



The Planning Inspectorate
Yr Arolygiaeth Gynllunio

The Planning Act 2008

Sizewell C New Nuclear Power Station

Examining Authority's Report
of Findings and Conclusions

and

Recommendation to the Secretary of State for Business, Energy and
Industrial Strategy

VOLUME 3 OF 4

Examining Authority

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LIST OF REPORT VOLUMES

This Report contains four volumes.

This is Volume 3 of 4.

1. Volume 1: Chapters 1 to 4;
2. Volume 2: Chapter 5 Sections 5.1 to 5.13;
3. **Volume 3: Chapter 5 Sections 5.14 to 5.23;** and
4. Volume 4: Chapters 6 to 10.

This report is also supported by five Appendices. The Appendices each form a self-contained document.

- Appendix A: Events in Pre-Examination and the Examination;
- Appendix B: Examination Library;
- Appendix C: Abbreviations and Definitions;
- Appendix D: Recommended Development Consent Order; and
- Appendix E: Considerations for the Secretary of State.

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5.14. LANDSCAPE IMPACT, VISUAL EFFECTS AND DESIGN

Introduction

- 5.14.1. Landscape, visual effects, and design were identified as a principal issue in the ExA's initial assessment [PD-007]. This section addresses the landscape, visual and design effects of the Proposed Development.

Policy Considerations

National Policy Statement for Energy (NPS EN-1) – Landscape, Visual Effects and Design

- 5.14.2. NPS EN-1 states that virtually all nationally significant energy infrastructure projects will have effects on the landscape (para 5.9.8.). They should be designed carefully to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate. The existing character and quality of the local landscape, how highly it is valued and its capacity to accommodate change should all be considered in judging the impact of the Proposed Development.
- 5.14.3. Application documents should include an appropriate landscape and visual assessment. NPS EN-1 refers to the use of good practice guidance in this regard (para 5.9.5). Reference should be made to any landscape character assessment and associated studies as a means of assessing landscape effects and should take account of local plan policies based on those assessments.
- 5.14.4. National Parks, the Broads and Areas of Outstanding Natural Beauty have been confirmed by Government as having the highest status of protection in relation to landscape and scenic beauty. The conservation of the natural beauty of the landscape should be given substantial weight by decision-makers in deciding applications for development consent in these areas. However, development consent may be granted in these areas in exceptional circumstances and if consented, the decision-maker should ensure the project is carried out to high environmental standards (para 5.9.10 to 5.9.11).
- 5.14.5. Paragraph 5.9.18 confirms that energy infrastructure is likely to have visual effects for many receptors around proposed sites. Coastal areas are particularly vulnerable because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast.
- 5.14.6. In reaching a decision on the weight to give landscape, visual effects, and design, the Secretary of State (SoS) needs to judge whether:
- the project has been designed carefully, taking account of the potential impact on the landscape; has regard to siting, operational and other relevant constraints and to provide reasonable mitigation where possible and appropriate (NPS EN-1, para 5.9.8);

- the project has been demonstrated to be in the public interest and consideration has been given to any detrimental effect on the landscape and the extent to which that could be moderated (NPS EN-1, para 5.9.10);
- the reduction of scale of the project to mitigate visual and landscape effects would warrant a reduction in function (NPS EN-1, para 5.9.21); and
- the appropriate siting of infrastructure within the site, the use of colours and materials, landscaping schemes and building design would minimise adverse landscape and visual effects (NPS EN-1, para 5.9.22).

National Policy Statement for Energy (NPS EN-1) – Good Design

5.14.7. Paragraph 4.5.1 of EN-1 acknowledges that whilst the visual appearance of a building is sometimes considered to be the most important factor in good design, high quality and inclusive design goes far beyond aesthetic considerations. However, it is further acknowledged that the nature of much energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.

5.14.8. It also recognises that good design can help to mitigate other impacts such as noise and thus help to meet many of the NPS’s policy objectives (para 4.5.2).

5.14.9. In reaching a decision on good design, the SoS needs to judge whether:

- the Landscape and Visual Impact Assessment (LVIA) shows how good design, in terms of siting and use of appropriate technologies, can help mitigate adverse impact (NPS EN-1, para 4.5.2);
- the Applicant has taken into account both functionality (including fitness for purpose and sustainability and aesthetics (including the contribution to the quality of the area in which it would be located) as far as possible (NPS EN-1, para 4.5.3);
- the Applicant has taken opportunities to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, para 4.5.3); and
- the Applicant has demonstrated how the design process was conducted and how the proposed design evolved (NPS EN-1, para 4.5.4).

National Policy Statement for Nuclear Power Generation (NPS EN-6)

5.14.10. NPS EN-6 states that the decision maker should not expect the visual impacts associated with a nuclear power station to be eliminated with mitigation. It recognises that the scope for visual mitigation will in fact be quite limited. Mitigation should, however, be designed to reduce the visual intrusion of the project as far as reasonably practicable (para 3.10.8).

5.14.11. NPS EN-6 recognises that for this site there are likely to be some long lasting adverse direct and indirect effects on landscape character and

visual impacts on the Suffolk Coast and Heaths AONB (the AONB) (para 3.10.3).

5.14.12. NPS EN-6 also directs the decision maker to NPS EN-1 Section 4.9 (covered above) and NPS EN-5 Section 2.8 in relation to the electricity transmission network.

5.14.13. Section 2.8 of NPS EN-6 also provides specific advice on good design in relation to nuclear power generation. Paragraph 2.8.1 highlights that substantial weight must be given to the need to ensure safety and security of the power station and the need to control the impacts of its operations. It advocates that the decision maker should consider how good design can act to mitigate the impacts of new nuclear power stations, such as landscape and visual impacts (para 2.8.3).

Other Legislation, Policies and Guidance

5.14.14. The legislation, policy and guidance relevant to landscape, visual effects and design is set out in Appendix 6I of the EIA Methodology [APP-171]. The Applicant's Planning Statement also sets out the legislative and planning policy context against which a decision will be made [APP-590] and within section 13.2 of the ES chapter [APP-216].

The National Planning Policy Framework

5.14.15. Chapter 15 of the National Planning Policy Framework (NPPF) contains overarching policies for conserving and enhancing the natural environment. It indicates that planning decisions, amongst other things, should contribute to and enhance the natural and local environment, including landscape and green infrastructure. It states that developments should protect and enhance valued landscapes, recognising the intrinsic character and beauty of the countryside, and maintaining the character of the undeveloped coast.

5.14.16. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. Permission in such areas should be refused for major development other than in exceptional circumstances.

5.14.17. Within areas defined as Heritage Coast, decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate unless it is compatible with its special character.

5.14.18. Chapter 12 of the NPPF contains overarching policies for design. The creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve.

The Applicant's Case

- 5.14.19. The Applicant's assessment of effects on landscape and visual receptors is set out in Environmental Statement (ES) Chapter 13 [APP-216]. This chapter confirms the effects on the landscape/ seascape and visual receptor groups arising from the construction and operation of the Proposed Development at the main development site (MDS). This is supplemented by additional chapters for each of the associated development sites. Each of the ES chapters are also supported by several technical appendices and figures.
- 5.14.20. The ES Addendum provides additional and updated information to that presented within ES Chapter 13 [APP-216] and a revised assessment for landscape and visual receptors resulting from the construction and operation of a new, temporary marine bulk import facility (MBIF).
- 5.14.21. A Design and Access Statement (DAS) [APP-585], [APP-586] and [APP-587] was also submitted by the Applicant. This was updated during the Examination [REP10-055], [REP10-56] and [REP10-58]. The DAS provides detail regarding the design rationale of the MDS, including the accommodation campus. The application also includes Associated Development Design Principles (ADDP) [APP-589]. These describe the principles that relate to the design of the associated development sites and was subject to various amendments and updates throughout the Examination [REP10-063]. A Lighting Management Plan (LMP) [APP-182] was also submitted. This outlines the operation and maintenance procedures for the control of artificial light emissions associated with the construction and operation of the MDS. This LMP was also updated during the Examination, with the final version being [REP8-052].
- 5.14.22. An outline Landscape and Ecological Management Plan (oLEMP) [APP-588] was also submitted and was updated several times during the Examination, with the final version being [REP10-061]. The oLEMP seeks to provide clear objectives and general principles for the establishment and longer-term management of the landscape, and ecological mitigation proposals identified for the MDS following construction. The objectives of the oLEMP are designed to contribute towards the overarching vision for the Sizewell C Estate as detailed in Chapter 8 of the DAS [REP10-056]. Mitigation for the associated development sites is described below.
- 5.14.23. In addition to the submissions made at the 10 Examination deadlines, several further submissions in the form of either supplementary submissions, additional information submissions or change requests were made by the Applicant. Full details of the change requests are detailed in Chapter 2 of this Report.
- 5.14.24. Those submissions considered to have the most relevance to landscape, visual and design matters are detailed below. A comprehensive list of all submissions is contained within the Environmental Statement Signposting Document [REP10-172].

- Additional photomontages and wireframe imagery of the proposed accommodation campus and the Ancillary Construction Area (ACA) [AS-050];
- ES Addendum details comparison of effects of the temporary Beach Landing Facility with judgement in the ES [AS-206];
- MDS Landscape Plans [AS-120];
- Design and Access Statement Addendum [AS-261];
- Two Village Bypass Landscape and Ecological Management Plan [AS-262] and [AS-263];
- Sizewell Link Road Landscape and Ecological Management Plan [AS-264] and [AS-265];
- ES Addendum Beach Landing Facility Visualisations [AS-291]; and
- Illustrative View of the Proposed Change to the SSSI Crossing Western Viewpoint [PDA-006].

5.14.25. Tabular summaries of the LVIA findings for the construction, operation and, where relevant removal and reinstatement, phases are provided at the end of each ES chapter for the MDS [APP-216] and associated development sites [APP-360], [APP-390], [APP-421], [APP-457], [APP-490], [APP-520] and [APP-551]. The nature of effects is categorised as adverse (negative) or beneficial (positive), and major, moderate, minor or negligible.

Mitigation of Effects

5.14.26. For the MDS, the Applicant set out primary mitigation measures [APP-216, section 13.5]. Measures include:

- the design and specification of new buildings to be in keeping with the existing site context of heathland, forest, coastline and open sea;
- limiting light spill through the orientation of buildings and keeping areas unlit when not in use;
- provision of directional lighting and a boundary fence along the western edge of the western access road to act as screening;
- the retention of existing vegetation along the site perimeter, as far as practicable; and
- enhancing the retained perimeter planting with new planting.

5.14.27. The layout of the site, landscape design and the form and design of the proposed structures have been guided by a series of Overarching Design Principles and Detailed Landscape and Built Development Design Principles, which are outlined in the DAS. A full list is set out in paragraphs 13.5.8 and 13.5.12 of [APP-216].

5.14.28. Additional tertiary mitigation was also included. Those mitigation measures relevant to the landscape and visual assessment are detailed within the Code of Construction Practice (CoCP) [APP-615], which was updated during the Examination [REP10-072]. The CoCP, is informed by relevant environmental legislative requirements as well as general requirements and compliance with current standards, construction and operational experience and the EIA process. Mitigation measures are included within Table 5.1 of Parts B of the CoCP and are based on

industry standard guidance considered appropriate to the proposed activities and effects identified.

- 5.14.29. The Applicant included a series of management documents to deliver the proposed mitigation for the MDS. These include the DAS, Estate Wide Management Plan (EWMP) [REP7-076] and was updated during the Examination [REP10-136], LMP, oLEMP and the CoCP all of which would be secured by the dDCO. The Applicant also stated that delivery of the principles in the management documents would deliver a substantial and long-term enhancement to local landscape character, biodiversity, amenity, and the natural beauty and special qualities of the Suffolk Coast and Heaths AONB [REP9-021, Table 2.1].
- 5.14.30. In respect of the associated development sites, embedded mitigation measures are detailed within the ADDP [APP-589], which was updated during the Examination [REP10-063], with tertiary measures detailed in Table 5.1 of Part C of the CoCP. In addition, landscape works in relation to the Sizewell Link Road (SLR) and the Two Village Bypass (TVB) would be managed in accordance with the Sizewell Link Road and Two Village Bypass Landscape and Ecology Management Plans (LEMP) [AS-262] to [AS-265], which were updated during the Examination [REP10-065] and [REP10-066]. These above documents would be secured by the dDCO.
- 5.14.31. A Deed of Obligation (DoO) was also submitted by the Applicant at [REP2-059] and updated during the Examination [REP10-075] to [REP10-84]. The DoO would be a contract with the relevant local authorities. It contains the relevant obligations in the form of Schedules which the Applicant and local authorities consider necessary to mitigate the adverse effects of the Proposed Development and to maximise its benefits. This is explained in more detail in Chapter 9 of this Report.

Issues Considered in the Examination

Introduction

- 5.14.32. The issues which arose during the Examination covered below in relation to the MDS are:
- Landscape/ seascape and visual impact assessment;
 - Design Approach and Overarching Landscape Vision;
 - Lighting;
 - Accommodation Campus;
 - Relationship with Sizewell B;
 - Turbine Halls and Operational Service Centre;
 - Interim Fuel Store;
 - Permanent Beach Landing Facility and Temporary Marine Bulk Import Facility;
 - Coastal Sea Defences;
 - SSSI Crossing;
 - Temporary Desalination Plant;
 - Power Export Connection;
 - Outage Car Park at Goose Hill; and

- Suffolk Coast and Heaths Area of Outstanding Natural Beauty and Suffolk Heritage Coast.

5.14.33. Those reported under the associated development are:

- Sizewell Link Road
- Two Village Bypass;
- Northern Park and Ride;
- Southern Park and Ride;
- Yoxford Roundabout and Other Highway Improvements;
- Freight Management Facility; and
- Green Rail Route.

Main Development Site

Landscape/ seascape and visual impact assessment

5.14.34. The assessment method for the LVIA¹ is based on Guidelines to Landscape and Visual Impact Assessment 3rd edition (GLVIA 3); An Approach to Landscape Character Assessment, and other recognised guidelines [APP-171 Appendix 6I, para 1.3.6]. The scope of the assessment (landscape/ seascape and visual) was informed by ongoing consultation and engagement with statutory consultees throughout the pre- stages. The Applicant states that the additional information submitted in the ES Addendum does not alter the findings of the LVIA [AS-181, para 2.8.2].

5.14.35. IPs were generally satisfied with the LVIA methodology, although some in agreeing the method, pointed out that they did not agree with the findings:

- Natural England (NE) confirmed it is content with the LVIA methodology and baseline utilised by the Applicant but does not agree with the conclusions in respect of effects of the Proposed Development on the AONB [REP10-097]. Effects on the AONB is covered in a later sub-section below;
- The Suffolk Coast and Heaths Area of Outstanding Natural Beauty Partnership (AONB Partnership) agreed with the approach undertaken for the LVIA in relation to the original application submitted in May 2020. However, in respect of further work to assess changes made in late 2020, the AONB Partnership does not consider that appropriate consideration was given to the AONB. Its concerns relate to the introduction of the temporary Marine MBIF and the significant adverse effects on the defined natural beauty characteristics of the AONB and the Heritage Coast seascape [REP2-164] and [REP10-108];
- The National Trust (NT) is satisfied with the methodology used for the LVIA [REP2-150]. However, in respect of the Dunwich Heath and Beach and the Coastguard Cottages, the NT maintains its disagreement in respect of the significance of adverse effects because the elevated location provides one of the best vantage points for

¹ The landscape and visual impact assessment also includes the assessment of seascape effects. The term LVIA therefore includes both landscape and seascape considerations.

views of the MDS and that many of the adverse visual effects would not be able to be fully mitigated for the lifetime of the Proposed Development [REP10-112]. However, the NT accepts that it would be able to access the Natural Environment Improvement Fund as set out in Schedule 11 of the Deed of Obligation (DoO) [REP10-075]. Also, the proposed NT Dunwich Heath and Coastguard Cottages Resilience Fund, contained within Schedule 13 of the DoO [REP10-075] would provide appropriate and proportionate mitigation to reduce residual adverse effects to acceptable levels.

ExA's consideration

- 5.14.36. The ExA considers the study areas chosen for the landscape and visual impact assessment (LVIA) of the MDS and the associated development sites to be appropriate. An adequate range of baseline photography and visualisations was provided by the Applicant. The cross-section drawings assisted us in the assessment of visibility from key locations where the visualisations were difficult to interpret. Throughout the Examination, the Applicant has mainly responded to requests for additional visual material which has assisted both the ExA and IPs in terms of further understanding the Proposed Development.
- 5.14.37. In terms of the landscape/ seascape and visual impact assessment the ExA is content that the Applicant based its assessment on appropriate guidance, used relevant local landscape character studies and considered relevant local policies (NPS EN-1, para 5.9.5). The Applicant's landscape assessment considered construction and operational phases on landscape character satisfactorily (NPS EN-1 para 5.9.6). The Applicant's visual assessment covered effects on views and visual amenity and the potential for light pollution (NPS EN-1, para 5.9.7).
- 5.14.38. Overall, the ExA is satisfied with the approach and methodology adopted by the Applicant. We do however understand the concerns some IPs had in respect of the findings of the landscape/ seascape and visual assessment and these matters are discussed in subsequent sub-sections of this recommendation report.

Design Approach and Overarching Landscape Vision

- 5.14.39. The Planning Statement [APP-590] states that the design of the MDS has been guided by a set of overarching design principles which are complemented by detailed design principles contained within the DAS [REP10-055], [REP10-056] and [REP10-058]. The dDCO [REP10-009] would require future or alternative detailed designs to be approved as part of post-consent discharge of requirements in general accordance with the detailed design principles, as well as the relevant parameter plans, to ensure good design is achieved.

In respect of the overarching landscape vision, the vision is "founded on the concept of establishing the Suffolk Coast and Heaths AONB landscape in microcosm by creating a mosaic of some of its most valued landscapes such as extensive Suffolk Sandlings grasslands, areas of farmland, large scale forestry, coastal dunes and shingle ridges and the open sea as well

as an appropriate landscape setting for the existing and proposed power station structures, that reflects the way that the existing Sizewell A and Sizewell B structures behave. The design also seeks to reflect a subtle transition from the organised farmland landscape to the west to the more open, expansive and natural coastline and adjacent seascape” [REP10-056, para 8.2.3].

- 5.14.40. The illustrative Landscape Masterplan [REP10-004] depicts the framework for landscape restoration in areas which would be impacted by construction works of the MDS and is broadly defined by the extent of the application site boundary. The Design Council endorsed the approach of the Landscape Masterplan by commenting that *“the design ambition for the landscape and its ecological stewardship is exemplary”* [APP-216, para 13.6.197].
- 5.14.41. Alongside this, the oLEMP [REP10-061] details objectives and general principles for the establishment and longer-term management of the newly created landscape and aims to complement and tie in with the existing management of the wider estate, which involves the creation of dry acid grassland areas elsewhere on the estate. The management aims of the wider estate are set out in the EWMP [REP10-136].
- 5.14.42. The Applicant contends that the design of the MDS has continued to evolve post-submission of the application and that this is illustrated by the changes made to the DAS submitted at Deadlines (DL) 5, 9 and 10 [REP5-070] to [REP5-075], [REP9-005] to [REP9-010], [REP10-054] to [REP10-059]. The changes made to the DAS included updates to the design principles agreed with IPs throughout the Examination and incorporated further mitigation within the design.
- 5.14.43. In respect of the Applicant’s approach to good design, the ExA commented that policy requires a good quality sustainable design which could be integrated into the landscape. As such, the ExA asked written questions and also questions at Issue Specific Hearing 5 (ISH) in respect of design governance including questioning the role of a design champion, design codes/ design approach and design review.
- 5.14.44. The Applicant stated that a design champion was not considered necessary given the quality of the existing design team and the proposed governance which would build on an already-established culture of design quality which the Applicant would retain [REP2-111 Appendix 18B]. The Applicant argued that the retention of the key members of its design team in a design guardianship role marks its commitment for consistent high-quality advice and direction in delivering good design through the discharge of requirements [REP5-121].
- 5.14.45. In respect of the production of a design code or design approach document, the Applicant pointed out that the DAS submitted as part of the application provides a comprehensive explanation of the design approach of the MDS. It outlines a commitment to quality design via the detailed design submission and design governance expressed via the Parameter Plans and the application of Design Principles. As such, the

Applicant does not consider an additional control document to be necessary at [REP2-111].

- 5.14.46. Initially the Applicant did not consider a design review panel necessary because it was in discussion with East Suffolk Council (ESC) and Suffolk County Council (SCC) regarding the funding of an appropriate planning and design officer resource, which would work in conjunction with the key stakeholders, including the AONB Partnership to manage the discharge of requirements [REP2-111].
- 5.14.47. Later in the Examination, ESC felt that it would be appropriate to draw on the existing design review infrastructure available in Suffolk in the form of the RIBA Suffolk Design Review Panel and include stakeholders such as the AONB Partnership and NE [REP5-143]. The AONB Partnership observed that the design development should be open to wider scrutiny and beyond the opinion of just statutory consultees [REP5-270].
- 5.14.48. At DL7, the Applicant submitted an amended version of Schedule 17 of the DoO [REP7-040] which confirms the role of the Suffolk Design Review Panel. The Design Panel would comment on detail designs prior to their submission of details pursuant to Requirement 17 of the DCO and the developer would provide the Councils with a report setting out how the submitted details have had regard to the advice of the Design Panel.
- 5.14.49. In July 2021, Government published its revised NPPF. The changes made within the NPPF reflect the Government's manifesto commitment to making 'beauty' and place-making a strategic theme in national planning policy. The NPPF strengthened requirements in respect of design quality and included additional wording regarding development within nationally designated locations.
- 5.14.50. In this regard, the Applicant responded to ExQ2 LI.2.0 [PD-035], saying that the application has been developed within a policy framework that is very similar to the wording of NPPF Paragraph 176 and that there is no material change in the policy test or emphasis. The Applicant therefore considers that the MDS has been sensitively located and designed to avoid or minimise adverse effects on the designated areas [REP7-053].
- 5.14.51. Comments by others on the design approach included concern that the Hinkley Point C (HPC) reactor design would be used.
- Together Against Sizewell C (TASC) considers that the design has not been landscape led and the MDS fails to consider the extent to which detrimental impact on the landscape could be moderated [REP5-296];
 - The AONB Partnership commented that a replica of HPC is not appropriate as it would fail to recognise the siting within a nationally designated landscape. Specifically, that a replica of HPC would not provide a distinctive sense of place and wouldn't contribute to the scenic quality of the AONB and therefore, not all possible design measures have been deployed to control effects [RR-1170], [REP2-164] and [REP10-108];

- The NT stated that it fails to understand how a design which has been replicated from HPC is sensitive to the character of the AONB and how it would conserve and enhance the landscape and scenic beauty of the AONB, as required by planning policy [REP2-150].
- 5.14.52. There was also concern from the combined parish councils of Butley, Capel St Andrew, Chillesford, Snape, Sudbourne and Wantisden which remain alarmed at the collateral impact of the MDS in respect of the AONB and are not reassured by the proposed mitigation [REP10-247].
- 5.14.53. ESC, whilst maintaining its overall position of neutrality in respect of the overall Proposed Development, welcomed the package of embedded mitigation secured in the dDCO and the separate mitigation secured within the DoO [REP10-182].
- 5.14.54. SCC however considered that the DoO mitigation would not on its own overcome the residual adverse landscape and visual effects on the natural environment and the AONB. SCC has however welcomed the Applicant's proposal to provide funding for an Environmental Trust, which has been agreed and executed in parallel to the DoO. Whilst SCC maintains that the Environment Deed should not be treated as a material consideration, it considers that it would make a meaningful contribution to addressing residual effects [REP10-210].
- 5.14.55. In terms of the potential for alternative reactor design, and the suitability of that from HPC, in response to ExQ1 LI.1.21 [REP2-100] the Applicant confirmed the reasons for the replication of the HPC nuclear island Generic Design Assessment (GDA) nuclear safety buildings. The Applicant also commented that the proposed design of the MDS is substantially different from HPC and that those differences are a direct response to location within a nationally designated landscape. Further detail was provided in a table setting out a comparison between HPC and the MDS [REP2-111 Appendix 18D]. The Applicant pointed to feedback from the Design Council design review, in its DAS, whose opinion was that great care and attention was being paid across architecture, engineering, landscape design and ecology [REP5-075].
- 5.14.56. Further detail in respect of reactor design and alternatives considerations is discussed within Section 5.4 of this Report.

ExA's consideration

- 5.14.57. The ExA is satisfied with the content of the DAS and the way in which it is secured through Requirements 16, 17, 20, 23, 24, 29 and 30 of the ExA's recommended Development Consent Order (rDCO) and would be used for the post-consent discharge of requirements. The ExA considers the DAS to be of a high standard and fit for purpose. It has clearly been based on detailed analysis of the surrounding context and considered options for materials and colours. We understand that several of the buildings and structures on the MDS are subject to highly stringent civil and nuclear engineering processes and therefore have specialist structural requirements. We are satisfied that the Applicant has taken functionality and aesthetics into account and that the design has been

sensitive to its place and that based on the DAS, it would demonstrate good aesthetics as far as possible (NPS EN-1, para 4.5.1 and 4.5.3).

- 5.14.58. We note the concerns raised by several IPs that the design of the Proposed Development is little more than a replica of the HPC site. From the detail contained within the DAS and from responses to ExQs, we conclude that the Applicant has given significant regard in design terms and mitigation measures in respect of the highly sensitive location within the AONB.
- 5.14.59. For the reasons discussed above, it is inevitable that there would be aspects of the Proposed Development which would replicate the design of HPC, but we consider satisfactory reasons exist for this, and that the proposed design would reflect the unique locational sensitivities. This is because the proposed buildings and structures have been designed with a simplistic form in mind, both in terms of scale and finish where possible (NPS EN-1, para 4.5.1).
- 5.14.60. We agree that the cladding of the proposed halls and Operational Service Centre (OSC) has been designed to appear simpler and more responsive to the landscape they would be sited in. We consider that the Proposed Development has been designed to reduce the visual intrusion of the project as far as reasonably practicable and that building design and materials have been given careful consideration (NPS EN-6, para 3.10.8 and NPS EN-1, para 5.9.22).
- 5.14.61. The ExA supports the involvement of a Design Review Panel for independent design advice going forward and is content with the way in which this is secured (NPS EN-1, para 4.5.5).
- 5.14.62. Turning to the landscape vision, the ExA is content that sufficient control exists within the dDCO to ensure that the vision can be delivered. Following completion of the MDS, the areas which were temporarily utilised would be restored in accordance with a landscape and ecology scheme pursuant to Requirement 24 of the dDCO [REP10-009]. In respect of land, which is outside of the application site boundary, Requirement 8 would ensure this land would be managed in line with measures established within the EWMP.
- 5.14.63. Overall, we are satisfied that the production of the oLEMP, illustrative Landscape Masterplan and the EWMP would enable the Applicant or other Undertaker to deliver this vision through direct measures and management. The ExA considers that these controls would minimise harm to the landscape and provide reasonable mitigation where possible (NPS EN-1, para 5.9.8 and 5.9.17).
- 5.14.64. We also agree that this would result in landscape improvement of the area, which would also complement the existing landscapes to the north at the RSPB Minsmere Reserve and National Trust Dunwich Heath and south of the Sizewell Gap at The Walks and Aldringham Common. Therefore, in this regard we consider the Applicant's case regarding enhancement as well as mitigation is valid.

- 5.14.65. Matters relating to development in the AONB are covered below and the ExA's conclusions on good design are reported in this section below.
- 5.14.66. In terms of the landscape improvements which would be delivered through the EWMP, we consider this would bring multiple benefits to the wider area in terms of landscape and visual, but also the EWMP would also bring green infrastructure and biodiversity benefits as described in sections 5.5 and 5.6.
- 5.14.67. Overall, the ExA ascribes moderate weight to matters relating to the design approach and overarching landscape vision for the making of the Order.

Lighting

- 5.14.68. The MDS would be located within an area of intrinsically dark skies with the only other source of significant lighting in the immediate vicinity being that of the existing Sizewell A and B power stations. Whilst it is recognised that lighting needs to be provided during both the construction and operation phases, the incorrect use of light can become a problem, and affect the wider environment.
- 5.14.69. During the construction phase significant adverse visual effects would be experienced in the areas mainly extending between the MDS northwards to Minsmere and Dunwich Heath, eastwards into the immediate offshore zone, south to Sizewell Gap and west to area around Leiston Abbey [APP-216, para 13.6.78]. Whilst temporary in nature, the addition of the MBIF would also add artificial lighting to a seascape which is predominately devoid of light.
- 5.14.70. The Applicant provided visualisations which demonstrate that additional artificial light effects would be experienced both during the construction and operational phases due to the Proposed Development [APP-218], [APP-219], [REP8-326] and [REP8-327]. On request from the ExA, the Applicant also provided additional visualisations for the worst-case scenarios in respect of construction lighting at nine viewpoints. [REP2-111, Appendix 18E]. The Applicant submitted a Technical Note on Indicative Lighting Modelling to illustrate the artificial light levels associated with the construction sites of the MDS and how regard has been given to both the AONB and dark coastal location [REP3-057].



Existing



Proposed

Figure 5.14.01 Extract from construction stage night-time visualisations from Suffolk Coast path [REP8-326]

- 5.14.71. A LMP was submitted as part of the application and establishes the operation and maintenance procedures for the control of artificial light emissions associated with the MDS [APP-182]. It further addresses planning and environmental considerations to ensure safe lighting is provided on both the construction and operational sites. The LMP details mitigation measures for both the construction and operational phases, such as equipment selection and control, use of site topography, specific measures relating to the lighting of tall plant and buildings, limiting hours of lighting, and ensuring effective maintenance and complaints procedures are in place. The DAS also sets out overarching design principles for lighting and detailed built development principles in connection with lighting and light spill [REP10-055].
- 5.14.72. There were a number of IPs who raised concerns about the effects of lighting and the Applicant's assessment:
- The AONB Partnership considers the night-time effects of the development have not been appropriately assessed against the AONB criteria [RR-1170], and states that the required lighting at the MDS would detract from the defined AONB quality of tranquillity and would therefore, adversely affect the statutory purpose of the AONB [REP10-108];
 - The NT raised concern over the impact on the dark skies and stargazing events it runs [REP5-156];

- Theberton and Eastbridge Parish Council considers that there would be a significant loss of dark sky across the entire Parish, especially in the Eastbridge area which is closest to the construction site, accommodation campus and its associated two storey car park [REP3-138], [REP5-286]; and
- Mr and Mrs Dowley raised concern in respect of adverse effects from lighting associated with the MDS and the B1122 roundabout on Theberton House and from borrow pits and stockpile areas on Theberton House, Potter's Farm and Eastridge Farm [REP5-265], [REP7-213].

- 5.14.73. Given the on-going concern in respect of adverse lighting effects, ISH 5 included a discussion in respect of night-time lighting effects [EV-111] to [EV-115]. Both Councils confirmed their broad satisfaction with the aims and objectives set out in the LMP and that the effects of permanent and temporary lighting and effects could be adequately controlled by ESC [REP5-143] and [REP5-176]. ESC later raised two further lighting matters namely that the LMP did not contain a protocol for the management of light nuisance complaints and the southern end of Bridleway 19 and dark and low light areas necessary for bat mitigation [REP8-140]. This latter point is reported in section 5.6 of this Report.
- 5.14.74. Regarding concerns about lighting effects on the AONB, the Applicant confirmed in response to ExQ1 LI.1.26 that the night-time appraisal included an assessment of the effects of artificial lighting on the natural beauty and special quality indicators of the AONB that relate to its character and qualities at night, and it did not consider it necessary to amend the night-time assessment [REP2-100].
- 5.14.75. Regarding Theberton House, the Applicant confirmed that the property would be screened from the lighting proposed at the roundabout by existing tree cover, which is 12 to 20 metres high, taller than the proposed lighting columns at 10 metres [REP7-065]. In respect of borrow pits and stockpiles, the Applicant explained that there would be no view to proposed borrow pits from Theberton House and any views to the southern area of the stockpile would be substantially screened by existing trees and the Accommodation Campus [REP7-065].
- 5.14.76. Turning to Potter's Farm and Eastridge Farm, the Applicant confirmed that the borrow pits and stockpiles would not be lit, but mobile task lighting of up to 8m high may be used for specific operations but would be controlled by the LMP [REP10-033].
- 5.14.77. The Applicant confirmed that the complaints management procedure is set out in Part A of the CoCP and would be secured by Requirement 2 of the DCO [REP10-156].

ExA's consideration

- 5.14.78. We agree with the Applicant that during the operational phase of the development, from locations closest to the MDS, significant adverse effects would gradually reduce as planting becomes established.

However, we note that significant adverse lighting effects would remain for those within Visual Receptor Group 8 (Dunwich to Minsmere) and in relation to the geographical extent, effects would remain in areas immediately adjacent to the main platform area and along Sizewell beach.

- 5.14.79. In addition, whilst there would be a reduction in artificial light sources during the operational phase, the lighting of the MDS would continue to have an impact on dark skies and therefore the scenic quality of the AONB would also be subject to significant adverse effects.
- 5.14.80. However, the ExA is satisfied that the Applicant undertook an assessment of the potential for detrimental effects resulting from artificial light (NPS EN-1, para 5.6.7).
- 5.14.81. With the proposed LMP measures which would be controlled by Requirements 2, 14 and 28 of the Recommended DCO, the ExA is satisfied that artificial lighting and light spill would be minimised as far as possible in the surrounding coastal environment within the AONB and Suffolk Heritage Coast (SHC).
- 5.14.82. The ExA is satisfied that all reasonable steps have been taken to minimise detrimental effects on landscape and visual amenity arising during construction and operation (NPS EN-1, para 5.6.7). The effects on ecology are reported in section 5.9 of this Report.
- 5.14.83. Overall, the ExA ascribes moderate weight to landscape and visual matters relating to lighting against the Order being made because there would be both significant and non-significant adverse effects on the dark skies and the visual amenity of the area both during construction and operation phases.

Accommodation Campus

- 5.14.84. The accommodation campus is located adjacent to the MDS. Whilst outside of the AONB, it would be immediately adjacent to the western boundary and is therefore within the setting of the AONB. As was evident from the site visits, the proposed location for the campus is formed of mainly geometric fields defined by hedges, except for Upper Abbey Farm which is in the southeast corner of the site.



Figure 5.14.02 Extract from DAS, Site Location Plan [REP10-058]

- 5.14.85. Appendix A of the DAS [REP10-058] sets out the indicative proposals for the accommodation campus and the rationale behind them. At [PD-009] the ExA requested additional photomontages and wireframe imagery from additional viewpoints, which were to be agreed with ESC and NE. This was provided by the Applicant [AS-050]. Table A.1 of the DAS [REP10-058] contains the key design principles for the accommodation campus. Delivery of the accommodation campus would be carried out in general accordance with the design principles set out in Table A.1 and in accordance with the Parameter Plans set out in Schedule 6 of the draft DCO [REP10-009].
- 5.14.86. Initially there were concerns about the harm that the proposed accommodation campus would have on some of the defined characteristics of the AONB by the AONB Partnership [REP2-163] and the potential to affect those experiencing the adjacent AONB by ESC [REP2-176]. Both parties felt that given the proposed location of the campus, additional and more comprehensive key design principles would be necessary. The Applicant agreed to amend the design principles [REP3-046], which were submitted at DL5 [REP5-075].
- 5.14.87. At ISH5 both ESC [REP5-143] and the AONB Partnership [REP5-270] continued to argue that the campus would adversely affect the setting of the AONB and would fail to contribute to the AONB's statutory purpose. Also, that given the sensitive location and proximity to the main stockpiling site, the campus which would be seen in conjunction with the MDS would impact significantly on the defined qualities of the AONB [REP5-270]. Theberton and Eastbridge Parish Council [REP5-286] also observed that the campus would be difficult to blend into the local landscape.
- 5.14.88. SCC raised the issue of tranquillity as the campus would be a focus of significant activity. However, it also acknowledged that any adverse effects of the campus on tranquillity and local amenity must be balanced

against any transport benefits from the reduction of commuting distance for non-home-based workers [REP5-176].

5.14.89. At ISH5, the Applicant stated that the proposed design of the campus:

- has had regard to its sensitive location;
- is not a replication of HPC;
- is a bespoke response to the site context and brief with specific design principles to guide its design; and
- responds in massing and masterplan layout to address amenity and visual considerations from Eastbridge Road and the AONB [REP5-110].

5.14.90. Comments received on the revised key design principles contained within Table A.1 [REP5-075] were as follows:

- ESC confirmed that it was content to support the amendments and additions to Table A1 [REP7-116];
- NE confirmed that the amendments and additions were positive and welcome [REP7-144];
- the AONB Partnership concluded that overall, the principles failed to give sufficient weight to the purpose of the AONB designation [REP7-230];
- TASC [REP7-243] and Stop Sizewell C [REP7-228] felt that the revised design principles had done little to reduce the adverse effects of the scheme on the AONB.

- 1 Main entrance / security point
- 2 Reception / administration / medical
- 3 Parking for operations work force / residents
- 4 Recreation building
- 5 Main campus square
- 6 Service area
- 7 Foul water pump station
- 8 External plant
- 9 CHP generator
- 10 Parking for operations work force / residents
- 11 5m wide security zone and fence
- 12 Landscape buffer
- 13 Accommodation buildings
- 14 Green streets
- 15 Realigned bridleway
- 16 Access streets, including disabled parking and drop-off bays
- 17 15m wide bat corridor
- 18 Emergency vehicular access
- 19 Two level car park for residents
- 20 Landscape buffer



Figure 5.14.03 Extract from DAS, Accommodation campus layout – figure A.17 illustrative layout [REP10-058]

In final Statements of Common Ground (SoCG) at DL10, NE [REP10-097] acknowledged the application of design principles and mitigation measures in respect of the campus, however, it and the AONB Partnership [REP10-108] maintain that the campus would be a significant development on the boundary of the AONB.

ExA's consideration

- 5.14.91. The accommodation campus is a temporary structure, to be removed following the completion of the construction phase. Despite this, the introduction of any built form, especially at the scale proposed, would result in adverse landscape and visual effects in an area currently devoid of such development. However, the ExA is satisfied that it is evident the proposed design has taken into consideration the potential for such effects through:
- reduction in height of the tallest blocks to a maximum of 4-storeys;
 - alignment of the 4-storey blocks on an east to west axis in the middle of the site;
 - limiting fenestration and thus lighting from windows to front and rear elevations;
 - simple modular construction resulting in appearance of clean lines and defined spaces;
 - colour palette of warm terracotta, grey and sand to complement Upper Abbey Farm; and
 - the campus landscape strategy which aims to deliver attractive public spaces and green streets, a 10m buffer along the northern edge and retention of and additions to existing planting [REP10-058, para-A.27.1].
- 5.14.92. Whilst the details contained within the DAS are illustrative and would introduce large scale, contemporary architecture to the existing mainly undeveloped landscape character, we concur with the Applicant that the design of the campus is responsive to the sensitivities of its location. It represents a bespoke, place-specific design. The ExA agrees that it is not a simple replication of the HPC campus. We are content that sufficient control exists to shape the final design of the campus further to high environmental standards, as delivery would be secured through discharge of Requirement 30 of the dDCO (NPS EN-1, para 5.9.11).
- 5.14.93. Therefore, the ExA is satisfied that for the proposed accommodation campus the Applicant has minimised adverse landscape and visual effects through appropriate siting, design and colours (NPS EN-1, para 5.9.8, 5.9.22), that the campus would be designed carefully, taking account of environmental effects on the landscape, that reasonable mitigation through design and planting would minimise harm (NPS EN-1, para 5.9.17) and that it has been designed to reduce visual intrusion as far as is practicable (NPE EN-6, para 3.10.8).
- 5.14.94. The ExA has also had regard to the purpose of the AONB even though the accommodation campus would be outside the AONB boundary. The ExA is satisfied that the campus would be designed sensitively through the controls in the rDCO for the discharge of Requirements and that

visibility from the AONB should not be a reason for the Order not being made (NPS EN-1, para 5.9.12, 5.9.13).

- 5.14.95. Notwithstanding the temporary nature of the accommodation campus and sensitive design approach and siting which we believe would be secured for the future post-consent approvals for the accommodation campus, there would still be residual adverse effects on the landscape and views in proximity to the AONB. For those reasons the ExA ascribes moderate weight to landscape and visual effects arising from the accommodation campus against the Order being made.

Relationship with Sizewell B

- 5.14.96. The white dome of Sizewell B houses the core reactor and is stated as having achieved an 'iconic' status by some. Irrespective of the status, the dome is one of the most recognisable sights on this stretch of coastline.

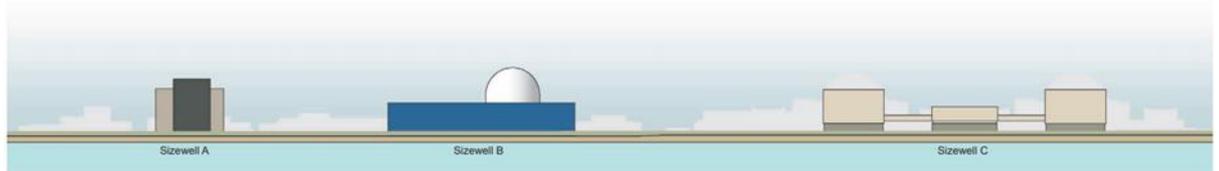


Figure 7.29: Coastal elevation illustrating sequence of contrasting Sizewell A, Sizewell B and Sizewell C forms

Figure 5.14.04 Extract from DAS Figure 7.29 – Planned composition with Sizewell A and Sizewell B [REP10-056]

- 5.14.97. The Applicant's DAS considers Sizewell A and B and their influence and examines the composition of Sizewell A, B and C together as three generations of power stations. That analysis illustrated that the Sizewell B dome is the dominant feature and that although the setting of Sizewell B would alter, it would be seen in the context of three periods of power generation but would remain visible and distinct [REP10-055, section 2.11 and 6.11].
- 5.14.98. The Applicant considers the 'behaviour' of the MDS proposals in the landscape is an important design consideration respecting the 'behaviour' of Sizewell A and B including a simplicity of profile and the screening of low-level clutter at distance by example. The Applicant concluded that these such measures are reflected in Overarching Design Principles 18, 19 and 20 and Coastal Defence Design Principles 73 and 74 contained within the DAS [REP10-055]. The Applicant stated that architectural design work started with analysis of the built context, alongside understanding of the landscape context [REP5-110].

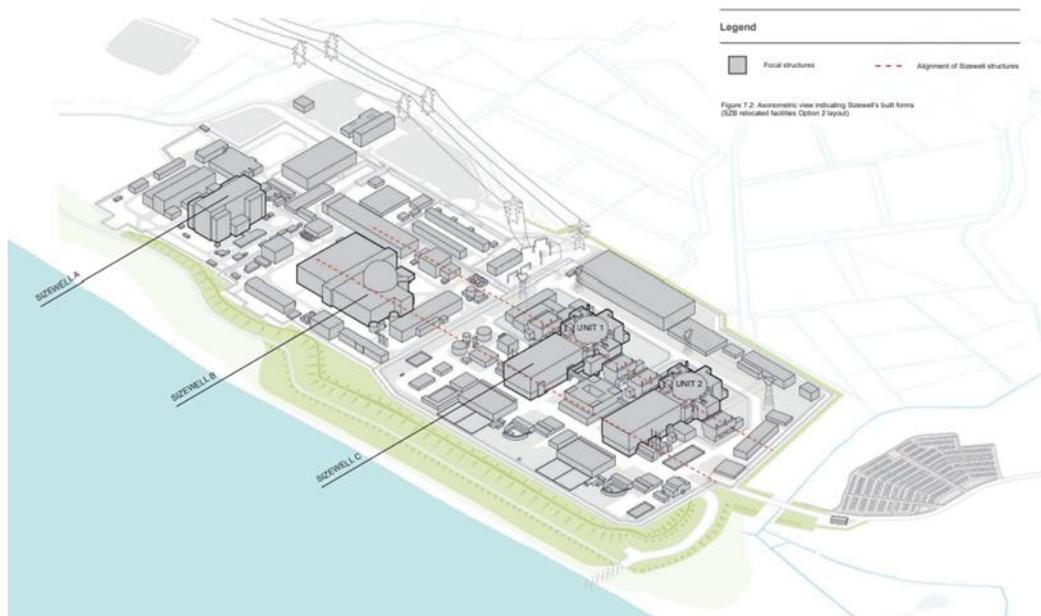


Figure 5.14.05 Extract from DAS Figure 6.15 Overarching Design Principle 18 [REP10-056]

- 5.14.99. TASC observed that, unlike Sizewell A, which is in the process of being decommissioned, or Sizewell B whose dome has achieved iconic status, the MDS would consist of grey, monolithic concrete slabs creating a blot on the landscape which would be visible from all angles and from a far distance, creating a vast and highly visible industrial complex within the AONB [REP2-481f]. This specific design issue was discussed at ISH5 [EV-074]. ESC also felt that it is regrettable that the bulk structures of the MDS would obscure and/ or compromise certain key views of Sizewell B where the white dome/ blue base predominates [REP5-143].
- 5.14.100. The AONB Partnership also voiced concern that the MDS would significantly impact the carefully considered embedded mitigation of Sizewell B and that the introduction of new pylons would add further to these adverse landscape and visual effects [REP5-270].
- 5.14.101. At the end of the Examination, NE acknowledged the work undertaken by the Applicant in respect of design and screening mitigation measures. It acknowledged the established design principles and a unifying design approach. Furthermore, NE confirmed that it felt that the embedded mitigation for MDS in respect of the axial alignment of the built structures in relation to Sizewell A and B would simplify the outlines of the buildings. It also welcomed work regarding colour and finishes [REP10-097].

OVERARCHING DESIGN PRINCIPLE 19.
Design will be a planned composition with Sizewell A and Sizewell B, balancing proportions and impacts across the sites, as far as reasonably practicable.

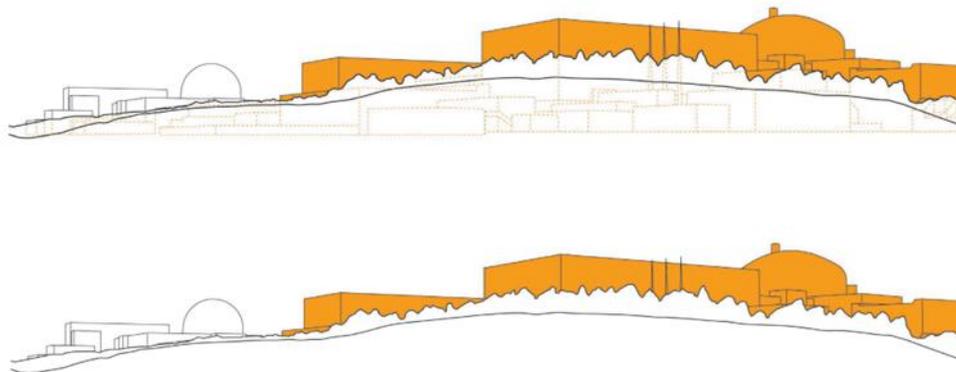


Figure 5.10: Low level visual clutter is masked from view by northern mound and coastal sea defences

Figure 5.14.06 Extract from DAS Figure 7.2 Axonometric of Sizewell's Built Form [REP10-055]

- 5.14.102. Nonetheless, NE maintained the view that the MDS would detract from the effectiveness of Sizewell B embedded mitigation [REP10-097]. This is because it would introduce structures which would alter how Sizewell B is perceived, particularly in views from the north of the site. The AONB Partnership also shares this concern and commented that the scale of the MDS would damage the Sizewell B embedded mitigation [REP10-108].
- 5.14.103. Regarding concerns raised regarding the use of concrete structures, the Applicant confirmed in response to ExQ1 LI.1.21 that the concrete structures of the nuclear island would be set back from the coast behind the turbine halls and would be most clearly seen in longer distance views from the north. These structures are safety critical and their design, including the exposed concrete form, is fixed by the GDA for this type of nuclear plant. The Applicant stated that it had explored the use of other options, including adding cladding to the structure and pigments to the concrete. However, the conclusion reached is that it would not be feasible to amend the external appearance of these nuclear safety structures for functional reasons [REP2-100].
- 5.14.104. Further information in respect of the proposed concrete domes and concrete aging effects was provided by the Applicant in response to ExQ2 LI.2.17 [REP7-053]. In summary, the Applicant confirmed that the visible discolouration and aging process at Sizewell A has occurred predominantly on its vertical surfaces and that the angular nature of the building makes the weathering more visible. By contrast, the dome geometry at Sizewell C would be subject to a less prominent form of weathering owing to its shape alone.

ExA's consideration

- 5.14.105. The work undertaken by the Applicant in respect of major structures being in close east-west alignment with the Sizewell B dome and Overarching Design Principles 18-12 within the DAS is recognised and

supported by the ExA. However, in views from the north, where Sizewell B is currently seen in isolation or forms the dominant element of the view, we consider that the Sizewell B dome would be obscured or compromised in key views due to the scale of the MDS.

- 5.14.106. However, the ExA acknowledges that this would still meet the tests set out for visual impacts associated with new nuclear power stations. We are content that the mitigation has been designed to reduce the visual intrusion of the project as far as reasonably practicable (NPS EN-6, para 3.10.8). The Appraisal of Sustainability identified that there would likely be some long lasting adverse direct and indirect effects on landscape character and views in the AONB (EN-6, Appendix II, para C.8.72).
- 5.14.107. The ExA considers that by securing the DAS design principles, the future detail design would be controlled appropriately in a way that would enable post consent discharge of requirements to give careful consideration to materials, colour and planting schemes (NPS EN-1, para 5.9.23) thereby ensuring high environmental standards for aesthetics and in relation to landscape character (NPS EN-1, para 5.9.11).
- 5.14.108. The ExA's reporting on the design approach, good design and the AONB also has relevance to the points above regarding the relationship with Sizewell B.
- 5.14.109. Overall, given the detriment to existing views of Sizewell B the ExA ascribes moderate weight to this issue against the making of the Order.

Turbine Halls and Operational Service Centre

- 5.14.110. The Applicant acknowledged that the turbine halls would be the most prominent structures within the MDS, given their scale and location. Furthermore, the location, prominence, and operational significance of the OSC establish it as a key visual component deserving special attention as part of an architectural composition with the two turbine halls.
- 5.14.111. The Applicant explained that the turbine halls have therefore been subject to very careful design development, especially to work with the Sizewell B design. The Applicant stated that the minimal profile would reduce overall visual clutter because the distinct features on the skyline would form a clear rhythm of legible geometric objects within the seascape setting [REP10-055, section 6.15]. In addition, the Applicant has set out a homogeneous architectural treatment on the three structures and their linking sky bridges to create a formal set piece, clean and simple in silhouette from coastal views [REP5-110]. These principles are secured in the DAS in the overarching Design Principles.

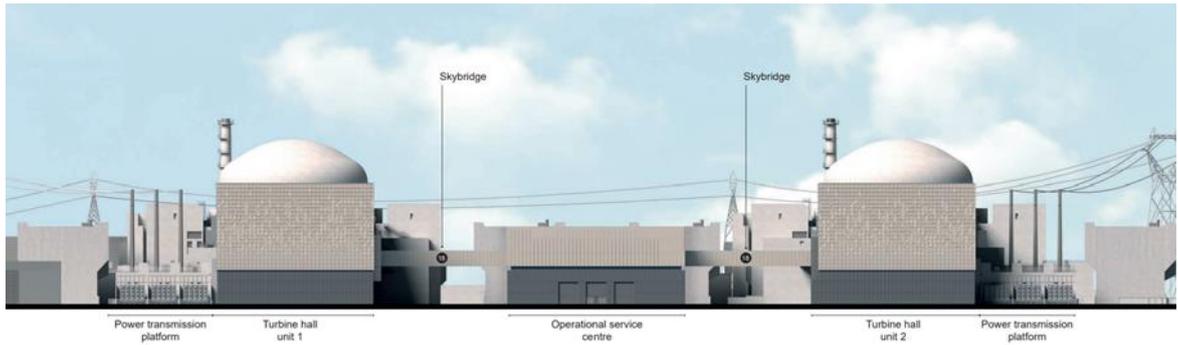


Figure 7.43: Turbine hall's eastern elevation, at 1:1250

Figure 5.14.07 Figure 7.44 [REP10-056]

- 5.14.112. Amendments were made to the Detailed Built Development Principles 54 to 56 in respect of the turbine halls and OSC at DL5 [REP5-072]. In response to ExQ3 LI.3.1, NE [REP8-298n], ESC [REP8-148] and SCC [REP8-180] supported the proposed inclusion of additional wording in respect of the cladding to the turbine halls. Further amendments were made to Detailed Built Principle 56 at DL10 [REP10-056] to confirm that the material for the turbine halls and OSC would also be agreed with ESC, in consultation with both the AONB Partnership and the NT.
- 5.14.113. In their joint Local Impact Report (LIR) [REP1-045] ESC and SCC noted that the OSC and turbine halls have been designed to reduce adverse impacts following pre-application consultation with the Councils. The evolution of the design in response to consultation is set out in the DAS [REP10-055, Section 4]. Nevertheless, the height and massing of these buildings would still give rise to significant adverse landscape and visual effects in the locality which the Councils consider that embedded mitigation could reduce but not overcome. Whilst acknowledging the quality of the design and finish of the proposed buildings ESC maintained the view that they would remain industrial structures in a nationally designated landscape [REP5-143].

ExA's consideration

- 5.14.114. The ExA accepts that during operation, views of the MDS would consist mainly of the taller buildings on the main platform. There is no doubt that the MDS would be a notable increase of built form. However, as the design of the main buildings on the MDS would continue on the existing axis of the current Sizewell structures, from most views the turbine halls and OSC would be seen behind or alongside Sizewell A and B. The ExA agrees that the Applicant has clearly set out the evolution of the design of the turbine halls and OSC (NPS EN-1, para 4.5.4). The ExA is satisfied that the DAS has considered good aesthetics as well as functionality and that the level of detail in the DAS would be appropriate for post-consent approvals to secure good design (NPS EN-1, para 4.5.1). The ExA also notes that considerable thought has been given to the cladding materials in terms of size, texture and colour of panels (NPS EN-1, para 4.5.3). The ExA is content that consideration has been given to the coastal views and how the new skyline would appear (NPS EN-1, para 5.9.18).
- 5.14.115. Further consideration on the Applicant's design approach and the ExA's view on whether good design criteria are met has been reported above.

From a landscape and visual perspective, even though the ExA is content with the design approach, the turbine halls and OSC would result in adverse landscape and visual effects because of the scale and massing in a previously open landscape. Therefore, the ExA ascribes little weight against the Order being made to the landscape and visual effects arising from the turbine halls and OSC.

Interim Spent Fuel Store

- 5.14.116. The Applicant pointed out that as the Interim Spent Fuel Store (ISFS) would be located to the western edge of the site and would be largely screened from distant views, a parameters approach was reasonable and appropriate for the DCO submission [REP2-100]. Accordingly, the detailed design of the ISFS would be submitted to and approved by ESC prior to the commencement of construction as part of the Requirement 17 discharge [REP10-009].
- 5.14.117. In the pre-application design review of the MDS, the Design Council stated that it strongly recommended the inclusion of the ISFS as a detailed component of the DCO application given its key role [REP10-058, Appendix B].
- 5.14.118. Amendments were made to Built Development Principle 57, which covers the ISFS in the DAS at DL1, DL9 and DL10 [REP10-056]. Earlier concerns from ESC were allayed by amended wording [REP8-148] and SCC stated in response to ExQ3 LI.3.1 that whilst it maintains a design for the ISFS in this location would have been most appropriate, it agrees that the amended text is an improvement on the original text [REP8-180].
- 5.14.119. Built Development Principle 57 states that the external treatment of the ISFS would seek to comprise a simple form with minimal external projections, material that takes account of its long design life and colour which acknowledges its elevated status relative to other buildings (30m in height) and responds to the operational setting as far as is reasonably practicable, taking into account nuclear safety requirements of the building. In terms of colour choice post-consent submissions would need to explain how it would have regard to the AONB Partnership 'Guidance on the selection and use of colour in development' [REP10-056].

ExA's consideration

- 5.14.120. The ExA recognises that the ISFS would be a substantial building which has the potential to be on site long after decommissioning of the Proposed Development. However, we agree with the Applicant that the ISFS's location on the western edge of the site would mean it would be relatively well screened from distant views demonstrating good design in terms of siting (NPS EN-1, para 4.5.3). We acknowledge the concerns raised in respect of the longevity of this facility, given it would have a design life of at least 100 years.
- 5.14.121. The ExA notes that Requirement 17 of the Recommended DCO requires submission of detailed design matters to ESC prior to construction for approval and in respect of the ISFS, such detail must accord with

Detailed Built Development Principle 57, and that ESC would be required to consult with NE, the NT and the AONB Partnership in respect of the design details.

- 5.14.122. Whilst the ExA acknowledges the Design Council's preference for detail in the DCO, we are content that there are controls in place which would ensure that the design and finish of the building would be appropriate in its sensitive location, would meet high environmental standards through Requirement 17 (NPS EN-1, para 5.9.11) and that this would ensure that functionality and aesthetics would be taken into account as far as possible including for materials (NPS EN-1, para 4.5.1 and 4.5.3). In particular we reach this conclusion because of the quality of information and level of detail contained in the DAS.
- 5.14.123. The ExA's reporting on good design below is relevant to the ISFS. Turning to landscape and visual effects, the ExA acknowledges the Applicant's approach in terms of siting and the future controls, but the ISFS would still result in adverse landscape and visual effects because of its size and siting in a previously natural area in the AONB. Therefore, the ExA ascribes little weight against the Order being made to landscape and visual effects arising from the ISFS.

Permanent Beach Landing Facility and Temporary Marine Bulk Import Facility

- 5.14.124. As part of the Change Request submitted in January 2021 and accepted into the Examination in April 2021 [PD-013], Change 2 included the enhancement of the permanent beach landing facility (BLF) and construction of a new, temporary Marine Bulk Import Facility (MBIF) [AS-105]. The Applicant confirmed in the ES Addendum [AS-181] that the enhancement of the permanent BLF was required to allow for an increased amount of abnormal indivisible loads (AIL) to be delivered by sea during construction.
- 5.14.125. The permanent BLF would only be used very occasionally, approximately every 5-10 years for a few weeks and would be dismantled and taken away for storage when not in use, although the pier and cross beam supports would remain in place and form a permanent presence [REP10-056].

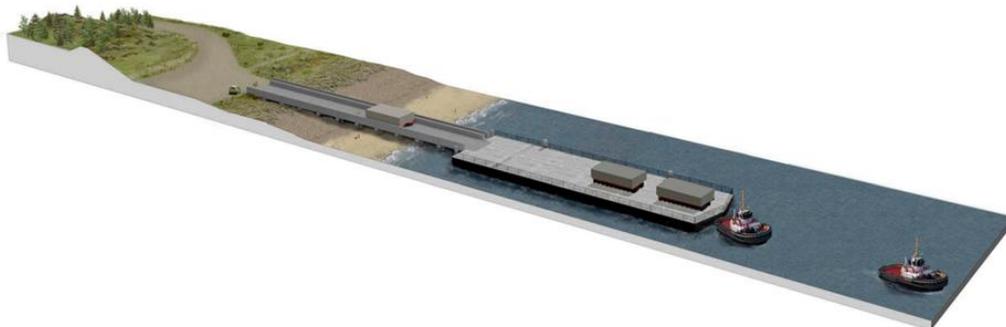


Figure 8.27: Visualisation of the beach landing facility and access road

Figure 5.14.08 Extract from 8.27 permanent BLF and access road DAS [REP10-056]

- 5.14.126. The assessment of the changes to the permanent BLF concluded that the level of significance during the construction and operation phases on visual receptor groups; visual receptors using key routes; visual receptors at specific viewpoints; landscape and seascape character types; the natural beauty and special qualities of the AONB, and SHC would not change from that reported in the ES [AS-181].
- 5.14.127. The MBIF would be temporary, operational for approximately eight years, after which it would be dismantled. It would be 505m in length, 12m wide and have a conveyor running along the length of the deck. A visually recessive colour is proposed. Task and ambient lighting would be necessary as well as standard navigation lights on the mooring dolphins and nearby navigation markers and buoys. Its construction would result in additional construction activity on the beach and would increase the visibility of such activities on the coast and in the immediate offshore environment [AS-181, section 2.8].
- 5.14.128. The landscape and visual effects of the temporary MBIF were assessed and updated, concluding that the significance of most adverse landscape and visual effects would remain as reported in the ES, but that additional localised significant adverse effects in the medium term would be experienced by Receptor Group 20, (Sizewell to Thorpeness Coast) during both the day and night-time [AS-181, section 2.8].
- 5.14.129. Most IPs accepted that benefits would arise from the enhanced permanent BLF and the temporary MBIF from reduction in HGV movements and effects on the local road network. Nevertheless, concern was raised by several IPs in respect of the additional adverse landscape and visual effects and subsequent harm to the character of the AONB and SHC:
- the changes would increase the impact on the AONB defined qualities of landscape quality and scenic quality: AONB Partnership [REP2-164] and [REP5-270], the NT [REP2-150] and TASC [REP10-419];
 - additional mooring and movement of vessels, associated noise and lighting would increase the adverse landscape and visual effects and impact on the tranquillity and landscape and seascape quality: the AONB Partnership [REP2-164];
 - the landscape character of the beach and land immediately behind the beach frontage would be significantly altered: NE [REP2-153];
 - adverse effects on the SHC: TASC [REP10-419];
 - the proposed changes would result in additional construction phase activity across the beach, in terms of both structures and activity and would tie Sizewell beach into the main construction site NE [REP2-153];
 - the permanent BLF would be prominent in the landscape over an extensive and extended period: Theberton and Eastbridge Parish Council [REP5-286]; and
 - the adverse effects of the changes on the AONB have not been weighed against the benefits: TASC [REP2-481f, para 17].
- 5.14.130. Matters in relation to the permanent BLF and temporary MBIF were discussed at ISH5 [EV-074]. ESC confirmed that it was satisfied with the

adequacy of the landscape and visual impact assessment of the BLF and MBIF [REP5-143].

ExA's consideration

- 5.14.131. As reported in section 5.22 of this Report, we agree that there would be benefits from the enhanced permanent BLF and the temporary MBIF in respect of the reduction in HGV movements and effects on the local road network.
- 5.14.132. From a landscape and visual perspective, during construction, we concur with IPs who felt that the visibility of construction phase activity on the coast and in the immediate offshore environment would add to the adverse landscape/ seascape and visual effects because the landscape character of the beach and land immediately behind the beach frontage would be altered during construction tying Sizewell beach into the construction of the MDS. Consequently, we do not agree with the conclusion reached by the Applicant that the level of significance during the construction phase would remain the same as that assessed in the ES for both the permanent BLF and the temporary MBIF.
- 5.14.133. Having said that, the ExA finds that the adverse landscape and visual effects would be capable of reversal in a timescale that we consider to be reasonable (NPS EN-1, para 5.9.16). Likewise, during operation, the ExA considers there would be additional adverse effects resulting from the presence and activity of the temporary MBIF, but that eight years operational existence would be reasonable timescale for reversal (NPS EN-1, para 5.9.16).
- 5.14.134. The ExA is therefore content that the additional adverse landscape and visual effects arising from the changes to the permanent BLF and the introduction of the temporary MBIF are outweighed by the benefits on traffic and transport (NPS EN-1, para 5.9.15).
- 5.14.135. However, as noted at paragraph 5.9.18 of NPS EN-1 coastal areas are particularly vulnerable to visual intrusion. Therefore, in considering landscape and visual effects arising from the permanent BLF and temporary MBIF in the planning balance, the ExA has ascribed moderate weight against the Order being made.

Coastal Sea Defences

- 5.14.136. As part of the Change request accepted into the Examination in April 2021 [PD-013], Change 9 included changes to the design and height of the temporary sea defence, changes to the location and height of the Hard Coastal Sea Defence and management of the Soft Coastal Sea Defence.
- 5.14.137. The Applicant argued that as they would be planted with trees and shrubs the man-made features would be assimilated into the existing coastal landscape and that once the vegetation matured, it would have a natural character. It would appear similar in character to the Sizewell B sea defences which is a man-made feature deliberately designed as a

'natural' feature of the coastal dunes and shingle ridges landscape character type [REP3-042].

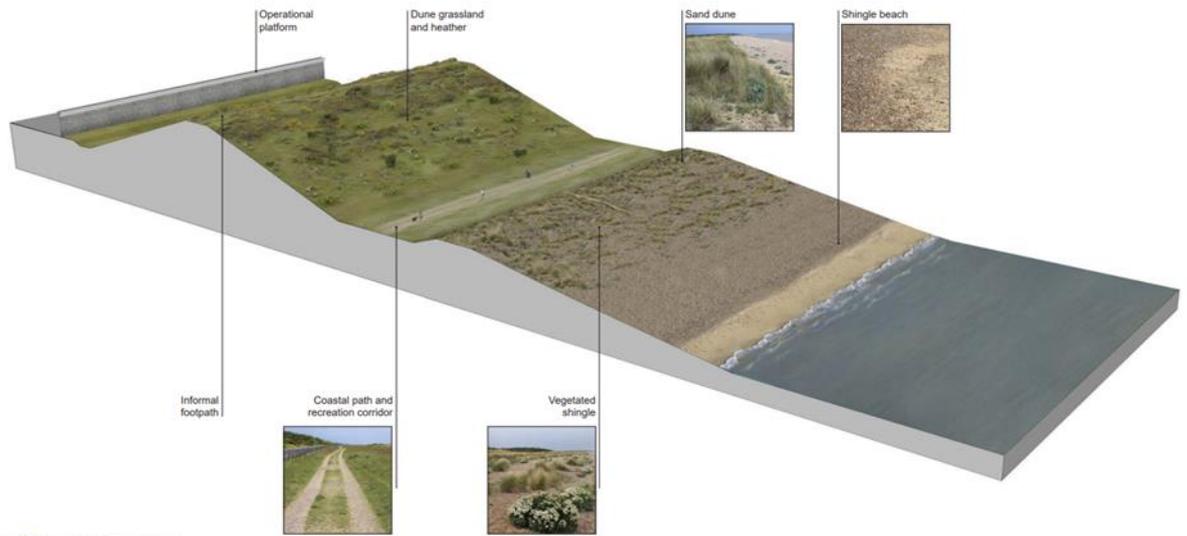


Figure 8.26 Visualisation of the sea defence

Figure 5.14.09 Extract from Figure 8.26 from DAS [REP10-056]

- 5.14.138. At ISH5 [REP5-110], the Applicant further confirmed that design control and experience is key to the evolution of the successful coastal defences. In terms of control, the design of the coastal defences would remain subject to the controls of the Parameter Plans set out in Schedule 6 of the dDCO [REP10-009], Detailed Design Principles 73-75 and 81 within the DAS [REP10-056] and Requirement 19 of the dDCO [REP10-009].
- 5.14.139. In terms of experience, the Applicant confirmed that a similar approach would be employed which was successfully used for the establishment of similar habitats on the Sizewell B frontage [REP2-100]. The Applicant also mentioned that the Terrestrial Ecology Monitoring and Mitigation Plan [REP10-090] includes botanical monitoring of the re-establishment of the coastal vegetation.
- 5.14.140. Several IPs raised concern in respect of these changes:
- The AONB Partnership contended that the proposed coastal defences would not contribute to natural heritage features of the AONB because of loss of nationally important wildlife habitat and the introduction of man-made topography, sea defences and distribution of spoil for reprofiling [REP2-164];
 - TASC noted that the sea defences, combined with the permanent BLF, would cause coastal squeeze, and permanently change the appearance of the SHC [REP2-481f] and [REP10-419];
 - NE maintained the view that the use of rock armour may not be successful in respect of landscape issues as it may become exposed after storms. It is also concerned that the reprofiled beach would result in emphasising the bunds' artificial nature contrasting with the natural topography. But it recognises the vital need for protecting the power station [REP2-153] and [REP10-097, epages 34 to 35].

5.14.141. However, NE confirmed that it agrees with the Applicant that the vegetated sea defences and other screening measures would be effective in screening views of lower parts of the station and ground level activities in close views and more of the development in some longer views from inland. It also welcomed the commitment to undertake the sea defence works early in the construction programme [REP10-097, epages 34 to 35].

ExA's consideration

5.14.142. The ExA is satisfied that the defences would assist in screening the lower lying buildings in views from the publicly accessible coastline after 15 years as depicted in visualisations of the Northern Mound at year 1 and year 15 [REP10-056, figures 8.24 and 8.25].

5.14.143. We do however accept that, as noted by several IPs, initially the Northern Mound and coastal sea defences would appear as man-made structures in an open landscape, until the planting becomes an effective screen after year 15.

5.14.144. We note the concerns raised by NE in respect of the use of rock armour in the design of the sea defences and the potential for storms and tides to wash away the vegetated material. Matters in respect of coastal geomorphology are considered in detail in section 5.8 of this Report. We are however satisfied that should rock armour become exposed, sufficient monitoring and control would be secured by Requirements 12 and 19 of the rDCO to rectify the situation. We are therefore content that it is unlikely that rock armour would have a permanent visual presence on the coastline.

5.14.145. The ExA is satisfied that the Applicant has considered the visual intrusion on the foreshore and addressed mitigation in terms of the proposed planting schemes (NPS EN-1, para 5.9.18 and 5.9.22). We consider that the landscape vision and proposals set out in the DAS for the Northern mound and sea defences would minimise harm to the landscape/seascape and provide reasonable mitigation (NPS EN-1, para 5.9.8).

5.14.146. We are persuaded that the harm to landscape, seascape and views would be minimised and in the longer term the coastal sea defences would assist in visual screening. However, they would comprise a manmade structure in a previously natural landscape and would therefore result in some adverse landscape and visual effects. Therefore, the ExA ascribes little weight against the Order being made to the landscape and visual effects arising from the coastal sea defences.

SSSI Crossing

5.14.147. The SSSI crossing would provide the main pedestrian and vehicular route to the main platform of the MDS. It was subject to significant design alteration during the Examination. Several IPs considered a triple span bridge would be the optimal design solution in respect of minimising land take in the SSSI.

- 5.14.148. As part of the Change request accepted into the Examination in April 2021 [PD-013], Change 6 included amendments to the design of the SSSI crossing [AS-181], with revised plans being submitted at [REP5-010]. Whilst the main purpose of the change was to provide additional flood relief, the change in embankment slopes would allow for taller and more substantial trees to be established on the seaward embankment of the SSSI crossing. The Applicant contends that this would better integrate the SSSI crossing into the landscape from coastal viewpoints.
- 5.14.149. In response to the Change Request ExQ1 LI.1.47 [PD-020] and to the revised plans ExQ2 LI.2.7 [PD-035] comments included:
- SCC [REP2-192] and ESC [REP2-176] observed that the changes made could potentially increase the likelihood of more successful tree and scrub establishment, and the less abrupt change in slope profile would seem to point to more successful landscape integration. ESC further commented that as the changes would be relatively subtle as far as views from coastal viewpoints were concerned, it felt that the level of significance of effects from these viewpoints would remain as originally assessed in the ES [APP-216];
 - ESC [REP7-119] later confirmed the revised design to be acceptable, subject to the submission of planting details for the embankment which could be dealt with at discharge of requirements stage [REP7-119]; and
 - the AONB Partnership [REP2-163] also considered that the significance of effects would remain similar to that in the original application and requested that the Applicant should use the 'Guidance in the Selection and use of Colour in Development' publication commissioned by the AONB to inform the design of elements of the SSSI crossing, which the Applicant included [REP3-046] and secured through reference to the use of this guidance in the Detailed Built Development Design Principle 79 in the DAS [REP5-070].
- 5.14.150. However, the AONB Partnership commented that the information provided at [REP5-010] was insufficient to assess the impact on the AONB and that a further LVIA was necessary. Furthermore, it also observed that the embankments, as shown in the plans, would not reflect the natural AONB topography and would therefore not contribute to its statutory purpose [REP7-230].
- 5.14.151. The Applicant [REP7-053] stated that the proposed changes to the design of the SSSI crossing would not change the level of significance of the adverse landscape and visual effects as assessed. Also, as the amended design would remain within the parameters of the SSSI Crossing as described and assessed in the ES Addendum [AS-181], a further LVIA update was not necessary or required.



Figure 8.23: Visualisation of SSSI crossing

Figure 5.14.10 Extract from DAS showing visualisation of the SSSI Crossing Figure 8.23 from DAS [REP10-056]

- 5.14.152. At the close of the Examination, in their SoCGs SCC [REP10-102] and NE [REP10-097] recognise that the updated crossing design is an improvement on that originally submitted but state their disappointment over the hybrid bridge-culvert design, as this is not considered to be the best option for maintaining the wetland SSSI. Both the AONB Partnership [REP10-108] and TASC [REP7-253] also observed that the loss of SSSI cannot be satisfactorily mitigated for within the AONB and that the proposed crossing would appear at odds with the setting and attributes of the AONB.

ExA's consideration

- 5.14.153. The ExA notes the final comments made by SCC and NE in respect of their disappointment that a hybrid bridge-culvert design had not been progressed, as this was considered the best option for maintaining the wetland SSSI. Biodiversity matters relating to the SSSI crossing are concluded in section 5.9 of this Report.
- 5.14.154. The ExA agrees with the Applicant and ESC that further LVIA is not necessary. The ExA also agrees that from a landscape and visual perspective the amended design submitted by the Applicant is more appropriate for its sensitive location within the SSSI as it would enable the crossing to be more successfully assimilated into the surrounding landscape and the additional planting would also provide additional screening.
- 5.14.155. The ExA considers that the Applicant has minimised adverse landscape and visual effects through appropriate siting, design and colours (NPS EN-1, para 5.9.8, 5.9.22), that the SSSI crossing would be designed carefully, taking account of environmental effects on the landscape, that reasonable mitigation through design and planting would minimise harm (NPS EN-1, para 5.9.17) and that it has been designed to reduce visual intrusion as far as is practicable (NPE EN-6, para 3.10.8).

- 5.14.156. The ExA has also considered the views from coastal viewpoints as coastal areas can be particularly vulnerable to visual intrusion and is satisfied that the views from sensitive receptors, including those on the coast would not weigh for or against the Order being made (NPS EN-1, para 5.9.18).
- 5.14.157. The ExA has also had regard to the statutory purpose of the AONB. The ExA is satisfied that the SSSI crossing design would moderate the adverse effects on the landscape, and that high environmental standards would be achieved through the discharge of Requirements and the commitments in the DAS (NPS EN-1, para 5.9.9 to 5.9.11).

Temporary Desalination Plant

- 5.14.158. As described in Chapter 2 of this Report, the Applicant's third change request (Change Request 19) included new temporary infrastructure for the desalination and treatment of seawater to produce potable water suitable for construction-related activities until the Sizewell transfer main is delivered and operational.
- 5.14.159. The Applicant acknowledges that the plant would introduce additional structures and infrastructure to that originally included and assessed in the ES [APP-216] ES updates [AS-181] and [REP5-064]. However, as recorded in the Fourth ES Addendum [REP7-030], the plant would sit significantly below and within the construction phase parameters as assessed in the original LVIA. As such, the Applicant contends that the desalination plant would not introduce new landscape or visual receptors to those already assessed or alter the judgements regarding the significance of the effects on landscape and visual receptors and the natural beauty and special qualities of the AONB.
- 5.14.160. Several IPs, including Bill Parker [REP8-197] and Leiston-cum-Sizewell Town Council [REP10-194] observed that the temporary desalination plant would further affect the beach amenity and have a detrimental effect on the AONB and SHC. In addition, the AONB Partnership stated that the construction of the temporary desalination plant would not contribute to the statutory purpose of the AONB [REP10-393]. NE's final position is that additional adverse landscape effects would arise to the AONB associated with the construction and siting of the temporary desalination plant [REP10-097].
- 5.14.161. In response to the comments received, the Applicant repeated that the effects of the temporary desalination plant have been appropriately assessed [REP10-156].

ExA's consideration

- 5.14.162. With regard to the proposed desalination plant, the ExA notes the concerns raised by several IPs including NE and the AONB Partnership in respect of additional adverse effects. We accept that the plant would introduce additional infrastructure into the AONB. However, we agree that the scale of the proposed desalination plant would be considerably smaller than the parameters used to assess the landscape and visual

impacts. It therefore follows that the addition of the plant would not result in additional adverse landscape and visual effects beyond those initially assessed as the assessment has already included adverse effects associated with structures up to and beyond the scale of the desalination plant. The ExA is therefore content that the Applicant's assessment has considered construction and operational effects on landscape character and components and on views and visual amenity (NPS EN-1, para 5.9.5 to 5.9.7).

- 5.14.163. The ExA is content that Requirements 24 and 29 would ensure that landscape restoration works would be implemented once the temporary desalination plant was removed. Whilst the ExA acknowledges that its presence would comprise additional infrastructure, we consider that there are no matters relating to the landscape and visual effects arising from the temporary desalination plan which would weigh for or against the Order being made.

Power Export Connection

- 5.14.164. Several IPs, including Aldeburgh Town Council [REP2-172], Yoxford Parish Council [REP2-500], NE [REP10-097], the AONB Partnership [REP10-108] and Stop Sizewell C [REP10-116], raised concern in respect of the use of pylons given the likely additional adverse visual effects and further adverse impact on the AONB. Yoxford Parish Council also observed that alternative technological solutions were available [REP2-500].
- 5.14.165. SCC also considered that the Applicant has failed to make all reasonable endeavours in respect of alternative design options for the electrical connection between the turbine halls and the National Grid Electricity Transmission (NGET) substation [REP10-210]. SCC contends that the proposed pylons and overhead lines would substantially increase the adverse residual landscape and visual effects of the MDS on the character and special qualities of the AONB. SCC considers that the use of Gas Insulated Lines (GIL) would be a viable and less impactful alternative.
- 5.14.166. The issue of the proposed power export connection remained a matter of disagreement between the Applicant and NE, SCC and the AONB Partnership at the close of the Examination, as detailed in the relevant SoCGs [REP10-097], [REP10-102] and [REP10-108].

ExA's consideration

- 5.14.167. The ExA agrees that the use of pylons would add visual clutter to the MDS. The ExA therefore acknowledges that an overhead line with pylons would be more visually intrusive than an underground solution.
- 5.14.168. Whilst a modest level of harm would occur, we are satisfied that the Applicant has thoroughly defended the proposed technology and has provided a detailed technical justification for the design option. We are therefore content that the approach adopted by the Applicant is reasonable and proportionate. It is also concluded in section 5.4 of the

Report that the GIL alternative put forward by SCC does not represent a feasible option.

5.14.169. We are also satisfied that the policy requirement to consider alternatives in respect of conservation of natural beauty of the landscape in nationally designated landscapes (EN-1, para 4.4.2 and 5.9.10) has been met and that the policy requirement to consider undergrounding and guidelines for routing overhead lines has been fully considered by the Applicant (NPS EN-5, Section 2.8).

5.14.170. Therefore, the ExA ascribes little weight relating to landscape and visual effects arising from the power export cable against the making of the Order.

Outage Car Park at Goose Hill

5.14.171. The Applicant proposes two separate car parks for outage staff, one each for Sizewell B and Sizewell C. Both would be in the AONB, with the Sizewell C one located away from the power station platform at Goose Hill. The Applicant considers the proposed location would provide the optimal location and that the car park would be part of the critical infrastructure required to operate and maintain the MDS. No other sites outside of the AONB were considered. Matters relating to alternatives for the Goose Hill outage car park are reported in section 5.4 of this Report.

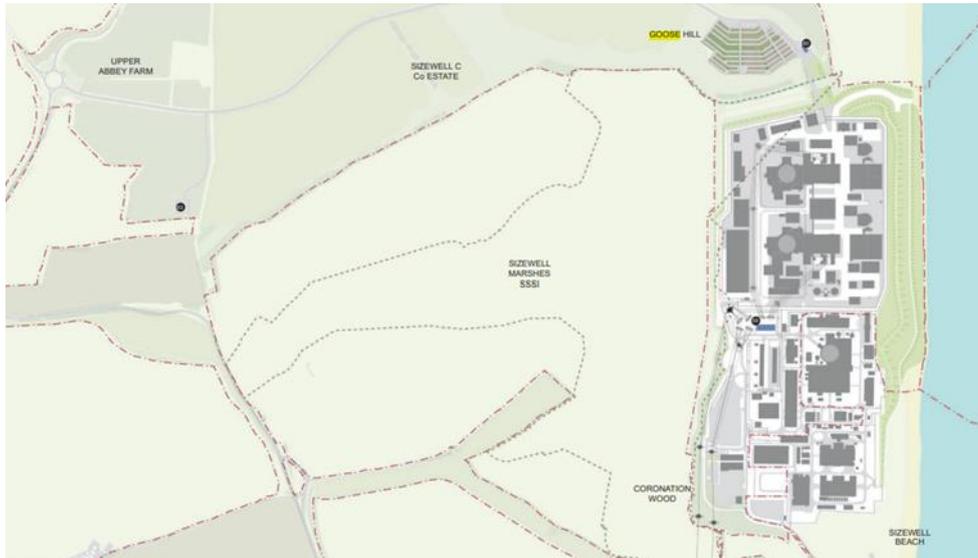


Figure 5.14.11 Extract from Figure 6.29 from DAS [REP10-055]

5.14.172. Whilst acknowledging that the car park would be located within the AONB, the Applicant considers that any impact would be appropriately mitigated by the approach to design and siting. The Applicant considers that the car park would be well-screened from views in from the coast as it would be surrounded by the existing woodland (as set out in the MDS landscape retention plans [APP-020]) and would also be supplemented by additional planting [REP5-110].

5.14.173. The existing woodland would be subject to wider estate management for enhanced value for biodiversity with restocking and replanting and no

clear felling as set out in the Existing Woodland Management Plan, part of the Sizewell Integrated Land Management Plan, part of the oLEMP [REP10-061] secured under dDCO Requirement 14. Additionally, some advance planting has been undertaken [REP10-073, MDS-LV5]. The DAS Overarching Design Principles 2, 3 and 8 all support the retention and enhancement of existing woodland [REP10-055].

- 5.14.174. Also, the Applicant set out that adverse landscape and visual effects would be appropriately mitigated by the approach to design and siting through the extension of existing woodland planting extending from existing perimeter planting and by breaking up the extent of hard standing with planting, different surface materials and walking routes [REP2-100, ExQ1 LI.1.45].



Figure 8.22: Indicative masterplan of Goose Hill

Figure 5.14.12 Extract from Figure 8.22 from DAS [REP10-056]

- 5.14.175. There was sustained disagreement between the Applicant, SCC [REP10-102] and IPs including TASC [REP7-253], NE [REP7-144] and the AONB Partnership [REP7-230] who suggested that other car parking arrangements could be made.

ExA's consideration

- 5.14.176. The matter of the outage car park at Goose Hill was subject to extensive discussions throughout the Examination. The case made for alternatives is reported in section 5.4 of this Report.
- 5.14.177. Turning to adverse effects on landscape and views and the location in the AONB, the ExA agrees with the Applicant that the car park would be well-screened from views in from the coast as it would be surrounded by existing woodland and would be supplemented by additional planting,

including some advance planting, which we are content could be secured via Requirement 24 of the rDCO. As the outage car park would be utilised less frequently than the operational car park, a softer palette of material is proposed, and we agree that the proposed use of cellular grassed paving would integrate the car park more effectively into the surrounding landscape.

- 5.14.178. The ExA is satisfied that following the principles of the DAS would control colours, materials and planting in order to minimise adverse landscape and visual effects (NPS EN-1, para 5.9.22). We are also content with the landscape retention and management plans, which would ensure supplementing and managing existing vegetation (NPS EN-1, para 5.9.23). Also, with regards the proposed location in the AONB, the ExA is satisfied that appropriate requirements which would secure relevant plans have been included in the dDCO which would moderate detrimental effects (NPS EN-1, para 5.9.10, final bullet, and 5.9.11).
- 5.14.179. The ExA therefore considers that there are no matters relating to landscape and visual effects arising from the outage car park at Goose Hill which would weigh for or against the making of the Order. Additionally, we consider that there are some benefits from the supplementary planting which would be undertaken in this area.

Suffolk Coast and Heaths Area of Outstanding Natural Beauty and Suffolk Heritage Coast

Introduction

- 5.14.180. The Proposed Development would be in a relatively narrow section of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (the AONB). It would be partially located in the Suffolk Heritage Coast (SHC).

Plate 8.2: Site Location Plan showing AONB

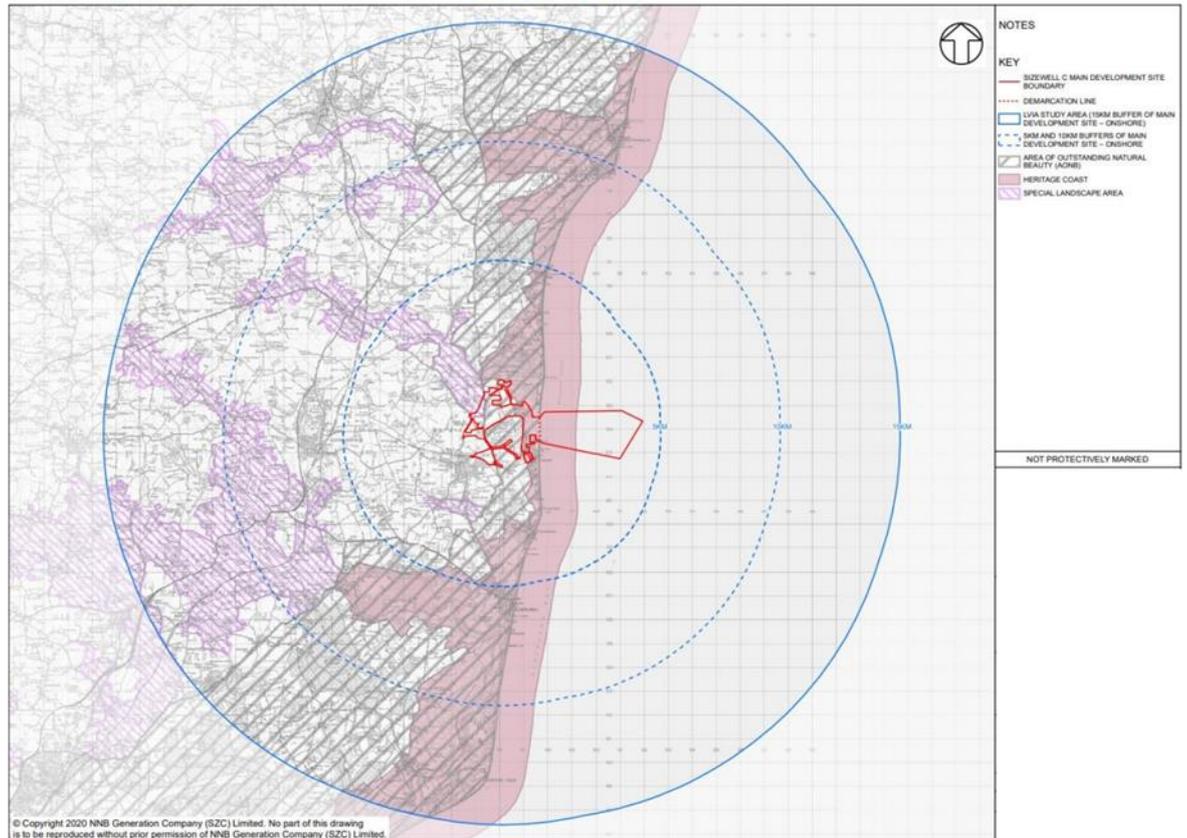


Figure 5.14.13 Plate 8.2 from Planning Statement [APP-590]

- 5.14.181. As defined in paragraph 85 of the Countryside and Rights of Way Act 2000 (Chapter 3 of this Report) the statutory purpose of the AONB is defined as 'to conserve and enhance the natural beauty of the AONB'. The natural beauty and special qualities of the AONB is defined by a series of features agreed between the Applicant, ESC, SCC and the AONB Partnership [REP1-079]. Matters in relation to the broader special qualities are further reported in the Amenity and Recreation section of this Report.
- 5.14.182. The purpose of the SHC includes the conservation, protection, and enhancement of the natural beauty of the coast. Whilst not a statutory designation, the qualities of the heritage coast contribute to the AONB designation [REP10-055].
- 5.14.183. Features that would be introduced to the AONB include: the main buildings on the MDS, new roads, pylons, infrastructure on the beach, a crossing in the SSSI, car park, heavy goods vehicle movements, increased height of sea defences, significant levels of lighting and human and vehicle movements associated with the adjacent Accommodation Campus.
- 5.14.184. In terms of actual size, the construction footprint at approximately 2.5 sq.km and the permanent built development footprint of approximately 0.33sq. km is a small percentage of the AONB.

- 5.14.185. In respect of landscape and visual mitigation measures, the DoO has been drafted and executed with both ESC and SCC [REP10-075] to [REP10-084]. The measures contained within the DoO secure monetary packages towards necessary mitigation as well as the necessary controls, monitoring packages, triggers, and onward payments to other organisations to mitigate adverse effects arising from the Proposed Development.
- 5.14.186. A Natural Environment Improvement Fund is contained with Schedule 11 of the DoO. The Fund would be implemented on or before the commencement of development and for 3 years after the end of construction. A minimum of 50% of the Fund would be allocated to projects within the AONB and SHC. One aim of the Fund would be for projects to help mitigate the residual adverse landscape and visual effects of the Proposed Development and to deliver sustainable long-term management and maintenance of woodlands, hedges and vegetation that contribute to the conservation and enhancement of landscape character.
- 5.14.187. Matters arose during the Examination in relation to effects of specific components of the Proposed Development in and close to the AONB as well as general points regarding the AONB. The former has been reported in earlier sections. The AONB-wide matters which arose and are reported here are:
- whether adverse effects are localised in the AONB;
 - severance of the AONB;
 - construction effects in the AONB;
 - operational phase effects including design principles in the AONB;
 - mitigation and enhancement;
 - statutory purpose of the AONB; and
 - compliance with the NPPF.

Whether adverse effects are localised in the AONB

- 5.14.188. The Applicant's assessment concludes that significant adverse landscape and visual effects would be localised and that there would be no significant overall adverse effect on the AONB [APP-216]. The Applicant states that the LVIA defines the extent of adverse landscape and visual effects based on an agreed baseline and understanding of the AONB's natural beauty and special qualities [REP10-156, para 2.18.9]. The Applicant concludes that there would not be significant adverse landscape or visual effects across the whole of the AONB in terms of landscape matters as they relate to natural beauty and special qualities. It is however acknowledged that there would be significant adverse landscape and visual effects in defined areas at construction and operation phases.
- 5.14.189. NE, the AONB Partnership and the NT consider the AONB to be a single entity and therefore any adverse landscape or visual effect on any part of the AONB would result in adverse effects on the AONB as a whole [REP10-097], [REP10-108] and [REP10-112]. TASC considers that the Applicant has attempted to temper the importance of the finding of significant adverse effects on the AONB by stating that the effects would only occur over a very limited extent of the designation [REP5-296].

ExA's consideration

- 5.14.190. Whilst accepting that controls would be in place to minimise effects where possible, we consider much wider, significant adverse effects are likely to occur in respect of landscape and scenic qualities, relative wildness and tranquillity than concluded in the Applicant's assessment.
- 5.14.191. In this respect and taking into consideration the sensitivity of the landscape receptors, we agree with NE and others that even with screening and embedded mitigation, the construction phase would alter how this part of the AONB is viewed and used for a period of up to 12 years. Additionally, the extent and duration of the construction activities would communicate their presence to users of the wider AONB.

Severance of the AONB

- 5.14.192. In respect of severance, the Applicant accepts that the AONB does narrow at Sizewell to Eastbridge Road and Lovers Lane but disagrees that total severance would occur [REP5-110]. It argues that access for the AONB would remain along the coast, apart from in rare circumstances where it may be unsafe to do so during the construction of the BLF, MBIF and the coastal defences.
- 5.14.193. Given the scale of the MDS, located within a relatively narrow part of a nationally designated landscape, several IPs raised concerns as to whether the MDS would result in severance of the AONB. These included the following:
- the MDS is within a narrow neck of the AONB and would functionally sever the AONB at the coastal narrow point, resulting in a significant adverse effect on the integrity of the AONB as a whole, NE [REP2-153];
 - the sheer size and extent of the MDS would stretch across the AONB and would permanently sever the AONB, TASC [REP2-481f), Theberton and Eastbridge Parish Council and Stop Sizewell C [REP2-449a], [REP2-450], [REP5-286] and [REP5-296], Leiston-cum-Sizewell Town Council [REP2-184];
 - severance would also occur during the operational phase due to the access road, the AONB Partnership at [REP5-270] and [REP10-108].
- 5.14.194. The impact of the MDS on the AONB was discussed at ISH5 [EV-074]. The Applicant stated its disagreement with NE in respect of the shift in landscape character to one primarily associated with energy infrastructure, as it felt that the expansive coastal setting of the MDS would remain dominant [REP5-110]. In respect of adverse effects of the operational road, the Applicant concluded that the proposed design and surrounding landscape would enable the road to be assimilated into the enhanced Sandlings landscape as part of the wider estate masterplan and would be similar in appearance and character as existing roads extending throughout the AONB [REP10-108].

ExA's consideration

5.14.195. The Proposed Development would be located in a relatively narrow section of the AONB. We agree that the MDS would narrow the AONB further in the vicinity of Sizewell to Eastbridge Road and Lovers Lane. However, whilst diversions would be necessary, and at times access to specific locations may be fully restricted for safety reasons, access to the AONB would remain along the coast and severance of the AONB in this location would not occur. We therefore agree with the Applicant that the AONB would not be severed during construction or operation.

Construction effects in the AONB

5.14.196. The Applicant concludes that the construction phase of the Proposed Development would lead to limited significant residual adverse landscape and visual effects [APP-216].

5.14.197. NE raised concerns regarding the length of the construction phase and adverse effects on the AONB. The 10–12-year construction phase, combined with the geographic extent of the construction areas and construction related activities could permanently alter how this section of the AONB is viewed, used and enjoyed [REP10-097]. NE considers construction activities within the MDS would communicate their presence through a host of perceptual cues.

ExA's consideration

5.14.198. Although the MDS relates to a limited geographical area of the AONB, given the intensity, scale and duration of construction, we consider that the level of harm would not be localised, rather it would be experienced across the AONB as a whole. We therefore disagree with the findings of the Applicant's LVIA in respect of effect on the AONB during the construction phase and conclude that the extent of impact on the natural beauty qualities of the AONB has been understated. We therefore do not support the proposition that the overall integrity and resilience of the wider designated landscape would not be compromised during construction.

5.14.199. This is because even with design principles and embedded mitigation measures in place, including screening by retained woodland, the creation of earth bunds and use of acoustic and temporary fencing, we consider that the effects on the AONB would be widespread and not just localised, contrary to the Applicant's assessment conclusions.

5.14.200. Additionally, whilst illustrative in nature and in some circumstances presenting a worst-case scenario, the submitted visualisations clearly indicate the potential scale of the construction activities at what would currently be one of Europe's largest construction sites.

5.14.201. However, we concur with the Applicant that embedded mitigation measures have been included as far as is practicably possible for the construction phase. These measures have been proposed with the aim of minimising the extent of physical disturbance to the landscape and the visual prominence of activity and temporary buildings and structures.

- 5.14.202. Whilst 10 to 12 years would be a long construction phase, in the context of the nature of the Proposed Development, the ExA considers it to a reasonable timescale after which the landscape effects would be capable of being reversed (NPS EN-1, para 5.9.16).

Operational Phase

- 5.14.203. The Applicant concludes that to minimise effects during operation, the design of the MDS has been developed to limit the visual prominence of the operational power station buildings, structures and infrastructure [APP-159]. Measures included within the DAS, such as the sea defences and reinstated Northern Mound would assist in screening views of activity and lower lying buildings at the main platform locations from views along Sizewell beach and offshore. In addition, the design and specification of façade materials and colours would be in keeping with the existing buildings and structures and respond to the local landscape and built context. Building height and locational parameters have been established to control the visibility of permanent structures.
- 5.14.204. However, even with the design mitigation measures in place, some significant residual adverse effects would remain. These would however be greatly reduced in comparison to the construction phase and would arise mainly due to views of the main platform, pylons, and permanent BLF [APP-216].
- 5.14.205. Further recognition in respect of the design is included within the DoO at Schedule 17, which includes the establishment of the Suffolk Design Review Panel. Prior to s submission pursuant to Requirement 17 of the dDCO, a Design Panel would attend a site visit and prepare a report providing written advice in respect of the proposed design of various elements of the MDS. Upon the submission of details pursuant to Requirement 17, the Applicant would be required to confirm what regard has been given to the advice.
- 5.14.206. In respect of design, both ESC and SCC acknowledge both the embedded mitigation and additional mitigation which would be secured via the DCO. In their summary of final position, ESC confirmed that any remaining areas of disagreement in respect of landscape, visual and design effects are considered to be appropriately addressed through mitigation included in the signed and executed DoO [REP10-182, para 17].
- 5.14.207. Areas of disagreement remain in respect of SCC and the power export connection and outage car park, as detailed above. In addition, whilst SCC has agreed and executed the DoO, they do not consider that the mitigations secured by the DoO would overcome all residual adverse effects. However, although not a material consideration, SCC are content that the Environment Trust to be executed in parallel to the DoO would address the residual adverse effects [REP10-210].
- 5.14.208. The AONB Partnership acknowledges the efforts to minimise effects via design and is content that the DoO is the best vehicle to deliver mitigation and also recognises the need for development in the AONB and the demand for electricity. However, they consider the scale of the

proposals cannot be satisfactorily mitigated in respect of negative impacts on the AONB [REP10-108].

- 5.14.209. TASC raised concerns in respect of the operational phase and the impact on the landscape character and appearance of the area and how the AONB would be significantly compromised during operation [REP10-419].

ExA's consideration

- 5.14.210. The ExA accepts that nuclear power generation has been a feature of the AONB since the construction of Sizewell A began in 1961 and that Sizewell B was also built and delivered within the AONB. However, the presence of existing infrastructure is not an automatic guarantee that the receiving landscape would continue to function in the same manner.
- 5.14.211. During the operational phase, we agree with parties that consider there would be significant adverse effects for visual receptors and natural beauty indicators and the special qualities, but that this would be over a much more limited extent of the AONB than for construction.
- 5.14.212. We accept that during operation, views of the MDS would consist mainly of the taller buildings on the main platform and the geographical extent of significant adverse visual effects would be reduced to the area adjacent to the main platform and to the north beyond Goose Hill to Minsmere Sluice and into some small areas of Sizewell Belts. There is no doubt that the MDS would be a notable increase of built form, however as the design of the main buildings on the MDS would continue on the existing axis of the current Sizewell structures, from most views the turbine halls and OSC would be seen behind or alongside Sizewell A and B.
- 5.14.213. We consider the DAS, which would be secured by Requirement 24 of the dDCO, sets out the Applicant's approach to design and addresses landscape and visual effects thoroughly. Furthermore, we are content that the DAS would provide the relevant authorities concerned with post-consent discharge of Requirements appropriate detail and measures through which mitigation, as far as possible, of adverse landscape and visual effects and adherence to good design could be secured.

Mitigation and enhancement

- 5.14.214. Following construction, the temporary construction area at the MDS would be restored to a new landscape founded on the concept of establishing the AONB landscape in microcosm. This would be undertaken by creating a mosaic of some of the most valued habitats comprising locally characteristic Sandlings habitat, which would include approximately 121 ha of dry Sandlings grassland and 51 ha of mixed woodland. Once fully established, it is anticipated that the habitat mosaic would have a higher biodiversity value than the existing habitats, specifically as extensive arable areas and plantations are to be replaced with locally characteristic semi natural habitats at scale [REP10-061].

- 5.14.215. As mentioned above the Applicant has proposed a Natural Environment Improvement Fund, which is contained within Schedule 11 of the DoO [REP10-075, epage 94]. During construction, and for three years following the end of construction, applications for funding from the Improvement Fund would be invited. A minimum of 50% of the Fund is to be allocated to projects within the AONB and SHC. One of the aims of the Fund is for projects to help mitigate the residual landscape and visual impact of the Proposed Development and to deliver sustainable long-term management and maintenance of woodlands, hedges and vegetation that contribute to the conservation and enhancement of landscape character.
- 5.14.216. The Applicant also proposes to provide funding for an Environment Trust, which would be secured in a separate Deed executed in parallel to the DoO. The Trust would establish an environmental charity which would, through funding, promote the conservation, protection and enhancement and improvement of the physical environment. The Applicant has stated that the establishment of the Trust is not considered necessary to mitigate the effects of the Proposed Development and is a project enhancement relating to the positive legacy it wishes to leave in the locality. Details of the Environment Trust have not been submitted into the Examination.
- 5.14.217. Opinions on the efficacy of the mitigation and enhancement varied at the end of the Examination:
- ESC considers that the Natural Environment Improvement Fund would enable the adverse effects of the proposal on the AONB to be adequately addressed during the construction and immediate post-construction phase of the Proposed Development and that the package of mitigation which has now been agreed and secured through both the dDCO and DoO would overcome the residual adverse impacts on the landscape and the AONB [REP10-182];
 - SCC does not consider that the mitigation secured by the DoO would, on its own, overcome the residual adverse landscape and visual effects of the MDS on the AONB. But SCC considers that the scale of the funds available within the Environment Trust would make a meaningful contribution to addressing residual adverse effects [REP10-183];
 - the AONB Partnership recognised that the Applicant had sought to reduce negative effects on the AONB through mitigation, including the design of the turbine halls and sea defences and the retention of some screening. However, despite these measures, they raised concern over the significant residual operational impacts and that the scale of the Proposed Development cannot be satisfactorily mitigated in respect of the effect on the AONB [REP10-108]; and
 - Stop Sizewell C, in their SoCG [REP10-116], stated that mitigation is simply not possible, and that the development is inappropriate in the AONB setting.

ExA's consideration

- 5.14.218. In reaching its conclusions, the ExA has given no weight to the proposed setting up of the Environment Trust as it was not put before the Examination.
- 5.14.219. We acknowledge that even with mitigation in place the Proposed Development would result in some residual significant adverse landscape and visual effects for construction and operation, although this is to be anticipated with any nationally significant infrastructure project and as detailed in the NPSs. We are however content that the mitigation measures set out and secured via the dDCO and DoO have been appropriately designed, are proportionate and would assist in mitigating adverse landscape and visual effects during construction and bring lasting enhancements to the AONB and wider landscape.
- 5.14.220. Despite the residual significant adverse landscape and visual effects, the ExA agrees that positive benefits would also be experienced within the AONB due to the proposed enhancement, restoration, and long-term management of the landscape.
- 5.14.221. We agree with the proposed landscape vision and agree that the enhancements would establish a strong landscape character which would lift the existing landscape quality and increase value. Additionally, we consider that the landscape improvements would also complement the existing landscape to the north at the RSPB Minsmere Reserve and the NT Dunwich Heath and south of the Sizewell Gap at The Walks and Aldringham Common. We are satisfied that the restoration of the landscape would be adequately controlled by Requirement 24 of the rDCO, which requires a landscape and ecology scheme to be approved by ESC. In this regard we consider there are benefits from the Proposed Development to the overall effect on landscape character, which we will weigh in the planning balance when concluding on landscape matters.

Statutory Purpose of the AONB

- 5.14.222. The Applicant argues that, as a whole, the AONB would continue to perform its statutory purpose. Justification was presented based on Sizewell B being built and delivered within the designated areas and has essentially become integrated as part of the AONB. The Applicant states that the MDS would be no different and that the wider functioning of the AONB would not be fundamentally impacted as a result. Additionally, the Applicant argues that the mitigation proposed in respect of the Natural Environment Fund, at Schedule 11 of the DoO is reasonable and appropriate and is agreed by other relevant IPs as appropriate to address any residual adverse landscape and visual effects [REP10-156].
- 5.14.223. The Applicant further highlights that consideration of the statutory purpose issue also needs to recognise the exceptional circumstances inherent in the national need for new low carbon energy and the comprehensive nature of the site selection exercise that lies behind the development of NPS EN-6 and its identification of Sizewell C as one of a very few locations potentially suitable for a new nuclear power station [REP10-156].

- 5.14.224. Several IPs raised concern that the MDS would not contribute to the purpose or defined qualities of the AONB and that the statutory purpose of the AONB would be adversely affected and that the Applicant had failed to give sufficient weight to the statutory purpose of the AONB [REP2-184], [REP2-447], [REP2-473], [REP2-488], [REP5-156] and [REP5-296]. Also:
- in the Joint LIR review, the Councils still consider that the MDS would have considerable negative impact on the statutory purpose of the AONB, both during construction and operation [REP10-183];
 - in their SoCG, NE conclude that they consider the effects of the MDS would have a significant adverse effect on the AONB and its statutory purpose [REP10-097];
 - the AONB Partnership stated at DL2 that the repetition of the HPC design confirms that the Applicant has not sought to adapt the design sufficiently to avoid and minimise impact on the landscape character, natural beauty and special qualities of the AONB [REP2-163 in response to ExQ1 LI.1.2]. At the end of the Examination, the AONB Partnership acknowledged that nuclear power stations are a feature of this part of the AONB, but that the MDS would not contribute to the AONB purpose or defined qualities and fears that the MDS would affect the statutory purpose of the AONB [REP10-108]; and
 - TASC noted that the long-term adverse effects would diminish the ability of the area to continue to meet the requirements of its designated statutory purpose [REP2-481f].
- 5.14.225. The issue was further discussed at both ISH5 [EV-111] to [EV-115] and ISH13 [EV-207] to [EV-209] where it was evident that a significant level of concern remained in respect of the statutory purpose of the AONB. In response to concerns, the Applicant at [REP5-110] and [REP10-156] acknowledged that significant adverse landscape and visual effects would arise from the MDS. However, that in the short-term during construction, such adverse effects are their widest effect but localised and only for a defined period and are reversible.
- 5.14.226. Both NE, the AONB Partnership and several other IPs concluded that even with the proposed mitigation in place, a question hangs over the ability of the AONB to be able to continue to deliver its statutory purpose. TASC also considers that such effects may result in the land coming under pressure to be removed from the AONB altogether on a future boundary review [REP5-296].

ExA's consideration

- 5.14.227. Despite the appropriateness of the mitigation measures, we consider residual adverse impacts would remain within the AONB (and SHC) during construction, but these would be temporary and reversible. We therefore conclude that although significant adverse effects would be experienced across the whole AONB, we are content that the overall purpose of designation would not be compromised and the AONB would continue to perform its statutory purpose.

5.14.228. During operation even with the proposed mitigation measures in place, we find that some residual adverse effects would remain. However, as detailed within the relevant NPS EN-6, this is to be anticipated with any nationally significant infrastructure project. Overall, we are satisfied that the mitigation measures as proposed and secured via the dDCO and DoO have been designed as far as is practicably possible to mitigate significant adverse effects during operation and would bring about lasting enhancements to the AONB and wider landscape. The wider functioning of the AONB would not be fundamentally impacted and significant adverse effects would be localised. As such, we are content that the overall purpose of designation would not be compromised and the AONB would continue to perform its statutory purpose.

5.14.229. We concur that the spatial extent of effect on the natural beauty indicators would reduce, and significant adverse effects would remain in respect of landscape quality, relative tranquillity and relative wildness due mainly to the introduction of the main platform buildings and pylons.

The Suffolk Heritage Coast

5.14.230. Due to the scale and proximity to construction activities on the coastline, adverse significant effects would be experienced to the north and south of the MDS and would extend up to 2km offshore. Although the most westerly part of the MDS is not located in the SHC, the Applicant has concluded that the effects on the onshore elements of the SHC are the same as for the AONB.

ExA's consideration

5.14.231. We consider that the construction of the MDS would result in a notable change to the current AONB and SHC. As already discussed, whilst the embedded mitigation measures would be appropriate for the sensitive landscape, we do not agree that effects would be localised within the AONB and that significant adverse effects would be experienced on a wider geographical scale than concluded by the Applicant.

5.14.232. As with during the construction phase, effects on the SHC during operation would be similar to those experienced in the AONB. Whilst such effects would remain for the lifetime of the project, significant adverse effects would be relatively well localised in respect of the areas adjacent to the MDS and northwards along the coastline to just beyond Goose Hill and to approximately 1km offshore.

AONB and SHC cumulative effects

5.14.233. The assessment of cumulative effects for all aspects of the Proposed Development is contained within ES Volume 10 [APP-572] to [APP-578], [AS-016] and [REP7-032]. Further detail in respect of cumulative effects across the Proposed Development as a whole is discussed in section 5.10 of this Report.

5.14.234. The Applicant acknowledges that other projects in the area, particularly the cable route and substation elements of East Anglia One North and East Anglia Two, could affect the AONB, SHC and Visual Receptor Groups

18, 19 and 20. However, the Applicant concludes that the addition of other proposals during construction and operational phases would not result in an increase to the significance of effects already reported [APP-587].

- 5.14.235. In their initial LIR, both ESC and SCC confirmed that there is significant potential for cumulative impacts that would further exacerbate the issues identified in the LIR. with implications for the mitigation measures required [REP1-045, para 32.2].
- 5.14.236. Matters in relation to cumulative effects were discussed at ISH13 [EV-207] to [EV-209]. However, during ISH13 ESC confirmed that the proposed embedded mitigation, together with the obligations secured through Schedule 11 of the DoO, would provide appropriate mitigation to address the cumulative impacts on the AONB [REP8-151].
- 5.14.237. SCC confirmed that it is in broad agreement, subject to the concerns in relation to the power export connection, outage car park and SSSI crossing where they are continuing to press for refinements to the proposals, with all of the provisions that are now anticipated to be in place and that adequate mitigation and off-setting for the overall impact on the AONB is capable of being achieved if those matters are secured. Whilst there will remain some residual impacts to be weighed in the planning balance, SCC does not consider further mitigation/ offsetting to be achievable [REP8-184].
- 5.14.238. The AONB Partnership however does not consider that design measures alone for any individual projects can adequately mitigate the cumulative impacts on the AONB. It notes that there will be places in the AONB where significant energy project infrastructure will be seen over a 360-degree view and will therefore detract from the experience of the AONB [REP8-266].
- 5.14.239. Both NE and the AONB Partnership also state that they do not consider that a suitably robust assessment has been undertaken on cumulative impacts from all project elements on nationally designated sites and their notified features, which often form part of the AONB defined qualities. Furthermore, both IPs also confirm that they do not believe that the design mitigation measures proposed could adequately address the general cumulative effect of the MDS with existing energy infrastructure on the landscape character of the AONB and on the delivery of its statutory purpose during construction and operation [REP8-266] and [REP10-108].
- 5.14.240. Theberton and Eastbridge Parish Council and Stop Sizewell C confirmed that they endorsed the comments made by the AONB Partnership at ISH13 [REP8-278].

ExA's consideration

- 5.14.241. The ExA is satisfied with the methodology adopted for the cumulative assessment and that an appropriate cumulative assessment has been undertaken. The ExA therefore considers that the approach adopted by

the Applicant is consistent with that required in paragraph 4.2.5 of NPS EN-1. Additionally, the ExA considers that the embedded mitigation included in respect of the MDS would be appropriate for the sensitive landscape designation.

- 5.14.242. However, in relation to the overall effect on the AONB and SHC and despite the proposed mitigation measures, residual adverse landscape and visual effects would remain. The ExA therefore ascribes very substantial weight in respect of the construction phase and substantial weight in respect of the operational phase to these matters against the Order being made.

Compliance with the NPPF

- 5.14.243. The ExA is mindful of the weight that the NPPF attributes to conserving and enhancing landscape and scenic beauty in AONBs and to the requirement for exceptional circumstances. The ExA is content that a case has been made by the Applicant to warrant exceptional circumstances. In balancing the adverse landscape and visual effects in the AONB with the benefits from wider enhancement that would be delivered and the secured commitments to good design, the ExA is content that the tests in the NPPF have been met.

- 5.14.244. Likewise, the ExA has given full consideration to the special character of the SHC. We consider that through the mitigation and attention to good design that the Applicant has had regard to the special character of the area and to its conservation. Notwithstanding this, it would be major development in the SHC. The ExA is content that the justification has been made on grounds of exceptional circumstances for the AONB and that the NPPF test would therefore be met because the SHC extends along the coastline of Suffolk where it coincides with the AONB.

Overall conclusions on the AONB and the SHC

- 5.14.245. The ExA has given due consideration to the conservation of natural beauty of the landscape and countryside and to the statutory purpose of the AONB during the Examination. Whilst we have disagreed with the Applicant's interpretation of the extent of significant adverse landscape and visual effects for construction phase over the entire AONB area, we have concluded that these would be capable of reversal in a reasonable (for the nature of the Proposed Development) timescale (NPS EN-1, para 5.9.16). For the operation phase we do not believe that the AONB's statutory purpose would be compromised, and we consider that the Applicant's proposed mitigation, enhancement and commitment to good design through the DAS would address adverse visual effects as far as is reasonable and would add to landscape quality through enhancement (NPS EN-1, para 5.9.9).
- 5.14.246. The ExA is content that the tests for alternatives have been met and as reported above we consider that the detrimental effects on the landscape character and views that would arise have been mitigated for both construction and operation as far as is reasonably practicable (NPS EN-1, para 5.9.10).

- 5.14.247. The ExA is satisfied that the dDCO would secure high environmental standards through Requirements which set out the landscape vision and good design in the DAS and through other enhancements that would provide an enhanced expansive naturalised landscape and would aim to ensure the long-term sustainability and resilience of the landscape, by including measures to increase resilience to predicted climate change (NPS EN-1, para 5.9.11).
- 5.14.248. As stated above the ExA is satisfied that the NPPF test would be met.
- 5.14.249. In reaching its view on the weight to give to adverse landscape and visual effects on the AONB, the ExA is mindful of the requirement for decision makers to give substantial weight to the natural beauty of the landscape and the countryside (NPS EN-1, para 5.9.9). In this regard and because there would be residual adverse landscape and visual effects, the ExA ascribes very substantial weight in respect of the construction phase and substantial weight in respect of the operational phase to these matters against the Order being made. There would however also be benefits to the AONB because of the lasting enhancements that would be delivered to the wider landscape of the AONB.

Associated Development Sites

Design Approach

- 5.14.250. Chapter 2, paragraph 2.3 of Volumes 3 to 9 of the ES confirms that the Applicant has adopted a parameters approach to ensure that the design process has adequate flexibility to allow the Proposed Development to be delivered. The parameters have informed the assessment present within the ES chapters and a reasonable worst-case scenario has been used to assess and mitigate potential adverse effects arising from the scheme [APP-350], [APP-380], [APP-411], [APP-446], [APP-480], [APP-511] and [APP-541].
- 5.14.251. The associated development sites are to be constructed, operated and maintained anywhere within the lines or situations shown on the Works Plans, and to also be in accordance with the approved plans which will include a Parameter Plan. Additionally, the associated development sites must also be in accordance with the design principles as set out in the Associated Development Design Principles (ADDP) [REP10-063].
- 5.14.252. The Applicant states that the design principles contained within the ADDP have been developed in consultation with local authorities and other stakeholders. The design principles set the framework to which the final detailed design of the associated development sites would adhere. Where there is a requirement within the dDCO to submit detailed designs for approval or where revised plans may be submitted for approval, the designs will need to accord with the relevant design principles as set out in the ADDP [REP10-063, para 1.1.11].
- 5.14.253. The design principles are stated as serving the following functions:

- set the principles that will be used to develop detailed design proposals for buildings, structures and landscaped areas of the associated development sites;
- describe the primary mitigation that has informed the assessment of the likely significant environmental effects of the associated development sites;
- define design commitments that reflect comments and feedback from IPs responses during the pre-application consultation process; and
- define the criteria for good design, as set out in NPS EN-1 and NPS EN-6, to ensure that the development is as attractive, durable and adaptable as it can be, taking account of regulatory and other constraints [REP10-063, para 1.1.12].

5.14.254. Section 2 of the ADDP outlines the general design principles to apply across all the associated development sites, with section 3 detailing the site-specific design principles.

5.14.255. In respect of landscape, visual and design considerations, the design principles within the ADDP would be secured by the following Requirements within the dDCO:

- Requirement 31 requires the rail works to be carried out in accordance with section 2 and the relevant table in section 3 of the ADDP. Any alternative plans or details for the associated development works must be in general accordance with section 2 and the relevant table in section 3 of the ADDP;
- Requirement 33 requires that a statement of compliance demonstrating how the plans and details for the Northern Park and Ride (NPR), Southern Park and Ride (SPR) and Freight Management Facility (FMF) have incorporated the design principles in section 2 and the relevant table in section 3 of the ADDP. This must be submitted to and approved by ESC prior to works commencing. Any alternative plans or details submitted to ESC for approval must be in general accordance with section 2 and the relevant table in section 3 of the ADDP;
- Requirement 35 requires that the details of highway works submitted to SCC for approval are in general accordance with the design principles in section 2 and the relevant table in section 3 of the ADDP; and
- Requirement 36 requires the landscape works for the Two Village Bypass (TVB) and Sizewell Link Road (SLR) submitted to ESC for approval to be in general accordance with the design principles in section 2 and the relevant tables in section 3 of the ADDP [REP10-063, para 1.1.5 to 1.1.8].

5.14.256. The Applicant submitted a SLR and TVB Landscape and Ecological Management Plan (LEMP) [REP10-065] and [REP10-066]. The LEMPs provide clear objectives and general principles for the establishment and longer-term management of the landscape, and ecological mitigations identified for the areas within the SLR and TVB sites following construction [REP10-065, para 1.1.1] and [REP10-066, para 1.1.1].

