



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 2 OF 4

Examining Authority

Wendy McKay LLB (Hons), Solicitor (non-practising); ExA Panel Lead

David Brock LLB, retired Solicitor

Helen Cassini BSc (Hons) DipTP MRTPI

Neil Humphrey BSc (Hons), C Eng FICE MTPS

Edwin Maund MSc DipUP BA (Hons) MRTPI

25 February 2022

This page is intentionally blank.

LIST OF REPORT VOLUMES

This Report contains four volumes.

This is Volume 2 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.

REPORT TABLE OF CONTENTS

Chapter 5

5.1.	INTRODUCTION	1
5.2.	AGRICULTURE AND SOILS.....	2
5.3.	AIR QUALITY	36
5.4.	ALTERNATIVES	65
5.5.	AMENITY AND RECREATION	136
5.6.	BIODIVERSITY AND ECOLOGY TERRESTRIAL	171
5.7.	CLIMATE CHANGE AND RESILIENCE	253
5.8.	COASTAL GEOMORPHOLOGY	276
5.9.	COMMUNITY EFFECTS.....	351
5.10.	CUMULATIVE IMPACT	391
5.11.	FLOOD RISK, GROUNDWATER, SURFACE WATER	432
5.12.	HEALTH AND WELLBEING.....	490
5.13.	HISTORIC ENVIRONMENT (TERRESTRIAL AND MARINE)	511

List of Tables and Figures

Table 5.3.01 Summary table of study area for emissions	41
Table 5.3.02 Future baseline emissions levels for 2023, 2028, 2034.	44
Figure 5.3.01 MDS Construction dust assessment zones.....	44
Table 5.5.01 Amenity effects from traffic flows in the early years	148
Table 5.5.02 Pedestrian delay during peak construction	149
Table 5.5.03 Potential severance in 2023 – representative hour 07:00-08:00	153
Table 5.5.04 Extract from AONB purposes.....	159
Table 5.6.1 Main Development Site residual significant effects	207
Table 5.9.01 Project mitigation measures contributing to community safety	374
Table 5.9.02 Magnitude of noise impacts from rail.....	382
Table 5.9.03 Summary of travel time delays.....	388
Table 5.12.01 Groups with protected characteristics.....	506
Figure 5.13.01 Grade I Leiston Abbey (first site) [REP10-55].....	519
Figure 5.13.02 Grade II Leiston Abbey (second site) [REP10-055]	521
Figure 5.13.03 Dunwich Heath and National Trust Dunwich Coastguard Cottages [REP10-055]	527
Figure 5.13.04 View of Cockfield Hall from the A12 [REP2-287]	550

5. FINDINGS AND CONCLUSIONS IN RELATION TO THE PLANNING ISSUES

5.1. INTRODUCTION

5.1.1. This Chapter addresses potential effects and benefits of the Proposed Development which were raised in the ExA's identification of issues and in submissions to the Examination. Each section of this Chapter generally consists of the following parts:

- Introduction including policy background;
- Applicant's approach in the Environmental Statement (ES) and later submissions, including baseline conditions, impacts (as assessed in the ES) and mitigation where relevant;
- issues arising; and
- the ExA's reasoning and conclusions including any further mitigation it is proposing in its recommended Development Consent Order (rDCO), found at Appendix D.

5.1.2. Matters relating to the overarching legal and policy context and the ExA's findings in relation to these matters are considered in Chapters 3 and 4 respectively and will not be repeated in this Chapter.

5.1.3. The term 'impact' is used throughout this Chapter. However, to clarify, environmental 'impacts' and 'effects' are both considered in this Report to be 'environmental effects'.

5.1.4. The findings and conclusions in relation to the planning issues are considered under generic topic headings which are arranged in alphabetical order. The order in which all these section headings are presented should not be taken to imply any order of merit.

5.1.5. In addition to aid the reader and to aid consistency we have set out the following regime for applying/assessing the weight to be attached to the different aspects of the proposal in the following manner.

- 1. Where there's no weight: The ExA considers that there are no matters relating to that issue which would weigh for or against the making of the Order.
- 2. First level: The ExA ascribes little weight to matters relating to the issue for/ against the making of the Order.
- 3. Second level: The ExA ascribes moderate weight to matters relating to the issue for/ against the making of the Order.
- 4. Third level: The ExA ascribes substantial weight to matters relating to the issue for/ against the making of the Order.
- 5. Fourth level: The ExA ascribes very substantial weight to matters relating to the issue for/ against the making of the Order.

5.1.6. On occasion when we have made reference to application documents, we have specified an 'e page' this is the electronic page number within the document when viewed digitally.

5.2. AGRICULTURE AND SOILS

Introduction

- 5.2.1. Agriculture and soils were identified as a principal issue in the ExA's initial assessment [PD-007]. This section reports on soil resources, individual land holdings, proposed mitigation measures and cumulative effects.

Policy Considerations

National Policy Statement for Energy (NPS EN-1)

- 5.2.2. Paragraph 5.10.8 of NPS EN-1 requires applicants to minimise impacts on the best and most versatile (BMV) agricultural land (defined as land in Agricultural Land Classification (ALC) Grades 1, 2 and 3a) and preferably use land in areas of poorer quality (ALC Grades 3b, 4 and 5), except where this would be inconsistent with other sustainability considerations. Where development of agricultural land is demonstrated to be necessary, applicants should seek to use poorer quality land in preference to higher quality land.

- 5.2.3. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed. In decision making the economic and other benefits of the BMV agricultural land should be taken into account and little weight should be given to the loss of agricultural land in grades 3b, 4 and 5.

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

- 5.2.4. Paragraph 3.8.3 of NPS EN-6 requires applicants to assess the site's geology, soils and geomorphological processes to understand the ongoing natural, ecological, coastal and geomorphic processes. This will include identifying impacts on coastal processes, intertidal deposition and soil development processes that maintain terrestrial/coastal and/or marine habitats.

Other Legislation, Policies and Guidance

- 5.2.5. The legislation, policy and guidance relevant to soils and agriculture is set out in Appendix 6M of the EIA Methodology [APP-171]. The Applicant's Planning Statement also details the legislative and planning policy context against which a decision will be made [APP-590].

National Planning Policy Framework (NPPF)

- 5.2.6. Chapter 15 of the NPPF contains overarching policies for conserving and enhancing the natural environment, including an indication that planning decisions should contribute to the protection of soils and respect the economic benefits of BMV agricultural land. Where development of agricultural land is demonstrated to be necessary, applicants should seek to use poorer quality land in preference to higher quality land.

The Applicant's Case

- 5.2.7. The Applicant's assessment of effects on soils and agriculture and soils at the main development site (MDS) is set out in the Environmental Statement (ES) Volume 2, Chapter 17 [APP-277]. This Chapter confirms the effects on soils and agriculture arising from the construction and operation of the Proposed Development at the 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.
- 5.2.8. 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 associated development sites and to minimise impacts on people and the environment. The CoCP would be secured through the dDCO, via Requirement 2 [REP10-009].
- 5.2.9. Within the CoCP there are a number of strategies or outline plans which inform the obligations included within the CoCP. One such document is the outline Soil Management Plan (oSMP) which was submitted as part of the suite of application documents, at Appendix C of [APP-278] and updated during Examination [REP3-108].
- 5.2.10. The purpose of the oSMP is to provide details of the methodology, control measures and monitoring programme for the site preparation and reinstatement work phases of the Proposed Development. A final Soil Management Plan must be submitted to East Suffolk Council (ESC) for approval prior to the commencement of any soil stripping operations. In addition, detailed Soil Resource Plans would be produced for each part of the Proposed Development to provide the required detail as detailed in the oSMP.
- 5.2.11. An outline Landscape and Ecological Management Plan (oLEMP) [APP-588] was also submitted and 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 oLEMP identifies soil types and, where land is under agricultural use, the relevant grade is also stated. Soil management measures, in line with the oSMP, CoCP and Construction Method Statement [REP10-025] are also detailed.
- 5.2.12. A Landscape and Ecological Management Plan (LEMP) for both the Two Village Bypass (TVB) and the Sizewell Link Road (SLR) were also submitted [AS-263] and [AS-264], with both documents being updated during Examination [REP10-066] and [REP10-065]. Both LEMPs provide objectives and principles for the establishment and long-term management of the landscape, and ecological mitigation identified for the soft estate within the boundaries of the TVB and SLR following construction. Paragraphs 5.22 and 5.21 of the LEMPs state that the

availability of soil resources in the right condition is critical to the establishment of the required habitats and confirms that soils would be handled in accordance with the measures set out in the CoCP [REP10-072].

- 5.2.13. A Design and Access Statement (DAS) [APP-585] to [APP-587] was also submitted by the Applicant. This was updated during the Examination [REP10-055], [REP10-56] and [REP10-58] and is secured via Requirement 24 of the dDCO [REP10-009]. The DAS provides detail regarding the design rationale of the MDS, including the accommodation campus.
- 5.2.14. Part 2 of the DAS [REP10-056, section 8.6] contains an earthworks and soil strategy which confirms that the end-use for any surplus spoil, which includes stripped topsoil and subsoil, is to re-distribute most of the material across the restored landscape rather than transport it to other receptor sites.
- 5.2.15. In addition to the submissions made at the ten Examination deadlines, several further submissions in the form of either updated or supplementary submissions, additional information submissions or change requests were made by the Applicant throughout the Examination. Full details of the change requests are detailed in Chapter 2 of this Report.
- 5.2.16. Those submissions considered to have the most relevance to agriculture and soils are detailed below. A comprehensive list of all submissions is contained within the ES Signposting Document [REP10-172]. Those submissions considered to have the most relevance to soils and agriculture are:
- ES, Volume 10, Project-Wide, Cumulative and Transboundary Effects. Chapter 2 Inter-relationship Effects. Appendices 2A-2B [AS-016]. In respect of an update to Appendix 2B;
 - MDS ES addendum, in respect of Change 11, 15 and an update to correct errors in the assessment of the land associated with Old Abbey farm [AS-181];
 - TVB ES addendum, in respect of Change 12 [AS-184] and [AS-197]; and
 - SLR ES addendum, in respect of an amendment to the percentage of Church Farm landholding required during construction and confirmation that land at Old Abbey Farm is under a Countryside Stewardship Scheme [AS-185] and [AS-198].
- 5.2.17. Tabular summaries of the agriculture and soils assessment are provided at the end of each Agriculture and Soils ES chapter for the MDS [APP-277], and the associated development sites:
- Northern Park and Ride (NPR) [APP-371];
 - Southern Park and Ride (SPR) [APP-402];
 - Two Village Bypass (TVB) [APP-435];
 - Sizewell Link Road (SLR) [APP-470];
 - Yoxford Roundabout and Other Highway Improvements [APP-502];

- Freight Management Facility (FMF) [APP-531]; and
- Proposals relating to Rail [APP-563].

5.2.18. The nature of effects is categorised as adverse (negative) or beneficial (positive), and major, moderate, minor or negligible. In summary, the assessments concluded that the only significant adverse effects would be experienced during the construction phase for the MDS, NPR, SLR and TVB in respect of loss of BMV agricultural land.

5.2.19. Decommissioning effects in respect of the MDS are considered in [APP-189, para 5.7.29]. Any effects on soils and agriculture are stated as being limited to any areas of the MDS that would be temporarily required for decommissioning activities. The spatial extent of potential impacts would be much reduced compared to that related to the construction phase of the MDS and no significant adverse effects on soils and agriculture are anticipated.

Mitigation

5.2.20. For the MDS, the Applicant set out primary mitigation measures, which includes the optimisation of the site layout to reduce permanent land take [APP-277, section 17.5].

5.2.21. Alongside of the oSMP [REP3-018], additional tertiary mitigation measures are included with Table 9.1 of Part B of the CoCP [REP10-072]. The measures detailed within the table are based on industry standard guidance considered appropriate to the proposed activities and effects identified. Measures detailed in Table 9.1 include, but are not limited to:

- provision of suitable and effective stock control fencing;
- soils to be stripped and handled in the driest condition, where practicable;
- a Soil Management Plan (SoMP) to be submitted to and approved by East Suffolk Council (ESC) to detail the existing soil information, proposed storage locations and management measures;
- where the land is to be returned to agriculture, separate stockpiles must be created for topsoil and subsoil;
- ensure appropriate re-use of soils with restoration to agricultural land, where set out in the LEMP, including a comparable grade to that prior to stripping;
- should animal bones be discovered which indicate a potential burial site, works must be paused in the affected area, and the Animal Health Regional Office must be advised and informed of the proposed mitigation measures; and
- the height of stockpiles must be controlled to minimise visual impact, where identified as a significant factor in the Landscape and Visual Impact Assessment.

5.2.22. These measures aim to:

- minimise effects on soil resources, agricultural land holdings and businesses;

- minimise pollution impacts;
 - avoid impacts of soil migration to surface waters; and
 - avoid the spread of invasive non-native species and minimise biosecurity risks.
- 5.2.23. As detailed above, in respect of the restoration of land the Applicant submitted an oLEMP [REP10-061] which confirms the landscape and habitat restoration proposals for land required on a temporary basis.
- 5.2.24. Paragraph 17.7.4 of [APP-277] states that no secondary mitigation measures have been identified in relation to the loss of BMV land for the MDS.
- 5.2.25. In respect of the associated development sites, mitigation measures are contained within the Associated Development Design Principles (ADDP) [APP-589], which was updated during Examination [REP10-063] and will be carried out in line with the oSMP [REP3-018]. Tertiary mitigation measures are detailed in Table 9.1 of Part C of the CoCP. No secondary mitigation measures are identified regarding the loss of BMV land for the associated development sites.
- 5.2.26. The TVB and SLR are also to be constructed in accordance with the SLR LEMP [REP10-065] and TVB LEMP [REP10-066]. Both LEMPs would be secured via Requirement 36 of the dDCO [REP10-009] and confirm that soils are to be handled in accordance with measures detailed in the CoCP.

Issues Considered in the Examination

Agricultural Land Classification Surveys

- 5.2.27. For the MDS and each of the associated development sites, the Applicant stated that Agricultural Land Classification (ALC) surveys had been undertaken in accordance with published guidelines and confirmed when the detailed ALC surveys had been undertaken. Details of the survey results are contained within the relevant appendix to each of the soils and agriculture ES chapter. The surveys recorded soil physical characteristics, including factors such as soils texture, structure, depth stoniness and site characteristics, such as micro-relief, flood risk and climate.
- 5.2.28. In respect of the surveys, Natural England (NE) agreed with the general conclusions reached. However, NE raised concern in respect of the extent of the survey, use of suitably qualified surveyors, how ALC metrics had been assessed and the assessment of soil particle size [REP2-153].
- 5.2.29. NE also stated that the land take figures provided in Volume 10, Chapter 3 of the ES showed discrepancies between individual ES chapters and requested that the Applicant provide a breakdown for each of the individual components [APP-577].
- 5.2.30. The Applicant confirmed that the ALC surveys had been undertaken by competent experts [REP3-042], as detailed in the Statement of

Competence at [APP-161]. The Applicant also confirmed that the ALC survey approach complied with the appropriate guidance [REP3-042, para 11.43.5].

- 5.2.31. Whilst the Applicant disagreed that the figures in [APP-577] showed discrepancies, it was accepted that the tables did not show a split across all land grades [REP3-042, para 11.43.2]. The Applicant subsequently provided an ALC Land Take Summary Table at Appendix E of [REP6-024].

ExA's consideration

- 5.2.32. The ExA considers that the Applicant's approach in respect of the ALC methodology and survey work is appropriate and has been carried out in line with relevant guidance. We are also satisfied that suitably qualified individuals executed the survey work.
- 5.2.33. In respect of the additional information provided by the Applicant, the tabular information clearly defines the split between land required permanently and temporarily and it is clear as to what land would be returned at the end of the construction phase. It also illustrates the split across all grades of land. We are therefore content that this provides an adequate breakdown for each of the individual components of the Proposed Development.
- 5.2.34. The ExA considers there are no matters relating to ALC which would weigh for or against the Order being made.

The Best and Most Versatile Land

- 5.2.35. The Applicant confirmed that NPS EN-1 requires the impacts on soils and best and most versatile (BMV) land to be considered in the assessment and that this includes seeking to minimise impacts on BMV land and to use areas of poorer quality land in preference [APP-277, para 17.2.5].
- 5.2.36. During Examination, NE stated that the loss of BMV land could only be considered temporary if the land was to be restored back to its original quality. Given some of the development proposed, such as cut and fill and compaction of basal layers, NE raised doubt and requested further justification as to how the soil is to be restored back to its original quality post development. Additionally, NE were unclear as to how the route options and site design had been devised to minimise the loss of BMV land [REP2-153].
- 5.2.37. In respect of soil restoration, the Applicant acknowledged that the handling of soils has the potential to cause damage to soil structure and that long-term storage can also exacerbate this issue and can result in further changes to soil characteristics. Confirmation was also provided that the oSMP had been designed to follow relevant published guidance and would ensure that the soil handling methodologies and restoration of the soil profile required for the end use would be achievable. [REP3-042, para 11.43.3].

5.2.38. The Applicant confirmed that Planning Statement Appendix 8.4A of the Site Selection Report [APP-591] provides additional detail on how each of the aspects of the Proposed Development was selected and how the design has evolved through consultation. The Applicant also noted that the overall conclusions regarding BMV land had been agreed with NE [REP3-042, para 11.43.4].

ExA's consideration

5.2.39. During construction, just over 158ha of BMV land would be required, with just under 70ha being permanently lost. We note that the Applicant has not identified any secondary mitigation measures in relation to the loss of BMV land. However, as detailed within the Site Selection Report and site-specific Planning Statements, we are satisfied that the Applicant has given adequate consideration to the reduction in loss of BMV, where practicable, through appropriate design iterations.

5.2.40. Taken together as a project-wide effect, the ExA considers the total permanent loss of BMV land of just under 70ha would be relatively modest. It is also accepted that given the scale of the Proposed Development, it is unlikely that the loss of BMV land could be completely avoided. In addition, at just under 40ha the majority of the BMV land to be permanently lost would be within subgrade 3b, which represents poorer quality BMV land.

5.2.41. Regarding the temporary loss of BMV land, the ExA is satisfied that suitable measures would be employed through the oSMP to ensure that BMV land required temporarily is restored appropriately through the sustainable re-use of the soil resource. We are content that such measures would ensure the appropriate storage of soil, protection from erosion, and quality assurance.

5.2.42. We are therefore satisfied that in line with paragraph 5.10.8 of NPS EN-1 the Applicant has, as far as practicable, sought to minimise impacts on BMV land and where possible would utilise poorer quality land.

5.2.43. As such, the ExA attributes little weight to matters relating to the effect on BMV land against the Order being made.

Agricultural Liaison Officer

5.2.44. Mr and Mrs Dowley noted that there was no mention within the CoCP as to how liaison with landowners and their agents was to occur during construction [RR-1099]. The National Farmers Union (NFU) however confirmed that wording had been agreed with the Applicant as to the role of the Agricultural Liaison Officer (ALO) but was subject to final review [REP2-385].

5.2.45. At ExQ1 Ag.1.30, the ExA requested the Applicant to confirm whether the appointment of an ALO was necessary [PD-017]. The Applicant confirmed they had been working with the NFU to produce an interface document. The content of the document would confirm the provision of suitably qualified ALOs who would provide interface between the Proposed

Development and landowners/tenant farmers to maintain appropriate levels of communication during construction and to help to work to reducing impacts where possible [REP2-100].

ExA's consideration

- 5.2.46. The interface document as detailed in the Applicant's response was not submitted into Examination. However, section 2.4 of the oSMP confirms that an ALO is to be appointed prior to the commencement of the Proposed Development. The oSMP, which would be secured via Requirement 2 of the DCO, would commit the ALO to several specified actions, such as a preconstruction condition survey of the parts of the landholding affected by construction activities. The ALO would also be the prime contact for ongoing engagement and would be contactable during working hours and a contact number would be provided for any emergency situations occurring outside of these hours.
- 5.2.47. Overall, the ExA considers that the Applicant's approach in respect of the ALO is adequate and the role would provide an important function particularly in terms of liaison with landowners/tenant farmers. We consider that the measures detailed within the oSMP would be sufficient to enable meaningful dialogue between landowners/tenant farmers and will place obligations on the ALO to manage matters which could be of an urgent nature appropriately.
- 5.2.48. Therefore, the ExA considers there are no matters relating to the role of the ALO which would weigh for or against the Order being made.

Outline Soil Management Plan

- 5.2.49. In response to ExQ1 Ag.1.10, ESC confirmed that the oSMP appeared to have followed industry guidance and best practice in its approach [REP2-176]. In response to the same question, NE requested that the oSMP was made clearer in confirming that the aim is for BMV land to be returned to its original quality [REP2-152].
- 5.2.50. The Applicant submitted a revised version of the oSMP at [REP3-018] and we subsequently asked for NE's further comments on this at ExQ2 Ag.2.2 [PD-032]. NE provided a response and submitted a separate paper with further comments on the oSMP [REP7-140] and [REP7-144]. The paper identified areas for further amendment, with reference to data inconsistencies. Responses to the points made by NE at [REP7-144] were made by the Applicant in response to ExQ3 Ag.3.0 and Ag.3.1 at [REP8-116].

ExA's consideration

- 5.2.51. The ExA notes that in response to ExQ3, Ag.3.1 the Applicant made a commitment to update the oSMP in respect of several points made by NE. The ExA notes that no further updates to the oSMP were made, and the latest version submitted into the Examination was [REP3-018].
- 5.2.52. Despite this, we are content that the oSMP would ensure best practice with regards to the site preparation and, where appropriate,

reinstatement of land within the Proposed Development boundary. We further consider that the oSMP is adequate to ensure no significant adverse effects on soil resources would occur because of the Proposed Development. The ExA would however request that, should development consent be granted, the Applicant updates the final SoMP to reflect the areas identified for further amendment by NE.

- 5.2.53. The ExA considers there are no matters relating to oSMP which would weigh for or against the Order being made.

Soil Contamination

- 5.2.54. In respect of potential land contamination, in their Local Impact Report (LIR) the Councils confirmed the Applicant had utilised the correct procedures in the ES assessment, as outlined in relevant guidance. [REP1-045, para 9.18]. However, a Land Contamination Management Plan would be required to cover all aspects regarding unidentified and known land contamination and unforeseen land contamination.
- 5.2.55. The Applicant confirmed that a Land Contamination Management Plan would be prepared, and this would be based on existing information as set out in the Phase 2 Geo-environmental Interpretive Report [REP3-044, Table 9.2].

ExA's consideration

- 5.2.56. Whilst a specific Land Contamination Plan was not submitted into Examination, mitigation measures in respect of soils and land contamination are included within Table 10.1 of Parts B and C of the CoCP. Measures include the implementation of a contamination watching brief, implementation of a Materials Management Plan and Waste Management Plan prior to commencement of the authorised development. The CoCP also confirms that where practicable, the remediation of soil and groundwater contamination is to be undertaken prior to the commencement of construction.
- 5.2.57. As such, and as required by paragraph 5.10.8 of NPS EN-1, the ExA is satisfied that the measures within the CoCP would adequately control pollution and contamination and that the approach is sufficient to mitigate any adverse effects.
- 5.2.58. The ExA considers there are no matters relating to soil contamination which would weigh for or against the Order being made.

Stockpiles

- 5.2.59. Noting comments made by NE regarding stockpile height and storage of soils [REP2-153], the Applicant confirmed that heights are to be limited where the soil resources are required to be returned to pre-construction agricultural use [REP3-042]. The Applicant also confirmed that the maximum heights have not been detailed in the oSMP [REP3-018]. These would be set out in the final SoMP and the maximum height is likely to be based on soil textures and the resilience this would give the soil to structural damage because of soil handling.

5.2.60. Soil materials would be stored on like for like where restoration to agricultural use is required. However, to deliver the oLEMP the soil resources available would need to be adapted to be suitable for the proposed habitat types. The Applicant stated that this may, for example, require the mixing of topsoil and subsoil resources to reduce the fertility of the restored profile. Where these resources are coarse textured it may be necessary and appropriate to stockpile the materials higher [REP3-018, para 6.6.5].

5.2.61. In response to ExQ1 Ag.1.13 and Ag.1.14 the Applicant confirmed that, as outlined in the Outline Dust Management Plan (oDMP) within the CoCP, seeding of stockpiles or earth bunds, or other appropriate measures such as fencing, or screening would be undertaken at sensitive site boundaries with early planting used where possible [REP2-100]. Despite the request made by the Councils in their LIR [REP1-045], the turfing of stockpiles or bunds was not proposed.

ExA's consideration

5.2.62. The ExA notes that the oSMP describes the procedures for soil storage to maintain, as far as practicable, soil quality and viability as required for the proposed end uses. Section 6.6 of the oSMP confirms that stockpiling is to be undertaken in accordance with the methodology as set out in Appendix D of the oSMP.

5.2.63. The ExA is satisfied that the measures proposed in respect of stockpiles would ensure soil is stored with a minimum footprint but with a maximum stockpile core volume. Such measures would reduce soil exposure to precipitation and ensure quality is maintained during storage. In addition, we are content that Appendix G of the oSMP contains an appropriate inspection methodology to ensure soil quality is maintained during storage.

5.2.64. The ExA notes that the turfing of stockpiles or bunds was not considered necessary by the Applicant, despite the request by the Councils. However, we consider the proposed control measures, in respect of soils and agriculture and land contamination, contained within Tables 9.1 and 10.1 of Parts B and C of the CoCP would be adequate to mitigate any adverse effects from stockpiles such as wind-blown dust, soil erosion, surface run-off and visual impact.

5.2.65. The ExA is satisfied that the Applicant's approach to stockpiles would ensure soils are stored and managed appropriately. Additionally, where land is being returned to agriculture at the end of the construction phase, we are content that the proposed measures would ensure that the land would be returned to the pre-construction ALC grade.

5.2.66. As required by paragraph 5.10.8 of NPS EN-1, the ExA is therefore satisfied that appropriate measures and mitigation would be implemented to minimise impact on soil quality.

5.2.67. The ExA considers there are no matters relating to stockpiles which would weigh for or against the Order being made.

Land Creation, Enhancement and Restoration

- 5.2.68. The Applicant confirmed that in respect of habitats which are to be created, enhanced, or restored following completion of construction, the oLEMP and LEMPs would provide high level management and monitoring specifications for the habitats [REP10-61], [REP10-065] and [REP10-066]. The Applicant confirmed that the final SoMP would align with the oLEMP and LEMPs and would detail where soil resources need to be mixed to ensure both adequate volumes of material for the restoration and the minimisation of any surplus soil material [REP3-018, para 4.1.4].

ExA's consideration

- 5.2.69. The ExA is satisfied that the measures in the oLEMP, LEMPs and oSMP would provide sufficient control and ensure that habitats are created in an appropriate manner, and managed and monitored appropriately and that these are sufficiently secured through the dDCO. The ExA notes that availability of soil resources in the right condition would be critical to the establishment of the required habitats. We are satisfied that the oSMP and final SoMP would provide appropriate methods for soil stripping, transportation and stockpiling and restoration. This would ensure that the reinstated soils have the right physical and chemical characteristics for their required end use.
- 5.2.70. Therefore, the ExA attributes little weight to matters relating to land creation, enhancement and restoration for the Order being made.

Severance

- 5.2.71. The Applicant confirmed that the effect of severance is based on the ease to which land remains accessible. Consideration was given to the potential effects of severance on landholders in each of the agriculture and soils ES chapters.
- 5.2.72. The access to agricultural land and severance was an issue raised throughout Examination. Representations in respect of this matter were made at, but not limited to, [REP2-384], [REP7-235], [REP8-206], [REP10-253] and [REP10-341]. There was a focus on the potential effects on a small number of specific land holdings and this issue was also raised by the NFU in relation to the SLR at [REP2-385].

ExA's consideration

- 5.2.73. Severance issues were identified by the Applicant in respect of the TVB, SLR and rail extension works. Our responses to specific severance issues are detailed in the relevant land holding sections below.
- 5.2.74. Overall, the ExA is content that site layouts have been optimised to reduce land take through careful routing and site selection. In addition, site-specific design principles within the ADDP confirm that existing accesses would be retained where possible and the incorporation of replacement points of access would be provided, where necessary.

- 5.2.75. It has also been confirmed that a significant number of landowners have signed Heads of Terms (HoTs), which confirm the arrangements for financial compensation if severance to the landholding occurs, and to address any injurious affection that may result from the project.
- 5.2.76. We note that some severance issues remained unresolved at the close of Examination in respect of Kelsale Manor, Fordley Hall and Trust Farm. Overall, we are however satisfied that an appropriate and proportionate approach has been adopted by the Applicant in respect of severance, both in terms of design and consultation with landowners.
- 5.2.77. There, the ExA attributes little weight to matters relating to severance against the Order being made.

Drainage and Irrigation

- 5.2.78. The strategy for the drainage of surface water in respect of the MDS is detailed in the Outline Drainage Strategy [REP10-030] to [REP10-032]. The strategy confirms any surface water discharging to the local watercourses would be at a controlled greenfield runoff rate to match the existing environment. Surface and foul water drainage would be secured via Requirement 5 of the dDCO [REP10-009]. More detail regarding the Drainage Strategy is set out in Section 5.11 of this report.
- 5.2.79. The effects of the Proposed Development on drainage and irrigation and the resulting impacts on agricultural land were issues raised during Examination. In addition to the NFU [REP2-386] raising the issue on behalf of several landowners and tenants, the Bacon Family [REP2-382] and [REP2-384], Mr and Mrs Dowley [REP2-342] and [REP2-344], and the Grant Family [REP2-252] also raised concerns.
- 5.2.80. The concerns principally relate to increased water levels and potential saline intrusion into well points serving irrigation systems for the land holdings. It was stated that should holdings be affected by saline intrusion, the viability of the farming businesses may be severely affected as for many this is their sole source of water. Additionally, landowners observed that it is essential that the management of coastal defences is effective and does not allow salt water to enter the irrigation abstraction points within the Minsmere Levels. Coastal flood risk is dealt with in the Applicant's Main Development Site Flood Risk Assessments as set out in Section 5.11 of this Report.
- 5.2.81. Mollett's Farm also raised concern in respect of severance of surface water drainage and overland irrigation [REP2-380]. This issue was explored through ExQ1 Ag.1.16 and Ag.1.17. The Applicant confirmed that drainage treatment areas/other drainage infrastructure was designed to manage surface water as a result of the Proposed Development. In addition, wherever possible, the location of infrastructure, such as attenuation ponds, were selected to minimise the effect on adjacent agricultural land [REP2-100].
- 5.2.82. The Applicant also confirmed that a specialist drainage and irrigation consultant had been employed to establish the whereabouts, nature and

form of existing land drainage and irrigation systems in or on land adjacent to the various scheme elements. The outcome of the survey work is to inform a proposed land drainage and irrigation design proposal. The aim of the design would be to return land drainage systems to a standard no worse than that evidenced prior to the construction of the scheme [REP2-100].

ExA's consideration

- 5.2.83. The ExA is satisfied that the employment of the drainage and irrigation consultant would provide an important function in respect of liaison with landowners and to assist in the identification of a suitable mitigation and reinstatement strategy for irrigation and drainage infrastructure.
- 5.2.84. In respect to the concerns regarding saltwater intrusion into well points, and the ability to abstract water from the Minsmere New Cut. The Applicant responded to these concerns stating that saltwater incursion is controlled by the Minsmere Sluice [REP3-042]. The Applicant states that the EA refurbished Minsmere Sluice in 2013 and this work was completed with a 50-year design life. In addition, the Applicant states that in Chapter 19 of the ES they have demonstrated that the Proposed Development would not lead to any acceleration of degradation of the Minsmere sluice [APP-297]. On this basis we are satisfied that the Proposed Development will not create any significant adverse effects in respect to saltwater incursion in Minsmere New Cut.
- 5.2.85. Overall, the ExA considers that the Applicant's approach is appropriate and would balance the competing factors in terms of the impact on agricultural land and the necessity to provide adequate irrigation and drainage provisions.
- 5.2.86. The ExA considers there are no matters relating to drainage and irrigation which would weigh for or against the Order being made.

Effect on Livestock

- 5.2.87. In response to ExQ1 Ag.1.8, the Applicant confirmed that the health and wellbeing of animals had not been specifically assessed within the noise or air quality ES chapters [REP2-100]. The Applicant further commented that they would however reasonably expect effects to be lower than those assessed for designated ecological receptors close to the Proposed Development.
- 5.2.88. Additionally, no pollutants are to be emitted from construction or operational activities that would bioaccumulate in the grass or soil to give rise to long-term animal health effects. Mitigation measures identified within ES Chapters 11 [APP-202] and 12 [APP-212] are expected to reduce effects as much as reasonably practicable and would be secured via the CoCP [REP10-072].

ExA's consideration

- 5.2.89. We note that no assessment has been undertaken specifically in relation to livestock. However, in respect of dust it is noted that with the

proposed mitigation measures contained within the oDMP, which would be delivered through the CoCP, no significant effects are predicted.

- 5.2.90. As the effects on livestock are expected to be lower than those assessed for designated ecological receptors close to the Proposed Development, we are content that the proposed mitigation measures regarding noise and air quality would be sufficient to offer adequate protection to livestock.
- 5.2.91. Additionally, Table 9.1 of Part B and C of the CoCP confirms that all fencing must be stockproof and any damage is to be repaired immediately. The ALO would also provide the conduit for notification of works, liaison, and on-going discussion. With these measures in place the ExA is satisfied that there would be no substantive effects on the welfare of livestock.
- 5.2.92. The ExA considers there are no matters relating to ALC which would weigh for or against the Order being made.
- 5.2.93. The ExA considers there are no matters relating to livestock which would weigh for or against the Order being made.

Mitigation for Landowners

- 5.2.94. In their LIR, the Councils stated that mitigation and compensation for the affected agricultural holdings should be secured [REP1-045]. The Councils considered that this was particularly pertinent for the permanent elements of the proposal, there is an expectation that recognition of the loss of agricultural land and reduced soil quality should be compensated through payments from the Natural Environment Improvement Fund, secured via the Deed of Obligation [REP10-075].
- 5.2.95. The Applicant stated that it is not their intention that the Natural Environment Improvement Fund would be used to compensate for loss of agricultural land [REP3-044]. Instead, they would seek to secure individual agreements with landowners.

ExA's consideration

- 5.2.96. The ExA concurs that the approach of seeking individual agreements with landowners is appropriate. In addition, we note that the majority of landowners have entered into private treaty agreements or have signed HoTs with the Applicant, both of which detail arrangements for mitigation and compensation. Where landowners have not entered into a private treaty agreement or signed HoTs, the Applicant has confirmed that it is their intention to continue to liaise with landowners to identify mitigation measures that can be adopted.
- 5.2.97. Where effects cannot be mitigated, the compensation code provides appropriate financial compensation for landowners. The ExA considers the Applicant's approach where mitigation is not possible to be appropriate and proportionate.

5.2.98. The ExA considers there are no matters relating to mitigation for landowners which would weigh for or against the Order being made.

Effects on Individual Land Holdings

5.2.99. The effect on each individual holding is discussed below. However, to avoid repetition, the following considerations should be taken as being relevant to all land holdings:

- Design - In respect of permanent land take, the ExA is satisfied that site designs have been optimised to reduce the overall land take and, where possible, reduce potential severance in terms of access;
- Consultation with landowners - The ExA notes that no secondary mitigation measures are proposed for the permanent loss of agricultural land. However, the Applicant confirmed that further consultation with landowners would be undertaken to reduce the impacts on the farm businesses, as far as practicable, especially during the construction phase. Overall, we are satisfied that the Applicant has made proportionate efforts to reduce impacts on farm businesses;
- Agri-environment schemes - whilst there would be a loss of land under agri-environment schemes, the regional resource equates to approximately 70,000ha. Overall, we do not consider the total loss of land as a result of the Proposed Development under such schemes to be substantial;
- Reinstatement of agricultural land – In respect of returning land to its original agricultural use, soil handling, storage and re-use methods are to be detailed within an oSMP [REP3-018] and secured by a final SoMP. This is to ensure that the soils are fit for purpose on the reinstatement of the land. The ExA is content that this approach complies with paragraph 5.10.8 of NPS EN-1 which requires applicants to both identify effects and seek to minimise impacts on soil quality; and
- Operational phase management – The Applicant has confirmed that during the operational phase, possible impacts on the land include the potential for invasive weeds to grow. Tables 9.1 in Part B and C of the CoCP confirm that measures contained in relevant Defra and Environment Agency best practice guidance on the control and removal of invasive weed species would be implemented where such weeds are identified [REP10-072]. The ExA is satisfied that this is an appropriate approach which would minimise the risk of establishment of weeds and remove weed growth that might threaten any adjoining agricultural land.

Main Development Site

EDF Energy Nuclear Generation Limited

5.2.100. This land comprises a mix of woodland, marsh and arable land and includes parts of Dunwich Forest, Sizewell Marshes SSSI, Broom Covert and woodland adjacent to Sizewell Gap. The MDS would require 150ha of which is in agricultural use, which equates to approximately 45% of the total land holding. Approximately 271.65ha would be returned to

agricultural use at the end of construction, with 26.91ha being required permanently, which equates to 9.9% of the holding.

- 5.2.101. Three fields are under Entry Level plus Higher-Level Stewardship, with woodland at Goose Hill, Broom Covert and adjacent to Sizewell A and Black Walks being under English Woodland Grant Schemes.

ExA's consideration

- 5.2.102. The owners of the landholdings affected are not listed as farming businesses and the Applicant has confirmed that the viability of these entities is not dependant on the revenue created through agriculture.

- 5.2.103. In respect of the woodland under Woodland Grant Schemes, we accept that there would be a loss of woodland which is assessed as being a significant adverse effect. However, measures within the oLEMP include woodland replanting and management. Once the new woodlands have re-established, we agree that the residual effects would be reduced to negligible.

- 5.2.104. Therefore, the ExA attributes little weight to matters relating to EDF Energy Nuclear Generation Ltd against the Order being made.

NNB Generation Company (SZC) Limited

- 5.2.105. This land consists of part of the Aldhurst Farm habitat creation area and is managed under the Aldhurst Farm LEMP. Approximately 7.88ha of land would be required, which equates to just over 20% of the holding. However, following construction, all the land holding would be returned to its original, agricultural use. None of the holding is under an agri-environment scheme and no severance effects have been identified.

ExA's consideration

- 5.2.106. Given the temporary requirement for land, the ExA attributes little weight to matters relating to NNB Generation Company (SZC) Limited against the Order being made.

Crown Farm

- 5.2.107. This land is required in relation to the Ancillary Construction Area (ACA) and is mainly arable land with shooting rights. Just under 30ha of land would be required, which equates to just over 7% of the holding. Following the construction phase, all the land would be returned to its original, agricultural use. All the land is under Entry Level plus Higher-Level Stewardship and no severance effects have been identified.

ExA's consideration

- 5.2.108. Given the temporary requirement for land, the ExA attributes little weight to matters relating to Crown Farm against the Order being made.

Old Abbey Farm

5.2.109. Old Abbey Farm is an arable enterprise and approximately 12.58ha of land would be required, which equates to just over 57% of the total holding. Following the construction phase, all the land holding would be returned to its original, agricultural use. None of the holding is under an agri-environment scheme and no severance effects have been identified.

ExA's consideration

5.2.110. The ExA acknowledges that this parcel of land is part of a larger landholding dissipated across the local area. However, as just under 60% of the holding would be required, we consider moderately adverse effects would be experienced. Whilst noting that the land from this holding would be required on a temporary basis and the additional consultation to be undertaken by the Applicant, the percentage required brings the viability of the land holding into question during the construction phase of between 9 to 12 years.

5.2.111. Therefore, the ExA attributes moderate weight to matters relating to Old Abbey Farm against the Order being made.

Theberton House Estate

5.2.112. Theberton House Estate is an arable enterprise and just over 9ha of land would be required, which equates to approximately 5.35% of the total holding. Approximately 5.94ha would be returned to agricultural use at the end of construction. None of the holding is under an agri-environment scheme and no severance effects have been identified.

ExA's consideration

5.2.113. The ExA are aware of the concerns raised by Mr and Mrs Dowley regarding the impact of both the MDS and SLR on their Estate. Matters in relation to irrigation have been dealt with in an earlier section and it was concluded that the Applicant would provide adequate irrigation and drainage provisions. We are however aware that it appears by the close of Examination the independent farm impact assessment had not been undertaken.

5.2.114. We acknowledge the concerns raised, including the land take issues relating to the roundabout at the main site entrance and the frustrations in respect of the delay regarding the farm impact assessment. However, the temporary and permanent effects on this holding would be minimal given the modest amount of land affected and the proportion of the overall holding this would represent.

5.2.115. Therefore, the ExA attributes little weight to matters relating to Theberton House Estate against the Order being made.

Abbey Farm

5.2.116. Abbey Farm is an arable enterprise and approximately 0.58ha would be required permanently, which equates to just over 6% of the total holding. None of the holding is under an agri-environment scheme and no severance effects have been identified.

ExA's consideration

- 5.2.117. We note that the land required is associated with footpath diversions and comprises current field boundaries and field margins. Although the land take is stated as being permanent, it is also noted that it is the Applicant's intention to return land to agricultural use wherever possible.
- 5.2.118. Therefore, the ExA attributes little weight to matters relating to Abbey Farm against the Order being made.

Leiston House Farm/Wood Farm

- 5.2.119. Leiston House Farm/Wood Farm is an arable enterprise and approximately 0.13ha would be required during the construction phase, which equates to just over 1% of the total holding. None of the holding is under an agri-environment scheme and no severance effects have been identified.

ExA's consideration

- 5.2.120. We note that the land required is associated with footpath diversions and comprises current field boundaries and field margins. Although the land take is stated as being permanent, it is also noted that it is the Applicant's intention to return land to agricultural use wherever possible.
- 5.2.121. Therefore, the ExA attributes little weight to matters relating to Leiston House Farm/Wood Farm against the Order being made.

Northern Park and Ride

White House Farm

- 5.2.122. White House Farm is an arable enterprise, and approximately 26.3ha would be temporarily required, which equates to approximately 11.4% of the holding. The holding is covered by an Entry Level Stewardship and no severance effects have been identified.

