The Sizewell C Project

SZC Co.'s Response to the Secretary of State's Request for Further Information dated 18 March 2022

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April 2022

SizewellC
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Appendix 7 – Sizewell C Project Air Quality Assessment (April 2022).

1 INTRODUCTION

This document sets out SZC Co.'s response to the request for further information on a number of matters set out within the letter from the Secretary of State for Business, Energy & Industrial Strategy ("the Secretary of State") dated 18 March 2022: EN010012-008877-Sizewell C - Secretary of State Information Request.pdf (planninginspectorate.gov.uk).

The response in structured as follows:

- Section 2: Water Supply, Desalination Plant and Drainage;
- Section 3: Traffic and Transport;
- Section 4: Coastal Considerations;
- Section 5: Questions from the Government of Austria; and
- Section 6: Habitats Regulations Assessment, Biodiversity and Ecology.

This response is supported by the following appendices:

- Appendix 1 – The DCO Schedule of Changes Arising from the Secretary of State's Request for Further Information dated 18 March 2022. As agreed with the Planning Inspectorate's case team, SZC Co. will provide a clean and track change version of the DCO (Rev 11A) as part of our submission to the second round of questions that we will submit on 14 April 2022. The related Deed of Variation to the Deed of Obligation will be submitted by SZC Co. at the next deadline of 14 April 2022 as it is currently being engrossed.
- Appendix 2 - Updated Position Statement between SZC Co. and Suffolk County Council (SCC) on matters relating to drainage, submitted in support of Question 3.7.
- Appendix 3 - The Drainage Strategy (version 2, dated 8 April 2022), submitted in support of Question 3.7.
- Appendix 4 - Email from Network Rail to SZC Co. in relation to the Darsham Level Crossing, dated 30 March 2022, submitted in support of Question 4.2.
- Appendix 5 – Updated Position Statement between SZC Co. and the Environment Agency on matters relating to the Preliminary Design and Maintenance Requirements for the Sizewell C Soft Coastal Defence Feature, with associated technical appendices, submitted in support of Question 5.1.
- Appendix 6 – Extract of Article 37 Submission for Sizewell C – Updated Chapter 6, submitted in support of Question 6.2.

- Appendix 7 –Sizewell C Project Air Quality Assessment (April 2022), submitted in support of Question 7.3.

2 WATER SUPPLY, DESALINATION PLANT AND DRAINAGE

2.1 Question 3.1/3.2: The Secretary of State notes that at the end of the Examination, the Applicant was unable to demonstrate that they had secured a permanent water supply for the proposed Development. The Secretary of State further notes that Walker Morris LLP on behalf of Northumbrian Water Limited ("NWL") submitted a letter dated 23 February 2022, which is included at Annex A, advising that NWL are unable to meet the proposed development's long-term demand for water supply from existing water resources and that a number of demand management and supply side options are being appraised.

The Applicant should therefore provide information that sets out the progress that has been made in terms of securing a permanent water supply solution.

2.1.1 The letter from Walker Morris LLP on behalf of Northumbrian Water Limited (NWL) of 23 February 2022 is welcomed by SZC. Co.

2.1.2 The letter confirms SZC Co.'s understanding. SZC. Co. and NWL have continued close contact since the end of the Examination. The letter principally re-states matters that were understood from the Examination. In particular NWL's confirmation (paragraph 9 of the letter) that it is unlikely to be able to supply water to SZC. Co. until the late 2020s at the earliest and that there is a significant risk it could take longer, repeats almost verbatim the terms of the **Statement of Common Ground agreed between SZC. Co. and NWL** on 8 October 2021 (paragraph 2.3) [REP10-092]. Confirmation that supplies from the River Waveney via the Barsham transfer main will not be available is not unexpected, and the Secretary of State can be reassured from the letter that good progress is being made to identify alternative supplies that are sustainable through NWL's Water Resource Management Plan 2024 process. The letter helpfully confirms that '*NWL reiterates its commitment to provide the Project's long-term supply'*.

2.1.3 The only part of the letter on which SZC. Co. needs to comment on is paragraph 4, which reminds the Examining Authority that SZC Co. has rescinded '*any right to force'* NWL to supply water.

2.1.4 As the Secretary of State will be aware, through Protective Provisions agreed with NWL (and as confirmed in the Statement of Common Ground), SZC Co. agreed to forego rights under Section 41 of the Water Industry Act 1991 (the WIA) (to require a domestic water supply) in the knowledge that rights were available under Section 55 which, in combination with the duties imposed on NWL by the WIA, create confidence that a long-term water supply will be provided to Sizewell C.

2.1.5 As NWL's letter confirms, conscious of these duties:

- NWL will, therefore, need to identify new water resources to meet the forecast demand.
- NWL has included SZC's demand in its Water Resources Management Plan 2024 Demand Forecast.
- Options being tested include desalination.
- '*new demand management and supply side schemes will be required in order to meet all forecast demand, including the project's long term supply'* (paragraph 6).
- Accordingly, paragraph 9 of the letter reiterates NWL's commitment to provide the project's long-term supply.

2.1.6 These matters were well rehearsed at the Examination and the Secretary of State is referred to the following:

- **Written Submissions Responding to Actions from ISH 11** [REP8-125], which sets out the law and policy relating to water supply.
- **Written Summary of Oral Submissions at ISH 14** [REP8-124] (electronic page 3 onwards), which records SZC. Co.'s understanding of NWL's legal duties under Section 37 of the WIA and the way in which these are given effect through Sections 55 and 56. The document explains that the provisions provide a clear and comprehensive statutory process to resolve any differences that may arise between the parties in relation to the water company's duties to supply water.
- **Written Summary of Oral Submissions at ISH 15** [REP10-161] (from electronic page 4), the text here records the submissions made as to the implications if the outcome of the ongoing WINEP investigation was that the supply could not come from existing resources. In those circumstances, other options would have to be

secured by NWL as part of their normal water resource planning process. The desalination plant for the construction process provides sufficient time to enable the alternative source to be determined and delivered through that process. That remains the position.

2.1.7 The ISH 15 written summary also records the following submissions which are important in this context:

- For the purposes of supply for the operational period, section 55 is the more important provision and is supplemented by the ability to refer any dispute to OFWAT under section 56.
- Whilst the protective provisions constrained the Applicant's ability to rely on section 41, they left intact its rights pursuant to sections 55 and 56 and did not affect the rest of the statutory scheme.
- The curtailing of the Applicant's ability to rely on section 41 was balanced by the remaining protective provisions which imposed obligations on NWL as an overlay supplementing the existing statutory regime.
- The Government's Water Resources Planning Guidelines 2021 explain the obligations on water companies to consider supply side options to increase the amount of water available to plan for and meet the growth requirements for domestic and non-domestic consumption and that water undertakers must ensure that the resulting supply does not constrain planned growth. Accordingly, even if NWL cannot identify a source now, it is obliged to do so and to plan so as not to allow water supply to constrain growth.
- Paragraph 1.2.7 of the Written Summary records NWL's explanation to the Examining Authority that it did not take issue with the submissions made on behalf of the Applicant.

2.1.8 Therefore, there is no difference between SZC Co. and NWL. NWL is obliged to plan for and supply the water required for the long-term operation of SZC and its letter provides helpful confirmation that the necessary process is in place. In particular, the supply requirements for Sizewell C are included within the demand forecast on which NWL's Water Resources Management Plan 2024 will be based.

2.1.9 Through engagement with NWL, SZC Co. is aware that work on the draft Water Resources Management Plan is well advanced. SZC Co. is aware for instance that:

- the demand forecasting work (including the agreed volume requirements for SZC) has defined a 'shortfall' for which supply options will be tested and developed;
- a range of options are in contemplation, including water transfer, local and larger scale desalination, reservoir infrastructure etc;
- each option is being tested through best practice options appraisal;
- the work is on programme;
- the process is being closely informed by environmental considerations;
- the WRMP 2024 will be subject to a fully integrated environmental appraisal, including Strategic Environmental Assessment (SEA) and, where necessary, Habitats Regulations Assessment;
- any projects promoted and endorsed through the WRMP process will then need to be individually assessed and consented.

2.1.10 NWL's letter of 23 February 2022 provides an update of its progress for the preparation of the WRMP 2024. It helpfully confirms that the relevant demand forecasting is being undertaken and that options for supplementing the region's water supply are being actively considered as part of the WRMP process.

2.1.11 It is of course for that process to identify and determine the environmental acceptability of those options and the Secretary of State may make a decision on the DCO confident that that duty will be effectively satisfied.

2.1.12 NWL is on schedule for submitting its draft ESW WRMP24 for consultation by 3 October 2022 (Defra deadline for all England and Wales water company WRMP24s). It has confirmed to SZC Co. that it will then work with SZC Co. to negotiate a Section 55 agreement to allow it to supply water to Sizewell C and deliver any infrastructure which it is required to do so in accordance with timeframes which are consistent with WRMP24 (where possible and practicable).

2.1.13 NWL is in the early stages of completing an Integrated Environmental Assessment (IEA) of its draft WRMP24 feasible options which will in part determine which supply side options are included in the Company's Preferred Best Value Plan. The IEA includes Strategic Environmental Assessment (SEA); Carbon Assessment; Habitats Regulation Assessment (HRA); Biodiversity Net Gain (BNG) Assessment; Invasive Non-native Species (INNS) Assessment; Natural Capital Assessment (NCA); and

Water Framework Directive (WFD) Assessment. Any future supply from NWL to SZC (under a Section 55 agreement), will have been subject to all of the above environmental assessments before it is supplied. However, the assessment work being undertaken by NWL is at an early stage and will be progressed in step with the WRMP24 process.

2.1.14 The draft WRMP 2024 is due to be published in Autumn 2022 for consultation. The draft SEA Scoping Report is the subject of current consultation:

[redacted]

2.1.15 This background should provide more than sufficient comfort both for SZC Co., but also for the Secretary of State, that NWL will be in accordance with the statutory scheme plan to deliver the required infrastructure (so far as is possible) to provide a long-term supply to SZC.

2.1.16 It is because the long-term planning of water supply is the subject of separate statutory provisions and processes that the identification of the source of Sizewell's long-term supply cannot be known at this stage. Indeed, the source may well change during the lifetime of the power station as the undertaker develops and manages its water resources in response to changing demand and other considerations. For the same reasons, and because on the evidence the source of supply is unlikely to be a constraint to the construction and operation of the new power station, the source does not need to be known for the purposes of the DCO.

2.1.17 NPS EN-1 is clear that that the DCO decision maker should work on the assumption that other regimes and regulatory processes will be properly applied and enforced so that decisions on DCO applications should complement but not seek to duplicate other processes (NPS EN-1 paragraph 4.10.3). That same principle is clear from paragraph 188 of the NPPF, i.e. planning decisions should assume that other regimes will operate effectively.

2.1.18 SZC Co. has continued to work closely and constructively with NWL since the close of the Examination. SZC Co.'s position remains as explained at the Examination: namely that SZC Co. has put in place plans for a temporary desalination plant to cover the water requirements of the project up to commissioning Unit 1. SZC Co.'s programme identifies this as 2033 ([REP10-025] Plate 2.1). As explained at the Examination, that gives NWL 10 years to plan for and deliver, within the relevant time period (where at all possible) to provide a permanent water supply.

2.1.19 SZC Co. can reasonably expect that NWL will deliver the required infrastructure as the relevant demand is now included within the current draft WRMP. SZC Co. is pleased to see the progress being made and the commitment to provide long-term water supply to Sizewell C refreshed in NWL's letter.

2.1.20 If it were to become apparent that there was any risk of NWL being unable to provide the supply, there are a range of actions open to SZC Co. (see further below) and the Applicant will continue to monitor the position closely and, particularly, to work collaboratively with NWL.

2.2 Question 3.3: The Applicant should confirm if it would be possible for the proposed temporary desalination plant to permanently meet the full water supply demand for the lifetime of the proposed Development should no alternative water supply solution be identified. The response should include any further information that will assist the Secretary of State in understanding the water supply strategy for the lifetime of the proposed Development.

2.2.1 There is no *'in principle'* difficulty with the supply of water from desalination being made permanent.

2.2.2 The desalination plant was proposed as temporary in SZC Co.'s Change Request [REP7-285] for two main reasons:

- SZC Co. has confidence that NWL will deliver a permanent supply; and
- the environmental assessment of the plant was only prepared to consider its effects through construction and no assessment was undertaken of it operating in combination with the operation of SZC.

2.2.3 In the unlikely event that Northumbrian Water Limited is unable to meet Sizewell C's water supply demand, it would be possible for SZC Co. to permanently meet the full water supply demand for the lifetime of the proposed Development using a desalination plant.

2.2.4 A permanent desalination plant was in fact contemplated and included as part of the 'reference design' for the UK EPR Generic Design Assessment, in case a mains water connection is unavailable (e.g. see 3.B - Concept Design in Relation to the Environment - v0.pdf ([redacted])). The Secretary of State will be aware that the reference design for the UK EPR received a Design Acceptance Confirmation and Statement of Design

Acceptability from the nuclear regulators (the Office for Nuclear Regulation and the Environment Agency respectively) in December 2012 (ONR Report ONR-GDA-SR-12-001 Revision 0 (Generic Design Assessment - Step 4 - Summary Report of EDF and AREVA UK EPR assessment (onr.org.uk)). The principle of permanent desalination serving the EPR reactors in the proposed development is, therefore, established within the remit of these stakeholders.

2.2.5 Whilst it may be feasible to extend the lifespan of the temporary desalination plant for a short period beyond the end of the construction phase, subject to detailed assessment, it has not been designed for permanent use and SZC Co. would consider alternatives. The permanent design would be likely to include standby desalination capability within the plant to maintain security of supply during maintenance periods. In practice, a connection to the local distribution network may be available for this limited purpose, although this would need to be agreed with NWL.

2.2.6 SZC Co.'s preliminary view is that there are at least three main alternative marine outfall infrastructure solutions associated with a permanent desalination plant:

- construction of a new dedicated outfall further offshore;
- repurpose the Combined Drainage Outfall (CDO); and
- discharge via the main cooling water outfall.

2.2.7 There are also likely to be at least two main alternative marine intake infrastructure options to source the sea water for a permanent desalination plant:

- construction of a new dedicated intake; and
- connection into the forebay[1] for Unit 1 or Unit 2 to utilise one of the two cooling water intakes that will serve Sizewell C.

2.2.8 Impacts on the marine environment, including marine water quality, ecology and fisheries would require detailed assessment but, in SZC Co.'s opinion, are unlikely to generate any materially new or materially different significant environmental effects. Indeed, the marine environmental impact of connecting the desalination plant discharge into the cooling water discharge is likely to be insignificant, given that the saline discharge would

[1] The forebays are terrestrial reservoirs already applied for as part of the proposed Development and primarily serve to regulate the flow rate of seawater into the cooling water system.

comprise a tiny fraction (up to approximately 0.03% assuming a plant capable of producing 3 Ml potable water per day) of the total discharge.

2.2.9 The temporary desalination plant would initially be located on the site of the power station itself, until that site is required for development of the power station, and then subsequently located within the Temporary Construction Area, which would be largely returned to greenfield status following completion. It is not considered preferable to permanently retain the desalination plant amongst the area of landscape restoration. Therefore, SZC Co. would further consider main alternatives including:

- underground desalination plant, powered by electricity, on or near the site of the current proposed temporary facility north-west of the SSSI Crossing; and
- placement of the desalination plant, powered by electricity, on land within the Sizewell A complex that is currently assumed as developable for the Sizewell B Relocated Facilities proposals. This would require the Sizewell B outage car park to be developed on Pillbox Field, which is an alternative option already assessed in the DCO.