- 5.14.257. The objectives of the LEMPs that underpin the management plans are designed to contribute towards the overall design principles for the TVB and SLR as detailed in the ADDP. The overriding intention of the LEMPs are to conserve, restore and enhance landscape character and biodiversity. Where practicable, existing landscape features of importance for ecology and visual screening must be retained during the construction of the SLR and TVB [REP10-065, para 4.1.2] and [REP10-066, para 4.1.2].
- 5.14.258. Other design objectives include the creation and management of planting to minimise the visual impact of the SLR and TVB in views from the surrounding landscape. This would minimise impacts on cultural heritage resources, improve access and recreation infrastructure and ensure the long-term sustainability and resilience of the landscape [REP10-065, para 4.1.4] and [REP10-066, para 4.1.4]. Site specific landscape and ecological objectives to guide long term management are detailed at paragraph 4.1.5 of [REP10-065] and [REP10-066].
- 5.14.259. Both LEMPs would be secured by Requirement 36(4) and (5) and detailed landscape schemes are to be submitted before construction of the TVB and SLR commences. The landscape schemes must be managed in accordance with the relevant LEMP, unless agreed with ESC pursuant to Requirement 36 [REP10-065, para 1.1.5] and [REP10-66, para 1.1.5].
- 5.14.260. The Applicant confirmed that the parameters and design principles within the ADDP had been discussed and agreed with ESC and SCC [REP3-042, para 8.2.10]. However, throughout the Examination both ESC and SCC requested further amendments to the ADDP [REP8-140] and [REP8-179]. These were addressed by the Applicant, with a final version being submitted at DL10 [REP10-063].
- 5.14.261. At the close of the Examination, ESC and SCC confirmed that the mitigation measures identified within the LEMPs were appropriate, subject to the amendments discussed with the Applicant to the versions submitted at DL10 [REP10-102] and [REP10-183].
- 5.14.262. Site-specific design concerns raised by IPs are considered in the relevant associated development site sections below.

ExA's consideration

- 5.14.263. In respect of the approach to the design of the proposed associated development sites, the ExA is content with the approach contained within the ADDP and two LEMPs and the way in which they would be secured and used for the post-consent discharge of requirements.
- 5.14.264. We are also satisfied that adequate control would exist within the rDCO to ensure that the proposed landscape visions can be successfully delivered. The ExA considers that such controls would minimise harm to the landscape and provide reasonable mitigation where possible (NPS EN-1, para 5.9.8 and 5.9.17).
- 5.14.265. The ExA's conclusions on good design are reported later in this section.

Sizewell Link Road

- 5.14.266. The Applicant states that the construction of the SLR would result in several landscape features being modified or removed, these would include:
- replacement of arable farmland with a new link road;
 - changes to the landform through cut and fill operations to create the vertical alignment of the proposed route;
 - removal of approximately 5.6km of hedgerows from various points within the site;
 - removal of approximately 11 individual trees; and
 - removal of approximately 9460m² of woodland and scrub from within the site [APP-457, para 6.6.8].
- 5.14.267. Primary landscape mitigation measures are included within the design of the SLR and are detailed in the ES chapter [APP-457, para 6.5.5] and the ADDP [REP10-063, Table 3.5] and include:
- existing woodland and hedgerows would be retained where possible. Where vegetation is with the land required to facilitate construction and is temporarily lost it would be replanted at the end of construction;
 - native hedgerows would be planted along the route of the SLR to integrate the road with the surrounding landscape and compensate for the loss of hedgerows due to construction of the road. The hedgerows would connect into the existing network where possible;
 - tree and shrub planting is proposed around infiltration basins south of the SLR, to help integrate the features into the surrounding landscape;
 - woodland planting is proposed along the route to compensate for the loss of woodland during construction; and
 - lighting columns would be up to 10m in height and lighting would be provided at the A12 western roundabout, and the B1122 northern roundabout. The rest of the route of the road would be unlit.
- 5.14.268. Tertiary mitigation measures to minimise landscape and visual effects during construction are detailed within the CoCP, which would be secured by Requirement 2 of the dDCO [REP10-009], and include:
- the control of site lighting to minimise intrusion into residential properties and sensitive areas;
 - avoidance of unnecessary tree removal and appropriate protection of trees and vegetation; and
 - appropriate design of hoardings around construction activities.
- 5.14.269. Apart from the replacement of any plant failures within five years of planting which would be secured by Requirement 37 of the dDCO [REP10-009], the Applicant states no secondary mitigation measures are proposed [APP-457, para 6.7.2].
- 5.14.270. The Applicant states that with mitigation measures in place, significant residual adverse effects would remain for Visual Receptor Groups 1, 3, 4,

5 and 7 during the construction phase. Such effects are identified to occur during construction due to the visibility of:

- the proposed A12 and B1122 roundabouts;
- construction of the road;
- views of temporary contractor compounds; and
- views of the overbridge [APP-457, Table 6.11 and 6.12].

- 5.14.271. The Applicant submitted a LEMP for the SLR [AS-264] and [AS-265], which was updated during the Examination [REP10-065]. The overarching objective of the LEMP is to set out how the habitats to be established along the SLR are to be created and managed in the long-term. In respect of detailed landscape schemes, these would be submitted prior to the commencement of construction. The landscape scheme must then be managed in accordance with the LEMP unless otherwise agreed by ESC pursuant to Requirement 36 of the dDCO.
- 5.14.272. As part of Change 18, the Applicant submitted an amendment to the design of the proposed Pretty Road Bridge, from a non-motorised user bridge to a vehicular bridge. This change would result in the junction between Pretty Road and the SLR on the west side of the route no longer being required. The Applicant reported no new or materially different likely significant effects than in the LVIA [REP5-002].
- 5.14.273. In the LIR, both ESC and SCC acknowledge that the SLR would cut across well-established landscape patterns and that it may be detrimental to the relative wildness characteristic of the AONB. In addition, long distance views may also be compromised by the introduction of built structures and activity from the construction sites [REP1-045]. Whilst both Councils accept that the SLR is necessary to mitigate the effects of construction traffic, ESC and SCC reached different conclusions as to the merit of the permanency of the SLR and the extent of its legacy value.
- 5.14.274. SCC is seeking the removal of the SLR at the end of construction. They acknowledge the benefits of the SLR for local communities and that this outweighs any damage caused to the environment by the construction and that its early provision is essential mitigation for construction traffic effects. However, once construction is complete and traffic volumes on the SLR significantly reduce, the proposed route would merely replicate the function of the existing B1122, without having any strategic legacy benefit [REP10-210].
- 5.14.275. In contrast, ESC maintains the view that the SLR should be retained as a long-term legacy, as it provides permanent relief to the B1122 communities and is an appropriate principal highway route to the MDS. ESC considers the retention of the SLR would also provide an opportunity to enhance the local role of the B1122 [REP10-102]. The issue of permanency is discussed further in section 5.4 of this Report.
- 5.14.276. Several IPs submitted representations into the Examination voicing concern in terms of both landscape and visual impact and the fact that there is no legacy need for the SLR. In response to ExQ1 LI.1.98, NE commented that they had highlighted the risk of this road within the

setting of the AONB as presenting as other than a rural road if a significant amount of standard kerbing, lighting and signage was utilised as these would represent suburbanising features. NE further considered that the DCO should include a detailed design which minimises those elements [REP2-152].

- 5.14.277. Theberton and Eastbridge Parish Council and Stop Sizewell C stated that the SLR would not meet the goals of the UK Government's 25-year Environment Plan for 'Enhanced beauty, heritage and engagement with the natural environment' [REP2-499a]. Similarly, Middleton-cum-Fordely Parish Council observe that the SLR would be an intrusion into the landscape [REP10-338].
- 5.14.278. In respect of specific design considerations, Kelsale-cum-Carlton Parish Council [REP2-348] state that the proposed route for the SLR and its design would have a direct and profound impact on the setting of the AONB and could only be described as incongruous with other routes leading further into the AONB. The Parish Council also consider that the proposed streetlights at the new roundabout of the A12 would have a negative impact on dark skies [REP2-351].
- 5.14.279. Theberton and Eastbridge Parish Council and Stop Sizewell C also commented on the number of embankments and cuttings throughout the length of the SLR and observed that the design appeared quite intrusive for the location [REP8-278].
- 5.14.280. The Applicant confirmed that the general design principles and the original route selection followed good practice, including the consideration of landscape matters. In relation to the road siting and alignment, the Applicant commented that a road of this type inevitably has effects but that the proposed route took proper account of the landscape, the balance to be struck in relation to individual properties and land that would be affected and the relationship of settlements to the road corridor [REP8-123]. In respect of the comments made by NE regarding kerb design and signage, the Applicant states that the ADDP states that, where required, signage and road marking are to be provided in accordance with Highway Standards [REP10-063].
- 5.14.281. Mr and Mrs Dowley also raised a specific design concern as the construction of the SLR, at the eastern end, required the removal of part of a tree belt. The trees form an integral part of the landscape and act as a shelter belt between the existing B1122 and Theberton House and the park [REP2-344] and [REP7-202]. Mr and Mrs Dowley subsequently requested that the Applicant revised the proposed design of the SLR to avoid the removal of any part of the shelter belt [REP2-370]. Concerns regarding the effects on Theberton House as a designated heritage asset was also raised. Heritage related matters in respect of Theberton House are detailed within section 5.13 of this Report.
- 5.14.282. The Applicant confirmed the strip of land requested to be removed from the Order Limits by Mr and Mrs Dowley was required for the tying-in of the SLR with the B1122. However, following further technical analysis of

the land, although the construction of the realigned SLR would be more challenging, the Applicant confirmed it was feasible to reduce the Order Limits in this location [REP8-072]. Amended figures were provided illustrating the amendment as part of the Fifth ES Addendum [REP8-073, figure 2.4].

- 5.14.283. The issue of alternatives was also raised by Mr and Mrs Bacon of Ward Farming Ltd who criticise the proposed route, stating that Route W would be a better option for access to the MDS [REP2-384]. The Applicant discusses the question of why the proposed route was selected over Route W and notes that the suitability of alternatives has been assessed five or six times [REP7-065]. Further detail in respect of alternative routes for the SLR and the issue of permanency is discussed in section 5.4 of this Report.
- 5.14.284. At ISH13 the Applicant confirmed that it had been involved in discussions with individual landowners along the route of the SLR to explore possible enhancements and further mitigation to address residual landscape issues [REP8-123]. Updates regarding the discussions and the nature of the proposals were provided at [REP8-127] and [REP10-156] to [REP10-158]. The Applicant noted that whilst they would have liked to achieve agreement on the proposals prior to the close of the Examination they have included a process for on-going dialogue in respect of additional landscaping with SCC and ESC. Full detail of the suggested process is included within the ADDP [REP10-063, footnote 4].

ExA's consideration

- 5.14.285. The ExA concurs that during both the construction and operational phases of the SLR, significant adverse visual effects would be experienced for some Visual Receptor Groups. Once operational, the ExA is content that at locations in cutting, adverse visual effects would be reduced. However, we note that in locations with embankments, increased levels of visibility of the SLR would be experienced. Nonetheless, we are satisfied that the proposed retention of existing woodland and hedgerows and additional planting would assist in providing screening. Additionally, the planting of additional native hedgerows along the route would help to assimilate the SLR into the existing landscape.
- 5.14.286. All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites and it is for the ExA to judge whether such effects outweigh the benefits (NPS EN-1, para 5.9.18). The ExA considers that the residual landscape and visual effects, both in terms of landscape character and receptor groups, would be offset by the wider benefits of the SLR. In particular, the permanent relief the SLR would provide to the B1122 communities and the opportunity to provide further enhancement to the local role of the B1122. We consider whether the SLR should be permanently retained in section 5.4 of the Report.
- 5.14.287. The ExA notes the updates regarding the on-going discussions with several landowners in respect of possible amendments to the proposed landscape and acoustic mitigation at each of their properties. The issue of

inter-relationship effects in respect of landscape design and noise is also discussed in section 5.10 of this Report.

- 5.14.288. Whilst the ExA welcomes the commitment to further negotiations in respect of this issue, the submitted details have not been presented in a way which fully explains what the visual or acoustic benefit might be by way of any potential adjustments.
- 5.14.289. Overall, whilst some significance adverse effects would be permanent, the ExA is satisfied that all reasonable steps have been taken to minimise detrimental effects on landscape and visual amenity, including the setting of the AONB, arising during construction and operation (NPS EN-1, para 5.6.7).
- 5.14.290. Taking the residual adverse landscape and visual effects arising from the construction and operation of the SLR, and the lack of certainty about any visual improvements that could be delivered, the ExA ascribes moderate weight against the Order being made to landscape and visual effects arising from the SLR.

Two Village Bypass

- 5.14.291. The Applicant states that the construction of the TVB would result in several landscape features being modified or removed, this would include:
- replacement of arable farmland and floodplain grasslands with a new bypass;
 - changes to the landform through cut and fill operations to create the vertical alignment of the proposed route;
 - removal of approximately 1.7km of hedgerows from various points within the site;
 - removal of approximately 23 individual trees, predominantly around Whin Covert and at the junction of the A12 and A1094; and
 - removal of approximately 5140m² of woodland and scrub from within the site, including at Whin Covert, Nuttery Belt and at the junction of the A12 and A1094 [APP-421, para 6.6.8].
- 5.14.292. Primary landscape mitigation measures are included within the design of the TVB and are detailed in the ES chapter [APP-421, para 6.5.5] and the ADDP [REP10-063, Table 3.4] and include:
- the general strategy for the landscape proposals is to minimise potential effects on ecological, heritage and landscape and visual receptors through the provision of appropriate planting;
 - retention of vegetation where possible, except where the TVB would cross existing field boundaries or tree belts. Where vegetation is temporarily lost within the land required for construction, it would be replanted at the end of construction;
 - native hedgerows to be planted along the route, where appropriate, to integrate the road with the surrounding landscape, compensating for the loss of hedgerows severed by the route. The hedgerows would connect into the existing network where possible;

- native tree and shrub woodland planting to be provided along the western side of the cutting as the route passes Farnham Hall and residential properties, as well as along the western side of the proposed embankment up to the proposed overbridge, to provide visual screening. Native tree and shrub planting would also be incorporated on the east side of the overbridge, adjacent to Foxburrow Wood and Farnham Hall Farmhouse to provide visual screening and ecological connectivity;
- the route would be within a cutting as it passes between Farnham Hall and Farnham Hall Farmhouse to reduce visual impact on residents of the properties;
- Foxburrow Wood County Wildlife Site and ancient woodland to be retained in its entirety and a 15m distance to be maintained from it to the road and earthworks to avoid damage to the trees;
- acoustic screening that forms part of the detailed landscape proposals may take the form of bunds or fences and would be integrated into the overall scheme such that there is no detrimental effect to ecological, heritage and landscape, and visual receptors; and
- the route would be mostly unlit to minimise light spill, except at the A12 western roundabout and the A12/A1094 eastern roundabout where lighting would be required to ensure road safety. The lighting columns would be up to 10m in height.

5.14.293. Tertiary mitigation measures to minimise landscape and visual effects during construction are detailed within the CoCP, which would be secured by Requirement 2 of the dDCO [REP10-009], and include:

- avoidance of unnecessary tree removal and appropriate protection of trees and vegetation to be retained;
- design of hoardings around construction activities to include consideration of the character of the surrounding landscape; and
- site lighting where required to ensure safety, will be positioned and directed to minimise intrusion into occupied residential properties and sensitive areas and will not create a road hazard [REP10-072].

5.14.294. Apart from the replacement of any plant failures within five years of planting which would be secured by Requirement 37 of the dDCO [REP10-009], the Applicant states no secondary mitigation measures are proposed [APP-421, para 6.7.2].

5.14.295. The Applicant states that with mitigation measures in place, significant adverse effects would remain for Visual Receptor Groups 1, 2 and 4 during the construction phase. Such effects would occur due to the visibility of:

- the proposed roundabouts;
- construction of the road;
- views of temporary contractor compounds; and
- views of the footbridge and the bridge over the River Alde [APP-421, Table 6.10 and 6.11].

- 5.14.296. During operation, significant adverse effects would remain for Visual Receptor Groups 1 and 4 due to the visibility of lighting [APP-421, Table 6.11].
- 5.14.297. As part of Change 12 the Applicant submitted a LEMP for the TVB [AS-262] and [AS-263], which was updated during the Examination [REP10-066]. The overarching objective of the LEMP is to set out how the habitats to be established along TVB are to be created and managed in the long-term. In respect of detailed landscape schemes, these would be submitted prior to the commencement of construction. The landscape scheme must then be managed in accordance with the LEMP unless otherwise agreed by ESC pursuant to Requirement 36 of the dDCO [REP10-009].
- 5.14.298. Change 12 also included the provision of an additional contractor compound area to the western end of the TVB. Further amendments at Change 12 were required due to the extension of the Order Limits to accommodate changes to:
- highway works;
 - the alignment of Public Right of Way (PRoW) E-243/011/0; and
 - the enhancement of floodplain grazing marsh and habitat mitigation.
- 5.14.299. The Applicant confirmed that there would be no changes to the residual effects already reported in the ES [AS-184, para 5.5.5 to 5.5.11]
- 5.14.300. In the initial LIR, both ESC and SCC acknowledged that the TVB would be overwhelmingly positive. However, given the nature of the development it would inevitably have some negative impacts on landscape [REP1-045, para 35.5]. In particular, and in response to ExQ1 HE.1.48, ESC commented that the proposed measures within the LEMP would be inadequate to minimise the impact of the proposed new roundabout adjacent to Parkgate Farm on the wider setting of and intervisibility between the Church of St Mary [REP2-176].
- 5.14.301. The Applicant stated that three locations between the proposed roundabout at the southern end of the TVB and the Church of St Mary were identified where additional hedgerow planting or enhancement, including the planting of hedgerow trees, could be undertaken to address ESC's concerns [REP10-156]. The additional planting proposals, which would create a wider hedgerow along the proposed highway boundary and strengthen existing hedgerows within the permanent land take, were incorporated into the TVB LEMP at DL10 [REP10-066].
- 5.14.302. In the LIR review, ESC and SCC commented that this new measure would help to mitigate the outstanding issue to a satisfactory standard [REP10-183]. This matter is also confirmed as no longer being an outstanding issue in the ESC and SCC Final SoCG [REP10-102].
- 5.14.303. Several IPs raised concerns about the effects of the TVB during the Examination:

- Mr and Mrs Ayres of Mollett's Farm stated that the closest part of the TVB would be situated to the east of their landholding and would also wrap around to the south [REP2-380]. As such, the landowners consider that the proposed alignment of the TVB would have a significant and harmful effect on Mollett's Farm [REP6-066].
- Farnham Environment Residents and Neighbours Association (FERN) stated their opposition to the proposed TVB alignment on the grounds that it causes too much harm to both the built and natural environment [REP2-272], [REP2-263], [REP5-197] and [REP10-268]. FERN also raise concern in respect of the assessment of heritage implications at Farnham Hall Estate and this matter will be considered in section 5.13 of this Report.
- Farnham with Stratford St Andrew Parish Council suggested that their proposed alternative route would be a more suitable route to the suggested alignment. The alternative suggestion would route the TVB to the south of Pond Barn Cottages before curving northwards, passing Foxburrow Wood on its east side, and meeting the proposed Friday Street roundabout to the north. This would be an alternative to the current proposal to pass Foxburrow Wood on its west side [REP2-273] and [REP7-184]. FERN also state their support for this route [REP10-268], along with Marlesford and Little Glemham Parish Councils [REP7-207].

5.14.304. The Applicant considers that the scheme as currently proposed in the dDCO provides sufficient landscape and visual mitigation to integrate the proposals into the surrounding landscape and notes that the TVB LEMP contains proposals for agreeing and monitoring the effects of landscape mitigation and that further engagement would be undertaken during the detailed design process [REP10-066]. Additionally, the Applicant also states that amendments have been made to the planting schemes in the TVB LEMP to better respond to the local historic landscape context and reinforce connectivity with Foxburrow Wood [REP7-061].

5.14.305. At ISH13 the Applicant confirmed that they had been involved in discussions with individual landowners along the route to explore possible enhancements and further mitigation to address residual landscape issues and updates regarding the discussions were provided at [REP8-127] and [REP10-156] to [REP10-158]. The Applicant noted that whilst they would have liked to achieve agreement on the proposals prior to the close of the Examination they have included a process for on-going dialogue in respect of additional landscaping with SCC and ESC. Full details of the suggested process are included within the ADDP [REP10-063, footnote 2].

5.14.306. In respect of alternatives, the Applicant confirmed in response to ExQ1 AI.1.18 to AI.1.22 [REP2-100] that not only would the Parish Council's suggested route be longer and divert traffic into the countryside, but it would also pass closer to Friday Street Farm and would sever more of the 'pick-your-own' fields. The Applicant contends that the proposed alignment within the dDCO has been routed as far away from residential properties as practical, whilst providing an effective bypass and avoiding environmentally important woodland and gardens. The plans as

submitted within the dDCO show that the alignment would be approximately 83m from Farnham Hall Farmhouse and 135m from the nearest property at Farnham Hall.

- 5.14.307. In contrast, the alignment suggested by the Parish Council would be 21.6m metres from Walk Barn Farm. The Parish Council route would also result in fragmentation of Foxburrow Wood County Wildlife Site and would separate the two ancient woodlands (Foxborrow Wood and Palant's Grove), which are currently functionally linked by the central wooded section of Palant's Grove [REP2-100]. The proposed TVB alignment within the dDCO would however avoid Foxburrow Wood Ancient Woodland entirely and would maintain a 15m buffer to the Ancient Woodland, which is in accordance with NE's standing advice [REP10-068, Table 1.1]. Further detail in respect of alternative routes for the TVB, is also discussed in section 5.4 of Chapter 5 of this Report.

ExA's consideration

- 5.14.308. Whilst some Visual Receptor Groups would experience significant adverse visual effects during construction, the ExA is satisfied that such effects would be relatively localised and temporary in nature. The ExA is also satisfied that the proposed design principles contained within the ADDP, which include the retention of existing woodland and hedgerows wherever possible and use of cuttings, would provide reasonable mitigation (NPS EN-1, para 5.9.8).
- 5.14.309. During the operational phase, despite the mitigation measures, the TVB would result in permanent significant adverse effects for Visual Receptor Group 1 in respect of lighting. We are however content that this would result in relatively localised effects due to the extent of lighting proposed. In addition, we are satisfied that the measures contained within the ADDP and secured by Requirement 35 of the rDCO would provide a satisfactory balance between safety and protection of the local environment.
- 5.14.310. The ExA notes the updates regarding the on-going discussions with relevant landowners in respect of possible amendments to the proposed landscape and acoustic mitigation at each of their properties.
- 5.14.311. Whilst the ExA welcomes the commitment to further negotiations in respect of this issue, the submitted details have not been presented in a way which fully explains what the visual or acoustic benefit might be by way of any potential adjustments.
- 5.14.312. As detailed in section 5.4 of this Report, the ExA is also satisfied that the Applicant has comprehensively explored alternative alignments and has given full and detailed consideration to the alternative route suggested by several IPs. We are therefore content with the Applicant's explanation in respect of alternatives and why the proposed alignment was identified as being the most suitable and appropriate (NPS EN-1, para 4.4.2).
- 5.14.313. All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites and it is for the ExA to judge whether

such effects outweigh the benefits (NPS EN-1, para 5.9.18). The ExA considers that the residual visual effects will be offset by the wider benefits of the TVB. In particular, the permanent relief the TVB would provide by removing through traffic from the existing A12 through the communities of Farnham and Stratford St Andrew. Further detail in respect of this matter is discussed in section 5.4 of this Report.

5.14.314. Overall, whilst there would be residual significant adverse effects which would be permanent, the ExA is satisfied that all reasonable steps have been taken to minimise detrimental effects on landscape and visual amenity arising during construction and operation as far as practicable. (NPS EN-1, para 5.6.7 and NPS EN-6, para 3.10.8).

5.14.315. However, the adverse landscape and visual construction phase effects, lack of certainty over the acoustic options which would give rise to different visual effects (fence versus mounds), the extent of vegetation removal and the addition of the road with its roundabouts and lighting into what was a natural landscape character lead the ExA to ascribe moderate weight against the making of the Order to the landscape and visual effects arising from the TVB.

Northern Park and Ride

5.14.316. The Applicant states that the construction of the temporary NPR would result in several landscape features being modified or removed, these would include:

- replacement of arable farmland with a parking area and new access roads;
- creation of a gap in the hedgerow, approximately 70m long along Willow Marsh Lane, for the proposed access road;
- creation of a gap in the hedgerow, approximately 20m long along the A12, for the proposed pedestrian access into the southern part of the car parking area; and
- removal of approximately 175m of hedgerows along the A12 at the proposed roundabout [APP-360, para 6.6.5].

5.14.317. Primary landscape mitigation measures are included within the design of the NPR and are detailed in the ES chapter [APP-360, para 6.5.4] and the ADDP [REP10-063, Table 3.1] and include:

- retaining existing woodland and hedgerow, where practicable;
- additional hedgerow planting on northern and eastern boundaries to infill existing gaps and to provide screening on Willow Marsh Lane;
- boundary tree and shrub screening to be planted around the proposed roundabout;
- a 3m landscape bund to be created north of the main parking area and along the eastern boundary to provide visual and acoustic screening for nearby residential properties and users of Willow Marsh Lane;
- a 20m buffer zone to separate the NPR from Little Nursery Wood and a 10m buffer zone along the north-east and south-west boundaries to protect existing hedgerows; and

- soft landscaping implemented in the car parking areas whilst the NPR is operational.
- 5.14.318. Tertiary mitigation measures relate mainly to the control of lighting during the construction, operational and removal and reinstatement phases and are detailed within the CoCP [REP10-072], which would be secured through Requirement 2 of the dDCO [REP10-009]. Apart from the replacement of any plant failures within five years of planting which would be secured by Requirement 37 of the dDCO [REP10-009], the Applicant states no secondary mitigation measures are proposed, as the NPR is not intended to be permanent [APP-360, para 6.7.2].
- 5.14.319. The Applicant states that with the mitigation measures in place, significant residual adverse effects would remain for Visual Receptor Group 1, which includes users of the cycle way along Willow Marsh Lane and Main Road, minor roads and local residents to the north and east of the site. Such effects are identified to occur in the construction, operation and removal and reinstatement phases and are due to views of construction activity, security fencing, lighting columns and night-time lighting, visibility of the roofs of taller vehicles seen above planting and bunds [APP-360, Tables 6.11 to 6.13].
- 5.14.320. However, the Applicant notes that by year 10 as a result of the maturity of the hedgerow along Willow Marsh Lane and vegetation planted near residential properties, visual effects would be reduced for Visual Receptor Group 1 to not significant [APP-360, para 6.6.43].
- 5.14.321. In their LIR, both ESC and SCC observe that the visual effects of the NPR are expected to be mitigated by temporary bunding and planting. They request that where planting is used, it should be positioned so that it can be retained on a permanent basis and should form part of the long-term restoration of the site [REP1-045, para 6.69].
- 5.14.322. Heveningham Hall Estate (HHE) raises concerns regarding the impact of the NPR on the Estate. In respect to landscape and visual matters, HHE considers the ADDP to be inadequate on its own to control the associated development sites and that the content of several Requirements would fail to address their landscape concerns. Accordingly, HHE suggests several amendments to the Requirements and Work No. 9 of Schedule 1 within the dDCO, with specific focus on the landscape measures and an increase of the replacement time period for planting [REP2-286], [REP2-287], [REP5-277] and [REP8-272].
- 5.14.323. The Applicant does not consider the proposed amendments suggested by HHE to be necessary. The Applicant considers that the Requirements already provide appropriate controls for the relevant sites to be delivered within the defined scale and design parameters set within the DCO plans for approval and the ADDP [REP10-063].
- 5.14.324. The Applicant also notes that the parameters and design principles have also been discussed and agreed by both ESC and SCC. The detailed design of the highway works is to be developed through engagement with SCC, as the local highway authority [REP3-042].

- 5.14.325. In respect of the new Requirements proposed by HHE, the Applicant does not consider them necessary as landscape works are to be secured by Requirements 33, 35 and 37 of the dDCO [REP10-009] and the ADDP [REP10-063]. In terms of the proposed Requirement regarding a management, maintenance and operational plan, the Applicant states that the ADDP includes the relevant controls and commitments needed for the design and operation of the associated development sites.
- 5.14.326. Additionally, in respect of Work No. 9 of Schedule 1, the Applicant does not consider this necessary as landscape issues are secured by Requirement 33 and 37 of the dDCO [REP3-042]. Furthermore, a Statement of Compliance is required for the NPR to demonstrate that detailed designs comply with the ADDP prior to construction commencing. The Applicant considers that the additional detail requested by HHE would therefore duplicate commitments already secured by the ADDP [REP10-063].
- 5.14.327. HHE also raises concern in respect of heritage matters and the NPR, which are considered in section 5.13 of this Report.

ExA's consideration

- 5.14.328. In respect of landscape effects, changes to the landscape would result in significant adverse effects. However, we are satisfied that as a consequence of the additional planting and use of buffer zones, once the planting matures, the magnitude of effect would reduce to not significant.
- 5.14.329. The concerns raised by HHE have been considered by the ExA. However, we are satisfied that the proposed measures within the ADDP and CoCP, controlled by Requirements 2, 33 and 37 of the rDCO, would provide adequate landscape and visual mitigation measures. In respect of the drafting of the Requirements, we are satisfied with the content, including the timescales regarding repayment planting, and as drafted they provide sufficient control to minimise harm to the landscape and to visual amenity, where practicable. No changes are therefore considered necessary in respect of Work No. 9 of Schedule 1 in the rDCO.
- 5.14.330. Additionally, Requirement 33 of the rDCO would specifically require a statement of compliance to be submitted to ESC prior to works commencing which would demonstrate how the design of the NPR would comply with the design principles within the ADDP. Overall, we are satisfied that the drafting would enable the NPR to be delivered within the parameters set within the dDCO and ADDP.
- 5.14.331. The ExA notes that within the ADDP, legacy landscape works are to be retained on site, where agreed with the landowner. However, as any legacy benefit is dependent on landowner agreement which has not been secured, the ExA attributes no weight to this matter for or against the making of the Order as it has not been secured.
- 5.14.332. The ExA is satisfied that mitigation as proposed and secured via the dDCO and ADDP has been designed as far as is practicably possible to

minimise harm to the landscape and provide reasonable mitigation where possible (NPS EN-1, para 5.9.8 and 5.9.17).

- 5.14.333. For these reasons the ExA attributes little weight against the Order being made to landscape effects arising from the NPR.
- 5.14.334. In respect of visual effects, despite the mitigation measures, construction activity, lighting effects from the required lighting columns, security fencing, visibility of roofs of taller vehicles such as HGVs and landscape bunds would result in significant adverse effects for Visual Receptor Group 1. We are however content that such effects would be relatively localised and as the NPR is only required during the MDS construction period, effects would also be temporary in nature.
- 5.14.335. For these reasons the ExA attributes moderate weight against the Order being made to landscape effects arising from the NPR.
- 5.14.336. Overall, the ExA has considered the nature of the proposed NPR, which would be built into a farmland landscape and necessitate vegetation removal and be visible in places even with mitigation planting. Even bearing in mind the temporary nature of the NPR and proposed mitigation, the ExA accepts that significant adverse landscape and visual effects would occur, particularly until planting matures.
- 5.14.337. For these reasons the ExA attributes moderate weight against the Order being made to landscape and visual effects arising from the NPR

Southern Park and Ride

- 5.14.338. The Applicant states that the construction of the temporary SPR would result in several landscape features being modified or removed, these would include:
- replacement of arable farmland with a parking area and new access roads; and
 - approximately 40m length of native hedgerow would be removed to create the proposed site access [APP-390, para 6.6.5].
- 5.14.339. Primary landscape mitigation measures are included within the design of the SPR and are detailed in the ES chapter [APP-390, para 6.5.4] and the ADDP [REP10-063, Table 3.2] and include:
- a general design approach aiming to create an unimposing appearance, with the buildings screened as far as possible;
 - retention of existing woodland and hedgerows where appropriate, as well as additional temporary soft landscaping and suitably sited tree and shrub planting within the car parking areas;
 - 10m buffer zones would be provided to separate the parking area from hedgerows along sections of the boundary to the south, east and around the woodland blocks to the west;
 - permanent supplementary hedgerow planting proposed along the southern and eastern boundaries of the site to screen views from footpaths E-387/008/0 and E-288/007/0;

- creation of landscape bunds up to 3m high to the southern, eastern and northern boundaries of the site using on-site material removed due to earthworks associated with the levelling of the site and topsoil storage;
- temporary hedgerow planting would also be planted along the access road, whilst the park and ride is operational, to replace hedgerows lost during construction, and would be re-planted as close as possible to the original hedgerow line during the removal and reinstatement phase;
- lighting columns within the car parking areas and along the access road would be restricted to 6m in height to minimise visibility during day and night-time;
- lighting columns, to a maximum height of 10m including lanterns, would be provided from the roundabout with the B1078 and along the slip road leading to the site and the northbound A12;
- lighting columns would utilise LED base lights with zero-degree tilt to minimise light spill and along the perimeter would be fitted with demountable shields to reduce backward spill of light; and
- use of a central management system for the lighting which would be capable of dimming of parts of the site independently from other parts.

5.14.340. Tertiary mitigation measures relate mainly to the control of lighting during the construction, operation and removal and reinstatement phases and are detailed within the CoCP [REP10-072], which would be secured through Requirement 2 of the dDCO [REP10-009]. Apart from the replacement of any plant failures within five years of planting which would be secured by Requirement 37 of the dDCO [REP10-009], the Applicant states no secondary mitigation measures are proposed [APP-390, para 6.7.2].

5.14.341. With the proposed mitigation measures in place, no significant adverse effects are identified by the Applicant in the construction, operation or removal and reinstatement phases [APP-390, Table 6.10 to 6.13].

5.14.342. Additionally, Change 10, which formed part of the Change Request accepted into the Examination [AS-105], included the lengthening of the 3m landscape bund adjacent to the north-west boundary of the SPR, which would stop short of the 10m buffer zone to the south-west boundary.

5.14.343. In their Joint LIR both ESC and SCC acknowledge that the presence of the SPR in the landscape would result in adverse effects, but that these would be of a medium-term temporary nature. Any visual effects are expected to be adequately mitigated by temporary bunding and planting [REP1-045].

5.14.344. Campsea Ashe, Hacheston, Marlesford and Wickham Market Parish Councils commissioned their own review of the landscape and visual aspects of the SPR. The report concludes that the likely effects of the proposed SPR site on landscape and visual receptors is underestimated by the Applicant and as such, the mitigation measures proposed are not sufficiently developed to satisfactorily address all the adverse effects of

the site. In addition, the site would fail to deliver a long-term landscape legacy [REP1-149].

- 5.14.345. Marlesford Parish Council state that insufficient consideration has been given to use of the existing park and ride site at Martlesham [REP2-365]. They further consider that the proposed planting rates suggested by the Applicant are over-optimistic [REP5-237] and [REP7-208].
- 5.14.346. Marlesford Parish Council considers the SPR would introduce extensive areas of lighting into a landscape which currently is generally dark. Residents of Marlesford and the surrounding villages value their relatively unspoiled dark skies in an essentially rural area [REP5-237]. The Parish Council acknowledges the reinstatement of the north-western bund to its full length and the retention of the ancient double hedgerow to the west of the SPR site [REP8-240]. However, in their concluding submission the Parish Council observes that further enhancement of the proposed planting is necessary to leave a legacy benefit and off-site planting should be secured via the DCO [REP10-333]. This is also a view supported by TASC [REP8-286a].
- 5.14.347. Various other IPs also raised concerns in respect of the proposed location given the elevated position and consider that significant adverse visual effects would be experienced [RR-0170], [RR-0447], [RR-0758], [RR-0762], [REP1-149], [REP5-237], [REP5-304], [REP10-236] and [REP10-437].
- 5.14.348. In respect of the alternatives, in response to ExQ1 TT.1.103 the Applicant confirmed that the Martlesham site was not considered a viable option due to its limited scale [REP2-100]. Further detail in respect of alternatives is located within section 5.4 of this Report.
- 5.14.349. The Applicant confirmed at DL8 that the detailed design of the proposed planting had yet to be undertaken and that full consideration is to be given to ensuring planting mixes are appropriate for the location and measures to ensure successful establishment. This would include consideration of any requirements for watering, such as potential for re-use of water from the drainage swales [REP8-115]. In relation to the issue of legacy planting, the Applicant refers to site-specific design principles 6 and 7 of the ADDP which relates to the treatment of proposed planting following the removal and reinstatement phase [REP10-063].
- 5.14.350. In response to ExQ2 LI.2.34, the Applicant states why 6m lighting columns were a technical requirement and why low-level down-lit lighting wasn't considered a suitable option [REP7-053]. The Applicant also confirmed that the proposed lighting design, controlled by the measures in the ADDP, would ensure that light fittings are chosen to limit light spill, using LED-based fittings with zero-degree tilt and demountable shields where appropriate [REP10-063].

ExA's consideration

- 5.14.351. The ExA is satisfied that the site-specific and landscape design principles contained within the ADDP would provide adequate mitigation to reduce any adverse visual impact of the SPR, particularly in respect of lighting and legacy planting concerns.
- 5.14.352. The ExA considers that the Applicant has fully considered lighting as part of the LVIA, and the detailed design of lighting would be secured through Requirement 33 of the rDCO. Additionally, the CoCP would further assist in minimising adverse landscape and visual effects during both construction and the removal and reinstatement phases.
- 5.14.353. The ExA is therefore satisfied that all reasonable steps have been taken to minimise detrimental effects on landscape and visual amenity arising during construction, operation and reinstatement (NPS EN-1, para 5.6.7).
- 5.14.354. However, the ExA is mindful of the representations made by local Parish Councils and of the uncertainty that surrounds both the detailed planting proposals and whether legacy planting would be secured at reinstatement. The ExA notes that within the ADDP, legacy landscape works are to be retained on site, where agreed with the landowner. However, as any legacy benefit is dependent on landowner agreement which has not been secured, the ExA attributes no weight to this matter for or against the making of the Order as it has not been secured.
- 5.14.355. Whilst the ExA considers that the lighting would be designed to standards to minimise visual effects, it would still constitute an adverse landscape and visual effect.
- 5.14.356. For these reasons the ExA attributes moderate weight against the Order being made to landscape and visual effects arising from the SPR.

Yoxford Roundabout and Other Highway Improvements

- 5.14.357. The Applicant states that an environmental screening exercise was undertaken regarding the proposed highway improvement works and safety measures. Apart from the Yoxford roundabout, the other highway works and measures were screened out of the LVIA, as they were stated as being unlikely to give rise to any significant environmental effects. [APP-490, para 6.3.10 to 6.3.11].
- 5.14.358. The Applicant states that the construction of the Yoxford Roundabout would result in several landscape features being modified or removed [APP-490, para 6.4.65]. In respect of mitigation, the Applicant states that primary mitigation measures are to include the retention of existing boundary vegetation and the provision of new boundary planting [APP-490, para 6.4.56].
- 5.14.359. The ADDP states that street lighting would not exceed 10m and is designed to minimise light-spill into adjacent habits and reduce effects on the Yoxford Conservation Area [REP10-063, section 3.6]. No secondary mitigation measures are proposed by the Applicant, apart from the replacement of any plant failures within five years of planting which would be secured by Requirement 37 of the dDCO [REP10-009].

- 5.14.360. With the proposed mitigation measures in place, no significant adverse effects are identified by the Applicant in the construction or operational phases [APP-490, Table 6.12 and 6.13].
- 5.14.361. In their LIR, the Councils confirm they consider the landscape and visual effects would be of a low level, localised nature. Although the setting of the Yoxford Conservation Area would be affected in a minor way, the Councils consider the degree of change to be relatively low [REP1-045, para 6.65].
- 5.14.362. Heveningham Hall Estate (HHE) raised concerns in relation to the scale of the Yoxford Roundabout and whether it has been over engineered [REP2-286]. HHE also outlined several measures it considers necessary to mitigate against the adverse effects of the roundabout as it contends the measures within the ADDP are inadequate on their own to control the associated development [REP2-287] and [REP8-272]. HHE also raises concern in respect of heritage matters and the roundabout, which are considered in section 5.13 of this Report.
- 5.14.363. The additional measures proposed by HHE relate mainly to amendments to the Requirements within the dDCO, with specific focus on the landscape measures and an increase of the replacement time period for landscaping. A new Requirement was also proposed requesting the approval of soft landscape details, particularly where planting is within the Yoxford Conservation Area.
- 5.14.364. The Applicant does not consider the proposed amendments suggested by HHE to be necessary. The Applicant considers appropriate controls already exist within the ADDP [REP10-063] and as a result of the defined scale and design parameters set within the dDCO plans. The Applicant also notes that the parameters and design principles have also been discussed and agreed by both ESC and SCC [REP3-042].
- 5.14.365. Rookery Park Estate raised concern regarding the proposed roundabout and lighting. As the roundabout is to be on higher ground than the existing junction, the Estate considers the lighting columns would have a significant adverse effect on the extent of illumination on the edge of the Estate [REP10-378].
- 5.14.366. Small scale adverse visual effects in the fields to the south of the B1122 within Rookery Park are anticipated during the operational phase as a result of the introduction of lighting columns. Whilst permanent in nature, the adverse effects would occur over a localised extent and are considered by the Applicant to be not significant [APP-490, para 6.4.106]. The Applicant also notes that the monitoring regime has been accepted as being sufficient by ESC to ensure the effectiveness and conformance to the agreed design principles of the proposed mitigation [REP10-156, para 3.5.12]. Additionally, the Applicant states that the design of the roundabout has been informed by detailed discussions with both SCC, as the local highway authority, as well as ESC [REP3-042, Table 8.1].

ExA's consideration

- 5.14.367. The ExA is satisfied that the proposed highway improvement works, and highway safety measures would not result in any significant adverse effects. In addition, the highway safety works are to be secured by Schedule 16 of the DoO.
- 5.14.368. In terms of the Yoxford roundabout, the ExA is satisfied that any effects would be extremely localised as there would be a very limited change to current views. Given that the existing trees and hedgerows adjoining the roundabout site are to be maintained where possible, and new tree and hedgerow planting is to be provided on the eastern edge of the realigned A12 and B1122, such measures would further enable the infrastructure to be well assimilated into the existing landscape character.
- 5.14.369. The ExA does not consider the height of the proposed lighting columns to be excessive and they would not represent an alien feature when seen in views approaching or leaving the roundabout. We are satisfied that appropriate measures are also contained within the ADDP which would minimise light spill and would effectively manage effects in respect of the Yoxford Conservation Area and Rookery Park Estate. We are content that the Applicant has given appropriate consideration to lighting effects and the detailed design of lighting would be adequately secured through Requirement 33 of the rDCO.
- 5.14.370. The concerns raised by HHE have been considered by the ExA. However, we are satisfied that the proposed measures within the ADDP and CoCP, which would be controlled by Requirements 2 and 33 of the rDCO, would provide adequate landscape and visual mitigation measures.
- 5.14.371. In respect of the drafting of the Requirements, we are satisfied with the content, including the timescales regarding replacement planting, and as drafted they provide sufficient control to minimise harm to the landscape and to visual amenity. We are also satisfied that the drafting would enable the Yoxford roundabout to be delivered within the parameters set within the rDCO and ADDP. The ExA is satisfied that all reasonable steps have been taken to minimise detrimental effects on landscape and visual amenity arising during construction and operation (NPS EN-1, para 5.6.7).
- 5.14.372. The ExA is satisfied that the mitigation measures would reduce the adverse landscape and visual effects to non-significant and that the Yoxford roundabout would result in limited changes to landscape character and views which already contain highway infrastructure. Therefore, the ExA considers that there are no matters relating to landscape and visual effects arising from the Yoxford roundabout and other highway improvements which would weigh for or against the Order being made.

Freight Management Facility

- 5.14.373. The Applicant states that the construction of the temporary FMF would result in several landscape features being modified or removed, these would include:
- replacement of arable farmland with a FMF and new access road;
 - changes to landform through cut and fill operations to level the site and create the landscape bunds;
 - removal of approximately 200m of hedgerow through the centre of the site; and
 - removal of intermittent trees for approximately 180m to the south side of Felixstowe Road and 30m on the north side of the road, within the south of the site to facilitate the proposed access and improvement works to Felixstowe Road [APP-520, para 6.6.5].
- 5.14.374. The Applicant states that primary mitigation measures would include the retention of existing boundary vegetation and the provision of new boundary planting. In addition, the creation of 3m high bunds to the eastern and western edge of the site are proposed, which the Applicant contends would assist in creating a physical buffer between the FMF, nearby roads and the PRowS [REP10-063, section 3.3].
- 5.14.375. Despite the vegetation on the site boundary, significant adverse effects would be experienced by Receptor Group 1 during the construction phase [APP-520, para 6.6.32]. However, by year 10 of the operational phase, due to the maturity of planting along the eastern boundary of the site, effects would reduce to not significant [APP-520, para 6.6.57]. No other significant adverse effects are reported.
- 5.14.376. The removal and reinstatement of the site would involve works to clear the site and replace the soil previously stored within the landscape bunds and the site would be returned to agricultural use. As site reinstatement would follow a programme broadly the reverse of construction, similar effects as experienced during the construction phase are anticipated. Receptor Group 1 would therefore experience temporary, significant adverse effects due to the visibility of demolition plant, vehicles, and activity to remove the FMF [APP-520, para 6.6.79].
- 5.14.377. In their LIR, both Councils state their support of the principle of a FMF and that the proposed location is broadly acceptable, subject to the Applicant providing evidence that the location is optimal [REP1-045, para 35.11]. The Councils further state that they anticipate any visual effects to be mitigated by temporary bunding and planting [REP1-045, para 6.69].
- 5.14.378. In respect of alternative site locations, the Applicant referred to the Site Selection Report [APP-591] and Chapter 3 of the ES [APP-514] which details the site selection process for the FMF.

ExA's consideration

- 5.14.379. The ExA accepts that views from within the FMF or adjacent to the boundary would be significantly altered during construction and

reinstatement for Receptor Group 1. However, we are content that this would result in relatively localised effects which are temporary in nature. As stated at paragraph 5.9.16 of NPS EN-1, we are satisfied that the Applicant has given appropriate consideration to whether any adverse effect on the landscape is temporary and capable of being reversed in a reasonable timescale.

5.14.380. The ExA is also satisfied with the Applicant's explanation in respect of alternatives and why the proposed site was identified as being the most suitable and appropriate in respect of landscape and visual considerations. Detailed matters in respect of alternatives are discussed at section 5.4 of this Report.

5.14.381. Notwithstanding the temporary nature of the adverse landscape and visual effects, the ExA notes that construction and then later, reinstatement would result in significant adverse landscape and visual effects. For this reason, the ExA attributes moderate weight against the making of the Order to the adverse landscape and visual effects arising from the FMF.

Green Rail Route

5.14.382. The Green Rail Route (GRR) is a temporary 4.5km rail extension from the existing Saxmundham to Leiston branch line to a terminal in the MDS. The rail LVIA only considers the part of the GRR which comprises a temporary rail extension of approximately 1.8km from the existing Saxmundham to Leiston branch line to, and including, the B1122 level crossing. The remaining 2.7km part of the GRR between the proposed B1122 level crossing and the terminal within the MDS is included within the MDS LVIA [APP-551, para 6.1.2 to 6.1.4].

5.14.383. The proposal also consists of rail improvement works which include track replacement and level crossing upgrades. Track replacement is considered standard work within the railway corridor and construction machinery would only be used for short periods, and the Applicant states no significant adverse effects are likely. A further screening exercise was undertaken regarding the level crossing upgrade works and the works are unlikely to result in significant adverse effects. As such, only the rail extension route has been assessed [APP-551, para 6.3.10 to 6.3.11].

5.14.384. The Applicant states that construction of the rail extension route would result in several landscape features being modified or removed, these include:

- replacement of arable farmland with the proposed rail extension route;
- removal of vegetation along approximately 75m of the northern edge of the existing Saxmundham to Leiston branch line; and
- removal of hedgerow and creation of gaps through hedgerows where they cross the site [APP-551, para 6.6.5].

5.14.385. Primary landscape mitigation measures are included within the design of the rail extension and include:

- two grassed 2m bunds to provide both visual and acoustic screening. The bunds are to be located along the northern side of the extension route and to the south of the route;
- hedgerow planting along the B1122; and
- retention of woodland and hedgerows wherever possible [REP10-063, Table 3.8].

5.14.386. Tertiary mitigation measures relate mainly to the control of lighting during the construction and removal and reinstatement phases and are detailed within the CoCP [REP10-072], which would be secured through Requirement 2 of the dDCO [REP10-009]. Measures include minimising nuisance to any adjacent properties and positioning spotlights and task lighting towers away from sensitive receptors [APP-551, para 6.5.8]. The Applicant states that no secondary mitigation measures are proposed as the rail extension is temporary and the diversion of public footpaths is unavoidable [APP-551, para 6.7.2].

5.14.387. The Applicant states that with the mitigation measures in place, some significant residual adverse effects would remain for Visual Receptor Group 2, which includes users of PRow that cross the site. Such effects were identified in the construction, operation and removal and reinstatement phases and were due to:

- changes in views for the sections of PRow that are diverted;
- views of construction activity during both the construction and reinstatement phases;
- views of trains, bunds and fencing, with occasional views of track and level crossings; and
- views of night-time lighting [APP-551].

5.14.388. In their LIR, both Councils identify that the rail extension would cut across the existing long-established fabric of the landscape which in part forms the landscape setting of Leiston Abbey. Also, with bunding and security fencing adjacent to the railway line, it would have an emphasised incongruous appearance in the landscape for the duration of its presence. However, the Councils accept that any adverse effects on landscape character and visual amenity would be temporary [REP1-045, para 6.68].

5.14.389. Matters regarding PRow are reported in more detail in section 5.5 of this Report. However, in respect of the issue of the rail extension, the Applicant confirmed that PRow diversions have been kept as short as possible [REP3-044].

ExA's consideration

5.14.390. Despite the mitigation measures, the proposed rail extension route would result in a distinct change in landscape character from that of a mainly open, arable farmland enclosed by hedgerows. However, we are satisfied that the proposed design principles contained within the ADDP, including the retention of existing woodland and hedgerows wherever possible and additional hedgerow planting would provide reasonable mitigation (NPS EN-1, para 5.9.8).

- 5.14.391. In respect of the diversion of PRowS which cross the site, the routes are to be diverted between the landscape bunds, the boundaries of Abbey Lane and the existing Saxmundham to Leiston branch line. We agree that the users of the footpaths would experience significant adverse visual effects during construction, operation, and reinstatement extension. However, as the extension is temporary, the ExA finds that the adverse landscape and visual effects would be capable of reversal in a timescale that we consider to be reasonable (NPS EN-1, para 5.9.16).
- 5.14.392. As assessed in the LVIA and confirmed above the GRR, although temporary would result in modification and removal of landscape features and significant change to the existing landscape and views resulting in residual significant adverse landscape and visual effects. Therefore, the ExA ascribes moderate weight against the making of the Order to landscape and visual effects arising from the GRR.

Cumulative Effects

- 5.14.393. The assessment of cumulative effects for all aspects of the Proposed Development is contained within ES Volume 10 [APP-572], [APP-574], [APP-575], [APP-577] to [APP-582], [AS-016], [AS-189] and [REP7-032]. The chapters consider project-wide effects, inter-relationship effects and cumulative effects with other plans, projects, and programmes. Section 5.10 of this Report examines these effects in further detail.

Project-wide effects

- 5.14.394. The Applicant states that the predicted effects of the individual components of the MDS and associated development sites on landscape character, visual receptor groups, key routes and designated landscapes during the construction, operation and, where relevant removal and reinstatement, would not when combined, represent a greater project-wide effect than identified for the effects arising from the individual components alone [APP-577, section 3.4].

ExA's consideration

- 5.14.395. The ExA considers the Applicant has satisfactorily addressed the assessment of project-wide effects. We are satisfied that the assessment has given sufficient consideration to how the accumulation of effects might affect the landscape, visual and design matters as a whole (NPS EN-1, para 4.2.6). Given the adequacy of the assessment, we are content with the findings in this respect.
- 5.14.396. Therefore, the ExA considers that there are no matters relating to project-wide considerations in respect of landscape and visual effects which would weigh for or against the Order being made.

Inter-relationship effects

- 5.14.397. The Applicant provided a summary of potential inter-relationship effects considered during construction, operation and where relevant, removal

and reinstatement phases, in respect of landscape, visual effects and design. These include:

- potential effects on ecological receptors from removal of landscape features;
- potential visual effects from construction plant, machinery and activity on heritage assets, amenity and recreation and landscape character; and
- potential visual effects from views of the Proposed Development on heritage assets, amenity and recreation and landscape character [APP-575, Table 2.2].

5.14.398. The Applicant concluded that no further inter-relationships beyond those assessed within the relevant technical assessment ES chapters were identified [AS-016, Table 2A.1].

5.14.399. Additionally, the Applicant also undertook an assessment for the potential for residential properties, commercial facilities, and schools to experience effect interactions as a result of the Proposed Development [APP-575, para 2.1.1].

5.14.400. As detailed in paragraphs 5.10.23 to 5.10.31 of this Report, the Applicant identifies receptors in proximity of the MDS and associated development sites with a high potential for combined effects in respect of noise and vibration, air quality during construction and also as a result of effects from operation.

5.14.401. The Applicant produced a Mitigation Route Map for the MDS and associated development sites which details the mitigation measures considered within the inter-relationship effects assessment [REP2-110, Appendix 13b].

ExA's consideration

5.14.402. The ExA considers that the Applicant has satisfactorily addressed the assessment of inter-relationship effects. We are satisfied that the assessment has given sufficient consideration to how the accumulation of effects might affect the landscape, visual and design matters as a whole (NPS EN-1, para 4.2.6). Given the adequacy of the assessment, we are content with the findings in this respect.

5.14.403. The ExA does however acknowledge that whilst most of the significant adverse inter-relationship effects would be satisfactorily mitigated, some significant adverse effects would remain for a small number of residential receptors. Also, regarding the TVB and SLR, the ExA notes an outstanding area of concern regarding the inter-relationship effects of landscape design and noise barriers. This matter is further discussed above and in section 5.18 of this Report.

5.14.404. Therefore, the ExA ascribes moderate weight against the making of the Order in respect of this issue.

Cumulative effects with other plans, projects, and programmes

- 5.14.405. Proposed Development are combined with impacts from other planned or potential third-party plans or projects [APP-578, para 4.1.1].
- 5.14.406. The Applicant states that most effects experienced by receptors as a result of the construction, operation and where relevant, removal and reinstatement, of the Proposed Development would not increase when considered cumulatively with the identified non-SizeWell C schemes [APP-578, section 4.7].
- 5.14.407. The exceptions to this are the below Visual Receptor Groups where there would be an increase in cumulative effects during the construction phase as a result of the proximity of the construction of EA1N and EA2 landfall, cable route and substation:
- Visual Receptor Group 18: Knodishall and Aldringham;
 - Visual Receptor Group 19: Aldringham Common and The Walks; and
 - Visual Receptor Group 20: Sizewell to Thorpeness Coast.
- 5.14.408. The Applicant states that the cumulative significant adverse effects are likely to be experienced during the early years of construction of the Proposed Development and would reduce over time to not significant following the completion of construction of EA1N and EA2 landfall, cable route and substation [APP-578, para 4.7.10 to 4.7.12].

ExA's consideration

- 5.14.409. The ExA considers the Applicant has satisfactorily addressed the assessment of cumulative effects of the Proposed Development and is content that the assessment has given sufficient consideration to the effects of other development and how such effects might affect landscape, visual and design matters as a whole (NPS EN-1, para 4.2.5).
- 5.14.410. The ExA is content that whilst additional cumulative significant adverse effects would be experienced by the three listed Visual Receptor Groups during the construction phase, such effects would be both temporary and transient in nature. As such, we are satisfied that such effects would only occur during the early years of construction.
- 5.14.411. The ExA is satisfied that any significant adverse effects would reduce to not significant following the construction of the EA1N and EA2 cable route and substation. We are therefore content that further mitigation measures in addition to those already proposed are not necessary in this instance.
- 5.14.412. Therefore, the ExA ascribes little weight against the making of the Order in respect of this issue.
- 5.14.413. Specific consideration of cumulative effects in respect of the AONB and SHC is discussed above.

Decommissioning

- 5.14.414. In respect of the decommissioning of the MDS, the Applicant states that it would be necessary for the operator to undertake an EIA and prepare

an ES under the relevant EIA regulations. The EIA would be required to take full account of the environmental impacts of decommissioning [APP-189, para 5.1.3].

- 5.14.415. The Applicant states that there would be some adverse landscape and visual effects during the decommissioning phase. The greatest effects would be experienced when tall cranes and plant are in operation in proximity to users of the coastal path and Sizewell beach. Whilst the adverse effects for the decommissioning of the MDS would be experienced for approximately 25 years and a further 30 years for the Interim Spent Fuel Store (ISFS), the effects would be temporary [APP-189, para 5.7.18].
- 5.14.416. After the decommissioning is complete, all above ground structures would be removed. The Applicant states that this would provide the opportunity for the restoration of the area to reflect prevailing conditions and other considerations at the time of restoration, including the provision of public access and opportunities for habitat creation. This is considered by the Applicant to have the potential to deliver positive landscape and visual effects following decommissioning [APP-189, para 5.7.20].

ExA's consideration

- 5.14.417. The Applicant has provided a high-level decommissioning strategy, which makes several assertions based on the current environmental baseline conditions. The ExA accepts that this provides a degree of uncertainty, but we are content that the decommissioning methodology would be agreed with the relevant authorities and statutory consultees, and the works would be subject to a separate licencing and consenting approach. The ExA therefore finds no reason to disagree with the content of the Applicant's proposed high-level approach.

CONCLUSIONS

- 5.14.418. The ExA has considered the effect of the Proposed Development in respect of landscape, visual (including development proposed in a nationally designated landscape), and good design matters.
- 5.14.419. In this concluding section, we report on how the Proposed Development with its mitigation would meet the NPS tests and then set out our concluding weightings for the planning balance in Chapter 7. These are set out for:
- landscape character and views (for the MDS and the associated development sites);
 - the AONB and SHC; and
 - good design.

Effects on landscape character and views

- 5.14.420. The ExA is satisfied that the Applicant carried out an LVIA which followed relevant guidance and assessed construction and operation phase effects. The Applicant's assessment included construction phase visibility and

operation phase effects on views and visual amenity including lighting (NPS EN-1, para 5.9.5, to 5.9.7). The ExA did not agree with all the findings of the adverse effects of the Applicant's construction phase assessment in the AONB, but we are content that these and other adverse landscape and visual construction effects would be capable of reversal in a reasonable timescale (NPS EN-1, para 5.9.16).

- 5.14.421. The ExA has taken into account the information provided during the Examination and its own site inspections to reach a view on the quality of the existing landscape quality. The ExA is content that the Proposed Development has been designed carefully to minimise harm to the landscape, taking account of environmental effects on the landscape, siting, operational and other constraints and providing reasonable mitigation. The ExA is satisfied that details that would be discharged through post-consent approvals are sufficiently developed and secured in the rDCO and DoO (NPS EN-1, para 5.9.8 and 5.9.17).
- 5.14.422. The ExA is satisfied that the Applicant's embedded mitigation and further mitigation addressed reduction in scale of the project. We do not consider that any further reduction would be merited, acknowledging that the scale of the Proposed Development is such that it would be visible for many miles. The ExA does not however consider that the adverse harm to the landscape would be so damaging that it would not be offset by benefits, including the landscape enhancements (NPS EN-1, para 5.9.15 and 5.9.21).
- 5.14.423. Turning to visual effects, the ExA is mindful of the particular vulnerability of coastal areas to visual intrusion because of views along coasts and the need to judge adverse effects on sensitive receptors. We consider that the Applicant has been thorough in its assessment, has considered the building massing and that the DAS, ADDP and LEMPs would give the local authorities sufficient level of design detail against which to discharge post-consent approvals to ensure that the MDS and the associated development sites would not result in levels of visual harm that would outweigh the benefits of the Proposed Development (NPS EN-1, para 5.9.18 and 5.9.20).
- 5.14.424. In terms of mitigation for adverse landscape and visual effects, the ExA considers that the Applicant has gone to great lengths to site the infrastructure and to set out design principles in the DAS, ADDP and LEMPs to a level of detail for such matters as materials, colours, designs of buildings and landscape schemes that would enable post-consent approvals to ensure that adverse landscape and visual effects are reduced (NPS EN-1, para 5.9.22). We are also satisfied with the proposals for off-site planting (NPS EN-1, para 5.9.32). The ExA considers that the nuclear-specific policy requirements relating to landscape and visual effects would be met (NPS EN-6, Section 3.10).

Planning balance: landscape and visual effects

- 5.14.425. In drawing together the effects on landscape character and views, the ExA has weighed the benefits and harm on the MDS holistically as one element taking weights from the earlier reporting because its mass and

design would form the entity which would be read as the power station. However, the associated development sites are concluded separately as they would be spread geographically, would deliver a range of different infrastructure assets, would be of very different scales to each other and would vary in degrees of harm and benefit.

Main Development Site

- 5.14.426. The ExA considers that the overarching landscape vision and landscape improvements which would be delivered would bring multiple benefits to the landscape character of the wider area in which the MDS would be sited. There would also be benefits to biodiversity and green infrastructure and views (covered below). In almost all the development areas of the MDS, the landscape character will change from one of natural landscape and seascape to one mainly comprising large built structures. The exceptions to this are the SSSI crossing and the Goose Hill outage car park, where the ExA considers that mitigation and supplementary planting would integrate the development into the existing landscape. The temporary nature of the desalination plant and the commitment to reinstatement would not give rise to long term changes to landscape character.
- 5.14.427. Overall, therefore the ExA has ascribed little weight against the making of the Order to the landscape effects which would arise from the development of the MDS.
- 5.14.428. In terms of views, there would be improvements in some locations in the wider area resulting from the landscape enhancements. But in the main these would be offset by the changes to views which would introduce large structures, built form mass and associated infrastructure into views, some of which were previously of a natural landscape and some of which comprised the well-known white dome and blue base (described as iconic by some) of the Sizewell B power station. The ExA is content that the DAS is fit for purpose, of a high quality and is based on an appropriate interrogation of the existing landscape, built structures and environs which would inform design decisions on materials and colour. It is also considered to be satisfactorily secured in the DCO.
- 5.14.429. Whilst accepting that a new nuclear power station would inevitably be conspicuous both during construction and operation, in our opinion, the changes to the views for most elements of the MDS would result in some adverse visual effects. Although there are some such as the SSSI crossing and the Goosehill outage car park where we consider that effects on views would be neutral. Even with the Applicant's DAS, which would give the Local Authorities involved in discharge of post-consent approvals comprehensive design information against which to test submitted details, there remains potential for visual amenity to be compromised. In views where the Proposed Development is seen with Sizewell B's celebrated dome, there would be detrimental compromise to those existing views.

- 5.14.430. Overall, therefore the ExA has ascribed little weight against the making of the Order to the visual effects which would arise from the development of the MDS.

Associated Development Sites

- 5.14.431. In reaching conclusions on the landscape effects of the associated development sites, the ExA finds that, notwithstanding the mitigation proposed by the Applicant and secured through the Associated Development Design Principles (ADDP), the nature of the various aspects of the Proposed Development would harm the existing landscape character. This would be to different degrees depending on siting, development function and effectiveness of mitigation. For a number of the Associated Development Sites the ExA has attributed moderate weight against the making of the Order to landscape effects. These are: the Sizewell Link Road, the Two Village Bypass, the Southern Park and Ride, the Freight Management Facility and the Green Rail Route. This is because even with general and site-specific design principles set out in the ADDP, the existing landscape character would be changed, and the nature of the development would not be able to be assimilated without adverse effects on the landscape components. This would also include views, and for that reason the ExA has also attributed moderate weight against the Order being made to visual effects of these ADS.
- 5.14.432. The Northern Park and Ride is different because although there would be modifications to the existing landscape, there would be opportunities through planting and buffer zones to blend and screen the site. The ExA has therefore attributed little weight against the Order being made to landscape effects arising from the Northern Park and Ride.
- 5.14.433. Turning to visual effects, there would be visual receptors which would be adversely affected by construction activity and subsequently by lighting columns, security fencing, roofs of taller vehicles and bunds. These would be significant adverse visual effects for potentially up to twelve years. The ExA therefore attributes moderate weight against the making of the Order to visual effects arising from the Northern Park and Ride.
- 5.14.434. Yoxford Roundabout highway improvements would take place in a landscape setting which already includes highway infrastructure. The proposed works would result in modification and removal of some landscape features, but the retention of existing boundary planting and new planting would integrate the new infrastructure into the existing landscape. The effects are not considered significant. For these reasons the ExA considers that there are no matters relating to landscape effects arising from the highway improvement works at the Yoxford Roundabout that would weigh against the Order being made. Likewise for visual effects, although additional lighting columns would be additional features in the area, they would be in line with the existing highway character, and we are satisfied that light spillage would be satisfactorily minimised through the ADDP. Therefore, the ExA considers that there are no matters relating to visual effects arising from the highway improvement works at the Yoxford Roundabout that would weigh against the Order being made.

Suffolk Coast and Heaths AONB and Suffolk Heritage Coast

- 5.14.435. The ExA recognises that the MDS is located within the boundaries of the AONB and SHC, both of which are nationally designated landscapes. However, we are satisfied that the Applicant has adequately considered and addressed the tests for exceptional circumstances in terms of need (concluded in Chapter 5.19), alternatives and detrimental effect on the environment and landscape and recreational opportunities (the latter covered in Section 5.3) (NPS EN-1, para 5.9.9 to 5.9.10). As stated above, the ExA has considered the Applicant's approach to good design and mitigation, whilst accepting that adverse landscape and visual effects could not be eliminated altogether, with little potential for mitigation (NPS EN6, para 3.10.3 and 3.10.8 and NPS EN-6 Appendix II, para C.8.73).
- 5.14.436. The ExA is content that the tests for alternatives have been met, as reported above and we consider that the detrimental effects on the landscape character and views that would arise have been mitigated for both construction and operation phases as far as is reasonably practicable (NPS EN-1, para 4.4.2 and 5.9.10). The ExA also considers that the policy requirement to consider undergrounding and guidelines for routing overhead lines has been met, although the selected option of an overhead line will result in harm to the landscape qualities of the AONB (NPS EN-5, Section 2.8).
- 5.14.437. The ExA is satisfied that the Applicant's approach to mitigation and good design combined with the wider landscape enhancements that would be secured would conserve as far as possible, the natural beauty of the landscape and countryside. The ExA is persuaded that the AONB's statutory purpose would not be compromised, even though there would be significant adverse landscape and visual effects which would affect a wider part of the AONB especially during construction (NPS EN-1, para 5.9.9). Whilst we disagree with the Applicant's interpretation of the extent of significant adverse landscape and visual effects for construction phase over the entire AONB area, we have concluded that these would be capable of reversal in a reasonable timescale, bearing in mind nature of the Proposed Development (NPS EN-1, para 5.9.16).
- 5.14.438. The ExA is satisfied that the rDCO and DoO would secure high environmental standards through Requirements which set out the landscape vision and good design in the DAS and through other enhancements that would provide an enhanced expansive naturalised landscape and would aim to ensure the long-term sustainability and resilience of the landscape (NPS EN-1, para 5.9.11). In this regard we have given weight to the Natural Environment Improvement Fund and Resilience Fund, which is secured, but not to the Environment Trust as details were not submitted to the Examination.
- 5.14.439. The ExA has also had regard to parts of the Proposed Development areas outside the AONB boundary which could have effects within. We are satisfied that there are controls in place to ensure that areas outside the boundary would be designed sensitively, such that the AONB purpose would not be compromised in terms of visibility from the AONB or

adverse effects on its landscape character (NPS EN-1, para 5.9.12, 5.9.13).

- 5.14.440. Turning to the NPPF's position on proposed development in AONBs and SHCs, the ExA is satisfied that there are controls in the rDCO and DoO to ensure conservation and enhancement of landscape and scenic beauty (NPPF para 176 to 178). In particular, the ExA gives weight to the Natural Environment Improvement Fund and the proposed wider landscape enhancements, which we are satisfied are secured. The ExA is satisfied that the exceptional circumstances in terms of effects on the landscape are met.

Planning balance: AONB and SHC

- 5.14.441. The ExA recognises that in the longer term there would be benefits to the AONB arising from the lasting enhancements that would be delivered to the wider AONB area. However, these are offset by the harm that would occur to the natural beauty, special qualities, countryside and seascape of these designated areas.
- 5.14.442. As stated earlier, the ExA is of the opinion that there would be much wider, significant adverse effects in respect of landscape and scenic qualities, relative wildness and tranquillity than concluded in the Applicant's assessment. We consider that the construction phase activities would be evident across a wider area of the AONB than that physically affected. Although we consider these adverse effects to be reversible within a reasonable time scale in light of the nature of the Proposed Development, we note the adverse effects on the AONB.
- 5.14.443. For these reasons the ExA ascribes very substantial weight against the Order being made to effects on the AONB and SHC for the construction phase.
- 5.14.444. For the operational stage, the ExA considers that delivery of the landscape vision and design principles of the DAS would provide enhanced naturalised landscapes in the wider area and that the buildings would meet high design standards, subject to the discharge of post-consent approvals. However, the natural beauty of the landscape, seascape and countryside would be adversely affected. Land, including coastal areas, which was previously part of the designated sites' natural beauty would house large buildings and infrastructure including new overhead lines introduced to the AONB.
- 5.14.445. We also consider that whilst the embedded mitigation would be appropriate for the sensitive landscape, we consider that significant adverse effects would be experienced on a wider geographical scale than concluded by the Applicant, albeit not over such a wide area as during construction.
- 5.14.446. For these reasons the ExA ascribes substantial weight against the Order being made to effects on the AONB and SHC for the operational phase.

Compliance with other policies

5.14.447. The ExA is also content that in line with paragraphs 176, 177 and 178 of the NPPF and policies SCLP3.4, 10.4 and 11.1 of the East Suffolk Council Suffolk Coastal Local Plan, the Applicant has given appropriate consideration to the scale and extent of the Proposed Development and undertaken a sufficiently robust assessment of potential impacts on the AONB, making its case for exceptional circumstances. Adequate consideration has also been given to local context and the design of the Proposed Development responds satisfactorily to local context, as far as practicable.

Final Conclusions on Good Design

- 5.14.448. In terms of the appearance and landscape and visual aspects of good design, the ExA is satisfied that the Applicant presented its design process and how the design evolved prior to and during the Examination and that the reasons for its favoured choice have been set out (NPS EN-1, para 4.5.4). We are content that the Applicant utilised a design review process during the design evolution and that it would continue to do so as part of the process of discharge of relevant Requirements (NPS EN-1, para 4.5.5). We consider that the Applicant has taken into account functionality as well as aesthetics and demonstrated good design in terms of siting relative to existing landscape character, landform and vegetation and reduced the visual intrusion of the Proposed Development as far as reasonably practicable (NPS EN-1, para 4.5.3 and NPS EN-6, para 3.10.8).
- 5.14.449. The ExA acknowledges that there are likely to be some long lasting adverse direct and indirect effects on landscape character and visual effects on the AONB (NPS EN-6, Appendix II, para C.8.72). In terms of the physical appearance and the siting relative to existing landscape character the ExA is of the opinion that the Applicant has made significant effort and achieved a high-quality DAS which, combined with the series of management documents, set out robust design principles which would give the necessary controls for post-consent discharges to confirm good design acting to mitigate the adverse landscape and visual effects of the MDS and the associated development (NPS EN-6, para 2.8.3).
- 5.14.450. Notwithstanding the high-quality DAS, there would be many post-consent details to be approved which could influence the final aesthetics of the proposed substations because of the need for flexibility at this stage. Therefore, the ExA gives little weight against the Order being made to matters relating to good design in terms of appearance and adverse effects on landscape and views.
- 5.14.451. Other matters covered by good design are reported in other sections of Chapter 5 and concluded in Chapter 7 of this Report.

5.15. MARINE ECOLOGY

Introduction

- 5.15.1. This Section of Chapter 5 addresses terrestrial biodiversity and ecology issues, biodiversity net gain and (together with Section 5.15) effects on ecological receptors from changes in marine water quality. All other matters on marine water quality are dealt with in Section 5.16. The section begins with two sections summarising the relevant policy and relevant law for terrestrial ecology.

Policy and legislation

- 5.15.2. In addition to National Policy Statements EN-1 and EN-6 we draw attention to the Marine Policy Statement 2011 and the East Marine Plan 2014 prepared under it.
- 5.15.3. The Marine Policy Statement 2011 (MPS) is the framework for preparing marine plans and for taking decisions affecting the marine environment. It supports the 11 descriptors in the Marine Strategy Framework Directive including on keeping underwater noise below levels which adversely affect the environment. In relation to marine ecology and biodiversity the MPS provides that as a general principle, development should aim to avoid harm to marine ecology, biodiversity and geological conservation interests (including geological and morphological features), including through location, mitigation and consideration of reasonable alternatives. Where significant harm cannot be avoided, then appropriate compensatory measures should be sought. Development proposals may provide, where appropriate, opportunities for building-in beneficial features for marine ecology, biodiversity and geodiversity as part of good design.
- 5.15.4. In relation to energy production and infrastructure development the MPS notes that secure, sustainable and affordable supply of energy is of central importance to economic and social well-being of the UK. Decision makers should take into account the national level of need for energy infrastructure as set out in EN-1. Coastal power stations may have impacts on the local marine environment through construction, jetties and heavy plant. There may also be impacts from abstraction and discharge of cooling water. More detail on those and actions to avoid or minimise adverse impacts including on marine ecology is contained in EN-6. Any discharges to water will be controlled in accordance with permits issued by the relevant licensing authority. The Planning Act 2008 (PA2008) provides that in s.104 cases the SoS is to have regard to the MPS.
- 5.15.5. The East Marine Plan was adopted in 2014. It is made under the MPS. Objective 7 is "To protect, conserve and, where appropriate, recover biodiversity that is in or dependent upon the East marine plan areas". Policy BIO1 states "Appropriate weight should be attached to biodiversity, reflecting the need to protect biodiversity as a whole, taking account of the best available evidence including on habitats and species that are protected or of conservation concern in the East marine plans

and adjacent areas (marine, terrestrial)”. Policy BIO2 states “Where appropriate, proposals for development should incorporate features that enhance biodiversity and geological interests”. The Applicant also submitted an East Marine Plan Policy Checklist [REP7-074].

- 5.15.6. Section 125 of the Marine and Coastal Access Act 2009 sets out the general duties of public authorities in relation to marine conservation zones (MCZ). Sub-section 1 applies to any public authority having any function the exercise of which is capable of affecting (other than insignificantly) (a) the protected features of an MCZ; (b) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.
- 5.15.7. Subsection 2 provides that every public authority to which this section applies must (in so far as is consistent with their proper exercise) (a) exercise its functions in the manner which the authority considers best furthers the conservation objectives stated for the MCZ; and (b) where it is not possible to exercise its functions in a manner which furthers those objectives, exercise them in the manner which the authority considers least hinders the achievement of those objectives.
- 5.15.8. Section 126 is written in similar terms but applies where a public authority has the function of determining an application (whenever made) for authorisation of the doing of an act and the act is capable of affecting (other than insignificantly) (i) the protected features of an MCZ; (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.
- 5.15.9. The ExA asked the Applicant and Natural England (NE) in ExQ1 Bio.1.38 whether there are any MCZs relevant to the application. The Applicant and NE were in agreement that neither section applied as the potential effects are insignificant.
- 5.15.10. The Natural Environment and Rural Communities Act 2006 (NERC Act) sections 40 and 41 are relevant. So are ss.28G and 28I of the Wildlife and Countryside Act 1981. We have summarised them and their effect in Chapter 5.6. Habitats Regulations Assessment (HRA) is addressed in Chapter 6.

Main Issues

- 5.15.11. In relation to marine ecology, we consider the following to be the main issues:
- Cooling systems
 - Fisheries;
 - Matters of disagreement between Natural England and the Applicant;
 - Chemical, thermal and sediment plumes;
 - Change 19 – desalination plant;
 - Eels; and
 - Sabellaria spinulosa.

5.15.12. The Applicant assessed marine ecology under the EIA directive. Its Environmental Statement (ES) concludes that there would be no likely significant adverse effects. That conclusion held good after all changes.

Cooling Systems

5.15.13. We will deal with the effects of the cooling systems on fish stocks, equivalent adult values (EAV), entrapment losses, fish monitoring and acoustic fish deterrents. The issue here is in relation to losses of fish and other marine organisms being drawn into the cooling water system.

5.15.14. There is considerable documentation in relation to these subjects, submitted during the Examination. In addition, some documents were known by more than one name or reference. We shall be referring to them therefore, at the outset, it is useful to list some of the main documents submitted by the Applicant:

- Use of spawning production foregone equivalent adult values for impingement assessment. Also known as SPP102, it is to be found at [AS-238] epage 346.
- Consideration of potential effects on selected fish stocks at Sizewell. Also known as SPP103 (Revision 03), it is to be found at [AS-238] epage 361. This document was revised during the course of the Examination and Revision 05 was submitted and given the Examination Library (EL) reference [REP6-016].
- Technical note on EAV and stock size. This is Appendix F of Comments at Deadline 6 on Submission from Earlier Submissions and Subsequent Written Submissions to ISH1-ISH6 – Appendices which is [REP6-024]. Appendix F is to be found at epage 90.
- Quantifying uncertainty in entrapment Revision 01. This report is also known as SPP116 (Revision 01) and is to be found at [REP6-028]. This report was revised for Deadline (DL) 10 and Revision 02 was given EL reference [REP10-135].
- Sizewell European Sea Bass Stock Assessment, also known as SPP118. It was given EL reference [REP8-131].

5.15.15. A short description of the process is helpful for understanding the issues. The power station needs cooling water to cool the steam used to drive the turbines. Seawater is drawn in and pumped over condensers causing the steam in a closed circuit to condense. Fish and marine organisms such as plankton are drawn in with the cooling water. They need to be screened out so as not to block the condenser tubes. The seawater intakes and outfalls will be 3 km out to sea. Most of the fish will be young fish, and not all young grow to adulthood in normal conditions.

5.15.16. A fish return system is designed to prevent fish etc going through and blocking the condenser tubes. The racks and screens have a minimum mesh size of 10mm. Therefore plankton and any fish with a body size small enough to fit through a 10mm orifice may get through.

5.15.17. Fish and other organisms which hit the screens are said to be "*impinged*". Those which pass through the screens (and therefore return

to the sea via the outfall tunnel) are said to be “*entrained*”. The sum of impingement and entrainment is known as “*entrapment*”.

- 5.15.18. Impinged fish are returned to sea via a separate tunnel which discharges about 300 metres from the beach. This is known as the Fish Recovery and Return (FRR). Some of these impinged fish will be dead or moribund.
- 5.15.19. How to calculate effect on fish stocks is a matter of dispute between the Applicant on the one hand and the Environment Agency (EA) and NE. The Marine Management Organisation (MMO) is largely content with the Applicant’s approach. The process begins by monitoring impingement and entrainment at Sizewell B (SZB) to estimate the same at Sizewell C (SZC). That was done in two programmes, the CIMP (Comprehensive Impingement Monitoring Programme) and the CEMP (Comprehensive Entrainment Monitoring Programme)². Given that not all juvenile fish survive to maturity, EAV, are calculated and that factor is applied to the estimated numbers entrapped and added to the estimates of adult fish entrapped. That is then compared with fish stocks.
- 5.15.20. Other relevant factual background is that the intakes will be Low Velocity Side Entry (LVSE) systems. The seawater intakes and outfalls will be 3 km out to sea. Most of the fish drawn in will be young fish, and not all young grow to adulthood in normal conditions. The two LVSE intake heads for each of the two Nuclear Island units will be capped structures with intake surfaces orthogonal to the tidal flows [AS-035, para 22.8.548.]. The intake heads have been subject to extensive computational fluid dynamics modelling studies. Their design will reduce general and specifically vertical intake velocities and the area available to intercept fish being transported in the tidal flows [APP-326, section 3.3.6]. This is expected to reduce the number of fish abstracted by 38% compared with Sizewell B [APP-326, section 5.1.2]. The velocity-capped intake heads, of a similar design to Sizewell B, will also reduce biofouling and simplify maintenance. The minimisation of internal baffles will reduce areas of low velocity flow within the head itself to further reduce biofouling.

Applicant’s case

- 5.15.21. The Applicant’s case is that there would be no likely significant adverse environmental effects [APP-317/AS-035]. The entrapment figures would be sufficiently low not to have unsustainable effects on fish stocks. The levels of reduction would be less than 1% for all species except for fish which are not commercially exploited where the threshold is 10%.
- 5.15.22. At paragraph 22.8.514 of [APP-317/AS-035] the Applicant explained the thresholds. It stated that in the case of commercially important key

² The abbreviation CEMP is used elsewhere in this report to mean the Construction Environmental Management Plan. When we wish to refer to the Comprehensive Entrainment Monitoring Programme in the Report therefore we use the abbreviation FishCEMP. However, when quoting from other documents use the actual words in the quoted document.

species at Sizewell predicted entrainment losses of less than 1% of spawning stock biomass (SSB) are considered to be ecologically negligible. The assessment threshold is considered against natural variability in recruitment (which means survival to spawning maturity) and natural mortality of the species populations.

- 5.15.23. In the case of sand goby, predicted entrainment losses of less than 10% of the population are considered to be ecologically negligible, as the population is not exploited, i.e. it is not fished. The Applicant at [REP6-024] Technical Note on EAV and stock size described their EAV process as a form of risk assessment. Estimates of the annual EAV numbers as a proportion of the spawning population size can be used to assess whether there is a risk to the sustainability of the population using pre-defined thresholds.
- 5.15.24. For the first three years of operation of SZC there would be monitoring under the Fish Impingement and Entrainment Monitoring Plan (FIEMP). This *"would be implemented for the Proposed Development as a Condition on the Marine Licence. The CIMP would be used to establish seasonal and interannual variability in impingement numbers by species and confirm the impingement predictions for the Proposed Development. The proposed monitoring would be run in parallel with a CIMP programme at SZB for a period of 3 years after which the results would be reviewed to determine whether the monitoring had satisfactorily demonstrated that the impingement predictions were sufficiently robust"* (Chapter 22 of the ES, [AS-035] para 22.12.29).
- 5.15.25. In the draft FIEMP itself, submitted in final form at DL10, the Applicant further explained that action or additional monitoring considered necessary would be agreed with the MTF (Marine Technical Forum) and that *"Should any uncertainty remain extended monitoring would be considered, for example on a longer-term basis at a reduced or targeted capacity, similar to the monthly routine impingement monitoring program (RIMP) completed at Hinkley Point (HPB)"* [REP10-138 para 2.3.9].

Environment Agency's case

- 5.15.26. The EA's case on cooling systems – WR [REP2-135] – is that best practice must be followed. The EA say that fish deterrent devices are a method of best practice and demonstrate good design; they are not proposed by the Applicant and there is, say the EA, insufficient explanation to justify design of the cooling water system. Why, they ask, do logistics and safety preclude deployment at SZC of acoustic fish deterrents (AFD) which they said had the potential to substantially reduce the numbers of fish impinged.
- 5.15.27. The EA expressed concerns over the Applicant's CIMP data, the LVSE intake and EAV calculations and the scale of the assessments. The EA and Applicant were separately discussing the Water Discharge Activity (WDA) permit application which had been submitted at the same time as this application.

- 5.15.28. In relation to the CIMP data the concern is that the fish baskets receiving overnight samples overflowed, meaning that the number of fish in the baskets were lower than the actual numbers. So that data was excluded and daytime data extrapolated to night time. In addition, monitoring at Sizewell A (SZA) shows that peak catches were at night (fish are more active and do not see so well at night), so the extrapolated estimates are underestimates. These points were elaborated at ISH7 and set out in the EA's post-hearing written summary [REP5-150].
- 5.15.29. In relation to the LVSE intake, the EA considered that the degree of mitigation may have been overestimated. A factor is applied by the Applicant derived from the impingement areas of the SZB and SZC abstraction heads. But the mathematical models for calculating the areas are different for B and C; in the case of C, induced currents are not accounted for. Given that doubt, the Applicant has suggested an LVSE factor of 1, as a conservative estimate³. But that, said the EA, would give an impact of abstraction which "*may prove to be unacceptable*" under EIA and WFD.
- 5.15.30. As the ExA has explained above, EAV are a means by which the losses of fish of all ages can be represented as an equivalent number of adults as it is recognised that not all fish entrapped would survive to maturity in the wild and therefore reproduce. The EA considers it to be an appropriate method, but they do not agree with Applicant's parameters.
- 5.15.31. The Applicant's method (sometimes called the Cefas method) is to calculate how many fish entrapped at SZB in one year would otherwise have reached adulthood, being fish which reach maturity and spawn for the first time. That factor is then applied to the predicted SZC entrapment and added to the number of adult fish. That can then be compared with fish stocks.
- 5.15.32. The EA say that the Applicant should then go on and take into account the lost fish which could have spawned a second and subsequent times – repeat spawning. They say that, unless that is done, the impact on the spawning population is underestimated. This is called the Spawning Production Foregone or SPF method. Consequently, says the EA, the Applicant's EAV calculations are too low.
- 5.15.33. The Applicant has used an EAV of 1 for some species where there is insufficient data. This means that each impinged fish is assumed to have gone on to adulthood. The EA also say that recalculation should take place and then the underlying parameters of their EAV method checked.
- 5.15.34. In relation to the scale of assessments, the EA took issue with the size of the fish stock assessment units used. The Applicant used the International Council for Exploration of the Sea (ICES) stock units. In this case the relevant area includes the Southern North Sea and large areas of European Seas. Smaller populations of some species exist and, at that

³ Para 8.24 of the EA's WR in fact says "*EAV factor*" but that is wrong given the context and the next line where the EA wrote "*LVSE factor*".

scale, such populations are not being adequately assessed said the EA. The EA lists 12 relevant local species of which eight are repeat spawners (iteroparous), two are not and for two there is no data.

- 5.15.35. The EA give smelt as an example of the large stock assessment unit problem they see. The large assessment units used by the Applicant include large smelt populations from Germany and Belgium as well as from the UK. Sampling has been carried out in the Ore & Alde estuary, the River Stour and the River Orwell, all nearby, for 10, 12 and 15 years respectively. The numbers of smelt caught are highest in the Ore & Alde (278 as opposed to only 11 and 9 for the other two).
- 5.15.36. The EA fears that the sustainability of the Ore & Alde population could be compromised with the increase in cooling water abstraction for SZC. There are two reactors planned at SZC, whereas SZB has only one reactor. Smelt are also repeat spawners and so the Applicant's EAV calculation may not be appropriate they say. In addition, the efficacy of the LVSE system is unknown and the FRR would not, in the EA's view, offer mitigation for smelt. The EA said they could not rule out collapse of the smelt population in the Ore & Alde.
- 5.15.37. The EA also had criticisms of the Applicant's draft FIEMP which was submitted at DL6 and subsequently revised twice. The EA did not see the third revision which was submitted at DL10 by the Applicant who stated that it had considered the EA's comments (to be found at [REP8-160]) in the final version (see [REP10-138 para 1.1.6]. The same applied to comments from NE [REP8-303] and from the MMO [REP8-164] who would also not have been able to see the final version. We address the draft FIEMP later.
- 5.15.38. The EA's submissions to ISH7 are summarised in [REP5-150]. The subjects were the HPC appeal, the Fish Monitoring Plan, issues with the CIMP, LVSE intakes, EAV, scale of assessment and appropriate stock areas, WFD Ore & Alde Transitional Fish Classification Index (TFCI) deterioration risk, Eel Regulations and impacts on smelt. These were all also current at ISH10. However, we would draw attention to Appendix C of [REP5-150] which is a useful summary of the differences between the EA and the Applicant on EAVs.
- 5.15.39. The EA's submissions to ISH10 are summarised in their post-hearing submission [REP7-131]. They were:
- The relevance of the HPC appeal (epage 3). This is an appeal against the terms of the WDA permit at HPC which require an AFD. It was heard in June 2021 and at the end of the Examination no decision on it had been reached. We had asked what were the issues in common with SZC. The EA stated the appeal was relevant to EAV, scale of assessment and the effectiveness of the LVSE heads. They made other comments in relation to EAV about the need for appropriate biological data the definition of adult fish, and other parameters. In relation to scale of assessment the EA accepted that the HPC appeal may decide if the use of ICES stock assessments is accepted for some

species at HPC and the use of smaller sub-populations is more appropriate. In turn they accepted that that could influence the decision on the appropriate stock comparator SZC, for some species (emphasis added). But they submitted it would not decide the appropriateness of stock sizes for most species at SZC as this is a different site with a different fish assemblage. In relation to effectiveness of LVSE heads, whilst the EA had agreed a factor of 1.0, they did not accept that was precautionary and that without a behavioural clue, such as AFD, fish will be entrapped. The heads had the potential to act as an attractant to fish, like a reef. Without a way to quantify this, the EA used the LVSE factor of 1.0.

- Eels Regulations. We will not expand on this as the matter was the subject of an agreement between the EA and the Applicant.
- Impact on smelt and WFD duties (epage 8). This issue was awaiting mitigation proposals for Alde-Ore and Blyth waterbodies.
- WFD Alde & Ore TFCI deterioration. The EA recommended requirements to address risk of deterioration of fish in the Blyth waterbody to secure monitoring, mitigation and compensation and improvements should deterioration occur, but the EA were waiting for proposals.
- The EA also clarified and explained their position on the need for protective measures in the DCO, first set out at para 11.5 of the EA's [RR-0373].

5.15.40. In [REP7-128] the EA submitted comments on the Applicant's technical note on stock size – [REP6-024 Appendix F]. We have set this out later in this report where it is relevant to the argument, but in brief the Applicant's note did not satisfy the EA who repeated their [REP5-150] concern about repeat spawners but confirmed they agree EAV of 1 for European eel, river and sea lamprey as they only spawn once.

5.15.41. The EA in [REP7-132] also set out concerns in relation to [REP6-028] – a report by the Applicant's consultants numbered SPP116, Quantifying Uncertainty in Entrapment Predictions. They could not "*currently agree the estimated numbers of fish and other biota predicted to be impinged at SZC, or the degree of mitigation offered by the proposed SZC intake design, or agree the significance of those losses*". In relation to the CIMP, they drew attention to the concern expressed in their WR [REP2-135] that the predicted impingement at SZC may have been underestimated. This consequence would be under-estimation of impingement and impacts to species of relevance under both EIA Regulations and the Water Framework Regulations 2017. The issue is the overflowing of the bulk overnight sample nets. As a result daytime samples (which were taken hourly) had to be extrapolated but the EA did not accept the extrapolation and sought a precautionary correction factor. This was later provided [REP10-135].

5.15.42. The EA continued in [REP7-132] to raise concerns that repeat spawning was not taken into account in EAV calculations and that underlying parameters should be checked to ensure they were suitably precautionary and up to date.

- 5.15.43. [REP7-132] introduced [REP7-133] which addressed the Applicant's scientific paper Consideration of potential effects on selected fish stocks at Sizewell, Revision 3. That paper is SPP103, EL reference [AS-238]. Revision 5 was submitted at Deadline 6 with EL reference [REP6-016]. REP7-133 addresses both, separately.
- 5.15.44. In [REP7-133] the EA explained that taking the issues which the EA had expressed earlier in relation to Rev3 [AS-238] the following issues were outstanding following Rev5 [REP6-016]:
- Scale of assessment for sea bass. The EA also referenced the HPC appeal on this where it had been submitted that the contribution of spawning grounds in the North Sea was relatively small to sea bass at HPC. HPC is on the River Severn in Somerset on the western shore of England. SZC is on the North Sea on the eastern shore. The ICES stock unit includes both. The point being made is that young sea bass from the North Sea do not travel to the River Severn, and vice versa.
 - Allis shad. The Applicant had proposed that the Garonne stock are the most likely source. The EA suggested other closer North Sea sources. The EA noted that by the time of [REP7-133] there was reference to population on the Scheldt and Elbe, and mean landings of allis shad were noted to have been increased from nil to 6.6 tonnes *"to account for the possibility of it coming from either the Garonne or a wider area"*.
 - Replenishment of smelt stocks. This is an issue about local area effects, essentially in Sizewell Bay. The matter is linked to SPP116 Rev 01, Quantifying uncertainty in entrapment [REP6-028] which predicted losses in the Anglian Region SSB of 0.51% with an upper 95th percentile estimate of 0.82%. (It will be noted that both are under 1%.) The EA's concern was expressed as follows: *"We note that with a predicted exchange rate of 1% of fish per day, local depletion in the Greater Sizewell Bay (GSB) and tidal excursion reaches 23% in this revised (rev 5) report. We note the applicant's comments on the caution required when applying a range of values to a conceptual model. We highlight the uncertainty that exists over what smelt movements are in this area and over the uncertainty as to what the level of immigration to the GSB from a wider stock (including a stock from The Thames to the Great Ouse) is. We therefore consider the use of the 10% exchange rate applied to smelt in table 7, which predicts a local depletion of 2.9% in the GSB + tidal excursion, as not appropriate or precautionary"*. However, this issue has been resolved by the deed of covenant with the EA the DoO, and the draft FIEMP (see the Applicants' response at [REP10-157 Appendix B, agenda item 3. d.]).
- 5.15.45. In relation to the Applicant's Rev5 of SPP103 [REP6-016] the EA had the following new issues:
- In para 2.1, clarification of estimates in population for mainland European rivers twaite shad populations was apparently promised in the Revision and the EA asked for the data to be produced. Entrapment predictions for the Elbe and Scheldt twaite shad were

later produced in [REP10-135] which is the Revision 02 of SPP116, Quantifying uncertainty. It appears to the ExA that this provided the data and appropriate explanations.

- Table A on [REP10-135] shows entrapment predictions for twaite shad on the River Scheldt to be 27.316% at the 95th percentile and 9.425% at the mean. These figures are above the 1% threshold. The footnote to the table explains that this trans-boundary effect is a statistical artefact of extreme outputs and that in the case of the Scheldt where population recovery only occurred in 2021 the effect predictions are not realistic worst-case estimates.
- At para 2.10, in its work for the Swansea Bay Tidal Lagoon, Cefas had used a much smaller population area than the ICS stock unit. For sea bass, the Bristol Channel was used. The EA asked why the ICES stock unit had not been used in that case. This was answered in [REP10-157] Appendix B where the Applicant explained that that project was not led by Cefas; they had a supporting role. The project applied a very different area-based approach. It appears to the ExA that this provided a satisfactory answer to the EA's question. The Applicant added that the ICES approach it has used "*is a multi-stage international process with internal and external peer review ... which represents an international consensus on the best interpretation of current evidence*".
- In Table 7, evidence to support the sea bass replenishment rate of 10% was sought.
- No para or Table given, but from context it could be Table 7 – evidence to support the seabass replenishment rate of 10% was sought
- A replenishment rate of 10% was given for smelt. However, the EA required evidence or a more precautionary exchange rate. As noted above, the issue of smelt was however resolved by the draft FIEMP and provisions in the DoO.

5.15.46. The EA also commented later [REP10-187] on the Applicant's assessment of sea bass SPP118 [REP8-131]. In summary its criticisms were that:

- More recent research shows high site fidelity of sea bass and so a local scale assessment of sea bass should be done drawing on latest research and likelihood of impact on local populations.
- The assessment is from 1985 to 2020 but more recent advice and assessment shows stock is currently at the lowest safe limits. In addition, the study should assume a 50 year lifetime for the power station.
- The EAV method used does not use repeat spawning (i.e. it does not use the EA's method).
- The study shows and increase in spawning stock biomass in two of the years, when SZC impingement is added, which the EA submits is counter-intuitive.

5.15.47. In [REP8-160] and [REP10-190] it commented on the draft FIEMP. The draft FIEMP had first been submitted as [REP7-077] and then revised to become [REP8-112]. A third revision was submitted at DL10 – [REP10-138]. In its [REP10-190] criticism it said that the revision 2 version did not address its [REP8-160] criticisms which therefore stood. In summary

its criticisms related to the duration of monitoring, proposed methodologies used to consider impacts and how agreement is reached in deciding to provide further mitigation and/or compensation for impacts to fish. The Applicant responded to the [REP8-160] criticisms at [REP10-157] Appendix A epage 4.

5.15.48. Notwithstanding the case made and submission of further reports by the Applicant during the Examination the EA did not change its objection and the SoCG [REP10-094] records seven issues as not agreed. The EA's latest explanations for the disagreement are given below. For convenience we include the Applicant's comment in the SoCG:

- Issue numbers MEF1, MEF14 and MEF15 which can be summarised as EAV, scale of assessment and uncertainty in relation to impingement and entrapment. *"The Environment Agency has concerns with some of the methods being used to produce predicted numbers of impinged fish at SZC. We also have concerns with some of the methods and stock areas used to assess the impingement on some species of relevance under the WFD and EIA Regs. We consider assessments should be revised to take account of these concerns."* The Applicant's comment is: *"SZC remains in disagreement with EA on methods of assessment of impacts on fish and in particular use of EAV vs EAV/SPF and scale of assessment and CIMP bulk overflow issue. LVSE mitigation has been conceded to 1:1. These methods have been agreed with the MMO but not agreed with Environment Agency and Natural England. SZC Co is not intending to carry out any further work."*
- Issue number MEF4 which relates to AFD. *"Although the Environment Agency are unable to advise on the engineering and safety considerations stated within the AFD report we wish to highlight some concerns regarding the environmental evidence used to preclude the deployment of AFD at Sizewell and consider further evidence is required. We consider that the scale and impact of impingement on fish has not been quantified with certainty. We do welcome that the Applicant has however committed to provide additional mitigation to help offset impacts to fish from the operation of SZC. This is secured by the DCO/DML and the Deed of Obligation."* The Applicant's comment is: *"Provision of measures for fish (as described) in the Deed of Obligation agreed. DML Conditions 50 and 51 secure fish monitoring. SZC maintains position on not installing an AFD system"*.
- Issue numbers MEF5 which relates to securing mechanisms to control impacts on marine ecology and fisheries on the main development site as detailed in the mitigation route map and the WDA (Operational) Permit, MEF16 which relates to proposed mitigation measures and monitoring to measure impacts on fish as detailed in section 22.12 of [APP-317] and MEF17 which relates to residual effects for fish. *"We consider that the scale and impact of impingement of fish has not been quantified with certainty. We do welcome that the Applicant has however committed to provide additional mitigation to help offset impacts to fish from the operation of SZC. This is secured by the DCO/DML and the Deed of Obligation."* The Applicant's comment is *"EA has been added as named consultee"*

on DML conditions they have requested. DML conditions and DoO are not disputed”.

Natural England’s case

- 5.15.49. We turn now to NE’s case on cooling systems. NE strongly supported the EA (see their WR [REP2-153]) and also drew attention to the then ongoing appeal and subsequent public Inquiry into the removal of AFD from the cooling system proposed for HPC. However this is one of NE’s “yellow” issues on which they defer to others as it falls outside their statutory remit. It was not mentioned in their final SoCG [REP10-097]. It did however form part of their case on the effects on seabirds (an HRA issue, NE issue 30) where they maintained their objection. Issue 30 was red in the final SoCG but the SoCG records that the only outstanding point relates to the draft FIEMP.
- 5.15.50. We note that NE in [REP7-143] explained it preferred the EA’s SPF method because it reflects the losses from all year classes in a given year, not just the first-time spawners, which gives a more realistic picture of, and estimated value to, the lost adult spawning potential from a given year. It explained that fish tend to become more fecund as they age.
- 5.15.51. NE made submissions on the draft FIEMP [REP8-298e]. Welcoming the draft they nonetheless sought FishCEMP and CIMP monitoring every three years, public availability of the data, clarity over action by the MTF and revision of its terms of reference, period of monitoring, the addition of a “survivability” criterion to observations (presumably of impinged examples of species) and smelt monitoring on the River Blyth.
- 5.15.52. NE also, by the time of the SoCG, still had concerns arising from the cooling water system in relation to fish monitoring (issue 30/41); the thermal plume (issue 31/42); chemical plume (issues 33/44); chlorination (issues 34/45); and hydrazine (issues 35/45). Those concerns all relate to HRA issues and to effects on the Alde & Ore SSSI, though not to any other SSSIs. There is no remaining HRA issue in relation to issue 30/41 and NE were simply seeking changes to the draft FIEMP. The other issues do not relate to the EAV disagreement.

MMO’s case

- 5.15.53. MMO’s case on cooling systems - The MMO stated in its WR [REP2-140] that it supported the assessments on impacts to fish populations for the most part but there are two areas where the MMO considered further information should be supplied. The MMO advised that a further sensitivity analysis is undertaken to examine the effectiveness of the LVSE design and the FRR system. The MMO advised that additional evidence in relation to AFD options should be provided. For example they said, while an optimal sound field may require a large number of sound projectors, it is unclear whether a functional system could be established using fewer sound projectors. A specific assessment of the feasibility of installing and operating AFD at SZC should be provided.

- 5.15.54. However, in relation to EAV, the MMO confirmed that it was content with the Applicant's approach to EAVs [RR-0744] [REP6-039]. The MMO stated that the extended SPF method does not take account of fishing mortality and makes additional assumptions which may introduce further unquantified uncertainties in the assessment. It considered the Applicant's core Cefas method end-point age to be more reflective of reality in the context of fished seas. The MMO stated that it did not see any justification for application of the extended SPF method, as the predicted impacts to fish are all small and generally less than 0.1% of spawning stock biomass. It considered that on its own, uncertainty regarding the 'best' EAV method would not be a reason for requiring additional effort to be expended on the extended model.
- 5.15.55. The MMO SoCG [REP10-107] records that all marine ecology matters in relation to this main issue were agreed, save that the MMO were still reviewing the draft FIEMP. They had reviewed an earlier version and had comments at that stage. The agreed matters include the Acoustic Fish Deterrent Report [REP5-123], Quantifying Uncertainty in Entrapment Predictions [REP6-028] and the Applicant's updated assessment [REP6-016] of local effects on fish populations (referred to in the SoCG as the Fish Sensitivity Analysis). The ExA draws attention to these as they are all documents relevant to matters where the EA has concerns but where the MMO was content.

RSPB / SWT case

- 5.15.56. RSPB/ SWT concerns primarily relate to increased suspended sediment concentrations leading to avoidance behaviour by fish, particularly the prey of the SPA bird species, with consequent direct impacts of bird avoidance behaviour or reduced hunting success [REP2-506, para 3.570]. Whilst the significant concentration uplifts may be of short duration, the frequency of regular construction and operation dredging, potential dredging timing overlaps and the cumulative effect alongside other marine impacts is of concern to the RSPB/ SWT and may have been underestimated [REP10-204, para 2.2].
- 5.15.57. According to their WR [REP2-506] para 3.526, RSPB are concerned about the potential impacts of impingement and entrainment on important prey species for birds from the SPA populations. Ecologically important species present in the Greater Sizewell Bay include sprat, herring, anchovy, whiting, sea bass, Dover sole, gobies and dab. Paragraph 8.10.63 of the Shadow HRA Report also notes that the diet of non-breeding red-throated diver in the North Sea includes clupeids (herring and sprat), gadoids (including whiting and cod), gobies, sandeels and smelt.
- 5.15.58. They are concerned (para 3.527) about effects on local fish population in the Greater Sizewell Bay which are prey species for some birds. This is an HRA issue considered in the HRA chapter 6.
- 5.15.59. RSPB say it is likely that juveniles of some species are taken by predatory birds, particularly as an example little terns are known to feed smaller prey to young chicks, hence EAVs could underestimate ecological impacts. They therefore recommend that the unadjusted values for

juvenile fish are considered within the assessment of indirect impacts on birds. They also support the EA's concerns that EAVs do not account for the spawning potential of fish and hence under-estimate mortality, and therefore support the need for consideration of Spawner Production Foregone (SPF) figures in the assessment (para 3.531).

- 5.15.60. RSPB noted that tables in the ES marine ecology chapter show that the species with the highest predicted levels of impingement are those that are known to be ecologically important, including sprat, herring, whiting, sea bass, sand goby, sole, dab and anchovy. These species are important prey species for SPA bird populations. Sprat, herring and whiting in particular are noted in the diet of the red-throated diver. Paragraph 22.4.60 of the ES Chapter [AS-035] also notes that of these, sprat, herring, whiting and sea bass have nursery grounds within the Greater Sizewell Bay and that Dover sole has both spawning and nursery grounds in this area.
- 5.15.61. Whilst the Applicant concludes that nursery grounds are widely distributed and of low importance the RSPB were concerned that impingement in the cooling water system could affect local prey availability for predatory foraging ranges such as the little term. Eel impingement would be important given that eels are a food source for the bittern (para 3.534).
- 5.15.62. RSPB expressed concerns also for entrainment of sand gobies – para 3.435. They commented that the threshold for effects had been set at 10% for sand gobies as they are not commercially exploited. However, the threshold set by the Applicant for ecologically important species is 1% and RSPB take the view that is the appropriate threshold for sand gobies also. They also expressed concern in relation to entrainment and climate change – para 3.537; total mortality from impingement and entrainment of several named species – para 3.538; discharge of dead and moribund biota – para 3.543; and that an AFD should be installed to reduce potential impacts on fish populations and to improve water quality as there would be fewer dead and moribund fish.
- 5.15.63. The RSPB also expressed concern over thermal plume impacts on bird populations of the Outer Thames Estuary SPA, the Minsmere-Walberswick SPA and the Alde-Ore Estuary SPA – para 3.546; over chemical plume effects on birds from the same three SPAs – para 3.555 – 592. These concerns include bromoform plumes, hydrazine plumes, and sediment plumes but these concerns are not related to the EAV issue. They are addressed in the section below on chemical and thermal plumes.

TASC's case

- 5.15.64. TASC made written and oral submissions. On this matter their case was made by Dr Henderson. Dr Henderson is a power station marine ecologist who has worked at SZB in the past. His WR [REP2-481h] for TASC submitted that the FishCEMP was compromised because the collection baskets overflowed, and it did not register young and small eels.

- 5.15.65. Gobies, small eels (including eels from the River Blackwater) and Nilssons Pipefish would pass through the screens and go through the whole system with high levels of mortality. The Applicant, he said, had not identified this as they misunderstood penetration by juvenile fish. The problem for gobies applies also to sprat, and that analysis also applies to herring, anchovy and pilchard. Many juvenile herring at Sizewell, he stated, almost certainly derive from the River Blackwater.
- 5.15.66. Jellyfish and ctenophores will get entrained or die on contact with the screens. This will have a huge effect on local ecology which has not been assessed in the ES (see para 32 of REP2-481h). Dr Henderson also submitted that the intake tunnels would become biofouled as no chemical treatment was proposed in order not to damage the fish and other marine organisms.
- 5.15.67. Each reactor will have an outage period every 18 months for refuelling and maintenance. During the outage pumps will not operate. Thus, fish and other marine organisms will be in the cooling water system, which is a three kilometre tunnel each way; as a result, they will die. When the pumps restart, anoxic water will be discharged; this has not been assessed. The discharge of water at about 11 degrees warmer than sea water will also attract some fish.
- 5.15.68. Because of the CIMP errors the prediction of the number of dead and dying fish, jellyfish and ctenophores being discharged back into the sea by the FRR are serious under-estimates. That means the assessment of the effect of the dead and dying biota is seriously compromised.
- 5.15.69. The numbers of smelt, river and sea lamprey have been underestimated. And whilst millions of sea bass will be entrained and killed at SZC the landings of that species are strictly controlled. He sounded a concern about the effects on the Blackwater herring fishery.
- 5.15.70. Dr Henderson made submissions for TASC at ISH7 [REP5-298]. He drew attention to a size limitation on the pump sampler used in the CIMP at SZB. It was not able to sample the largest of the small fish, in the sense that they were too large for the pump sampler but small enough to pass through the 10 mm mesh of the travelling screen (that is the screen which is intended to stop fish going through the entire cooling water system). There are therefore underestimates of the numbers of these small fish. He again drew attention to the need to chlorinate the intake tunnels. This is known as the "entrainment gap".
- 5.15.71. Mr Wilkinson for TASC also appeared at ISH7 and submitted that given the evidence of Dr Henderson the claims by Cefas on behalf of the Applicant for monitoring are difficult to understand.
- 5.15.72. TASC made further submissions on this subject including [REP7-247] (*Responses to the Applicant's Written Submissions arising from ISH7 [REP6-002]*) Submissions responding to actions arising from ISH7) and [REP8-284] (*Post Hearing (ISH10) submissions including written*

submissions of oral case - Dr Henderson's review of the Applicant's marine documents 9.67 and 9.70).

The Applicant's response on entrapment predictions, EAV, scale of assessment and stock area and AFD

- 5.15.73. As we observe above, the Applicant's ES concludes there are no significant adverse effects. We will deal first with the criticisms of entrapment predictions made in relation to the CIMP and FishCEMP, then with EAV, followed by scale of assessment and stock area and then AFD.

Entrapment predictions

- 5.15.74. The Applicant's responses to the criticisms of its entrapment predictions are in a number of documents. They include [REP6-002] Submissions responding to actions arising from ISH7; [REP6-028] Quantifying Uncertainty in Entrapment Predictions; [REP7-069] Written Summaries of Oral Submissions made at ISH10; [REP7-073] Written Submissions Responding to Actions Arising from ISH10;) [REP10-156] Comment on Earlier Deadlines (which addresses Dr Henderson's WR and further critiques made by him at [REP7-247], Responses to [REP6-002] and [REP8-284] Post Hearing (ISH10) submissions including written submissions of oral case - Dr Henderson's review of the Applicant's marine documents 9.67 and 9.70); and [REP10-158] Comments on Earlier Deadlines, Subsequent Written Submissions to ISH11-14 and Comments on Responses to Change Request 19 - Appendices - Part 2 of 4.
- 5.15.75. We will draw on those and other documents in this summary of the Applicant's response.
- 5.15.76. At DL6 the Applicant submitted [REP6-028], a paper from their consultants Cefas, entitled Quantifying Uncertainty in Entrapment Predictions, also known as SPP116. A revision was issued at DL10 [REP10-135] but we shall begin with the original DL6 version. That paper considered the population level effects of entrapment and quantifies the sensitivity of the predicted impacts to uncertainty in the operational performance of the proposed fish mitigation measures. Given that the effectiveness of LVSE intake heads is uncertain the report assumes no benefit from them, beyond that at SZB. (The Applicant did, in other reports, make the point that it still considers the LVSE heads are likely to have some beneficial effect.) The mitigation taken into account by the paper is therefore the FRR system. The report also addressed the concerns that species more susceptible to impingement at night – the difficulties with overflowing overnight sampling baskets in the CIMP - and the entrainment gap identified by Dr Henderson (fish such as eels between 140 and 200 mm long which may pass through the screens but were too large to be sampled by the entrainment pump sampler). Cefas applied correction factors and other adjustments to the CIMP results to deal with these issues.
- 5.15.77. The executive summary records that "The results of the uncertainty analysis show that for all species, effects are below the thresholds that

would trigger further investigation for potential population level effects". It went on to give the mean loss figures for sprat (<0.03%), herring (<0.01%) and whiting (0.08%), which it said were not significant at the population level. In other words they were below the 1% threshold.

- 5.15.78. In relation to sand gobies where the entrapment exceeded the 1% threshold (and were a species which concerned Dr Henderson for TASC) the mean was 1.03% with an upper 95th percentile estimate of 1.41%. Cefas commented that "*Sand gobies are a short lived, fast maturing, highly fecund species with high degrees of natural variability*". They would, be able to sustain additional mortality rates greater than 10% of population size and the loss is not significant at the population level. Cefas stated that "*Overall, this report provides further evidence that the Proposed Development of SZC would not have significant effects on the population sustainability of any of the key species assessed*".
- 5.15.79. We deal with some of the Applicant's response to other TASC concerns here. In relation to TASC's criticism that the intake tunnels would need to be chlorinated to avoid biofouling, and that without that biofouling would occur, the Applicant submitted a Cefas report of 2016 updated with a description written after the application was made (so later than May 2020) of the chlorination dosing restrictions and an explanation of why it had been concluded between 2014 and 2016 that it would not be necessary to chlorinate the intake tunnels [REP6-031]. In addition the Applicant [REP6-002] pointed out that the EA would not grant a discharge permit for the FRR if the water contained total residual oxidants (TROs) or chlorination by-products. In answer to Dr Henderson's criticism that there would be small shells and loose fouling material which could pass through the screens and block the condenser tubes, [REP6-002] also explained there would be filters downstream of the screens to remove such matter.
- 5.15.80. In a section of [REP6-002] titled Thin Fish the Applicant also addressed a number of Dr Henderson's other concerns and criticisms. Inefficient sampling does not have a material effect on the population level effects assessment; the EAV factor is applied to estimate the number of adults represented by fish with high juvenile mortality and the entrainment gap will be quantified by back propagating the length distributions of fish. Whilst some fish would be inefficiently sampled because of the low EAV of such species this would have minor implications for population level effects assessment.
- 5.15.81. Lamprey over 200 mm in length were said by Dr Henderson to pass through the screens. The Applicant stated this was not right, because a 200 mm lamprey would have a mean body width of 10 mm and so be too large to pass or need to be oriented to pass. Also, below 130 mm they are unlikely to be in Sizewell Bay as they stay in the river. Smaller fish are likely to perish at sea. An EAV of 1 has been applied to all impinged lamprey so there is no under estimation and they are also semelparous – they spawn once before dying.

- 5.15.82. On European eel, trawl surveys off Sizewell have found one glass eel in 105 tows and none in 620 plankton trawls. If it had been present in appreciable numbers these surveys would have found them. The EA do want further monitoring and mitigation for eels, but monitoring would be very difficult. The Applicant preferred to enable enhancement measures directly and was aiming to put that into the Deed of Obligation. This was later done.
- 5.15.83. Impingement sampling detects low numbers of sandeel between 2009 and 2017. Sandeel larvae are less than 1% of entrained fish. Coastal sampling also returned low yields, so the environmental assessment does not significantly underestimate entrapment effects.
- 5.15.84. Dr Henderson responded to these comments in [REP7-247]. He disagreed with the Applicant in relation to biofouling of the intake tunnels. The Applicant had concluded the intake tunnels did not need chlorine dosing owing to their design, and it appears to the ExA that that is matter of professional judgment on which experts may respectably differ.
- 5.15.85. In relation to thin fish Dr Henderson (at paras 6 and 7) also continued to disagree with the Applicant's approach specifically on the question of whether or not the fish would be predominantly juveniles. That was incorrect in many cases he explained citing sand gobies, planktonic gobies, pipefish, lamprey, eels and sandeels as follows. Sand gobies (para 8) these reach sexual maturity at lengths of under 55 mm and would pass through a 10 mm screen and adults will be entrained. Planktonic gobies (para 9) are a delicate thin fish which in his view would pass through the 10 mm screens. Pipefish (para 10) are known to occur and to be entrained at SZB. Adults will be entrained through a 10 mm screen. The assessment does not even mention them he said.
- 5.15.86. Lamprey (para 11 and following) – Dr Henderson stated that lamprey will fight to pass across the mesh, pushing through head first which he has seen, watching them pass through a mesh. He also stated that he has seen many small lamprey on the screens at SZA and SZB, apparently healthy, certainly alive and vigorous. The clear implication in what he writes is that they are in the 130-200 mm length range. He concludes on lamprey: *"Because of the conservation status of both marine and river lamprey it is essential that the number that would be impinged and entrained at the proposed SZC station must be quantified and properly assessed"*.
- 5.15.87. Eels (para 14 and following) – Dr Henderson stated that like the lamprey they will fight to pass across a mesh. The Applicant has not provided data for the size range of yellow eels. Smaller individuals will penetrate a 10 mm mesh. He called for a full analysis of the size range of yellow eels caught on the screens and an assessment of undersampling. Whilst he recognised the single eel in 105 tows and none in 650 plankton trawls he said that if there were one glass eel per 100 m³ of water none would be captured by the sampling. But that would equal 108,000 per day on a

125 cumec intake flow. Eels are a species in considerable population distress.

- 5.15.88. Sandeels (para 16 and following) – Dr Henderson observes that it is not surprising that sandeels do not appear to be impinged in low numbers as the majority will pass the 10 mm mesh. The problem he described in his earlier evidence is that the pump sampler used for entrainment sampling will not catch actively swimming sand eel. Recognising that beam trawl and net sampling indicates low densities at Sizewell he calculates that a density of 1 sand eel per 10 m³ would be 1,080,000 per day in a 125 cumec system.
- 5.15.89. Finally (para 18) he points out that this is only a small selection of small fish he considers would be under-sampled and he names five (butterfish, stickleback, dragonette, rocklings, viviparous blenny) as “*but a few*” other species.
- 5.15.90. The Applicant responded to this evidence from Dr Henderson at [REP10-156] and [REP10-158 Appendix L], to be found at epage 31. We address their response below as it covers other criticisms made by Dr Henderson at [REP8-284] to which we now turn.
- 5.15.91. Dr Henderson makes other criticisms at [REP8-284] Comments on marine ecology documents issued at Deadline 6. He takes issue with [REP6-031] (Evaluation of chlorine dosing options) and [REP6-028] (Quantifying uncertainty in Entrapment Prediction for Sizewell C).
- 5.15.92. We shall summarise the criticisms he makes of the chlorine dosing options document [REP6-031] first. That report said that baffles in the LVSE heads at HPC would not be necessary at SZC and so there would not be fouling (HPC waters have different qualities it should be noted.) He says those baffles were to reduce fish ingress. How can the same level of fish protection be achieved at SZC without the baffles? It also asserts that there will not be fouling of the screens. He asks for an explanation.
- 5.15.93. He points out that although the chlorine dosing document says there will not be chlorination at the screens it also says at p.27 para 8d that there will be chlorination there during the growing season when water temperature exceeds 10 degrees centigrade. We have considered this and in our judgment that is a statement of what was intended in 2016 but that sometime after that the intention changed to no chlorination at the band screens. However, he also points out that the 2020 strategy, set out on pp 28 and 29, states at page 29: “*In line with the strategy adopted at HPC, the chlorination dosing points in the screen wells before the drum and band screens will still be installed as a precaution but these would not be used unless there is a required change to the SZC chlorination strategy*”. He comments, “*It is my view that it is inevitable that these dosing points will be used; if they are installed it is essential that their impact on the efficiency of the FRR is assessed. Operational experience at Marchwood Power Station has recently shown*

that chlorination in front of the screens and the FRR system was essential to control biofouling”.