ExA's consideration

- 5.2.123. As all land would be returned to agricultural production, we concur that the temporary effects on the holding would not be significant. In addition, as detailed in Table 3.1 of the ADDP, whilst no severance effects have been identified, a separate agricultural track, to the west side of the proposed roundabout, north of Willow Marsh Lane, is to be provided to retain access from White House Farm to an existing private agricultural track to the north.
- 5.2.124. Therefore, the ExA attributes little weight to matters relating to White House Farm against the Order being made.

Southern Park and Ride

Bridge Farm

- 5.2.125. Bridge Farm is an arable enterprise, with a small area under permanent pasture, grazed by horses. The SPR would result in the temporary loss of

approximately 17.5ha of land, which equates to approximately 4.6% of the overall holding. The site is under Higher Level Stewardship and no severance effects have been identified.

ExA's consideration

- 5.2.126. As all land would be returned to agricultural production, we concur that the temporary effects on the holding would not be significant. Therefore, the ExA attributes little weight to matters relating to Bridge Farm against the Order being made.

Two Village Bypass

Parkgate Farm (forming part of Glemham Hall Estate)

- 5.2.127. Parkgate Farm is predominately in arable production, with some cattle grazing associated with the River Alde floodplain. Most of the land within the site boundary is under Entry- and Higher-Level Stewardship agreements. Additionally, some woodland blocks are under English Woodland Grant Schemes.
- 5.2.128. The construction of the TVB would require just under 29ha of land, which equates to just under 2.5% of the total holding. Just over 5ha of the land is required temporarily and would be returned to agricultural use at the end of the construction phase. Limited severance effects are associated with the TVB.

ExA's consideration

- 5.2.129. In respect of severance effects, access to the remaining land holding would be maintained due to the inclusion of a permanently diverted accommodation track, which would enable all areas of the landholding to be accessible. A livestock path is also to be provided to the west of the proposed River Alde overbridge to allow cattle to move north and south of the route of the TVB.
- 5.2.130. Regarding the woodland under Woodland Grant Schemes, we accept that there would be a loss of woodland which is assessed as being a significant adverse effect. However, measures within the TVB LEMP include woodland replanting and management. Once the new woodlands have re-established, we consider this loss would be negligible.
- 5.2.131. Therefore, the ExA attributes little weight to matters relating to Parkgate Farm against the Order being made.

Farnham Hall

- 5.2.132. The land holding is used for arable production and is not under any agri-environment schemes. The construction of the TVB would require just over 11ha of land, which equates to just over 18% of the total holding. Just under 1.5ha of the land is required temporarily and would be returned to agricultural use at the end of the construction phase. Limited severance effects are associated with the TVB.

ExA's consideration

5.2.133. In respect of severance, we note that access to the remaining landholding would be maintained through the inclusion of the new junction south of Pond Wood and the accommodation track to Farnham Hall Farmhouse. The increase in journey time was confirmed by the Applicant as being approximately 2 minutes walking time. In terms of vehicular access, an increase of 600m would occur and the majority of this would be on public highway. We are therefore satisfied that adequate connectivity would be provided and journey times would not increase by an unacceptable duration or distance.

5.2.134. Therefore, the ExA attributes little weight to matters relating to Farnham Hall against the Order being made.

Friday Street Farm

5.2.135. The fields of this landholding closest to the A12 are in use as a car boot sale venue and a pick your own vegetable area, with the largest field being under arable production. None of the land is under any agri-environment schemes. The construction of the TVB would require just over 12ha of land, which equates to approximately 28.5% of the holding. Just over 5ha of the land is required temporarily and would be returned to agricultural use at the end of the construction phase.

5.2.136. In respect of severance, the assessment identified that there would be limited impacts on access to most of the remaining landholding. However, a small area of approximately 1.9ha to the east of Mollett's Farm would be isolated from the main landholding. Whilst access would still be possible for adjacent landholdings, given its small size it may not be commercially viable to farm as arable land.

ExA's consideration

5.2.137. The severance of the small area of the landholding is noted. However, given the additional consultation undertaken by the Applicant and through assurances and obligations upon entering the land and compensation, we do not consider the effect of the severance would be significant.

5.2.138. Therefore, the ExA attributes little weight to matters relating to Friday Street Farm against the Order being made.

Sizewell Link Road

Kelsale Manor

5.2.139. The land holding is used for arable production and is not under any agri-environment schemes. The construction of the SLR would require just over 13ha of land, which equates to approximately 5.85% of the total holding. However, 3.79ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. In respect of severance, an area of approximately 3.8ha to the north of the site would experience restricted access.

ExA's consideration

- 5.2.140. The issue of severance for Kelsale Manor was explored in written questions, with the Applicant confirming that access to land forming part of Kelsale Manor would be impacted during and following construction of the SLR. This relates to land which forms part of a single field currently accessed from an un-named road leading to the A12. Continued access to this area would need to be via a farm track on the neighbouring landholding (Haste land) or through the area of land to the south of Fir Tree Farm, and through the new infiltration basin. The Applicant further confirmed that consultation with the landowner was on-going, with the aim of reducing impacts on the farm business, as far as practicable.
- 5.2.141. At the close of Examination this matter had not been fully resolved. As such, the ExA cannot be certain that appropriate access to and from the land holding would be provided. Whilst we accept that the actual land take from the holding is relatively modest, the issues of severance could have a negative effect on productivity.
- 5.2.142. With this matter being unresolved, the overall negative effect would be greater. The ExA therefore considers that the effect on the holding, taken as a whole, would be moderately adverse.

Rookery Farm

- 5.2.143. The land holding is used for arable production, with a small woodland block to the south of Bobbett's Wood. The land is not under any agri-environment scheme. The construction of the SLR would require approximately 10.08ha of land, which equates to approximately 15.06% of the total holding. 4.25ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. No severance effects are associated with the SLR as an additional access route is to be provided from the A12 as part of the Proposed Development.

ExA's consideration

- 5.2.144. We consider that the effect on this holding would be limited, especially given that part of the land holding would only be temporarily required during construction.

Fordley Hall Farm

- 5.2.145. The land holding is used for arable production, as well as cover crops which support shooting. The land is not under any agri-environment schemes. The construction of the SLR would require approximately 16.84ha of land, which equates to approximately 13.40% of the total holding. 2.83ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. In respect of severance, some additional use of the public highway would be required.

ExA's consideration

- 5.2.146. The ExA notes the concerns raised by Mr and Mrs Grant in respect of severance issues. The landowners confirmed that construction of the SLR would lead to severance of 50% of the working farmland, as there would

be no direct connection to land north of the SLR. Without direct access, all farm vehicles would experience a long journey from both sides of the holding. It would be necessary to cross the SLR and use the A12 which is considered unsuitable for slow moving farm machinery.

- 5.2.147. The current route to access land is via farm tracks on private land. Once constructed, access would be via the public highway for between 1.8km to 2.5km, with 1km to 1.2km of this being on the SLR.
- 5.2.148. We note that the Applicant confirmed that the SLR would enable access to all land from the existing or proposed public highway to avoid severance and that they were working with landowners to identify if further improvements could be made. The ExA is aware of the ongoing discussions regarding the feasibility of a proposal to construct a 2.8m high underpass under the SLR, which would give access to the land without the need to access the public highway.
- 5.2.149. However, in their post hearing submission Mr and Mrs Grant stated that a 2.8m high underpass would not be suitable as this is less than the height of some modern agricultural machinery. Instead, Mr and Mrs Grant stated that a height of 4.5m would be more appropriate.
- 5.2.150. At the close of Examination this matter had not been fully resolved and no agreement was in place to secure it. As such, the ExA cannot be certain that appropriate access to and from the land holding would be provided. Whilst the actual land take from the holding is relatively modest, the issues of severance could have a negative effect on productivity. Farming practices could continue however, the implication would be that this would likely to be in a revised and less efficient form.
- 5.2.151. With this matter being unresolved, the overall negative effect would be greater. Therefore, the ExA attributes moderate to matters relating to Fordley Hall Farm against the Order being made.

Beveriche Manor Farm

- 5.2.152. The land holding is used for arable production and the construction of the SLR would require approximately 0.9ha of land, which equates to just over 1% of the total holding. 0.4ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. No severance effects have been identified.

ExA's consideration

- 5.2.153. In terms of the requirement for land, given the very modest proportion of the overall holding this would represent, the ExA considers that the effect on this holding would be negligible.
- 5.2.154. Therefore, the ExA attributes little weight to matters relating to Beveriche Manor Farm against the Order being made.

Old Abbey Farm

5.2.155. The land holding is used for a mix of cereals, potatoes, onions, root crops and barley. The land is not under any agri-environment schemes. The construction of the SLR would require just over 16ha of land, which equates to approximately 16.55% of the total holding. 1.23ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. In respect of severance, some additional use of the public highway would be required.

ExA's consideration

5.2.156. In respect of severance, the ExA notes that a new junction to Moat Road is to be provided which would assist in maintaining access to the land holding. We are satisfied that this would prevent severance issues and a subsequent reduction in farm productivity.

5.2.157. Overall, given the relatively small proportion of the overall holding required, the ExA considers the effect on this holding would be modest. Therefore, the ExA attributes little weight to matters relating to Old Abbey Farm against the Order being made.

Trust Farm

5.2.158. The land holding is used for arable production and is not under any agri-environment schemes. The construction of the SLR would require approximately 8.74ha of land, which equates to approximately 9.45% of the total holding. 0.3ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. In respect of severance, some additional use of the public highway would be required.

ExA's consideration

5.2.159. The concerns raised by the Boden Family in respect of severance issues are noted by the ExA. In their post hearing submission, the Boden family stated that the SLR would sever three of the largest fields within the holding and would create smaller fields, none of which would be greater than 2.63ha. These would be small in arable terms and potentially more difficult and expensive to farm.

5.2.160. It is noted that the Boden Family consider that such a reduction in the scale of farming would have a major detrimental impact on the farming business. It was further identified that the issue of severance would cause access difficulties to all fields north of the SLR. The ExA understands that meetings had been held regarding the issue of severance but that at the close of Examination the issue had not been resolved.

5.2.161. The ExA cannot therefore be certain that appropriate access to and from the land holding would be provided. Whilst the actual land take from the holding is relatively modest, the issues of severance would have a negative effect on productivity. Farming practices could continue, however this would likely to be in a revised and less efficient form. With this matter being unresolved, the overall negative effect would be greater.

5.2.162. Therefore, the ExA attributes moderate weight to matters relating to Trust Farm against the Order being made.

Hawthorn Farm

5.2.163. The land holding is used for arable production and is not under any agri-environment schemes. The construction of the SLR would require just under 6ha of land, which equates to approximately 9.38% of the total holding. 0.37ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. In respect of severance, some additional use of the public highway would be required.

ExA's consideration

5.2.164. In respect of severance, the Applicant confirmed that the current route to access land is approximately 0.75km via farm tracks on private land and the public highway. Once constructed, access would be via the SLR for approximately 0.7km. We are satisfied that adequate connectivity would be provided and journey times would not increase by an unacceptable duration or distance.

5.2.165. Overall, given the relatively small proportion of the overall holding required, the the ExA attributes little weight to matters relating to Hawthorn Farm against the Order being made.

Dove House Farm

5.2.166. The land holding is used for arable production and pasture and is not under any agri-environment schemes. The construction of the SLR would require approximately 5.85ha of land, which equates to approximately 10.41% of the total holding. 0.6ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. In respect of severance, some additional use of the public highway would be required.

ExA's consideration

5.2.167. In respect of severance, the Applicant confirmed that the current route to access land is via farm tracks on private land. Once constructed, access would be via the public highway for approximately 1.7km, with 1.3km of this being on the SLR. We are satisfied that adequate connectivity would be provided and journey times would not increase by an unacceptable duration or distance.

5.2.168. In addition, given the relatively small proportion of the overall holding required, the ExA attributes little weight to matters relating to Dove House Farm against the Order being made.

Theberton Hall Farm

5.2.169. The land holding is used predominately for arable and a selection of root and combinable crops. Some land is under Entry Level plus Higher-Level Stewardship and Plumtreehills Covert is under a Woodland Grant

Scheme. It is understood some diversification may also be associated with this holding.

- 5.2.170. The construction of the SLR would require just over 15ha of land, which equates to just over 7% of the total holding. 1.43ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. In respect of severance, some additional use of the public highway would be required.

ExA's consideration

- 5.2.171. The ExA notes the concerns raised by the Bacon Family in respect of severance issues and the potential loss of just over 27ha of land no longer being available to produce cereal and vegetable crops. The Bacon Family have stated that they would be unable to reduce their overheads and as the land concerned is some of their most productive, this would affect their profitability. In their post hearing submission, we note that the Bacon family further stated that if agreement by a voluntary arrangement is not pursued, and that for some reason, compulsory acquisition powers are used, this would cause significant severance and the remaining areas of fields affected in would not be able to be economically farmed.
- 5.2.172. In respect of severance, the Applicant confirmed that the current route to access land is via farm tracks on private land. Once the SLR is constructed, access would be via the SLR for approximately 1km. We are satisfied that adequate connectivity would be provided and journey times would not increase by an unacceptable duration or distance.
- 5.2.173. It is noted that at the close of Examination, HoTs had been agreed and substantial progress had been made on the drafting of the option agreement. The Applicant confirmed that the agreement was expected to be exchanged shortly after the close of Examination. In addition, given the relatively small proportion of the overall holding required, the ExA attributes little weight to matters relating to Theberton Hall Farm against the Order being made.

Yew Tree Farm

- 5.2.174. The land holding is used for pasture and is under Entry Level plus Higher-Level Stewardship. The construction of the SLR would require approximately 0.29ha of land, which equates to approximately 1.79% of the total holding. No severance effects have been identified.

ExA's consideration

- 5.2.175. Given the very modest proportion of the overall holding required, the ExA attributes little weight to matters relating to Yew Tree Farm against the Order being made.

Church Farm

- 5.2.176. The land holding is used for pasture for cattle grazing or haylage, with the southernmost field being used to produce feed crops. None of the

holding is under any agri-environment schemes. The construction of the SLR would require approximately 5.16ha of land, which equates to approximately 19.80% of the total holding. 0.54ha of land is required temporarily and would be returned to agricultural use at the end of the construction. No severance effects are associated with the SLR due to the provision of an overbridge.

ExA's consideration

- 5.2.177. In terms of the requirement for land, given the relatively modest proportion of the overall holding this would represent, the ExA attributes little weight to matters relating to Church Farm against the Order being made.

Moat Farm

- 5.2.178. The land holding is used for arable production and is not under any agri-environment schemes. The construction of the SLR would require approximately 5.06ha of land, which equates to approximately 16.14% of the total holding. 0.18ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. No severance effects have been identified.

ExA's consideration

- 5.2.179. In terms of the requirement for land, given the relatively modest proportion of the overall holding this would represent, the ExA attributes little weight to matters relating to Moat Farm against the Order being made.

Theberton House Estate

- 5.2.180. There is a mix of arable and woodland across the landholding, with the land affected being predominantly woodland. Shooting rights are exercised on the landholding. None of the holding is under any agri-environment schemes. The construction of the SLR would require approximately 0.74ha of land, which equates to approximately 0.44% of the total holding. 0.07ha of land is required temporarily and would be returned to agricultural use at the end of construction. No severance effects are associated with the SLR.

ExA's consideration

- 5.2.181. The ExA notes the concerns raised by Mr and Mrs Dowley in respect of both the MDS and SLR. Matters in relation to land take associated with the MDS and irrigation are discussed above.

- 5.2.182. Overall, given the very modest proportion of the holding required, the ExA attributes little weight to matters relating to Theberton House Estate against the Order being made.

Yoxford Roundabout

The Piggeries

5.2.183. The land holding is under pasture management and not under any agri-environment schemes. The construction of the Yoxford roundabout would require approximately 1.9ha of land, which equates to 36.4% of the holding. 0.34ha of land is required temporarily and would be returned to agricultural use at the end of the construction phase. No severance effects have been identified.

ExA's consideration

5.2.184. The permanent loss of land would have a significant effect on the land holding. The ExA notes the additional consultation to be undertaken by the Applicant and assurances and obligations are to be accepted upon entering the land, alongside of compensation, where applicable. However, the percentage of the holding required brings the viability of the land holding into question.

5.2.185. Therefore, the ExA attributes moderate weight to matters relating to The Piggeries against the Order being made.

Freight Management Facility

Orwell Park Estate

5.2.186. The Orwell Park Estate comprises of a mix of woodland, heath, grassland, arable land and diversified enterprises. The FMF would result in the temporary loss of approximately 9.4ha of land, which would equate to less than 1% of the overall holding. This land is not under any agri-environment scheme and no severance effects have been identified.

ExA's consideration

5.2.187. Given the very modest proportion of the holding required, the ExA attributes little weight to matters relating to Orwell Park Estate against the Order being made.

Rail

5.2.188. An environmental screening exercise was undertaken by the Applicant which concluded none of the proposed rail improvement works on the Saxmundham to Leiston branch line should be taken forward to the assessment of likely effects on soils and agriculture as the works were unlikely to impact on agricultural land or operations [APP-563, para 10.3.9 and 10.3.10]. This section therefore only considers the temporary rail extension of approximately 1.8km.

Leiston House Farm/Wood Farm

5.2.189. This landholding is arable land, used for cereal crops and is not under any agri-environmental scheme. The rail extension would result in the temporary loss of approximately 10.37ha of land, which equates to approximately 8.55% of the overall holding.

5.2.190. Potential severance issues have been reduced through the provision of an automated level crossing where the rail extension route would cross Buckleswood Road. This would ensure no restriction to either

Buckleswood Road or access to most agricultural land. However, access to approximately 1.1ha of land may be restricted due to existing boundary features and the rail extension alignment.

ExA's consideration

- 5.2.191. Following construction of the MDS, the rail extension would be removed, and land would be returned to agricultural production. Whilst the potential severance of 1.1ha is noted, this is a small area and most of the holding would remain accessible. We note that discussions have been held with the landowner in respect of ensuring access is provided.
- 5.2.192. Given the temporary and modest proportion of the holding required, the ExA attributes little weight to matters relating to Leiston House Farm/Wood Farm against the Order being made.

Land lying to the south of Abbey Lane

- 5.2.193. This landholding is arable land, used for cereal crops and is not under any agri-environmental schemes. The rail extension would result in the temporary loss of approximately 7.20ha of land, which equates to just under 40% of the overall holding. This land is not under any agri-environment scheme and no severance effects have been identified.

ExA's consideration

- 5.2.194. Following construction of the MDS, the rail extension would be removed, and the land would be returned to agricultural production. However, the temporary loss of land would have a significant effect on the land holding.
- 5.2.195. The Applicant has also confirmed that further consultation with landowners is to be undertaken to reduce impacts on the business, as far as practicable, particularly during construction. Overall, with these additional measures in place, the ExA considers the effect on this holding would be modest and attribute little weight to matters relating to land lying to the south of Abbey Lane against the Order being made.

Aldhurst Farm Cottages

- 5.2.196. This landholding is arable land and is not under any agri-environmental scheme. The rail extension would result in the temporary loss of approximately 3.62ha of land, which equates to 81.52% of the overall holding. The land is not under any agri-environment scheme and no severance effects have been identified.

ExA's consideration

- 5.2.197. Following construction of the MDS, the rail extension would be removed, and the land would be returned to agricultural production. The Applicant has also confirmed that further consultation with the landowner is to be undertaken to reduce impacts on the business, as far as practicable, particularly during construction.

5.2.198. However, the percentage temporarily required brings the viability of the land holding into question during the construction phase. Therefore, the ExA attributes moderate to matters relating to Aldhurst Farm Cottages against the Order being made.

NNB Generation Company (SZC) Limited

5.2.199. This landholding forms part of the Aldhurst Farm habitat creation area and the rail extension would result in the temporary loss of approximately 0.61ha of land, which equates to approximately 1.56% of the overall holding. This land is not under any agri-environment scheme and no severance effects have been identified.

ExA's consideration

5.2.200. The ExA considers that the effect on this holding would be negligible. Therefore, the ExA attributes little weight to matters relating to NNB Generation Company (SZC) Limited against the Order being made.

Off-Site Developments

Pakenham Fen meadow

5.2.201. At the time of submission of the application, the site proposed comprises approximately 32.8ha of agricultural land which is a mix of grassland, Fen meadow, rush pasture and drier grassland and is adjacent to the Pakenham Meadows SSSI. A total of 4.9ha is considered the primary focus for the creation of a new fFn meadow habitat, and some of the wider areas on the site may also have the potential for the creation of new Fen meadow habitat. None of the holding is under an agri-environment scheme and no severance effects have been identified.

5.2.202. During habitat improvement works, the site would be temporarily excluded from agricultural use. However, due to the short duration of any works required, the effects are considered to be not significant. Following completion of works, it is anticipated that grazing of the land would continue, albeit with a possible reduction in intensity. The Applicant stated that this is not likely to result in a significant effect on existing farming operations.

ExA's consideration

5.2.203. We note the concerns raised on behalf of Ms Dyball, Ms Hall and S R Whitwell & Co. Particular concerns relate to the impact on the cattle enterprise and ramifications on the rest of the farming business. If the meadows are turned into a wet Fen meadow, it is stated that the number of cattle able to graze would be drastically reduced and potentially destroy the livestock enterprise.

5.2.204. We note that the Applicant confirmed that grazing would be possible on land established as Fen meadow. However, this is likely to be at a lower stocking rate and with a reduced seasonal window. Consultation in respect of remuneration for losses associated with the reduced stocking intensity has been undertaken.

- 5.2.205. The Applicant also confirmed within the Fifth ES Addendum that, following hydrological studies, greater certainty had been provided in respect of the specific location for the creation of the Fen meadow habitat. The site area within the revised Order Limits was reduced from 32.8ha to 10.4 ha, with the fen habitat being approximately 6.49ha.
- 5.2.206. Given the reduction in land required, the ExA considers that the effect on this holding would be modest and therefore the ExA attributes little weight to matters relating to Pakenham Fen meadow against the Order being made.

Westleton Marsh Harrier Habitat Improvement Area

- 5.2.207. If required, the Westleton marsh harrier improvement area would result in the temporary loss of approximately 54ha of land, which equates to approximately 14.7% of the overall holding. Works to create the improvement area would include cessation of arable cultivation and one-off sowing of a coarse grassland mix to produce rough grassland. Annual sowing of broad game strips would take place to attract flocks of small birds and increase small mammal numbers. All land would be returned to its agricultural use at the end of the construction phase.

ExA's consideration

- 5.2.208. No ALC surveys were undertaken at the site to confirm land grades. However, provisional mapping shows Grade 3 land and the Applicant has therefore assumed that there is the potential for BMV land to be present. As soils are not being stripped or built over, we are content that there would be no impact on the BMV land resource.
- 5.2.209. In addition, we are satisfied that any soil disturbance caused by the improvement works would replicate existing agricultural operations such as ploughing. The Applicant has also confirmed that further consultation with the landowner is to be undertaken to reduce impacts on the business, as far as practicable, particularly during construction.
- 5.2.210. Overall, given the temporary and modest proportion of the holding required, the ExA considers that the effect would be negligible. Therefore, the ExA attributes little weight to matters relating to Westleton Marsh Harrier Improvement Area against the Order being made.

Cumulative Effects

- 5.2.211. 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] and [REP7-032]. The chapters consider project-wide effects, inter-relationship effects and cumulative effects with other plans, projects, and programmes.

Project-wide effects

- 5.2.212. Volume 10, Chapter 3 of the ES [APP-577] details the assessment findings regarding project-wide effects where environmental impacts

from different components of the Proposed Development combine, resulting in the potential for a significant cumulative effect.

5.2.213. The following effects have been assessed to be significant at the project-wide scale when compared with the effects from the individual project components:

- the temporary loss of BMV land during the early years of construction;
- the permanent loss of BMV land during the early years of construction; and
- the temporary loss of agricultural land during the early years of construction.

ExA's consideration

5.2.214. In respect of the temporary loss of BMV land whilst project wide effects would be significant adverse, the ExA is satisfied that suitable measures would be employed through the oSMP to ensure that BMV land required temporarily is restored appropriately through the sustainable re-use of the soil resource.

5.2.215. Similarly, project wide effects for the permanent loss of BMV land would be significant adverse. However, as detailed above, the ExA considers the total permanent loss of BMV land would be relatively modest. In addition, at just under 40ha the majority of the BMV land to be permanently lost would be within subgrade 3b, which represents poorer quality BMV land.

5.2.216. In respect of the temporary loss of agricultural land during the early years of construction, the majority of land would be under arable production which we agree is a receptor of low sensitivity. Although adverse significant effects are reported within the assessment, land would be reinstated by the end of the removal and reinstatement phase. Additionally, the ExA considers that any temporary effect on the landholdings would be necessary to allow for the construction and, where relevant, operation of the Proposed Development.

5.2.217. Whilst some project-wide effects have been assessed as significant, we are content that the primary and tertiary mitigation measures proposed have been designed to reduce the effects on both the soil resources and agricultural holdings as far as is reasonably practicable.

5.2.218. Overall, the ExA is content that the Applicant has given appropriate consideration to project-wide effects of the Proposed Development regarding soils and agriculture.

5.2.219. Therefore, the ExA attributes little weight to matters relating to project-wide effects against the Order being made.

Inter-relationship effects

5.2.220. The relevant ES chapters anticipate there to be the potential for inter-relationship effects between geology and land quality, landscape, noise, air quality and groundwater and surface water in relation to potential receptors which could be impacted by ground contamination, poor

ground conditions resulting from soil handling and noise or dust affecting adjacent enterprises. Potential impacts could include the contamination of soils, silt-laden runoff, noise disturbance and dust.

ExA's consideration

- 5.2.221. The CoCP contains a range of measures to reduce the risk of dust impacts, runoff, erosion, and pollution, impacts from noise on adjacent receptors, and the risk of hydrological or hydrogeological changes on agricultural land.
- 5.2.222. In relation to landscape, the ability to create and maintain elements of landscape planting will require soils with appropriate characteristics. The oSMP and final SoMP will confirm how soils will be stripped, stockpiled and re-used to ensure they are suitable for the required end use.
- 5.2.223. The ExA is content that the control measures listed above, combined with the mitigation measures proposed in relation to other disciplines, will result in minor inter-relationship effects, which are not significant.
- 5.2.224. Overall, the ExA is satisfied that the Applicant has satisfactorily addressed how individual environmental effects of the Proposed Development combine together with one another in respect of possible effects on a single receptor (NPS EN-1, para 4.2.6).
- 5.2.225. Therefore, the ExA attributes little weight to matters relating to inter-relationship effects against the Order being made.

Cumulative effects with other plans, projects and programmes

- 5.2.226. Volume 10, Chapter 4 of the ES states that cumulative effects occur when impacts from the Proposed Development are combined with impacts from other planned or potential third-party plans or projects [APP-578, para 4.1.1].
- 5.2.227. Section 4.22 confirms 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. A tabular summary of those cumulative effects found to be greater than for the Proposed Development alone is contained within Table 4.16 of [APP-578].
- 5.2.228. The only cumulative effect that has been found to be greater in-combination with the non-Sizewell schemes that for the Proposed Development alone in respect of soils and agriculture relates to the spread of invasive weeds during the peak years of construction. However, no further mitigation is proposed as the effects are assessed as minor adverse and therefore not significant.

ExA's consideration

- 5.2.229. 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 how the accumulation of effects might affect soil and agriculture matters as a whole (NPS EN-1, para 4.2.6).

- 5.2.230. Therefore, the ExA attributes little weight to matters relating to cumulative effects with other plans projects and programmes against the Order being made.

Conclusion on Agriculture and Soils

Soil Resources

- 5.2.231. The ExA is satisfied that the Applicant undertook a robust assessment of soil quality and resources. As stated in NPS EN-6, para 3.8.3 we are content that the Applicant has fully assessed site geology, topography, climate and soil types in order to also address potential effects on soils and interrelationships with ecological processes.
- 5.2.232. There is the potential for invasive weed species to grow within the site and this is to be controlled through appropriate management regimes detailed within the CoCP. We are satisfied that such measures would adequately address weed growth that might threaten adjoining agricultural land.
- 5.2.233. The provisions of the final SoMP would be secured through the CoCP and Requirement 2 of the final DCO, with the LEMPs secured through Requirements 24 and 36. We consider that the content of the three Requirements is adequate to ensure no significant adverse effects on soil resources from the Proposed Development.
- 5.2.234. The ExA is satisfied that the measures and procedures to be detailed in the final SoMP would ensure adequate protection of soil function. Such measures would result in the protection of soils which would enable their re-use in the restoration of the site and where appropriate, returned to pre-construction agricultural use. Where land is to be restored as part of the LEMPs, soils are to be handled in accordance with measures as set out in the oSMP and CoCP. Such measures would ensure sufficient volumes of material for restoration are provided and the minimisation of surplus soil material occurs.
- 5.2.235. The provision of appropriate volumes of soils would assist in the production of the habitat enhancement work as detailed in the landscape vision contained in the Design and Access Statement.
- 5.2.236. The replacement of areas of arable farmland and plantation woodland with a species-rich semi-natural landscape habitat would be more characteristic of the local area. The Applicant has actively promoted the new landscape habitat as a benefit of the Proposed Development. The ExA agrees that the creation of new semi-natural habitats would represent a benefit in respect of both biodiversity and landscape character and attributes moderate weight for the making of the Order.

Loss of BMV land

- 5.2.237. The combined project-wide permanent loss of just under 70ha of BMV land is assessed in Volume 10, Chapter 3 of the ES as a significant adverse effect. The fact that BMV land is also a finite national resource and has a higher sensitivity than land in Grades 3b, 4 and 5 is also noted. However, the majority of BMV land to be permanently lost would be within subgrade 3a, which represents poorer quality BMV land.
- 5.2.238. In respect of paragraph 5.10.8 of NPS EN-1, we are satisfied that the Applicant has, through consultation and design iterations, sought to minimise impacts on BMV land where possible. As per the test in NPS-EN-1, we give limited weight to the loss of poor-quality agricultural land of ALC Grade 3b. The ExA therefore attributes little weight to matters relating to the effect on BMV land against the Order being made.

Effect on landholdings

- 5.2.239. Whilst little harm was identified in respect of the majority of landholdings, the severance issues at Kelsale Manor, Fordley Hall Farm and Trust Farm were unresolved at the close of Examination. As such, the ExA cannot be assured that appropriate access to and from the land holdings would be provided.
- 5.2.240. We are however content that measures within the CoCP and oSMP, where practicable, would provide adequate levels of mitigation and minimise adverse effects. Additionally, the ExA considers that any potential effect on landholdings would be necessary to allow for the construction and, where relevant, operation of the Proposed Development.
- 5.2.241. Therefore, the ExA concludes that when considered together, the effect on landholdings should be given little weight against the Order being made.

Compliance with other policies

- 5.2.242. We are satisfied that, in accordance with Chapter 15 of the NPPF, the Applicant has given appropriate consideration to the protection of soils, and this is demonstrated in the mitigation measures contained within the CoCP and oSMP. In addition, we are satisfied that the design of the MDS and the associated development sites have been optimised to reduce the overall land take, where practicable.
- 5.2.243. In respect of Policy SCLP10.3 of the East Suffolk Coastal Local Plan, we are content that appropriate measures would be secured via the CoCP and oSMP to reduce and, where necessary, manage land contamination.

Overall conclusion

- 5.2.244. In weighing the identified harm against the public benefits referred to in the above paragraphs, the ExA concludes that the benefits of the Proposed Development would be moderate. Overall, the ExA therefore ascribes little weight to the matters relating to agriculture and soils against the making of the Order.

- 5.2.245. The harms identified will be taken into account in the overall planning balance in Chapter 7 of this Report.

5.3. AIR QUALITY

- 5.3.1. This chapter sets out the air quality effects of the Proposed Development.

Policy Considerations

- 5.3.2. Paragraph 4.10.2 of NPS EN-1 sets out the different functions of the planning and pollution control systems in relation to air quality matters. It confirms that the planning system is concerned with the development and use of land in the public interest and in improving the natural environment, public health and safety and amenity. Pollution control is concerned with the use of measures to prohibit or limit the releases of substances to the environment to the lowest practicable level.
- 5.3.3. As set out in paragraph 4.10.3 of NPS EN-1, the SoS is required to focus on whether the project 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. It also indicates that the SoS is entitled to assume that the relevant pollution control and environmental regulatory regimes will be properly applied and enforced and that the SoS should seek to complement but not duplicate them.
- 5.3.4. Paragraph 5.2.1 of NPS EN-1 notes that infrastructure development can have adverse effects on air quality involving emissions to air which can lead to adverse impacts on health, protected species and habitats. Levels for pollutants in ambient air are set out in the Air Quality Strategy for England (AQS). NPS EN-1 also notes that emissions from combustion plants are generally released through exhaust stacks and therefore the design of stacks, particularly height, is the primary driver for the delivery of optimal dispersion of emissions.
- 5.3.5. Where a project is likely to lead to a breach of national air quality limits, paragraph 5.2.9 of EN-1 provides that the applicant should work with the relevant local authorities to secure appropriate mitigation measures to allow the proposal to proceed. In the event that a project will lead to noncompliance with a statutory limit the decision maker should refuse consent (paragraph 5.2.10).
- 5.3.6. The SoS should therefore give air quality considerations substantial weight where a project would lead to a deterioration in air quality in an area, new breaches of national air quality limits or substantial changes in air quality levels even where no breaches occur. Paragraph 5.2.10 of NPS EN-1 advises that account must be taken of any relevant statutory air quality limits.
- 5.3.7. Paragraph 3.12.3 of EN-6 recognises that the operation of a new nuclear power station is unlikely to be associated with significant air quality

impacts, although there may be local impacts from transport and associated activities during construction.

5.3.8. Section 5.6 of EN-1 deals with, amongst other things, dust. It requires as part of the ES the assessment to describe:

- *the type, quantity and timing of emissions;*
- *aspects of the development which may give rise to emissions;*
- *premises or locations that may be affected by the emissions;*
- *effects of the emission on identified premises or locations; and*
- *measures to be employed in preventing or mitigating the emissions.”*

5.3.9. EN-1 in paragraph 4.13.2 states that where a proposed project has an effect on human beings the ES should assess those effects for each element of the project, and goes on to say in paragraph 4.13.3 that these direct impacts on health *“may include increased traffic, air or water pollution, dust...”*

5.3.10. The ExA should be satisfied that the assessment of potential detrimental impacts on amenity has been carried out; and

“that all reasonable steps have been taken, and will be taken, to minimise any such detrimental impacts.”

National Planning Policy Framework (NPPF)

5.3.11. Paragraph 174 of the NPPF advises that policies and decisions should contribute to and enhance the natural and local environment by amongst other things preventing new development from *“contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution.... Development should, wherever possible, help to improve local environmental conditions such as air and water quality.”*

5.3.12. Paragraph 186 goes on to confirm that decisions should also *“sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas.”*

Development Plan

5.3.13. The Suffolk Coastal Local Plan Policy SCLP10.3: Environmental Quality, clearly states the expectation that development proposals will protect the quality of the environment and minimise and, where possible, reduce all forms of pollution and contamination including air quality pollution.

5.3.14. Policy SCLP11.2: Residential Amenity, identifies air quality and other forms of pollution as a key consideration the local authority will take into consideration when assessing the impact of development.

5.3.15. The Suffolk Coastal Local Plan identifies the designation of three Air Quality Management Areas (AQMAs) within the district and the need to

ensure that new development does not result in additional AQMAs being declared.

- 5.3.16. The three AQMAs within the administrative area of East Suffolk Council (ESC) and are designated for potential exceedance of the mean annual nitrogen dioxide objective. At Stratford St Andrew the AQMA applies to an area covering several properties along the A12, Woodbridge centre is the second, the third was in Felixstowe but was revoked in 2016.

The Applicant's Case

- 5.3.17. The Applicant's assessment of impacts on air quality is set out in ES Chapter 12 [APP-212] which sets out the effects on the air quality arising from the construction and operation of the proposed Sizewell C power station at the main development site (MDS). The assessment has been informed by technical assessments, including a Construction Dust Assessment, [APP-213] Appendix 12A, a Transport Emissions Assessment, [APP-213] Appendix 12B and a Combustion Activity Impact Assessment, [APP-214] Appendix 12C. This is supplemented by additional chapters for each of the associated development sites (ADS).

- [APP-357] Northern Park and Ride [APP-358] Dust risk assessment,
- [APP-387] Southern Park and Ride [APP-388] Dust risk assessment,
- [APP-418] Two Village Bypass (TVB) [APP-419] Dust risk assessment,
- [APP-454] Sizewell Link Road (SLR) [APP-455] Dust risk assessment,
- [APP-487] Yoxford Roundabout [APP-488] Dust risk assessment,
- [APP-517] Freight Management Facility [APP-518] Dust risk assessment,
- [APP-548] Proposals relating to Rail [APP-549] Dust Risk Assessment.

- 5.3.18. These assessments are supported by a number of technical appendices for the MDS, [APP-213, APP-214, APP-215. APP-215 was subsequently superseded by AS-015] and the details of the legislative, policy and guidance used to support the ES is contained in Appendix 6H [APP-171].

- 5.3.19. Following the acceptance of the first change request a series of additional submissions were made to cover the potential changes in air quality impacts.

- [AS-015] Additional submission;
- [AS-127] MDS Appendices revision;
- [AS-241] Northern Park and Ride;
- [AS-243] Southern Park and Ride;
- [AS-246] TVB;
- [AS-250] SLR;
- [AS-252] Yoxford Roundabout;
- [AS-254] Freight Management Facility;
- [AS-292] Rail.

- 5.3.20. [AS-181] and [AS-127] amended sections 12.4 Baseline, and 12.6 Assessment as initially set out in [APP-212] and corrected errors in [APP-212 and APP-213]. Additional information was also presented to update air quality modelling of transport emissions.

- 5.3.21. Sensitivity testing was also undertaken at Stratford St Andrew AQMA and this is set out in Appendix A of [AS-127].
- 5.3.22. As part of the updated information the Applicant took into account updated information. The Department for Environment, Food and Rural Affairs (Defra) had published a new version of Background Concentration Maps in August 2020 using 2018 as the reference year to project forward future concentrations. New conversion tools were also published, and these were used to update the assessment as part of the updated documentation.
- 5.3.23. The Fourth ES Addendum Volume 1 Appendix 2.C [REP7-032] updated the transport chapter to take into account the proposed desalination plant, the subject of the third change request, 'Change 19'. An additional assessment of air impacts from the proposed desalination plant was also provided [REP9-026] which was subsequently superseded by [REP10-153].
- 5.3.24. The ES [APP-212] draws on The Air Quality Standards Regulations, guidance from the United States Environmental Protection Agency AP42, and The Institute of Air Quality Management (IAQM) guidance on construction dust (2016).
- 5.3.25. The ES did not specifically consider the PM_{2.5} levels within the assessment, on the basis that
- "The annual mean PM_{2.5} air quality standard value is considerably less than that of the annual mean PM₁₀ air quality standard value, and therefore, it is considered reasonable that where PM₁₀ emissions from earthmoving activities and other construction activities (excluding combustion activities) do not exceed the annual mean air quality standard, the associated PM_{2.5} emissions from the same activities would not exceed the PM_{2.5} annual mean air quality standard."* (Paragraph 12.2.9 of [APP-212]).
- 5.3.26. The ES also screened out any consideration of impacts from shipping on the basis that the number of loads anticipated to be brought by sea (approximately 120 beach landings) within the course of the construction period is significantly below the screening threshold of 5,000 large ship movements per year as advised by the Defra Local Air Quality Management Technical Guidance TG16.
- 5.3.27. The Outline Vessel Management Plan [REP10-134] provides an indication of the preferred routing and approximate number of vessels with a maximum availability of winter movements for the Marine Bulk Import facility (MBIF).
- 5.3.28. The conclusion of this screening consideration did not alter when the first change request was accepted, although the number of ship movements increased, with according to [REP3-016] approximately 400 deliveries between April and October (inclusive) and up to approximately 200 additional deliveries for the remainder of the year, for each year of operation of the MBIF.

- 5.3.29. When combined with the Beach Landing Facility (BLF) which could have up to 100 deliveries per annual campaign typically assisted by two tugs the total number of shipping movements remains well below the threshold in the guidance.
- 5.3.30. A number of primary mitigation measures have been identified through the EIA process and have been incorporated into the design and construction planning of the Proposed Development. These include:
- Use of two off-site park and ride facilities to reduce construction worker traffic to site, as well as the use of an accommodation campus to further reduce travel to site, which would help reduce transport related emissions.
 - Use of an offsite freight management facility.
 - Diesel generator stack heights being set as high as could be achieved under the design envelope for the power station and emissions of nitrogen oxides controlled through primary means.
 - Minimising freight movements on roads through the provision of the BLF, Saxmundham to Leiston branch line upgrades, the rail siding at the Ancillary Construction Area (ACA), and the green rail route.
- 5.3.31. The ES was updated through the Examination to address the changes sought and to refine information particularly in respect of traffic modelling. An explanation of the updates and additions which have been summarised above are set out in [REP10-172], the ES Signposting document.
- 5.3.32. The Applicant indicated that the key changes which influence the air quality assessment are:
- Potential to increase the frequency of freight train movements to facilitate bulk material imports by rail (Change 1).
 - Enhancement of the permanent BLF and construction of a new, temporary BLF (Change 2).
 - The impacts of Change 1 and Change 2 on construction traffic movements.
 - Change to certain parameter heights and activities on the MDS (Change 4).
 - Extension to the Order Limits to provide for additional Fen meadow habitat at Pakenham as mitigation for Fen meadow loss (Change 11).
 - Provision of a new temporary desalination plant at the MDS (Change 19).

Methodology

- 5.3.33. The scope of assessment set out with in the ES Chapter on Air Quality [APP-212] considers the impacts of the construction and operation of the Proposed Development, specifically associated with the following:
- Construction dust and emissions from non-road mobile machinery (NRMM).

- Non-mobile plant emissions of oxides of nitrogen (NO_x), nitrogen dioxide (NO₂) and carbon monoxide (CO) associated with the proposed campus combined heat and power (CHP) plant option.
- Non-mobile plant emissions of oxides of nitrogen (NO_x), nitrogen dioxide (NO₂), sulphur dioxide (SO₂) and carbon monoxide (CO) from the diesel fuelled power generation plant.
- Traffic emissions of oxides of nitrogen (NO_x and NO₂), and particulate matter (PM₁₀ and PM_{2.5}) during the construction early year (2023) and peak year (2028), and operational year (2034) scenarios.