2.2.10 Impacts on the terrestrial environment, including landscape and visual would require detailed assessment but, in SZC Co.'s opinion, placement of the plant in either of these locations would be unlikely to generate any materially new or materially different significant environmental effects.

2.2.11 Consequently, the Secretary of State can be satisfied that there is no in principle difficulty regarding a permanent desalination supply, that design options are available to achieve that should it be necessary, and that while any necessary consents would need to be applied for and any assessments undertaken, the information provided in this answer shows that there is no reason to doubt that an acceptable permanent solution could be found if required.

2.2.12 SZC Co. has engaged with the ONR in preparing this response. The regulator also confirmed that it has no *'in principle'* concerns around the possibility of a bespoke permanent desalination plant, subject to further details on any such proposal being formally managed by the Project as a design change.

2.3 Question 3.4: The information provided should be sufficiently detailed to enable the Secretary of State to understand and reach a reasoned conclusion on the cumulative environmental

effects, including for Habitats Regulations purposes, of the different permanent water supply solutions.

2.3.1 During the engagement SZC Co. is holding with NWL, NWL has confirmed that it is in the early stages of completing an Integrated Environmental Assessment (IEA) of its draft Water Resources Management Plan 2024 feasible options which will in part determine which supply side options are included in NWL's Preferred Best Value Plan. The IEA includes Strategic Environmental Assessment (SEA), Carbon Assessment, Habitats Regulation Assessment (HRA), Biodiversity Net Gain (BNG) Assessment, Invasive Non-native Species (INNS) Assessment, Natural Capital Assessment (NCA) and Water Framework Directive (WFD) Assessment. Any future supply from NWL to Sizewell C will, therefore, have been subject to all of the above environmental assessments before it is supplied.

2.3.2 There is an established regulatory process for the identification of new water supply schemes and the assessment of the sustainability of those schemes (including Habitats Regulations Assessment and Water Framework Directive Compliance). The Water Resource Management Plan 2024, supported by a Strategic HRA, will be submitted to DEFRA in October this year for approval. Furthermore, any new supply schemes that are progressed in line with the Water Resources Management Plan 2024 would also be subject to project-level detailed EIA and HRA as necessary.

2.3.3 At this stage, there is insufficient detail on the different permanent water supply solutions to enable SZC Co. to undertake any meaningful assessment of the various water supply solutions.

2.3.4 SZC Co. is mindful of the requirement set out in Regulation 14(3)(b) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, which states:

> *"The environmental statement … must include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment".*

2.3.5 SZC Co.'s view is that the Secretary of State can be satisfied that the potential environmental impacts (including cumulative impacts) will be sufficiently assessed, and that NWL's WRMP 24 process (including the ongoing WINEP investigations on sustainable abstraction) is the appropriate means of undertaking that assessment. More assessment cannot be undertaken at the Project level at this stage as the preferred option for long-term supply is not yet known.

2.3.6 Caselaw is clear that this approach is legitimate. Recently in *Pearce v SSBEIS* [2021] EWHC 326, Holgate J confirmed that the position remains that set out by the Court of Appeal in *R (Larkfleet Ltd) v South Kesteven DC* [2016] Env LR 76 and the High Court in *R (Littlewood) v Bassetlaw DC* [2009] Env LR 407. As summarised by Holgate J (with emphasis added by SZC Co.):

> *"116. The principle underlying Tew, Milne and Hardy can also be seen in R (Larkfleet Limited) v South Kesteven District Council [2016] Env. L.R. 76 when dealing with significant cumulative impacts. There, the Court of Appeal held that the local planning authority had been entitled to grant planning permission for a link road on the basis that it did not form part of a single project comprising an urban extension development. The court held:-*
>
> *…*
>
> *(iv) Where two or more linked sets of works are properly regarded as separate projects, the objective of environmental protection is sufficiently secured by consideration of their cumulative effects in the EIA scrutiny of the first project,* ***so far as that is reasonably possible****, combined with subsequent EIA scrutiny of those impacts for the second and any subsequent projects ([38]);*
>
> *(v) The ES for the first project should contain appropriate data on likely significant cumulative impacts arising from the first and second projects* ***to the level which an applicant could reasonably be required to provide, having regard to current knowledge and methods of assessment*** *([29]-[30], [34] and [56]).*
>
> *117.* ***However, in some cases these principles may allow a decision-maker properly to defer the assessment of cumulative impacts arising from the subsequent development of a separate site not forming part of the same project.*** *In R (Littlewood) v Bassetlaw District Council [2009] Env. L.R. 407 the court held that it had not been irrational for the local authority to grant consent for a freestanding project, without assessing cumulative impacts arising from future development of the remaining part of the site,* ***where that development was inchoate, no proposals had***

> ***been formulated and there was not any, or any adequate, information available on which a cumulative assessment could have been based*** *(pp. 413-5 in particular [32]).”*

2.3.7 Accordingly, it is clear from both *Larkfleet* and *Littlewood* that in considering the requirement for cumulative assessment regard must be had to the level of information reasonably available.

2.3.8 With regard to Habitats Regulations Assessment (and specifically assessment of in-combination effects), the Water Resources Management Plan 2024 would fall within the definition of a '*plan or project'* (in line with the guidance provided at paragraph 4.17 of the Planning Inspectorate's Advice Note 10 (*Habitats Regulations Assessment relevant to nationally significant infrastructure projects*)). The guidance advises that the following should be considered as part of the consideration of plans and projects for the purposes of the Habitats Regulations (emphasis added):

> *“projects identified in the relevant development plan (and emerging development plans – with appropriate weight being given as they move closer to adoption)* ***recognising that much information on any relevant proposals will be limited and the degree of uncertainty which may be present****”.*

2.3.9 As Advice Note 10 recognises, there may be limited information available on projects that are identified in development plans. That is similarly the case for the new supply schemes to be identified in the Water Resources Management Plan 2024. It is for this reason that any assessment of the options within the Water Resources Management Plan 2024 is most appropriately carried out through the WINEP process (and indeed this is the purpose of the WINEP process, as presented above).

2.3.10 As set out above, SZC Co. is confident that NWL is planning for and will be able to provide a long-term supply to Sizewell C. Nevertheless, in the unlikely event that a bespoke permanent desalination is required, SZC Co. is aware that further detailed assessment would be needed. However, based on SZC Co.'s initial assessment of the potential impacts of a permanent desalination plant, SZC Co. considers that there is no potential for unacceptable environmental impact.

2.3.11 In the context of the Habitats Regulations Assessment:

- In terms of terrestrial effects, the key pathways for potential effects on European sites were noise disturbance to waterbirds and air quality effects (particularly nutrient nitrogen deposition within the Minsmere

European sites). Because a permanent desalination plant would be powered by electricity (as opposed to diesel generators assessed for the temporary plant in [REP7-279]), there is no potential for a likely significant effect to occur.

- With regard to marine effects, as noted above, a permanent desalination plant is unlikely to generate any materially new or materially different significant environmental effects. It is expected that any potential effects on European sites would be within the worst-case envelopes assessed within the **shadow HRA** [APP-145 to APP-152] and **shadow HRA Addenda** [AS-173 to AS-178] which can be relied upon.

2.4 Question 3.5: The Secretary of State requests that the Environment Agency ("EA") provides an update on its position regarding environmental permitting relating to marine water quality, with particular reference to the Water Discharge Activity Environmental Permit. The EA should also confirm whether the combined assessment for Water Framework Directive compliance has been completed and if it is complete provide a copy.

2.4.1 The Applicant has no comment at this time in relation to this question, but reserves the right to respond to the Environment Agency response.

2.5 Question 3.6: The Secretary of State invites the Marine Management Organisation, the EA, and Natural England to provide their comments on the updated BEEMS Technical Report TR552 regarding the updated version of the Sizewell C Desalination Plant Construction Discharge Assessment H1 Type Assessment submitted by the Applicant at Deadline 10 [REP10-052].

2.5.1 The Applicant wishes to update the Secretary of State on further comments received from the Marine Management Organisation (MMO) at Deadline 10 [REP10-195] on the Revision 2 of BEEMS Technical Report TR552 [REP10-052], which was made available to the MMO prior to the Deadline 10 for their review and comment.

2.5.2 In response to the MMO's comments, the Applicant considers that the CORMIX modelling is well supported. As acknowledged by the MMO, the requested alternative tidal states over the spring-neap cycle have been added and detailed in the updated report [REP10-052]. The variation in

water depth and tidal velocity (flow speed) at this discharge location are given in Table 5-2 and Table 5-3 of Rev2 TR552 [REP10-052], which account for spring and neap tidal states respectively. The Applicant notes that the MMO states that the modelling outputs are *'credible'* and agrees with the MMO's statement that *'any risks to marine ecology or fisheries receptors are likely to be minimal and not significant'*.

2.5.3 However, the MMO also stated that *'further information should be provided to validate the CORMIX modelling'*. It is not clear at this time what further information is required, and the MMO has not provided any further comments on the CORMIX modelling after Deadline 10. The Applicant considers that the MMO's previous comments [REP8-164] have been addressed in the changes applied to Rev 2 [REP10-052].

2.5.4 As detailed in TR552 Rev 2 [REP10-052], the hydrodynamic conditions which drive the CORMIX model are taken from the calibrated and validated Sizewell hydrodynamic model. Therefore, the Applicant has confidence that the tidal conditions modelled are fully representative of the full tidal state at the location of the temporary discharge. CORMIX is an international industry standard near-field (i.e. close to the discharge point) mixing model. The applied use of CORMIX is considered appropriate for the small-scale discharge. It should be noted that the desalinisation discharge will be subject to a Water Discharge Activity permit determined by the Environment Agency and hence the Applicant expects that any detailed comments from the Environment Agency regarding the appropriateness of the modelling will be shared during determination of the permit.

2.6 Question 3.7: The Secretary of State notes that the Applicant provided an updated Position Statement on the Sizewell C Drainage Strategy on 24 February 2022, which is included at Annex B. The Secretary of State requests that the Applicant provides an update as to whether or not any progress has been made regarding Suffolk County Council's position as set out in the table on pages 5 and 6 of the updated Position Statement.

2.6.1 SZC Co. and Suffolk County Council have continued to engage closely on the Sizewell C Drainage Strategy. An updated version of the Position Statement is included in **Appendix 2** and updated version of the Drainage Strategy included as **Appendix 3**. SZC Co. and Suffolk County Council invite the Secretary of State to replace the contested Deadline 10 version of the **Drainage Strategy** [REP10-030] with this updated version as the 'Level 1' Certified Control Document in respect of drainage matters for the Sizewell C Project. If this is acceptable to the Secretary of State, SZC Co. proposes that the Secretary of State amends Schedule 2, Requirement 5

of the draft Development Consent Order as set out below. Proposed deletions are shown in ~~red~~ and proposed additions are underlined:

"~~(1) No part of the authorised development may be commenced until a final drainage strategy has, following consultation with the Lead Local Flood Authority, been submitted to and approved by East Suffolk Council. The drainage strategy update must be in general accordance with the Drainage Strategy.~~

~~(2)~~ "(1) No part of the authorised development (save for Work No. 1B, 1C, 4A(c), 9(b), 10(b), 11, 12, 13(b), 14, 15, 16 or 17) may be commenced until details of the surface and foul water drainage system for that part (including projected volume and flow rates, management and maintenance arrangements, means of pollution control, sewage treatment works and a programme of construction and implementation) have, following consultation with the Lead Local Flood Authority, been submitted to and approved by East Suffolk Council, following consultation with the Environment Agency, Natural England, the East Suffolk Internal Drainage Board, the Lead Local Flood Authority, the sewerage undertaker and the drainage authority.

~~(3) Following approval pursuant to paragraph (1) above,~~ (2) East Suffolk Council shall provide details of the approved surface and foul water drainage system to Suffolk County Council, and no part of the authorised development (save for Work No. 1B, 1C, 4A(c), 9(b), 10(b), 11, 12, 13(b), 14, 15, 16 or 17) may be commenced until the details of the approved management and maintenance arrangements and means of pollution control for that part have been endorsed by Suffolk County Council in its capacity as the Lead Local Flood Authority and the drainage authority.

~~(4)~~ (3) The surface and foul water drainage details must be based on sustainable drainage principles and must be in accordance with the Drainage Strategy ~~drainage strategy update approved pursuant to paragraph (1).~~

~~(5)~~ (4) Any approved surface and foul water drainage system must be constructed and maintained in accordance with the approved and endorsed details."

2.6.2 Amendments to Part (3) of Requirements 23 and 35 are also proposed to refer to '*the Drainage Strategy'* as opposed to *'the final drainage strategy approved pursuant to Requirement 5'.*

2.6.3 This proposed amendment is reflected in **Appendix 1** – The DCO Schedule of Changes Arising from the Secretary of State's Request for Further Information dated 18 March 2022. As agreed with the Planning

Inspectorate's case team, SZC Co. will provide a clean and track change version of the DCO (Rev 11A) as part of our submission to the second round of questions that will be submitted on 14 April 2022.

3 TRAFFIC AND TRANSPORT

3.1 Question 4.1: The Applicant should advise as to whether or not they consider that a control mechanism(s) could secure the delivery of the Sizewell Link Road and Two Village Bypass in advance of the commencement of Phase 1 works on the Main Development Site, with consideration given to the effects of Heavy-Duty Vehicle movements on the B1122. Without prejudice to the Secretary of State's decision on this matter, the Applicant should provide details of potentially appropriate control mechanism(s).

a) Control mechanisms

3.1.1 In view of the significance of the question, some introductory text is appropriate.

3.1.2 Plate 2.1 of the **Construction Method Statement** [REP10-025] (electronic page 10) shows that the Phase 1 works (site establishment and preparation for earthworks) on the Main Development Site are programmed to commence in quarter 1 2023.

3.1.3 The plate also shows that the Sizewell Link Road (SLR) and the two village bypass (2VBP) are both programmed to commence in quarter 1 2023 and to complete in quarter 4 2024. Simplistically, therefore, deferring Phase 1 commencement so that it follows the completion of the two roads would put the construction of the power station back two years (although there would be other complications, which are explained further below).

3.1.4 The **Construction Method Statement** (at paragraph 2.1.6) also contains backstop dates for the SLR and the 2VBP which were negotiated and agreed with the local authorities[2], and which require the roads to be in use either within 6 months of the commencement of Phase 3 (Main Civils) or before the start of the Phase 3 installation of the reactor building liner, whichever is the sooner (unless otherwise agreed with East Suffolk Council). The plate shows Phase 3 works commencing in quarter 3 2025. If it was necessary for any reason to take the whole period up to the back-stop date to complete either road, the construction of the power station could not then start until quarter 1 2026, a delay of three years.

[2] The agreement was communicated from SCC to SZC Co. by email dated 12 October 2021. The issue was not identified as one not agreed by SCC in its Position at the End of the Examination [REP10-210].

3.1.5 The **Construction Method Statement** is secured by Requirement 13 [REP10-009] (at electronic page 76).

3.1.6 These control mechanisms and timings were derived from detailed engagement with East Suffolk Council (ESC) and Suffolk County Council (SCC) in the light of a close understanding of the SZC construction programme. The control mechanisms and timings were agreed. Both Councils were fully aware of the effects of HDVs on the B1122 and of the short-term and longer term measures to which the Applicant has committed to mitigate those effects.