- 5.15.94. We now turn to his criticism of the Quantifying Uncertainty in Entrapment Prediction report, [REP6-028]. He makes the following criticisms. The report states: *“For marine fishes it is well established that populations can sustain annual losses of 10-20% or more of population size above natural mortality.”* This he says is an incorrect sweeping generalisation. Where is the evidence that long lived low fecundity fish such as elasmobranchs, rays and sharks can sustain such additional losses? There are not the studies to define what additional losses many non-commercial species can sustain. What if the loss caused by the power station is as much as had been lost to predators? And lamprey, smelt, twaite and allis shad cannot support any additional mortality without impacts upon their populations. Cefas use huge population areas in their assessments; there are other power stations along the English, Northern French, Belgian and Dutch coasts. There is no cumulative assessment of the impact of all their intakes of fish.
- 5.15.95. Cefas have no accurate estimates of small and long and thin fish because their monitoring focussed on eggs and larvae and used a pump sampler which would not efficiently catch actively swimming fish; entrapment estimates are a serious underestimation.
- 5.15.96. The EAV argument is flawed because it is sensitive to the extent of the population impacted. He gives herring as an example and states that many herring at Sizewell come from the local Blackwater population, but there is no analysis of the impact on the local Blackwater fish stock.
- 5.15.97. He challenges the assertion that *“the weight of evidence therefore indicates that Sizewell impingement [of herring] is from the main North Sea stock”* (to be found at section 2.3 p 27 of [REP6-028]) as an assertion rather than careful analysis. Similar arguments he says are made for smelt and other species. He also writes *“When it comes to species of conservation concern it is simply unacceptable to assert that SZC will not kill a large proportion of the population”*, and lists eels, lamprey and shad.
- 5.15.98. Lastly Dr Henderson criticises the draft FIEMP because he says it is weak in relation to the sampling of small and long-thin fish. They will pass through the screens and will not be adequately sampled by the pump sampler. The numbers of species such as Nilsson’s pipefish and sand goby entrained are likely to be huge and of appreciable ecological significance. TASC summarised a number of these representations at [REP8-285], its post-ISH10 submission.
- 5.15.99. At DL10 the Applicant responded to TASC’s WR [REP2-481h] and Dr Henderson’s submissions made in [REP7-247] and REP8-284]. The response is in [REP10-156 and REP10-158 Appendix L, epage 29] and following.

- 5.15.100. On sand gobies, the Applicant explained that sand gobies (genus Pomatoschistus), sprat and herring are the most abundant species in entrainment monitoring and are the top 95% impinged. They are potentially the most susceptible to the entrainment gap. After explaining the back propagation process (to which we refer above) [REP10-158] states that the calculation gives an extra 17.5% adult gobies lost. 100% mortality of gobies is assumed – a highly precautionary rate - they state, going on to report that at the Calver Cliffs Nuclear Power Plant (referenced to Mayhew et al 2000) the actual survival rate for goby larvae was between 88-98%. Losses at all life stages at SZC is estimated at 156 million fish per annum before calculating EAV. The additional losses have been added to the total entrapment estimates. From this the Applicant submits that the TASC estimate in their WR [REP2-481h] of additional sand goby losses of 802 million is a substantial overestimate.
- 5.15.101. The next fish mentioned by Dr Henderson is planktonic gobies. On pipefish, TASC questioned the absence of estimates for pipefish losses. However, the Applicant drew attention to estimates of impingement in the ES Addendum at [AS-238].
- 5.15.102. Lamprey are next mentioned by Dr Henderson. Fish between 130 and 200 mm will be passing through the screens and because of their conservation status entrapment must be properly assessed. The Applicant acknowledges the potential for sampling inefficiencies between 130 and 200 mm. But it points to the estimates of impingement of 300-400 mm lamprey and 200-300 mm lamprey. The former estimate is 715 fish per annum. The latter is 159 per annum. This, they conclude, suggests that the majority of adult lamprey would be effectively sampled.
- 5.15.103. The Applicant submits that the numbers of juvenile lamprey, i.e. below 120 mm, would be low because they would at that size still be in the rivers, not in the sea. Predicted losses of lamprey have been compared with the River Humber catchment population (a precautionary approach agreed with the EA). In addition an EAV value of 1, the maximum for fish which spawn once and then die (semelparous), has been applied to all lamprey even juveniles. It appears to the ExA that because the number of impinged 200-300 mm lamprey is lower than the number of 300-400 mm lamprey and less than a quarter for 130-200mm lamprey, the numbers would be even lower.
- 5.15.104. On glass eels. the Applicant rejects the TASC calculation of glass eel abstraction as it is based on "*an unsubstantiated starting density which the available evidence does not support*". Density in the Sizewell coastal waters is very low and entrainment mimic unit studies have shown high survival rates during entrainment passage. Taking all matters into account the Applicant concludes that the potential for entrainment losses of glass eels leading to significant impacts is very low. They point to further details in [AS-238].
- 5.15.105. The Applicant adds that in the light of uncertainty points raised by the EA it has agreed to contribute funding to install fish pass schemes at Snape Maltings on the Alde and Blythford Bridge on the Blyth. This is to be

secured by the DoO. It will benefit not just eels but also other fish which migrate between the sea and rivers. This will include smelt. They also drew attention to the proposals for entrainment monitoring in the draft FIEMP.

- 5.15.106. On yellow eels, TASC requested information at para 14 (the Applicant wrongly states para 17) of [REP7-247]. The Applicant reported that the minimum yellow eel size recorded at Sizewell was 22.5cm length, which at a fineness ratio of 16 corresponds to a body height of 14mm. They would therefore be impinged and there is no significant entrainment gap.
- 5.15.107. On sandeels, the Applicant rejected the suggestion that assessment of entrapment effects has been underestimated, pointing to extensive sampling by different gear types on the water off Sizewell which they consider demonstrate that sandeels whilst present have low biomass. They cross refer to [APP-321] which is Appendix 22D to the Marine Ecology chapter of the ES and to [REP6-002], their written submissions following ISH7.
- 5.15.108. Dr Henderson had submitted these were but a few of the small species which would be under-sampled by the 10 mm mesh. To this, the Applicant replied that *"fish assessments have primarily focused on the 24 key fish taxa identified in the Environmental Statement"* and that *"That is not to say that impingement predictions for the other fish and invertebrate taxa have not been considered. Calculated numbers of annual impingement at SZB and SZC without mitigation for all species are presented in ES Statement Addendum Appendix 2.17A [AS-238]"*. They drew attention to submitted evidence on pelagic gobies and sandeels to explain how the assessment has properly considered them.
- 5.15.109. We turn now to the TASC critique at [REP8-284] which is also dealt with by the Applicant at [REP10-158]. TASC had questioned the statement in the Quantifying Uncertainty report [REP6-028] about sustainable levels of mortality, that *"For marine fishes it is well established that populations can sustain annual losses of 10-20% or more of population size above natural mortality"*.
- 5.15.110. The Applicant revised the relevant text with explanatory material in Revision 2 of the report [REP10-135] explaining that it applied to losses which are low. They pointed out that losses of around 1% and lower pose low risks to populations known to tolerate higher rates of mortality. The statement was in relation to commercially exploited fishes, which is clear from both the original and the revision. In addition to this clarification, the Applicant stated in the revised report that where values exceed 1 or 2 per cent a more detailed analysis and consideration of risk is warranted. It also pointed to further explanations of the threshold for effects in [AS-238].
- 5.15.111. Dr Henderson had also questioned the assessment of effects on long-lived low-fecundity fish such as elasmobranchs. The Applicant explained they had compared two key taxa – tope and thornback ray – with landings. The tope losses were <0.02% of landings and the thornback

ray were 0.13%. This, it said, was strong evidence of no effects on population stability of those species.

- 5.15.112. Dr Henderson had also raised concerns about impacts on the River Blackwater herring stock and fish of conservation value. In the case of Blackwater herring, the Applicant stood by its conclusions in SPP103 Rev 05 [REP6-016], namely that the assessment unit reflects ICES advice. *"Whilst it is feasible that the Proposed Development would impinge Blackwater herring, the proportion of Blackwater herring in the mixed southern North Sea population is very small and impacts on the Blackwater SSB are likely to be minimal"* (epage 27).
- 5.15.113. The Applicant in [REP10-158] also replied to other points in Dr Henderson's/TASC's WR. In relation to the criticism that numbers of smelt and river lamprey were underestimated, the Applicant [REP10-135] (SPP116 revision 2) states that has been addressed and correction factors were applied. In the case of sea lamprey, following adjustments to address the problem of the overnight sample baskets overflowing, the changes were too small to make a significant difference to the results or conclusions (epage 20 of [REP10-135]).
- 5.15.114. In relation to the comparison of sea bass mortality with the controls on the fishing and landing of sea bass, the Applicant pointed to the Sea Bass Stock Assessment [REP8-131] (SPP118) which showed that the stocks assessed by ICES and the results of application the Cefas EAV correlated. At para 1.3.46 they wrote: *"In all scenarios tested, including the extreme worst-case SZC scenario impingement had no discernible effects on the population trends and only very minor effects on absolute SSB"*.
- 5.15.115. In [REP10-157] the Applicant drew attention to other information provided in the revised Quantifying Uncertainty report [REP10-135]. In response to comments from the EA and IPs:
- They had carried out further analysis on the implications of the CIMP bulk overnight samples. They had applied a correction factor where impingement rates were potentially underestimated. No corrections were applied to overestimates.
 - On determination of uncertainty in the shad population estimates for the Scheldt and Elbe (which had been estimated in the absence of known estimates), the assumptions have been further scrutinised and confidence intervals provided.
 - On quantification of the entrainment gap for sand gobies, herring and sprat; the effect of this gap (fish too large or active for the pump sampler but too small to be impinged on the travelling screens) on entrapment predictions was estimated and included in the uncertainty analysis.
- 5.15.116. Concluding on this report, the Applicant stated that the impingement and entrainment monitoring at SZB had provided a very powerful data set for the prediction of entrapment rates at SZC. Even after adding these factors, the impingement rate remained below the threshold levels likely to pose a risk to the viability of the population.

- 5.15.117. We have not been able to find responses from the Applicant to the following issues raised by Dr Henderson/TASC:
- Impingement and entrainment of ctenophores and jellyfish, and the resulting effect on dead and moribund biota.
 - Death of fish in the intake and outfall tunnels when the pumps are switched off during outages, approximately every 18 months.
 - Discharge of anoxic water on restart of the cooling system after an outage.
- 5.15.118. However, in relation to the other issues raised by Dr Henderson/TASC, it appears to the ExA that the Applicant has responded satisfactorily with responses which are clearly argued and supported with data and research.
- 5.15.119. The responses from the Applicant summarised above also addressed the EA's comments on entrapment monitoring. The EA did not raise any issue about death of fish in outfall tunnels nor discharge of anoxic water. Nor did NE. Whilst the EA do not specifically mention ctenophores or jellyfish in their WR, their complaint in relation to impingement is about the estimates of "*fish and other biota*", a phrase which obviously includes ctenophores and jellyfish and raises questions about their effects. However, the SoCG with the EA records that there are no outstanding issues with the WFD and we have seen no other evidence of concern about this from the EA. The discharge of marine biota will be a matter to be regulated under the WDA consent which could, ultimately, be refused by the EA.

Equivalent adult values

- 5.15.120. EAV – At ISH7 the Applicant drew our attention to the HPC appeal and to what it said were important similarities between issues to be decided as part of this application and those heard as part of the HPC appeal. The hearing of that appeal took place in June 2021 and a decision from the Secretary of State (who had recovered the appeal for his own decision) was awaited both at the time of ISH7 and at the end of the Examination.
- 5.15.121. At [REP6-024] Appendix F the Applicant submitted a note on EAV and Stock Size. Unusually, the note tells us it was prepared by its consultants by Cefas and informed us that Cefas is an Executive Agency of the Department for Environment, Food & Rural Affairs (Defra) which provides evidence and advice for the UK Government and other bodies relating to marine and freshwater science, as well as conducting research.
- 5.15.122. This technical note addressed EAV, SPF and stock size, all of them constituents of the discussion on EAV. The note explains that the detailed evidence to the HPC Inquiry, including the proofs of Dr Jennings on EAVs and the underlying principles of defining stock areas is analogous in both SZC and HPC.
- 5.15.123. The note also explained that "Most fish have dramatically different reproductive strategies to mammals and birds. Congregating at spawning sites, a mature female can produce tens of thousands to millions of eggs.

The proportion of eggs that hatch into larvae, and of larvae that survive to become juveniles, will vary considerably from year to year. For population stability to occur, 1 for 1 replacement is required. As one adult fish dies, a new fish joins the spawning population to replace it. Fish early life-history stages have very high mortality rates, with very low probability of becoming adults, and the reproductive strategy of producing a great many offspring has evolved to counter this". EAVs are used to convert an annual rate of loss of predominantly juvenile fish due to entrapment into an annual rate of loss of fish that would naturally survive to maturity and join the spawning population. The method is not as data demanding as stock assessment and this allows it to be applied to many species to screen for risks when assessing entrapment effects.

- 5.15.124. The EAV has inbuilt precaution, and one precautionary assumption is that no fisheries mortality (that is, being caught by fishing) is assumed. Thus, the chance of survival to maturity is overestimated. The report explained a second precautionary factor: "Furthermore, the EAV biomass is calculated by multiplying the EAV number by the mean adult fish weight from the spawning population. The individual weight at the age at first maturity will be lower than the individual weight of older and more fecund fish in the spawning population. Therefore, the EAV biomass upweights apparent losses of spawner biomass due to entrapment and their potential contribution to the spawning population biomass".
- 5.15.125. As mentioned above, for fish with low numbers in the impingement samples, or insufficient biological data to calculate an EAV an EAV of 1 was applied. That assumes that every entrapped fish survives to maturity and spawns. This assumption was applied to twaite shad, river lamprey and European eel. The latter two are semelparous (that is, they only spawn once before dying) so EAV of 1 is the maximum theoretical number for them. In addition, no adult eels were recorded at SZB in the eight year impingement sampling from 2009-2017. For twaite shad, most impingement samples were below the size of maturity.
- 5.15.126. Turning to SPF, the EA's preferred method, the Applicant noted the EA's suggested SPF extension is not an annual rate, so cannot be compared against an annual spawning population. The Applicant also stated that extending the assumption of no fishing mortality to adult stages introduces over-precaution. That is one of the matters on which the MMO is of the same view as the Applicant. The MMO had concluded in [RR-0744]: "The MMO consider the core method [Cefas EAV method] is the better in that the end-point age is more likely to be reflective of reality in the context of currently fished seas, and because the MMO consider the extension method, while very precautionary, has conceptual challenges for $EAV > 1$ and problems for comparing to SSB. The MMO is comfortable that all due efforts have been made to secure data at an appropriate scale".
- 5.15.127. The Applicant stated that if the annual rates of EAV biomass were to approach the thresholds for population sustainability further assessment may be undertaken. It gave as an example running a full ICES stock assessment to see if the long term impact of the power station could

affect population trends. It committed to complete a full ICES stock assessment for sea bass on precautionary assumptions at DL8.

- 5.15.128. The outcome of that assessment is reported in [REP8-131] – Sizewell C European Sea Bass Stock Assessment; again it is a paper from Cefas. This report, submitted at was prepared in order to “address directly the concerns of stakeholders”. The Applicant applied “a stock assessment method for the sea bass population to validate the conclusions drawn from EAV-based risk assessment”. They explained: “The European sea bass, *Dicentrarchus labrax*, is a long-lived, iteroparous (repeat spawning) species. Sea bass are the 4th most commonly impinged species in monitoring sampling at SZB”. After explaining that it is a commercially targeted species for which detailed stock assessments are conducted by ICES and whose population has fluctuated, it was they said an appropriate fish for a case study. Sea bass losses were estimated by the Cefas EAV method to be 0.99% of SSB with an upper 95% confidence level of 1.87%. Thus the risk assessment demonstrated a risk which needed further investigation.
- 5.15.129. The Executive Summary of the above report explains that data collected from the CIMP at SZB were used to estimate annual impingement rates and the length distribution of sea bass predicted to be impinged at SZC. A range of different precautionary scenarios were added to demonstrate long term effects had SZC been operational during the assessment period. The estimated sizes of the spawning populations of sea bass, with the simulated SZC impingement mortality were then compared to the core ICES assessment without SZC. It reported that “In all scenarios tested, including the extreme worst-case SZC scenario, impingement had no discernible effects on the population trends and only very minor effects on absolute SSB”; and “Commercial and recreational fisheries mortality dominate the mortality on sea bass with the addition of SZC impingement making negligible differences”. Given that sea bass is a potentially sensitive species the assessments were said to provide “the highest degree of confidence available in the assessment that SZC would not pose a risk to the viability of the population”.
- 5.15.130. Figure 1 in that report showed the correlation. It is reproduced here.

SIZEWELL C SEA BASS STOCK ASSESSMENT

NOT PROTECTIVELY MARKED

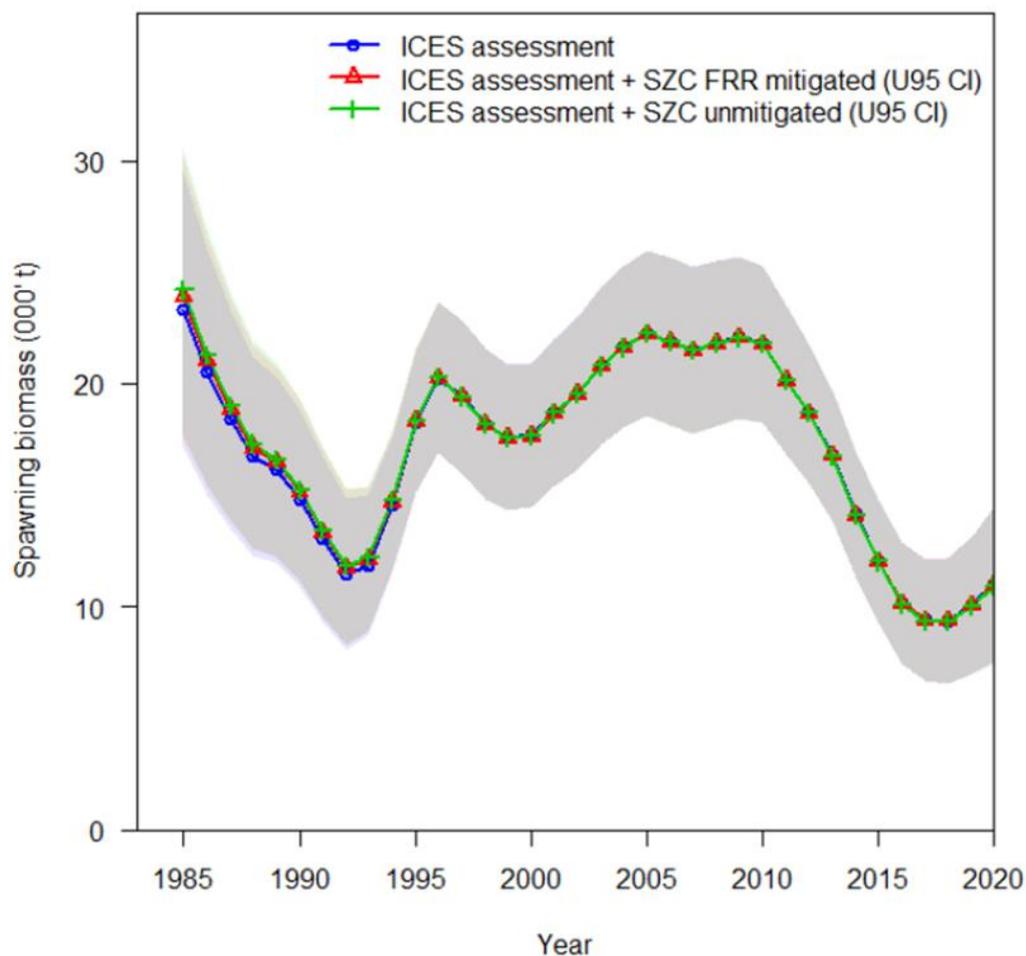


Figure i. Trends in the spawning stock biomass (SSB x1,000 tonnes) for sea bass estimated in the core ICES 2020 assessment (blue line, o symbols) and reruns of that assessment with SZC impingement incorporated as upper 95% confidence interval for impingement predictions both unmitigated (green line, + symbols) and with FRR mitigation (red line, Δ symbols). Estimated 95% confidence intervals of the SSB assessment for all three scenarios are indicated by shading. By applying upper 95% confidence interval for impingement predictions year on year for 35-years this is a highly precautionary assessment .

Figure 5.15.01 – Figure 1 from [REP8-131]

- 5.15.131. The third point addressed by the Applicant's [REP6-024] Appendix F note on EAV and Stock Size was stock size. Was it appropriate to use the ICES stock areas? NE in [REP2-153] and the EA in [REP2-135], their WRs had disputed the use of ICES stock areas. They took the view that finer population structure and highly localised behaviours would be more appropriate. The Applicant's note states that young fish impinged at Sizewell are overwhelmingly the progeny of adults which have spawned elsewhere. The locations and numbers reaching coastal areas varies from

year to year. As they grow they actively seek nursery habitats (the implication in the paper is that Greater Sizewell Bay is one such area). These and other movements described in the paper make it important to consider the full life history of the fish and this, said the Applicant in the paper, is consistent with the ICES approach when determining management units for fish stocks. It was claimed it was also compatible with equivalent adult methodologies. The paper explained that ICES is an international network of experts from around 700 institutes in 20 member countries.

- 5.15.132. *"In determining the relevant stock units, ICES assesses all the available evidence across the entire life-history of the species of concern throughout its full life-cycle including spawning migrations, larval dispersal and patterns of recruitment. The ICES approach is a multistage international process with internal and external peer review that brings together experts in fish biology. Methods of assessments of each stock and its structure is considered by dedicated international working groups. Meeting every 3-5 years at so-called 'Benchmarks' all the new evidence on the species ecology and distribution is taken into account. The ICES Benchmark process is in addition to annual assessments and evaluates current assessments and proposes improvements."* [REP6-024].
- 5.15.133. The paper stated that the Applicant "refers" (sic, or perhaps defers) to the higher authority of ICES. It also drew attention to the MMO's view at [REP2-140]: *"In relation to the scale of assessment, the MMO notes that the Applicant continues to justify the use of the International Council for Exploration of the Sea (ICES) stock areas as using the best available evidence. The MMO concludes that the use of ICES stock areas for commercial fish species represents the current best scientific evidence available. There is currently no robust information that would support use of more local stock areas in the assessment"*.
- 5.15.134. Finally, the Applicant stated that where more appropriate population comparators are available those have been applied, for example for non-commercial species and those not covered by ICES advice. The Applicant submitted that the approach to both commercial and non-commercial species is a robust approach to determining the population level effects.
- 5.15.135. We now turn to the EA's responses to the Applicant's case.
- 5.15.136. The EA responded to the Applicant's note (on EAV and Stock Size [REP6-024]) in [REP7-128 Appendix B] explaining that:
- i. Fishing mortality is of less concern for species which are not targeted commercially (ref 1.2.31).
 - ii. The upweighting which the Applicant claims for its EAV is not going to be equivalent to calculating the number of repeat spawners (ref 1.2.32).
 - iii. The SPF model does return annual rates – namely the number of first time and repeat spawners which would have been in the population had they not been previously impinged – they gave a worked example (ref 1.2.35).

- iv. Fishing mortality can be included into the SPF method (ref 1.2.36).
 - v. Whilst stock assessment for sea bass will be based in the ICES stock area, many sea bass off Sizewell will not migrate to the western extremity and nor will many larvae produced there settle in the North Sea. Thus, stock assessment alone will not answer questions about localised depletion (ref 1.2.39).
- 5.15.137. The EA also referred the ExA to [REP5-150] a document in which it had summarised the differences with regard to EAV as expressed at the HPC appeal and gave the ExA links to two of its proofs of evidence in the appeal. We have not read those proofs, in the same way that we have not read the Applicant's proofs.
- 5.15.138. [REP5-150] explains that the disagreements centre on whether to account for the effect of repeat spawning within the population (which the Applicant has not taken into account) as well as concerns with biological parameters such as mortality rates and the effects of fishing mortality. The EA considered that the Applicant's (Cefas) method systematically underestimated the impact of impingement on the population and the EA therefore developed an extension to the Cefas method to account for repeat spawning (the SPF method).
- 5.15.139. Although the EA had referenced the HPC appeal earlier in the Examination, the EA [REP7-131] explained that it did not consider the permit appeal at Hinkley Point C would set a precedent as to what is the most appropriate EAV method in all circumstances as the underlying parameters are specific to individual power stations. A summary of the Applicant's response to this is set out below [REP10-157].
- 5.15.140. NE also made comments at [REP7-143] on the EAV and Stock Size report [REP6-024].) They welcomed the report. They supported the EA and explained that the extended approach, looking at subsequent years takes account of the reduction of adults present in those years (the entrapment reduces the adults present across multiple year classes, for example: fewer 1 year olds; fewer 2 year olds; fewer 3 year olds; and so on). It is an annual method they said because it can be compared with an annual estimated baseline population. They reiterated that this should be done because fish become more fecund as they grow older. The importance of older spawners depends on species, population and pressures. They welcomed the proposal to assess significance on sea bass, endorsing the reasons given by the Applicant and adding that it is a long-lived slow to mature fish, with juveniles heavily reliant on estuarine and coastal habitats which they said made it more vulnerable to entrapment impacts.
- 5.15.141. In those responses on [REP6-024 and 025] NE made a short comment on stock size, as follows: "Welcome the explanation as a useful overview of NNBs [Applicant's] position. We have no additional comments for this section. NE comments on this topic are focussed on the most recent changes between Rev 04 and Rev 05 of SPP103". Rev 05 of SPP103 is [REP6-016]. There were no further submissions from NE on this matter, which was taken forward by the EA. The Applicant's response to the EA and NE on this was given at [REP8-119] Appendix I, epage 321.

- 5.15.142. On [REP7-128], which was the EA's response to the technical note from the Applicant on EAV and stock size [REP6-024] the Applicant stated that Point (i) (which we summarised above) was agreed. On Point (ii) the EA accepts that the Cefas EAV method upweights first time spawners to account for the mean weight of the adult spawning population. But the EA's SPF method generates a multi-annual rate which cannot be compared with the SSB. In contrast the Cefas EAV method calculates an annual rate which is directly comparable with the SSB. The Applicant drew attention to its response to Point (iii) as well on this matter.
- 5.15.143. On Point (iii), the Applicant stated that SPF does not in fact produce an annual rate. Rather it creates a summed impact on first time and repeat spawners. That is not an annual rate, and it cannot be compared with the SSB. The SPF losses cannot be compared with annual fishing mortality rates and the EA method is effectively a half-way house between the Cefas EAV assessment and the full ICES stock assessment. However, the Cefas EAV approach assesses risks and, if it shows that precautionary thresholds are approached, then other methods, such as the stock assessment, the method used in the sea bass example, can be applied to get a more accurate assessment of the risks and scale of impact.
- 5.15.144. On Point (iv), the EA and the Applicant agreed that it could be incorporated into both methods. The Applicant and EA both stated that the result would be higher EAV using the EA method than the Cefas method. But, said the Applicant, the EA method had limited applicability as the losses cannot be meaningfully compared to thresholds for annual mortality rates in relation to SSB.
- 5.15.145. On Point (v), the Applicant replied that the ICES stock assessments are used to inform both UK and EU fisheries policy. They are internationally generated and approved estimates of stock sizes. SZC would impact the same area as the fishery, so the ICES stock definition was appropriate. The population level effects assessment has been accompanied by local depletion assessments in SPP103 Rev 5 Consideration of potential effects on selected fish stocks at Sizewell [REP6-016]. It was the Applicant's final submission to the Examination on this matter and therefore represents its final position. The Applicant also acknowledged the EA's comments at [REP7-133] on local depletion assessment to which it said it would respond at DL10 following anticipated comments from the MMO and NE. We have not been able to find a submission from the Applicant replying to REP7-133] on the local depletion assessment
- 5.15.146. The Applicant responded in [REP10-157] to the EA's summaries of oral representations at ISH10 [REP7-131]. The ExA has summarised the relevant parts of [REP7-131] above when describing the EA's case. The points of relevance in [REP10-157] on EAV are on the question of what points in the HPC appeal are common to SZC. On EAV, the EA stated that they do not think the appeal would necessarily set a precedent for EAV and that the choice of EAV method brings in the need for site-specific biological data.

- 5.15.147. The Applicant responded that the core issue is whether the Cefas EAV method or the EA's EAV-SPF method is appropriate. Cefas have used the most up to date site-specific biological data, and the use of relevant biological data is a given. There is no reason why the overarching approach to the application of EAVs should be different between the sites, with relevant site-specific data, as it is a method of risk assessment, based on biological principles applicable to all fish populations. The Applicant affirmed its approach as stated in the Technical Note on EAV and Stock Size [REP6-024] at Appendix F which are summarised above. The Applicant also drew attention to its submissions in [REP8-119] which are also summarised above. The Applicant also addressed the EA's case in [REP7-131]. The Applicant described its response in [REP8-119] as highlighting "*key points to bring to the attention of the ExA*".
- 5.15.148. On the scale of assessment, the EA had accepted that the HPC appeal "*may decide*" on the acceptability of ICES stock size assessments for some species which could influence the choice of method at Sizewell. However, they did not agree it would determine the appropriate comparator for most species as Sizewell is a different site. They suggested that the Applicant could use a more precautionary assessment and drew attention to the Swansea Bay Tidal Lagoon fish assessment.
- 5.15.149. The Applicant's response affirms what it said in the Technical Note [REP6-024 Appendix F]. On the suggestion that Swansea Tidal Bay might have an appropriate approach, the Applicant stated that the approach there was very different using an area-based approach without defining population sizes. The Applicant was unsure whether the EA was suggesting that was appropriate at Sizewell. But the Applicant was confident in the population units it had chosen especially the commercial species where the ICES units applied. It reiterated that the ICES approach is a multistage international approach with internal and external peer review which brings together experts in fish biology to define stock units. It is, the Applicant said, an international consensus on the best interpretation of current evidence.
- 5.15.150. On the effectiveness of LVSE heads the EA had said that while they accept an LVSE factor of 1 they believed that is not a precautionary figure and that without a behavioural "*clue*" to warn fish, they may be drawn into the heads. Additionally, they were concerned that the heads would act as an artificial reef and therefore attract fish to it. They referenced literature reporting that undersea structures can inadvertently create an artificial reef, attracting fish. The EA adds that the SZC intakes will be much larger than the SZB intakes, so an assumption of the same impact is unsound. There is a lack of knowledge of how such large structures will affect fish behaviour and shoaling fish species may be at risk.
- 5.15.151. The Applicant replied, commenting on the literature cited by the EA. The Redondo Beach Power Plant has provided abundant literature on the subject. After describing the intake structures at Redondo the Applicant quotes from a study which concluded that most impingement was "*of*

water-column oriented, schooling fishes that are not associated with reef structures but whose relation to the reef ... is incidental". This, they said, is the same at Sizewell where most impingement is of herring and sprat, unlikely to become associated with the reef as they are "*pelagic shoaling species*". The point being made appears to the ExA to be that the intakes at SZB are not drawing in species which are attracted to reefs. The Applicant says that the SZC intakes are designed to reduce biofouling, are hydrodynamically designed and oriented to prevent the formation of slack water and eddies. They lack the superstructure which can provide refugia for some species. They will lack the complexity of structure which at Redondo provides cover for benthic (i.e. sea bed) species. The Applicant maintained that these design features reduce the capacity of the SZC LVSE to act as a reef, compared to the SZB design. They go on to point out that inspections of the SZB intakes shows no artificial reef. If it were acting as an artificial reef, this would show in the SZB impingement records.

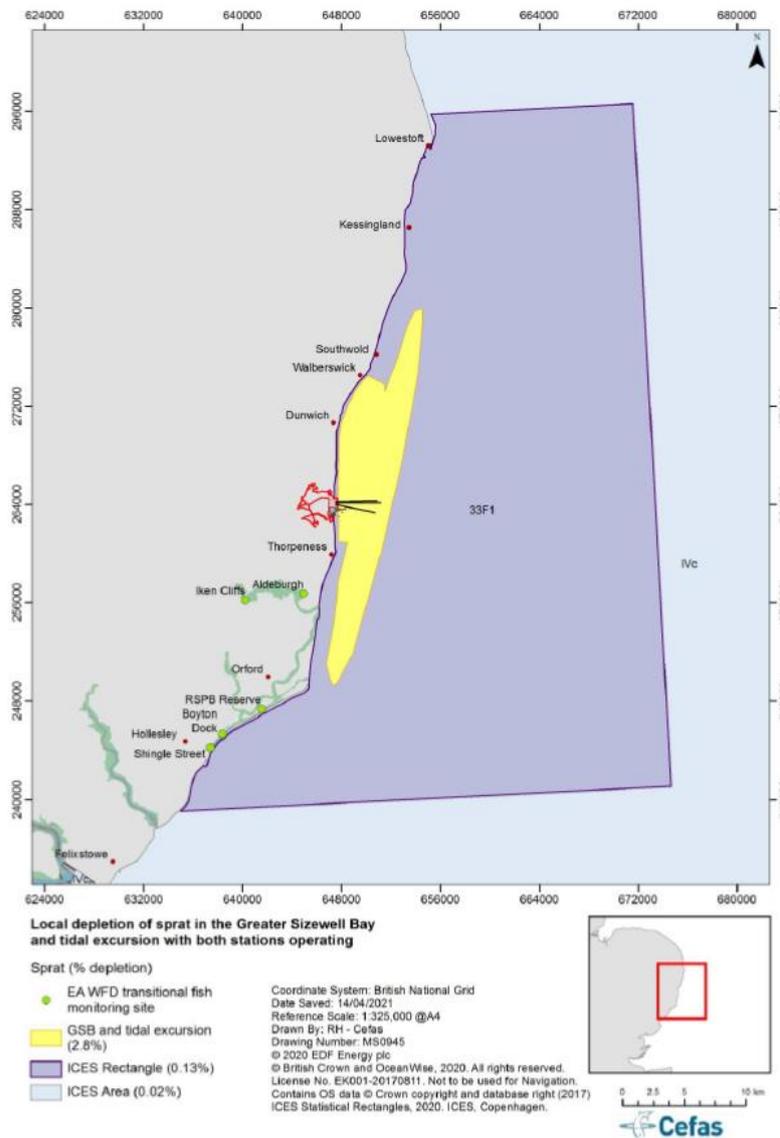
Scale of assessment and stock area

- 5.15.152. The Applicant now turns to the question of an appropriate stock area to use for comparison purposes. SPP103 Rev 05 [REP6-016] gives a summary of its position. The executive summary states that assessment methodology is based on well-established fisheries science principles. It relies on the comparison of the calculated SZC fish losses with the relevant spawning stock biomass produced by ICES. It continues that the SZC stakeholders in principle agree with the assessment methodology at stock level, but some have questioned the use of ICES stock units for assessing local scale effects.
- 5.15.153. Two versions of SPP103 were submitted to the Examination. The first, Rev 03 is at epage 362 of [AS-238]. The second, Rev 05 is [REP6-016].
- 5.15.154. The main change is that after Rev 03, the benefit of the LVSE heads was removed for demersal and epibenthic species (but not for pelagic) and comparisons were done against the EA best and worst case values using their HPC values. In Rev 05, in the immediate local area of SZB and SZC, the predicted depletions of demersal, epibenthic and pelagic species all increased. The report however points out that in the whole of the much larger adjacent ICES rectangle (which covers the area from just north of Felixstowe to Lowestoft) the expected reduction in pelagic species drops to 0.13% and in the much larger ICES division 4c it falls to approximately 0.02%. These figures are about double the figures in Rev 03. The reports conclude that "*Local depletion due to impingement is orders of magnitude below natural variability in abundance to which predator-prey relationships are adapted to. It is therefore concluded that impingement from SZB and SZC would not have any adverse food-web effects on designated features of HRA sites nor on the classification of nearby transitional water bodies under the WFD*". It is helpful to see the area concerned in the figure included below.
- 5.15.155. The Applicant has not responded directly to the EA's comments at [REP7-133]. However, they do respond at [REP10-157] on smelt and on the Ore & Alde TFCI deterioration risk. In relation to smelt, they point to the

schemes to install fish passes on the Alde and Blyth, to which they are making contributions under the EA covenant which will benefit smelt and to the smelt monitoring and mitigation plan which is required under the draft FIEMP [REP10-193].

- 5.15.156. In relation to the Ore & Alde TFCI, the Applicant explained in [REP10-157] that it disagreed with the EA and that in its view WFD status remained good in relation to the TFCI. It had, at the EA's request, run a series of data manipulations to determine the implications for the fish status of the Alde & Ore waterbody. The report was reviewed by a TFCI technical expert [AS-238]. The report concluded that it is highly unlikely that the Proposed Development would cause a deterioration in the fish status of the Alde & Ore. In answer to the EA's introduction of the five-bearded rockling as an additional species of concern for WFD status, the Applicant said there was no ecological basis for its inclusion. They stated that the waterbodies upstream of the Alde & Ore and Blyth have not achieved good status due to human and environmental factors that are not connected to the impacts of SZC. The fish passes to which they would contribute under the deed of covenant will offer a positive enhancement.
- 5.15.157. The SoCG with the EA [REP10-094] confirms agreement that all matters in relation to the WFD have been satisfactorily dealt with. It specifically mentions the legal agreements for the Ore & Alde and Blyth (WFD2-16). Whilst there is disagreement on the ecological impacts (MDS_MEF-1, 4, 5, 14, 15, 16, 17) those go to the main issue of EAV, stock size, AFD and fisheries. Whilst SoCG item MDS_MEF5 is red and disagreed, it includes the following: "*We do welcome that the Applicant has committed to provide additional mitigation to help offset impacts to fish ... secured by the DCO/DML and Deed of Obligation*".

SPP103 Consideration of potential effects on selected fish stocks at Sizewell
 NOT PROTECTIVELY MARKED



Areas of localised depletion for sprat assessed with both stations acting in-combination during the period December to March. The GSB + tidal excursion (yellow), ICES statistical rectangle 33F1 (purple) and part of ICES Statistical Area 4c (blue) are shown.

Figure 5.15.02 Extract from SPP103 Rev5 [REP6-016]

5.15.158. The EA also commented [REP10-187] on the Applicant’s assessment of Sea Bass SPP118 [REP8-131]. The Applicant has not been able to respond to these DL10 comments during the Examination and the SoS may wish to satisfy themselves on that if they are considering refusal on the ground of the cooling system and the effects on fish. In summary the EA’s criticisms were that:

- i. More recent research shows high site fidelity of sea bass, and so a local scale assessment of sea bass should be done drawing on latest research and likelihood of impact on local populations.
 - ii. The assessment is from 1985 to 2020, but more recent advice and assessment shows stock is currently at the lowest safe limits. In addition, the study should assume a 50 year lifetime for the power station.
 - iii. The EAV method used does not use repeat spawning (i.e. it does not use the EA's method).
 - iv. The study shows an increase in spawning stock biomass in two of the years, when SZC impingement is added, which the EA submits is counter intuitive.
- 5.15.159. Whilst the Applicant has not directly responded, it appears to the ExA that:
- v. The appropriate stock area is of course in dispute.
 - vi. Consistency is shown over the lengthy period of 35 years and that the stock level is within safe, albeit lowest safe, limits.
 - vii. The exercise is to compare the results of the Cefas method with an appropriate stock area to see if the "*warning*" given by the risk assessment is borne out. It is not to take a different EAV method, such as SPF.
 - viii. The increase in spawning stock biomass in two of the years may be explained by the size of the stock area and factors working on it.
- 5.15.160. The sea bass assessment is an important document as it tends to validate the Cefas EAV method. As the Applicant has not been able to reply to the DL10 submission from the EA, the SoS may wish to give it the opportunity to respond to the EA's DL10 submissions.
- 5.15.161. The Applicant's case includes the FIEMP. The final version of the draft plan, on which the actual plan is to be based, is [REP10-138]. The purpose of the plan is set out in para 1.1.2 "*To verify the predicted entrapment effects and quantify losses monitoring is proposed once SZC becomes operational*". It is secured by condition 44 of the DML.
- 5.15.162. The Applicant explains that plan provides for up to three years of monitoring. That will, for impingement not entrainment, be in tandem with monitoring at SZB.
- 5.15.163. Paragraph 2.3.9 provides that "Reports will be provided annually to the MTF and, after 3 years, the results from both stations will be compared and analysed and a final report provided to the Marine Technical Forum (MTF) for discussion. The final report will explain how the results relate to the data submitted with the DCO Application".
- 5.15.164. Para 5.1.1 explains the response to monitoring results. If "monitoring demonstrated that impingement and/or entrainment is statistically significantly greater than predicted in the ES [APP-317], when compared with impingement and entrainment numbers at SZB at the same time, comparisons will be made with the baseline to determine whether the

losses caused by SZC were having a significant effect on fish populations”.

- 5.15.165. If impacts exceed the 1% stock precautionary trigger threshold, a report must be submitted to the Marine Technical Forum (MTF). Further monitoring and action in response will be discussed with the MTF. Examples given are funding the installation of fish passes on appropriate rivers (a measure already agreed with the EA for the Rivers Alde and Blyth) for fish which migrate between rivers and sea; for species such as cod, herring and sea bass funds for nursery habitats could be provided. For others the draft FIEMP states no offsetting of significant effects is possible. But the Applicant observes in it that *“for commercial species, fishing restrictions are imposed when a stock is deemed to be under threat and such action typically occurs at impact levels considerably greater than those predicted by SZC. SZC only acts as a ‘passive sampler’ compared with fishing vessels that are mobile and seek out particular fish species”*. It says that if numbers are reduced so much that fishing restrictions are imposed SZC will be abstracting far fewer numbers as the population will have reduced.
- 5.15.166. The plan includes a commitment to a smelt monitoring and mitigation plan, in addition to WFD monitoring. The smelt monitoring plan is secured by condition 44 of the DML.
- 5.15.167. Once the final FIEMP is in place condition 44 requires that it is implemented. It is also governed by the DoO as the work of the MTF and is subject to dispute resolution under Sch17, the governance arrangements.
- 5.15.168. The EA, NE, the MMO and other parties have not had the opportunity to comment on the final Examination version of the FIEMP. Its executive summary however states that comments received from the EA, NE and the MMO have been considered and taken into account. The Applicant also responded [REP10-157] and [REP10-156] epage 74 to the EA’s and NE’s earlier comments on the draft FIEMP respectively. The SoCG with the MMO records that, although the matter is designated amber, they have no comments on the plan.
- 5.15.169. In relation to the comments by the EA and NE on the draft FIEMP the ExA has set out its individual considerations on points raised in the tables below. In the case of the EA, the comment column refers to Appendix A of [REP8-160]. The comments were made on the first version of the draft FIEMP [REP7-077]. The Applicant then submitted a second version [REP8-112]. The EA’s submission at the end of the Examination [REP10-190] stated that their comments on the first version had not been satisfied in the second version and accordingly their comments stood.

Table 5.15.01: EA’s comments on the Draft FIEMP

Environment Agency comment and row number	ExA’s consideration
1 Examine options for observing fish behaviour at the intake heads.	Not accepted by Applicant in final version. The ExA understands from the Applicant’s submissions that this is simply not possible.
2 The EA questions the justification for the statement that “ <i>Monitoring experience at SZB has demonstrated that 28 samples per annum, with 7 samples per quarter provides robust data</i> ”.	The claim of monitoring experience has been deleted but the position is maintained. The ExA is of the view that the draft FIEMP is satisfactory in this regard.
3– The EA say there is no clear valid reason as to why the level of monitoring cannot be at the recommended minimum provided in SAR 005 and SAR 006. The Applicant’s reasons are that it would be logistically impractical and operationally challenging, with outages that last for ‘weeks to months’ provided as a particular example.	There appears to be a practical problem with sampling during an outage period. However, the final version of the draft FIEMP includes that: “ <i>A detailed statistical analysis of the full available dataset from SZB will be undertaken to determine the appropriate sampling frequency over the 3-year monitoring period that is logistically achievable relative to impingement objectives without compromising the ability to detect scarce species unlikely to be detected by the sampling programme. This may be an issue if any of these species are of conservation interest.</i> ”. The ExA is of the view that the draft FIEMP is satisfactory in this regard.
4 In addition to randomly selected sampling, consideration needs to be given to specific monitoring of migratory periods for species of conservation concern.	The ExA is of the view that the change noted in the previous comment addresses this.
5 Consideration needs to be provided on how the problem of	The ExA is of the view that this is addressed. There will be

Environment Agency comment and row number	ExA's consideration
<p>overflowing bulk samples will be addressed if overnight sampling is not allowed. Overflowing bulk samples is not only a summer problem but is also a problem during the winter when sprat and herring impingement is highest.</p>	<p>overnight sampling (impliedly not bulk sampling as this change is to address the bulk sampling overflows).</p>
<p>6 Identification to the lowest taxonomic level possible will not necessarily distinguish populations of species being impacted. Where doubt exists over populations being impacted, and populations are distinguishable, sampling should seek to identify the proportion of impinged fish originating from each population (e.g. spring-spawning herring from discrete local stocks should be distinguished from autumn-spawning herring)</p>	<p>The Applicant has made some amendments. The final FIEMP is subject to MMO approval in consultation with the EA. The ExA is satisfied that further detail amendments could be made at that stage as the general matter is included in the draft FIEMP. The ExA is therefore of the view that the draft FIEMP is satisfactory in this regard.</p>
<p>7 Concern that whilst the impingement estimates will be reported to the MTF, members of the MTF will not see the impingement data. The EA requests that all data is made publicly available</p>	<p>We note that para 2.4.1 in the final draft FIEMP (impingement) states that "<i>Annual reports and data will be provided to the MTF</i>" (emphasis added). That was present in the draft on which the EA was commenting. Whilst this is not the same as public availability, it will make the data available to the whole MTF.</p> <p>What is para 3.3.1 in the final version originally stated "<i>Annual reports and data will be provided to the MTF</i>" (emphasis added). That is deleted in the final version which leaves the statement at 3.2.12 that "<i>annual entrainment estimates will be presented in terms of absolute numbers for each of the species</i>". The ExA suggests that the EA concern may be that the data behind the estimates may be</p>

Environment Agency comment and row number	ExA's consideration
	<p>withheld. An amendment we recommend to condition 44 of the DML for approval of the FIEMP would address this.</p> <p>We have made the following amendment to condition 44(1) after paragraph (d) "<i>an obligation to make the impingement and entrainment data publicly available with the reports required by the FIEMP</i>".</p> <p>We did not discuss this change during the examination and the SoS may wish to consult the Applicant and relevant IPs.</p>
<p>8 Concern over what happens if the Applicant does not agree with what the MTF requires. In addition the terms of reference of the MTF need to be revised</p>	<p>No changes have been made to the plan but there are provisions in the DML/ DoO for the terms of reference of the MTF to be revised. The ExA is of the view that no change is needed.</p>
<p>9 It may be appropriate to stop monitoring at SZB after 3 years if no significant difference has been observed from predicted and actual entrapment losses. For SZC monitoring may be required for a longer period than 3 years in order to determine the impact to some species. The decision to extend monitoring or not at SZB and SZC should be reached in agreement with the MTF at the end of a given review period.</p>	<p>There is now provision for additional monitoring if agreed with MTF. The ExA is of the view that the draft FIEMP is satisfactory in this regard.</p>
<p>10 Agreement must be reached on what EAV method is deemed as appropriate for this assessment.</p>	<p>Not provided for, as the Applicant is of the opinion its EAV method is appropriate. The ExA is of the view that the draft FIEMP is satisfactory in this regard.</p>

Environment Agency comment and row number	ExA's consideration
11 Agreement must be reached on what the appropriate stock comparator is for each species.	Also not provided for, as the Applicant considers that the ICES unit/ stock areas are appropriate, and it has used other areas in particular circumstances. The Applicant has made it clear that the FIEMP is not intended as a test of its EAV and unit/ stock comparators. The ExA is of the view that the draft FIEMP is satisfactory in this regard.
12 Change to 'If monitoring shows that impingement is statistically significantly higher or lower than predicted (when compared with SZB) leading to an increase or decrease in total entrapment, an explanation must be submitted to the MTF for discussion. Any action or additional monitoring considered necessary in response to the results will be agreed with the MTF'	This has been accepted by the Applicant.
13 This section is misleading and seems to suggest that the recommended reduced sampling, if monitoring is undertaken over more than 1 year, is due to a recommendation in SAR005. It is not and needs to be clarified.	The Applicant has made some amendments. The final FIEMP is subject to MMO approval in consultation with the EA. The ExA is satisfied that further detail amendments could be made at that stage as the general matter is included in the draft FIEMP. The ExA is therefore of the view that the draft FIEMP is satisfactory in this regard.
14 Both seasonal and interannual variability need to be considered further, both have the potential to affect the predicted entrainment numbers significantly	This has been accepted by the Applicant.
15 see 7 above	See 7 above.

Environment Agency comment and row number	ExA's consideration
16 Comments regarding the role of the MTF and the responsibilities of its attendees and the need for statistically significant differences from predictions to be explained, regardless of whether they represent increases, decreases, or whether they represent >1% of the population comparator.	This has been partially met by the Applicant. The significance of the remaining differences appears to be limited and the final FIEMP is subject to MMO approval in consultation with the EA. The ExA is of the view that the draft FIEMP is satisfactory in this regard.
17 The EA believe the sections in 3.1 prior to be correct and the summary is wrong.	The Applicant has made the necessary corrections.
18 The plan must include the option to continue the monitoring particularly if other variables may have confounded the data comparison between the 2 sites.	There is now provision for additional monitoring if agreed with MTF. The ExA is of the view that the draft FIEMP is satisfactory in this regard.
19 Please either amend this report to consider the potential WQ impacts from the FRR system discharge of moribund biomass or highlight where this monitoring requirement will be considered.	By the end of the examination the EA's position was that there are no WFD issues apart from the need for cumulative assessment of all WDA consents. This will be a matter for the WDA consent.
20 The plan needs to justify the choice of 24 hours as a time period over which to study delayed mortality or alter this to a longer time period if found necessary.	The Applicant has amended this to " <i>at least 24 hours</i> ". The final FIEMP is subject to MMO approval in consultation with the EA. The ExA is satisfied that further detail amendments could be made at that stage as the general matter is included in the draft FIEMP. The ExA is therefore of the view that the draft FIEMP is satisfactory in this regard.
21 Inundations due to jellies are mentioned as a risk with a possible mitigation option. The implications of these for overwhelming the buckets on the screens and increasing the mortality in the	No amendments have been made. The final FIEMP is subject to MMO approval in consultation with the EA. The ExA is satisfied that further detail amendments could be made at that stage. The

Environment Agency comment and row number	ExA's consideration
buckets is possible. Adaptive measures are not limited to the FRR alone.	ExA is therefore of the view that the draft FIEMP is satisfactory in this regard.
22 Monitoring concurrently for entrainment is envisaged, but the same statement is not made for impingement. This would be highly desirable.	There is no concurrent entrainment monitoring with SZB in the draft FIEMP. This request is not met (see paras 3.2.11 and 3.3.1 of the final plan in the track change version [REP10-139] which shows the deletion of simultaneous entrainment monitoring with SZB). The EA only suggests this is desirable, not necessary. The ExA is therefore of the view that the draft FIEMP is satisfactory in this regard.
23 Amend to remove reference to 1% threshold and to state simply that <i>"a report will be provided to the MTF with an analysis and explanation of the results"</i> .	No amendments have been made. The final FIEMP is subject to MMO approval in consultation with the EA. The ExA is satisfied that further detail amendments could be made at that stage. The ExA is therefore of the view that the draft FIEMP is satisfactory in this regard.
24 Agreement would be needed on the appropriate stock comparator for each species and on the EAV method to be used.	No amendments have been made. This is consistent with the aim of the report not being to provide a check on the EAV method. The ExA is of the view that the draft FIEMP is satisfactory in this regard.
25 Greater emphasis should be placed on the potential for habitat creation or enhancement to benefit fish species, including marine species such as cod. For example, eelgrass <i>Zostera marina</i> meadows may be of significant importance to cod	The amendment has been made.

Environment Agency comment and row number	ExA's consideration
26 In addition to this assessment, should a deterioration under The Water Environment (WFD) (England and Wales) Regulations 2017 (WFD Regulations) TFCI, be observed in in the Ore & Alde transitional waterbody, which can be attributed to impacts as a result of the operation of SZC, then compensation funds would be released for fish habitat improvement or fish habitat creation schemes.	This was addressed by provisions in Sch 11 of the DoO [REP10-076] and the EA covenant [REP10-088] see also the EA's letter of 12 October 2021 [REP10-193].
27 The EA requests monitoring for smelt is also undertaken in the Blyth.	The amendment has been made.
28 How long will monitoring continue after the fish passage schemes have been delivered?	Any further mitigation and its objectives will be determined with the MTF. The ExA is of the view that the draft FIEMP is satisfactory in this regard.

5.15.170. We turn to NE's comments on the draft FIEMP. These comments are at [REP8-298e].

Table 5.15.02: Natural England's comments on the DRAFT FIEMP

Natural England comment	ExA's considerations
Para 2.2.1 – the efficacy of FRR needs to be compared against predicted lethal and sub-lethal impacts.	No amendments have been made. The aim of the FIEMP is to compare impingement data, and this suggestion by NE falls outside this aim. However DML condition 44 requires the FIEMP to be approved to include monitoring arrangements to assess the efficacy of the FRR during commissioning and a duty to consider future adaptive measures arising from that assessment. The ExA is therefore

Natural England comment	ExA's considerations
	of the view that the draft FIEMP is satisfactory in this regard.
<p>Para 2.2.2 – monitoring should be for a minimum of three years, with sampling over the lifetime of the development, with annual monitoring if there are significant differences between predicted and annual figures.</p> <p>Data should be publicly available.</p>	<p>The draft FIEMP has provision for extended monitoring to be agreed with the MTF if impingement predictions are statistically significantly higher or lower than predicted. The final FIEMP is subject to MMO approval in consultation with the EA. The ExA is satisfied that further detail amendments could be made at that stage as the general matter is included in the draft FIEMP.</p>
<p>Para 2.3 - how would results be reviewed "<i>in consultation with the MTF</i>"?</p>	<p>This is provided for in Schedule 11 of the DoO.</p>
<p>Para 3.1.2 - entrainment sampling should continue over the whole lifetime of the project.</p>	<p>The draft FIEMP provides for additional monitoring depending on the results of the initial monitoring – see para 3.3.1. The final FIEMP is subject to MMO approval in consultation with the EA. The ExA is satisfied that further detail amendments could be made at that stage as the general matter is included in the draft FIEMP. The ExA has recommended an addition to condition 44 of the DML to make the data publicly available. The ExA is therefore of the view that the draft FIEMP is satisfactory in this regard.</p>
<p>Para 3.1.3 - survivability should be included in the observations for each species</p>	<p>No amendments have been made. The final FIEMP is subject to MMO approval in consultation with the EA. The ExA is satisfied that further detail amendments could be made at that stage as the general matter is included in the draft FIEMP. The ExA is</p>

Natural England comment	ExA's considerations
	therefore of the view that the draft FIEMP is satisfactory in this regard.
Para 3.1.5 - all data should be made publicly available.	The ExA has recommended an addition to condition 44 of the DML to make the data publicly available

5.15.171. On the points in the two tables above where the plan does not accord entirely with what the EA and NE sought it is important to remember that the FIEMP we have been discussing is the draft FIEMP and that the actual FIEMP is to be submitted to the MMO for approval under condition 44 of the DML. It must be *"in general accordance"* with the draft. There will therefore be a further opportunity for refinement of the plan and with the EA as a consultee.

5.15.172. The FIEMP is not a provision for monitoring over the lifetime of the station. There will be three years of impingement monitoring and one year of entrapment monitoring, both capable of being extended in agreement with the MTF. It is also not a provision to test whether the Applicant's EAV method works, nor what should be the appropriate stock area. From para 2.3.4 of the final draft FIEMP *"The aim of impingement sampling is to compare actual SZC impingement data with those predicted in the Environmental Statement (ES) [APP-317] to confirm the assessment, not to collect additional data or repeat the assessment"*. There is a similar statement in relation to entrainment sampling at para 3.2.5. Having done that check, further monitoring or other action in response can be considered if impacts are above the 1% precautionary threshold. The draft FIEMP is open ended about what form other action might take, but the examples given are fish passes for species which migrate between sea and rivers and nursery habitat creation for some species. The draft FIEMP is clear that for some species there are no means to offset significant adverse effects, but the point is made that fishing restrictions for commercial species are typically not imposed until considerably greater levels of impact than those expected at SZC.

Acoustic fish deterrent

5.15.173. The Applicant is not proposing AFD. It submitted an Acoustic Fish Deterrent Report [REP5-123] which explained that there were serious safety concerns about maintaining such a system. It would be unsafe for divers, and remotely operated vehicles (ROVs) do not have the necessary dexterity to maintain the electrical equipment. Adequate ROV stability in the tidal flows would not be possible with current designs. Whilst they are part of the scheme at HPC and required by the DCO and WDA permit there, there has been the HPC appeal and public Inquiry in relation to EDF's proposal to amend that requirement for safety reasons. It referred to similar concerns at SZC where the AFD would – if it were adopted – be

installed and have to be maintained 3 km out to sea in about 12 m of water. Fish Guidance Systems Ltd (FGS) submitted that automated technology would be developed. The Applicant states that the effects simply do not justify AFD.

- 5.15.174. It was explained that at HPC the DCO, Marine Licence and WDA Permit all contained a condition which required an AFD system to be installed. Furthermore, the EIA and HRA had demonstrated that an AFD was not required to mitigate impacts on fish species or populations. HPC Co. took the view that it could not safely install an AFD and therefore applied for a variation of the WDA to remove the requirement for one. If successful, then the appellant will follow that with an application to vary the HPC DCO. If the decision were to be made before the end of the Examination, the Applicant would submit it. The ExA understands that the decision was not made before the end of the Examination. The Applicant explained that issues which were being touched on at ISH7 have been the subject of forensic examination with evidence and cross-examination in the usual way. Whilst the Applicant intended to respond to the evidence of Dr Henderson as best as possible in writing, they submitted it was impossible to replicate "*the microscopic scrutiny that one gets at an Inquiry*". There was, they said, a huge amount of technical material sitting behind these issues. Essentially the issues of how to calculate effects on fish stocks were considered at the HPC appeal Inquiry.
- 5.15.175. In [REP7-127] the EA responded to the Applicant's Acoustic Fish Deterrent Report [REP5-122]. It points out that the assessment of turbidity level data in the report was taken in the period of highest turbidity and that that was not explained. There is no evidence of turbidity at other times of the year. The marine ecology ES [APP-318] notes that, in the general inshore area, turbidity is considerably reduced from May to August. Evaluation of safety and the practicality of maintenance at other times of the year should also be carried out said the EA.
- 5.15.176. The Applicant responded in [REP8-120] that turbidity data is available for the summer but only near the surface. Turbidity can be higher in summer. AFD maintenance can only take place during an outage but even then, only for a few weeks. Maintenance outage intervals are on an 18-month interval, so it is not possible to align them with summer. In addition, current velocities are too fast for divers to work safely and there is no current ROV capability either.
- 5.15.177. Fish Guidance Systems Ltd made submissions to the Examination. Their post OFH submission [REP2-274] drew attention to EA best practice guidance that AFD systems are a fundamental part of EA best practice for protecting fish at nuclear seawater intakes, that they strongly deter fragile fish such as herring, of which there are many at Sizewell. The mitigation effects of the LVSE intakes are not proven and FGS also submitted that the Applicant had stated that the mitigating effect of those intakes would only be realised if an AFD is installed. They submitted that ROVs could be developed to deal with maintenance, thus addressing the Applicant's safety concern.

- 5.15.178. Dr Lambert of FGS appeared at ISH7 and made further representations (summarised at [REP5-200]) including that if best practice, including AFD, is not employed, given that the EA guidance assumes all mitigation measures available should be employed, then cooling should be by way of cooling towers.
- 5.15.179. He submitted further evidence including [REP6-059] where he reported that "an independent ROV manufacturer has reviewed the latest AFD report and concluded the project is 'very do-able', and there is equipment currently available to meet the requirements for ROV maintenance of an AFD system at SZC". In [REP7-186] he informed the ExA of a report that "ROVs have been developed and demonstrated to operate in high flow conditions, more than double that will be encountered at SZC".
- 5.15.180. The Applicant's response, in [REP7-061], comments on FGS's [REP6-059] submission. The Applicant disagreed that the designs for HPC would be suitable at SZC. They had no confidence that the arrangement of AFD units would actually provide the perceived benefit being so far from the intake heads. There were also fundamental issues of concern in relation to the large numbers of sound projectors, underwater cabling and connections and nuclear safety related intake heads. In comparison with FGS Ltd's "*reaching out*" and "*simple [telephone] calls*", the Applicant in writing its SZC Acoustic Fish Deterrent Report [REP5-123] had drawn on evidence it had provided to the HPC appeal on the difficulties and limitations on ROVs.
- 5.15.181. The EA's case on AFD was set out in its WR [REP2-135] and further explained in [REP5-100]. It doubts that the LVSE reduction factor will be achieved so that impingement has been underestimated and impacts on species of relevance under EIA and WFD may be unacceptable ([REP2-135], epage 47). They note in relation to WFD ([REP2-135] epage 50) that one of the reports prepared for the Applicant has the same reservation about the efficacy of the LVSE and at epage 57 they make a similar point.
- 5.15.182. The Applicant's case is that it will not deploy AFD because the effects on fish, as predicted using its EAV methodology, are not significant enough to justify it. The final SoCG with EA confirms this at MDS_MEF 4 which records "*SZC maintains position on not installing an AFD system*". The resolution of the case for or against requiring AFD depends therefore on the resolution of the EAV issue.

The ExA's considerations on cooling systems

- 5.15.183. All of our conclusions on these issues are subject to the SoS being satisfied with the results of any consultation he decides to carry out. We have flagged the issues which are relevant in the text and they are in Appendix E of this report. They are also subject to any action the SoS decides to take on matters where information is outstanding from the Applicant.

- 5.15.184. We set out first, for ease of reference, the matters in the EA's SoCG which are not agreed, with a brief description of their substance:
- MEF1, 14 and 15: overarching methodology for the assessment of impacts on marine ecology and fisheries. (The Applicant remains in disagreement with EA on methods used for assessment of impacts on fish and in particular the use of EAV or EAV/SPF, the scale of assessment and the CIMP bulk overflow issue. LVSE mitigation has been conceded to 1:1. These methods have been agreed with the MMO but not agreed with EA and NE. The Applicant is not intending to carry out any further work.) (scale of assessment and uncertainty in relation to impingement and entrapment).
 - MEF4: mitigation methods including the draft FIEMP. (The Applicant advises that the provision measures for fish in the DoO are agreed. DML Conditions 50a and 51 secure fish monitoring. The Applicant maintains its position on not installing an AFD system. Although the EA is unable to advise on the engineering and safety considerations stated within the AFD report, it wishes to highlight concerns regarding the environmental evidence used to preclude the deployment of AFD at SZC and consider that further evidence is required. It considers that the scale and impact of impingement of fish has not been quantified with certainty. It welcomes that the Applicant has committed to provide additional mitigation to help offset impacts to fish from the operation of SZC. This is secured by the DCO/DML and the DoO).
 - MEF5: securing mechanisms to control impacts on marine ecology and fisheries on the main development site as detailed in the mitigation route map (list given) and WDA (Operational) Permit, MEF16: proposed mitigation measures and monitoring to measure impacts on fish as detailed in section 22.12 of [APP-317] and MEF17: residual effects for fish, securing mechanisms and residual effects. (The Applicant advises that the EA has been added as a named consultee on the DML conditions where they have requested. DML conditions and the DoO are not disputed. The EA consider that the scale and impact of impingement of fish has not been quantified with certainty. It welcomes that the Applicant has committed to provide additional mitigation to help offset impacts to fish from the operation of SZC. This is secured by the DCO/DML and the DoO).
- 5.15.185. In relation to entrapment monitoring, the ExA has carefully considered the submissions, both written and oral, made by TASC and Dr Henderson, which we have summarised in some detail above, as well as by other IPs. We have similarly summarised and considered the Applicant's responses.
- 5.15.186. Our detailed conclusions and advice are set out in paragraphs 5.15.116 and 119 at the end of the Applicant's response on entrapment predictions. It is our conclusion that the Applicant has satisfactorily dealt with the difficulties caused by overflowing bulk impingement samples and with the entrainment gap, and that the assessment of impingement, entrainment and entrapment is sound.

Equivalent Adult Values

- 5.15.187. In relation to EAV and to the stock area assessments it is clear that the matter raises similar issues to those considered at the HPC Appeal. Both the Applicant and the EA take the view that it is relevant. The Applicant is of the view that the Examination process is not able to subject the dispute to the same level of scrutiny as the HPC Inquiry, and indeed the Applicant did not urge us to do so. The MMO is content with the Applicant's approach, and raises no objection on this matter.
- 5.15.188. In the view of the ExA, neither the Applicant nor the EA would have given way on the EAV, stock size and AFD issues pending the outcome of the HPC appeal. The essential issue is whether the Cefas EAV method adopted by the Applicant or the EA's EAV SPF method is appropriate.
- 5.15.189. The EA's concern was that the Cefas EAV method does not take repeat spawning into account. It therefore underestimates the effect of the Proposed Development on some fish species, and the SPF method should be adopted. The Applicant maintained that estimates of the annual EAV numbers as a proportion of the spawning population size can be used to assess whether there is a risk to the sustainability of the population using pre-defined thresholds. It is a form of risk assessment. If the assessment shows that the threshold – 1% of spawning stock biomass for commercially exploited species – is passed, then further assessment work should be done.
- 5.15.190. The Applicant tested this with its European Sea Bass Stock Assessment [REP8-131]. The Cefas EAV method showed that sea bass losses would be 0.99% of SSB, or 1.87% at the upper 95% confidence level – the 1% threshold test was passed successfully. The assessment showed that the losses due to the Proposed Development would not have a significant effect on the stocks of sea bass. It had no discernible effect. Indeed, as the figure we reproduce above shows, the effects of SZC closely track the position without SZC. In all scenarios tested, including the extreme worst-case SZC scenario, impingement had no discernible effects on the population trends and only very minor effects on absolute SSB. This, in the ExA's view, is a very convincing answer to the EA's concerns. If the Cefas method gives a warning of risk which can then be further tested, and the results of the test then demonstrate that in fact there is no risk, there is no need to add the SPF factor to the initial risk assessment.
- 5.15.191. The sea bass assessment was criticised by the EA, notably at the last deadline, in [REP10-187] which we summarise above at para 5.15.158. We do not find those criticisms persuasive, for the reasons given at para 5.15.159.

Scale of assessment and stock area

- 5.15.192. The Applicant maintained that the primary assessment should be against the ICES stock areas, and stated in several submissions that the ICES approach is a "*multistage international process with internal and external peer review which brings together experts in fish biology to define stock units. It represents an international consensus on the best interpretation*

of current evidence" [REP10-157]. We accept this argument and give it considerable weight. The EA suggest more precautionary stock units but have not pointed to suitable alternatives. The Applicant observes (again at [REP10-157]) that the EA may be suggesting the Swansea Bay Tidal Lagoon but, for the reasons we report above, that it would be unsuitable.

- 5.15.193. The EA were also concerned that smaller units should be used to assess the local position in Greater Sizewell Bay (see their WR [REP2-135] at para 8.33 and following). They list eleven species of WFD concern, three of which are also of concern for EIA and one which is an EIA concern only. We have earlier raised the question of whether the EA's WFD concerns are allayed. They are, and thus there is no need to consider those species listed in paragraph 8.33 of their WR [REP2-135].
- 5.15.194. In addition, and separately, the Applicant's report SPP103 Rev 5 Consideration of Potential Effects on Selected Stocks at Sizewell [REP6-016], to which we refer above, demonstrates that "*Local depletion due to impingement is orders of magnitude below natural variability in abundance to which predator-prey relationships are adapted to. It is therefore concluded that impingement from SZB and SZC would not have any adverse food-web effects on designated features of HRA sites nor on the classification of nearby transitional water bodies under the WFD.*"
- 5.15.195. The draft FIEMP is in our view satisfactory. Although it does not incorporate some of the points sought by the EA and NE in their submissions, the draft FIEMP is a draft and there is the opportunity for the EA to put its points again to the MMO to whom the final plan is submitted for approval. We have commented above on each of the points sought by the EA and NE. We recommend that the DCO is amended to make NE a consultee as well.
- 5.15.196. From all of the above, we are therefore satisfied that the scale of assessment and the stock areas are appropriate.

AFD

- 5.15.197. Whilst FGS draw our attention to the EA's best practice to require AFD there is obviously some discretion on how that is applied. On the question of availability of ROVs able to work at the intake heads for the Proposed Development we note that ROV manufacturers have been sounded out and give positive answers. However the more formal evidence of the Applicant's AFD report is more persuasive in our view.
- 5.15.198. The EA's case on AFD is essentially a re-run of its case on EAV and stock areas. They do point to a reservation about efficacy of LVSE in one of the Applicant's earlier reports But the models were ultimately run on the assumption of no greater benefit than at SZB and subject to the EA's limits used at the HPC Inquiry.

ExA's conclusions on cooling systems

- 5.15.199. Based on the evidence before us, we are satisfied that the entrapment monitoring issues have been satisfactorily addressed. The Cefas EAV

method has been tested by the sea bass assessment and found to work for its task of assessing effects and whether population sustainability thresholds are in danger of being crossed. We are satisfied that the scale of assessment and the stock areas are appropriate. Local effects have been satisfactorily addressed. There is therefore no justification for requiring an acoustic fish deterrent. The FIEMP is satisfactory in our view. The Applicant's assessment of no likely significant adverse effects is therefore justified.

- 5.15.200. The cooling water system and discharge of fish and marine biota from the FRR system will require a WDA permit from the EA which they state will be subject to the result of cumulative assessment of all the permits. NE will be a consultee on those and adviser on HRA matters. It has made it clear it could not at the time of the close of the Examination say what its final advice would be. The EA stated at ISH15 that there was at that time nothing to say that it would not grant the permits but that they could not guarantee that they would. Therefore, the following matters not agreed in the SoCG [REP10-094], numbers MEF1, 14, 15 4, 16 and 17 are addressed and we find in the Applicant's favour. The result is the same for the issues in NE's SoCG [REP10-097] so far as this subject is concerned. We agree that there are no likely significant adverse effects on fish stocks.
- 5.15.201. Having taken into account all of the submissions made, the ExA has found that the assessment of impingement, entrainment and entrapment is sound. On the use of the Cefas EAV method, the ExA has found it to be appropriate and this finding is supported by the very convincing answer given to the EA's concerns. The ExA is also satisfied that the scale of assessment and the stock areas used by the Applicant are appropriate together with the draft FIEMP submitted at the end of the Examination. There is no need for AFD. We consider there are no matters relating to this issue which would weigh for or against the order.
- 5.15.202. Based on the evidence we have we are content but the statutory consultee had remaining concerns which were not responded to. They were; that the stock assessment method used in the European Sea Bass Stock Assessment [REP8-131] should have been at a local scale, that the most recent stock assessment and fishery advice was not taken into account, that the Applicant had not used the EA's preferred method (EAV SPF) and that results for all years and scenarios were not clearly shown (see REP10-187] to which the Applicant could not respond as it was the last deadline); and that the evidence for a replenishment rate of 10% for seabass, should be provided) see [REP7-133]. The SoS may wish to seek further information on this.

Fisheries

Parties' cases

- 5.15.203. The Applicant's ES [APP-317] considered effects on fisheries, including commercial netters, potters, long-liners, otter trawlers and other forms of fishing including recreational fishing from boats and from the beach at Sizewell. This is not an exhaustive list. It considered for example access

to fishing areas, launching sites and the beach during construction. For beach anglers some part of the Sizewell frontage would be available at all times. For commercial fishers, the fishing areas where construction activity would take place were relatively minor. In relation to the operational period it considered for example plumes and whether the elevated water temperature would change behaviours (noting that sea bass, a popular fish for anglers, may be attracted to the warmer water, but that phenomenon was unlikely to result in commercial fishers coming to Greater Sizewell Bay). It found that there would be no significant effect after the incorporation of primary, tertiary and if necessary secondary mitigation. That was also the position following all changes to the application [REP7-286].

- 5.15.204. The major issue in relation to fisheries in the ExA's view is the availability of fish stocks. In this regard, we draw attention to the submissions by the Eastern Inshore Fisheries and Conservation Authority (EIFCA). They addressed us at ISH7 and submitted a summary in the usual way [REP5-147]. EIFCA's role is to lead, champion and manage a sustainable marine environment and inshore fisheries within their district, which extends from the Humber to Harwich, and six nautical miles out to sea. Sizewell is within this area. In relation to the effects on fisheries, EIFCA stated that they accepted that impacts on fish stocks were unlikely to directly affect commercial fisheries. They drew attention to uncertainties over the proposed mitigation measures and sought on-going entrapment monitoring and compensatory mechanisms if impacts were to exceed predictions. They had concerns over localised access for locally based inshore fishermen. They hoped for open and effective dialogue between the operators of the Proposed Development and recognised efforts made by the Applicant in that regard. Further representations were made in relation to Change 19 [REP10-185] which we have also taken into account.

ExA's considerations and conclusions

- 5.15.205. We have addressed the position of NE, the EA, MMO and other IPs in some detail in the section of this chapter on cooling systems. That is the major issue in relation to fisheries.
- 5.15.206. Access and other issues raised by EIFCA were in our view adequately addressed by the Applicant in its ES. In relation to the points made by EIFCA on fisheries, we note that the draft FIEMP makes provision for further (though not likely to be permanent) monitoring and that the models were ultimately run without the benefit of the LVSE and subject to the EA's limits used at the HPC Inquiry. We came to conclusions on the predictions of effects on fish stocks which were that there would be no likely significant adverse effect on fish stocks. It follows that there is no likely significant effect on fisheries and we note that that is the gist of EIFCA's view as well. Accordingly there are no matters relating to that issue which would weigh for or against the making of the Order.

Matters of disagreement between Natural England and the Applicant

- 5.15.207. This section considers the matters on which NE and the Applicant were unable to reach agreement in the marine ecology context. It is the marine ecology equivalent of the corresponding section in the terrestrial biodiversity chapter, 5.6. Where a matter has been addressed in that chapter it is not addressed again here.
- 5.15.208. The source is the final SoCG between them [REP10-097]. NE allocated each of their issues with an Issue Number (IN) from the outset in their Relevant Representation [RR-0878]. Chapter 6 addresses the matters not agreed (Outstanding Issues) in the context of HRA assessment - internationally designated sites. This section deals with nationally designated sites.
- 5.15.209. Onshore internationally designated sites are also nationally designated SSSIs. Therefore, it follows that where a matter is raised in relation to an internationally designated site it also affects the underlying SSSI. The issues are therefore treated separately by NE and the Applicant although the same reasoning often applies and the issue is often the same. Issues which affect international and national sites have been allocated two issue numbers. The first is for the international designation and the second is for the national designation. For consistency and clarity, we use both numbers. Epage numbers and paragraph numbers are to the final SoCG [REP10-097] unless stated otherwise.

IN 3 and 13

- 5.15.210. This addresses the water strategy and, by the end of the Examination, was linked strongly to Change 19 and issues which were highlighted by or emerged from that. The issue is water use impacts from a number of project elements including potable and non-potable freshwater supply. We have considered this chapter 5.11 where we record that we are unable to understand or assess the cumulative environmental effects of any of the water supply solutions. Nor are we able to recommend that the DCO should be granted without greater clarity about a sustainable water supply solution and assessment of its environmental effects. We agree with NE's position on this issue which is discussed and weighted in Chapter 5.11.

IN 7 and 17

- 5.15.211. The relevant nationally designated sites are the Alde-Ore Estuary SSSI and the Minsmere-Walberswick Heath and Marshes SSSI. The issue is physical interaction between species and project infrastructure which during the Examination became focussed on the effects on birds colliding with pylons and power lines. Notwithstanding that the Alde-Ore Estuary SSSI is identified, we address this issue in Chapter 5.6, the terrestrial ecology chapter.

IN 9 and 19

- 5.15.212. The relevant nationally designated sites are the Alde-Ore Estuary SSSI, the Leiston – Aldburgh SSSI, the Minsmere – Walberswick Heath and Marshes SSSI and the Sizewell Marshes SSSI. The issue is cumulative

assessment. On this, NE require the resolution of all outstanding issues alone before progress can be made on cumulative assessment. There are several issues not agreed. NE consider that there have not been sufficiently robust assessments of impacts from all elements on the listed SSSIs and their notified features, a crucial element of the EIA process in their view. They maintained this position throughout the Examination.

5.15.213. The Applicant's position is that the issue is comprehensively addressed in the ES at the assessment of project-wide, cumulative and transboundary effects [APP-578] supplemented by the ES Addendum submitted in January 2021 to accompany the first set of changes to the application [AS-189] and the Fourth ES Addendum Vol 1 [REP7-030].

5.15.214. We agree with NE's view that all matters need to be resolved to address cumulative assessment. In our consideration of the issues which follow, we shall address the outstanding individual issues for SSSIs.

IN 10

5.15.215. The issue is protected species mitigation, compensation and licensing for the project as a whole. We have addressed this in the terrestrial ecology chapter 5.6. In summary, draft protected species licences were not submitted before the application and were submitted during the course of the Examination. NE had not by the end of the Examination been able to complete their review and therefore were unable to provide letters of no impediment in the usual way. However the ExA was told by NE that they would be submitting those to the SoS on 11 November. The ExA is not permitted to take into account post-Examination material. On that basis we shall give no further consideration to this issue which goes away if the LoNIs were issued.

IN 27 and 38

5.15.216. The relevant nationally designated sites are the Alde-Ore Estuary SSSI, the Leiston – Aldburgh SSSI, the Minsmere – Walberswick Heath and Marshes SSSI. The issue is impacts from noise, light and visual disturbance from a number of MDS (ES) and subsequent effects on SSSIs and their designated features. They are addressed in chapter 5.6.

IN 30 and 41

5.15.217. The relevant nationally designated site is the Alde-Ore Estuary SSSI. Six international sites all marine except for the Minsmere- Walberswick SPA and one SSSI are listed. The SSSI is the Alde-Ore Estuary SSSI. We conclude that the Minsmere-Walberswick SSSI is not engaged. The issue is listed as impacts from intakes and outfalls and subsequent effects on internationally designated sites and nationally designated sites (i.e. SSSIs) and their features. The commentary in the streamlined SoCG however makes it clear that the issue was by the end of the Examination narrowed to the Fish Monitoring Plan (i.e. the draft FIEMP). We address this plan above and concluded that subject to the SoS being satisfied on a number of matters the draft FIEMP is satisfactory.

IN 31 and 42

- 5.15.218. The relevant nationally designated site is the Alde-Ore Estuary SSSI. Six international sites all marine (except for the Minsmere- Walberswick SPA and the Minsmere-Walberswick Ramsar Site) and one SSSI are listed. The SSSI is the Alde-Ore Estuary SSSI. We conclude that the Minsmere-Walberswick SSSI is not engaged. The issue is impacts from the thermal plume and subsequent effects on SSSIs and their designated features. (The thermal plume is the returned cooling water, which will be at a higher temperature than when it was extracted. It was assessed in the ES.)
- 5.15.219. NE draw attention to the need for a WDA permit for the discharge of cooling water and that it will manage the thermal plume. They also point out that they will be consulted on the permit and HRA for it. They state that before they can provide robust advice on potential impacts to designated sites and species, they will need to see further details of the proposed and final permit. They asked for further information on water quality status in relation to WFD matters for SAC and SPA areas, and they drew our attention to the potential cumulative impact of this issue for water quality and marine species. They apply the same points to the SSSI as they make for the HRA assessment. They add that impact assessments and any mitigation/ compensation must address the notified features of the SSSIs.
- 5.15.220. The Applicant maintained that it has supplied HRA assessments demonstrating no risk of adverse effects and that there would be no AEOI on the European sites. It makes no SSSI specific points and says that its comments for European sites are broadly relevant.
- 5.15.221. The matter has been addressed in Chapter 6 and we shall therefore not duplicate what is said there as it obviously has broad applicability on the SSSI aspect. We conclude that NE is relying on the WDA permit process, on which it is a consultee, to consider both HRA and SSSI aspects and that once the result of that is known it will be able to give the SoS its advice on impacts to designated sites and species. However on the evidence before us we agree with the Applicant's assessment that there are no likely significant adverse effects and we give little weight to NE's disagreement on this issue.

IN 32 and 43

- 5.15.222. The relevant sites are the same as for IN 31 and 42. The issue is impacts from the combined drainage outfall (CDO) on internationally designated sites and SSSIs. We draw the same conclusion for the Minsmere-Walberswick SSSI as on IN 31 and 42.
- 5.15.223. The submissions of NE and the Applicant are very similar to the submissions for IN 31 and 42, with the addition of some CDO specific material from the Applicant. This included [REP10-161] which is the Applicant's written summary of its oral submissions at ISH15. NE on this matter also drew our attention to the potential cumulative impact of this issue for water quality and marine species.

5.15.224. As in issues 31 and 42, the matter has been addressed in Chapter 6 and we shall therefore not duplicate what is said there as it obviously has broad applicability on the SSSI aspect. We conclude that NE is relying on the WDA permit process, on which it is a consultee, to consider both HRA and SSSI aspects and that once the result of that is known it will be able to give the SoS its advice on impacts to designated sites and species. However on the evidence before us we agree with the Applicant's assessment that there are no likely significant adverse effects and we give little weight to NE's disagreement on this issue.

IN 33 and 44

5.15.225. The relevant sites are the same as for IN 31 and 42. The issue is impacts from the chemical plume and subsequent ecological effects on internationally and nationally designated sites and their notified features. We draw the same conclusion for the Minsmere-Walberswick SSSI as on IN 31 and 42.

5.15.226. On these issues NE did not refer to the permitting process. They made the same case for both international and nationally designated sites. They stated that the chemicals are toxic with exposure known to be injurious to humans. Terns do not avoid thermal and chemical plumes which gives rise to an impact pathway which should be considered. They sought further information about direct physical contact, ingestion of contaminated prey whether live, stunned or moribund, risks from repeated exposure and bioaccumulation potential. They also drew our attention to the potential cumulative impact issue on both marine water quality and marine species.

5.15.227. The Applicant's response is in terms of the HRA assessments it has provided. Again, on HRA matters, those are addressed in Chapter 6 and we will not repeat them. In a non-HRA context it drew attention to its replies (in [REP5-120] at appendix P, epage 1356, sections 1.iii and iv) to concerns raised by the RSPB on direct and indirect impacts on birds from chemical plumes. This showed bioaccumulation from hydrazine to be low with no food webs effects. Synergistic effects from the reaction of hydrazine and thermal plumes was not predicted to increase the significance of effects for hydrazine and thermal plumes alone. Increases in water temperature can increase toxicity of hydrazine to fish, but available evidence shows that fish are one of the less sensitive groups to hydrazine exposure. Concentrations necessary to do this are orders of magnitude above the acute PNEC (predicted no-effect concentration). Synergistic effects on the toxicity of hydrazine to fish in the receiving waters would only occur in the very near field and have negligible difference beyond the effects already assessed for the pressures individually.

5.15.228. The Applicant also drew attention to the assessment of these matters in the ES [APP-317]. Due to the direction of the tide and the fact that chronic and acute PNECs at surface and seabed are never exceeded and harmful concentrations of hydrazine would not enter the Minsmere sluice from the commissioning phase. In the operational phase, seawater entering the sluice would therefore already be over three times lower

than the precautionary chronic PNEC for hydrazine. Ultimately in that document, the Applicant drew attention to the WDA permit stating that *“the best approach to achieve the required discharge level of hydrazine during commissioning is currently under investigation. This discharge would be regulated via the WDA permit”*.

- 5.15.229. The Applicant also drew attention to its submissions following ISH10 [REP7-073 – written submissions responding to actions from ISH10 section 1.8]. That addresses direct impacts from bromoform and hydrazine on birds. That submission drew on material already in the Examination to show that concentrations of both bromoform and hydrazine were at a level unlikely to be toxic. In terms of the exposure of sea birds swimming on the surface, diving or ingesting sea water, a precautionary assessment is to assume that though they have less direct contact with sea water than fish they have similar levels of sensitivity. The likelihood that seabirds would be exposed to bromoform or hydrazine above PNEC concentrations is small given the size of the surface plumes and both chemicals have low bioconcentration factors. The Applicant was unaware of any evidence from similar situations which suggests that direct toxic effects to birds would result from bromoform or hydrazine discharges at the concentrations predicted. In addition, the bromoform plume from SZB is approximately six times greater than that predicted for the operation of SZC. Finally in the streamlined SoCG the Applicant stated that NE had not responded to [REP7-073].
- 5.15.230. We note that on this IN33 and 44, NE is asking for more information. We note also that the effects of chemical, thermal and for that matter sediment plumes were assessed in the ES [APP-317] with a finding of no likely significant adverse effect, whether on the Alde-Ore SSSI or (the not cited but much nearer) Minsmere-Walberswick SSSI, that the Applicant has provided further explanations during the Examination and that NE has not responded to [REP7-073] nor provided evidence of its own. Taking all things into account and in the light of these matters we give little weight to NE’s disagreement on IN44.
- 5.15.231. Our conclusion on the corresponding matter IN 33 in relation to international sites is in Chapter 6.

IN 34 and 45

- 5.15.232. The sites are the same as for IN 31 and 42 and we make the same comment about the Minsmere-Walberswick SSSI. The issue is impacts from chlorination and subsequent ecological effects on internationally and nationally designated sites.
- 5.15.233. NE’s position is the same as for IN 31 and 42. This included the potential cumulative impact issue. The Applicant pointed out that the thermal and chemical plumes and the chlorination strategy will be assessed through the permitting process. It drew attention to the assessment carried out in the ES. The assessment of potential effects from chlorination was assessed in the assessment of the effect of the chemical plume, which was the subject of IN 33 and 44.

5.15.234. As in IN 31 and 42, the matter has been addressed in Chapter 6 and we shall therefore not duplicate what is said there as it obviously has broad applicability on the SSSI aspect. We conclude that NE is relying on the WDA permit process, on which it is a consultee, to consider both HRA and SSSI aspects and that once the result of that is known it will be able to give the SoS its advice on impacts to designated sites and species. However on the evidence before us we agree with the Applicant's assessment that there are no likely significant adverse effects and we give little weight to NE's disagreement on this issue.

IN 35 and 46 (incorrectly stated as 45 in the SoCG)

5.15.235. The sites are the same as for IN 31 and 42 and we make the same comment about the Minsmere-Walberswick SSSI. The issue is impacts from hydrazine and subsequent ecological effects on internationally and nationally designated sites.

5.15.236. NE made the same points as in IN 33 and 44. The Applicant's response was the same though with a reference to a further submission it had made [REP3-042] as well as [REP5-120] and [REP7-073]. NE had made no response to those. An effect pathway was highly unlikely and, in any event, the impact would be controlled through the permitting process.

5.15.237. Our conclusion is also the same as for IN 33 and 44, namely that taking all things into account and in the light of these matters we give little weight to NE's disagreement on IN 46.

5.15.238. Our conclusion on the corresponding matter (IN 35) in relation to international sites is in Chapter 6.

IN 36 and 47

5.15.239. The sites are the same as for IN 31 and 42 and we make the same comment about the Minsmere-Walberswick SSSI. The issue is impacts from drilling mud and bentonite break out and subsequent ecological effects on internationally and nationally designated sites.

5.15.240. NE drew attention to "*the number of occurrences of bentonite break outs*" on horizontal directional drilling coastal projects recently and consider this pathway to be a potential likely significant effect. They sought further information on methodology, procedures and safeguards to reduce the possibility. That should be set out the CoCP and NE should be consulted within 24 hours of any break out. They noted that bentonite poses little or no risk to the environment, but saw the fact of break outs as warranting assessment of likely significant effects. NE also drew attention to this as a cumulative impact issue.

5.15.241. The Applicant responded that it had provided further information at [REP3-042] section 11.42 in response to NE's WR [REP2-153]. They saw no realistic possibility of bentonite break outs giving rise to adverse effects on the integrity of a European site as bentonite is not toxic and thus there would be no direct impact on marine life. Suspended sediment concentrations would increase locally but be dispersed by the tide and

settle over a wider area. It commented that NR had not explained how bentonite could cause an adverse effect on integrity on a European site.

- 5.15.242. The HRA aspects of this are addressed in Chapter 6 and we will not repeat that here. The Applicant did not make any submission about effects on SSSIs. However, given what it has said about the nature of bentonite, which is consistent throughout the application, we think that it is unlikely that there will be any significant adverse effects in EIA terms either. We therefore give little weight to NE's complaint of the absence of assessment.

ExA's overall conclusion on matters of disagreement between Natural England and the Applicant

- 5.15.243. We have considered this matter carefully and we give due weight to NE's expertise and role. We agree with NE's position on IN 3 and 13 . However, on the other disagreements we do not consider that NE has made out its case and we give very little weight to their disagreement with the Applicant.

Chemical, thermal and sediment plumes

The parties' cases

- 5.15.244. Concerns were raised by IPs including NE and RSPB/ SWT in relation to the effects of chemical and thermal plumes from the cooling water system and other discharges, such as the CDO. The main issue is the effect on prey species for birds. These are all issues on which NE and the Applicant disagree to some extent and they are marked Red in the SoCG [REP10-097]. We note however that the effect of sediment plumes is not a matter in the NE SoCG, nor their relevant representation or written representation.
- 5.15.245. They are IN 30-35 (international designations) and IN 41-46 (national designations). What we say above on the disagreements between NE and the Applicant on those is all relevant. RSPB also made submissions to us on the effects of chemical and thermal plumes, and the Applicant made a response to that, and some other general submissions on the subject which we will now consider.
- 5.15.246. The RSPB's case, set out in their WR [REP2-506], is in two parts, thermal plume and chemical plume. They also raise in combination effects with other plumes and water quality. In relation to the thermal plume, their concern is indirect effects on prey species for some bird populations of the Outer Thames Estuary SPA, the Minsmere- Walberswick SPA and the Alde-Ore Estuary SPA, together with potential direct effects through the displacement of birds loafing or foraging on the water surface. They had concerns about effects on red-throated diver. These concerns were framed in HRA terms and are considered in Chapter 6.
- 5.15.247. In relation to chemical plumes the concern was: the effects of chlorine (used to chlorinate the discharges from the cooling water system when water temperatures exceed 10 degrees Celsius and occasionally outside that period) and bromoform, a chlorination by-product; and the effect of

hydrazine added daily to inhibit corrosion. The potential effects would be on fish as prey species to be locally displaced from areas affected by the plumes. The concern was also to in combination effects with the thermal plume. Again, the concerns were framed in HRA terms and are considered in Chapter 6.

- 5.15.248. They also drew attention to effects of hydrazine on birds and prey during the commissioning phase of construction. This will be discharged via the CDO and they were concerned it may enter the Minsmere Sluice and affect the Minsmere-Walberswick designated sites. They noted that hydrazine would be treated before release but that the treatment option had yet to be finalised. They queried the potential for the hydrazine plume to have direct toxic effects on birds during both commissioning and operation on which they said there was no evidence.
- 5.15.249. In relation to sediment plumes the RSPB drew attention to overlaps of dredge plumes with foraging ranges of SPA species.
- 5.15.250. In the case of NE's concerns, we note that the only nationally designated site (i.e. SSSI) to which it relates is the Alde-Ore Estuary SSSI and its designated features. The RSPB/SWT case is put generally and addresses both international and national and though it majors on international / HRA aspects. The HRA aspects of chemical and thermal plumes are addressed in chapter 6. This section addresses EIA and wider biodiversity aspects.
- 5.15.251. The Applicant's document [APP-227] includes the citation for the Alde-Ore SSSI (at epage 166). The notified features are the shingle structures of Orfordness and Shingle Street (physiographic importance); the cliff at Gedgrave (geological interest); and a number of coastal formations and estuarine features including mud-flats, saltmarsh, vegetated shingle and coastal lagoons of special botanical and ornithological value. There is a fuller description in the designation which we note.
- 5.15.252. We draw attention to the following from the Applicant's responses in [REP5-120] at Appendix P, epage 1372 and following. The localised displacement of fish receptors due to thermal discharges from the cooling water outfalls is predicted to have a minor adverse to minor beneficial effect on the local distribution of fish. Whilst temperature rise does increase the toxicity of chlorine in fish, the duration is generally for hours to a few days. The plume conditions which could cause synergistic effects are transient and the time that mobile organisms – such as fish – or those carried by tides were exposed would be short. It is unlikely that the inter-relationship between thermal and chlorinated discharges would increase the significance of effects. Nor would the inter-relationship between hydrazine and thermal plumes.
- 5.15.253. In terms of chemical plumes and their impact on birds, these plumes almost invariably have very small overlaps with foraging ranges – less than a fraction of 1%. The bioaccumulation factor of hydrazine is less than a sixth of the factor considered in Europe to be bioaccumulative so potential is low. Chlorination products are rapidly degraded so

bioaccumulation is not a concern. Bromoform has a low bioaccumulation factor. The Applicant pointed out that direct effect on toxicity for seabirds was not raised as a pathway for likely significant effects by the RSPB or SWT in comments on the Stage 1 Habitats Regulations Screening report.

- 5.15.254. Eels would be able to migrate north and south and enter and exit the Minsmere sluice without passing through a hydrazine plume with levels above the chronic PNEC.

The ExA's consideration and conclusion

- 5.15.255. The ExA's has noted the concerns expressed by NE and RSPB/ SWT over chemical and thermal plumes and their interaction. We note also that NE and the Applicant recognise that the discharges from the cooling water system and the CDO will be regulated by the WDA permit and that NE will be consulted on that generally and for HRA purposes. Whilst we note that NE had not by the time of the end of the Examination been consulted on those and was therefore unable to give advice, we have to report on the basis of the evidence before us.

- 5.15.256. The Applicant advanced considerable evidence in relation to this subject and did of course assess it as part of its ES. That concluded that there would be no likely significant adverse effects. We see little evidence of bioaccumulation risks. We see no evidence of toxic effects for seabirds. Nor do we consider there is any likely significant adverse effect from discharges entering the Minsmere Sluice. We note that the bromoform plume for SZB is approximately six times greater than the predicted plume for SZC. The ExA therefore accepts the Applicant's conclusion of no likely significant environmental effects on this subject.

- 5.15.257. The ExA is prepared to accept the Applicant's conclusion of no likely significant environmental effects on this issue. This matter has also been extensively considered in the HRA section of our report (Chapter 6) where we conclude that, on the basis of the material currently available to the ExA and with the mitigation measures secured and controls through the WDA permit, it is possible to conclude no AEoI from the Proposed Development alone or in combination with other plans or projects. However, Chapter 6 concludes that the SoS may wish to satisfy himself in this regard.

- 5.15.258. We note RSPB / SWT's concern in their WR [REP2-506] in relation to the effect of sediment plumes on feeding seabirds and the availability of prey, and the reference to the little tern and red-throated diver. The Applicant does not appear to have responded. In Chapter 6 we consider marine water quality in the HRA context. We note that NE had concerns in relation to water quality but that they arose from chemical discharges and bentonite frack out. Sediment plumes were not part of their case. We also note that RSPB / SWT themselves acknowledge in their WR that impact of this nature is sporadic. Their overlap with foraging ranges is relatively small. Taking account also our conclusions in Chapter 6 we conclude that there is no likely significant adverse effect on feeding seabirds from sediment plumes, alone or in combination.

- 5.15.259. EN-1 policies 5.3.10 – 11 are relevant. SSSIs are, under those policies, given a high degree of protection, and a development consent which (alone or in combination) would have adverse effects on them should not normally be granted. An exception for likely adverse effects on the site's notified features should only be made where the benefits, including need, clearly outweigh the impacts on the features which make the site an SSSI and the broader impacts on the national network of SSSIs. We have concluded there are no adverse effects. Should the SoS take a different view, for example after any consultation he carries out, the exception test in the policy would need to be considered.

Change 19 - desalination plant

The parties' cases

- 5.15.260. The Fourth Addendum to the ES looked at environmental effects of the desalination plant including for marine ecology. The changes of relevance included were the installation and removal, including dredging, of the intake and outfall heads and pipelines; the physical presence of intake and outfall heads; the abstraction of marine water from the desalination intakes; and the discharge of brine water via the diffusers at the outfall.
- 5.15.261. In the usual way there is primary, tertiary and where necessary secondary mitigation. The Applicant concluded that there would be no likely significant adverse effect from Change 19 and that the addition of the desalination plant to the Proposed Development does not change the overall conclusion of no significant adverse effects.
- 5.15.262. Before proceeding further, a description of the relevant points in the water abstraction and return system will be helpful. The intake heads for the sea water abstraction will be what is known as a wedge-wire head, that is, the head has a screen of wedge-shaped wire laid along the head. The gap (or slot) is 2mm wide (which is much smaller than the 10mm mesh used for the cooling water system). The intake water is chlorinated with jets pointing inwards to address bio-fouling, and the wedge-wire has an airburst system attached to clear away organisms. After desalination and separation of the desalinated water, the rest of the water is returned to the sea. There is greater detail of the operation set out in the Change 19 documents on matters such as what substances are removed, the water return and the disposal of solid residues.
- 5.15.263. NE's response to Change 19 (a letter dated 25 August 2021 included in the Applicant's documents at [REP8-045]) submitted that the change had the potential to alter existing assessments. They noted the Applicant's position but sought further assessment and supporting documentation on a number of issues. Those we consider to be relevant to marine ecology were the effects of: chlorine and biofouling treatments on relevant internationally and nationally designated sites; the installation of drilling of pipes, intakes and outfalls on relevant internationally and nationally designated sites; hypersaline water on relevant internationally and nationally designated sites; discharge into the marine environment on relevant internationally and nationally designated sites; and additional marine noise on relevant internationally and nationally designated sites.

Air quality impact on relevant internationally and nationally designated sites and impacts on designated sites from water abstraction for a tankered supply were among the other impacts identified but, in the ExA's view, they are not likely to relate to marine ecology.

- 5.15.264. NE did not attend ISH15 but issued a briefing note in lieu [REP8-298i]. After commenting on the water supply position (dealt with elsewhere in this report), they drew attention to the submissions on the Applicant's Fourth Addendum to the ES [REP7-030] on Change 19 that identified several impacts which needed no further assessment as they had been captured in the original assessment work. NE commented that very little justification was given for these decisions "*making our review of these conclusions impossible at this stage*". They gave one example which was air quality impacts – a terrestrial matter. This they said was their primary concern. They also drew attention to noise, disturbance and increased infrastructure cumulative effects in the Suffolk Coast and Heath AONB. No marine issues were identified. No detail was given on the actual concerns in relation to the above matters, apart from the air pollution issue. That is considered elsewhere in this report.
- 5.15.265. In addition, they responded in [REP10-201] to questions we had raised at ISH15 on effects for marine ecology. NE wrote that they "*have no comment to provide on the impacts the proposed desalination plant may have on the marine environment*" adding that, owing to the late submission of Change 19, they were unable to review the supporting material sufficiently. They noted that discharges would need to be licensed through the WDA permitting process. They had not yet been consulted on that and would require information through that process to provide robust advice on potential effects to designated sites and species from discharges. This would include HRA assessment.
- 5.15.266. There is no mention of any marine ecology issues arising from Change 19 in the NE SoCG [REP10-097] other than comments on the Applicant's behalf that it has been assessed and taken into account. An example is impacts from the chemical plume, where the Applicant draws attention to its Shadow HRA report and also to information it gave at ISH15.
- 5.15.267. The EA response to Change 19 is at [REP8-158]. They drew attention to water quality and marine ecology aspects of discharges and that they would be addressed under the WDA permitting process. Their assessments may vary from the information submitted by the Applicant and no application had yet been submitted. They drew attention to the permitting process again at ISH15. The EA suggested that the discharge of brine may mask freshwater signals which are relevant to eels (which live in rivers as well as the sea).
- 5.15.268. In their submissions to ISH15 [REP10-118], they made the point in relation to permitting that they would consider and control or monitor many effects.
- 5.15.269. The MMO responded to Change 19 in [REP8-164] at epage 17 and following. They submitted that elevated salinity was the key issue which

had the possibility of affecting marine organisms such as plankton, some marine plants and invertebrates. Levels above 38.5 Practical Salinity Units can be lethal within minutes. The Applicant's Cormix modelling on this gives a level of <34.5 within 6-10 metres of the discharge head. But the MMO said it was not clear that this would be the position for all states of the tide. Were that figure to be maintained for all states of the tide, there would be no issue.

- 5.15.270. Their submissions to ISH15 are to be found at [EV-223] (a submission in lieu of attendance) and [REP10-195] (their replies to questions we raised at ISH15). We summarise the relevant points from both. They needed further information on these points to be able to robustly agree on the conclusions of the ES on marine ecology. If provided, the impacts were unlikely to be significant. They stated that there is some risk that the dense saline plume may interact with the seabed, particularly during slack water. However, if the Cormix modelling results are shown to be valid, the MMO are satisfied that any impact to benthic invertebrates will be limited to <10m from the outfall and thus not significant. They made an additional point in relation to salinity with heavy metals and phosphorous; they needed evidence that the diffuser head on the outfall will achieve the necessary mixing. The effect was small and, if the evidence was provided, the effects are likely to be not significant.
- 5.15.271. The MMO's final position was that the risks to marine ecology and fisheries receptors are likely to be minimal and not significant but that further information should be provided to validate the Cormix modelling.
- 5.15.272. The RSPB / SWT response to Change 19 can be found at [REP8-171]. The marine ecology issues they raised were: will chlorine dosing to the intake enter the environment e.g. in storms; nutrient enrichment; effects if the desalination plant were to be operating whilst the power station was being commissioned; the combination effects of the saline plume with lead, zinc and chromium and the resulting degradation of habitat and effects on little terns. At ISH 15 [REP10-205] they reiterated the points about commissioning and combination effects.
- 5.15.273. TASC commented on Change 19 at [REP8-282]. In relation to marine ecology matters, they sought clarity on effects on marine biota and fish entrapment and asked about: what monitoring of water quality input and output would be in place; the effects of saline discharge on marine flora and biota; the effects of phosphorous discharges in relation to algal blooms; bathing safety; the discharge of zinc and chrome in terms of how much, the likelihood (or not) of limiting any effects to the point of discharge and when the "*more detailed modelling*" referred to would be supplied.
- 5.15.274. TASC's submissions at ISH15 are summarised in their [REP10-428]. They asked where were the Applicant's assessments of effects and how would effluent be monitored. Pointing out that radioactive particles from the operation of SZA and SZB will be released by dredging, they also asked what safeguards will be in place, how effluent will be monitored, what radionuclides will be in the dewatered sludge cake, its classification (LLW,

VLLW, free release) and the impact of the desalination plant on the operation of SZB, particularly its cooling system.

- 5.15.275. Dr Henderson for TASC made submissions about the efficiency of the wedge-wire intake screens, chlorination of the intake water and impact of the brine discharge. Those submissions were also contained in a paper from Dr Henderson [REP10-426] which we shall next summarise. In addition, he asked what happens to the toxic chlorinated water, where is the chlorine sourced and for clarification of whether references to brine being returned to the sea at "*ambient*" temperature means ambient air or water temperature. This is relevant because modelling carried out by Cormix for the Applicant assumes ambient sea temperature. He also asked where 2mm slot passive wedge-wire systems have been used in a fully marine environment and what was the experience. Dr Henderson's point is that they are likely to become biofouled with marine organisms – barnacles for example – which are difficult to dislodge by airburst cleaning. He said they were rarely employed in fully marine (as opposed to freshwater) settings because they are vulnerable to biofouling and becoming blocked. These points are also summarised at the end of Dr Henderson's paper.
- 5.15.276. We now turn to Dr Henderson's paper [REP10-426]. He submitted that the airbursts would be unlikely to clean off biofouling from the wedge-wire screens because the organisms are living and attach very firmly. Manual cleaning by divers would be necessary. Screens could be made from copper- nickel alloy but that will leach copper into the environment. Trials of wedge-wire screens at Fawley in the 1980s had shown that they developed a fouling community. And copper-nickel screens experienced some fouling. He quoted a 1999 report which concluded that internal surfaces of screens also develop biofouling and they are not easily accessible for manual cleaning by divers. For the airburst cleaning to work there must also be sufficient sweep water velocity across the screens to carry away the debris, but there is no analysis of this in the Change 19 documentation.
- 5.15.277. He asked what will happen to the chlorinated water resulting from the shock chlorination of the intake water, and where will it be sourced, with issues for safe transportation to the site. In relation to brine discharge, he stated that it is difficult to mix water of different densities. Normally several designs are selected and evaluated but he said this had not been done.
- 5.15.278. It is convenient to summarise and list the concerns raised:
- The return of more concentrated saline water and its effects on marine flora and biota (raised in the main by the MMO and TASC).
 - Chlorine dosing effects and the source of chlorine and transportation arrangements (RSPB and TASC).
 - The effects of lead, zinc and chromium when discharged to the sea and in combination with saline water, and will such effects be limited to the point of discharge? (RSPB and TASC).
 - Phosphorous and algal blooms (TASC).

- Entrapment of fish and biota (TASC).
- Bathing water safety (TASC).
- When will the more detailed modelling promised by the Applicant be supplied? (TASC).
- How is the effluent monitored? (TASC).
- The release of radioactive particles from the sea bed by dredging (TASC).
- Does ambient temperature mean ambient air temperature or water temperature? (TASC).
- Biofouling of the wedge-wire screens and need for adequate sweep water velocity (TASC).
- In combination effects and the potential for the desalination plant to operate during the commissioning of the power station (RSPB).
- Chlorine escape from the intake dosing (RSPB).

The Applicant's response

- 5.15.279. In [REP10-052], the Applicant submitted a revision of the appendix to its Fourth ES addendum, entitled Desalination Plant Construction Discharge H1 Type Assessment. It is from Cefas and in their numbering system is TR552 Rev2. It was prepared following ISH15 and comments from the MMO. Further analyses were carried out to determine plume evolution during the full spring-neap cycle from high to low water, plume sensitivity to temperature changes during desalination process, implications for brine plume on dissolved oxygen and potential for in combination effects between the CDO and desalination discharges. It thus addresses some of the matters in the list above, though it does not identify which. We have made our own assessment of what in the report addresses which point. Revision 2 of TR552 post-dates all the points made above, except for the detail of Dr Wilkinson's report to which he referred at ISH15 but which was not submitted until DL10 [REP10-426].
- 5.15.280. Point (i) The return of more concentrated saline water and its effects on marine flora and biota. Although the returned water will be highly saline, the mixing zone model Cormix indicates that excess salinity falls to within 1 Practical Salinity Unit of background within about 6.8 – 21.5 metres and well within the natural variations at the site. They add that conditions at the discharge site are well mixed and would facilitate mixing but that that was not taken into account in the assessment so as to be precautionary. Therefore, except at the point of discharge, the salinity is expected to have negligible effects on marine species beyond a few metres.
- 5.15.281. Point (ii) Chlorine dosing effects and the source of chlorine and transportation arrangements. The report states that "changes in salinity and chemical treatment for de-chlorination are unlikely to cause dissolved oxygen levels to reduce below the WFD 'high' threshold even in the immediate vicinity of the discharge location, and any effects would be rapidly dispersed as the saline plume mixes with the surrounding seawater. Therefore, the level of change to dissolved oxygen from changes in salinity is assessed as negligible". We are not clear if this wholly addresses point (ii) though it is obviously connected. It is clear that dechlorination takes place. However, we note that the discharge will

require a WDA permit from the EA. So, controls and safeguards can be imposed as necessary. Nothing was said on chlorine source and transportation safety. The ExA would expect that precautions and sources are unexceptional and implemented in the normal course of events.

- 5.15.282. Point (iii) The effects of lead, zinc and chromium when discharged to the sea and in combination with saline water, and will such effects be limited to the point of discharge? The Applicant undertook more detailed modelling using Cormix and concluded that the maximum area above the Environmental Quality Standard (EQS) was less than 1 hectare at the seabed. This was a highly precautionary assessment they said. It is double the originally assessed area, but the assessment magnitude remained low so that the conclusions of the environmental assessment were not changed. Discharge rates were also assessed as not significant.
- 5.15.283. Point (iv) Phosphorous and algal blooms. The nutrient inputs from construction and desalination combined are predicted to lead to a 0.39% increase in annual algal growth which will not be detectable against the natural background of inter-annual variation in production in Sizewell Bay.
- 5.15.284. Point (v) Entrapment of fish and biota. [REP10-052] does not respond to this. However, we note that the Fourth Addendum [REP7-030] stated (para 3.9.12) that a passive wedge-wire cylinder screen with a 2mm mesh (or as Dr Henderson points out, a 2 mm slot) will prevent the ingress of glass eels and other early life stages of fish and larger invertebrates. Later in [REP7-030] there is more extensive consideration of entrapment which concludes that there would be negligible effects on fish populations. This does draw on comparison with the assessment of effects at the cooling water systems. The desalination plant draws in less than 0.09% of the cooling water abstraction even at peak freshwater demand. For entrapment in relation to the cooling water system we concluded that we agreed with the Applicant's assessment of the effects on fish. Whilst [REP7-030] predates the questions raised by TASC, they do provide an answer. In addition, we note that the MMO expressly stated effects on fish and marine ecology would be minimal, subject to validation of the Cormix modelling.
- 5.15.285. Point (vi) bathing water safety. [REP10-052] also does not respond on this. Bathing water quality however is a matter for the EA who have not raised the issue. It would also be a matter for consideration in the environmental permit.
- 5.15.286. Point (vii) When will the more detailed modelling promised by the Applicant be supplied? The modelling to which TASC refer is H1 modelling, and we note that [REP10-052] is an H1 assessment and deals with the metals to which TASC drew attention.
- 5.15.287. Point (viii) How is the effluent monitored? In our view this can be addressed by the EA in the environmental permit.

- 5.15.288. Point (ix) The release of radioactive particles from the sea bed by dredging. The Applicant undertook an assessment of dredging as part of the main ES [APP-340] and found there would be no significant adverse effects. These conclusions have not been disputed by the EA or the Office for Nuclear Regulation (ONR). The scale of dredging for the desalination plant is comparable to the scale of the FRR - see the Fourth ES Addendum [REP7-030]. We report on this in Chapter 5.20 (Radiological). The ExA therefore concludes that there will be no significant adverse effect on marine ecology from dredging for the desalination plant. In addition, the EA and the ONR would regulate operations via the environmental permit and the nuclear site licence respectively.
- 5.15.289. Point (x) Does ambient temperature mean ambient air temperature or water temperature? Dr Breckels of Cefas, for the Applicant, addressed this at ISH15, which is recorded in the Applicant's post hearing summary [REP10-161], when he confirmed (at para 1.3.58) that it would be ambient sea water temperature. In addition [REP10-052] modelled the effect on brine dispersion (which was the concern of TASC) of the difference between sea temperature and the brine being returned, concluding that "*However, due to the small flows considered, the effect of the temperature uplift is minimal*" – see epage 23. The model used a temperature uplift of 10 degrees C, which was greater than the anticipated uplift, which resulted in an 11 cm increase in the size of the salinity plume, or 12 cm against the 95th percentile background sea water temperature.
- 5.15.290. Point (xi) Biofouling of the wedge-wire screens and the need for adequate sweep water velocity. The ExA cannot trace any response to TASC's points on this.
- 5.15.291. Point (xii) In combination effects of brine with zinc, chrome and lead (for example degradation of habitat and effects on little terns) and the potential for the desalination plant to operate during the commissioning of the power station. The H1 report [REP10-052] addressed in combination effects of brine with zinc, chrome and lead. A precautionary assessment showed a not greater than 1 ha area at the seabed which would be above the EQS. Although the Fourth Addendum [REP7-030] had given a 0.5 ha area, the magnitude was still low and the Fourth Addendum assessment of effect (not significant) was unchanged. The Fourth Addendum had also addressed effects in combination with other projects and it was concluded the addition of the desalination works did not change the potential for such effects. Point (xii) had been raised by the RSPB / SWT in their response to Change 19 at Deadline 8 [REP8-171]. They raised it again at ISH15 (see [REP10-205], para 2.4.
- 5.15.292. Dr Breckels, for the Applicant, confirmed that the operation of the plant must cease prior to cold commissioning which is the first phase of commissioning (in fact the relevant part of the Construction Method Statement states that cold commissioning must not commence until the operation of the desalination plant has ceased - see the Construction Method Statement [REP10-025] secured by Req 13 of the dDCO [REP10-009]).

- 5.15.293. Point (xiii) Chlorine escape from the intake dosing. This was one of the RSPB's points. The Applicant has not answered it despite being given the opportunity. However, discharges need consent and the system will be subject to a WDA permit; thus the design of the dosing system at the intake would be addressed by the EA.

ExA's consideration and conclusions

- 5.15.294. We turn to the points made by NE in its consultation response of 25 August 2021 included in the Applicant's [REP8-045]. These are that there should be further assessment of: the effects of chlorine and biofouling treatments on relevant internationally and nationally designated sites; installation of drilling of pipes, intakes and outfalls on relevant internationally and nationally designated sites; hypersaline water on relevant internationally and nationally designated sites; discharge into the marine environment on relevant internationally and nationally designated sites; and additional marine noise on relevant internationally and nationally designated sites. There was no such further assessment in relation to marine ecology other than the documents to which we have already referred.
- 5.15.295. We noted above NE's briefing note [REP8-298i] for ISH15, the ISH dedicated to Change 19, which they did not attend. In it they commented that very little justification was given for the Applicant's decisions that several impacts needed no further assessment as they had already been considered. They said that this made their review of these conclusions impossible at this stage. They gave one example which was air quality impacts – a terrestrial matter which was their primary concern and drew attention to others. No marine issues were identified. No detail was given on the actual concerns in relation to the above matters, apart from the air pollution issue. That is considered elsewhere in this report.
- 5.15.296. At ISH15, the Applicant noted NE's non-attendance and that written submissions were an inadequate substitute. The ExA was thereby deprived of the opportunity to probe, clarify and test the positions of the Applicant and IPs such as NE. Nor can the Applicant obtain clarity. This has implications for the overall fairness of the process. We have noted what was said and taken it into account. NE have not raised any specific points other than to call for more evidence and, of course, to focus on air pollution.
- 5.15.297. The EA's response indicates that matters of concern to them can be addressed in other permits. Whilst they raised a concern that the brine discharge may mask freshwater signals which are relevant to eels, we note that the point is not in their SoCG [REP10-107]. Given the response in [REP10-052] summarised above (excess salinity falls to within 1 Practical Salinity Unit of background with about 6.8 – 21.5 metres, well within the natural variations at the site) we conclude there is no real issue of masking. Also, we conclude that the EA covenant addresses any concerns under the Eels Regulations.

5.15.298. The ExA is prepared to accept the Applicant's conclusion of no likely significant environmental effects on this issue. This matter has also been extensively considered in the HRA section of our report (Chapter 6) where we conclude that on the basis of the material currently available to the ExA and with the mitigation measures secured and controls through the WDA permit, it is possible to conclude no AEOI from the Proposed Development alone or in combination with other plans or projects. However, Chapter 6 concludes that the SoS may wish to satisfy themselves in this regard. The H1 assessment has not been seen by the EA, NE, or the MMO and the SoS may wish to satisfy themselves in this regard.

Eels

The parties' cases

5.15.299. Under the Eels Regulations 2009, eel screens must be used on structures including cooling water systems such as those proposed at SZC which divert (by for example abstraction) more than a certain amount of water. Failure to do so is a criminal offence. However, the EA can give exemptions where it is appropriate. We asked questions of the Applicant and EA about this in ExQ1 Ma.1.0 and sought clarification at ISH10. The EA explained the legal position to us and that it accepts that eel screens are not feasible in this case [REP7-131]. At that stage, the Applicant had made a proposal for additional mitigation to help offset impacts from the operation of the power station. The EA were also seeking entrainment monitoring.

The ExA's considerations and conclusions

5.15.300. By the close of the Examination, the matter had been resolved; the SoCG [REP10-094] records that, whilst the scale and impact of entrainment had not been quantified with certainty, additional mitigation to offset impacts to eels by improving eel and fish passage in the Alde & Ore and River Blyth had been agreed and was secured by the DML in the dDCO. Notwithstanding that this does not include entrainment monitoring, all matters relating to eels in the SoCG were agreed.

5.15.301. Given the agreement of the EA the ExA gives little weight to the lack of eel monitoring.

Sabellaria spinulosa

The parties' cases

5.15.302. In the summer of 2019, it was found that there is the possibility of the presence of a Sabellaria spinulosa Reef (SSR) on the coralline crag of Greater Sizewell Bay near or at the place where the cooling water intake heads for the unit 1 reactor are proposed. When in reef aggregations, *S. spinulosa* is protected under Section 41 of the NERC Act (2006). It is the habitat, not the Sabellaria spinulosa itself which is protected (Applicant at [REP2-100] answering ExQ1 Bio.1.216.) Investigations and surveys were carried out. Less than 6% of the SSR would be affected in the worst case, based on the summer 2019 distribution of SSR (Applicant

answering ExQ1 Bio.1.220). All effects were not significant, adverse, except for one not significant, beneficial effect.

- 5.15.303. The outcome was the recommendation in [APP-317], the marine ecology chapter of the ES, of a monitoring and mitigation plan which would include pre-construction survey work. *Sabellaria spinulosa* are ephemeral and the locations where SSR is present in 2019 may have changed by the time construction begins. The planning of the location of the intake heads is a lengthy process and it would be difficult to move them. However, three locations for the two cooling water intakes needed for Unit 1 are proposed which gives some room for manoeuvre as the results of further surveys become available.
- 5.15.304. The MMO made some comments in their WR [REP2-140]. NE commented in [RR-0878]. We asked questions at ExQ1 and ExQ2.
- 5.15.305. There is a draft SRMMP (*Sabellaria* Reef Management and Monitoring Plan) [REP10-141] which will be a level 1 control document. It is secured by condition 39 of the DML in the dDCO. Under that condition, the construction of the headworks for the cooling water system for Unit 1 (Work No 2B) must not be commenced until a SRMMP has been submitted to and approved by the MMO. The SRMMP must be in general accordance with the draft SRMMP, and the condition specifies a number of matters the submitted plan must address. The draft is a certified document.
- 5.15.306. The plan includes measures for construction and maintenance of the headworks. Monitoring steps and methods are described in the draft SRMMP and mitigation, if needed, is to include offsets to produce positive conservation outcomes such as support for fishers and the removal of marine litter such as ghost nets.
- 5.15.307. The MMO made comments on the draft plan at [REP10-195] noting that the mitigation plan does not commit to adopting the least environmentally damaging option. They sought reference to careful planning of anchoring in view of proposed use of an anchored barge to install the intake heads.