5.3.34. The following pollutants NO_x, NO₂, SO₂, Particulate Matter and CO are assessed for the operation of the Proposed Development.

5.3.35. An additional screening exercise was also carried out for the off-site developments at Leiston Sports ground the Fen meadow compensation areas at Benhall and Halesworth and the site at Westleton for marsh harrier habitat improvement.

5.3.36. The study area identified, varied by activity and source and this is summarised in the table below:

Table 5.3.01 Summary table of study area for emissions

Activity/Emissions source	Distance
Construction Dust	350m from the MDS and 50m from public roads used by construction traffic within 500m of the locations for entering or leaving construction sites
Non-mobile plant	Receptors up to 2km for the majority of non-mobile plant with the CHP being an exception where 10km away from the MDS was assessed
Road Traffic related pollutants	200m from the individual road links comprising the affected road network along the A12 between Ipswich and Lowestoft and B1122
Rail Traffic related pollutants	200m from the individual rail links

5.3.37. At each of the ADS and the MDS, receptors were identified that would be representative of the locations which reflected those that would be impacted the greatest, and these were used to extrapolate information across the respective areas.

5.3.38. Each respective site is supported by a plan identifying the receptors location. These are summarised below:

- [APP-215] Main Development Site;
- [APP-359] Northern Park and Ride;

- [APP-389] Southern Park and Ride;
- [APP-420] TVB;
- [APP-456] SLR;
- [APP-489] Yoxford roundabout;
- [APP-519] Freight Management Facility;
- [APP-550] Rail.

5.3.39. This approach had been agreed with ESC and had followed the scoping opinion submitted to the Planning Inspectorate carried out at the preapplication stage.

Assessment assumptions and limitations

5.3.40. The assessment assumed that the air quality objectives would remain unchanged during the periods assessed and it also identified the following limitations:

- inherent uncertainties associated with predictive modelling of air quality impacts, which include the estimation of emissions from sources based on published data.
- dispersion modelling, which uses past weather conditions to determine the level of effect; it is not possible to predict the actual future meteorological conditions.

Mitigation

5.3.41. The Applicant set out at section 12.5 of [APP-212] the mitigation proposed to be included within the DCO.

5.3.42. To control traffic and related air quality effects during construction, the application includes the provision of two park and ride sites, the freight management facility, and use of the BLF and rail freight. With additional mitigation via the accommodation campus, caravan park, and park and ride at the ACA.

5.3.43. To aid in the reduction of impacts from non-mobile plant, stack heights for the diesel generators would be optimised in respect of the energy centre, combined heat and power plant, and backup generators.

5.3.44. Construction dust would be limited as far as practicable by having access points as far as possible from sensitive receptors.

5.3.45. Additional 'tertiary' mitigation would be included to control dust, non-mobile plant emissions and transport emissions. A full list is set out in paragraphs 12.5.4 – 12.5.9 of [APP-212].

5.3.46. The Applicant included a series of management documents to deliver the mitigation proposed. These include the Construction Workforce Travel Plan (CWTP), Construction Traffic Management Plan (CTMP), Outline Dust Management Plan (oDMP) and Code of Construction Practice (CoCP). All are to be secured by the DCO or Deed of Obligation.

Baseline conditions

- 5.3.47. An assessment of the baseline conditions of dust and nitrogen dioxide was undertaken using published data and on-site sampling near to the MDS and ADS as well as along the A12 and B1122 road corridors proposed to serve the development of the project. The full explanation of the baseline monitoring is provided in Appendix 12E of [APP-214].
- 5.3.48. The assessment was undertaken following advice set out within the scoping opinion undertaken with the Planning Inspectorate [APP-169].
- 5.3.49. The publication of the background concentration maps by Defra in 2020 confirmed that within the study area the current air quality is well below the relevant air quality objectives. With background concentrations recorded in the range from 6.6 to 23.8µg/m³ for NO₂, 13.1 to 18.7µg/m³ for PM₁₀, and 8.7 to 11.5µg/m³ for PM_{2.5}.
- 5.3.50. The baseline dust deposition rate in the vicinity of the MDS was monitored over a period of 12 months during 2016–17, using passive frisbee type deposition gauges to determine the existing dust environment and this focused on the area to the north of the MDS which is intended to be a temporary construction area, including borrowpits and spoil storage area.
- 5.3.51. As was confirmed at Issue Specific Hearing 8 (ISH) [REP7-071] results fluctuated as would be expected from a relatively coastal and agricultural area but were predominantly below the 100 mg/m²/day level. The proposed dust deposition Action Level is 200mg/m²/day (0.2g/m²/d), this was adjusted following concerns identified by ESC during the hearing and reflected in their [REP8-140] submission where they state:
- "ESC requests that the dust deposition alert level is changed to 0.2g/m²/day to align with the 0.2g/m²/day alert level threshold identified in section 4.41 of the Institute of Air Quality Management's Guidance on Monitoring in the Vicinity of Demolition and Construction sites."*
- 5.3.52. This has now been confirmed in table 4.1 of the CoCP which states:
- 5.3.53. *"An Action Level of 0.2g/m²/day for dust deposition rates and 190 µg/m³ as a 1 hour mean PM10 concentration must be used to trigger dust event reporting to the Environment Review Group (based on IAQM guidance 2018 for Construction Dust Monitoring)."*
- 5.3.54. NO₂ monitoring was undertaken at 24 monitoring locations for a three-month period to supplement the monitoring already undertaken at key locations by ESC. Concentrations at all locations were found to be below the annual mean air quality objective value of 40µg/m³.

Future Baseline

- 5.3.55. Future baseline levels for the study years of 2023, 2028 and 2034 which the Applicant forecast for the study area are set out in a summary table prepared by the ExA below.

Table 5.3.02 Future baseline emissions levels for 2023, 2028, 2034.

	2023	2028	2034
NO2 ug/m ³	5.6-20.2	5.1-18.3	5.1-18.1
PM10 ug/m ³	12.0 to 17.6	11.7-17.2	11.7-18.1
PM2.5 ug/m ³	7.9-10.6	7.6-10.3	7.6-10.3

Construction Phase Effects

5.3.56. The Applicant found that there were potential impacts from the generation of particulate matter from construction activities.

Construction Dust

5.3.57. The assessment of activities without mitigation identified a high risk of dust soiling impacts, principally associated with earthworks and trackout activities (where dust is taken from the site by construction plant and vehicles) in Zones C and E of the MDS for the duration of construction. These zones are identified in Fig 12.2 of [APP-215] an extract is copied below.

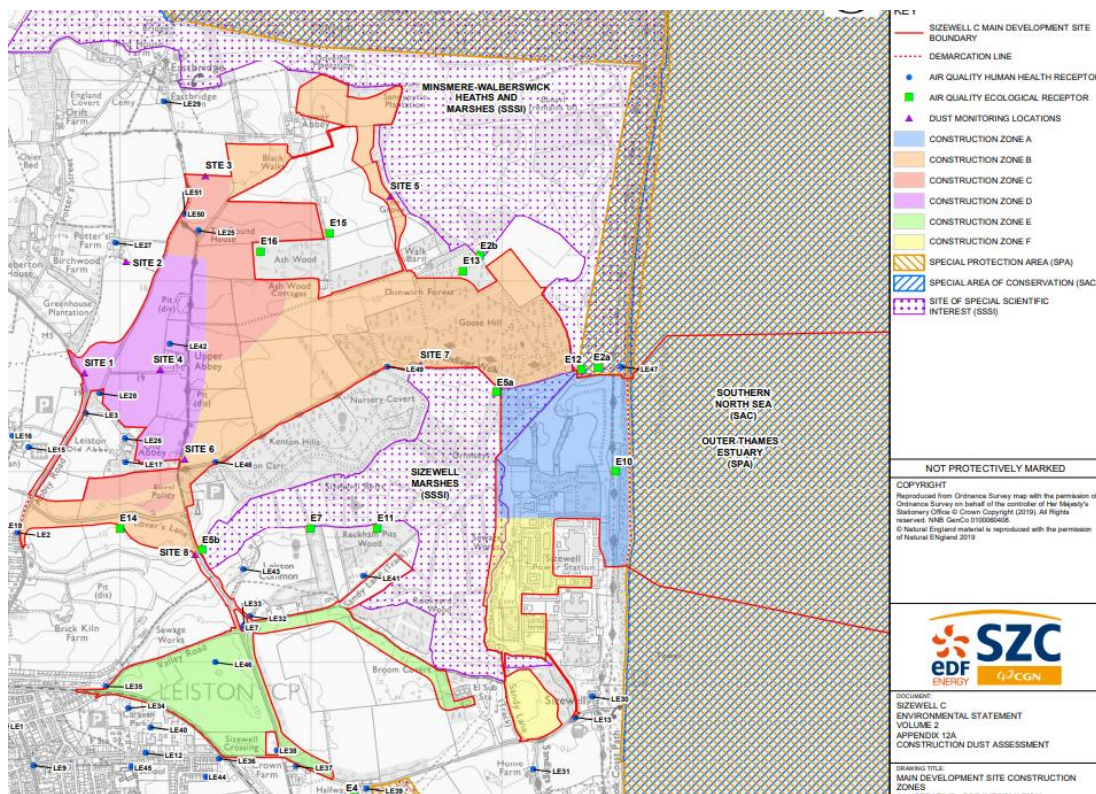


Figure 5.3.01 MDS Construction dust assessment zones

5.3.58. Earthworks and trackout activities in Zone D during phases 1 and 5, and construction activities during phase 2, without mitigation, also represent a high risk of dust soiling impact, along with trackout in Zone F.

5.3.59. Mitigation within certain areas, such as for trackout impacts in Zone A and Zone C, could reduce the risks from the site as a whole and

consequently reduce the level of mitigation required for the same activities within Zone D, subject to appropriate monitoring.

- 5.3.60. The Applicant considered that the activities undertaken within Zones A, B and F would be located sufficiently far away from sensitive properties that the risk of dust soiling impacts from activities within these zones would be negligible.
- 5.3.61. The construction dust assessment identified the potential for a medium risk of human health (PM₁₀) impacts from unmitigated construction activities, primarily within Zones C, D and E.
- 5.3.62. Zone C would represent a long-term potential source of dust generating activities, as the main earthworks and stockpiling activities would take place within this zone, in addition to crushing/screening activities.
- 5.3.63. No high risk of human health impacts, as a result of construction activities, has been identified within the construction dust assessment. The assessment concluded that there was a low to negligible risk to human health or amenity and the residual risks with mitigation in place was low to negligible.
- 5.3.64. The updated assessment of air quality as a result of the first change request to increase rail movements and provide an additional temporary BLF concluded that the magnitude of change in NO₂, PM₁₀ and PM_{2.5} would remain imperceptible across all modelled receptors, resulting in a negligible effect which the Applicant found to be not significant.
- 5.3.65. The additional information did not change the assessment of construction dust presented in [APP-213] and the effects on human health and ecological receptors the Applicant found to be not significant with mitigation in place.

Transport Emissions

- 5.3.66. The transport emissions forecasts did change due to the change in traffic flow as modelled on the road network and the revised information from the baseline provided by the updated information from Defra.
- 5.3.67. There was, however, no change to the effect of increased concentrations of NO₂ and particulate matter at all receptors in Sizewell village, Leiston and properties near the B1122 (Abbey Road) during the 2023 early year and the 2028 peak year typical or busiest day scenarios and no change as a consequence of the increased rail movements.
- 5.3.68. During the 2028 typical and busiest day scenarios, a small number of receptors adjacent to the TVB (WM1, SX8 and SX9) would now experience a minor adverse (not significant) effect from NO₂.
- 5.3.69. The impact of transport emissions in all modelled scenarios during construction overall would remain as having a negligible (not significant) effect at most residential receptor locations, with only a limited number of receptors experiencing a minor adverse (not significant) effect, or a

minor beneficial (not significant) or moderate beneficial (significant) effect. The air quality effects for the study area as a whole resulting from transport associated with the construction of the proposed development are predicted to remain not significant for all sensitive receptors within the study area.

- 5.3.70. Results of the transport emissions modelling as detailed in [APP-213] Appendix 12B show that predicted concentrations of NO_x, maximum nutrient nitrogen deposition and maximum acid deposition are greatest in the predicted current baseline, represented by the 2018 reference case scenario. It is predicted that during operation of the proposed development, NO_x concentrations will be lower than the predicted current baseline.
- 5.3.71. The ES assessment has used the Environment Agency Environmental Permitting Regulations risk screening criteria for NO_x, NO₂, SO₂, CO and Particulate Matter (PM) for a comparison with Air Quality Strategy (AQS) objectives.
- 5.3.72. Minsmere – Walberswick Heaths and Marshes SAC, SPA, Ramsar and Sizewell Marshes SSSI would experience a maximum contribution of pollutants from proposed development traffic of less than 1% of critical levels. Concentrations of NO_x and nutrient nitrogen deposition for Sandlings SPA are predicted to be marginally above 1% of critical levels.
- 5.3.73. In these cases, it is recognised that this value is only representative of the portion of the site immediately adjacent to the road. It is also important to acknowledge that predicted pollutant concentrations with the proposed development in operation are lower than those that currently occur at ecological sites.
- 5.3.74. The sensitivity testing undertaken to consider the effects on the Stratford St Andrew AQMA [AS-127] found that with mitigation in place air quality objectives would not be breached.
- 5.3.75. In respect of emissions from additional road vehicles and emissions from non-mobile plant the assessment found there to be negligible or not significant impacts respectively.

Operational Impacts

Back Up Diesel Generators

- 5.3.76. The Applicant [APP-212] considers that emissions from the back up diesel generators would not be significant as any emission would be released from a stack of approximately 70m height and therefore any nitrogen oxide emissions would be controlled to acceptable levels. Similarly, emissions from the Combined Heat and Power (CHP) plant for the energy campus would not be significant.
- 5.3.77. The maximum annual average process contribution from back up diesel generators predicted for NO₂ at any receptor during the commissioning scenario modelled was 0.6µg/m³. This represents approximately 1% of

the relevant AQS objective and was considered not significant in line with the Environment Agency's screening criteria. All other receptor locations are predicted to have lower process contributions. The effects of NO₂ emissions from combustion activities are regarded as not significant at all receptors.

- 5.3.78. The maximum annual average PM₁₀ process contribution from back up diesel generators at any receptor was 0.02µg/m³. This represents 0.1% of the relevant AQS objective and was considered not significant. Effects at all receptor locations are therefore considered to be not significant. The same predicted concentrations have also been used to conservatively assess PM_{2.5}, and therefore the maximum annual average process contributions predicted for PM_{2.5} is also 0.02µg/m³.
- 5.3.79. The loss of off-site power was assessed to cover worst case scenarios, and in this event, there is the potential for significant effects from NO₂ emissions with 136% of the AQS objective level being reached at any human health receptor which has the potential to be significant.
- 5.3.80. The Applicant regarded the potential in combination effects of meteorological conditions and loss of off-site power together gives a conservative assessment of the worst case situation. This could result in an exceedance of short term (1 hour) NO₂ objective of 200µg/m³ for up to 18 hours per year. This scenario represents emergency shutdown of the reactors. It is not however, possible to state how long an actual loss of off-site power event would last but the Applicant considered it likely to be less than 24 hours.
- 5.3.81. The descriptors for effects of predicted changes in NO₂, PM₁₀ and PM_{2.5} on individual receptors in the 2034 scenario are all recorded as 'negligible'. This is predicted to be a 'low', 'very low' or 'imperceptible' magnitude of change because the absolute concentrations predicted at the receptors within the study area are well below the relevant air quality objective values.
- 5.3.82. These magnitude of change descriptors can be attributed to all receptors within the study area for the operational scenarios, with the following exceptions.
- 5.3.83. Within the villages of Stratford St Andrews and Farnham (SX5, SX6, SX7 and SX15) are predicted to experience a 'minor' or 'moderate' beneficial effect and at a small number of properties a medium (SX6) to high (SX7, SX15) magnitude reduction in annual mean NO₂ concentration.
- 5.3.84. During the operational scenario a smaller number of properties are predicted to experience a high (SX7 and SX15) magnitude reduction in annual mean PM_{2.5} concentration.

Ecological sites

- 5.3.85. Potential air quality impacts on designated ecological sites are considered in Chapter 14 of the ES [APP-224], and section 5.6 of Chapter 5 and

Chapter 6 of this Report (including insofar as they may relate to HRA matters).

Applicant's Conclusion

- 5.3.86. The Applicant indicates in paragraph 12.8.1 [APP-212] that there are unlikely to be any significant effects on human health receptors due to construction dust emissions, transport emissions, or other on-site emissions with appropriate mitigation in place.
- 5.3.87. The potential for significant effects from the off-site developments (marsh harrier habitat improvement area west of Westleton, Fen meadow compensation areas to the south of Benhall and to the east of Halesworth and the off-site sports facilities) were screened out of the assessment.
- 5.3.88. In the event of an emergency which resulted in the loss of off-site power, the operation of the diesel generators would under worst case scenario conditions exceed the air quality standard for NO₂. With the potential to have significant short-term NO₂ effects at human health receptors in the event that the operation of the diesel generators coincided with meteorological conditions that lead to exceedance of the air quality strategy objective.
- 5.3.89. The Applicant concluded that this eventuality would be expected to occur *"about once in the lifetime of a fleet of nuclear sites and therefore the potential for air quality effects from this source is considered to be not significant."*

Issues Considered in the Examination

- 5.3.90. A number of IPs raised concerns relating to air quality at the Relevant Representation stage. Including [RR-0124, RR-0170, RR-0181, RR-204, RR-323, RR-363, RR-374, RR-392, RR-547, RR-673, RR-1098, RR-1213].
- 5.3.91. The main issues considered during the Examination included:
- The quality of the assessment;
 - Effects on AQMAs;
 - dust emissions at the MDS and from borrow pits and stockpiles;
 - road traffic emissions; on the A12 and B1122;
 - construction phase emissions from non mobile plant;
 - monitoring and mitigation of Particulate Matter;
 - ozone releases, and
 - Desalination Plant.

Quality of Assessment

- 5.3.92. Concerns over how emissions were modelled and whether the assessment sufficiently modelled all sources of emissions were expressed in Relevant Representations in particular in respect of PM_{2.5} and ozone. In addition, the effect of seasonal, meteorological and climate change impacts on air pollution were also raised [RR-673, RR-547].

- 5.3.93. Together Against Sizewell C (TASC) made a number of submissions on air quality, [REP2-481g] expressed their detailed concerns about the methodology used and the challenges in accurately being able to monitor air pollution and subsequently be able to assess the source of the pollution.
- 5.3.94. Additionally, they sought specific standards of data to be used and made publicly available so that any effects could be held to scrutiny and properly enforced if necessary.
- 5.3.95. The criticisms raised went significantly beyond the scope of this Examination, referencing the repeated failure of successive Governments to achieve binding targets for air quality and the adequacy of measuring PM_{2.5} in light of the changing understanding of this pollutant and how it can be accurately measured.
- 5.3.96. The criticisms were also, however, aimed at the Applicant's data collection, data interpretation, over reliance on modelling as opposed to data gathering and that results were only indicative.
- 5.3.97. IPs including [RR-363, REP2-275] additionally did not consider that ozone had been properly or fully considered and that the implications of high ozone levels on human health had not been properly addressed.
- 5.3.98. The ExA sought confirmation from East Suffolk Council (ESC) that the approach undertaken was appropriate in ExQ1 AQ.1.18 and ESC confirmed [REP2-176] that they were satisfied the approach and methodology was appropriate, that all potential sensitive receptor locations have been satisfactorily represented with worst-case locations. Concern remained however, that details regarding NRMM such as generators had not been finalised so there are uncertainties whether worst-case impacts had been identified.
- 5.3.99. In answer to ExQ AQ.1.14 ESC made clear [REP2-176] that it expects the Applicant to assess air quality impacts against existing air quality legislation and planning policies. ESC confirmed that the Applicant has done this. Subject to resolution of the points outlined in the Local Impact Report (LIR) [REP1-045], ESC considers that emissions to air from the Proposed Development would not have significant adverse effects on the health of ESC residents or the health of the construction and operational phase workforce in relation to the potential effects of ambient air quality
- 5.3.100. Early research into the interactions between air quality and Covid-19 has been published, but links remain complex and incompletely understood. Such interactions as have been observed relate to exposure to high levels of air pollution which do not occur in the ESC area at present and are not forecast to occur in the future. In any event ESC advised that, contemporary academic research is not normally considered in air quality assessments – instead, it is considered, and appropriate measures adopted, in legislation, policy and/or relevant guidance. To the extent that interactions are understood, ESC does not consider that there is a

strong case for requiring further steps to control potential synergistic effects relating to Covid-19.

- 5.3.101. ESC considers that the geographical distribution of particulate matter and emissions to air during both construction and operation are adequately described in the ES, except as outlined in the LIR.
- 5.3.102. ESC advised in response to ExQ1 AQ.1.14 the Applicant has adopted best practice guidance and gone beyond this to assess construction dust and particulate impacts to identify appropriate mitigation. Except as noted in the LIR, this is considered acceptable by ESC.
- 5.3.103. The LIR recommends strengthening mitigation measures where appropriate. Dust mitigation measures proposed by the Applicant would also reduce PM_{2.5} emissions from the construction of the Proposed Development.
- 5.3.104. ESC considers that the Applicant has considered an appropriate range of standards and other guidance when carrying out its assessment, particularly in view of the limited duration of potential construction phase impacts in contrast to operational phase impacts.
- 5.3.105. Mr Moss [RR-0673] indicated that there was increasing evidence of increased effects on health due to air pollution particles. ESC agreed [REP2-176] that there is a growing body of evidence linking adverse effects on health to exposure to low levels of PM_{2.5}. ESC does not consider however, that there is a strong case to require consideration of a wider range of air quality standards and guidelines other than those already addressed.
- 5.3.106. In response to ExQ1 AQ.1.14 the EA [REP2-136] also advised that the role of the EA permit was to only allow activities that won't cause any significant effect on human health. The permit determination would provide an indication if off site monitoring may be necessary, which would be a matter for ESC to decide.
- 5.3.107. Views were also sought of Public Health England (PHE) on this issue as some concerns had been expressed in their Relevant Representation [RR-0998].

"The supplied methodology indicates that the final conclusion on significance rests with the expert's professional judgement. However, where increases (albeit small) in concentrations of air pollutants have been identified at receptors locations, the level of detail justifying why no further mitigation is required is very limited. Further detail would be useful."

- 5.3.108. In response to ExQ1 PHE stated in [REP2-161]

"Impacts have been assessed against relevant air quality standards and guidelines and any comments raised following our reviews have been detailed in our responses."

"PHE have reviewed the receptors detailed in the air quality assessments and are satisfied that those included are relevant and the worst case of those included have been appropriately assessed.

PHE would expect East Suffolk Council, as local experts in air quality, their population and region to confirm and ensure that all appropriate sensitive receptors have been included in the assessment."

- 5.3.109. The responses from ESC highlighted the need to examine further the potential effects from the construction traffic emissions and from NRMM at the construction sites but did not question the approach the Applicant had taken in undertaking the assessment of air quality impacts.
- 5.3.110. The Applicant responded in [REP3-046] and [REP2-086] the Statement of Common Ground with PHE that the professional judgement that had been applied supported by the evidence from the assessment was reinforced by adopting a precautionary approach with all residential receptors regarded as sensitive. The evidence shows that the relative change in the concentration exposure for NO₂, PM₁₀ and PM_{2.5} are significantly below the level where a quantitative exposure response assessment would be required.
- 5.3.111. At ISH8 on air quality the ExA sought views of IPs on the adequacy of the methodology of assessment and if these could be regarded as achieving the highest environmental standards both during construction and subsequent operation.
- 5.3.112. ESC in their post hearing submission [REP7-112] confirmed that they agreed the assessment methods had been appropriate to meet the highest standards.
- 5.3.113. In NPS EN-1 paragraph 5.2.6 it sets out what is expected from an applicant to include within the ES where a project has the potential to have adverse effects on air quality. The ES has identified the emissions that are likely from the different elements of the project including emissions from transport, NRMM, dust from construction activity and this has sought to distinguish between the different stages of the project. Emissions levels have been shown and where mitigation is proposed how those methods would be applied.
- 5.3.114. The ES assessment has utilised the Guidance produced by the Institute of Air Quality Management, Design Manual for Roads and Bridges and the Air Quality Advisory Group technical guidance on detailed modelling for an appropriate assessment for emissions to air.
- 5.3.115. The ExA are satisfied that the Applicant's assessment of air quality within the ES is in line with industry standards, this has been endorsed by ESC and in the ExA's view and reasonably reflects the likely effects that would arise.

Effects on Air Quality Management Areas (AQMAs)

- 5.3.116. Concern that air quality standards and limits would be breached because of the increased air pollution from the Sizewell C Project.

- 5.3.117. ESC/SCC in the LIR [REP1-045] expressed concern that within the Stratford St Andrew AQMA where a sensitivity test has been submitted the predicted range of NO₂ concentrations could cause significant impacts if there were not adequate limits and monitoring placed on the emissions standards which apply to construction heavy goods vehicles (HGVs).
- 5.3.118. The Councils sought additional controls on the standards that the HGV fleet would comply with and caps on the most polluting vehicles.
- 5.3.119. The Applicant committed to all road vehicles complying with the requirements of Euro VI emission standards unless it fell into a category as an exempt vehicle. The exemption process could include the following:
- certain Heavy Duty Vehicles (HDV) which may be a specialist vehicle;
 - unforeseen circumstances;
 - or being used by a community / local supplier.
- 5.3.120. Any exempt vehicle must meet Euro V standards where possible, and where not achieved additional information must be agreed with ESC and the Transport Review Group (TRG) and this is secured within the CoCP.
- 5.3.121. The cumulative total of any exemptions in any one year must be no more than 8% of the total number of vehicles for that same year. A registration scheme would be established requiring HDVs to be registered prior to being allowed access to the project sites, with reporting of the registration scheme performance to the Transport Working Group on an annual basis.
- 5.3.122. Under these circumstances along with the mitigation in place as set out earlier ESC confirmed in the SoCG that they were satisfied that the Stratford St Andrew and Woodbridge AQMAs have been adequately assessed and characterised and that through the proposed control and mitigation measures no significant effects or policy compliance issues would arise at either AQMA.
- 5.3.123. SCC has confirmed that the ongoing scenario testing work on the Traffic Incident Management Plan, which is in the process of being updated, but it is expected to demonstrate that construction traffic will not be diverted into Woodbridge AQMA should there be delays on the A12. (REP7-162).
- 5.3.124. The Applicant responded in [REP7-068] that an update would be provided at Deadline 8 but did not anticipate there would be an adverse effect on the AQMA. No response was received from the Applicant on this issue at Deadline 8, however a revised version of the Traffic Incident Management Plan (TIMP) [REP2-053] was provided. This is now included within the DoO Annex M. [REP10-079].
- 5.3.125. The Councils did not raise this as an outstanding issue in either of their final position statements [REP10-183 and REP10-210] nor was it highlighted as an outstanding matter in the SoCG [REP10-102].
- 5.3.126. The ExA are satisfied that the TIMP demonstrates that traffic from the Proposed Development would not be diverted through Woodbridge in the

event of an incident. With the mitigation in place secured through the DCO and DoO the ExA are satisfied that the traffic management of the project will not result in air quality objective levels being exceeded.

Construction Dust

- 5.3.127. Concerns were expressed that the Sizewell C Project would increase dust and air pollution during construction and that dust and contaminants would be blown off the construction site, including the borrow pits and stockpiles, on to the road network and into people's properties.
- 5.3.128. It was also suggested by the NFU that no mitigation had been identified to address this issue and this would impact on agricultural land adjacent to the construction site [RR-0885].
- 5.3.129. This issue was also expressed in respect of the dust management for borrowpits and stockpiles which IPs considered had not been fully considered either in terms of the potential impacts or the necessary mitigation [RR-0181, RR-547, RR-776, RR-803].
- 5.3.130. ESC in response to ExQs indicated that it did not agree that the baseline dust monitoring locations represented the worst case scenario receptor locations.
- "LE25 which is the worst-case human health receptor does not have a dust deposition monitoring location. For figure 12A.3, which represents lime spreading, worst-case monitoring has not been captured at human health receptor LE25"*
- 5.3.131. ESC sought revised requirements to have a minimum number of monitoring locations, and a minimum period for monitoring during construction, and this should be agreed through the CoCP, Dust Management Plan (DMP) or Construction Environmental Management Plans (CEMPs) to be prepared by contractors. ESC wished to be involved in the approval process of these plans.
- 5.3.132. Baseline dust deposition rates, including the contribution from agricultural practices, were measured at sites near the boundary of the MDS. While there are no published dust deposition standards or limits in the UK, IAQM guideline levels for nuisance dust were used in the assessment, which included the potential of effects on crops beyond the site boundary. This the ExA considers is a reasonable proxy in these circumstances and this position is not disputed by ESC.
- 5.3.133. The dust effects have been considered at a number of sensitive receptors, and in particular at the adjacent SSSI which is one of the closest sensitive receptors identified. Even at this close proximity, using the proposed mitigation measures set out in the outline Dust Management Plan and delivered through the CoCP no significant effects were predicted; by extension the same conclusion was reached for other receptors further from the site boundary. The ExA consider this to be a reasonable position and the evidence presented by IPs did not provide a detailed justification why this might not be the case.

- 5.3.134. Implementation of measures, along with the proposed monitoring arrangements, set out within the CoCP are secured through Requirement 2 of the draft DCO. Baseline dust monitoring would be undertaken at least three months prior to commencement of construction activities on the MDS. Monitoring results would be reported to ESC monthly throughout the monitoring period and reviewed through the Environmental Review Group (ERG).
- 5.3.135. The primary control of dust emissions from stockpiles would come from the application of good practice to design the height and slope angles of stockpiles to minimise windblown dust at the MDS. This is secured by way of best practice requirements within the CoCP.
- 5.3.136. In addition to the concerns expressed about dust emissions from the MDS, Campsea Ashe PC [RR-0170] were concerned about dust and air pollution from traffic and works at the Southern P&R [RR-0170].
- 5.3.137. The CoCP would equally control the dust emissions created during construction and decommissioning of the park and ride and despite the concern of the PC, evidence was not presented that the mechanisms included within the COCP would not appropriately mitigate the activities at this site.
- 5.3.138. In the final SoCG agreed with ESC/SCC [REP10-102] the Councils confirmed their agreement to the CoCP being an appropriate mechanism for controlling dust emissions from the Proposed Development. This included a specific Appendix – ‘Sizewell C Agreed Air Quality Mitigation’ which sets out a specific set of control measures to manage dust arising from the development.
- 5.3.139. In response to the criticisms that had been raised regarding the level of dust deposition that should be monitored and action triggered an action level of 0.2g/m²/day would be used for dust deposition rates and 190 µg/m³ as a 1-hour mean PM₁₀ concentration to trigger dust event reporting to the Environment Review Group.
- 5.3.140. This was further reinforced by including an alert level set at 75% of the Action level to alert contractors of the need to address dust risks. Both of these are secured within the Dust Monitoring and Mitigation Plans (DMMP).
- 5.3.141. The CoCP also requires site inspections to be carried out to ensure compliance with the ODMP and additional DMMP to be developed by contractors prior to work commencing. Each DMMP would be prepared and submitted to ESC for approval. On this basis the ExA are satisfied that the mitigation in place secured through the CoCP will ensure dust levels remain within appropriate standards.

Road Traffic Emissions

- 5.3.142. Concerns were expressed about the Proposed Development on the grounds that increased traffic during construction may create pollution

and reduce air quality particularly in the early years along the B1122 [RR-0124].

- 5.3.143. This concern also extended to the potential for an increase in air pollution from the traffic using the new road infrastructure, and that people with asthma will be especially vulnerable (e.g. due in part to an increase in ozone pollution).
- 5.3.144. IPs also regarded the Applicant's proposals as failing to address emissions of either freight vehicles, or local supplementary supplier traffic across the road network with the potential to have adverse effects on local communities along the designated construction traffic route, and beyond. IPs considered that there would be implications beyond the designated route as there were inadequate controls in place for workers vehicles and their experience currently of use of the A12 and local road network meant that many users would be diverted off the main routes to avoid congestion or bottlenecks.
- 5.3.145. While the focus of much of the Examination was on the main traffic routes of the A12 and B1122 in the early years. IPs from other communities equally expressed their concerns about the impacts spreading further afield. These include Bredfield PC [RR-0146], Yoxford PC [REP7-199, REP7-200, REP7-261], Kelsale cum Carlton PC [REP7-204], and Leiston Town Council [REP7-135].
- 5.3.146. Both [RR-0396] and [RR-0578] expressed concern that the Proposed Development could adversely affect individuals and young people in Farlingaye High School. The ExA sought clarification from the Applicant in the FWQs AQ.1.16 where the evidence presented confirmed that receptor WB8 had been assessed to represent effects at Farlingaye High School, as it is located at a closer distance adjacent to the same section of the A12.
- 5.3.147. Results from the transport emissions assessment [AS-127] indicated that the effects from transport emissions at this receptor would be negligible (not significant) during construction (early year and typical and busiest day peak year) and operation. Predicted air pollutant concentrations would remain well below the relevant air quality standards protective of health at all receptors, and the maximum change in concentration and exposure was orders of magnitude lower than is required to quantify any measurable health outcome. On this basis, there is considered to be no measurable health risk in this regard.
- 5.3.148. ESC confirmed they agreed with this position in response to FWQs. [REP2-176].
- 5.3.149. During the ISH on Noise and Air Quality concern was also expressed regarding the potential effect on pupils at Yoxford School. The Applicant explained that the assessment undertaken had a worst case receptor (YX2) at the junction of the A12 and A1120. No significant effects from construction dust or transport emissions are predicted at YX2 and pollutant concentrations remain well below the air quality objectives.

5.3.150. Towards the end of the Examination as part of further mitigation being proposed by the Applicant pedestrian crossings were proposed on the A12 and B1122. There is the potential for these crossings particularly on the A12 to have an effect on air quality. An assessment of these effects was not presented to the Examination, and while the Councils were content that procedures had been put in place through the Deed of Obligation that could provide for a monitoring regime, the outcome of any effects is unknown.

Construction phase emissions from NRMM

- 5.3.151. At the outset of the Examination the potential for the emissions from Non Road Mobile Machinery particularly at the MDS was raised by ESC in the LIR, but also by IPs as part of the general concern in respect of emissions from the Proposed Development.
- 5.3.152. The LIR highlighted the potential impact of diesel-powered generators and the potential impact of diesel powered NRMM and plant and the need for electrically powered plant to be used at the earliest possible opportunities to reduce reliance on diesel generators and subsequently reduce emission levels.
- 5.3.153. The Applicant's assessment had not identified any significant adverse effects on sensitive receptors once mitigation was in place. ESC concurred with this conclusion and was satisfied that appropriate measures could be put in place once commitments were made to the monitoring of generators by the Applicant and the early transfer of plant onto the on-site electrical supply.
- 5.3.154. In respect of NRMM a commitment has been agreed with ESC on the emissions performance standards to be met (Stage IV compliant engines) and how compliance with that commitment would be managed.
- 5.3.155. It is agreed that combustion plant generators for site power would be minimised through the provision of site electrical power and use of alternative supply sources where possible.
- 5.3.156. Generators would also be located away from site boundaries where possible. Generators would be aggregated and where applicable an environmental permit would be required from the Environment Agency for their use, which would specify emissions performance, monitoring requirements and emissions control measures to be applied.
- 5.3.157. In order to obtain an Environmental Permit for the construction generators, the Applicant will need to demonstrate to the Environment Agency that Best Available Techniques (BAT) will be used; this covers emissions performance standards to be met as well as plant operation and maintenance.
- 5.3.158. The Applicant confirmed common standards would apply across the whole development. The CoCP Part B secures the commitment for the MDS, with Part C securing the same commitment for the offsite associated developments.

- 5.3.159. The Applicant reiterated that the conclusion that construction phase effects on amenity or local air quality would not be significant was not dependent upon the achievement of the proposed exemptions limit for NRMM. This approach, however, represents the application of good practice to managing emissions, rather than mitigation for a specific identified impact. The assessment presented in the ES was conservative and did not assume a set performance level of achieving Stage IV compliant plant.
- 5.3.160. The use of predominantly Stage IV compliant plant and an early switch to mains power would therefore further reduce the predicted air quality effects from NRMM and confirms that no significant effects would occur.

Monitoring and mitigation of Particulate Matter

- 5.3.161. IPs [RR-0673] and [REP7-289], made a detailed critique of their concerns with regard to air quality and the potential adverse effects on human health from increased NO_x, PM₁₀ and PM_{2.5}. It was also stated that the current monitoring by ESC was inadequate and gave no assurance to IPs that there was a proper understanding of the air environment within this part of Suffolk.
- 5.3.162. Consequentially without knowing what the current position was, predictions for the future with the Proposed Development taking place there would be no way of assessing the likely effects associated with or coming from the Proposed Development.
- 5.3.163. The ExA sought the views of both the Applicant and ESC in ExQs and sought to examine this at the ISH on Air Quality.
- 5.3.164. The adverse effects on human health from PM_{2.5} remained a major issue throughout the Examination for several IPs, who identified that there was no safe level for these particulates and being of such a size could enter the body and impact health.
- 5.3.165. Evidence was presented that research was available to show that there was a causal link between PM_{2.5} and cardiopulmonary disease.
- 5.3.166. It was however acknowledged by TASC [REP2-481g] that the UK currently meets all legally binding limits for PM_{2.5}, nevertheless the ExA understands there is a growing body of evidence that these fine particles are damaging to human health.
- 5.3.167. PHE in their responses including [REP2-161] set out their position that pollutants, particularly particulate matter are non-threshold; i.e., an exposed population is likely to be subject to potential harm at any level and that reducing public exposures of non-threshold pollutants (such as particulate matter) below air quality standards will have potential public health benefits.
- 5.3.168. These concerns were reiterated by individual IPs in respect of their individual properties including [REP7-214, RR-0014, RR-0241, RR-1151].

- 5.3.169. The Applicant argued that monitoring of PM_{2.5} was not proposed nor necessary as no risk of exceedance of PM_{2.5} national Air Quality Strategy levels is predicted as a result of the Proposed Development. This position was agreed with the Councils.
- 5.3.170. The assessment by the Applicant of potential PM₁₀ and PM_{2.5} effects confirmed that all results show insignificant effects.
- 5.3.171. The Applicant reaffirmed that due to the nature of construction dust the construction activities that would be undertaken would not give rise to significant PM_{2.5} emissions. Therefore, there is no justification for PM_{2.5} monitoring being required.
- 5.3.172. Nevertheless, in light of the concern expressed by IPs the Applicant did agree to undertake monitoring of PM_{2.5} at the same locations where PM₁₀ is proposed and to share the results with the Councils. This is secured in the CoCP and DMMP. This would in part help improve the understanding of PM_{2.5} levels within the area but neither the Applicant nor the Councils saw this as a necessary requirement.
- 5.3.173. The ExA consider that this would be helpful to assist in developing an understanding of levels of PM_{2.5} across the area, but there is nothing that is currently drafted within the DCO that would require any remedial action in the unlikely event that PM_{2.5} levels were to rise above the agreed Air Quality Objectives (AQO).

Ozone releases

- 5.3.174. It was agreed that locally in Suffolk, ozone concentrations are relatively high, and this was considered by the Applicant to be primarily due to the formation in aged plumes advected from continental Europe and the Greater London area. The Applicant argued that emissions from the Proposed Development would not exacerbate the current ozone levels in the area and the control measures applied to emissions from the scheme would in a similar way not affect ozone levels locally.
- 5.3.175. It is recognised however, that nitrogen oxides are emitted from traffic and combustion plant and that their use during the construction phase would create additional levels of these precursors above the current status. The Applicant argued that the various measures that have been committed to, to reduce emissions of nitrogen oxides for example the progressive electrification of the construction site, the commitment to Euro VI compliant HGVs and the commitment to Stage IV compliant NRMM would have the additional benefit of reducing emissions of ozone precursors and reduce ozone formation downwind of the Site.
- 5.3.176. It was also confirmed in response to ExQ1 HW.1.22 that the site itself would not have any activity that would emit ozone during construction or operation.
- 5.3.177. IPs including [REP2-275], [REP7-173], [REP7-187] felt the Applicant's response and the failure of ESC to monitor incidents of high ozone

concentrations which were already occurring left the community vulnerable to further exceedances of pollution levels.

- 5.3.178. According to the evidence provided by IPs quoting Defra monitoring records¹ the air quality standards for ozone were already being exceeded in Suffolk with Defra recording at Sibton exceedances of UK target value on 29 days in 2020, 28 days in 2019 and 37 days in 2018.
- 5.3.179. It is recognised that ozone differs from other pollutants as it is created as a secondary pollutant as sunlight reacts with oxides of nitrogen and other volatile organic compounds, often over several days. The formation of the gas is also dependent upon meteorological conditions.
- 5.3.180. The ExA are of the view that the mitigation the Applicant proposes would control emissions from the construction of and transport to and from the site during the construction process are a reasonable response to the emissions that would be generated by the Proposed Development itself.
- 5.3.181. From the evidence presented the ExA are of the view that it is not possible to predict with any certainty that the emissions from the project would in themselves directly create increased incidences of exceedances of ozone either at the site or on the road network, or in the area generally.
- 5.3.182. Nor can it be reasonable in the ExA's view to seek to prevent a development from taking place even if evidence exists that the current air quality standards are not being achieved, unless there is a direct correlation that can clearly demonstrate that the development itself would exacerbate that position. This in the ExA's view has not been demonstrated to be the case.
- 5.3.183. The CTMP was updated to reflect the commitment to HGV Euro VI engine performance. While the CWTP was updated to reflect the commitment to HDV Euro VI engine performance. These commitments from the Applicant were in direct response to issues raised by IPs and the Councils and are secured through the DoO.
- 5.3.184. At the MDS permanent car park, at least 20% of car parking spaces will have active electric vehicle charging, with a further 20% capacity for passive provision. The demand for the permanent development site electric vehicle charging shall be reviewed in line with the Operational Travel Plan. The electric vehicle charging commitment is secured via the DCO Requirement 20.
- 5.3.185. During the construction phase, temporary car parking at the MDS, the northern and the southern park and ride sites will have capacity for up to 40% to be provided, with an initial 5% active electric vehicle charging provided on first occupation.