3.1.7 Superficially, these same control mechanisms could be adjusted to ensure that the Phase 1 works did not commence before the SLR and the 2VBP were delivered, but it is not considered that the Project would be deliverable on that basis (see further below).

3.1.8 To answer the question posed – and without prejudice to SZC Co.'s position that such a control mechanism would be entirely inappropriate, unnecessary and impractical, if the Secretary of State were to determine that it was nevertheless necessary to control the sequence of the development in this way, a requirement could theoretically be imposed stating that, notwithstanding the terms of the Construction Method Statement, the two roads must be delivered in advance of the commencement of Phase 1 works on the Main Development Site. For the reasons set out above and below, however, SZC Co. believes that such a requirement should not be imposed (and indeed could not without further assessment).

3.1.9 Revisions to the Construction Method Statement or a new requirement giving effect to this revised sequence could not safely be imposed without undertaking fresh transport and environmental assessment, because the consequences of a sequence which sees the main development site works deferred for two or three years whilst the road schemes proceed in isolation have not been assessed.

3.1.10 Delay would be necessary, therefore, to any DCO decision on SZC whilst the work was undertaken and consulted on. It could be expected that there would be significant public interest in an outcome which extended the overall construction programme by two to three years.

3.1.11 Even if the development was deliverable in that sequence, however, the effect would be significant delay to the overall delivery of the Project, with the commencement of the Main Development Site works put back from quarter 1 2023 to quarter 1 2025 (or quarter 1 2026 if the roads were not completed until the back stop date).

3.1.12 This would have a direct commensurate impact on the operational dates of the Units. Plate 2.1 of the **Construction Method Statement** [REP10-025] at electronic page 10 shows Unit 1 becoming operational in quarter 4 2033 and Unit 2 becoming operational in quarter 4 2034. Those dates would become 2035/36 and 2036/37 if main development site works were obliged not to commence until the roads were complete.

3.1.13 In practice, the delay would be greater still. There would be practical issues for procurement and consenting and construction and costs would rise. These matters are explained further below.

3.1.14 One such issue relates to the timing of works in the context of ecological seasons. At present, the programme has been prepared taking into account, for example, the requirement for site clearance works to avoid the bird nesting season. Any change in sequencing would increase the risk of missing the appropriate ecological window to commence Phase 1 development. Should this be the case then it would add up to a further year of delay to the operational dates of the Units.

3.1.15 Any significant delay would be directly inconsistent with up to date Government policy which is clear that new nuclear projects must be delivered urgently, and contrary to the powerful public interest considerations which lie behind that policy.

3.1.16 This response is structured to address the following:

- the urgency for new nuclear;
- practical difficulties;
- the appropriateness of enforced delay taking into account the effects of HDV traffic and the mitigation that would be in place to mitigate those effects; and
- the viability of delivery.

3.1.17 The question asks about both the SLR and the 2VBP but the completion of the 2VBP has no effect on HDV traffic on the B1122. This response signposts to the Applicant's case on the timing of the 2VBP [3], therefore, but does not enter into further detail.

[3] The Construction Method Statement [REP10-025] states that the two village bypass must be available for use either within six months of the commencement of Phase 3, or before the start of the Phase 3 Installation of the Reactor Building Liner, whichever is the sooner. **The two village bypass response paper** [REP2-108] (electronic page 168) explains the early years effects and why the effects are acceptable in the short term

b) Urgency

3.1.18 The urgency and importance of new nuclear is emphasised in the strongest terms in the Energy and Nuclear NPSs, and NPS EN-6 confirms (at paragraph 2.2.3) that delay in deployment would increase the risk of the UK being locked into a higher carbon energy mix for a longer period than is consistent with the Government's ambitions to decarbonise electricity supply.

3.1.19 As set out in **Appendix A of the Planning Statement Update** [REP2-043], the Government's modelling shows that the UK will need Sizewell C deployed by 2035 to bring new nuclear capacity to 8GW, in line with the necessary trajectory for low carbon energy which is relied upon in the Energy White Paper and in line with the Climate Change Committee's Balanced Net Zero Pathway.

3.1.20 At the close of the Examination (at Deadline 10), the Applicant submitted the **Planning Statement Final Update and Signposting document** [REP10-068] and at paragraph 11.1.10 of that document (electronic page 56), having reviewed up to date Government policy concluded:

> *"11.1.10 It is difficult to identify that any Government planning policy for any form of development has ever expressed a need to be more important or more urgent. Energy security is nationally important, whilst climate change is the single most important issue facing the planet".*

3.1.21 These matters were comprehensively documented for the benefit of the Examination. The principal references are:

- **Planning Statement** [APP-590] from Section 7.2;
- **Planning Statement Update** [REP2-043], particularly Section 2 and Appendix A;
- **New Nuclear: Need and Urgency** (Appendix A of Written Submissions following ISH 5) [REP5-117];
- Responses to the ExA's **Second Written Questions** [REP7-056], particularly to questions G2.0, G2.1, G2.5, G2.7 and G2.8;

pending delivery of the two village bypass. SZC Co.'s response to AI.1.17 [REP2-100] explains that the two village bypass would be complete by Peak Construction 2028, where, during the network peak hours of 08:00-09:00 and 17:00-18:00, there would be a 76% and 143% increase in HGVs respectively through Farnham.

- **Post Hearing submissions including written submissions of oral case ISH9** [REP7-102], especially electronic pages 9-15.

3.1.22 Following the close of the Examination on 14 October 2021, the urgency if anything has increased. There is a heightened awareness of the critical importance of national energy security, whilst the Government has continued to emphasise the urgency of multi-faceted action to address climate change.

3.1.23 On 19 October 2021, the Government published Net Zero: Building Back Better [4]. The document has 47 references to nuclear power. In relation to urgency, it says the following:

- *"there is still a path to avoid catastrophic climate change…delivering this requires urgent global action."* (page 14)
- "*we need to act urgently and reduce emissions globally to limit further global warming."* (page 38).
- *"It is essential to enhance international collaboration with other countries and take urgent, concrete action globally to reduce emissions in the near term. The 2020s is a critical decade in determining whether the Paris temperature goals can be kept within reach."* (page 54).
- *"We will do this by updating the Energy National Policy Statements to provide greater clarity on the need and urgency for low carbon infrastructure."* (page 102).

3.1.24 Consistent with this, the Government has most recently announced its intention to update national energy strategy with a renewed emphasis on new nuclear power. The Prime Minister met with nuclear industry leaders including EDF on 21 March 2022 and a Government Statement [5] explained:

> *"The Prime Minister made clear the vision for nuclear to be a major part of the UK's future energy system as a clean, reliable and safe energy source. He set out this Government's commitment to supporting the industry to develop a thriving pipeline of new nuclear projects in the UK in a cost-effective way."*

[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf

[5] https://www.gov.uk/government/news/pm-meeting-with-nuclear-industry-leaders-21-march-2022

3.1.25 The stated purpose of the meeting was to discuss how to improve domestic energy security '*and rapidly **accelerate** nuclear projects in the UK*' (our emphasis).

3.1.26 Even more up to date has been the decision of the Secretary of State on 31 March 2022 to grant development consent for the East Anglia Two offshore wind farm[6]. In the decision letter, the Secretary of State found that adverse effects on the integrity of three European designated sites could not be ruled out, but that consent could nevertheless be granted because '*projects, like the Proposed Development, which make a significant contribution to meeting the (climate change) target capacity in the timeframe required are therefore both necessary and urgent*' (East Anglia Two decision letter paragraph 17.36).

3.1.27 In that same decision letter, the Secretary of State confirmed that the need and urgency for low carbon projects set out in national policy has increased:

> *"Measures set out in the NPSs have been given further impetus to reflect evolving understanding of the urgency of actions to combat climate change, including the legally binding commitment to reduce greenhouse gas emissions to net zero by 2050, made in July 2019."*
> *(East Anglia Two decision letter paragraph 17.33)*

3.1.28 In this context, any suggestion that the operation of SZC should be delayed by at least two to three years would be directly contrary to the Government's expressed intentions and would require the most exceptional justification.

c) Practical difficulties

3.1.29 A key driver of the SLR being delivered in parallel with the Main Development Site is the mass balance of site material. The two components have been planned together to optimise sustainability, delivery and efficiency.

3.1.30 SZC Co. has committed to sustainability principles, including not exporting any natural/inert excavated material off-site as waste and an aim to make use of all suitable site won material as fill within the Main Development Site thereby also minimising the need for imported fill aggregate.

3.1.31 As set out at Section 4.2.1 of the **Material Imports and Modal Split Paper**, which can be found at **Appendix A** of **SZC Co.'s Written Submissions Responding to Actions Arising from ISH2** [REP5-114], the early need

[6] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-010064-EA2%20-%20Decision%20Letter%20Signed.pdf

for backfill will be minimised by the Project's strategy to reuse the site won material generated from the Project, including from the construction of the off-site associated development new highway schemes.

3.1.32 This strategy to deal with the mass balance can only work if Phase 1 commences in parallel with the SLR. Without Phase 1 having commenced and the Main Development Site being available, there is nowhere for the site won material to go and the material would have to be exported.

3.1.33 By reusing the site won material from the SLR and the TVB on the Main Development Site, circa 140,000m3 of surplus material will be diverted from off-site disposal to on-site reuse. This saves the equivalent to 20,000 two-way movements, assuming 27t capacity HGVs, or 30,000 HGVs assuming 18.5t capacity. Limiting HGV movements has been a key objective of the Project, strongly urged and supported by the local communities.

3.1.34 The material will be stockpiled within the Main Development Site and used to reprofile the Temporary Construction Area to meet the requirements for laydown platforms and roads and to achieve the landscape requirements and bunds around the site. In addition to the saving of movements that would be necessary to remove the material from site, there would be a corresponding reduction in the import requirements for general fill material, saving the equivalent of a further 20,000 to 30,000 additional two-way movements.

3.1.35 Foregoing this saving would be a perverse outcome of enforced delay.

3.1.36 The other perverse outcome is that seeking to impose such a sequence in the name of the short-term amenity benefits of the B1122 communities, would have the effect of extending the construction programme by two or three years, to the determent of the amenity of all affected communities.

3.1.37 There would be additional strategic consequences. These would need to be worked through very carefully but essentially:

- SZC Co. has ramped up its procurement and contractor preparation in anticipation of delivering the new power station as soon as practical. A substantial Delivery Team has been assembled and detailed programme sequencing work undertaken, involving contractors, materials suppliers and an extensive supply chain network. That team cannot simply be stood down and reassembled in two or three years' time.

- The Project carries very substantial establishment costs through this preliminary phase, which would need to be extended for two or three years.

- SZC has been planned as a twin and follow-on project from Hinkley Point C, with contractors and skills moving over from one project to the second. The efficiency of that plan would be at risk if there was an enforced delay to the start of main site works at Sizewell.

- Cost is a critical factor – a deferment of two or three years would open the Project up to significant additional cost price inflation.

3.1.38 The SZC Project has also been planned and environmentally assessed on the basis of the sequence of events captured in the Implementation Plan and the Construction Method Statement (see paragraph 3.1.1 of Volume 2 Chapter 3 of the ES [REP5-047] and paragraph 4.1.6 of the Consolidated Transport Assessment [REP4-005]). To impose a materially different sequence now (and a prolonged timetable) would require both the Environmental Statement and the Transport Assessment to be reworked, with knock on consequences for other application documents and with requirements for consultation. That work cannot be undertaken in what remains of the three-month timetable for the Secretary of State's decision on the DCO application. The delay consequences, therefore, are significantly more than the two or three years' deferral of the MDS construction.

d) Effects and mitigation

3.1.39 The **Construction Transport Management Plan** (CTMP), which forms Annex K to the **Deed of Obligation** [REP10-078] confirms the commitments made to limit HDV movements generally and, particularly in the early years prior to the completion of the SLR and the 2VBP. The infrastructure and management measures will be familiar to the Secretary of State, but they are nevertheless substantial and comprehensive. Commitments are set out under 13 principal headings (in Section 4.1 of the CTMP) and they include major investment in rail and sea transport, so that the road borne freight is minimised. Those modes also provide bulk transport capacity so that a large proportion of the HDV traffic forecast to use the B1122 will be smaller vehicles. Of the HDV numbers, less than 50% of the vehicles are larger HGVs (>18t) [REP10-168] (refer to Plate 1, Appendix C at electronic page 86).

3.1.40 In particular, measures include:

- Timing, routing, and capping measures to limit impacts as far as practical.

- The SLR and 2VBP themselves, of course, are substantial mitigation measures, bringing lasting legacy benefits to communities and

fulfilling the aspirations that the affected communities have strongly articulated for decades without success. Without SZC these long-term lasting benefits will not be achieved.

3.1.41 In the short term, early years, the nature and scale of environmental effects was explained in response to EXQ TT.3.4 [REP8-116]: as follows:

> *"(Chapter 2 of the Fourth Environmental Statement (ES) Addendum [REP7-032] (electronic page 481) shows that in Stratford St Andrew (link 24) and Farnham (link 23) there is forecast to be an 8% increase in daily two-way total traffic and a 90% increase in daily two-way HDVs during the early years. The Fourth ES Addendum [REP7-032] concludes that there is expected to be a minor adverse impact on severance (electronic page 761), pedestrian delay (electronic page 815), amenity (electronic pages 890 and 900) and fear and intimidation (electronic page 989).*
>
> *In comparison, the Fourth ES Addendum [REP7-032] (electronic pages 479 and 485) shows that in Middleton Moor (link 74) and Theberton (link 10) there is forecast to be a 28-30% increase in daily two-way total traffic and a 535-672% increase in daily two-way HDVs during the early years. The Fourth ES Addendum [REP7-032] concludes that there is expected to be a minor adverse impact on severance (electronic pages 760 and 762), pedestrian delay (electronic pages 813 and 817) and fear and intimidation (electronic pages 988 and 990) on the B1122 but that there is expected to be a short term major adverse effect on amenity on the B1122 during the early years as a result of the percentage change in HDVs (electronic pages 889 and 901)."*

3.1.42 In addition in the Early Years, moderate adverse noise effects that are significant are predicted during the daytime on the B1122, and minor adverse effects that are not significant are predicted during the night-time on the B1122, as set out in section 2.6d of the **First ES Addendum** [AS-181, electronic page 134] and its associated **First ES Addendum Volume 3 Appendix 2.6.B** [AS-204, electronic page 83], taking account of the effect of the updated traffic data, as set out in **Fourth ES Addendum** [REP7-030] (electronic page 35).

3.1.43 This scale of effects has been reduced as far as practical. The residual effects are not of a scale which justifies a minimum of two or three years' delay to the delivery of genuinely critical national infrastructure.

3.1.44 That was also the view of the local authorities at the Examination. The long stop dates agreed for the roads were arrived at having regard to an informed understanding of the point beyond which it would be unacceptable for the SLR and 2VBP not to be in place.

3.1.45 A comprehensive package of mitigation measures is proposed to address residual effects. A B1122 Early Years Mitigation Scheme is proposed in Theberton and Middleton Moor before the SLR is in place. There are not forecast to be any significant adverse effects along the A12 in Farnham or Stratford St Andrew in the early years, (see Chapter 2 of the Fourth ES Addendum [REP7-032] electronic pages 761, 815, 890, 900 and 989). Therefore, a specific transport mitigation scheme is not proposed for these locations, although the mitigations and controls provided by the CTMP apply, and qualifying properties will be fully entitled to the benefits of the Noise Mitigation Scheme.