The ExA's considerations and conclusions

- 5.15.308. The final draft plan submitted at DL10 [REP10-140] does include reference to adopting the least environmentally damaging option where practicable. Given that the plan is a draft and that the MMO is the approving body, this solution is in our view acceptable.
- 5.15.309. NE made comments in a submission about the draft at [REP8-298o]. They welcomed the plan adding that "*Overall, we believe that the document addresses many of our concerns, but we provide further comment which would improve the quality of the plan and increase our confidence in the outcomes*". The final draft plan was submitted at DL10 [REP10-140] when the Applicant reported [REP10-001 epage 14] that "*This version includes updates in response to comments from Natural England and the Marine Management Organisation*". We do not read NE's

representations here to be stating that the plan should not be accepted, but rather that it could be improved. As it is a draft plan and the final plan is to be submitted for approval, we consider that those improvements can be considered at that stage.

- 5.15.310. At this point, we note that the draft plan, in both the form seen by NE when it commented in [REP8-298o] and [REP10-140], stated that the approval of the SRMMP must be after consultation with NE. However, condition 39 does not include that wording. We have added appropriate wording to the recommended DCO, and this is explained also in Chapter 9 that the SoS inserts wording to that effect in the DCO if the Proposed Development is approved.
- 5.15.311. The proposals for SSR are in compliance with policies 5.3.3, 5.3.4 and 5.3.7 of NPS 6-1. We accept the findings of the ES that there are no likely significant adverse effects on the Sabellaria spinulosa.

Other matters

- 5.15.312. We have considered the Applicants ES relating to marine ecology, addendums and supplementary material together with relevant and written representations written and oral submissions. Taking the relevant evidence into account we are content that the Applicant has carried out environmental assessment of the marine ecology aspects of the Proposed Development and with the conclusions of that assessment.

EXA'S OVERALL CONCLUSIONS

- 5.15.313. All of our conclusions on these issues are subject to the SoS being satisfied with the results of any consultation he decides to carry out. They are also subject to any action the SoS decides to take on matters where information is outstanding from the Applicant.

Cooling systems

- 5.15.314. Having taken into account all of the submissions made, the ExA has found that the assessment of impingement, entrainment and entrapment is sound. On the use of the Cefas EAV method, the ExA has found it to be appropriate and this finding is supported by the very convincing answer given to the EA's concerns. The ExA is also satisfied that the scale of assessment and the stock areas used by the Applicant are appropriate together with the draft FIEMP submitted at the end of the Examination. There is no need for AFD. We consider there are no matters relating to this issue which would weigh for or against the Order. Based on the evidence we have we are content but the statutory consultee had remaining concerns which were not responded to.
- 5.15.315. The cooling water system and discharge of fish and marine biota from the FRR system will require a WDA permit from the EA which they state will be subject to the result of cumulative assessment of all the permits. NE will be a consultee on those and adviser on HRA matters. It has made it clear it could not at the time of the close of the Examination say what its final advice would be. The EA stated at ISH15 that there was at that

time nothing to say that it would not grant the permits but that they could not guarantee that they would. Therefore, the following matters not agreed in the SoCG [REP10-094], numbers MEF1, 14, 15 4, 16 and 17 are addressed and we find in the Applicant's favour. The result is the same for the issues in NE's SoCG [REP10-097] so far as this subject is concerned. We agree that there are no likely significant adverse effects on fish stocks. We ascribe no weight to impact of cooling systems on marine ecology.

Fisheries

- 5.15.316. We conclude that access to fisheries was properly addressed by the Applicant in its ES for all types of fishing, commercial and recreational. There are no likely significant adverse effects. We came to conclusions on the predictions of effects on fish stocks which were that there would be no likely significant adverse effect on fish stocks. It follows that there is no likely significant effect on fisheries, and we note that that is the gist of EIFCA's view as well. Accordingly, we ascribe no weight to impact on fisheries.

Matters of disagreement between Natural England and the Applicant

- 5.15.317. In relation to issue 19 – the need for single issues to be resolved before proceeding to cumulative assessment we agree with NE and have addressed the individual marine ecology issues in the SoCG.
- 5.15.318. Issue 41 – (impacts from intakes and outfalls). By the end of the Examination the only outstanding point was the draft FIEMP. Subject to the SoS being satisfied on a number of matters we conclude that the draft FIEMP is satisfactory.
- 5.15.319. Issues 42 – (thermal plume effects), 43 - (impacts from the CDO) and 45 – (impacts from chlorination). On the evidence before us, we agree with the Applicant's assessment of no likely significant adverse effects and we disagree with NE.
- 5.15.320. Issues 44 – (impacts from the chemical plume) and 46 - (impacts from hydrazine). Having considered the evidence from the Applicant and IPs including the RSPB, we conclude that the Applicant's assessment is satisfactory. We accord no weight to NE's disagreement.
- 5.15.321. Issue 47 – (impacts from drilling mud and bentonite break out). The Applicant saw no realistic possibility of bentonite break outs giving rise to adverse effects on the integrity of a European site as bentonite is not toxic and thus there would be no direct impact on marine life. Suspended sediment concentrations would increase locally but be dispersed by the tide and settle over a wider area. It commented that NE had not explained how bentonite could cause an adverse effect on integrity on a European site. We give no weight to the disagreement of NE.
- 5.15.322. We disagree with NE on the issues identified above and, on this basis, we give no weight against making the order to the disagreements between

NE and the Applicant other than in relation to IN3/13 which is dealt with elsewhere in this report.

Chemical, thermal and sediment plumes

- 5.15.323. The Applicant advanced considerable evidence in relation to this subject and did of course assess it as part of its ES. That concluded that there would be no likely significant adverse effects. We see little evidence of bioaccumulation risks. We see no evidence of toxic effects for seabirds. Nor do we consider there is any likely significant adverse effect from discharges entering the Minsmere Sluice. We note that the bromoform plume for SZB is approximately six times greater than the predicted plume for SZC. On sediment plumes, the Applicant is content that tidal flows will satisfactorily mitigate any impacts and NE have not raised any specific concerns. The ExA accepts the Applicant's conclusion of no likely significant environmental effects on this subject.
- 5.15.324. On the evidence before us we also conclude there would not be any adverse effects on the Alde-Ore Estuary SSSI.

Change 19 - desalination plant

- 5.15.325. The ExA is prepared to accept the Applicant's conclusion of no likely significant environmental effects on this issue. This matter has also been extensively considered in the HRA section of our report (Chapter 6) where we conclude that on the basis of the material currently available to the ExA and with the mitigation measures secured and controls through the WDA permit, it is possible to conclude no AEoI from the Proposed Development alone or in combination with other plans or projects. However, Chapter 6 concludes that the SoS may wish to satisfy themselves in this regard.

Eels

- 5.15.326. Mitigation measures to offset impacts to eels by improving fish passes was agreed between the Applicant and the EA and the issue was agreed. There is no weight to be given, for or against making the DCO.

Sabellaria spinulosa

- 5.15.327. This issue has been resolved by the draft Sabellaria spinulosa mitigation and monitoring plan. The plan did not have the full agreement of NE and the MMO but the final plan is to be subject to the approval of the MMO and that we recommend that NE is made a consultee on that approval we consider the plan to be satisfactory. We accept the conclusions of the Applicant's ES that there will be no likely significant effects.

Cumulative effects

- 5.15.328. There are no matters which cause us to come to a different conclusion from the Applicant's assessment of cumulative, project wide, inter-relationship or other cumulative effects.

Policy

- 5.15.329. We are content that the marine ecology aspects of the Proposed Development are consistent with the Marine Policy Statement 2011. The Applicant submitted an East Marine Plan checklist [REP7-074] which we have considered. The MMO reviewed the checklist and was content that it captures all policies from the East Inshore Marine Plan applicable to the SZC application. The MMO is also content with the conclusions of the assessment. The ExA has also reviewed the plan and checklist for marine ecology issues and we consider the Proposed Development is consistent with it.
- 5.15.330. NPS EN-1 section 5.3 sets out national policy for energy NSIPs on biodiversity and geological conservation. It applies to this project by virtue of EN-6. As a general principle, and subject to certain specific policies, development should aim to avoid significant harm to biodiversity, including through mitigation and consideration of reasonable alternatives; where significant harm cannot be avoided, then appropriate compensation measures should be sought. Appropriate weight is to be attached to designated sites, protected species, habitats and other species of principal importance for the conservation of biodiversity and to biodiversity in the wider environment.
- 5.15.331. International sites are protected under the Habitats Regulations. SSSIs which are not international sites should be given a high degree of protection. Development within or without an SSSI which is likely to have an adverse effect on an SSSI, individually or in combination with other developments, should not normally be granted development consent. If after mitigation, there is still a likely adverse effect on the site's notified scientific features an exception is only to be made if the benefits (including need) outweigh the likely impacts on the site and the on the national network of SSSIs.
- 5.15.332. The Nuclear Sites Appraisal of Sustainability draws attention to the need for cooling water abstraction to incorporate fish protection measures. We are satisfied that the Applicant has addressed this by incorporating LVSE intakes and the fish recovery and return system. We have concluded that an acoustic fish deterrent system is not justified.
- 5.15.333. We address biodiversity and conservation of species and habitats of principal importance for conservation in Chapter 5.6. In relation to the other policies in section 5.3 of EN-1 and subject to what we say below in relation to European sites we are satisfied that the Proposed Development is in accordance them.
- 5.15.334. The Applicant's proposal includes primary and tertiary mitigation and where necessary has used secondary mitigation to address residual effects. There are no likely significant adverse residual effects in relation to marine ecology. We are satisfied that the relevant mitigation has been secured.

Overall conclusion

- 5.15.335. The ExA therefore concludes that in respect of marine ecology issues within this section of our report there are no matters which would weigh against the making of the Order.

5.16. MARINE WATER QUALITY

Introduction

- 5.16.1. Marine water quality and sediment was identified as a principal issue in the ExA's Initial Assessment of Principal Issues [PD-007] alongside those identified for marine ecology, marine navigation and biodiversity and ecology. Compliance with the Water Framework Directive (WFD) is relevant to this issue.
- 5.16.2. A limited number of matters arose during the Examination. There is some overlap between effects on marine water quality and international and national sites and species that could be affected. Matters relating to international and national sites and species are referenced in this section, but reported in the relevant Sections; 5.6, Biodiversity and Terrestrial Ecology, 5.15 Marine Ecology and in Chapter 6 on HRA. Matters relating to coastal change are dealt with in Section 5.8 Coastal Geomorphology and matters relating to flooding and non-marine water in Section 5.11 Flood risk, Ground Water and Surface Water.

Policy considerations

National Policy Statements

- 5.16.3. NPS EN-1 notes that infrastructure development can have adverse effects on the water environment including coastal waters. This can involve discharges to water, cause adverse ecological effects resulting from physical modifications to the water environment and increase risk of spills and leaks of pollutants to the water environment (NPS EN-1 para 5.15.1).
- 5.16.4. NPS EN-1 acknowledges that discharges which affect water quality maybe subject to other consenting and licensing regimes (NPS EN-1, para 4.10.1). Where marine areas might be affected the Marine Management Organisation (MMO) should be consulted by the applicant (NPS EN-1, para 4.10.4). The Secretary of State needs to be satisfied that the relevant pollution control authority is content that potential releases can be adequately regulated. Consent should not be refused unless there is good reason to believe that permits, licenses, or consents would not be granted (NPS EN-1, para 4.10.7 to 4.10.8).
- 5.16.5. In addition to NPS EN-1 the Secretary of State must have regard to the appropriate marine policy documents, as provided for in the Marine and Coastal Access Act 2009 and to any relevant Shoreline Management Plans (SMP) (NPS EN-1, para 5.5.15).
- 5.16.6. More specifically NPS EN-6 states that the applicant's assessment should set out the characteristics of cooling water for new nuclear power stations and the specific implications of the proposal on marine and estuarine environments (NPS EN-6, para 3.7.3). It requires mitigation to

include the locations of the intake and outfall to avoid or minimise adverse impacts on legitimate commercial and recreational uses of the receiving waters, including their ecology and that there should be specific measures to minimise impact to fish and aquatic biota. It expects applicants to demonstrate Best Available Techniques to minimise the impacts of cooling water discharges (NPS EN-6, para 3.7.6 to 3.7.7).

- 5.16.7. The NPS EN-6 Appraisal of Sustainability (AoS) notes that a potentially significant effect could occur on both sediment transport and water quality as a result of the return of cooling water to the sea at elevated temperatures. It notes that potential impacts would be assessed during detailed design and considered in any application for a consent to make discharges. The Environment Agency (EA) confirmed this view and advised that any discharges would need to meet regulatory standards for the protection of the quality of estuarine or coastal waters in line with future requirements of the Water Framework Directive (WFD) (NPS EN-6 Annexes, para C.8.94.).
- 5.16.8. In reaching a decision the Secretary of State should consider cumulative effects and liaise closely with the EA in relation to environmental permitting (NPS EN-6, para 3.7.4).

Other Policy

UK Marine Policy Statement

- 5.16.9. The UK Marine Policy Statement notes that development at the coast and at sea can have adverse effects on transitional waters, coastal waters and marine waters (Section 2.6.4). Furthermore, it highlights the role of decision makers to consider the impact of a development on the status of a waterbody in relation to the Water Framework Directive (WFD).

East Inshore and East Offshore Marine Plans

- 5.16.10. Objective 6 sets out a vision for a healthy, resilient and adaptable marine ecosystem in the East Marine Plan areas, which includes water quality characteristics. An ecosystem-based approach will be adopted for marine planning that includes changes to water quality and resulting effects on wildlife and people as one of the issues (para 184-185). In consideration of ecological and chemical water quality, it refers back to the UK Marine Plan and WFD (para 189).
- 5.16.11. The Plan's policies on water quality stress the importance of clean and healthy marine environment, including healthy beaches and good water quality for tourism and recreation (para 468).

Development Plan

- 5.16.12. Suffolk Coastal District Local Plan Policy SCLP10.3: Environmental Quality states that development proposals will be expected to protect the quality of the environment and to minimise and, where possible, reduce all forms of pollution and contamination in terms of impacts on water quality amongst others. Also, that proposals should seek to secure

improvements where possible and that the cumulative effect of development will be considered.

Local Impact Report

- 5.16.13. The Sizewell C East Suffolk Council and Suffolk County Council Joint Local Impact Report (LIR) [REP1-045, para 20.24] refers to The Suffolk Flood Risk Management Strategy 2016, which sets out the importance of aligning with the content of SMP and River Basin Management Plans to ensure a holistic approach is taken to flood and coastal management and water quality.
- 5.16.14. The LIR mentions the Sizewell C Marine Technical Forum (MTF), the primary purpose of which is to develop and oversee implementation of a plan for monitoring of the effects of the Proposed Development on coastal processes (including water quality) during the construction and operation phases, and to specify and deliver appropriate mitigation actions [REP1-045, para 11.41]. Provision is made in relation to the establishment, purpose and operation of the MTF in the Deed of Obligation (DoO) [REP10-087, Schedule 11, para 4.152].

The Applicant's case

- 5.16.15. The Applicant's Environmental Statement (ES) contains an assessment of effects on marine water quality in ES Volume 2, Chapter 21, Marine Water Quality and Sediments [APP-314]. This was accompanied by appendices [APP-315] and figures [APP-316]. A revision to ES Chapter 21 was submitted into the Examination [AS-034] with the ES Addendum [AS-181]. Changes to the assessment were made arising from the enhancement of the permanent Beach Landing Facility (BLF) (Change 2) and the temporary discharge outfall (Change 8) [AS-181].
- 5.16.16. As reported in Section 5.11, the Applicant submitted an Addendum to its WFD Compliance Assessment (WFDCA) to take account of Changes 1-15 and their potential implications for the WFDCA [AS-279] and a second addendum to the WFDCA relating to the temporary desalination plant [REP7-284].
- 5.16.17. The Applicant considers potential development activities and associated pressures to identify those likely to influence marine water and sediment quality, particularly any with potential to cause significant effects which require further assessment of marine water quality and/ or marine ecology [AS-034, para 21.3.7].
- 5.16.18. The Applicant's assessment considers effects on a range of existing baseline environmental features; water quality parameters and sediment quality parameters, hydrodynamics as well as future baseline parameters for sea temperature rise and ocean acidification.

Mitigation

- 5.16.19. The Applicant submitted a Mitigation Route Map [APP-616] with the application. It was updated during the Examination, with the final version submitted at D10 [REP10-073]. In tabular form this sets out the

predicted adverse effects (including the ES source) and the mitigation commitment, which stage it applies to and where it is secured. Marine water quality effects are included [REP10-073, MDS-MWQ1 to 15, pages 140 -147].

- 5.16.20. Primary and tertiary mitigation measures would be incorporated within the design of the Proposed Development to minimise the significance of adverse effect [AS-034, para 21.7.1]. These would include:
- coastal defence features;
 - beach landing facility;
 - plough dredging;
 - measures to mitigate vessel and traffic pollution;
 - cooling water infrastructure for construction and operation;
 - fish recovery and retention system (FRR); and
 - a combined drainage outfall [AS-034, para 21.5.1 to 21.5.41].
- 5.16.21. The Applicant argues that no further mitigation would be required beyond the primary and tertiary mitigation set out because no significant adverse effects are identified [AS-034, para 21.7.2 and Tables 21.22 and 21.23]. Monitoring requirements which would be secured are also referenced. [AS-034, para 21.7.4 to 21.7.7].
- 5.16.22. The Applicant did not change its position regarding no significant adverse effects when Change Request 19 proposing a temporary desalination plant was accepted into the Examination [REP7-285]. There were no changes to the conclusions of the assessment presented within ES Chapter 21 [AS-034], as amended by ES Addendum Chapter 2, Section 2.16 [AS-181], [REP10-172, page 65].

The Main Planning Issues

- 5.16.23. As stated in the introduction to this Section, matters relating to international and national sites and species affected by marine water quality are reported and concluded in Sections 5.6, 5.15 and Chapter 6 for HRA matters. The main issues are reported below.

Chemical, sediment and thermal plumes and biofouling

- 5.16.24. The RSPB/ SWT made extensive comments about the potential for impacts on birds from changes in marine water quality in terms of toxicity from chemical plumes with which birds could be in contact [REP2-506]. This was in relation to tern, which have been noted foraging in Sizewell B plumes, red throated diver and other water birds and waders which are qualifying features of European sites.
- 5.16.25. The RSPB/ SWT and the Applicant remained in disagreement at the end of the Examination over potential adverse effects from chemical and thermal plumes on fish prey for a number of species from European sites and tern [REP10-110, Ref ME1.2 and ME1.3], from sediment plumes during construction and from the water-cooling system during operation [REP10-110, Ref ME2a]. Likewise, there was sustained disagreement between the Applicant and NE regarding impacts on water quality and the concomitant effects on fish prey and bird species that would arise

from thermal and chemical plumes, including total residual oxidant, bromoform from chlorination and hydrazine, as well as discharges from the Combined Drainage Outfall (CDO) [REP10-097, epages 52 to 58].

- 5.16.26. NE also considered that the chemical and plume modelling showed that there was potential for disruption to migratory paths of sea lamprey and river lamprey resulting from marine water quality effects [RR-0878, Issue 354], [REP7-287, epage 6].
- 5.16.27. The MMO initially raised concerns about thermal, chemical and sediment plumes. These matters were resolved by the end of the Examination with additional information provided by the Applicant, amendments to the wording of conditions in the DML and additional conditions and dDCO confirmation that discharges would be under Water Discharge Activity (WDA) permits [REP10-107, Table 2.2]. The MMO confirmed that it is content with DML conditions relating to chemicals in the marine environment, with the addition of Condition 25, although it would like to see changes to the submission timeframe (reported below under the section on the DCO) [REP10-107, Table 2.2] and [REP10-195, para 3.2.22 to 3.2.23].
- 5.16.28. Together Against Sizewell (TASC) presented the case that the cooling water system and the fish recovery and return (FRR) system and the travelling screens would biofoul with mussels and marine invertebrates etc. It was stated that biofouling could be controlled if chlorination was introduced in front of the screens and before the FRR system but the fish passing through the FFR system would be harmed by chlorination, which in turn could harm fish-feeding birds [REP2-481h], [REP7-247] and [REP8-284]. In its response to the RIES, TASC again raised concerns about biofouling and chlorination in relation to harm to fish, related to the FRR system, which it felt had not been addressed. [REP10-425, para 2 to 6].
- 5.16.29. The Applicant considers that assessment of the likely effects of dead and moribund biota being discharged from the cooling water system showed that the discharge would not affect local water quality significantly nor cause a nuisance [REP10-110, Ref 14].
- 5.16.30. When asked about the relationship between environmental permits and the DCO, the EA explained that in exercising its functions as Competent Authority for determining environmental permits it would be required to ensure compliance with the requirements of the WFD. In particular this would be to prevent deterioration in the status of relevant water bodies. A Water Discharge Activity (WDA) Environmental Permit would regulate all likely activities that pollute the water environment. This would regulate discharges from the cooling water circuit, or fish return outlet and would contain conditions to minimise pollution from chemical, thermal or biological matter entering the water and affecting ecology, water quality or habitat [REP7-131, epage 11 to 12]. In relation to WFD compliance the EA said that it would need to complete combined assessment of permits such as WDA consents and would only be able to do that when it had determined the permit applications.

- 5.16.31. The matter of environmental permitting was explored further in the context of the temporary desalination plant at ISH15 [EV-227]. The points made are relevant to discharges generally, as the EA explained it would face a plethora of significant extra assessments when the environmental permit process is applied for. Whilst the EA is clear that it cannot at this stage give an opinion even for construction stage, it does state that there is nothing to say that it would not grant those permits for WFD matters, but that it cannot guarantee this at this stage [EV-227].
- 5.16.32. The EA made it clear that it considers there are dangers if the DCO strays into areas that would be controlled by permits because two regulatory regimes could therefore be trying to control the same adverse effects. The Applicant stated that the EA's comments were helpful and acknowledged that the EA would not commit itself at this stage [EV-227].
- 5.16.33. The position was reinforced in the final SoCG between the Applicant and the EA. There is a specific colour code for "*matters which relate to environmental permits (and other consents and licenses)....the EA will consult on the environmental applications and consult on decisions once these are available.*" Many aspects of marine water quality and sediments (construction, commissioning and operation) are coded in this manner. There is neither agreement nor disagreement cited for these issues. The final SoCG comment relates to the need for further work for the environmental permitting process. It is agreed that no further work is considered necessary for the Examination [REP10-094, pages 22 to 26].

The ExA's consideration

- 5.16.34. The ExA notes the Applicant's position that the construction permitting strategy is under discussion with the EA. The final position of the EA regarding marine water quality does not give the ExA certainty that environmental permits would be granted in the future; although the ExA has no reason to believe that the permits would not be issued, based on evidence from the EA. However, for this reason, and because compliance with the WFD cannot therefore be assured, the ExA attributes little weight against the Order being made to this aspect of marine water quality and sediments.
- 5.16.35. As the position with regard to these permits remains unknown at the end of the Examination, the SoS may wish to seek further input from the EA on this matter. This point is also made in Section 5.11 of this Report. Consents and other Licenses are covered in Chapter 8, Compulsory Acquisition.

Bentonite breakouts/ frack-outs

- 5.16.36. NE noted that bentonite breakouts or frack-outs have occurred on coastal horizontal directional drilling (HDD) projects and therefore considered that there would be potential for impacts [RR-0878, Issue 36], [REP2-153, Issue 36 and 47]. This matter is not agreed at the end of the Examination. NE refers to bentonite breakouts and frack-outs that have occurred on other projects and considers that there is potential for

adverse effects on a number of European sites. The Applicant argues that if a frack-out did occur increased sediment concentration would be dispersed by the tide and there is no possibility of adverse effects on the integrity of any European site [REP10-097, epages 58 to 59].

- 5.16.37. The Applicant updated the CoCP at Deadline 10 for additional information on methodology, procedures and safeguards that would be put in place to reduce the possibility of frack-outs to address NE's request (as set out in the SoCG [REP10-097]) [REP10-072, Table 12.1]. The timing of the additions to the CoCP at DL10, means that the ExA is not clear if it would resolve NE's concerns. This is reported and concluded upon in Chapter 6 of this Report on HRA.

Temporary desalination plant

- 5.16.38. As described in Chapter 2 of this Report, the Applicant's third change request (Change Request 19) comprised a change to the Proposed Development's water supply strategy that would include a new temporary infrastructure for the desalination and treatment of seawater to produce potable water suitable for construction-related activities until the Sizewell transfer main would be delivered and operational. The Applicant's change request was explained in a cover letter [REP7-286], Change Report [REP7-285] and results of consultation about the proposal [REP7-278] and [REP7-277]. Potential for overlap of discharges from the CDO and the temporary desalination plant outfall are considered in the ES Addendum Appendix 3A [REP7-033].
- 5.16.39. This Section reports on effects on the marine water quality that would arise from the temporary desalination plant, which would be required for the whole construction period. The water supply strategy is reported in Section 5.11 of this Report.
- 5.16.40. The Applicant set out the anticipated effects which included localised dredging for the installation of intake heads and diffuser outfall that would result in changes to suspended sediments, which the Applicant considered were comparable to those assessed, as short-lived and not significant, in the ES. The concentrate discharge would be approximately 1.6 times more concentrated than natural sea water at Sizewell, which would be denser than sea water and would sink to the seabed without a diffuser head. Mitigation would comprise a diffuser head which would facilitate rapid mixing. Phosphorus would be present in the discharge concentrate and the Applicant considers that this additional nutrient loading would be comparable to the ES assessment predicted conclusions and would be evaluated as appropriate with additional nutrient modelling included in an H1 type assessment [REP7-277, para 2.4.8 to 2.4.10].
- 5.16.41. At DL8, responses to Change Request 19 by a number of IPs cited concern about adverse effects on water quality that would result from increased salinity from the desalination plant discharge. These included Kelsale-cum-Carlton Parish Council [REP8-232], Theberton and Eastbridge Parish Council [REP8-276], Westleton Parish Council [REP8-291], TASC [REP8-283] and a number of other IPS including (but not limited to): Bill Parker [REP8-197], Jennifer Wilson [REP8-216], Julia

Brown [REP8-227], Mary George [REP8-242], Nigel Smith [REP8-251], Paul Taylor [REP8-253], Susan Morrice [REP8-270] and Viv Mason [REP8-289].

- 5.16.42. The ExA held an ISH (ISH 15) to consider the desalination plant further [EV-224 to 227]. Points were made in respect of marine water quality by a number of IPs and are also set out in post hearing submissions.
- 5.16.43. The RSPB/ SWT stated that they would be concerned if the use of the desalination plant continued beyond construction to commissioning and operational phases. The RSPB/ SWT also queried whether the temporary desalination plant discharges would add to total marine adverse effects which would affect habitat quality and prey for birds from European sites [REP10-205, para 2.2 to 2.4] and [REP10-111, Ref ME1.3]. The latter point is reported in Chapter 6, HRA of this Report.
- 5.16.44. The Applicant confirmed that the temporary desalination plant would only be required in connection with the construction phase and that controls are proposed that would ensure the use of the desalination plant ceases before cold flush testing commences and that all plant would be removed by the end of construction. The Applicant introduced further controls at DL10 which it stated would ensure the removal of the desalination plant and associated onshore and offshore infrastructure. These are:
- the Construction Method Statement (secured by dDCO Requirement 13) includes a Grampian trigger that ensures that Phase 5 Cold flush testing commissioning works must not commence until operation of the temporary desalination plant has ceased;
 - Requirement 29 of the D10 dDCO also secures the removal of the desalination plant; and
 - Condition 46(e) of the DML requires removal to be completed prior to commencement of hot functional commissioning testing [REP10-162, page 19 to 20].
- 5.16.45. The ExA's conclusion on this matter is reported in the paragraphs on Development Consent Order below in this section and also in Chapter 9.
- 5.16.46. NE provided a briefing note [REP8-298i] and a submission in lieu of attendance [EV-222]. NE advised that more justification and consideration should be given where the Applicant had not provided further detailed assessment [REP8-298i, para 3.1 and 3.5]. As all marine water quality matters contained in this submission pertain to HRA, these are reported in Chapter 6 of this Report.
- 5.16.47. The EA indicated it would defer to NE as lead body for HRA advice. On discharge matters, it pointed out that many of the environmental effects would be considered and controlled/ monitored by permits, to be submitted under the Environmental Permitting (England and Wales) Regulations 2016. The EA stated that its assessments may vary from those supplied in the ES and that it would consider effects alone and combined with other plans and projects for WFD compliance [REP10-188, point 3h]. Points made by the EA at this ISH15 have been reported earlier in this Section.

- 5.16.48. Ian Galloway made a number of detailed submissions regarding marine water quality effects of the desalination plant [REP10-278] to [REP10-282]. The Applicant provided information and responses to the points made by Mr Galloway at ISH15 [REP10-162, para 1.2.1 to 1.2.6]. These included justification for the location of the temporary desalination plant, details of chemical treatments that would be used for sea water reverse osmosis process and plume modelling.
- 5.16.49. At DL10, the Applicant submitted additional plume modelling which assesses the potential for combined effects of the desalination discharge with the CDO and found that the combined magnitude of the two discharges would be low because the maximum duration is that of the desalination discharge and the combined areas remain comfortably within the spatial extent criteria described in the ES [AS-034, Table 21.1], [REP10-161, para 1.3.1 to 1.3.7].
- 5.16.50. The Applicant also undertook further modelling of the desalination discharge to detail the plume evolution through a full spring-neap cycle and to consider the potential for temperature changes during the desalination process. The revised modelling has updated estimated plume extents from those presented at ISH15 and is detailed in an updated version of the Sizewell C Desalination Plant Construction Discharge Assessment H1 type assessment (The BEEMS Technical Report TR552) [REP10-052] and [REP10-161, para 1.4.1 to 1.4.3]. This concluded that the potential interaction of the CDO discharge with both the intake and discharge of the desalination plant would have negligible influence on the areas affected by the desalination plant discharge and do not change the overall H1 Assessment [REP10-052, page 30 to 32].
- 5.16.51. The MMO noted that evidence would be required to back up the assumption that the diffuser head would facilitate mixing. Specifically, that evidence would be required to ensure that the final choice of diffuser would achieve the required mixing to prevent dense water and associated chemicals forming a near seabed dense plume. Based on this evidence being provided, the MMO agreed with the Applicant that adverse effects on marine water quality would not be significant [REP10-195, para 3.4.10 to 3.4.12].
- 5.16.52. The SoS may wish to satisfy themselves on whether the MMO is content with the conclusions of the updated BEEMs Technical Report TR552 ES Addendum Discharge Assessment [REP10-052]. The ExA can see no reason not to agree with the findings. However, the MMO has not had the opportunity to comment further because the H1 Assessment was submitted at DL10.
- 5.16.53. In light of the MMO's comments regarding the evidence on the choice of diffuser head achieving the required mixing, the ExA is satisfied that the necessary mitigation and controls are in place to enable the MMO to consider appropriate details when discharging conditions post-consent. However, as reported earlier, whilst the EA has not indicated any reason that would lead it to conclude that WFD compliance would not be achieved as part of the environmental permitting process for future

permits, the ExA does not have certainty on this point. This uncertainty is weighed as described above in the overall planning balance.

Cumulative effects

- 5.16.54. The Applicant's cumulative effects assessment (CEA) concluded that cumulative adverse effects on marine water quality would be no greater than for the Proposed Development alone for construction stage [APP-578, para 4.15.8 to 4.15.15]. Further CEA was not undertaken for commissioning and operational stages because no other developments would discharge into the zone of influence (ZOI). There were outstanding concerns from IPs including NE [REP10-097, epage 17 to 18] and the RSPB/ SWT [REP10-024] in relation to adverse effects on internationally and nationally designated sites.
- 5.16.55. The Applicant found that the proposed desalination plant which was introduced through Change Report 19 would not give rise to new or materially different significant effects from those reported in the ES [REP7-285, para 2.2.22].
- 5.16.56. The ExA is satisfied with the Applicant's CEA for marine water quality when not in connection with nationally or internationally designated sites and species. The ExA's findings regarding designated sites are reported in Sections 5.6, Biodiversity and, Ecology Terrestrial, 5.15 Marine Ecology and Chapter 6, HRA of this Report.

The Development Consent Order

- 5.16.57. Differences of opinion arose between the MMO's preferred wording for conditions in the DML, or requests for additional wording in relation to marine water and sediments and that which the Applicant has included in its final dDCO [REP10-009]. These are set out in the final SoCG between the Applicant and the MMO [REP10-107, Table 2.2] and [REP10-195]. These are listed below together with the ExA's recommendations, further reported in Chapter 9 of this Report.

Condition 8(4)

- 5.16.58. The MMO points out that where agreement with the MMO is included in the DML, this should be in writing. It cites Condition 8(4) (previously Condition 11(4)) [REP10-107, MDS_MWQ3]. The ExA agrees that for consistency with all other references in the DML, "*in writing*" should be added to the end of Condition 8(4). The ExA has included this change in the rDCO.

Conditions 15(3) and 15(4)

- 5.16.59. The MMO argues that the timing for submission of each Marine Environment Monitoring Plan (MEMP) prior to commencement should be six months, not three in Condition 15(3) (previously Condition 18(3)) [REP10-107, MDS_MWQ3 and MDS_ML4]. This would also apply to Condition 15(4) which sets the determination period. Changes were made by the Applicant from six months to three in dDCO Revision 10 [REP8-036, Condition 18] and [REP8-038, page 54]. (NB these Reps

refer to Schedule 20A, which is later amended to Schedule 21 in the final dDCO [REP10-009]).

- 5.16.60. This relates in part to wider differences of opinion between the Applicant and the MMO over whether there should be timeframes set for determination for DML conditions [REP8-128, para 1.9.1 to 1.9.9] and [REP8-164, Section 1.2.1]. This is reported in Chapter 9 of this Report.
- 5.16.61. In accepting that the ExA could be minded to agree with the Applicant to set determination periods for the DML conditions, the MMO argued that all should be six months and set out its preferred wording [REP8-164, para 1.2.1.13]. The Applicant disagreed and argued that not all conditions are as complex as others and that six months for all would build in excessive time for the discharge of more straightforward conditions [REP8-128, para 1.9.6].
- 5.16.62. The Applicant then amended its dDCO from six to three months for the determination period for MEMPs in dDCO Revision 10. There is no explanation given for the change. By DL10, moving to dDCO Revision 11, the Applicant's commentary states that Schedule 21 includes various (unspecified) drafting changes to reflect discussions with the MMO [REP10-012, page 15]. Given receipt of this submission close to the end of the Examination, there is no record of the MMO agreeing to this change and no time to examine the reasons for the Applicant making the change.
- 5.16.63. In light of the Applicant's argument about differing levels of complexity of conditions, the ExA has studied the proposed determination time frames for all relevant DML conditions, together with the nature of the content of the MEMP and other plans. It is the ExA's view that the content and complexity of MEMPs would be more aligned with many of the other plans for which a six-month determination period is set in the final dDCO. This is because it appears that there would be inter-related checks required which would involve the MMO in consultations and consideration of a range of potential pollution pathways and risk assessments. There is also the possibility that several MEMPs could be submitted at the same time which could lead to the MMO needing to determine several concurrent complex plans in three months.
- 5.16.64. There is nothing to suggest that the MMO as a government body would act unreasonably by taking the full six months to determine MEMPs if it is able to do so sooner.
- 5.16.65. The ExA therefore recommends that the stated time period in Conditions 15(3) and 15(4) is changed from three to six months. This change has been made in the rDCO.

Condition 25

- 5.16.66. Condition 25 was added to the dDCO during the Examination following discussion between the Applicant and the MMO. It requires details of the source of gravel or rock to be approved by the MMO and with the addition of reference to, and maximum volumes for, scour protection in

DML Part 2, Provision 4(2). The MMO was content with the wording, but called for a six month timescale for submission prior to placing of materials to allow the MMO time for review.

- 5.16.67. As stated above the ExA has reviewed the relative complexities of submissions for approval under DML conditions. Unlike the recommendation above, in the case of Condition 25, the ExA considers three months to be a reasonable time period for submission and determination prior to placing of rock or gravel. No changes are therefore made to the rDCO in this regard.

Removal of temporary desalination plant

- 5.16.68. The Applicant argued against the ExA's proposed drafting of Requirement 8(3) to ensure removal of the temporary desalination plant and set out how it considered this matter would be secured [REP10-161, para 1.5.1 to 1.5.7] and [REP10-162, pages 19 to 20]. The ExA is content with the Applicant's explanation and that the removal of the temporary desalination plant would be secured by the appropriate timescale through the Construction Method Statement secured by R13, R29 and for marine works DML articles 4(m) and 4(n) and condition 46(e). No changes are therefore made to the rDCO in this regard. However, amendments to the dDCO relating to air quality are suggested and reported in Section 5.3 of this Report. The water supply strategy aspects of the desalination plant are reported in Section 5.11 of this Report.

Transboundary issues

- 5.16.69. The Applicant concludes that there would be no transboundary effects expected as a result of the Proposed Development during construction or operation. Suspended sediment from dredging and drilling, thermal and chemical plumes have all been considered. Effects are relatively localised. The Applicant explains that highly precautionary ZOI have been used concluding negligible to minor adverse effects, which are not significant [APP-580, para 5.4.23].
- 5.16.70. Matters raised by others with regards transboundary issues in relation to marine water quality were in relation to the effect of impingement predictions of cooling systems. The position is reported in Section 3.9 of this Recommendation Report and concluded in Section 5.9 and Chapter 6 as the concerns relate to fish species from other EEA States.

The ExA's Conclusions

- 5.16.71. In terms of discharges that could affect marine water quality, the ExA is content that the Applicant has engaged satisfactorily with the MMO from evidence presented during the Examination. Apart from our suggestion that the SoS may wish to seek further clarification from the MMO in respect of the temporary desalination plant discharge assessment the ExA is satisfied that the MMO is content that potential releases can be adequately regulated by the conditions as set out in the DML in the rDCO (NPS-EN-1, para 4.10.1, 4.10.4 and 4.10.7 to 4.10.8).

- 5.16.72. The ExA can confirm that it has had regard to marine policy documents and that the SoS can be satisfied that the Applicant has taken account of the Marine and Coastal Access Act 2009 and that the requirements of the WFD have been considered (NPS EN-1, para 5.5.15 and 5.15.5) and (NPS EN-6 Annexes, para C.8.94).
- 5.16.73. The ExA is satisfied that the Applicant's ES (including addenda) has described and assessed the impacts that would arise on marine water quality and sediments from the Proposed Development (NPS EN-1, para 5.15.2 to 5.15.3).
- 5.16.74. The ExA is satisfied that the mitigation measures set out by the Applicant as secured in the final dDCO together with the requirements for future permitting and post-consent approvals are adequate regulation (NPS EN-1, para 5.15.18). We have no reason to believe that permits, consents and licenses would not subsequently be granted, based on what the EA has stated, but do not have confirmation that they would be (NPS EN-1, para 4.10.7 to 4.10.8).
- 5.16.75. The ExA is satisfied that the Applicant's ES assessment (with updates) has set out the adverse effects of cooling water on marine water quality and that the mitigation proposed would minimise adverse effects (NPS EN-6, para 3.7.3 and 3.7.6 to 3.7.7) and (NPS EN-6 Annexes, para C.8.94.).
- 5.16.76. The ExA is satisfied that cumulative effects have been considered by the Applicant for marine water quality, except where they relate to nationally and internationally designated sites. (These are reported in Section 5.6, 5.15 and Chapter 6 of this Report). We have taken evidence from the EA and note its final comments regarding environmental permitting (NPS EN-6, para 3.7.4). As stated above, we have no reason to believe that permits, consents and licenses would not be granted, but equally do not have confirmation that they would be. This is a matter on which the ExA suggests that the SoS may wish to satisfy itself further with the EA.
- 5.16.77. The ExA is satisfied that the MTF, which would develop and oversee implementation of a plan for monitoring the effects of the Proposed Development on coastal processes, including water quality is satisfactorily secured in the DoO. The ExA confirms this would meet the Council's points in their LIR.
- 5.16.78. The ExA is content that all matters relating to the marine water quality and sediment excluding effects on nationally and internationally designated sites or species were satisfactorily resolved, except for two matters. The first is the future environmental permitting and compliance with the WFD, for which we have attributed little weight against the making of the Order because of the uncertainty. We have therefore suggested that the SoS may wish to satisfy themselves further with the EA on this matter. Secondly the ExA recommends that the SoS may wish to satisfy themselves on whether the MMO is content with the DL10 updated BEEMS Technical Report TR552 regarding the updated version of the Sizewell C Desalination Plant Construction Discharge Assessment H1 type

assessment. Other than these two points the ExA is satisfied that the NPS EN-1 and EN-6 tests would be met.

5.17. MARINE NAVIGATION

Introduction

- 5.17.1. Marine navigation was identified as a principal issue in the ExA's Initial Assessment of Principal Issues to include restrictions and effects on navigation [PD-007].

Policy considerations

National Policy Statements

- 5.17.2. NPS EN-1 states that it is important that new energy infrastructure does not significantly impede or compromise the safe and effective use of any defence assets, such as offshore danger and exercise areas, military explosives storage areas and Tactical Training Areas operated by the Ministry of Defence (MoD) (NPS EN-1, para 5.4.8).
- 5.17.3. There are no policies in NPS EN-6 that are relevant to marine navigation.

Other legislative and policy considerations

- 5.17.4. Section 104(2) (aa) of the Planning Act 2008 (PA2008) identifies that the UK Marine Policy Statement (MPS) needs to be taken into consideration when determining the application. The MPS notes that decision makers should consider any negative impacts on shipping activity, freedom of navigation and navigational safety as well as taking account of environmental, social and economic effects and compliance with international maritime law. The MPS is the framework for preparing Marine Plans and the East Inshore and East Offshore Marine Plans cover the area in which the Proposed Development is situated.
- 5.17.5. The Infrastructure Planning (Decisions) Regulations 2010 have relevance for decisions on Deemed Marine Licences (DMLs) under PA2008 with special reference to Regulation 3A requirement to prevent interference with legitimate uses of the sea and to limit the increase of navigation risk to as low as reasonably practicable (ALARP).
- 5.17.6. Regulation 6(3) of the Applications: Prescribed Forms and Procedure (APFP) Regulations requires that where an application includes the construction or alteration of harbour facilities, it must be accompanied by a statement setting out why the making of the Order is desirable in the interests of securing the improvement, maintenance or management of the harbour in an efficient and economical manner or facilitating the efficient and economic transport of goods or passengers by sea or in the interests of the recreational use of sea-going ships.
- 5.17.7. International maritime safety is governed by the IMO Safety of Life At Sea (SOLAS) Convention Chapter V (Safety of Navigation) 1974 (as amended).

Marine and Coastal Access Act 2009

- 5.17.8. The SoS must have regard to the appropriate marine policy documents, as provided for in the Marine and Coastal Access Act 2009 (MCAA2009). MCAA 2009, Part 4, Section 69, sub-section (1)(c) (MCAA2009) which provides for marine licence decisions to "*have regard to the need to prevent interference with legitimate uses of the sea*".

UK Marine Policy Statement

- 5.17.9. The UK Marine Policy Statement notes that increased competition for marine resources may affect the sea space available for the safe navigation of ships. Decision makers should take into account and seek to minimise adverse effects on shipping activity, freedom of navigation and navigational safety and ensure that decisions are in compliance with international maritime law (para 3.4.7).

East Inshore and East Offshore Marine Plans

- 5.17.10. A characteristic of the East Inshore and East Offshore Marine Plans which merits additional attention, is that they are already busy, include some of the highest concentrations of shipping in the world, and are seeing increased competition for space, eg for energy generation. The marine plans in complementing existing measures should address issues to do with the use or competition for space. In this regard it states that development and other activities should be taken forward so as to not hinder navigation and repeats points for decision makers from the MPS (para 247 to 248).
- 5.17.11. It states that applicants are required to identify any navigational risk and list potential receptors through the EIA process (para 481). Additionally public authorities, in line with their statutory duties, may need to bring forward proposals to maintain safe navigation within harbour areas (para 479).
- 5.17.12. Policy PS2 sets out exceptional circumstances that would allow proposals which would introduce static infrastructure that encroaches on important navigation routes. It states that the outcomes of consultation with harbour and other navigation authorities, public authorities and commercial shipping should be shown to have informed the application proposed.
- 5.17.13. Policy PS3 covers ports and sets out the need to minimise negative impacts on shipping activity, freedom of navigation and navigational safety, as well as protecting the efficiency and resilience of continuing port operations, and further port development.

Local Impact Report

- 5.17.14. The LIR states that it will not cover marine navigation risks, as these are within the remit of the Marine Management Organisation (MMO) and the Environment Agency (EA) (flooding) [REP1-045, para 22.8].

The Applicant's case

5.17.15. The Applicant's Environmental Statement (ES) contains an assessment of effects on marine navigation in ES Volume 2, Chapter 21, Marine Navigation [APP-337]. This was accompanied by appendices [APP-338], which provided a NRA and figures [APP-339]. An additional appendix was submitted into the Examination, which provided an update to the Navigation Collision Risk Assessment associated with the additional landing facility [AS-239].

Mitigation

5.17.16. The Applicant submitted a Mitigation Route Map [APP-616] with the application. It was updated during the Examination, with the final version submitted at DL10 [REP10-073]. In tabular form this sets out the predicted adverse effects (including the ES source) the mitigation commitment, which stage it applies to and where it is secured. Marine water quality effects are included [REP10-073, MDS-MN1 to MDS-MN8, epages 162 to 164].

5.17.17. Primary and tertiary mitigation measures would be incorporated within the design of the Proposed Development to minimise the significance of adverse effect [APP-337, Section 24.5]. Primary mitigation would include:

- a beach landing facility (BLF) which would have a smaller impact on marine navigation; and
- use of buoys and beacons for BLF piling and intake and outfall structures.

5.17.18. Tertiary construction stage mitigation would include:

- notices and information prior to offshore works; and
- compliance with International Regulations for the Prevention of Collision at Sea (Ref 24.2) and the International Regulations for SOLAS (Ref 24.3);
- the establishment of a Competent Harbour Authority (CHA) for the construction stage which could deploy temporary safety zones;
- a delivery and logistics plan for abnormal indivisible loads (AIL) deliveries; and
- employment of a fisheries liaison officer.

5.17.19. Tertiary operation (including maintenance) stage mitigation would include:

- a temporary safety zone or minimum safe passing distances during AIL deliveries, thereby restricting access to beachfront recreational and fishing activities in the immediate area;
- a delivery and logistics plan for AIL deliveries;
- Sizewell C cooling water intake/outfall headwork positions would be marked on Admiralty charts;
- Details of the Sizewell C cooling water intake/outfall headwork positions would be included in fishermen's awareness charts; and
- notice to Mariners to identify presence of infrastructure.

5.17.20. Additional mitigation measures proposed to bring impacts assessed as tolerable to ALARP are:

- buoyed construction zone around the construction works for the intake/outfall structures; and
- patrol launch to assist vessels in difficulty [APP-337, para 24.7.3].

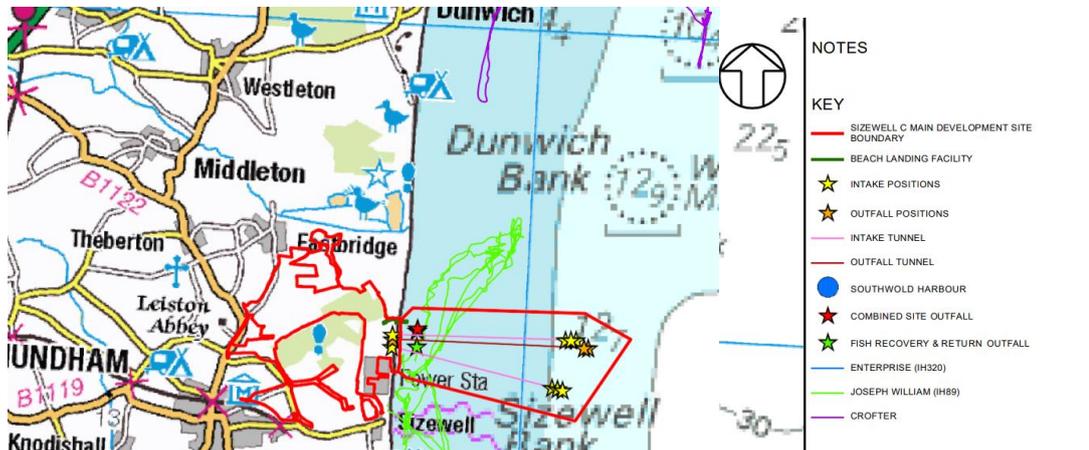


Figure 5.17.1: Extract from ES Marine Navigation Figures [APP-339]

5.17.21. On the basis of the NRA, the requirement for additional mitigation was considered and found that no significant adverse effects would remain.

The Main Planning Issues

5.17.22. Almost all matters were agreed in early Statements of Common Ground (SoCG) and during the Examination, except for the MMO's concerns regarding certain aspects of the dDCO in connection with the proposed Harbour Order.

The Proposed Harbour Order

5.17.23. The Applicant proposes that a CHA would be established for the construction stage which would deploy temporary safety zones, potentially monitored by guard vessels, around sensitive areas of construction to manage navigation safely [APP-337, para 24.5.7]. This would mean that deliveries including AILs would be under the control of the Harbour Master, thereby requiring appropriate risk assessment [APP-337, para 24.6.20 and 24.6.41]. The BLF would enable AILs, rock armour etc to be brought directly to the Main Development Site (MDS) by sea, reducing the need to transport material by road [APP-584, para 3.2.3]. The dDCO Explanatory Memorandum sets out how the dDCO establishes the undertaker as the harbour authority [REP10-013, Section 8].

5.17.24. The proposed Harbour Area coordinates are given, defined by the need to include the full extent of the offshore works including the cooling water intake and outfalls. Discrete lines of latitude and longitude are defined, as these would be easier for mariners to use in the absence of any suitable landmarks. This would be in place throughout the construction period but surrendered at the end.

5.17.25. The BLF would remain in place throughout the operation period for occasional delivery of AILs during maintenance, but would not require the Harbour Authority to be in place. [APP-184, para 3.3.30 to 3.3.32]. The need for a CHA is provided within the Applicant’s Regulation 6 Additional Information [APP-584, Section 3].

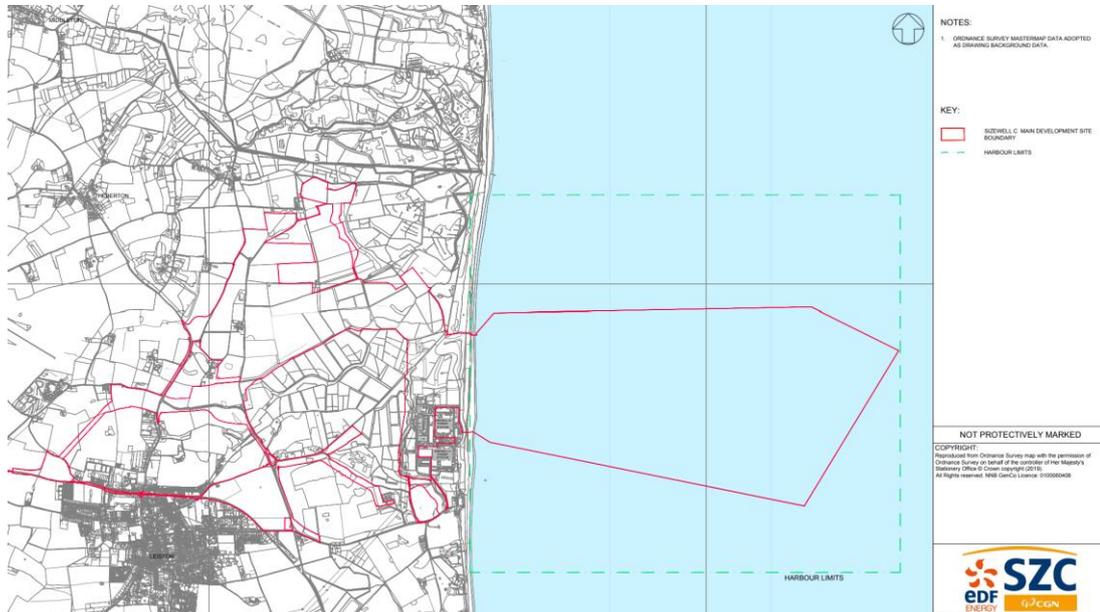


Figure 5.17.2: Extent of proposed Harbour limits, Extract from ES Description of Construction [APP-186]

5.17.26. All matters were agreed with the M+CA [REP7-100]. There is evidence that meetings took place between the M+CA and the Applicant to discuss or be briefed on the proposed Harbour Order, requirements for marking of the intake and outfall structure headwork and the revisions to the BLF.

5.17.27. The Department for Transport (DfT) deferred to the M+CA on all matters to do with the Harbour Order [REP2-099]. Trinity House confirmed that it was content with redrafting of the dDCO which the Applicant had submitted at Deadline 5 [REP6-080a].

5.17.28. The MMO raised concerns at the outset regarding the proposed Harbour Powers contained in the dDCO and there were a number of outstanding points at the end of the Examination which were not finalised in the final SoCG [REP10-195] and [REP10-107]. We consider these matters in the section below.

The Development Consent Order

5.17.29. As Part 6 of the DCO the Applicant is seeking various harbour powers, including the power to establish a harbour authority [APP-584, Section 3].

5.17.30. In its second and final SoCG with the Applicant, the M+CA agreed that Part 6 of the dDCO outlines all the required details of the proposed Harbour Order and that Schedule 20 (DML) (later Schedule 21 in the final dDCO [REP10-009]) provides all relevant and necessary conditions to mitigate navigational risk [REP7-100, epage 9].

- 5.17.31. The MMO is not content with a number of issues, some of which have been addressed by the Applicant in its final dDCO submission and others which were not agreed at the end of the Examination [REP10-195]. Unresolved matters between the two parties are considered below.
- 5.17.32. In making our recommendations to the SoS on these unresolved issues, the ExA recommends drafting amendments to be incorporated in the rDCO or, it recommends retention of the Applicant's drafting in its final dDCO submission. Furthermore, there are instances where the SoS may want to consider whether more information should be sought from respective parties.

dDCO Part 6 Article 53 Application of Pilotage Act 1987

- 5.17.33. The MMO and the Applicant cannot agree on whether a DCO has the powers to create a CHA as included in Article 53 (formerly 50) [REP10-107, epage 140]. The Applicant cites examples of previous Orders where pilotage powers have been given in its Explanatory Memorandum [REP10-013, para 8.19 to 8.21]. But the MMO considers that these are separate pilotage orders from a separate legal process.
- 5.17.34. The ExA considers that if the undertaker is to be a Statutory Harbour Authority of the harbour, it is reasonable to confirm that it would have the pilotage powers of such an authority, including that of a CHA. It would come under the powers of the SoS in making a DCO under PA2008 s120(5)(a) and Schedule 5, para 31 and 32 which cover "*The creation of a harbour authority*" and "*Changing the powers and duties of a harbour authority*". The ExA is satisfied with the dDCO as it stands in this regard. However, the SoS may wish to confirm this with DfT.

dDCO Part 6, Articles 58, 59 and 60 Application dDCO [APP-059]

- 5.17.35. The following articles were included in the application dDCO:
- Lights on marine works etc. during construction (article 58);
 - Provision against danger to navigation (article 59);
 - Permanent lights on marine works (article 60).
- 5.17.36. These articles were removed from the dDCO by the Applicant in its dDCO Revision 4 [REP2-013] after inclusion of Condition 35 (formerly Condition 38) Aids to navigation, in the Deemed Marine License (DML). This remains the case in the final dDCO [REP10-009]. The DML condition covers steps for the prevention of danger to navigation as Trinity House may from time to time direct. At the end of the Examination, the MMO confirmed that it is content with the wording of Condition 38 (now 35) [REP10-195, para 3.1.8] and in the final SoCG [REP10-107, Table 2.5 and Table A7].
- 5.17.37. The MMO welcomed the addition of Part 6 Harbour Powers to the dDCO, which makes clear that the dDCO would authorise the creation of a new harbour authority [REP10-107, epage 136]. However, the MMO is not content with the removal of the articles listed above from Part 6 of the dDCO because it considers that the Applicant is seeking to empower the developer as Harbour Authority and therefore all of the statutory

obligations of a harbour authority should come with that status including the aforementioned provisions previously included in dDCO articles 58, 59 and 60.

- 5.17.38. The MMO sets out its reasons: that the harbour authority has a statutory duty and the MMO is not responsible for monitoring and enforcing harbour powers. They are the responsibility of the M+CA and DfT. The MMO cites the example of harbour lighting, for which it does not believe the MMO should take sole responsibility as it is not within the remit of the MMO. By removing the provisions from the dDCO, the MMO argues that this would remove the ability of the appropriate agencies to take action for failure to comply with statutory obligations, if necessary [REP10-195, para 3.1.7 to 3.1.14].
- 5.17.39. Whilst the M+CA has stated that it agrees that Part 6 of the dDCO outlines all the required details of the proposed Harbour Order [REP7-100, epage 9], this wording in its SoCG has not changed since the first SoCG version [REP5-102]. There is no evidence that the Applicant consulted with the M+CA on the deleted articles, which was the position stated in the SoCG with DfT [REP2-099]. Although the final SoCG with the MMO states that the MMO understands that the provisions have been discussed with Trinity House [REP10-107, epage 62 to 63].

The ExA's consideration

- 5.17.40. In the absence of any specific affirmation from the Applicant that the M+CA is content with the changes, the ExA has reviewed the MMO's case. We acknowledge the MMO's concerns and recommend that the SoS adds the three articles back to the face of the Order. This is because we agree with the MMO, that by having provisions solely in the DML, responsibility for discharge of the condition would lie with an organisation which does not have the statutory authority to do so, whilst those which ordinarily would have those obligations as a harbour authority do not have responsibility for the discharge of the condition.
- 5.17.41. The ExA has therefore reintroduced the three articles as articles 87, 88 and 89 and made the necessary changes to the table of contents in its rDCO. We have included these as articles in a second section of Part 6 Harbour Powers, located after Part 8 in the rDCO. This avoids article re-numbering.

Penalty clause against compliance with statutory duty found in Harbour Orders

- 5.17.42. The MMO queries the absence of a penalty against the undertaker for non-compliance with the statutory duty as found in Harbour Orders and sets out its proposed drafting. The MMO points out that it is a matter for the Statutory Harbour Authority to regulate and monitor harbour powers using the powers in the DCO and any enforcement would be undertaken by the M+CA or DfT [REP10-195, para 3.1.2] and [REP10-107, epage 62 to 63]. The Applicant has not included the suggested drafting for an article in its final dDCO.

5.17.43. The ExA considers that breaches in terms of the Order would be an offence under PA2008 s161, so there is no need for an additional offence and penalty to be imposed on the undertaker. No amendment has therefore been made to the rDCO in this regard.

Article 61 (formerly 64) Confirmation of byelaws

5.17.44. The MMO points out that the article relating to confirmation of byelaws refers to the "Secretary of State", which under the Order would mean the Secretary of State (SoS) for Business, Energy and Industrial Strategy (BEIS). However, the MMO points out that harbour byelaws are confirmed by SoS DfT [REP10-107, epage 141]. The Applicant considers that it made all appropriate efforts to engage with DfT. Whilst DfT deferred its SoCG to the M+CA, the Applicant notes that byelaws are not a matter for the M+CA.

5.17.45. The Applicant stated in its SoCG with DfT that definition of "Secretary of State" has been removed from the dDCO, so the Interpretation Act 1978 applies. Under the Interpretation Act 1978, which reflects the doctrine of collective responsibility, "Secretary of State" means "one of Her Majesty's Principal Secretaries of State". Confirming the byelaws would therefore be dealt with by whichever Government Department has that function and that division of responsibility between government departments is dealt with by discussions between departments [REP2-099].

5.17.46. The ExA is content with the Applicant's amendment to the dDCO and explanation because the statutory definition of SoS is wide enough to cover both DfT and BEIS. No amendment has therefore been made to the rDCO in this regard.

5.17.47. The MMO also queried whether byelaws should be charged for. This is left as a matter for the ExA [REP10-107, MMO-37 epage 141]. This refers to Article 61(5) and (9) [REP10-013].

5.17.48. The ExA notes that the Applicant has complied with earlier requests from the MMO to include wording in Article 61 (2), (4) and (9) such that the undertaker would be responsible for publishing byelaws on-line. Also that a copy must be free of charge for at least 28 days prior to confirmation of the byelaws [REP10-107, MMO-37, epage 141].

5.17.49. The ExA is content with the Applicant's approach and inclusion of a right for the undertaker to charge because on-line versions of the byelaws would be available without charge, provided by the undertaker. No amendment has therefore been made to the rDCO in this regard.

Article 66 (formerly 69) Failure to comply with directions

5.17.50. The MMO considers that the Ministry of Justice (MoJ) should be contacted to establish whether a Justice Impact Test would be required for new offences within the Order because new offences appear to be created in the dDCO [REP10-107, epage 136]. The SoS may wish to consult with the MoJ in this regard.

Article 67 (formerly 70) Enforcement of special directions

- 5.17.51. In earlier comments on the dDCO, the MMO suggested that a stated time frame would be more enforceable [REP9-030, para 1.4] and [REP8-164, para 1.2.1]. The Applicant included a 48-hour time frame. At the end of the Examination, the MMO considers that an alternative form of drafting which it provides would give better clarity regarding the use of emergency powers [REP10-107 epage 63 to 64].
- 5.17.52. Whilst we agree that the MMO's form of drafting would add clarity to the use of powers to make special direction to vessels, we consider the meaning is sufficiently established in the Applicant's final dDCO drafting. No amendment has therefore been made to the rDCO in this regard.

Article 71 (formerly 73A) Duration of the powers in Part 6

- 5.17.53. The MMO queries why the prescriptive dates are 28 days following removal of the Temporary Marine Bulk Import Facility (TMBIF). However, the MMO does not make suggestion for an alternative length of time or specify that it considers there should be no prescriptive dates [REP10-107, MDS_HO2 epage 60].
- 5.17.54. On the basis that no alternate is suggested for consideration and that the ExA considers the 28 days to be reasonable, we recommend that drafting of the Order remains as set out in the Applicant's final dDCO. No amendment has therefore been made to the rDCO in this regard.
- 5.17.55. The MMO also suggests that "*permission/ consultation*" with the MMO should be required prior to commencing the removal process for the TMBIF [REP10-107, MDS_HO2 epage 60].
- 5.17.56. Regarding the consultation and permission with the MMO, the ExA agrees that it would be appropriate for consultation and approval to be secured in the Order. This is because there would be matters that fall under the MMO's remit that could be affected by the removal process. The ExA considers this is already secured by DML condition 36. It sets out the activity details which must be submitted to and approved by the MMO in consultation with the EA prior to the TMBIF removal works commencing. The ExA notes that the Work number is incorrect, which is possibly why the MMO flagged the need for this provision. The stated Work in condition 36(2) should be Work No. 1A(aa), not Work No. 1A(bb).
- 5.17.57. The ExA has therefore amended the reference to Work No. 1A(bb) in DML condition 36(2) of the final dDCO to Work No. 1A(aa) in the rDCO.
- 5.17.58. The MMO also questions whether the harbour powers would cease to have effect in respect of the TMBIF and whether harbour powers would remain in force to enable the undertaker to regulate the permanent BLF [REP10-107, MDS_HO2 page 60].
- 5.17.59. The ExA considers that it is clear from the application that the Applicant intends for the Harbour Order to be in place throughout the construction period but would be surrendered at the end of the construction period.

This is because even though the BLF would remain in position throughout the operation period, deliveries would be infrequent and would not require the Harbour Authority [APP-184, para 3.3.32]. Based on this, the ExA is content with the final dDCO wording. No amendment has therefore been made to the rDCO in this regard.

Conclusions on the DCO

- 5.17.60. In the ExA's opinion, with the amendments recommended above, none of the matters raised regarding the Harbour Order weigh for or against the Order being made. However, the ExA suggests that the SoS might wish to discuss the Harbour Order with DfT to satisfy themselves that matters are all agreed and with the MoJ in connection with the need for Justice Impact Tests.

Cumulative Effects

- 5.17.61. The Zone of Influence (ZoI) for the NRA was assumed to be 10nm. Marine aspects of developments within 10nm of the Sizewell C main development site were considered to have the potential for cumulative effects. Developments outside the ZoI but for which construction/maintenance vessels may cross the route taken by AIL delivery vessels were also included. The NRA cumulative assessment found no residual cumulative significant adverse effects [APP-389, Section 14].
- 5.17.62. No IPs raised concerns about adverse cumulative effects. The ExA is satisfied that the Applicant's assessment has considered relevant marine aspects of appropriate developments and is content with the findings.

Transboundary Issues

The Applicant concludes that marine navigation transboundary effects could occur across national boundaries if Rotterdam were chosen as the transshipment facility base for AIL deliveries, leading to additional vessel movements in the Netherlands. However, in light of the mitigation proposed any adverse transboundary effects are assessed as negligible and therefore not significant [APP-580, para 5.4.23].

- 5.17.63. Transboundary matters relating to marine navigation were not raised by any IPs. The ExA is content with the Applicant's findings.

The ExA's consideration

- 5.17.64. The ExA is satisfied that the Applicant engaged with the relevant bodies, including the M+CA and undertook an NRA and has identified navigational risk and potential receptors through the EIA process (East Inshore and East Offshore Marine Plans, para 481 and Policy P2).
- 5.17.65. The ExA is satisfied that the Applicant has sought to minimise adverse effects on shipping activity and navigational safety. We are also satisfied that the mitigation measures which are secured would ensure compliance with international maritime law (UK Marine Policy Statement).

- 5.17.66. Regarding the proposed Harbour Order, the ExA is content that the application contains a statement setting out why the Harbour Order is desirable to facilitate efficient and economic transport of goods by sea (APFP Regulation 6(3)). Also, that the points in the East Inshore and Offshore Marine Plans in connection with ports have been met. The ExA acknowledges points regarding the complexities of setting up a Harbour Order made by the MMO. There are some points on which the ExA recommends that the SoS might wish to consult. There is nothing that the ExA considers would prevent the creating of the proposed Harbour Order.
- 5.17.67. Based on the above, the ExA is also content that the Applicant has had regard to preventing interference with legitimate users of the sea (Marine Coastal Act).

5.18. NOISE AND VIBRATION

Policy Considerations

- 5.18.1. NPS EN-1 at section 4.10.1 advises that emissions and discharges from a proposed development may be the subject of separate legislation or regulation under the pollution control framework or other consenting or licensing framework.
- 5.18.2. The NPS advises at paragraph 4.10.3 that an ExA:
- "...should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator. It should act to complement but not seek to duplicate them..."*
- 5.18.3. EN-1 does however recognise that noise and vibration can affect quality of life and health, and enjoyment of areas of value like quiet places and places of high landscape quality.
- 5.18.4. Paragraph 5.11.1 states:
- "Excessive noise can have wide-ranging impacts on the quality of human life, health (for example owing to annoyance or sleep disturbance) and use and enjoyment of areas of value such as quiet places and areas with high landscape quality. The Government's policy on noise is set out in the Noise Policy Statement for England. It promotes good health and good quality of life through effective noise management."*
- 5.18.5. As such it recognises at paragraph 5.11.3 a series of factors that will determine the likely noise impact:
- *the inherent operational noise from the proposed development, and its characteristics;*
 - *the proximity of the proposed development to noise sensitive premises (including residential properties, schools and hospitals) and noise sensitive areas (including certain parks and open spaces);*

- *the proximity of the proposed development to quiet places and other areas that are particularly valued for their acoustic environment or landscape quality; and*
- *the proximity of the proposed development to designated sites where noise may have an adverse impact on protected species or other wildlife."*

5.18.6. NPS EN-6 in section 3.12 indicates that the operation of nuclear power stations would be unlikely to be associated with significant noise or vibration impacts. It does however recognise there may be impacts from transport and construction activities.

Noise Policy Statement for England (NPSE)

5.18.7. The NPSE explains that noise management is a complex issue and at times requires complex solutions. It explains that there were no European or national noise limits for specific developments at the time of writing (2010).

5.18.8. The first aim of the NPSE is to:

- Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

5.18.9. The second aim of the NPSE is to:

- Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

5.18.10. The second aim of the NPSE refers to the situation where the impact lies somewhere between Lowest Observed Adverse Effects Level (LOAEL) and Significant Observed Adverse Effects Level (SOAEL). It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur. The NPSE also seeks to ensure that where possible noise management should contribute to the improvement of health and quality of life.

National Planning Policy Framework (NPPF)

5.18.11. Paragraph 174 of the NPPF explains that planning decisions should contribute to and enhance the natural and local environment by:

"preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution."

5.18.12. While paragraph 185 states:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living

conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

"a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;"

Planning Practice Guidance on Noise (2019)

- 5.18.13. The Planning Practice Guidance on Noise (PPGN) provides further detail on these concepts noting that:
- Below the No Observed Effect Level (NOEL) noise is not noticeable and there is no effect, and no specific measures are required.
 - Above the NOEL but below the LOAEL noise can be heard but does not cause any change in behaviour or attitude although it can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life. It suggests that no specific measures are required.
 - Above the LOAEL it notes that noise can be heard and causes small changes in behaviour with potential for some reported sleep disturbance. In such circumstances it suggests that noise should be mitigated and reduced to a minimum.
 - Above the SOAEL it notes that noise causes a significant change in behaviour with potential for sleep disturbance resulting in difficulty getting to sleep, premature awakening and difficulty in getting back to sleep. It suggests that such circumstances should be avoided.
- 5.18.14. It also introduces a further concept of an Unacceptable Adverse Effect including regular sleep deprivation/awakening and that such circumstances should be prevented.
- 5.18.15. The PPGN explains that by increasing noise exposure the SOAEL boundary would at some point be crossed. Above this level the noise causes a material change in behaviour such as keeping windows closed. If the exposure is above this level, the planning process should be used to avoid this effect from occurring.
- 5.18.16. It also provides details of four broad types of mitigation that can be used for noise making developments:
- *"Engineering- reducing the noise generated at source and/or containing the noise generated;*
 - *Layout- where possible, optimising the distance between the source and the noise sensitive receptors and incorporating good design through the use of screening by natural or purpose built barriers, or other buildings;*
 - *Using planning conditions/obligations to restrict activities to certain times or certain noise levels; and*

- *Noise insulation mitigation in buildings.”*

5.18.17. It also states that decision taking should take account of the acoustic environment and in so doing, should consider:

- *whether or not a significant adverse effect is likely to occur;*
- *whether or not an adverse effect is likely to occur; and*
- *whether or not a good standard of amenity can be achieved.*

Development Plan

5.18.18. Suffolk Coastal Local Plan Policy SCLP10.3 states that proposals will be expected to protect the quality of the environment and to minimise and, where possible, reduce all forms of pollution and contamination including noise pollution.

5.18.19. Suffolk Coastal Local Plan SCLP11.2 in dealing with residential amenity, states that the Council will have regard to noise and disturbance with the expectation that developments will not cause an unacceptable loss of amenity for existing and future occupiers in the vicinity.

The Applicant’s Case

5.18.20. Chapter 11 of the ES [APP-202] assesses the noise and vibration effects from the construction and operation of the Sizewell C project at the Main Development Site (MDS). This is supplemented by additional chapters for each of the Associated Development Sites (ADS).

- Northern Park and Ride [APP-354] and supporting Figures [APP-356];
- Southern Park and Ride [APP-384] and supporting Figures [APP-386];
- Two Village Bypass [APP-415] and supporting Figures [APP-417];
- Sizewell Link Road [APP-451] and supporting Figures [APP-453];
- Yoxford Roundabout [APP-484] and supporting Figures [APP-486];
- Freight Management Facility [APP-515] and supporting Figures [APP-516]; and
- Rail [APP-545] and supporting Figures [APP-547].

5.18.21. A Code of Construction Practice (CoCP) [APP-615] was submitted by the Applicant and updated during Examination [REP10-072]. The aim of the CoCP is to provide a clear and consistent approach to the control of construction activities on the MDS and ADS and to minimise impacts on people and the environment. The CoCP would be secured through the draft Development Consent Order (dDCO), via Requirement 2 [REP10-009].

5.18.22. In respect of noise and vibration the CoCP stipulates further documents will need to be submitted for approval as the project progresses. These would include:

- Main Development Site Noise Monitoring and Management Plan (NMMP) which must be in general accordance with the Draft Main Development Site Noise Monitoring and Management Plan; and

- Associated Development Sites NMMPs which must be in general accordance with the principles set out in the Northern Park and Ride NMMP.
- 5.18.23. The draft NMMP was submitted at Deadline (DL) 6 [REP6-029] and this was updated during the Examination [REP7-048]. The final CoCP, includes the draft NMMP for the MDS at Appendix B of Part B and the draft NMMP for the Northern Park and Ride at Appendix A of Part C. The Northern Park and Ride draft NMMP is to be used to set the principles for all the ADS.
- 5.18.24. In advance of the commencement of the Examination the Applicant submitted a change request [AS-105]. This included a revised freight delivery strategy which increased the potential rail movements from three trains per day to four trains per day during peak construction, with the possibility of a fifth train. This was supported by revised noise assessments for the rail corridor and the road corridor.
- 5.18.25. As a consequence of the change requests promoted by the Applicant further changes relevant to noise were also submitted.
- Potential to increase the frequency of freight train movements to facilitate bulk material imports by rail (Change 1).
 - Enhancement of the permanent beach landing facility and construction of a new, temporary beach landing facility (Change 2).
- As a consequence of the impacts of Change 1 and Change 2 on Heavy Goods Vehicle (HGV) movements, revised traffic modelling was provided.
- Greater flexibility as to where certain Sizewell B facilities are relocated to potentially avoid the need for car parking on Pillbox Field (Change 3).
 - Change to certain parameter heights and activities on the main development site (Change 4).
 - Change to location of water resource storage area and addition of flood mitigation measures to lower flood risk (Change 5).
 - Extension to the Order Limits to provide for additional fen meadow habitat at Pakenham as mitigation for fen meadow loss (Change 11).
- 5.18.26. The ES Addendum [AS-181] and associated appendices 2.6.A-C [AS-204]) amend the following sections of Volume 2, Chapter 11 of the ES [APP-202]:
- Section 11.4 Baseline;
 - Section 11.6 Assessment; and
 - Section 11.8 Residual Effects.
- 5.18.27. The ES Addendum in [AS-181] provides additional and revised information on the assessment of noise and vibration from rail movements following the new baseline surveys including information on:
- Results of airborne noise, and groundborne noise and vibration measurements undertaken in August 2020 using a test train

commissioned by the Applicant along the Saxmundham to Leiston branch line and East Suffolk line in Woodbridge [AS-257]; and

- Results of noise and vibration measurements of existing railway noise and vibration measurements at Woodbridge, carried out between March 2020 and 1st November 2020, [AS-257].

- 5.18.28. The Third ES Addendum [REP6-017] includes an updated noise assessment which updates the findings to reflect the revised road traffic modelling and correct errors which had been identified.
- 5.18.29. Within [AS-257] at Appendix 9.3.D a Sleep Disturbance Assessment was provided. This recognises that once LOAEL is exceeded there is an expectation that some disturbance to sleep will occur. Policy within the NPSE however only requires avoidance at a level above SOAEL.
- 5.18.30. According to the PPGN the key difference in terms of sleep disturbance can be recognised above SOAEL and above LOAEL is summarised as:
- *"Above LOAEL: Potential for some reported sleep disturbance; and*
 - *Above SOAEL: Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep."*
- 5.18.31. In [APP-171] Appendix 6G Noise and Vibration Legislation and Methodology, the Applicant explains their approach to distinguishing between the concept of SOAEL and significant adverse effect in an ES. In such circumstances where a significant adverse effect is identified as likely in terms of the ES it is possible that likely significant negative or adverse effects may be declared, whilst noise levels remain below the SOAEL. This approach has been adopted for the DCO application but was not followed for the earlier planning application for the relocation of the Sizewell B facilities.
- 5.18.32. The Applicant explains in paragraph 1.2.23 of [APP-171] Appendix 6G:
- "This separation of SOAEL and EIA significance reflects the difference between the requirement set out in paragraph 7 of Schedule 4 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, where a description is required of measures to "avoid, prevent, reduce or, if possible, offset any identified significant adverse effects", and the requirement in policy to "avoid significant adverse impacts on health and quality of life from noise" and "mitigate and minimise other adverse impacts on health and quality of life from noise"."*
- 5.18.33. The assessment method for the relocation of the Sizewell B facilities differed in that the EIA significance level correlated with the SOAEL. As paragraph 11.3.25 of [APP-202] confirms:
- "Notwithstanding the differences in assessment method between the two assessments, the result of this revised approach is that effects that were described in the Sizewell B relocated facilities assessment as being 'significant' would still be considered as 'significant' in EIA terms."*

"The Sizewell B relocated facilities assessment concluded that there were no exceedances of the SOAEL and that would still be the case, if the updated assessment method were applied."

- 5.18.34. Within the ES one receptor, the Pro Corda Music School at Leiston Abbey, was regarded as a highly sensitive receptor, while all other residential properties were regarded as of medium sensitivity.

Methodology

- 5.18.35. The assessment was developed following consultation with local authorities to agree monitoring locations, assessment criteria, noise source data, and the approach to both noise and vibration. The broad principles of the approach are set out within Appendix 6G of [APP-171].
- 5.18.36. The study area for the MDS can be found in Figure 11.1 [APP-211] while the study area for road traffic noise extended to Lowestoft and Ipswich incorporating the key routes envisaged to be used by traffic associated with the Sizewell C project. Dwellings within 50m of any road have been considered within the assessment.
- 5.18.37. Additional noise assessments were carried out at the two off site developments at the Fen Meadow compensation areas to the south of Benhall and to the east of Halesworth, and the sports facilities proposed at the Alde Valley Academy in Leiston.
- 5.18.38. The assessment for the MDS considered noise generating activities based on a double day and/or single shift pattern between 07:00 and 23:00 with a night shift of 23:00 to 07:00. The assessment scenarios have been split between day and nighttime as the night shift would be limited generally to maintenance and logistics support.
- 5.18.39. The ADS are not proposed to be constructed under the same working arrangements and therefore the assessments take into account working hours taking place during Monday to Saturday 07:00 to 19:00, with no working on Sundays or bank holidays, with no evening or nighttime works proposed.
- 5.18.40. Calculations to predict traffic noise levels during the operation of the Proposed Development were made in accordance with the methodology set out in Calculation of Road Traffic Noise (CRTN) using the data from the Transport Assessment [APP-602] with two scenarios, a typical day and a busiest day in 2028 with the only difference being the Sizewell C HGV traffic. 2034 was then used as an operational date when construction traffic has been assumed to have ceased.

Construction Noise at the MDS

- 5.18.41. The noise assessment followed the development site construction programme divided into five phases:
- Phase 1: Site establishment and preparation for earthworks (Years 1–2);
 - Phase 2: Main earthworks (Years 1–4);

- Phase 3: Main civils (Years 3–9);
- Phase 4: Mechanical and electrical fit out, instrumentation and commissioning (Years 4–11); and
- Phase 5: Removal of temporary facilities/restoration of the land (Years 10–12).

5.18.42. The Ancillary Construction Area (ACA) has been included within the MDS but the noise assessment differs as the daytime construction activities would differ from the rest of the MDS.

5.18.43. Nighttime noise from construction was assessed based on two scenarios:

- The Green Rail Route Only, (Up to 8.5 years of activity) and
- The Green Rail Route, excavation, and all associated activities (Around 15 months during phase 3).

5.18.44. It was assumed in both cases that the noise sources would on average be present to a consistent level every night for the duration of the whole period and could therefore be regarded as conservative.

5.18.45. The approach taken to evaluate noise effects for all construction work has been based upon the noise levels derived from Part 1 of BS5228-1. The levels used are set out in Table 1.4 of Appendix 6G of [APP-171] which is copied below:

Table 5.18.01 Threshold of potential significant effects at dwellings

Period	Assessment Category		
	A	B	C
Day: Weekdays, 0700-1900, Saturday, 0700-1300	65 dB LAeq,T	70 dB LAeq,T	75 dB LAeq,T
Evenings and weekends: Weekdays 1900-2300, Saturdays 1300-2300 Sundays 0700 - 2300	55 dB LAeq,T	60 dB LAeq,T	65 dB LAeq,T
Every day 2300 - 0700	45 dB LAeq,T	50 dB LAeq,T	55 dB LAeq,T

5.18.46. The assessment has also considered the impacts of mechanical services during construction and operation which incorporates a Combined Heat and Power plant required to support the accommodation campus and an electricity substation proposed near Lower Abbey Farm.

5.18.47. The ES found that during:

- Phase 1a noise levels at 11 receptors would be significantly adverse, and secondary mitigation including additional screening will be required and would be secured through the CoCP;
- Phase 1b/2 (assumed three years) noise levels at two receptors would be significantly adverse and secondary mitigation including additional screening will be required and would be secured through the CoCP;
- Phase 3/4 (assumed more than eight years) noise levels at all 16 receptors are predicted to be not significant; and
- Phase 5 restoration (assumed more than two years) noise levels at all receptors are predicted to be not significant.

5.18.48. During Phase 1a and Phase 5 significant adverse effects are predicted at eleven receptors for a short duration when works are in close proximity to those receptors, which would be significant. All reasonable steps to mitigate and minimise significant effects would be secured through the CoCP.

5.18.49. Pro Corda/ Leiston Abbey as a high sensitivity receptor is predicted to have low impacts, this is considered significant.

5.18.50. The construction SOAEL of 75dB for the weekday period of 08:00-18:00 is not predicted to be exceeded at any receptor. However, the lower SOAEL value for the periods outside the main weekday period are predicted to be exceeded at nine receptors in Phases 1a and the noisiest month in Phase 5, at one receptor in Phase 1b/2 and no other receptors during the other Phases.

5.18.51. Exceedances of the SOAEL will be avoided by managing the works in a way that avoids the noisiest activities at the most sensitive parts of the day, secured through the CoCP. Where such works cannot be managed in this manner, exceedances of the SOAEL will be avoided through the provision of noise insulation under the Noise Mitigation Scheme (NMS).

5.18.52. The LOAEL, which for construction noise is taken to be equal to the existing baseline sound levels, is likely to be exceeded at all of the receptor locations for at least some of the time during the construction works. This would be mitigated and minimised through following best practice as outlined in BS-5228-1, the CoCP, and mitigation included within the design of the project.

Noise levels at the ACA

5.18.53. The ES assessed the noise effects over different phases of construction at the ACA:

- Initial strip/level; daytime construction noise impacts identify that the noise levels at five receptors are predicted to be significant.
- Preparation (around nine months) including completion of the rail branch line; daytime construction noise impacts identify that the noise levels at one receptor in King George's Avenue are predicted to be significant.
- Early Years Operation including operation of rail branch line spur and the Green Rail Route (GRR) under construction; identifies that all

receptors during this phase, have a 'low', or 'very low' magnitude of impact which is not significant.

- Later Years Operations (around 8.5 years) with the GRR operational and the rail spur no longer in use; identifies that all receptors during this phase, have a 'low', or 'very low' magnitude of impact which is not significant.
- Removal and Reinstatement which may take more than two years, identifies that all receptors during this phase, have a 'low', or 'very low' magnitude of impact which is not significant.

5.18.54. The highest noise levels during the final phase are expected to be similar to those generated in the first phase and for a short duration however, five receptors are predicted to be subject to a significant adverse effect as such mitigation will be required through implementation of measures set out in the CoCP.

5.18.55. The Applicant concludes that during the weekdays 08:00-18:00 the SOAEL of 75dB is predicted to not be exceeded at any of the receptors, however the lower SOAEL adopted for the periods outside of the main weekday works are expected to be exceeded at two receptors during both the initial strip and removal and reinstatement phases. The exceedances will be avoided by managing the works in line with the CoCP. Where works cannot be managed in this way the NMS would apply.

Nighttime Construction Noise

5.18.56. The ES concludes that for 22 of the 25 receptors assessed nighttime noise levels would not be significant, being low or very low in magnitude. The other three receptors, Ash Wood Cottage, Old Abbey Farm/Care Home and Roundhouse would be subject to noise at levels regarded as of medium magnitude for the 8.5 years of nighttime construction which is considered a significant adverse effect.

5.18.57. The construction SOAEL of 55dB for the nighttime period between 23:00 and 07:00 will not be exceeded at any of the assessed receptors, through managing the works in line with the CoCP or where such management would not be effective, through applying the NMS.

5.18.58. The LOAEL is predicted to be exceeded at all of the receptor locations for at least some of the time and would be mitigated and minimised through the measures within the CoCP and mitigation incorporated into the design of the project.

Operational Noise at the MDS

5.18.59. The operational noise assessment considered two alternatives, the power station alone and the power station in combination with the back-up diesel generators operating at the end of an outage. These are detailed within [APP-205].

5.18.60. The ES concludes that the predicted sound rating levels (L_{Ar}) would result in a low or very low magnitude of impact and would not result in a significant effect at any receptor including Leiston Abbey/Pro Corda.

- 5.18.61. During the nighttime at fourteen of the receptor areas assessed a very low or low magnitude of effects is predicted, while at nine receptors it is predicted to be of medium magnitude. The ES does not however predict a significant effect as the overall noise level would not exceed 40dB L_{night} .
- 5.18.62. During the testing of the back-up generators a medium magnitude of impact is predicted at three receptors, namely Abbey Farm, Keepers Cottage and Plantation Cottages. This would be for a limited period each year, assumed to be approximately five days per generator.
- 5.18.63. Taking into account the relative locations of the receptors and the generators, this effect would result in the predicted levels at Abbey Farm and Plantation cottages for ten days and at Keepers Cottage for five days.
- 5.18.64. Generator testing would also take place after each outage which will occur every 18 months and this would affect Abbey Farm and Plantation Cottages for two days and Keepers Cottage for a single day. The overall effect is considered not significant.
- 5.18.65. During nighttime at ten of the receptors the noise levels are predicted to be a low or very low level of magnitude and therefore not significant. At a further twelve receptors the magnitude of effect is predicted to be medium and at Keepers Cottage, Reckham Lodge, and Upper Abbey a high magnitude of impact at night. The ES does not however predict a significant effect as the overall noise level would not exceed 40dB L_{night} .
- 5.18.66. The adopted SOAEL is not expected to be exceeded at any location either during the day or nighttime. While the LOAEL will be met across all the tested scenarios the design and mitigation proposed is considered to mitigate and minimise adverse effects on health and quality of life.

Construction Vibration at the MDS

- 5.18.67. The ES in [APP-202] assesses the effects from or potential for vibration for nearby residential receptors and considered each of the main sources of potential vibration from each of the activities that could give rise to such issues during each phase of construction. It recognises there is the potential for receptors in close proximity to potentially experience some vibration but the effect at all receptors is regarded as not significant.
- 5.18.68. No exceedances of the SOAEL of 10mm/s Peak Particle Velocity (PPV) are predicted although exceedance of the LOAEL of 0.3mm/s PPV is predicted at all eight receptors. This would be mitigated and minimised through the CoCP.
- 5.18.69. During the final removal and reinstatement phase vibration levels would remain below the LOAEL of 0.3mm/s, PPV.

Noise at the ADS

- 5.18.70. The approach taken to evaluate noise effects for all construction work associated with the Sizewell C Project on occupiers of dwellings and other

permanent residential accommodation is that outlined in Part 1 of BS 5228. While the assessment of mechanical services noise from the operational park and ride sites was considered using the assessment approach from BS 4142, the initial magnitude of impact is defined by the difference between the rating and background sound levels.

Southern Park and Ride (SPR)

Construction

- 5.18.71. The construction phase is anticipated to take between 12-18 months with the construction work taking place during Monday to Saturday 07:00 to 19:00, with no working on Sundays or bank holidays. No evening or nighttime works during construction are proposed.
- 5.18.72. No significant effects have been identified for any of the activities during construction, operation or removal and re-instatement of the Proposed Development for any work occurring between 13:00 and 19:00, except on a Saturday at receptor A (Bottle and Glass Cottages) during construction of parking and circulation routes and the removal and restoration phases. It would therefore be necessary to reduce noisier activities during these construction works in this period.
- 5.18.73. The construction SOAEL of 75dB for the weekday daytime period of 08:00 to 18:00 will not be exceeded at any of the receptors. The lower SOAELs that are adopted for the periods outside of the main weekday daytime works are also predicted to be not exceeded at any receptor. The LOAEL which for the construction works equals existing baseline levels is predicted to be exceeded at all receptor locations. This would be mitigated and minimised through following best practice as outlined in BS-5228-1, the CoCP, and mitigation included within the design of the project.

Operation

- 5.18.74. Utilising the MDS construction shift patterns as shown in Table 4.19 of [APP-384] and the traffic data associated with these shift patterns, the ES shows that the worst effects would be negligible which is not considered significant. The SOAEL and daytime LOAEL will not be exceeded at any time at any receptor.
- 5.18.75. The office and security buildings on site could be manned 24hrs a day and the mechanical services associated with these buildings could therefore also be in operation for the same period. The distance to the nearest noise receptor is approximately 500m and with appropriate plant selection, design and orientation a free field level of 35dB $L_{Ar,15\text{minute}}$ will not be exceeded.

Vibration

- 5.18.76. The site is in excess of 90m from all sensitive receptors so vibration levels from construction will be less than 0.3mm/s PPV and consequently would be below a low-level magnitude of impact. This is not regarded as significant.

Northern Park and Ride (NPR)

Construction

5.18.77. The construction phase of the NPR is anticipated to take between 12-18 months with the construction work taking place during Monday to Saturday 07:00 to 19:00, with no working on Sundays or bank holidays. No evening or nighttime works during construction are proposed.

5.18.78. On Monday to Friday, 07:00 to 19:00 and between Saturday, 07:00 to 13:00, significant effects from noise are predicted for receptors:

- A – properties west of the East Suffolk Line (south site);
- B – properties east of the A12 at the southern end of the site;
- C – properties east of the A12 at the centre of the site;
- D – properties to the west of the A12, to the east of the site; and
- G – properties to the north of the site, west of the A12.

during some phases of construction and receptors A, B, C and D during removal and reinstatement. No other significant effects are predicted from noise or vibration during any other phase of construction during these days and time periods or during operation at these or other receptors.

5.18.79. Between 13:00 and 19:00 on a Saturday, noise levels are predicted to be significant at all receptor locations during some or all of the construction and removal and reinstatement phases. Construction mitigation measures may include additional screening or changing working methods and times, including limiting noisy activities on Saturday afternoons.

5.18.80. The Applicant concludes that during the weekdays 08:00 to 18:00 the SOAEL of 75dB is predicted to not be exceeded at any of the receptors, however the lower SOAEL adopted for the periods outside of the main weekday works are expected to be exceeded at five receptors.

5.18.81. The exceedances will be avoided by managing the works in line with the CoCP. Where works cannot be managed in this way the NMS would apply. The LOAEL which for the construction works equals existing baseline levels is predicted to be exceeded at all receptor locations. This would be mitigated and minimised through following best practice as outlined in BS-5228-1, the CoCP, and mitigation included within the design of the project.

Operation

5.18.82. The NPR would operate during the day, evening and night, but would not be operational between 01:00 and 05:00, with noise from the movement of vehicles being the dominant source. Noise sources from mechanical services from welfare and security buildings have also been assessed. Contour plots have been developed with sound levels at 1.5m above ground level for daytime and 4.5m for nighttime.

5.18.83. Utilising the MDS construction shift patterns as shown in Table 4.19 of [APP-354] and the traffic data associated with these shift patterns, the

ES shows that the worst effects would be minor adverse which is not considered significant. The SOAEL and daytime LOAEL will not be exceeded at any time at any receptor and the nighttime LOAEL will only be exceeded at one receptor. This would be mitigated and minimised through the mitigation measures included in the design and use of the Construction Worker Travel Plan (CWTP).

Vibration

- 5.18.84. The site is in excess of 90m from all sensitive receptors so vibration levels from construction will be less than 0.3mm/s and consequently would be below a low-level magnitude of impact. This is not regarded as significant.

Sizewell Link Road (SLR)

Construction

- 5.18.85. The ES assessment considers two construction phases for the SLR, site preparation and the main construction phase. For the operation of the roads noise levels are considered during peak construction (2028) and in 2034 when the construction of the power station is assumed to have been completed.
- 5.18.86. The construction phase is anticipated to last up to 24 months with construction being undertaken between 07:00 to 19:00 Monday to Saturday. Construction activities outside of this time would be undertaken only with prior notice being given to East Suffolk Council (ESC).
- 5.18.87. During the preparation phase of construction, significant adverse effects would occur at Fir Tree Farm and Rosetta on Monday to Friday between 07:00 and 19:00 and on Saturday between 07:00 and 13:00. On Saturdays between 13:00 and 19:00, significant adverse effects would occur during site preparation works at Fir Tree Farm, Dovehouse Farm, Church Farm, Rosetta, Rookery Farm and Keepers Cottage.
- 5.18.88. On Monday to Friday, 07:00 to 19:00 and between 07:00 and 13:00 on Saturdays, significant adverse effects are predicted during the main construction phase at the following receptors:
- Rec 1. Fir Tree Farm,
 - Rec 5. Crossroads,
 - Rec 6. Garden House Farm,
 - Rec 8. Yoxford Road,
 - Rec. 9 Hill Farm,
 - Rec 10. Valley Farm,
 - Rec 11. Annesons Cottage,
 - Rec 12. Trust Farm,
 - Rec 14. Theberton Hall,
 - Rec 16. Doughty Wylie Crescent,
 - Rec 17. Theberton Grange,
 - Rec 18. Theberton House,
 - Rec 19. Oakfield House,

- Rec 20. Hawthorn Cottages,
- Rec 21. Coronation Cottages,
- Rec 22. Annesons Corner, and
- Rec 30. Rosetta.

5.18.89. Between 13:00 and 19:00 on Saturdays, significant adverse effects are predicted during the preparatory phase at:

- Rec 1. Fir Tree Farm,
- Rec 15. Church Farm, and
- Rec 33. Rookery Farm.

and during the main construction phase at the following receptors:

- Rec 1. Fir Tree Farm,
- Rec 2. Buskie Farm,
- Rec 3. Fordley Hall,
- Rec 4. Norwood House,
- Rec 5. Cross Roads,
- Rec 6. Garden House Farm,
- Rec 7. Mill Street,
- Rec 8. Yoxford Road,
- Rec 9. Hill Farm,
- Rec 10. Valley Farm,
- Rec 11. Annesons Cottage,
- Rec 12. Trust Farm,
- Rec 13. Dovehouse Farm,
- Rec 14. Theberton Hall,
- Rec 15. Church Farm,
- Rec 16. Doughty Wylie Crescent,
- Rec 17. Theberton Grange,
- Rec 18. Theberton House,
- Rec 19. Oakfield House,
- Rec 20. Hawthorn Cottages,
- Rec 21. Coronation Cottages,
- Rec 22. Annesons Corner,
- Rec 30. Rosetta,
- Rec 33. Rookery Farm, Rec 34. Keepers Cottage,
- Rec 36. Hawthorn Farm, Rec 38. South of Theberton Grange,
- Rec 40. Tollgate,
- Rec 41. Moor Buildings.

5.18.90. The ES (paragraph 4.7.9) [APP-451] indicates that the mitigation measures and the control mechanisms included in the CoCP *"should be capable of reducing levels such that they are no longer significant."*

Operation

5.18.91. The Design Manual for Roads and Bridges (DMRB) document LA111 recommends that the noise level resulting from the use of a new road scheme is considered against the level which would exist in the absence of the scheme. The highest traffic flows in this instance are likely to be shortly after opening in 2028 with the additional construction traffic.

- 5.18.92. The ES noise level predictions have been made for the daytime and nighttime road traffic noise levels, in terms of the $L_{A10,18\text{hours}}$ and the L_{night} parameters respectively, with the development operational for the typical and busiest day in 2028, and for 2034.
- 5.18.93. The Applicant concludes that this results in both significant adverse effects and significant beneficial effects in 2028. There would be significant adverse effects for some properties close to the new road and some significant beneficial effects for properties which would be bypassed by the new road such as at Middleton Moor on the B1122.
- 5.18.94. In 2034, there would either be a negligible or beneficial effect for the majority of receptors, however, there remains a significant adverse effect in the long term at Fordley Hall, Trust Farm, Theberton Grange, Oakfield House and Hawthorn Cottages.
- 5.18.95. In taking a precautionary approach in considering noise from existing roads and proposed new roads the ES finds the SOAEL would be exceeded at the following locations:
- A12 Yoxford Centre (2028 typical day only);
 - B1122 Rail Crossing (both 2028 scenarios);
 - Laurel Farm (both 2028 scenarios).

Where exceedances of the SOAEL are confirmed, the provisions set out in the NMS will apply and exceedances of the SOAEL will be avoided.

Vibration

- 5.18.96. The Applicant concludes that beyond 40m from the proposed works vibration effects would be negligible apart from for specific activities such as piling where beyond 90m the effect would be negligible. There are predicted to be no exceedances of the SOAEL of 10mm/s PPV during any of the assessed vibration-generating works. The LOAEL of 0.3mm/s PPV is predicted to be exceeded at all six of the receptors considered. This will be mitigated and minimised through the measures which will be secured through the CoCP.

Two Village Bypass (TVB)

Construction

- 5.18.97. The ES assessment considers two construction phases for the TVB, site preparation and the main construction phase. While for the operation of the roads noise levels are considered during peak construction (2028) and in 2034 when the construction of the power station is assumed to have been completed.
- 5.18.98. The construction phase is anticipated to last up to 24 months with construction being undertaken between 07:00 to 19:00 Monday to Saturday. Construction activities outside of this time would be undertaken only with prior notice being given to ESC.

- 5.18.99. On Saturdays between 07:00 and 19:00, there would be a significant adverse effect at Mollett's Farm during the site preparation phase. There would be no other significant effects at this or any other receptor during site preparation.
- 5.18.100. On Monday to Friday, 07:00 to 19:00 and between 07:00 and 13:00 on Saturdays, significant adverse effects are predicted during the main construction phase at the following receptors:
- Rec 1. Chapel Cottages,
 - Rec 2. Parkgate Farm,
 - Rec 5. Stratford Grange,
 - Rec 12. Pond Barn Cottages,
 - Rec 13. Farnham Hall,
 - Rec 14. Farnham Hall Farmhouse,
 - Rec 15. Mollett's Farm,
 - Rec 17. Friday Street Farm,
 - Rec 18. 51 Friday Street,
 - Rec 19. Rosehill Cottages, and
 - Rec 33. Yew Tree Cottage.
- 5.18.101. Between 13:00 and 19:00 on Saturdays, significant adverse effects are predicted during the main construction phase at the following receptors:
- Rec 1. Chapel Cottages,
 - Rec 2. Parkgate Farm,
 - Rec 3. The Stables,
 - Rec 4. The Red House,
 - Rec 5. Stratford Grange,
 - Rec 8. Long Row 2,
 - Rec 11. The Old Vicarage,
 - Rec 12. Pond Barn Cottages,
 - Rec 13. Farnham Hall,
 - Rec 14. Farnham Hall Farmhouse,
 - Rec 15. Mollett's Farm,
 - Rec 17. Friday Street Farm,
 - Rec 18. 51 Friday Street,
 - Rec 19. Rosehill Cottages,
 - Rec 25. Church Bungalow, and
 - Rec 33. Yew Tree Cottage.
- 5.18.102. The ES also recognises there is the potential for combined effects from construction and increased construction traffic on the A12 during the early years. With two different sources of noise being experienced differently and assessment methods not being comparable, the ES relies on professional judgement to determine where any combined effect might occur.
- 5.18.103. The Applicant concludes in paragraph 4.6.11 of [APP-415] that:
- "No significant residual effects are predicted from changes to road traffic on existing roads in the vicinity, their presence in early years would*

therefore be unlikely change the predicted effects from construction noise when the two sources are considered in combination."

- 5.18.104. The Applicant concludes that during the weekday hours of 08:00 to 18:00 the SOAEL of 75dB is predicted to not be exceeded at any of the receptors, however the lower SOAEL adopted for the periods outside of the main weekday works are expected to be exceeded at 14 receptors.
- 5.18.105. The exceedances will be avoided by managing the works in line with the CoCP. Where works cannot be managed in this way the NMS would apply. The LOAEL which for the construction works equals existing baseline levels is predicted to be exceeded at all receptor locations. This would be mitigated and minimised through following best practice as outlined in BS-5228-1, the CoCP, and mitigation included within the design of the project as well as the management of the project through the Construction Traffic Management Plan (CTMP) and CWTP.

Operation

- 5.18.106. Using the recommended approach from Document LA111 from the DMRB the noise level resulting from the use of a new road scheme is considered against the level which would exist in the absence of the scheme. The highest traffic flows in this instance are likely to be shortly after opening in 2028 with the additional construction traffic. Using the future year of 2034 for the period when construction has been assumed to have completed.
- 5.18.107. The ES noise level predictions have been made of the daytime and nighttime road traffic noise levels, in terms of the $L_{A10,18\text{hours}}$ and the L_{night} parameters respectively, with the development operational for the typical and busiest day in 2028, and for 2034.
- 5.18.108. The Applicant concludes that this results in both significant adverse effects and significant beneficial effects in 2028. In 2034, there would either be a negligible or beneficial effect for the majority of receptors, however, there remains a significant adverse effect in the long term at Hill Farm, Pond Barn Cottages, Farnham Hall, Farnham Hall Farmhouse and Walk Barn Farm.
- 5.18.109. In taking a precautionary approach in considering noise from existing roads and proposed new roads the ES finds the SOAEL would be exceeded at Pond Barn Cottages in all three scenarios (the typical and busiest days in 2028 and 2034). The NMS would apply thus avoiding SOAEL.

Vibration

- 5.18.110. The Applicant concludes that beyond 40m from the proposed works vibration effects would be negligible apart from for specific activities such as piling where beyond 90m the effect would be negligible. Two receptors are identified within this zone of influence, receptor 16 Benhallstock Cottages at 40m and receptor 32 The Old Police House at 70m. In both cases the Applicant concludes the vibration levels would be not

significant, be below the SOAEL but above the LOAEL. This would be mitigated and minimised through the CoCP.

Yoxford Roundabout

Construction

- 5.18.111. For the purposes of this assessment, it is assumed that the construction working hours will be Monday to Saturday between 07:00 and 19:00 and the works would take up to nine months.
- 5.18.112. The ES identifies that during Monday to Friday between 07:00 and 19:00 and Saturday 07:00 to 13:00, a moderate adverse effect would be experienced due to noise during preparation work at Receptors 8, 9, 15 and 24 during the formation of the temporary contractor compound and at Receptors 2, 3, 6, 7, 8, 9, 15, 18 and 22 during the main construction phase. A significant adverse effect would be experienced at these receptors at these times without mitigation.
- 5.18.113. On Saturdays between 13:00 and 19:00 during site preparation work, a major adverse effect would occur at Receptor 8 and a moderate adverse effect is predicted at Receptors 9, 15, 18, 19 and 24. During the main construction phase, a major adverse effect would occur at Receptors 7, 18 and 22 and a moderate adverse effect would occur at Receptors 2, 3, 5, 6, 8, 9, 15, 19 and 20. A significant adverse effect would be experienced at these receptors at these times without mitigation.
- 5.18.114. The construction SOAEL of 75dB for the weekday daytime period of 08:00 to 18:00 is predicted to be exceeded at one of the assessed receptors, Rookery Lodge, and the lower SOAELs that are adopted for the periods outside of the main weekday daytime works are predicted to be exceeded at a further 19 receptors.
- 5.18.115. Exceedances of the SOAEL will be avoided by managing the works in a way that avoids the noisiest activities at the most sensitive parts of the day, secured through the CoCP. Where such works cannot be managed in this manner, exceedances of the SOAEL will be avoided through the provision of noise insulation under the NMS.

Operation

- 5.18.116. During the construction period for the power station and the operational period for the new junction arrangements, the ES concludes that in 2028 there would be nine receptors (or groups of receptors) which would experience a minor adverse effect as a result of the additional Sizewell C construction road traffic using the roundabout. These properties are The Cottage, Sunnypatch, The Old Barn, Rookery Cottages, Frith House, Garden Cottage / Clock House, Meadowbarn, Hopton Yard E of Old Barn and Honeycroft. The same outcome occurs in the busiest period of 2028. All other receptors would experience a negligible effect. There would be no significant effects.

- 5.18.117. In 2034, once Sizewell construction traffic is no longer present, all receptors would experience a negligible change in road traffic noise. The effect would be not significant.
- 5.18.118. The SOAEL is exceeded in at least one period at the following receptors, and the cause of that exceedance is considered to be the proposed development, ie, the change in road traffic is at least 1dB:
- 5.18.119. Sunnypatch (both 2028 scenarios); The Old Barn (both 2028 scenarios); Rookery Cottages (2028 busiest day only); Hopton Yard East of Old Barn (2028 busiest day only). The SOAEL is not expected to be exceeded in the long term, once the Sizewell C project is operational.
- 5.18.120. No significant adverse effects are predicted during the operational phase and no mitigation is therefore proposed.

Vibration

- 5.18.121. The LOAEL of 0.3mm/s is predicted to be exceeded at two of the receptors considered The Cottage and Sunnypatch. This will be mitigated and minimised through the measures secured through the CoCP. Other receptors would experience either low or negligible effects which would be not significant. There are no predicted exceedances of the SOAEL.

Proposed improvements at the A12/A144 junction south of Bramfield

- 5.18.122. Construction work associated with improvements at the A12/A144 junction south of Bramfield has been assessed where it may give rise to adverse noise or vibration levels. These changes will not alter the existing or future forecasted traffic flows on the road, and therefore have been screened out of the assessment.
- 5.18.123. Noise levels from construction at this junction are predicted to be high in magnitude at Stone Cottage and Woody End and are predicted to exceed the SOAEL of 75dB for the weekday daytime period of 08:00 to 18:00 at Stone Cottage and both receptors for the lower SOAEL levels outside the weekday main working time, however they are expected to be for less than 10 days in any 15 consecutive day period and less than 40 days in a six-month period. On this basis the Applicant concludes the SOAEL will not expect to be exceeded.
- 5.18.124. In terms of vibration the LOAEL of 0.3mm/s PPV is predicted to be exceeded at one receptor Stone Cottage. This will be mitigated and minimised through the measures secured through the CoCP. Other receptors would experience either low or negligible effects which would be not significant. There are no predicted exceedances of the SOAEL.

Freight Management Facility (FMF)

- 5.18.125. It is proposed that construction works would only take place 07:00 to 19:00 Monday to Saturday. No evening or nighttime works during construction have been assessed. Given the level of noise and vibration

sources and distance between the closest noise and vibration sensitive receptors (approximately 350m), adverse effects are not predicted.

- 5.18.126. The FMF is anticipated to operate 24 hours a day during peak construction at the MDS, the ES predicts that there would be no exceedances of either the SOAEL or LOAEL from the operation of the FMF.

Construction Noise at the Fen Meadow Compensation Areas

- 5.18.127. The noise effects that are predicted to occur at noise sensitive receptors as a result of construction at the Benhall or Halesworth fen meadow compensation areas are considered to be not significant.
- 5.18.128. The construction noise levels, which are set out in Appendix 11D will be below the SOAEL at all receptors for the main daytime working hours between 08:00 and 18:00, even when the free-field values are adjusted by +3dB to obtain façade levels.
- 5.18.129. The lower SOAELs that are adopted for the periods outside of the main weekday daytime works are predicted to be exceeded at four receptors for the works at Benhall, but not elsewhere, when the free-field values are adjusted by +3dB to obtain façade levels. However, the works are expected to generate noise at the levels predicted for no more than one or two days.

Construction noise at Alde Valley Academy sports facilities

- 5.18.130. Construction works would only take place between 07:00 and 19:00 Monday to Friday or 07:00 to 13:00 on Saturdays and are not anticipated to last more than 40 days. While noise levels may exceed SOAEL of 75dB due to the short duration of the works this is not regarded as significant. The works would be managed through the CoCP to ensure that the noisiest activities were undertaken in the least sensitive part of the day.

Road Traffic Noise

- 5.18.131. Road traffic noise is related to the transport model which is based on the assessment of two representative construction years and an operational year.
- Early years (2023) – represents the early years peak in construction traffic when the MDS and ADS are under construction;
 - Peak year (2028) – represents the peak year of construction on the Sizewell C Project and when the ADS are constructed and operational; and
 - Operational year (2034) – represents an early operational year for Sizewell C when all construction works are complete and temporary development removed and reinstated.
- 5.18.132. Additionally, during 2028 the number of HGVs could be higher on a typical day, so a typical day and busiest day scenario have been assessed.

- 5.18.133. The ES assessment was updated with revised noise traffic modelling as a result of the refinements to the strategic traffic modelling and sensitivity testing [AS-204] and subsequently in [REP6-017].
- 5.18.134. CRTN sets out standard procedures for calculating noise levels from road traffic. The calculation method uses a number of input variables, including traffic flow volume, average vehicle speed, percentage of heavy goods vehicles, type of road surface, site geometry and the presence of noise barriers or acoustically absorbent ground, to predict the LA10,18hrs or LA10,1hr noise level for any receptor point at a given distance from the road.
- 5.18.135. With regard to the TVB and SLR the road traffic noise modelling was updated in the Third ES Addendum [REP6-017]. As a result, the predicted effects at the TVB were corrected to read:

"During the peak construction year (2028) for the main development site on a typical day when the two village bypass is used for Sizewell C construction traffic, significant noise effects have been identified at: Parkgate Farm, Hill Farm, The Old Vicarage, Pond Barn Cottages, Farnham Hall, Farnham Hall Farmhouse, Church Bungalow and Walk Barn Farm. During the busiest day in the peak construction year of 2028, further significant noise effects are expected at Chapel Cottages.

During the peak construction year (2028) on a typical day, and also on the busiest day, beneficial significant noise effects are expected at 15 properties."

And for the SLR:

"During the peak construction year (2028) for the main development site on a typical day when the Sizewell link road is used for Sizewell C construction traffic, significant adverse noise effects have been identified at: Fordley Hall, Trust Farm, Dovehouse Farm, Theberton Hall, Church Farm, Doughty Wylie Crescent, Theberton Grange, Theberton House, Oakfield House, Hawthorn Cottages, Rookery Farm, Keepers Cottage, Town Farm, Hawthorn Farm, Moat House, South of Theberton Grange and Rose Farm. During the busiest day in the peak construction year of 2028, further significant adverse noise effects are expected at B1122 East of Yoxford.

During the peak construction year (2028), on a typical day and the busiest day, beneficial significant noise effects are expected at 11 properties.

Noise levels at properties along the link road are expected to reduce following completion of the Sizewell C power station, as the road will no longer be used for Sizewell C construction traffic. However, significant noise effects are anticipated to remain in the long term at: Fordley Hall, Trust Farm, Dovehouse Farm, Oakfield House and Hawthorn Cottages."

- 5.18.136. The Applicant found that the noise levels along the link road would be expected to reduce following the completion of construction, however despite the reduction in construction traffic:

"significant noise effects are anticipated to remain in the long term at: Fordley Hall, Trust Farm, Dovehouse Farm, Oakfield House and Hawthorn Cottages."

5.18.137. In respect of noise at Yoxford Roundabout [AS-186] summarises that although the effect categories are not predicted to change at any of the receptors, all of the changes in traffic noise are either beneficial, i.e., a smaller increase in traffic noise or a greater reduction in traffic noise, or there is expected to be no change in the significance of effects. [AS-251] sets this out in further detail.

Construction traffic noise on the existing network

5.18.138. The assessment identified the routes which could be subject to an increase in road noise of greater than 1dB, $L_{A10, 18h}$ during the day or 1dB L_{night} . For each section three scenarios were assessed:

- In 2023, without Sizewell C construction traffic (the 2023 reference case) and in 2023 with Sizewell C construction traffic at its peak during the early years;
- In 2028, without Sizewell C construction traffic (the 2028 reference case) and in 2028 with Sizewell C construction traffic at its peak during construction; and
- In 2028, without Sizewell C construction traffic (the 2028 reference case) and in 2028 with Sizewell C construction traffic at its busiest during peak construction.

5.18.139. Table 11.26 within [APP-202] sets out those links where there was predicted to be a moderate adverse effect and is copied below:

Table 5.18.02 Predicted significant adverse noise levels from road traffic

Scenario	Location	Effect	Level difference	Period
2023	Lovers Lane	Moderate adverse	3.2 to 3.9dB	Day
	B1122 between Yoxford junction and B1125 junction	Moderate adverse	3.4 to 3.8dB	Day
2028	B1122 between eastern junction of Sizewell Link Road and Sizewell C Site Access Road	Moderate adverse	3.4dB	Day
	A12 slip road, west of Wickham Market Park and Ride	Moderate adverse	4.0dB	Day
			4.9dB	Night
Kings Road, Leiston	Moderate adverse	4.3dB	Day	
2028 (busiest period)	B1122 between eastern junction of Sizewell Link Road and Sizewell C Site Access Road	Moderate adverse	3.9dB	Day
	A12 slip road, west of Wickham Market Park and Ride	Moderate adverse	4.0dB	Day
			4.9dB	Night
Kings Road, Leiston	Moderate adverse	4.3dB	Day	

- 5.18.140. In the case of each of these roads, traffic generated by the Proposed Development is considered to be a substantial cause of the identified increase in road traffic noise. The SOAEL for the relevant daytime or nighttime periods were found to be likely to be exceeded at one property on Lovers Lane during the daytime and 11 properties along the B1122 between Yoxford and the B1125 junction during the daytime. Where exceedances of the SOAEL are identified, the provisions set out in the NMS will apply and exceedances of the SOAEL will be avoided.

Railway Noise

- 5.18.141. The assessment of operational railway noise and vibration was originally set out in Volume 9, Chapter 4 of the ES [APP-545], including its associated Appendix 4B [APP-546]. The derivations of the assessment methods and criteria were set out in Volume 1, Appendix 6G of the ES [APP-171].
- 5.18.142. The assessment was undertaken on the basis of the Calculation of Railway Noise (CRN) 1995 from the Department of Transport. According to the Applicant in paragraph 4.66 of Appendix 6G, Annex 6G.1 [APP-171]:
- "CRN sets out standard procedures for calculating noise levels from railways, using a number of input variables, including vehicle type, speed, site geometry and the presence of noise barriers or acoustically absorbent ground to predict a Sound Exposure Level (SEL) at the receiver point. The SEL is converted to daytime and night-time values by applying appropriate corrections and accounting for the number of trains within each time period."*
- 5.18.143. The assessment of rail noise was updated in the First ES Addendum [AS-188] and associated appendices [AS-257 and AS-258]. This was based upon the Freight Management Strategy [AS-280] for the project which provides for up to four trains per day (eight train movements) at the peak of construction once a new rail extension is constructed, namely the GRR. Seven of these movements will be at night. It anticipated that the peak of construction, will last from 2024 to 2028.
- 5.18.144. Prior to the completion of the GRR and following the refurbishment of the Saxmundham to Leiston branch line, there will be a maximum of two trains per day, (four train movements), with three at night.
- 5.18.145. The updated assessment confirmed there was no change to the assessment of airborne railway noise and there would be fewer effects in respect of groundborne and low frequency noise.
- 5.18.146. With the provision of the Rail Noise Mitigation Plan (RNMP) measures to mitigate and minimise railway noise and vibration that might arise from running construction trains on the East Suffolk line, the Saxmundham to Leiston branch line, and the rail extension route, as part of the Sizewell C project the Applicant concludes that railway noise will be managed to acceptable levels.

- 5.18.147. The latest draft of the RNMP was submitted at DL10 [REP10-043] and the final version will be submitted to ESC for approval under the terms of Requirement 39 of the draft DCO.
- 5.18.148. Requirement 39 secures the Rail Noise Mitigation Strategy (RNMS) (now to be called Draft Rail Noise Mitigation Plan) in advance of rail movements. The approved plan will then be implemented, monitored and enforced for the duration of overnight rail movements.
- 5.18.149. Three of the key findings from the assessments informed the approach adopted in the supplemental noise assessment:
- the effect of the additional trains on the East Suffolk line during the daytime was found to be negligible;
 - at night, the increase in noise level over the whole of the nighttime period along the East Suffolk line and the maximum levels arising from the peak of noise from individual passing trains would both result in a significant adverse effect for some receptors; and
 - for all receptors, the most significant effects were determined by the maximum noise levels, assessed using the L_{AFmax} parameter, not the overall noise levels across the whole of the nighttime period.
- 5.18.150. A draft RNMS [AS-258] set out specific operational and physical measures to control railway noise and vibration. This was updated through the Examination [REP8-071] and includes the following physical measures:
- Junction changes at Saxmundham;
 - Improvements to the track and track support system on the Saxmundham to Leiston branch line;
 - Provision of the rail extension (GRR);
 - Consideration of acoustic barriers in defined locations;
 - Consideration of replacement track and/or upgrading of joints or welds along the East Suffolk line; and
 - Contract with Network Rail (NR) to upgrade level crossings at 6 locations on the East Suffolk line.
- 5.18.151. Operational measures include:
- Speed limits of 10mph at night in three locations, Woodbridge/Melton, Campsea Ashe and Saxmundham. A plan identifying the zones is located in [APP-547] and included in the RNMP;
 - Locomotive selection;
 - Nighttime restrictions in Leiston between 23.00 and 07.00; and
 - Limit of four trains per day (eight movements).
- 5.18.152. Additional assessments were undertaken in respect of Whitearch Park [REP6-030] a small group of residential park homes sited adjacent to the railway line. This provides an assessment of noise from rail and considered whether a noise barrier is necessary to achieve a suitable level of noise environment in this location.
- 5.18.153. In addition, the Applicant undertook an Acoustic Fencing Assessment [REP6-024] to understand what potential benefits might be realised if

acoustic barriers could be provided at a number of locations in Woodbridge, Melton, Campsea Ashe, Whitearch Park, and Saxmundham.