¹ <https://uk-air.defra.gov.uk>

5.3.186. The CWTP has been updated to provide for monitoring of the use of the electric charging points by the transport co-ordinator, which would be reported to the TRG quarterly. Based on the monitoring the TRG can then direct the Applicant to convert passive to active spaces. Following discussions with SCC a trigger of 80% utilisation of the active vehicle charging spaces is proposed for the conversion of further passive spaces to active, which is incorporated into the updated CWTP.

Desalination Plant

5.3.187. The Applicant's change to include the provision of a desalination plant for the construction period was the subject of a specific ISH on 5 October 2021 (ISH 15). In submitting the change request the Applicant supported the proposal with additional assessments:

- [REP9-025] Desalination Plant Greenhouse Gas Emissions Assessment; and
- [REP9-026] Desalination Plant Air Impact Assessment.

5.3.188. The desalination plant is a temporary measure but could be in use for the whole construction period. The change indicated it was proposed to be sited within the main platform area at the outset but then would be moved north to the temporary construction area.

5.3.189. The water supply strategy is dealt with elsewhere in this Report, however it is clear that the Applicant seeks the desalination plant for the whole construction period.

5.3.190. It was also made clear during both the hearing into the desalination plant and in written submissions, that the plant would be run on diesel generators in the first instance but would be switched to be run on mains power once this had been facilitated within the main site.

5.3.191. The Applicant's ES therefore assessed the effects of the additional diesel generators for the initial period of operation prior to the switch to mains power and a specific assessment was done for this [REP9-026]. This assessed the air quality effects of the diesel generators running for a period of up to three years

5.3.192. This was subject of consideration at ISH15 where IPs including NE expressed reservations about the degree of effect upon the ecologically sensitive sites at Minsmere and Walberswick SPA/Ramsar site and in triggering an exceedance of the 1% threshold figure for NOx in an area which was already at a level substantially above the threshold level for NOx.

5.3.193. The Applicant's findings are set out in [REP10-153] -Based on the assessment undertaken, the proposed desalination diesel generators in their proposed location are not predicted to give rise to significant effects on any human health or habitat sites, particularly when considering that they will only be installed for a maximum of two years. Nor are they predicted to give rise to any adverse impact on the integrity of any European Site. As such, the Applicant considered there was no good

reason why it should not be expected that the relevant permit will be granted by the Environment Agency.

- 5.3.194. TASC sought confirmation that [REP9-026] refers to the two diesel generators being modelled in isolation, but TASC consider that the cumulative impact from other activities on the development needs to be assessed. TASC are concerned that there is no assessment of PM_{2.5} and PM₁₀.
- 5.3.195. Walberswick PC [REP10-245] considered there is a discrepancy. One provides analysis saying that there will be desalination run on diesel for 244 days, the other that it will be run on diesel for three years.
- 5.3.196. Ian Galloway [REP8-213] expressed concern that evidence presented was inconsistent and misleading and did not give any clarity as to what was proposed or how that might be managed and controlled through the DCO. As a consequence, made the assessment unclear in air quality terms as different periods of time appeared to be used for the assessments.
- 5.3.197. Desalination Plant Air Impact Assessment, para 3.4.3 with regard to Ammonia, says that the impact on Minsmere does go above the threshold of insignificance, however the Applicant's fall back position relies on the argument that as it is temporary, even if they have got it wrong, it won't matter because *"any effects on the habitat sites will be temporary"*.
- 5.3.198. The ExA sought clarification in the questions raised at the ISH15 and in ExQ3.
- 5.3.199. ESC [REP10-180] understands that the additional temporary generators will be regulated by the EA and subject to the EA's permitting regime which itself will require environmental impact assessment. ESC notes that the EA is content that the assessments undertaken by the Applicant to date are adequate for the purposes of the DCO, without prejudice to the EA's separate permitting decision. ESC agrees that the assessment of air quality impacts is adequate. Subject to the controls in the Construction Method Statement [REP8-054] and the CoCP [REP8-082], ESC does not dispute the findings of the ES addendum [REP7-030] and the assessment of air quality impacts on designated habitats [REP9-026]. However, the generator's NH₃ contribution is greater than 1% of the critical level so ESC would expect the Environment Agency to consider this further at the permitting stage.
- 5.3.200. At DL10 the Applicant provided a revised air quality assessment for the desalination plant [REP10-153], in response to concerns raised by IPs in respect of the potential for adverse effects from the diesel generators running constantly. This added to the effects that had been considered in the original ES and those subsequently submitted.
- 5.3.201. This put a limitation on the length the diesel generators could be run to a maximum of two years prior to the plant being transferred onto mains power and increased the stack height of the plant. This was a year less

than had been presented in the initial air quality assessment and less than the Applicant presented in evidence at ISH15.

- 5.3.202. The ExA is of the view that for this to be controlled to this level a requirement would need to be added to the DCO to ensure ESC and the EA are notified when the desalination plant is commissioned so that this time limitation could be enforced, if required, to ensure the operation of the plant were to remain within the revised assessment.

Suitability of Monitoring and Mitigation

- 5.3.203. Concerns over lack of and independence of monitoring and mitigation proposed for impacts on air quality. Suggestions that further air quality monitoring should be undertaken during the works in the vicinity of the construction site, and routes for vehicles to and from the site. Suggestion that an action plan is required in case of exceedances of air pollutant concentrations. Suggestion that electric buses should be included as a mitigation measure.
- 5.3.204. The Applicant agreed with the Councils that monitoring should be used to demonstrate compliance with annual average national Air Quality Strategy objectives and standards, rather than short term or peak effects, and monthly monitoring and reporting is proposed.
- 5.3.205. Real time PM₁₀ monitoring data will additionally be gathered that will be used to assess the effectiveness of dust control measures, and action and trigger levels will be used to provide real time feedback to the contractors on the effectiveness of dust control measures.
- 5.3.206. The Applicant has agreed with the Councils that any monitoring that is undertaken should use accredited and calibrated techniques and reference methods rather than instantaneous or hand-held devices which cannot be referenced or reproduced, and which could give rise to variable and transient readings.
- 5.3.207. The Deed of Obligation provides a commitment to support the ongoing monitoring of NO₂ by ESC.
- 5.3.208. The desire of some IPs to have independent monitoring by a third party appears to come from a lack of confidence in either the Applicant or ESC to be able to manage and monitor air quality effectively. The NPS makes clear that the ExA can rely on the regime of powers outside of the DCO process to be operating effectively. It is therefore noted that these concerns have been expressed but it does not weigh against the scheme in the ExA's consideration of the proposals.
- 5.3.209. It should also be noted that even had the ExA considered it necessary to require a third party to undertake monitoring of air quality, it would have needed to report to the Councils whose power it is to enforce air quality objectives.
- 5.3.210. The monitoring and mitigation proposed by the Applicant sufficiently minimises the likelihood of significant impacts. This is satisfactorily

secured in the CoCP and other documents, is considered robust and the ExA are satisfied that this would be an appropriate series of controls to manage the air quality in the area.

Cumulative impacts

- 5.3.211. In relation to the Green Rail Route, the ES Volume 10 Project-wide, Cumulative and Transboundary Effects, Chapter 2 Interrelationship effects [APP-575] paragraph 2.3.65, identifies that during construction, noise generated from rail movements on the East Suffolk line have the potential to interact with air quality effects from road traffic and rail emissions and could result in new and or different environmental effects within a number of areas. It recognises that there is a potential for effect interaction to occur and result in a further significant effect at those receptors where noise effects from the rail movements would be significant (within 20 metres of the East Suffolk Line). The rail noise effects would be mitigated where possible through the implementation of speed restrictions along the East Suffolk Line. Further consideration is given to the noise and vibration effects of the Green Rail Route, and the mitigation proposed in Sections 5.18 of Chapter 5 of this Report.

Conclusions

- 5.3.212. The ExA considers that the Applicant's approach to the assessment of air quality impacts, including the baseline and data collection, the assessment methodology and assessment criteria is sound, a position shared by the Councils and confirmed in the final SoCG [REP10-102].
- 5.3.213. NPS EN-1 states that some construction impacts on amenity for local communities are likely to be unavoidable but should be kept to a minimum and should be at an acceptable level. The ExA is satisfied that impacts from the construction phase on air quality including dust emissions would be kept to a minimum through implementation of mitigation, including the measures set out in the CoCP.
- 5.3.214. The ExA is also of the view that there would not be significant adverse effects from emissions to air from construction plant and equipment or the desalination plant and CHP.
- 5.3.215. The ExA considers that the mitigation proposed is reasonable and the commitment to Euro Stage VI vehicles, air quality monitoring and reporting achieves an appropriate mechanism to safeguard air quality in the area and achieve Air Quality Objective (AQO) standards.
- 5.3.216. In respect of road traffic emissions, all annual mean concentrations are below the AQO and with the project are not predicted to exceed these levels. As a consequence, the ExA are satisfied that the Proposed Development would not result in significant changes to air quality. It should also be recognised that there will be positive benefits in air quality on the A12 at Farnham once the TVB is complete and along the B1122 once the SLR is complete. Both would provide legacy benefits which would count in the planning balance in favour of the scheme.

- 5.3.217. As set out in the Traffic and Transport Chapter of this Report the ExA are satisfied that the Applicant has made appropriate provision for the management of construction and worker traffic generated by the Proposed Development such that vehicle emissions would be appropriately mitigated. This in combination with the commitment to Euro Stage VI vehicles protects the air quality in the area, and leads to predictions that neither AQMA at Woodbridge or Stratford St Andrew would exceed AQO values.
- 5.3.218. The ExA concludes that the impacts on air quality 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 air quality limits are not breached. There is no evidence of any risk that the project would affect the UK's ability to comply with the Air Quality Directive.
- 5.3.219. This conclusion is based up on the assumption that there would be an additional requirement that the EA and ESC are notified at the point in time the desalination plant is first commissioned so that the time period for the operation of the diesel generators operation can be limited to that which was presented to the ExA in the final desalination plant air quality assessment [REP10-153].
- 5.3.220. The wording below therefore forms part of the rDCO as an additional element under Requirement 13 covering Temporary Construction at the MDS.
- 5.3.221. (3) The Applicant must notify East Suffolk Council and the Environment Agency of the date the desalination plant is first commissioned, and subsequently the date it has been transferred to operate from mains power. The desalination plant must be installed and operated in accordance with the Revised Desalination Plant Air Impact Assessment and cease to be powered from diesel generators beyond the two years specified in the revised Air Quality Impact Assessment unless otherwise approved by East Suffolk Council following consultation with Natural England and the Environment Agency.
- 5.3.222. As the revised assessment was submitted at the final deadline, other parties who had expressed concern about the additional impacts of the diesel generators operating have not had the opportunity to consider whether this reduction from three to two years and the increase in stack height from 3m to 4m resolves the concerns that they had identified and, in these circumstances, the SoS may wish to consult IPs on this matter.
- 5.3.223. The ExA is also content that, with the mitigation proposed, the development would comply with the NPPF and local planning policies. The ExA was made aware that the World Health Organisation (WHO) had adopted new guidance (WHO. Global air quality guidelines. Particulate Matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulfur dioxide, and carbon monoxide.2021) in respect of air quality monitoring, but to date there has not been a formal Government response as to whether these are to be adopted, or how they might be applied in the

future. In these circumstances the ExA has not given these new guidelines weight in coming to our conclusions.

- 5.3.224. The ExA therefore concludes that in respect of air quality issues there are no matters which would weigh against the making of the Order and in the long term the positive benefits that arise from the legacy benefits of the SLR and TVB should be ascribed moderate weight in favour of making the Order.

5.4. ALTERNATIVES

Relevant matters of policy and law

National Policy

The Overarching National Policy Statement for Energy (EN-1)

- 5.4.1. EN-1, Section 4.4, paragraph 4.4.1, advises that, as in any planning case, the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to the proposed development is in the first instance a matter of law. However, paragraph 4.4.2, explains that applicants are obliged to include in their Environmental Statement (ES), as a matter of fact, information about the main alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social, and economic effects and including, where relevant, technical, and commercial feasibility; in some circumstances there are specific legislative requirements, notably under the Habitats Directive, for the decision-maker to consider alternatives. These should also be identified in the ES by the applicant; and in some circumstances, the relevant energy National Policy Statements (NPS) may impose a policy requirement to consider alternatives (as EN-1 does in Sections 5.3, 5.7 and 5.9).
- 5.4.2. EN-1, paragraph 4.4.3, sets out the principles to be applied when deciding what weight should be given to alternatives. These include that, the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner; where (as in the case of renewables) legislation imposes a specific quantitative target for particular technologies or (as in the case of nuclear) there is reason to suppose that the number of sites suitable for deployment of a technology on the scale and within the period of time envisaged by the relevant NPSs is constrained, an application for development on one site should not be rejected simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site, and appropriate regard should be had to the possibility that all suitable sites for energy infrastructure of the type proposed may be needed for future proposals; alternatives not among the main alternatives studied by the applicant (as reflected in the ES) should only be considered to the extent that the decision-maker thinks they are both important and relevant to its decision and alternative proposals which are vague or inchoate can be excluded on the grounds that they are not important and relevant to the decision.

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

EN-6 Vol I Section 1.8 Interaction with the Habitats Directive

- 5.4.3. Paragraph 1.8.1, states that EN-6 is a “*plan*” for the purposes of the Habitats Directive². Its objective is to facilitate the delivery of new nuclear power electricity generation on some or all of the sites listed in this NPS by the end of 2025. Paragraph 1.8.2 indicates that the Government has assessed EN-6 (by conducting a Habitats Regulations Assessment (HRA)) and has concluded that it cannot rule out the potential for adverse effects on the integrity of European Sites adjacent to or at a distance³ from each site listed in this NPS. In line with the requirements set out in Article 6(4) of the Habitats Directive the Government considered potential alternatives to the plan and nominated sites, and concluded that there were no alternatives that would better respect the integrity of European Sites and deliver the objectives of this plan. Accordingly, the Government has presented a case for Imperative Reasons of Overriding Public Interest (IROPI) which sets out the rationale for why the plan should proceed given the uncertain conclusions identified by the Nuclear HRA. As set out in EN-6 Vol I Annex A, the Government’s findings in respect of Article 6(4) of the Habitats Directive and EN-6 do not automatically transfer to individual projects. When undertaking a HRA in respect of a project, the decision-maker should have regard to the Government’s findings detailed in EN-6 and the HRA on it. Paragraph 1.8.3 explains that the conclusions of the Nuclear HRA, including the examination of alternative plans and the IROPI case, are set out in the Main HRA Report⁴.

EN-6 Vol I, Section 2.4, the Government’s assessment of alternatives and the need for the listed sites to be included in the NPS

- 5.4.4. Paragraph 2.4.3 states that: “*As a result of the SSA and the Alternative Sites Study, the Government does not believe that there are any alternatives to the listed sites that are potentially suitable for the deployment of new nuclear power stations in England and Wales before the end of 2025 (see paragraphs 2.3.1 and 2.3.2 above).*”
- 5.4.5. Paragraph 2.4.4 indicates that given the very limited number of sites identified as potentially suitable for the deployment of new nuclear power stations before the end of 2025, the Government considers that all eight are required to be listed in this NPS. This is to allow sufficient flexibility to

² The European Directive (92/43/EEC) on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive).

³ The HRA considered the likely effects of the plan on all those European Sites that were within 20 km of the sites listed in the NPS. Further, in consultation with the Statutory Consultees, the HRA also considered European Sites at a greater distance from the nominated sites where potential impact pathways (e.g. hydrological connectivity) were known to exist.

⁴ Habitats Regulations Assessment of the Revised Draft Nuclear National Policy Statement: Main Report, 2010, <http://www.energynpsconsultation.decc.gov.uk>

meet the urgent need for new nuclear power stations (see Part 3 of EN-1) whilst enabling the decision-maker to refuse consent should it be considered appropriate to do so.

- 5.4.6. Paragraph 2.4.5 explains that in addition to the consideration of alternative sites, an assessment was undertaken as part of the Nuclear Appraisal of Sustainability (AoS) to consider whether or not the objectives of this NPS could be delivered using alternative options. The Government's view was that none of the alternative options looked at could be relied upon to deliver the objectives of EN-6 by the end of 2025. Further details are set out in Chapters 3 and 4 of the Nuclear AoS Main Report⁵.

EN-6 Vol I, Section 2.5 the decision-maker's assessment of alternatives

- 5.4.7. Paragraphs 2.5.2 to 2.5.5 provide policy guidance on the assessment of alternative sites. Paragraph 2.5.5 indicates that, subject to any contrary legal requirements, the decision-maker should judge an application on a listed site on its own merits and a comparison with any other listed site is unlikely to be important to its decision. This represents the starting point or baseline.

The principles of common law relevant to the consideration of alternatives in planning decision-making

- 5.4.8. The judgment in *R (Save Stonehenge World Heritage Site Limited) v Secretary of State (Holgate J, 30 July 2021) 2021 EWHC (Admin)* highlighted the need to apply the principles of common law regarding the relevance of alternatives to planning decision-making.
- 5.4.9. The *Save Stonehenge* case involved the application of existing well-established principles of common law regarding the relevance of alternatives to the particular facts of that case. Those principles were described by Holgate J as being "well-established" in paragraph 268 of the Judgment and are summarised at paragraphs 269 to 276. The cases considered in that judgment include *R (Mount Cook Land Limited) v Westminster City Council [2017] PTSR 116*, where the Court of Appeal approved a set of principles at [30] which was essentially the same approach that was set out by the Court of Appeal in *R (Jones) v North Warwickshire Borough Council [2001] PLCR 31* at [22] to [30], *Derbyshire Dales District Council v Secretary of State for Communities and Local Government [2010] 1 P&CR 19*, *R (Langley Park School for Girls Governing Body) v Bromley London Borough Council [2009] EWCA Civ 734* and *First Secretary of State v Sainsbury's Supermarkets Limited [2007] EWCA Civ 1083*.
- 5.4.10. In the light of the *Save Stonehenge* case, the main principles that emerge are that it is necessary to consider whether the relative merits of various alternative options compared to the Applicant's preferred options

⁵ Appraisal of Sustainability for the Revised Draft Nuclear National Policy Statement: Main Report, 2010, <http://www.energynpsconsultation.decc.gov.uk>

are an obvious material consideration which the decision-maker is required to assess, and it would be irrational not to do so. The *Save Stonehenge case*, paragraph 269, sets out the analysis by Simon Brown J in *Trusthouse Forte v Secretary of State for the Environment (1987) 53 P& CR 293*. First, land may be developed in any way which is acceptable for planning purposes. Secondly, where there are clear planning objections to development upon a particular site then "*it may well be relevant and indeed necessary*" to consider where there is a more appropriate site elsewhere. Thus, in the absence of conflict with planning policy and/or other planning harm, the relative advantage of alternative uses on the application site or of the same use on alternative sites are normally irrelevant. In those "*exceptional circumstances*" identified by case law principles, where alternatives might be relevant, vague, or inchoate schemes, or which have no real possibility of coming about are either irrelevant, or where relevant should be given little or no weight.

- 5.4.11. In *Derbyshire Dales District Council v Secretary of State for Communities and Local Government [2010] 1 P&CR 19*, Carnwath LJ emphasised the need to draw a distinction between two categories of legal error: first, where it is said that the decision-maker erred by taking alternatives into account and second, where it is said that he had erred by failing to take them into account ([17] and [35]). In the second category an error of law cannot arise unless there was a legal or policy requirement to take alternatives into account, or such alternatives were an "*obviously material*" consideration in the case so that it was irrational not to take them into account ([16] to [28]).

The Applicant's approach

General assessment principles

- 5.4.12. The Applicant in response to ExQ1 AL.1.0 [REP2-100] refers to Appendix 5A (Legal and Policy Requirements relating to the assessment of alternatives) [REP2-108] which summarises the particular statutory provisions and policies that impose an obligation to consider alternatives, the applicable test or requirement, and an indication of where to find details of compliance with those requirements. The legal requirements specified are the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, Regulation 14 (the EIA regs); the Marine Works (Environmental Impact Assessment) Regulations 2007 Regulation 12 (the Marine EIA Regs); The Conservation of Habitats and Species Regulations 2017, Regulation 64 (the HRA Regs); the Conservation of Offshore Marine Habitats and Species Regulations 2017/1013 (the Marine Habitats and Species Regs), Regulation 29; the Water Framework Directive 2000/60/EC (the WFD), Derogation tests – Article 4.7; and the Marine and Coastal Access Act 2009, section 126 Duties of public authorities in relation to certain decisions.
- 5.4.13. The policy requirements specified are EN-1 Development proposed within nationally designated landscapes, paragraph 5.9.10; Flood risk: the Sequential Test paragraph 5.7.13; the Exception test, paragraphs 5.7.15 to 5.7.16, and Biodiversity, paragraph 5.3.7.

- 5.4.14. In relation to compliance with the EIA Regs, the Applicant relies upon the relevant Site Specific Alternatives Chapters in the ES namely, Introduction to ES [APP-175], Main Development Site (MDS) [APP-190], MDS Appendix 6A [APP-191], Northern Park and Ride (NPR) [APP-353], Southern Park and Ride (SPR) [APP-383], Two Village Bypass (TVB) [APP-414], Sizewell Link Road (SLR) [APP-450], Yoxford Roundabout [APP-483], Freight Management Facility (FMF) [APP-514], and Rail [APP-544]. For the Marine EIA Regs, the Applicant refers to the Main Development Site Alternatives Chapter [APP-190].
- 5.4.15. On the HRA Regs and the IROPI test the Secretary of State must be satisfied in granting consent that there are "no alternative solutions". This is considered in the shadow HRA (sHRA) of Alternative Solutions [APP-150] and for the similar test in the Marine Habitats and Species Regs, reliance is also placed upon the sHRA Alternatives.
- 5.4.16. In relation to the WFD derogation tests, the Applicant draws attention to the Water Framework Directive Compliance Assessment Report [APP-619 to APP-633] and Addendum [AS-277 to AS-279]. For the Marine and Coastal Access Act 2009, section 126 duties of public authorities in relation to certain decisions, the Applicant refers to the MDS [APP-190], and the MDS Appendix 6A [APP-191].
- 5.4.17. Turning to the EN-1 policy requirements, paragraph 5.9.10 development proposed within nationally designated landscapes is applied in the Site Selection Report (Appended to Planning Statement) [APP-591]. In relation to flood risk, the Sequential Test and the Exception test, paragraphs 5.7.13, 5.7.15, and 5.7.16 are considered within the Site Specific Flood Risk Assessments: [APP-093 to APP-144, AS-018, AS-157 to AS-172]. The EN-1 Biodiversity paragraph 5.3.7 requirement that reasonable alternatives have been considered in order to avoid significant harm to biodiversity and geological conservation interests is complied with by the Site Selection Report (Appended to Planning Statement): [APP-591].
- 5.4.18. In response to ExQ1 AI.1.1 [REP2-100], the Applicant explains that apart from the selection of the location of the main site platform and decisions relating to the reactor design, it is not aware of any elements of the proposals which have not been selected without the consideration of alternatives by it. The consideration of alternatives for the separate elements of the Project is set out in more detail below.
- 5.4.19. The Introduction to the ES Chapter 4 Project Evolution and Alternatives [APP-175] sets out the strategic alternatives that have been considered by the Applicant and how these have guided the evolution of the Proposed Development. This chapter describes:
- the strategic site selection for the power station and reactor design;
 - the consideration of alternative strategies for the accommodation and movement of construction workers and the transportation of freight – which in turn has informed the need for, and strategic siting of, associated development; and

- the principles of design development that have evolved through the pre-application phase of the Proposed Development. The site-specific alternatives and project evolution (e.g. location and sizing; layout; and design iterations) for each element of the Proposed Development are then considered in Volumes 2 to 9 of the ES [APP-190, APP-191, APP-353, [APP-383], [APP-414], [APP-450], [APP-483], [APP-514], and [APP-544].

5.4.20. The Applicant's response to ExQ1 AI.1.1 [REP2-100] indicates that these chart the evolution of the application proposals through the consideration of alternatives – for example, in relation to the SSSI crossing, the relocated Sizewell B facilities, the temporary construction area, the accommodation campus, offshore works etc. The MDS Design and Access Statement [APP-585 to APP-587] also reports on the testing and evolution of the proposals through an iterative design process. Alternatives that informed the changes proposed to the application in January 2021 were not reported in the same way, although each was considered as an alternative to the originally submitted proposals. For a number of the changes, additional alternatives were consulted on and the outcome was reported in the Consultation Report Addendum [AS-153] and in Part 1 of the Proposed Changes to the Application [AS-281].

5.4.21. Further details of the consideration of alternatives can be found in the Site Selection Report at Appendix A of the Planning Statement [APP-591] which addresses site selection in a wider context than the requirements of the EIA Regulations and in Volume 1, Chapter 4 [APP-175], Volume 2, Chapter 6 [APP-190] and Volumes 3-9, Chapter 3 of the ES [APP-353, APP-383, APP-414, APP-450, APP-483, APP-514, APP-544]. Details of the alternatives considered by the Applicant in relation to the offshore works area can be found in Volume 2 Chapter 6 of the ES [APP-190].

5.4.22. The Applicant provided an update to the original Planning Statement at DL10, namely, the Planning Statement Update and Final signposting document [REP10-068]. In relation to 'Section 3.8: Site Specific Assessment: Change in circumstances', the update highlights that an explanation that there has been no material change in the site circumstances since the designation of the NPS is addressed in the Applicant's response to ExQ1 G.1.10 and AI.1.5 [REP2-100] and [REP3-046] and in the Written Summaries of Oral Submissions made at ISH9 [REP7-102, e-page 5]. As EN-6 explains at paragraph 4.2.4: "*The site assessments (in Annex C) set out why the listed sites are considered suitable and give context to concerns that were raised by the public.*" In response to submissions made at ISH9, the Applicant explained that the passage of time itself is not a change in circumstances for the purposes of policy support for the sites listed in NPS EN-6. As Annex C (at C.8.6) to the NPS explains, the Government is satisfied that Sizewell is credible for deployment by 2025 "*whether or not it is deployed by that date.*" The Government's Response to Consultation on the Siting Criteria, 2018 also confirmed (at paragraph 3.10) that "*the sites listed in EN-6 on which a new nuclear power station is anticipated to deploy after 2025 will continue to be considered appropriate sites and retain strong Government support during the designation of the new NPS.*"

- 5.4.23. The update also refers to the original Planning Statement paragraph 3.9.6: Consideration of alternatives to the NPSs approach: impacts. It states that the Draft NPS EN-1 undertook the same exercise to provide an assessment of reasonable alternatives to the EN-1 policies at a strategic level. The alternatives were rejected on the basis that none were as good as, or better than, the strategy in EN-1. The assessment of EN-1 recognised that significant adverse effects are likely to remain for landscape, biodiversity, townscape, and seascape impacts. EN-1 acknowledges that: *"it will not be possible to develop the necessary amounts of such infrastructure without some significant residual adverse impacts"*.
- 5.4.24. In relation to site selection, further information on the consideration of alternatives is provided within the Applicant's responses to ExQ1 [REP2-100], ExQ2 [REP7-050] and ExQ3 [REP8-116], and DL10 Submission - 9.125 Comments on Responses to ExQ3 [REP10-166].
- 5.4.25. Alternatives that informed the changes proposed to the application in January 2021 were not reported in the same way, although each was considered as an alternative to the originally submitted proposals. For a number of the changes, additional alternatives were consulted on and the outcome was reported in the Consultation Report Addendum [AS-153] and in Part 1 of the Proposed Changes to the Application [AS-281].

The consideration of Strategic Alternatives for the Proposed Development

- 5.4.26. The Introduction to the ES, Chapter 4 Project Evolution and Alternatives [APP-175], describes the strategies developed for the management of accommodation and transport and how this informed the requirement for Associated Development. Paragraph 4.4.1, states that the strategic alternatives process for the accommodation of the construction workforce and the movement of workers and freight, has identified the need for the Associated Development identified to support construction of Sizewell C.
- 5.4.27. Paragraph 4.4.2 explains that matters relating to the detailed siting of these facilities (and any alternatives) are described in the Alternatives sections within the relevant site volumes, Volumes 2 to 9 of the ES [APP-190, APP-191, APP-353, APP-383, APP-414, APP-450, APP-483, APP-514, and APP-544].
- 5.4.28. Paragraph 4.4.3 advises that further detail on the proposals for Associated Development is provided in the Planning Statement [APP-590] and specifically with regard to the site selection process at Appendix 1 of the Planning Statement [APP-591].

The Save Stonehenge case

- 5.4.29. The ExA's ExQ3 AI.3.0, requested the Applicant to provide an update in relation to its consideration of alternatives in the light of the judgment in *R (Save Stonehenge World Heritage Site Limited) v Secretary of State (Holgate J, 30 July 2021)* with particular regard to the absence of any

consideration of alternatives for the main site platform and decisions relating to the reactor design [PD-044].

- 5.4.30. In response, the Applicant indicated that it has considered the judgment in the *Save Stonehenge* case, and it does not have any implications for the approach to be taken to the issue of alternatives in relation to the Proposed Development. The *Save Stonehenge* case involved the application of existing well-established principles of common law regarding the relevance of alternatives to the particular facts of that case. Those principles were described by Holgate J as being “*well-established*” in paragraph 268 of the judgment and are summarised at paragraphs 269 to 276. The Applicant’s position is that this case does not change the law as to the principles that apply in determining whether alternative sites or options may permissibly be taken into account or whether, going further, they are an ‘obviously material conclusion’ which must be taken into account. The Applicant submits that the written and oral submissions that have been made on its behalf in this Examination in respect of alternatives are consistent with those principles and reflect their application to the particular facts of this case.
- 5.4.31. NPS EN-1 acknowledges that the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to the proposed development is in the first instance a matter of law, detailed guidance on which falls outside the scope of EN-1 (paragraph 4.4.1). It then goes on to explain in paragraph 4.4.3 that where there is a legal or policy requirement to consider alternatives the decision-maker should be guided by the principles listed in that paragraph ‘when deciding what weight should be given to alternatives’. Those principles are specific to EN-1, and are not reproduced in the National Policy Statement for National Networks (“NPSNN”) which had effect in decision-making in respect of the application for development consent at Stonehenge.
- 5.4.32. The findings of the Court on ground 5(iii) (alternatives) in the *Save Stonehenge* case are necessarily highly fact-specific, and the “*relevant circumstances of the present case*” were described by Holgate J, as “*wholly exceptional*”. It was the cumulative effect of a long list of case-specific circumstances that led the Court to the conclusion that “*the relative merits of the alternative tunnel options compared to the western cutting and portals were an obviously material consideration which the SST was required to address*” (paragraph 277).
- 5.4.33. It is very clear from a reading of those paragraphs, together with the relevant factual background as summarised at paragraphs 5 to 20 and 243 to 267, that the reasons given are specific to the unique combination of legal, policy and factual circumstances of that case. That is unsurprising given that the relevance or otherwise of alternatives, whether they are obligatory material considerations or not, and the weight to be given to them if material, will always depend on the concatenation of circumstances in any individual case. The Applicant contends that the circumstances of the *Save Stonehenge* case are not comparable to those which arise in this application.

5.4.34. For example:

- The case involved a proposed development which was found to cause material harm to a World Heritage Site, with specific legal and policy consequences which were critical to the conclusion that exceptional circumstances existed requiring consideration of alternative tunnel options (see e.g. paragraphs 278 to 282).
- Both the Panel and the SoS had misdirected themselves in relation to the policy in paragraph 4.27 of the NPSNN, and specifically as to the implications of the fact that the Applicant had carried out the "options appraisal" as part of the investment decision making process required by paragraph 4.27 of the NPSNN (see paragraphs 285 and 288).
- In that case it had not been suggested that the extended tunnel options did not need to be considered because they were too vague or inchoate (paragraph 289). By contrast, the Applicant has made clear its view that the putative 'alternatives' for the main site platform and reactor design referred to by IPs in this case are vague and inchoate. No IP has set out to demonstrate in any detail what development such an alternative would require, whether it would be practically achievable on this site, how its various environmental impacts would compare to those of the Proposed Development, or that there is a realistic prospect of such an alternative delivering the same infrastructure capacity (including energy security and climate change benefits) in the same timescale as the Proposed Development (see NPS EN-1 paragraph 4.4.3). The Applicant's submissions on the relevance of potential alternatives and (if relevant) the weight that should be attached to any such alternatives are therefore unaffected by the Stonehenge judgment.

The draft Overarching National Policy Statement for Energy (EN-1) published on 6 September 2021

5.4.35. The ExA's ExQ3 A1.3.3 refers to the draft Overarching National Policy Statement for Energy (EN-1) which was published on 6 September 2021. This includes reference, at Section 1.7, to the Appraisal of Sustainability (AoS) and Habitats Regulation Assessment and explains the assessment of alternatives to EN-1 and to the consideration of alternatives in Section 4.2. The Applicant was requested to comment on any implications arising from that assessment for the inclusion of Nuclear generation within EN-1, and for the consideration of alternatives to the Proposed Development generally.

5.4.36. The Applicant's DL8 response [REP8-116], indicates that although the draft EN-1 is only draft, it notably reinforces the urgency of the need for large scale energy infrastructure including the need for large scale nuclear generation (paragraph 3.3.44). The AoS provides an assessment of the draft EN-1 against fourteen objectives. The findings are presented at section 5 of the AoS and in a matrix at Table 10.1. A summary of these findings is presented at section 10.1 and the key points are set out at Paragraph 1.7.4 of the draft EN-1.

5.4.37. These conclusions are reached following an assessment of alternatives to the draft EN-1 as required by the Strategic Environmental Assessment

(SEA) Regulations. Four potential strategic alternatives were tested against the AoS objectives. The AoS concludes, as set out at paragraph 1.7.11 of the draft EN-1 that "*none of these alternatives are as good as, or better than, the proposals set out in EN-1 and therefore the government's preferred option is to take forward the proposals set out herein*". The policy option presented in EN-1, which reiterates the continued support for new large scale nuclear generation, is concluded to represent the best policy approach. The AoS reinforces the continued strong support for new nuclear as part of the UK's future energy mix.

- 5.4.38. The section of the draft NPS setting out its policy approach to 'Alternatives' (from paragraph 4.2.11) remains largely unchanged from section 4.4 of the current EN-1. The changes are limited to the following: confirming that the ES is obliged to include information about reasonable (rather than main) alternatives (para 4.2.12); advising that only alternatives that can meet the objectives of the proposed development need be considered (para 4.2.13); deletion of the first part of bullet 3 of paragraph 4.4.3 (relating to renewables legislation). The Applicant therefore considers that the work undertaken for the AoS serves to validate the up to date requirement for new nuclear and the absence of a valid alternative policy approach.

Summary of the Applicant's approach to alternatives

- 5.4.39. The Site Selection Report overall summary, at 11.1.1 [APP-591], indicates that a number of decisions relating to the Proposed Development have been determined through other processes, policy, or legislation and, therefore, the Applicant has not considered any alternatives in this regard. In particular, the proposed siting of Sizewell C is set out in EN-6 and decisions relating to the reactor design were completed through the UK Generic Design Assessment (GDA) process.
- 5.4.40. The strategies for the accommodation of the construction workforce and the movement of people and freight have been developed through a thorough optioneering process, which has assessed a number of alternative approaches and options in order to determine the most appropriate proposals to take forward as part of the application for development consent. These strategies have identified the need for, and set the scope for required associated development to support the construction of the Proposed Development. The site selection and design evolution process has ensured that the associated development would be delivered in the right place and would perform its intended function.
- 5.4.41. Paragraph 11.1.5 of the Site Selection Report concludes that appropriate alternatives have been considered for the proposals for the main development sites and suitable designs have been included within the scheme, having regard to operational requirements, the planning policy context, consideration of the site constraints and development constraints and the outcomes of the environmental assessment process to avoid likely significant environmental effects where possible and, where this is not possible, to mitigate and manage any remaining effects.

Matters arising during the course of the Examination

5.4.42. The main issues relating to alternatives that arose during the Examination came under the following headings:

- The strategic selection for the power station and reactor design.
- The Consideration of Alternative Strategies for the Accommodation and Movement of Construction Workers and the Transportation of Freight.
- The Main Development site including crossing of the Sizewell Marshes SSSI, electrical connection to the National Grid substation, Sizewell B relocated facilities and the outage car park at Goose Hill, National Grid land, offshore works, the Temporary Construction Area, the Land East of Eastlands Industrial Estate (LEEIE), the Leiston off-site sports facilities, the Fen meadow compensation land, the marsh harrier improvement area, and the rail proposals.
- The associated development including the site selection for the TVB, the SLR, the Northern Park and Ride, the Southern Park and Ride, the FMF, the Yoxford roundabout and other highway improvements.

The ExA's considerations

The strategic selection for the Power Station and the Reactor design:

The submissions of IPs

Site suitability and the reliance placed upon EN-6

5.4.43. The Planning Statement [APP-590], paragraph 7.3.34, refers to EN-6, section 2.4, which outlines how alternatives were considered through the nomination process that led to confirmation in EN-6 of the eight sites for new nuclear power stations. There has been much criticism made by IPs of the reliance placed by the Applicant upon EN-6 and its confirmation of Sizewell C as one of the eight sites for new nuclear power stations.

5.4.44. For example, the representation of Ian Marshall [RR-0490] submits that the EN-6 assessments predate government acceptance of the Paris agreement on climate change and legislation to make the UK Zero Carbon by 2050. The representation of Walberswick Parish Council [RR-1257], also contends that the potential suitability of the site is no longer valid for a variety of reasons including that the development cannot be operating before 2025 and the CO² emissions from construction will not be offset until at least 2040 therefore making no contribution to carbon zero targets. Stop Sizewell C also raise concerns in relation to site selection, and the status of and reliance placed upon national policy in that respect [RR-1162]. This remained an outstanding concern for them at the close of the Examination, as confirmed in their Final SoCG with the Applicant [REP10-116].

5.4.45. The DL5 submission of Mr Bill Parker [REP5-191], states that a core issue is that the space between the sea to the east and the SSSI Sizewell Marshes to the west is too narrow to accommodate this specific nuclear power station design. He questions why: "*only one inappropriate design of nuclear station has been presented*".

- 5.4.46. The DL5 submission of Professor Andrew Blowers [REP5-189] questioned the assumption that the site is not an issue since Sizewell is one of those sites listed in the NPS. In summary, he put forward three qualifications to this position. First, that the sites were designated for deployment by 2025, a date that is now unrealisable. The NPS is out-of-date and is under review. It becomes increasingly problematic for the Applicant to rely on a designation and criteria established a decade ago when these matters are under review and change may be imminent.
- 5.4.47. Secondly, the site is only designated as 'potentially suitable'. The whole purpose of the DCO process is to examine its potential suitability. There seems to be no reason why the Proposed Development should be judged in terms only of component parts, albeit overlapping and interconnected. The potential suitability of the project as a whole, in terms of its scale, impact and overall safety, must also be considered.
- 5.4.48. Thirdly, the issue of scale and time. The Proposed Development would be a very substantial infrastructure which would occupy a coastal site until at least the middle of the next century. During that time site conditions are likely to deteriorate under the impacts of climate change in the form of sea level rise, storm surges, coastal erosion, and inundation. He submits that it is not possible at this point to forecast the pace, acceleration, or consequences of these impacts but conditions are likely to be very substantially different as we move into the next century, to the point where the site may become islanded or stranded, undefended or indefensible. He contends that a precautionary approach should be adopted now and the site as a whole examined in the context of climate change.
- 5.4.49. In addition, Professor Blowers' DL7 submission states that the recent report of the Intergovernmental Panel on Climate Change (IPCC) has a direct bearing on the development of a nuclear power station such as the Proposed Development on a coastal location and is relevant to the policy on strategic siting assessment [REP7-169]. He also suggests that it is not preferable for the Applicant to rely on the Office for Nuclear Regulation (ONR) to validate its claims that the site would be protected from external hazards taking full consideration of climate change and extreme events through the site licence process. It would be preferable for the Applicant to present its proposals so that they might be tested and challenged before a DCO is granted.
- 5.4.50. The DL10 submission of Together Against Sizewell C (TASC) [REP10-422] states that when Sizewell C was first nominated its size was 31 hectares (see para 15(b) TASC REP5-296) but, at the expense of the Sizewell Marshes SSSI, it is now 33 ha. They assume that this is in order to accommodate the European Pressurised Reactor (EPR) design. TASC refer to EN6 Vol II at para C.8.89 which makes reference to a single generator and the area envisaged to accommodate that.
- 5.4.51. The Written Representation (WR) of the ONR [REP2-160] explains that as part of their assessment of a site licence application, a key element of the ONR's consideration is the suitability of the site. Before a nuclear site

licence (NSL) 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; and the proposed nuclear power station is capable of being designed to have robust defences against the site-specific external hazards. The ONR had not at that stage identified any shortcomings that might prevent the grant of a NSL to the Applicant in due course, or to subsequently permit the commencement of nuclear construction.

- 5.4.52. The ONR provided a further update on the latest position in respect of the application for the NSL in response to ExQ2 R2.0 [REP7-150]. As regards site suitability, it is satisfied that the proposal conforms with Government siting policy and that the location is suitable for the establishment and maintenance of an adequate emergency plan during all phases of the power station. In relation to whether the proposed nuclear power station is capable of being designed to have robust defences against the site-specific external hazards, engagement is still ongoing with the Applicant in order for the ONR to gain confidence in the characterisation of the hazards and to ensure there is no challenge to the suitability of the site. Overall, the ONR is satisfied with the progress made towards the target of completing the licensing assessment by mid-2022.