3.1.46 The Early Years Mitigation Scheme is set out and secured within Schedule 16 of the **Deed of Obligation (Part 2 of 6)** (electronic page 25) [REP10-077]. Paragraphs 5.7.3 – 5.7.4 of Schedule 16 provide that the detail of the Early Years Mitigation scheme must be submitted to and approved by Suffolk County Council in accordance with the Local Transport Programme. Paragraph 5.9 of Schedule 16 states that at least three months before Commencement, SZC Co. shall prepare and submit the Local Transport Programme to Suffolk County Council for its approval, in consultation with East Suffolk Council.

3.1.47 **Annex Q** of the completed **Deed of Obligation (Part 4 of 6)** (electronic page 106-111) [REP10-079], includes plans of the proposed improvement works along the B1122 as part of the Early Years Mitigation scheme. The plans propose, village gateways, speed reduction and amenity measures for pedestrian and cyclists.

3.1.48 In addition to the Early Years Mitigation Scheme, SZC Co. has also committed to a Noise Mitigation Scheme (NMS). The NMS is secured by Schedule 12 of the **Completed Deed of Obligation (Part 1 of 6)** (electronic pages 112 – 113) [REP10-076].

3.1.49 To qualify under the Noise Mitigation Scheme, properties will ordinarily need to meet, or be expected to meet, defined eligibility criteria except in the case of Pro Corda Trust's property at Leiston Abbey. A total of 82 properties fronting the B1122 will be considered to pre-qualify, irrespective

of the forecast early years noise levels on the B1122 (which for many properties are not forecast to reach the defined trigger levels which apply elsewhere). **Annex G** of the **Deed of Obligation (Part 2 of 6)** (electronic pages 121-123) [REP10-077] includes a list of all 82 pre-qualified properties on the B1122.

3.1.50 **Annex W** of the **Deed of Obligation (Part 5 of 6)** (electronic pages 101-125) [REP10-80] sets out the Noise Mitigation Scheme in detail, including the obligation to not commence the activity that gives rise to the eligibility for noise insulation for a period of three months after an offer has been made to the homeowner. This three-month period is to allow time for the offered insulation works to be carried out.

3.1.51 With these commitments to mitigation measures and given the criticality of urgent delivery of the Project, it would not be appropriate to defer the delivery of the SZC project for two or three years.

e) Viability and delivery

3.1.52 Large scale new nuclear power stations are complex and costly to construct and deliver. The SZC proposal has been very carefully sequenced, planned and programmed so that it can be delivered economically and efficiently to meet urgent Government deadlines in view of its critical national importance. The significance of imposing an alternative delivery sequence at this stage, which would add years to the construction timetable and significantly disrupt the build programme, should not be underestimated and is not advised.

3.2 Question 4.2: The Secretary of State notes that 50% of the funding for the proposed upgrade works to the Darsham A12 level crossing is proposed to be funded by Network Rail, subject to CP7 funding. The Secretary of State requests that the Applicant advises as to how the full costs of the upgrade works of the crossing would be met, should Network Rail fail to secure the required CP7 funding.

3.2.1 SZC Co. and Network Rail continue to work closely. Network Rail has advised that final CP7 determination is not due to be confirmed until next year, but the process is iterative and Network Rail has already and will continue to make provision in that funding bid for the contribution to the upgrade of Darsham level crossing. Network Rail has advised that excluding any major unexpected Government funding cuts, they will be in a position to fund half of the upgrade for Darsham Level Crossing. Please refer to the email dated 30 March 2020 in **Appendix 4**.

3.2.2 Should such funding cuts be forthcoming then SZC Co. has advised Network Rail that it would agree to provide the necessary funding for completion of the works.

3.2.3 This position is consistent with that set out in the **Statement of Common Ground with Network Rail** [REP10-099] at paragraph 1.2.1, which confirms that SZC Co. would not allow the absence of or a delay in funding from Network Rail to slow down the SZC construction programme.

3.2.4 The Secretary of State can be satisfied that these matters are regulated in the Framework Agreement entered into between SZC Co. and Network Rail on 2 September 2021. The Framework Agreement protects Network Rail's interests by requiring relevant level crossing improvements to be in place prior to identified SZC related activities. The timings were set by Network Rail to ensure that no adverse risk arises to the operation of the network or its users. The Framework Agreement sets clear provisions for payment – the costs are to be met by SZC Co. unless a contribution is forthcoming from Network Rail.

3.3 Question 4.3: The Secretary of State understands that there were matters outstanding regarding the potential for vibration from construction traffic along the B1122 at the end of the Examination. The Applicant should therefore advise as to whether quiet road surfacing at the section of the B1122 up to the junction with the B1125 has been considered and should set out its position regarding quiet road surfacing at this location.

3.3.1 The question refers to '*vibration*' in the context of a quiet road surface, not noise; however, a quiet road surface is no more likely to reduce vibration than a standard hot rolled asphalt surface, if both are maintained in good condition and free from discontinuities.

3.3.2 Vibration will be minimised by keeping the road surface in a good condition and free from discontinuities under the 'Highway Structural Maintenance Contribution' in Schedule 16 of the **Deed of Obligation** [REP10-078, electronic page 26]. This commitment applies to the whole length of the B1122 from Yoxford to the Main Development Site in the Early Years (see Annex Z of the **Deed of Obligation** [REP10-081, electronic page 3]).

3.3.3 Following a number of meetings, SZC Co. reached an agreed position with Suffolk County Council on the absence of a benefit of a quiet road surface along the B1122, as set out in **SOCG_8.25** in the **Statement of Common**

Ground – East Suffolk Council and Suffolk County Council [REP10-104, electronic page 27]. In summary, the agreed position was that:

- The period of peak traffic flow is limited to the Early Years only and a temporary reduction in speed limit to 20mph through Theberton has been agreed in principle with Suffolk County Council for that period. Further discussions are also taking place with Suffolk County Council concerning a 30mph speed limit for the remainder of the B1122 for the Early Years.

- There is limited or no benefit from a quiet road surface where the traffic is travelling at speeds of 30mph or less. The limited benefit at low vehicle speeds was set out in SZC Co.'s responses to the Examining Authority's second and third written questions at NV.2.2 [REP7-054, electronic page 6] and NV.3.15 [REP8-116, electronic page 130].

- Insulation is to be offered to the properties along the B1122 that are listed in **Annex G** of the **Deed of Obligation** [REP10-078, electronic page 121], as set out in **Schedule 12** of the **Deed of Obligation** [REP10-077, electronic page 112].

3.3.4 The Secretary of State can also take comfort from the fact that the details of the Early Years Scheme and what precise interventions may be necessary are to be agreed with SCC by virtue of the provisions at 5.7 of the Schedule 12 of the Deed of Obligation [REP10-077, electronic page 25].

3.3.5 Following practical completion of the SLR, SZC Co. has committed to deliver the B1122 Corridor Repurposing Scheme (see Schedule 16 of the **Deed of Obligation** [REP10-077, electronic page 27]), which will deliver highway improvements on the B1122 corridor to provide enhanced facilities and connectivity for non-motorised users and local communities. The significant and long-term benefits to communities along the B1122 arising because of these improvements, alongside the reduction of traffic on the B1122 as a result of the Sizewell Link Road, are important to consider alongside any residual Early Years impacts and need to be taken into account in the planning balance.

3.4 Question 4.3: The Secretary of State understands that at the end of the Examination, the effects of the introduction of crossings as part of the road schemes introduced on the A12 in Marlesford and the B1122 in **Theberton**, in terms of air quality, noise, and driver delay, had not been carried out. The Applicant

should provide an update on its position regarding the potential effects of the introduction of these crossings.

3.4.1 The request for information refers to proposed pedestrian crossings on the A12 at Marlesford and on the B1122 in Theberton. However, for completeness the following formal pedestrian crossings are currently proposed as part of the local highway improvement schemes:

- Signal controlled pedestrian crossing on the A12 in Marlesford south of Bell Lane (drawings included in Annex S of the Deed of Obligation [REP10-083]);
- Signal controlled junction on the A12 at Church Road in Little Glemham, incorporating a pedestrian crossing (drawings included in Annex S of the Deed of Obligation [REP10-083]);
- Signal controlled pedestrian crossing on the A12 in Yoxford north of Old High Road (drawings included in Annex X of the Deed of Obligation [REP10-084]); and
- Zebra crossing on the B1122 in Theberton south of Church Road (drawings included in Annex Q of the Deed of Obligation [REP10-082]).

3.4.2 The pedestrian crossings are proposed to mitigate the adverse effects of the increase in Sizewell C traffic on pedestrians crossing the A12 and B1122. The crossing in Theberton is still being discussed, however the locations and designs of the other three crossings have been agreed in principle with Suffolk County Council in consultation with the relevant parish councils. All crossings are subject to detailed design.

3.4.3 Consideration of the effects of the proposed pedestrian crossings on driver delay, air quality and noise are provided below.

a) Driver delay effects

i. A12 Marlesford crossing

3.4.4 The proposed signal-controlled crossing on the A12 at Marlesford is located just to the south of the junction with Bell Lane. The village of Marlesford is to the north of the A12, accessed from Bell Lane. Therefore, the demand for pedestrians to cross the A12 is limited to a cluster of uses on the south side of the A12, including a farm shop and café, Marlesford Mill antique shop and a set of bus stops. The bus stops are served by Route 64, which

operates an hourly service and a set of bus stops are provided either side of the A12 immediately south of the proposed pedestrian crossing.

3.4.5 The A12 in this location is a single carriageway road with a 40mph speed limit which is proposed to be reduced to 30mph as part of the local highway improvement schemes. Subject to the detailed signal design, the crossing is expected to stop traffic for approximately 17 seconds each time it is called. This duration includes time for pedestrians to comfortably cross the road, as well as 'all red' safety periods to separate pedestrian and traffic movements and is calculated in accordance with the Traffic Signs Manual, Chapter 6 (Traffic Control). Based on site visits and a review of pedestrian desire lines, it is considered that there would be a relatively low pedestrian demand to cross the A12 in this location, and it is therefore considered robust to assume that the crossing could be called on an average of four times per hour during peak periods. Pedestrian crossing demand at non-peak times will be significantly less. Based on this assessment, A12 traffic would be stopped on average for circa 68 seconds per hour at peak times. Therefore, drivers could be delayed at the crossing for 1.9% of the time during peak periods and for 98.1% of the time traffic would be free flowing through the crossing. It is considered that this level of driver delay is **negligible**. Conversely, the pedestrian crossing will reduce delay for pedestrians and improve safety for vulnerable road users.

i. A12 Little Glemham

3.4.6 The proposed signal-controlled junction on the A12 at Church Road in Little Glemham incorporates a pedestrian crossing. The village of Little Glemham is either side of the A12, with residential houses to the north of the A12 accessed from Shop Lane, residential houses to the south of the A12 accessed from Church Road and some houses fronted onto the A12 itself. The Lion Inn pub is on the south side of the A12 and there is a set of bus stops either side of the A12 just to the south of Church Road, which are served by the hourly Route 64 service.

3.4.7 The A12 in this location is a single carriageway road with a 30mph speed limit and, subject to the detailed signal design, the signalised junction is expected to stop traffic for approximately 27 seconds each time it is called. This duration includes time for Church Road traffic movements, and pedestrians to comfortably cross the A12, as well as 'all red' safety periods to separate pedestrian and traffic movements and is calculated in accordance with the Traffic Signs Manual, Chapter 6 (Traffic Control). Based on site visits and a review of pedestrian desire lines, it is considered robust to assume that the crossing would be called on an average of six times per hour during peak periods. Pedestrian demand during non-peak periods will be significantly less. Based on this assessment, A12 traffic

could be stopped on average for circa 162 seconds per hour at peak times. Therefore, drivers would be delayed at the crossing for 4.5% of the time during peak periods and for 95.5% of the time traffic would be free flowing through the crossing. It is considered that this level of driver delay is **negligible**. Conversely, the pedestrian crossing will reduce delay for pedestrians and improve safety for vulnerable road users.

i. A12 Yoxford

3.4.8 The proposed signal-controlled crossing on the A12 at Yoxford is located just to the north of the junction with Old High Road. The village of Yoxford is predominantly to the north of the A12, accessed off High Street and Old High Road. However, there are some dwellings on the south side of the A12 as well as the Kings Head pub.

3.4.9 The A12 in this location is a single carriageway road with a 30mph speed limit and, subject to the detailed signal design, the crossing is expected to stop traffic for approximately 17 seconds each time it is called. This duration includes time for pedestrians to comfortably cross the road, as well as 'all red' safety periods to separate pedestrian and traffic movements and is calculated in accordance with the Traffic Signs Manual, Chapter 6 (Traffic Control). Based on site visits and a review of pedestrian desire lines, it is considered that it is robust to assume that the crossing would be called on an average six times per hour during peak periods. Pedestrian demand at non-peak times will be significantly less. Based on this assessment, the traffic could be stopped on average for circa 102 seconds per hour. Therefore, drivers would be delayed at the crossing for 2.8% of the time and for 97.2% of the time traffic would be free flowing through the crossing. It is considered that this level of driver delay is **negligible**. Conversely, the pedestrian crossing will reduce delay for pedestrians and improve safety for vulnerable road users.

i. B1122 Theberton

3.4.10 The proposed zebra crossing on the B1122 at Theberton is located just to the east of St Peter's Church. The B1122 routes through Theberton, with houses on either side of the road, St Peter's Church on the east side of the road and the Theberton Lion pub on the west side of the road.

3.4.11 The B1122 in this location is a single carriageway road with a 30mph speed limit. Based on average walking speeds recommended in national guidance, pedestrians will need approximately 10 seconds to safely and comfortably cross the road. When pedestrians cross at the same time as traffic arrives at the crossing, drivers will be required to stop for up to 10 seconds. Based on site visits and a review of pedestrian desire lines, it is

considered robust to assume that pedestrians would use this crossing on average four times per hour at peak times. Pedestrian demand during non-peak periods will be less. Based on this assessment, the traffic could be stopped on average for circa 40 seconds per hour. Therefore, drivers could be delayed at the crossing for 1.1% of the time and for 98.9% of the time traffic would be free flowing through the crossing. It is considered that this level of driver delay is **negligible**. Conversely, the pedestrian crossing will reduce delay for pedestrians and improve safety for vulnerable road users.

b) Air quality effects

3.4.12 It has been agreed with the Councils that the risk of significant adverse air quality effects arising from the use of the proposed pedestrian crossings is likely to be minimal, based on the siting of the proposed pedestrian crossings agreed with the Councils.

3.4.13 It is recognised that each use of the pedestrian crossing has the potential to slightly change the rate of air pollutant emissions from road traffic relative to the emission rate for free flowing traffic, as traffic slows, waits and accelerates away. During peak hours, the average stopping time for cars at each crossing as reported above in driver delay effects is as follows:

- on the A12 at Marlesford, cars would only be stopped on average for 68 seconds per hour (1.9% of the time);
- on the A12 at Yoxford, cars would only be stopped on average for 102 seconds per hour (2.8% of the time);
- on the A12 as Church Road in Little Glemham, cars would only be stopped on average for 162 seconds per hour (4.5% of the time); and
- on the B1122 at Theberton cars would only be stopped for 40 seconds per hour (1.1% of the time) in peak hours.