5.18.154. As stated in [REP6-030] "*The supplemental noise assessment explained that any proposed barrier, whether on Network Rail land or land owned by Whitearch Park, would be subject to discussion with the relevant authorities, including Network Rail, East Suffolk Council and Benhall and Sternfield Parish Council, the owner and residents at Whitearch Park, and subject to the necessary permissions and further assessment of other potential environmental effects, prior to any decision whether or not to install any barriers.*"

5.18.155. Two of the existing park homes were predicted to have noise levels of between 70dB and 77dB, with a third park home predicted to be just over 77dB. These are considered to be moderate adverse effects at two park homes and a major adverse effect at the third; these are regarded as significant effects in an EIA context. For the single park home predicted to be exposed to L_{AFmax} noise levels above 77dB, planning policy requires the effect to be avoided, which can be achieved through the NMS.

Matters raised during Examination

5.18.156. The Councils identified noise as an important and relevant issue within section 18 of the LIR [REP1-045]. ESC [REP6-032, REP7-112] continued to raise issues in respect of construction noise, and how the controls and mitigation that needed to be in place would be appropriately secured. The ExA posed a series of questions to the Applicant and other IPs at ExQ1 [PD-021], ExQ2 [PD-036] and ExQ3 [PD-048] and these issues were considered further during Issue Specific Hearing (ISH) 8.

Construction Noise at the MDS

5.18.157. Noise from construction at the MDS remained a concern to a number of IPs throughout the Examination including the Dowleys [REP5-226, REP10-307] and Leiston-cum-Sizewell Town Council [REP7-135]. Concerns ranged from the 24 hour working arrangements, the proximity of the borrowpits to residential receptors as well as the broader effects from noise on the surrounding area.

5.18.158. As the MDS is sited within the Suffolk and Heaths Area of Outstanding Natural Beauty (AONB) the potential for an adverse effect on the AONB as a consequence of the construction noise was also an important consideration throughout the Examination.

5.18.159. The Pro Corda Trust [RR-0993] made submissions in respect of the potential adverse effect of the Proposed Development on their role as a specialist school supporting vulnerable people. This property was identified by the Applicant within the ES as a sensitive receptor.

Noise effects on the AONB

5.18.160. The Applicant undertook a detailed tranquillity assessment at Appendix 15E of [APP-270] which included a survey of existing noise levels at a

variety of locations around the MDS (A map identifying these locations can be found at Figure 15.3 of APP-271]. This recognises the current quality of the noise environment in and around the MDS.

- 5.18.161. The veracity of the assessment was accepted by all parties as a fair and reasonable portrayal of the current and likely future position through the construction phases of the Proposed Development. It describes the baseline sound environment in these areas and describes the likely sound effects from the likely construction activities. These descriptions from the ExA's experiences fairly reflect the current experiences that people have when visiting the AONB and the Public Right of Way within this area.
- 5.18.162. The ExA is appreciative that as a tranquillity assessment, this is an important piece of evidence which reflects the broader appreciation of the natural environment in a way which a more traditional noise assessment might do.
- 5.18.163. As reflected by the Suffolk Coast and Heaths AONB Partnership in their Representations, and the final Statement of Common Ground (SoCG) [REP10-108] despite the mitigation being offered the Partnership remain concerned that adverse noise effects particularly on the beach, and for the users of the coastal path would remain which do not contribute to the purpose of the AONB which include relative tranquillity.
- 5.18.164. Following ISH8 Together Against Sizewell C (TASC) in their post hearing submission [REP7-245] reiterated the concern they had raised in [REP5-296] that EN-6 Vol II had specifically not assessed the potential impacts for the access road, as at the time of designation it was not certain the access road would take place. In TASC's view great weight should be placed on the adverse impacts from noise (amongst other things) on the designated areas.
- 5.18.165. The Applicant's response to the AONB Partnership WR [REP2-164] is provided in [REP3-042] where they confirm their confidence that the assessment undertaken properly recognises the importance and statutory designation of the AONB. The Applicant also recorded that the special quality indicators are properly understood, and due regard has been paid to their sensitivity in formulating the conclusions within the ES.
- 5.18.166. The ExA agrees that the adverse effects on the noise environment within the AONB have been properly assessed, and the sensitivity of these receptors properly understood as reflected within the ES reflects. The AONB would be the subject of substantial construction noise which would have a materially harmful effect on tranquillity which is one of its statutory purposes, for the whole construction programme. While the ExA concludes that the package of measures offered through the DCO, Deed of Obligation (DoO) and control plans would mitigate and manage these harms as well as could be expected, they nevertheless would still result in harm to the statutory purpose of the AONB over a substantial area.

The Pro Corda Music School

- 5.18.167. In recognising from the outset, the sensitivity of this receptor to the potential adverse effects from the Proposed Development, the Applicant has worked through the Examination with the Pro Corda Trust and English Heritage Trust (EHT) in developing a strategy of mitigation which has been agreed with both the Pro Corda Trust and EHT.
- 5.18.168. The details of the mitigation that have been agreed with the Pro Corda Trust are set out in response to ExQ2 Cu.2.8 [REP7-052] and this is to be secured by the Pro Corda Resilience Fund, and an additional noise mitigation fund for noise insulation measures at the residential element of the school. These measures are secured within Schedule 13 of the DoO [REP10-075].
- 5.18.169. In the ExA's view the mitigation for the Pro Corda music school secured through the DoO satisfactorily responds to the noise effects of the Proposed Development and significant noise effects have been satisfactorily resolved. This is an agreed position with the Pro Corda School and EHT as set out in the SoCG [REP10-109].

Temporary Construction Area - Borrowpits and Stockpiles

- 5.18.170. The borrowpits are detailed to be within the Temporary Construction Area (TCA) of the MDS which is identified on Fig 3D.1 of the Construction Method Statement (CMS) [REP10-025]. Due to the nature of the activities anticipated to occur and the proximity of the borrowpits to Eastbridge and Potters Farm, specific concerns were raised by ESC and IPs throughout the Examination.
- 5.18.171. Within the CMS an acoustic fence is required to be provided where it is considered necessary to attenuate noise, this could be up to 5m in height. The approximate locations of the acoustic barriers are shown on Fig 3D.15 of the CMS. In addition, a bund must be created across the southern boundary of the site to reduce as far as practicable, the spread of construction noise from the MDS.
- 5.18.172. Works at the MDS are not time restricted and during the tunnelling for the cooling water infrastructure 24 hr working will be required which is anticipated would continue for around 15 months. During this time the excavated material will be transported to on site stockpiles during the day and the night, although the Applicant confirms within the CMS the distribution and grading of the material is restricted to daytime in order to reduce nighttime noise levels. The stockpiles are limited to a height of 5m above existing ground level.
- 5.18.173. Nighttime working is also anticipated at the sidings for the GRR, with materials being delivered at night needing to be stockpiled. This may comprise up to 50 articulated lorry movements per night.
- 5.18.174. ESC confirmed at ISH8 and in their post hearing submission [REP7-112] that the SOAEL and LOAEL values considered by the Applicant were agreed on the basis that the Council would seek real world controls in terms of lower noise construction thresholds enforced through Section 61 applications or equivalent.

5.18.175. ESC was however, concerned with regard to the assessment of construction noise at the TCA as this had the potential to be similar to a minerals site where different assessment methods and protections applied. ESC stated in [REP6-032]:

*"that the scale and duration of the works mean that the construction noise thresholds for **"construction activities involve large scale and long-term earth moving activities"** (from Annex E5 of BS 5228-1) would be more appropriate."*

5.18.176. The Applicant resisted this argument presented by ESC that applying the noise method of control from this guidance was appropriate but particularly as:

- *This would prevent evening working and preclude a double shift pattern thus preventing delivery of the project on programme; and*
- *Annex E.5 of BS5228-1 applies to "long-term substantial earth moving". This does not represent the nature of the construction work at this site.*

5.18.177. Create Consulting on behalf of the Dowleys [REP6-053 - REP6-056] expressed concern with regard to a number of aspects of how the ES had assessed noise from the MDS. They consider an appropriate method to be:

"the 2-5 dB(A) change method. Noise levels generated by site activities are deemed to be potentially significant if the total noise (pre-construction ambient plus site noise) exceeds the pre-construction ambient noise by 5 dB or more, subject to lower cut-off values of 65 dB, 55 dB and 45 dB LAeq,T from site noise alone, for the daytime, evening and night-time periods, respectively; and a duration of one month or more, unless works of a shorter duration are likely to result in an significant effect."

5.18.178. They also considered that the limited time taken for the readings of background levels to be inadequate:

"To accurately gauge the ambient sound level for a day, industry guidance recommends to establish the typical sound level, which would be the most commonly occurring hour long measurement between the hours of 07:00h to 23:00h. That is simply not possible when you are working with one or two 30 minute readings."

5.18.179. They also highlighted that the assessment that had been undertaken was only a preliminary assessment which did not have the full information from a contractor and as such could not provide a full understanding of the impacts that are likely to arise.

5.18.180. Create Consulting undertook their own assessment for the noise at Potters Farm which is set out in Appendix A of [REP6-053]. This found the noise readings were within 2dB of the findings set out by the Applicant. They also found the ambient background level to be very low with all activities from the ACA likely to increase the ambient level by 15dB to 55dB.

- 5.18.181. This, Create Consulting argue, shows that there would be considerable adverse effects on outdoor amenity space at the property and using the threshold of 50dB $L_{Aeq,T}$ as a guide (Taken from the WHO Community Noise Guidelines) is indicative of a significant adverse effect. Which in light of the length of the construction programme would be a considerable change for a long period.
- 5.18.182. Create Consulting also assessed the effect of the new access roundabout which they indicate is in the region of 675m away but would still create an adverse effect on the residential amenity of this property which would warrant mitigation.
- 5.18.183. The Applicant responded at [REP7-071] confirming that the whole approach was based on doing further work so that the assessments could be refined to secure appropriate mitigation, and this was secured through the NMMP. Under the terms of the NMMP the Applicant and contractors would be required to undertake further noise assessments in advance of works taking place, and these assessments would be carried out with the benefit of detailed contractor method statements.
- 5.18.184. During the Examination the threshold above which the Applicant and the contractors would be required to notify ESC and gain their approval prior to commencing work was changed. The final version of the NMMP includes a reduced threshold where work is predicted to be above 55dB $L_{Aeq,16hrs}$ and added an evening threshold of 50dB $L_{Aeq,4hrs}$. As confirmed by the Applicant in response to ExQ3 NV.3.0 the:
- "temporal overlap between the 16 hour daytime period and the new additional 4 hour evening period has no material effect in the context of noise predictions in advance of works; the calculations will simply consider both periods, and predicted exceedance of either will trigger the need for a Bespoke Mitigation Plan."*
- 5.18.185. The Applicant and contractors will be required to submit the details to ESC for approval, without which the works could not commence. This is secured through the NMMP and the CoCP.
- 5.18.186. The Applicant considered that the need to agree working methods and mitigation at a threshold of 55dB, which is equivalent to the lowest value for the evening period in the ABC⁴ method, represents an appropriate balance between providing ESC with the control mechanisms it considered appropriate, and balancing the need to deliver the project to

⁴ Notes: Assessment Category A: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are less than these values; Assessment Category B: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are the same as category A values; and Assessment Category C: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are higher than category A values. If the ambient sound level exceeds the Assessment Category C threshold values given in the table (ie the ambient sound level is higher than the above values), then an impact is deemed to occur if the total $L_{Aeq,T}$ sound level for the period increases by more than 3 dB due to construction activity

programme. This position was agreed with the Councils and confirmed in the final SoCG [REP10-102].

- 5.18.187. The Applicant also confirmed in response to ExQ3 NV.3.2 that while there was nothing to prevent 24 hr working at the northern borrowpits or stockpiles, this was not the intention and a discreet restriction in this area to limit earthwork operations has been added to the CoCP and is secured by Requirement 2 of the DCO.
- 5.18.188. In addition to this amendment during ISH12 the noise level that would trigger qualification for the NMS at the MDS was reduced giving an approximate 10dB reduction in the insulation eligibility criteria.

Ancillary Construction Area (ACA)

- 5.18.189. The activities associated with the ACA are materially different from those at the rest of the MDS and have been assessed by the Applicant accordingly. The timeline of effects will also differ across the construction projects as the rail sidings to be constructed are only to be used until such time as the GRR is available. Nevertheless, this will be a hub of significant activity as vehicles and workers transfer to and from this site throughout the construction programme.
- 5.18.190. This site is the closest part of the MDS to the town of Leiston and can be accessed from either Lovers Lane or along King George Avenue which runs through the town, past residential properties, from the junction with the B1069 and Aldeburgh Road.
- 5.18.191. The ExA sought additional information from the Applicant in light of the concerns raised by the Councils in the LIR [REP1-045], and the Applicant confirmed in response to ExQ3 NV.3.10 that the noise activities would be controlled at the ACA through the CoCP, and the NMMP. The two changes referred to, that cover the MDS, will also apply to the ACA and this has been set out within these control documents.

Noise during operation at the MDS

- 5.18.192. ESC maintained throughout the Examination, their concern that without appropriate controls in place or a maximum noise threshold in place there would be nothing that would protect the local residents or the AONB from the operational noise from the power station.
- 5.18.193. The ExA sought the views of the Applicant on these concerns in ExQ2 NV.2.5 where the Applicant confirmed [REP7-054] their position that noise controls were not required or appropriate.
- 5.18.194. ESC considered that a fixed noise limit of 35 dB $L_{Ar,15mins}$ should be adopted for operational plant noise from the power station (and Associated Development Sites), which would appropriately consider tonality, and which would also be consistent with the limits adopted elsewhere on the MDS. If this cannot be achieved for practical and/or engineering reasons then adequate technical justification should be provided [REP7-112].

- 5.18.195. The Applicant stated at ISH8 that an operational noise limit was not appropriate for the power station. The power station had been designed to be as quiet as reasonably possible. It includes a combination of plant and processes which are complex and highly regulated. Redesigning the power station or changing plant in order to attenuate noise further is not possible. A nighttime operational noise limit imposed by way of requirement, as sought by ESC, was inappropriate in principle. It would serve no purpose as the power station noise level cannot be significantly reduced. A requirement which serves no purpose cannot satisfy the tests for imposition of a requirement in NPS EN-1 paragraph 4.1.7. Further, ESC's request for a limit does not engage with the scenario of what would happen if the limit was exceeded. It is not realistic that ESC would or should seek to stop the nuclear power station operating.
- 5.18.196. Nevertheless, despite the different views being presented, as part of the SoCG [REP10-101] Appendix 11C, an agreed statement had been prepared and the Applicant agreed that the ESC position in seeking to safeguard the future noise environment was an appropriate and reasonable aim. As such, a Requirement has been added to the dDCO which limits the noise levels from the operation of the power station such that they would not exceed 45dB $L_{Aeq, 1hr}$.
- 5.18.197. The ExA considers that this is a reasonable position to take. This is a sensitive environment where the quality of the area in part comes from the quality of the noise environment. There is no evidence to dispute that the design of the power station has been undertaken to minimise noise impacts, however, as has been found from experience at Hinkley Point C as stated by the Applicant in written submissions [REP7-071] by making adjustments to specific components further noise reductions have been achieved.
- 5.18.198. By having a maximum threshold which is secured within the DCO the public can be reassured that the future noise environment will continue to be protected. In these circumstances the ExA considers this requirement to be appropriate and do not suggest any changes in the rDCO.
- 5.18.199. During the operation of the power station there will continue to be use of the permanent beach landing facility for deliveries which will continue to generate noise within the coastal environment, and which will be experienced by beach users and those on the route of the coastal path. These deliveries are however infrequent once every 5-10 years of short duration over 3-4 weeks, and while likely to be undertaken during calmer weather in periods when the coast will be more attractive to visitors, these temporary and short effects are not regarded as significant.
- 5.18.200. The access road would continue to generate a degree of noise throughout the operational period. While NPS EN-6 did not specifically consider this at the time it was designated as a site that had the potential for a further nuclear power station, the ExA are content that the noise assessments have properly considered the ongoing noise generation from the traffic and the operation of the power station. There will inevitably be a degree

of change over the current situation as the road would remain in a location where there is currently no vehicular access. This traffic noise, however, the ExA do not regard as something that would be something that could be regarded as significant and should not be something that should weigh against the granting of the DCO.

Rail

- 5.18.201. At the outset the application proposed a limited rail service to assist with the delivery of freight to the MDS. This changed when the Applicant submitted their first change request, which altered the approach to freight deliveries increasing the number of nighttime trains that could run along the East Suffolk line and then via Saxmundham to Leiston on the branch line, subsequently, proposing the GRR direct into the MDS.

Noise and vibration impact from the Green Rail Route (GRR)

- 5.18.202. Alex Johnston [REP7-288] and [REP8-192] an IP and resident near Leiston was specifically concerned about the adverse effects that he considered would arise from the construction and subsequent operation of the GRR as someone who operates a recording studio which is dependent on a quiet noise environment. He considered the methodology used by the Applicant underestimated the actual impacts that would be likely to arise and had not fully considered the typical wind direction and local topography.
- 5.18.203. These concerns mirrored those presented by Simon Mellen [REP7-225, REP8-262] who also considered the noise readings undertaken by the Applicant were flawed as the locations chosen to monitor were not located in the most representative location, nor were the readings undertaken at a representative time of the usual noise environment.
- 5.18.204. The Applicant responded in [REP8-116] advising that discussions were ongoing with both parties and in response to the ExA's ExQ3 NV.3.18 were looking to address the particular issue for producing music. In [REP10-156] the Applicant further explained that following discussions with ESC the RNMP had been amended to include acoustic barriers along the GRR where such measures are agreed "*to be beneficial, practical and deliverable.*"
- 5.18.205. Additional bunding was also proposed as set out in Appendix H (e page 129) of [REP10-157] which formed part of the landscaped proposals which would further reduce noise impacts in this location.
- 5.18.206. The Applicant confirmed that the modelling they had carried out used the CRN approach, the recognised national standard approach in the UK and this would represent the reasonable worst case scenario for the likely noise levels. The assessment had taken account of both time averaged L_{Aeq} noise levels over the daytime and nighttime periods, and maximum L_{AFmax} noise levels which measure the highest noise levels over a given period.

- 5.18.207. The approach that the Applicant had taken in assessing the rail noise was not disputed by the Councils. Confirmation that this was not an area that was disputed is set out in the Councils joint SoCG [REP10-102].

Use of the East Suffolk line at night

Noise

- 5.18.208. When the Applicant submitted the change request to increase the number of trains operating this included the possibility of up to 5 trains per day (10 movements). The Applicant confirmed at ISH8 that this was no longer the case, and they were now seeking to operate four trains per day. The RNMP [REP8-070] has been amended to include a restriction specifying that no more than four trains per day (eight movements) may be run.
- 5.18.209. The Applicant also confirmed in response to ExQ1 Cu.1.5 [REP2-100] with regard to the effects from the rail proposals, as detailed in paragraphs 28.6.59 – 28.6.66 of the ES [APP-346], prior to mitigation, significant noise effects are identified at a number of receptor group locations during the nighttime period along the Saxmundham to Leiston branch line (Kelsale Covert, Westhouse Crossing Cottage, and Crossing East), as well as at approximately 105 to 120 properties along the East Suffolk line.
- 5.18.210. Major adverse effects are predicted at night at between 5 and 10 properties along the East Suffolk line, once Saxmundham junction is upgraded, which will enable construction trains to join or leave the Saxmundham to Leiston branch line without stopping. Moderate adverse effects are predicted at night at between 100 and 110 properties along the East Suffolk line. This outcome is the same as was set out in the ES [APP-545].
- 5.18.211. The receptor groups currently identified would experience significant adverse noise effects and exceedances in specified noise criteria will fall under the provisions of the NMS. Consequently, further assessments would be undertaken to identify where additional mitigation is required to avoid and manage any receptor group exposure to noise exceeding the SOAEL.
- 5.18.212. The Applicant confirmed that these findings were based on the context of a uniformly high sensitivity receptor being applied as a constant and can therefore be regarded as precautionary.
- 5.18.213. Likely significant effects with regards to groundborne noise, which is combined with low frequency airborne noise, are identified within the ES Addendum [AS-188] paragraphs 9.3.117 to 9.3.118. The nighttime groundborne noise SOAEL will only potentially be exceeded at two locations along the length of the railway line from Westerfield junction to the Sizewell C MDS. These two properties, Crossing Cottage on Kiln Lane South in Benhall and an unnamed property on Blackstock Crossing Road in Campsea Ashe are both close to the East Suffolk line.

- 5.18.214. For these two properties, the Applicant concludes that it is expected that the airborne component of the internal sound level will be sufficiently reduced as a result of the implementation of the NMS.
- 5.18.215. The revised version of the NMS will provide improvements in noise insulation at lower maximum noise levels than was the case when the scheme was submitted in May 2020. These improvements in noise insulation are now available for all properties subject to a free-field maximum railway noise level of 70dB or more, which is the level at which a significant adverse effect is expected to occur, within the EIA context, and is below the SOAEL.
- 5.18.216. Sleep disturbance was also assessed in Appendix 9.3.D of ES Addendum [AS-257]. The guidance that correlates sleep disturbance to noise, which was found to be the critical effect for nighttime trains, states that a particular number of events is required to generate the effect. An example would be the World Health Organisation's 'Guidelines for Community Noise' which indicates that their 45dB L_{AFmax} criterion would need to be exceeded 10 to 15 times per night to generate the anticipated adverse effect. The maximum number of trains now proposed to run is four (8 movements) such adverse effects are not anticipated.
- 5.18.217. At the outset ESC supported the principle of the rail freight strategy as part of wider aspiration to reduce HGV traffic on the wider network, provided the Applicant does all that is practicable to reduce the impacts of rail noise and vibration.
- 5.18.218. ESC considered that, at the beginning of the Examination it was premature for the noise strategy to fall back on what can reasonably be regarded as the last resort in terms of noise mitigation, the insulation of affected properties. The draft RNMS [AS-258] should contain a commitment to continuing the exploration of all forms of mitigation. The Applicant updated the strategy throughout the Examination to ensure the process of exploring mitigation options continued and that appropriate outcomes could be secured.
- 5.18.219. Campsea Ashe Parish Council (PC) [RR-0170] considered the integrated approach with up to five nighttime freight trains presents additional concerns for Campsea Ashe as it is located along the railway line. Any night freight movement will affect over half of the population through noise and vibration. With no serious mitigation proposals offered, Campsea Ashe cannot agree to such a proposal.
- 5.18.220. Similar concerns were expressed on behalf of Little Bealings PC [RR-0693], Melton PC [RR-0780], Jan Roy [RR-0844], Michael Barrett [RR-0782], and Malcolm Rowe [RR-0718].
- 5.18.221. Saxmundham Town Council (TC) [REP2-185] were concerned regarding the potential adverse effect on the town and its residents as the rail line passes through the town. The movement of rail freight at night in close proximity to residential properties would cause noise and disturbance. The TC were also concerned that the assessment had not fully considered

all potential receptors as new housing was being constructed to the northeast of Street Farm Road.

- 5.18.222. Woodbridge TC [REP8-188, REP8-189] sought to have a noise level restriction for trains operating at night to 44dB L_{night} on their understanding of World Health Organisation Regional Office for Europe (2018) Environmental Noise Guidelines for the European Region.
- 5.18.223. The Applicant at both [REP5-119] and subsequently in [REP10-156] stated that this is a LOAEL, the level above which NPS EN-1 requires noise to be subject to mitigation and to be minimised. The Applicant considers that this is achieved by the combination of elements set out in the draft RNMP [REP8-071] and the NMS which forms part of the DoO at Appendix W.
- 5.18.224. The Applicant confirmed in answer to ExQ2 NV.2.3 they were confident the RNMS (as was) can be agreed and delivered. The SoCG with NR [REP5-095] confirms that both parties consider the various elements of the rail enhancements including the RNMS will be delivered on time.
- 5.18.225. As part of the developing approach explored through the Examination the Applicant agreed to lower the threshold for the qualification for noise insulation below the SOAEL of 80dB L_{Amax} which was the point at which the NMS was to be implemented. This responded to the concerns raised by ESC that there was a gap between the effect of mitigation and minimisation between LOAEL and SOAEL if noise insulation was only provided at SOAEL.
- 5.18.226. The Applicant has now offered to implement the NMS at the EIA significance level of 70dB L_{Amax} as an external level (ie an internal level of 45dB). This is welcomed by ESC, albeit ESC notes that properties subject to noise between 60dB L_{Amax} and 70dB L_{Amax} (LOAEL and EIA significance) would have to keep windows closed to achieve the internal 45dB L_{Amax} and meet the WHO sleep disturbance criteria. The only way to avoid that would be to provide every property within that noise range with mechanical ventilation/cooling so they would have the option to keep their windows closed during warmer summer months in order to reduce the rail noise.
- 5.18.227. Following further discussions with ESC, the Applicant amended the NMS (Annex W of the DoO) to include the provision of ventilation to properties exposed to railway noise levels of between 60 and 70dB L_{AFmax} , as described in ESC's DL8 response.
- 5.18.228. As part of the concerns raised by Woodbridge TC [REP3-085 and REP3-087] the Applicant confirmed in [REP5-119] and subsequently in response to ExQ3 NV.3.13 that the warning klaxons are only sounded to warn pedestrians or cars of their approach. This routine can be reviewed in light of the addition of miniature stop lights, which are secured within the RNMP and which are proposed to be fitted in the following locations:
- Kingston Farm User Worked Crossing With Telephone (UWCT) & Footpath Gated crossing (FPG);

- Uffold UWCT;
- Blackstock UWCT;
- Redhouse farm UWCT;
- Ellingers UWCT; and
- Brick Kiln UWCT.

5.18.229. By the end of the Examination ESC and SCC had confirmed in the joint SoCG [REP10-102] that the issues which they had previously been concerned about in managing noise from the railway line had been addressed through the provision of the controls within the RNMP. As confirmed in [REP10-183] the amendments made to the RNMP have enabled the Council to reach agreement. They summarise their position by stating:

"Requirement 25 means that ESC will need to approve the RNMP before trains can run. ESC will expect the RNMP to contain the mitigation that has been committed to as deliverable by the Applicant, and ESC therefore considers this to be an appropriate mechanism to establish deliverability."

Vibration

- 5.18.230. Concerns over adverse effects from vibration were raised by a number of IPs in their RRs [RR-0532, RR-0902, RR-0935] stating that the vibration would disturb residents and potentially cause damage to buildings.
- 5.18.231. This view was also expressed by Saxmundham TC that the additional freight movements could cause adverse effects through vibration to older properties within the town, several of which are listed buildings [REP2-185].
- 5.18.232. The Applicant responded in [REP1-013] stating that the assessment undertaken to identify levels of vibration that would be perceptible to humans, or cause damage to buildings would only occur at much higher levels and there was no evidence that structural damage was likely to occur.
- 5.18.233. The question of vibration impacts was also subject to discussion at ISH8 where Councillor Sanders on behalf of Woodbridge TC disputed the Applicant's findings in respect of the vibration from the former nuclear flask trains relative to the vibration that could arise from the Applicant's freight trains.
- 5.18.234. The Applicant confirmed that the vibration experienced from the flask trains would have been greater than that which would be experienced from the planned freight trains. The full specification and explanation is set out in the Applicant's response to ExQ3 NV.3.8 [REP8-116].
- 5.18.235. This states that vibration from trains is as a result of a combination of three effects:
- The ground surface being forced down as the weight of the train passes;
 - Vibrations in the support stiffness along the rail; and

- Variations in the force on the rail caused by irregularities in the surface of the wheel and rail head.

The Applicant concludes that with the trains, trucks, and speed restrictions in place in addition to the improvements that are proposed to the track any vibration will be well below the threshold set out in BS7385-2:1993 where damage to buildings might occur.

- 5.18.236. No scientific evidence was presented to dispute this technical explanation and the Councils did not dispute these findings. The ExA is content that vibration from rail has been satisfactorily assessed and no significant adverse effects are likely to arise as a result of the proposed freight movements associated with the Proposed Development with the mitigation in place.

Suitability of assessment for traffic noise

- 5.18.237. Create Consulting [REP6-053, REP6-057, REP5-258] on behalf of a number of IPs including the Dowleys and Grants questioned the suitability of the methodology used by the Applicant in assessing the noise impacts on these receptors and as a consequence underestimating the significance of effect at these receptors. These criticisms and the Applicant's responses have been reflected within this Report under paragraphs 5.18.181-187 and it is not necessary to repeat here. Nevertheless, it is important to note that the criticisms and concerns presented by the IPs related to the construction and operation of the roads as well as the noise generated at the MDS.
- 5.18.238. Additional criticisms were raised by or on behalf of Mollett's Partnership [REP7-210, REP7-211, REP7-212, REP8-245, REP8-246, REP9-037], who having undertaken their own surveys found baseline noise survey results to differ from the Applicant's findings by around 5dB for both daytime and nighttime periods. This difference would result in a significant effect. The Acoustical Control Engineers and Consultants' Report concludes that the baseline sound levels used to represent Mollett's Farm are not adequate, the measurement time periods are too short, location unrepresentative, and the absence of weather data means the validity of the report cannot be assessed.
- 5.18.239. They go on to say that while they agree the assessment follows established practice, it has not considered the specific impact on Mollett's Farm and the adverse effect on tranquillity which is important to the home and business. Additionally, the wind direction is key in this location with the prevailing wind being far more likely to propagate sound to the farm than from the current road, and consequently the effect will be far greater than predicted.
- 5.18.240. The Applicant responded to these criticisms in [REP5-121] and in response to ExQ3 NV.3.12 [REP8-116] explaining that the CRTN calculation method that is required by DRMB LA111 assumes the wind direction to be moderately adverse from each source, which in practice cannot happen but this is the calculation method required by the guidance.

- 5.18.241. The difference in noise level can be explained by a variety of factors, but the main components explaining the difference comes from change between free-field and façade values, and the inclusion of natural background noise. The Applicant confirmed their confidence in the noise assessment.
- 5.18.242. In terms of the tranquillity at the farm, an assessment had been carried out as part of the broader assessment of the effects that would arise from the construction of the TVB which recognises the change from fairly tranquil to not quite tranquil. The Applicant maintained that this was a reasonable reflection of what was likely to occur.
- 5.18.243. SCC in their response to ISH8 [REP7-062] had also sought reassurances from the Applicant on the method of noise assessment from the new roads. The Council confirmed they were content that the assessment had been undertaken in accordance with DMRB and that both the values adopted for SOAEL and LOAEL as well as the prediction methodology was appropriate.
- 5.18.244. The ExA is content that the methodology and assessment used by the Applicant is appropriate for forecasting the likely significant effects. This has been agreed by the Councils as confirmed by SCC as highway authority and ESC in their SoCG. By using the approach and methodology in DMRB LA111 the noise from road traffic both on the existing network and on new roads has been assessed using the recognised national standard for assessment in these circumstances. While this approach does not cover the eventuality as will be experienced here of considering increased noise on the existing network in combination with new roads, the Applicant's precautionary approach has in the ExA's view considered the likely worst case scenarios.
- 5.18.245. The ExA also recognises that this has been an initial assessment and further work is to be carried out once detailed design work has been undertaken and the contractors appointed. This will then lead to further assessments as required by the NMMPs secured by the CoCP and Requirement 2 of the dDCO. In these circumstances the ExA considers the approach taken to be appropriate.

Associated Development Sites – Construction Noise

- 5.18.246. The Construction Method Statement (CMS) [REP10-025] which is secured through Requirement 8 of the dDCO includes a phasing schedule detailed on Plate 2.1 which the Applicant must use reasonable endeavours to achieve as set out in the DoO. For each of the ADS, this gives an indication of the length of time construction is anticipated to take and when construction would commence.
- 5.18.247. This indicates that both the TVB and SLR are due to commence in the first quarter of year one and take approximately two years to complete. The Yoxford roundabout works, FMF and both Park and Rides are due to commence in quarter two of year one and are proposed to be completed in twelve months in respect of the Yoxford roundabout and FMF and 18 months for the Park and Rides.

- 5.18.248. The Implementation Plan includes a Year 0, and Year -1. The programme allows for earlier works in respect of the relocation of the Sizewell B facilities and pre commencement works at the ADS and MDS when both construction activities and construction traffic would commence. This additional period explains the two years and nine months which is programmed for the construction traffic to be using the B1122 in the early years prior to the completion of the SLR.
- 5.18.249. During the construction of both the SLR and TVB the Applicant recognises there will be significant adverse effects at a number of locations, and these have not been disputed by IPs. What is disputed, is whether in designing the road or selecting the alignment the Applicant has demonstrated compliance with policy in:
- avoiding significant adverse effects on health and quality of life; and
 - mitigating and minimising adverse effects on health and quality of life.
- 5.18.250. The question of the alignment and the consideration of alternatives has been discussed in the Alternatives Section (5.4) of this Report and it is not necessary to repeat that here.
- 5.18.251. Mr and Mrs Lacey [REP2-280, REP2-501, REP5-245, REP6-067, REP7-214, REP8-247, REP9-038, REP9-039, REP10-255, REP10-342] argue that there will be significant adverse noise effects during construction of the SLR and the construction activity will create further queuing of traffic along Fordley Road adding to the noise profile directly affecting them.
- 5.18.252. Mr and Mrs Grant [REP1-121, REP2-252, REP7-180, REP7-181, REP8-206, REP10-253, REP10-376] also argue that the assessment of noise from construction has not paid due regard to the current noise environment, in a quiet rural location when considering the design and location of the road.
- 5.18.253. Acoustical Control Engineers on behalf of Mollett's Partnership [REP10-341] consider there would be a major adverse effect during construction of the TVB and do not consider acoustic screening at the compound would achieve anything of benefit, nor has the assessment properly considered the sensitivity of the home and business, which relies on the quiet environment to be successful.
- 5.18.254. Farnham Environment Residents & Neighbours Association (FERN) [REP2-269, REP5-198, REP7-184, REP10-265, REP10-268] in respect of the TVB support the arguments presented by Mollett's Partnership and their consultants, but also record that there are 11 individual properties in the Farnham Hall estate which will be significantly adversely affected.
- 5.18.255. The Applicant stated that the SOAEL values for construction noise were derived from the guidance contained in BS5228-1: 2009+A1: 2014, which is appropriate for noise-sensitive premises, including gardens.
- 5.18.256. The Applicant maintained that the combination of controls through the CoCP and NMMPs would provide appropriate mitigation throughout the construction process and that the noise thresholds that have been

stipulated within the control documents are in line with agreed national standards.

- 5.18.257. Furthermore, the provision of the NMS, agreed by the Councils would provide additional safeguards to avoid any incidences of SOAEL and thereby meet with the policy tests in the NPSE avoiding adverse effects on health.
- 5.18.258. The ExA considers that each of the ADS are necessary for the development of the whole project, but recognise they are substantial developments in their own right that will cause a degree of disturbance during their construction. The extent of the effect obviously varies across the project and the degree of adverse effect on some receptors will be greater than others.
- 5.18.259. In terms of the construction effects of noise from the ADS the ExA concludes that with the combination of mitigation controls in place, the effect on receptors would be kept within acceptable tolerances, although the ExA recognise for some IP/APs this will necessarily still be a significant adverse effect.

Park and Rides

- 5.18.260. Marlesford PC [REP10-333] maintain that two receptors at Ford Gatehouse and Marlesford Hall which would be subject to increased noise have been omitted from the assessment for the SPR.
- 5.18.261. The construction and operational noise at the SPR has in the ExA's view been considered appropriately, while the Parish Council consider two additional receptors should have been included within the assessment, and the ExA is satisfied from the information available within the ES that the effects can be properly understood, and mitigation devised accordingly. The two receptors identified by the Parish Council are sufficiently distant from the proposed park and ride they are beyond the study area identified within the ES as an area which could be the subject of influence.
- 5.18.262. The ES did not identify significant adverse effects at any receptors and the ExA is content that with the CoCP in place alongside the NMMP any noise generated from the construction or operational and subsequent removal would be appropriately managed to acceptable levels.
- 5.18.263. The construction and removal of the NPR would result in significant adverse effects, but with mitigation in place effects were regarded as not significant. The bunding included as part of that mitigation is to be provided at the outset of the construction process and is secured through the CoCP and NMMP as well as the ADDP. The ExA concludes that the necessary mitigation would be in place to avoid any adverse effects from noise and would be mitigated to appropriate levels.
- 5.18.264. During the operational period for both the NPR and SPR no significant adverse effects were identified within the ES and the ExA is satisfied this assessment appropriately reflects the likely effects.

Yoxford Roundabout

- 5.18.265. The ES recognises that the LOAEL is likely to be exceeded at all receptors for at least some of the time during the construction works and is predicted to be exceeded at Rookery Lodge, and for the lower SOAELs adopted for the periods outside the main weekday work times at a further 19 receptors.
- 5.18.266. The Applicant proposes to avoid SOAEL by managing the work in line with the CoCP and where such works cannot be managed in such a way will utilise the NMS.
- 5.18.267. The works in this location are for a relatively short period due to be completed in approximately 12 months, and the clearance operations are anticipated to last for less than the 10 consecutive days in any 15 day period and less than 40 days in 6 months. Under these circumstances whilst there will be an adverse effect during the construction period, the ExA are satisfied that with the management of noise through the CoCP the construction would be undertaken in an appropriate manner.

FMF

- 5.18.268. Noise from the FMF did not get raised during the Examination other than by one IP [AS-321] who indicated that a caravan which had been given residential status by the Councils had not been considered. The Applicant confirmed in response to ExQ3 NV.3.6 that this receptor had not been considered as it had not been identified as a residential property in discussions with the Councils. The Councils confirmed [REP8-143, REP8-180] that the caravan was not authorised and was the subject of enforcement proceedings and should not be regarded as a sensitive receptor in this respect.

Working times of construction at the ADS

- 5.18.269. In the Applicant's assessment exceedance of SOAEL was identified as potentially occurring during Saturday afternoons at a number of the ADS, which the Applicant identified could be avoided through the management of the construction and the timing of the noisiest activities which would be governed by the CoCP.
- 5.18.270. The ExA questioned the Applicant's approach in ExQ2 NV.2.1 as to whether this could be avoided entirely by not working during these periods. The Applicant advised that the programme for delivery does not rely on Saturday afternoon working, but that it is regarded as something which should be retained to facilitate the potential for the acceleration of the delivery of the ADS which would bring forward the benefits of these elements of the project as soon as practicable. The CoCP seeks to avoid noisy activities on Saturday afternoons and these times are more likely to be used for maintenance. The Applicant considers this provides an appropriate balance between minimising impacts and expediting delivery of the project.
- 5.18.271. In the Applicant's post ISH12 written submissions [REP8-126] they explained that in the event that Saturday working did not take place at

the ADS or for the rail schemes they estimated this would extend the construction period by:

- SLR – up to 2 months;
- TVB – up to 2 months;
- Yoxford Roundabout – up to 1 month;
- Rail Works – up to 2 months; and
- Northern P&R, Southern P&R and Freight Management Facility – up to 2 months.

Which could lead to an overall extension of the programme when compounded of 4-6 months.

- 5.18.272. The ExA agrees that in allowing Saturday afternoon working, the earlier in the programme the ADS could be delivered, and that they would begin to facilitate the mitigating effects for the area's communities sooner. These are significant elements of the whole project and would in themselves create a degree of disruption and annoyance to residents and visitors. By expediting the delivery programme in conjunction with staying within the parameters set out in the CoCP the ExA conclude that an appropriate balance would be achieved in facilitating the delivery of the ADS and the project as a whole.

Vibration from Road Traffic

- 5.18.273. A number of IPs including [RR-0822(LB), RR-0222, RR-0512(LB), RR-0627 (LB) St Peter's Church in Theberton (LB signifies the representation references a listed building)] expressed concern about the potential adverse impact from vibration on their properties either from road or rail freight traffic and this was addressed at the ISH8 on Noise and Vibration.

- 5.18.274. The Applicant sought to explain their approach in response to ExQ1 NV.1.76 in stating that

"HGV traffic does not typically generate vibration sufficient to reach thresholds of damage to buildings, including heritage buildings, except where there are defects in the road paving or supporting formation..."

Pre-construction condition surveys will only be undertaken at properties along the B1122 where necessary.

Vibration monitoring would be undertaken in line with the CoCP and can be undertaken in response to specific requests from ESC".

- 5.18.275. As part of the commitment offered by the Applicant the B1122 is subject of a pre-commencement survey so that any deficiencies in the current road surface are repaired in advance of work commencing. This is secured in the DoO under Schedule 16.

- 5.18.276. At ISH8 Theberton PC [REP7-240] questioned the suitability of the assessment undertaken by the Applicant and whether it had taken into consideration the increase in size and weight of HGVs from 38 tonnes to 44 tonnes. The PC quotes examples from the City of Bath who with the support of UNESCO considered that *"it was their belief that HGV vibrations are a cause of structural damage to historic buildings and set*

aside the advice and guidelines in DRMB.” The PC also references studies in the Journal of Architectural and Planning Research 32(4):307-323 December 2015 and their findings which reveal that “architectural damage may occur when the PPV exceeds 5 mm/s and structural damage may occur when the PPV exceeds 10mm/s for modern buildings”.

- 5.18.277. The Applicant’s written summary of ISH8 at paragraph 1.3.18 [REP7-068] confirmed that it had reviewed the evidence on the subject but was confident that the evidence does not suggest damage to buildings from vibration is likely to occur in most cases. It goes on to state:

“It is only really where the formation of the land underneath the road is very soft that there is risk. Imperfections in road surface may cause vibration but those can be remedied.”

- 5.18.278. The CoCP requires via the NMMPs noise and vibration monitoring around the MDS and ADS, but this does not extend as far as the B1122 which is subject to increased traffic but not in the MDS or ADS.

- 5.18.279. It is not clear to the ExA, how the Applicant’s commitment as stated in response to ExQ1 NV.1.76, to pre-conditions surveys would be delivered, or how the term ‘where necessary’ is to be interpreted. In light of the Applicant’s conclusions at ISH8 that vibration could affect properties in certain circumstances the ExA consider further work should be undertaken. In these circumstances, the ExA considers an additional Requirement would be a sensible option and should the SoS agree, the ExA consider this is something which would warrant further consultation with the Applicant and Councils.

Construction traffic noise

- 5.18.280. At paragraph 50 Noise, vibration and air quality impacts of HGV / Road Transport Movements SCC [RR-1174] states:

“The large number of additional HGVs will significantly impact local communities, in terms of noise, vibration and air quality. Roads are currently very quiet at night-time, with an increase of HGVs at night-time (or in the late hours of evening and early hours of the morning) being very noticeable. The main HGV route passes several significant residential areas which are not proposed to be included in mitigation, including Yoxford, Little Glemham, Marlesford, Woodbridge and Martlesham. The Council expects additional mitigation and compensation to be required for these locations. The Council has some concern that the Applicant proposes the timing of HGV movements being controlled at the main gate only.”

- 5.18.281. The controls initially presented by the Applicant formed part of the discussion at ISH8, the ExA questioning whether as drafted the controls would actually prevent HGVs leaving the site between 23:00 and 07:15 the following day. The Applicant has revised the CTMP as confirmed in [REP7-068] to ensure there would be no movements on the local network after 23:00 or prior to 07:15.

- 5.18.282. The Applicant states in [REP2-100] with regard to the effects of the TVB, as detailed in the ES [APP-346], paragraph 28.6.71, the TVB would be operational during construction of the MDS and afford significant beneficial effects at the majority of receptors along the A12 where it passes through the villages of Stratford St Andrew and Farnham. This is due to the reduction of traffic travelling through the villages along the existing section of the A12, with the majority of vehicles using the new bypass instead.
- 5.18.283. The Applicant states in Table 4.23 of [APP-415] that significant adverse effects from the use of the TVB are possible at 11 receptors or receptor groups. A significant adverse effect, in an EIA context, which is what is identified in Table 4.23, is not the same as a significant adverse impact on health and quality of life, as described in the Noise Policy Statement for England or NPS EN-1. They are separate concepts. It does not follow from the existence of a significant adverse effect in EIA terms that there will be a significant adverse impact on health and quality of life (ie an exceedance of the SOAEL).
- 5.18.284. In response to ExQ1 NV.1.75 the Applicant explained that overall, the noise effects of the TVB accord with NPS EN-1 paragraph 5.11.9 because noise effects have been minimised by design, whilst significant adverse effects on health and quality of life are avoided, as SOAEL will not be exceeded.
- 5.18.285. The ExA did not consider this to be the case at the outset of the Examination. As can be seen from the Applicant's ES and the ExQs prepared at the outset of the Examination there were serious concerns as to whether the Applicant had fully assessed all of the reasonable opportunities to mitigate adverse noise effects that could arise from the Proposed Development.
- 5.18.286. In failing to consider the potential benefits of quiet road surfacing the Applicant had not prepared a submission which demonstrated that all reasonable mitigation had been applied to mitigate and minimise noise at source. This was despite the Applicant recognising that the introduction of both the TVB and SLR created adverse effects from noise above LOAEL and in a small number of cases above SOAEL.
- 5.18.287. The Applicant has subsequently progressed with consideration of quiet road surfacing for both the TVB and SLR but also for a section of the A12 between Marlesford and Little Glemham.
- 5.18.288. This had been identified as an issue on the A12 near Marlesford and Little Glemham by the Councils in the LIR [REP1-045] and was reiterated by Marlesford PC in representations. SCC also stated at ISH8 [REP7-162]:
- "Of particular concern to the Council is the duration of SZC construction traffic passing through Marlesford and Little Glemham as these communities do not benefit from the proposed Two Village Bypass."*
- 5.18.289. In response to FERN [REP10-268] in respect of the TVB the Applicant set out figures that demonstrated that in combination, improved bunding, an

acoustic fence and quiet road surfacing could achieve reductions in noise to a noticeable degree, which demonstrates that there is the potential for quiet road surfacing to be of material benefit.

- 5.18.290. The ongoing discussions with IPs in the vicinity of the TVB has shown there remains the capacity to improve the noise environment for these receptors, and it is the ExA's view that this is necessary to meet the policy tests of the NPSE to mitigate and minimise noise above LOAEL.
- 5.18.291. By the end of the Examination the Applicant had not fully assessed the benefits that may arise from quiet road surfacing, as further work was still required to be completed, however the ExA are persuaded that there is sufficient evidence before us to conclude that the provision of quiet road surfacing on the TVB has the potential to provide noticeable benefits for receptors in these locations.
- 5.18.292. The ExA are less certain that quiet road surfacing would provide similar improvements in the acoustic environment for receptors along the route of the SLR, as similar comparisons of the noise profile of with and without it have not been provided. However, in correspondence with the Grant family [REP10-376] and confirmed in the SoCG [REP10-121] additional acoustic screening is being considered by the Applicant. It is the ExA's view that this evidence demonstrates that additional mitigation is both necessary and appropriate to ensure receptors along the route of the SLR are appropriately protected in the long term.
- 5.18.293. The Applicant has included obligations to consider quiet road surfacing in the ADDP for both the TVB and SLR which needs to be agreed with the Councils in advance of work commencing on these two roads. This also requires that all matters relating to landscaping and the acoustic benefit of landscaping is to be approved by the Councils.
- 5.18.294. In light of what was said by the Councils in the ISH on noise and their follow up written submissions confirming their view that quiet road surfacing could be a benefit, this gives reassurance that the commitment through the ADDP would be delivered.
- 5.18.295. The prospect of quiet road surfacing on the A12 between Marlesford and Little Glemham is specifically referenced within the Marlesford and Little Glemham Scheme which is included at Annex S of the DoO. The ExA are content this gives sufficient commitment to the delivery of this mitigation for the noise that would be generated during the construction of this project.
- 5.18.296. Middleton-Cum-Fordley PC [REP10-338] maintain that the traffic noise along the B1122 through the parish in the early years should be mitigated by way of quiet road surfacing, an assessment of vulnerable properties and an offer of double or triple glazing for property owners.
- 5.18.297. The Applicant identified within the ES that there was the potential for adverse effects from traffic noise during both construction of the roundabout at Yoxford and the subsequent use of the B1122 for construction traffic in the early years.

- 5.18.298. Within the ES [APP-202] the Applicant identifies the areas along the B1122 and elsewhere where the noise threshold is anticipated to exceed SOAEL and road traffic noise contours for these areas have been set out on Figures 11.5-11.8 of [APP-211]. These profiles extend from the Yoxford junction to the junction between the B1122 and B1125, but do not extend through Theberton village.
- 5.18.299. The Applicant explains that the contours have only been prepared where the noise threshold is expected to exceed SOAEL, and this can be attributed to the significant uplift in traffic during the construction period along the B1122. It is only on the identified sections where potential adverse effects on health could arise where the contours have been prepared, to fully assess the properties that might need to be included within the NMS.
- 5.18.300. Theberton and Eastbridge PC in their post ISH8 submission [REP7-240] questioned this assessment and considered the assessment within Theberton to be wholly absent. The PC go on to say that they consider it appropriate to have the B1122 resurfaced with the lowest possible noise surface, prior to the commencement of construction on the MDS.
- 5.18.301. The PC welcomes the improvements to the NMS that all properties fronting the B1122 would be eligible for protection via this scheme, but they are concerned this does not protect residents such as those on Doughty-Wylie Crescent. Furthermore, the assessment of noise from more than one source would not appear to have been fully assessed nor mitigation considered. Norwood House retirement home and other residences in Middleton Moor would be subject to both construction noise and traffic noise at the same time.
- 5.18.302. SCC in their post ISH8 submission [REP7-162] stated "Although the potential exposure to traffic noise on the B1122 and in Yoxford is restricted to the early years this is still potentially 30 months and the Council is in discussion with the applicant regarding the appropriateness of quieter surfacing at these locations."
- 5.18.303. SCC further stated:
- "SCC consider that quiet road surfaces (with associated maintenance funds) should be used on existing roads in situations where construction traffic causes the LOAEL to be exceeded, particularly during the early years. This is considered necessary in order to meet EN-1 and NPSE policy aims to minimise and mitigate noise above LOAEL."* [REP7-162].
- 5.18.304. The consideration of quiet road surfacing along the B1122 was not developed by the Applicant, and it is not offered for these residents. The Applicant relies upon the mitigation offered through the other mechanisms including the CTMP, CWTP, absolute limits on HGV and Heavy Duty Vehicle (HDV) numbers as well as restriction on the travel times. These communities would be subject to increased noise for approximately two years and nine months and the adverse effects would therefore be temporary.

5.18.305. The Applicant has also extended the eligibility of the NMS to all properties that front onto the B1122, and this would avoid noise levels at SOAEL for all properties and provide insulation to a larger number that would not be at this level, which is welcome.

Operational Traffic Noise

5.18.306. SCC stated in their post ISH8 response [REP7-162]

"Although traffic noise is generally lower in the operational phase, particularly for the SLR the following locations experience the greatest increase in noise during the operational phase:

- *Two Village Bypass;*
- *Pond Hall Cottages;*
- *Farnham Hall and surrounding properties;*
- *SLR; and*
- *Oakfield House.*

SCC requires that the Applicant makes a commitment to mitigate noise through engineering as a primary stage in its Draft Noise Mitigation Strategy, as well as clarify the process for monitoring and mitigating road noise."

5.18.307. The Applicant in the Planning Statement Update [REP10-068] confirms that:

"Noise levels at properties along the SLR are expected to reduce following completion of the Sizewell C power station, as the road will no longer be used for Sizewell C construction traffic. However, significant noise effects are anticipated to remain in the long term at: Fordley Hall, Trust Farm, Dovehouse Farm, Oakfield House and Hawthorn Cottages."

5.18.308. In respect of the TVB the Applicant concludes that no properties would be subject to major adverse effects during the operation of the power station. Nevertheless, it has committed to additional noise mitigation benefits that could arise by way of improved landscape bunds and/or quiet road surfacing.

5.18.309. With regard to traffic on the current network the assessment for noise from road traffic (in 2034) used the same representative 134 road links across the network as for the construction period. Without the construction traffic, the Applicant concludes all sound level differences were either beneficial or negligible.

5.18.310. The Applicant during the course of the Examination committed to consider the potential acoustic benefits that could arise as part of the development of any hard landscaping proposals for the SLR and TVB. This is set out as Item no. 9 in the Landscape Design Principles in the Associated Development Design Principles [REP10-062]. The objective of the commitment is to maximise additional acoustic screening where it is practicable and feasible.

5.18.311. FERN in their initial WR [REP2-269] and subsequent Representation [REP10-268] stated that "*the tranquil environment we currently reside in will be greatly changed during construction and operation*" of the TVB. The ES [APP-415] at Table 4.20 confirms the difference between baseline noise against the noise once the road is operational one year after Sizewell C is built, estimated at year 2034:

- *Day +12.6 dB. - Effect Major Adverse*
- *Night +10.6 dB - Effect Major Adverse*

The Applicant's noise levels for construction and operation are also major adverse.

5.18.312. In respect of the SLR, the Grants [REP8-206] state that traffic noise from the SLR would lead to a major adverse impact at Fordley Hall, and that there was minimal direct mitigation in the proposals to reduce road traffic noise levels at the property. The change in noise levels at Fordley Hall would be clearly audible, and the character of the property, could alter as a result.

5.18.313. Mitigation options were discussed as part of the landscaping assessment, and it was agreed that even though it was unlikely that the significant adverse effect could be removed entirely, it was right to try to reduce the impact as far as possible.

5.18.314. The Laceys [REP7-214, REP10-342] did not consider the noise effects had been made clear in the submission and awaited detail of specifications for quiet road surfacing, bunds and acoustic barriers as well as an appropriate noise monitoring programme from start to finish.

5.18.315. In the ExA's view the evidence provided demonstrates a clear need for mitigation of noise affects during the construction period, but with the reduced traffic levels once operation commences the degree of mitigation necessary reduces. The ES LOAEL during the daytime of 55dB $L_{A10,18hr}$ and at night of 40dB L_{night} are shown to be exceeded at a number of properties, but the Applicant argues that there would be a further review of the likely effects as required by the NMS and exceedances of SOAEL would be avoided.

5.18.316. In light of the commitment from the Applicant to develop the acoustic benefits through improved bunds and acoustic fences as set out in the ADDP, the ExA are satisfied that the final agreed scheme would achieve appropriate mitigation and minimisation of traffic noise from the TVB and SLR for the operational period. The assessment undertaken by the Applicant predated the consideration of quiet road surfacing and did not identify effects that for the operational period demonstrated that this would be necessary for the long term. In these circumstances the ExA are satisfied the NPS EN-1 policy test set out in paragraph 5.11.9 is met by avoiding significant adverse impacts on health and quality of life and mitigating and minimising other adverse impacts.

Project wide effects - residential gardens

- 5.18.317. A number of IPs including [REP10-123, REP10-121, REP7-214] objected to how the assessment of noise had not had proper regard to the protection of outdoor garden space either in terms of construction or road traffic effects. Each argued this would have a material adverse effect on their living environment, the enjoyment of their home and could give rise to adverse health effects.
- 5.18.318. In the SoCG [REP10-123] Create Consulting argued that the WHO 'Guidelines for Community Noise' states that to avoid annoyance, external sound levels should ideally be at 50 dB $L_{Aeq,16hr}$ with an upper limit of 55dB $L_{Aeq,16hr}$. Further mitigation should be set out now.
- 5.18.319. The ExA sought the Applicant's view on this issue at ExQ1 NV.1.80, and this also formed part of the discussion at ISH8. The Applicant stated in response to the written question [REP2-100]:
- "The SOAEL values for construction noise were derived from the guidance contained in BS5228-1: 2009+A1: 2014, which is appropriate for noise-sensitive premises, including gardens. The important SOAEL value for trains relates to sleep disturbance, which is an internal effect, and applies at a time when gardens are unlikely to be in use (i.e. at night). The other rail SOAEL values, and the SOAEL values for road traffic noise, are derived from the relevant Noise Insulation Regulations, which relate to the internal environment.*
- SZC Co. has only sought to protect the internal environment where the relevant effect occurs within the property, or where legislation or guidance suggests that is the appropriate course of action; examples would include the Noise Insulation Regulations for road and railways and Part 1 of British Standard 5228, which relates to construction noise. SZC Co. likewise has protected external areas where legislation or guidance suggests that is the appropriate course of action."*
- 5.18.320. The Applicant continues that the noise levels within the CoCP correlate with a significant effect, in an EIA context, for a dwelling [REP10-072] as the thresholds that the works must be managed against. By placing controls on noise generation at source or between the source and receptor, as envisaged by the controls in the CoCP, this mitigation would protect residential gardens.
- 5.18.321. For the MDS the values are lower than those which would flow from BS5228-1: 2009+A1: 2014, in recognition of the duration and working hours for the site. These are considered to be the appropriate values, and the monitoring and management processes to be set out in the NMMP would be the key mechanism for achieving these values.
- 5.18.322. The CoCP sets noise thresholds that apply across all construction at either the MDS (CoCP Part B), or for the ADS. Specific controls are then identified in the Draft Main Development Site NMMP (Appendix B, Part B, CoCP for noisy activities). These triggers and thresholds require the Applicant to agree a bespoke mitigation plan for works above a set threshold in advance of those works commencing. The controls in the CoCP then work together with any measures found necessary in the

bespoke plans in ensuring that the impacts identified in the ES are not exceeded.

5.18.323. For road traffic noise the DMRB LA111 does not require the consideration of road traffic noise in gardens. Nevertheless, the Applicant considers that in most instances the predicted noise levels with the new roads in place are expected to be below the 55dB upper guideline value in BS8233: 2014, which is the only British Standard that provides a guideline value for gardens, albeit in the context of new residential development proposed close to existing noise sources, rather than assessing a change in the existing noise climate.

5.18.324. In these circumstances while the ExA can understand the very real concerns identified by IPs about the impact that could arise from the various noise sources involved with this extensive project the mitigation and control measures that would be in place are in line with national standards and the levels of effects that would arise would be controlled to acceptable levels.

Good Design

5.18.325. NPS EN-1 states at paragraph 4.5.2:

"Good design is also a means by which many policy objectives in the NPS can be met, for example the impact sections show how good design, in terms of siting and use of appropriate technologies can help mitigate adverse impacts such as noise."

5.18.326. Furthermore, it states at paragraph 5.11.8:

"The project should demonstrate good design through selection of the quietest cost-effective plant available; containment of noise within buildings wherever possible; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission."

5.18.327. The Applicant has set out within the ES [APP-202] how the MDS design includes acoustic barriers to minimise noise generated during construction and during the operational phase to minimise noise breakout including from diesel generators, the mechanical services at the accommodation campus and the combined heat and power plant. These elements would not exceed a free field level of 35dB LAr, 15 minute outside the nearest residential receptor. A similar standard is proposed for the electrical substation on the MDS.

5.18.328. For the scheme as a whole the Applicant sought to control noise from road traffic by utilising the freight management facility, the park and rides, and controlling the volume of traffic by way of the CMTP and CWTP. The ExA consider this a reasonable response to the construction period in designing methods that would aid in the mitigation of construction noise.

5.18.329. The CoCP also includes within it the good practise set out within BS 5228-1 which contractors will be required to adhere to during

construction at the respective sites across the whole project with specific measures considered for the MDS and each of the ADS.

- 5.18.330. As part of the Associated Development Design Principles (ADDP) document [REP10-062] Buffer zones are included within the landscape design where appropriate for the ADS to assist in minimising any indirect impacts from noise, all mechanical services plant to be included on the ADS is to be designed or selected to achieve a rating level of noise not exceeding 35dB LAr, 15 minutes at the closest off-site residential receptor when assessed in accordance with British Standard 4142:2014+A1: 2019.
- 5.18.331. Furthermore, within the ADDP the Applicant is required to consider potential acoustic benefits of any hard landscaping proposals for the TVB and SLR with the objective of maximising additional acoustic screening, this must be undertaken in consultation with both ESC and SCC. The outcome of this process and any agreed acoustic measures must be included in the final landscape design to be submitted for approval pursuant to Requirement 35 and Requirement 36. Any acoustic barriers identified in the final landscape design must be in place prior to the opening of either road.
- 5.18.332. In respect of the rail extension route and the Saxmundham to Leiston branch line upgrades The ADDP states these will comprise continuously welded rail in order to reduce noise at source.
- 5.18.333. For each of the ADS the Applicant and contractors would be required to prepare a Noise Monitoring and Management Plan (NMMP) which is secured through the CoCP and must be in general accordance with the draft NMMP prepared for the Northern Park and Ride Appendix A of [REP10-070].

The ExA's Conclusions on noise and vibration

- 5.18.334. The Applicant maintains that their assessment has followed due process and is in line with industry and policy standards for the assessment of noise from construction and traffic. They maintain they have properly identified where significant adverse effects would occur during construction and future operation of the road network.
- 5.18.335. They also argue that they have sought to go beyond what is strictly necessary to achieve a better than required level of mitigation for sensitive receptors along the routes of the SLR and TVB, and that they meet the policy requirement of the NPS and NPSE. This is achieved by avoiding SOAEL and mitigating and minimising adverse impacts on health and quality of life at noise levels between LOAEL and SOAEL when the mitigation that is being offered through the CoCP, NMMP and design of the scheme is taken into account.
- 5.18.336. A good number of IPs maintain their opposition to these statements both with regard to the methodologies used, baseline noise environment identified and the conclusions that have been drawn as has been set out in the preceding section of this Chapter of the Report.

- 5.18.337. The ExA recognise that there will be a series of harms and benefits that arise from the Proposed Development both during construction and subsequent operation which we set out below.

Harms

- 5.18.338. The AONB would be the subject of substantial construction noise which would have a materially harmful effect on tranquillity which is one of its statutory purposes, for the whole construction programme. While the ExA concludes that the package of measures offered through the DCO, DoO and control plans would mitigate and manage these harms as well as could be expected, they nevertheless would still result in harm to the statutory purpose of the AONB over a substantial area. The ExA ascribes moderate weight to this issue against the making of the Order.
- 5.18.339. The construction of both the NPR, SPR, FMF, SLR and TVB introduces road surface and construction noise into a countryside environment where there is currently limited or no effect from such a noise source affecting a number of residents and communities in a negative way. The ExA are however, of the view that appropriate mitigation is secured via the CoCP and NMMPs such that noise levels would be controlled to adequately manage the effects. The ExA ascribes little weight to matters relating to this issue against the making of the Order.
- 5.18.340. The Applicant, in not undertaking an assessment of quiet road surfacing prior to the start of the Examination, at a time where it recognised that there would remain adverse noise effects during the operation of both the TVB and SLR had not at that time in the ExA's view demonstrated that the noise from these roads had been minimised and mitigated at source. As such there was the potential for a policy conflict.
- 5.18.341. The provision of quiet road surfacing in combination with landscape bunds/fences along both the TVB and SLR would be subject to further investigation as set out in the ADDP. Finalised arrangements would be secured through the DCO and could meet policy requirements.
- 5.18.342. The final arrangements to achieve the necessary mitigation need to be approved by ESC/SCC and both Councils have agreed the principle of minimising and mitigating noise at source.
- 5.18.343. SCC in their post ISH8 response [REP7-162] and both Councils in [REP10-183] maintain their position as set out within the LIR that adverse noise and vibration impacts which are likely to arise from additional traffic could be mitigated by the provision of new quiet road surfaces. This provision is now included within the DoO for both the TVB and SLR.
- 5.18.344. The ExA is of the view that subject to the agreement of the Councils the Applicant's commitments through the DoO and the ADDP could result in a satisfactory noise environment on the TVB and SLR.
- 5.18.345. SCC have made clear that the quiet road surfacing is not something that they would look to maintain in the future as this would be outside their

normal maintenance regime, and the benefits from quiet road surfacing can therefore only be expected to be for a limited duration. Nevertheless, this limited duration would coincide with the greatest noise effect during the construction period. Consequently, in the ExA's view this is satisfactory. The ExA ascribes little weight to matters relating to this issue against the making of the Order.

- 5.18.346. Increased noise during the early years along the B1122 affect all properties along the B1122 for a period in the region of three years. While there would be measures in place to mitigate this through the CTMP, CWTP, and absolute limits on HGV and HDV numbers, residents would be subject to noise six days a week from around 07:15 to 23:00.
- 5.18.347. The NMS has been amended to be available to all properties facing onto the B1122 and is not limited to those properties that would trigger the noise thresholds that would require its provision. This could achieve a considerable improvement for those residents in reducing the noise within their properties to an acceptable level. The consequential noise environment in people's gardens, however, is not addressed. While the Applicant has provided a response to this issue, it has not in the ExA's view been satisfactorily dealt with. The Applicant has indicated that 11 properties on the B1122 between Yoxford and the junction of the B1125 would be subject to traffic noise that could be at SOAEL, which the ExA consider to be a substantial harm for the two years and nine months that the traffic would be present.
- 5.18.348. As noted earlier at paragraph 5.18.302 of this section of the Report SCC was to undertake discussions with the Applicant to consider the appropriateness of quiet road surfacing on the B1122 and in Yoxford. No further submissions were, however made to the Examination from either SCC or the Applicant and the SoCG does not identify this as an outstanding issue for the Councils.
- 5.18.349. The ExA however, consider that it would be remiss not to resolve this matter. NPS EN-1 states at paragraph 5.13.2:

"The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development"

- 5.18.350. In considering mitigation paragraph 5.11.13 states:

"In certain situations, and only when all other forms of noise mitigation have been exhausted, it may be appropriate for the IPC to consider requiring noise mitigation through improved sound insulation to dwellings."

- 5.18.351. This follows on from the advice in respect of noise mitigation set out in the NPSE and PPGN. NPSE at paragraph 2.24 states:

"The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health"

and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.”

- 5.18.352. The Applicant has accepted that it is appropriate to provide quiet road surfacing on the A12 between Marlesford and Little Glemham where there would be increased traffic noise throughout the construction period. While the effect in Yoxford and along the B1122 would be for a lesser period, the section of the B1122 up to the junction with the B1125 has been identified by the Applicant as having the potential to significantly adversely affect 11 properties, and these could be the subject of noise at or above SOAEL. The NMS, the Applicant, argues would address this scenario, however this should be offered 'only where all other forms of mitigation have been exhausted'.
- 5.18.353. The ExA is not aware of any evidence presented into the Examination where the Applicant has sought to provide a justification or explanation as to why providing quiet road surfacing in this location would be unreasonable. The ExA also recognise that mitigation is provided through the various control measures on traffic through the CTMP and CWTP, but these measures do not remove the potential for noise being generated at the level of SOAEL.
- 5.18.354. What is not clear to the ExA, is the degree of benefit that might arise in this location from the provision of quiet road surfacing. In these circumstances, in light of the potential for a policy conflict, the ExA notes that the SoS may wish to confirm that the consequences of such measures have been fully considered and the Councils are satisfied regarding the potential for quiet road surfacing on the B1122 from Yoxford to the junction of the B1125. To assess the suitability of this, as an additional means to mitigate noise, prior to relying upon the NMS, in line with the policy set out in the NPSE. The ExA ascribes moderate weight to this issue against the making of the Order.
- 5.18.355. From this position, notwithstanding the controls delivered through the ADDP there remain post-consent details to be approved which could influence the final acoustic benefits of the proposed design because of the need for flexibility at this stage. Therefore, the ExA gives little weight against the Order being made to matters relating to good design in terms of effects on noise.
- 5.18.356. The increased noise in the Leiston area during the construction period from a variety of sources including construction, road and rail traffic would affect the environment of the area in a negative way. We do, however consider that the controls and mitigation in place would ensure that noise levels would be kept to acceptable levels. Nevertheless, it must be recognised these effects will continue for a considerable period of time.
- 5.18.357. Noise in Leiston will come from a variety of sources, namely construction, road and rail traffic as well as the accommodation at the caravan park. Mitigation is to be provided and this is secured within the rDCO and the DoO which in combination would provide an acceptable acoustic

environment meeting the policy test set out in the NPSE and EN-1. Nevertheless, the ExA ascribes little weight to matters relating to the issue against the making of the Order.

- 5.18.358. Nighttime rail noise along the main line, GRR and branch line will introduce noise between Leiston and Saxmundham during the night where there is currently no train service and along the main line from Ipswich where there is only the occasional nighttime train. The ExA conclude that with the mitigation and controls in place through the RNMP and NMS the noise environment would be controlled to an acceptable level and the ExA ascribes little weight to matters relating to the issue against the making of the Order.
- 5.18.359. The ExA are however satisfied that the assessment of noise from the rail movements has been appropriately assessed, and the sleep disturbance concerns quite reasonably identified by IPs has been understood. The combination of limiting the number of movements, reducing train speeds and the physical changes proposed to the rail line will in conjunction with the RNMP in the ExA's view provide a suitable management regime that will control rail movements satisfactorily and ensure that the noise environment from these movements remains within acceptable tolerances.
- 5.18.360. The final RNMP remains to be approved by ESC and its approval is secured by way of Requirement 39 of the rDCO. This ensures that the rail movements cannot commence in advance of the mitigation being provided. The ExA is of the view this provides appropriate security for the delivery of the full package of mitigation the plan needs to provide.
- 5.18.361. The acoustic barrier at Whitearch Park was not certain to be delivered as NR had not been supportive of its provision on their land. Whilst there remains the possibility that a barrier may be provided, this is likely to need to be placed on land within the ownership of the park and agreement on this issue had not been reached by the end of the Examination. There was no evidence presented which disputed the findings of the Applicant who remained of the view that with the exception of one property which would be subject to the NMS all other properties at the park would have a suitable acoustic environment. The ExA accepts these conclusions and does not rely on the delivery of the barrier in concluding that an acceptable noise environment would be achieved.
- 5.18.362. The ExA are persuaded that the noise assessment in conjunction with the controls that would be delivered through the RNMP and NMS would avoid SOAEL in these circumstances and in this respect would meet the policy objectives of the NPSE and NPS EN-1. Consequently, the ExA ascribes little weight to this issue against the making of the Order.

Benefits

- 5.18.363. The reduced noise in Farnham once the TVB is operational would be a legacy benefit for the community living either side of the section of the A12 to be bypassed with an improved acoustic environment as a

consequence of the majority of traffic moving onto the new section of road. In light of the current poor noise environment in this location, and that this would provide a long term solution, the ExA ascribes moderate weight to the issue for the making of the Order.

- 5.18.364. The reduced noise along the B1122 once the SLR is operational would be a legacy benefit for the community living either side of the section of road to be bypassed with an improved acoustic environment as a consequence of the majority of traffic moving onto the new section of road. The ExA ascribes little weight to this issue for the making of the Order.
- 5.18.365. There would also be commensurate benefits for the town of Yoxford as the SLR would facilitate the potential for reduced traffic travelling through the town as traffic travelling from the south wishing to access the coast would have the option to leave the A12 in advance of travelling through Yoxford. The ExA ascribes little weight to this issue for the making of the Order.
- 5.18.366. In coming to an overall conclusion on noise, the ExA questioned the Applicant ExQ3 NV.3.4 on the number of properties that could be subject to noise above SOAEL. The Applicant set out their response in [REP8-116] and the summary table they provide is set out below.

Table 5.18.03 Summary of number of properties that could be subject to noise at SOAEL

Element of SZC Project	Total number of properties	Of which are listed properties
Main Development Site	44	1
Two Village Bypass	28	3
Sizewell Link Road	40	5
Yoxford Roundabout	30	6
Green Rail Route	18	0
Saxmundham to Leiston Branch Line	3	0
Freight Management Facility	0	0
Northern Park and Ride	10	1
Southern Park and Ride	0	0
East Suffolk Line	5-10	-
B1122/Lovers Lane	12	-

- 5.18.367. These figures are regarded as the worst-case scenario in all circumstances and in advance of the range of mitigations offered through the CoCP, NMS and RNMP. As the Applicant notes in the reply to ExQ3 NV.3.4, in light of the reduction in the noise threshold that the NMS is now offered at, a larger number of properties will qualify for insulation both along the rail line, at the MDS but also along the B1122. The ExA consider this to be a welcome improvement to the NMS.
- 5.18.368. The ExA concludes that the impacts on the noise environment during the construction and operation stages have been properly assessed and that all reasonable steps have been taken or will be taken to ensure that

noise standards as set out are not breached except in respect of the B1122 in the early years.

- 5.18.369. Whilst there would be adverse effects during construction of the Proposed Development these need to be balanced against the positive benefits that also arise. The ExA are also content that, with the mitigation proposed, the development would comply with NPS EN-1, and the NPSE.
- 5.18.370. In respect of the vibration effects that could occur the ExA are satisfied that with the appropriate mitigation in place as secured through the CoCP, NMMP and rDCO that no significant adverse effects would occur, and that the development would comply with the requirements of NPS EN-1, and the NPSE.
- 5.18.371. In the event the SoS decides in favour of granting the DCO, the ExA recommend an additional requirement to address the outstanding question of the potential for vibration from construction traffic along the B1122 which was left unresolved at the end of the Examination. The ExA consider this should be the subject of consultation with the Applicant and IPs. The suggested requirement is set out below and should be added to Requirement 35 as an additional sub-heading:
- 5.18.372. Prior to the commencement of work, the Applicant must submit a scheme in writing to Suffolk County Council for approval in writing identifying those properties along the B1122 where a pre-construction survey will be necessary. The scheme shall include details of the provision to be made for monitoring those properties in accordance with the Code of Construction Practice including the duration of any monitoring; the carrying out of any remedial works found to be required as a result of that monitoring and a timetable for implementation. The scheme must be carried out in accordance with the approved details and timetable.

5.19. POLICY AND NEED

Legal and Policy considerations

The National Policy Statements (NPSs) EN-1 and EN-6

NPS EN-1

- 5.19.1. EN-1 paragraph 1.6.1 notes that the NPS will remain in force unless withdrawn or suspended in whole or in part by the Secretary of State.
- 5.19.2. Paragraphs 3.1.1 to 3.1.4 of EN-1 set out the approach to decision-making for energy infrastructure covered by the NPS. Paragraph 3.1.1 states that: *"The UK needs all the types of energy infrastructure covered by this NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions."*
- 5.19.3. EN-1 paragraph 3.1.3 states that: *"...all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the Government has demonstrated that there is a need for*

those types of infrastructure and that the scale and urgency of that need is as described for each of them in this Part."

- 5.19.4. EN-1 paragraph 3.1.4 confirms that: *"The IPC should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act 2008."*
- 5.19.5. EN-1 paragraph 4.1.2 explains that the reason the decision maker should start with a presumption in favour of granting consent to applications for energy NSIPs is *"the level and urgency of need for infrastructure of the types covered in the energy NPSs"*.
- 5.19.6. Section 3.5 of EN-1 considers the role of nuclear electricity generation. Paragraph 3.5.1 states that: *"For the UK to meet its energy and climate change objectives, the Government believes that there is an urgent need for new electricity generation plant, including new nuclear power. Nuclear power generation is a low carbon, proven technology, which is anticipated to play an increasingly important role as we move to diversify and decarbonise our sources of electricity"*.
- 5.19.7. EN-1 paragraph 3.5.6 states that: *"New nuclear power therefore forms one of the three key elements of the Government's strategy for moving towards a decarbonised, diverse electricity sector by 2050: (i) renewables; (ii) fossil fuels with CCS; and (iii) new nuclear"*.
- 5.19.8. EN-1 paragraphs 3.5.9 and 3.5.10 explain the urgency for the need for new nuclear power. Paragraph 3.3.15 emphasises the urgent need for new (and particularly low carbon) energy NSIPs to be brought forward as soon as possible in order to secure energy supplies that enable us to meet our obligations for 2050.

NPS EN-6

- 5.19.9. Section 2.2 of EN-6 sets out the Government's policy on the need for new nuclear power stations and the benefits of early deployment. Paragraph 2.2.1 states: *"This section should be read in conjunction with Part 3 of EN-1, within which the Government has set out the need for all types of energy NSIPs, including new nuclear power stations. The IPC should therefore assess applications for new nuclear power stations on the basis that the need for such infrastructure has been demonstrated."*
- 5.19.10. Paragraphs 2.2.2 of EN-6 states that deployment should take place *"as soon as possible"* and sets out the Government's belief that new nuclear power stations need to be developed significantly earlier than the end of 2025.

The Government's 2017 Written Ministerial Statement (WMS) (HLWS316)

- 5.19.11. The WMS explains that the Government had published a Consultation on the Process and Criteria for Designating Potentially Suitable Sites in a NPS for Nuclear Power between 2026-2035, as the beginning of a

process towards designating a new NPS for nuclear plants expected to be deployed after 2025 and capable of deployment by the end of 2035 and with over 1GW of single-reactor electricity generating capacity.

- 5.19.12. As regards the applicability of the existing NPSs, the WMS states that: *"Government considers that the current nuclear NPS, EN-6, only "has effect" for the purposes of section 104 of the Planning Act 2008 ("the Act") for development which forms parts of a project able to demonstrate expected deployment by the end of 2025".*
- 5.19.13. For projects yet to apply for development consent and due to deploy beyond 2025, which includes the Proposed Development, the WMS confirms that: *"...Government continues to give its strong in principle support to project proposals at those sites currently listed in EN-6. Even if EN-6 is considered not to have effect under section 104 of the Act for such a project, section 105 of the Act would apply to the decision on whether or not to grant development consent for the project."*
- 5.19.14. The WMS states that: *"Government is confident that both EN-1 and EN-6 incorporate information, assessments and statements which will continue to be important and relevant for projects which will deploy after 2025, including statements concerning the need for nuclear power – as well as environmental and other assessments that continue to be relevant for those projects. As such, in deciding whether or not to grant development consent to such a project, the Secretary of State would be required, under section 105(2)(c) of the Act, to have regard to the content of EN-1 and EN-6, unless they have been suspended or revoked. In respect of matters where there is no relevant change of circumstances it is likely that significant weight would be given to the policy in EN-1 and EN-6".*
- 5.19.15. It also explains that: *"The new NPS, once designated will 'have effect' for the purposes of Section 104 of the Act for development which forms part of a project able to demonstrate expected deployment after 2025 and before the end of 2035."*

UK Marine Policy Statement 2011

- 5.19.16. The Marine Policy Statement was adopted in March 2011 pursuant to the Marine and Coastal Access Act 2009. The Marine Policy Statement is the framework for preparing marine plans and taking decisions affecting the marine environment. It aims to facilitate and support the formulation of marine plans, ensuring that marine resources are used in a sustainable way in line with a number of high-level marine objectives. The Marine Policy Statement recognises that power stations in coastal areas will make an important contribution to the UK's energy mix (paragraph 3.3.3), and may have impacts on the marine environment (paragraph 3.3.6). For nuclear power stations, the Statement relies upon NPS EN-6 for detail on avoiding or minimising impact.
- 5.19.17. NPS EN-1, paragraph 4.1.6, contains a direct reference to the Marine Policy Statement, and explains that the Secretary of State must have regard to the Marine Policy Statement, and applicable marine plans, in taking any decision which relates to the exercise of any function capable

of affecting the whole or any part of the UK marine area. In the event of a conflict between any of these marine planning documents and an NPS, the NPS prevails for the purposes of Secretary of State decision-making given the national significance of the infrastructure.

Other relevant national policy documents and publications

5.19.18. These include the following:

- Energy White Paper
- Updated Energy and Emissions Projections 2019 (October 2020)
- The Ten Point Plan for a Green Industrial Revolution (November 2020)
- National Infrastructure Strategy (November 2020)
- Response to the National Infrastructure Assessment (November 2020)
- The Sixth Carbon Budget: The UK's path to Net Zero (December 2020)

The National Planning Policy Framework (NPPF)

5.19.19. The NPPF was revised in July 2021. Paragraph 5 states that: "*The Framework does not contain specific policies for nationally significant infrastructure projects. These are determined in accordance with the decision-making framework in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include the National Planning Policy Framework).*"

Local Plan policies

5.19.20. The adopted East Suffolk Council Suffolk Coastal Local Plan (SCLP) now supersedes the Suffolk Coastal Local Plan remaining Saved Policies, Core Strategy and Development Management Policies, the Site Allocations and Area Specific Policies Development Plan Document and the Felixstowe Area Action Plan. Other relevant local policy documents are identified in the LIR [REP1-045].

5.19.21. The following plans were submitted by ESC and SCC to the Examination at DL1 as appendices to the LIR: Suffolk Coast and Heaths Area of Outstanding Natural Beauty Management Plan 2018 to 2023 [REP1-061], Suffolk Coastal Local Plan 2020 [REP1-062], Suffolk Minerals and Waste Local Plan 2020 [REP1-063], Leiston Neighbourhood Plan [REP1-064], Suffolk Local Transport Plan Part 1 Transport Strategy [REP1-065], Suffolk Local Transport Plan Part 2 Implementation Plan [REP1-066], Suffolk Green Access Strategy Rights of Way Improvement Plan 2020 to 2030 [REP1-067], Suffolk Travel Plan Guidance [REP1-068], Suffolk Guidance for Parking [REP1-069], NALEP Economic Strategy for Norfolk and Suffolk [REP1-70], NALEP Integrated Transport Strategy for Norfolk and Suffolk [REP1-071], Extracts - Suffolk Shoreline Management Plan SMP7 [REP1-072], East Marine Plan [REP1-073], East Suffolk Growth Plan 2018 to 2023 [REP1-074], East Suffolk Business Plan [REP1-075], East Suffolk Strategic Plan 2020 to 2024 [REP1-076], and the Suffolk County Council Priorities 2017 to 2021 [REP1-075].

5.19.22. In addition to the local policy documents, there are also a number of regional or other policy documents which are relevant to the Proposed Development. These are set out at paragraph 3.10.13 of the Planning Statement [APP-590].

Relevant case law

5.19.23. The case law relevant to this topic includes the following:

- The Drax High Court judgment (May 2020) (R (ClientEarth) v. Secretary of State for Business, Energy, and Industrial Strategy [2020] EWHC 1303 (Admin)).
- The Drax Court of Appeal judgments (January 2021) (R (ClientEarth) v. Secretary of State for Business, Energy and Industrial Strategy [2021] EWCA Civ 43).
- The Heathrow judgment (R (Friends of the Earth Ltd.) v. Heathrow Airport Ltd [2020] EWCA Civ 214).

The Applicant's general approach

5.19.24. The Planning Statement: Final Update and Signposting document [REP10-068] is to be read alongside the Planning Statement [APP-590] submitted with the application, and the Planning Statement Update [REP2-043]. However, it is the Planning Statement Final Update which now provides the Applicant's assessment of the policy approach and consequently the planning balance to be struck in this case. In particular, the Applicant submits that the appropriate approach to the consideration of the WMS reference to a '*change in circumstances*' for these purposes has evolved significantly since the production of the Planning Statement, with the benefit of case law and precedent. Additionally, since the submission of the Planning Statement [APP-590] and Planning Statement Update [REP2-043], the Government published a suite of draft National Policy Statements (NPS) for energy infrastructure, subject to consultation between 6 September and 29 November 2021.

5.19.25. The Draft NPS EN-1 directs that the current suite of NPSs should have effect for any application accepted for Examination before the designation of the 2021 amendments, but that any emerging draft NPSs "*are potentially capable of being important and relevant considerations in the decision-making process*". EN-6 does not form part of the consultation on the basis that the review concluded that: "*there are no changes material to the limited circumstances in which it will have effect (see the Written Ministerial Statement of 7 December 2017)*".

5.19.26. The existing NPS EN-1 and EN-6 continue to provide information, assessments, and statements, including those concerning the need for nuclear power, which continue to be important and relevant to the Proposed Development.

5.19.27. The Applicant's response to ExQ3 G.3.0 [REP8-116] comments specifically on the draft EN-1 which was published on 6 September 2021. In addition, the associated '*Planning for New Energy Infrastructure Draft National Policy Statements for energy infrastructure*' consultation

document was published which includes comments in relation to EN-6. The consultation includes a draft revised version of EN-1, but both the consultation and the draft EN-1 are clear that, even once it has been designated, the new NPS will only have effect for applications accepted after its designation (Consultation document page 12 and draft EN-1 para 1.6.2). That is to say, not for this application. In so far as the draft EN-1 is important and relevant, it is clearly material that the policy for nuclear development remains that set out in the existing EN-1 and EN-6, in the terms explained in the WMS (draft EN-1, paragraph 1.6.2).

- 5.19.28. For nuclear power generation, the draft NPS EN-1 (paragraph 3.3.39) identifies a number of advantages, and these matters have been set out in response to ExQ3 G.3.0 [REP8-116].
- 5.19.29. The Planning Statement Update [REP2-043] sets out relevant and important documents published since the submission of the application (May 2020) relating to the need for new nuclear power generation. The Planning Statement Update highlights the following published documents:
- Updated Energy and Emissions Projections 2019 (October 2020)
 - The Ten Point Plan for a Green Industrial Revolution (November 2020)
 - National Infrastructure Strategy (November 2020)
 - Response to the National Infrastructure Assessment (November 2020)
 - The Sixth Carbon Budget: The UK's path to Net Zero (December 2020)
 - The Energy White Paper – Powering our Net Zero Future (December 2020)
- 5.19.30. The Energy White Paper, informed by the more recent analysis, re-confirms the scale and urgency of the need. The White Paper (page 55) states that: “*the need for the energy infrastructure set out in the NPS remains*”.
- 5.19.31. The Planning Statement Update Part 2 [REP10-], submits that significant weight should be given to the policy in EN-1 and EN-6. The reasons for this are, in summary, that the NPSs remain Government policy, and the merits of that policy are not open to challenge through the Examination process. The reasons why the NPS must have primacy are set out in response to ExQ1 G.1.12 [REP2-100] and ExQ2 G.2.14 [REP7-050], and were also addressed in oral submissions at ISH9.
- 5.19.32. The Applicant asserts that the principle of the need for new nuclear power stations, and that this need is urgent, is firmly established in EN-1 and EN-6. In accordance with EN-1, substantial weight should be given to the contribution which projects would make towards satisfying this need (see EN-1, paragraph 3.5.10, and EN-6, paragraph 1.1.1). The urgency and importance of new nuclear is emphasised in the strongest terms in both NPSs. That these matters are of critical national importance is put beyond doubt by the terms of the Energy White Paper and the evidence base which supports it. The scale and urgency of the challenge is brought home by the modelling work undertaken for the White Paper which

highlights, for example, the substantial capacity that has been or will shortly be lost as older nuclear power stations are decommissioned.

- 5.19.33. EN-1, paragraph 3.2.3, requires that substantial weight should be given to considerations of need, but that the weight that is attributed to considerations of need in any given case should be proportionate to the anticipated extent of the project's actual contribution to satisfying that need. The Proposed Development would provide 3,340MW low carbon electricity. No project in the UK has ever contributed more. For this reason, and in the context explained above, the Applicant's position is that: *"Having regard to those matters, the weight that should be attached to the Sizewell C project's "actual contribution" to satisfying the need for this type of infrastructure must be very substantial."* (G.2.5 [REP7-050]).
- 5.19.34. The NPS anticipates that the construction and operation of a new nuclear power station is likely to lead to adverse effects which cannot always be satisfactorily mitigated. EN-1, paragraph 1.7.11, makes it clear that some adverse effects are a necessary and inevitable consequence of meeting the country's need for a range of large scale energy projects, the potentially suitable sites for which are all in sensitive rural locations.
- 5.19.35. The deliberate nature of that policy approach is apparent, for instance, in the fact that the NPS policy test from NSIP development in an AONB is different from the equivalent policy test in the NPPF or local plans. The NPS policy requires regard to be had to the particular need for new energy NSIPs, and requires the decision maker to recognise that the ability to consider alternative locations is constrained by the NPS policy on (the absence of) alternatives. The introduction of that variation to the policy approach that would apply under the NPPF was made in the context of a decision to identify Sizewell as a potentially suitable site for a new nuclear power station, having regard to its location within the AONB and a strategic environmental assessment of its likely adverse impacts.

Matters arising during the course of the Examination

- 5.19.36. The main issues relating to Policy and Need that arose during the Examination came under the following headings:
- National policy and the assessment of the need for new nuclear power generation
 - The National Policy Statements (NPSs) EN-1 and EN-6
 - The applicability of EN-1 and EN-6 in the light of the Written Ministerial Statement on Energy Infrastructure (ref. HLWS316) (2017 Ministerial Statement)
 - The implications of other relevant documents and publications issued since the submission of the application for the application of NPS policy
 - The scale and urgency of the need in the light of national energy policies overall

- The funding arrangements for the Project together with any associated consequences for the timing of the project, and hence its capability of meeting an urgent need for new generating capacity
- The application of national policy and the correct approach to decision making
 - The Drax High Court (May 2020) and Court of Appeal (January 2021) judgements
 - The Wylfa Newydd Nuclear Power Station Panel Recommendation Report (July 2019), and the approach taken by that ExA to the reference to “relevant change of circumstances” in the 2017 Ministerial Statement
 - The implications of recent case law and the Wylfa recommendation report for the application of NPS policy and the appropriate process to accommodate changes of circumstance after the designation of an NPS
- The contribution of the Sizewell C Project to meeting the need for new nuclear generating capacity
 - The updated energy and emissions projections 2019 (BEIS) (October 2020).
 - The anticipated extent of the Project’s contribution to satisfying need for infrastructure of this type and the weight that should be given to that contribution
- Local Plan and other policies
 - Whether there is any conflict between Local Plan, NPPF and NPS policies, and if so, the relative weight to be afforded to them

The ExA’s considerations

National policy and the assessment of the need for new nuclear power generation:

The National Policy Statements (NPSs) EN-1 and EN-6

The submissions of IPs

- 5.19.37. At ISH9 SCC [REP7-164] agreed that the application falls to be considered under section 105 PA2008 and not under section 104 PA2008 because, having regard to the timescale of the expected deployment of the proposals, neither EN1 nor EN-6 ‘has effect’ in relation to the proposals. The WMS confirms that the Government considers that EN-6 only ‘has effect’ for the purposes of s104 for projects able to demonstrate expected deployment by the end of 2025. That cannot be achieved by the proposal and it therefore falls to be considered under section 105 PA 2008. The 2018 Government Response on Consultation on Siting Criteria and Process for the new NPS (paragraph 3.11) indicates that decisions on proposals on sites listed in EN-6 but for deployment after 2025 will be made under section 105 PA 2008. The Planning Statement [APP-590] recognises (paragraph 3.9.4) that the presumption in paragraph 4.1.2 EN-1 does not have effect in the case of a decision made under section

105 PA2008. SCC reinforced the point made by ESC that the scale and urgency of the need did not override the requirement to balance that need against the adverse impacts when making a decision (or recommendation) on the application.

- 5.19.38. Regan Scott on behalf of S.A.G.E. at ISH9 [REP7-223] raised a number of issues on this topic. In summary, he submits that questions of balance of policy authority are redundant; that whether the project is to be considered under section 104 or 105 PA2008 is not helpful and that weight should be attached to changed circumstances and how the Proposed Development relates to them.

The Applicant's response

- 5.19.39. The Applicant's written summary of oral submissions made to ISH9 [REP7-102] confirms its understanding of the Government's position, as set out in paragraph 3.3.8 of the Planning Statement [APP-590], is that neither EN-1 nor EN-6 have effect and the application falls to be determined under section 105 PA2008. This is confirmed in the Applicant's response to ExQ2 G.2.17 [REP7-050]. However, the Government had said that in accordance with section 105(2)(c), the Secretary of State would be required to have regard to EN-1 and EN-6 as important and relevant considerations.

The ExA's conclusions

- 5.19.40. The letter dated 2 June 2021 from the Department for BEIS to Leigh Day acting on behalf of TASC [REP7-248] in response to their letter dated 5 May 2021 states that: "*The Secretary of State will not comment on the applicability of EN-6, or any other of the NPSs to the Project until he has received the report containing the conclusions and recommendation of the Examining Authority following the examination of the application and published his decision on whether or not to grant consent for the Project.*"
- 5.19.41. However, the BEIS letter draws attention to what is said by the WMS on the topic, namely, that: "*Government considers that the current nuclear NPS, EN-6, only "has effect" for the purposes of section 104 of the Planning Act 2008 ("the Act") for development which forms parts of a project able to demonstrate expected deployment by the end of 2025.*"
- 5.19.42. The BEIS letter also highlights the position taken by the ExA in respect of the, now withdrawn, application for development consent for the Wylfa Newydd Nuclear Power Station in its report to the Secretary of State. This states at paragraph 3.3.3: "*The WMS makes it clear that, in the absence of a post-2025 nuclear NPS, nuclear power station projects yet to apply for development consent and due to be deployed beyond 2025 should be considered under s105 of the PA2008 until such time as a new nuclear NPS is adopted.*"
- 5.19.43. The BEIS letter confirms that the NPSs are not suspended, and neither is the application for the Proposed Development suspended.

- 5.19.44. The Applicant's understanding of the Government's position, as set out in paragraph 3.3.8 of the Planning Statement [APP-590], is that neither EN-1 nor EN-6 has effect, and the application falls to be determined under section 105 PA2008. However, the Government had said that in accordance with s105(2)(c), the Secretary of State would be required to have regard to EN-1, and EN-6 as important and relevant considerations.
- 5.19.45. SCC [REP7-164], agree that the present application falls to be considered under s105 PA2008, and not under s104 PA2008 because, having regard to the timescale of the expected deployment of the proposals, neither EN1 nor EN-6 'has effect' in relation to the proposals. Furthermore, the 2018 Government Response on Consultation on Siting Criteria and Process for the new NPS confirms (paragraph 3.11) that decisions on proposals on sites listed in EN-6 but for deployment after 2025 will be made under s105 PA2008.
- 5.19.46. Since the production of the Planning Statement [APP-590] and Planning Statement Update [REP2-043], the Government has published a suite of draft NPSs for energy infrastructure, subject to consultation between 6 September and 29 November 2021. The Draft NPS EN-1 directs that the current suite of NPSs should have effect for any application accepted for Examination before the designation of the 2021 amendments, but that any emerging draft NPS "*are potentially capable of being important and relevant considerations in the decision-making process*". EN-6 does not form part of the consultation and will continue to have the role set out in the 2017 WMS during the development of a new nuclear NPS. For projects which will deploy after 2025, the Consultation Document states that EN-6 provides information, assessments and statements which may continue to be important and relevant. The approach to the transition period is consistent with what is said in the Energy White Paper about the ongoing appropriateness of the existing suite of energy NPS for decision-making.
- 5.19.47. Given that background, the ExA adopts the same position in relation to the applicability of section 105 PA2008 to this case, as the ExA for the Wylfa Newydd Nuclear Power Station in their recommendation report for that application. The WMS makes it clear that EN-6 only '*has effect*' for the purposes of section 104 PA2008 for projects able to demonstrate expected deployment by the end of 2025. That cannot be achieved by the Proposed Development, and no new nuclear or other energy NPS has yet been adopted. The application therefore clearly falls to be considered under section 105 PA2008. The ExA also take the view that in accordance with section 105(2)(c), EN-1, and EN-6 are important and relevant considerations to which the Secretary of State should have regard in reaching his decision.

The applicability of EN-1 and EN-6 in the light of the Written Ministerial Statement on Energy Infrastructure (ref. HLWS316) (2017)

The submissions of IPs

- 5.19.48. Professor Andrew Blowers at ISH9 [REP7-169] expressed disappointment with the process and substance of the discussion which he considers should have encompassed the wider issues of Policy and Need and fundamental questions such as how much, if any, new nuclear is needed and, specifically, whether the Proposed Development is an essential component of the energy mix and whether the site is potentially suitable for nuclear deployment, as indicated in EN-6, including the overriding issue of Climate Change.
- 5.19.49. He submits that the recent report of the IPCC must be regarded as a transformative document which provides definitive and incontrovertible scientific evidence of the scale and scope of the impacts of Climate Change. He contends that its findings have a direct bearing on the development of a nuclear power station such as the Proposed Development in a coastal location and it is relevant to policy on strategic siting assessment and the long-term management of radioactive wastes.
- 5.19.50. Professor Blower's submissions [REP7-169] focus on new nuclear power in relation to Climate Change: whether new nuclear, and Sizewell C in particular, is an essential component in meeting the goal of Net Zero; or, whether the impacts of Climate Change present an existential risk to the Proposed Development, especially in the longer term. In summary, the argument revolves around three key issues of policy:
- 5.19.51. First, on the issue of need, he submits that it is no longer tenable to rely on the assumption, endorsed in EN-1 and EN-6 that there is a vital and essential need for there to be sufficient sites to allow nuclear to contribute 'as much as possible towards meeting the need for 25GW of new capacity' (p.13). Since the original statement of the need for an undefined generating capacity of new nuclear energy, an energy transition has been gathering pace spearheaded by a rapid deployment of renewables, notably wind power, and nuclear has fallen away both in terms of competitiveness and deliverability. He concludes that new nuclear will not be needed as part of the low carbon future for the UK. In any event, a substantial nuclear component will continue until well beyond the critical net zero date of 2050.
- 5.19.52. Secondly, on the issue of site suitability, he contends that the policy that all the sites listed in EN-6 'are potentially suitable for the development of new nuclear power stations by the end of 2025' (p.44) is no longer credible. He points out that the NPS is out of date and under review and that it may be presumed that the strategic siting criteria will be revised in the light of more recent knowledge and predictions of the impact of Climate Change on sea level rise, storm surge and coastal processes.
- 5.19.53. Thirdly, on the issue of decommissioning and the long-term management of nuclear waste, he submits that the in the period of decommissioning and radioactive waste management extending well into the next century the risks to the sustainability of the site are incalculable in conditions that are unknowable. He contends that there should not be any reliance on government policy which cannot conclude that effective arrangements will be available to deal with wastes remaining on site.

- 5.19.54. In summary, Professor Blowers [REP7-169], submits that the most recent IPCC and other scientific reports on the uncertainties of Climate Change impacts represent a major change in circumstances that require a thorough reappraisal of the Proposed Development. He concludes firstly, that the need for new nuclear at Sizewell is no longer axiomatic. Secondly, that the policy under EN-6 which lists sites identified as potentially suitable is out of date and under review and changing circumstances indicate that Sizewell must be considered an unsuitable site. Thirdly, that the policy for the long-term management of radioactive wastes is uncertain, and inapplicable in the unknowable circumstances at the Sizewell site in the far future. He submits that Climate Change is the overriding issue facing the Proposed Development and that its contribution to meeting Net Zero is likely to be minimal. He contends that there is little, if any, justification for the Proposed Development in terms of need and highlight the potential risks that would be associated with it.
- 5.19.55. TASC assert [REP7-246], that while there is a policy directive in the form of the 2017 WMS that EN-1 and EN-6 will likely attract significant weight in the section 105 balance, there is an important caveat in that this only applies where there is "*no relevant change of circumstance*". On its clear terms, therefore, the 2017 WMS invites consideration of changes of circumstance which in turn will affect the weight to be given to these national policy statements within the section 105 balance.
- 5.19.56. TASC in their Post Hearing submissions including written submissions of oral case - DL7 submission regarding oral submissions at ISH9 [REP7-246] submit that there have been a number of relevant changes of circumstances such that, following the 2017 WMS, EN-1 and EN-6 cannot rationally attract significant weight. They contend that, in the light of those significant changes, the policies can only attract limited, if any, weight in the determination of this application. The significant changes on which they rely are as follows: the scale of the Proposed Development (for example, the increased size of the site compared to that assessed in EN-6 and the current proposal if for a twin reactor model); the climate change regime (for example, the current climate forecasts are materially worse than those upon which EN-1 and EN-6 were based); legal and policy progression reductions (such as the introduction of the 'net zero' target in the Climate Change Act 2008, the Committee on Climate Change's (CCC) Sixth Carbon Budget, the UK Hydrogen Strategy, the change in emphasis in Government policy, and the change in the reliance on market forces for the financing of energy projects); the cost of alternatives and the increased availability of low carbon alternatives. Their detailed arguments in support of those changes are set out in their written submissions.
- 5.19.57. TASC [REP7-246] also draw support on this matter from the announcement by BEIS of review of the NPSs for energy infrastructure on 23 April 2021. In the light of section 6(3) PA2008, they submit that the review, in itself, is therefore clear evidence of a relevant and significant change in circumstance. They submit that limited (if any) weight that should be attributed to EN-1 and EN-6.

5.19.58. Mr Bill Parker at ISH 9 [REP7-174] contended that the ExA should look beyond the headlines of energy policy at the more detailed policies contained within them. He focuses on one fundamental area, namely, the vulnerable coastal location. EN-6 paragraph 2.10.2 is relevant. Government policy clearly recognises both the need for coastal location, but also highlights the risks and vulnerability to the effects of climate change. He also draws attention to EN-1, section 5.5 Coastal change, and EN-6 section 3.6 on Flood Risk and section 3.8 on Coastal Change. He submits that the Applicant cannot demonstrate credible mitigation of coastal change and flooding in respect of the site.

The Applicant's response

5.19.59. The Applicant's written summary of oral submissions made to ISH9 [REP7-102], submits that the 2017 Ministerial Statement must be considered in light of the following three points:

5.19.60. Firstly, the 2018 Government response to consultation confirms the need for nuclear. Paragraph 2.129 states that the focus is on sites which could deploy the soonest to meet the need for nuclear energy. The objective was said to be to meet the need for nuclear as soon as possible, and the Government has explained that having a capable of deployment date of 2035 helps focus on those sites that will meet the need for nuclear as soon as possible. Hence, the role of the 2035 date is to serve the objective of deployment '*as soon as possible*' rather than being a target in itself. At paragraph 3.10, the response notes that the sites listed retain strong Government support, and paragraph 3.11 repeats that EN-1 and EN-6 continue to be important to decisions under section 105 PA2008.

5.19.61. Secondly, the *Drax* judgements clarify that assessing whether changes in circumstances affect the weight to be attached to the NPS is not an appropriate exercise in determining individual applications, because it constitutes questioning the merits of Government policy. Section 6 PA2008 which sets out the process for carrying out a review of an NPS, provides an exclusive means for considering such issues. The fact that such a review is in progress, does not mean that the development control decision-making process for an individual application should be used (or could lawfully be used) as a parallel or substitute process for considering such issues. The *Drax* judgements make it clear that these are matters exclusively for the section 6 PA2008 process to consider (see paragraph 108 of the *Drax* High Court judgement (*R (Client Earth) v Secretary of State for Business Energy and Industrial Strategy* [2020] EWHC 1303 (*Admin*)).

5.19.62. Thirdly, the Energy White Paper, page 55, sets out that the need for the energy infrastructure set out in the Energy NPS remains. This is a very clear statement of the Government's position on need, that effectively updates the statement made in the 2017 WMS that the assessment of need carried out to support EN-1 remains valuable and relevant. The Energy White Paper states that while the review is undertaken, the current suite of NPSs remain relevant Government policy and have effect for the purposes of the PA2008. The Government's policy is that the NPS continue to provide a proper basis on which the ExA can examine, and

the Secretary of State can make, decisions on applications for development consent. It is not for the ExA to make a judgment about need and the weight to apply to policy in light of changes of circumstances.

- 5.19.63. The Energy White Paper, page 16, sets out a list of key commitments and notes that the Government is aiming to bring at least one large nuclear project to the point of final investment decision by the end of this Parliament subject to relevant approvals. The Energy White Paper, page 48, under the heading 'Nuclear' notes the key commitment, and by reference to the retiring of the existing nuclear fleet of power stations, explains that additional nuclear beyond Hinkley Point C will be needed. It states that in addition to the key commitment the Government is open to further projects. These points are all set alongside the clear statement that the policy does not set limits or targets for any individual technology.
- 5.19.64. The Applicant contends that the scale of the Proposed Development in relation to the site is not a changing circumstance. Paragraph 2.2.3 of EN-6 notes that boundaries may vary as the NPS recognises that "*it is not reasonable to expect nominators to have established detailed layouts*" at that stage. EN-6, paragraph 2.3.4, notes that the Strategic Siting Assessment was carried out on the basis that DCO applications may include additional land, for instance for construction, as has happened here. There is a requirement for the key nuclear elements to be contained in the nominated boundary of site (EN-6, paragraph 2.3.5) and that is the case here. Whilst there has been detailed design and development of the site boundary, this does not impact on the weight and appropriateness of the policy. EN-6, paragraph 3.3.1, also makes it clear at that the Government's Appraisal of Sustainability assessed twin reactors at Sizewell.
- 5.19.65. Furthermore, climate change does not represent a change in circumstance. In relation to sea level rise, the Applicant's position is that taking the most up to date forecast, the application meets the relevant policy tests. Although the urgency of addressing climate change has increased, this is not change in circumstances because the policy clearly directs itself to addressing the need to tackle climate change, but the increasing urgency reinforces the importance of policy.
- 5.19.66. The Applicant contends that the Government's response to the National Infrastructure Assessment in November 2020 is relevant. The Planning Statement Update, paragraph 2.1.20 [REP2-043], records the Government as noting that, since the National Infrastructure Commission had carried out an assessment, the Government has legislated for a target of net zero greenhouse gas emissions by 2050. The Government notes that this is likely to result in a significant increase in electricity demand. It is that recognition which has driven a number of statements which consistently recognise the increasing need for low carbon energy and the role of nuclear in that context. In summary, the suggested changes of circumstances raised by IPs are not matters which cause

policy to be undermined. They either are already recognised within policy, or the urgency which sits behind the policy is reinforced.

The ExA's conclusions

- 5.19.67. The WMS states that: "...*the Secretary of State would be required, under section 105(2)(c) of the Act, to have regard to the content of EN-1 and EN-6, unless they have been suspended or revoked. In respect of matters where there is no relevant change of circumstances it is likely that significant weight would be given to the policy in EN-1 and EN-6*".
- 5.19.68. A number of IPs submit that since the publication of the WMS there have been relevant changes of circumstances that reduce the weight to be given to EN-1 and EN-6, and that both new nuclear and the use of the site for the Proposed Development should be reconsidered.
- 5.19.69. For example, Professor Blowers [REP7-169], submits that the most recent IPCC and other scientific reports on the uncertainties of Climate Change impacts represent a major change in circumstances that require a thorough reappraisal of the Proposed Development.
- 5.19.70. TASC in their Post Hearing submissions including written submissions of oral case - DL7 submission regarding oral submissions at ISH9 [REP7-246] submit that there have been a number of relevant changes of circumstances such that, following the 2017 WMS, EN-1 and EN-6 cannot rationally attract significant weight. The significant changes on which they rely include the scale of the Proposed Development; the climate change regime; legal and policy progression reductions; the cost of alternatives and the increased availability of low carbon alternatives.
- 5.19.71. TASC [REP7-246] also draw support on this matter from the announcement by BEIS of review of the NPSs for energy infrastructure on 23 April 2021. In the light of section 6(3) PA2008, they submit that the review, in itself, is therefore clear evidence of a relevant and significant change in circumstance. They submit that limited (if any) weight that should be attributed to EN-1 and EN-6.
- 5.19.72. Mr Bill Parker [REP7-174], raises aspects of Government policy including EN-6 which highlight with particular regard to mitigation of coastal change and flooding in respect of the site. However, these potential generic impacts are considered elsewhere in this Report in sections 5.7, 5.8 and 5.11 of Chapter 5 which focus on those detailed aspects of policy.
- 5.19.73. As regards the change in the scale of the Proposed Development, Paragraph 2.3.3 of EN-6 states that: "*The boundary of the nominated area may, however, vary from the site boundary that is proposed for development consent. It was not considered reasonable to expect nominators to have established, at the time of requesting nominations, detailed lay-outs for the whole of their proposed developments, including for example any additional land needed for construction or decommissioning*".

- 5.19.74. The ExA notes that EN-6, paragraph 2.3.4, states that the Strategic Siting Assessment (SSA) was carried out on the basis that DCO applications may include additional land, for instance for construction, as has happened here. Although EN-6, paragraph 2.3.5, expects the key operational elements of the power station, and in particular the infrastructure that has the potential to directly cause a radiological hazard to be located within the boundary of the site that was assessed by the SSA, that is the case for the current application. Furthermore, the Government recognises that flexibility is required to accommodate detailed local level considerations.
- 5.19.75. The ExA does not consider the detailed design and development of the site boundary that has resulted in the submission of the current application, can be regarded as a '*relevant change of circumstances*' that impacts upon the weight to be attributed to the NPSs. As the Applicant points out, EN-6, paragraph 3.3.1, also makes it clear at that the Government's Appraisal of Sustainability (AoS) assessed twin reactors at Sizewell.
- 5.19.76. In relation to climate change and sea level rise, the Applicant submits that although the urgency of addressing climate change has increased, this is not change in circumstances because the policy clearly directs itself to addressing the need to tackle climate change, but the increasing urgency reinforces the importance of policy.
- 5.19.77. The ExA considers that the Government's response to the National Infrastructure Commission Assessment in November 2020 is relevant to this matter. This notes that since the assessment, the Government has legislated for a target of net zero greenhouse gas emissions by 2050 [REP2-043, para 2.1.20]. The likelihood that this will result in a significant increase in electricity demand has driven a number of Government statements which consistently recognise the increasing need for low carbon energy and the role of nuclear in that context.
- 5.19.78. The Applicant has responded to the suggestion that the CCC's Sixth Carbon Budget contains scenarios which do not rely on the Proposed Development in the Planning Statement Update [REP2-043], Section 2, which reports that, whilst there were alternatives explored, there was a central Balance Net Zero Pathway, which includes 10GW of nuclear capacity by 2035. The Balance Net Zero Pathway is stated on page 24 of the CCC document as being '*a good indication of what should be done*'. The Government's response to the CCC in 2020 [REP2-043, para 2.1.5] identified, amongst other things, the need for a reliable low carbon energy mix including nuclear.
- 5.19.79. At ISH9 the Applicant [REP7-102] drew attention to the 2018 Government response to consultation, paragraph 2.129, which indicates that the focus is on sites which could deploy the soonest to meet the need for nuclear energy. Paragraph 3.10 of the Government's response notes that the sites listed retain strong Government support, and paragraph 3.11 repeats that EN-1 and EN-6 continue to be important to decisions under section 105 PA2008.

- 5.19.80. In addition, the Energy White Paper, page 55, states that the need for the energy infrastructure set out in the Energy NPS remains. This statement of the Government's position in effect updates the statement made in the 2017 WMS that the assessment of need carried out to support EN-1 remains valuable and relevant.
- 5.19.81. The Energy White Paper, page 16, sets out a list of key commitments and notes that the Government is aiming to bring at least one large nuclear project to the point of final investment decision (FID) by the end of this Parliament subject to relevant approvals. The Energy White Paper, page 48, under the heading '*Nuclear*' notes the key commitment, and by reference to the retiring of the existing nuclear fleet, explains that additional nuclear beyond Hinkley Point C will be needed. It states that in addition to the key commitment the Government is open to further projects. These points are all set alongside the clear statement that the policy does not set limits or targets for any individual technology.
- 5.19.82. The ExA concurs with the Applicant that the suggested changes of circumstances raised by IPs are already recognised within Government policy, or they reinforce the urgency which sits behind, rather than undermining that policy. We conclude that the changes to the Climate Change knowledge-base and any uncertainties of Climate Change impacts do not represent a change of circumstances in the context of the WMS. The implications for the interpretation of the WMS arising from the *Drax* judgments and the Wylfa ExA's recommendation report will be considered below

The implications of other relevant documents and publications issued since the submission of the application for the application of NPS policy

The submissions of IPs

- 5.19.83. TASC's written submissions of oral case at ISH9 [REP7-246] in relation to the implications of other relevant documents and publications issued since the submission of the application for the application of NPS policy, draw attention to their response to ExQ1 G.1.4 [REP3-139] which refers to the relevant documents and publications. They comment on and highlight relevant extracts from the Government's response to the CCC Progress Report (October 2020), the Ten Point Plan for a Green Revolution, the National Infrastructure Strategy, the Sixth Carbon Budget and the Energy White Paper.
- 5.19.84. The Stop Sizewell C DL3 comments [REP3-133] makes reference to a report by Energy Systems Catapult and Good Energy "Renewable Nation; Pathways to a Zero Carbon Britain" which states: "*A separate reason for excluding nuclear power is the difficulty in balancing the technology with renewables. The energy system in the modelling needs greater flexibility without adding further inflexible capacity to the mix. A recent example of this was the unusual case of National Grid paying a nuclear plant, Sizewell B, to reduce its output during a period of low demand and high renewable generation*".

The Applicant's response

- 5.19.85. The Applicant's written summary of oral submissions made to ISH9 [REP7-102], submits that the key document is the Energy White Paper as it is the most recent and comprehensive statement of Government policy and it takes account of other documents including the Government's most recent projections. At ISH9, the Applicant referred to page 55 of the Energy White Paper under the heading 'A planning framework for energy infrastructure' and notes that it has been decided it is appropriate to review the NPS: "*...to ensure that they reflect the policies set out in this white paper and that we continue to have a planning policy framework which can deliver the investment required to build the infrastructure needed for the transition to net zero*".
- 5.19.86. The Applicant contends that the White Paper confirms the need for large scale new nuclear and so the purpose of the review needs to be understood with the contents of the White Paper in mind. The suggestion that the fact of review calls into question need for new nuclear cannot withstand scrutiny. It is also relevant to note that while the review is undertaken, the NPS remains Government policy and provides a proper basis to make decisions for development consent. The Applicant submits that this would not be said if it was thought there was something in the NPS that was significantly inconsistent with policies in the Energy White Paper. In fact, as noted by ESC, there is no material inconsistency between the documents. At ISH9, the Applicant also drew attention to pages 9, 12, 16 and 48 of the Energy White Paper.
- 5.19.87. The suggestion that the CCC's Sixth Carbon Budget contains scenarios which do not rely on the Proposed Development is addressed in the Planning Statement Update [REP2-043], section 2, which reports that, whilst there were alternatives explored, there was a central Balance Net Zero Pathway, which includes 10GW of nuclear capacity by 2035. Whilst the Sixth Carbon Budget does not set out direct recommendations as to what the mix should be, it explains that the Balance Net Zero Pathway is stated on page 24 of the CCC document as being 'a good indication of what should be done'.
- 5.19.88. The 2019 report from the CCC led to the adoption of net zero (Planning Statement, paragraph 3.6.8 [APP-590]) and the consequent Climate Change Act Amendment Order 2019 committed the Government to a 100% reduction in emissions compared to 1990 levels (the net zero commitment). This led to a series of policy and reports, including the Government's response to the CCC in 2020 (Planning Statement Update, paragraph 2.1.5, [REP2-043]) that identified three things:
- a fourfold increase in demand for low carbon energy;
 - a very important role for renewables in the energy mix;
 - the need for a reliable low carbon energy mix including nuclear.
- 5.19.89. The Applicant submits that in these various policy documents and reports, the Government has explained that nuclear has a clear role to play in decarbonising the energy sector and the wider economy. The

policy documents identify the vital contribution that new nuclear makes to the necessary energy mix.

The ExA's conclusions

- 5.19.90. The Planning Statement Update [REP2-043] sets out relevant documents and publications since the submission of the application in May 2020 up to and including the publication of the Energy White Paper in December 2020. At Appendix A it provides the Applicant's review of the developments in national policy and the assessment of the need for new nuclear power generation since that time.
- 5.19.91. The 2019 report from the CCC led to the adoption of net zero (Planning Statement, paragraph 3.6.8 [APP-590]), and the consequent Climate Change Act Amendment Order 2019 committed the Government to a 100% reduction in emissions compared to 1990 levels (the net zero commitment). This led to a series of policy and reports.
- 5.19.92. The more recent developments include: The Government Response to the CCC 2020 Progress Report to Parliament (October 2020); the Ten Point Plan for a Green Industrial Revolution (November 2020); the National Infrastructure Strategy (November 2020); the Response to the National Infrastructure Assessment (November 2020); the Sixth Carbon Budget: The UK's path to Net Zero (December 2020), and the Energy White Paper – Powering our Net Zero Future (December 2020).
- 5.19.93. Taking these in turn, the Government Response to the CCC 2020 Progress Report states that: *"regardless of the precise level of demand, we agree with the CCC's net zero report that the falling cost of wind and solar means that they are likely to provide the majority of our generating capacity in 2050"* (page 17) but also recognises that: *"in order to deliver a reliable system, wind and solar will need to be complemented by sources of power which are available when the wind does not blow and the sun does not shine. This will increasingly have to come from low carbon sources including nuclear, and biomass or gas with carbon capture and storage..."* (page 18).
- 5.19.94. The Ten Point Plan, point 3, proposes *"Delivering New and Advanced Nuclear Power"*. The Plan (page 12) explains that:
- Our electricity system will grow and could double in size by 2050 as demand for low-carbon electricity in sectors like heat and transport rises. Nuclear power provides a reliable source of low-carbon electricity;
 - Government is "pursuing large-scale nuclear" as well as future technologies through investment in SMRs and AMRs; and
 - New nuclear power will both produce low carbon power and create jobs and growth across the UK.
- 5.19.95. The Ten Point Plan also sets out the 'policy impacts' of each point. For nuclear this identifies the *"key role for nuclear in delivering deep decarbonisation of our electricity system, alongside renewables and other technologies"* (page 13).