Other technologies

- 5.4.53. A number of IPs have submitted that events have moved on since the designation of EN-6 and other technologies should now be utilised for energy production and storage rather than placing reliance upon new nuclear. Reference was also made to the 2011 nuclear accident at the Fukushima Daiichi Nuclear Power Plant.
- 5.4.54. For example, the WR of TASC [REP2-481c] states that the Government's own recent electricity sector modelling shows that there are viable non-nuclear ways to generate reliable low-carbon (or net carbon-negative) electricity. The modelling shows that a combination of renewable energy technologies and carbon capture and storage (CCS) technologies can provide such reliable power and in some scenarios at a lower cost than current nuclear technologies such as the Proposed Development. They submit that there are various non-nuclear fuels and technologies which can generate reliable, preferably dispatchable, low-carbon or carbon-negative electricity at scale. New-build nuclear projects, like the Proposed Development, are not needed, let alone 'essential', to providing reliable low-carbon generation.
- 5.4.55. Adrian Dickerson and Greta Dickerson [REP2-200] state that in the decade plus that it will take the Proposed Development to approach completion, technology will have continued at a pace with the prospect of several alternate means of energy storage maturing to support the grid when generation from renewable sources cannot fully meet demand.
- 5.4.56. Jackum Brown [REP2-321] submits that the energy generated could be produced faster, be safer and cost far less money by using a combination

of alternative technologies and battery storage. Charles Barrington [REP2-239] points to other alternatives such as 'mini-nukes', wind, solar, and gas plus CCS. Chris Wheeler [REP2-242] advocates Combined Cycle Gas Turbine power stations with CCS as an alternative now under more serious consideration.

Reactor design

- 5.4.57. There has been much criticism by IPs of the EPR reactor design proposed to be utilised by the Proposed Development with reference to the experience of utilising it elsewhere including Hinkley Point C, and Flamanville. There are also submissions that if new nuclear generating capacity is to be provided, then it should take the form of small modular reactors and not large scale nuclear plants.
- 5.4.58. For example, Andrew Freese [REP2-210] states that modular nuclear plants as being developed by Rolls Royce which can be located close to the areas of demand offer a potentially more achievable way of increasing our generating capacity in time. He also highlights that not one reactor of the proposed design is yet generating electricity in Europe. Olkiluoto in Finland is 13 years late and three times over budget. Flamanville in France is 11 years late and over budget. Hinkley C already pushed back to June 2026. The Applicant states that it is a proven design but the only operating EPR reactor is at Taishan in China.
- 5.4.59. Renata Adela [REP10-581] submits that smaller more energy efficient (and UK built) alternatives are available or soon to be available such as the Rolls-Royce mini nuclear reactors. Leaf Kalfayan [REP10-319] makes a similar point.
- 5.4.60. Iain Brown [REP2-289] refers to the significant financial and technical problems EDF faced in the development of the complex design of the EPR. He states that there have been widely reported technical and financial problems at EDF Flamanville, as well as costly delays and cost overruns at Hinkley Point. Likewise, Frances Crowe [REP2-275c] makes reference to the EPR reactor at Flamanville still not being operational.
- 5.4.61. Mr Bill Parker DL2 [REP2-228 to REP2-230] states that nuclear projects have a history of cost over-runs and are notoriously difficult to budget for. The Applicant, in order to manage costs and to meet the obligations of the Nuclear Sector Deal with the Government (2018) has decided to replicate (as far as possible) the development design of the EPR stations at Hinkley Point C in Somerset onto the Suffolk coast. However, he submits that the two sites are very different. The Sizewell site is very constrained in size compared to Hinkley Point C, and it is severely compromised by being sandwiched between the sea to the east and the SSSI of Sizewell marshes to the west. This creates a fundamental problem with this proposal when utilising an existing pre-set footprint for the development.
- 5.4.62. At DL7 a copy of TASC's observations sent to the ONR regarding issues relating to the performance of the EPR design was submitted to the Examination [REP7-149]. This highlights three issues of great importance

to people living in East Suffolk close to the Proposed Development, namely, Taishan, the premature deterioration of M5 alloy sheaths which are to be found in EPRs in France, Finland and China, and IRSN's⁶ concern over the origin of vibrations which affect the primary water circuit of EPRs such as those at Hinkley Point C, and planned for the Proposed Development. The DL10 submission of TASC [REP10-422] comments on the Applicant's response to A1.3.1 [REP8-116]. There are no working EPRs in Europe and of the two built in China, they understand that the design had to be simplified to enable the reactors to be operational, resulting in them operating at a reduced level than that proposed. Further, one of the EPRs in China has recently been switched off for safety reasons.

- 5.4.63. Wayne Jones [REP2-489] [RR-1260] also raises safety concerns about EPR design.
- 5.4.64. The ONR [RR-0911] confirms that in June 2020 the Applicant applied for a NSL to allow it to install and operate two EPR reactors at the Sizewell C site. The design of the proposed twin reactor development at Sizewell C is closely based on that for the power station that is currently under construction at Hinkley Point C. The ONR carried out an assessment of the generic EPR design in 2012, and concluded that it could be safely constructed and operated in the United Kingdom.
- 5.4.65. The ONR is responsible for the GDA and the site licensing and environmental permitting processes. The ONR is currently assessing the NSL application for the Proposed Development [REP2-160]. In response to ExQ1 A1.1.1 [REP2-159], the ONR states that they have been regulating the activities of NNB GenCo (HPC) Ltd in relation to the construction of Hinkley Point C since they granted the company a NSL in December 2012. No matters of concern have arisen in its dealings with Hinkley Point C that undermine its view that it should be able to grant a licence for Sizewell C by mid-2022, provided the Applicant can provide the necessary reassurances in relation to its corporate competences and the acceptability of the application site.

The Applicant's response

- 5.4.66. The Applicant points out that the proposed siting of Sizewell C is set out in the NPS EN-6 and decisions relating to the reactor design were completed through the UK GDA process. In terms of geographical location, EN-6 identifies eight sites, including Sizewell C, as potentially suitable locations for the deployment of new nuclear power stations in England and Wales by 2025. EN-6 confirms that, as a result of the Strategic Siting Assessment (SSA) and Alternative Sites Study, the Government's policy is that there are no alternatives to the eight listed sites, capable of deployment before the end of 2025 (paragraph 4.4.3). It also states that the Government considers that all eight sites are required to be listed in the NPS (paragraphs 2.4.4 and 2.5.4).

⁶ Institut de radioprotection et de surete nucleaire

- 5.4.67. The location of the proposed Sizewell C power station, to the north of the existing Sizewell B power station, and the approximate location of the temporary construction area (TCA) for the MDS, are indicated in plans appended to EN-6. The NPS recognises, at paragraphs 2.3.3 and 2.3.4, that the site boundary proposed in the application for development consent may vary from the NPS site boundary, as specific proposals are developed.
- 5.4.68. Between December 2017 and March 2018, the Government consulted on the siting criteria and process for a new NPS for nuclear power with single reactor capacity over 1 gigawatt for deployment between 2026 and 2035. The Applicant nominated Sizewell as a site that is suitable for the deployment of a new nuclear power station by 2035. In response to ExQ1 A1.1.2 [REP2-100], the Applicant refers to the Government Response, published in July 2018 (BEIS 2018 Response to consultation on the Siting Criteria and Process for a new NPS on Nuclear Power).
- 5.4.69. Once a replacement NPS EN-6 is designated, the Secretary of State must determine any application for new nuclear built in accordance with that NPS (pursuant to section 104 of the PA2008). In the meantime, the Government Response at paragraph 3.10 confirms that: *"sites listed in EN-6 on which a new nuclear power station is anticipated to deploy after 2025 will continue to be considered appropriate sites and retain strong Government support during the designation of the new NPS"*.
- 5.4.70. The Applicant submits that the approach adopted in EN-6, that the eight sites were not alternatives to each other, remains applicable now. It follows that even if new potential locations were to be located through the new NPS EN-6 nomination process (once a future window for new nominations opens), that would not diminish the need case for a new nuclear power station at Sizewell. Against this policy basis, alternative locations for the nuclear power station have not been considered further by the Applicant. This matter is addressed in further detail, in Appendix A of the Planning Statement [APP-591].
- 5.4.71. In response to ExQ1 A1.1.3, the Applicant confirms that there is nothing in the consultation on the new NPS or the Government's July 2018 response which suggests that the Government's position has changed from that set out in EN-6, section 2.4. and it submits that the conclusions of paragraph 7.3.34 of the Planning Statement [APP-590] remain correct and are supported by the recent Government publications (including the Energy White Paper) and by the *Drax*⁷ judgements.
- 5.4.72. The Applicant rejects the contention of Ian Marshall [RR-0490] that EN-6 is out of date as it predates acceptance of the Paris Agreement on climate change and legislation to make the UK zero carbon by 2050 and that of Walberswick Parish Council [RR-1257] which contends that the conclusion of potential suitability in EN-6 is no longer valid. As set out in the Planning Statement Update [REP2-043], and as confirmed by the

⁷ R (ClientEarth) v. Secretary of State for Business, Energy and Industrial Strategy [2020] EWHC 1303 (Admin), [2021] EWCA Civ 43, paragraph 105

Energy White Paper, EN-1 and EN-6 continue to provide the appropriate policy tests and guidance for the examination and determination of new nuclear DCO applications.

- 5.4.73. An explanation that there has been no material change in the site circumstances since the designation of the NPS is addressed in the Applicant's response to ExQ1 G.1.10 and AI.1.5 [REP2-100] and [REP3-046] and in the Written Summaries of Oral Submissions made at ISH9 [REP7-102, epage 5]. In response to submissions made at ISH9, the Applicant explains that the passage of time itself is not a change in circumstances for the purposes of policy support for the sites listed in EN-6. As Annex C (at C.8.6) to the NPS explains, the Government is satisfied that Sizewell is credible for deployment by 2025 "*whether or not it is deployed by that date.*"
- 5.4.74. The Applicant's response to ExQ1 G.1.10 [REP2-100] sets out a summary of, and justification for, the differences between the proposed Order Limits for the MDS and the originally nominated site in EN-6 with reference to overlay plans. Figure 2.1 reveals material differences between the extent of the nominated site area and the application site boundary for the MDS. The majority of the land within the application site boundary for the MDS, but outside the nomination site boundary is required for construction (including the accommodation campus).
- 5.4.75. The Applicant's response to ExQ1 AI.1.5 states that the assessment boundaries were only ever indicative for these purposes and EN-6 specifically recognises that applications for development consent may also include land additional to the boundary of the listed site. As set out in the response to ExQ1 G.1.1, the main platform (other than some minor boundary changes) and the majority of permanent development as proposed are contained within the nomination boundary.
- 5.4.76. In response to ExQ2 AI.2.1, the Applicant states that the siting and extent of construction areas outside of the nominated site boundary have been the subject of consideration by it. Details are set out in Section 6.6 of Volume 2, Chapter 6: Alternatives and Design Evolution of the ES [APP-190] and Section 3.6 of the Site Selection Report [APP-591]. The siting and extent of the TCA has been driven by the need to strike an appropriate balance between project practicality, efficiency, programme, and environmental constraints. Further details on why individual parts of the construction site are located close to the Main Platform, within the AONB and not in alternative locations, are provided in the response.
- The need to assess the suitability of the site as a whole in the light of the recent report of the IPCC*
- 5.4.77. In response to ExQ3 AI.3.2 [REP8-116], the Applicant indicated that it was cognisant of the recent IPCC Report and its findings. The IPCC report relates to global and very large regional scales and is insufficiently tailored to the local environment to underpin the modelling in this application, and not supported for use by the regulators.

5.4.78. The Applicant submits that the best local and regional information for considering climate change impacts is UK Climate Projections 2018 (UKCP18), which regulators such as the Environment Agency (EA) and the ONR endorse as Relevant Good Practice. The Applicant has used UKCP18 data accordingly and specifically the most conservative scenario within it (RCP8.5) as input data to underpin the protection of the power station. The IPCC report does not constitute an evidence base that outweighs that supported by the EA and ONR.

5.4.79. Furthermore, the Applicant's approach to rely on the ONR for matters relating to the site licence process is in accordance with EN-6, paragraph 2.7.3, which states that the Planning Inspectorate "*should not duplicate the consideration of matters that are within the remit of the Nuclear Regulators*". Paragraph 2.7.4 confirms that this includes the site licensing process.

Reactor design

5.4.80. The Introduction to the ES Chapter 4 Project Evolution and Alternatives [APP-175], states that the UK EPR™ reactor is proposed for Sizewell C. This reactor has completed the UK GDA process with the award of a Design Acceptance Confirmation from the ONR and a Statement of Design Acceptability from the EA in December 2012. Therefore, no alternative designs for the nuclear reactor have been considered. The UK EPR™ reactor is the same reactor design as is being constructed at Hinkley Point C.

5.4.81. The EPR is an evolutionary design that has been demonstrated, through extensive studies, to be a design that meets, and generally exceeds by some margin, all UK regulatory requirements. It is the only design to have completed the GDA process and to have gained permission to allow construction to start (at Hinkley Point C). That construction project has resulted in extensive design development and learning, in addition to that coming from international EPR projects, that will bring significant safety benefits in building the EPR design at Sizewell C. Given this additional safety benefit, and the fact the EPR design is sufficiently mature to easily adopt at Sizewell C, the alternative reactor technologies have not been considered for the site. The Applicant contends that the other viable large scale nuclear reactor designs that could be considered would be unlikely to provide significantly greater safety benefits than the EPR, although there would be significantly longer project gestation times and First of a Kind project risks. These latter points mean the project would take far longer to deliver the key benefits to the UK of power supply security and meeting climate change obligations.

The consideration of alternative reactor technologies for the site and the space between the sea to the east and the SSSI Sizewell Marshes to the west

5.4.82. The Applicant's DL8 response to ExQ3 AI.3.1 [REP8-116] in relation to the DL5 submission of Mr Bill Parker [REP5-191], refers to Section 1.16 of Written Submissions Responding to Actions Arising from ISH5: Landscape and Visual Impact and Design [REP5-117], where a response

to suggestions that the potential for use of alternative reactor designs should be considered as an important and relevant consideration has been provided.

- 5.4.83. The Applicant recognises that the Sizewell C site is considerably smaller than the Hinkley Point C site, but submits that this has not resulted in any layout compromises that affect nuclear safety. The layout, orientation and building spacing of the Nuclear Island and Conventional Island buildings has been maintained as the same as at Hinkley Point C. This means that all the hazards associated with the size and layout of the site are unchanged relative to Hinkley Point C. Although some safety-related support buildings have been moved relative to their locations on the Hinkley Point C site, their new positions at Sizewell C will not result in any detriment in relation to nuclear safety. It should also be noted that, since the design of safety significant systems remains the same as at Hinkley Point C, the fault studies also remain unchanged at Sizewell C.
- 5.4.84. The Applicant does not consider that the space between the sea to the east and the SSSI Sizewell Marshes to the west is too narrow to accommodate this specific nuclear power station design. It points to the following feedback from the Design Council: "*Extensive steps are being taken by the project team to carefully integrate the Sizewell C site into its historic, coastal setting. Overall, we think the proposal is being approached with great care and attention across architecture, engineering, landscape design and ecology.*" (Main Development Site Design and Access Statement Part 3 [REP5-075], epage 70).
- 5.4.85. Alternative energy sources and alternative sites were considered by Government in developing national policy and discounted including most recently in the preparation of revised draft NPS EN-1. The Applicant's position is that they do not need to be considered again in the determination of this application (see response to ExQ3 G.3.0 [REP8-116]).

The ExA's conclusions

The Strategic Selection for the Power Station site including the reliance placed upon EN-6 and the recent IPCC report

- 5.4.86. The Introduction to the ES Chapter 4 Project Evolution and Alternatives [APP-175], acknowledges that a number of decisions relating to the Proposed Development have been determined through other processes, policy, or legislation. The proposed siting of Sizewell C is set out in the NPS EN-6, and decisions relating to the reactor design have been completed through the UK GDA process. The Applicant has not therefore considered any alternatives in this regard.
- 5.4.87. The location of the proposed power station, and the approximate location of the TCA for the MDS, are indicated in plans appended to EN-6. The application site does not entirely coincide with the nominated site boundary. However, the main platform other than some minor boundary changes, and the majority of permanent development as proposed are contained within the nomination boundary. It is primarily construction

activities including the accommodation campus that are located within the wider application site boundary.

- 5.4.88. The nominated site boundary was one of a number of assumptions adopted for the purposes of concluding at a strategic level whether the nominated sites were potentially suitable for the development of a new nuclear power station. EN-6 specifically recognises that applications for development consent may also include land additional to the boundary of the listed site.
- 5.4.89. The Applicant has explained how the ES has given consideration to the siting and extent of construction areas outside of the nominated site boundary and provided further details as to why individual parts of the construction site are located close to the Main Platform, within the AONB and not in alternative locations. As the Applicant points out, the suitability in planning terms of the additional land outside the nomination site boundary falls to be considered through the application process.
- 5.4.90. The ExA considers that it was clearly anticipated at the time of undertaking the AoS and SSA that the nominated boundaries would not be definitive. This is evident from paragraphs 2.3.3 and 2.3.4 of EN-6 and C.8.117 (specifically in relation to Sizewell). We find the Applicant's approach to siting, including in respect of the land outside the nominated boundary, to be entirely consistent with EN-6.
- 5.4.91. As set out above, there has been criticism made by IPs of the reliance placed by the Applicant upon EN-6 and the selection of Sizewell C as a suitable site for new nuclear development. Professor Andrew Blowers [REP5-189] questioned the assumption that the site is not an issue since Sizewell is one of those sites listed in the NPS. He contends that the policy under EN-6 which lists sites identified as potentially suitable is out of date and under review and that changing circumstances such as the recent IPCC 6th Report indicate that Sizewell must be considered an unsuitable site [REP7-169].
- 5.4.92. In response to AI.1.3 [REP2-100], the Applicant rejects such criticisms and draws support from recent Government publications such as the Energy White Paper and the *Drax*⁸ judgements. The Applicant submits in the Planning Statement Update [REP2-043] that EN-1 and EN-6 continue to provide the appropriate policy tests and guidance for the examination and determination of new nuclear DCO.
- 5.4.93. The relevance of and weight to be attached to EN-6 is considered in detail in the Policy and Need section 5.19 of Chapter 5 of this Report. 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 Written Ministerial Statement and that significant weight should be attached to EN-6. The generic implications of climate change and the associated impact upon

⁸ R (ClientEarth) v. Secretary of State for Business, Energy and Industrial Strategy [2020] EWHC 1303 (Admin), [2021] EWCA Civ 43, paragraph 105

flood risk and coastal processes including climate change adaptation and resilience are considered further in sections 5.7, 5.8 and 5.11 of Chapter 5 of this Report.

- 5.4.94. The ExA has taken into account the concerns raised by IPs in relation to the proposed siting of Sizewell C. However, EN-6 Section 2.4, sets out the Government's assessment of alternatives and the need for the listed sites to be included in the NPS. EN-6 paragraph 2.5.4 states that: "*The Government does not believe that there are any alternative sites that meet the requirements of this NPS (see paragraph 2.4.3 above).*"
- 5.4.95. The Sizewell C site is identified by EN-6, as potentially suitable for the deployment of new nuclear power stations before the end of 2025. Notwithstanding the fact that it is no longer possible to deliver a nuclear power station by this date, the Government has subsequently confirmed⁹ that it considers those sites listed in EN-6 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.
- 5.4.96. The suitability of the site will also be assessed by the ONR as part of the site licensing process. EN-6, paragraph 2.7.3, states that the Planning Inspectorate "*should not duplicate the consideration of matters that are within the remit of the Nuclear Regulators*". Paragraph 2.7.4 confirms that this includes the site licensing process. Whilst IPs are critical of placing reliance upon the NSL process, the ExA considers the Applicant's approach to rely on the ONR for matters within the ONR's remit to be in accordance with EN-6. As indicated above, the ONR has already indicated its satisfaction in relation to two out of the three factors relevant to their assessment of site suitability.
- 5.4.97. The ExA considers that the fact that the Applicant has not considered an alternative site for the location of the proposed nuclear power station at Sizewell to be an entirely reasonable and proportionate approach. In reaching this conclusion, the ExA has borne in mind the policy requirement of EN-1 paragraph 5.9.10 relating to development proposed within nationally designated landscapes. The inclusion of land additional to the nominated site boundary is primarily for construction activities and such provision is anticipated by EN-6.

Alternative reactor technologies for the site, and the space between the sea to the east and the SSSI Sizewell Marshes to the west

- 5.4.98. Since the UK EPR™ reactor that is proposed for the Sizewell C reactor has already completed the UK GDA process with the award of a Design Acceptance Confirmation from the ONR, and a Statement of Design Acceptability from the EA, the ES has not considered any alternative designs for the nuclear reactor [APP-175].

⁹ BEIS 2018 Response to consultation on the Siting Criteria and Process for a new NPS on Nuclear Power

- 5.4.99. Many IPs have raised the issue of the reactor design and safety. Some have expressed a preference for the Small Modular Reactors being developed by Rolls Royce.
- 5.4.100. The Applicant's response to ExQ3 Al.3.1 [REP8-116] is relevant to this topic. Whilst other reactor designs have undergone GDA, the EPR is the only design to have completed the GDA process and to have gained permission to allow construction to start. The UK EPR™ reactor is the same reactor design as is being constructed at Hinkley Point C. The ExA notes that the construction project at Hinkley Point C has resulted in extensive design development and learning, in addition to that coming from international EPR projects. The ExA agrees that those learning and design developments are likely to result in consequential safety and timing benefits in building the EPR design at Sizewell C.
- 5.4.101. EN-6, paragraph 2.7.4, states that: "*Certain matters are for consideration of the Nuclear Regulators and the IPC should not duplicate the consideration of these matters itself. Such matters include the Generic Design Assessment (GDA)¹⁰ 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)¹¹."*
- 5.4.102. In the light of EN-6, paragraph 2.7.4, the ExA is content that the GDA, site licensing and environmental permitting processes clearly fall within the remit of the ONR. As explained in the ONR's WR, it is currently assessing the NSL application for the Proposed Development [REP2-160]. The ONR's response to ExQ1 Al.1.1 [REP2-159], confirms that no matters of concern have arisen in its dealings with Hinkley Point C that undermine their view that they should be able to grant a NSL for the Proposed Development by mid-2022.
- 5.4.103. In response to ExQ3 Al.3.1 [REP8-116] the Applicant acknowledges that the Sizewell C site is considerably smaller than the Hinkley Point C site, but submits that this has not resulted in any layout compromises that affect nuclear safety. The ExA notes that the layout, orientation and building spacing of the Nuclear Island and Conventional Island buildings

¹⁰ The purpose of the GDA is to provide a robust, transparent and independent review of the 'licensibility' of nuclear power station designs. This begins prior to the assessment of other site licensing and environmental permitting issues and before large capital commitments need to be made, thus reducing project risks and uncertainty associated with the regulatory processes.

<http://www.hse.gov.uk/newreactors>

¹¹ This includes matters arising from the reports by HM Chief Inspector of Nuclear Installations, Dr Mike Weightman, on the implications of the Japanese earthquake and tsunami for the UK nuclear industry. The interim report was published in May 2011. Dr Weightman has also confirmed that the ONR's advice on the SSA and NPS has not changed. Dr Weightman's report focuses on issues relevant to the nuclear licensing and regulatory regimes and are therefore primarily within the regulators' remit.

http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/nuclear.aspx

has been maintained as the same as at Hinkley Point C. The nuclear safety implications of the layout and spacing would fall within the remit of the ONR.

- 5.4.104. As regards the integration of the Proposed Development into this coastal setting, the Applicant draws support from the Design Council feedback. The ExA is satisfied that this specific nuclear power station design could physically be accommodated within the space between the sea to the east and the SSSI Sizewell Marshes to the west, and that does not in itself lead us to question the proposed EPR design. The generic implications of the siting within the space available, for example, in relation to landscape and visual impact, coastal geomorphology, will be considered where relevant and important under other sections of Chapter 5 of this Report.
- 5.4.105. Whilst the ExA have given serious consideration to the concerns raised by IPs in relation to the reactor design, and experiences elsewhere, we believe that the regulatory framework makes provision for appropriate safeguards in terms of reactor design. In the light of the overriding role of the Nuclear Regulators in such matters and the utilisation of this design at Hinkley Point C, the ExA does not consider that it was incumbent upon the Applicant to assess alternative reactor designs, and the ES approach is reasonable and proportionate in that respect.

Other technologies

- 5.4.106. A number of IPs draw attention to the advances made in renewable technologies, the reduction in the costs of these technologies and other associated improvements since the adoption of the NPSs. They submit that nuclear power is no longer required. They refer to the pace of technological improvements, and to the prospect of several alternate means of energy storage maturing to support the grid when generation from renewable sources cannot fully meet demand [REP2-200], [REP2-321].
- 5.4.107. However, as the Applicant points out in response to ExQ3 G.3.0 [REP8-116], alternative energy sources and alternative sites were considered by Government in developing national policy and discounted. In that respect, the ExA notes that the Energy White Paper has made a key commitment expressed as: "*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.*" The ExA concurs that alternative energy sources and technologies do not need to be considered again in the determination of this application.
- 5.4.108. The need for new nuclear power, and the weight to be attached to EN-1 and EN-6 is considered in detail in section 5.19 of Chapter 5 of this Report. The ExA does not find the Applicant's reliance upon EN-1 and EN-6 to be misplaced. In the light of the NPS background, the ExA does not consider that it was incumbent upon the Applicant to assess alternatives to the main site location, the type of reactor proposed, or other energy

generating technologies. We conclude that the ES approach is reasonable and proportionate in that respect.

The Consideration of Alternative Strategies for the Accommodation and Movement of Construction Workers and the Transportation of Freight

The submissions of IPs

Strategic alternatives for accommodation infrastructure

- 5.4.109. There is criticism raised by IPs of the site selection process that led to the proposal for the Eastbridge Lane site to accommodate a worker campus including by the Theberton and Eastbridge Parish Council [RR-1214] which states that justifications for selecting the single Eastbridge Lane site are poorly evidenced.
- 5.4.110. Stop Sizewell C and Theberton and Eastbridge Parish Council in section 6.3 of their WR [REP2-450] also make reference to alternative sites for the accommodation campus. They refer to the Boyer Sizewell C Accommodation Campus Review which concluded that the two Councils and the Applicant should discuss potential sites for an accommodation campus as part of a full and proper accommodation strategy. In conclusion, at paragraph 6.113.2, they submit that alternative sites for the proposed Campus have been suggested but justifications for selecting the single Eastbridge Lane site are poorly evidenced.

Strategic alternatives for the movement of freight – the Freight Management Strategy (FMS)

- 5.4.111. In response to Al.1.10 [REP2-192], Suffolk County Council (SCC) notes that with its change to the application, the Applicant has conceded that in its view, an increased proportion of rail and sea-borne, from 40% in the original submission to 60% in the changed application could be achieved. However, SCC was not satisfied at that time that the increased proportion set in the change application (60% by rail and sea) was the upper limit that could be achieved.
- 5.4.112. In response to ExQ2 AL.2.0 [REP7-163], SCC accepts that it would be unreasonable to have a requirement for a higher proportion of sea-borne transport, but would expect an aspiration in the Construction Traffic Management Plan (CTMP) for the Applicant to fully investigate and implement a maximisation of sea borne transport where possible paying due regard to relevant considerations and impacts.
- 5.4.113. SCC's response at DL8 [REP8-179] welcomes the Applicant's commitment, and further discussion. SCC considers that there should be an aspiration to maximise transporting materials by sea and rail, whilst taking into consideration the wider issues that the Applicant has identified including environmental, and feasibility. The FMS was not identified by SCC as an outstanding area of disagreement in the Final SoCG with the Applicant [REP10-102].

The Applicant's response

Strategic alternatives for accommodation infrastructure

- 5.4.114. The ES Chapter 4 Project Evolution and Alternatives paragraph 4.3.15 [APP-175] indicates that at a strategic level, the Applicant considered the principle of providing a single or multiple campuses, and whether the campus(es) should be within the MDS boundary or remote from it. The Applicant identified at an early stage of consultation, supported by evidence from contractors at Hinkley Point C, along with experience on Hinkley Point B and Sizewell B, that a single campus within walking distance of the main site would be beneficial for a number of reasons that are set out in that Chapter.
- 5.4.115. Having established the principle of a single campus near the MDS, the search area for potential sites was defined to the north by Theberton, and to the south by Leiston. Sites further afield were scoped out because they would not deliver the advantages of a close to site accommodation campus in terms of convenience for workers, efficiency of operation and significant benefits in terms of limiting traffic impacts on local communities. At Stage 1 consultation SZC Co. identified three possible sites within this area for the proposed campus, one adjacent to the main development site and two alternative near-site options. At Stage 2 consultation the former was confirmed as the preferred location. The site selection process in relation to this decision is explained at Volume 2, Chapter 6 of the ES along with the evolution of its design [APP-190].
- 5.4.116. In response to ExQ1 A1.1.8, the Applicant indicates that the choice of the MDS campus, rather than one or more off-site campuses, was the outcome of a robust site selection process. This included consideration of engineering and operational considerations, environment, transport, community, land interests, land use and planning strategy and policy. Appendix 5B: Campus Site Selection Technical Note [REP2-108] sets out the full site selection process. In particular, Chapter 7 of the Campus Technical Note sets out "*Post Stage 1 Preferred Site Selection*" while Appendix 3 to the Campus Technical Note provides detail on each of the considerations listed above. The Technical Note concludes that its site selection process has been sufficiently robust to fulfil the requirements for the consideration of "*alternatives*".

Strategic alternatives for the movement of people and freight

- 5.4.117. A range of approaches for the movement of people located away from the campus during the construction period were identified at Stage 1 consultation. The ES Chapter 4 paragraph 4.3.45 [APP-175], explains that the final proposed strategy for the transportation of the workforce has retained the overarching principles established at the first stages of consultation, namely, an on-site accommodation campus and caravan site at LEEIE, provision of direct buses, constrained car parking and promotion of walking and cycling and the principle of two park and ride facilities.
- 5.4.118. The Planning Statement – Final Update and Signposting Document [REP10-068] provides an update to Section 6.4: Transport Strategy. This explains that a Consolidated Transport Assessment has been updated

[REP4-005] and revised Construction Worker Travel Plan and CTMP updated, agreed with SCC, and appended to the Deed of Obligation (DoO) [REP10-082].

- 5.4.119. The ES Chapter 4, paragraph 4.3.69 [APP-175], points out that there is a clear preference in EN-1 and EN-6 for rail over road for the movement of materials needed during construction. Since Stage 4 Consultation, the Applicant has undertaken further analysis and has considered the potential advantages of the Integrated Strategy over the road-led Strategy. It concluded that the Integrated Strategy provides an appropriate strategy to move materials for the construction of the Proposed Development.
- 5.4.120. Following acceptance of the application, the Applicant submitted proposed changes which included amongst other things a change to the freight transport strategy which was accepted by the ExA [PD-013]. The Applicant's response to ExQ1 Al.1.10 [REP2-100], indicates that the position in relation to the potential for increased rail and sea-borne capacity is set out in Part 1 of the Proposed Changes to the application [AS-281], particularly from paragraphs 2.2.1–2.2.65. In addition, the Applicant's responses to questions Al.1.11-13 [REP2-100] explain why a temporary Beach Landing Facility (BLF) is considered appropriate where an earlier proposal for a jetty was not. Furthermore, the Applicant's responses to ExQ1 TT.1.3 and TT.1.5 explain the deliverability of the rail capacity proposals.
- 5.4.121. The Planning Statement – Final Update and Signposting Document [REP10-068] provides an update to Section 6.5: Freight Management Strategy. It confirms that the application was amended through a change to it (Change 2) submitted in January 2021 to include a new temporary BLF for the importation of bulk materials; now called the temporary Marine Bulk Import Facility (MBIF). At the same time (Change 1), the application was amended to enable four trains per day (with the theoretical potential for 5), rather than three trains per day assumed in the submitted application [AS-281] at page 17.
- 5.4.122. Close scrutiny of the potential for both marine and rail capacity took place in response to engagement with stakeholders and continuing design development. As a result, the freight management option which involves the use of four trains per day for up to six days per week, in combination with a second, temporary BLF for bulk materials assumed to be operating at 70% of its campaign capacity and with HGV traffic taking c.40% of materials volume is now the Applicant's preferred freight management option (see the Freight Management Strategy [AS-280], section 4).

The ExA's conclusions

Strategic alternatives for accommodation infrastructure

- 5.4.123. The ES Chapter 4 Project Evolution and Alternatives, paragraph 4.3.15 [APP-175] explains the strategic level consideration of provision for the accommodation of workers and the various alternative strategies. The

ExA finds no reason to disagree with the conclusion reached that the provision of a single main campus within walking distance of the main site would be beneficial compared to multiple campuses or a campus more remote from the MDS.

- 5.4.124. As regards the criticism by IPs of the site selection process that led to proposal for the accommodation campus to be sited at Eastbridge Lane, the Applicant's Appendix 5B: Campus Technical Note [REP2-108] is relevant. It sets out the approach it has taken to site selection for the accommodation campus for the Proposed Development, including details of alternative sites considered, reasons why they were discounted and why the Accommodation Campus has been chosen as the preferred site.
- 5.4.125. The Applicant has reviewed the Boyer/ Cannon report and submits that it does not identify any better sites for that purpose. The ExA concurs with that conclusion, and we are satisfied that the selection process has been robust both in terms of amount of technical data gathered for decision-making purposes, the number of sites considered and the consultation process. We consider that the Applicant has carried out a proportionate assessment of all reasonable alternatives, including all of the options contained in the Boyer/ Cannon report commissioned by SCC.
- 5.4.126. The proposed arrangements for the accommodation of construction workers is also discussed in section 5.21 of Chapter 5 of this Report. We conclude that there are no accommodation effects that would weigh for or against the Order being made. As regards the consideration of alternatives to the accommodation strategy, the ExA is satisfied that this aspect of the Proposed Development has been assessed as required by Regulation 14 of the EIA Regs, and the ES approach is reasonable and proportionate in that respect. There are no common law or policy requirements which demand further assessment of the strategy.

Strategic alternatives for the movement of people and freight

- 5.4.127. The ES Chapter 4 Project Evolution and Alternatives considers the appropriate strategies for the movement of people and freight. The final proposed strategy for the transportation of the workforce has retained an on-site accommodation campus and caravan site at LEEIE, provision of direct buses, constrained car parking and promotion of walking and cycling and the principle of two park and ride facilities.
- 5.4.128. The ES also concluded that the Integrated Strategy would provide an appropriate strategy to move materials for the construction of the Proposed Development. The Applicant's proposed changes to the application included amongst other things a change to the freight transport strategy which was accepted by the ExA [PD-013]. The Planning Statement – Final Update and Signposting Document [REP10-068] provides an update to Section 6.5: Freight Management Strategy (FMS) [AS-280].
- 5.4.129. In response to AL.2.0 [REP7-163], SCC accepts that it would be unreasonable to have a requirement for a higher proportion of sea-borne transport. The FMS was not identified by SCC as an outstanding area of

disagreement in the Final SoCG with the Applicant [REP10-102]. The Applicant's revised approach, following Changes 1 and 2, is considered in the Traffic and Transport Section 5.22 of Chapter 5 of this Report. The ExA concludes that this would be effective in meeting the preference for water borne and rail transport, and is better aligned to the emphasis in NPS EN-1 with respect to mode of freight movement.

- 5.4.130. The ExA is satisfied that alternatives to these aspects of the Proposed Development have been assessed as required by Regulation 14 of the EIA Regs and the Marine EIA Regs, Regulation 12, and the ES approach is reasonable and proportionate in that respect. There are no common law or policy requirements which demand further assessment of these strategies.

Main Development site - Crossing of the Sizewell Marshes SSSI:

The submissions of IPs

- 5.4.131. The Pre-submission consultations by the Applicant on the crossing of the SSSI included options that would have provided bridges or causeways. SCC, in common with other stakeholders, made clear that it preferred the proposals for a three span bridge across the remaining width of the SSSI (part having already been taken by the base for the construction of the power station). This was because its footprint on the remaining SSSI would be significantly smaller (in itself, less damaging) than that for a causeway and there was better light penetration beneath the bridge that would more effectively ensure the ecological linkage of important habitats either side of the structure.
- 5.4.132. SCC acknowledges that the Applicant has made important changes to the originally submitted SSSI crossing proposals, having changed the design from a causeway with culvert to a causeway and single span bridge design. The EA considers that the revised design has now reduced harm to acceptable levels, but that the alternative of a triple-span bridge would be preferable, as having less ecological impact and reduced SSSI land-take [REP7-090, Table 2.1, MDS_TE2], and that Natural England (NE) considers the revised proposal is a best alternative, albeit that there are potentially less damaging alternatives, including a triple-span bridge which would have the least impact ecologically on the SSSI [REP8-094, Summary Table, Items 48 and 49].
- 5.4.133. The Final Position Statement of SCC [REP10-210] records that an issue that has not been fully resolved is that a less intrusive SSSI crossing (of a triple-span bridge) would be preferable, albeit it welcomes the improved proposals recently put forward. Appendix A.1-4 provides a summary of the issues, the alternative option SCC seeks to be pursued, how this can be done, and where in the Examination Library the full information of SCC's stance can be found. SCC set out in its DL9 submission [REP9-034] the amendments required to the DCO to allow for the changes to occur. That submission also sets out that, in SCC's opinion, these changes could be achieved within the current DCO application, albeit elements including the change to the SSSI crossing would require a consultation on revised proposals by the Applicant. SCC

invites the ExA, and ultimately the Secretary of State, to carefully consider this suggestion.

- 5.4.134. SCC recommends to the ExA to consider further whether an alternative SSSI design, with its reduced SSSI land-take and ecological impact, should be pursued. As set out in [REP7-160], SCC accepts that such a change may require a further consultation and that, if there was a consultation on the removal of the SLR, these could be undertaken in parallel. Full information is set out in the Local Impact Report (LIR) [REP1-045], SCC WR [REP2-189]; Post-Hearing submission for ISH7 [REP5-178]; Post-Hearing submission for ISH5 [REP5-176]; and Changes to the DCO required to address key matters raised by SCC [REP9-034].

The Applicant's response

- 5.4.135. The Applicant submits that the Site Selection Report demonstrates the care that has been taken to limit impacts on the Sizewell Marshes SSSI and where habitat loss is not possible, to provide compensatory habitats. The position between the Applicant, East Suffolk Council (ESC), NE, and the EA is set out in the relevant final SoCGs submitted at DL10 [REP10-102, REP10-097 and REP10-094]. Whilst ESC agree that the single span SSSI crossing design is appropriate in the context of reasonable alternatives, this remains an area of disagreement with SCC [REP10-102]. The Applicant has made submissions in relation to this, and provided amended plans in support of its position [REP7-004, REP7-005, REP7-053], ISH7 written summaries or oral submissions [REP5-112], ISH10 written summaries of oral submissions [REP7-069], and bailey bridge note [REP8-119].

The ExA's conclusions

- 5.4.136. The Planning Statement, Appendix A - Site Selection Report [APP-591], sets out the site selection process for the Main Platform crossing of the Sizewell Marshes SSSI. The SSSI design was considered during the Examination and is discussed further in the Biodiversity and Ecology and Landscape and Visual sections 5.6 and 5.14 of this Report.
- 5.4.137. SCC puts forward an alternative design and seeks the adoption of its proposed change to the SSSI crossing to encompass a triple-span bridge. The Final Position Statement of SCC [REP10-210], Appendix A.1-4 provides a summary of the issues and explains how SCC considers this alternative option could be achieved. SCC acknowledges that the Applicant has made important changes to the originally submitted SSSI crossing proposals, having changed the design from a causeway with culvert to a causeway and single span bridge design. However, SCC requests the ExA to consider further their alternative proposal for the SSSI design. The SSSI crossing has been considered in sections 5.6 and 5.14 of Chapter 5 of this Report. The conclusions reached in relation to the landscape, visual and ecological effects of the SSSI crossing within those sections do not lead us to believe that further consideration of SCC's alternative proposal is necessary.

- 5.4.138. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA are content that Regulation 14 has been complied with by the Applicant, and the ES approach is reasonable and proportionate in that respect. There are no other common law or policy requirements which demand further consideration of alternatives to the proposed crossing of the Sizewell Marshes SSSI.

Main Development Site - Electrical connection to the National Grid substation:

The Submissions of IPs

- 5.4.139. SCC raises objection to the proposed use of pylons in the LIR [REP1-045]; WR including relevant Appendices [REP2-189]; SCC's response to the Applicant's comments on [REP2-189] [REP5-172, Page 60]; post hearing submission for ISH5 [REP5-176]; and proposed amendment to DCO wording in [REP9-034].
- 5.4.140. SCC considers that the Applicant has not made all reasonable endeavours in the consideration of alternatives in respect of proposals for the electrical connection between the turbine halls and the NGET (National Grid Electricity Transmission) substation. The proposed pylons and overhead lines substantially increase the adverse residual impacts of the Main Development Site, on the character and special qualities of the Suffolk Coast and Heaths AONB. SCC and its consultants AFRY consider that the use of Gas Insulated Lines (GIL) appears to be a viable, and significantly less impactful, alternative to pylons and overhead lines. It is noted that the Applicant raised a number of challenges in implementing GIL technology; however, SCC and its consultant consider, from the information available to them, that these do not appear insurmountable. SCC has provided in its submission a considerable level of technical detail to show how such a solution could be achieved.
- 5.4.141. SCC in its Final Position Statement [REP10-210] remains unpersuaded that there is an adequate justification for the use of pylons for the power export connection or that a less intrusive technical solution is not feasible. Appendix A.1-4 provides a summary of the issues, the alternative option SCC seeks to be pursued, how this can be done, and where in the Examination Library the full information of SCC's stance can be found. SCC considers that, if this and the other issues referred to below were resolved, the residual impacts of the development on the natural environment and the AONB could be substantially further reduced compared to the current proposals, so better safeguarding those environmental assets, and securing them for the longer term.
- 5.4.142. A GIL Connection would in SCC's view be, in principle, achievable within the parameters already assessed. SCC sets out in its DL9 submission [REP9-034] the amendments required to the DCO to allow for the changes to occur. SCC also submits that these changes could be achieved within the current DCO application, albeit elements would require a consultation on revised proposals by the Applicant. SCC invites the ExA, and ultimately the Secretary of State, to carefully consider this suggestion.

- 5.4.143. Melton Parish Council [REP2-367] also object to the proposal to install pylons at the Sizewell site. They suspect this is simply a cost saving measure and is not an unsolvable technical problem. It is unacceptable to erect any pylons here, and an alternative must be found.