3.4.14 Taking into account less frequent crossing events outside the peak periods, the total period per day with emissions that are not associated with free flowing traffic is 1% of the time or less. Such a duration would not result in any significant air quality effects over the assessment periods of relevance to air quality (the 1 hour mean, 24 hour mean and annual mean), since the potential change in magnitude and frequency of road traffic emission rates is too low to cause a material change to the reported concentrations at any receptors on the A12 or B1122.

3.4.15 For this reason, no assessment of potential air quality effects was undertaken during the Examination. However, for completeness, it has also been agreed with the Councils – and committed to in Table 4.1 of Part C of

the CoCP - that an air quality impact assessment would be undertaken by SZC Co. prior to construction of Yoxford pedestrian crossing. In light of the wider question, SZC Co. will amend the Table 4.1 of the CoCP to extend the undertaking of an air quality assessment to all four controlled pedestrian crossings proposed to be carried out under Schedule 16 of the Deed of Obligation. The revised CoCP to be submitted on 14 April 2022 will include this amendment. The assessments would be submitted to ESC for approval and must demonstrate that no significant air quality effects would occur from the installation and use of any of the crossings and specify what additional measures (if any) would need to be incorporated into the design to demonstrate no significant air quality effects.

3.4.16 The CoCP also requires an air quality monitoring programme to be implemented by SZC Co. following installation of the proposed pedestrian crossings to demonstrate that the air quality effects associated with their implementation are not significant and that the air impact assessment findings remain valid.

3.4.17 Through these agreed control, monitoring and mitigation measures, as committed to in the CoCP, it is clear that the proposed pedestrian crossings will only be sited, installed and used provided that significant air quality effects do not arise from their use. This will be demonstrated to the Councils through the air quality assessment to be undertaken prior to construction of each crossing and verified through the air quality monitoring to be undertaken by SZC Co. and reported to the Councils.

c) Noise effects

3.4.18 The Calculation of Road Traffic Noise (CRTN)[7], which is the UK method for calculating road traffic noise levels, instructs the user to ignore any changes in the average traffic speed as a result of junctions, stating at paragraph 33:

> *"The [noise] contribution from each individual length of road is calculated separately, using the appropriate mean speed (see para 14) and ignoring any speed change at the junction".*

3.4.19 Crossings are not mentioned in CRTN, nor are they mentioned in the Design Manual for Roads and Bridges (DMRB)[8], which provides additional calculation procedures that modify the CRTN method. However, it is considered that the same principle applies, and that the determination of

[7] Calculation of Road Traffic Noise (CRTN), Department of Transport, Welsh Office (1988)
[8] Design Manual for Roads and Bridges (DMRB) LA 111 Noise and vibration

future road traffic noise levels should be based on the appropriate mean traffic speed, with changes in speed caused by crossings ignored.

3.4.20 Notwithstanding the lack of a UK calculation method to estimate a potential effect of a crossing on traffic noise levels, the potential effect of the crossings on traffic noise levels has been estimated with reference to a Nordic calculation method NORD2000.

3.4.21 NORD2000 suggests that for traffic in urban locations or in stop-start situations, the basic traffic noise level is 3dB higher than traffic in free-flowing conditions at a constant speed.

3.4.22 The greatest expected level of driver delay is predicted to be 4.5% at Little Glemham, as stated above, so based on the robust assumption that the crossings cause stop-start conditions for 5% of the time, the overall effect on traffic noise will be an increase of 0.2dB, which would be a negligible effect. Even if the crossing demand caused stop-start conditions for 10% of the time, which is not expected at any of the crossings, the increase in traffic noise will be 0.4dB, which is also a negligible effect.

3.4.23 In conclusion, the crossings are not expected to materially affect traffic noise levels and as such any effect can be considered to be **negligible**.

4 COASTAL CONSIDERATIONS

4.1 Question 5.1: The EA is asked to confirm if the Preliminary Design and Maintenance Requirements for the Sizewell C Soft Coastal Defence Feature ("SCDF") (Version 4) TR544 [REP10-124] provided by the Applicant at Deadline 10 satisfies its remaining concerns in relation to modelling and further analysis for the SCDF, and consequently the Hard Coastal Defence Feature, including any implications for resilience and the cumulative impact assessment.

4.1.1 Whilst the question is directed to the Environment Agency (EA), it is hopefully helpful for SZC Co. to provide the following information.

4.1.2 '*Preliminary Design and Maintenance Requirements for the Sizewell C Soft Coastal Defence Feature ("SCDF") (Version 4)'* submitted at Deadline 10 [REP10-124] does not address the more extreme climate change and storm scenarios that the EA requested. Such extreme scenarios extend beyond the remit of the planning process although SZC Co. acknowledges that these scenarios need to be considered for the 'safety case' under the Nuclear Site Licence (NSL). Further, the proposed recharge of the SCDF and sediment by-passing would mitigate any short-term impacts on coastal processes caused by such severe events.

4.1.3 Nevertheless, SZC Co. has now modelled the extreme sea level and storm scenarios to help inform the detailed design process in "*Modelling of Soft Coastal Defence Feature under Design Basis Conditions (Version 2)*" (TR553) (see **Appendix 5** (Technical Appendix A therein)). SZC Co. has provided the report to the EA for review and held a workshop to present and discuss the results. The EA is now satisfied that the necessary scenarios have been modelled and show that even under the more severe sea-level rise and storms scenario the SCDF is not completely eroded.

4.1.4 In light of the revised position now held by the EA in relation to the assessment of the SCDF, a Position Paper has been agreed and signed by SZC Co and the EA. The paper is provided at **Appendix 5**.

4.2 Question 5.2: The Applicant should advise as to what, if any, effects the Sizewell B cessation of operation might have on the

Coastal Processes Monitoring & Management Plan recharging mechanism for the SCDF.

4.2.1 Cessation of Sizewell B (SZB) operation would have no direct effect on the Coastal Processes Monitoring and Mitigation Plan's (CPMMP) mechanism for determining whether, or when, beach recharge is needed or the specifications of the recharge activity itself (e.g. location, sediment volume). The CPMMP is designed to detect changes in beach volume and trigger beach maintenance activity (beach recharge, bypassing or recycling) once the trigger has been reached, regardless of the cause. It is designed to be part of an adaptive environmental assessment and management process and as such provides a structured, iterative process of robust decision making. The aim of this process is to reduce uncertainty over time through comprehensive monitoring which is specified in the CPMMP.

4.2.2 The cessation of SZB's operation is expected to influence coastal processes and the shape of the shoreline locally, as was the case when Sizewell A (SZA) ceased operations. While both stations were operating, there was a localised growth or bulge in the otherwise straight shoreline in front of each station, called a salient. Bathymetric data near SZB's 51.5 m^3/s discharge outfall revealed that it interfered with the sandy, subtidal, longshore bars, which in turn is believed to have caused the salient's development, starting in 2005 (see Section 2.3.6.3 of [APP-312] for details). SZB's salient is expected largely to disappear over the course of a year or so once operations cease, as was the case after the cessation of operations at SZA. During this period, the southern end of Sizewell C's Soft Coastal Defence Feature (SCDF) is expected to narrow by around 10m, restoring the shoreline to roughly straight.

4.2.3 The SCDF is a maintained and volumetrically enlarged shingle beach, seaward of the hard coastal defence feature (HCDF). It is designed as mitigation to avoid exposure of the HCDF, which could otherwise cause a blockage to longshore shingle transport and deprive downdrift beaches of sediment. Localised narrowing of the southern SCDF following SZB's cessation is unlikely to trigger immediate SCDF maintenance owing to its large sacrificial volume and low rates of background local coastal erosion. However, salient loss would locally decrease the SCDF's sacrificial volume more than would occur normally (i.e. from just storms) but available volume compared with the trigger point would be assessed as normal in the CPMMP. The CPMMP would continue to monitor the SCDF volume and determine when, where and how much mitigation is needed, as well as the recommended type of mitigation (beach recharge, recycling or bypassing). The CPMMP will identify stages of alert in advance of a trigger to ensure timely mitigation, regardless of its cause. Needless to say, SZC Co. is in

close contact with SZB operators and would expect early notice of the end of their operations, raising awareness around that period.

5 QUESTIONS FROM THE GOVERNMENT OF AUSTRIA

5.1 Introduction

5.1.1 This section provides SZC Co.'s response to the questions raised in chapter 8 of the ESPOO Convention Response from the Austrian Government of 17 September 2020: EN010012-003106-EN010012 Regulation 32 - Consultation response from Austria.pdf (planninginspectorate.gov.uk).

5.1.2 Since the submission of the Sizewell C Development Consent Order (DCO) application in May 2020, the UK Government has formally submitted a General Data Set in relation to the Sizewell C Project to the European Commission under Article 37 of the Euratom Treaty.

5.1.3 Although the Article 37 process is separate from the ESPOO requirements, which the UK meets through its DCO Examination process, it is noted there are strong areas of overlap, particularly in the assessment of transboundary impacts to member states.

5.1.4 In February 2021, a UK delegation, including individuals from the UK Regulators, UK Government and SZC Co. provided evidence which was assessed in an Oral Hearing by a Panel of Member State Experts under Article 37. This included individuals from the Austrian Government (G Mraz - who co-authored the "Sizewell C Environmental Impact Assessment" from the Austrian Government included in the 17 September 2020 response - and C Katzlberger).

5.1.5 On 3 June 2021 the UK received a positive opinion from the European Commission under Article 37 concluding *"that the implementation of the plan for the disposal of radioactive waste in whatever form, arising from the two EPR reactors on the Sizewell C nuclear power station site located in the Suffolk Coast, United Kingdom, both in normal operation and in the event of accidents of the type and associated magnitudes of unplanned release of radioactive effluents, as considered in the General Data, is not liable to result in radioactive contamination, significant from the point of view of health, of the water, soil or airspace of a Member State, in respect of the provisions laid down in the Basic Safety Standards (Directive 2013/59/Euratom)."* - EUR-Lex - 32021A0610(01) - EN - EUR-Lex [redacted]

5.1.6 The Article 37 submission and the associated Oral Hearing provided answers to a number of the questions raised by the Austrian Government under ESPOO, however for completeness responses are provided below.

5.2 Response to 8.1: Spent fuel and radioactive waste

a) Question 1 - What is the timetable of the planned dry interim storage for spent fuel?

5.2.1 Volume 2, Chapter 7 of the ES (Spent Fuel and Radioactive Waste Management) [APP-192] presents an overview of the proposed arrangements for the management of radioactive wastes and spent fuel arising during operation of Sizewell C.

5.2.2 This sets out (paragraph 7.7.79-7.7.80) [APP-192] that:

> *"7.7.79 At each UK EPRTM unit at Sizewell C, fuel assemblies removed from the reactor would be cooled underwater in an on-site reactor fuel pool for up to 10 years …*
>
> *7.7.80 Following this initial storage period in the on-site reactor fuel pool, the spent fuel assemblies would be prepared for transfer to the separate on-site [interim spent fuel store] ISFS, where they would be safely stored until a Geological Disposal Facility is available for transfer, and the spent fuel is suitable for final disposal."*

5.2.3 Paragraph 7.7.81 [APP-192] goes on to explain that:

> *"7.7.81 Therefore the Interim Spent Fuel Store (ISFS) would provide storage for spent fuel from the Sizewell C UK EPR™ reactor units from around 10 years after the start-up of Unit 1 until the spent fuel is transferred off-site for disposal at the Geological Disposal Facility. The ISFS would be designed such that it can store spent fuel for up to 120[9] years. This would allow interim storage to be maintained until a Geological Disposal Facility, or an alternative disposal/management route, has been established and the heat levels within the fuel are at levels that permit its disposal."*

5.2.4 As set out in paragraph 7.7.85 [APP-192]:

> *"The design and operation of the facility would be required to be compliant with the Nuclear Site Licences, and Radioactive Substances Regulations environmental permit with regard to the safety of workers, public and*

[9] Note that the design life is 100 years with capability to extend to 120 years plus if required.

the impact on the environment. The facility would be designed, constructed and operated to comply with the Ionising Radiation Regulations 2017, ensuring doses to workers and the public would be minimised as far as reasonably practicable."

b) Question 2 - What is the status of the geological repository for spent fuel and HLW [high level waste]?

5.2.5 As set out in **Table 4.28** (Radiological Considerations) of the **Relevant Representations Report** [REP1-013]:

"UK Government Policy is for the UK's Higher Activity Radioactive Waste (Intermediate Level Waste and High Level Waste) and Spent Fuel to be disposed of via a UK Geological Disposal Facility. The delivery of this facility is managed by Radioactive Waste Management Limited, a subsidiary of the Nuclear Decommissioning Authority."

5.2.6 **Volume 2, Chapter 7** of the **ES** (Spent Fuel and Radioactive Waste Management) [APP-192] paragraph 7.7.91 notes:

"With regard to the availability of a Geological Disposal Facility, Radioactive Waste Management Ltd have published their plans for the scheduling and implementation of the Geological Disposal Facility[10]."

5.2.7 Since the DCO application was submitted, Radioactive Waste Management Ltd. has become part of "Nuclear Waste Services Limited"[11] and three potential sites for the geological disposal facility have been identified, with local working groups set up.

c) 8.1 Question 3 - How can the safe storage of spent fuel be ensured in case the interim storage and final disposal will not be available in time?

5.2.8 As set out in **Volume 2, Chapter 7** of the **ES** (Spent Fuel and Radioactive Waste Management) [APP-192], the UK regulatory permissions regime for nuclear power stations defines precise regulatory requirements and expectations for the management of spent fuel and radioactive waste. Details on the legislation, policy and guidance which apply to ensure safe

[10] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766643/Implementing_Geological_Disposal_-_Working_with_Communities.pdf

[11] Nuclear Waste Services launches - GOV.UK (www.gov.uk)

storage are set out in **section 7.2** Legislation, policy and guidance, with further details on management of spent fuel set out in **section 7.7 d)**.

5.2.9 In line with the UK regulatory requirements, the facility would be subject to periodic safety reviews to ensure the safety case for its operation remains valid and that any shortfalls from the modern standards are identified and addressed.

5.2.10 As set out in **Table 4.28** (Radiological Considerations) of the **Relevant Representations Report** [REP1-013], if the ISFS is required for longer than the currently proposed design life:

> *"…. Given the relatively simple design of these facilities, they would be capable of extension beyond this period, if necessary, subject to any required refurbishment and or replacement of equipment".*

d) Question 4 - Is it planned to use copper for the spent fuel canisters, and if yes, how will the copper corrosion problem be solved?

5.2.11 For Sizewell C, fuel assemblies removed from the reactor would be cooled underwater in the fuel building fuel pool for around 10 years during operation; and 3 years at end of generation.

5.2.12 The spent fuel would then undergo treatment (drying) and be loaded into a multi-purpose canister (MPC) which will be sealed and is capable of passively cooling the contained spent fuel with no external support. Loaded and sealed MPCs would be transported from the fuel building along the haul route to the Interim Spent Fuel Storage (ISFS) facility, where they would be stored.

5.2.13 The spent fuel would remain here until disposal at the UK Geological Disposal Facility is available. The intended design life for the ISFS facility is for storage of spent fuel for 100 years, but with the potential to extend to 120 years+ after end of generation.