- 5.19.96. The 'National Infrastructure Strategy – Fairer, faster, greener' (NIS) (page 52), recognises the important role of nuclear in UK power generation as a "*proven, value-for-money source of reliable low carbon power which can complement renewables*". The NIS confirms that government is pursuing large scale nuclear projects subject to clear value for money for both consumers and taxpayers and all relevant approvals.
- 5.19.97. The National Infrastructure Commission (NIC) published its National Infrastructure Assessment (NIA) in October 2018. Alongside the NIS, Government published its response to the NIA recommendations. The response states that: "*it is important to maintain options by pursuing additional large-scale nuclear projects subject to clear value for money for both consumers and taxpayers and all relevant approvals*" (para 1.52).
- 5.19.98. In December 2020, the CCC published the Sixth Carbon Budget: The UK's path to Net Zero which sets its recommendations for the UK's sixth carbon budget for the period 2033 to 2037. This was the first carbon budget set since the Government's commitment to net zero by 2050 and it advises that emissions will have to fall more quickly than required in the existing carbon budgets. The CCC report uses scenarios rather than recommendations to identify a '*Balanced Net Zero Pathway*' which would meet the objectives of the sixth budget. In the Balanced Net Zero Pathway low carbon share (including new nuclear) increases from 50% now to 100% by 2035. This preferred scenario would see new nuclear projects restore nuclear generation to current levels by 2035 despite the retirement of existing nuclear plants in the 2020s, reaching 10GW of total nuclear capacity by 2035 with 8GW of new-build capacity (page 135).
- 5.19.99. The Energy White Paper – Powering our Net Zero Future (December 2020) includes a key commitment (page 16 and page 48) of: "*Aiming to bring at least one large-scale nuclear project to the point of Final Investment Decision by the end of this Parliament, subject to clear value for money and all relevant approvals.*"
- 5.19.100. The Energy White Paper (page 55) also sets out that the suite of energy NPSs will be reviewed, to ensure they reflect the policies in the White Paper, with an aim to designate updated NPS by the end of 2021. While the NPS review is undertaken: "*the current suite of NPS remain relevant government policy and have effect for the purposes of the Planning Act 2008. They will, therefore, continue to provide a proper basis on which the Planning Inspectorate can examine, and the Secretary of State can make decisions on, applications for development consent*".
- 5.19.101. The White Paper therefore confirms the need for large scale new nuclear and explains the purpose of the NPS review. Given the support for new nuclear as expressed in the White Paper, the mere fact of review cannot be regarded as calling into question need for that type of energy generation. Furthermore, whilst the review is undertaken, the NPS remains Government policy and provides a proper basis to make decisions for development consent.

- 5.19.102. The Government has now published a suite of draft NPS for energy infrastructure, subject to consultation between 6 September and 29 November 2021 [REP10-068]. The Draft NPS EN-1 directs that the current suite of NPSs should have effect for any application accepted for Examination before the designation of the 2021 amendments, but that any emerging draft NPS “*are potentially capable of being important and relevant considerations in the decision-making process*”.
- 5.19.103. NPS EN-6 does not form part of the consultation on the basis that the review concluded that: “*there are no changes material to the limited circumstances in which it will have effect (see the Written Ministerial Statement of 7 December 2017)*”.
- 5.19.104. The draft NPS consultation therefore confirms that for applications accepted for Examination before the designation of the 2021 amendments, the 2011 suite of NPS should have effect in accordance with the terms of those NPSs. NPS EN-6 does not form part of the consultation and will continue to have the role set out in the 2017 WMS during the development of a new nuclear NPS. For projects which will deploy after 2025, the Consultation Document states that EN-6 provides information, assessments and statements which may continue to be important and relevant.
- 5.19.105. For nuclear power generation, the draft NPS EN-1 identifies a number of advantages: Nuclear plants provide continuous, reliable, safe low-carbon power (paragraph 3.3.39); nuclear plants produce no direct emissions during operation and have direct life-cycle GHG emissions comparable to off-shore wind (paragraph 3.3.39); nuclear generation provides security of supply benefits by utilising alternative fuel source to other thermal plants, with a supply chain independent from gas supplier (paragraph 3.3.39).
- 5.19.106. TASC [REP3-149] draw attention to the support provided by policy documents for small modular reactors (SMRs) and other alternatives such as hydrogen or Carbon Capture Storage (CCS) and other matters such as the reference in policy to the pursuit of “*large-scale new nuclear projects*” being qualified by the phrase “*subject to value-for-money*”. Mr Bill Parker [REP7-174] makes similar points in relation to SMRs and ‘*value for money*’, as does Regan Scott on behalf of S.A.G.E. in his Post Hearing submissions including written submissions of oral case ISH9 [REP7-223].
- 5.19.107. The Applicant’s response to ExQ2 G.2.4 [REP7-050] recognises that it is a key commitment of the Energy White Paper to provide up to £385 million in an Advanced Nuclear Fund for the next generation of nuclear technology aiming by the early 2030s to develop a SMR design and to build an AMR demonstrator. However, although the White Paper commits to the Advanced Nuclear Fund, it also confirms the need for large scale new nuclear generation. The ExA takes the view that the support for SMRs in one part of the White Paper cannot be taken as casting doubt on the merits of another part. As far as Government policy is concerned, large and small nuclear are not mutually exclusive.

- 5.19.108. Whilst the recently published Hydrogen Strategy sets out an aim to achieve 5GW of low carbon hydrogen by 2030, this is the same aim as that set out in the Energy White Paper, and is also reported in the Government's Ten Point Plan. The ExA considers that the Hydrogen Strategy is simply part of a strategy and does not detract from Government expressions as to the importance of nuclear as part of the overall suite of energy solutions that are necessary.
- 5.19.109. TASC raise questions in relation to the policy reference to '*value for money*'. However, the ExA believes that the Applicant's response to G.2.2 [REP7-050], sets out the correct approach to be adopted to that phrase. It is a matter for the Secretary of State to determine whether the Proposed Development represents value for money pursuant to a separate decision-making process. It does not provide a criterion for development control decision-making which this Examination should consider, and which the Secretary of State will need to determine for the purposes of deciding this application.
- 5.19.110. The ExA concludes that through this sequence of various policy documents and reports, the Government has clearly and consistently explained the role that nuclear power generation has to play in decarbonising the energy sector and the wider economy. The detailed comments made by TASC [REP3-149] in relation to these publications do not dissuade us from that view. Whilst other IPs have referred to other non-Government publications, it is the Government's position on need which is determinative.

The scale and urgency of the need in the light of national energy policies overall

The submissions of IPs

- 5.19.111. ESC's Post Hearing submissions including written submissions of oral case - ISH9 [REP7-113], in relation to the scale and urgency of the need in the light of national energy policies overall, submits that substantial weight should be given to considerations of need under 3.2.3 EN-1. That weight, in any given case, should be proportionate to the anticipated extent of the project's actual contribution to satisfying the need for this form of infrastructure, i.e. nuclear. The project's capacity will be relevant to that exercise (in the context of the absence of any quantitative caps in the policy).
- 5.19.112. Mr Bill Parker [REP7-174] on the topic of 'need', identifies that there is an active and wide-ranging debate about whether nuclear power is part of the solution to climate change and if it is whether large-scale nuclear in particular is required. He asserts that the EN-1 and EN-6 policies and Energy White Paper do not state that the EPR reactor design is the solution nor that a large nuclear reactor should be built on the Suffolk coast. The Government's more recent 10 Point Plan for a Green Industrial Revolution (Nov 2020) contains an important nuance to the effect that large-scale nuclear projects are subject to '*value-for-money*'. Furthermore, the majority of this section focusses on discussing SMPs

and AMR and there is no inclusion of Sizewell in the Target Milestones, an admission that Sizewell is no longer a priority for Government.

- 5.19.113. Ian Galloway [REP7-193] points to the absence from the Examination Library of a consolidated 'Project Plan'. He contends that without such a plan, it would be difficult for both the ExA and IPs to discern whether there is a credible, robust and viable plan for delivery of the Proposed Development to the 'urgency milestone' relied upon by the Applicant and to understand other issues including the overall project 'Critical Path'.
- 5.19.114. Regan Scott on behalf of S.A.G.E. at ISH9 [REP7-223], on the matter of the scale and urgency of need, referred to Government financial support emerging as a priority for SMR development, and the three new projects in North Wales, two of them for SMRs and all dual technology based, that is to say for hydrogen production. He contends that this nuclear/hydrogen synergy poses a rival to large-scale, long life baseload nuclear such as the Proposed Development. He also draws attention to one of the Prime Minister's Ten Points on turning over domestic electricity consumption to renewable by 2030, thus leaving nuclear and other carbon producing sectors to wholesale markets. He concludes that the capacity and opportunity of the Proposed Development to contribute to urgent need is substantially qualified because of structural change in energy supply technologies and national policy adjustment to these changes.
- 5.19.115. Stop Sizewell C's DL7 submission 'Addressing EDF's case for the construction of Sizewell C' [REP7-229] contends that the Applicant's claims that an urgent decision is needed to go ahead with the Proposed Development is not defensible, even if the 2034 target completion date could be met. The lead time including the steps needed to reach start of construction and the construction period itself for nuclear plants is too long and too uncertain for any reliance to be placed on new nuclear capacity to meet climate change targets. The Proposed Development would also be completed too late to even off-set the emissions generated in its construction, much less replace fossil fuels. The company responsible for ensuring adequate generating capacity and grid stability appears unconvinced of the need for new capacity and in two out of the three scenarios that achieve Net Zero by 2050, the Proposed Development is not required.
- 5.19.116. Stop Sizewell C [REP7-229] also refer to the August 2021 statement of the Secretary General of the United Nations, Antonio Gutierrez, that: "*As today's IPCC report makes clear, there is no time for delay and no room for excuses.*" There is wide and authoritative agreement that action on reducing greenhouse gas emissions is urgent. They submit that the issue is whether the Proposed Development would constitute urgent action highlighting that even on Applicant's optimistic forecast of its completion date, the plant would not be online and able to reduce emissions before 2034. In addition, they point to the record of nuclear technology and in particular the proposed EPR technology being built on time. They contend that if urgent action is needed it must be focussed on energy efficiency

measures and low-carbon generation technologies that can be deployed rapidly, and which do not have a history of long delays.

- 5.19.117. TASC [REP7-246] conclude that given the limited (if any) weight that should be attributed to EN-1 and EN-6, that it is for the ExA to form its own judgment as to whether there is a “need” for a new nuclear power station at Sizewell for deployment after 2025. They maintain that there is no proven need for the Proposed Development (see pp 8-15 of the Policy and Need written representation [REP2-481b]). They contend that whilst there is a need for additional electricity generation, this can be achieved without the Proposed Development. In the alternative, if the ExA is minded to give greater weight to EN-1 and EN6 in the planning balance under section 105 PA2008, they submit that there remain serious concerns as to the ability of the Proposed Development to satisfy or meet the requirements of the policies therein. (See Appendices B and C to TASC’s Policy and Need written representation [REP2-481b] which set out a critical review of EN6 volumes I and Annex C in volume II).
- 5.19.118. TASC’s view as expressed at ISH9 [REP7-246] is that there is an urgent need, but that it is for rapid decarbonisation, and not an urgent need for large nuclear. Since the Proposed Development is not vital to meeting the UK’s electricity requirements and there are significant doubts over whether the EPR reactor design could meet a perceived need for large nuclear reactors, TASC considers that little weight should be given to the Proposed Development.

The Applicant’s response

- 5.19.119. The Applicant, in its written summary of submissions made at ISH9 [REP7-102], states that the process of identifying what is needed by way of new nationally significant energy infrastructure is for the Government through its policy-making process. Where there is an existing policy, these factors only come into play in a review process. It is neither appropriate nor realistic to expect those matters to be dealt with in response to individual applications for development consent. It is not for the Examination to consider the different ways to address the need for decarbonisation; this is a matter for the Government and policy to consider. Similarly, it is not for Examination to consider the least cost option and whether it represents value for money.
- 5.19.120. The Applicant submits that there can be no doubt that the Proposed Development is ‘new nuclear’ in the sense that term is used within the Government’s policies. EN-6 explains that it has effect in relation to proposals for nuclear power generation with a capacity of more than 50 MW on a site listed within the NPS: setting to one side the issue of deployment date, this characterisation of the type of infrastructure covered clearly includes the Proposed Development.
- 5.19.121. In response to ExQ2 G.2.10 [REP7-050] which notes that Sizewell B is potentially subject to proposals to extend operation by 20 years to 2055, the Applicant states that the publicly available position is that: “*the industry regulator confirmed Sizewell B meets its safety case to continue delivering low carbon power to over 2 million customers until 2025 and*

the station is already working on the case for the next ten years to ensure operation to at least 2035. This is the station's current stated lifetime ... EDF Energy expressed its aim to extend its life for 20 years beyond that to 2055". As explained in the Planning Statement Update [REP2-043] (paragraph A.1.32) and in Appendix A to the Written Submissions arising from ISH5 [REP5-117] (paragraph 23), both the CCC and BEIS modelling scenarios referenced assume 8GW of new nuclear generating capacity in 2035, and around 10GW in total. With Hinkley Point C and the Proposed Development operating by that time, Sizewell B would also need to be operating to meet that total requirement.

- 5.19.122. The recently published Hydrogen Strategy sets out an aim to achieve 5GW of low carbon hydrogen by 2030. This is the same aim as that set out in the Energy White Paper and is also reported in the Government's Ten Point Plan. The Hydrogen Strategy is part of a strategy which reinforces the importance of nuclear as part of the overall suite of energy solutions that are necessary.
- 5.19.123. The Applicant's Written submissions responding to actions arising at ISH5 Landscape and Visual Impact and Design Appendix A: New Nuclear: Need and Urgency [REP5-117], provides further details on these issues. Paragraph 20 points out that in its *'Response to consultation on the siting criteria and process for a new National Policy Statement'* in July 2018, the Government confirmed its view that those sites listed in EN-6 continue to be those sites *"which can deploy the soonest and are likely to be the only sites capable of deploying a nuclear power station by 2035."* The Applicant submits that the Government's indication that the new NPS will only have effect for sites assessed as being capable of deployment by 2035 is of considerable significance. The stated intention to identify 2035 as a 'cut-off' date for the applicability of the new NPS necessarily reflects the importance that the Government attaches to the public interest benefits of deployment of new nuclear power stations by at least that date, and the development of those sites which can *"deploy the soonest"*.
- 5.19.124. Appendix A, paragraph 22 [REP5-117], indicates that the background to the established importance of 2035 is explained in the Planning Statement Update, paragraph 2.1.24 [REP 2-043]. This reports that the *"Balanced Net Zero Pathway"* identified as a central scenario in the Sixth Carbon Budget published by the CCC in December 2020 now assumes that it will be necessary for the power sector to reach zero emissions by 2035, thereby de-carbonising electricity generation entirely. Similarly, 2035 is treated as an important milestone towards 2050 in the Energy White Paper, and that from that date, electricity will need to become an increasing source of supply for sectors of the economy previously dependent on fossil fuels⁵.
- 5.19.125. The Planning Statement Update, paragraph 2.1.25 [REP2-043], identifies that the CCC's Balanced Net Zero Pathway would require nuclear power to be restored to current levels by 2035 though the construction of 8GW of new build nuclear reactors (providing a total capacity of 10GW at

⁵ See Figure 3.2 of the Energy White Paper

2035)⁶. This is consistent with the BEIS modelling published alongside the Energy White Paper which identifies two “*net zero scenarios*” which would also require new build nuclear to replace retiring capacity by 2035.

- 5.19.126. Furthermore, the Government issued a press release at the same time as the Energy White Paper confirming the work that it is doing with EDF on funding and financing arrangements for the Proposed Development. The Applicant is not aware of similar discussions taking place in relation to any other large-scale new nuclear proposal at this time. The Applicant therefore submits that the Proposed Development is unique in its ability to meet a critical component of the Government’s energy and climate change strategy, with a consequence that paragraph 3.2.3 of EN-1 should apply with particular force. The Applicant’s response to ExQ2 G.2.2 [REP7-050] provides further information on this matter.
- 5.19.127. In relation to SMRs, the Applicant’s response to ExQ2 G.2.4 [REP7-050] recognises that it is a key commitment of the Energy White Paper to provide up to £385 million in an Advanced Nuclear Fund for the next generation of nuclear technology aiming by the early 2030s to develop a SMR design and to build an AMR demonstrator. The Applicant points out that although the White Paper commits to the Advanced Nuclear Fund, it is the same White Paper (in the full knowledge of that commitment) which confirms the need for large scale new nuclear generation, and commits to an aim to bring at least one large scale nuclear project to FID by the end of the Parliament. The questioning of whether one part of the policy should be treated as casting doubt on the merits of another part is an example of an inappropriate and impermissible attempt to challenge the merits of that policy.
- 5.19.128. The Applicant’s view is that AMRs and SMRs are less mature than large nuclear projects. As a technology class, there are none that have yet started construction worldwide. In the UK, there are a number of important steps that are likely to have to be completed before construction of an SMR can begin. The level of maturity of the SMR/AMR pipeline means there is inevitable uncertainty about what impact they will have if, and when, they reach commercial deployment, or to be precise about when commercial deployment could be achieved. The Applicant asserts that large and small nuclear are not mutually exclusive, in fact large nuclear projects are an important enabler for small nuclear. However, it is the Government’s position which is determinative.

The ExA’s conclusions

- 5.19.129. The ExA has given careful consideration to the questions raised by IPs in relation to the scale and urgency of need. They raise a variety of issues under this topic heading including whether nuclear power is part of the solution to climate change and, if so, is whether large-scale nuclear in particular is required [REP7-174]. Their submissions in summary being that the lead time for nuclear plants is too long and too uncertain for any

⁶ For the Sixth Carbon Budget CCC developed four ‘exploratory’ scenarios for reaching net zero emissions in different ways (including different levels of potential nuclear capacity). These were used to identify the Balanced Net Zero Pathway as a recommended pathway to reach net zero by 2050.

reliance to be placed on new nuclear capacity to meet climate change targets [REP7-229], and that the need for additional electricity generation can be achieved without the Proposed Development [REP7-246].

- 5.19.130. Nevertheless, the ExA concur with the Applicant [REP7-102], that the process of identifying what is needed by way of new nationally significant energy infrastructure is for the Government through its policy-making process. Whilst the sort of factors raised by IPs may be come into play in a review process, in this case there is an existing policy. The ExA agrees that the consideration of different ways to address the need for decarbonisation is a matter for the Government to consider in the formulation of its policy. Furthermore, there can be no doubt that the Proposed Development is 'new nuclear' in the sense that term is used within the Government's policies.
- 5.19.131. The Energy White Paper, and the draft EN-1 published in September 2021, confirm that the current suite of NPSs remain relevant Government policy and continue to provide a proper basis on which the Planning Inspectorate can examine, and the Secretary of State can make, decisions on applications for development consent. The principle of the need for new nuclear power stations, and that this need is urgent, is clearly set out in EN-1, and EN-6.
- 5.19.132. EN-1, paragraph 3.5.10, states that new nuclear generation will play a vitally important role in the decarbonisation of the electricity system. EN-6, paragraph 1.1.1, explains the vitally important role new nuclear plays in providing reliable and secure energy as part of a diverse energy mix as the UK transitions to a low carbon economy.
- 5.19.133. The urgency of the need for new nuclear is highlighted in both NPSs, and EN-6, paragraph 2.2.3, confirms 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.
- 5.19.134. The more recent developments in Government policy provide further explanation of the timing and scope of the need and the role of new nuclear in assisting to provide energy security, and meet the anticipated demand for electricity. The Energy White Paper and the evidence base which supports it reveal the national importance and urgency of the need. An aim and commitment of the Energy White Paper is to bring "at least one large-scale nuclear project to final investment decision by the end of this parliament" (pages 16 and 48).
- 5.19.135. The various policy documents identify the vital contribution that new nuclear makes to the necessary energy mix. There is specific support from government for new large scale nuclear, including at least one large scale nuclear project to the point of FID by 2024. BEIS confirmed, at the same time as publishing this commitment in the Energy White Paper, that it was to enter into negotiations with EDF in relation to the Proposed Development.

- 5.19.136. The ExA notes that the Government in its '*Response to consultation on the siting criteria and process for a new National Policy Statement*' in July 2018, confirmed its view that those sites listed in EN-6 continue to be those sites "*which can deploy the soonest and are likely to be the only sites capable of deploying a nuclear power station by 2035.*" It is also significant that the Government has indicated that the new NPS will only have effect for sites assessed as being capable of deployment by 2035. The indication that 2035 will be a 'cut-off' date for the applicability of the new NPS reflects the Government's view as to the public interest benefits of deployment of new nuclear power stations by at least that date, and the development of those sites which can "*deploy the soonest*". These are all indications of 'urgency' in meeting the perceived need.
- 5.19.137. The Planning Statement Update, paragraph 2.1.24 [REP 2-043] explains that the "*Balanced Net Zero Pathway*", identified as a central scenario in the CCC's Sixth Carbon Budget, now assumes that it will be necessary for the power sector to reach zero emissions by 2035, thereby de-carbonising electricity generation entirely. Likewise, 2035 is treated as an important milestone towards 2050 in the Energy White Paper (Figure 3.2), and that from that date, electricity will need to become an increasing source of supply for sectors of the economy previously dependent on fossil fuels.
- 5.19.138. The ExA considers that relevant government publications and policy statements since the submission of the application reinforce the urgent need for significant increases in electrification in order to meet net zero by 2050, and make clear the crucial role that low-carbon technologies, including new nuclear, have to play in supporting intermittent renewables in achieving this at low cost. The ExA concludes that there is an urgent need for new nuclear energy infrastructure of the type comprised by the Proposed Development. The ExA will consider the likely contribution that the Proposed Development could make to meeting that identified need and the weight to be attributed to considerations of need in this case below.

The funding arrangements for the Project together with any associated consequences for the timing of the project, and hence its capability of meeting an urgent need for new generating capacity

The submissions of IPs

- 5.19.139. Regan Scott on behalf of S.A.G.E. at ISH9 [REP7-223] on Regulated Asset Base (RAB) and funding, disagrees that whole project funding should not be a planning requirement. He submits that whilst it is a DCO requirement for financing mitigations, CA compensation and to meet other obligations, there is also a longstanding policy requirement on "*value for money*". This also figures as an overarching consideration in the CCC's Sixth Carbon Budget. He highlights a number of matters of public interest and other issues and concerns in relation to the prospect of the need for a legislated RAB scheme.

- 5.19.140. Stop Sizewell C's written submissions of oral case [REP7-226] make a number of points in relation to the funding including the timing of the Final Investment Decision (FID) and the implications that could have for the implementation of the Proposed Development. They also question why the Applicant appeared to be resistant to the idea of updating the overall cost of the Proposed Development. They do not accept that "*commercial sensitivities*" should prevent or restrict such information from being disclosed.
- 5.19.141. The written submission of Alison Downes on behalf of Stop Sizewell C [PDB-098] contends that in the absence of an agreed funding mechanism for the Proposed Development, the Applicant's claim of urgency is not reasonable. She makes reference to EDF's 2020 financial report which states: "*EDF's ability to make a final investment decision on Sizewell C may depend on the operational control of the Hinkley Point C project, the definition of an appropriate regulatory and financing framework and the existence of sufficient investors and financiers interested in the project. None of these conditions is assured at this time*".
- 5.19.142. At ISH9, Aldeburgh Town Council submitted that if a timeline cannot be secured of delivery by 2025 and a finance decision is not in place now, the project is not fulfilling Government requirements and cannot be supported in Government policy. Aldeburgh Town Council also assert that funding is imperative and is not underpinned by what the Applicant is offering and therefore cannot support the Government's policy of having an amount of electricity on the grid by a certain timeframe at a price affordable to the consumer.
- 5.19.143. TASC's written submissions of oral case at ISH9 [REP7-246] note the oral representation made by Mr Wilson on their behalf at that hearing in which he endorsed the comments made by Alison Downes of Stop Sizewell C, with regard to doubts about the timing of the Applicant's financing. He raises doubts in relation to the ability of the Applicant to have sufficient funds for the Proposed Development, especially in the timescale that they seem to be implying that it will be obtained.

The Applicant's response

- 5.19.144. The Applicant in its written summary of submissions made at ISH9 [REP7-102] responds to IPs submissions relating to the perceived difficulties with the RAB funding model and the steps that would need to be overcome to put the model into effect in terms of legislation of other matters. The Applicant submits that these are matters for the Government to consider, as it is best placed to make a judgment. The work being done on the RAB model is being done by the Government, and it will have a view on how long it is likely to take and other such matters.
- 5.19.145. The Government has included in the Energy White Paper a commitment to bring one large scale to point the point of FID by the end of this Parliament subject to relevant approvals being obtained. The Government must regard this timing as being consistent with the urgency of the need, and the likely timing of decisions about funding. The

Energy White Paper, page 49, states that having consulted on a RAB model in 2019, the Government has indicated that a RAB model remains credible for funding large-scale nuclear projects. It explains that the Government will continue to explore the RAB model alongside a range of financing options with the developer of the next large scale projects in the pipeline, and other relevant stakeholders

- 5.19.146. In relation to the progress of the RAB model and how this sits with Applicant's timetable, the Applicant is confident that the RAB model can happen in a timeline consistent with the project timeline. However, it is not the Applicant's position that it anticipates the Government's decision on the RAB model will be made by the end of the Examination. This point is clarified in the Applicant's Written Summaries of the oral submissions for CAH1 Part 1 [REP7-064].
- 5.19.147. The Applicant contends that it is the urgency of the need which is important, not the precise date of deployment. The Government's Response to Consultation on Siting Criteria in 2018, paragraph 2.129, explains that setting a deployment date of 2035 would help to focus on those sites which will meet the need for new nuclear as soon as possible. The Applicant submits that the modelling work that the Government has done reinforces the view that new nuclear is needed as soon as possible. It does not suggest the need for nuclear stops after 2035. The Energy White Paper, Figure 3.4, shows an increasing need for nuclear after 2035. The earliest date is desirable because of the benefits early deployment achieves, but it is not a time limited policy.
- 5.19.148. The Applicant in response to ExQ2 G.2.0 [REP7-050], submits that the phrase 'as soon as possible' provides a more informed understanding of the urgency of the need. That approach is consistent with extant government policy, (see EN-1 para. 3.5.9 and EN-6 paragraph 2.2.3). As with the 2025 date, it would not be right to regard 'the end of 2035' as representing either a target, or a date for deployment after which the Proposed Development would no longer meet Government's objectives or benefit from Government policy support.
- 5.19.149. The Applicant in response to ExQ2 G.2.1 [REP7-050], indicates that the FID would be "*subsequent*". That is to say, it would only be taken after the decision on the draft DCO has been made by the Secretary of State. Thus, any change to the date of FID post-dating the Secretary of State's decision under the PA2008 could not, as a matter of principle, affect the judgment that needs to be made at that time by the Secretary of State as to whether the Proposed Development accords with policy or not.
- 5.19.150. In response to ExQ2 G.2.2 [REP7-050] the Applicant expresses confidence that it can also deliver a strong value for money case for the Proposed Development. Nonetheless, the Secretary of State will determine whether the Proposed Development represents value for money pursuant to a separate decision-making process. It is not a matter which this Examination should consider, and which the Secretary of State will need to determine for the purposes of deciding this application. In any event, the Government's public commitment to

negotiations with the Applicant demonstrates an expectation that value for money, and other criteria can be satisfied. However, it is for the Secretary of State to make that judgement pursuant to that separate process.

- 5.19.151. The Applicant confirms, in response to ExQ2 G.2.3 [REP7-050], that the RAB model is currently considered to provide the most likely option for funding the Proposed Development. The Applicant is working closely with the Government to ensure that the RAB model (and any legislation required) will be established in a timeframe which is consistent with the intended construction schedule. Based on that joint working, the Applicant is confident that this will be achieved, and therefore the prospect of the RAB model being used is not considered likely to affect the current anticipated timing of the commencement of development, and associated CA.
- 5.19.152. The Applicant has provided a response to ExQ2 G.2.11 [REP7-050] which refers to an excerpt from EDF's 2020 financial report in relation to the company's ability to make a FID on the Proposed Development which was a matter raised by Stop Sizewell C. The Applicant confirms that EDF is committed to retaining a strategic minority equity investment in the Proposed Development post financial close. The majority of the equity would be provided by third parties (who will make their own investment decisions). Discussions with Government to establish a funding model (the RAB model) which would provide the regulatory and financing framework which would make it possible to secure the Proposed Development's financing requirement are ongoing and progressing well. Discussions with the Government regarding a potential Government stake in the project alongside private investors are also ongoing.
- 5.19.153. The Applicant's response to ExQ2 G.2.12 [REP7-050] refers to the Stop Sizewell C DL3 comments [REP3-133] in relation to a report by Energy Systems Catapult and Good Energy "*Renewable Nation; Pathways to a Zero Carbon Britain*". The Applicant believes that this question raises similar issues to ExQ2 G.2.4 and G.2.9 because the issue that it raises is whether these issues ought to have led the Government to conclusions other than those it has reached and articulated clearly in the Energy White Paper as to the urgent need for large-scale new nuclear generating capacity and the continued use of the current suite of Energy NPSs. In short, it involves a challenge to the merits of government policy. Nevertheless, the Applicant submits that new nuclear will provide benefits for system management, and is likely to reduce system costs and constraints for wind generators.
- 5.19.154. A response by the Applicant to Stop Sizewell C and Aldeburgh Town Council on funding arrangements is contained in the Written Submissions responding to Actions Arising from ISH9 [REP7-072].

The ExA's conclusions

- 5.19.155. The Funding Statement [APP-066] has been updated by the Funding Statement Addendum [AS-011], and the Second Funding Statement Addendum [AS-150] to take into account changes to the Proposed

Development. The Second Funding Statement Addendum, paragraph 3.3.8, highlights factors which the Applicant submits increase confidence that it will be able to raise the funding required for the Proposed Development. The most likely option for funding the Proposed Development is anticipated to be the RAB Model. That is confirmed by the Applicant in response to ExQ2 G.2.3 [REP7-050].

- 5.19.156. The Energy White Paper, page 49, states that having consulted on a RAB model in 2019, the Government has indicated that a RAB model remains credible for funding large-scale nuclear projects. It explains that the Government will continue to explore the RAB model alongside a range of financing options with the developer of the next large scale projects in the pipeline, and other relevant stakeholders.
- 5.19.157. At the same time as publishing the Energy White Paper, the Government confirmed that it was to enter into negotiations with EDF in relation to the Proposed Development as it considers options to enable investment in at least one nuclear power station by the end of this Parliament as committed in the Energy White Paper.
- 5.19.158. A BEIS press release on 14 December 2020 stated that: “this is the next step in considering the Sizewell C project, and negotiations will be subject to reaching a value for money deal and all other relevant approvals before any final decision is taken on whether to proceed. The successful conclusion of these negotiations will be subject to thorough scrutiny and needs to satisfy the government’s robust legal, regulatory and national security requirements”.
- 5.19.159. The Applicant’s response to G.2.3 [REP7-050] confirms that it is working closely with the Government to ensure that the RAB model (and any legislation required) will be established in a timeframe which is consistent with the Proposed Development’s intended construction schedule and does not consider that the prospect of the RAB model being used is likely to affect the current anticipated timing of the commencement of development, and associated CA.
- 5.19.160. Nevertheless, a number of IPs have raised issues and concerns in relation to the funding arrangements for the Proposed Development including the prospect of the need for a legislated RAB scheme together with any associated consequences for the timing of the project and hence its capability of meeting an urgent need for new generating capacity.
- 5.19.161. The Applicant in its written summary of submissions made at ISH9 [REP7-102], responded to the various IPs submissions relating to the perceived difficulties with the RAB funding model, and the steps that would need to be overcome to put the model into effect in terms of legislation and other matters.
- 5.19.162. The Applicant points out that the work being done on the RAB model is being done by the Government, and it will have a view on how long it is likely to take and other such matters. The ExA agree that these are matters for the Government to consider, and it is not within the remit of

this Examination to consider the advantages and disadvantages of that funding model including the timeline within which it could be put in place. Those are clearly matters of judgment for the Government.

- 5.19.163. As regards the timing of the provision of any funding, including the timing of the FID, and implications that could have for the implementation of the Proposed Development, the NPS contains a number of references to providing nuclear '*as soon as possible*'. The Government's Response to Consultation on Siting Criteria in 2018, paragraph 2.129, explains that setting a deployment date of 2035 would help to focus on those sites which will meet the need for new nuclear as soon as possible. However, the policy documents do not suggest that there will no longer be a need for nuclear after that date. Indeed, the Energy White Paper, Figure 3.4, reveals an increasing need for nuclear after 2035. The ExA concurs with the Applicant that it is the urgency of the need which is important, not the precise date of deployment.
- 5.19.164. The ExA notes that, in response to ExQ2 G.2.1 [REP7-050], the Applicant indicates that the FID would be "*subsequent*". That is to say, it would only be taken after the decision on the dDCO has been made by the Secretary of State. Thus, any change to the date of FID post-dating the Secretary of State's decision under the PA2008 could not, as a matter of principle, affect the judgment that needs to be made at that time by the Secretary of State as to whether the Proposed Development accords with policy or not. The Applicant's response to G.2.11 [REP7-050] in relation to the company's ability to make a FID on the Proposed Development, indicates that EDF is committed to retaining a strategic minority equity investment in the Proposed Development post financial close.
- 5.19.165. As indicated above, many IPs have raised the Government's requirement, as expressed in policy documents, and referred to in the BEIS press release, for the Proposed Development to represent '*value for money*'. The Applicant's response to ExQ2 G.2.2 [REP7-050] expresses confidence that it can also deliver a strong '*value for money*' case for the Proposed Development. Nevertheless, the ExA agrees that it is for the Secretary of State to determine whether the Proposed Development represents '*value for money*' pursuant to a separate decision-making process. It has not been set as a criterion for development control decision-making which this Examination should consider, or that the Secretary of State will need to determine for the purposes of deciding this application.
- 5.19.166. In relation to Stop Sizewell C's [REP3-133] reference to a report by Energy Systems Catapult and Good Energy '*Renewable Nation; Pathways to a Zero Carbon Britain*', the Applicant's responses to ExQ2 G.2.4 and G.2.9 [REP7-050] are relevant. The ExA agrees with the fundamental point made by the Applicant that the reliance placed upon this report, in effect, involves a challenge to the merits of government policy and it is therefore misplaced.
- 5.19.167. The Applicant's response to Stop Sizewell C and Aldeburgh Town Council on funding arrangements is contained in the Written Submissions responding to Actions Arising from ISH9 [REP7-072]. The ExA is satisfied

with the Applicant's explanation as to the commercial sensitivities surrounding the construction cost estimate. In relation to the choice of funding model, and requirement for consumers to contribute to financing costs, the Applicant points out that the Government has stated that the Proposed Development, and other large nuclear projects, will only proceed if they demonstrate clear '*value for money*' for consumers and taxpayers.

- 5.19.168. The ExA notes that the Applicant is working closely with the Government on this matter, and there has been and there will be an ongoing exchange of information regarding multiple aspects of the Proposed Development. As indicated above, the ExA regard matters relating to the assessment of '*value for money*', affordability, and mode of financing to be decisions for the Government following those negotiations. In relation to the timing of the Proposed Development, and the relationship of its delivery date to Government policy, the Applicant's responses to ExQ2 G.2.1, G.2.7 and G.2.17 [REP7-050] are relevant and provide a complete and satisfactory answer to matters such as the timing of the FID and the implications for Government policy compliance that might result from any delay to the delivery of the Proposed Development.
- 5.19.169. The Energy White Paper explains that the Government will continue to explore the RAB financing model alongside a range of financing options. The Energy White Paper, and the BEIS press release also confirm that the Government is to enter into negotiations with EDF in relation to the financing of the Proposed Development. As we have already explained, the advantages and disadvantages of the RAB model, and the '*value for money*' that the Proposed Development represents are issues for the Government to decide, and the outcome of those negotiations was not known at the time of the close of the Examination. However, based on the available evidence, the ExA does not consider that the funding arrangements for the Proposed Development are likely to have any serious implications for its capability of meeting an urgent need for new generating capacity. Those aspects of funding which relate to CA will be considered in Chapter 8 of this Report.

The application of national policy and the correct approach to decision making:

The Drax High Court (May 2020) and Court of Appeal (January 2021) judgements

The submissions of IPs

- 5.19.170. ESC [REP7-113], states that the *Drax* judgments arose in context of section 104 PA2008, but the interpretation of EN-1 on need appears to be equally applicable under section 105. The Court of Appeal confirmed that in the context of EN-1, need is to be regarded as a given, described at paragraph 60 as "*the first basic concept.*" Paragraph 66 notes that substantial weight should be given to considerations of need. The decision-maker can depart from that fundamental policy but clearly would need to give adequate reasons for doing so. The substantial weight to be given to considerations of need must be applied in the context of

last sentence of paragraph 3.2.3 of EN-1. The final sentences of paragraph 3.2.3 are synthesised in paragraph 68 of the judgment and reconciled as follows: that paragraph 3.2.3 is based on the fundamental policy that substantial weight is to be given to the contribution made by projects to satisfying established need for energy infrastructure development of types covered by EN-1 which clearly encompasses nuclear power. That exercise as synthesised does not need to be carried out on a quantitative basis as there is no such requirement in the context of paragraph 60, which refers to paragraph 3.3.24. The Court of Appeal's judgment describes at paragraph 59 the absence of any quantitative definition of relative need as striking. In the light of that striking absence, it is difficult to make a quantitative assessment of that contribution. Furthermore, the Court of Appeal's judgment at paragraph 105 makes it clear that the merits of policy as set out in the NPS are not to be challenged and are only to be encompassed in the context of a review under section 6 PA2008, which is the requisite process.

- 5.19.171. SCC [REP7-164] supports the views expressed by ESC at ISH9 on the legal implications of the *Drax* litigation. This confirms (see paras 130 and 131 of the High Court judgment), that EN-1 imposed no requirement for a quantitative assessment of need in the determination of an individual application (albeit it was open to a decision-maker to consider quantitative matters, as noted by the Court of Appeal at para 67); that the Updated Energy and Emissions Projections (UEP) did not inform the policy approach of EN-1, and that must apply equally to any more recent projections (such as the 2019 UEP); and that in the context that there was no requirement for a quantitative assessment, and the UEPs were not targets or preferred outcomes (EN-1, paras 3.3.18, 3.3.24), there were difficulties in undertaking a meaningful quantitative assessment because there were no agreed benchmarks. Any such exercise was therefore, in SCC's view, of limited weight.
- 5.19.172. TASC in their written submissions of oral case at ISH9 [REP7-246] note that the *Drax* judgments were decided in the context of a different statutory provision, namely section 104 PA2008, which has no application to the Proposed Development. They submit that the legal principles set out in *Drax*, relate specifically to the proper scope of section 104(7) PA2008; are not of general application; and do not apply in the present context.
- 5.19.173. TASC contend that unlike section 104 PA2008 whereby, subject to prescribed exceptions, a decision must be taken in accordance with the relevant NPS, under section 105 PA2008 NPS EN-1 and EN-6 are "*material considerations*" which are to be weighed alongside other such considerations in the overall planning balance. This is not the same exercise as that to be carried out under section 104, where the relevant NPS has primacy. They contend that it is therefore open to (and indeed necessary for) the ExA to reach its own judgment on the weight to be attributed to each of the relevant considerations under section 105, including EN-1 and EN-6. As part of carrying out the planning balance, it is also open to the ExA to take into account any other matters which are

deemed important and relevant, which can clearly include significant changes of circumstances.

- 5.19.174. Regan Scott [REP7-222 to REP7-2233] at ISH9 was critical of the Drax judgment in that he placed emphasis on the word "*may*" in provisions such as sections 87(3), 94(8) and 106(1) PA2008 and suggested that both the High Court and the Court of Appeal 'missed a trick' and reached their judgments unaware of the wording of the legislation. He also submits on policy and need that what matters is a proper assessment of legitimate regulatory conflicts based on policy and law and how developer proposals judged in their own right conform to regulation and law.

The Applicant's response

- 5.19.175. The Applicant in its written summary of submissions made at ISH9 [REP7-102] confirmed that it was in agreement with the five-point summary of the *Drax* Court of Appeal judgment provided on behalf ESC [REP7-113]. The Court of Appeal's judgment also makes it clear that the merits of policy as set out in the NPS are not to be challenged and are only to be encompassed in the context of a review under section 6 PA2008, which is the requisite process.
- 5.19.176. The Applicant submits that it is clear when reading the judgment that the matters that are relied on to justify the key findings apply equally to decision-making under section 105 PA2008 as they do under section 104 PA2008 (see the High Court's Judgment at paragraphs 41-42 and 105-108, and the Court of Appeal's Judgment at paragraph 105). These points are explained clearly in writing in response to ExQ1 G.1.5 [REP2-100]. The key provisions relied upon (sections 6, 87(3), 94(8) and 106(1)), and the rationale for the previous decisions supporting this approach (see paragraph 107 of the High Court's Judgment) were all equally applicable in section 105 cases.
- 5.19.177. The judgments make it clear that it is an essential feature of the PA2008 that such changes may only be taken into account under section 6 PA 2008 through the statutory process of review. The Applicant refers to Mr Justice Holgate's judgment at paragraphs 31 and 38, which sets out the object of the policies and notes that they would not be open to challenge through subsequent consenting procedures. Paragraph 106 of the judgment notes that the merits of policy set out in a NPS are not open to challenge in the Examination process, or in the determination of an application for a DCO. That was the object of sections 87(3), 94(8) and 106(1) PA2008. The Applicant has explained this in its response to G.1.5 [REP2-100].
- 5.19.178. As regards the submission made by Mr Scott at ISH9 regarding IROPI and whether the Government's position on that would raise different considerations, the Applicant submits that the Government does not agree that matters have moved on to the extent that Mr Scott suggests, so that the policy in the NPS is out of date and does not apply, as is made clear in the Energy White Paper. In any event, it is not possible to get around the essential framework of the PA2008 by reference to the

need to consider IROPI. In considering IROPI, the Government is entitled to have regard to its current policy and the statutory context in which that policy is made and reviewed.

- 5.19.179. In response to Mr Scott's emphasis on the word "may" in provisions such as sections 87(3), 94(8) and 106(1) PA2008 referred to in the *Drax* judgments, and his suggestion that both the High Court and the Court of Appeal 'missed a trick' and reached their judgments unaware of the wording of the legislation, the Applicant submits that this is implausible and plainly wrong. In the High Court judgement, Mr Justice Holgate's characterisation of the implication of these provisions in paragraph 108 fairly reflect and are consistent with the exclusivity of the section 6 PA2008 process as a means to address such matters. The meaning and implications of sections 87(3), 94(8) and 106(1) PA2008 must be considered in their wider statutory context, and in particular alongside the exclusive procedure established by section 6 PA2008. The Applicant draws support from the *Thames Blue Green Economy* judgements where the same conclusions were reached by the High Court and Court of Appeal. A copy of these judgements are included as part of the Applicant's written summary of submissions made at ISH9 [REP7-102] at Appendices A and B.
- 5.19.180. The Applicant also draws attention to the Government's 'Guidance for the examination of applications for development consent', paragraph 22, which reflects the language of section 87(3) PA2008. Similar points can be made in relation to sections 94(8), 87(3) and 106(1) PA2008. The Applicant submits that these provisions need to be interpreted and applied having regard to the exclusivity of the section 6 PA2008 procedure as a means of dealing with such matters. Overall, the courts have made it very clear that the ExA may not choose to examine the merits of Government policy or the weight that should attach to it, having regard to whether it considers that circumstances have changed.
- 5.19.181. As regards paragraph 3.2.3 of EN-1, and the weight to be given to considerations of need in the context of the overall balance that must be struck, the Applicant submits that in applying this part of the policy it is important to understand what the Court of Appeal was saying about this in the *Drax* judgement by looking not only at paragraph 65 of the judgment but also at the paragraphs of EN-1 to which it refers, namely paragraphs 3.1.4 and 3.2.3. Paragraph 65 said this: "*The meaning of the final two sentences of paragraph 3.2.3 was controversial between the parties. But when those two sentences are read as continuing the thrust of the previous three, and in the wider context of the policies on need taken together, their sense is clear. The penultimate sentence looks back to what has just been said, with the connecting word "therefore". It makes plain that matters referred to in the first three sentences are the reasons why, in decision-making, "substantial weight" should be given to "considerations of need".*" The Applicant contends that this is wholly consistent. Paragraph 3.1.4 to which the Court of Appeal referred states: "*The IPC should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act 2008*".

The ExA's conclusions

- 5.19.182. The grounds of challenge in the *Drax* case included the interpretation of EN-1 and EN-2 and the application of section 104(7) PA2008. The decision considers how EN-1 should be interpreted including in relation to whether or not a promoter should quantify a project's particular contribution to satisfying the need for new energy infrastructure.
- 5.19.183. ESC [REP7-113], submits that the *Drax* judgments arose in context of section 104 PA2008, but the interpretation of EN-1 on need appears to be equally applicable under section 105. Both the Applicant [REP7-102] and SCC [REP7-164] concur with that approach and are in agreement with the five-point summary of the judgement provided on behalf of ESC. The additional point made by SCC is that the Court endorsed that there is no requirement for quantitative assessment (see paras 130 and 131 of the High Court judgment). However, it was open to a decision-maker to consider quantitative matters, as noted by the Court of Appeal (para 67). The Applicant's position is also that there is no requirement for such an assessment as a result of the *Drax* judgments.
- 5.19.184. TASC [REP7-246] made legal submissions to the effect that the legal principles set out in *Drax*, relate specifically to the proper scope of section 104(7) PA2008; are not of general application; and do not apply to this application. They assert that NPSs do not have primacy under section 105 and are "*material considerations*" which are to be weighed alongside other such considerations in the overall planning balance. They therefore contend that as part of carrying out the planning balance, it is necessary for the ExA to take into account any other matters which are deemed important and relevant, which can clearly include significant changes of circumstances.
- 5.19.185. The Applicant's written summary of oral submissions made to ISH9 [REP7-102], and the submissions of ESC and SCC, reject the approach advocated by TASC in relation to the distinction they make between section 104 and 105 cases. The Applicant draws attention to key provisions relied upon (sections 6, 87(3), 94(8) and 106(1) PA2008) and the rationale for the previous decisions supporting this approach⁷ were all equally applicable in section 105 cases.
- 5.19.186. The ExA has no doubt that the principles expressed by the *Drax* cases in relation to the interpretation of Government policy also apply to this case notwithstanding that it is proceeding under section 105. The ExA considers that the *Drax* judgements helpfully clarify that assessing whether changes of circumstances affect the weight to be attached to the NPS is not an appropriate exercise in determining individual applications. Such an approach would constitute questioning the merits of Government policy. Section 6 PA2008 provides an exclusive means for considering such issues.

⁷ see paragraph 107 of the *Drax* High Court judgment and paragraphs 70-71 of the Court of Appeal judgment

- 5.19.187. Although such a section 6 PA2008 review is currently in progress, this does not mean that the development control decision-making process for an individual application can lawfully be used as a parallel or substitute process for considering such issues. Following the *Drax* judgements, the ExA recognises that these are matters exclusively for the section 6 PA2008 process to consider⁸.
- 5.19.188. The ExA concludes that the legal implications of the *Drax* litigation have been correctly set out by ESC with the addition of SCC's point in relation to there being no requirements for a quantitative assessment. In addition, the *Drax* judgments clarify the matters that are exclusively for the section 6 PA2008 process to consider. The matters raised by IPS as representing '*relevant change of circumstances*' are not those which affect the weight to be attached to the relevant NPSs. To do so, would constitute questioning the merits of Government policy, which is not an appropriate exercise in determining individual applications. In accordance with EN-1, paragraph 3.1.3, the application falls to be assessed on the basis that the Government has demonstrated that there is a need for the type of infrastructure that the Proposed Development represents, and that the scale and urgency of that need is as described in EN-1.

The Wylfa Newydd Nuclear Power Station Panel Recommendation Report (July 2019), and the approach taken by that ExA to the reference to "relevant change of circumstances" in the 2017 Ministerial Statement

The submissions of IPs

- 5.19.189. SCC's Post Hearing submissions including written submissions of oral case - ISH9 [REP7-164] refer to the Wylfa Newydd Nuclear Power Station Panel Recommendation Report (July 2019), and the approach taken by that ExA to the reference to "*relevant change of circumstances*" in the 2017 WMS. SCC submits that the Wylfa Panel conclusion at paragraph 5.5.9, that that there had been no relevant change of circumstance since the designation of EN-1 and EN-6, was probably an unnecessary conclusion, given the *Drax* litigation and its conclusions (see paragraph 108 of the High Court judgment) on the exclusive role of section PA2008 in determining whether a NPS has been overtaken by subsequent events or remained up to date (or not).
- 5.19.190. TASC written submissions of oral case at ISH9 [REP7-246], also include comments on the Wylfa Newydd Nuclear Power Station Panel Recommendation Report (July 2019) and the approach taken to "*relevant change of circumstances*" in the 2017 WMS at paragraph 5.5.9. According to the Wylfa Panel, it must mean "*changes in relation to policy, assessment criteria or the identification, in principle, of a particular site*".

The Applicant's response

⁸ see paragraph 108 of the *Drax* High Court judgment and paragraph 105 of the Court of Appeal judgment

- 5.19.191. At ISH9, [REP7-102] the Applicant responded to a point raised by SCC as to whether the statement on page 55 of the Energy White Paper was to be understood as a reversal of the Government's position in the 2017 WMS as to a decision on an application such as this being made under section 105. The statement in question is that: "*While the review is undertaken, the current suite of NPS remain relevant government policy and have effect for the purposes of the Planning Act 2008*".
- 5.19.192. The question of whether or not the NPS '*has effect*' for particular developments is a question partly of law but also of fact which must be determined on a case-by-case basis. The Applicant's understanding of that language is not that it seeks to make a decision about whether policy has effect for any particular individual proposal, but instead it is simply making clear that when one is applying the provisions of the Planning Act, the NPS remains current Government policy.
- 5.19.193. The Wylfa ExA were dealing with a section 105 case. Although there is no Secretary of State decision (which is relevant to weight), the ExA report is nevertheless a relevant consideration. It is not a binding precedent, and the main point of reference for these purposes is now the judgments in the *Drax* case. The report also predates the Energy White Paper, and thus the ExA in that case did not have the benefit of that more recent and clear statement of the Government's policy position on that matter.
- 5.19.194. The Applicant nevertheless submits that the ExA's statement at paragraph 5.5.9 remains a fair and reasonable recognition of the appropriate limitations of their role, and to that extent is consistent with what was subsequently said by the courts. The ExA correctly recognised that it was not their role to make policy, but instead to make recommendations within the context of existing policy [REP7-102].

The ExA's conclusions

- 5.19.195. The ExA in respect of the, now withdrawn, application for development consent for the Wylfa Newydd Nuclear Power Station in its recommendation report gave consideration to the WMS which states that it is likely that significant weight would (continue) to be given to the policy in EN-1 and EN-6 so long as "*there is no relevant change of circumstances*". The Wylfa ExA took the view that "*relevant change in circumstances*" must mean changes in relation to policy, assessment criteria, or the identification, in principle, of a particular site". Their position was that they saw "*no relevant change in circumstances of (a) the need for a variety of technologies to generate low-carbon electricity; (b) the urgency of that task and (c) the identification of Wylfa as a suitable site.*"
- 5.19.196. The Wylfa recommendation report was also dealing with an application to which section 105 PA2008 applied. There was no subsequent Secretary of State decision as the application was withdrawn which reduces the weight to be attributed to it. Furthermore, the report pre-dates both the Energy White Paper which provides a more recent and clear statement of the Government's policy position on the matter and the *Drax* court judgments. Nevertheless, we agree with the Applicant [REP7-102] that

the Wylfa ExA correctly recognised that it was not their role to make policy, but instead to make recommendations within the context of existing policy. However, what has subsequently said by the courts on this topic provides the main point of reference for our own approach

The implications of the Drax judgments and the Wylfa recommendation report for the application of NPS policy and the appropriate process to accommodate changes of circumstance after the designation of an NPS

The submissions of IPs

- 5.19.197. Regan Scott on behalf of S.A.G.E. - Post Hearing submissions including written submissions of oral case ISH9 [REP7-223] comments on the relative weight of policy and law in planning decisions and includes reference to the *Heathrow* cases. He submits that the Examination process is not a court of law, but an authoritative component part of a lawful process. In this setting, material considerations outside EIA and HRA have a role and require examination and due weight.
- 5.19.198. TASC [REP7-246] do not consider that the ExA is required to adopt or provide a precise definition for what may constitute a relevant change of circumstance in the light of the section 6 PA2008 review announced on 23 April 2021. However, even if the ExA were to adopt the definition adopted by the Wylfa Panel, TASC maintain that there have been relevant changes in policy, assessment criteria or the identification of the site including, in particular, the significant changes in the scale of the development and the significant legal and policy changes. They note that the Wylfa Report predates the Government's announcement of the section 6 PA2008 review.
- 5.19.199. In conclusion, TASC submits that it is open to the ExA to take into account the relevant changes of circumstances in determining the appropriate weight to be attributed to EN-1, and EN6 and that the NPSs can only rationally attract limited, if any, weight in the determination of this application.

The Applicant's response

- 5.19.200. At ISH9 [REP7-102], in response to Mr Scott, firstly the Applicant explained that both EN-1 and EN-6 deal with alternatives in the context of new nuclear and the Government statement in the Energy White Paper about the ongoing suitability of the NPS for dealing with applications does not discriminate between different parts of it, and includes those parts of the policy. Secondly, the Heathrow case (*R (Friends of the Earth Ltd.) v. Heathrow Airport Ltd* [2020] EWCA Civ 214) to which Mr Scott referred was included in the Applicant's written submissions (ExQ1 G.1.5 [REP2-100]), and what it said is consistent with the *Drax* judgements. There is a long line of authority which makes the same points.

The ExA's conclusions

- 5.19.201. As indicated above, the ExA considers that the Wylfa ExA in their recommendation report correctly recognised the limitations of their role

in relation to policy. Since then events have moved on and the *Drax* judgements have clarified that section 6 PA2008 provides an exclusive means for considering issues such as the merits of Government policy or the weight that should attach to it in the light of changes in circumstances.

- 5.19.202. The ExA therefore rejects the submissions made on behalf of TASC [REP7-246] that it is open to us to take into account relevant changes of circumstances in determining the appropriate weight to be attributed to EN-1, and EN6. Whilst the factors which TASC put forward as representing relevant changes of circumstances, may be relevant as part of the section 6 review, they are not matters which it would be appropriate for us to consider as relevant to the assessment of the weight to be attributed to the NPSs in the context of this Examination.
- 5.19.203. Regan Scott on behalf of S.A.G.E. in 'Post Hearing submissions including written submissions of oral case ISH9' [REP7-223] comments on the relative weight of policy and law in planning decisions, and includes reference to the *Heathrow* cases. The Applicant in response to Mr Scott [REP7-102], explains that both EN-1 and EN-6 deal with alternatives in the context of new nuclear, and the Government statement in the Energy White Paper about the ongoing suitability of the NPS for dealing with applications does not discriminate between different parts of it, and includes those parts of the policy. In addition, what is said in the *Heathrow* case⁹ is consistent with the *Drax* judgements. The ExA finds the Applicant's approach to this matter, in the light of the *Heathrow* and *Drax* court judgments, to be correct as a matter of law.
- 5.19.204. Since the WMS 2017, in addition to the relevant court judgments mentioned above, the Government has issued its 2018 response to consultation which confirms the need for nuclear, and the Energy White Paper which indicates that the need for the energy infrastructure set out in the Energy NPSs remains. The ExA concludes that, in relation to the WMS and the weight to be attached to EN-1 and EN-6, there have been no relevant change of circumstances that reduce the weight to be afforded to the policies in those NPSs and that significant weight should therefore be attached to them as required by the WMS

The contribution of the Sizewell C Project to meeting the need for new nuclear generating capacity:

The updated energy and emissions projections 2019 (BEIS) (October 2020)

The submissions of IPs

- 5.19.205. SCC's written submissions of oral case at ISH9 [REP7-164] in relation to the updated energy and emissions projections 2019 (BEIS) (October 2020) notes that the UEP do not inform the policy in EN-1 and EN-6, that there is no requirement for a quantitative assessment of need, and so

⁹ R (Friends of the Earth Ltd.) v. Heathrow Airport Ltd [2020] EWCA Civ 214

updated UEP carry little weight in the evaluation of the Proposed Development.

- 5.19.206. TASC's written submissions of oral case at ISH9 [REP7-246], also comments on the updated energy and emissions projections 2019 (BEIS) (October 2020). Neil Crumpton on behalf of TASC, makes strong and detailed criticism of the BEIS modelling and recommends that it should be ensured that it is up to date before any FID is made.
- 5.19.207. TASC's supplementary DL7 submission in respect of ISH9 [REP7-244] makes a number of detailed submissions in relation to the BEIS modelling. In summary, they contend that BEIS needs at least to update its DDM model in light of its very recent Hydrogen Strategy and the forthcoming Biomass Strategy before the Government makes multi-billion pound decisions on the Proposed Development. They assert that the December 2020 Energy White Paper is already looking dated not least because it is heavily informed by the BEIS 'Modelling 2050' DDM analysis. The DDM updates, which are likely to result in significant changes in scenario outcomes, give weight or not to policies EN1 and EN6 and have implications for Habitat's Directive (i.e. IROPI) regarding the Proposed Development.

The Applicant's response

- 5.19.208. In the written summary of oral submissions made at ISH9 [REP7-102], the Applicant submits that the challenges to the merits of modelling made by IPs do not respond to the question of the contribution the Proposed Development could make to meeting the need for new nuclear generating capacity having regard to that modelling. The Applicant's reference to the modelling in Appendix A to the Planning Statement Update [REP2-043, electronic page 26] is in the context of attempting to provide a quantitative assessment of this matter using the material available.
- 5.19.209. There is no obligation on the ExA or the Secretary of State to undertake a quantitative assessment, but recognising that the Court of Appeal has said neither is precluded from doing so, the Applicant considered it helpful to include information to assist in such an assessment so far as is possible in the absence of numerical targets or limits.
- 5.19.210. The Planning Statement Update [REP2-043] recognises that the scenarios used are not Government targets or policy, but that they do illustrate the scale of new low carbon generation required for the power system to meet net zero. From a qualitative perspective, the key commitment that has been identified in the Energy White Paper to bring at least one large scale new nuclear project to FID by the end of this Parliament would be relevant when considering on a qualitative basis, the weight that would be proportionate to the actual contribution that the Proposed Development would make.
- 5.19.211. The Applicant submits [REP7-102], that in considering the issue by reference to the provision of additional generating capacity (an approach considered appropriate by ESC, SCC and the Applicant), the greater the

contribution, the greater the weight that should be attached. There is a spectrum from the smallest nationally significant generating station which just exceeds the 50MW threshold at one extreme, all the way to the very largest at the other. This is a project at the very far end of that spectrum, and that must be reflected in the weight that its attached to the contribution it would make to meeting the urgent need.

- 5.19.212. As regards the role of the assessment in the Planning Statement Update [REP2-043], the Applicant's case does not rely on modelling, rather it relies on policy. The modelling helps to explain the development of the policy and helps to quantify the scale of the Applicant's contribution. The Applicant contends [REP7-102], that detailed points about modelling are points to take up with the Government. Whilst it is helpful and relevant to have up to date modelling, the important thing is what the policy concludes.

The ExA's conclusions

- 5.19.213. Although the Applicant has used the modelling to help to explain the development of the policy, and to quantify the scale of the contribution that would be made by the Proposed Development, it has made it clear that its case does not rely on modelling, rather it relies on policy [REP7-102].
- 5.19.214. The ExA also notes SCC's position, as expressed at ISH9 [REP7-164] is that the updated energy and emissions projections 2019 (BEIS) (October 2020) (UEP), do not inform the policy in EN-1 and EN-6; that there is no requirement for a quantitative assessment of need, and so the updated UEP should carry little weight in the evaluation of the Proposed Development.
- 5.19.215. The ExA adopt a similar position as SCC in relation to the relevance and use of UEP in the consideration of this application. The detailed points and challenges to the merits of the modelling made by IPs are points to take up with the Government in any policy review process rather than in the context of this Examination. They do not undermine what the policies themselves conclude or the weight to be attributed to them.

The anticipated extent of the Project's contribution to satisfying need for infrastructure of this type and the weight that should be given to that contribution

The submissions of IPs

- 5.19.216. ESC's written submissions of oral case at ISH9 [REP7-113], refers to the *Drax* Court of Appeal judgment. This cautions against requiring quantitative considerations of the level of meeting need (paragraph 67). Although the Proposed Development would make a substantial contribution to meeting the need for infrastructure of this type (nuclear generation within low carbon generation), the NPS does not make a range of generation types obligatory. As to the extent of any contribution, ESC considers it is best measured by its electricity generating capacity rather than any quantitative assessment. ESC

cautions against use of such projections in the light of EN1-1, paragraph 3.3.18. ESC considers on this side of the equation that substantial weight should be attached to that contribution. That would need to be weighed against the other side of the equation, and the extent to which the Proposed Development as a whole falls within EN-1 and EN-6 when considered against other considerations.

- 5.19.217. SCC's written submissions of oral case at ISH9 [REP7-164] agrees with ESC that the appropriate measure of the Proposed Development's contribution is its electricity generating capacity rather than attempting a quantitative assessment relative to other potential sources of energy supply or projections of future national energy demand. SCC also agrees with ESC that '*substantial weight*' should be given to considerations of need (in line with para 3.2.3 of EN-1), but that is only the 'starting point' for an assessment of the weight to be given and is not fixed or to be considered regardless of the 'actual contribution' or the degree of weight that, as a matter of planning judgment, is '*proportionate*' (para 66 of the Court of Appeal judgment in Drax). The weight to be given to need has to be balanced against the weight to be given to any adverse effects.
- 5.19.218. On the question of what weight would be '*proportionate*' to the '*actual contribution*' that the Proposed Development would make to the need for additional sources of energy supply recognised by EN-1, SCC draws attention to the disproportionate relationship between the amount of energy generated by the proposal and the energy needs of the areas (SCC and ESC's administrative areas) whose communities and environment would be subject to the adverse impacts of the proposal. SCC puts forward two bases to give an indication of the disproportionate nature of the relationship between where the benefits accrue and where the adverse impacts arise. First, looking at electrical power output, Suffolk's energy demand would account for about 11.18% of the energy capacity of the Proposed Development and East Suffolk's energy demand would account for about 3.65%. The vast bulk of the proposal's energy capacity therefore serves to meet needs/demand in the rest of the UK.
- 5.19.219. SCC submits that an alternative metric would be to look at the relationship between the six million homes that the Applicant has stated could be powered by the proposals (see paragraphs 1.3.2 and 7.2.13 of [APP-590]) and the number of homes in Suffolk and East Suffolk. The homes in Suffolk would account for 5.58% of the power generated by the proposals (in 2021) or 6.09% (in 2034), and for homes in East Suffolk the figures are 1.84% (2021) and 1.99% (2034). SCC contends that using either comparative measure, it is clear that there is a disproportionate relationship between the areas where the bulk of the benefits accrue (overwhelmingly outside of Suffolk) and the areas whose communities and environment experience the adverse impacts of the proposals. In simple terms, there is national gain but Suffolk's pain. Whilst the Applicant suggests that such a consequence was not unusual for a NSIP, where impacts may be localised, but benefits are spread more widely, the imbalance in this case is quite stark, with some 90% of the benefit going elsewhere.

- 5.19.220. SCC submits that two consequences flow from this imbalance: Firstly, the weight that should be given to the 'actual contribution' to meeting needs should be tempered by the fact that so much of that contribution meets needs arising across the UK as a whole and is therefore a very diffuse benefit, and secondly, if the proposal is to proceed, it is critical that the adverse impacts experienced by local communities and their environment within Suffolk (and East Suffolk) are adequately addressed to the greatest extent practical if they are to be outweighed in the overall balance.
- 5.19.221. TASC's written submissions of oral case at ISH9 [REP7-246], state that they do not believe there is a need for new nuclear. They also make strong criticisms of the EPR reactor technology which cannot be said to have a proven and reliable record. They submit that no-one knows if the EPR1 design planned for the Proposed Development can be guaranteed to work. It cannot therefore be guaranteed to meet any need for new nuclear or electricity generation at this time.
- 5.19.222. TASC [REP7-246] also refer to the comment made by on behalf of SCC in relation to the local community suffering adversely disproportionately for the Proposed Development, and contend that these adverse impacts might be suffered by the local communities, for something that does not actually function properly.

The Applicant's response

- 5.19.223. The Applicant in its written summary of oral submissions made at ISH9 [REP7-102], submits that in view of the capacity that would be created by the Proposed Development, it is difficult to see how anything other than substantial weight should be given to the benefit of the additional low carbon generating capacity. The Applicant notes ESC's conclusion that substantial weight should be attached to this benefit, and that there was no dispute as to the ultimate need to weigh the benefits against harms in the context of EN-1 and EN-6.
- 5.19.224. At ISH9 [REP7-102], the Applicant responded to SCC's novel approach to measuring the benefits by somehow looking at the new generating capacity by reference to local electricity consumption. The Applicant notes that when looking at the Energy White Paper, the Government provides a summary of the contribution of Hinkley Point C, namely, that it will power six million homes and provide 7% of the country's electricity. This way of looking at the significance of the contribution that is made evidently commended itself to the Government. This is also consistent with the Applicant's submissions about the outcome of a qualitative assessment of benefit in this case, because the Proposed Development would have a slightly greater generating capacity than Hinkley Point C.
- 5.19.225. The Applicant points out that SCC and ESC both reach the same conclusion that substantial weight should be attached to the benefits including need. It is inevitable that with a project of national significance, many of the benefits tend to register at a national scale, but many of the adverse impacts tend to be localised. There is nothing unique to the

Proposed Development or unusual about this essential equation. That this is why such projects are dealt with under the PA2008, as it recognises that the balancing of such considerations is best undertaken on a national level by a democratically elected Secretary of State, with the local authorities providing important input into the process in relation to the local impacts that are expected.

- 5.19.226. The Applicant [REP7-102], notes that wide range of points have been raised which in essence relate to the weight to be attached to the Proposed Development, balanced against other issues. The Applicant submits that it is helpful in this context to look at paragraph 3.2.3 of EN-1, which notes that the Government considers that without new large scale energy infrastructure, the objectives of energy and climate change policy cannot be fulfilled, and that it will not be possible to deliver such infrastructure without some significant adverse impacts. Therefore, the NPS explains that the decision-maker should give substantial weight to need in the recognition that there will be adverse impacts. Furthermore, when determining the weight to be applied to the Proposed Development, it is necessary to look not just at electricity output, but at all benefits. Government policy is clear, for instance, that investment in new nuclear will generate important economic benefits nationally, and locally.
- 5.19.227. The Applicant contends that for national infrastructure the NPS does not invite the drawing up of a balanced list in relation to Suffolk. Nevertheless, there would also be very significant local and regional benefits which the Applicant has set out in its application documents and which it would be fair to recognise
- 5.19.228. The Applicant submits that the Proposed Development responds directly to a specific, up to date policy commitment to deliver a large scale new nuclear power station requirement and to a need which the Government has emphasised is urgent. Given these characteristics the Proposed Development attracts very substantial weight.
- 5.19.229. The Applicant draws support in that respect from the Secretary of State's decision letter on Hinkley Point C. The Hinkley decision letter, paragraph 6.6, recognised that there were residual impacts to which the Secretary of State gave substantial weight, but noted they were "*significantly outweighed by the HPC project's potential to bring local benefits and the vital contribution it would make to the achievement of energy and climate change policy objectives, which are of crucial national importance*".
- 5.19.230. The Applicant concludes [REP7-102] that each project needs to be considered on its own merits, but the scale of the Proposed Development is similar to Hinkley and the urgency of meeting the need is potentially now greater.

The ExA's conclusions

- 5.19.231. NPS EN-1, paragraphs 3.1.4 and 3.2.3, and the other salient policy statements in EN-1 relating to need, must be interpreted in the light of

the *Drax* judgments. In that regard paragraph 63 of the Court of Appeal judgment notes that EN-1 does not stipulate that a “*quantitative*” assessment of need must always be carried out in a DCO process. Paragraphs 64 to 68 give particular consideration to the interpretation of EN-1 paragraph 3.2.3. The Court of Appeal judgment confirms that while the starting point is that “*substantial weight*” is to be given to “*considerations of need*”, the weight due to those considerations in a particular case is not immutably fixed.

- 5.19.232. The decision-maker’s consideration of the question whether there are reasons in the particular case for departing from the fundamental policy that “*substantial weight*” is accorded to “*considerations of need*” are matters of planning judgment, which involve looking into the future. There is no single, prescribed way of performing that task, and there are no specified considerations to be taken into account, or excluded. Furthermore, there is no justification for reading a requirement into the policy that the issue of what is “*proportionate*” to the proposal’s “*actual contribution*” must, or should normally, be approached on a “*quantitative*” rather than a “*qualitative*” basis.
- 5.19.233. The Government’s 2017 WMS confirmed the relevance and importance of the need for new nuclear power set out in EN-1 and EN-6; that new nuclear power remains key to meeting the UK’s 2050 obligations, and that it is important that there is a strong pipeline of new nuclear power to contribute to the UK’s future energy needs.
- 5.19.234. The Energy White Paper explains that the need for the energy infrastructure set out in the Energy NPSs remains, except in the case of coal-fired generation. The ExA recognises that the more recent analysis which has led to and informed the Energy White Paper confirms and underlines the scale and urgency of the need for new nuclear generating capacity. That is explained in the Planning Statement Update, Section 2 and Appendix A [REP5-117], and the ExA finds no reason to question that analysis.
- 5.19.235. The Applicant’s response to G.2.5 [REP7-050] is relevant to this topic. This explains that the Proposed Development’s contribution to satisfying the established urgent need is addressed in section 7.2 of the Planning Statement, paragraphs 4.1.15 to 4.1.17 of the Planning Statement Update, and Appendix A [REP5-117]. The Proposed Development would comprise two UK EPR™ units, with an expected net electrical output of approximately 1,670 megawatts per unit, giving a total site capacity of approximately 3,340MW low carbon electricity. It would be capable of generating enough low carbon electricity to supply about six million homes in the UK each year. The Applicant’s Final Planning Statement Update [REP10-068] confirms that to be the position, and also makes the point that no project in the UK has ever contributed more.
- 5.19.236. There are no current applications for development consent for any of the sites identified in EN-6, apart from the Proposed Development. That is noteworthy when judging what weight ought to be attached to the contribution that the Proposed Development would make to meeting the

established urgent need for large scale new nuclear generating capacity. In addition, the Proposed Development appears to be the most realistic option at this time to meet the Government's aim in the Energy White Paper for at least one large scale new nuclear power station reaching FID by the end of 2024.

- 5.19.237. On the question of what weight would be 'proportionate' to the 'actual contribution' that the Proposed Development would make to the need for additional sources of energy supply recognised by EN-1, SCC [REP7-164] draws attention to the disproportionate relationship between the amount of energy that would be generated by the Proposed Development, and the energy needs of the areas whose communities and environment would experience its adverse impacts.
- 5.19.238. The ExA fully recognises that the Proposed Development is for national infrastructure, and the benefits of such schemes are, by definition, of national significance. We also appreciate that there can often be an imbalance between the locations where benefits may accrue, compared to where adverse impacts tend to be experienced. However, the ExA does not agree with SCC that the extent of the 'actual contribution' to meeting the identified need should be moderated by the fact that the bulk of the benefits would accrue to other locations in the UK outside Suffolk. Nevertheless, we recognise that, if the Proposed Development is to proceed, any adverse impacts experienced by local communities and their environment within Suffolk must be adequately addressed and would, in any event, fall to be weighed in the overall planning balance.
- 5.19.239. At ISH9 TASC [REP7-246] made strong criticisms of the EPR reactor technology. In relation to the type of reactor design, the ExA has given consideration to this issue, and to the role of the ONR in that context, in the 'Alternatives' section 5.4 of Chapter 5 of this Report. The ExA do not consider that the Applicant's choice of reactor design should moderate the weight to be attached to the anticipated contribution of the Proposed Development in meeting the urgent need for new nuclear generating capacity.
- 5.19.240. The ExA finds that the Proposed Development responds directly to a specific national policy commitment to deliver a large scale new nuclear power station requirement, and to a need which the Government emphasises is urgent. We consider that in the light of the electricity generating capacity that the Proposed Development is expected to achieve, the anticipated extent of its actual contribution to satisfying the need for this type of infrastructure, would be significant. The ExA notes that both ESC and SCC reach the conclusion that substantial weight should attached to this benefit, and that there is no dispute between those parties and the Applicant as to the ultimate need to weigh the benefits against harms in the context of EN-1 and EN-6.
- 5.19.241. The ExA in making a planning judgment about the weight that should attach to the Proposed Development's actual contribution has had regard to the scale of that contribution, and to the underlying issues which infrastructure of this type is intended to address. Taking all such relevant

factors into account, the ExA concludes that the Proposed Development's "actual contribution" to satisfying the need for this type of infrastructure would be more than 'substantial' and we classify it as 'very substantial'.

Local Plan and other policies:

Whether there is any conflict between Local Plan, NPPF and NPS policies and, if so, the relative weight to be afforded to them

The submissions of IPs

- 5.19.242. ESC's written submissions of oral case at ISH9 [REP7-113], refer to its response to ExQ1 G.1.16 on the topic of the relative weight to be afforded to Local Plan and NPS policies. At ISH9 ESC confirmed that both the relevant NPSs and the Local Plan are considered to be important and relevant to the determination of this application. ESC does not consider there to be any conflict between Local Plan and NPS policies. In particular, ESC does not consider that there is any conflict between Local Plan policies SCLP3.4 and SCLP10.4 and the NPS. It accepts that should there be a conflict, then the nuclear specific policies in the NPS should prevail, although the Local Plan will remain an important and relevant consideration. Policies in the NPPF (July 2021) are explicitly stated not to apply to NSIPs (paragraph 5), but they could still be considered important and relevant under s105(2)(c) PA2008. While a thorough review has not been undertaken, the NPPF is unlikely to add significantly to the policies in the NPSs and the Local Plans. ESC submits that NPSs should prevail in the event of any conflict with the NPPF.
- 5.19.243. SCC's written submissions of oral case at ISH9 [REP7-164] submit that confirm in the event of a conflict between relevant local plan policies and the NPS, it would be a matter of planning judgment as to which should carry the greater weight. Whilst SCC recognises that paragraph 4.1.5 of EN-1 states that in the event of a conflict between any other document and the NPS it is the NPS which prevails, that is a policy statement and not a statement of the legal position where section 105 PA2008 applies. As such, it is for the decision-maker to decide on the weight to be given to that policy statement relative to other considerations, and one factor relevant to that exercise will be the specific nature of the conflict between local and NPS policy.
- 5.19.244. SCC contends that another relevant factor will be the general point that local policies are to guide the determination of planning applications under the Town and Country Planning Act 1990 regime, whereas NPS policies are to guide the determination of NSIPs under the PA2008. However, that general point does not greatly assist in cases where the relevant NPS does not 'have effect'. That appears to be the point being made by the Secretary of State in the Wheelabrator Kemsley decision (as referred to in ExQ2 G.2.14 [PD-017]).
- 5.19.245. Where, in a section 105 case, there are two documents that are important and relevant, one being a NPS and another being a document produced in a different manner (whether a local plan or another document, such as a White Paper or other Government policy document),

there is no reason why the NPS should automatically prevail in the event of any conflict as a matter of planning judgment. SCC suggests that the more specific or the more targeted the local policy was the greater the weight it would carry and the more general or high level the NPS policy was the less weight it would carry. SCC suspects that in many cases, with an actual example to consider, the question of conflict would fall away, and it would be more likely that one policy document would address an issue that is not addressed by the other policy document or one policy document would address an issue in more detail than the other policy document. Such cases are not ones of policy conflict when properly analysed.

- 5.19.246. SCC [REP7-164] states that although the NPS and the NPPF are generally intended to be mutually exclusive in terms of the proposals that they are tackling, the recent revisions to the NPPF give a clear indication of the Government's emerging current views on a number of issues of relevance. SCC considers that where the NPPF sets out the most recent statement of Government policy on an issue also addressed by the NPS, the NPPF does not supplant or replace the NPS (because that is not its intended function) but it can indicate that the underlying issue addressed by the NPS Policy should attract more weight, than it may have done in the absence of that more recent statement. Among the key changes to the NPPF are updated policies aiming to improve the design of new developments, in response to the findings of the Government's Building Better, Building Beautiful Commission. The weight to be given to the objectives of ensuring that the Applicant has produced a design that demonstrates good aesthetics as far as possible (EN-1, paragraph 4.5.1), and is as attractive as it can be (EN-1, paragraph 4.5.3) is increased by the heightened importance that the Government attaches to good design in the new NPPF. SCC submits that this increased weight is relevant to the question of whether pylons or gas insulated lines should be used for the power export connection.
- 5.19.247. Regan Scott on behalf of S.A.G.E. in his Post Hearing submissions including written submissions of oral case at ISH9 [REP7-223] submits that this matter reveals a problem for the developer counting local benefits as supplementary to, in their view, national benefits. He contends that local negatives should also count and be assessed as more substantial to the extent that local planning aspirations and policies might be disrupted by the construction, operation and decommissioning of the project. As with court authorities on HRA requiring each step in the mitigation hierarchy to be assessed in its own right, he suggests that a wide agenda of local positives and negatives should be, in the first place, as fully assessed for impact in their own right as other regulatory issues

The Applicant's response

- 5.19.248. The Planning Statement Final Update [REP10-068] states that the primacy of the NPS for the purposes of this application is accepted by the local planning authority, although no conflict is alleged with local plan policies. The reasons why the NPS must have primacy are set out in response to ExQ1 G.1.12 [REP2-100] and ExQ2 G.2.14 [REP7-050], and

were also addressed in the Applicant's oral submissions at ISH9 [REP7-102]. In addition, that approach is consistent with the Energy White Paper's statement of the Government's position as to the suitability of the NPS for the purpose of ongoing decision-making.

Whether there is any conflict between Local Plan, and NPS policies?

- 5.19.249. The Applicant's Written Submissions responding to actions arising from ISH9 [REP7-072] Appendix A: Analysis of Suffolk Coastal Local Plan policies against NPS policies, identifies where there is direct conflict or other differences between policies in the relevant Local Plan and NPS.
- 5.19.250. The issues relating to the wording of AONB policy in the NPS were discussed at ISH5, and are set out in the written summary of the Applicant's oral submissions to ISH5 [REP5-110] at electronic page 4. At ISH5, the Applicant drew attention to the important and deliberate differences between the wording of the NPPF development control test and the equivalent policy test in the NPS EN-1. This deliberate policy difference needed to be understood in the context that EN-1 was part of a suite of NPSs including EN-6, which was site specific and included an identification of Sizewell as a potentially suitable site for a new nuclear power station notwithstanding an acknowledgment that the site was within an AONB. The Applicant submits that although the submissions made on behalf of SCC suggests that paragraph C.8.126 of Annex C of EN-6 directs the decision-maker to look to local policy in respect of such issues, that is not correct. That paragraph does not even mention local development plan policies.
- 5.19.251. The Applicant notes that the local plan inspector recommended modifications to the local plan to make it clear that this local plan is not setting policy tests for NSIPs. This is set out in the Planning Statement Update in Appendix B [REP2-043, electronic page 35].
- 5.19.252. The Applicant submits that the reference to "*local assessment*" in the NPS does not mean applying local policies, it means looking at local impacts within framework of the NPS.

Other planning policy considerations – the revised NPPF

- 5.19.253. The Applicant in its written summary of oral submissions made at ISH9 [REP7-102], responds to SCC's suggestion that the change in the NPPF in terms of emphasis in design should somehow increase the weight that is given to design relative to other factors. The Applicant submits that it is not appropriate to seek to mix and match the NPS and NPPF in this way. The NPS offers design policy guidance which is specifically tailored to the circumstances that arise when dealing with large scale energy infrastructure projects, which the NPPF does not. It would not be appropriate to assume that the new NPS when it emerges will say the same as the NPPF, rather than reflecting what is set out in the existing NPS. The NPPF policy is for use in a different statutory regime and does not purport to set policy for decision-making on NSIPs.

The ExA's conclusions

- 5.19.254. The ExA notes the direct conflicts and difference between Local Plan, NPPF policies and the NPSs which are identified within the Applicant's Written Submissions responding to actions arising from ISH9 [REP7-072] Appendix A: Analysis of Suffolk Coastal Local Plan policies against NPS policies. These include SCLP Policy 10.1 which relates to environmental net gain and is in conflict with EN-1 paragraph 5.3.13 and the differences between SCLP Policy 10.4, EN-1 paragraph 5.9.10, and the criteria in paragraph 177 of the NPPF in relation to development in the AONB.
- 5.19.255. The Applicant's position is that where there is such conflict, the NPS must have primacy for the reasons set out in response to ExQ1 G.1.12 [REP2-100] and ExQ2 G.2.14 [REP7-050], and in oral submissions at ISH9 [REP7-102]. In summary, the Applicant contends that NPSs are intended to set development control tests to be used in decision making for NSIPs. They are prepared, assessed, and consulted upon with that in mind, and debated and voted upon by democratically elected MPs. Decisions on their designation and review are made by the Secretary of State, answerable to Parliament. In contrast, local plan policies, are neither prepared nor assessed, nor tested for soundness through Examination with that purpose in mind. In addition, that approach is consistent with the Energy White Paper's statement of the Government's position as to the suitability of the NPS for the purpose of ongoing decision-making.
- 5.19.256. ESC [REP7-113] confirms that it considers both the relevant NPS and Local Plan policies to be important and relevant to the determination of this application. However, ESC's view is that, in the event of any conflict with the Local Plan, then the nuclear specific policies in the NPS should prevail, albeit the Local Plan will remain an important and relevant consideration. ESC highlights that policies in the NPPF (July 2021) are explicitly stated not to apply to NSIPs (paragraph 5), but they could still be considered important and relevant under s105(2)(c) PA2008. They also submit that the NPSs should prevail in the event of any conflict with the NPPF.
- 5.19.257. SCC [REP7-164], recognises that paragraph 4.1.5 of EN-1 states that, in the event of a conflict between any other document and the NPS, it is the NPS which prevails. Nonetheless, SCC submits that where, in a section 105 case, there are two documents that are important and relevant, one being a NPS and another being a document produced in a different manner, there is no reason why the NPS should automatically prevail in the event of any conflict, as a matter of planning judgment.
- 5.19.258. The ExA agrees with SCC that where section 105 PA2008 applies it is for the decision-maker to decide on the weight to be given to that policy statement relative to other considerations, and the specific nature of the conflict between local and NPS policies may be a relevant factor. Nevertheless, as SCC points out, another factor to be considered is that local policies are to guide the determination of planning applications under the Town and Country Planning Act 1990 regime, whereas NPS policies are to guide the determination of NSIPs under the PA2008. Thus, we believe that it is more likely that the latter will include policies that are specific to the type of nationally significant infrastructure under

consideration. The ExA also notes that the local plan inspector recommended modifications to the local plan to make it clear that this local plan is not setting policy tests for NSIPs.

- 5.19.259. At ISH9 [REP7-102], the Applicant emphasised that the policy in the NPS has been designed to cater for the particular circumstances that arise in the development of NSIPs. The submits that the NPS offers design policy guidance which is specifically tailored to the circumstances that arise when dealing with large scale energy infrastructure projects, which the NPPF does not. The ExA agrees that it would be inappropriate to assume that the new NPS when it emerges will say the same as the NPPF, rather than reflecting what is set out in the existing NPS.
- 5.19.260. Whilst the ExA has had regard to all relevant NPS, NPPF and local plan policies as important and relevant considerations, we consider that in this particular case the NPSs contain the policies that are most relevant to the type of national infrastructure development proposed. Having regard to the specific nature of the conflict between the various policies, we believe that the nuclear specific policies in the NPSs should prevail, and form the primary means of assessing the acceptability in planning policy terms of the Proposed Development.

The ExA's overall conclusions on Policy and Need

- 5.19.261. The application for the Proposed Development falls to be considered under section 105 PA2008. The ExA considers that EN-1, and EN-6 are important and relevant considerations to which the Secretary of State should have regard in reaching his decision in accordance with section 105(2)(c) PA2008. Since EN-1 and EN-6 have neither been suspended nor revoked, the WMS requires the Secretary of State to have regard to their content in reaching his decision on the application.
- 5.19.262. In relation to the WMS reference to "*relevant change of circumstances*", the suggested changes of circumstances raised by IPs are either already recognised within Government policy, or they reinforce the urgency which sits behind, rather than undermining that policy. The ExA concludes that the changes to the Climate Change knowledge-base, and any uncertainties of Climate Change impacts do not represent a change of circumstances in the context of the WMS.
- 5.19.263. The implications for the interpretation of the WMS arising from the *Drax* judgments, and the Wylfa ExA's recommendation report have also been considered. We believe that the Wylfa ExA correctly recognised the limitations of their role in relation to policy. Since then, the Energy White Paper has been published which supports the policy position, and the *Drax* judgements have clarified that section 6 PA2008 provides an exclusive means for considering issues such as the merits of Government policy, or the weight that should attach to it, in the light of such changes in circumstances. The ExA considers that in relation to the WMS and the weight to be attached to EN-1, and EN-6, there have been no relevant change of circumstances that reduce the weight to be afforded to the policies in those NPSs, and that significant weight should therefore be attached to them as required by the WMS.

- 5.19.264. Whilst the ExA has had regard to all relevant NPS, NPPF and local plan policies as important and relevant considerations, we believe that the nuclear specific policies in the NPSs should form the primary means of assessing the acceptability in planning policy terms of the Proposed Development.
- 5.19.265. The ExA has considered the more recent developments in national policy and the assessment of the need for new nuclear power generation. We find that through this sequence of various policy documents and reports, the Government has clearly and consistently explained the role that nuclear power generation has to play in decarbonising the energy sector and the wider economy. Furthermore, it is the Government's position on need which is determinative. There is an urgent need for new nuclear energy generating infrastructure of the type comprised by the Proposed Development.
- 5.19.266. The ExA finds that the Proposed Development responds directly to that urgent need, and national policy commitment to deliver a large scale new nuclear power station to meet that requirement. We conclude that the Proposed Development's "*actual contribution*" to satisfying the need for this type of infrastructure would be very substantial. Therefore the ExA gives very substantial weight to this factor for the Order being made.

5.20. RADIOLOGICAL CONSIDERATIONS

- 5.20.1. This section of the report covers the radiological considerations that arose during the Examination.

Legal and Policy Considerations

International Legislation and Guidance

- International Atomic Energy Agency (IAEA) Basic Safety Standard (BSS), implemented through Council Directive 2013/59 ('Euratom BSS');
- International Commission on Radiation Protection (ICRP) recommendations (ICRP 103);
- Euratom Treaty;
- Directive 92/43/ECC on the conservation of natural habitats and of wild fauna and flora ('the Habitats Directive');
- Directive 2009/147/EC on the conservation of wild birds ('the Birds Directive');
- IAEA Regulations for the Safe Transport of Radioactive Material;
- United Nations Recommendations on the Safe Transport of Dangerous Goods;
- IAEA Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention 1972) (Ref. 25.13); and
- 1992 Oslo and Paris (OSPAR) Convention for the Protection of the marine environment of the North-East Atlantic.
- Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention).

National Legislation

5.20.2. The ES Volume 2 Chapter 7 [APP-192] has taken the following national legislation into account in the assessment of spent fuel and radioactive waste management:

- Nuclear Installations Act 1965;
- The Ionising Radiation Regulations 2017;
- The Energy Act 2008;
- Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended);
- Environmental Permitting (England and Wales) Regulations 2016 (as amended); and
- Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009.
- Regulation 32 of the EIA Regulations imposes a duty to notify and consult with EEA states where the potential for significant transboundary issues is identified. Schedule 4 of the EIA Regulations.

National Policy

5.20.3. NPS EN-1 at section 4.10 makes clear the role the planning system has to play in the overall assessment of new energy infrastructure projects. Stating at paragraph 4.10.2

"The planning and pollution control systems are separate but complementary. The planning system controls the development and use of land in the public interest. It plays a key role in protecting and improving the natural environment, public health and safety, and amenity, for example by attaching conditions to allow developments which would otherwise not be environmentally acceptable to proceed, and preventing harmful development which cannot be made acceptable even through conditions."

5.20.4. It goes further at the following paragraph 4.10.3

"In considering an application for development consent, the IPC should focus on whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves. The IPC should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes... will be properly applied and enforced by the relevant regulator. It should act to complement but not seek to duplicate them."

5.20.5. NPS EN-6 in specifically dealing with nuclear power stations at paragraph 2.7.3 states:

"the IPC should act on the basis that:

- *the relevant licensing and permitting regimes will be properly applied and enforced;*
- *it should not duplicate the consideration of matters that are within the remit of the Nuclear Regulators (see paragraph 2.7.4 below); and notes radiation from nuclear power stations requires careful*

management during and beyond the operational life of the power station;

- *it should not delay a decision as to whether to grant consent until completion of the licensing or permitting process”*

5.20.6. The Nuclear Regulators are required to consider Generic Design Assessment (GDA) and the site licensing and environmental permitting processes (including in respect of the management and disposal of radioactive waste, the permitting of cooling water discharges and this should not be duplicated.)

Regional and Local Policy

5.20.7. There are no specific policies pertinent to dealing with this issue.

The Applicant’s Case

5.20.8. Chapter 25 of the ES [APP-340] provides an assessment of the radiological considerations in respect of the construction and operation of the Sizewell C project. In addition [APP-192] provides the Applicant’s assessment in respect of spent fuel and radioactive waste management. These are supported by Appendix 6U of [APP-171] which sets out the methodology used in the assessment.

5.20.9. The radiological assessment applied a different methodology dependant on the potential source and/or receptor as set out in paragraph 25.3.1 of [APP-340], this was broken down into four categories as set out below:

- *“dredging for construction radiological impact assessment;*
- *human radiological impact assessment;*
- *non-human radiological impact assessment; and*
- *transport radiological impact assessment.”*

5.20.10. The scope of the assessment had been established through a formal EIA scoping process undertaken with the Planning Inspectorate.

5.20.11. Primary mitigation comes from the design of the UK EPR™ which aims to minimise the quantity of radioactive effluents and waste, with the provision of further abatement measures to reduce the quantity of liquid and gaseous discharges.

5.20.12. Storage buildings and systems are designed and built to minimise ‘direct shine’ although it is recognised there may still result in a very small addition to the background radiation level.

5.20.13. The Environment Agency (EA) have undertaken an assessment of the radiological discharges and the associated impacts for the generic UK sites, through the Generic Design Assessment (GDA) and issued a Statement of Design Acceptability (SoDA). This confirms the design remains well within the regulatory limits.

5.20.14. During construction contractors would be required to manage sealed sources for radiography under the terms of their mobile permit as part of the arrangements under the Nuclear Site Licence (NSL). Any works

within the Sizewell B site would be subject to the existing NSL for Sizewell B and the Radiological Substances Regulations environmental permit.

5.20.15. To comply with the NSL, environmental permit and Ionising Radiations Regulations 2017, a radiological survey of the existing outage store on the Sizewell B site will be undertaken prior to demolition.

5.20.16. The Applicant states in [APP-192]:

"If required following the radiological survey, a strategy would be developed to decontaminate and demolish the radioactive structures and determine how the radioactive waste would be managed, including suitable monitoring protocols. This strategy would be agreed in consultation with the Environment Agency prior to the start of demolition works. Waste from the works would be managed in compliance with the existing Sizewell B site and company procedures.

Radioactive sources would be used to support geophysics and radiography during the construction of the Sizewell C power station. There is a legal requirement under the Ionising Radiation Regulations 2017 for Sizewell C to have procedures in place to control the use of radioactive sources. No other radioactive material would be used during construction.

There is, therefore, no potential for radioactive waste to be generated during the construction of the Sizewell C power station."

5.20.17. During operation the regulatory framework will control the disposals of radioactive waste and emissions. Permission will be required under Schedule 23 of the Environmental Permitting (England and Wales) Regulations 2016 (as amended), from the EA before making any discharges of radioactivity into the environment or disposals of radioactive waste. These are covered under the Radiological Substances Regulations (RSR) permit). In order to grant the RSR permit, the Applicant will need to demonstrate to the EA the application of Best Available Techniques (BAT) to minimise radioactive waste generated and that the gaseous and liquid effluents discharges are kept As Low As Reasonably Achievable (ALARA). The impacts arising from the radioactive discharges must also be kept ALARA.

5.20.18. Additional provisions are also in place overseen by the Office for Nuclear Regulation (ONR) through the Nuclear Installations Act 1965.

5.20.19. In paragraph 5.1.5 of [REP7-032] the Applicant confirms that for the purposes of the EIA:

"It is assumed that the operation of the power station would end in the 2090s and by 2140 the interim spent fuel store would have been decommissioned. 2190 is the assumed theoretical maximum site lifetime of the site."

5.20.20. Paragraph 1.11.3 of [REP8-125] states:

"Further to the above information, SZC Co. can confirm that the Main Development Site FRA explicitly sets the timeline for assessment at [AS-018] and for the subsequent MDS FRA Addendum [AS-157] assessment. This therefore matches the timeframe for the storage of spent fuel, with 2140 defining the end of nuclear decommissioning activities."

Radioactive waste management

5.20.21. In considering radioactive waste management [APP-192] the Applicant set out its case and how it considered the Proposed Development complies with both the tests in the NPS but also the regulatory regime outside of the PA2008.

5.20.22. Within [APP-192] the spent fuel management strategy is illustrated by plate 7.2 set out below.

Plate 7.2: Sizewell C Spent fuel management strategy.

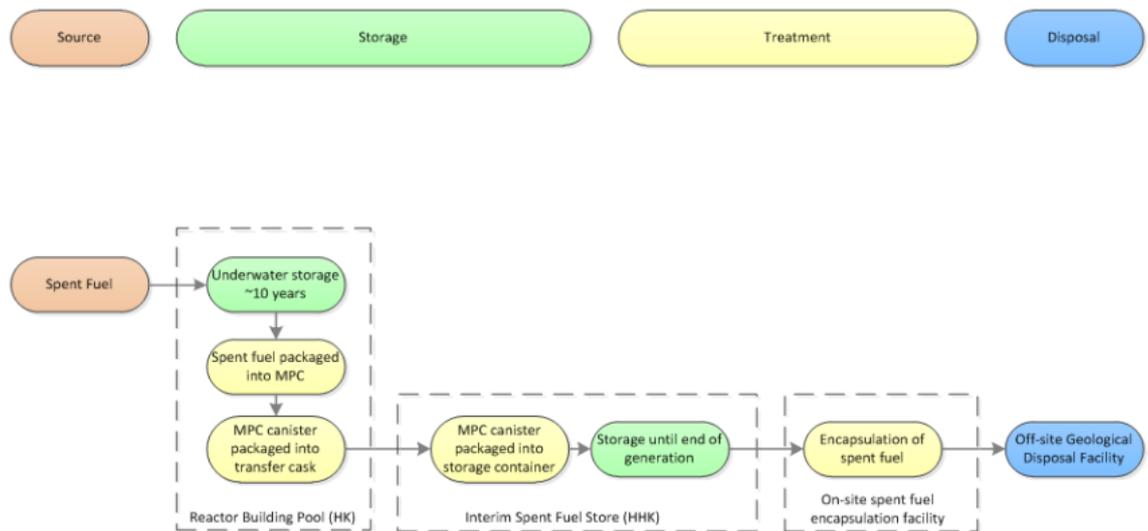


Figure 5.20.01 Sizewell C Spent Fuel Management Strategy

5.20.23. The radioactive waste would be managed within a highly regulated series of obligations overseen by the relevant regulator. An Integrated Waste Strategy has formed part of the application submitted to the EA for the Radioactive Substances Regulation environmental permit.

5.20.24. The ONR regulates on-site radioactive waste management through conditions attached to the NSL.

5.20.25. The EA regulates radioactive disposals (including the discharge of gaseous and aqueous emissions), the transfer of radioactive wastes between the power station and waste treatment and disposal sites in England in line with the arrangements set out within the Environmental Permitting Regulations 2016.

Decommissioning

5.20.26. The Nuclear Decommissioning Authority (NDA) is responsible for the decommissioning and clean-up of all legacy civil nuclear sites in the UK,

including the management of radioactive wastes. The NDA establishes waste management plans with the operator and consults on these plans with the relevant regulators. The NDA has overall responsibility for the implementation of UK lower activity waste policy, and for the implementation of the UK higher activity waste policy including the future operation of the Geological Disposal Facility. The NDA will advise the Department for Business, Energy and Industrial Strategy (BEIS) on the quality of decommissioning plans and associated cost estimates, as required for new nuclear power stations under the UK Government Funded Decommissioning Programme (FDP) arrangements.

5.20.27. The Applicant set out in Volume 2 Chapter 5 [APP-189] their description of decommissioning. This was subsequently replaced by Appendix 2B of [REP7-032]. The Applicant concludes with regards to radiological effects that:

"During decommissioning radiological discharges are expected to be within the limits proposed for the operation of Sizewell C and as such are bounded by the operational radiological impact assessment presented in Chapter 25 of this volume [APP-340]. Adverse effects have therefore been identified as not significant.

5.20.28. When the application was submitted para 7.7.92 [APP-192] indicated:

*"Nuclear Industry Association (NIA) has concluded that the spent fuel from the UK EPRM could be suitable for disposal 55 years following the end of generation. It is therefore assumed that the date for **start** of transfer of spent fuel from the Sizewell C site to a Geological Disposal Facility is 55 years **after the end of generation**. The process of transfer from the site will take approximately eight and a half years. On completion of transfer of the spent fuel from site, the Interim Spent Fuel Store (ISFS) would be decommissioned." (Our emphasis)*

5.20.29. The Applicant advised in paragraph 5.1.5 of [APP-189] that it is assumed the ISFS would take 5 years to be decommissioned, this though was superseded by the later submission [REP7-032] and no alternative date was provided.

5.20.30. The decommissioning process is regulated as a nuclear facility under the terms of Nuclear Installations Act 1965, site safety licence conditions will apply and will require that decommissioning is undertaken in a safe and controlled manner and not to pose a hazard for current and future generations.

5.20.31. The EA also regulate the management and generation of waste through the Environmental Permitting Regulations, which requires that the decommissioning process uses the Best Available Techniques (BAT) as the guiding principle for the safe decommissioning of the site.

5.20.32. The Applicant states that during decommissioning, radiological impacts are considered to result in no further effects than those assessed for the routine operational activities as no additional discharges are proposed during the decommissioning process.

5.20.33. Any likely significant radiological effects from decommissioning will require to be assessed prior to the start of the decommissioning works as part of an EIA which is required in accordance with Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999.

Matters raised during the course of the Examination

5.20.34. There were in excess of 300 RRs received which relate to radiological issues arising from the Proposed Development. These can be broadly split into five categories:

- Radioactive discharges impacting on human health and the environment;
- Radioactive waste;
- The safe long term storage of radioactive waste and spent fuel;
- Adequacy of Emergency Planning; and
- Transboundary Issues.

5.20.35. In our Initial Assessment of Principal Issues (IAPI) [PD-007] we set out the main issues arising from our understanding of the application and the RR received. These were:

- Adequacy of provision of facilities for the safe storage of Intermediate Level Waste (ILW) and spent fuel rods. Whether contingency is adequate?
- Longer term plans for this storage and how this would be facilitated and maintained.

5.20.36. During the Examination the Applicant proposed a change (Change 19) to include a desalination plant for the construction of the proposed development. This resulted in additional issues being raised by IPs and the ExA in respect of the construction and operational water supply for the power stations. The provision of the water supply itself is dealt with in section 5.11 of Chapter 5 of this Report.

5.20.37. The provision of the coastal defences, and the modelling for the safety case of those defences in light of climate change and sea level rise was presented as an argument against the development of this site for a nuclear power station, but also one which could not be regarded as safe in the medium to long term in light of the coastal environment. The assessment of the issue of climate change and resilience is set out in section 5.7, while coastal geomorphology is assessed in section 5.8 of Chapter 5 of this Report.

5.20.38. **Radioactive discharges impacting on human health and the environment**

5.20.39. Radioactive discharges both airborne and aqueous are regulated in England and Wales through the Environmental Permitting Regulations 2016. This requires the Applicant to obtain a Radioactive Substances Regulation Environmental Permit (RSR EP) prior to construction and operation of the power stations. The permit places a number of strict conditions that the Applicant will need to demonstrate compliance with

throughout its lifecycle, including limits on the quantity of radioactivity that can be discharged.

- 5.20.40. The Applicant submitted a RSR EP application to the EA in May 2020. The application has been consulted on and currently is awaiting to be determined by the EA. NE in their WR [REP2-153] stated it was unable to provide final comments on the potential impacts arising from matters that would be managed by the RSR EP.
- 5.20.41. TASC in their [RR-963] set out their concerns with regard to adverse effects on health from radiation. These concerns are expanded on in later submissions [REP3-141, REP6-076, REP7-149].
- 5.20.42. Additional representations including [RR-416, RR-485, RR-586] identified concerns with regard to the potential for toxins to be emitted to marine environment.
- 5.20.43. TASC [REP6-076] further identify a series of concerns with regard to radiological safety during operation and post operation. The ExA sought the views of the ONR and the EA on this point. The ONR responded in [REP8-168] to the ExA's question R.3.2 to the concerns identified in respect of the Taishan fuel failures, primary circuit vibrations, and fuel cladding degradation by stating the following:

"ONR is aware of all these matters and we confirm that we will take them duly into account in regulating both the Hinkley Point C and Sizewell C projects. ONR has already responded to public queries on each of these, which can be summarised as:

- *Taishan fuel failures: It is too early to speculate on the cause of the failures until after the post-shutdown analysis of the fuel inspection data has been completed. Once the information is available to NNB GenCo we will discuss the detailed findings from the Taishan fuel inspections with Hinkley Point C (HPC) and Sizewell C (SZC) to consider if there are any implications for the EPR reactors in the UK.*

We will also continue to engage with the relevant regulatory authorities in China, Finland, and France, for example through the Multinational Design Evaluation Programme (MDEP) or directly, to ensure we all have a consistent understanding and discuss any learning for all the EPRs.

- *Primary circuit vibrations: ONR has followed this issue closely through regular meetings with the EPR regulatory community and is aware of the vendor's root cause analyses and the remedial measures adopted by EPR operators. Analysis indicates that the vibration behaviour results from a complex resonance phenomena and modification of the design of the affected piping is not considered as a viable option as this might generate undesirable consequences. Consequently, the vendor has recommended a damping option to reduce the vibrations to an acceptable level. Preliminary feedback from two EPR plants has confirmed that the damping mechanisms are effective in reducing the vibrations such that the impact on the operation through life is acceptably low.*

ONR has engaged regularly with the HPC licensee to understand the measures being taken to address the vibration issue and will continue to do so taking due account of any further learning from the sister EPRs. ONR is satisfied that the HPC licensee has given appropriate consideration to a number of options and considers its proposal to install a damping mechanism to be reasonable. ONR notes that the final decision will be made when the Flamanville-3 EPR testing is complete.

ONR does not envisage any reason why the solution ultimately adopted for HPC cannot be applied to SZC, furthermore SZC will also benefit from the additional experience from early years of operation of the EPR fleet.

- *Fuel cladding degradation: ONR is aware of the operational experience relating to the EPR fuel cladding and in particular the reported corrosion issue. With regard to the UK EPR, the issue of cladding corrosion was assessed by ONR during the UK EPR generic design assessment (GDA). The GDA was an exercise designed to mitigate the regulatory risk to prospective licensees by assessing whether new reactor designs would, in principle, meet UK regulatory standards. The conclusion of the GDA assessment (ONR-GDA-AR-11-021) was that the measures proposed by the requesting party were adequate to protect the fuel against unacceptable levels of degradation as a result of corrosion.*

When the licensee is able to propose a fuel and core design for SZC, it will be subject to regulatory oversight by ONR. This will include an assessment of whether the licensee is taking appropriate steps to ensure that adequate limits and conditions of operations are identified in the safety case and that the operation of the plant throughout its life cycle (including storage) is carried out in compliance with such limits and conditions of operations (as per Licence Condition 23 attached to the nuclear site licence)."

5.20.44. The EA responded to these issues in [REP8-159] by stating:

"We have reviewed TASC's comments in their submission (REP6-076) and consider that our current determination of NNB GenCo (SZC)'s RSR permit application will cover the issues raised that fall within the Environment Agency's regulatory remit."

5.20.45. The ExA are mindful of the clear advice within the NPS that it is not our role to duplicate the considerations of matters that are within the remit of the nuclear regulators. It is our view that the responses provided to our questions confirm that the nuclear regulators are very much aware of the issues raised by IPs in this respect.

5.20.46. In response to the ExA's question on the latest position of these licences the EA confirmed the following:

"The current best estimate for reaching a 'minded to' decision on all three permits is around May 2022. We are engaging with the company to try to enable delivery of information that may allow us to arrive at a 'minded to' decision at an earlier point in time. Timescales could be

affected if there are further changes to the project proposals, or work to resolve issues, means that additional information is required and further review necessary. We will consult with statutory consultees and the public on the 'minded to' decision over a period of three months and we would then expect to arrive at a final decision up to four months later.

We cannot state whether we believe there is likely to be any impediment to the granting of these permits until we have reached a 'minded to' decision for each permit, consulted with statutory consultees and the public, and considered any consultation responses that we have received. The assessment upon which we will base our decision has taken longer than expected because of the need to review the necessary information provided by the company through a number of additional requests."

5.20.47. Public Health England (PHE) in their response to ExQ1 AQ.1.66 confirmed:

"Discharges of radioactivity from nuclear power plants during normal operations in England and Wales are regulated by the Environment Agency according to the principles of optimisation and use of Best Available Techniques. There is substantial scientific evidence which suggests that the controlled and regulated release of low level radioactivity from nuclear power plants does not cause serious illnesses and presents a very low health risk to people residing in the vicinity."

5.20.48. **Radioactive waste**

5.20.49. At the outset the ExA were uncertain what period of time the ES had used as a basis of assessment. As can be seen from ExQ1 R.1.4 the Applicant had set out two periods of time within different documents. [APP-192] specifying 60 years and [APP-317] a hypothetical extreme date of 2110 (i.e. 76 years).

5.20.50. As such the ExA were concerned that the calculations provided for the generation, storage and management may have underestimated the scale of building that may be required for the safe management of these materials.

5.20.51. The Applicant in response to ExQ1 R.1.4 and R.1.8 has confirmed the 60-year period as the one assessed and that capacity for onsite storage of the spent fuel in the Interim Spent Fuel Store (ISFS) would be able to accommodate the whole inventory generated from 60 years of operation.

5.20.52. The Applicant confirmed the Intermediate Level Waste (ILW) store has been designed to be able to accommodate 30 years' worth of waste generated from the operation of the power stations. The Applicant confirms: *"assessments have been performed on the capacity requirements for operational interim decay storage of ILW and they are suitable for the operation of the Sizewell C site for the first 30 years. This will allow for operational experience to be gathered and the application of lessons learnt when accounting for the ILW generation and storage over the remaining 30 years of operation."*

5.20.53. The Applicant's position with regard to how the radioactive waste should be dealt with can be summarised as the following:

"UK Government Policy is for the UK's Higher Activity Radioactive Waste (ILW and High Level Waste) and Spent Fuel to be disposed of via a UK Geological Disposal Facility (GDF). The delivery of this facility is managed by Radioactive Waste Management Limited, a subsidiary of the NDA. GDFs are a tried and tested technology and similar types of facilities are currently in operation in countries around the world. As an example, Finland and Sweden who have been operating repositories since the 1990's for the disposal of Low and ILW. Spent Fuel Repositories are currently undergoing design and construction in Finland and Sweden, along with several other countries. Low Level Radioactive Waste in the UK is managed via existing permitted disposal facilities."

5.20.54. UK Government Policy requires that for New Nuclear Builds, ILW and Spent Fuel is stored on-site until the availability of the GDF.

5.20.55. Under its NSL, the Applicant is required to demonstrate that the on-site facilities for the interim storage of ILW and Spent Fuel can be designed, constructed, commissioned, operated and decommissioned in a safe manner that ensures any risks to the workers, public and environment is suitably and sufficiently controlled. This includes due consideration of any potential internal and external hazards, including flooding.

5.20.56. In addition, prior to construction commencing, the Applicant is required to obtain the approval of the SoS for a Funded Decommissioning Programme (FDP). The FDP ensures that the Applicant has taken appropriate steps within the design and construction of a new nuclear build to ensure the plant can be decommissioned and will have secure financing arrangements in place to meet the full costs of decommissioning once the power stations cease generation.

The safe long-term storage of radioactive waste and spent fuel.

5.20.57. UK Government Policy requires that for New Nuclear Builds ILW and Spent Fuel is stored on-site until the availability of the GDF. The design of interim stores at Sizewell C according to the Applicant is based on a 100-year design life, but they explain that 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.

5.20.58. UK Government Policy is for the UK's Higher Activity Radioactive Waste (ILW and High-Level Waste) and Spent Fuel to be disposed of via a UK GDF. The delivery of this facility is managed by Radioactive Waste Management Limited, a subsidiary of the NDA.

5.20.59. TASC raise concerns in [REP5-297] following the ISH6 where they identified that the modelling did not recognise the full active lifetime of the site and therefore could not provide appropriate safety and security for the whole lifetime of the project. *"this assessment will not be adequate as it is not expected to cover the date up to which spent fuel*

may well still be stored on the SZC site or the date up to which structures and contaminants are still in situ i.e. it will not cover the full active lifetime of the plant."

- 5.20.60. TASC quote the Applicant in [REP2-481j] who state in [APP-192] at paragraph 7.5.2:

"The strategy for solid radioactive wastes is that these are to be disposed of as soon as reasonably practicable where a viable disposal route is available. High Level Radioactive Waste, ILW and spent fuel for which there are as yet no available disposal routes would be accumulated and safely stored on-site in compliance with the requirements of the Nuclear Site Licence, and Radioactive Substances Regulations environmental permit until a suitable disposal route or an alternative management route becomes available."

- 5.20.61. Blackwater Against New Nuclear Group (BANNG) [RR-0141] identify that it is intended to store spent fuel and highly active wastes on site until well into the 22nd century, perhaps indefinitely, if a repository does not become available. BANNG believes it both impractical and unethical to store dangerous wastes indefinitely on a site where conditions could become unmanageable. In the absence of evidence and credible plans for the long-term management of wastes the proposals should not proceed.

- 5.20.62. Suffolk Coast Acting for Resilience (SCAR) [RR- 1171 and RR-1172] identify concerns with regard to coastal erosion and the long-term safety of the site along an eroding coastline.

Adequacy of Emergency Planning

- 5.20.63. Relevant representations including [RR-0141, RR-0409] considers the Emergency Plan to be wholly inadequate. BANNG state:

"Sizewell C would be operating in close proximity to substantial population and in its wider hinterland is a densely populated rural area and several major towns including Ipswich. It is, therefore, imperative that credible and implementable emergency planning processes are in place before a permission is granted."

While Mr Prescott [RR-0409] asserts:

"The necessary upgrading of the fire service is non-existent, with meaningless words replacing adequate resourcing, adaptations and action.
• *The necessary specialist provision of CBRN (radiation and fire) materials for the build and the resulting 4 reactors (!) is non-existent.* •
The infrastructure to provide an emergency response from the West, North and East is entirely inadequate and essentially no plans have been presented to explain how fire or radiation hazards can be managed from an access and logistical point of view."

- 5.20.64. ONR confirmed in response to ExQ1 R.1.16 [REP2-159]

"Before making a licensing decision for SZC, ONR will seek assurance that the location is suitable for the establishment of an adequate

emergency plan in accordance with the licence conditions and The Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPPiR). As part of ONR's Land Use Planning, consultation was undertaken with Suffolk County Council Emergency Planner responsible for the Sizewell B REPPiR19 off-site emergency plan as well as the planning departments of Magnox Ltd for the Sizewell A site, EDF Energy (for Sizewell B) and NNB GenCo (SZC) Ltd for Sizewell C. This provided assurance that adequate emergency planning arrangements can be maintained or developed during the construction, active commissioning and operational phases of Sizewell C. ONR will take account of the assurance we have received in making a decision on whether to grant a licence for Sizewell C."

5.20.65. Within the LIR [REP1-045] the Councils identified concerns with regard to the need to ensure appropriate emergency planning was in place in advance to ensure that the construction of the Sizewell C project would appropriately tie in with the current emergency plans for Sizewell B and A. Following the ISH on the DCO SCC in [REP5-177] reiterated the point stating:

5.20.66. Requirement 5A (*now Requirement 6*): Emergency Planning:

"SCC have proposed that equivalent provisions to those agreed with the Applicant on East Anglia ONE and TWO should replace those proposed by the Applicant in this case. Arrangements under the existing Suffolk Resilience Forum Radiation Emergency Plan must be reviewed and if necessary updated before works commence, and the emergency planning arrangements specified in the Plan must be implemented in accordance with it.

The DCO at present merely requires a construction emergency plan to be "developed" (with no indication of SCC's role) and that a copy of it be provided to SCC. So, there is no input by SCC and no requirement to comply with any plan."

Transboundary Issues

5.20.67. EN-6 Vol I paragraph 2.7.3 advises that the licensing and permitting of nuclear power stations by the nuclear regulators is a separate regulatory process which nuclear power stations have to undergo. In the light of EN-6 Vol I paragraph 2.7.4, the ExA do not propose to duplicate the consideration of matters which are for consideration of the Nuclear Regulators including the Generic Design Assessment (GDA) and the site licensing and environmental permitting processes (including in respect of the management and disposal of radioactive waste, the permitting of cooling water discharges, etc).

5.20.68. EN-6 Vol I paragraph 1.7.4 states that:

"significant transboundary effects arising from the construction of new nuclear power stations are not considered likely. Due to the robustness of the regulatory regime there is a very low probability of an unintended release of radiation, and routine radioactive discharges will be within legally authorised limits."

- 5.20.69. As part of the planned operation of Sizewell C nuclear power station, discharges of low levels of radioactivity will be made to both the atmosphere and marine environment.
- 5.20.70. Volume 2, Chapter 25 [APP-340] of the ES contains a summary of the radiological effects from the power station. The impacts of radioactive effluent discharges on human and non-human biota from the operation of Sizewell C nuclear power station are very low. As such, based on the international recognised models used in SZC Co.'s assessment, the outputs of which are well below regulatory threshold levels, it can be concluded that there would be no significant effects on any Natura 2000 site or other ecological receptor, designated site or representative person.
- 5.20.71. The radiological effects have been assessed for receptors in the immediate vicinity of the Sizewell C nuclear power station, closest to the source of the radiological discharges, and, as such, are considered to be bounding because as distance increases from the source the concentration in the environment will reduce further. Hence, the equivalent receptors in neighbouring states will incur much lower doses due to the decrease in radioactivity concentrations seen with distance from release.
- 5.20.72. The ES concludes that collective dose results have also been assessed and the risks are minuscule and can be discounted. It is predicted that there will be no transboundary effects from routine releases. [APP-580]
- 5.20.73. The ES Volume 10 Project-wide, Cumulative and Transboundary Effects Chapter 5 Transboundary Effects [APP-580] presents the assessment of transboundary environmental effects associated with the construction and operation of the Sizewell C power station at the main development site and the construction, operation and removal and reinstatement (where applicable) of the associated development sites (hereafter referred to as, the 'Sizewell C Project'). This concludes that potential transboundary effects have been considered for individual topic areas, based upon available information and professional judgement.
- 5.20.74. The ES details the assessment for each topic area and for each of the developments associated with the Sizewell C Project. The potential for transboundary effects (ie effects predicted outside of UK territory) is considered for each topic, and conclusions are made as to whether or not any significant transboundary effects are likely. It is predicted that there will be no significant transboundary effects as a result of the Proposed Development. The potential effects on European sites in the EEA States are also considered as part of the HRA.
- 5.20.75. The additional submission in relation to the Applicant's request for changes to the application and Additional Information – ES Addendum Volume 1: ES Addendum Chapter 10 Project Wide, Cumulative and Transboundary Effects - Revision 1.0 [AS-189] states that all of the Additional Information and proposed changes to the Proposed Development described in Chapter 1 of the ES Addendum have been

reviewed to determine the potential for new or different significant effects to occur with regards to the assessment of transboundary effects. It concludes that overall, there would be no change to the conclusions of the assessment presented within Volume 10, Chapter 5 of the ES [APP-580] and all residual transboundary effects would remain not significant.

- 5.20.76. ES Volume 10 Project-wide, Cumulative and Transboundary Effects, Chapter 5 Transboundary Effects, Appendix 5A: Long Form Transboundary Screening Matrix sets out the Applicant's response to a screening exercise using the matrix in Annex 1 of Advice Note Twelve. In relation to risk of accidents, reliance is placed upon the NSL and the Euratom Treaty obligations. It indicates that the proposed UK EPR™ design of reactor has been the subject of a regulatory justification process.
- 5.20.77. The assessment concluded that no significant transboundary effects are likely. Furthermore, under Article 37 of the Euratom Treaty, the UK Government (on behalf of operators) submits information to the European Commission on plans to dispose of radioactive waste. This includes an assessment of the impacts to Member States from both planned routine discharges and in the event of an accident and allows the Commission to make a determination as to whether implementation of a plan is liable to result in radioactive contamination of a Member State. Operators must await an opinion from the Commission before obtaining domestic environmental permits or proceeding with a scheme.
- 5.20.78. Regulation 32 of the EIA Regs imposes a requirement for all significant transboundary issues set out in the EIA Directive to be assessed through the EIA process. Transboundary effects and compliance with Regulation 32 of the EIA Regs, including the application of the Planning Inspectorate Advice Note 12: Transboundary Impacts Consultation, is considered in Section 3.9 of Chapter 3 of this Report. It also explains that following acceptance of the application for Examination the Planning Inspectorate re-notified all EEA States and signatories of the UNECE Espoo and Aarhus conventions.
- 5.20.79. Paragraph 3.9.10, Section 3.9 of this Report sets out the issues raised by IPs and/or in the Regulation 32 responses and paragraph 3.9.12 explains that issues raised by IPs and in the Regulation 32 responses are dealt with in the relevant sections of this Report.
- 5.20.80. The response to Cu.1.46 [REP2-100] provides further information on this topic and states that under its future NSL, the Applicant will be required to submit a Nuclear Safety Case to support the start of construction of the nuclear significant structures, this will take due consideration of the latest available information on risk of accidents. Further iterations of the Safety Case will be produced to support commissioning and throughout operation, this will also take due consideration of the latest available data.
- 5.20.81. The Applicant's response to Cu.1.47 explains that the majority of the nuclear and radiation safety requirements established within the Euratom

Treaty, including those covered under the 2013 Basic Safety Standards Directive had been implemented within UK domestic legislation prior to the end of the transition period and as such remain in force. In addition, as of 31 December 2020, the UK and Euratom established a Nuclear Cooperation Agreement which became effective at the end of the transition period. This enshrines a clear commitment by both parties not to reduce their current standards of nuclear safety and radiation protection, as well as a joint commitment to cooperating internationally and ensure the implementation and promote the improvement of, international nuclear safety standards.