The Applicant's response

- 5.4.144. The Applicant explains that it will be necessary to provide an electrical connection between the Proposed Development and a National Grid substation to export the electrical output of the power station. The Applicant has considered alternative methods of achieving this connection, including via different overhead line and pylon options, and exploring the possibility of undergrounding the electricity connection.
- 5.4.145. The Site Selection Report concludes that the Applicant has considered various alternative pylon schemes through consultation. The four-pylon option (Option 1) represents the most appropriate approach for the electrical connection between Sizewell C and the National Grid substation. The alternative option of undergrounding has been considered. This represents a significant safety and programme risk and would also involve further encroachment into the Sizewell Marshes SSSI and further habitat loss, for which no compensatory habitats have been developed.
- 5.4.146. In response to ExQ1 AI.1.35, the Applicant states that the use of GIL to connect to the National Grid substation was considered but would not be feasible at Sizewell C due to unacceptable impacts on the operability and security of the site. A Power Export Connection Technical Recommendation Report has been prepared, which looks at the feasibility of the three main design solutions: Underground Cable, GIL and Overhead Line. This is provided at Appendix 5E [REP2-108] and provides a more detailed assessment of the GIL solution. The recommendation of the report is to select an overhead line solution for power export.
- 5.4.147. In response to AI.1.36, the Applicant elaborates on the safety issues associated with GIL. The only underground solution that could achieve the required power ratings, meet requirements for inspection and maintenance access, and avoid the buildings and structures required within the Sizewell C site would be to install cables in dedicated galleries. However, detailed investigation has shown that there are no feasible options available to introduce additional galleries within the constraints of the site. It is also considered that the knock-on impacts on the environment would be unacceptable. Accommodating the gallery within the site could only be achieved by increasing the size of the main platform to the north, resulting in further loss of the Sizewell Marshes SSSI. In addition, the construction schedule would be prolonged by a significant period of time as there would still be insufficient space for all the excavations required to construct the gallery without halting or severely disrupting other construction activities. Furthermore, the reduced reliability of a cable connection introduces nuclear safety concerns, contradicting the need to ensure that risk is As Low As Reasonably Practicable (ALARP). Nuclear safety could be degraded compared to Hinkley Point C, which is not acceptable.

- 5.4.148. The underground cable option would result in additional permanent land take of the Sizewell Marshes SSSI. If the undergrounding solution were progressed, the net habitat loss would not be fully compensated for and this would increase the magnitude of effect on SSSI habitats to significant adverse. This would represent a conflict with paragraph 5.3.7 of NPS EN-1, which requires development, as a general principle, to aim to avoid significant harm to biodiversity.
- 5.4.149. Whilst ESC agree that there is no feasible route for GIL technology alternatives, this remains an area of disagreement with SCC [REP10-102]. The Applicant's position in relation to this is set out in the response to AI.1.36, the Power Export Connection Technical Recommendation Report, Appendix 5E [REP2-108], Comments on Councils' Local Impact Report [REP3-044], written summaries of oral submissions made at ISH5 [REP5-110], and its Comments on Earlier Deadlines, Subsequent Written Submissions to ISH11-14 and Comments on Responses to Change Request 19 [REP10-156].

The ExA's conclusions

- 5.4.150. The Planning Statement, Appendix A - Site Selection Report, Section 3.2 [APP-591], sets out the site selection process for the Main Platform and at 3.2 (b) the electrical connection to the National Grid substation.
- 5.4.151. SCC submits that the Applicant has not made all reasonable endeavours in consideration of alternatives in respect of proposals for the electrical connection between the turbine halls and the NGET substation. SCC and its consultants AFRY consider that the use of GIL appears to be a viable, and significantly less impactful, alternative to pylons and overhead lines. SCC therefore puts this forward as an alternative proposal to the use of pylons for the power export connection as set out in its Final Position Statement [REP10-210]. In SCC's view the GIL Connection would be in principle achievable within the parameters already assessed and that subject to technical confirmation, the DCO could simply be amended, with wording as proposed in [REP9-034].
- 5.4.152. In response, the Applicant has provided a more detailed assessment of the GIL solution [REP2-108]. The Power Export Connection Technical Recommendation Report looks at the feasibility of the three main design solutions: Underground Cable, GIL, and Overhead Line. The recommendation of the report is to select an overhead line solution for power export. The Applicant has provided further information in relation to the safety issues associated with GIL in response to AI.1.36 [REP2-100].
- 5.4.153. The ExA has carefully considered the SCC proposal for a change to the application, and the Draft DCO changes suggested to achieve that. However, we find the Applicant's detailed assessment as set out in the Power Export Connection Technical Recommendation Report and further information provided to be convincing. Having regard to the issues highlighted relating to safety, further loss of Sizewell Marshes SSSI, and delay to the construction programme, we do not consider that the

proposed underground solution including GIL represents a feasible alternative option.

- 5.4.154. The landscape and visual effects associated with the proposed overhead line including the AONB impact has been considered in section 5.14 of Chapter 5 of this Report. In reaching our conclusion on the AONB impact, we have had regard to EN-1 paragraph 5.9.10 which relates to development proposed within nationally designated landscapes. We are also satisfied that the policy requirements to consider alternatives in respect of the conservation of the natural beauty of the landscape in nationally designated landscapes (EN-1, para 4.4.2 and 5.9.10) and to consider undergrounding and guidelines for routing overhead lines have been met (EN-5, Section 2.8).
- 5.4.155. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA are content that Regulation 14 has been complied with by the Applicant, and the ES approach is reasonable and proportionate in that respect. There are no common law or policy requirements which demand further consideration of alternatives to the proposed electrical connection to the National Grid substation.

Main Development Site - Sizewell B relocated facilities

The submissions of IPs

- 5.4.156. The Applicant intends to provide 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. SCC questions whether there is a sufficient need for an outage car park for the Proposed Development in this location at Goose Hill, within the AONB, as this location would override policies set out in EN-1 and EN-6.
- 5.4.157. SCC particularly questions whether this meets the tests set out in EN-1 para 5.9.10, where SCC considers that it is not only the need for the whole development that needs to be assessed, but in this case the need to have two car parks in the AONB that are rarely, if ever, likely to be used simultaneously. It is accepted that there could be occasions on which this is needed, albeit infrequently. SCC contends that the occasions when both outage car parks would be needed simultaneously are likely to be extremely infrequent and when this does happen, other arrangements could be made for parking of staff, which do not require additional land-take within the AONB.
- 5.4.158. SCC asserts that there is no inconsistency in its position that it did not object to the use of Pillbox Field as a replacement outage car park for Sizewell B. It is recognised that there will be regular occasions when one car park is required for outages. What it finds unacceptable is the building over of part of the AONB for a purpose which may be very intermittently used. SCC's position is supported by, amongst others, the Suffolk Coast and Heaths AONB Partnership [REP7-230], TASC [REP7-253], Stop Sizewell C [REP7-227] and NE [REP7-144], the latter noting

that “SCC makes a very clear and compelling case for an alternative solution”.

- 5.4.159. SCC considers that the Draft DCO should be changed, to exclude the outage car parking [REP9-034]. SCC set out the amendments required to the Draft DCO to allow for the changes to occur. That submission also sets out that, in SCC’s opinion, these changes could be achieved within the current DCO application, albeit elements would require a consultation on revised proposals by the Applicant.
- 5.4.160. SCC in its Final Position Statement [REP10-210] remains unpersuaded that there is an adequate justification for amongst other things the provision of an outage car park in the AONB (and that shared use of the Sizewell B outage car park is not feasible). Appendix A.1-4 provides a summary of the issues, the alternative option SCC seeks to be pursued, how this can be done, and where in the Examination Library the full information of SCC’s stance can be found. SCC invites the ExA and ultimately the SoS, to carefully consider this suggestion.

The Applicant’s response

- 5.4.161. Two development areas within the existing Sizewell B station perimeter have been selected to accommodate the Sizewell B Relocated Facilities. The proposed locations provide an optimum location for maximising the use of existing built area within the Sizewell B station perimeter, whilst minimising interactions with critical site equipment. Hence, these locations were considered to best balance the requirements of Sizewell B Relocated Facilities, including safety, operational, environmental and programme considerations.
- 5.4.162. However, facilities for the relocation of parking for cars, coaches, contractor vehicles, cycles and motorcycles are also required. The parking areas to be relocated include parking for normal operation as well as outage conditions when demand is higher. Four options were developed which would meet the required number of spaces and which were considered to be technically achievable. Option 4 (chosen option) would make provision of a car park during normal operation at the Coronation Wood, requiring clearance of the existing trees, and a car park on Pillbox Field for use during outages only. Overall, the proposed Option 4 was considered to best match the balanced requirements of the project, including environmental and safety considerations, operational, cost, and programme considerations.
- 5.4.163. Whilst ESC agree that the appropriate site for the outage car park is at Goose Hill and the car park is appropriately sized and located, this remains an area of disagreement with SCC [REP10-102]. The Applicant’s position in relation to this is set out in response to ExQ1 [REP2-100], Comments on Councils’ LIR [REP3-044], Written submissions arising from ISH5 [REP5-110], ExQ2 L1.2.9 and L1.2.10 [REP7-053], Comments on responses to the ExA’s Second Written Questions [REP8-115], Comments on Earlier Deadlines, Subsequent Written Submissions to ISH11-14 and Comments on Responses to Change Request 19 [REP10-156].

The ExA's conclusions

- 5.4.164. The Planning Statement, Appendix A - Site Selection Report, Section 3.3 [APP-591], sets out the site selection process for the Sizewell B relocated facilities. As regards the outage car parks, the Applicant intends to provide 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 in the AONB.
- 5.4.165. SCC seeks an alternative solution to this provision and considers that the DCO should be changed, to exclude the outage car parking by its proposed amendment to DCO wording [REP9-034]). That position is supported by other IPs.
- 5.4.166. The Applicant's response to ExQ2 LI.2.9 [REP7-053] provides clarification as to the level of likelihood of two (or three) outages happening in parallel and the number of outage staff that would be involved and why a single outage car park would be inadequate. The Applicant has also explained in response to LI.2.10 why, if an outage clash occurs, clashes would continue until another forced or unplanned outage and how a decision to combine the outages would occur on a case-by-case basis.
- 5.4.167. The ExA notes that the objective of a forced outage is to safely bring the NSIP back online as soon as possible. We agree that relying on adequate temporary arrangements being in place off-site in a timely manner does not represent a realistic prospect. We also recognise that the outage car parking proposed by the Applicant falls entirely within the nominated site boundary for Sizewell C. The Applicant has explained in its DL10 response why the alternative approach to the proposed outage car park advocated by SCC to seek 'a permanent planning permission for occasional use' as an outage car park should be rejected [REP10-156]. The ExA is content that there is no reasonable alternative to the proposed on-site outage car parking.
- 5.4.168. The SCC proposal for a change to the application in this respect has also been considered in sections 5.14 of Chapter 5 of this Report. As 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). In reaching our conclusion on the AONB impact, the ExA has had regard to EN-1 paragraph 5.9.10 which relates to development proposed within nationally designated landscapes.
- 5.4.169. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA are content that Regulation 14 has been complied with by the Applicant, and the ES approach is reasonable and proportionate in that respect. There are no common law or policy requirements which demand further consideration of alternatives to the proposed outage car park at Goose Hill.

Main Development Site - Fen meadow compensation land:

The submissions of IPs

5.4.170. Sally Watts on behalf of Ms Dyball, Ms Hall and S R Whitwell & Co [REP2-425] suggest that mitigation should be delivered on land nearer to the MDS. The Applicant has been made aware of a potential alternative site of 4.8ha of bare meadow land, adjoining a tributary of the Pakenham Fen just north of Pakenham SSSI. This has recently been brought to the market and the land holding delivers on all the search criteria. They submit that the Applicant ought to consider purchasing it. There have been other suitable parcels of land that have come onto the market over recent years which could have delivered this Fen meadow mitigation in the Suffolk Coastal area. Her clients do not consider that a diligent search for reasonable alternative sites has been properly undertaken [REP5-246]. Further details are set out in the written submissions of oral case at the Compulsory Acquisition Hearing (CAH) [REP7-215].

The Applicant's response

5.4.171. Appendix 14C4 of Volume 2 of the ES [APP-258], explains that about 0.7ha of Fen meadow is being lost from the Sizewell Marshes SSSI in the MDS to provide the western edge of the Sizewell C platform. Fen meadow compensation areas have therefore been identified to facilitate the creation of new areas of Fen meadow habitats. A study was undertaken to identify potential sites for provision of Fen meadow habitat. Two sites were consulted upon at Stage 4: Site 1 is located to the south of Benhall. Site 2 is located to the east of Halesworth. The two sites have been identified as suitable because of their location within river valleys and proximity to other Fen meadow sites. There were no environmental considerations that distinguished the sites from each other and both sites have been included in the draft DCO submission for the compensatory habitat.

5.4.172. Following the consultation carried out in November to December 2020, the Applicant proposed a change to the application by the addition of the site at Pakenham for Fen meadow habitat creation. The reasons for proposing this change are principally as follows: further advice from NE recommends that, given the rarity of Fen meadow in the UK and the known difficulty of restoring Fen meadow habitat, a larger extent of land is required in order to provide confidence that there will be sufficient compensatory habitat; and the site has been identified as being potentially suitable for the creation of Fen meadow through a detailed site options appraisal and is considered to be particularly suitable. Whilst Pakenham is at some distance from the MDS, the site was selected for its particular suitability following an assessment of potential alternatives. The acceptance of that change request by the ExA [PD-013] has resulted in the inclusion of the additional site at Pakenham (Change 11).

5.4.173. In response to the ExA's query at CAH Part 1 regarding the consideration of alternatives to Pakenham, the Applicant confirmed that the Wood site selection reports (Wood, 2018 [REP4-007] and Wood, 2019 [APP-258]) address the evaluation of alternative sites. In response to points raised by Ms Watts on behalf of the landowners concerning the consideration of alternative sites on a wider geographical basis, it was clarified that there are two separate issues regarding consideration of alternative sites:

firstly, consideration of specific sites on which the Applicant could recreate the habitat itself under the terms of the draft DCO (undertaken by means of a site selection process), and secondly, the issue of the contingency provision set out in the Draft DoO [REP5-082] which provides funds for habitats on other sites in East Anglia if the habitat establishment works are not successful. In addition, an update was provided on the position, as stated at DL6 in the Fen Meadow Plan [REP6-026], which confirms that based on detailed studies, conditions can be created for the establishment of 4.73 ha of Fen meadow habitat and 1.76 ha of wet woodland at the Pakenham site.

- 5.4.174. The Applicant's letter of 24 September 2021 [REP8-001], amongst other things, outlines the finalised reductions to the Order Limits at the three Fen meadow sites (Pakenham, Halesworth and Benhall). The reductions at the Fen meadow sites have arisen as a result of further studies making it possible to identify the required land with greater certainty, and that the effective extent of the area for Fen meadow habitat remains unchanged. These changes to the Order Limits were accepted by the ExA [PD-056].

The ExA's conclusions

- 5.4.175. The Planning Statement, Appendix A - Site Selection Report, Section 3.9 [APP-591], sets out the site selection process for the Fen meadow compensation land. Further details on the site selection process are set out in Appendix 14C4 of Volume 2 of the ES [APP-258].
- 5.4.176. In relation to the site at Pakenham, objections were raised on behalf of those with an interest in the land in relation to the consideration of alternative sites for the provision of Fen Meadow. Sally Watts on behalf of Ms Dyball, Ms Hall and S R Whitwell & Co [REP2-425] suggests that mitigation should alternatively be delivered on land nearer to the MDS. She also drew attention to a potential alternative site of 4.8ha of bare meadow land, adjoining a tributary of the Pakenham Fen just north of Pakenham SSSI. She submits that a diligent search for reasonable alternative sites has not been properly undertaken [REP5-246].
- 5.4.177. The Applicant has confirmed that the Wood site selection reports (Wood, 2018 [REP4-007] and Wood, 2019 [APP-258]) address the evaluation of alternative sites [REP7-064]. The Applicant also provided a response to points raised by Sally Watts concerning the consideration of alternative sites on a wider geographical basis. In addition, the Draft Fen Meadow Plan [REP6-026], confirms that based on detailed studies, conditions can be created for the establishment of 4.73 ha of Fen meadow habitat and 1.76 ha of wet woodland at the Pakenham site.
- 5.4.178. The Applicant subsequently sought a reduction in the extent of compulsory acquisition (CA) powers sought in respect of the Fen meadow land at Pakenham, Halesworth and Benhall. The proposed reduction in the Order Limits at these locations was explained at the CAH Part 1 and set out in Appendix A to the Written Submissions Responding to Actions Arising from CAH Part 1 submitted at Deadline 7 [REP7-066]. The Applicant's letter of 24 September 2021 [REP8-001], amongst other

things, outlines the finalised reductions to the Order Limits at the three Fen meadow sites. These changes to the Order Limits have been subject to environmental and other relevant assessment as set out in the Fifth ES Addendum [REP8-072]. The ExA made a Procedural Decision to accept these proposed changes to the Order Limits [PD-056].

- 5.4.179. The consideration of alternatives for the Pakenham site in the context of CA powers has been considered in Chapter 8 of this Report. In the light of the Applicant's assessment of alternatives, we do not find that the distance of this proposed mitigation land at Pakenham from the MDS to be unreasonable and does not, in itself, preclude it from being used for this purpose. We conclude that all reasonable alternatives to CA for this land have been explored.
- 5.4.180. The ExA is content that the site selection process for Fen meadow compensation land undertaken by the Applicant has been robust and alternative sites have been appropriately evaluated and explored. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA is content that Regulation 14 has been complied with by the Applicant, and the ES approach is reasonable and proportionate in that respect.
- 5.4.181. The ExA have also considered the site selection process for the Fen Meadow compensation land in the light of the *Save Stonehenge* case. Although the use of other sites for this purpose have been suggested on behalf of the landowners, these suggestions are somewhat vague and undeveloped. They do not represent an "*obviously material consideration*" which must be taken into account. The ExA do not consider this aspect of the Proposed Development displays the "*exceptional circumstances*" identified by case law principles in relation to the consideration of alternatives. We do not find it necessary to consider the relative merits of the landowner's suggested alternative options compared to the Applicant's preferred option. There are no other common law or policy requirements which demand further consideration of alternatives to the Pakenham site.

Main Development Site - Marsh harrier habitat improvement area:

The submissions of IPs

- 5.4.182. At the CAH Part 2 representations were made on behalf of NJ Bacon Farms and Ward Farming Limited [REP7-216] objecting to the CA of land at Grange Farm, Westleton to provide a marsh harrier habitat improvement area. They put forward an alternative site at Theberton which they consider to be more suitable for that purpose.
- 5.4.183. Their ecologist has produced a comparison between the Westleton and Theberton sites based on various applicable criteria [REP7-171]. The land at Theberton is broadly similar in size to the land at Westleton, being over 50 ha, but is much closer to the marsh harrier nesting sites on the Minsmere SSSI, which lies adjacent to its easterly boundary.

- 5.4.184. The comparison is made using the criteria as listed in REP6-002 Appendix B, Section 4.2 'Selection of the proposed Westleton site'. Their ecologist concludes that the Theberton land is superior to the Westleton land when tested against the criteria that the Applicant has published, and the additional ecological criteria that have been developed based on the Applicant's submissions on marsh harrier ecology. They submit that the principle of including additional compensatory land for marsh harrier has already been included in the draft DCO and switching to an alternative parcel of land in the same general location, of the same area and of the same land use would create no new matters of principle and does not generate any new forms or scale of environmental impact. They assert that putting the documentation together for, and carrying out, any necessary public consultation would be straightforward because there are no new matters of principle and no new environmental impact.
- 5.4.185. They contend that there is a precedent for a decision selecting and securing land for HRA compensatory actions coming after a DCO Examination has closed and draw attention to the Hornsea Project Three DCO consent. It follows that the Applicant's concerns about any delays brought about by consideration of the Theberton alternative are not fatal to the process of the Secretary of State coming to a decision on the dDCO.

The Applicant's response

- 5.4.186. The Planning Statement, Appendix A - Site Selection Report, Section 3.10 [APP-591], sets out the site selection process for the marsh harrier habitat improvement area at Westleton, if required.
- 5.4.187. A total of three sites were identified within the Stage 4 consultation which fulfilled the criteria. Site 1 is shown on Plate 3.20 of the Site Selection Report. It has an area of 54.26ha and is located to the west of Westleton. Site 1 has been chosen because, if deemed to be required, it would best meet the criteria, including the existing land use and the ability of the land to be improved for foraging marsh harriers. Further details on alternative sites to the Westleton site that were considered are set out in the Site Selection Report.
- 5.4.188. At CAH1 Part 2 [REP7-065], the Applicant explained that the criteria used to select the marsh harrier habitat improvement area are set out in Appendix B of [REP6-002]. Three sites were identified and Westleton was selected as it is the most contiguous, entirely arable and there were substantially fewer public rights of way than at least one of the alternatives. The Applicant stated that the alternative site has only been put forward by the new landowner very recently. In terms of the approach to this alternative, the consideration of alternative sites does not occur in a vacuum and must be considered in light of three things: Firstly, relevant legal principles, secondly, by reference to relevant policy and guidance, and thirdly, by reference to the factual context.
- 5.4.189. The Applicant submits that the decision-maker should be guided in considering alternative proposals by whether there is a realistic prospect of the alternative delivering the same infrastructure capacity (including

energy security and climate change benefits) in the same timescale as the Proposed Development. It is necessary to consider whether the adoption of the alternative would have implications for the timing and certainty of the delivery of the new nuclear power station – a very important public interest objective. Finally, alternatives should wherever possible be identified before an application is made to allow for appropriate consultation and the development of a suitable evidence base in relation to any alternatives which are particularly relevant. Therefore, where an alternative is put forward by a third party, the decision-maker may place the onus on the person proposing the alternative to provide evidence of its suitability as such.

- 5.4.190. The Applicant contends [REP7-065] that any application to the Planning Inspectorate to change the scheme so as to provide the marsh harrier habitat improvement area on a new site, rather than using the Westleton site, would require an update to the EIA, the HRA, further consultation and engagement with IPs and time would be needed in order to go through all of those steps before deciding whether such an application should be made.

The ExA's conclusions

- 5.4.191. The proposed marsh harrier habitat improvement area at Westleton is considered in the HRA Chapter 6 of this Report. The ExA concludes that the Marsh Harrier Compensatory Habitat Area at Abbey Farm would be adequate in extent, feasible and appropriate to ensure the integrity of the National Site Network is maintained for marsh harrier of the Minsmere-Walberswick SPA and Ramsar. The provision of additional dry habitat for foraging marsh harrier on land at Westleton is not necessary to ensure the network of European sites is maintained for marsh harrier.
- 5.4.192. The ExA has also given consideration to alternatives in the context of CA in Chapter 8 of this Report. We conclude that in the light of our conclusion in Chapter 6 that it is not necessary for this land to be used to facilitate the Proposed Development and a case for the CA of this land cannot be made.
- 5.4.193. Should the SoS disagree with the ExA as to the need for the land at Westleton to provide an additional marsh harrier improvement area, he may wish to explore further this possible alternative site. However, given the timing of the suggested alternative of providing a new site at Therberton for this purpose, rather than using the Westleton site, this prospect was not able to be explored in any detail before the close of the Examination. The ExA considers that the adoption of such a change would require a number of steps to be taken including further consultation and engagement with IPs and consideration of compliance with applicable regulations. This is unlikely to be achievable without giving rise to significant delay to an infrastructure project of a type for which there is an urgent need, as discussed in section 5.19 of this Report. Nevertheless, it is a matter for the SoS as to whether in those circumstances, he would wish to consider other feasible alternative solutions to the use of the Westleton site.

- 5.4.194. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA is content that Regulation 14 has been complied with by the Applicant and the ES approach is reasonable and proportionate in that respect. There are no other common law or policy requirements which demand further consideration of alternatives to the proposed Marsh Harrier habitat improvement area at Westleton.

Associated Development - The Two Village Bypass (TVB)

The submissions of IPs

- 5.4.195. The representation of Farnham with Stratford St Andrew Parish Council [RR-0379] expresses concern as regards the route alignment for the bypass of Farnham and Stratford St Andrew villages.
- 5.4.196. There are also objections from a number of local residents including Ashtons Legal on behalf of Farnham Environment Residents and Neighbours (FERN) and others [RR-0108 to RR-0117]. Further details are set out in their WRs and response to ExQ1 submitted at DL2 [REP2-262 to REP2-272]. Their WR Part 9 Alternatives [REP2-271] addresses the Applicant's Alternatives and Design Evolution document and puts forward what they submit is a better alternative. They consider the benefits of going to the east of Foxburrow Wood, the effects on tourism on the western route including upon Friday Street Farm shop and café and Mollett's Farm, and provide a response to the Applicant's review of their alternative.
- 5.4.197. The DL5 submissions of FERN [REP5-197 to REP5-199], amongst other things rebuts the suggestion that the gap between Foxburrow Wood and Palant's Grove is not wide enough to accommodate the alternative route being over 100m wide.
- 5.4.198. In response to Al.2.3 [REP7-185], Farnham with Stratford St Andrew Parish Council state that they do not accept the Applicant's reasoning for the chosen route of the bypass. They believe the decision is primarily financial as their proposed route is slightly longer. They assert that Palant's Grove is not designated Ancient Woodland and there is therefore no reason why the new road cannot go through it. In addition, fourteen properties would be affected by the proposed route, some of them significantly whereas the Parish Council's proposed route would only affect three properties, and only one significantly. If the Applicant does not change their route then there must at least be mitigation for the affected properties in the way of quiet road surfacing, additional bunds, and mature planting. They support the submission put forward for DL6 by Mollett's Partnership, trading as Mollett's Farm [REP6-066] and point the ExA towards the High Court decision on the A303 Stonehenge tunnel, as Mollett's Farm have non-designated heritage assets.
- 5.4.199. The Mollett's Partnership DL6 submission highlights the impact that the proposed TVB route would have upon their business which has been created to target tourism. They also refer to the *Save Stonehenge* case and confirm that at Mollett's Farm's they have non-designated heritage assets, as confirmed by their own Heritage Assessment [REP2-380]) and

the Heritage Impact Assessment [REP2-264] submitted by FERN. They ask that, in the light of the *Save Stonehenge* case, the ExA pay particular regard to the special aspects of their situation at Mollett's Farm and do not accept the latest version of the draft DCO as acceptable, specifically as regards Mollett's Farm but more generally as regards the landscape impact of the DCO alignment and the unsatisfactory arrangements for public rights of way and private means of access.

- 5.4.200. At DL7 FERN submitted 'Supporting information on the Alternative Route for the 2VB' [REP7-184]. They draw the ExA's attention to the very positive reception the Inspector's Report gave in 1995 when weighing up the benefits of the Option 14 route which is the same route adopted and proposed by the Parish Council of Farnham and Stratford St. Andrews, supported by FERN and local residents in previous representations to the Examination. The conclusions in the Inspector's Report hold true today.
- 5.4.201. SCC stated in its DL3 "*Responses to any further information requested by the ExA*" [REP3-081] that the woodland linking Foxburrow Wood with Palant's Grove is defined as a County Wildlife Site (CWS) and that this CWS woodland that joins the larger parts of the Ancient Woodlands either side "*remains important for its ecological functioning*" (epage 2). The removal of this central neck of Foxburrow Wood CWS would therefore fragment the CWS and sever the ecological connectivity of the ancient woodlands on either side, resulting in direct avoidable harm to the biodiversity of the CWS and indirect wider harm.

The Applicant's response

- 5.4.202. The Planning Statement, Appendix A - Site Selection Report, section 6 [APP-591], sets out the site selection process for the TVB. Paragraph 6.4.70, notes that Farnham with Stratford St Andrew Parish Council objected to the proposed alignment of the TVB at the Stage 3 consultation, and suggested an alternative route. Paragraph 6.4.71 indicates that the alternative alignment put forward by the Parish Council proposes routing the TVB (travelling from west to east) 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. The reasons for rejection of that proposal are set out in subsequent paragraphs.
- 5.4.203. The Applicant has prepared a summary document which brings together a number of issues relating to the history of and selection of the TVB, namely, the Two Village Bypass Summary Paper Appendix 5C [REP2-108]). The route selected by the Applicant is comparable with the preferred route options historically promoted by the Highways Agency (now National Highways), preferred by an independent public inquiry and, more recently, preferred in studies undertaken on behalf of the County Council. The Summary Paper sets out the Stage 1-4 Consultation process at paragraphs 2.3.1 to 2.3.29 and considers at section 3 why the TVB route is an appropriate route. The Parish Council's alternative alignment is discussed at paragraphs 3.1.7 to 3.1.25. The document concludes, at paragraph 3.1.26, that the proposed TVB in the application

is considered to be the most effective option in overcoming the safety and congestion issues related to the narrow bend at Farnham, whilst also diverting traffic (existing traffic and construction traffic associated with the Proposed Development) around Farnham and Stratford St Andrew, thereby transforming the amenity of the villages.

- 5.4.204. In response to ExQ1 A1.1.16, the Applicant states that the proposed TVB alignment has been selected to minimise its impact on residential properties and sensitive receptors, whilst providing an effective bypass of Farnham and Stratford St. Andrew. The route selected was assessed to have the least environmental effects. For instance, an alternative alignment further from Farnham and Stratford St Andrew would inevitably extend further into countryside and impact on woodland at Palant's Grove, whilst increasing journey times and reducing or negating the effectiveness of the road as a bypass. The Applicant's proposal for the bypass to run to the north of Foxburrow Wood obviates that impact. In doing so, the proposal also involves a smaller land take than the Parish Council's suggestion and provides an effective bypass which offers a clear benefit to traffic compared with remaining on the existing A12. In this respect, the draft DCO alignment accords with the lessons learned from previous bypass proposals.
- 5.4.205. The Applicant acknowledges that a consequence of the route is its relative proximity to properties at Farnham Hall. It has taken care in developing the route to respect the amenity of those properties. Where the proposed alignment passes to the east of the Farnham Hall properties, the route would be in cutting about 4.5m deep to reduce the environmental impacts on residents. Noise impacts at Farnham Hall have been carefully considered.
- 5.4.206. The Applicant submits that the proposed alignment of the TVB in the application would not prejudice the delivery of a longer, four village bypass in the future, but, based on the conclusions of previous studies, a more preferable solution may be for a separate bypass of Little Glemham and Marlesford to be brought forward in the future by SCC if deemed appropriate. The proposed TVB route has evolved as the detail has been developed, but it is fundamentally the same route as the preferred route in SCC's 2014 A12 Four Villages Study. This route (known as SB5), which bypassed the two villages of Farnham and Stratford St Andrew is shown at Plate 2.2 of the Two Village Bypass Summary Paper (Appendix 5C).
- 5.4.207. Similarly, the TVB Summary Paper explains that the Department for Transport's decision (December 2019) to reject the bid for Suffolk's Energy Gateway (SEGWay, 2017) scheme stated that alternative options "*such as a smaller two village bypass*" should be considered. Equally, SCC's 2006 study, as explained in the Summary Paper, also concluded that shorter interventions are preferable. The Applicant contends that the draft DCO proposal for a TVB would contribute significantly to the long term local objective for a four village bypass. Alternatively, separate bypasses for Little Glemham and Marlesford could be developed in the future.

- 5.4.208. In response to ExQ1 Al.1.18, the Applicant states that the Parish Council's alternative alignment would be considerably longer, diverting traffic well into the countryside, rather than providing a realistic bypass of the villages. The Parish Council's alternative alignment would be 2,860m in length compared to 2,380m for the DCO proposals, almost half a kilometre longer. The Parish Council's alternative alignment has not been designed in detail and, for instance, is not compliant with geometric standards. To address this at a high level the Applicant has prepared a geometric standards compliant schematic alignment version of the Parish Council's alternative to help understand the potential impact more closely (referred to as the revised alternative Parish Council alignment). A comparison of the Parish Council's alternative alignment, and the revised alternative Parish Council alignment are provided at Appendix A and Appendix B of the Two Village Bypass Summary Paper (Appendix 5C).
- 5.4.209. This reveals that the revised alternative Parish Council alignment would have significant effects on Friday Street Farm, as the alignment would sever more of the 'pick-your-own' fields from the Farm Shop and Café compared to the proposed alignment in the DCO submission. The Two Village Bypass Summary Paper at Appendix 5C explains in more detail the reasons why the Parish Council alignment is not considered to be a better solution.
- 5.4.210. The Applicant has used a strategic model to calculate the journey time on the existing A12 at Peak Construction (2028) through Farnham and Stratford St Andrew without the bypass. The TVB journey time is marginally faster than staying on the A12 through Farnham and Stratford St Andrew, assuming that there is no congestion at Farnham Bend. However, the bypass is clearly needed due to the safety and potential congestion concerns at Farnham Bend, as explained in response to ExQ1 Al.1.17. The Applicant submits that the revised alternative Parish Council alignment would be unlikely to provide the significant reduction in traffic flows that would come as a legacy benefit for these local communities with the draft DCO proposal. Further information on this topic is set out in response to ExQ1 Al.2.2.
- 5.4.211. The ExA's ExQ1 Al.1.19, requested the Applicant to provide in summary a comparison of the distance of the two routes from residential properties in the vicinity; the numbers of residences in the various locations; the anticipated noise impact upon those residents and any impact upon heritage assets. Comparison of distance and number of properties within 250m of the routes is provided in Chapter 3 of the Two Village Bypass Summary Paper, and Appendices C and D of the Summary Paper (Appendix 5C [REP2-108]).
- 5.4.212. This includes plans showing the proximity of the geometric standards compliant Parish Council alignment to properties along the whole route (including two properties at Walk Barn Farm), and plans showing the proximity of the TVB alignment (as proposed in the draft DCO) to properties along the whole route (including the properties at Farnham Hall). The plans show that the TVB alignment (as proposed in the draft

DCO) is about 83m from Farnham Hall Farm House (to the east of the bypass) and 135m from the nearest property at Farnham Hall (to the west of the bypass). The geometric standards compliant Parish Council alignment is some 21.6m from Walk Barn Farm.

- 5.4.213. The assessment of potential noise impacts from the TVB are set out in Volume 5, Chapter 4 of the ES [APP-415] and updated in Volume 1, Chapter 5 of the ES Addendum [AS-184]. There is no equivalent assessment for an alternative alignment.
- 5.4.214. The impact on heritage assets on the draft DCO alignment of the TVB is summarised in Table 9.5 of Volume 5, Chapter 9 of the ES (Terrestrial Historic Environment) [APP-432]. The table shows that no significant adverse effects are anticipated for any heritage assets during the construction phase and during the operational phase. The Parish Council alignment would pass close to the Grade II listed Hill Farmhouse and Pond Barn, which is a non-designated heritage asset considered in the ES, on a raised embankment. The Applicant submits that it would be likely to give rise to significant adverse effects through change to the setting of these heritage assets. Other effects arising through change to setting would be of a limited magnitude broadly comparable to those set out in the submitted ES.
- 5.4.215. Chapter 3 of the TVB Summary Paper, and Appendix C and D of the Summary Paper (Appendix 5C [REP2-108]), include plans showing the proximity of the geometric standards compliant Parish Council alignment to Friday Street Farm, and plans showing the proximity of the TVB alignment (as proposed in the draft DCO) to Friday Street Farm. These plans show that the Parish Council's alternative alignment would pass closer to Friday Street Farm to the west, requiring a larger land-take and having a greater impact on agricultural severance. It would be immediately adjacent to the pick-your-own fruit polytunnels to the south of the farm, and would sever a greater extent of the fields to the west of the car park from the farm. The proposed TVB alignment in the draft DCO would be further from the fruit polytunnels and retain more of the fields to the west within access of the farm complex, without needing to cross the bypass.
- 5.4.216. The Applicant's response to AI.1.22 (i), sets out the perceived difficulties in maintaining a 15m buffer to Foxburrow Wood with the Parish Council alignment. The Parish Council's alternative would pass between the two ancient woodlands of Palant's Grove and Foxburrow Wood and would result in a new road fragmenting Foxburrow Wood CWS. In comparison, the route proposed by the Applicant would avoid both these Ancient Woodlands in their entirety, and not result in their separation. It would also provide a 15m buffer to Foxburrow Wood and would not result in the loss of any CWS.
- 5.4.217. In response to AI.1.22 (ii), the Applicant explains that the central section of Palant's Grove woodland, was previously classified as Ancient Woodland but was de-classified by NE after the submission of the application. However, both Foxburrow Wood and the eastern section of

Palant's Grove remain designated Ancient Woodland. In addition, all of the woodland is a non-statutory designated CWS (Foxburrow Wood CWS).

- 5.4.218. In response to Al.1.22 (iii), in relation to the extent of the CWS that would be lost as a result of the alternative alignment, the Applicant states that the road itself, and the corridors either side of the road required to facilitate construction and operation of the road, would result in a permanent loss of about 1,834sqm of Foxburrow Wood CWS (assuming no earthworks would be required in the revised alternative Parish Council alignment).
- 5.4.219. The Applicant's response to Al.2.3 [REP7-050], is also relevant to the topic of the width of the gap between Foxburrow Wood and the eastern section of Palant's Grove and the comparative impact of the Parish Council's proposed route upon ancient woodland and the CWS.
- 5.4.220. In response to Al.2.4 [REP7-050], the Applicant states that, as explained in its Comments on Written Representations [REP3-042] (pages 67-69) Volume 5, Chapter 7 of the ES [APP-425], updated by Volume 1, Chapter 5 of the First ES Addendum [AS-184], as well as supplementary baseline information (as summarised in the ES Signposting Document [PDB-011]), provided information on the ecology baseline for the TVB and an assessment of Important Ecological features, in accordance with CIEEM guidance. The TVB site has been subject to a Phase 1 Habitat survey [APP-426], including external views of Nuttery Belt. An additional survey was undertaken in June 2021 [REP4-006] where Nuttery Belt was directly visited and surveyed. It was recorded to support mature and semi-mature ash and oak with dense groundflora dominated by cow parsley, nettle and ground ivy. The woodland is not considered to be ancient as explained at [REP6-002] (epage 11 and 12). The Applicant submits that more extensive access to the woodland would not have changed the evaluation of this feature in the ES or the conclusions of the ES in relation to woodland. The Applicant considers that the assessments presented in the ES and ES Addenda are robust.
- 5.4.221. The Applicant in 'Comments on Earlier Deadlines and Subsequent Written Submissions to CAH1 and ISH8-ISH10 [REP8-120], responds to the comments submitted by FERN (Farnham Environment Residents and Neighbours) at Deadline 7 [REP7-184] which draws on the 1995 Inspector's Report on the Highways Agency preferred option for a four village dual-carriageway bypass of Farnham, Stratford St Andrew, Little Glemham and Marlesford. In particular, FERN state: "*We would like to bring to ExA's attention the very positive reception the Inspectors Report gave in 1995 when weighing up the benefits of the Option 14 route.*" The Highways Agency's preferred route option in 1995 follows a similar route to the proposed TVB, which passes to the west of Foxburrow Wood. An alternative route was also discussed in 1995, alternative route 14, which passes to the east of Foxburrow Wood, which is similar to the alternative alignment that has been put forward by the Parish Council.

- 5.4.222. The Applicant states that FERN has misunderstood the structure of the Inspector's report and the passages quoted are from Section 7, which is citing the case made by objectors, not the Inspector's conclusions. The Highway Agency's comments on alternative route 14, and the Inspector's conclusions for rejecting alternative route 14, have been set out by the Applicant at [REP2-108] (epage 172 and 173). The Inspector's Report summarises the Highways Agency's concerns on alternative 14. The Report states at paragraph 74.19 that: "*It would be less safe than the [Highways Agency's preferred scheme], and was some 200m longer and operationally less attractive. The NPV was much reduced and would be marginal (£0.276m) at low growth. There would have to be substantial benefits to overcome these disadvantages, but in overall environmental terms [Alternative] 14 was worse than the proposed route. It should be rejected*". The Inspector considered all of the issues and at paragraph 10.7.44 states that: "*In my view, it is in the general public interest that a bypass should be provided, and that the line of the route should follow the one in the published scheme [the Highways Agency's preferred route].*"
- 5.4.223. The Applicant acknowledges that the Inspector does raise concerns in the 1995 Report with the Highways Agency's dual carriageway preferred route, particularly in terms of noise and landscape impact near Farnham Hall, although these concerns were not sufficient for the Inspector to prefer an alternative route. However, these concerns related to a dual carriageway four village bypass not a two village bypass that is a single carriageway which is proposed in the draft DCO. The Applicant has sought to reduce environmental impacts at Farnham Hall as the design of the bypass has progressed, including increasing the depth of the cutting of the TVB between Consultation Stages 3 and 4 to help screen the route in views and reduce environmental impacts at Farnham. It has also moved the alignment of the bypass slightly further south between Consultation Stages 2 and 3 to minimise impacts on Nuttery Belt as set out at [REP2-108] (epage 171).

The ExA's conclusions

- 5.4.224. The Planning Statement, Appendix A - Site Selection Report, section 6 [APP-591], sets out the site selection process for the TVB. Paragraph 6.4.70, notes that Farnham with Stratford St Andrew Parish Council objected to the proposed alignment of the TVB at the Stage 3 consultation, and suggested an alternative route. The reasons for rejection of that proposal are set out in subsequent paragraphs.
- 5.4.225. The Parish Council's alternative alignment has not been designed in detail and, for instance, is not compliant with geometric standards. However, the Applicant has sought to address this through the submission of the Two Village Bypass Summary Paper Appendix 5C [REP2-108]). The Applicant has also responded to the ExA's questions on this topic and the submissions made by FERN and Farnham with Stratford St Andrew Parish Council in response to ExQ1 Al.1.16, Al.1.18, Al.1.19, Al.1.21, Al.1.22, ExQ2 Al.2.3, Al.2.4, DL8 Comments on Responses to the ExA's ExQ2 -

Revision 1.0 [REP8-115], and 'Comments on Earlier Deadlines and Subsequent Written Submissions to CAH1 and ISH8-ISH10 [REP8-120].