5.2.14 When operational the ISFS facility will contain stored MPCs in HI-Storm containers. Throughout the operational life of this facility, an inspection and monitoring regime is expected to be implemented to ensure that fuel is safely stored (inspection and monitoring is a legal requirement under nuclear site licence condition (LC) 28). Prior to the spent fuel being transferred to the Geological Disposal Facility, the fuel will be required to be repackaged and encapsulated into compliant containers suitable for disposal.

5.2.15 Dry storage of spent fuel has been used widely and previously licensed in the UK and internationally. The MPC and HI-Storm are constructed of a Neutron Absorber, Concrete and Stainless Steel and as such are not copper based. Details of the final disposal container will be confirmed closer to transport to the Geological Disposal Facility and will be subject to regulatory assessment.

5.3 Response to 8.2: Reactor type

a) Question 1 - Which of the assessment findings of the ONR´s GDA step 4 assessment of Severe Accidents for the UK EPR™ have already been solved? How were they solved and if not, when is a solution expected for those?

5.3.1 SZC Co. has undertaken an impact assessment of all 716 assessment findings raised by Office for Nuclear Regulation (ONR) during the EPR Generic Design Assessment (GDA), including the 26 related to Severe Accidents. This assessment was to determine whether the way these were addressed for the Hinkley Point C UK EPR remains applicable for Sizewell C.

5.3.2 The conclusion from this assessment was that no new or additional work was required in relation to Severe Accident assessment findings, i.e. that the plan for resolution of the assessment findings could be replicated for the Sizewell C project. The solutions to these assessment findings are based around changes to the UK EPR design or requirements added to operational or manufacturing documentation. All of these changes are being adopted (replicated) for Sizewell C.

b) Question 2 - Does the UK EPR™ correspond to the EPR in Finland and/or France? If not, where does the design deviate?

5.3.3 The reference design plant for the UK EPR™, including the design that was subjected to the GDA by the UK nuclear regulators, is the Flamanville 3 plant in France.

5.3.4 As a result of the GDA outcomes, there were a number of modifications made to the UK EPRTM design, relative to the original Flamanville 3 design, taking on board site specific considerations and to bring it into line with UK Regulatory Expectations.

5.3.5 Additionally, improvements made to the Flamanville 3 design throughout its design, construction and commissioning phases have continued to be provided by EDF SA and screened for applicability for the UK EPRTM design.

5.3.6 These have initially been implemented in the Hinkley Point C design and will be replicated for Sizewell C. The design of the UK EPR™ for Hinkley Point C and Sizewell C is described in the Hinkley Point C Pre-Construction Safety Report (PCSR3), which is available on EDF's website[12].

5.4 Response to 8.3: Accident analysis

a) Question 1 - When will be evaluated whether the UK EPR™ meets the safety goal of practical elimination of accident sequences leading to large or early releases of radioactive substances according to the approach of WENRA 2019? What could be the consequences for the Sizewell C Project if SZC Co. fails to meet this important safety objective for European NPPs?

5.4.1 The UK EPR™ design being built at Hinkley Point C has been assessed against the NNB GenCo Nuclear Safety Design Assessment Principles ("the principles"), developed by NNB GenCo to meet UK and worldwide regulatory requirements. These incorporate advice from ONR, International Atomic Energy Industry (IAEA) standards, Western European Nuclear Regulators Association (WENRA) and other sources where relevant. The current version of the principles references WENRA guidance from 2010.

5.4.2 The Sizewell C design will also be assessed against the principles although, since the design of the nuclear island is identical in both designs, no difference is expected from the assessment. Of note, the principles state:

> *"Adequate safety measures should be implemented to mitigate severe accidents, including:*
>
> *Demonstrating that severe accidents which lead to large early releases due to containment failure are practically eliminated;*
>
> *Demonstrating that the consequences of a degraded core can be mitigated to reach a Severe Accident Safe State indefinitely."*

5.4.3 Also:

> *"The significant phenomena involved in a severe accident shall be identified and analysed. Highly energetic phenomena which have the potential to breach*

[12] Gas & Electricity Suppliers for Home & Business | EDF ([redacted])

the containment early in the sequence, leading to large early releases, shall be practically eliminated."

5.4.4 The assessment of the UK EPRTM design for Hinkley Point C design against these principles has shown the design to be compliant and all probabilistic targets met, with risks reduced as low as reasonably practicable (ALARP).

5.4.5 The safety case has been assessed by ONR, using their own Safety Assessment Principles, and also judged acceptable against their deterministic and probabilistic criteria for design basis and severe accidents, with risks that are reduced ALARP. Replication will ensure this conclusion is also applicable for Sizewell C.

5.4.6 Both SZC Co. and ONR routinely review new guidance from organisations such as WENRA. The next update to the NNB GenCo Nuclear Safety Design Assessment Principles will take cognisance of any new information in the WENRA 2019 guidance. However, it is considered that the NNB GenCo Nuclear Safety Design Assessment Principles and ONR Safety Assessment Principles are already very robust standards. The Sizewell C design already meets, and generally exceeds, the expectations in these standards and as such it is unlikely the review against the latest WENRA 2019 guidance will result in an impact to Sizewell C.

b) Question 2 - Is it planned to review whether the UK EPR™ design meets the recent European safety standards/requirements by WENRA?

5.4.7 See response to 8.3 Q1 above.

c) Question 3 - According to WENRA (2019), all WENRA countries apply the notion of practical elimination to types I and II; some countries also apply it to type III. For which types of scenarios should the concept of practical elimination be applied in the UK?

5.4.8 The NNB GenCo Nuclear Safety Design Assessment Principles specifically outline scenarios equivalent to Types I and II. However, it should be noted that the UK EPR™ design has extensive additional provisions to protect against Severe Accident scenarios, including additional enhancements linked to studies post-Fukushima, such as the ability to use portable pumps and alternative water supplies to provide containment heat removal.

5.4.9 As a result, the UK EPR™ design has been demonstrated to not require the installation of a filtered containment vent system in order to maintain containment integrity in a severe accident, although the design retains the option to back-fit this at a later date. Therefore, while Type III practical

elimination is not specifically required by the NNB GenCo Principles, the UK EPR™ design already exceeds what is required by the principles.

d) Question 4 - Which of the assessment findings of the ONR´s GDA step 4 assessment of Probabilistic Safety Analysis for the UK EPR™ are solved already? How were they solved and, if no solution has been found yet, when should they be solved?

5.4.10 See general comments in relation to severe accidents (8.3 Q1 above).

5.4.11 More specifically, this considers 46 assessment findings linked to Probabilistic Safety Analysis (PSA). These findings mainly relate to the need for a plant specific PSA model and for modelling to meet UK regulatory expectations in relation to data and modelling assumptions. Resolution of these assessment findings has been agreed with ONR for Hinkley Point C and they are all replicable for Sizewell C. Indeed, a common PSA model has been developed that will be adopted for Sizewell C.

5.4.12 The only areas with regard to PSA that will require work are in relation to some site-specific data elements e.g. the PSA Level 3 model takes account of wind direction, population locations, specific to the site. It is worth noting that, while this will alter the outputs slightly relative to Hinkley Point C, the change will not be significant and will not result in design change. This work is expected as part of the Sizewell C Pre-Construction Safety Report, so in advance of any nuclear safety related construction.

e) Question 5 - Which recent national and international studies concerning external hazards (flooding risk, seismic hazard, tsunami and climate change) have to be taken into consideration to determine design basis requirements? Which margins against external hazards have to be implemented for the Sizewell C?

5.4.13 The Sizewell C site has been subject to full characterisation of all hazards. These characterisation studies have taken full consideration of UK and worldwide best practice and latest available data, have been assessed by ONR and meet all their expectations:

- For the seismic hazard, this has involved a full Probabilistic Seismic Hazard Assessment (PSHA) to modern standards (SSHAC 2+), involving an extensive geo-technical assessment of the site.
- In relation to climate change, latest UK government guidance on climate change (UKCP18 – linked to latest IPCC guidance) has been taken into account for the full life of the station (using maximum

credible projections and sensitivities around maximum possible projections).

5.4.14 All natural hazard design bases (including flooding, tsunami and seismic, amongst many others) are conservatively defined in relation to a 1 in 10,000 year return frequency defined at the 84th percentile, in accordance with UK and worldwide best-practice. Beyond design basis studies are performed for levels well beyond these levels and demonstrate the UK EPR design to be robust against beyond design basis hazards.

5.5 Response to 8.4: Accidents with involvements of third parties

a) Question 1 - What are the requirements with respect to the planned NPP design against the deliberate crash of a commercial aircraft?

5.5.1 The UK EPRTM design is demonstrated as robust against deliberate crash of commercial aircraft. This is achieved mainly through a reinforced (concrete) containment structure for safety critical parts of the plant. This is combined with physical separation of critical elements that cannot be protected in this manner.

5.5.2 Furthermore, the UK EPRTM is designed to be resilient to loss of safety systems through the provision of redundant and diverse safety systems (such as those contained in multiple safeguards buildings). Further detail is security sensitive.

b) Question 2 - Does the UK EPR™ fulfil those requirements based on the present state of knowledge (not only relying on the data of the supplier but on the assessment of ONR)?

5.5.3 Yes. The safety case related to the deliberate crash of aircraft was accepted by ONR for Hinkley Point C. There is no change to the Sizewell C design or in worldwide best practice that would suggest ONR's position would be different for Sizewell C and no concerns have been raised as part of the Nuclear Site Licensing process.

5.6 Response to 8.5 Transboundary impacts

5.6.1 No questions were included in this section, but it may be helpful to note that a transboundary dose assessment from unplanned/accidental releases was included as part of Chapter 6 of the Sizewell C Article 37 Submission. This included consideration of a severe accident scenario (DEC-B), based on a core melt accident. A copy of this chapter was provided to the Examination as **Appendix B** to the **Relevant Representations Report**

[REP1-013]. An updated copy of this chapter is provided with this response, as **Appendix 6**, following an update during the Article 37 Process.

6 HABITATS REGULATIONS ASSESSMENT, BIODIVERSITY, AND ECOLOGY

6.1 Question 7.1: In relation to noise and visual disturbance effects during the construction of the proposed Development upon the breeding marsh harrier feature of the Minsmere-Walberswick Special Protection Area ("SPA") and Ramsar site, the Applicant is requested to provide information to demonstrate how the wetland habitat element of the proposed marsh harrier compensatory habitat area could be in place and functioning prior to the onset of disturbance to marsh harrier from construction activities.

a) Programme for wetland creation

6.1.1 SZC Co. welcomes this question and can reassure the Secretary of State that the Applicant is committed to supplement the existing terrestrial compensatory habitat created in 2015/16 with the additional wetland habitat before the onset of disturbance to marsh harrier from construction activities.

6.1.2 As set out in Table 6.1 Part B of the '**Code of Construction Practice**' [REP10-072], SZC Co. proposed that excavation of the wetlands must start in the first winter of construction on the Main Development Site and may take place between October and February, with any remaining excavation works being completed the following winter. The Code of Construction Practice currently prevents excavations in this area outside of this winter period to avoid any potential disturbance to breeding birds within the adjacent RSPB Minsmere reserve. For the avoidance of doubt, SZC Co. regard 'Excavation' to comprise: excavation works (excluding archaeological mitigation), soil stockpiling and soil spreading. Other habitat works, such as planting and seeding, are excluded from this seasonal constraint because they will not cause disturbance.

6.1.3 Following the examination, SZC Co. has continued to develop its delivery programme to create the new wetland habitat, assuming DCO grant on or around 25 May 2022. This has taken account of further engagement with the RSPB and Natural England on this seasonal constraint. The RSPB has advised that the bird breeding season for marsh harrier and bittern, the two key species of interest, has finished by mid August. In relation to when the breeding season starts, the RSPB has confirmed that whilst male bitterns can start booming in February, breeding does not start until early March. Therefore the Excavation works will not disturb breeding birds, including bittern or marsh harrier, provided they cease by the end of February.

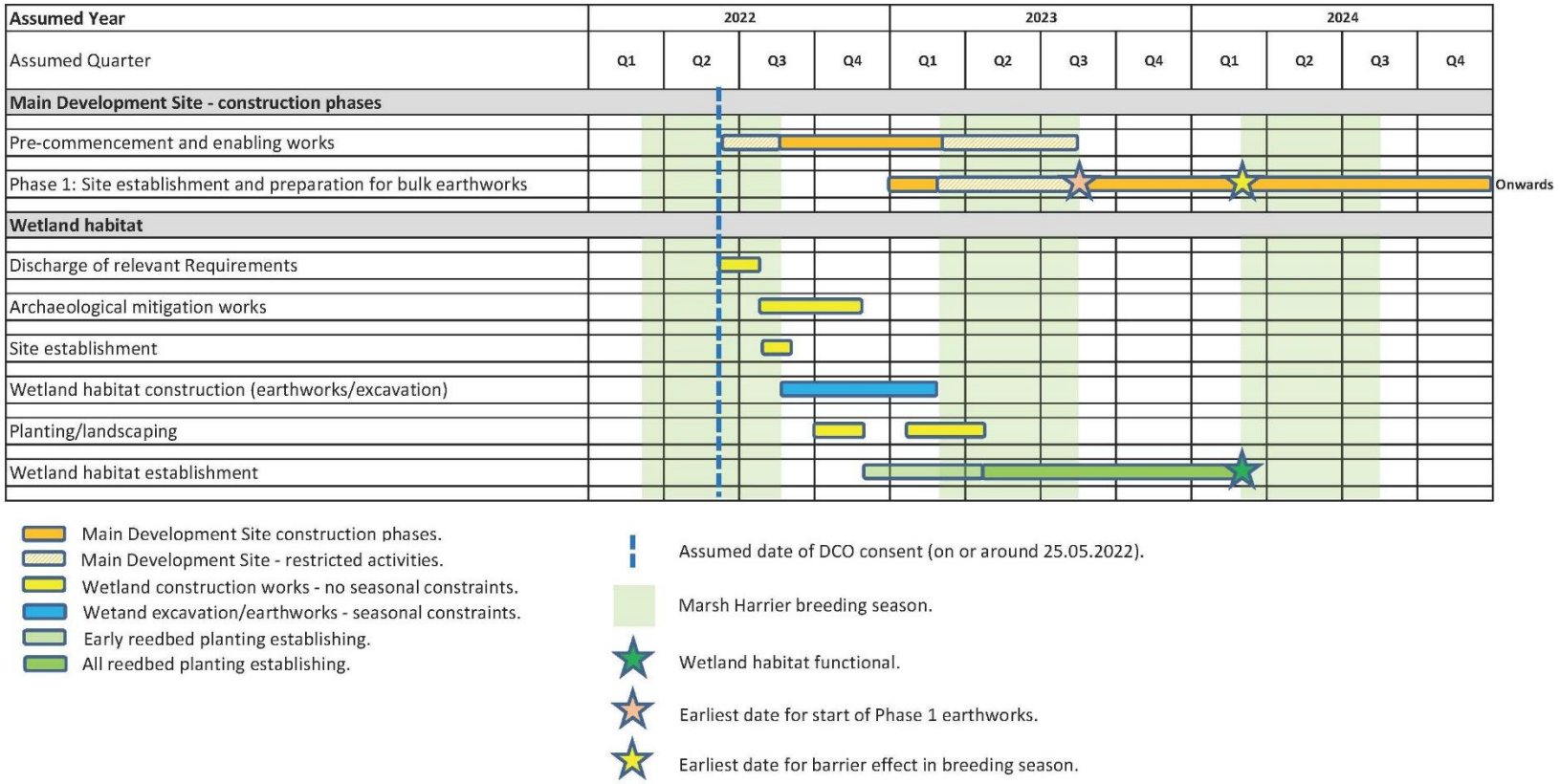
6.1.4 On this basis, SZC Co. wish to revise the Excavation period (and definition) in the Code of Construction Practice from October-February over up to two consecutive winters, to mid August to February (inclusive) over a single winter. Both RSPB and Natural England have been consulted on this proposed change by the Applicant and are supportive. This will allow the Excavation works to be complete by the end of February 2023 with no requirement to return during the winter 2023/24.