- 5.20.82. ES Volume 10 Project-wide, Cumulative and Transboundary Effects, Chapter 5 Transboundary Effects [APP-580], paragraph 5.4.43, in relation to Major Accidents and Disasters recognises that without mitigation, such hazards and threats could result in significant environmental effects and might result in transboundary effects. The response to Cu.1.48 indicates that in August 2020, General Data was submitted to the European Commission under Article 37 of the Euratom Treaty. This was to enable the Commission to give its opinion on whether the Proposed Development is likely to result in the radioactive contamination of the water, soil or airspace of another member state both in routine operation and in the event of an accident. The transboundary dose assessment submitted as part of the General Data Set showed that the dose to the Bounding Member State from the worst-case reference accident is very low. On this basis, the potential transboundary effects are considered by the UK Government to be tolerable and insignificant. A copy of the assessment is provided within Appendix B of the Relevant Representations Report [REP1-013].
- 5.20.83. In addition, a detailed assessment of site-specific nuclear safety and security risks is undertaken as part of the NSL regime. For compliance with the NSL regime, the Applicant would need to ensure the safe operation of the Proposed Development and protection of the workers, public and environment. This includes providing the ONR with a robust Safety Case demonstrating that all hazards associated with the development or that may impact the development are well understood and adequate arrangements are in place to reduce these risks to an acceptable level. The ONR would not grant a nuclear site licence for the Proposed Development, unless it is demonstrated that all nuclear safety and security risks have been mitigated to As Low As Reasonably Practicable (ALARP) levels. Having regard to that context, it has been agreed with the ONR, Environment Agency, SCC and ESC as part of the EIA process that compliance with existing regulatory regimes would reduce nuclear safety and security risks to be tolerable if ALARP, which is considered not significant within the ES. Further information on the assessment approach is provided within Volume 1, Appendix 6X of the ES [APP-171].
- 5.20.84. Within the Relevant Representation Report [REP1-013], responses are provided to the identified RR's and other submissions relevant to this topic at the following locations: RR-0127 within Table A.29; RR-0265 within Table A.28; RR-0876 within Table A.30; and RR-0802 within Table

A.32. A response to the following RR's and other submissions is provided within Table 4.24 of the Relevant Representation Report [REP1-013]: RR-1267; RR-0909; RR-1163; RR-1197; and RR-0801. Table A.29 explains that under Article 37 of the Euratom Treaty, the UK Government (on behalf of operators) submits information to the European Commission on plans to dispose of radioactive waste. Copies of Chapters 6 and 7 of the Article 37 submission have been provided in Appendix B of the Representation Report for information. Table A.28 indicates that Chapter 2 of the submission provides a description of the installation including those systems related to Gaseous Discharges, Liquid Waste Treatment, Solid Waste Treatment and Containment. A copy of Chapter 2 of the Article 37 submission has been provided in Appendix B of the Representation Report for information.

- 5.20.85. The relevant representation of Brigitte Artmann [RR-0155] expresses concern that the proposal as carried out to date is in breach of the Aarhus Convention. The Applicant's response to Cu.1.50 confirms that consultation with the international community has been undertaken in accordance with the Espoo and Aarhus Conventions. The Planning Inspectorate wrote to all relevant states party to the Espoo and Aarhus conventions on 31 October 2019 notifying them of the Proposed Development. This went beyond the Secretary of State's legal duty but is consistent with Planning Inspectorate Advice Note 12 on Transboundary Impacts. Following the acceptance of the application on 24 June 2020, the Planning Inspectorate publicised the application through press notices via UK embassies in local languages across Europe. The Applicant also gave notice of the application in various national newspapers in local languages across Europe. These notices included a link to the application and explained the opportunity to participate in the DCO Examination process. Thus, provision has been made for access to information and public participation in the decision-making process. In terms of the Espoo Convention, the EIA assessment covering relevant matters has been carried out at an early stage of planning and the ExA is satisfied that appropriate notification of and consultation with relevant States has been undertaken in accordance with the Inspectorate's procedures.
- 5.20.86. For the purposes of compliance with the relevant legislation and policy, the ExA are satisfied that the ES has given appropriate consideration to the transboundary implications of such matters. Those matters relating to the HRA assessment are considered in Chapter 6 of this Report.

Water supply

- 5.20.87. The issue of availability of a water supply for the construction and operation of the power stations was raised by a number of IPs both during the application, but also during the rounds of consultation prior to submission. This is considered in Section 5.11 of chapter 5 of this Report
- 5.20.88. In light of the Change Request (no.19) to include a desalination plant for the construction period the ExA wrote to the ONR to understand if there were any implications for licensing or timetabling. The ONR responded [REP8-168] in reply to R.3.1 confirming they were aware of the change

request and did not consider there were any implications for the licensing or timetabling.

5.20.89. In respect of a water supply for operation, the ONR would expect:

"the licensee to put in place a reliable source of water before nuclear safety related activities take place on the site that are dependent on such a supply. This may be during the later stages of commissioning, but such a supply will certainly be needed before the station begins to raise power from nuclear reactions in the reactor core."

The ExA's Considerations

5.20.90. The Government states that the application should be determined on the basis that regulation would adequately mitigate radiation exposure to workers, the public and the environment (NPS EN-6 paragraph 3.12.4). Based on this clear direction, the ExA has not examined the potential radiological effects that could arise as a result of the proposed development.

5.20.91. From the questions we have presented to the ONR, EA and Applicant we are confident all parties are aware of their obligations under these regulations, and they will be appropriately applied and enforced by the parties.

5.20.92. The flood risk and coastal processes aspects of the Proposed Development are considered in detail elsewhere in sections 5.8 and 5.11 of Chapter 5 of this Report.

5.20.93. Relevant Representation [RR-0509] considers the Low Level Waste (LLW), Intermediate level Waste (ILW) and Spent Fuel (SF) stores should not form part of the DCO. Neither Facility is designated an NSIP under section 14 of the PA2008.

5.20.94. At ExQ1 [REP2-100] we asked the Applicant at R.1.31 for their position on this issue. They responded by stating:

"Waste facilities, including the Interim Spent Fuel Store (ISFS) and the Intermediate Level Waste (ILW) Store, are an integral part of the Sizewell C Project and fall to be determined as part of the submitted application. The application does not seek to distinguish between the elements of the project that comprise the NSIP and those that comprise associated development. However, it is clear that the ISFS and ILW Store are either part of the NSIP or associated development.

i) On the latter, the ISFS and ILW Store satisfy the tests for associated development set out in the Planning Act 2008: Guidance on associated development applications for major infrastructure projects, April 201353. In particular, the Guidance states that when deciding whether development should be treated as associated development, the Secretary of State will take into account the following core principles:

- *There should be a direct relationship with the principal development – in this case the ISFS and ILW Store are proposed only to serve the principal development.*
- *It should not be an aim in itself – in this case the ISFS and ILW Store are entirely dependent on and exist solely to provide storage facilities for the principal development.*
- *It should not only be necessary as a source of additional revenue to cross-subsidise the cost of the principal development – in this case, the storage facilities represent a substantial, necessary cost.*
- *It should be proportionate to the nature and scale of the principal development – in this case Volume 2, Chapter 7 of the ES [APP-192] explains how the waste facilities have been sized to meet the requirements of the principal development.*
- *It should be typical of development brought forward alongside the relevant type of principal development – comparable nuclear power station projects have applied for comparable facilities as part of their DCO applications (for example at Hinkley Point C).*

The appropriateness of this relationship is made even stronger by reference to the specific terms of the Guidance and the requirements of the NPS:

a. The Guidance provides examples at Annex B of associated development specific to individual types of NSIPs. For on-shore generating stations, the list includes 'waste storage facilities'.

b. NPS EN-6 at paragraph 2.11.5 explicitly states that spent fuel and intermediate radioactive waste is required to be stored on-site until the availability of a geological disposal facility.

The DCO application would not be complete without the storage facilities proposed and they properly and appropriately fall to be considered as part of the application. The ISFS and ILW Store do not meet the criteria in the Planning Act 2008 for NSIPs in their own right under section 14. However, even if the criteria for an NSIP was met and the ISFS and/or ILW Store were NSIPs in their own right, it would still be appropriate for these facilities to form an integral part of this application. It is not uncommon for DCO applications to comprise more than one NSIP and the relevant guidance is clear that:

"A single application can cover more than one project requiring development consent under the Planning Act. Applicants are encouraged, as far as is possible, to make a single application where developments are clearly linked" (Planning Act 2008: Guidance on associated development applications for major infrastructure projects, April 2013, paragraph 7).

- 5.20.95. While the ExA agree these elements of the DCO proposal are not directly listed in this section of the Act, they are necessary parts of the broader requirements to operate a power station in accordance with Government Policy and the ExA find the argument presented by the Applicant in this respect compelling.

- 5.20.96. Annex B of NPS EN-6 part II recognises at paragraph B.4.1 that: "Geological disposal will be preceded by safe and secure interim storage." And goes on to state at B.4.3 "On the assumption that spent fuel will be stored on-site until it can be disposed of, the key factors in determining the duration of on-site storage are the availability of a GDF and the time required for the spent fuel to cool sufficiently for disposal in a GDF."
- 5.20.97. While it is not a requirement that the storage of spent fuel and high-level waste takes place on site, Government policy does make clear that this is a reasonable expectation and in these circumstances the ExA are satisfied that the DCO as submitted can be determined by the SoS.
- 5.20.98. Professor Blowers in his submissions to the Examination [REP2-209, REP5-189, REP7169] sets out his concerns regarding the adequacy of the application with regard to the appropriate management and storage of waste and spent fuel on the site going well into the next century. This risk he considers is greater in light of the uncertainty on climate change, the assumption that a GDF will be available, the over reliance on current institutions and arrangements for managing safety in the future and the ongoing risks to future generations of following this approach.
- 5.20.99. The Applicant has provided responses to Professor Blowers in its Written Submissions Responding to Actions Arising from ISH6 [REP5-118], Comments on Responses to the ExA's First Written Questions [REP5-121], and in response to the ExA's Third Written Questions [REP8-116]. The MDS FRA Addendum [AS-157], and Appendix F of the FRA Addendum [AS-170] are also relevant. In addition, the Applicant's response to AI.3.2 [REP8-116], addresses Professor Blowers' DL7 submission [REP7-169].
- 5.20.100. In the ExA's view, the case presented in respect of coastal defences and their suitability for securing the safety of the site has been considered within the sections on Climate Change (5.7) and Coastal Geomorphology (5.8) where we have concluded that the assessment undertaken by the Applicant is appropriate.
- 5.20.101. In the ExA's view the coastal defences have been designed so they can be modified in the event that it is necessary to do so whilst the monitoring of the sea levels is secured through the CPMMP. This is further reinforced by the obligations that are required by the NSL regime regulated by the ONR and the permits regulated by the EA.
- 5.20.102. The ExA are persuaded by the Applicant's submissions that the conclusions reached are predicated on the basis that the site will be clear of nuclear material by 2140, the period which has been modelled for the coastal defences. Under these circumstances it is the ExA's view that the test set out in paragraph 2.11.5 of NPS-EN6 would be met.
- 5.20.103. In the ExA's the view there is sufficient evidence to enable us to reach a conclusion on this matter. However, should the Secretary of State disagree and consider that it would assist to have further evidence on

this matter, he may wish to consider consulting with the parties before reaching a decision.

The ExA's Consideration and Conclusions

- 5.20.104. The ExA notes that SCC/ESC raised no concerns regarding radioactive waste or releases in its LIR, for example in relation to air quality [REP1-045]. This is what would be expected as the ONR would regulate on-site radioactive waste management, and the EA would regulate gaseous and aqueous emissions from the Power Station under the Environmental Permitting regime.
- 5.20.105. The Councils did, however, raise the issue of an amended requirement seeking to achieve the production of a safety management plan, in advance of works commencing (paragraph 22.23 of the LIR) and proposed a requirement wording in Annex J [REP1-055]. Following ISH14, SCC in [REP8-185] remained of the view that the wording of the requirement should be changed from:

6 Project wide: Emergency planning

(1) No less than 18 weeks prior to the commencement of the authorised development a construction emergency plan must be submitted to and agreed by Suffolk County Council in its capacity as emergency planning authority following consultation with Suffolk Constabulary and the East of England Ambulance Service Trust.

(2) If agreement is not pursuant to paragraph (1) is not reached within 4 weeks of the date on which the plan was submitted then both parties must refer the matter to the Office of Nuclear Regulation for their decision.

(3) The construction emergency plan must include:

(i) details of the undertaker's construction site emergency arrangement for the SZC construction works; and

(ii) details of the undertaker's arrangements for interfacing with Sizewell B in an emergency.

(4) the construction emergency plan must be implemented as agreed with Suffolk County Council or, if relevant, in accordance with the decision of the Office for Nuclear Regulation.

- 5.20.106. to:

"6 Project wide: Emergency planning

(1) No part of the relevant works may be commenced until the Suffolk Resilience Forum Radiation Emergency Plan ("the Plan") has been reviewed to account for the relevant works, or any part of them, and reissued in accordance with the Regulations.

(2) Emergency planning arrangements specified in the Plan in respect of the relevant works must be implemented in accordance with the Plan, unless otherwise agreed with Suffolk County Council following

consultation with the Sizewell Emergency Planning Consultative Committee or Suffolk Resilience Forum as appropriate.

(3) For the purposes of this requirement –

(a) "relevant works" means permanent works related to site preparation and construction; and

(b) "the Regulations" means the Radiation (Emergency Preparedness and Public Information) Regulations 2019."

5.20.107. The Applicant responded at ISH14 to the concerns expressed by SCC by stating:

"In response to suggestions from SCC that Requirement 5A (Now Requirement 6) (Project wide: Emergency Planning) should be expressed as some form of Grampian requirement, Mr Rhodes explained that SCC would have more than sufficient time to review its plan, particularly given the resources being made available for it to do so by SZC Co." [REP8-124]

5.20.108. SCC explain their approach [REP8-0185] by stating:

"SCC maintains its position in respect of Requirement 5A (now 6). The DCO application includes a complex construction proposal that is set largely within the existing Sizewell B Detailed Emergency Planning Zone, arrangements for which are detailed in the Suffolk Resilience Forum Radiation Emergency Plan (SRF REP), and for which SCC is responsible.

This will affect the existing off-site radiation emergency arrangements made under the Radiation (Emergency Preparedness and Public Information) Regulations 2019. Owing to this, it is essential that those arrangements are updated to take account of the DCO's impacts before works are commenced.

In respect of the East Anglia ONE North and East Anglia TWO Offshore Wind Farms DCO, the applicant proposed a requirement which SCC supports. The requirement provides that the SRF REP be reviewed to take account of the Sizewell C works before any of those works commence. SCC considers consistency in this regard is required in both applications and therefore will ask the ExA to replace Requirement 5A (now 6) with what has been agreed on the other two orders.

SCC understands that the Applicant resists this on the basis that because Sizewell itself is a nuclear site, emergency measures should be covered by the construction emergency plan prepared by the Applicant and referred to in existing requirement 5A. But the issue for SCC is that the SRF REP is a separate document that covers a much wider area than just the nuclear station site itself, that many of the works proposed under the DCO will be carried on outside that site, including the associated development and highways works, and many of the impacts from the construction of the power station (including for example, impact on traffic and on substantial new worker accommodation areas, will need to be

taken account of in the SRF REP, whatever arrangements the Applicant puts in place in its own plan.

Unless a satisfactory resolution is achieved, SCC will request at deadline 9 or 10 that requirement 5A be replaced by SCC's preferred drafting, which is set out in the list of proposed amendments in the Appendix below. As counsel for SCC acknowledged, the requirement is in the form of a Grampian style condition, but as mentioned above, this has been accepted on the East Anglia orders, and SCC would suggest that the requirement is not particularly onerous. It should also be noted that the Office for Nuclear Safety was involved in the drafting of the East Anglia provisions and approved the final version.

In that regard, the ExA asked for information about what bodies are involved in the SRF REP, how long it would take to carry out the review, and what sort of compulsion would be needed to get members of the forum to agree to the review.

The organisations that would be consulted for agreement of the revised Annex for the SRF REP would comprise the following:

- *Suffolk County Council and East Suffolk District Council*
- *Suffolk Fire & Rescue Service*
- *Suffolk Constabulary*
- *East of England Ambulance Service Trust*
- *NHS Suffolk, NHS England and Public Health England.*
- *Environment Agency (EA)*
- *Magnox (Sizewell A)*
- *EDF (Sizewell B)*
- *Anglian Water and Northumbrian Water*
- *Office for Nuclear Regulation (ONR)*
- *Health & Safety Executive*

Some are also members of the Suffolk Local Resilience Forum (SRF) and some, Emergency Planning Consultative Committee, the forum for organisations with responsibilities for preparing emergency arrangements in response to an event at Sizewell B. A list of the membership of both groups can be provided.

The review process would be relatively simple as the revised Annex for the SRF REP would follow the format and broadly the content of previous Annexes which have been drawn up. As a consequence, SCC considers that this could be completed in the order of 4 weeks.

As an aside, the Applicant's proposed Requirement 5A is defective in that paragraph (3) mentions approval, but there is no indication as to who is to give the approval or by when. If there is to be an approval body then SCC would suggest it be approved [or agreed] by Suffolk County Council in consultation with the Suffolk Resilience Forum. This comment should not be taken to mean that SCC would agree with the Applicant's proposal were it to be so amended."

- 5.20.109. The Applicant's response in [REP10-156] 'Comments on earlier deadlines, subsequent written submissions to ISH10-14 etc.' states:

"f) Comments on Response to the ExA's second commentary on the dDCO and in response to Suffolk County Council's Post Hearing submissions including written submissions of oral case – Issue Specific Hearing 14 [REP8-185]

The drafting of the dDCO has been agreed with Suffolk County Council save for those items listed in the SoCG."

5.20.110. The ONR responded to ExQ2 R.2.0 by stating:

"Site Suitability

A key element of ONR's site licensing assessment is the suitability of the site. In accordance with our published guidance (Licensing Nuclear Installations), before a nuclear site licence is granted the prospective licensee will need to satisfy ONR that:

- *the proposal conforms with Government siting policy.*
- *the location is suitable for the establishment and maintenance of an adequate emergency plan during all phases of the power station.*
- *the proposed nuclear power station is capable of being designed to have robust defences against the site-specific external hazards.*

We are satisfied that the requirements of the first two bullets are satisfactorily met. With regard to external hazards, engagement is still ongoing with NNB GenCo in order for ONR to gain confidence in the characterisation of the hazards and to ensure there is no challenge to the suitability of the site."

5.20.111. In the ExA's view the case made by SCC is a reasonable one, while the ONR will not grant a site licence in advance of being satisfied that the tests have been met for the NSL – the works proposed for the project go way beyond the site the subject of that licence and those works in themselves could affect access to or from both Sizewell B but also the new Sizewell C site, it is not unreasonable in these circumstances to have a plan in place in advance of any works so that in the event of an incident the relevant parties know how they should respond.

5.20.112. It is also sensible for DCO decisions to be consistent to avoid potential conflict. The ExA therefore recommend that the wording promoted by SCC be adopted by the SoS. This has been added to the Table of DCO changes in Chapter 9.

5.20.113. Should the SoS not agree and prefer the Applicant's wording the ExA agree with SCC that there are errors within it as drafted, the alternative amended wording is included below for ease of reference with the sections proposed to be removed in *italics* and the sections to be added in **bold**.

5.20.114. Project wide: Emergency planning

- 1) No less than 18 weeks prior to the commencement of the authorised development a construction emergency plan must be submitted to *and agreed by Suffolk County Council* **for approval** in its capacity as

emergency planning authority following consultation with Suffolk Constabulary and the East of England Ambulance Service Trust.

- 2) If agreement *is not* pursuant to paragraph (1) is not reached within 4 weeks of the date on which the plan was submitted then both parties must refer the matter to the Office of Nuclear Regulation for their decision.
 - 3) The construction emergency plan must include:
 - 4) (i) details of the undertaker's construction site emergency arrangement for the SZC construction works; and
 - 5) (ii) details of the undertaker's arrangements for interfacing with Sizewell B in an emergency.
 - 6) the construction emergency plan must be implemented as agreed with Suffolk County Council or, if relevant, in accordance with the decision of the Office for Nuclear Regulation
- 5.20.115. In relation to dispersion modelling, no further response was submitted by any IP or regulator on this issue. The ExA is content that the Applicant has satisfied UK regulations in terms of severe accidental releases to air.
- 5.20.116. NPS EN-1 paragraph 4.10.3 states that the ExA: "...should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator. It should act to complement but not seek to duplicate them..."
- 5.20.117. There is no convincing evidence that would cause the ExA to doubt that the regulation of radioactive waste at Sizewell would be properly applied and enforced.
- 5.20.118. Section 2.11 and Annex B of NPS EN-6 (Part II) set out the context for the consideration of radioactive waste management. Paragraph B.5.1 of NPS EN-6 is unambiguous that: *"...Having considered this issue, the Government is satisfied that effective arrangements will exist to manage and dispose of the waste that will be produced from new nuclear power stations. As a result, the...[ExA]...should not consider this question. However, there may be planning issues relating to the on-site management of radioactive waste which it is appropriate for the...[ExA]...to consider as part of the development consent application (see Section 2.11 of this NPS) ..."*.
- 5.20.119. Paragraph 2.11.5 of NPS EN-6 states that: *"...Proposals for waste management facilities...[such as interim storage facilities that may house higher activity waste prior to ultimate disposal in a geological disposal facility]...that either form part of the development of the NSIP or constitute "associated development" for the purposes of the Planning Act 2008 should be considered by the...[SoS]...in the same way as the rest of the NSIP using the principles and policies set out in EN-1, this NPS and the provisions of the Planning Act 2008. Annex B sets out that other facilities for the interim storage of waste may come forward. However, in the absence of any proposal the...[SoS]...should expect that waste would be on site until the availability of a GDF..."*.

- 5.20.120. There is no alternative Government policy on these matters, nor is it apparent that the policy on radioactive waste within NPS EN-6 is likely to change in the near future. This includes guidance in relation to the future availability of long-term geological disposal, and that interim storage of waste would be available prior to it being available. The on-site storage proposed for Sizewell C would provide such an interim storage facility for spent fuel, in accordance with NPS EN-6.
- 5.20.121. Regarding the assertion that the Spent Fuel Storage Facility and Intermediate Level Waste Storage Facility (Building Nos. 54 and 56 as shown on Fig 7.4 of the Design and Access Statement [REP10-057]) do not fall within s14 of PA2008 [RR-0509] and therefore, are not National Infrastructure developments, the ExA agree with the Applicant that such development can be consented under a DCO. Government Policy is clear that until such time as a GDF is available it expects Applicant's to have facilities at sites for new nuclear power stations to accommodate the waste and spent fuel generated. In these circumstances, it would be seen as a failure of an application for an NSIP if these facilities were not provided as part of the application. The ExA is strongly of the view that the approach taken by the Applicant in this regard is appropriate.
- 5.20.122. Based on the information available to it, the ExA concludes that radioactive waste is not a matter which should weigh against the Order being made. The ExA does, however, draw to the SoS's attention the fact that the ONR has confirmed that the application for the NSL to operate Sizewell C is still under consideration [REP2-159].
- 5.20.123. The ExA also draws the SoS's attention to the designation of the Geological Disposal Infrastructure (GDI) NPS for higher-activity radioactive waste, which was published in July 2019. As is made clear in paragraph 1.10.1 *"This is a stand-alone NPS and does not form part of the suite of energy NPSs under EN-1."* Nevertheless, it makes clear the firm policy commitment that this is the route for the long-term management, and storage of high-level radioactive waste in this country.
- 5.20.124. This NPS also makes clear that developing a GDF for this purpose is how the Government intends to meet its obligations under the obligations as a contracting party to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.
- 5.20.125. The Government policy on the disposal and storage of higher-level radioactive waste is therefore clear. The UK Government remains committed to the policy of geological disposal of higher activity radioactive waste, for the reasons set out in Committee on Radioactive Waste Management (CoRWM's) recommendations to government and goes on to state at paragraph 2.1.8-2.1.9:

"In July 2011, following public consultation, the UK government published the National Policy Statement for Nuclear Power Generation (EN-6) which provided guidance for decision-makers on the application of government policy in determining development consent for new nuclear power stations. It concluded that the 2006 CoRWM recommendations

(that geological disposal, coupled with safe and secure interim storage, was the best available approach for the long-term management of the UK's legacy of higher activity radioactive waste) were also appropriate for the wastes from new nuclear power stations. It stated that the government considers, based on scientific consensus and international experience, that despite some differences in characteristics, waste and spent fuel from new nuclear power stations would not raise such different technical issues compared with nuclear waste from legacy programmes as to require a different technical solution. In their eighth annual report¹⁰, CoRWM stated that "wastes from new reactors should simply be managed in due course. CoRWMs scrutiny and advice role relates to the whole of the inventory and it does not need a separate position on new build working".

2.1.9. The UK government remains satisfied that effective arrangements will exist to manage and dispose of the waste from new nuclear power stations."

- 5.20.126. The Applicant has said decommissioning of the ISFS would have taken place by 2140. This, however, does not sit comfortably alongside other aspects of the Applicant's evidence which stated that the power stations would operate for 60 years and a 55-year period for the storage of spent fuel on site was required prior to it being ready for transfer to a GDF. Following the storage of spent fuel in the ISFS beyond the end of the operational life of the power stations a further 8.5 years is said to be required to undertake the transfer of the material from the site.
- 5.20.127. It would not be appropriate for the ExA to speculate on whether an alternative system may come forward in the future for managing spent fuel and radioactive waste in a different manner that may shorten this period. We have to assume from the evidence the Applicant has presented, this is the most accurate estimate based on current understanding
- 5.20.128. The time window taken between now and 2140 'the design period' for the coastal defences, provides a 118-year window for operation and decommissioning. This is less than the period which the Applicant states will be required for the safe storage and decommissioning of spent fuel in addition to the 60-year operational period for the power station in addition to the construction period.
- 5.20.129. The Applicant had provided evidence that the build would take between 9 to 12 years. The ExA do not question this assessment, but it is worth noting that the later the power generation starts the less time which is available for power generation and the period of site safety which has been assessed. Any delay therefore in the commissioning of the power station reduces the benefit of that generation.

¹⁰ 2 Committee on Radioactive Waste Management Eighth Annual Report 2011-12. (paragraph 7.4) Published June 2012, available online at: www.gov.uk/government/publications/corwm-8th-annual-report-2011-to-2012

- 5.20.130. The SoS will be aware of the assumptions the Applicant has made in respect of on-site storage of spent nuclear fuel and radioactive waste have been based upon there being a GDF available for the transfer of these materials for the safe storage in the long term. The ExA is of the view that this is a reasonable assumption based on current information and the Government stated policy on the provision of a GDF as the method for the long-term storage of spent fuel and radioactive wastes.
- 5.20.131. It is necessary however to recognise that the GDF is not yet in place and there is a degree of uncertainty in this regard which the Applicant has acknowledged.
- 5.20.132. The Applicant relies upon their duties of meeting their obligations under the Nuclear Site Licence which is governed by the ONR. In light of what is stated in paragraph 2.11.5 of EN6 the SoS needs to recognise that in the absence of a GDF coming forward *"the IPC (SoS) should expect that waste would be on site until the availability of a GDF."*
- 5.20.133. As acknowledged in the coastal geomorphology chapter of this report the ExA's conclusions are based on what the Applicant has stated in terms of the removal of the ISFS by 2140, it is under these circumstances that the EXA are of the view that the policy tests in the NPS are met.
- 5.20.134. The ExA take the view that there is sufficient evidence to enable us to reach a conclusion on this matter. However, should the Secretary of State disagree and consider that it would assist to have further evidence, he may wish to consider consulting with the parties before reaching a decision.
- 5.20.135. The SoS may wish to satisfy themselves that the safe storage of radioactive waste would be achieved for the life time of the project given the length of time that spent fuel, high level and intermediate level waste are likely to be stored on site, in light of the modelling undertaken of the coastal defences.

5.21. SOCIO ECONOMICS

Policy Considerations

- 5.21.1. National Policy Statement (NPS) EN-1 requires an applicant, where a project is likely to have socio-economic impacts at either local or regional levels, to undertake an assessment of those impacts as part of the Environmental Statement (ES) (paragraph 5.12.2). NPS EN-1 (paragraph 5.12.3) then provides a list of the relevant socio-economic impacts that could be considered and include, for example, the effects on tourism and the impact of a changing influx of workers during the different construction, operation and decommissioning phases.
- 5.21.2. With regards to the effects of new energy infrastructure NPS EN-1 (paragraph 5.12.6) states that the decision maker should have regard to the potential socio-economic impacts identified by the applicant and from any other sources that the decision maker considers to be both relevant and important to their decision.

- 5.21.3. NPS EN-1 (paragraph 5.12.7) states the decision maker may conclude that limited weight is to be given to assertions of socio-economic impacts that are not supported by evidence.
- 5.21.4. NPS EN-1 (paragraph 5.12.8) also states that the decision maker should consider any relevant positive provisions the developer has made or is proposing to make to mitigate impacts (eg through planning obligations) and any legacy benefits that may arise as well as any options for phasing development in relation to the socio-economic effects.
- 5.21.5. Paragraph 5.12.9 advocates that the decision maker should consider whether mitigation measures would be necessary to mitigate any adverse socio-economic impacts of the development.
- 5.21.6. NPS EN-6 contains detailed policy specific to nuclear power stations and acknowledges that there are likely to be both positive and negative effects (paragraph 3.11.2) from this type of development. Paragraph 3.11.3 requires that the applicant should identify at local and regional levels any socio-economic impacts associated with the construction, operation and decommissioning of the proposed power station and that the assessment should demonstrate that the applicant has, amongst other things, taken account of the potential pressures on local and regional resources, demographic change and economic benefits (paragraph 3.11.4).

NPPF

- 5.21.7. Section 6 of the NPPF sets out that policies and decisions should assist in creating the conditions in which businesses can invest, expand and adapt. It advises that significant weight should be afforded to the need to support economic growth.

Development Plan

- 5.21.8. Local Plan Policy SCLP3.4 in the pre-amble notes economic opportunities associated with energy infrastructure development may involve creation of jobs during all stages of the project and associated demands on the local supply chain and sectors which support projects. Consideration will be given to maximising economic and community benefits where feasible through agreement of strategies in relation to employment, education, and training opportunities for the local community.

The Applicant's Case

- 5.21.9. Chapter 9 of the ES [APP-195] provides an assessment of the socio-economic effects from the construction and operation of the Proposed Development at the MDS and the associated development sites.
- 5.21.10. The assessment is project-wide in nature – it considered the overall socio-economic effects of the Proposed Development's components on sensitive receptors such as the labour market, housing market and public services. The scope of the socio-economic assessment considers construction and operational phase effects.

Construction effects

5.21.11. Economic effects:

- Labour market effects due to change in the level of construction employment generated in the economy;
- Employment effects due to a change in the overall level of employment; and
- Business and supply chain effects as a result of contracts and spending related to the Proposed Development.

5.21.12. Accommodation effects:

- Effects on overall supply of homes as a result of increased demand generated by the temporary construction workforce;
- Tourist sector accommodation effects;
- Private rented sector (PRS) effects; and
- Owner-occupied sector effects.

5.21.13. Population dynamics - effects on the existing population due to an increase in population generated by the construction workforce

5.21.14. Public services effects of increased demand generated by the construction workforce and their families for the following services:

- Childcare and education services – early years, primary school and secondary school places;
- Social services;
- Other county and district level services;
- Sports and leisure facilities; and
- Emergency services.

Operational Effects

5.21.15. Employment:

- Effect of additional employment in a high value added sector;
- Wider economic effects; and
- Effects on skills, education, spending, and supply chain.

5.21.16. A standalone ES was prepared for the Sizewell B relocated facilities works for submission with the hybrid application under the Town and Country Planning Act 1990 (East Suffolk Council application ref. DC/19/1637/FUL). The Sizewell B relocated facilities ES were scoped out the assessment of socio-economic effects, as no potential for likely significant effects from the Sizewell B relocated facilities proposals on their own were identified. However, the assessment presented within this chapter also accounts for the effects of the Sizewell B relocated facilities project, as it forms part of the Proposed Development.

Assessment Methodology

5.21.17. The assessment of likely significant socio-economic effects within the study areas was undertaken by reference to the likely changes from the

baseline conditions, and the effects of those changes as a result of the Proposed Development.

5.21.18. It considered the following economic effects:

- Employment effects;
- Supply chain effects;
- Employee spending;
- Tourism ; and
- Agriculture.

5.21.19. Also, the following accommodation effects:

- Owner-occupied accommodation;
- Private rented accommodation; and
- Tourist accommodation.

5.21.20. In addition, the following effects on public services, community and demographics:

- Tourist accommodation;
- Impact on local social conditions and associated services; and
- Other less tangible socio-cultural change, such as quality of life, community character/ cohesion and integration.

Environmental design and mitigation

5.21.21. Primary mitigation measures:

- Temporary Accommodation Campus;
- Temporary Caravan Park;
- Temporary Occupational Healthcare Service;
- Permanent off-site Sports Facilities; and
- Visitor centre.

Tertiary mitigation and enhancement

5.21.22. Some mitigation measures comprise standard management practice and were included as tertiary mitigation against which impacts are assessed. These measures are embedded processes/ procedures, rather than physical design measures. For the purposes of the socio-economic assessment, processes and procedures specified for the Proposed Development were also proposed to provide enhancement for beneficial effects. These measures are:

- Employment, Skills and Education Strategy (Appendix A [APP-611]);
- Supply Chain Strategy (Appendix B [APP-611]);
- Code of Construction Practice [APP-615]; and
- Transport mitigations, TIMP,CTMP and CWTP [APP-607, 608 and 609].

ASSESSMENT OF EFFECTS

CONSTRUCTION

ECONOMIC EFFECTS

Employment

- 5.21.23. At peak, the Applicant assessed that there would be 2,410 jobs for local residents across a range of occupations and skill levels in non-operational roles. In total, this equates to around 7% of total construction jobs in the 90-minute area and is therefore assessed as a moderate beneficial effect which would be significant at this level.
- 5.21.24. Labour market churn is a normal feature of the economy, particularly in the construction sector. Employers fill any emerging vacancies, across a range of skills. Even those jobs that are highly skilled can be filled by training people from the next level down, so these would generally be filled from elsewhere in the labour market. It is likely that the creation of employment at the Proposed Development would increase labour market churn but given the scale of the labour market and its flexibility, this change was considered by the Applicant to be not significant.

Business and supply chain

- 5.21.25. The Applicant estimates the total value of the Proposed Development at £20 billion, made up from the sourcing of goods and materials, and cost of labour. They anticipate that if similar activities and local supply chain recruitment are achieved at Sizewell C as Hinkley Point C, that there could be a 'local' retention of in excess of £1.5bn over the construction period, equivalent to an average of £125m per year. This is considered a moderate beneficial effect at the regional level. This would be significant.

Wages/ Spending and additionality

- 5.21.26. Assuming non-home based (NHB) workers spend all of their nightly subsistence allowance of £40, that would increase spending in the area by an average of £21.5 million per year, or nearly £260 million over the construction period.
- 5.21.27. The extra wages and spending from home based (HB) workers will depend on their previous circumstance, but if up to 50% were previously unemployed, this would represent an average boost to incomes each year of £15 million compared to receiving £10,000 per year in benefits. The boost to local spending would be less than that (after taxes and savings) but could still be £5 million per year or £60 million over the construction period.
- 5.21.28. Together these add up to just over £320 million of extra local spending during the construction phase.
- 5.21.29. The estimated net additional outcome at Sizewell B for additional workforce expenditure in the locality would be around £80m. Uprating this, taking into account the construction costs for the Proposed Development, would give a total of £190m or an average of £16m per year.
- 5.21.30. Local wages for HB workers and local spending on food and accommodation by NHB workers would equate to just under £1.1bn at an average of £91m per year over 12 years. As a result, the wages/

spending and additionality effects of the Sizewell C Project are considered to be moderate beneficial and significant at the local and regional scale.

Effects on the tourism economy

- 5.21.31. Overall, the Applicant concluded there was limited empirical evidence that the Proposed Development would lead to a quantifiable reduction in visitor numbers, a change in visitor behaviour, expenditure or business viability in the sector over and above normal variation. The tourist economy is subject to substantial volatility year-on-year and is affected by externalities beyond the effects of a single project such as the Proposed Development.
- 5.21.32. The Applicant concluded that there was no empirical evidence that the construction of Sizewell B had a substantial effect on the sector within the Suffolk coast area or that Hinkley Point C, with the Tourism Fund mitigation package, is having a substantial effect in Somerset.
- 5.21.33. The Applicant has undertaken engagement with local tourism stakeholders, review of environmental effects and mitigation identified across this ES. Taking this into account along with the Applicant's understanding of perceived visitor sensitivities based on quantitative survey of previous and potential visitors, it had identified that without mitigation there is potential for:
- Very local effects on businesses and activities where there is a combination of significant residual environmental effects; and
 - Perception-related effects as a result of sensitivities to different aspects of the Proposed Development (the potential for perception of changes to for example traffic, where this is already an influencer on propensity to visit).
- 5.21.34. In particular, the Applicant's research has shown that visitors with lower levels of engagement and knowledge of nuclear generation at Sizewell or the Suffolk coast area state a higher risk of changes to visiting behaviour during the construction of the Proposed Development. They state that this is mainly influenced by changes or perceived changes to transport at certain higher sensitivity travel times, as the nature of the market (often shorter breaks and more local c. 2 hour trips) means that good access to and around the area is important to visitors.
- 5.21.35. The Applicant refers to the mitigations set out in the TA [AS-107] As such, in some locations, times and for some visitors, there is the risk of a minor to moderate adverse effect to arise on factors that contribute to tourist visitor sensitivity (including but not limited to traffic) that has the potential to be significant at the local level, without mitigation in the early years of construction.

Effects on the agricultural economy

- 5.21.36. The proposed development would lead to the loss of farming activity, arable land and pasture both temporarily and permanently.

- 5.21.37. Overall, the Applicant concludes, that the area of agricultural land permanently removed represents approximately 0.04% of the total c. 330,000ha of agricultural land (grades 1–5) across Suffolk as a whole. As a proportion of the total employment in the agricultural sector in Suffolk, this would equate to an average loss of around 4 jobs in this sector based on average jobs per hectare in the sector in Suffolk.
- 5.21.38. Given the very low proportion of jobs that would be lost, the magnitude of the impacts would be very low (insignificant in terms of the sub-regional economy), and the sub-regional economy as a receptor would have very low sensitivity to the proposed changes, resulting in a negligible effect which would be not significant in terms of the local and regional economy.

Effects of transport on business

- 5.21.39. The TA [AS-017] assessed the peak traffic generation for Proposed Development on a weekday. It identifies that there are no significant delays caused as a result of the Proposed Development across the modelled network, during the peak construction phase.
- 5.21.40. The assessment identifies that during the early years of construction, in 2023, before any mitigation is completed, there would be impacts on the highway network particularly on the A12 and B1122. This would mean a change in journey time of up to 5% on some routes, at peak times. This is within the daily variation on these routes, so is unlikely to be noticeable.

ACCOMMODATION EFFECTS

- 5.21.41. As part of the embedded mitigation for the scheme a campus-based accommodation strategy would underpin the development. This would be supported by serviced-spaces for caravan accommodation. The delivery of the campus and caravan site would reflect the numbers of workers requiring accommodation in the local area based on the workforce profile. Use of existing accommodation would be required prior to the completion of any purpose built accommodation provided by the Applicant.
- 5.21.42. The Applicant has also developed an Accommodation Strategy [APP-613] in response to the requirement for a large NHB workforce. This strategy makes use of existing local accommodation where possible, in order to deliver local economic benefits. It also seeks to avoid impacts on the local accommodation market by providing temporary project accommodation in the form of a single, 2,400 bed accommodation campus on the main development site and a caravan park with up to 400 pitches (with an estimated occupancy of 1.5 workers per caravan) on the ACA.
- 5.21.43. At the peak of construction, the Applicant estimates that 5,884 of the 7,900 workforce would require accommodation locally (within 60-minutes of the main development site). For several years either side of peak

construction, accommodation demand generated by the Proposed Development is expected to be much less than this.

5.21.44. The scale of the construction workforce, and especially the number of NHB workers who would seek accommodation in the local area, needs to be seen in the context of wider local demographics. The NHB workforce would be relatively small in number when seen in the context of the existing population of Suffolk County (equivalent to 0.7% of current population) or ESC (equivalent to 2.2% of current population).

5.21.45. In order to assess impacts more specifically, each component of the housing market had been considered separately. This included:

- Owner occupied housing;
- The private rented sector (PRS); and
- Tourist accommodation.

5.21.46. Regard has also been given to the potential supply of 'latent' accommodation, which may reduce the scale of demand in other sectors

Owner occupied houses

5.21.47. The Applicant anticipates construction workers are likely to account for less than 1% of all family homes in the owner-occupied sector in the area. This is a small fraction of homes, and well within the average level of churn within the sector. Given the length of time these workers are likely to be involved with the Proposed Development, this effect would have built up over several years in advance of the peak.

5.21.48. The construction phase of the Proposed Development, including peak construction, is therefore expected to lead to a negligible effect overall on the operation of the overall Suffolk housing market, which would be not significant.

Private rented sector (PRS)

5.21.49. It is anticipated that by the time of peak construction 1,200 workers would be living in private rented properties across the 60-minute area. The PRS provides options for construction workers in medium-term roles, as the shortest period for an assured short hold tenancy is 6 months.

5.21.50. Construction workers are likely to account for up to around 1.2% of all bedspaces in the area. This is well within the overall calculated level of 'frictional vacancy' within the sector and is therefore expected to lead to a negligible effect overall at the 60-minute area scale, which is not significant.

5.21.51. The PRS analysis highlighted the following:

- In Leiston, Aldeburgh, Saxmundham and Yoxford the demand for PRS from the construction workforce is anticipated to exceed the frictional vacancy leading to potential major adverse effects that would be significant prior to mitigation. The most significant effects are identified in Leiston and Aldeburgh;

- In Rendlesham and Snape, the demand for PRS from the construction workforce is anticipated to account for between 50% and 100% of the frictional vacancy in the peak year. This is considered within the capacity required for the sector to operate, though has been highlighted as a potential risk and is considered a moderate adverse effect that would be significant prior to mitigation; and
- In Halesworth, Sutton, Orford & Tunstall and Framlingham, the demand for PRS from the Sizewell C workforce is anticipated to account for less than 50% of the frictional vacancy in the peak year. This is considered within the capacity required for the sector to operate and is considered a low risk that may cause minor adverse effects, that would be not significant.

Tourist accommodation

- 5.21.52. It is anticipated that at the peak of construction there would be 802 workers seeking accommodation in the tourist sector within the 60-minute area.
- 5.21.53. On this basis, workers seeking accommodation have the potential to generate income for tourist accommodation providers where accommodation may otherwise be unoccupied, presenting a minor beneficial effect at the 60-minute area scale, particularly during off-peak months. However, The Applicant notes that there are sensitivities within the market in terms of:
- The location of tourist accommodation, much of which is located towards the coast; and
 - The location and variability in price and availability of different types of tourist accommodation, which affects occupancy.
- 5.21.54. This has the potential to lead to more significant local pressures on tourist accommodation. The Applicant analysis suggests:
- Workers in Aldeburgh and Leiston may seek tourist sector accommodation equivalent to up to around 27% and 41% of the overall stock respectively;
 - When discounting for availability/ affordability, workers may occupy around 44% of stock available and affordable to them in Aldeburgh, and 84% in Leiston. This has the potential to result in a moderate, or major adverse effect on the accommodation sector in these locations at peak which would be significant, prior to mitigation. This assessment does not consider the responsiveness and flexibility of the market; and
 - Elsewhere, negligible to minor adverse effects may occur in Yoxford, Saxmundham and Snape, though in the context of the overall stock and type of accommodation, these effects are likely to be minor and short-lived and would be not significant.
- 5.21.55. The Applicant's assessment suggests there would be capacity in tourism accommodation even in peak season and, where this is the case, expenditure would be additional. The Applicant also states that even if there were to be a small level of displacement in the summer in some

locations, this would likely be balanced by the benefits to providers outside of the peak season.

POPULATION CHANGE AND DYNAMICS

- 5.21.56. The population and demographic structure of the 60-minute travel area is likely to experience a level of change associated with the presence of a NHB construction workforce. The Applicant assessment is that there would be an overall increase of 5,884 NHB workers within the 60- minute area at peak construction.
- 5.21.57. This would likely lead to temporary (medium term) major impacts at the local ward level (Leiston) which would be significant. Other local wards (Aldeburgh) could also see moderate temporary (medium term) impacts in terms of population growth. Impacts are likely to be minor or negligible and not significant for all other areas.

PUBLIC SERVICES AND COMMUNITY FACILITIES

- 5.21.58. The introduction of a new NHB workforce into the 60-minute area could have impacts on demand for public services and community facilities, and the ability of service providers to respond. Demand would vary between different types of service depending on the demographic profile of the workforce (particularly age and gender) and the location of workers.
- 5.21.59. Current services in the area of relevance to the Proposed Development workforce may be split between the following key service providers and topic areas:
- SCC - Education and social services, regulatory and environmental services, economic development and tourism, libraries, emergency planning and public health;
 - District Councils (mainly ESC) – Housing, leisure, economic development and tourism, regulatory and environmental services and emergency planning;
 - Emergency Services - Policing (Suffolk Constabulary), Fire (Suffolk Fire and Rescue), Ambulance (East of England Ambulance Service) and Coastguard; and
 - Health - Clinical Commissioning Group (NHS Ipswich and East Suffolk Clinical Commissioning Group).

Pre-school provision

- 5.21.60. Based on estimates of children of pre-school age taking up residence within the area as a result of the NHB worker population at peak, there are predicted to be between 166 pre-school aged children in Suffolk, of which around 139 would be in East Suffolk. The greatest local effects are anticipated to occur in Leiston with up to 30 estimated pre-school children at peak. Based on existing provision and childcare sufficiency, local effects are considered to be minor adverse and not significant.

Primary and secondary school provision

- 5.21.61. In terms of the secondary school provision the Applicant's assessment identifies that the NHB workforce could have a negligible effect at the 60-minute level, and at county and district levels, which would be not significant.
- 5.21.62. There is the possibility for a moderate adverse effect in terms of primary school capacity in Aldeburgh, based on current schools having little or no existing surplus capacity. However, within the context of small workforce children numbers, a slow ramp-up, falling birth rates and planned expansion this is likely to be not significant in the context of the dynamic baseline, and the net additionality of workers in this category.
- 5.21.63. The Applicant has recognised that there may be a period during which funding for additional capacity from those sources catches up with demand and provision. The Applicant has committed to work with SCC throughout the construction phase to identify changes in capacity and demand from construction workers, and where applicable, mitigate those effects via a public services contingency fund to be secured through the Deed of Obligation.

Social services – families

- 5.21.64. It is anticipated that all family households would live in accommodation through which they would pay council tax. Those living in owner-occupied accommodation are unlikely to be additional to the current population. Net additional impact on demand for social services from workers, and their families is therefore regarded as negligible and not significant at all levels.

Social services – construction workers

- 5.21.65. Engagement with SCC, health stakeholders and individual service providers had identified a number of concerns, primarily related to changes in the population profile – particularly in Leiston – due to the number and narrow demographic of construction workers. These concerns are summarised here:
- Potential risks to vulnerable young people and care leavers, particularly in Leiston, and particularly those who are in housing need or vulnerable to homelessness;
 - Potential risks related to cultural differences between NHB construction workers and residents;
 - Potential risks related to drugs, alcohol and prostitution including exploitation of young girls by a predominantly male workforce, and potential for related increase in trafficking;
 - Potential risks related to access to and delivery of sexual health services and increase in youth pregnancy;
 - Potential risks on the delivery of services, particularly to vulnerable older people who wish to remain in their homes but require care; and
 - Potential demand for social services and mental wellbeing services from construction workers and their families, and welfare in schools such as English as an Additional Language.

5.21.66. The Applicant identified that the Proposed Development had the potential to increase the risks set out above, and has identified mitigation measures in order to avoid or reduce the risks through direct interventions including:

- Linking implementation strategies with priority social services target groups, for example so that outreach programmes target children not in education, employment and training (NEETs) and other vulnerable groups;
- Supporting community engagement as set out in the Code of Construction Practice [APP-615], to address any issues that may arise from members of the public and especially vulnerable residents who access key public services;
- Working bilaterally with those organisations closest to the Proposed Development that raise safeguarding concerns to identify practical and effective solutions;
- Providing community information and worker information to promote integration and awareness via 'welcome packs' for contractors and workers, and briefings for public service providers;
- Embedding vetting and security checks into recruitment and contracting;
- Managing workforce accommodation and building in measures to reduce risks in the design. To include provision for emergency services presence, welfare, food/ drink and recreation activities for workers at the accommodation campus, and physical and temporal separation of use of shared recreational facilities in Leiston; and
- The provision of occupational healthcare for workers at the main development site including mental wellbeing services.

5.21.67. As a result of the mitigation, the Applicant considers that the Proposed Development would be likely to have a negligible effect on the provision of social services at county level (Suffolk), though more localised effects in areas such as Leiston may be minor adverse.

Formal sport and leisure

5.21.68. The NHB workforce is likely to create some additional demand for formal sport and leisure provision. In order to assess the overall scale of the potential demand for formal sport and leisure services, the anticipated demographic profile of the NHB workforce had been applied to:

- Sport England's Sports Facilities Calculator, both for the peak and the average workforce, to identify the likely demand for provision; and
- Local authority standard rates for sports facility demand.

5.21.69. The Applicant would provide sports and leisure facilities as part of the Proposed Development. This would include gym and informal recreation facilities at the accommodation campus, and formal recreation facilities including a full-size 3G pitch and MUGAs located off-site at Alde Valley School. The off-site facilities would be made available for shared use by the school and the local community and would remain as a legacy post-construction.

- 5.21.70. This would meet the main likely preferences of the construction workforce. The impact on leisure provision is therefore likely to be major beneficial and significant at all levels, as a result of meeting workforce demand and providing permanent new facilities for the community.

Regulatory and environmental services

- 5.21.71. The district council (ESC) provides a range of regulatory and environmental services.
- 5.21.72. Those workers living in PRS and owner-occupied sector accommodation would already be paying for these services through council tax. In addition, all accommodation providers (including the campus and caravan site, and tourist accommodation providers who may pay business rates) would be required to pay for waste collection. The Applicant would procure a commercial waste contractor to collect waste from accommodation campus and caravan facilities.
- 5.21.73. There may be a small increase in demand for services other than waste collection, which the Applicant would be required to pay for – as a result of workers living in project accommodation (i.e. campus or caravan sites), and temporary accommodation in the tourist sector. The proportion of the peak workforce who would live in these types of accommodation represents a temporary increase in population of less than 2% in ESC district at peak, and this would therefore represent a negligible effect at the local level.

Crime, anti-social behaviour and policing

- 5.21.74. An increase in population arising from the NHB workforce could have impacts on crime and anti-social behaviour, and consequent impacts on the requirement for policing services. Likely impacts on crime are difficult to estimate as they would depend on both the behaviour of workers and the behaviour of current residents.
- 5.21.75. The Applicant had been working with Suffolk Constabulary to anticipate the potential effects that might occur, on the assumption that a small proportion of NHB workers and their families, like the current population, could be both perpetrators and victims of crime.
- 5.21.76. NHB workers living in the PRS and owner-occupied sector, and all households with families and dependants, would have their services funded through normal mechanisms like any other local resident. They would in most cases be occupying accommodation that would otherwise be occupied by other residents.
- 5.21.77. There would be the potential for crime and disorder to be concentrated in locations where there would be a significant concentration of NHB workforce. It is anticipated that the majority of workers in non-council-tax accommodation at peak would be living either in project accommodation or tourist accommodation close to the site, so the majority of these effects would occur in the Leiston neighbourhood area.

- 5.21.78. If the recorded crime rates are applied to the number of NHB workers and their families in this area, prior to any mitigation this may lead to an increase in recorded crimes of up to 19.5% at the peak. Therefore, before mitigation, there could be a moderate adverse effect which would be significant at peak at the local scale. The effect would be negligible and not significant in all other areas and at wider scales.
- 5.21.79. The Applicant stated that they propose a Worker Code of Conduct and they also evidence the effect of such a Code currently in operation at Hinkley Point C in Somerset. On that basis they consider the effect significance will be much reduced.

Fire and rescue services

- 5.21.80. Any additional impacts on services are likely to be small and relate either to residents in latent and tourist accommodation and the Suffolk Fire and Rescue Service role in dealing with road traffic accidents. Overall, effects of the Proposed Development on fire and rescue services are likely to be minor adverse, and not significant at the local level and negligible and not significant at the county level before mitigation.
- 5.21.81. However, The Applicant noted that this may increase pressure on local services and the types of activities required disproportionately, as a result of the relative remoteness of the site and its access requirements for a nuclear construction site, as well as a potential rise in demand for home safety checks. As such, under certain conditions a minor adverse effect may arise before mitigation, and therefore the Applicant would seek to develop a responsive mitigation strategy and relevant financial contributions in this regard.

Health and ambulance services

- 5.21.82. Effects on residual demand for health services and ambulance services are considered in the health and wellbeing section of this report.

Community cohesion and integration

- 5.21.83. The Applicant recognises that the Sizewell C Project would lead to changes in population and demographics within local communities during the construction phase.
- 5.21.84. Their assessment considered how measures have been designed to manage the construction workers, their use of and access to public services, accommodation and community facilities, and how measures have been designed to promote integration, manage community safety and perceptions of safety to reduce potential effects on community cohesion to minor adverse (not significant).
- 5.21.85. The success of these initiatives would be reported through workforce monitoring to track the location, accommodation sectors and overall number of construction workers as well as through continual feedback from the community via community liaison services.

OPERATION

Operational workforce

- 5.21.86. The operational workforce would start to build up gradually from around year five of the construction phase. At full operation, up to twelve years after the start of construction, when all construction activity has been completed, there would be around 900 workers at Sizewell C, of which 700 are expected to be permanent staff and 200 contractors. Contractor support would increase by approximately 1,000 workers during each unit's refuelling/maintenance outages (every 18 months).
- 5.21.87. When operational, Sizewell C would cause an increase of 36% in jobs within the energy generation sector in Suffolk (based on 2018 ONS BRES data which shows there are currently 2,500 jobs in SIC 351: Electric Power Generation, Transmission and Distribution). This would represent a beneficial effect in terms of the policy aspirations of the local authorities, LEP and the sub-regional economy. This would be a moderate beneficial effect at the local level which would be significant.

Outages

- 5.21.88. A short-term, temporary workforce of approximately 1,000 would be required in addition to the 900 operational staff per outage. It is estimated that the majority of the annual temporary outage workforce would be recruited from outside the local area (around 85%), and that there would be some continuity of employment between the current (Sizewell B) and future (Sizewell C) outage teams – thereby minimising any additional new employment but increasing the frequency for current contractors.
- 5.21.89. It is therefore anticipated that around 850 outage workers would be non-local and require accommodation in the area. There is likely to be an impact on local accommodation, including tourist accommodation. A small proportion would take up spare rooms in houses (latent accommodation) based on previous experience, and – at Sizewell B - this is usually facilitated by people advertising in local shops, at the power station itself, and in newspapers.

Wider Economic Effects

- 5.21.90. The operational Sizewell C power station would provide a long-term continuation of a substantial quota of skilled and secure jobs for local people with a major energy sector employer. At full operation, the indirect employment effects and the increase in the level of income in the local economy would be of a more permanent nature.
- 5.21.91. Indirect economic benefits would be generated through:
- Earnings of operational staff; and
 - Local contracts placed during operation.
- 5.21.92. The Applicant concludes that the combined indirect economic effect of earnings and expenditure by operational staff and outage workers is anticipated to be a moderate beneficial effect which would be significant.

Business and supply chain

- 5.21.93. The Applicant concludes that overall, the Proposed Development is likely to contribute to longer term economic stability in the area. It should also provide opportunities for the development of local firms with both nuclear construction and operational phase supply chain links, which would help to raise the skill level and presence of energy sector activity in the area.
- 5.21.94. The indirect economic effect of supply chain and procurement of goods and services for the operational power station would be anticipated to be a moderate beneficial effect which would be significant.

Accommodation

- 5.21.95. The Applicant states that existing policy is that all operational permanent staff should live within 25 miles of the station. As set out above, information from the 2011 Census shows that around 61% of the workforce in the workplace zone in which Sizewell B is located live in the former SCDC, and around 23% live in the former Waveney District – the remaining 16% live in Ipswich (5%), Great Yarmouth (2%), Mid Suffolk (2%), South Norfolk (2%) or further afield.
- 5.21.96. In terms of accommodation sectors, studies at a number of power stations show that permanent employees in the electrical supply industry have higher rates of owner-occupation than the national average. Ownership rates are particularly high for staff employees. In the absence of any public sector provision, it is anticipated that most of those not buying would rent in the private sector. As such, the approximate tenure mix at full operation is estimated by the Applicant to be around 80% owner occupation, and around 20% private rented.
- 5.21.97. The Applicant concludes based on existing supply and capacity there would be a negligible effect on local accommodation demand which would be not significant.

Public Services

- 5.21.98. The operational workforce would have become established over the time of the construction period and become part of the permanent population of the area. Any impacts on education and public services would therefore have already been mitigated during the construction phase. As occupants of PRS or owner-occupied sector accommodation, the workforce would be council taxpayers and entitled to public services in common with other residents. As such, the impact of the net additional operational workforce on demand for public services is considered to be negligible and not significant.

MITIGATION AND MONITORING

- 5.21.99. The Applicant for the purpose of assessment considered mitigation measures that had been proposed where there was an adverse impact of greater than minor significance and the impact magnitude, spatial scope, and temporal nature made it appropriate to do so. These mitigation and

enhancement measures would be implemented during the construction phase of the Proposed Development.

Employment, skills and education effects

- 5.21.100. The economic effects of the Proposed Development on skills, employment, and labour market and supply chain are substantial and beneficial. This relates to the creation of new jobs, effects on unemployment and economic inactivity, generation of business activity in the supply chain, and indirect and induced benefits of earnings and spending of workers. The Applicant concluded that as the Proposed Development results in beneficial effects on skills, employment, labour market, and supply chain, these effects do not require additional mitigation.

Tourism

- 5.21.101. The Applicant recognised that there may be potential for the tourist economy to be adversely affected as a result of the Proposed Development.
- 5.21.102. As such, the Applicant proposed to make available a Tourism Fund to develop mitigation measures to reduce this risk and promote the area in order to reduce the risk of perceived changes in visitor behaviour from materialising. This Tourism Fund would be secured in the DoO and could be used to deliver initiatives such as:
- Development of or support for a tourism strategy/ action plan;
 - Marketing and promotion activities for the Suffolk coast and specific attractions and events within it, which can demonstrate a strong return on investment;
 - Supporting local projects including capital and revenue investment;
 - Undertaking future visitor surveys;
 - Providing information about public transport and travel;
 - Supporting existing tourist information centres; and
 - Responding to effects on particularly sensitive attractions/ locations within the AONB.

Agricultural economy

- 5.21.103. On completion of the construction phase, the land outside of the permanent development site would be restored to agricultural use and ecological habitat creation. As the Proposed Development results in negligible effects on the local agricultural economy, these effects do not require additional mitigation.

Accommodation

- 5.21.104. Although the construction phase assessments predict a negligible or minor adverse effect on the accommodation market at the wider scale, there are predicted to be localised effects, which would be of major adverse significance and therefore require additional mitigation. As such, mitigation has been proposed as part of an Accommodation Strategy [APP-613]. This contains measures to specifically target hard to reach

and vulnerable groups that may experience difficulties accessing or retaining housing as a result of the Proposed Development's effects on the lower end of the PRS.

- 5.21.105. The Applicant is proposing additional support for housing in the local area by establishing a Housing Fund, linked to the Accommodation Strategy. The Housing Fund, secured within the Deed of Obligation (DoO), would provide financial support to a range of initiatives which would help to:
- Develop supply through a range of measures;
 - Provide funding for resilience; and
 - Support growth in the tourist accommodation sector.

These initiatives are discussed in more detail in the Examination section of the report below, as the detail was developed through the Examination through engagement with stakeholders.

- 5.21.106. The Applicant would implement an accommodation management system. This system would help manage the distribution of workers and avoid or reduce potential adverse effects on accommodation capacity in local areas in a responsive way. It would be secured within the DoO and would include the following:
- Monitoring of the workforce, contractors and local housing market; and
 - Provision of information to workers, contractors and accommodation providers, and working with providers to help them understand opportunities to support the Proposed Development workforce.

- 5.21.107. The Applicant would collect, manage, and hold information about the local accommodation market (including registrations from providers with accommodation) that can be used to provide contractors and workers with a means of finding the most suitable accommodation and location.

- 5.21.108. It is anticipated, by the Applicant, that the measures funded by the Housing Fund and implemented as part of the accommodation management strategy would result in residual effects reducing to not significant (negligible to minor adverse) at all scales.

Public services and community facilities

- 5.21.109. In terms of education the Applicant would employ workforce monitoring and surveys. This monitoring would provide information to estimate the number and locations of workers who bring dependent children to the area temporarily. The Applicant would provide this information to SCC and, with them, identify potential effects on education capacity.
- 5.21.110. Periodically, if a potential effect was identified through the information, SCC would be able to draw down on a Public Services Contingency Fund to expand provision in locations with limited capacity where the net additional effect of the workforce exceeds capacity. The establishment of this Public Services Contingency Fund will be secured through an obligation in the DoO. The Applicant considers that this approach would ensure that residual effects are negligible at all spatial levels.

- 5.21.111. With respect to social care the Applicant acknowledged the risks that the Proposed Development may pose to the delivery of social services as identified by stakeholders. The Applicant proposes that the Public Services Contingency Fund could be used to respond to effects related to the Proposed Development as they arise. As a consequence, they consider that the residual effects on social services would be negligible at all scales.
- 5.21.112. For sport and recreation, the impact on demand for additional formal sport and leisure service provision is likely to be limited. This would be due to the demographic characteristics of the workforce, its temporary nature, its relatively short peak effects, and its propensity to use existing facilities based on demographics and market segmentation. Any adverse effects would be avoided by primary mitigation, including the sports and leisure provision at Leiston.
- 5.21.113. Impacts on regulatory and environmental services are identified as negligible at the district level, with the potential to be minor adverse at the local (ward) level. The proposed approach to mitigating accommodation impacts described above would mitigate the impact on the main regulatory service functions. The residual effects would therefore be negligible at the district and local levels.
- 5.21.114. The Applicant has been working with service providers, including district and county councils, Suffolk Constabulary, Suffolk Fire and Rescue Service, and East of England Ambulance Service to address any potential community safety impacts arising. Effects identified range from negligible or minor adverse at regional scales to moderate adverse at some more local scales across emergency response for fire and rescue, policing and ambulance services. The assessment sets out that while wider effects may be not significant, engagement with service providers has identified that there may be local factors and service-specific factors that contribute to disproportionate demand. This is proposed to be mitigated through financial contributions secured by the DoO.
- 5.21.115. Additionally, the Applicant recognised that in some cases, incidents that may arise may draw on more than one emergency service resource, and that some incidents may be more likely to occur than others due to the demographic factors of the workforce. The implication of these incidents have been considered in the Community Safety Management Plan [APP-635].
- 5.21.116. The Applicant is aware of potential effects of the construction workforce on vulnerability to homelessness. They set out the proposed mitigation measures in Chapter 9 of the ES and in the Accommodation Strategy [APP-613] including measures to ensure that workers are able to access secure and adequate quality accommodation.

Community Safety Management Plan [APP-635]

- 5.21.117. The Applicant has developed a Community Safety Management Plan in collaboration with local authorities, emergency services and public

services, among other stakeholder groups. It outlines the approach to community safety in the area and the objectives are to:

- Set out an agreed baseline for current community safety and emergency services provision in Suffolk;
- Set out the mitigation measures proposed by the Proposed Development;
- Provide a summary of the relevant technical evidence base for the expected effects of the Proposed Development relevant to community safety;
- Identify the community safety related issues and potential impacts that the Applicant in liaison with the community safety service providers in Suffolk will seek to manage;
- Identify appropriate means of monitoring and suitable mitigations for potential impacts; and
- Establish principles of governance arrangements for the Community Safety Working Group which would be responsible for mitigation and monitoring measures and mapping out resource implications.

5.21.118. The Applicant would provide a Community Fund to ensure that residual in-combination effects of the Proposed Development would be addressed. It would enable communities to maximise the opportunities offered by the Proposed Development. The establishment of the Community Fund would be secured through obligations in the DoO.

Monitoring of Effects

5.21.119. The monitoring of potential effects of the construction workforce would be needed to identify where and which mitigation measures need to be enacted. The Applicant would continue to agree relevant indicators of effects with local authorities responsible for services that may be affected. From time to time, East Suffolk Council and the Applicant would propose relevant indicators to a Socio-Economic Advisory Group for its approval. The establishment of the Socio-Economic Advisory Group would be secured through an obligation in the DoO.

ECONOMIC STATEMENT [APP-610] AND APPENDICES [APP-611]

5.21.120. The Economic Statement supports the conclusion of the Chapter 9 of the ES [APP-195] and provides detail of the economic benefits of the Proposed Development. It outlines:

- How the Sizewell C Project can deliver on national, regional, and local policy and strategic commitments for growth and productivity;
- The scale of economic benefits that the Proposed Development would bring to the labour market, regional productivity, and the supply chain;
- The potential for effects on labour supply and other sectoral strengths of the region (including tourism), and measures to avoid negative effects; and
- Measures that the Sizewell C Project would put in place to enhance these benefits and complement the existing regional objectives of the New Anglia Local Enterprise Partnership (NALEP), county and district

councils, and other stakeholders including education, skills and training providers and the business community.

Headline economic benefits

- 5.21.121. The Applicant states that the Proposed Development would create substantial economic benefits, including:
- Construction output and job creation: a boost to the local economy as a result of the construction phase, equating to £2.5bn of output and supporting over 40,000 person years of construction employment;
 - Wages and spending: total for wages over the construction phase could be substantial:
 - Spending by non-home-based workers in the area could average around £21.5 million per year or around £260 million over the construction phase;
 - Extra wages from home-based workers during the construction phase could represent an average boost to incomes each year of £15 million. The boost to local spending would be less than that (after taxes and savings) but could still be £5 million per year or £60 million over the construction phase; and
 - Together these add up to around £320 million of extra local spending during the construction phase.
 - Local employment creation: at the peak of construction, around a third of jobs are expected to be filled by existing local residents. If proportions are similar to Sizewell B, up to 480 of these roles would be filled by people who were formerly unemployed or previously inactive workers;
 - Supply chain opportunities: the total value of the Proposed Development is estimated at £20bn. It is anticipated that – if similar levels of local and regional supply chain usage are achieved at Sizewell C as at Hinkley Point C - there could be a local retention of in excess of £1.5bn over the construction phase, equivalent to an average of £125m per year; and
 - A long term boost to the economy as a result of the operational phase: boosting GDP by around £225m per year and supporting 900 permanent jobs with associated wages of £44.5m per year, and an additional workforce of around 1,000 during planned outages. Further, multiplier effects across the UK for nuclear power suggests an additional local indirect employment of around 60% of direct employment, representing a further 360 jobs as an indirect result of the operational phase of the Proposed Development.

Mitigation and enhancement

- 5.21.122. Three key areas of intervention are set out by the Economic Statement, with implementation strategies appended and/ or measures and financial contributions secured by the DoO. These comprise:
- An Employment, Skills and Education Strategy, provided in Appendix A;
 - A Supply Chain Strategy, provided in Appendix B; and

- A Tourism Fund.
- 5.21.123. Key features of the Employment, Skills and Education Strategy (Appendix A) include:
- A Sizewell C Jobs Service;
 - Skills initiatives such as a flexible Asset Skills Enhancement and Capability Fund; funding a regional skills coordinator post to provide a focal point of coordination and skills planning; and supporting contractors in exploring options for training and assessment;
 - Supply chain initiatives such as creating skills partnerships to build regional capacity within the supply chain and helping backfill hard to fill vacancies; and
 - Supporting education initiatives partnering with regional stakeholders to invest in activities including promoting careers in energy, engineering and construction for young people and a bursary scheme to support alternative pathways for young people who have not reached required entry level in local areas.
- 5.21.124. The implementation of the Employment, Skills and Education Strategy by the Applicant will be secured by an obligation in the DoO.
- 5.21.125. Key features of the Supply Chain Strategy (Appendix B) include:
- A Sizewell C supply chain team partnering with Suffolk Chamber of Commerce to help local and regional business in winning contracts on the Proposed Development through management of a supply chain website;
 - A Sizewell C supply chain portal capturing details and core capabilities of regional business against the Proposed Development requirements; and
 - Encouraging the use of local and regional suppliers via Tier 1 contractors engaging with the local supply chain through networking events and similar.
- 5.21.126. The implementation of the Supply Chain Strategy by the Applicant will be secured by an obligation in the DoO.
- 5.21.127. The Applicant has undertaken engagement with local tourism stakeholders, reviewed environmental effects and mitigation identified across the ES. The Applicant's understanding of perceived visitor sensitivities based on quantitative surveys of previous and potential visitors has identified that, without mitigation, there is potential for:
- Very local effects on tourist sector businesses and activities where there is a combination of significant residual environmental effects; and
 - Perception-related effects as a result of sensitivities to different aspects of the Proposed Development (e.g. concerns about traffic, where this is already an influencer on propensity to visit).
- 5.21.128. The Applicant commissioned a survey to understand more about the perceptions of people who have previously visited or intend to visit the area, in order to gain an understanding of the sensitivities that should be

tackled to prevent the risk of perceptions of reduced likelihood to visit materialising into an economic effect.

- 5.21.129. Mitigation measures will be developed to reduce this risk via a Tourism Fund to promote the area and address potential negative perceptions about the Proposed Development, in order to reduce the risk of changes in visitor behaviour from materialising. This will be secured via the DoO.

EXAMINATION MATTERS

Introduction

- 5.21.130. There were 671 Relevant Representations (RR) received relating to the socio-economics issues arising from the Proposed Development.
- 5.21.131. In our Initial Assessment of Principal Issues [PD-007] we set out the main issues arising from our understanding of the application documents and the RR received. In socio-economics these were:
- Baseline assessment methodology and the socio-economic evaluation.
 - Effects of incoming workers on the receiving communities (including law and order considerations, schooling, and impact on community facilities).
 - Effects on health on the receiving communities and on the incoming workforce.
 - Effects on accommodation.
 - Effects in relation to temporary on-site accommodation.
 - Effects on local businesses including tourism and the local supply chain.
 - Effects on the labour market.
- 5.21.132. Following submissions made in advance of, and at, the Preliminary Meeting we confirmed [PD-015] that we considered that there is a significant degree of overlap between topic areas where there is the potential for community impacts and that the effect on the local community from the Proposed Development should also be considered a Principal Issue.
- 5.21.133. Therefore, consideration relating to some of the impacts raised within the socio-economic area are considered in more detail in other sections of this report such as:
- Section 5.2, Agriculture and Soils;
 - Section 5.5, Amenity and Recreation;
 - Section 5.9, Community Impacts;
 - Section 5.10, Cumulative Impacts;
 - Section 5.12, Health and Wellbeing; and
 - Section 5.22, Traffic and Transport.
- 5.21.134. Taking this into account this section of the report has examined the following economic issues:
- Tourism effects;
 - Accommodation effects;

- Economy and business effects, and
- Employment, skills, and education effects.

5.21.135. During the Examination we also considered all additional important and relevant matters raised by IP's and resulting from the Applicant's submissions.

Tourism Effects

5.21.136. Chapter 9 of the ES [APP-195] sets out the Applicant's assessment of the likely significant effects on the tourism economy. In this the Applicant recognised that there may be potential for the tourism economy to be adversely affected because of the Proposed Development. As such, the Applicant proposed to make available a Tourism Fund to develop mitigation measures to reduce any effects and promote the area in order to reduce the risk of perceived changes in visitor behaviour from materialising.

5.21.137. Numerous similar concerns over impact on the local tourism industry during construction were expressed in the RR. These concerns are summarised by the Applicant [REP1-013] as *"The timing of this in the aftermath of the pandemic was considered to be particularly unfortunate. The one industry that could be thriving during the time of the "staycation" was going to be seriously jeopardised. The substantial loss of tranquillity, wildlife habitats and clear views especially around the Minsmere, Eastbridge region and loss of amenity would deter tourists for an extended period, as would the noise generated by multiple transport links, leading to a loss in revenue. A damaged tourism trade would have detrimental impacts on the employment and businesses of generations of Suffolk families. Loss of tourism income is estimated at £40m a year, with 400 jobs being lost. Loss of tourists will mean loss of local jobs while another obstacle to tourism will be the loss of available accommodation as holiday lets are occupied by Sizewell C workers. An independent assessment of effects on tourism is needed as the effects have been seriously underplayed. Scepticism over the mitigation that a Tourism Fund could deliver and that it would only be used within the AONB."*

5.21.138. Britten Pears Arts (BPA) [RR-0160] expressed concerns about the potential effects the construction activity from the Proposed Development would have on that their unique range of cultural and heritage events in both Aldeburgh and at Snape Maltings. Their particular concern was the deterrent effect of traffic congestion created by the Proposed Development.

5.21.139. A number of IPs expressed concerns about the loss of income from holiday lettings created by the drop in visitors to the area. These included Andrew Blois [RR-0050], Bryony Farmer [RR-0163], Daniel Brousson [RR-0263], David Watson [RR-0289], Georgina Harrison [RR-0414], John Barrett [RR-0585], Mill Hill Farm [RR-0799], and Sasha French [RR-1096]. They were concerned that the Proposed Development would have a negative effect on their tourist accommodation businesses. In addition, there were numerous other RR with more general concerns about the economic effects of the perceived loss of tourism.

- 5.21.140. In their joint LIR ESC and SCC [REP1-045] also suggest there is a likely 17% reduction in overall willingness to visit the Suffolk Coast area. This is based on the Suffolk Coast Destination Management Organisation (SCDMO) 2019 visitor survey. This is included as Appendix 2.7 of the joint LIR [REP1-095].
- 5.21.141. We asked about concerns expressed regarding the potential tourism impacts in question SE.1.36 in ExQ1 [PD-022]. The Applicant [REP2-100] responded that the RR referred to *"a range of perceived effects of the Sizewell C Project on the tourist economy, including concerns about traffic congestion, noise and air quality, and perceptions of tranquillity leading to a reduction in visitor numbers and spend."* They further explained that the reliance on ex-ante preference research to quantify the reduction in visitors and subsequently the visitor spend each year could not be concluded from the limited empirical evidence that was available.
- 5.21.142. The Applicant however recognised *"the need for the Tourism Fund to ensure that stated intention based on perceptions of the Project's effects does not materialise into actual changes in visitor behaviour. As such, the Tourism Fund should be used to promote, enhance and market the area, and reduce perceptions that perceived effects known to be sensitivities for returning visitors are actually happening."*
- 5.21.143. The Tourism Fund would be secured through the DoO. In response to SE.1.35 in ExQ1 [PD-022], the Applicant explained the governance and use of the Tourism Fund. The Applicant set out that *"The Tourism Fund is not proposed to be used to compensate businesses that could be affected, but to fund measures that promote or enhance the tourist offer at the Suffolk coast. This includes providing funding for marketing and promotion, and projects including capital and revenue investment, which could be accessed by local businesses"*.
- 5.21.144. The Applicant [REP1-013] makes reference to evidence from Hinkley Point C following the application of a Tourism Fund that there is strong evidence for there being a gap between the findings of ex-ante research and reality. They also set out there will be separate resilience funds relating to RSPB Minsmere and National Trust Dunwich Heath. These separate resilience funds are secured within Schedule 13 of the signed DoO [REP10-076]. This will ensure that the activities funded through those measures do not overlap but can complement the plans, programmes and projects supported by the proposed Tourism Fund. Both NT [REP10-112] and the RSPB [REP10-111] in their SoCGs confirmed they agreed with this approach.
- 5.21.145. The Applicant [REP3-044] in paragraph 26.2.7, responded to specific expressed concerns about the impact on tourism as a result of traffic congestion created by the Proposed Development. They explained that they had taken account *"of the best understanding of the likely effects of the Project having regard to the latest information from studies such as the Transport Assessment. The assessment identifies any likely significant effects, for example in terms of transport effects, and then*

applies the proposed mitigation measures before identifying any residual effects." Details on the traffic and transport effects of the Proposed Development can be found in Section 5.22 of this report.

- 5.21.146. We discussed the tourism impact of the Proposed Development further at ISH4 [EV-102 to EV-105]. The Applicant acknowledged the potential for the construction of the Proposed Development to have an adverse effect on the local tourist economy. They did not however agree with the way this had been quantified by ESC on the basis of the future preference survey results. The Applicant also referenced the draft SoCG [REP2-076] submitted at Deadline 2. This indicates it was agreed between the Councils and the Applicant that *"The quantum to this effect cannot be predicted with any confidence in economic terms, there is inherent uncertainty about the extent to which this may occur, and there is an opportunity to tackle perceived changes to certain sensitivities that existing and potential visitors to the area may be concerned about."*
- 5.21.147. They did reiterate that it has been agreed between the Applicant and the Councils that the principle, broad scope, governance and implementation of a Tourism Fund to mitigate effects is agreed subject to ongoing discussions on the scale.
- 5.21.148. The Applicant also drew our attention to the evidence from Hinkley Point C, where acknowledging that there are differences between the areas including the relative proximity of the AONB, but that the relative scale of tourism in Suffolk and Somerset is similar. They stated that the forecast loss of tourist spend and jobs had not happened and the Tourism Fund in operation there had protected if not strengthened the tourism market in Somerset.
- 5.21.149. Also, at ISH4 were the Suffolk Coast Destination Management Organisation (SCDMO). They represent the views of local tourist businesses. In their subsequent representation [REP5-280] they expressed the view that they understood that its members *"do not view the Tourism Fund as acceptable preventive mitigation. However, if the project is consented to then our members agree a fund must of course be provided to limit the harm."* They had also commissioned a follow up report to their 2019 visitor survey referenced above. The report at that time was not available but the headline summary suggested that construction of the Proposed Development will discourage visitors during the construction phase.
- 5.21.150. The SCDMO [REP8-275] also submitted the findings of their members business survey. This had a modest response rate of 23% but found 63% were at least concerned that the Proposed Development would have a negative impact on the business. 70% of those who responded thought during construction people would at least be a little less likely to visit the Suffolk Coast. They did acknowledge they were aware that the Applicant and ESC were still negotiating on the Tourism Fund.
- 5.21.151. In the SoCG [REP10-019] with the SCDMO the fundamental position about the use of visitor surveys to quantify economic impact on tourism

was not agreed. It was agreed that SCDMO would be a member of the Tourism Working Group that would give them the opportunity to represent their membership and also influence the generation of annual Tourism Fund Implementation Plans.

- 5.21.152. The Tourism Fund and the governance arrangements for the Fund is secured in Schedule 15 of the signed DoO [REP10-076].

ExA Conclusion of Economic Effects on Tourism

- 5.21.153. We have considered all relevant submissions relating to the potential economic effects on tourism in the local area.
- 5.21.154. There has from the start of the Examination been a difference in opinion about the interpretation of the future visitor preference surveys undertaken by both the Applicant and the SCDMO. In some cases, IPs have used the stated visitor preferences to monetarise the impact on Tourism. The Applicant on the other hand has argued that using such ex-ante surveys should not be used as evidence as to actual levels of tourism in the future. They explain their preference survey was used as a means to understand the pathways by which an impact may occur. They did not use their survey information to attempt to quantify monetary impacts due to the surveys dealing with views of future preferences and not certain future tourism planning. Paragraph 5.12.7 of NPS EN-1 states that we should give limited weight to assertions of socio-economic impacts that are not supported by evidence. We do not consider that these future visitor preference surveys can be used to accurately quantify economic impact and as such the assertions of quantified economic impact using these must be given limited weight.
- 5.21.155. Notwithstanding this point, we accept that during construction there would be some impact on tourism in the local area due to the construction activity. For this reason, the Applicant is proposing the Tourism Fund to address any negative impacts on this important sector of the local economy. We are not able to be certain that the Applicant's reference to the positive impact of the Tourism Fund operating at Hinkley Point C in Somerset would be transferable to the Suffolk Coast. However, we do consider that the managed and targeted Tourism Fund would be an effective mitigation approach for any impacts that do arise for local tourism.
- 5.21.156. Overall, in terms of tourism economy we consider that the effects during construction are likely to be negative, although mitigation would be available through the Tourism Fund. Once construction is complete and the Proposed Development is in operation the effects would be neutral.

Accommodation Effects

- 5.21.157. Chapter 9 of the ES [APP-195] sets out the Applicant's assessment of the likely significant effects created by the need to accommodate the workforce during construction.

- 5.21.158. Accommodation effects considered in this section of the report relate to the implications for the various housing market sectors. Accommodation effects relating to the impact of the additional residents in the local community are dealt with in Section 5.9 concerning community impacts.
- 5.21.159. The Applicant has assessed the effects on the basis that the NHB workers at peak construction would be 5884. The remainder of the peak workforce are assumed to be HB workers. The Applicant acknowledges the uncertainty relating to the locations where workers would choose to live and which sectors of the housing market that they would live in. They have however considered in their assessment the following:
- Owner occupied housing;
 - The private rented sector (PRS); and
 - Tourist accommodation.
- 5.21.160. Numerous concerns were expressed in the RR about the pressure on local housing and the appropriateness of the proposed Housing Fund. The Applicant [REP1-013] summarised these concerns as *"Excessive pressure will be put on local housing, especially the private-rental sector. Holiday lettings and local rental market taken up by construction workers will force prices up for local people. It would make properties even less affordable for young people than they are now. Construction would also have a negative impact on house purchase prices."*
- 5.21.161. Firstly, with respect to the concern about property prices in response to our question SE.1.2 ExQ1 [REP2-100] the Applicant responded that the effect of development on house prices is not usually a material planning consideration. They cite as particular precedence the view of the SoS in the Hinkley Point C decision that *"it is not usual to reckon adverse effects on property values as a planning consideration"*. The Applicant sets out that there is limited evidence from around Hinkley Point C of rent or prices increases directly attributable to Hinkley Point C.
- 5.21.162. The other potential effect of construction on house prices is a negative one created by the overall disruption during the construction period. We discussed the issue of property blight at ISH4 [EV-102 to EV-105] where the Applicant offered to provide a written statement of their position. The Applicant [REP5-116] explained the separate legal processes regarding statutory and generalised blight. In addition, they outlined that they were offering a voluntary Property Price Support Scheme. Under this scheme, the Applicant would pay the difference in value between the with and without the Proposed Development values of the property minus any amount above the with Proposed Development value actually achieved upon completion of the sale. This scheme is for property outside of the order limits and also for residential properties who do not have land subject to compulsory acquisition. Consequently, the Property Price Support Scheme was not submitted into the Examination as it is outside of our consideration of the DCO application.
- 5.21.163. The joint Councils' LIR [REP1-045] (ESC Lead Authority) identified the following potential impacts of particular concern resulting from increased

pressure on accommodation supply created by the Proposed Development:

- Effects on vulnerable young people;
- Effects on families, vulnerable households, and key workers due to rent increase in the PRS sector;
- Effects of economic incentives for care providers to change the use of premises from specialist housing to general market housing causing shortage in the sector;
- Effects on tourist accommodation availability as the Applicant assumes 800 workers at peak will be in tourist accommodation;
- Delivery timescales for the accommodation campus and caravan park; and
- General concern about robustness and governance of the proposed Housing Fund.

- 5.21.164. The Applicant [REP3-044] set out their response to the above concerns. With respect to the first three bullet points SCC, ESC and The Applicant agree that the first two points would be addressed through the Housing Fund. Principally, this would be through boosting supply in the sector, and through Housing and Homelessness Services Resilience Measures as secured by Section 3 (Housing Contingency Fund) of Schedule 3 of the DoO [REP10-076]. In the case of the third bullet point, the Applicant set out they would discuss with the Councils how best to mitigate the risk identified with respect to care providers. Section 3.2 of the signed DoO [REP10-076] secures the Residential Care Home Closure Contingency Fund that would be used where a closure is the result of the Proposed Development. This determination would be made by the Accommodation Working Group (AWG). The AWG would comprise of representatives of the Applicant, ESC and SCC.
- 5.21.165. The Applicant stated that in terms of tourist accommodation they forecast that NHB workers would utilise only 4% of the tourist accommodation of the 15% available capacity at peak season. The Applicant also considered that the Tourist Accommodation Market Supply element of the Housing Fund measures would provide suitable mitigation for any adverse effects that may arise. The Tourist Accommodation Market Supply seeks to support the increased supply and provision of tourist accommodation. It forms part of the Housing Fund and is secured by Section 2.7 of the signed DoO [REP10-076]. This section secures the commitment of ESC to prepare a Tourist Accommodation Plan within six months of commencement to the AWG for its approval.
- 5.21.166. The Tourist Accommodation Plan would be kept under review by the AWG and financial support, via the Housing Fund, provided by the Applicant would be used for funding of initiatives developed by the Plan. It would also be used to support planning advice, information, licencing and loans to accommodation providers to enable reconfiguration, expansion or any other increase in capacity of tourist accommodation in East Suffolk.
- 5.21.167. We discussed the issues and the delivery and phasing of the accommodation campus at ISH4 [EV-102 to EV-105]. We wanted to understand how the delivery mechanism for the accommodation campus

would operate. The Applicant explained that they had a strong practical incentive to deliver the campus so that they were able to accommodate the growing workforce and deliver the Proposed Development. They also stated that they were still in discussion with ESC about the possibility of the timing of the accommodation campus delivery being linked to the Implementation Plan that will be part of the DoO.

- 5.21.168. The signed DoO [REP10-076] sets out in Section 4 of Schedule 3 the delivery timescales for project accommodation (both the accommodation campus and the caravan site). The delivery of the accommodation is linked to the Implementation Plan in Appendix H of the DoO. Also, the phasing of delivery of the bedspaces is linked to the monitored number of NHB workers on site as set out in Schedule 3. The DoO also sets out a mechanism to address any breach in the delivery timescales. This takes the form of a payment by the Applicant towards an additional Housing Contingency Fund. This would be intended to allow ESC to deliver additional bedspaces in line with its Private Housing Supply Plan.
- 5.21.169. The Private Housing Supply Plan will be prepared by ESC and approved by the AWG. ESC will apply the Housing Fund as secured by Section 2, Schedule 3 towards any or all of the following:
- Increasing the supply of bedspaces in private housing in accordance with the Private Housing Supply Plan;
 - Supporting increased supply and availability of bedspaces in tourist accommodation in accordance with the Tourist Accommodation Plan; and
 - Providing support for East Suffolk Council's housing advice service through the provision of Housing and Homelessness Services Resilience Measures.
- 5.21.170. In their LIR review [REP10-183] the Councils summarised their position concerning the delivery of the required accommodation campus and caravan site on the ACA. They accepted that the Applicant had adequately committed to their delivery and provided the necessary funding to mitigate any failure to deliver the required worker accommodation.

ExA Conclusions on Accommodation Effects

- 5.21.171. We consider that the Applicant has adequately assessed the likely significant effects created by the need to accommodate the workforce during construction. The Applicant is proposing to provide a 2400 bed accommodation campus and a 600 berth caravan site on the Proposed Development site.
- 5.21.172. Off-site effects have been identified by the Applicant and through the DoO is proposing a package of mitigation. The Housing Fund provides support for both the private housing and tourist market supply. Additionally, they are proposing support for the consequential effects on the more vulnerable groups who may be affected by the increased demand created by the Proposed Development.

- 5.21.173. Taking all of this into account we consider that any accommodation effects arising from the Proposed Development should be given neutral weight in the making of any DCO.

Economy and Business Effects

- 5.21.174. Chapter 9 of the ES [APP-195] sets out the Applicant's assessment of the likely significant effects on business and the supply chain. The Applicant estimates the total value of the Proposed Development at £20 billion, made up from the sourcing of goods and materials, and cost of labour. They anticipate that if similar activities and local supply chain recruitment are achieved at the Proposed Development as Hinkley Point C, that there could be a 'local' retention of in excess of £1.5bn over the construction period, equivalent to an average of £125m per year. Local wages for home based (HB) workers and local spending on food and accommodation by non-home based (NHB) workers would equate to just under £1.1bn at an average of £91m per year over 12 years.
- 5.21.175. More than 250 references in RR expressed general concerns about the effects on the local economy and businesses in the area. The Applicant [REP1-013] summarised these concerns as *"general concern over the damage to the local economy from the Sizewell C Project. Rather than provide jobs and opportunities for people living in the area, it will instead damage the existing thriving local economy and be a burden on the county's infrastructure. The Project will cause damage to or loss of local businesses. There is no evidence that Leiston or Saxmundham had any long-term benefits from Sizewell A and B construction, instead it was a boom and bust. Assessments submitted with the Application do not consider the funding of a Leiston economic development/ regeneration programme."*
- 5.21.176. Additionally, a number of specific concerns from local farming businesses about the impact on their business. These included the Dowley family [RR-0319], [RR-0367], [RR-0382], [RR-0639] and [RR-0697].
- 5.21.177. We asked about the impact on local businesses in ExQ1, SE.1.7. The Applicant responded about the impact on land/ effects on individual businesses that it is recognised that the project may result in instances of localised effects on individual businesses where there is a loss of land or a permanent, irreversible change to the nature of business operations. Effects on individual land holdings, including changes to activity, loss of land and severance are considered in Section 5.2 of this report. The Applicant stated that further consultation with landowners will be undertaken to reduce the impacts on the farm businesses, as far as practicable. This will include agreement of assurances and obligations that the Applicant would accept upon entering the land, and compensation, where applicable. The Applicant also states that *"people who own and occupy property (including small business premises with an annual value below a set amount) that has been reduced in value by physical factors (eg noise and vibration) caused by the use of a new or altered road may be able to claim compensation under the terms of the Land Compensation Act 1973"*.

- 5.21.178. In the LIR [REP1-045] both Councils acknowledge the enormous opportunity for Suffolk's local economy that the Proposed Development represents. They also see what the Applicant describes as benefits to the local economy as opportunities rather than confirmed benefits. They expect *"that economic opportunities for the local area are maximised, and the Applicant's ambitions in this area further increased."* ESC welcomed the Supply Chain Strategy (SCS), Appendix B [APP-611]. They further considered that *"A more proactive approach would mean that, in addition to adding those local businesses into the supply chain, the Applicant would provide support to enable them, through investment and expert advice, to grow their offer so they can supply the Applicant's project as well as service their existing markets, by expanding and employing more local people."* They expected the SCS and inward investment to work together to maximise opportunities.
- 5.21.179. One area of ongoing concern was the potential effect of "lift and shift" of companies now working on Hinkley Point C being simply transferred to Suffolk. ESC considers unless managed proactively this could be a threat to developing genuine local benefits and reduce opportunities for local companies.
- 5.21.180. The Councils acknowledged the direct and indirect business and supply chain opportunities as a result of the operation of the Proposed Development. In addition, a rolling programme of outages would create further opportunities for the local economy.
- 5.21.181. Their concern about the end of the construction period is the potential for a "boom and bust" effect for the local economy. This also reflects a concern of numerous IPs in the RR. The Councils state if not carefully managed by a proactive focus on legacy and supporting businesses to flourish there could be a post construction negative impact on local businesses.
- 5.21.182. We consider that the delivery of an effective SCS is important in alleviating many of the concerns expressed by IPs. Properly targeted interventions can mitigate some of the negative impacts relating to the ability of local supply chain businesses to maximise their involvement and to minimise the possible "boom and bust" effects once the Proposed Development is operational.
- 5.21.183. We asked the Applicant, Suffolk Chamber of Commerce, ESC, SCC, and New Anglia Local Enterprise Partnership (NALEP) in ExQ1 SE.1.27 about delivery of the SCS.
- 5.21.184. In response the Applicant [REP2-100] setting out details of the delivery and monitoring mechanisms of the SCS that would be secured by Schedule 7 of the DoO. These include:
- The Applicant will implement the SCS from commencement of the Proposed Development until the end of the construction period;
 - A Supply Chain Working Group (including the Applicant, SCC, ESC, NALEP and the Suffolk Chamber of Commerce) will meet at least once

per year (but with the ability to meet more frequently) to share information and allow stakeholders the opportunity to plan wider activities that align with and maximise benefits beyond the Proposed Development;

- The Applicant will monitor and share supply chain data with the Supply Chain Working Group; and
- The Applicant will request evidence from its Tier 1 contractors that credible local business engagement has taken place by means of tender short lists and tender assessments prior to formally approving/rejecting sub-contractor nominations. This evidence would be used to measure and monitor the extent and effectiveness of local supply chain engagement by Tier 1 – 3 contractors during the development of supply chains and after contracts have been awarded.

- 5.21.185. The Applicant further explained that they would be working with the Suffolk Chamber of Commerce and undertaking early Tier 1 contractor engagement measures that will promote the potential for local and regional businesses to join the supply chain. They also explained that, subject to contractual agreement, Tier 1 contractors and bidders would be mandated to identify opportunities for the provision of goods and services by local consortia bringing stability within the supply chain and help to provide a legacy of business development in the region.
- 5.21.186. Both the New Anglia Local Enterprise Partnership (NALEP) [REP2-389] and SCC [REP2-192] shared a similar view that they consider that a *“supply chain strategy should encompass more than just a requirement to meet S106 obligations.”* They also considered that there were wider benefits and opportunities in the supply chain that need to be captured.
- 5.21.187. ESC [REP2-176] echoed the need for the work on the supply chain to be developed further. They expressed the view that a transparent partnership would be needed to operate/ manage the supply chain initiative, with plans and data being shared across all relevant stakeholders. It also recommended broadening the range of stakeholders involved to encompass more business representation groups. They considered that this would *“help to cascade relevant messaging to a broader audience, encourage multipliers to initiate dialogue with their contacts to stimulate interest in supply chain opportunities, attract supply chain participants and attract new inward investors.”*
- 5.21.188. The Applicant [REP3-042] responded saying that the opportunities for the supply chain in the region would be a positive effect of the Proposed Development, which would be enhanced by the SCS. The Applicant also considered that *“the membership of the Supply Chain Working Group is appropriate. This does not preclude The Applicant, its contractors, the Suffolk Chamber of Commerce, the Councils or NALEP from using monitoring information and the Supply Chain Work Plan to engage more widely with industry bodies and businesses/business groups.”*
- 5.21.189. They proposed the development of a Supply Chain Work Plan that would be updated every six months and accord with the SCS and the Supply Chain Principles. The supply chain activities and its monitoring will be

overseen by the Supply Chain Working Group. This approach would be secured in Schedule 7 of the DoO [REP10-076].

- 5.21.190. We discussed the SCS at ISH4 [EV-102 to EV-105] and the implications for the supply chain and local businesses. In particular the concerns expressed about:
- The replication of companies from Hinkley Point C, called “*lift and shift*” by a number of IPs;
 - Supply chain displacement;
 - Legacy effects and possible “boom and bust” effects; and
 - Economic effects on rural communities.
- 5.21.191. With respect to the lift and shift ESC [REP5-142] expressed the view that “*the lift and shift of non-unique suppliers within the Hinkley Point C supply chain, risks undermining local economic opportunities with the build and in legacy.*” The Applicant at the hearing expressed the view that there are lots of aspects of the Proposed Development which are inherently local and they are committed to a programme of activity to ensure that local businesses are aware of the opportunities available and are able to access support to ensure that they are prepared, and that they understand what the requirements would be of the supply chain. They highlighted the commitments in the DoO towards local economic development and business support function.
- 5.21.192. In terms of supply chain displacement, the Applicant expressed the view some businesses may give up contracts to gain new contracts on the Proposed Development. However, the Applicant did not regard it as likely, and even if those businesses did give up contracts, other businesses would pick them up, and the economic activity would continue in the area. This would not result in displacement.
- 5.21.193. The Applicant at the hearing expressed the view that they were mindful of the legacy benefits of the Proposed Development. The Applicant highlighted that although temporary construction contracts will come to an end the Proposed Development would leave behind a much more skilled and productive workforce who have been trained and accredited to nuclear standards. Their supply chain would be also accredited to nuclear standards and would be more productive and able to win other business opportunities in the nuclear supply chain elsewhere. They also expected that very significant economic benefits to flow through to the supply chain because of the scale of the opportunity and the ability of those firms to access it and the high quality of support being delivered by the Suffolk Chamber of Commerce to those firms.
- 5.21.194. In terms of the economic effects on rural communities, we also asked at ISH4 for the Applicant to comment specifically about this impact. The Applicant stated that economic activity benefits will accrue and will be focused through the Suffolk Chamber of Commerce in terms of the supply chain, and a wide variety of partners in terms of skills, to enable people from all parts of the region - including those rural areas - to benefit.

- 5.21.195. NALEP [REP5-251] hope that the Applicant would “*continue to engage with partners to enhance mutual collaboration to truly capitalise on the benefits to the local and regional economy and help deliver more to support our business community.*” They also added that the Proposed Development represented “*a huge opportunity for the region to capitalise on existing work and investments in the wider energy sector as well – including new O&M bases in Great Yarmouth and Lowestoft, new inward investment campaigns and business support programmes. The focus should be on those ‘cumulative opportunities’ where we can maximise positive impact on the local economy and for the energy sector at a strategic level. Again, we would encourage SZC Co. Ltd. to engage with partners to enhance mutual collaboration to fully maximise the benefits to our local economy.*”
- 5.21.196. Suffolk Chamber of Commerce [REP5-268] explained they had offered constructive criticism throughout the stages of consultation for the Proposed Development. Their primary function has been as a procurement partner and they have been involved in all aspects of the supply chain development. They state that their “*their future engagement plans are well advanced and incorporate a range of ways in supporting businesses to be best prepared for the Sizewell C related opportunities*”.
- 5.21.197. ESC [REP5-142] considered that the gaps in the economic development provision could be addressed by the proposed economic development programme they were negotiating with the Applicant. They considered such a programme would “enable the Councils to effectively manage the economic risks, mitigate negative impacts, and maximise the economic opportunities resulting from Sizewell C.”
- 5.21.198. In terms of economic development and the supply chain the signed DoO [REP10-076] secures in Schedule 7 the agreed provision of the following:
- Creation and updating of Supply Chain Work Plans;
 - Supply chain monitoring by a Supply Chain Working Group, consisting of the Applicant, ESC, SCC, NALEP, Suffolk Chamber of Commerce and Tier 1 contractors;
 - Financial support to the ESC economic development function;
 - Financial support for the Economic Development Business Support Service; and
 - A Business Support Fund to enable businesses to adjust their methods of operation to work successfully alongside the Proposed Development.

ExA Conclusion on Economy and Business Effects

- 5.21.199. The Councils and other stakeholders acknowledge that substantial economic opportunities would arise from the Proposed Development. Through engagement with stakeholders the Applicant has developed a package of measure secured by the DoO, that seeks to maximise the opportunities for the local economy.

- 5.21.200. We have also set out above where IPs have expressed concern about some of the potentially negative effects that may occur without mitigation. As also set out above the DoO secures a package of mitigation and support for the local economy and businesses to offset any potential effects.
- 5.21.201. Therefore, taking the above factors into account the ExA gives very substantial weight to the benefits relating to local economy and business for the making of the Order.

Employment and Skills Effects

- 5.21.202. Chapter 9 [APP-195] of the ES sets out the Applicant's consideration of the effects of the Proposed Development on employment and skills.
- 5.21.203. Over 200 RRs mentioned issues relating to employment. The concerns expressed can be summarised as:
- Skilled jobs will simply migrate from Hinkley Point C and employment created locally will mostly be low quality site support jobs;
 - Skilled construction workers will be attracted from their existing local work leaving local businesses without skilled staff;
 - Loss of agricultural and tourism jobs that would not be re-provided;
 - No guarantee that apprenticeship and skills training will be sourced locally;
 - No positives statements about securing work for people with disabilities;
 - No clarity on proposed increase in jobs created due to employment. Claimed statistics includes people already working in the supply chain; and
 - After completion of construction, unemployment will rise without further support.
- 5.21.204. The Applicant [REP1-013] responded to these concerns with the following:
- The level of HB workers was based on a conservative assessment of the experience at Hinkley Point C. This was done to ensure a robust analysis case for the impacts of a high NHB workforce. The Applicant would seek to maximise local recruitment to reduce any adverse effects of a larger NHB workforce;
 - There are no targets for HB workers but the application considers a reasonable expected level taking into account the measures promoted by the proposed Employment, Skills and Education Strategy (ESES) Appendix A [APP-611];
 - Understanding that local firms may experience difficulties filling vacancies, the Applicant had been working with local stakeholders to develop a range of precautionary measures that will reduce those risks while enhancing the benefits and focussing them on local people and businesses;
 - A Sizewell C Jobs Service will be open to some local employers, who will be able to access the skilled pool of labour generated by the Proposed Development to assist in backfilling;

- The Applicant, NALEP and the Suffolk Chamber of Commerce are also working on plans to develop skills, competencies, and qualifications within the supply chain;
- The Applicant has worked with partners including Suffolk County Council, NALEP and education, training, and skills providers to develop an ESES; and
- Jobs will be created for local people in a range of skill types and through a number of skill and training opportunities, such as apprenticeships. These will not be limited to 'low skill, low pay' jobs, The Applicant aims to invest in education and training initiatives to dovetail with the region's wider aspirations for legacy skills in engineering and construction, including project management. The operational phase of the Proposed Development will also generate substantial local employment, as well as supply chain effects, for 60 years. Combined, these measures ensure a commitment to sustainable employment initiatives that will support the local economy and labour market beyond the construction phase.

5.21.205. The Councils in their joint LIR [REP1-045] (Lead Authority SCC) acknowledged that the Proposed Development would result in significant local employment, supporting over 40,000 years of employment creation throughout the construction phase alone. To minimise any potentially negative effects and to maximise the significant opportunities the Councils considered ongoing work on the ESES as essential.

5.21.206. In terms of the strategy the Councils accepted that it is likely that the Proposed Development would create:

- Around 25,000 employment opportunities;
- Opportunity to enhance the skills and prospects of the local workforce;
- Opportunities for unemployed and under-employed people; and
- 900 operational jobs and additional outage workers.

5.21.207. They also acknowledge that the strategy needed to address some potentially negative issues in order to maximise the positive benefits. These were:

- Labour market churn;
- Cumulative labour market demand with other projects;
- Possible long term impact on career prospects if demobilisation of construction workforce and legacy issues are not addressed; and
- Unemployment as a result of 'boom and bust' effect.

5.21.208. We also asked a number of questions in ExQ1 [PD-022] about the nature of the dedicated skills and employment interventions proposed, how they would be secured, and how their effectiveness would be monitored and managed.

5.21.209. The Applicant [REP2-100] explained that the ESES "*identifies core priorities for the Sizewell C Project's approach to employment, skills and education and mitigation - creating economic benefit and social mobility while minimising workforce and project risk relating to skills availability.*"

- 5.21.210. In response to concerns about availability of the required skills in the local workforce, the Applicant set out that they had already been engaging with regional stakeholders to contribute to the regional skills infrastructure. The Applicant set out that they had:
- Collaborated with SCC on the Technical Skills Legacy Study;
 - Developed and shared a 'criticality grid of skills' with regional stakeholders;
 - Supported an Energy Skills Coordinator role, within SCC, with the remit of providing synergy between local plans and policies and the infrastructure projects being developed across the region. The Applicant would commit to continue funding (secured by the DoO) such a function for the duration of the construction phase for the Proposed Development. The Applicant has contributed financially to this function since the end of 2019;
 - Proactively contributed to regional skills planning as a member of the NALEP's Skills Advisory Panels, including chairing a group focused on breaking down barriers to employment;
 - Launched the Sizewell C Jobs Service, a Skills Prospectus and Young Sizewell C initiatives to promote early involvement with the Proposed Development;
 - Shared information from Hinkley Point C's Employment Affairs Unit to work with the region to shape the Proposed Development's approach to enhancing the benefits – adopting successful measures and providing feedback on lessons learnt from Somerset;
 - Launched a conveyor between Hinkley Point C and the Proposed Development, which has already been successful in recruiting apprentices from colleges in Suffolk to gain vital experience at Hinkley Point C, potentially leading on to skilled roles in the construction; and
 - Opened a link between Suffolk businesses and the Hinkley Point C Supply Chain Portal - enabling local firms to gain experience and competencies of the nuclear construction sector for future use at the Proposed Development.
- 5.21.211. The Applicant also set out that *"EDF Energy also works at a national level, linking in with regional plans, to support resilience and provide labour market intelligence for civils and MEH construction skills, including as a member of the Nuclear Skills Strategy Group and through joint-working with the Construction Industry Training Board (CITB) and Engineering Construction Industry Training Board (ECITB)."*
- 5.21.212. In terms of labour market churn the Applicant [REP3-044] responded to the concerns expressed in the LIR. The Applicant stated there was no evidence that increasing labour market churn would lead to a damaging reduction in Suffolk's economic activity. They considered that *"people changing job is not an adverse impact – it is a normal part of the economy, and a benefit to the resident/worker who will have moved jobs independently and for personal benefit"*.
- 5.21.213. The Councils in their LIR were particularly concerned that *"that churn will negatively impact the deliverability of adult social care services and community health care provision, but the impact will equally affect the*

wider business community". The Applicant also responded that they would be providing support for workforce resilience for the social care sector as part of the Public Services Resilience Fund. This is secured by Schedule 5 of the DoO [REP10-076].

- 5.21.214. No evidence was presented to contradict the Applicant's position stated above. In these circumstances we agree with the Applicant that people changing jobs cannot be evidenced to be an adverse impact.
- 5.21.215. The Applicant, in Appendix 23B, [REP2-112] also provided a response with respect to the cumulative effects on the skills and labour market. This report considered the impact on the regional labour market of the Proposed Development alongside other approved and potential NSIPs. These were EA One(N), EA Two, EA Three, Norfolk Boreas and Norfolk Vanguard. The Applicant sets out that the demand for specific civils construction skills from onshore elements of offshore wind and the Proposed Development would be anticipated to be different. Wind projects requiring more tunnelling and cable pulling, and the Proposed Development requiring more formwork, steel-fixing, welding, and concrete skills. The report concludes that the cumulative demand for civils construction skills in the regional labour market is not considered to be significant.
- 5.21.216. On this basis we agree that the Applicant has provided evidence that the cumulative impact of the Proposed Development would have a small impact on the regional skills market.
- 5.21.217. The signed DoO [REP10-076] sets out in Schedule 7 the commitments towards Employment, Education and Skills. The main interventions and initiatives proposed are listed below.

Employment, Skills and Education Working Group (ESEWG)

- 5.21.218. This group will be formed by representatives from the Applicant, ESC, SCC, NALEP and a representative of the Regional Skills Co-ordination Function.

Construction Workforce Delivery Strategies (CWDS)

- 5.21.219. These would seek to set out for each phase of construction the strategic approach to developing the workforce requirements. They would be prepared in conjunction with the main contractors and regional stakeholders to include:
- A description of the skills, roles, competencies, and qualifications needed for the relevant construction phase;
 - The opportunity for skills, training, and employment initiatives, such as Young Sizewell C, to contribute to the delivery of the workforce, for the construction phase, highlighting where there is legacy benefit for roles identified as needed for the Proposed Development and wider regional infrastructure;

- Links to any relevant social partnerships able to deliver skills and training infrastructure to help the region prepare for the skills required for the relevant construction phase;
- The measures, including contractual obligations, that each contractor and sub-contractor will undertake to promote the local employment, skills and training benefits of the roles created;
- Planning for potential vacancies and skills gaps and opportunities for each construction phase;
- Interactivity with labour market intelligence and supply chain data. This would inform a programme for delivery of the Asset Skills Enhancement and Capability Fund, and the Sizewell C Employment Outreach Fund to meet the key needs of the Project that align with regional long-term requirements (as determined by the ESEWG). Also making funds available at the right time to meet the 'training windows' required for each construction phase;
- The Sizewell C Skills Prospectus;
- Local Supply Chain Skills Programme; and
- The Apprenticeship Strategy.

Annual Skills Implementation Plan

5.21.220. This is an annual plan produced for and during the construction period that would translate the relevant CWDS and regional skills requirements for that year into implementation activities. These implementation activities would be funded by the Asset Skills Enhancement and Capability Fund and Investments. These would be used to enhance the supply of skills by investing in skills and training provision.

5.21.221. The DoO also secures the Applicant's commitment to a number of initiatives and supporting funding related to the Annual Skills Implementation Plans. These are:

- Sizewell C Jobs Service;
- Young Sizewell C;
- Sizewell C Skills Prospectus;
- Apprenticeships Strategy;
- Employment Outreach Initiatives;
- Asset Skills Enhancement and Capability Fund;
- Asset Skills Enhancement and Capability Investments;
- Sizewell C Bursary Scheme; and
- Education and Inspiration Activities.

Operation

5.21.222. In terms of the operation of the Proposed Development Section 3 of Schedule 7 of the DoO [REP10-076] secures the Applicant's commitment to prepare and submit to the ESEWG, an Operational Employment Strategy. This must be done on or before six years after commencement of construction.

5.21.223. The DoO would also allow further investment in skills development after construction should there be residual funding from the Education and Inspiration Activities and Asset Skills Enhancements and Capability Investments.

ExA Conclusion on Employment and Skills Effects

- 5.21.224. The Applicant has demonstrated that there would be significant employment opportunities created by the Proposed Development. They have been working with the Councils and regional stakeholders to maximise the benefits of the opportunities that would be created. They have already started to engage with stakeholders in an attempt to front load development of the regional skills infrastructure.
- 5.21.225. The initiatives secured within the DoO will assist in maximising the employment and skills development opportunities created by the Proposed Development. They will also assist in mitigating any potential negative effects with respect to concerns about the cumulative impact of a number of large infrastructure projects in the region, and the legacy effect on employment once the Proposed Development is operational.
- 5.21.226. For these reasons we consider that very substantial weight should be given to the significant benefits on employment and skills arising from the Proposed Development.

ExA Overall Conclusion on Socio Economics Effects

- 5.21.227. Considering all of the conclusions set out in each section relating to socio economics above, the ExA considers that:
- Little weight should be ascribed to matters relating to tourism effects against the making of the Order;
 - There are no matters relating to the accommodation effects which would weigh for or against the making of the Order;
 - Very substantial weight should be ascribed to benefits relating to economy and business effects for the making of the Order; and
 - Very substantial weight should be ascribed to benefits relating to employment and skills effects for the making of the Order.

5.22. TRAFFIC AND TRANSPORT

INTRODUCTION

- 5.22.1. This section addresses the traffic and transport effects of the Proposed Development.

POLICY CONSIDERATIONS

- 5.22.2. Section 5.13 of National Policy Statement (NPS) EN-1 identifies traffic and transport as a topic that should be considered in the assessment of any Nationally Significant Infrastructure Project (NSIP). In Paragraph 5.13.1, it advocates that the transport of materials, goods and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, for example through increased congestion. Environmental impacts may result particularly from increases in noise and emissions from road transport. Disturbance caused by traffic and abnormal loads generated during the construction phase will depend on the scale and type of the proposal.

- 5.22.3. Paragraph 5.13.2 states that the consideration and mitigation of transport impacts is an essential part of government's wider objectives for sustainable development.
- 5.22.4. Paragraph 5.13.3 calls for the assessment of transport and traffic conditions using methodologies agreed with the relevant national and local highways and transportation authorities, and for the securing of mitigation to address adverse effects.
- 5.22.5. Paragraph 5.13.6 acknowledges that a new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and that the decision maker should ensure that the applicant has sought to mitigate these impacts, including during the construction phase.
- 5.22.6. Paragraph 5.13.10 highlights the preference for water-borne or rail transport at all stages of the project, where cost effective.
- 5.22.7. Finally, Paragraph 5.3.11 states that the decision maker may attach requirements where there is likely to be substantial HGV transport.
- 5.22.8. NPS EN-6 does not specifically consider the matter of traffic and transport.
- 5.22.9. NPPF at paragraph 109 states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

SUBMITTED APPLICATION – APPLICANT'S CASE

Transport Assessment (TA) [AS-017]

- 5.22.10. The submitted TA had been in development since 2012 and involved extensive pre-application discussion and scoping with both East Suffolk Council (ESC) and Suffolk County Council (SCC). The TA has been prepared in accordance with relevant guidance and summarises the systematic assessment of transport issues relating to the Proposed Development and associated development. It sets out an overall transport strategy and identifies what measures will be taken to deal with the anticipated transport impacts of the Proposed Development.
- 5.22.11. The main constituent parts of the transport strategy are a freight management strategy for the movement of materials and a construction worker travel strategy for the movement of people. The stated objectives of the transport strategy are:
 - Minimise the volume of traffic associated with the construction of the Proposed Development as far as reasonably practicable;
 - Maximise the safe, efficient, and sustainable movement of people and materials required for the construction of the Proposed Development as far as reasonably practicable;
 - Provide long-term, legacy benefits for the local community from new infrastructure, where appropriate; and

- Take reasonable steps to ensure the resilience of the transport network in the event of an incident:

5.22.12. The transport strategy has three key phases:

- The Early Years (assessed in 2023), when both the main development site and associated development sites are under construction, without any highway mitigation in place;
- Peak Construction (assessed in 2028), when the Main Development Site (MDS) is under construction but the associated development sites, including the highways mitigation, are operational; and
- Operation (assessed in 2034), when the Proposed Development and the permanent associated development is operational, following the removal and reinstatement of the temporary associated development.

Early Years Transport Strategy

Early Years - Workforce Transport Strategy

5.22.13. Land East of Eastlands Industrial Estate (LEEIE), also called the Ancillary Construction Area (ACA):

- 400 pitch caravan site, from which workers will be bussed to the Main Development Site (MDS); and
- 600 space park and ride site where workers will also be bussed to the MDS.

5.22.14. Direct bus services from key workforce locations.

5.22.15. Restrained car parking. Only 300 car parking spaces would be provided on the MDS and these would be managed by permits.

5.22.16. Construction Worker Travel Plan (CWTP), this would be secured through the Deed of Obligation (DoO) and would seek to manage workforce travel during the construction phase of development.

Early Years Freight Transport Strategy

5.22.17. Delivery Management System (DMS) – control of delivery numbers timings and routing by a web-based booking system.

5.22.18. Saxmundham to Leiston branch line – upgrading of existing branch line to enable use of the rail line by freight trains for the Proposed Development.

5.22.19. Rail siding at ACA (LEEIE) – in advance of construction of the Green Rail Route (GRR) construct a temporary rail siding and passing loop to enable two trains a day to use the above branch line in the early stage of construction.

5.22.20. Freight movement by road to the MDS would be managed by capping the two-way HGV movement to 600 (300 deliveries) per day.

5.22.21. Construction Traffic Management Plan (CTMP) is a management plan that will manage freight traffic during the construction of the Proposed

Development (i.e., HGV, light goods vehicles, and abnormal indivisible loads (AILs) to the main development site and the associated development sites). This would be secured through the DoO.

- 5.22.22. Traffic Incident Management Plan (TIMP) sets out the management of the construction HGVs and buses during an event or incident within the Traffic Incident Management Area, as defined in the TIMP. It would be secured through the DoO and would help minimise potential impacts of the construction phase on response times and delivery of emergency services in the event of an incident.

Peak Construction Transport Strategy

Peak Construction - Workforce Transport Strategy

- 5.22.23. Accommodation campus and caravan site – a 2,400 bed accommodation campus, adjacent to the MDS, in addition to the temporary caravan site for 600 workers on the ACA would reduce the overall highway impact of workers travelling to the site.
- 5.22.24. Park and Ride facilities – the provision of a Northern Park and Ride (NPR) facility located at Darsham and the Southern Park and Ride (SPR) facility located at Wickham Market. These would have 1250 spaces each and again are intended to reduce worker travel to the MDS by car on the local highway network.
- 5.22.25. Direct Bus Services – for the TA it was assumed to include the following direct bus services:
- Services from Central Ipswich and Lowestoft during the peak years of construction. These services would be an alternative to the use of park and ride for workers living along the direct bus routes;
 - A service between Saxmundham railway station and the main development site to pick up any construction workers travelling to work by rail or living in Saxmundham; and
 - A service between Leiston and the main development site.
- 5.22.26. Car Park Management - a car park with approximately 1,000 spaces at the main development site would be provided with a permit system in place to manage parking. At peak construction, only 12% of the construction workforce would be able to park at the main development site, which will act to reduce the impact of construction workforce trips on the local highway network. An actively managed parking permit system for the construction workforce is proposed. This would limit and control the allocation of permits for the car park on the main development site during construction.
- 5.22.27. Construction Worker Travel Plan (CWTP) – this would manage workforce travel throughout the entire construction phase and would be reviewed on a regular basis by a transport review group.

Peak Construction - Strategy for Freight and Materials

5.22.28. The principles informing the overall strategy for managing materials and freight movements are as follows:

- First, wherever practical and cost effective, the Applicant has sought to reduce the volume of materials that requires movement off-site, either through the re-use of excavated material as fill, landscaping or via the deployment of borrow pits to both source material on-site and deposit of other material;
- Secondly, where materials must be imported to, or exported from the site, to seek to move bulk materials and containerised goods by sea or by rail where this is practical or cost effective: and
- Thirdly, where movement of materials by road remains necessary, to manage this in a way which reduces local impacts via the use of defined routes for HGV and systems which can monitor and manage HGV movements to the main development site.

5.22.29. Measures to minimise the volume of freight by road:

- a. Beach Landing Facility (BLF) - constructed at the main development site to allow for the delivery of AILs throughout the construction phase and during the operational phase, to remove heavy and oversized loads from the road network;
- b. GRR - construction of a temporary rail extension which would branch off the upgraded Saxmundham to Leiston branch line into the MDS. The purpose of the GRR would be to facilitate the delivery of up to three trains per day (six movements) to the main development site during peak construction, which would allow for almost 40% of construction materials (by weight) to be delivered to site by rail; and
- c. Postal Consolidation Facility - in order to reduce vehicle movements to and from the MDS, a postal consolidation building is proposed at the SPR facility to handle and process all mail and courier deliveries for the MDS.