- 5.4.226. The ExA has considered the site selection process for the TVB in the light of the *Save Stonehenge* case. Although an alternative route for this purpose has been suggested on behalf of the landowners and the Parish Council [REP2-271], this alternative does not for the greater part of the route coincide with the application site as shown on the Land Plans [APP-008].
- 5.4.227. The ES [APP-414] considered, and provided reasons for the rejection of the alternative route. During the course of the Examination, the Applicant has provided a summary document which brings together a number of issues relating to the history of and selection of the TVB, namely, the Two Village Bypass Summary Paper Appendix 5C [REP2-108]) and other supporting documentation. The ExA has considered the selection of the proposed TVB route in the light of the ES assessment and the historic information available including the 1995 Inspector's Report. We have also taken into account the evidence which has emerged in the course of the Examination.
- 5.4.228. The ExA has considered the generic impacts of the TVB in the Biodiversity and Ecology, Historic Environment, Landscape and Visual, Noise and Vibration, and Traffic and Transport sections 5.16, 5.13, 5.14, and 5.22 of Chapter 5 of this Report where we have identified various harms and benefits associated with the Applicant's proposed route and had regard to the mitigation proposed. We recognise in section 5.6 that purely in terms of ecology policy, the loss of the veteran trees could potentially be avoided through the adoption of an alternative route. However, that is only one of many factors to be considered. We do not find there to be clear planning objections to the Applicant's proposed route to the extent that the relative merits of the Parish Council's alternative route represents an obvious material consideration.
- 5.4.229. The ExA does not consider that this aspect of the Proposed Development displays the "*exceptional circumstances*" identified by case law principles in relation to the consideration of alternatives. It is not necessary to give further consideration to the relative merits of the suggested alternative option compared to the Applicant's preferred option. Nevertheless, based on the information provided to the Examination, and taking all relevant factors into account we are satisfied that the Applicant's proposed TVB route represents the most effective and satisfactory option.
- 5.4.230. The Applicant's general case for the consideration of alternatives in the context of CA powers which also includes the TVB land has been considered in Chapter 8 of this Report. This concludes that all reasonable alternatives to CA for this land have been explored.
- 5.4.231. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA is content that Regulation 14 has been complied with by the Applicant, and the ES approach is reasonable and proportionate in that respect. There are no other common law or policy

requirements which demand further consideration of alternatives to the proposed TVB.

Associated Development - The Sizewell Link Road (SLR) site selection:

The submissions of IPs

The Route selection

- 5.4.232. There have been numerous criticisms made by IPs of the Applicant's preferred route for the SLR. The Aldringham-cum-Thorpe Parish Council [RR-0019] is critical of the location of the SLR junction and submits that it is too far north for traffic from the south and does not provide the necessary relief to the existing road network further south.
- 5.4.233. The representation of Ward Farming Ltd [RR-1259] is critical of the process whereby the SLR route was selected. They make a number of points including in relation to the Aecom report commissioned by the Applicant.
- 5.4.234. The B1122 Action Group on Sizewell [REP2-224] submit that the proposed route of the SLR is unacceptable. Alternative routes exist, in particular potential routes starting from south of Saxmundham. Alternatives have been dismissed as options by the Applicant with no adequate reasons, insufficient evidence and contrary to the views of SCC as Highways Authority. They question whether the Applicant is able to provide evidence that there has been a thorough examination of all SLR options and that its favoured option (route Z) is the best in terms of its community impact and legacy value.
- 5.4.235. Stop Sizewell C [REP2-449a] also submit that the proposed route of the SLR is unacceptable and make similar points to those mentioned by the B1122 Action Group on Sizewell. Mandy Beaumont [REP10-323] and Mark Beaumont [REP10-330] provide reasons for suggesting that the Route W(S) (formerly D2) would provide a better option.

Permanent or Temporary for the duration of the construction period

- 5.4.236. SCC [RR-1174] submits that the SLR should not be permanent and instead be removed after the construction of the Proposed Development is completed for the reasons set out in paragraphs 40 and 41 of its representation. SCC submits that the retention of the SLR would cause a greater permanent residual landscape and ecological impact than a temporary solution, as well as resulting in permanent loss of agricultural land. Since there is no strategic transport case for permanent retention of the SLR the Council requests that the road be removed after the construction period. The same point is made by SCC at DL2 [REP2-188].
- 5.4.237. At DL9 SCC [REP9-034] acknowledged that no decision on the amendment of the draft DCO in this respect could be made until consultation has occurred. The Applicant has commented on SCC's proposals in its Comments on Earlier Deadlines and Subsequent Written Submissions to CAH1 and ISH8-ISH10 [REP8-120]. A common theme

throughout that document is the Applicant's reliance on paragraph 4.4.3 of NPS EN-1.

- 5.4.238. The idea of a temporary SLR was clearly identified by SCC before the application was submitted (see e.g. Joint response of Suffolk County Council and East Suffolk Council to EDF Energy's Stage 4 Public Consultation paragraph 239 onwards: September 2019) and in consultation with SCC, a proposal could quite easily have been worked up by the Applicant, with all its resources and expertise.
- 5.4.239. SCC expresses disappointment that there has been no consultation on the SLR proposal, despite SCC highlighting the point before and throughout the Examination and making practical suggestions to enable it at DL7. Nonetheless, the necessary consultation could be achieved prior to a decision being made on the current DCO.
- 5.4.240. In the DL10 Final Position Statement of SCC [REP10-210], they remain unpersuaded that there is an adequate justification for, amongst other things, the permanent retention of the SLR after the completion of construction. Appendix A.1-4 provides a summary of the issue, the alternative option SCC seeks to be pursued, how this can be done, and where in the Examination Library the full information of SCC's stance can be found. SCC set out in its DL9 submission [REP9-034] the amendments required to the DCO to allow for the changes to occur. SCC invites the ExA, and ultimately the SoS, to carefully consider this suggestion.
- 5.4.241. ESC recognises the legacy benefit in retaining the SLR in the context of the Sizewell A, B and C, but also in relation to other projects, such as the Greater Gabbard and Galloper offshore windfarms. (See the Joint LIR dated May 2021 [REP1-045].

The Applicant's response

- 5.4.242. The Site Selection Report, Section 7 [APP-591], presents a description of the site selection process which the Applicant undertook in relation to the proposed SLR. It explains the site requirements, the first filter stage, the second filter stage including Stages 1, 2, 3 and 4 consultation, and the draft DCO proposals before setting out its conclusions.
- 5.4.243. No direct link road from the A12 to the MDS was proposed in the Stage 1 or Stage 2 consultation. At Stage 2, consultation concerns were raised regarding the impact of construction traffic on the B1122. Following Stage 2 consultation, the Applicant considered two alternative strategies for freight transport; a road-led and a rail led strategy. It recognised that the environmental impacts from, in particular, noise, vibration and severance from the Sizewell C traffic on the B1122 would require mitigation under both those strategies. Therefore, as part of the design development process, two options were considered for the two strategies. Improvements at Theberton and Mill Street/B1122 junction improvements and the SLR.
- 5.4.244. Four routes and alignments (north, south) were considered to be potentially suitable, as shown in Plate 7.2, Section 7 of the Site Selection

Report. Route Z south proceeded as an option in the Stage 3 consultation. The Route Z south was presented at the Stage 3 consultation as the selected route. The other routes were included within the consultation reports as discounted considerations along with justification.

- 5.4.245. SCC and ESC welcomed the provision of a relief road for the B1122 at the Stage 3 consultation, but requested that the proposed route is supported by further evidence. However, they accepted that Route X and Y would have had significant impacts on residential areas in Kelsale and the north of Saxmundham. SCC as the Local Highways Authority requested that the Applicant revisit the southern route (route W) as a potential superior alternative route to the proposed northern route (route Z), with regards to transport benefits, legacy potential and scheme impacts, but required further evidence to conclude which of the two options was preferable.
- 5.4.246. Both rail and road-led freight management strategies were still being considered in Stage 4, and both the SLR and Theberton bypass were still being considered. However, an additional freight management strategy was proposed, the Integrated Strategy. The Integrated Strategy proposals included the use of SLR. At Stage 4, the Applicant also consulted on whether the SLR should be temporary so that it is removed, and the land restored once Sizewell C is operational.
- 5.4.247. A number of respondents to Stage 2 who were concerned by the impact of construction traffic on the B1122 suggested in their responses to consultation that "route D2" should be provided as part of the Applicant's proposals. At Stage 4, consultation preferences were also expressed for the D2 route as it was considered by respondents that this would provide more of a legacy benefit, it would provide a safer route for HGVs, cater better for HGVs coming from the south, and reduce amenity impacts to villages.
- 5.4.248. Route D2 (which is similar to Route W south) would have started on the A12 south of Saxmundham, and run east across the countryside before joining the B1122 near Lover's Lane. It was never progressed as part of the Sizewell B proposals, and was not shortlisted by the Applicant as a potential route for the SLR.
- 5.4.249. The possibility of constructing the route D2 road was considered by consultants on behalf of SCC in 2014 against smaller bypasses of Middleton Moor and Theberton. The Executive Summary of that 2014 report (Aecom Sizewell C, Route D2 and B1122 Study December 2014) concluded in respect of the D2 scheme that: "*[t]he main advantages of this route include improving the air quality and noise levels within Middleton Moor and Theberton by reducing traffic in the two villages. Of the three proposed routes and route combinations, it creates the least community visual impacts due to the location of the bypass not severing any villages. However, the route also has many disadvantages over the other two proposed options namely: large effects on biodiversity, moderate effects on landscape character, adverse effects on visual amenity, negative impacts upon heritage in the area, impacts upon the*

water environment, large community impacts and high construction costs."

- 5.4.250. Environmental protection standards have increased since the D2 route was proposed in the 1980s, and based on modern environmental protection standards, the route was considered to have large effects on biodiversity, moderate effects on landscape character, adverse effects on visual amenity, negative impacts upon heritage in the area, impacts upon the water environment, large community impacts and high construction costs. Consequently, the Applicant did not consider it to be a viable alternative to proposed Route Z south.
- 5.4.251. Route W was located to the south of Saxmundham where effects on local residents would have been minimised from the nearby village. The proposed alignment provided appropriate consideration to the Public Right of Way network and local road character, but it is likely that the necessary engineering works to traverse the landform would have had a significant adverse effect on the existing landscape character. The route would also have passed near to a number of existing heritage assets including Hurts Hall and Leiston Abbey. There was potential for the significance of several heritage assets to be affected adversely due to changes in their setting resulting from the route's alignment, and therefore this route was not considered suitable.
- 5.4.252. Following completion of Stage 4 consultation and review of the technical capability and consultation responses, the integrated freight management strategy was progressed for the DCO application. Therefore, the SLR is proposed rather than the Theberton Bypass. In the light of the comments received to the Stage 4 consultation, and as a result of further assessment, the Applicant continues to support and has refined the proposals for Route Z (south) as the proposed SLR. The SLR is proposed as a permanent development in the application due to the legacy benefits that it offers.
- 5.4.253. In conclusion, the Applicant's position is that section 7 of the Site Selection Report has assessed the alternative routes that have been considered in selecting the proposed route of the SLR. The most suitable route for a road linking the A12 to the Sizewell C power station is considered to be the proposed SLR.
- 5.4.254. The ExA's ExQ1 A1.1.27 points out that although the Site Selection Report Table 7.1 provides a comparison between various route options including those further to the south of the chosen route, the impact on traffic relief to the existing road network is not considered in this analysis. The initial need for the road to alleviate traffic impacts is identified in paragraph 7.4.10 but consequently the route options presented do not consider any traffic network analysis of the various route options and seeks the submission of this analysis to support the option appraisal of alternatives.
- 5.4.255. In response, the Applicant has prepared the Sizewell Link Road: Principle and Route Selection Paper (the Sizewell Link Road Paper Appendix 5D [REP2-108]), which brings together information on route selection and

related issues. This explains that the route selection exercise was closely informed by an understanding of environmental factors. This environmental information, and the reasons why Route Z south was chosen, can be found in paragraphs 3.2.36 to 3.2.59 of Volume 6, Chapter 3 of the ES [APP-450]. In terms of traffic management, Sizewell C HGV traffic will be on designated routes, and would be obliged to use any new road between the A12 and the MDS. Similarly, the park and ride strategy is to intercept car trips on the A12 and to consolidate workers onto buses. The park and ride and direct buses would be assigned to use any new road between the A12 and the MDS. The combination of the routing and signage strategy and the provision of a link road will protect the road network further south. Routes further south do not require additional protection. The route chosen for the link road also protects amenity interests further north.

- 5.4.256. The Sizewell Link Road Paper confirms that since the submission of the application, a further options appraisal, and further assessments (as set out in the AECOM 2021 Report at Appendix 11 of Appendix 5D [epage 341, REP2-108]), have been carried out on the Sizewell route options (Routes W, X, Y and Z) to test the robustness of the previous conclusion that the chosen route was the most suitable route. This confirms that Route Z South is the most appropriate route and alignment for the SLR. It minimises the effects on local residents, which is the main objective of the SLR. Furthermore, Route Z South has less impact on landscape and visual amenity than the alternatives, involves the least land take and avoids conflict with any Local Plan allocations. Route Z would not require substantial crossings of the River Fromus and Hundred River and is located primarily in Flood Zone 1. Due to its less complex engineering and construction, the route should offer the least risk in terms of delivery, which is itself important due to the need to provide relief to the B1122 communities and to provide an appropriate quality of access to the Applicant's construction site.
- 5.4.257. In response to A1.1.34, and the criticisms made by Ward Farming Ltd, the Applicant states that the AECOM report was commissioned by it in April 2019 to provide a peer review of the selection of the route for the SLR and the rationale in selecting it as a preferred option. AECOM was asked to undertake an independent selection process to provide an independent opinion of the preferred option for the SLR. This independent assessment concluded that Route Option Z scored the best against the assessment criteria and AECOM recommended the route as the preferred option from the four route options assessed.
- 5.4.258. In addition to the independent assessment by AECOM, the Applicant also commissioned LDA Design Consulting (LDA Design) to undertake an independent appraisal but focussing only on environmental considerations. The LDA Design assessment also concluded that the preferred option was Route Z (South). Further information on these independent reviews of the site selection process is set out at Chapter 4, paragraphs 4.1.23 to 4.1.37 of the Sizewell Link Road Paper (Appendix 5D) [REP2-108]. Following the submission of the application, the Applicant has undertaken further assessment and appraisal work on the

SLR options to ensure that the chosen route was the most appropriate route. This further work concludes that Route Z (the SLR) is the most appropriate route. This further work is summarised at Chapter 4, paragraphs 4.1.38 to 4.1.91 of the Sizewell Link Road Paper (Appendix 5D) [REP2-108].

- 5.4.259. In response to AI.1.30 [REP2-100], the Applicant explains why the SLR as proposed would be more effective at relieving HGV impacts on communities than Route W or any other route. The Sizewell Link Road Paper (Appendix 5D [REP2-108]) also explains that route W is no longer a feasible option due to its physical overlap with local plan allocations around Saxmundham. The Applicant's response to AI.1.31 is also relevant and submits that there is potential for the significance of several heritage assets to be affected adversely due to changes in their setting resulting from the Route W's alignment.
- 5.4.260. The Applicant's response to ExQ3 TT.3.0 [REP8-116] acknowledges that Route W is "*best placed of the options considered to intercept the Sizewell C HGVs from the south*". However, the Applicant explains that the route selection considered a number of criteria, and overall, the SLR (Route Z) is the most appropriate route.
- 5.4.261. In the Applicant's Written Summaries of Oral Submissions made at CAH 1 Part 1 [REP7-064] the Applicant commented that Route W is not a deliverable route, nor one that has been designed in any detail. It exists as a line on a plan dating from the 1980s and has not been worked up in more detail. The Applicant submits that it is not really an alternative at all for this reason but also because it now conflicts with planning policy land allocations and could not be delivered. The various assessments undertaken, also identify its significant disadvantages from environmental, landscape and other perspectives.
- 5.4.262. In the Applicant's Written Summaries of Oral Submissions made at CAH 1 Part 2 [REP7-065] in relation to the question of why Route Z was selected over Route W, it was noted that the suitability of alternatives had been assessed five or six times, and it has been consistently concluded that Route W would have a greater impact in terms of landscape and other issues than routes which parallel or immediately bypass the B1122.

The permanent retention of the SLR

- 5.4.263. The SLR is proposed to be a permanent road, rather than temporary. The Applicant considers that it would be preferable to avoid further disruption to local residents and the environment by removing the road, as this would extend the construction period. A permanent road will also leave an important legacy, as noted by the Councils in their Stage 4 consultation response, in that the road will remove traffic through the villages of Theberton, Middleton Moor and Yoxford, and will offer associated benefits on noise and air quality. There would be significant improvements on the B1122 in environmental and character terms. The SLR would also provide greater network resilience and a suitable long term access road to Sizewell A, B and C, for which access for significant

numbers of workers, equipment and materials will still be required during operation and regular outages (Sizewell Link Road Paper (Appendix 5D) [REP2-108]).

- 5.4.264. In response to AI.1.32, the Applicant explains that the removal of the SLR was included as an option within the Stage 4 consultation. The majority of the responses opposed the removal of the SLR. In the Councils' joint response to Stage 4, ESC raised concerns about the potential environmental impact of the removal of the road. ESC also raised concerns that the removal of the SLR would increase the duration of the construction phase of the Proposed Development. Further information on the consultation responses received on the retention of the SLR has been compiled to assist the Examination. This information is set out at Chapter 3, Section viii of the Sizewell Link Road Paper (Appendix 5D) [REP2-108].
- 5.4.265. This explains that as a response to the Stage 4 consultation, a decision was made to propose the SLR as a permanent facility, rather than temporary. Taking account of the views expressed through consultation and engagement, the Applicant considered that it would be preferable to avoid further disruption to local residents and the environment by removing the road and to leave it as a lasting legacy of the Proposed Development. The road also provides a long-term route to Sizewell C and Sizewell B, which would be of continuing benefit operationally.
- 5.4.266. In response to AI.1.33, and the SCC submission [RR-1174] that the SLR should not be permanent and instead be removed after the construction of the Proposed Development is completed, the Applicant points to the Councils' (SCC and ESC) joint response to Stage 4, in which ESC raised concerns about the potential environmental impact of the removal of the road. Retaining the SLR would result in a permanent reduction in traffic for communities along the B1122. The SLR would also be particularly beneficial when statutory outages, and forced/un-planned outages, occur in the operational stage of Sizewell B and C. This permanent reduction in traffic for communities along the B1122, as a result of the SLR, also offers other benefits, including sustained improvements in noise and air quality, particularly in Theberton. Further detail as to why the SLR should be retained for the operational phase, including how the SLR can help alleviate traffic from the B1122 during outages at Sizewell B and Sizewell C is set out at Chapter 3, Section viii of the Sizewell Link Road Paper (Appendix 5D) (paragraphs 3.1.131 to 3.1.134) [REP2-108].
- 5.4.267. The Applicant also explains that if the SLR was temporary, a significant amount of construction activity and traffic would be required to remove it. Its construction would require a large amount of construction material quantities, as set out in Volume 6, Chapter 2 (Description of Sizewell Link Road) of the ES [APP-446]. To construct the SLR, a large amount of material is proposed to be moved to the MDS. If the SLR was temporary, this material would have to be transported back to the SLR to reinstate the land to the original condition or sourced from elsewhere if that material had already been incorporated in site landscaping. It is estimated that to move just this material from the MDS to the SLR site to

reinstate the land would require 10,556 one way truck movements alone. This would be in addition to other construction traffic movements that would be needed for other works, including drainage and landscaping.

- 5.4.268. In conclusion, the Applicant submits that the removal of the SLR would require a significant amount of construction activity and would have environmental impacts. It would also negate the benefit that the road would bring to sensitive communities at Yoxford and on the B1122 and dent the community long term benefits of relief to and the potential enhancement of the B1122 as a local road with an emphasis on walking and cycling.
- 5.4.269. The SoCG between the Applicant and SCC records this as an outstanding matter of disagreement [REP10-102]. The Applicant also places reliance upon REP7-056, REP7-064, and REP8-327 in support of its position on this topic.
- 5.4.270. At the CAH Part 1 [REP7-064], the Applicant explained the benefits of retention of the SLR including that it would act as a bypass to the B1122 route which would provide relief to the B1122 communities and enable the B1122 to be a quiet rural road bringing forward the legacy benefits that the community have been seeking for a long time. In addition, it would not now be possible to simply change the SLR to a temporary road rather than a permanent one. A temporary haul road would not be appropriate given the scale and length of the construction period.
- 5.4.271. The Applicant also highlights the ambiguous and ill-defined nature of SCC's position on the SLR, in particular that it is still not clear whether SCC invites the ExA to recommend that the application for a DCO be refused on the basis of its proposed alternative. The application to be examined and determined is for a permanent SLR, and not a temporary one. It is, therefore, a matter for SCC to be clear in its submissions to the ExA as to how its suggested alternative should influence the SoS's decision on whether the Proposed Development should be approved.
- 5.4.272. The Applicant's position is that SCC's alternative could not be incorporated into the Order sought in the current application. A decision to authorise the SLR only on a temporary basis lies outside the scope of what the SoS could authorise in response to the application. If SCC's suggested alternative was to be delivered it would require a different Order. If SCC's position is that in fact their suggested alternative can be considered within the existing Order then it is expected that they will identify with sufficient detail all of the changes required to the application and the consequences of those changes in respect of environmental assessments, transport assessments, consultation and consequent delay and uncertainty for example. The Applicant does not consider that SCC's case in relation to its suggested alternative option is sufficiently developed for it to be treated as a serious alternative.

The ExA's conclusions

- 5.4.273. During the Examination, IPs raised objections both as to the proposed route of the SLR and in relation to its permanent retention. Support was

provided for alternative route W that was considered as part of the selection process. The permanent as opposed to the temporary retention of the SLR is recorded as an area of disagreement with SCC in the Final SoCG between the parties [REP10-102].

- 5.4.274. The Site Selection Report, Section 7 [APP-591] explains how the alternative routes were considered during the ES assessment process which the Applicant undertook in relation to the proposed SLR. The ES considered, and provided reasons for the rejection of the alternative routes. The Site Selection Report concludes that the most suitable route for a road linking the A12 to the Sizewell C power station is the proposed SLR.
- 5.4.275. During the course of the Examination, the Applicant has provided a summary document which brings together a number of issues relating to the history of and selection of the SLR namely, the Sizewell Link Road: Principle and Route Selection Paper Appendix 5D [REP2-108]), and other supporting documentation.
- 5.4.276. The SLR route has been thoroughly assessed and comparison made with alternative routes including Route W through the ES site selection process. This has taken into account a range of environmental factors. The ExA is also content that the Applicant has considered and taken into account the consultation responses in the final selection of Route Z (South).
- 5.4.277. The Sizewell Link Road Paper confirms that since the submission of the application, a further options appraisal, and further assessments (as set out in the AECOM 2021 Report at Appendix 11 of Appendix 5D [REP2-108]), have been carried out on the Sizewell route options (Routes W, X, Y and Z) to test the robustness of the previous conclusion that the chosen route was the most suitable route. This confirms that Route Z South is the most appropriate route and alignment for the SLR.
- 5.4.278. In addition to the independent assessment by AECOM, the Applicant also commissioned LDA Design to undertake an independent appraisal but focussing only on environmental considerations. The LDA Design assessment also concluded that the preferred option was Route Z (South). As the Applicant points out, the suitability of alternatives has been assessed five or six times, and it has been consistently concluded that Route W would have a greater impact in terms of landscape and other issues than routes which parallel or immediately bypass the B1122.
- 5.4.279. The ExA has considered the site selection process for the SLR in the light of the *Save Stonehenge* case, the historic information available, and the evidence which has emerged in the course of the Examination. Whilst we have had regard to the criticisms made of the route selection process by IPs, we find the Applicant's assessment to be robust. The Site Selection Report has thoroughly assessed the alternative routes that were considered in selecting the proposed route of the SLR. Taking all relevant factors into account, we are satisfied that the proposed SLR route represents the most satisfactory and least harmful option for a road

linking the A12 to the Sizewell C power station compared to the other alternative routes that have been suggested. Furthermore, we note that Route W has not been designed in any detail, and this alternative does not for the greater part of the route coincide with the application site as shown on the Land Plans [APP-008]. It is not necessary to give further consideration to the relative merits of the suggested alternative options compared to the Applicant's preferred option.

- 5.4.280. There has also been consideration of the generic impacts of the SLR in the Biodiversity and Ecology, Historic Environment, Landscape and Visual, Noise and Vibration and Traffic and Transport sections 5.6, 5.13, 5.14, and 5.22 of Chapter 5 of this Report. The ExA has identified various harms and benefits associated with the Applicant's proposed route and had regard to the mitigation proposed. We do not find there to be clear planning objections to the Applicant's proposed route to the extent that the relative merits of other alternative routes including Route W represents an obvious material consideration.
- 5.4.281. In section 5.22, the ExA comments that the route selection should have undertaken a fuller examination of the transport impacts over a wider area and full consideration should have been given to issues relating to vehicle mileage and journey time. However, that is not the only consideration relevant to route selection. Whilst that criticism is made in the context of traffic and transport management, looking at the route selection in the round, the ExA considers the proposed SLR to be the most appropriate route.
- 5.4.282. The question of whether the SLR should be permanent or temporary was also considered in the selection process and was consulted upon at Stage 4. The ExA notes that the majority of the responses opposed the removal of the SLR. ESC raised concerns about the potential environmental impact of the removal of the road and that this would increase the duration of the construction phase of the Proposed Development. In response to the Stage 4 consultation, the Applicant made a decision to propose the SLR as a permanent facility, rather than temporary.
- 5.4.283. During the Examination, the Applicant provided further details of the work involved in the creation and removal of the SLR. The ExA recognises that its removal and reinstatement of the land would require a significant amount of construction activity including additional lorry movements and would have environmental impacts.
- 5.4.284. The merits of these alternative courses of action for the operational phase have been considered in the Traffic and Transport section 5.22 of Chapter 5 of this Report. This concludes that on balance, there is a transport legacy value in the retention of the SLR. The ExA has had regard to all relevant factors including the further disruption that would be caused to local residents and the environment by removing the road, the continuing operational benefit that a long-term route to Sizewell C and Sizewell B would provide, and the associated community benefits. We conclude that the SLR should be retained on a permanent basis following completion of the construction phase.

- 5.4.285. The Applicant's general case for the exercise of CA powers in relation to the SLR land has been considered in Chapter 8 of this Report. In that context, the ExA concludes that all reasonable alternatives to CA for this land have been explored and that the purposes for which the CA powers are sought comply with section 122(2) PA2008.
- 5.4.286. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA are content that Regulation 14 has been complied with by the Applicant, and the ES approach is reasonable and proportionate in that respect. There are no other common law or policy requirements which demand further consideration of alternatives in relation to the proposed SLR.

Associated Development - The Northern Park and Ride (NPR):

The submissions of IPs

- 5.4.287. The WR of the Heveningham Hall Estate (HHE) [REP2-287] outlines its principal concerns in relation to the NPR which relate to first, the site selection and location for the NPR; secondly, the risks associated with increased use of Darsham level crossing; and thirdly, the size of the NPR.
- 5.4.288. They submit that the decision to locate the NPR at Darsham seems incongruous. The locations for the two park and rides forming part of the Proposed Development were chosen with the aim of "*intercepting construction workforce traffic at strategic locations to reduce traffic through the towns and villages closer to the main development site*". Out of a number of options the Applicant considered Darsham to be the best location for the NPR site from a transport perspective, as it offered the potential to reduce overall traffic movements by acting as a "*rail and bus interchange, as well as a car and bus interchange*". It was also regarded as the "*best option in terms of highway safety for access*". A location on the A12 for the NPR was also seen as the most suitable, as it would enable traffic to be intercepted on the network prior to reaching the B1122. Given the known highway risks associated with the existing level crossing, the high increase in Passenger Car Units and the fact no construction workers are now predicted to travel by train, the Applicant's decision to locate the NPR at Darsham does not add up.
- 5.4.289. HHE contend that the Applicant has not adequately justified its selection of Darsham as the location for the NPR. Better locations could and should have been identified. The Applicant used a gravity model to estimate the residential distribution of the peak construction workforce, as well as assumed car share ratios and shift patterns. This modelling informed the design of the NPR. However, issues have been identified which undermine the Applicant's conclusions regarding the size (not to mention the location) of the NPR.

The Applicant's response

- 5.4.290. The Site Selection Report, Section 4 [APP-591], presents a description of the site selection process which the Applicant undertook in relation to the proposed NPR. It explains the site requirements, the first filter stage, the

second filter stage, Stages 1, 2, 3 and 4 consultation, and the draft DCO proposals before setting out its conclusions.

- 5.4.291. The three alternative options that were consulted on for the NPR at the Stage 1 consultation were: Option 1 – Yoxford Road; Option 2 – Darsham; and Option 3 – A12/A144 Junction. Although the Applicant decided following Stage 1 consultation that Darsham (Option 2 at Stage 1) would be its preferred site, the A12/A144 site (Option 3 at Stage 1) was held in reserve, in case the Darsham site proved unsuitable in light of feedback from consultations or environmental, or technical considerations. The Yoxford site (Option 1 at Stage 1) was not progressed due to potential environmental impacts and lack of benefits.
- 5.4.292. At Stage 2, the majority of respondents agreed that Darsham was an appropriate site for this facility. However, some concerns were raised regarding access. SCDC and SCC raised concerns over the impact of the site on the adjacent residential properties. Some respondents were specifically concerned about the impact of the operating hours on the local residents. The Applicant considered that these potential effects could be limited through careful design. The Darsham site has the lowest impact on residential properties of the three sites that were initially considered.
- 5.4.293. Following Stage 2, the Applicant considered all comments received, and proposed a number of changes to the layout and access to the Darsham site to be put forward for Stage 3 consultation. A key change was to revise the access so that the site was accessed from the north rather than the south. The Applicant also tested a higher workforce for the purposes of its transport assessments in Stage 3 consultation. The previous transport assessments for Stage 1 and 2 used a workforce size of 5,600. For Stage 3 this was increased to 7,900. The Gravity Model indicated an additional 250 car parking spaces would be required increasing the car park from its previous size of 1,000 spaces. These additional spaces could be accommodated at the proposed Darsham site.
- 5.4.294. At Stage 4, the proposal remained broadly similar to those presented at Stage 3, with only minor design changes. Following the Stage 4 consultation, the Applicant continued to progress the Darsham site for the draft DCO submission, and conducted further EIA. The results of this EIA have not led the Applicant to reconsider the site selection.
- 5.4.295. The Site Selection Report concludes that the Applicant has assessed the alternative site options that have been considered in selecting the proposed NPR facility. The purpose of this assessment is to consider whether the site proposed is the most appropriate and suitable, or whether alternative sites ought to be preferred. The site at Darsham has emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed NPR.
- 5.4.296. The Applicant has provided responses to ExQ1 TT.1.102 [REP2-100] and ExQ3 TT.3.3 [REP8-116] in relation to the impact of the Proposed Development on the level crossing safety. The Applicant indicates that

discussions are ongoing with Network Rail regarding the level of increased risk at this crossing and whether an intervention is required. The Fourth ES Addendum [REP7-032] shows that there would be a negligible impact on pedestrian delay for pedestrians to cross the A12 at Darsham railway as a result of Sizewell C traffic. Therefore, the Applicant believes that this very largely reflects an existing issue but has nevertheless agreed to work with Network Rail. If funding was not secured as part of the Network Rail Control Period 7 settlement, other sources of funding would be investigated.

- 5.4.297. The position by the close of the Examination is set out in the Final SoCG with Network Rail [REP10-099]. In relation to the Darsham Level Crossing, 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. In the event that funding should not be secured, then the Applicant would be willing to discuss providing the balance of the funding to ensure that the works can be delivered to meet its programme.

The ExA's conclusions

- 5.4.298. The Site Selection Report, Section 4 [APP-591], presents a description of the site selection process which the Applicant undertook in relation to the proposed NPR and concludes that the Applicant has assessed the alternative site options that have been considered in selecting the proposed NPR facility.
- 5.4.299. During the Examination, IPs raised issues in relation to the NPR including the safety of the level crossing on the A12. The WR of HHE [REP2-287] outlines their principal concerns in relation to the NPR which include that the Applicant has not adequately justified its selection of Darsham as the location for the NPR and better locations could and should have been identified.
- 5.4.300. The Applicant has responded to the issues relating to the safety of the level crossing in ExQ1 TT.1.102 [REP2-100] and ExQ3 TT.3.3 [REP8-116]. The Fourth ES Addendum [REP7-032] indicates that the Applicant has agreed to work with Network Rail on this matter.
- 5.4.301. The position by the close of the Examination in relation to those discussions with Network Rail is set out in the Final SoCG with Network Rail [REP10-099]. This matter is discussed further in the Traffic and Transport section 5.22 of Chapter 5 of this Report. The ExA concludes that the SoS may wish to consult with both the Applicant and Network Rail with a view to establishing a position of certainty about the delivery of the required improvements. We explain the basis of the consultation considered to be necessary to ensure delivery of the required safety improvements at this level crossing.
- 5.4.302. The site at Darsham has emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed NPR. The ExA find no reason to disagree with the outcome of the ES selection process. For the purposes of the EIA Regs, and the required

consideration of alternatives, the ExA are content that Regulation 14 has been complied with by the Applicant and the ES approach is reasonable and proportionate in that respect. There are no other common law or policy requirements which demand further consideration of alternatives to the proposals relating to the NPR.

Associated Development - The Southern Park and Ride (SPR):

The submissions of IPs

- 5.4.303. Hacheston Parish Council [RR-0447] are opposed to the proposed location for the SPR and suggest that it should be situated further south on the A12 at Martlesham where an under-used Park and Ride exists. On the basis that one bus can replace up to 50 private cars, this location could remove hundreds of cars from the busiest section of the A12 around Woodbridge. They submit that the proposed site for the SPR is inappropriate. It is a rural setting, a special landscape between two protected river valleys. The SPR will be an industrial development of 26.4ha of parking, service buildings and dense lighting. The site is elevated, and it will be visible from many local properties in the area.
- 5.4.304. The representation of Great Glemham Parish Council [RR-0438], submits that the SPR facility should be situated alongside the FMF at Sevenhills to reduce pressure on Wickham Market.

The Applicant's response

- 5.4.305. The Site Selection Report, section 5 [APP-591] and Volume 8, Chapter 3 (Alternatives and Design Evolution) of the ES [APP-514] explain the site selection process for the SPR. This sets out the site requirements, the first filter stage, the second filter stage, Stages 1, 2, 3 and 4 consultation, and the draft DCO proposals before reaching its conclusions.
- 5.4.306. The options considered at Stage 1 were Option 1 (Wickham Market); Option 2 (Woodbridge) and Option 3 (Potash Corner). At Stage 1 consultation, Option 1 (Wickham Market) was generally supported by respondents, and became the preferred location for the SPR at Stage 2, with Option 3 (Woodbridge) held in reserve. Stage 2 feedback and further design studies helped to develop the proposed design, and confirm the suitability of the Wickham Market site as the Applicant's preferred option for the SPR location. There was sufficient confidence in the site, and its suitability that the site at Woodbridge was no longer required to be held in reserve. At Stage 3 the Wickham Market site continued to be the proposed site for the SPR. The Stage 3 feedback showed that there was continued support for a SPR as an appropriate way to capture traffic from the south. Following the Stage 4 consultation, the Applicant continued to progress the Wickham Market site for the draft DCO submission, and it conducted further EIA. A number of refinements to the design were made in response to the Stage 4 consultation comments received, and as a result of further environmental and technical assessments.

- 5.4.307. The Site Selection Report concludes that the site at Wickham Market has emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed SPR. The Proposed Development incorporates the site requirements, as well as the environmental mitigation required to be acceptable.
- 5.4.308. The ExQ1 A1.1.23 requested the Applicant to indicate whether consideration had been given to the specific alternative site at the existing park and ride site at Martlesham proposed by the Parish Council and, if so, the reasons for rejection. In response, the Applicant refers to its response to TT.1.103 [REP2-100] which seeks to explain why the use of the existing park and ride site at (or adjacent to) Martlesham was not considered as part of the assessment of alternatives. It states that it did not consider the existing Martlesham park and ride site a viable option for the SPR, particularly as only a small number of spaces would be available to the Applicant and therefore it would not be feasible for the needs of the Proposed Development.
- 5.4.309. In response to A1.1.24, the Applicant sought to explain further why Option 1 – Wickham Market was considered to be in the optimal position and why Options 2 and 3 were considered to have the potential to cause greater issues in terms of congestion, access and highway safety compared to Option 1. It indicates that prior to Stage 3 consultation, a review of travel times from areas west of the A12 to the northern and southern park and ride sites demonstrated that the potential impacts of locating the park and ride at either Woodbridge or Martlesham would not be preferable to Wickham Market. Therefore, moving the SPR further south to Woodbridge or Martlesham would not remove B1078 impacts and would increase impacts elsewhere (i.e. A1120 in Yoxford). The Applicant also explains further the traffic and highway safety advantages that would be associated with the Wickham Market site in comparison to the Option 2 site at Woodbridge and the Option 3 site at Potash Corner.
- 5.4.310. The Applicant's response to A1.1.25 confirms that it has not considered siting the SPR adjacent to the FMF, as it would require workers to make a circa 45 minute bus journey (an extra 20 minutes compared to that from Wickham Market) to site after driving to the park and ride site from their home location. For many workers, including those living in Ipswich, Woodbridge, and Framlingham, such a location would be a deviation from their most direct route to site adding time, costs and emissions to their journey. Only those living in Felixstowe would find such a location convenient. By contrast, the SPR at Wickham Market would intercept trips on their route to the MDS.

The ExA's conclusions

- 5.4.311. Hacheston Parish Council [RR-0447] are opposed to the proposed location and suggest that the SPR should be situated further south on the A12 at Martlesham where an under-used park and ride exists. The representation of Great Glemham Parish Council [RR-0438], submits that the SPR facility should be situated alongside the FMF at Sevenhills to reduce pressure on Wickham Market.

- 5.4.312. The Applicant has provided a response to the criticisms made in relation to the selection of the site at Wickham Market in ExQ1 Al.1.23, Al.1.24, Al.1.25, TT.1.103 [REP2-100]. The ExA agrees that the existing Martlesham park and ride site would not provide a viable option for the SPR, and that moving the SPR further south to Woodbridge or Martlesham would not provide a satisfactory alternative.
- 5.4.313. The Site Selection Report, Section 5 [APP-591], presents a description of the site selection process which the Applicant undertook in relation to the proposed SPR. The site at Wickham Market has emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed SPR. The ExA finds no reason to disagree with the outcome of the selection process.
- 5.4.314. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA are content that Regulation 14 has been complied with by the Applicant and the ES approach is reasonable and proportionate in that respect. There are no other common law or policy requirements which demand further consideration of alternatives to the proposals relating to the SPR.

Associated Development - Freight Management Facility (FMF):

The submissions of IPs

- 5.4.315. The representation of Highways England (now National Highways) [RR-0468] points out that the facility would be located to the east of the A14 Orwell Bridge which is susceptible to periods of disruption and closures to traffic during inclement weather. It seeks clarity around the proposed FMF location including whether viable alternative locations west of the A14 Orwell Bridge have been identified, and the criteria used to select the proposed location.

The Applicant's response

- 5.4.316. The Site Selection Report, section 8 [APP-591] and Volume 8, Chapter 3 (Alternatives and Design Evolution) of the ES [APP-514] explain the site selection process for the FMF. It presents a description of the site selection process which the Applicant undertook in relation to the proposed FMF. It explains the site requirements, the first filter stage, the second filter stage, Stages 1, 2, 3 and 4 consultation, and the draft DCO proposals before setting out its conclusions.
- 5.4.317. A number of sites were considered to be potentially suitable for a standalone FMF. These sites were presented as options at the Stage 1 consultation including the prospect of utilising the SPR site for this purpose. However, the Councils strongly supported a dedicated FMF site directly off the A14, as it would result in a reduced scale of development at the SPR.
- 5.4.318. Following Stage 1, the Applicant considered the comments received, and the findings from the initial preliminary environmental assessments. Whilst there was considerable support for a dedicated FMF, concerns had been raised regarding its potential location and environmental impact. At

Stage 2, the Applicant proposed that HGV deliveries and movements to and from the main development site could be effectively managed without the requirement for an external off-site FMF, or lorry park. Instead, the Applicant would adopt a number of measures to manage and control HGV movements to and from the main development site.

- 5.4.319. The Stage 2 feedback showed that there was significant support for a dedicated physical FMF, and therefore one was reinstated within the proposals for Stage 3 as part of the road-led or integrated freight management strategies. The Stage 3 consultation sought feedback on the following two potential sites for a FMF: Option 1 – Seven Hills; and Option 2 – Innocence Farm.
- 5.4.320. Following the completion of Stage 3, the Applicant undertook additional transport analysis on Option 1 (Seven Hills) and 2 (Innocence Farm) to address the comments received from stakeholders, including the Council. The Stage 4 consultation continued to consider the two sites that formed part of the Stage 3 consultation, Seven Hills, and Innocence Farm.
- 5.4.321. The site at Seven Hills emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed FMF. It was identified that Option 2 was more likely to generate a significant (albeit short term) noise effect (at one receptor) during both the construction and removal and reinstatement phases compared to Option 1. This contributed to the selection of Option 1 as the FMF in the application.
- 5.4.322. In responding to Al.1.15, TT.1.109 and TT.1.17, the Applicant sought to provide clarity around the proposed FMF location including whether viable alternative locations west of the A14 Orwell Bridge have been identified, and the criteria used to select the proposed location with regards to the proposed two functions of the FMF. The Applicant has needed to balance the requirements of the two functions of the FMF when selecting a preferred location. Given the primary day to day function of the FMF is to manage the release of HGVs onto the local highway network and undertake compliance checks, the FMF has been located at the start of the local highway network where the A14 and A12 meet and to the south of Martlesham and Woodbridge, which are known to suffer from localised congestion. Any further north towards Sizewell and the facility would be less effective in responding to sensitivities on the A12. The FMF is already over 40km away from the MDS and locating it even further away from the site (i.e. west of the Orwell Bridge) would impact on the operational ability of the facility to closely control HGV arrivals at the main development site.
- 5.4.323. The secondary function of the FMF, is to enable HGVs to be held in the event of an incident on the highway network, which forms part of the management measures included in the Traffic Incident Management Plan (TIMP) [APP-607]. The TIMP sets out the protocols to be followed by the Applicant and relevant stakeholders in the event of an incident on the highway network. The closure of the Orwell Bridge is just one of these scenarios. Orwell Bridge closure would only prevent inbound HGV traffic reaching the FMF. In the event of a bridge closure, the Applicant would

contact any deliveries enroute to the FMF through the Delivery Management System (DMS) and the drivers would be required to park and wait until the bridge is reopened before continuing their journey. Given the FMF is best placed for its primary function east of the Orwell Bridge, and the DMS controls the flow and movement of HGVs to the west of the Orwell Bridge, no alternatives west of the bridge were considered in detail.