6.1.5 SZC Co. is confident this is achievable.

6.1.6 To secure the revised marsh harrier/bittern breeding seasonal constraint and other necessary associated controls, SZC Co. will submit an updated Code of Construction Practice in response to the Secretary of State's request for further information dated 31 March 2022. Further details are set out later in this response.

6.1.7 A summary of the planned delivery programme for the wetland habitat is set out on **Plate 6-1** and explained further in the text that follows.

Plate 6-1: Wetland habitat construction programme



6.1.8 The Main Development Site construction phases shown on **Plate 6-1** are taken from Plate 2.1 of the **Construction Method Statement** [REP10-025]. They show construction activity starting on the Main Development Site before the wetland habitat is functional. However, the nature of such work in the 2022 and 2023 breeding seasons is such that a 'Barrier Effect[13]' will not occur. Any such Barrier Effect will not occur until after the start of bulk earthworks, and subsequent construction activities, which are not programmed to commence until mid August 2023 (see **Para 6.1.14**). Consequently it will not take effect until the following breeding season.

6.1.9 SZC Co. will submit details relating to the wetland habitat creation works immediately after DCO consent is granted. All details relating to the wetland habitat development will be agreed with East Suffolk Council, following consultation with Natural England, in accordance with Requirement 27 of the DCO, including an implementation timetable for the works. SZC Co. will continue to engage with these stakeholders on the details of the proposals.

6.1.10 Associated archaeological mitigation works are programmed to take place in quarter 3 and quarter 4 2022, following agreement of a site-specific written scheme of investigation for this part of the Main Development Site (MDS Area 4 - see **Figure 16.5** of **Volume 2, Chapter 16** of the **ES** [APP-276]) with Suffolk County Council, following consultation with Historic England, in accordance with Requirement 3 of the DCO. Sign-off of the archaeological mitigation fieldwork across the site will occur in phases, as specified in the **Overarching Written Scheme of Investigation** [REP10-050] to allow earthworks to commence according to programme.

6.1.11 Excavation works associated with wetland creation will be restricted to mid August 2022 - February 2023 as agreed with RSPB and Natural England.

6.1.12 Reed planting will take place sequentially once earthworks on each section of the wetland habitat is complete, during autumn 2022 and spring 2023. The reeds will be planted at a high density of 4 reeds per square metre as set out in the **'On-site Marsh Harrier Compensatory Habitat Strategy'** [REP10-127], which is a certified document, to promote rapid development of the habitat. The nursery stocks will be supplemented with slubbings (arisings) harvested from regular ongoing ditch maintenance activities carried out by Nuclear Generation Limited (NGL) within Sizewell Marshes

[13] As assumed in the Shadow HRA [APP-145 to APP-149], a barrier is considered to exist on the Main Development Site when :
- A continuous noise level at or above 70dB LAmax occurs, between the Minsmere-Walberswick Special Protection Area and Ramsar site and the Sizewell Marshes SSSI;
- Visual disturbance is present comprising gaps of less than 150m between instances of human movement or infrastructure; or,
- A combination of the above.

SSSI and/or that part of the Minsmere to Walberswick Heaths and Marshes SSSI within the EDF Energy Sizewell Estate. These ditch maintenance works are already consented by Natural England to maintain the SSSIs in favourable condition. The ditch slubbings will contain a variety of flora and fauna, including aquatic plants and invertebrates, that will boost the biodiversity of the new wetlands. The slubbings will be loaded onto tractor-mounted wagons and transported to the new wetlands where they will be spread. This technique is common practice in wetland creation and was used successfully by SZC Co. to create the Aldhurst Farm wetlands.

6.1.13 By March 2024, the new wetlands will have been in place for approximately a year (or more) and will, in SZC Co.'s view, be functional. Therefore, the additional wetland habitat will be in place and functional prior to the onset of any potential Barrier Effect to marsh harrier from construction activities.

6.1.14 It is assumed in the Shadow HRA [APP-145] that the onset of disturbance is the start of Phase 1 works within the Main Development Site. This is highly precautionary, because bulk earthworks (which will be the main source of noise and visual disturbance) within the Main Development Site are not programmed to start until mid August 2023 (see **Plate 6-1**). Therefore, any potential Barrier Effect to breeding marsh harriers will not occur until the start of the 2024 breeding season at the earliest. Nonetheless, the well-established terrestrial component of the compensatory habitat is available for foraging marsh harriers throughout the 2022 and 2023 breeding seasons, with the wetland component also establishing and available for foraging marsh harriers to some degree. This existing terrestrial compensatory habitat will not be damaged in creation of the new wetland habitat. Comprising approximately 90% of the total 47 ha of compensatory habitat, and created more than five years ago, this terrestrial foraging habitat is significant in extent and is already functional.

6.1.15 Therefore the Secretary of State can be assured that this existing terrestrial compensatory habitat is sufficient and functional before the onset of any potential disturbance from construction activities in the 2023 breeding season for marsh harriers. This existing terrestrial habitat will be supplemented by the additional wetland that will also be functional prior to any potential Barrier Effect to marsh harriers, which will not occur until March 2024 at the earliest. Therefore, even taking into account the highly precautionary basis on which the assessment of potential disturbance effects on breeding marsh harrier was undertaken in the Shadow HRA [APP-145], the compensatory measures are sufficient and appropriate.

6.1.16 In considering its response to this section, SZC Co. has also had regard to the definition of commencement in both the draft **Development Consent Order** [REP10-009] and the **Deed of Obligation** [REP10-076 to REP10-

081] and considers that it would benefit from greater clarity in relation to the advance ecological compensation. Further details are set out at the end of this section.

6.2 Question 7.2: In relation to noise and visual disturbance effects during the construction of the proposed Development upon the breeding and non-breeding gadwall and shoveler features of the Minsmere-Walberswick SPA and Ramsar site, the Applicant is requested to provide additional information to demonstrate exclusion of adverse effects on site integrity alone and in-combination or alternatively measures to avoid, mitigate, or compensate for any adverse effects identified.

a) The Applicant's Position at Examination

6.2.1 As set out in the **shadow HRA** [APP-145] and **shadow HRA Addendum** [AS-173], SZC Co. concludes that there are no adverse effects on the integrity of the Minsmere-Walberswick SPA (and Ramsar site) as a result of effects of construction related noise and visual disturbance on the SPA populations of breeding and non-breeding gadwall and shoveler. Important to this conclusion is the fact that for both the breeding and non-breeding populations of these two species, the potential for disturbance effects is limited to birds which occur on the functionally linked land (FLL) on the Minsmere South Levels and Sizewell Marshes. It is considered that the displacement of a proportion of the birds from these areas of FLL would not affect the status of the populations of the qualifying features within the designated site and, hence, the associated conservation objectives of the site.

6.2.2 The above conclusion is entirely consistent with the guidance on FLL produced for Natural England by Chapman and Tyldesley (2016)[14]. This guidance recognises that assessments have to determine how critical the FLL is to the designated population and whether it is necessary to maintain or restore favourable conservation status of the qualifying feature, and also states that effects which would not be acceptable within the boundary of the protected site may or may not be acceptable on the FLL.

6.2.3 In terms of the displacement of the breeding populations, the **shadow HRA** [APP-145] predicted (under precautionary assumptions) that 11% of gadwall and 7% of shoveler from the 'wider' SPA populations would be displaced (with the 'wider' SPA population defined as the total numbers

[14] Chapman, C. & Tyldesley, D. (2016) Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects – a review of authoritative decisions. Natural England Commissioned Reports, no. 207.

occurring within the designated site plus the FLL on the Minsmere South Levels and Sizewell Marshes). As stated above, this potential displacement is limited to birds breeding on the FLL, whilst the breeding populations within the designated site are not dependent on this FLL for the provision of resources which cannot be obtained within the designated site itself.

6.2.4 For the non-breeding populations of gadwall and shoveler, the potential for displacement is limited to the birds using the FLL on Sizewell Marshes. This is because the areas of the Minsmere South Levels which are used by these birds over the winter period would remain unaffected by noise and visual disturbance from the construction activities. The numbers of birds recorded using Sizewell Marshes varies from year to year, and the **shadow HRA** [APP-145] predicts that approximately 4–18% of gadwall and 4–10% of shoveler from the 'wider' SPA populations would be displaced in any one year (with the 'wider' SPA population defined as above for breeding gadwall and shoveler). This prediction assumes that birds would be displaced from the entirety of Sizewell Marshes, which is precautionary (because noise and visual disturbance is predicted to affect a substantial part, but not all, of the designated site).

6.2.5 As detailed in the **shadow HRA** [APP-145], for both gadwall and shoveler it is highly likely that there will be interchange of birds between Sizewell Marshes and other suitable sites within the wider area (as well as between Sizewell Marshes and the SPA). Therefore, the birds that are potentially displaced from the Sizewell Marshes will actually derive from larger populations than as defined by the 'wider' SPA populations and only a small percentage of the SPA populations would be dependent upon Sizewell Marshes.

6.2.6 Natural England's position during the examination was that due to the effects of noise and visual disturbance from construction on the SPA populations of breeding and non-breeding gadwall and shoveler an adverse effect on integrity cannot be excluded. However, Natural England do not appear to take account of the precaution within the assessment, most notably in relation to the prediction of noise levels and the fact that the assessment is undertaken in relation to the worst-case scenario (i.e. Phase 1) for construction noise impacts. Critically, although Natural England continue to state that the predicted levels of displacement might constitute an impact (e.g. as in the **final Statement of Common Ground** [REP10-097]), they do not address the issue that this displacement affects birds on FLL in such a way that it would not affect the status of the populations of the qualifying features within the designated site and, hence, the associated conservation objectives of the site.

b) Baseline survey data

6.2.7 Natural England have expressed concerns over the baseline survey data used to support the assessment of noise and visual disturbance on the SPA populations of breeding and non-breeding gadwall and shoveler, considering them to be insufficient for this purpose (e.g. see electronic pages 65 – 68 in the Natural England Written Representations [REP2-153] and electronic pages 43 – 46 in the final Statement of Common Ground [REP10-097]). However, SZC Co. considers the baseline data to be substantive and (more than) sufficient for the purposes of characterising baseline conditions and facilitating a robust assessment. SZC Co. has provided detailed justifications for its position in relation to the baseline data in a number of documents submitted to the ExA (e.g. see electronic pages 166 – 171 of the **SZC Co. Comments on Written Representations** [REP3-042], response to question HRA.2.3 (electronic pages 36 – 39) of ExQ2 [REP7-051] and electronic pages 43 - 45 in the final Statement of Common Ground [REP10-097]). In respect of the baseline data, SZC Co. highlights that:

- assessments for breeding gadwall and shoveler rely on seven years of survey data which provide estimates of abundance for both the Minsmere South Levels and Sizewell Marshes, with these data augmented by further surveys in 2020 which provided distributional data as well as abundance data; and

- assessments for non-breeding gadwall and shoveler rely on two full and one partial winter seasons of project-specific survey data for the Minsmere South Levels and Sizewell Marshes (providing abundance estimates and distributional data), as well as over five winter seasons of Wetland Bird Survey (WeBS) count data for the SPA, Minsmere South Levels and Sizewell Marshes.

6.2.8 During recent engagement with Natural England carried out since the Examination in relation to effects on breeding and non-breeding gadwall and shoveler[15], Natural England has indicated that a full winter season's survey programme should comprise twice monthly surveys from October to March inclusive.

6.2.9 The SZC Co. surveys were monthly and extended over the period November to March (inclusive) for the two full winter seasons of survey (with the season of partial coverage encompassing December to February, so capturing the core winter period).[REP3-153],[REP-10-097][REP10-199][PD-053]). However, importantly, the WeBS data demonstrate that the

[15] Email of 8 February 2022 from Natural England to SZC Co. and subsequent meeting held between the parties on 4 March 2022.

numbers of gadwall and shoveler on the Minsmere South Levels and Sizewell Marshes are low during the month of October (i.e. with average counts in October being less than 25% of the average for the months in which peak counts occur for both species in both the Sizewell Marshes and the Minsmere South Levels, and with October annual counts never representing the peak count in any of the six (Sizewell Marshes) to nine (Minsmere South Levels) years for which such survey data were available to the SZC Co. Project). Therefore, it is clear that the inclusion of October surveys would not have changed the conclusion of no adverse effect on integrity. SZC Co. understands that this is agreed with Natural England.

6.2.10 As noted above, the surveys were undertaken on one occasion each month. While this does not align with Natural England's latest advice, the combination of the project-specific survey data and the WeBS data provides sufficient baseline understanding of the usage of potentially affected areas by waterbirds to support a robust conclusion that adverse effect on integrity can be excluded.

6.2.11 Given the above, SZC Co. remain very firmly of the view that the baseline surveys in respect of breeding and non-breeding gadwall and shoveler are more than adequate and that the conclusions of no adverse effect on site integrity in respect of the designated breeding and non-breeding gadwall and shoveler features is reliable.

6.2.12 In the recent engagement after the Examination, Natural England also reiterated its concern that only one and a half winter surveys under five years old were commissioned by the Project. In this engagement Natural England helpfully confirmed that in their view, a minimum two full seasons of project-specific surveys under five years old are required to provide a reliable baseline data-set. SZC Co. does not accept that the baseline surveys were inadequate for the reasons stated above. Nevertheless, to respond positively to Natural England's concerns, SZC Co. has carried out an additional season of wintering waterbird surveys of the Minsmere South Levels and Sizewell Marshes, comprising monthly surveys between November 2021 and March 2022 inclusive. These additional surveys have been undertaken using the same methods as for the wintering waterbird surveys reported in section 6.3 f) iii of the s**hadow HRA** [APP-145] and section 6.3 b) iii of the **shadow HRA Addendum** [AS-173]. The survey report is currently being drafted, although the numbers of wintering gadwall and shoveler recorded in each of these two areas have been extracted and are summarised in **Table 5.1** below. The preliminary survey results have been shared with Natural England. We understand from subsequent discussions with Natural England that it is now a matter of common ground between us that the updated baseline survey information is adequate.

Table 6-1. Peak numbers of gadwall and shoveler recorded in the Minsmere South Levels and Sizewell Marshes during winter bird surveys from November 2021 to March 2022.

Site	Species	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22
Minsmere South Levels	Gadwall	0	0	6	83	34
	Shoveler	8	10	54	65	57
Sizewell Marshes	Gadwall	3	6	25	0	0
	Shoveler	0	0	10	0	0

6.2.13 Peak numbers of gadwall and shoveler recorded on the Minsmere South Levels during the 2021 – 22 surveys (i.e. 83 and 65 for gadwall and shoveler, respectively – Table 5.1) are lower than the peak counts during the 2014 – 15 and 2019 – 20 surveys (which were 126 and 238 for gadwall, respectively, and 85 and 334 for shoveler, respectively) but higher than those obtained during the partial survey programme in 2019 – 20 (which were 28 and 18 for gadwall and shoveler, respectively)[16].