5.22.30. Management of residual freight by road.

The above measures would be intended to result in HGV movements to the MDS during the peak construction period of:

- 650 two-way HGV movements on a typical day (i.e. 325 HGVs in each direction); and
- 1,000 two-way HGV movements on the busiest day (i.e. 500 HGVs in each direction).

The HGV movements are proposed to be managed on the local highway network through the implementation of the following measures:

- a. Delivery Management System (DMS) – control of delivery numbers timings and routeing by a web-based booking system.
- b. Freight Management Facility (FMF) – This facility would allow a controlled pattern of deliveries to the MDS with reduced movements during peak or sensitive hours on the network. The FMF would provide facilities such that goods could be checked prior to delivery to the main development site. The FMF would also provide a location

where, in the event of an incident on the highway network, HGVs could be held;

- c. Construction Traffic Management Plan (CTMP);
- d. Traffic Incident Management Plan (TIMP); and
- e. Highway Improvement Works – The construction traffic on the network in some cases justifies specific highway mitigation to relieve potential problems at particular locations. The TA sets out the following highway improvement works:
 - Two Village Bypass (TVB) to mitigate the impacts of traffic travelling to and from the main development site on the A12, particularly on the bend through Farnham;
 - Sizewell Link Road (SLR) to relieve the B1122 from the anticipated construction traffic associated with the main development site;
 - a roundabout at the junction of A12/ B1122, at Yoxford, to increase the highway capacity of the junction, reduce accident risk and accommodate AILs to/ from the A12 north of the B1122; and
 - highway safety improvements at A12/ A144 south of Bramfield, A12/ B1119 at Saxmundham and A1094/ B1069 south of Knodishall

Operational Phase Transport Strategy

- 5.22.31. In the operational phase, there would be no significant remaining requirement for large scale freight movement. The GRR would be removed and returned to its original land use. However, the BLF would be retained to enable some abnormal indivisible loads (AIL) deliveries by sea during the operational phase. Other freight deliveries would be brought to the Proposed Development by road, making use of the TVB, the SLR, A12/ B1122 roundabout and other highway improvements which would remain in place permanently. The main operational access to the Proposed Development would be via a new access road starting from the B1122 at the main site access roundabout used during the construction phase. An operational travel plan would be prepared and agreed with SCC prior to the operational phase, which would encourage operational staff to walk, cycle or car share whenever possible.

Summary of Development Proposals included in the Transport Assessment

- 5.22.32. Main Development Site:
- Main Platform;
 - Sizewell B relocated facilities;
 - Offshore works area;
 - Temporary construction area, including the accommodation campus; and
 - Ancillary construction area (ACA) (formerly known as the Land East of Eastlands Industrial Estate (LEEIE)).
- 5.22.33. Off-site Associated Development (AD) Sites:
- Sizewell Link Road;
 - Two Village Bypass;
 - Northern Park and Ride;

- Southern Park and Ride;
- Yoxford Roundabout;
- Freight Management Facility; and
- Green Rail Route

Modelling Approach

5.22.34. To assess the impacts of the Proposed Development traffic on the surrounding highway network, two forms of traffic modelling were undertaken. Firstly, strategic highway assignment modelling and also, standalone junction modelling and micro-simulation modelling. The modelling did not allow for peak spreading, which would have the effect of spreading people's journey times over a longer peak period. The three key phases modelled were:

- Early Years 2023;
- Peak construction 2028 (typical and busiest day modelled); and
- Operation year 2034.

5.22.35. The base case for the modelling was developed from 2015 traffic counts with the addition of background traffic growth to provide traffic flow for each of the assessment periods. In terms of the reference case and development traffic flows for each of the assessment periods the following were also added to the base traffic level:

- Sizewell B outage traffic flows; and
- Committed developments and relevant highway infrastructure schemes agreed with SCC.

Cumulative Assessment of the Scottish Power Projects

5.22.36. The TA takes account of both East Anglia 1 North (EA1N) and East Anglia 2 (EA2) projects by Scottish Power, for new offshore wind farms and connection to the national electricity grid, which would begin construction sooner than the Proposed Development Project. However, if both projects were to go ahead, the construction phases would likely overlap. Therefore, they should be considered as part of the Proposed Development cumulative assessment since the traffic associated with each project would use some of the same roads.

5.22.37. The Scottish Power development is at the time of writing this report with the SoS for determination following the close on that Examination on 6 July 2021. As that application has not been determined, it is not regarded as committed so it was not included in the reference case or the Proposed Development core assessment scenarios, but it is included as a 'cumulative' scenario for the transport, noise and vibration, and air quality assessments presented in Volume 2, Chapters 10, 11 and 12 of the Environmental Statement (ES) respectively.

Junction Modelling

5.22.38. Junction modelling of 42 junctions across the study area, using industry-standard software, has been completed. Micro-simulation modelling has also been undertaken around Yoxford in order to assess the interaction between neighbouring junctions of A12/ B1122 and A12/ A1120.

- 5.22.39. The junctions assessed cover both the immediate area around Sizewell and the wider study area. In order to provide a worst-case assessment, the junction modelling includes traffic associated with the Scottish Power development (EA1N and EA2). Where junctions are shown to experience queuing and delay, sensitivity testing has been undertaken without the Scottish Power development to determine the effects of the Proposed Development in isolation.
- 5.22.40. Most of these junctions are unlikely to experience an observable change in their operational performance because of the Proposed Development. The impact is low at 29 of the 42 junctions (69%) assessed due to either:
- The Proposed Development would not generate significant traffic at the junction; or
 - The existing junction has sufficient spare capacity to adequately cater for any additional traffic; or
 - Proposed highway improvement schemes as part of the Proposed Development mitigate the predicted impact.
- 5.22.41. The impacts at the remaining junctions as described in the TA are set out below:
- f. B1078/ B1079, near Easton and Otley College
- The junction currently operates with spare capacity. The assessment shows that additional traffic, primarily from the Ipswich Garden Suburb development, would cause significant queuing in the reference case (i.e., without the Proposed Development). Early years traffic increases from the Proposed Development would have minimal impact, but peak construction traffic would exacerbate queuing. Modelling shows that only a major scheme involving third party land and likely property demolition would resolve these issues. Such a scheme would be primarily required to mitigate the effects of the Ipswich Garden Suburb rather than the Proposed Development. Given this, the Applicant proposes limited works to improve visibility at the junction. No impact is predicted at this location during the operational phase.
- g. A1094/ B1069 south of Knodishall
- The junction currently has spare capacity. Additional traffic, unrelated to the Proposed Development, causes queuing on the B1069 arm in the morning and evening peak hours and the Proposed Development early years traffic would slightly increase this queuing during these periods. The Proposed Development peak construction traffic flows would be lower than early years flows because the SPR would be in operation. The operation of the junction would be similar to the early years during this period. The Applicant's proposed improvements to visibility and reducing the speed limit from 60mph to 40mph should help B1069 drivers with turning onto the A1094. Sensitivity analysis shows that without the Scottish Power traffic, the junction would operate satisfactorily.

h. B1122/ B1119 Leiston

The junction is signal controlled so there is some limited queuing and delay, but the junction operates within capacity currently and would continue to do so during the early years of the Proposed Development construction. At peak construction, the junction would operate at capacity in the afternoon and evening peak hours with some additional queuing and delay. In the operational phase, the junction would be at capacity in the morning peak hour causing some additional queuing and delay.

The signal controller will be upgraded at this junction with an electronic management system (Microprocessor Optimised Vehicle Actuation (MOVA)), which would help to manage traffic demand more efficiently. In addition to the signal improvements, the Applicant is to fund pedestrian, cycle, and public realm improvements at Leiston to mitigate impacts of additional traffic flows through the town, which is to be secured in the DoO.

i. A12/ A144 junction.

The junction currently has consistent queues on the A144 approach during the modelled periods but negligible queues on the A12. The impact of the Proposed Development traffic on overall junction performance would occur before the morning peak hour. Queuing and delay would be moderate, the junction would operate within capacity and queues would not grow over this early morning period. The Applicant proposes to upgrade this junction to a single lane dualled T-junction to make it easier for vehicles to turn right from the A144. This mitigation is expected to reduce the impact of the Proposed Development traffic at this junction. No impact is predicted in the operational phase.

j. A1094/ B1069 north of Snape

The junction operates within capacity currently and in both the early years and peak construction of the Proposed Development. In the operational phase, the junction would just reach capacity in the morning peak hour. Given that the impact of the Proposed Development is minimal, no mitigation is proposed.

k. A12/ A14 Seven Hills

There is currently moderate peak period queuing on the A12 north and A1156 approaches and longer queues on the A14 westbound exit slip road. The junction will become partially signal controlled, with additional traffic lanes, as part of the Adastral Park committed development. This would lead to a minor improvement in junction performance. The Proposed Development would increase traffic volumes at these junctions by circa 2% in both the early years and peak construction scenarios. This increase is small and no mitigation is proposed. The increase in traffic volumes as a result of the Proposed Development traffic is less than 1% in the operational phase, and again no mitigation is proposed to address this impact.

i. A12 Martlesham

The four A12 junctions from Foxhall Road to the A1214 all currently exhibit queuing and congestion during peak periods. There will be additional traffic due to the consented Adastral Park development. The Proposed Development would add around 2% to traffic at these junctions during the early years, 1% during peak construction and less than 1% in the operational phase.

The Adastral Park development will signalise the Foxhall Road and Barrack Square junctions. These works would result in some improvements to junction performance but queueing and delay would remain during some peak hours. The Adastral Park development would also signalise the Anson Road roundabout but not until after the Proposed Development peak construction. There are no committed or proposed improvement works to modify the A1214 roundabout, which is already signalised.

The Proposed Development traffic increases are less than typical day to day variation in volume and, given the modifications already agreed at these junctions as part of the Adastral Park development, the Applicant does not propose further mitigation measures.

m. A12 Woodbridge

The three A12 junctions from B1438 to the A1152 all currently exhibit queuing and congestion during peak periods. Without the Proposed Development, there would be increased queuing in future years largely due to background traffic growth. The Proposed Development would add around 3% to traffic at these junctions during the early years, 1%-3% during peak construction, and less than 1% in the operational phase. The Applicant does not propose mitigation measures.

Road Safety Improvements

5.22.42. The TA examined the road safety implications of the traffic associated with the Proposed Development. As a result, the TA concluded that the following road safety improvement works were proposed:

- A1094/ B1069 junction south of Knodishall – improvements of visibility splays and provision of signage and road markings. The Applicant would also seek to reduce the speed limit from 60mph to 40mph;
- A12/ A144 junction south of Bramfield – provision of a central reservation island and waiting area; and
- A12/ B1119 junction at Saxmundham – improvements of visibility splays and provision of signage and road markings.

5.22.43. In addition, the Applicant will implement or provide a contribution to fund road safety improvements on the B1078 corridor at the A140/ B1078 junction west of Coddendam and on the B1078 in the vicinity of Easton & Otley College to mitigate potential highway safety issues.

- 5.22.44. The Applicant has also undertaken Stage 1 Road Safety Audits for any highway interventions they are proposing, including the Two Village Bypass, the Sizewell Link Road and accesses to the Main Development Site, the Ancillary Construction Area, both park and ride sites and the Freight Management Facility.

Rail Strategy

(a) Green Rail Route (GRR)

- 5.22.45. As part of the transport strategy, it is proposed to construct a new rail route, referred to as the GRR, which would branch off the existing Saxmundham to Leiston branch line into the main construction area on a temporary basis during construction. The GRR is approximately 4.5 kilometre (km) in length and is made up of three main parts:

- Saxmundham Road to Buckleswood Road;
- Buckleswood Road to B1122 (Abbey Road); and
- B1122 (Abbey Road) to the MDS.

(b) Saxmundham to Leiston branch line upgrades

- 5.22.46. Prior to the operation of the GRR, the Applicant proposes to run two trains (four movements) per day along the East Suffolk line and Saxmundham to Leiston branch line to the ACA. This would mean trains passing through Leiston on the Saxmundham to Leiston branch line. Following a review of the condition of the track on the Saxmundham to Leiston branch line undertaken by Network Rail, a need to upgrade the track has been identified in order to accommodate the number of freight train movements. The proposed rail improvement works on the Saxmundham to Leiston branch line comprise:

- Track replacement; and
- Upgrade works to up to eight level crossings.

Rail Operations

- 5.22.47. The early years rail operation would consist of two return freight trains per day operating once the Saxmundham to Leiston branch line had been upgraded and sidings had been constructed in the ACA. Following the construction of the GRR there would be the capability for up to three return freight trains per day (six movements) delivering construction material to the MDS. Once the construction phase is complete there will no longer be a requirement for trains to access the MDS. The GRR and sidings at ACA would be reinstated to their original use.

Walking and cycling

- 5.22.48. In recognition of the relatively remote location of the MDS the walking and cycling strategy for the Proposed Development focuses on the following:

- Walking and cycling to/ from the MDS by construction workers living in Leiston;
- Walking and cycling between the MDS and the ACA;

- Walking and cycling between the MDS and proposed sports pitches in Leiston;
- Walking and cycling to/ from the northern and southern park and ride facilities in Darsham and Wickham Market, respectively; and
- Non-work trips between the accommodation campus, caravan site and Leiston town centre.

Transport Management Plans

5.22.49. As part of the overall transport strategy for the construction phase the Applicant proposes that freight and construction worker movements on the highway network are managed, controlled and monitored through the implementation of a package of management plans. The purpose of the management plans is to support delivery of key elements of the transport strategy as set out in the TA.

5.22.50. Three standalone draft management plans have been prepared and form part of the application. They are:

Traffic Incident Management Plan (TIMP) [APP-607]

5.22.51. The TIMP sets out the management of the construction HGV and buses during an event or incident within the Traffic Incident Management Area. This area is defined within the TIMP. The TIMP would help minimise potential impacts of construction on response times and delivery of emergency services in the event of an incident.

Construction Traffic Management Plan (CTMP) [APP-608]

5.22.52. The CTMP deals with the management of all freight traffic during the construction of the Proposed Development (i.e. HGV, light goods vehicles (LGV), and Abnormal Indivisible Loads (AIL) to the Main Development Site and Associated Development Sites. This includes the implementation of a package of measures to manage and monitor freight traffic. The measures proposed within the CTMP for each element of the freight traffic are commensurate with the level and duration of traffic impact during the construction phase. The CTMP is expected to:

- minimise the volume of freight traffic associated with the construction of the Proposed Development, so far as reasonably practicable;
- maximise the safe and efficient movement of materials required for the Proposed Development, so far as reasonably practicable; and
- minimise the impacts both for the local community and visitors to the area using the road network, so far as reasonably practicable

Construction Worker Travel Plan (CWTP) [APP-609]

5.22.53. The focus of the CWTP is on managing the daily movements of the construction workforce to and from the MDS and ADS. These movements would represent most construction workforce movements associated with the construction phase of the Proposed Development. In addition, the CWTP also considers the scope for encouraging sustainable mode choice for non-work travel by the non-home-based construction workforce. A key focus of the CWTP is on the approaches which would be put in place to ensure successful delivery of a bus-based approach to the daily

movement of the construction workforce. These procedures are designed to deliver confidence that the strategy would be effectively delivered and that the impacts on the local transport network would be managed and mitigated as set out in the Transport Assessment.

Administration of Management Plans

- 5.22.54. The Applicant would be responsible for the implementation and administration of the management plans. However, the following groups and individuals would be in place to assist with the administration and monitoring of the management plans:
- Transport co-ordinator;
 - Transport Review Group (TRG); and
 - Local transport and traffic groups.
- 5.22.55. The transport management plans would be secured in the DoO together with the governance structure to administer the plans. The transport co-ordinator would be an Applicant's appointee who would oversee the transport management plans and coordinate the Applicant's activities with respect to the plans.
- 5.22.56. A TRG would be established with members taken from the key transport stakeholders and the Applicant. The TRG would be formed prior to commencement of construction and, unless otherwise agreed, would meet on a quarterly basis throughout the construction phase.
- 5.22.57. The TRG members would comprise:
- the transport co-ordinator;
 - one representative to be nominated by National Highways (NH);
 - one representative to be nominated by Suffolk County Council (SCC);
 - one representative to be nominated by East Suffolk Council (ESC); and
 - two representatives, in addition to the transport co-ordinator, to be nominated by the Applicant.
- 5.22.58. The TRG would receive reports on a quarterly basis prepared by the transport co-ordinator, unless otherwise agreed on the implementation, monitoring and review of the management plans (TIMP, CTMP and CWTP). The TRG would discuss these reports and advise the Applicant on the implementation of the management plans, as well as enforcing compliance with the implementation of the plans.

Local transport and traffic groups

- 5.22.59. Prior to commencement of construction, the Applicant intends to establish local transport and traffic groups with local stakeholders which would form key links between the TRG and the wider community and provide an indication of the transport-related issues that are impacting the general public.

Environmental Statement, Chapter 10 – Transport [APP-198]

5.22.60. This chapter of the Environmental Statement (ES) presents an assessment of the transport effects arising from the construction and operation of the main development site and the construction, operation and removal and reinstatement of the associated development sites. The assessment considers the potential environmental effects of severance, pedestrian delay, amenity, fear and intimidation, driver delay, accidents and safety and hazardous loads. This assessment has been informed by data presented in the TA [AS-017].

5.22.61. The assessment of transport effects presented in the ES has been undertaken in accordance with the following guidance documents:

- The Guidelines for the Environmental Assessment of Road Traffic published by the Institute of Environmental Assessment in 1993 (now Institute of Environmental Management and Assessment (IEMA)) (the IEMA Guidance); and
- Design Manual for Roads and Bridges (DMRB) (DfT 2008).

5.22.62. The underlying objectives of the assessment are to:

- Identify the potential transport impacts of the Proposed Development, taking into account the characteristics of the Proposed Development and the sensitivities of the local environment;
- Identify and describe measures which would be taken to mitigate any identified adverse impacts; and
- Predict and evaluate the extent and significance of residual effects taking into account all mitigation proposed.

Assessment of links to be screened into assessment

5.22.63. For the purposes of the assessment a link is defined as a stretch of road that has been modelled in the overall transport assessment. One road may comprise several links. Link assessment screening was undertaken subject to three rules, these were:

- Rule 1: include highway links where traffic flows would increase by more than 30% (or the number of HGVs would increase by more than 30%);
- Rule 2: include any other specifically sensitive areas where traffic flows would increase by 10% or more; and
- Rule 3: include highways links which Suffolk County Council has determined to be of particular sensitivity.

Classification of effects

5.22.64. The effects are classified in accordance with Table 10.3 of Chapter 10 [APP-198] and are based on consideration of the scale of magnitude of impact against the sensitivity of the receptors. In the context of this chapter, receptors are considered to be users of the local highway network to whom the transport effects of the Proposed Development from its construction and operation would be perceptible. The criteria for the sensitivity of receptors is set out in Table 10.1 of Chapter 10 [APP-198]. The magnitude of impact is typically defined by four factors that are:

- Extent (area over which an effect occurs);
- Duration (time over which the effect occurs);
- Frequency (how often the effect occurs); and
- Severity (degree of change relative to existing environmental conditions).

5.22.65. The effects are then classified in accordance with Table 10.3 and as a general rule, major and moderate effects are considered to be significant and minor and negligible effects are considered to be not significant. However, professional judgement is also applied, where appropriate.

Mitigation

5.22.66. The primary mitigation for significant effects is set out in paragraph 10.5.9 of Chapter 10 [APP-198] and also summarised above in the Transport Assessment section of this report, describing the worker and freight management strategies. The tertiary mitigations include the TIMP [APP-607], CTMP [APP-608], CWTP [APP-609] and the Worker Code of Conduct [APP-636], which would be secured as part of the DoO.

Early Years - Significant Effects

5.22.67. The assessment concluded that there are expected to be the following significant adverse effects in the early years of the Proposed Development:

- ix. Short-term moderate adverse effect on amenity on Sizewell Gap (link 1) prior to the main development site access being operational;
- x. Short-term moderate adverse effect on cycle amenity on B1122 (link 13b) prior to the SLR being operational;
- xi. Short-term major adverse effect on pedestrian amenity on the B1122 through Theberton village (link 10) prior to the SLR being operational; and
- xii. Short-term major adverse effect on cycle amenity on the B1122 (links 4c, 10, 64, 66, 74) prior to the SLR being operational.

5.22.68. Mitigations (referenced to significant effects above)

- (i) The Applicant is proposing to reduce the speed limit on Sizewell Gap to 40mph to mitigate the amenity effects. The power to do this is included in the dDCO.
- (ii), (iv) The Applicant proposes to fund highway maintenance on the B1122 to improve the road surface to improve the cycle amenity on the road.
- (iii) The Applicant states that there is limited scope for secondary mitigation through Theberton for pedestrian amenity and relies on this being a short term major adverse.

Peak Construction - Significant Effects

- 5.22.69. The assessment concluded that there are expected to be the following significant adverse effects in the peak construction period of the Proposed Development:
- xiii. Major adverse effect on severance on Abbey Road, Leiston (links 4a, 5);
 - xiv. Major adverse effect on severance on footpaths 243/001/0 and E-137/029/0, as a result of the TVB;
 - xv. Moderate adverse effect on pedestrian delay for PRow users of footpaths 243/001/0 and E-137/029/0 to cross the TVB at grade;
 - xvi. Major adverse effect on pedestrian delay as a result of footpaths E-396/015/0 and E-515/005/0 being permanently diverted to join the proposed Pretty Road non-motorised user overbridge, which would increase the walking distances for PRow users;
 - xvii. Minor – moderate adverse effect on amenity on routes within Leiston, including Abbey Road (links 4a, 5) and B1069 (links 7, 76); and
 - xviii. Minor adverse effects on driver and passenger delay causing some traffic to divert on less suitable routes.

5.22.70. Mitigations (referenced to significant effects above)

- (i), (v) To mitigate the adverse effects within Leiston, the Applicant will provide funding for pedestrian, cycle and public realm improvements in Leiston. The provision of this funding will be secured through the DoO.
- (ii), (iii), (iv) It is considered that there is no further scope for mitigation of the adverse effects on the footpaths in terms of severance and pedestrian delay. It should be noted that the only mitigation that would be available to reduce the severance and pedestrian delay effects would be to provide formal pedestrian crossing facilities on the TVB and SLR. However, the roads have been designed to cater for high vehicular flows and speeds and formalised pedestrian crossings would not be acceptable to SCC.
- (vi) In order to mitigate the minor adverse effect on driver delay, the Applicant will provide funding for pedestrian, cycle and public realm improvements in Wickham Market with the aim of directing traffic to use the A12 rather than reassign to less suitable routes, such as the B1078 through Wickham Market. The provision of this funding will be secured in the DoO.

Operational phase

- 5.22.71. The assessment concluded that there were major and moderate adverse effects on a number of footpaths and PRow users. The assessment considered that there is no further scope for mitigation of the adverse effects on the footpaths in terms of severance and pedestrian delay for the same reasons as set out for the peak construction.

Residual Effects

- 5.22.72. The assessment identifies there is a significant residual adverse impact in the early years on pedestrian amenity on parts of the B1122 (links 4c, 10, 64, 66, 74).
- 5.22.73. It also identifies along the TVB and SLR that there are significant residual adverse effects on users of some PRow running across the new roads during the peak construction period and throughout the operational period.
- 5.22.74. The assessment identifies significant residual positive benefits for the section of the B1122 and the A12 that have been bypassed from the peak construction period onwards throughout operation.

Cumulative Effects

- 5.22.75. The ES Volume 10 Chapter 4 [APP-578] examined other developments and the potential additional traffic effects of those developments. Alongside committed developments this chapter examines the potential effects of the Scottish Power EA1(N) and EA2 offshore windfarms. The assessment of these other applications was undertaken on the basis that:
- The EA1(N) and EA2 projects could potentially be constructed consecutively or concurrently but for the purposes of assessing a worst case, the 'concurrent build' traffic flows have been used;
 - The proposed programme for EA1(N) and EA2 for concurrent construction shows that construction would be completed before the Proposed Development peak construction phase. However, the cumulative assessment has also assessed the 'concurrent build' EA1(N) and EA2 traffic flows with the Proposed Development peak construction;
 - The assessment of EA1(N) and EA2 is based on a worst-case assessment that 85% of the development traffic routes to and from the south along the A12. It may be that less traffic routes from the south and more traffic routes from the north; and
 - The cumulative assessment is based on the busiest day at peak construction for the Proposed Development rather than the typical day.
- 5.22.76. The Applicant considered this represented the worst-case scenario with respect to cumulative impact. The Applicant concluded that only in sections of the A12 at Little Glemham and Marlesford would the fear and intimidation factor in the peak construction year of 2028 be a significant effect in the cumulative case. They considered however that this would only be a short-term overlap in construction and that the additional mitigation measures proposed would address the issue.

PRE EXAMINATION MATTERS

- 5.22.77. There were in excess of 1200 Relevant Representations (RR) and more than 800 of these referenced issues relating to traffic and transport. The main issues arising from these representations were:
- 1) Freight management strategy;
 - 2) Worker travel management strategy;

- 3) Sizewell Link Road;
- 4) Two Village Bypass;
- 5) Northern park and ride site specific traffic issues;
- 6) Southern park and ride site specific traffic issues;
- 7) Freight management facility traffic issues;
- 8) General traffic and highway capacity impact issues;
- 9) Environmental assessment of traffic impacts; and
- 10) Control documents CTMP, CWTP and TIMP

5.22.78. Each of these topic areas and the resultant important and relevant issue arising is considered in the Examination Matters section below.

5.22.79. In the submitted application the Applicant stated in Table 3.3 of Chapter 3 of the ES [APP-184] that the Proposed Development would require 10.1 million tonnes (Mt) of imported construction materials. To transport this amount of material the Applicant proposed what it then called an integrated strategy for freight. They proposed the following modal split for freight movement:

Road (HGV)	61%
Sea (AIL only)	1%
Rail	38%

5.22.80. This was based on the following:

Road (HGV) -Deliveries to the Main Development Site only

Early Years -	300 HGV/ day (600 movements)
Peak Construction -	Typical day 325 HGV/ day (650 movements) Busiest day 500 HGV/ day (1000 movements)

Sea

Permanent beach landing facility (PBLF) – 50 deliveries/ year.

Rail

Early Years -	2 trains/ day to the sidings in the ACA.
Peak Construction -	3 trains/ day along the GRR.

5.22.81. Prior to the commencement of the Examination the Applicant submitted a change request [AS-105] on 11 January 2021 and this was accepted on 21 April 2021 [PD-013] at the start of the Examination. The changes included a variation of the freight management strategy that altered the modal split for freight during the peak construction phase but not the early years. The Applicant’s revised target for road freight movement by HGV is reduced to 40% with 60% being by rail and sea. This is based on the following:

Road (HGV) - Deliveries to the Main Development Site only

Early Years -	300 HGV/ day (600 movements)
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Peak Construction - Typical day 250 HGV/ day (500 movements)
Busiest day 350 HGV/ day (700 movements)

Sea (Change 2 [AS-105])

Permanent beach landing facility (BLF) – 100 deliveries /year.

Temporary marine bulk import facility (MBIF) – up to 600 deliveries /year

Rail (Change 1 [AS-105])

Early Years - 2 trains/ day to the sidings in the ACA.

Peak Construction - 4 trains/ day along the GRR, with possibility of 5th train.

- 5.22.82. It should be noted that the controls for movement by road would be controlled by the Delivery Management System (DMS), that would monitor and plan HGV deliveries to the site. These controls would be within the CTMP that would be secured by the DoO.
- 5.22.83. The changes were also accompanied by an addendum of the Transport Assessment [AS-266], that included:
- Refined strategic transport and junction modelling;
 - A new micro-simulation traffic model (VISSIM) developed to provide a more detailed forecast of journey times on the A12 between the A14 and Melton;
 - A new sensitivity test, conducted using the strategic transport and A12 VISSIM models, to assess the impact of all heavy goods vehicles (HGVs) arriving from the south;
 - Further information with regards to the proposed road safety improvements on the B1078 corridor; and
 - Further information with regards to a package of cycling, walking and public realm improvements in Leiston and Wickham Market.
- 5.22.84. In addition, the Applicant provided an updated Freight Management Strategy [AS-280]. This strategy included the above details and also confirmed a revised imported fill requirement of 12.1 Mt, an increase of 2 Mt over the original submitted application amount. The revised traffic assessment figures also required the Applicant to submit an addendum to the transport chapter of the ES [AS-266].
- 5.22.85. An Addendum [AS-189] was also provided to update the cumulative assessment in the original chapter [APP-578]. It concluded there were no additional significant effects as a result of the change.

EXAMINATION MATTERS

FREIGHT/ TRANSPORT MANAGEMENT STRATEGY

Road Based Freight

- 5.22.86. A significant concern to numerous IPs relates to the amount and routing of HGV traffic throughout the construction period. The Applicant is proposing to monitor and control this matter by the means set out in the

Construction Traffic Management Plan. This plan, which would be secured within the DoO, would set the limits of daily flow of HGV and the permitted routes they should follow. The Applicant would only allow construction related HGV on specified routes. The route during the Early Years would be the A12 and B1122 and after construction of the Sizewell Link Road it would be the A12 and the SLR.

- 5.22.87. East Suffolk Council (ESC) and Suffolk County Council (SCC) submitted a joint Local Impact Report (LIR) [REP1-045]. SCC are the relevant Highway Authority and took the lead in transport matters. The LIR sets out that despite increased use of rail and sea for freight movement they had concerns with respect to the deliverability of the revised freight management strategy [AS-280] as set out. Their concerns relate to the lack of certainty of delivery of both the sea and rail proposals and the consequential implications for HGV movement of freight. They were seeking a robust control framework to ensure that should there be issues in delivering the necessary rail and sea capacity that would not mean greater reliance was placed on freight movement by road.
- 5.22.88. Similar concerns were expressed by other IPs with respect to the lack of secured commitment to increase rail and sea transport of freight, which they considered was more aspirational than guaranteed. There was concern expressed that the revised freight management strategy was still too reliant on HGV movement and that the capped levels of HGV movement was still too high.
- 5.22.89. Understanding this concern, we asked in ExQ1 [PD-022] for further details of the potential carrying capacity of the various modes of freight movement. ExQ1, TT.1.11 asked about why the theoretical carrying capacity of HGV operating at the proposed cap levels could mean HGV alone could carry in excess of the total amount of the required imported material of 12.1 Mt. The Applicant's response [REP2-100] explained that this would not be likely to occur as HGV arriving to site would constitute a mixed fleet ranging from 3.5t vans and flat beds (classified as HGVs in the CTMP [APP-608] up to low loaders and 28t tankers. Therefore, the assessments using an 18.5t per HGV payload would not reflect the actual HGV import of the project.
- 5.22.90. They did state that during the Early Years (Years 1 and 2) there would be a bias towards bulk materials when the rail and marine import infrastructure are available. Following this, as bulk materials would predominantly be imported by rail or marine the typical payload of HGV would drop. This would mean there is more likelihood of larger HGV during the early years when most bulk movement of materials would be undertaken by road.
- 5.22.91. At ISH2 [EV-086 to EV-097] the freight management strategy was discussed. At this Hearing the Applicant confirmed that the proposed Early Years cap level of 300 HGV for deliveries to the MDS would now relate to all HGV traffic on the B1122 related to the Proposed Development.

- 5.22.92. It was also confirmed during ISH3 [EV-094 to EV-097] that the Early Years now has 2 definitions depending on whether it relates to HGV or worker travel. For HGV the Early Years is defined as the period in advance of the opening of both the SLR and the TVB. For worker travel the Early Years is defined as the period in advance of opening of one or other of the remote park and ride sites. The park and ride sites have the potential to be open in advance of the SLR and TVB. As a consequence, there would also be a period where park and ride buses and direct bus services may be using the B1122 in the Early Years and the Applicant also confirmed buses would be included in the Early Years cap level of 300. The cap was subsequently expressed as Heavy Duty Vehicles (HDV) rather than HGV, so as to include buses.
- 5.22.93. The Applicant further stated that once the SLR rail bridge was complete it would be possible to use the route of the SLR as a haul road for moving spoil to the stockpiles on the MDS. Prior to the availability of the SLR as a haul road, such spoil movements would also be included in the 300 HDV cap. This would now be monitored by the means of a geo-fence along the sensitive sections of the B1122, rather than the original suggestion of monitoring movements at the MDS gate.
- 5.22.94. The Applicant's position was set out in Appendix A - Material Imports and Modal Split [REP5-114]. Figure 1 in that document shows the profile of HDV movement in the Early Years. This does show a number of peaks over the 300 HDV limit. The Applicant has always maintained that these peaks would be kept within the limit by the control of the DMS such that the profile was smoothed out and deliveries managed within the set limits.
- 5.22.95. The Applicant in addressing a potable water supply issue, submitted a change request [REP7-286] to deliver a temporary desalination plant. This would provide potable water during the construction period on the Proposed Development. During the installation of the desalination plant there would be a period where potable water would be provided by tankers from a remote source. There would be up to 40 articulated water tankers a day during this period. The Applicant [REP7-036] confirmed in Table 3.2 that these tankers could also be accommodated within the 300 HDV Early Years cap.
- 5.22.96. Given the changes from the original submitted early years cap approach we asked the Applicant to provide an updated position from that provided in the Material Imports and Modal Split [REP5-114]. The Applicant [REP10-168] submitted a revised more detailed histogram showing how the revised approach can be accommodated within the cap level of 300.
- 5.22.97. The smoothed HDV profile provided shows that the 300 level would be reached on numerous occasions in the Early Years and during the peak construction years there would be relatively few occasions where the cap level is reached. This does suggest that the Early Years period would be a relatively intense period of HDV activity before the Sizewell Link Road is built. The environmental effects along the B1122 of this HDV activity is examined later in this section.

Abnormal Indivisible Loads (AIL)

- 5.22.98. AIL are not included in the caps of HDV movements but concern has been expressed by a number of IPs about the effect on traffic movement. The largest and heaviest of the AIL would be transported by sea when the BLF is operational.
- 5.22.99. In particular Suffolk Constabulary (SC) [RR-1140] highlighted that they would have to escort significant volumes of AIL during the construction of the Proposed Development. They expanded on this in their written representation [REP2-168]. They expressed their concern about the resource implications of the expected frequency of AIL. In addition, the East of England Ambulance Service [RR-0675] also expressed concern that the Applicant had not shown that the movement of AIL would not adversely affect their service provision.
- 5.22.100. AIL movement on the local highway network was discussed at ISH2 [EV-0086 to EV-089] and the concerns from Suffolk County Council, Suffolk Constabulary, and other IP about implications for traffic movement as AIL movements occur. The Applicant [REP5-114] subsequently provided evidence about frequency and timing of travel along the A12 and B1122 to demonstrate that only a relatively small number of the largest AIL would have longer journey times along the B1122.
- 5.22.101. In their SoCG, Suffolk Constabulary [REP10-106], East of England Ambulance Service [REP10-105] and Suffolk Fire and Rescue [REP10-103] have all agreed with the approach by the Applicant with respect to managing the impact of the movements of AIL.

Rail Based Freight

- 5.22.102. Mr Lovelock at the OFH9 [EV-047] expressed concerns that the Applicant had missed an opportunity to deliver a rail passing loop that would have provided for the required rail freight capacity. He went on to raise concern over the deliverability of the proposed rail solution without adversely affecting the existing Ipswich/ Lowestoft passenger service. This view is shared by a number of IPs and it was also expressed in the Councils' joint LIR [REP1-045].
- 5.22.103. In the joint LIR they also questioned whether the introduction of up to 10 train movements in a day could disrupt the flow of rail freight to Felixstowe port. This view was also expressed by Felixstowe Town Council [REP2-181].
- 5.22.104. Network Rail (NR) in their Written Representation [REP2-155] clarified that they were working with the Applicant to deliver up to 8 train movements/ day (4 train services) with the potential for an additional 2 movements/ day (1 train service). They confirmed, after initial review, that they had identified potential train paths for the freight use, and they were confident that subject to any necessary mitigation being secured the freight use would be possible. At this time NR were objecting to the DCO on a holding basis pending resolution of protective provisions.

- 5.22.105. The Applicant submitted the Material Imports and Modal Split [REP5-114] at DL5, which confirmed they were pursuing only two solutions. In the Early Years two trains / day to the ACA and after completion of the GTT 4 trains /day to the MDS. NR subsequently withdrew their objection to the DCO at DL7 [REP7-145], following the signing of a Framework Agreement with the Applicant. They also confirmed [REP7-146] they had agreed with the Applicant that their programme of delivery was:
- i. Two trains (4 paths) - Oct 2023 (Originally Jan 2024)
 - ii. Four Trains (8 paths) - Mar 2024 (Originally August 2024)
- 5.22.106. In the final SoCG [REP10-099] NR confirmed that they were working with the Applicant to deliver the necessary rail improvements to facilitate the programme of delivery.

Sea based freight

- 5.22.107. Change 2 [AS-105], is an enhancement of the BLF and construction of a new temporary marine bulk import facility (MBIF). The traffic related effects of Change 2 are discussed above in combination with the effects assessed for Change 1.

Conclusion on Freight Management Strategy

- 5.22.108. The Applicant has endeavoured to increase the potential for more marine and rail freight, by submitting Change 1 and 2 [AS-105]. They are hoping to better align their freight transport strategy with the preference for water-borne or rail transport set out in NPS EN-1. Whereas IPs were generally supportive of the increased use of sea and rail use they had outstanding concerns over the level of HDV traffic. The impact of HDV traffic during construction, particularly in the early years, is examined in more detail later in this chapter.
- 5.22.109. In conclusion we consider that the Applicant's revised approach, following Changes 1 and 2, would be effective in meeting the preference for water borne and rail transport.

Worker Travel

- 5.22.110. Unlike freight movement the Applicant has always proposed to manage worker travel by mode share targets and control over parking. This approach is first set out in the Construction Worker Travel Plan. [APP-609].
- 5.22.111. The traffic levels in both the early years and peak construction in freight terms are controlled by vehicle caps and the end of the early years is defined by the opening of the SLR and the TVB. For worker traffic the control on vehicle flows is proposed to be the control of parking for workers both on site and at remote park and ride sites. During the early years there will be a temporary park and ride site at the ACA and after the opening of one or other of the park and ride sites on the A12, that early year's park and ride provision will cease.

- 5.22.112. Informal off-site “fly parking” is an area where unless suitably managed there is potential for any uncontrolled off-site parking to undermine the managed approach promoted by the Applicant. This issue was highlighted in paragraph 15.122 of the Council’s joint LIR [REP1-045] and by a number of IPs. We asked in ExQ1 [PD-022] TT.1.36 about the Applicant’s developing approach with respect to fly parking. In their response the Applicant [REP2-100] explained that their approach to this matter was set out in the CWTP. We asked both the Applicant and SCC in ExQ3 [PD-049] about the suitability of the proposed controls as uncontrolled fly parking would have the ability to undermine the modal share approach to managing worker travel.
- 5.22.113. The Applicant [REP8-116] reiterated the commitment to regularly monitor and review the approach and SCC [REP8-180] accepted that the Applicant’s controls would provide a suitable mechanism to control fly parking. We can see no evidence before us to disagree with this.
- 5.22.114. The differing definition of what is meant by the early years could lead to more difficulty in terms of monitoring traffic levels to compare with the modelled and assessed impacts of traffic. To be able to effectively monitor traffic levels for construction workers the Applicant would need to monitor and control parking levels, permit issue, fly parking, bus travel and monitor walking and cycling. This contrasts to the more straightforward approach taken with freight traffic of counting the numbers of HDV. We acknowledge that travel planning objectives rely on monitoring modal choice. The overall objective in this case is to get the construction workforce to the main development site and associated development sites, whilst minimising the impact on local roads and communities. Despite the additional monitoring and coordination involved in the proposed CWTP approach, it is nonetheless our view that it is an acceptable approach.

Operational Travel

- 5.22.115. In the DoO (Schedule 16 paragraph 2.5) [REP3-024] the Applicant states that the Operational Travel Plan will be implemented for 5 years after the end of construction. This was discussed at ISH3 [EV-094 to EV-097]. No framework plan was provided at that stage and the Applicant was asked to consider provision of a framework plan to ensure that travel planning became established during the operational period.
- 5.22.116. The Applicant has included the Operational Travel Plan Principles in Appendix J of the DoO [REP10-082] and committed to at least 5 years of operation unless otherwise agreed by the Transport Review Group.

ASSOCIATED DEVELOPMENT SITES

SIZEWELL LINK ROAD (SLR)

- 5.22.117. In the Applicant’s Planning Statement - Site Selection Report [APP-591] Section 7 it states that “*the rationale and purpose of the SLR is to relieve the B1122 from the anticipated construction traffic associated with the main development site, and consequently reduce traffic passing through*

Theberton and Middleton Moor. The link road should also substantially reduce traffic flow through Yoxford by removing the need for traffic from the south to access the B1122 from the A12 at Yoxford.” It goes on to state that “the route should be as short as is practical from the A12, whilst observing environmental constraints, in order to reduce journey times compared with the use of the B1122 to make it an attractive option for motorists to use.”

- 5.22.118. The Site Selection Report set out the development of the proposals and included consideration of four alternative route options at Stage 3 of the pre-application consultation. These routes were referenced Routes W, X, Y and Z.
- Route W consisted of two options W south and W north that both started from the A12 south of Saxmundham and joined the B1122 to the north of Leiston.
 - Routes X and Y both started from the A12 to the north of both Saxmundham and Leiston.
 - Route Z, the furthest north and nearest the existing route of the B1122.
- 5.22.119. Table 7.1 in the Site Selection Report sets out a comparison of what the Applicant states are the Key Environmental Factors of the various Route options. The factors considered are:
- Number of PRow crossed;
 - Roads and railways crossed;
 - Heritage assets affected;
 - Landscape designations;
 - Landscape character; and
 - Residential amenity.
- 5.22.120. The assessment did not consider the environmental outcomes associated with overall journey time and distance travelled for either worker or freight movements.
- 5.22.121. The Councils in their LIR [REP1-045] paragraph 16.73 noted *“the proposed Sizewell Link Road is considered by the Councils acceptable mitigation for the impacts of construction traffic on the villages of Middleton Moor, Theberton and parts of Yoxford, the Applicant has failed to properly evidence that the proposed route optimises the outcomes in terms of journey times, distance and related carbon emissions for deliveries to the construction site.”* They also noted that they had asked the Applicant during pre-application discussions to properly evaluate relief road options to the south, which would serve to encourage more traffic from the south to use it.
- 5.22.122. Numerous IPs including the B1122 Action Group on Sizewell [REP2-224], Stop Sizewell C and Theberton and Eastbridge PC [REP2-450] considered a route further south would address the inadequacies of the chosen route of the SLR and this position was also supported by Yoxford PC [REP2-500]. In addition, we asked in ExQ1 [PD-022] about the missing traffic analysis of the route options for the SLR and also how the last pre-

application consultation preference for route D2 (W) has been addressed in the selection of the proposed SLR route.

5.22.123. In response to these concerns the Applicant submitted at DL2 the Sizewell Link Road – Principle and Route Selection Paper, which is Appendix 5D of their responses to our ExQ1 [REP2-108]. Importantly this included at Appendix 10, a Technical Note on the traffic modelling undertaken on the route comparison between the proposed SLR and route W. This technical note concludes that the SLR would:

- Remove most of the Proposed Development traffic from Theberton;
- Remove most of the Proposed Development traffic from Middleton Moor; and
- Remove all Sizewell related HGVs and buses from Yoxford, Theberton and Middleton Moor.

It goes on to conclude Route W achieves none of those objectives.

5.22.124. This Note also includes modelling results about distance travelled and journey times in Table 2 and 3. From this it is apparent that the vehicle distance travelled, and consequent journey times would be less in using the alternative route W than the proposed SLR. This modelling also highlighted an error in the earlier peer review which is in Appendix 12 of the Paper. The peer review that was undertaken in 2019 states that the proposed SLR route would result, in “*the least route mileage of all options*”. The later 2020 modelling, undertaken after submission of the application, shows that this is not the case and that an alternative route selection would have decreased overall travel distances and journey times.

5.22.125. Details about the overall travel distance and journey times for route W and the SLR were discussed at ISH2 [EV-086 to EV-089] and we also asked questions of clarification at both ExQ2 [PD-037] and ExQ3 [PD-049].

5.22.126. Our remaining concern is that the site selection Key Environmental Factors outlined above did not include any transport sustainability factors relating to vehicle mileage and/or journey time. It is also of concern that the overall route selection process was focused on relieving traffic levels along the B1122 through Theberton and Middleton Moor and on the A12 at Yoxford. Consideration of reducing traffic impact both during construction and throughout the operation of the Proposed Development on other routes and communities to the south was not a significant consideration in the site selection.

5.22.127. Taking account of all the evidence submitted, the ExA accept the Applicant has provided strong justification for the need for a link road to reduce the impact on the B1122 and we acknowledge there was no alternative alignment for consideration submitted into the Examination. It is our view, however, that the route selection should have undertaken a fuller examination of the transport impacts over a wider area. Additionally, full consideration should have been given to the issues relating to vehicle mileage and journey time in the route selection.

SLR TRAFFIC DESIGN ISSUES

5.22.128. A number of specific traffic design issues were considered during the Examination. These were:

- Pretty Road – severance;
- Fordley Road – connection; and
- B1125 – connection

Pretty Road – Severance.

5.22.129. Theberton And Eastbridge PC [RR-1214] and a number of other of RR expressed concern that it was proposed to remove vehicular passage along Pretty Road from the B1122 in Theberton. Vehicle movement via the proposed SLR would be available but this would entail a longer diversion. The concern expressed was that this would lead to community severance as Pretty Road, and Moat Road were both routes used by locals to access communities such as Saxmundham to the south and west. We asked in ExQ1 [PD-022] TT.1.96 why the Applicant could not retain vehicle access along Pretty Road. In their response the Applicant [REP2-100] stated that they intended to revise their proposals for Pretty Road and make the bridge over the SLR suitable for vehicular and non-motorised users. The change (No.18) was submitted at DL2 [REP2-131].

Fordley Road – Connection to SLR

5.22.130. Mr and Mrs Lacey [AS-414, REP2-280, REP5-245, REP6-067, REP7-214, REP8-247, REP9-039, REP10-342] have submitted concerns about the layout of the Fordley Road junction leading to increased potential for Fordley Road to be used as a rat run. Rat running is considered later in this chapter of the report but in relation to the SLR their concern relates to the design of the SLR and the junction with Fordley Road. Similar concerns about the design of the Fordley Road junction were made by Create Consulting on behalf of the Grant family [REP2-252] concerning its impact on community severance and the potential for rat running. They were seeking the removal of the junction with the SLR and its replacement with either a bridge or an underpass.

5.22.131. The Applicant [REP3-042] has responded to these concerns explaining that *“the junction with Fordley Road and the proposed Sizewell link road was introduced following feedback from Stage 3 consultation. Its purpose is to mitigate concerns regarding connectivity issues to Saxmundham and the local area and for allowing the removal of the Littlemoor Road junction. Given there is proposed to be access from Fordley Road onto the Sizewell link road, the inclusion of an underpass or overbridge is not considered to be justified, especially considering the environmental (landscape and visual) impacts, the increased land requirements and impacts on adjacent properties, and the significant drainage challenges that would result from and underpass.”*

5.22.132. Create Consulting on behalf of the Grant family [REP5-259] and the Grant’s submission [REP7-179, REP10-253] outlined their ongoing concerns with respect to the Fordley Road/ SLR junction. Similar issues of concern were raised by Kelsale-cum-Carlton PC [REP6-064] in that

they considered that connecting Fordley Road to the SLR may increase rat running along Fordley Road.

- 5.22.133. There are two issues arising from the outstanding concerns. Firstly, there is the community severance issue. The Applicant is not proposing to remove vehicle access to Fordley Road from the west, but it would be via the proposed SLR and not directly from the B1122, so it would still be available for traffic travelling from the SLR eastwards to other communities. Secondly, the issue of rat running. We understand the local concerns over rat running. It is difficult, however, to see how attractive a route the single track Fordley Road, with very limited passing opportunities, would be as an alternative to the A12. The photographs included in the Lacey's submissions [AS-414] show what they claim is rat running that they say occurs two to three times a year. It is understood that these occasions must be of inconvenience and disturbance to residents along Fordley Road but they have not provided any evidence why the proposed SLR connection would lead to any increase in the incidents of what they say is rat running. The ExA consider that the limited capacity of Fordley Road would not represent an attractive route for any potential increase after the SLR is constructed.

Connection to B1125

- 5.22.134. N J Bacon Farms, Ward Farming Ltd, A W Bacon Will Trust and Nat and India Bacon [REP2-384] and other IPs in their Written Representations set out their concerns that by connecting the B1125 to the SLR there will be an increase in through traffic along the B1125 travelling north towards Westleton and Blythburgh. The Applicant [REP3-042] responded to these concerns stating that additional modelling had been undertaken to examine the removal of the connection to the B1125. This would result in a large increase in traffic through Theberton on the B1122, so they did not consider it was appropriate to remove the junction from the SLR to the B1125.
- 5.22.135. To address the concerns about additional traffic on the B1125, the Applicant, in agreement with Suffolk County Council, now proposes a highways and traffic management scheme. The design and implementation of this scheme will be overseen by a B1125 working group including both Councils and parish council representatives. This is secured in Schedule 16 of the DoO [REP10-077].

SIZEWELL LINK ROAD – LEGACY

- 5.22.136. Suffolk County Council (SCC) and East Suffolk Council (ESC) have differing views as to the legacy benefit of the SLR. These are set out in their joint LIR [REP1-045]. This section of the report looks at the transport issues relating to the legacy of the SLR.
- 5.22.137. The Applicant has made a convincing case for the need for the SLR to endeavour to minimise the impact of the B1122 from construction of the Proposed Development. This is something that both Councils agree on. The issues relating to the route of the SLR are dealt with above and the

issues relating to the early years impact on the B1122 in advance of construction of the SLR are dealt with later in this chapter.

- 5.22.138. ESC consider that the SLR should be permanently retained for the following reasons:
- It provides a HGV route to Sizewell A, B and C, and the substations for the existing offshore windfarms;
 - There has been no assessment of the environmental impact of the removal of the SLR; and
 - It allows for the permanent downgrading of the B1122 so that non-motorised users can be prioritised along the route.
- 5.22.139. SCC on the other hand want the removal of the SLR because:
- It duplicates the existing B1122;
 - There are other environmental and heritage disbenefits of the SLR retention;
 - Once the Proposed Development is operational a small percentage of the workforce will use the SLR; and
 - It does not accept the wider legacy benefit outweighs the additional maintenance burden on the Council.
- 5.22.140. SCC further expanded on their reasons for removal in the Written Representation [REP2-189]. This provided their analysis of the traffic levels in the early years, peak construction and operation.
- 5.22.141. We discussed the legacy traffic levels in ISH2 [EV-086 to EV-089] and asked about this in ExQ2 [PD-037] The Applicant [REP7-055] responded that *"the retention of the Sizewell link road would reduce traffic flows on the B1122 in the operational phase to circa 400 two-way vehicles per day, which allows for the road to be repurposed through a package of walk and cycle measures, which are being progressed with SCC and ESC. Were the Sizewell link road not to be retained then the B1122 would carry over 7,000 two-way vehicles per day and the repurposing would not be possible."*
- 5.22.142. It is accepted that the proposed route of the SLR runs roughly parallel to and fairly close to the existing B1122. We are however convinced that there is a long term legacy value of the SLR in reducing traffic along the B1122 through the villages of Middleton Moor and Theberton. This reduction would mean that the B1122 corridor repurposing Scheme secured within Schedule 16 of the DoO [REP10-077] would be able to be implemented.
- 5.22.143. It is accepted that the traffic benefits of the SLR when the Proposed Development is operational are not as significant as they are during the construction period. The retention of the SLR does however provide a route from the A12 to the Proposed Development that avoids the communities of Middleton Moor and Theberton. Once repurposing of the B1122 takes place it will become a much more attractive route for non-motorised users and the SLR will provide an alternative route for motorised vehicles especially heavier commercial vehicles.

CONCLUSION ON TRANSPORT CONSIDERATION OF THE SIZEWELL LINK ROAD

- 5.22.144. The traffic generated by the construction of the Proposed Development gives rise to the need for significant highway interventions to alleviate the impacts. One such intervention is the Sizewell Link Road.
- 5.22.145. It is of concern that the Applicant seems not to have fully considered the overall effect on vehicle mileage when considering key environmental factors in the route choice when selected. Also, the analysis of traffic effects on wider communities beyond the A12 and B1122 seems to have been limited in the SLR route choice. This means, it is not clear that the selected route for the SLR is demonstrated to be the optimal choice with respect to overall sustainability in transport terms. Obviously transport considerations are only one element of the SLR's overall sustainability and other elements are addressed in other chapters of this report.
- 5.22.146. Notwithstanding our concerns about route choice there is a strong case for the SLR being required for the construction phase of the development. In addition, on balance we are also persuaded that the SLR should be retained as a permanent feature due to the opportunity it affords for a dedicated HDV route and the realisation of legacy benefits on the B1122 corridor.

TWO VILLAGE BYPASS (TVB)

- 5.22.147. In the Applicant's Planning Statement - Site Selection Report [APP-591] Section 6 states that *"The rationale for proposing the two village bypass is to mitigate the impacts of traffic travelling to and from the main development site on the A12, particularly on the bend through Farnham. The narrow bend at Farnham is widely recognised to be the most significant existing issue on the four villages stretch of the A12. It is the section which is closest to capacity, and the narrow bend creates a potential safety concern, particularly when two large vehicles are passing at once. An online solution would also have an impact on amenity in Farnham, due to the scale of traffic flows on the A12, and the immediate proximity of traffic to the frontage of properties.*

The proposed two village bypass has evolved through an understanding of the following:

- *A review of alternative and historic proposals on the A12;*
 - *The operational pre-requisites of mitigating impacts on the A12 during construction of the power station;*
 - *The outcomes of the environmental assessment process; and consultation feedback on alternative and historic proposals on the A12."*
- 5.22.148. Both Councils in their LIR [REP1-045] support the provision of the TVB given what they considered was the optimal solution of a four village bypass was no longer possible. This is due to the Department of Transport choosing not to provide the additional funding for the bypass of all four villages on the A12 (Marlesford, Little Glemham, Stratford St Andrew and Farnham). Marlesford PC [REP2-365] reluctantly also

accepted that position but are additionally concerned that the alignment of the proposed TVB prejudices eventual delivery of a four village bypass. The TVB route being prejudicial to any eventual delivery of the four village bypass is a view shared by a number of other IPs.

- 5.22.149. We asked at ISH2 [EV-086 to EV-089] about the route of the TVB prejudicing the future delivery of any four village bypass. The Applicant confirmed that there would be no prejudice to any future alignment of the four village bypass. SCC [REP5-173] confirmed the alignment of the TVB did not prejudice the delivery of the four village bypass.
- 5.22.150. They also stated, "*whilst it would be physically possible to achieve a four-village bypass following delivery of a Two Village bypass; the cost of the scheme would still be likely to require Central Government funding. The current methodology for assessing schemes tends to rely on benefits accrued from journey time savings, and the majority of the delay, for which benefits can be accrued making a scheme good value for money, is associated with the eastern section; that which is being bypassed. This would indicate that the business case for the western section of the scheme in isolation would be more difficult and, on that basis, less likely to be successful.*"
- 5.22.151. The issue relating to the development of a future business case for an additional bypass does not take away from demonstrated need for the TVB proposed.

NORTHERN PARK AND RIDE (NPR)

- 5.22.152. Section 4 of the Applicant's Planning Statement - Site Selection Report [APP-591] sets out the process of the site selection for the NPR.
- 5.22.153. The Councils in their joint LIR [REP1-045] support the principle of the NPR.
- 5.22.154. Darsham PC [REP2-251], Heveningham Hall Estate (HHE) [REP2-287] and other IPs objected to the location of the NPR and considered that the Applicant had not adequately justified the selection of the site and highlighted a safety concern with the NPR.

Darsham level crossing – safety concerns

- 5.22.155. HHE state that the TA does not examine the operation of Darsham level crossing with respect to the additional traffic generated by the Proposed Development. HHE however estimate there will be just over a 10% increase in northbound traffic in the peak hour. It is their view that this will exacerbate the road safety issues relating to this level crossing. They state that "*Darsham level crossing currently has a Network Rail risk rating of F2, based on an individual rating of F (moderate) and a collective rating of 2 (very high)*". This view is shared by Mr Lovelock [RR-0244].
- 5.22.156. We asked about this safety concern in ExQ1 [PD-022] TT.1.102. The Applicant [REP2-100] responded confirming that there were ongoing

discussions with Network Rail (NR) on this issue. We sought further clarity in ExQ2 and for an update on this matter in ExQ3 [PD-049] TT.3.3. The Applicant [REP8-116] responded confirming they are committed to work with NR to resolve the issues at the crossing, but they did not acknowledge that this was an issue that was created by the Proposed Development. NR [REP8-166] in their response set out they considered that the upgrade to full barrier control of this crossing was necessary for the safe operation of the level crossing to accommodate additional traffic associated with the Development.

- 5.22.157. In the signed SoCG with NR [REP10-099] Paragraph 1.2.1 it is confirmed that the Applicant *"proposes to provide 50% of the required funding for the level crossing upgrade, estimated to be £2m, however, Network Rail cannot commit to this due to not having confirmed funding secured. NR will be applying for funding for this enhancement as part of its funding submission for CP7 (Mar 2024). However, should funding not be secured then SZC Co. would be willing to discuss providing the balance of funding to ensure the works can be delivered to meet the SZC Co. programme."*
- 5.22.158. The SoCG approach is not consistent with the position of NR [REP8-166]. The SoCG does not invalidate the safety concerns expressed by NR at DL8. In the event of the NR not being able to secure the necessary funding as part of their CP7 funding bid then the works would still need to be delivered.
- 5.22.159. Taking this into account it does mean that there is potential uncertainty about the delivery of the required level crossing improvement works. We understand that the Applicant and NR are committed to working together to deliver the improvement. Some safety concerns with the level crossing obviously already exist and the Proposed Development will increase traffic using the crossing.
- 5.22.160. The Applicant has already expressed the view that they are willing to discuss the shortfall of funding if NR are unable to procure the necessary 50% share of the funding. We did not have time during the Examination to pursue this issue further.
- 5.22.161. We therefore consider it reasonable that the SoS may wish to confirm with both the Applicant and NR whether they can reach a position of certainty about the delivery of the required improvements. We would recommend that the SoS may wish to seek confirmation on the basis that in the event of NR being unable to secure funding for the 50% share of funding in CP7, then the Applicant would commit to fund the whole cost of the works. This would ensure delivery of the required safety improvements at this level crossing.

Capacity of NPR

- 5.22.162. The Heveningham Hall Estate (HHE) [REP2-287] expressed concern that 1250 spaces were an overprovision. They set out that there is no evidence in the TA to support a car park capacity of 1250 spaces in either the NPR or the SPR. The Applicant [REP3-042] set out their rationale for the car park sizing including their concern that if the car parks are

reduced in size that leaves little flexibility for the actual workforce profile rather than that modelled. In addition, they expressed concern that if the car park size was reduced at times of shift changes there could be congestion in the car park.

5.22.163. In their joint LIR [REP1-045] the Councils note that both park and ride sites would have spare capacity but have not objected providing careful monitoring is in place to ensure staff use the park and ride sites.

5.22.164. It is considered that the shift change issue is unlikely to be much of a concern as these are park and ride sites and the shift start and finish times will not necessarily interact very much at these remote sites. However, it is accepted that the car parks have been sized to allow greater flexibility for the modelled travel patterns differing from the actual travel patterns of construction workers. For that reason, we are satisfied that the Applicant has provided a reasonable amount of flexibility in the size of the car parks.

SOUTHERN PARK AND RIDE (SPR)

5.22.165. In the Applicant's Planning Statement - Site Selection Report [APP-591] Section 5 sets out the process of the site selection for the SPR.

5.22.166. The Councils in their joint LIR [REP1-045] support the principle of the SPR.

5.22.167. Hacheston PC [REP2-283] considered that the SPR should be located further south nearer Woodbridge. This view is shared by Wickham Market PC [REP2-493]. Both these parish councils are also concerned about the traffic associated with the SPR using less suitable routes, such as the B1116 through Hacheston or the B1078 through Wickham Market, rather than the A12.

5.22.168. In terms of the location of the SPR, the proposed location was selected after a consultation and sifting process set out in the Site Selection Report [APP-591]. We do not see any evidence to demonstrate the site selection process is flawed or that any other site would be in a better location to intercept journey to work travel for construction workers.

5.22.169. The TA [REP4-005] modelled traffic flows associated with the SPR and found no capacity issues relating to the additional traffic generated during construction and operation of the SPR. The Applicant sets out in the Site Selection Report [APP-591] how the proposed site was selected and consulted on. Both Councils raise no objection to its location and we also agree that this is a suitable location for the southern park and ride site, when considering traffic movement predicted. The Councils' joint LIR [REP1-045] expressed similar concerns about traffic levels on these routes specifically mentioning impact through Wickham Market and on the B1078 through Coddendam.

5.22.170. In terms of traffic associated with the SPR and the effects on local communities this was considered in Chapter 10 of the ES. Resulting from the environmental assessment of additional traffic the Applicant is

proposing to provide traffic management measures through Wickham Market and road safety improvements on the B1078. These measures are secured in Schedule 16 of the DoO [REP10-075].

FREIGHT MANAGEMENT FACILITY (FMF)

- 5.22.171. In the Applicant's Planning Statement - Site Selection Report [APP-591] Section 8 sets out the process of the site selection for the FMF.
- 5.22.172. The Councils in their joint LIR [REP1-045] support the principle of the FMF in that it will increase the likelihood of better management of the movement of freight. They also expressed concerns about the effect of closures of the Orwell Bridge and also the impact on the operation of the A14/ A12 Seven Hills roundabout. These views were shared by a number of other IPs, including Felixstowe Town Council [RR-0381].
- 5.22.173. We asked about the closure of the Orwell Bridge in ExQ1 [PD-022] TT.1.109. The Applicant [REP2-100] responded that locating the FMF on the other side of the Orwell Bridge would increase the difficulty in managing freight traffic to the site with any certainty. They also explained how the TIMP would set out protocols to deal with incidents such as the closure of Orwell Bridge.
- 5.22.174. With respect to the concerns about the impacts on the A14/ A12 junction the Applicant [REP3-044] responded that they had modelled the operation of the Seven Hills junction including for the operation of the FMF and considered that no improvements were required. They also state that National Highways (NH) [REP10-095] are content that the Proposed Development will not have a material impact on the Strategic Road Network and that no highway improvements are required at the A14/ A12.
- 5.22.175. In conclusion, we are therefore satisfied that the Applicant has addressed all relevant transport effects relating to the FMF.

GENERAL TRAFFIC AND HIGHWAY ISSUES

- 5.22.176. The original submitted TA [AS-017] was supplemented by a TA addendum [AS-266] to take account of the first change submission [AS-105]. Following our request [PD-013], a consolidated TA [REP4-005] combines the original TA, the addendum and updates the modelling scenarios.
- 5.22.177. The highway network and junction modelling is considered to be acceptable. Both National Highways (NH) [REP10-095] in their final SoCG and Suffolk County Council (SCC) in their initial SoCG [REP2-076] agreed the strategic and junction modelling.
- 5.22.178. We did ask, for clarification, a number of questions in ExQ1 [PD-022] about a number of the junction modelling outputs. The Applicant [REP2-100] and SCC [REP2-192] responded resolving our concerns with respect to the junction assessments contained within the TA.

- 5.22.179. We have examined all the submitted modelling information and the responses from both SCC and NH as the relevant Highway Authorities. We consider that the Applicant has undertaken a satisfactory assessment of the likely traffic impacts of the Proposed Development.
- 5.22.180. In addition to the modelling undertaken in the TA there were a number of related issues of detail that have been addressed through the Examination these are:
- The A12 improvements – A14 to A1152;
 - The design of the A12/ B1122 Yoxford roundabout;
 - Issues relating to ‘rat running’; and
 - Seasonal variations in traffic levels affecting the assessment.

A12 Improvements – A14 Seven Hills to A1152 Woods Lane

- 5.22.181. In the joint LIR [REP1-045] SCC identified that they were progressing a Major Road Network Scheme to enhance highway capacity along this section of the A12. They had already received Department for Transport development funding for the project. The Council considers the project is necessary because a number of the A12 junctions are already over capacity. Taking this into account they considered that development in the area would exacerbate the issues and that the Proposed Development should make a proportionate contribution.
- 5.22.182. Initially the Applicant [REP3-044] expressed the view that no highway improvements were necessary as a result of the Proposed Development and were not offering any contribution. We asked about this in ExQ1 [PD-022] and for further clarification of the position in ExQ2 [PD-037]. The Applicant [REP7-055] confirmed that they had agreed a suitable contribution with SCC, which would be secured in Schedule 16 of the DoO [REP10-075].

Yoxford roundabout

- 5.22.183. The Heveningham Hall Estate (HHE) [REP2-287] expressed concerns about the modelling undertaken for this proposed new roundabout and also that the roundabout is over designed and too big. The Applicant [REP3-042] responded saying the design of the roundabout had been informed by detailed discussion both with SCC and ESC and that it is on National Highways Heavy Load Route 100 and needs to be able to accommodate AIL. They go on to note that in the joint Councils’ SoCG [REP2-076] the Councils accepted the modelling and design of the roundabout as appropriate.
- 5.22.184. HHE [REP5-278] maintained their concerns about the junction assessment. We asked both the Applicant and SCC about the roundabout size in ExQ2 [PD-037]. The Applicant [REP7-055] responded that a smaller roundabout would lead to safety concerns when AIL were passing through the junction as there would be a separate AIL overrun area. SCC [REP7-163] does not disagree with the Applicant’s position on the safe operation for AIL and the size of the proposed roundabout. The ExA sees

no reason to disagree with the Applicant on this matter and consider that the proposed roundabout is suitably sized.

- 5.22.185. HHE [REP5-277] requested that the size of the Yoxford roundabout be reduced after completion of the proposed development. As stated above this roundabout forms part of the NH Heavy Load Route 100 and as such the ExA are satisfied that the enlarged roundabout should be retained permanently.

Rat running

- 5.22.186. In addition to the concern about levels of development traffic, the selection of route choice was a significant concern for numerous IPs. These concerns focused on the potential for traffic relating to the Proposed Development to use less suitable routes should there be congestion on the A12. This included both routes to the Main Development Site and the Associated Development sites.
- 5.22.187. We asked in ExQ1 [PD-022] about the issues relating to workers and other traffic related to the Proposed Development using less suitable routes. The Applicant [REP2-100] responded stating that all HDV (defined as HGV, LGV greater than 3.5t and buses) will only be operating on defined routes controlled in accordance with the CTMP and secured in the DoO. All other LGV will be managed by the Delivery Management System. In addition, the Applicant is proposing a construction signing strategy and monitoring of traffic routes will be something that will be the subject of review by the Transport Review Group overseeing both the CTMP and the CWTP.
- 5.22.188. Wickham Market PC [REP2-493] suggested the use of a mobile phone GPS to monitor the construction worker travel control route choice. This was discussed at ISH3 [EV-094 to EV-097] and the Applicant [REP5-115] responded that there are both issues with personal data protection and employment terms and conditions about monitoring workers' personal mobile phones, when travelling to work but not when they are at work. The ExA agree with the Applicant's position on this.
- 5.22.189. We raised the issue of rat running again in ExQ3 [PD-049]. The Applicant [REP8-116] responded explaining how additional clarity was provided in the latest version of the CTMP and CWTP as to how concerns from local residents and groups can escalate an issue relating to rat running to the Transport Review Group for action. SCC [REP8-180] confirmed that they are satisfied with the Applicant's approach.
- 5.22.190. The Applicant in Schedule 16 of the DoO [REP10-077] is proposing a number of schemes to address concerns about vehicle routing. These are:
- B1078 road safety improvements; and
 - Wickham Market transport improvements.
- 5.22.191. The ExA accept that the issue of rat running is something that could give rise to a number of local concerns. We also recognise that the traffic

modelling undertaken may not fully represent traffic patterns on all days during construction.

- 5.22.192. We do however consider that the Applicant is proposing a suitable approach for managing both freight movement and worker travel. Given that we do not consider there would be any additional impacts that would not be managed or mitigated by the Applicant's approach.

Seasonal traffic variations

- 5.22.193. Kelsale-cum-Carlton Parish Council [RR-0655] and a number of other IPs suggested the Applicant should have assessed the seasonal effects of traffic more accurately. They were concerned that the Applicant had not assessed the impact of the Proposed Development during the busiest holiday periods.
- 5.22.194. We asked about this in ExQ1 [PD-022] and at ISH2 [EV-086 to EV-089] and the Applicant [REP5-114] responded in detail concerning the variations in traffic between the assessment period in the TA and the highest seasonal traffic flows in August. Other than a Friday afternoon peak hour the traffic flows are demonstrated to be fairly similar. Given this evidence the ExA is satisfied that using the industry standard approach of undertaking traffic assessment in neutral months is acceptable even though there may be limited occasions where traffic levels may vary from the assessment month.

ENVIRONMENTAL ASSESSMENT OF TRAFFIC EFFECTS

- 5.22.195. The submitted ES chapter on transport [APP-198] examined the effects on the following:
- Severance;
 - Pedestrian delay;
 - Amenity;
 - Fear and intimidation;
 - Driver delay;
 - Accidents and safety; and
 - Hazardous loads.
- 5.22.196. Numerous IPs expressed concerns over the traffic effects on roads and communities in both RRs and WRs. Of particular concern was the impacts during the early years, when work would be started on the MDS but the mitigation offered by the Associated Development sites would still not be operational.

Early Years

- 5.22.197. The B1122 Action Group on Sizewell [REP2-224], Stop Sizewell C and Theberton and Eastbridge PC joint WR [REP2-449j] and numerous other IPs expressed concerns about the early years transport strategy with particular reference to the B1122. We asked about the early years impacts on the B1122 in ExQ1 [PD-022].

5.22.198. Suffolk County Council in response to ExQ1 T.T.119 about the early years effects on the B1122, stated that they were still in discussions about the methodology of assessment as set out in the Applicant’s submissions. We further discussed the assessments of the transport impacts of the Proposed Development at ISH3 [EV-094 to EV-097]. Following on from the hearing and the ongoing discussions with SCC the Applicant submitted an updated ES transport addendum at DL7 [REP7-030]. SCC [REP8-179] confirmed that “*the methodology has been found to be acceptable subject to agreeing the Implementation Plan, Monitoring and Management Plans.*”

5.22.199. The fourth ES Addendum [REP7-030] identifies a number of mitigations that are secured in Schedule 16 of the DoO [REP10-077]. These are:

- B1122 early years scheme;
- B1125 traffic management works;
- Leiston transport improvements;
- Marlesford and Little Glemham transport improvements; and
- Yoxford transport improvements

5.22.200. One outstanding area of concern for the ExA is the determination of the transport environmental impacts in the early years of the Proposed Development in advance of both the SLR and the TVB being open. In this early year period, the HDV route to the MDS will be via the A12 and the B1122.

5.22.201. Over the course of the Examination the proposed early years cap level of HGV has not changed in that it is 300 deliveries (600 two way movements). What has changed over the course of the Examination is that the proposed cap at the close of the Examination now includes buses and water tankers. Additionally, the monitoring point has changed from the MDS gate to monitoring by GPS on HDV travelling along the B1122 through Theberton and Middleton Moor.

5.22.202. The early years HDV level of 300 is over that of the typical peak construction number of 250/day. The extract from Figure A [REP7-071] shows the smoothed profile of HDV movement.

Figure A: Smoothed HGV profile from [REP7-071] paragraph 1.9.2

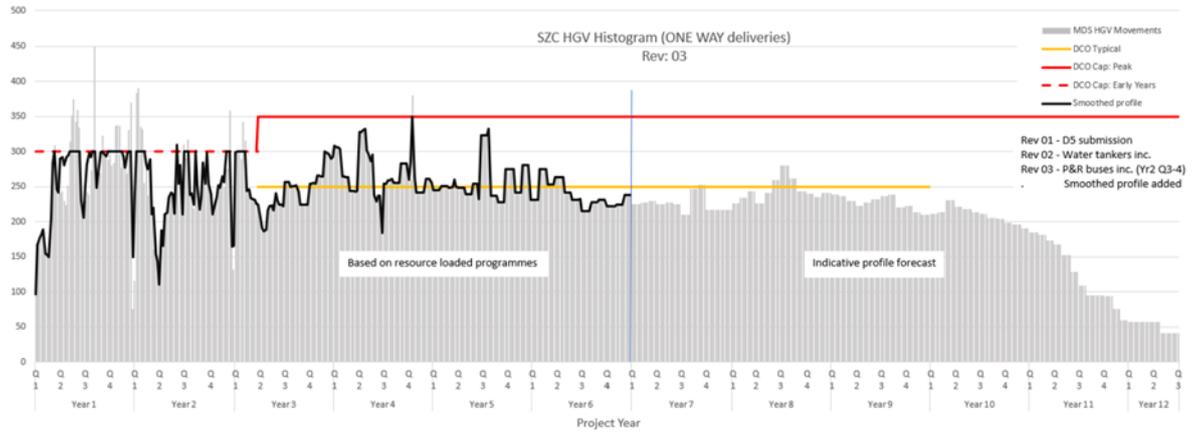


Figure 5.22.01: HGV Profile [REP7-071]

- 5.22.203. This histogram gives a fairly clear representation showing the early years as a much more intensive period than most of the peak construction period when HDV traffic will not be using the B1122. In addition, it was confirmed by the Applicant in [REP10-168] that use of the B1122 will also occur for the last nine months of Year 0 for pre-commencement and enabling works. During that year 0 period it is accepted that HDV movement will not be near the proposed cap level, but it does mean the use of HDV along the B1122 will continue for approximately two years and nine months.
- 5.22.204. In the Early Years the increase in 18hr traffic levels as a result of the Proposed Development, along the A12 south of the B1122 is fairly modest and mostly less than 10%. HDV increases vary from just under 80% to over 110%.
- 5.22.205. On the B1122 the increase in 18Hr traffic levels is approximately 30% or over and increases in HDV are between 540% and 680%. In real terms the existing 18hr HDV flow, through Theberton, is 88 vehicles, and it is predicted to rise to 688 with the Proposed Development.
- 5.22.206. The histogram above shows the overall intensity of the HDV movement. It is our view that whereas the A12 is a major road and already carries significant amounts of traffic, the B1122 is as the Applicant describes it a rural B road. The Applicant [REP2-108] set out in Appendix 5D the existing characteristics of the B1122. In summary these are:
- Not wide enough in places to safely accommodate two way HGV wider than 3.0m in opposite directions;
 - No continuous footways or cycleways;
 - Where there are footways in Theberton they are 1.2m wide;
 - Speed limit varies between 30mph, 40mph and 60mph;
 - Narrowness of road intimidating for cyclists;
 - Inconsistent horizontal and vertical alignment; and
 - Locations where junction and forward visibility is poor even if speed limits were to be reduced.
- 5.22.207. As stated above the fourth ES transport addendum [REP7-030] has addressed most of the concerns that SCC had about the approach to the assessment of the environmental effects of transport impact. However, the ExA still has outstanding concerns about how the Applicant has addressed the issue of fear and intimidation for non-motorised users along the B1122.
- 5.22.208. The IEMA Guidance has been used as the basis for the Applicant's assessment of the transport effects.
- 5.22.209. In Appendix 2C of the fourth ES Addendum [REP7-032] paragraph 3.7.34 quotes paragraph 4.2 of the IEMA Guidance that states, "*the assessment of impacts will need to determine both the change in magnitude of the impacts as well as their absolute levels.*" The Applicant has not gone on to add from Paragraph 4.3 of the IEMA that states that "*In the case of pedestrian fear and intimidation, the speed and size of vehicles and width of pavements will be important.*"

- 5.22.210. The Applicant in the Addendum [REP7-032] has changed the assessment of the magnitude of impact for fear and intimidation from the original ES [APP-198], where it was originally scoped out of the assessment as the Applicant maintains only the change in average speed is considered. We asked questions about the original assessment in both ExQ1 [PD-022] and ExQ2 [PD-037] and we discussed the assessment methodology at ISH3 [EV-094 to EV-097].
- 5.22.211. In response to our questions TT.2.26 and TT.2.27 the Applicant's final position was the IEMA Guidance only refers to the thresholds for change of average speed for assessment of fear and intimidation. This, in our view, is too narrow an interpretation of the overall approach in the IEMA Guidance. We consider that the actual speed of traffic along a road should be a consideration in the overall assessment of magnitude. On page 37 of the IEMA Guidance there is a table showing an example of the various criteria for assessment. These are:
- Average traffic levels;
 - Average HGV proportion; and
 - Average vehicle speeds.
- 5.22.212. This table has a footnote stating, "*The traffic components can be weighed to give an overall score of fear and intimidation corresponding to particular combinations of traffic flow, speed and composition.*"
- 5.22.213. The Applicant has not done this in their assessment [REP7-032] they have considered the factors individually and consequently all existing roads have been assessed to have a very low magnitude score. This is because they have considered the factors affecting the degree of magnitude individually not as the IEMA Guidance suggests as a weighted consideration of all of the traffic factors but as three factors which must all be met in order to change the magnitude. All existing roads assessed for fear and intimidation are said to have very low impact because none have HDV increase over 1000 in 18hr.
- 5.22.214. They do not weight the factors as a group, nor is there any consideration of proximity to traffic such as narrow footways also recommended in the IEMA Guidance. Overall, it is our view that the Applicant's approach has not adequately identified the likely significant effects on fear and intimidation related to the significant increases in both traffic and HDVs on the more sensitive sections of both the A12 and B1122.
- 5.22.215. In our view, taking a more balanced view in line with the IEMA Guidance would change the magnitude of impact on sections of the A12 and B1122 through the villages along the routes in the early years. This would change some effect significance from the minor adverse in the Applicant's assessment to a combination of moderate and major adverse. This result would introduce significant effects not accounted for in the Applicant's assessment.
- 5.22.216. Schedule 16 of the signed DoO [REP10-077] secures the improvements by way of mitigation agreed with the Councils. It includes amongst other

obligations their commitment to undertake a B1122 Early Years Scheme. This would include :

- Footway improvement in Theberton;
- Pedestrian crossing in Theberton and/or speed limit reduction;
- Road safety improvements at B1122 and Mill Road junction; and
- Improvements to rights of way crossing of the B1122.

5.22.217. Annex Q of the DoO [REP10-082] has indicative plans of the B1122 early Years scheme. Whereas, these indicative improvements have been accepted by the Councils, they do not offer any relief from the fundamental issues highlighted by the above analysis of fear and intimidation created by the substantial increase in HDV along the B1122. Even improved footways would be narrow and the proposed crossing in Theberton is at a point where the footways are already narrow and as such the presence of the crossing signage would restrict the width of the footways further. The current speed limits through the villages is 30 mph and even if these could be reduced further passing HDV would still create a significant impact on pedestrians and any cyclists who would be using the road.

5.22.218. The indicative plans in Annex Q also show that there may be a need to widen the B1122 at two points to enable HGV to pass each other. This provides further evidence of the current unsuitability of the B1122 as a route for significant HDV use. In addition, road widening may have some impact on increasing HDV speeds along the B1122.

5.22.219. The Applicant has already made the case that the SLR is needed based on the unsuitability of the B1122 and the level of traffic predicted. Early years HDV caps are higher than the typical day peak construction levels predicted by the Applicant. The above histogram shows that the early years is the most intensive period in terms of HDV activity. The mitigation being offered would not remove the significant effects to fear and intimidation for pedestrians and cyclists using the B1122 especially through the communities of Theberton and Middleton Moor.

5.22.220. Similar problems would occur on the A12 through the village of Yoxford in the early years and the limitations of the Farnham bend remain throughout the early years.

5.22.221. It is also important to note in Schedule 16 of the signed DoO [REP10-077] it states that the Applicant would not be required to implement prior to commencement the following schemes:

- Wickham Market Improvement Scheme (paragraph 5.2.4);
- Leiston Scheme (paragraph 5.3.4);
- Marlesford and Little Glemham Scheme (paragraph 5.4.4);
- B1125 Scheme (paragraph 5.5.4);
- Yoxford Scheme (paragraph 5.6.4); and
- B1122 Early Years Scheme (paragraph 5.7.4)

5.22.222. In particular, the B1122 Early Years Scheme in paragraph 1 of Schedule 16 is defined as "*works to address road safety and to address transport*

impacts of construction traffic likely to arise prior to first use of the Sizewell Link Road." The DoO does not though secure implementation of the above mitigations in advance of commencement so we cannot be assured they will be in place to mitigate the impacts identified.

- 5.22.223. Taking all of this into account it is our view that in transport terms the SLR is required in advance of any significant start on the MDS. We did discuss this in ISH2 [EV-086 to EV-089] and the Applicant's response to our questioning is set out in [REP5-107] paragraphs 1.3.16 to 1.3.19. Their view is that the urgency of delivery of the Proposed Development by 2035 is of extreme importance and from a national perspective needs to be judged against the short term impact on the B1122. What we are clear about is that there are transport impacts on the B1122 that would not be adequately addressed by the Applicant's proposed mitigations. Short term in the case of the B1122 impact would be for around two years and nine months. Taking this account, the ExA ascribes substantial weight to the transport effects on the B1122 in the Early Years against the making of the order without an alteration to the phasing of the SLR.
- 5.22.224. This negative impact on the B1122 needs to be considered in the overall planning balance for this proposal. This is set out in Chapter 7 of this report.

MONITORING, REVIEW AND CONTROL

- 5.22.225. A key element in the management of both the freight and worker transport strategy are the control documents secured as part of the DoO [REP10-082]. These are:
- The Construction Traffic Management Plan (CTMP);
 - The Construction Worker Travel Plan (CWTP); and
 - The Traffic Incident Management Plan (TIMP).
- 5.22.226. The overall approach and structure of these documents is set out earlier in this chapter.
- 5.22.227. All of the plans would be overseen by the Transport Review Group (TRG) and their role is pivotal in ensuring the effective management of the freight and transport strategy. The Applicant's original proposed membership consisted of six members, three appointed by the Applicant and one each from NH, SCC and ESC. We asked about the balance and decision making of the TRG membership in ExQ1 [PD-022] given the even split and no mention of casting votes. The Applicant [REP2-100] responded setting out that any disagreements would be passed to the Delivery Steering Group for resolution. SCC [REP2-192] also responded stating they considered that the lack of clear governance such as a chair with a casting vote and the lack of clarity over proxy voting would mean that any dispute resolution would be unnecessarily complicated and delayed.
- 5.22.228. Suffolk Constabulary [REP2-168] requested that they should be members of the TRG given their role in AIL management and general traffic regulation enforcement.

- 5.22.229. The issues of the governance and dispute resolution were also discussed at ISH3 [EV-094 to EV-097]. During the Examination discussions continued between the Applicant, SCC and Suffolk Constabulary on this matter. The final governance arrangements of the TRG are set out in Section 4 of Schedule 16 of the DoO [REP10-077]. This states that the TRG will be chaired by SCC, include a representative of Suffolk Constabulary and one additional representative from the Applicant to maintain the balance. The need for urgent meetings to deal with more immediate issues is clarified and the dispute resolution role of the Delivery Steering Group is also clarified.
- 5.22.230. It is our view, with the amendments made through the Examination that the TRG would be an effective overseeing body for the CTMP, CWTP and TIMP.

Construction Traffic Management Plan (CTMP)

- 5.22.231. The CTMP is the main means of ensuring control of the road based element of the Applicant's freight management approach. Its objectives are to:
- Minimise the volume of freight traffic associated with the construction of the Proposed Development;
 - Maximise the safe and efficient movement of materials required for the Proposed Development; and
 - Minimise the impacts both for the local community and visitors to the area using the road network.
- 5.22.232. Suffolk County Council [REP3-079] expressed concerns about the scope and degree of control over HGV movements. We discussed the coverage of the CTMP [REP2-054] at ISH3 [EV-094 to EV-097]. Following that SCC [REP5-174] still considered that the proposed caps, controls and monitoring measures were not sufficient to protect the highway network from impacts. Suffolk Constabulary [REP5-168] were seeking to ensure that the final CTMP had an agreed AIL escorting matrix included in it. Discussion continued between the Applicant and these parties throughout the remainder of the Examination.
- 5.22.233. The CTMP in the signed DoO [REP10-082] sets out the agreed position with respect to all outstanding concerns about scope and coverage of capped HDV movement. Suffolk Constabulary in their SoCG [REP10-106] confirm that agreement has been reached about the AIL escorting matrix included in the final CTMP.
- 5.22.234. We consider that the final CTMP represents a realistic means of monitoring and controlling freight movement by road.

Construction Worker Travel Plan (CWTP)

- 5.22.235. The CWTP is a travel plan for the construction workforce and provides all of the details required for the management of worker travel behaviour. In addition, it also covers the approach to encouraging sustainable mode choice for non-work travel by the construction workforce. A key focus of the CWTP would be on the measures which would be put in place to

ensure successful delivery of a bus-based approach to the daily movement of the construction workforce during the Proposed Development construction works. These measures are designed to deliver confidence that the bus-based approach would be effectively delivered and that the impacts on the local transport network would be managed and mitigated.

- 5.22.236. Unlike the CTMP which seeks to control impacts of freight traffic by monitoring vehicle movements the CWTP differs in that the Applicant seeks to control worker travel by the use of modal targets. In addition to the encouragement of more sustainable modes of travel the CWTP relies on the effective control of parking locations, which in turn would limit car movements to those identified in the TA. The early years in the CWTP is defined by the opening of one or other of the remote park and ride sites.
- 5.22.237. In ExQ1 [PD-022] we asked about the discrepancy between the TA that stipulated the early years traffic modelling was undertaken on the assumption that there were 1500 employees at the MDS. However, in the CWTP [REP2-055] a workforce profile showed in excess of 3000 people may be working in the early years. In part this is explained by the inclusion of the 730 anticipated Associated Development site construction workers being included. The Applicant [REP2-100] explained that they expected that when MDS workforce numbers approach 1500 that would be at the stage when one of the remote park and rides would be opening. They consider that this would provide effective control to ensure during the early years car travel to the MDS would not exceed the modelled flows in the TA.
- 5.22.238. Mode share targets managing worker traffic is reliant on effective control of worker parking. We asked about this in ExQ2 [PD-037] to ascertain the effectiveness of parking controls in the DCO in both the early years and at peak construction. The Applicant [REP7-055] included the following clarifications about how they considered the mode share targets could be met by the control of parking:
- An amended Requirement 8 of the dDCO would in effect limit MDS parking to 650 in the early years and after opening of a park and ride site to 1000; and
 - Requirement 8 would also require the build and use of car parking to accord with the Construction Method Statement [REP5-048].
- 5.22.239. Due to other changes to the dDCO the relevant Requirement number is 13 in the final dDCO [REP10-009].
- 5.22.240. This approach does control on-site parking but the availability of parking on the surrounding highway is also a consideration. This fly parking is discussed earlier in this chapter. Fly parking would also be continuously monitored, and necessary remedial actions would be taken to ensure there would be no uncontrolled parking by construction workers.
- 5.22.241. It is our view that the worker transport approach set out in the CWTP would be an effective way of controlling worker traffic. It is different from the more straightforward approach set out in the CMTP to count HDV

movements. We do however understand the Applicant is suggesting this approach to try and ensure too rigid controls over vehicle numbers does not hinder the workforce flexibility to progress the Proposed Development as effectively as possible. The joint Councils have both signed the DoO [REP10-082] that contains the final CWTP.

Contingent Effects Fund (CEF).

- 5.22.242. The TRG have an overall monitoring and review function for all three of the above plans but in particular with respect to the CTMP and the CWTP the plans include details of the CEF. The CEF would be available to be drawn down by the TRG in the event that significant adverse transport effects arise that were not mitigated through projects secured in either the DCO or the DoO.
- 5.22.243. The CEF is secured in the signed DoO [REP10-077] and the Annex O in the DoO [REP10-082] includes a list of potential effects and potential mitigations.
- 5.22.244. In general terms we agree with this approach but one area where this would not be appropriate is the B1122. This is not listed in Annex O, and for the reasons set out above we consider the adverse effects of the early years traffic impacts on sections of the B1122 would not be mitigated by the relatively minor interventions the CEF is designed to deliver.

Traffic Incident Management Plan (TIMP)

- 5.22.245. The TIMP sets out the management of the construction traffic during an event or incident occurring on the HDV routes to the MDS. The measures outlined in the TIMP are intended to minimise potential impacts of traffic associated with the Proposed Development construction on response times and delivery of emergency services in the event of an incident.
- 5.22.246. We asked about the coverage of the TIMP in ExQ1 [PD-022]. The Applicant [REP2-100] responded that the intention of the TIMP was to set out protocols about the nature of the incident that would activate the TIMP. In addition, it would outline the communication and coordination between the Applicant and the transport authorities and the emergency services.
- 5.22.247. At ISH3 [EV-094 to EV-097] we discussed in greater detail the coverage of the TIMP and the need for some scenario planning. The additional scenario planning would give additional comfort to the relevant authorities and the wider public that a variety of incidents had been considered and scenarios for dealing with them were properly tested. The Applicant [REP5-108] responded confirming they would undertake additional scenario planning.
- 5.22.248. These additional scenarios were included in the final version of the TIMP, which is secured as Appendix M of Schedule 16 of the signed DoO [REP10-082]. We are satisfied that the Applicant has provided a realistic plan to deal with incidents that would affect the movement of HDV associated with the Proposed Development.

Control of Delivery of Associated Development Sites

- 5.22.249. Suffolk County Council [REP2-189] expressed concerns about the timing of delivery of the Associated Development sites in order to ensure that the freight management strategy proposed by the Applicant could be realised. Numerous other IPs shared this concern over the timely delivery of the required rail, marine and road improvements. Overall, the concern expressed was should the more sustainable elements of the freight / transport strategy be delayed or not delivered this would lead to an over reliance on the use of road based freight movement creating unassessed significant effects.
- 5.22.250. This matter was also discussed at ISH2 [EV-086 to EV-089]. The Implementation Plan [REP2-044] showed indicative timing for delivery for key elements of the project including the AD sites. The issues at this stage were the indicative nature of this plan and there being no link to clear trigger points in the Proposed Development phasing plan. Discussion on this matter continued throughout the Examination between the Applicant and the Councils.
- 5.22.251. The final version of the Construction Method Statement (CMS) [REP10-025] has in Section 2.1 trigger points for the delivery of key elements of the freight/ transport management strategy linked to the phases of development. The dDCO [REP10-009] in Requirement 13(1) states that construction works undertaken as part of the Authorised Development must be carried out in accordance with the Construction Method Statement. We are satisfied this mechanism would secure the timely delivery of the key elements of the freight/ transport strategy.

ExA's CONCLUSION ON TRAFFIC AND TRANSPORT

- 5.22.252. Paragraph 5.13.10 of NPS EN-1 highlights the preference for water-borne or rail transport at all stages of the project. The Applicant's originally submitted freight management strategy was based around the modal split for freight of 61% by road, 38% by rail and 1% by sea. The changes submitted prior to the start of the Examination changed the mode shares to 40% by road and 60% by rail and sea. The revised approach is better aligned to the emphasis in NPS EN-1 with respect to mode of freight movement. This is an important consideration especially given the relatively remote location of the Proposed Development and the nature of the local highway network.
- 5.22.253. In this chapter we have set out how we have examined the transport impacts of the Proposed Development. In general terms we are content that the Applicant has properly assessed the likely significant effects resulting from the Proposed Development and where required proposed suitable mitigation. We also consider that the proposed approach to monitoring review and control of traffic movements is suitably secured in the Deed of Obligation and the Requirements of the dDCO.
- 5.22.254. There are two issues of concern that both relate to the SLR. Firstly, we accept there is a demonstrated need for a relief road for the traffic along the B1122 during the construction of the Proposed Development.

- 5.22.255. However, we have found that the route selection did not fully take into account the issues relating to transport sustainability. There is evidence that an alternative route further south could reduce the vehicle mileage and journey time for traffic associated with the Proposed Development. In addition, a route further south may have also provided some traffic relief to wider communities south of the SLR especially after the Proposed Development would become operational. Such a route is not before us, but it is regrettable that the Applicant did not consider these wider transport factors in more detail in the route selection process.
- 5.22.256. We do not dispute that a relief road is required nor that the proposed SLR would provide suitable relief for communities along the B1122.
- 5.22.257. There is one other area however where we find the Applicant's approach is not sufficient to address the residual adverse effects that we consider are significant. This relates to the Early Years assessment of traffic in advance of the construction of the Sizewell Link Road and Two Village Bypass.
- 5.22.258. Despite the Applicant's change from 61% to 40% by road just prior to the start of the Examination this makes no difference to anticipated HDV levels in the Early Years.
- 5.22.259. We have set out why we consider that there is clear evidence that the early years is the most intensive period for HDV movement. In the early years 18hr HDV flow along the B1122 through Middleton Moor and Theberton would rise from around 100 HDV to around 700 HDV. The Applicant has already evidenced why the B1122 is unsuitable for use by HDV throughout the construction period and beyond. Their main reason why its use is acceptable in the early years is that this would be a temporary period and there is an urgent need for the Proposed Development that could not be delayed by constructing the mitigation in advance of the works on the main site.
- 5.22.260. The issue relating to the urgency of the need is discussed elsewhere in this report, but it is our view that in transport terms that the SLR should be in place in advance of commencement on the main site due to the transport impacts along the B1122 for a period of up to two years and nine months otherwise.
- 5.22.261. Taking this account, the ExA ascribes substantial weight to the transport effects on the B1122 in the Early Years against the making of the order, unless both the SLR and the TVB are operational in advance of commencement of Phase 1 works on the MDS. Phase 1 is site establishment and preparation for earthworks as shown in the Implementation Plan (Appendix H) [REP10-082]. Such an approach would have significant implications for both the timing of the start on the MDS but also it would have implications for excavations, materials handling and stockpile management of the whole project. If the SoS is minded to agree with our suggested approach about the delivery of this mitigation, we would recommend that the SoS may wish to consult with the Applicant, SCC and ESC to establish their views as to the correct

control mechanism to enable the delivery of the SLR and TVB in advance of commencement of Phase 1 on the MDS.

- 5.22.262. We would also recommend that the SoS may wish to establish some certainty of delivery about the upgrade of the Darsham A12 level crossing. The Applicant and Network Rail have a framework agreement that includes the upgrade of this level crossing. At the close of the Examination the agreed position is that they would both contribute 50% of the cost to full barrier control. However, Network Rail's contribution is subject to CP7 funding. We therefore recommend that the SoS may wish to seek to confirm that in the event this CP7 funding is not secured by NR that the Applicant agrees to meet the full costs of the necessary improvement.
- 5.22.263. Taking all the above matters into account we consider that the transport impact of the Proposed Development would be negative, even allowing for the mitigations secured in the DCO and DoO. On the basis that an alternative phasing of the SLR and TVB is not before us, the ExA consider that there is substantial weight relating to transport issues against the making of the Order.

5.23. WASTE (CONVENTIONAL) AND MATERIAL RESOURCE

Introduction

- 5.23.1. This section addresses the conventional waste and materials resources effects of the Proposed Development and applies to non-radioactive waste for nuclear infrastructure. Radioactive waste is considered in section 5.20 of this report

Policy Considerations

- 5.23.2. Paragraph 5.14.1 of NPS EN-1 states that Government policy on hazardous and non-hazardous waste is intended to protect human health and the environment by producing less waste and by using it as a resource wherever possible. Where this is not possible, waste management regulation ensures that waste is disposed of in a way that is least damaging to the environment and to human health.
- 5.23.3. Paragraph 5.14.2 of NPS EN-1 sets a waste hierarchy approach to manage waste which is prevention; preparation for reuse; recycle; other recovery; disposal.
- 5.23.4. Paragraph 5.14.6 states that the Applicant should set out the arrangements that are proposed for managing any waste produced and prepare a Site Waste Management Plan.
- 5.23.5. Paragraph 5.14.7 states that the decision maker should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development. Paragraph 5.14.7 goes on to say that the decision maker

should use requirements or obligations to ensure that appropriate measures for waste management are applied.

Applicant's Submission

ES Chapter 8, Conventional Waste and Material Resources [APP-193]

- 5.23.6. This chapter of the ES presents an assessment of the material resource use and conventional waste generation effects arising from the construction and operation of the main development site and associated development sites. It includes the removal and reinstatement of the temporary development. It provides the Applicant's assessment of potential impacts, the significance of effects, the requirements for mitigation and the residual effects.
- 5.23.7. Paragraph 5.14.2 of NPS EN-1 outlines that waste management is implemented through the waste hierarchy. The Applicant in following the waste hierarchy proposed dealing with waste in the following order of priority:
- Prevention;
 - Preparing for re-use;
 - Recycling;
 - Other recovery (for example energy recovery); and
 - Disposal, only as a last resort.
- 5.23.8. The Applicant also states that the following considerations must also be taken into account:
- Environmental protection principles of precaution and sustainability;
 - Proximity principle for treatment and disposal of waste to be as close to its source as possible;
 - Technical feasibility and economic viability;
 - Protection of resources; and
 - Overall environmental, human health, economic and social impacts.
- 5.23.9. The assessment considered both the construction and operation phases of the Proposed Development. The assessment did not consider waste and material types and quantities for the decommissioning of the Proposed Development at the end of its lifetime. Arrangements for the decommissioning process would be refined periodically, and a Decommissioning Waste Management Plan developed in line with existing regulatory requirements, prior to commencement of decommissioning.

Material Resources

- 5.23.10. An assessment was provided of the material resource requirements of the Proposed Development. This included amounts of cement, sand, aggregates, backfill, steel, bitumen and other resources. It looked at the availability of those resources in the Suffolk area and nationally.
- 5.23.11. The implementation of mitigation measures would allow the efficient use of material resources on-site. It is envisaged that all the required fill

material for the earthworks would be provided from site-won material, therefore, negating the need to import fill materials for earthworks to the site. Other construction materials would be required to be imported to site to complete the works, for example, other backfill for structures would require aggregates or aggregate-based products which would be imported to site.

- 5.23.12. It is estimated that in total approximately 5,104,300 tonnes of concrete would be required for the construction of the Proposed Development over the construction period. This represents 4.2% of the total UK availability and exceeds Suffolk's availability.
- 5.23.13. The magnitude of effect for resource demand is major for Suffolk in respect of concrete, and therefore it is considered significant in the context of the application. The magnitude of effect is minor in respect of concrete for the UK, therefore, it is considered not significant in the context of the application.
- 5.23.14. It is estimated that approximately 1,157,700 tonnes of bitumen would be required for the construction of the Proposed Development. This represents approximately 5.1% of total bitumen material availability in Suffolk and 0.6% of the total UK availability.
- 5.23.15. The magnitude of effect for resource demand is moderate for Suffolk in respect of bitumen, therefore it is considered significant. The magnitude of effect for resource demand is negligible in respect of bitumen for the UK, therefore it is considered not significant.
- 5.23.16. It is estimated that approximately 1,012,510 tonnes of steel would be required for the construction of the Proposed Development. There is no baseline available for the availability of steel in Suffolk, however, this represents approximately 13.9% of the total UK availability.
- 5.23.17. The magnitude of effect for resource demand is major in respect of steel for both Suffolk and the UK, therefore it is considered significant.
- 5.23.18. It is estimated that approximately 267,960 tonnes of gravel would be required for the construction of the Proposed Development. This represents approximately 1.2% of the total availability of gravel material in Suffolk and approximately 0.6% of the total UK availability.
- 5.23.19. The magnitude of effect for resource demand is minor in respect of gravel for Suffolk, therefore it is considered not significant. The magnitude of effect for resource demand is negligible in respect of gravel for the UK, therefore it is considered not significant.
- 5.23.20. The Proposed Development is also estimated to require approximately 1,017,480 tonnes of 'other materials'. These are assumed to comprise a mix of materials, goods and equipment and, therefore, it has not been possible to provide a direct assessment against a specific resource.
- 5.23.21. Topsoil and subsoil would be stripped and it is the intention that these materials would be re-used on-site for landscaping, where appropriate.

- 5.23.22. The majority of materials required for construction comprise aggregates, or aggregate based products, which is a primary material. Suffolk does not have indigenous supply of crushed rocks and good quality limestones that would be required for the Proposed Development.
- 5.23.23. However, the baseline has indicated adequate supply of aggregates within Suffolk, therefore where further supplies of aggregates are required the majority of these can be procured within Suffolk.
- 5.23.24. During operation, it is considered that the magnitude of effect for resource use associated with the operational activities of the Proposed Development would be likely to be minor in respect to material volumes in both Suffolk and the UK, therefore it is considered not significant.

Generation and management of waste

Excavated materials

- 5.23.25. The Applicant considered it was not possible at this stage to fully determine the precise quantities of excavated material that would be deemed to be unacceptable for re-use on-site, it is expected that these would be minimal. Therefore, a minor adverse effect on the capacity of landfill sites to accept non-hazardous excavation material has been determined, which is considered not significant.
- 5.23.26. It was considered possible that a small fraction of the excavated materials would be contaminated, particularly in the area of Coronation Wood, due to previous land uses, and if so, a percentage of this material would become waste. Most of the main development site and the sites for associated development have no history of previous development and no significant contamination is expected. It is therefore unlikely that large volumes of hazardous waste would be generated from the earthworks phase.

Construction and demolition waste

- 5.23.27. The Applicant has set out that waste can be subdivided into three broad categories, namely inert, non-hazardous and hazardous.

Inert Waste

- 5.23.28. The Applicant estimated that in total approximately 297,000 tonnes of inert construction waste would be generated. This waste would be dealt with in accordance with the waste hierarchy, which would require that re-use on other sites and recycling are prioritised. Demolition quantities from the Sizewell B relocated facilities works are assumed to occur concurrently with the first 3 years of the works. Any inert waste from the demolition of structures and from offcuts are likely to be minimal.
- 5.23.29. The remaining permitted capacity of inert recovery facilities that lie within 100km of the main development site is estimated as being approximately 1.18 million tonnes, in addition to 650,000 tonnes of physical treatment permitted capacity which may be able to accept inert material.

- 5.23.30. The worst-case scenario would be that this waste requires disposal to landfill, and the baseline has identified sufficient remaining inert landfill capacity in Suffolk, amounting to approximately 3 million m³ of capacity within 100km of the main development site.
- 5.23.31. Inert waste not likely to be reused on site is expected to constitute less than 1% of the remaining inert landfill and inert recovery capacity within 100km of the main development site boundary. This would result in a reduction or alteration in the capacity of the waste infrastructure.
- 5.23.32. The magnitude of effect on the capacity of landfill sites to accept inert waste is assessed as negligible, and therefore, the effect is considered not significant.

Non-hazardous waste

- 5.23.33. Non-hazardous construction waste arisings have been estimated to be approximately 107,000 tonnes, in total.
- 5.23.34. Non-hazardous waste would be dealt with in accordance with the waste hierarchy, which would require that re-use on other sites and recycling are prioritised. However, the worst-case scenario would be that this waste requires disposal to landfill, and the baseline has identified the remaining non-hazardous landfill permitted capacity within 100km of the main development site. At the end of 2018 this was approximately 3.84 million m³, due primarily to Masons landfill which lies 45km away. Approximately 375,000 tonnes of material recycling treatment permitted capacity has also been identified within 100km of the main development site, in addition to 650,000 tonnes of physical treatment capacity.
- 5.23.35. 107,000 tonnes of non-hazardous construction waste would constitute greater than 1% but less than 5% of the remaining waste management infrastructure capacity within 100km of the main development site boundary. This would result in a reduction or alteration in the capacity of the waste infrastructure. The magnitude of effect on landfill capacity to accept non-hazardous waste is assessed to be minor, therefore the effect is considered not significant.

Hazardous waste

- 5.23.36. The total hazardous waste arisings from the construction phase is estimated to be 11,800 tonnes. The peak annual hazardous construction waste arisings for the Proposed Development are estimated as 5,200 tonnes (in year 2) which would represent approximately 14% of total Suffolk arisings in year 2. In years 1, 3 and 11 hazardous construction waste arisings are estimated as 4,600 tonnes, 120 tonnes and 330 tonnes respectively, which would represent 12%, 0.3% and 1.1% of total Suffolk arisings in the same year.
- 5.23.37. It is estimated that in 2018, there were approximately 85,000 tonnes of throughput at hazardous waste facilities within 50km of the main development site and 810,000 tonnes of throughput within 100km of the

main development site boundary. The hazardous waste facilities in Suffolk of most interest to the Applicant are the following:

- Hollywell waste oil facility, which has a permitted capacity of approximately 75,000 tonnes per annum and is situated approximately 45km away from the main development site. The site had a throughput of approximately 6,600 tonnes in 2018; and
- Folly Farm waste management facility, a hazardous landfill operated by Shotley Holdings Ltd which accepts hazardous construction materials and had a throughput of approximately 129,000 tonnes in 2018.

5.23.38. It is considered, therefore, that there is sufficient capacity in Suffolk to handle hazardous waste generated by the Proposed Development. However, currently no contaminated soil treatment facilities exist within Suffolk, therefore this waste stream may have to be delivered to specialised sites located in surrounding regions. Two Biogenie facilities are considered to be the most desirable options for treatment of contaminated soils. In particular the Westmill soil treatment facility, which lies approximately 152km from the main development site.

5.23.39. The hazardous waste arisings during the construction phases would constitute between 1 and 5% of the remaining waste management infrastructure capacity within 100km of the main development site boundary. This would result in a reduction or alteration in the capacity of the waste infrastructure. The magnitude of effect on landfill capacity to accept hazardous waste is assessed as minor, therefore, the effect was considered not significant.

Operational waste during construction

5.23.40. The majority of the municipal solid waste from the main development site is anticipated to be re-useable, recyclable or recoverable. The municipal solid waste associated with the main development site, including the fully occupied accommodation campus and caravan park, is estimated to be a total of approximately 41,000 tonnes from years 3 to 10 with an annual average of approximately 5,100 tonnes. This would represent approximately 1.2% and 1.1% of total Suffolk arisings in years 3 and 10 respectively and would not impact significantly upon the existing facilities. Municipal solid waste arisings from the associated developments are anticipated to be minimal.

5.23.41. The magnitude of effect on waste management capacity for municipal solid waste is minor, compared to the regional municipal waste arisings, therefore, the effect is considered not significant.

5.23.42. In total, the commercial and industrial waste from the associated developments (excluding rail and road infrastructure) is estimated to be approximately 4,400 tonnes in years 3-10. The baseline indicates that approximately 926,000 tonnes of commercial and industrial waste would be generated in 2024, assuming high growth, increasing to 1,039,000 in 2031. The average annual commercial and industrial arisings from the associated development sites is estimated to be approximately 550

tonnes over an eight year period. This would represent approximately 0.06% and 0.05% of total Suffolk arisings in years 3 and 10 respectively and would not impact significantly upon the existing facilities.

- 5.23.43. The magnitude of effect on regional waste management capacity for commercial and industrial waste is assessed as negligible, therefore the effect is considered not significant.
- 5.23.44. It is anticipated that approximately 2,200 tonnes of organic waste will be generated from the operation of the accommodation campus, LEEIE facilities, park and rides and freight management facility during years 3-10. Organic waste could be delivered to composting and anaerobic digestion facilities, for which there is approximately 350,000 tonnes of permitted capacity within 100km of the main development site, while non-recyclable residual wastes could potentially be sent to the energy from waste facility adjacent to Viridor's Masons landfill, which has the capacity to treat 269,000 tonnes of residual waste per year.
- 5.23.45. The organic waste arisings generated from the operation of the accommodation campus, LEEIE facilities, park and rides and freight management facility in years 3-10 would constitute less than 1% of the remaining organic waste management infrastructure capacity within 100km of the main development site boundary.
- 5.23.46. The magnitude of effect on waste management infrastructure capacity to accept organic waste is assessed as negligible therefore, the effect was not considered significant.

Removal and reinstatement waste

- 5.23.47. The majority of the waste produced during the removal of the accommodation campus, temporary construction area, LEEIE facilities, park and rides, freight management facility and Green Rail Route will be considered as construction and demolition waste. The total waste arisings are estimated to be 274,000 tonnes in years 11 and 12 during the removal and reinstatement phase. It is assumed that the estimated waste arisings would be generated equally during years 11 and 12. Therefore, it is estimated that 137,000 tonnes per annum will arise.
- 5.23.48. The baseline estimates construction and demolition waste arisings across Suffolk to be 460,000 tonnes in 2022 decreasing to 379,000 tonnes in 2032. The construction and demolition waste arisings from the removal of these facilities would represent approximately 36% of the total Suffolk construction and demolition waste arisings in year 12.
- 5.23.49. It is estimated that approximately 181,000 tonnes of inert waste would be generated during the removal and reinstatement phase. This waste would be dealt with in accordance with the waste hierarchy, which would require that re-use and recycling off-site are prioritised, since there would be very limited opportunity to do so on-site at this stage.
- 5.23.50. The worst-case scenario would be that this waste requires disposal to landfill. The baseline has identified sufficient remaining inert landfill

capacity in Suffolk, amounting to approximately 3 million m³ of capacity within 100km of the main development site.

- 5.23.51. The remaining permitted capacity of inert recovery facilities that lie within 100km of the main development site is estimated as being approximately 1.18 million tonnes, in addition to 650,000 tonnes of physical treatment permitted capacity which may be able to accept inert material.
- 5.23.52. Therefore, basing the assessment of effects on a likely worst-case scenario, the 181,000 tonnes of inert waste generated during the removal and reinstatement phase would constitute between 1% and 5% of the remaining waste management infrastructure capacity within 100km of the main development site boundary. This would result in a reduction or alteration in the capacity of the waste infrastructure. Effects would be adverse, direct and temporary. However, the magnitude of effect on landfill capacity to accept inert waste is assessed as minor, therefore the effect is considered not significant.
- 5.23.53. It is estimated that approximately 46,000 tonnes of non-hazardous waste would be generated during removal and reinstatement of the campus, temporary construction area, ACA and associated development facilities. It has not been possible at this stage to determine the proportion of waste that would need to be delivered to an appropriate waste disposal or treatment facility in Suffolk.
- 5.23.54. These wastes would be dealt with in accordance with the waste hierarchy, which would require that re-use and recycling off-site are prioritised, since the possibility to do so on-site would be very limited at this stage. However, the worst-case scenario would be that this waste requires disposal to landfill. The baseline has identified the remaining non-hazardous landfill permitted capacity within 100km of the main development site at the end of 2018 to be approximately 3.8 million m³, due primarily to Masons landfill which lies 45km away. Approximately 375,000 tonnes of material recycling treatment permitted capacity have also been identified within 100km of the main development site.
- 5.23.55. Therefore, basing the assessment of effects on a likely worst-case scenario, the 46,000 tonnes of non-hazardous waste generated during the removal and reinstatement phase would constitute less than 1% of the remaining waste management infrastructure capacity within 100km of the main development site boundary. This would result in a reduction or alteration in the capacity of the waste infrastructure. The magnitude of effect on waste infrastructure capacity to accept non-hazardous waste is assessed as negligible, therefore the effect is considered not significant.
- 5.23.56. It is estimated that approximately 3,100 tonnes of hazardous waste would be generated during the removal and reinstatement phase. The average annual hazardous waste arisings for years 11 and 12 is, therefore, estimated to be 1,550 tonnes. This would represent approximately 5% of total hazardous waste arisings in Suffolk in year 12.

- 5.23.57. It is estimated that in 2018, there were approximately 85,000 tonnes of throughput at hazardous waste facilities within 50km of the main development site, and 810,000 tonnes of throughput within 100km.
- 5.23.58. Currently no contaminated soil treatment facilities exist within Suffolk, therefore this waste stream may have to be delivered to specialised sites located in surrounding regions.
- 5.23.59. The hazardous waste arisings from the removal and reinstatement phase would constitute less than 1% of the total annual hazardous waste management infrastructure capacity within 100km of the main development site boundary. This would result in a reduction or alteration in the remaining capacity of the waste infrastructure in the region. The magnitude of effect on waste infrastructure capacity to accept hazardous waste is assessed as negligible, therefore the effect is considered not significant.

Operation

- 5.23.60. The operational waste of the Proposed Development would represent approximately 0.1% of total commercial and industrial waste arisings in Suffolk up to 2036. The magnitude of effect on waste infrastructure capacity is assessed as negligible, therefore the effect is considered not significant

ES Chapter 8 Conventional Waste and Material Resources Appendix 8A Waste Management Strategy [APP-194]

- 5.23.61. The key principle detailed throughout this strategy is that waste will be managed in accordance with the waste hierarchy. This would be supported by the implementation of the proximity principle, which encourages the management of waste close to its place of generation, thus reducing the impacts of transporting waste over long distances and promoting management of waste within its region of origin.
- 5.23.62. The Waste Hierarchy adopted is that set out in the National Waste Management Plan for England 2013 and is:
- Prevention;
 - Preparing for re-use;
 - Recycling;
 - Other recovery; and
 - Disposal
- 5.23.63. The scope of the submitted WMS considered the following:
- A detailed review of relevant UK, national, regional and local waste policies, legislation and guidance, and EDF Energy's vision for waste management;
 - The scope of works for each of the developments;
 - An assessment of the earthworks/ construction phase related waste, including analysis of the cut and fill volumes and the construction techniques/ materials. This will enable a detailed calculation of the volume of waste to be produced for each development;

- Determination of the precise type, nature and predicted volumes of operational and removal and reinstatement/ decommissioning wastes;
- A description of the waste storage infrastructure and an assessment of the anticipated waste storage provisions for the construction, operational and removal and reinstatement phases;
- An overview of the waste handling, transfer and collection strategy during the various phases of construction, operation and removal and reinstatement including the responsibilities of the different stakeholders involved;
- A schedule of waste production for the construction, operation and post-operation of the Proposed Development;
- Assessment of local and regional waste facilities, including current and future capabilities and capacities;
- A review of waste contractors operating locally, including waste management site operators;
- A waste options appraisal, to be undertaken in liaison with relevant stakeholders, considering the capabilities and sustainability of various waste facilities in the surrounding area;
- A summary of recommended waste minimisation and reuse initiatives for different facilities in the Development;
- A summary of EDF Energy's Key Performance Indicators through which the performance of the Waste Plan will be measured; and
- A summary of the key elements and recommendations of the strategy.

Examination Matters

- 5.23.64. A total of 25 IPs submitted RR that were concerned about the impacts of spoil heaps/ borrow pits and building detritus that had not been sufficiently assessed or described, including landscape, fugitive dust and runoff impacts within the AONB. The Applicant responded to these RR [REP1-013], stating that prior to the start of the Examination a revised Code of Construction Practice (CoCP) was submitted [AS-273]. This included specific measures to minimise dust, surface water runoff and groundwater pollution.
- 5.23.65. Another 5 IPs submitted RR that expressed concern about whether the Proposed Development was a good use of scarce resource. The use of Pembrokeshire granite at Hinkley Point C was given as an example. The Applicant responded [REP1-013] stating that the sources for the procurement of materials would be confirmed by the contractors, although potential sources are described in the updated Freight Management Strategy [AS-280]. Locally sourced materials and suppliers would be identified and used, where practicable.
- 5.23.66. The Environment Agency (EA) [RR-0373] expressed concern that targets/ key performance indicators (KPI) for waste and resource management had not been included in the Conventional Waste Management Strategy. The EA wanted to see clearly defined targets as set out in both UK and European legislation. They stated that there were generic statements on how recycling and re-use will be achieved but not target figures. Without these defined targets they were concerned it was

hard to see how the company/ contractors will be able to measure their performance and improve upon it.

- 5.23.67. In the initial SoCG [REP2-076] both ESC and SCC agreed the assessment methodology, the conclusion of the assessment and also the mitigation. They also agreed that the issues were sufficiently controlled through the dDCO.
- 5.23.68. In EXQ1 [PD-020] we asked a number of questions of clarification of details about the WMS. This included requesting an update of their response to the EA's concerns about KPI. The Applicant [REP2-100] responded that they were in discussion with the EA about amendments to the WMS.
- 5.23.69. The Applicant [REP7-021] submitted a WMS Addendum that included the following targets:
- Target 1 – Construction Waste - at least 98% diversion from landfill (by volume or weight) of non-hazardous construction waste;
 - Target 2 – Demolition Waste - at least 85% by volume or 95% by weight diversion from landfill of non-hazardous demolition waste; and
 - Target 3 - Excavation Materials - A target of 100% of suitable excavation material will be re-used in the construction of the Proposed Development.
- 5.23.70. They also included the commitment for quarterly monitoring of these KPI.
- 5.23.71. In the SoCG with the EA [REP10-094] it was confirmed that the EA were satisfied that the Applicant had addressed their original concerns with respect to the lack of KPI in the WMS. There were no outstanding areas of disagreement between the parties.
- 5.23.72. At the end of the Examination, we were satisfied with the scope and content of the WMS [APP-194] taking into account the WMS Addendum [REP7-021].
- 5.23.73. The WMS will be used to inform the Waste Management Plan that will be submitted to and approved by East Suffolk Council as required by the Code of Construction Practice [REP10-072] that is secured by Requirement 2 of the dDCO [REP10-090].

Transboundary considerations.

- 5.23.74. Section 3.9 of this report sets out a question from IPs in the Regulation 32 responses, concerning movement of waste by sea.
- 5.23.75. The Applicant is not proposing to transport surplus waste created by the Proposed Development by sea. Consequently, we do not foresee any transboundary issues relating to the disposal of conventional waste.

Other Consents

- 5.23.76. The Applicant would also need to ensure that they obtained any necessary Hazardous Substances Consent under the Planning (Hazardous Substances) Act 1990 from ESC for the holding of hazardous substances to be sought prior to construction.

ExA Conclusion

- 5.23.77. In conclusion, we consider that the submissions made by the Applicant and the subsequent addition of measurable targets within the Waste Management Strategy represent an effective approach to waste management. On this basis we consider that the Applicant has addressed the effects relating to conventional waste in accordance with the relevant policies within NPS EN-1.
- 5.23.78. Taking all of the above matters into account, the ExA considers that there are no matters relating to the issue of conventional waste which would weigh for or against the making of the Order.

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