whether there is potential for river improvement to be incorporated into the scheme).* *The long term security of the chosen site is critical. Once selected the site will need to be owned by a conservation organisation or there should be a management agreement with a conservation organisation. Appropriate resources will be needed to implement the management plan. Monitoring will be required and measures put in place to amend the management plan if necessary to ensure favourable condition of the site. EDF intends to put such measures in place for the chosen site(s) for the long term.*		