6.2.14 Peak counts for gadwall on Sizewell Marshes during the 2021 – 22 surveys are within the range of those obtained during the earlier surveys (i.e. 25 in 2021 – 22 compared to 21 to 80 in the previous surveys) but were higher for shoveler than in previous years (i.e. 10 in 2021 – 22 compared to 0 to 2 in the previous surveys). However, the WeBS counts recorded higher numbers of shoveler in the Sizewell Marshes (i.e. up to 26 birds – see Table 6.15 in the **shadow HRA** [APP-145]). The assessment therefore relied upon the WeBS counts over multiple years (as opposed to the project surveys) for shoveler in Sizewell Marshes in order to be precautionary.

6.2.15 In terms of the distribution of gadwall and shoveler, the findings from the 2021 – 22 surveys are consistent with the earlier project-specific wintering bird surveys in that the gadwall and shoveler recorded on the Minsmere South Levels are outwith the areas that are predicted to be affected by potential construction-related disturbance.

6.2.16 In conclusion, the findings from these most recent, additional, wintering bird surveys do not alter the conclusion of no adverse effect on integrity as determined in the **shadow HRA** [APP-145] and **shadow HRA Addendum** [AS-173]. Indeed, they increase still further the confidence SZC Co. has in the conclusions that were reached in the **shadow HRA** [APP-145] and **shadow HRA Addendum** [AS-173] of no adverse effects on site integrity

[16] Counts of gadwall and shoveler from the previous project-specific wintering bird surveys are summarised in Tables 6.2 and 6.3 of the Shadow HRA Addendum [AS-173].

as regards these waterbird features, whether acting alone or in combination, which we therefore invite the Secretary of State to support.

6.3 Question 7.3: Natural England is requested to provide views on the effects on site integrity from changes in air quality during the construction and operation of the proposed Development, for all features of the Sandlings SPA, Minsmere to Walberswick Heaths and Marshes SAC, Minsmere-Walberswick SPA and Minsmere-Walberswick Ramsar site, both alone and in-combination. In particular, Natural England is requested to provide comments upon the impacts attributable to the temporary desalination plant generators, with specific reference to the Applicant's Deadline 10 Submission '9.117 Sizewell C Desalination Plant Air Quality Impact Assessment'.

6.3.1 SZC Co. would like to reassure the Secretary of State that SZC Co. and Natural England have continued to engage constructively on outstanding matters since the end of the examination, including those related to air quality. At Deadline 10, Natural England confirmed that, with regard to potential air quality effects, its remaining area of concern is the increased deposition of nitrogen oxides (NOx) (as nutrient nitrogen) arising from diesel generators on the Minsmere to Walberswick European sites only (as stated at paragraph 2.7.1 of [REP10-199]). At paragraph 2.7.2 of [REP10-199], Natural England acknowledged that SZC Co. has gone some way towards assessing the impacts of the diesel generators for use during construction and the diesel generators which will be used for the temporary desalination plant, but noted that these analyses were both done in isolation and did not assess the cumulative impact of all diesel generators and any other sources of NOx from other sources.

6.3.2 Partly to address Natural England's concerns, and also to inform planned pre-application discussions with the Environment Agency in relation to the construction environmental permits, the combined contributions of air emissions have been investigated in further detailed modelling of all likely contributions during the construction phase (Phases 1, 2 and 3[17]) which includes the following types:

- Diesel generators for the desalination plant.
- The combined heat and power (CHP) facility.

[17] The construction phases are defined as: Phase 1 (Site establishment and preparation for earthworks), Phase 2 (Bulk earthworks), Phase 3 (Main civils).

- Haul route/non-road mobile machinery (NRMM).
- Other mobile generators.

6.3.3 This detailed air quality modelling report, which is submitted in **Appendix 7**, was shared with Natural England on 31 March 2022. The scenarios assessed are highly conservative given that they include all plant that are scheduled to be used at any time within each phase, as if they were all present at the same time. In practice, demand for plant will vary with activity, decreasing progressively during the later years of Phase 3 as elements of the construction works are completed. The levels of emissions will be minimal by later stages of Phase 3.

6.3.4 **Table 5.2** summarises the predicted combined nutrient nitrogen deposition for Phases 1, 2 and 3 from the sources listed above for the receptor locations within the Minsmere European sites, using the same Critical Load class (habitats) as the Shadow HRA.

Table 6.2. Predicted combined nutrient nitrogen deposition for Phases 1, 2 and 3

Critical Load (CLd) class	CLd range (kg N/ha/yr)	Background N deposition (kg N/ha/yr)	Process Contribution (PC) N deposition (kg N/Ha/yr)	PC / CLd[18]	Predicted Environmental Concentration (PEC) N deposition (Kg N/Ha/yr)	PEC / CLd
Phase 1: Site establishment and preparation for earthworks						
Coastal stable dunes	8 – 15	13.1	0.19	2.4%	13.29	166%
Dry heath	10 – 20	13.8	0.31	3.1%	14.11	141%
Fen, marsh and swamp (rush pasture etc…)	15 – 25	13.1	0.25	1.6%	13.35	89%
Fen, marsh and swamp (swamp and reedbeds)	15 – 30	13.1	0.02	0.1%	13.12	87%

[18] The most stringent (lowest) Critical Load from the range provided in Table 7.1 (second column) has been used in the assessment

Critical Load (CLd) class	CLd range (kg N/ha/yr)	Background N deposition (kg N/ha/yr)	Process Contribution (PC) N deposition (kg N/Ha/yr)	PC / CLd[18]	Predicted Environmental Concentration (PEC) N deposition (Kg N/Ha/yr)	PEC / CLd
Phase 2: Bulk earthworks						
Coastal stable dunes	8 – 15	13.1	0.21	2.6%	13.31	166%
Dry heath	10 – 20	13.8	0.18	1.8%	13.98	140%
Fen, marsh and swamp (rush pasture etc…)	15 – 25	13.1	0.18	1.2%	13.28	89%
Fen, marsh and swamp (swamp and reedbeds)	15 – 30	13.1	0.13	0.9%	13.23	88%
Phase 3: Main civils						
Coastal stable dunes	8 – 15	13.1	0.22	2.75%	13.32	167%
Dry heath	10 – 20	13.8	0.21	2.1%	14.01	140%
Fen, marsh and swamp (rush pasture etc…)	15 – 25	13.1	0.20	1.3%	13.30	89%
Fen, marsh and swamp (swamp and reedbeds)	15 – 30	13.1	0.13	0.1%	13.23	88%

6.3.5 It can be seen from **Table 5.2** that the combined Process Contribution ("PC") (i.e. the contribution to nutrient nitrogen deposition arising from the

modelled sources) exceeds 1% of the Critical Load for all habitat classes, except '*fen, marsh and swamp (swamp and reedbeds)*'. On this basis, the PC cannot be screened out as being insignificant. However, the dose of additional nitrogen deposition is considered to be small (generally defined as less than 5% of the Critical Load).

6.3.6 The application of the lower Critical Load from the range for each habitat is highly precautionary. By way of comparison, if the upper end of the Critical Load range was applied in the assessment, all locations within the Minsmere European sites would experience combined impacts that are less than 1% of the Critical Load and could, therefore, be considered to be imperceptible.

6.3.7 The assessment in relation to the relevant Minsmere European sites is as follows:

a) Minsmere to Walberswick Heaths and Marshes SAC

6.3.8 With regard to the Minsmere to Walberswick Heaths and Marshes SAC, the Site Improvement Plan for the Minsmere to Walberswick Heaths and Marshes (which includes the SAC and the Minsmere-Walberswick SPA) lists nitrogen deposition as a specific threat to the European dry heaths qualifying feature of the SAC. The European dry heaths qualifying feature, however, is not present within the area predicted to experience deposition exceeding 1% of the Critical Load.

b) Minsmere-Walberswick Ramsar site (and SPA)

6.3.9 The qualifying features of the Ramsar site are:

- Mosaic of marine, freshwater, marshland and associated habitats.
- Wetland invertebrate and plant assemblage.
- Wetland breeding bird assemblage (associated with marshland and reedbeds).

6.3.10 There is no specific conservation advice for the Minsmere-Walberswick Ramsar site. Consequently, reference has been made to the Site improvement Plan for the Minsmere to Walberswick Heaths and Marshes, which covers the Minsmere to Walberswick Heaths and Marshes SAC and the Minsmere-Walberswick SPA.

6.3.11 The conservation objectives for the SPA are as follows:

"Ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- *the extent and distribution of the habitats of the qualifying features;*
- *the structure and function of the habitats of the qualifying features;*
- *the supporting processes on which the habitats of the qualifying features rely;*
- *the populations of each of the qualifying features;*
- *the distribution of qualifying features within the site".*

6.3.12 The area of predicted effect due to nitrogen deposition within the Ramsar site largely coincides with the southern part of unit 112 of the Minsmere-Walberswick Heaths and Marshes SSSI, which is primarily sand dune and sparsely vegetated shingle. The relevant Critical Load habitat class included in the air quality modelling is coastal stable dunes as this is the proxy Critical Load range provided on the Air Pollution Information System (APIS) for several littoral habitats including both sand dunes and coastal vegetated shingle. In practice the lowest part of this range (as applied in the assessment) is highly precautionary because, as stated on the APIS, in practice different types of sand dune and vegetated shingle may have sensitivities comparable to other habitats that have higher Critical Load ranges.

6.3.13 The Ramsar site does not have an explicit *'restore'* target for air quality effects. However, if such a target is assumed to apply for the Ramsar site, given the combined process contribution is small, and the highly precautionary nature of using the lower end of the Critical Load range for coastal stable dunes as a reference threshold for the habitats, it can be concluded that the predicted effect would not compromise achievement of a *'restore'* objective with respect to nitrogen deposition and integrity of the Ramsar site would not be adversely affected.

6.3.14 The bird qualifying features of the SPA are not directly affected by air quality effects; it is the potential effect on their supporting habitats that is relevant. In light of the predicted effects on habitats discussed above, and with specific reference to the conservation objectives of the SPA listed above, it can be concluded that the extent, distribution, structure and function of the habitats on which the qualifying features rely, and supporting processes on

which the habitats of the qualifying features rely, would be maintained. Furthermore, the achievement of a *'restore'* objective would not be compromised. It is concluded, therefore, that an adverse effect on the bird qualifying features of the SPA can be excluded.

6.3.15 Existing nitrogen deposition already far exceeds the minimum Critical Load for this habitat type, such that additional nitrogen would have a limited effect as there is likely to already be ample nitrogen for more competitive plants to respond. Therefore, any botanical effect, would be expected to be significantly less than it might be if background nitrogen deposition rates were lower. This is supported by Natural England Commissioned Report 210[19], Table 21 and Appendix 5 which show that the scale of change in various parameters from adding a given dose of nitrogen is smaller when the existing deposition rates are higher.

6.3.16 Finally, the Critical Load system assumes decades of continuous exposure. Over the short term, a slight elevation in nitrogen deposition is unlikely to result in changes in vegetation communities over the temporary construction period taking into account the considerable variation in background nitrogen deposition that is likely to occur normally over short time periods (for example the UK Air Pollution Information System reports background nitrogen deposition for Minsmere-Walberswick Heaths and Marshes SAC which shows that between 2005 and 2010 background nitrogen deposition to short vegetation varied annually by as much as 0.7 kgN/ha/yr).

6.3.17 In conclusion, the assessment of the combined effect of nutrient nitrogen deposition has been undertaken on a highly precautionary basis, given that it applies the lower end of the Critical Load range for the various habitat types and the fact that all plant that are scheduled to be used at any time within each phase are included in the emissions modelling. On this highly precautionary basis, the further modelling demonstrates that an adverse effect on site integrity in relation to potential air quality effects can be excluded for the Minsmere European sites for the combined effects of all sources from the Sizewell C Project (i.e. for the project alone).

6.3.18 There are no other significant point sources, not already operating (and therefore already reflected in the baseline conditions and taken into account in the air quality assessment), that could combine with the predicted effect of the Sizewell C Project. Consequently, it can be concluded that adverse effect on integrity can be excluded for the Minsmere European sites when

[19] Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard,L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.

the Sizewell C Project is assessed in-combination with other plans and projects.

6.4 Definition of commencement

6.4.1 SZC Co. has reviewed the definition of commencement in both the draft **Development Consent Order** [REP10-009] and the **Deed of Obligation** [REP10-076 to REP10-081] and considers that it would benefit from greater clarity in relation to the advance ecological works that SZC Co. propose. Unambiguously adding this to the list of excluded activities in the definition would be helpful in removing any doubt or uncertainty as to whether the work would trigger the commencement of the Project. This is important because it has always been assumed that the works would be undertaken at the outset of the Project, which is consistent with the spirit of the **Environmental Statement** [APP-178 to APP-346] and **Shadow Habitats Regulation Assessment** [APP-145 to APP 152], but on reflection the definition may lack sufficient clarity.

6.4.2 SZC Co. wishes to assure the Secretary of State that providing this clarification will not lead to any change in controls on the Project. The Requirements set out in Schedule 2 of the DCO control the development and the level of control does not change regardless of whether it relates to a pre- or post- commencement element of the Project.

6.4.3 SZC Co. therefore seeks to add the following exclusions to the definition of commencement, for clarity. Additions are shown as underlined:

- site preparation, ecological mitigation and clearance works;
- pre-construction archaeological works;
- environmental surveys and monitoring;
- removal of hedgerows, trees and shrubs;
- investigations for the purpose of assessing ground conditions;
- diversion or laying of services;
- remedial work in respect of any contamination or adverse ground conditions (excluding works including and associated with dewatering activities carried out as part of Work No. 1A(l), Work No. 1A(t) and Work No.1A(u) in Schedule 1 to the Development Consent Order);
- receipt and erection of construction plant and equipment;

- the temporary display of site notices and advertisements;
- erection of temporary buildings and structures (which for the purpose of this definition does not include Work No. 9(a) (northern park and ride), Work No. 10(a) (southern park and ride) or Work No. 13(a) (freight management facility) in Schedule 1 to the Development Consent Order);
- Work No. 1A(cc) (flood mitigation area and associated habitat);
- Work No. 1A(ee) (bat barn);
- Work No. 6 (Fen meadow habitat, Halesworth);
- Work No. 7 (Fen meadow habitat, Benhall);
- Work No. 18 (Fen meadow habitat, Pakenham); and
- Work No. 8 (Marsh harrier habitat, Westleton)"

6.4.4 It is important to note that Work No. 1A(cc) is the wetland habitat element of the proposed marsh harrier compensatory habitat area, which by the nature of its excavations would also provide beneficial flood mitigation for works on the main development site. It is for this reason that Work No. 1A(cc) is worded in this manner.

6.4.5 This proposed amendment is reflected in **Appendix 1** – The DCO Schedule of Changes Arising from the Secretary of State's Request for Further Information dated 18 March 2022. As agreed with the Planning Inspectorate's case team, SZC Co. will provide a clean and track change version of the DCO (Rev 11A) as part of our submission to the second round of questions that we will submit on 14 April 2022. The related Deed of Variation to the Deed of Obligation (which will reflect the wording above) will be submitted by SZC Co. at the next deadline of 14 April 2022 as it is currently being engrossed.