The ExA's conclusions

- 5.4.324. The representation of Highways England [RR-0468] raises potential issues regarding the location of the FMF to the east of the A14 Orwell Bridge. The Applicant's response to ExQ1 Al.1.15, TT.1.109 and TT.1.17 [REP2-100], provides clarity around the proposed FMF location including whether viable alternative locations west of the A14 Orwell Bridge have been identified, and the criteria used to select the proposed location with regards to the proposed two functions of the FMF. Having regard to the two functions of the FMF, the ExA agrees that it is best placed to perform that role in a location to the east of the Orwell Bridge. The traffic management issues relating to the FMF are discussed further in the Traffic and Transport section 5.22 of Chapter 5 of this Report.
- 5.4.325. The Site Selection Report [APP-591] and Volume 8, Chapter 3 (Alternatives and Design Evolution) of the ES [APP-514] explain the site selection process for the FMF. The site at Seven Hills emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed FMF. The ExA find no reason to disagree with the outcome of the selection process.
- 5.4.326. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA are content that Regulation 14 has been complied with by the Applicant and the ES approach is reasonable and proportionate in that respect. There are no other common law or policy requirements which demand further consideration of alternatives to the proposals relating to the FMF.

Associated Development - Yoxford roundabout and other highway improvements:

The submissions of IPs

- 5.4.327. The WR of HHE [REP2-287] outlines their principal concerns in relation to the Yoxford roundabout which relate to first, the Applicant's junction capacity modelling; secondly, the traffic modelling for Yoxford and Darsham, and thirdly, the design of the Yoxford roundabout. In summary, due to flaws in the Applicant's assessment, they submit that there is a high probability that the modelling produced as part of the Transport Assessment (TA)/TA Addendum [AS-017] underestimates the capacity of the Yoxford roundabout and overestimates queuing and delays. This has resulted in the Yoxford roundabout being over-engineered and larger than necessary.

The Applicant's response

- 5.4.328. The Planning Statement, Appendix A - Site Selection Report, Section 9 [APP-591], sets out the site selection process for the Yoxford roundabout and other highway improvements. It presents a description of the site selection process which the Applicant undertook in relation to the proposed Yoxford roundabout. It explains the site requirements, the first filter stage, the second filter stage including responses to Stages 1, 2, 3 and 4 consultation, and the draft DCO proposals before setting out its conclusions.
- 5.4.329. At the Stage 1 consultation the Applicant sought views on proposals for potential road and junction improvements to alleviate transport impacts. These improvements were presented in three categories: Farnham bend; B1122; and other road traffic impacts from Sizewell C.
- 5.4.330. At Stage 2, several options were presented for the potential highway improvements along the A12 near Farnham. These options and the design evolution of the TVB is considered above. A review of the B1122 identified a number of measures which could be implemented to help mitigate the impacts of Sizewell C construction traffic on residents and road users. Following further work to consider the traffic impacts arising from the construction of Sizewell C and feedback from the Stage 2 consultation, the Applicant proposed various highway improvements at the Stage 3 consultation to mitigate the impact of Sizewell C construction traffic on the local highway and transport network.
- 5.4.331. Following the Stage 3 consultation, further detailed modelling was undertaken in order to further understand the traffic impacts arising from the construction of Sizewell C, resulting in some modifications to some of these highway improvements and the Applicant continued to progress the Yoxford roundabout for Stage 4 consultation.
- 5.4.332. The Site Selection Report concludes the design evolution of proposed highway improvements has been a result of consultation feedback, and adjustments generated through traffic modelling and engagement with the highways authorities. The design for the proposed Yoxford roundabout and other highway improvements is described in Chapter 2 of Volume 7 of the ES. In summary, the designs are largely the same as proposed at Stage 4.
- 5.4.333. As the highway works proposed are to existing roads, a site selection process similar to the other Associated Development sites was not carried out. However, modelling has enabled the identification of locations on the highway network where improvements might be required to ease congestion during the construction of Sizewell. The improvements proposed are considered the best to support the Transport Assessment [APP-602] in its aim to minimise the impact of construction traffic on the road network.
- 5.4.334. The Applicant [REP7-055] submits that a smaller roundabout would lead to safety concerns when abnormal indivisible loads (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's conclusions

- 5.4.335. The Planning Statement, Appendix A - Site Selection Report, Section 9 [APP-591], sets out the site selection process for the Yoxford roundabout and other highway improvements. As the highway improvement works proposed are to existing roads, a site selection process similar to the other Associated Development sites was not carried out. However, modelling enabled the identification of locations on the highway network where improvements might be required to ease congestion during the construction of Sizewell. The improvements proposed are considered the best to support the TA [APP-602] in its aim to minimise the impact of construction traffic on the road network.
- 5.4.336. HHE submits that the Yoxford roundabout is over-engineered and larger than necessary [REP2-287]. This and other issues relating to the Applicant's assessment and the modelling produced as part of the TA are considered further in the Traffic and Transport section 5.22 of Chapter 5 of this Report. The ExA sees no reason to disagree with the Applicant that a smaller roundabout would lead to safety concerns when AIL were passing through the junction. We consider that the proposed roundabout is suitably sized.
- 5.4.337. For the purposes of the EIA Regs, and the required consideration of alternatives, the ExA are content that Regulation 14 has been complied with by the Applicant and the ES approach is reasonable and proportionate in that respect. There are no other common law or policy requirements which demand further consideration of alternatives to the proposals relating to the Yoxford roundabout and other highway improvements.

The ExA's conclusions in relation to alternatives

The ES approach to alternatives

- 5.4.338. The EIA Regs, Regulation 14, requires the application to be accompanied by an ES, which includes: (i) a description of reasonable alternatives, and (ii) an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment. Likewise, the Marine Works EIA Regs, Regulation 12, contains a similar requirement where those regulations apply.
- 5.4.339. In addition, EN-1, paragraph 4.4.2, as a matter of policy, obliges applicants to include in their ES, as a matter of fact, information about the main alternatives they have studied. The Applicant sets out in Appendix 5A the relevant Site Specific Alternatives Chapters in the ES where it states these requirements have been complied with. This has been supplemented during the Examination with updates relating to various design changes that have been accepted by the ExA since the submission of the application. The ES approach to alternatives including consideration of various routes, locations, strategies, and design

development options for the Proposed Development falls to be considered in the light of criticisms made by IPs during the Examination.

Policy requirements relating to the consideration of alternatives

The AONB

- 5.4.340. NPS EN-1 Development proposed within nationally designated landscapes 5.9.10 states that: *“In considering whether to grant development consent for development proposals within nationally designated landscapes, have regard to (inter alia) the cost of, and scope for, developing elsewhere, outside the designated area, or meeting the need in some other way.”*
- 5.4.341. The Applicant explains the choice of location of the MDS and the absence of consideration of alternatives to this site in the Site Selection Report [APP-591]. As indicated above, the ExA concurs with that approach. The Applicant’s NPS Tracker [REP10-125] in relation to paragraph 5.9.10, refers to the Planning Statement [APP-590] which points amongst other things to the established absence of alternative locations as representing exceptional circumstances.
- 5.4.342. The impact on the AONB has been considered in the Landscape Impact, Visual Effects and Design section 5.14 of Chapter 5 of this Report. In relation to the AONB impact, the ExA concludes that the tests for alternatives have been met and 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. In reaching this conclusion, the ExA has had regard to EN-1 sections 4 and 5 including paragraph 5.9.10 which relates to development proposed within nationally designated landscapes.

Flood Risk

- 5.4.343. NPS EN-1 sets out the requirements of the sequential and exception tests in relation to flood risk in paragraphs 5.7.13 to 5.7.17.
- 5.4.344. The Applicant gave consideration to this policy requirement in the Site Specific Flood Risk Assessments: [APP-093 to APP-144, AS-018, and AS-157 to AS-172].
- 5.4.345. The issue of flood risk and the application of the Sequential and Exception Tests is considered in the Flood Risk section 5.11 of Chapter 5 of this Report. The ExA concludes that the Applicant has fully addressed the flood risk associated with construction and operation of the Proposed Development. We consider that the Applicant’s assessment of flood risk complies with the NPS EN-1 policy aim of making the Proposed Development safe without increasing flood risk elsewhere. In reaching this conclusion, the ExA has had regard to EN-1 sections 4 and 5 including paragraphs 5.7.13 to 5.7.17.

Biodiversity

- 5.4.346. NPS EN-1 paragraph 5.3.7 states that: *“As a general principle, and subject to the specific policies below, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives (as set out in Section 4.4 above); where significant harm cannot be avoided, then appropriate compensation measures should be sought”*.
- 5.4.347. The Applicant gave consideration to this policy requirement in the Site Selection Report [APP-591]. The NPS Accordance Table [REP10-125] draws attention to section 8.3 of the Planning Statement [APP-590] and the full summary of the ecological mitigation set out at section 14.12 of Volume 2, Chapter 14 of the ES [APP-224]. The issue of biodiversity has been considered in the Biodiversity and Ecology section 5.6 of Chapter 5 of this Report which sets out the harm identified for this topic. As regards the loss of ancient trees, we have considered this above in relation to the TVB route. The ExA concludes in relation to the consideration of reasonable alternatives to avoid significant harm to biodiversity and geological conservation interests that in accordance with section 4.4 of EN-1, the Applicant has undertaken a proportionate consideration of reasonable alternatives.

The Habitats Regulations

- 5.4.348. The Conservation of Habitats and Species Regulations 2017 Regulation 64 imposes the following test: *“In considering whether the Secretary of State is satisfied that the project must be carried out for imperative reasons of overriding public interest, the Secretary of State must conclude that there are “no alternative solutions”*. The Conservation of Offshore Marine Habitats and Species Regulations 2017/1013 Regulation 29 imposes a similar test for offshore marine habitats and species.
- 5.4.349. The ExA has given detailed consideration to such matters, and alternatives in that context, in the HRA Chapter 6 of this Report. Overall, the ExA considers that there is insufficient information before the SoS to enable them to undertake an appropriate assessment and to apply the derogation tests of the Habitats Regulations of alternative solutions, IROPI, and compensation in order to fulfil their duty under the requirements of the Habitat Regulations.

The Water Framework Directive (WFD)

- 5.4.350. The Water Framework Directive (2000/60/EC), Article 4.7, provides that in considering whether derogation is justified and applying the derogation tests, the Secretary of State must be satisfied that: there is no significantly better environmental option for achieving the benefits expected to result from the proposal or, if there is such an option, it is ruled out as technically infeasible or disproportionately expensive.
- 5.4.351. In compliance with this requirement, the Applicant has submitted the Water Framework Directive Compliance Assessment Report [APP-619 to APP-633] and Addendum [AS-277 to AS-279]. The Applicant has provided updates to that assessment during the course of the Examination to support various changes to the application following its

submission in May 2020. The updates provide information to support the assessment of whether the changes to the design of the Proposed Development change the conclusions of the WFD Compliance Assessment that was submitted as part of the DCO application. The latest version, the Water Framework Directive Compliance Assessment Second Addendum was submitted at DL7 [REP7-284].

The ExA has given detailed consideration and concluded in relation to this matter in the section 5.11 of Chapter 5 of this Report. We are satisfied that the Applicant has demonstrated compliance with the Water Framework Directive as far as it is possible without the in-combination consideration of effects from the EA. The EA still need to complete the in-combination assessment for WFD compliance, after completion of the relevant environmental permitting processes. Given this was not completed at the end of the Examination, the SoS may wish to consult both the Applicant and the EA to establish the position prior to deciding on the making of any Order.

The Marine and Coastal Access Act 2009

- 5.4.352. The Marine and Coastal Access Act 2009, section 126, sets out the duties of public authorities in relation to certain decisions. In determining an application, in respect of which the Secretary of State is not satisfied that there is no significant risk of hindering the achievement of the conservation objectives stated for an affected MCZ, the Secretary of State must be satisfied that inter alia, there is no other means of proceeding with the act which would create a substantially lower risk of hindering the achievement of those objectives. This includes (i) in another manner and (ii) at another location.
- 5.4.353. The Applicant relies upon the application documents ES MDS Chapter 6 Alternatives and Design Evolution [APP-190] and MDS Appendix 6A Alternative Sizewell B Relocated Facilities Implementation Scenario [APP-191] in compliance with this test.
- 5.4.354. The ExA has given consideration to matters relating to marine ecology and marine water quality in sections 5.5, 5.15 and 5.16 of Chapter 5 of this Report. The ExA confirms 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. We have no outstanding concerns in relation to the application of section 126 of that Act.

Compulsory Acquisition

- 5.4.355. There is also a need to consider alternatives in the context of assessing whether there is a compelling case in the public interest in order to justify any CA of land. The Statement of Reasons [APP-062] and the Statement of Reasons Addendum [AS-149] explain how the Applicant has addressed the CA guidance that all reasonable alternatives to CA must be explored. The ExA gives consideration to the question of alternatives in that context in Chapter 8 of this Report. The ExA concludes that all reasonable alternatives to CA have been considered.

The ExA's overall conclusion

- 5.4.356. The ExA considers that the Applicant has correctly identified all legal and policy requirements relating to the assessment of alternatives applicable to this project in its response to AI.1.0 [REP2-100] and Appendix 5A to that response [REP2-108]. The ExA has highlighted its concerns in relation to the Habitats Regulations, as summarised above in Chapter 6 of this Report. Subject to that exception, the ExA concludes that there are no other policy or legal requirements that would lead it to recommend that development consent be refused for the Proposed Development in favour of another alternative. Consequently, there are no matters relating to alternatives that would weigh for or against the making of the Order.

5.5. AMENITY AND RECREATION

Policy Considerations

- 5.5.1. NPS EN-1 and EN-6 set out requirements for amenity and recreation associated with the development of major energy infrastructure. Both EN-1 and EN-6 recognise the importance of coastal recreation generally and opportunities to maintain and enhance access to the coast, including the provision of a continuous signed and managed path around the coast as provided for in the Marine and Coastal Access Act 2009.
- 5.5.2. Additionally, EN6 recognises at paragraph 3.12.2
- "the sites listed in the NPS are on coastal or estuarine locations in rural areas and that there is therefore the potential for impact on land that has recreational and amenity value."*
- 5.5.3. Paragraph 5.10.16 of EN1 goes on to say:
- "In considering the impact on maintaining coastal recreation sites and features, the IPC should expect applicants to have taken advantage of opportunities to maintain and enhance access to the coast. In doing so the IPC should consider the implications for development of the creation of a continuous signed and managed route around the coast, as provided for in the Marine and Coastal Access Act 2009."*
- 5.5.4. This is reinforced in paragraph 5.10.24 which states:
- "The IPC should expect applicants to take appropriate mitigation measures to address adverse effects on coastal access, National Trails and other rights of way."*
- 5.5.5. While this section of this Report is not intended to deal with landscape effects, the role the AONB plays in amenity and recreation is an important and relevant factor that is to be considered and in this respect paragraph 3.10.3 of EN-6 is also of relevance to this chapter of the Report. It states:

"There is the potential for long-term effects on visual amenity, especially at ... Sizewell, given the Suffolk Coast and Heaths Area of Outstanding Natural Beauty."

NPPF

5.5.6. Paragraph 100 makes clear that planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails.

5.5.7. While paragraph 130 advises policies and decisions should ensure that developments:

"create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users."

The Development Plan

5.5.8. The Suffolk Coastal Local Plan Policy SCLP3.4 identifies a key consideration for major energy infrastructure projects is adverse impacts on local communities. This is supported by the Suffolk Green Access Strategy (The Rights of Way Improvement Plan (RoWIP)) [REP1-067] which recognises the importance of the PRow network as an essential asset to us all for health and wellbeing, safe and sustainable travel, leisure activity and economic growth. It sets out how the rights of way and access network is managed, maintained and improved.

5.5.9. Policy SCLP10.1 of the Suffolk Coastal Local Plan relates to Biodiversity and Geodiversity and gives a detailed account of the requirement for development to demonstrate that it maintains, restores or enhances the existing green infrastructure network and positively contributes towards biodiversity and / or geodiversity. This should be through the creation of new habitats and green infrastructure. Development should follow the mitigation hierarchy of avoid, mitigate, compensate – compensation should be the last resort.

5.5.10. This policy requires new development to demonstrate environmental net gains in terms of both green infrastructure and biodiversity. Compensatory habitat should be of equal or greater size and ecological value than the area lost. The Recreational Disturbance Avoidance and Mitigation Strategy (RAMS) [REP1-080] has been prepared to provide a mechanism through which adverse impacts from increased recreational activities on European designated sites can be mitigated via financial contributions towards the provision of strategic mitigation. This does not negate the requirement for developments to provide additional measures if identified, as necessary.

5.5.11. As part of the work undertaken by the joint local authorities in advance of the application being submitted a series of documents were developed which were shared with the Applicant. Pertinent to this chapter is the 'Suffolk Access Principles for Sizewell C'. Which was included as Annex H to the council's joint LIR [REP1-053].

Other Policy

Suffolk Coast and Heaths Area of Outstanding Natural Beauty Management Plan (2018-2023).

- 5.5.12. The Plan sets out the key objectives of the AONB which include:
- The conservation and enhancement of the natural beauty and special qualities of the AONB;
 - To ensure decision making regarding the coast and its estuaries pay due regard to the purposes of the AONB;
 - To ensure that decision making has regard to the purpose of the AONB.

- 5.5.13. In recognition of the importance of the AONB the Applicant working with ESC, SCC and the AONB Partnership agreed a series of Natural Beauty and Special Quality Indicators against which the Proposed Development could be judged. It was included within the Councils' joint LIR at [REP1-079].

The Applicant's Case

- 5.5.14. ES Chapter 15 [APP-267] assesses the amenity and recreation effects arising from the construction and operation of the Sizewell C power station at the MDS. This is supplemented by additional chapters for each of the associated development sites:

- [APP-366] Northern Park and Ride
- [APP-397] Southern Park and Ride
- [APP-429] Two Village Bypass
- [APP-464] Sizewell Link Road
- [APP-497] Yoxford Roundabout
- [APP-526] Freight Management Facility
- [APP-558] Proposals relating to Rail

- 5.5.15. The first change request also included revised information included within [AS-113 and AS-114 and AS-181].

- 5.5.16. Further updates were provided as the Examination progressed; these are summarised below:

- Rights of Way and Access Plans [APP-013], [AS-013], [AS-113], [AS-114], [REP2-007], [REP5-007 and REP5-008], [REP8-008] Final version [REP10-003];
- Rights of Way and Access Strategy [REP3-013];
- Main Development Site Chapter 15 Appendix 15I: Rights of Way and Access Strategy [REP2-035], [REP7-023]and [REP7-024], [REP8-055] and [REP8-056], Final RoW Access Strategy [REP10-037] and [REP10-038];
- Informal Recreation and Green Space Proposals [REP8-135].

Methodology

- 5.5.17. There is no accepted methodology for the assessment of effects upon amenity or recreation, so the approach that was adopted followed

consultation prior to the application being made, to agree an approach with ESC, SCC and other stakeholders including Natural England, Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) Partnership and the Suffolk Local Access Forum (SLAF). The full methodology is set out in Appendix K of [APP-171] but drew on those pre consultation exercises and professional judgement.

Study Area

- 5.5.18. The study area that was agreed covers both on shore and off shore areas which is shown on Figures 15.6 of [APP-271].
- 5.5.19. For the MDS onshore area was split into three zones;
- Zone of physical change – 2km from MDS
 - Displacement zone – 8km from MDS
 - Buffer zone – 8km around settlements within the buffer zone.
- 5.5.20. The offshore area extended to 8km from the onshore site boundary.
- 5.5.21. For the ADS a study area of 1km was agreed, except for Yoxford roundabout and the other highway improvements where 0.5km was the extent of the area covered.
- 5.5.22. The assessment was split into the construction and operational phases.

Scope of Assessment

- 5.5.23. The scope of the assessment is set out in paragraph 15.3.7 of [APP-267], and the Applicant's assessment considered the effects on the experience of users of amenity and recreation resources caused by:
- physical changes to resources (e.g. changes to PRoW through diversions or temporary or permanent closures);
 - changes to the experience people have when using recreational resources due to perceptual or actual changes to views, noise, air quality or traffic movements; and
 - changes to the experience people have when using recreational resources due to increases in the numbers of people using them.
- 5.5.24. The Applicant additionally undertook tranquillity assessments in respect of the MDS, SLR and TVB for recreational receptors which sought to take into account five factors from the effects of the changes that could arise from the Proposed Development; noise, visual, transport, air quality and people. It was accepted at the outset that tranquillity is not an absolute state but one which is relative to the location and the Applicant sought to explain this by utilising the Landscape Institute's technical note on tranquillity.

"A distinction is made between absolute tranquillity and relative tranquillity. When we refer to tranquillity in the UK, it is therefore almost always relative tranquillity that we are referring to, but in differing degrees. For instance, the tranquillity promoted by a summer sunrise on a calm day on top of a high mountain may be close to absolute, with

*almost no disturbance of any kind detracting from that state of mind. Yet the benefit to people of the relative tranquillity in an urban greenspace may be very high, despite intrusion from background traffic noise or the presence of many other people. Both sorts are important to recognise and value, but for different reasons, the commonality being the achievable state of mind rather than the environmental setting.*¹²

- 5.5.25. The assessment undertook a baseline assessment, considered design options including for mitigation, and liaison with other work streams on noise, air quality, landscape and visual and transport, finally looking at any potential cumulative issues.
- 5.5.26. Four visitor surveys were undertaken between 2014 and 2019; each is set out in Appendix 15A – Appendix 15D of [APP-269 and APP-270].
- 5.5.27. A scoping exercise was undertaken to focus the assessment upon those recreational receptors within the study area that could be significantly affected by the Proposed Development.
- 5.5.28. As part of this exercise reviews were undertaken of the ES chapters on traffic, noise, air quality, and views.

Assumptions and Limitations

- 5.5.29. The following assumptions were made:
- *"Temporary and permanent closures, diversions and creation of new PROW, permissive footpaths, cycle routes and long distance walking routes would be implemented in accordance with the proposals set out in the Rights of Way and Access Strategy .., and the detailed Rights of Way Plans ..*
 - *The assessment of effects arising from the outline development zones assumes structures/buildings could occupy the full extent of the outline envelope.*
 - *The assessment of effects arising from construction assumes that typically construction activity occupies the heights of the proposed buildings, stockpiles or similar within that development zone, with taller plant such as cranes or piling rigs regularly present and extending up to the 'general' construction height, and exceptionally tall plant occasionally present in small numbers.*
 - *It is assumed that the estimated growth rates indicated in the landscape and visual assessment, provided in Chapter 13 (of the ES), for proposed planting will be achieved.*
 - *Tranquillity is not absolute and is relative to people's expectations in a particular location, and there are no standard nationally accepted ways of measuring effects on tranquillity in relation to amenity and recreation. The amenity and recreation assessment in this chapter is based on factors relating to tranquillity described earlier in this section."*

¹² Landscape Institute (March 2017) tranquillity – An Overview. Technical Information Note 01/2017 (Revised).

5.5.30. Limitations were also identified:

- *"No surveys of PRow users were undertaken at this site. As agreed with SCC, additional PRow surveys were not considered necessary to support this assessment.*
- *The Noise and Vibration Assessment, included in Chapter 4 of this volume, identifies limitations in relation to construction methodology and best estimates to predict noise and vibration during construction.*
- *The Noise Tranquillity Assessment, following the Tranquillity Assessment reported in Appendix 8A of this chapter, is based on baseline surveys at selected locations shown on Figure 8.2 of this chapter; chosen to provide representation of the recreational resources likely to be affected by changes to the noise environment, at a moment in time. Survey work was only carried out during weekdays when the area was less used by the public. However, it is considered that the Noise Tranquillity Assessment using the natural tranquillity method provides robust data to inform this impact assessment."*

Mitigation

- 5.5.31. The assessment of the likely significant effects of the Proposed Development assumed that primary and tertiary mitigation measures were in place. These measures include the mitigation specified for transport, noise, air quality and landscape visual effects which are considered in other chapters of this Report but would equally reduce effects on amenity and recreation receptors.
- 5.5.32. The Outline Construction Environmental Management Plan submitted with the Sizewell B relocated facilities planning application proposed to mitigate effects on amenity and recreation receptors associated with that phase of the development. The DCO also includes the relocation of the Sizewell B facilities and these affects are also included within the ES assessment for the DCO.
- 5.5.33. The primary mitigation for the main development site includes the diversions of the PRow to ensure that the routes remain open, this also includes diversions for those routes affected by the green rail route.
- 5.5.34. The Rights of way and Access Strategy, set out the approach for the public rights of way network. This includes permissive paths, long distance walking routes, cycle routes, Open Access land and the beach during construction and operation of the development. Its aim was to minimise physical disturbance to users of the recreational resource. The final version was submitted at DL10 [REP10-037].
- 5.5.35. PRow across the DCO would be affected in various ways during construction and operation. These are summarised below in respect of the MDS.
- 5.5.36. A section of the Sustrans Regional Cycle Route 42/Suffolk Coastal Cycle Route on the B1122 and Eastbridge Road would be diverted during construction and would be permanently diverted during operation.

- 5.5.37. A 1.3km length of the existing route that currently runs on the B1122 and Eastbridge Road would be permanently re-aligned along an off-road route alongside these roads for a length of approximately 1.4km.
- 5.5.38. Once Sizewell C is operational, the Suffolk Coast Path would be permanently realigned fronting the new power station and to the east of the new sea defences. During operation, when the Beach Landing Facility (BLF) is in use (approximately once every 5-10 years during some of the outage periods), the coast path might be temporarily closed for short periods. Should the coast path need to be temporarily closed, inland diversions would be provided for the Suffolk Coast Path, Sandlings Walk and England Coast Path to ensure that people can continue to use these long distance walking routes at all times.
- 5.5.39. Sandlings Walk would be reinstated on the majority of its original alignment during operation. A portion of Sandlings Walk on a permissive footpath through Goose Hill would be realigned, to provide connectivity to the coast. This would cross the main site access road.
- 5.5.40. During the operational phase a section of the permissive footpaths at Goose Hill would remain closed, with the link to the coast provided on an existing and realigned permissive footpath along the north and east edges of Goose Hill. This would cross the main site access road.
- 5.5.41. Bridleway 19 would be re-instated on its original alignment during the operational phase. The route would cross the main site access road.
- 5.5.42. The north-south combined bridleway, cycleway and footpath from Sizewell Gap and St George's Avenue to the northern end of Bridleway 19 on Eastbridge Road (approximately 4.5km long) created during the construction phase, would be retained for the operational phase. The bridleway connection from Valley Road to this route would also be retained permanently with the link into the ACA removed. These routes would be off road with road crossings as required.
- 5.5.43. Southern Park and Ride
- During construction, a temporary diversion of Bridleway E-288/008/0 would be employed around the area where the site access is being constructed, to minimise safety risk and impacts on recreational receptors.
- 5.5.44. TVB (During Construction)
- Public rights of way (PRoW) within the site would be impacted during construction of the proposed development. Footpaths E-243/001/0 and E-137/029/0 would be maintained on their existing alignment until a permanent diversion is constructed, no temporary diversion is proposed.
 - Two PRoW (E-243/003/0 and E-243/004/0) would be subject to temporary diversions. The diversions would be as follows and would last for up to 24 months:

- Footpath E243/003/0 would be temporarily diverted south to cross the work area at grade, approximately 350m south of its existing location.
- Footpath E-243/004/0 would be temporarily diverted north to cross the work area at grade, approximately 200m north of its existing location (on the current alignment of E-137/029/0).

5.5.45. TVB (During Operation)

- Footpath E243/003/0 and E-243/004/0 would be permanently diverted via the Foxburrow Wood footbridge.
- Footpath 243/001/0 would be diverted east by approximately 25m to allow the public footpath to cross the proposed TVB at a relatively flat location.
- Footpath E-137/029/0 would be diverted south west by approximately 25m to allow the alignment of the diversion to accommodate the proposed embankment slopes of the proposed TVB.

5.5.46. SLR (During Construction)

- Eleven PRoW (E344/013/0, E344/014/0, E-396/015/0, E-396/017/0, E-396/023/0, E-515/003/0, E-515/004/0, E-515/005/0, E-515/013/0, E-584/016/0 and E-584/016/A) would be subject to diversions
- Footpath E-344/014/0 would be permanently diverted south by approximately 56m to allow the route to accommodate the proposed embankment slopes of the proposed SLR. On the south side of the SLR users would be directed west for approximately 45m, sharing an accommodation access track until the route re-joins its original alignment.
- Footpaths E-344/013/0 and E-584/016/A would be diverted south-west along the proposed route of the SLR and cross the proposed SLR approximately 250m south-west of the existing location.
- Footpath E-584/016/0 would be diverted east along the proposed route of the Sizewell link road and cross the proposed road approximately 270m east of the existing location.
- Footpath E-396/017/0 would be diverted west along the proposed Sizewell link road, to cross the proposed road approximately 60m west of the existing location.
- Footpath E-396/023/0 would be diverted west of its existing alignment to avoid the construction work area whilst the staggered junction north of Trust Farm is being constructed.
- Footpath E-396/015/0 would be diverted in two separate locations. At the proposed junction of the B1122 and the B1125, there would be a short diversion to accommodate the new eastern junction towards Theberton. Where the alignment of footpath E-396/015/0 and E-515/005/0 meets the proposed SLR they would be temporarily diverted 75m to the south of their existing alignment whilst earthworks are being constructed, to cross the work area where the land is at grade. Once construction is completed, these footpaths would be diverted to cross the route of the proposed SLR via the Pretty Road overbridge.

- Footpath E-515/003/0 would be diverted south-east along the route of the proposed SLR, to cross the proposed road approximately 120m from the existing location.
- Footpath E-515/004/0 would be diverted south-east along the route of the proposed SLR, to cross the proposed road approximately 50m from the existing location.
- Footpath E-515/007/0 would be temporarily diverted for 25m to the west of its existing alignment whilst earthworks are being constructed, to cross the work area where the land is at grade.
- Footpath E-396/020/0 would be permanently diverted along the proposed SLR, approximately 160m to the west, to cross the proposed route before heading east along the north side of the route to re-join Hawthorn Road. This is as a result of the proposed realignment of Hawthorn Road.

5.5.47. SLR (During Operation)

- The diversion of Footpath E-344/014/0 used during construction would remain during the operation phase.
- Footpaths E-344/013/0 and E-584/016/A would be diverted south-west to cross the proposed SLR by approximately 80m from their existing location to allow the route to accommodate the proposed embankment slopes of the SLR. This would be a reduced diversion from the construction phase.
- The diversion of footpaths E-584/016/0, E-396/017/0, E-396/015/0, E-515/005/0, E-515/004/0, E-396/020/0 used during construction would continue during the operation phase.
- Footpath E-396/023/0 would be diverted permanently on the south side of the route of the proposed SLR, the footpath would run alongside the route of the proposed SLR and would be diverted to the east by approximately 200m to cross the road, approximately 150m to the east of the ghost island junction. On the north side of the proposed SLR route, the footpath would then be diverted west towards the ghost island junction and then directed north-east along the proposed access road to join the B1122. This change has been proposed in order to provide greater spacing between the crossing and the ghost island junction.
- An extension of Footpath E-396/020/0 from the existing Hawthorn Road. The footpath would mostly extend along the proposed route of the Sizewell link road, approximately 160m to the west, to cross the proposed route before heading west-east along the north side of the route to re-join Hawthorn Road.
- The permanent diversion of footpath E-515/003/0 would be either northwards to cross the proposed SLR at the Pretty Road overbridge, or southwards to join the realigned footpath E-515/004/0.
- A diversion of Footpath E-515/007/0 would be provided to cross the route of the proposed SLR approximately 45m east of its existing position. Users would then be directed west to meet the existing Moat Road alignment, where it has been converted to a NMU route.
- An additional walking and cycling route is proposed on the north side of the proposed SLR. This provides users of the PRoW with a more

expedient way of joining the new walking and cycling route and crossing the SLR from Footpath E-515/007/0.

5.5.48. Yoxford Roundabout

- Construction would include modifying the existing access road to the row of houses south of the existing junction, with the revised access coming off the realigned B1122 to the south of the new roundabout. Footpath E-584/020/0 currently joins the footway of the existing access road and would continue to join the footway of the revised access road. Access to the public footpath and connectivity into Yoxford would be retained throughout the construction phase.

5.5.49. Green Rail Route

- During construction safe crossing points would be established for the diversion of three public rights of way, to the far west of Buckleswood Road would be reconnected to a temporary level crossing, the other two would be diverted parallel to the rail corridor and connect at Abbey Lane.

5.5.50. In addition, a new off-road combined bridleway, cycleway and footpath would be created from Sizewell Gap and King George's Avenue to the construction phase accommodation campus; this would be approximately 4.5km in length and available during the construction and operational phases of the Proposed Development. A further section of off-road bridleway would be constructed from Valley Road and the ACA, connecting to the new off-road bridleway.

5.5.51. Bridleway 19 would be closed throughout the construction phase between Kenton Hills car park and Eastbridge Road, and a re-aligned route provided as part of the new off-road combined bridleway, cycleway and footpath described above.

5.5.52. To help to minimise the number of construction workers using informal outdoor recreation resources formal sports facilities to the south of Alde Valley Academy and east of Leiston leisure centre would be provided.

5.5.53. The accommodation campus would include a footpath to provide exercise opportunities for workers on site.

5.5.54. The tertiary mitigation provided through the CoCP, CTMP, CWTP and Worker Code of Conduct would apply equally to the mitigation for impacts on amenity and recreational resources as they would to other effects identified in the other ES Chapters.

5.5.55. The Applicant also included [REP9-022] A Summary of PRow Improvements, [REP8-135] Informal Recreation and Green Space Proposals [REP9-022] Leiston Walking and Cycling Projects each of which are included within Schedule 16 of the DoO.

Applicant's Conclusions

- 5.5.56. Drawing upon the other ES chapters the conclusions reached in the traffic chapter of the ES identified that during the early years of construction there were short term adverse significant effects on pedestrian amenity on Sizewell Gap between Leiston and Sizewell and the B1122 in Theberton village, and on cycle amenity on the B1122 prior to the SLR being operational.
- 5.5.57. Adverse significant effects on severance and pedestrian delay of users of PRoW which currently pass through a rural landscape were also identified where they would be cut by the TVB or SLR.
- 5.5.58. Emissions from traffic were considered up to 200 metres from the source and airborne dust from site clearance and earthworks construction affected activities and earthworks from final reinstatement of the land the applicant concluded do not affect receptors beyond 350 metres from the working area. Impact due to traffic emissions and dust would cause negligible effect on recreational receptors.
- 5.5.59. The landscape and visual assessment utilises the same receptor groups as for the amenity and recreation chapter. The receptor groups scoped into the landscape and visual assessment in chapter 13 of the ES [APP-216] are numbered 1 to 24 these are set out in figure 15.7 [APP-271].
- 5.5.60. The surveys undertaken by the Applicant and others helped inform the understanding of the likely effects on recreational resources for existing users and construction workers.
- 5.5.61. The Applicant's ES found that there was the potential for the use of the recreational resources to change due to the Proposed Development particularly in the construction phase. These effects were particularly marked in the Minsmere to Sizewell Coast (Receptor group 12) and Sizewell Belts (Receptor group 15).
- 5.5.62. The Applicant's ES for the MDS indicates a moderate adverse effect (significant) during construction at the following receptor groups:
- Westleton Walks and Dunwich Heath;
 - RSPB Minsmere;
 - Dunwich to Minsmere Coast;
 - Eastbridge and Leiston Abbey;
 - North of Leiston;
 - Aldringham Common and the Walks
- 5.5.63. In addition major adverse effects were identified at:
- Minsmere South;
 - Minsmere to Sizewell Coast;
 - Northeast Site;
 - Northwest Site;
 - Sizewell Belts.

- 5.5.64. The long distance linear routes of Sandlings Walk and Suffolk Coast Path and the future England Coast Path were also regarded as being subject to a major adverse effect.
- 5.5.65. At the ADS moderate adverse effects during construction were identified in respect of the TVB at:
- Footpaths E-243/003/0 and E-243/004/0;
 - Footpaths E-137/028/0, E-137/029/0 and E-243/001/0.
- In respect of the SLR at:
- Footpaths E-344/013/0, E-344/014/0 and E-584/016/A;
 - Footpaths E-396/014/0 and E-584/016/;
 - Footpaths E-396/017/0, E-396/020/0 and E-396/023/0;
 - Footpaths E-396/015/0, E-515/003/0, E-515/004/0, E-515/005/0 and E-515/007/0.
- In respect of the rail proposals at:
- Footpath E-363/003/;
 - Footpath E-363/006/0 and Footpath E-363/010/0
- 5.5.66. During operation moderate adverse effects were identified in respect of the TVB at:
- Footpaths E-137/029/0 and E-243/001/0;
- In respect of the SLR at:
- Footpaths E-396/017/0, E-396/020/0 and E-396/023/0;
 - Footpaths E-396/015/0, E-515/003/0, E-515/004/0, E-515/005/0 and E-515/007/0.
- 5.5.67. Additionally, moderate adverse effects were identified at Footpath E-363/003/, E-363/006/0 and Footpath E-363/010/0 during the removal and reinstatement of the rail infrastructure.
- 5.5.68. During early years of construction, the ES states that there would be short-term adverse significant effects on pedestrian amenity on Sizewell Gap between Leiston and Sizewell and the B1122 in Theberton village, and on cycle amenity on the B1122 prior to SLR being operational.
- 5.5.69. During peak years of construction, the ES found adverse significant effects:
- on severance and pedestrian amenity on Abbey Road, Leiston;
 - on pedestrian amenity on Abbey Road, Leiston in the vicinity of the railway crossing;
 - on severance and pedestrian delay of users of PRow which currently pass through a rural landscape and would be crossed by the TVB and SLR.
- 5.5.70. Following the acceptance of the First Change request the ES was amended to consider the implications of the changes [AS-181]. The ES assessment in [APP-198] concluded that there would be a negligible or

short term minor adverse effect on pedestrian delay as a result of PRow diversions during the construction of the TVB and SLR and PRow diversions in the vicinity of the main development site during the Early Years, which would be not significant. The Applicant concluded that there would be no changes to the effects on pedestrian delay during the Early Years as a result of the updated assessment.

5.5.71. With regard to amenity effects from increased traffic flows in the early years the Applicant concluded that there would be moderate and major adverse effects from the 24hr Annual Average Weekly Traffic (AAWT) Heavy Duty Vehicles (HDVs) and from HDVs in the representative hour. An extract from Tables 2.13 and 2.14 from [AS-181] sets out the details below.

Table 5.5.01 Amenity effects from traffic flows in the early years

Link	Link Name	Effect		Change in effects/ significance
		Volume 2, Chapter 10 of the ES (Doc Ref. 6.3) [APP-198]	Refined strategic traffic modelling	
1	Sizewell Gap	Moderate adverse	Moderate adverse	No change
4c	B1122 (N)	Major adverse	Major adverse	No change
10	B1122 through Theberton	Major adverse	Major adverse	No change
13b	B1122	Moderate adverse	Moderate adverse	No change
64	B1122 north of SZC access	Major adverse	Major adverse	No change
66	B1122 west of B1125	Major adverse	Major adverse	No change
74	B1122 (Middleton Moor)	Major adverse	Major adverse	No change

Link	Link Name	Effect		Change in effects/ significance
		Volume 2, Chapter 10 of the ES (Doc Ref. 6.3) [APP-198]	Refined strategic traffic modelling	
1	Sizewell Gap	Moderate adverse	Moderate adverse	No change
4c	B1122 (N)	Major adverse	Major adverse	No change
10	B1122 through Theberton	Major adverse	Major adverse	No change
13b	B1122	Moderate adverse	Moderate adverse	No change
64	B1122 north of SZC access	Major adverse	Major adverse	No change
66	B1122 west of B1125	Major adverse	Major adverse	No change
74	B1122 (Middleton Moor)	Major adverse	Major adverse	No change

5.5.72. Overall, the ES concluded that there would be significant adverse effects during the construction phase:

- *"Long-term major adverse effects on users of receptor groups 11 Minsmere South, 12 Minsmere to Sizewell Coast, 13 Northeast Site, 14 Northwest Site and 15 Sizewell Belts.*

- *Long-term major adverse effects on users of Suffolk Coast Path, Sandlings Walk and the future England Coast Path long distance walking routes.*
- *Long-term moderate adverse effects on users of receptor groups 5 Westleton Walks and Dunwich Heath, 7 RSPB Minsmere, Receptor 8 Dunwich to Minsmere Coast, 10 Eastbridge and Leiston Abbey, 16 North of Leiston, and 19 Aldringham Common and The Walks.”*

5.5.73. In addition, during the operation of the Proposed Development significant adverse effects were identified:

- Permanent major adverse effects on users of receptor group 13 Northeast Site and receptor group 12 Minsmere to Sizewell Coast.

5.5.74. The ES identified there was the potential for beneficial effects on users of receptor group 14 Northwest site and group 15 Sizewell Belts. There would also be positive benefits in respect of reduced pedestrian delay on the A12 upon completion of the TVB as set out in Table 2.18 [AS-181] an extract of which is copied below.

Table 5.5.02 Pedestrian delay during peak construction

Link	Link Name	Effect		Change in effects/significance
		Volume 2, Chapter 10 of the ES (Doc Ref. 6.3) [APP-198]	Refined strategic traffic modelling	
22c	A12 (S) (Farnham)	Moderate beneficial	Moderate beneficial	No change
23	A12 Farnham bend	Moderate beneficial	Moderate beneficial	No change
23a	A12 two village bypass	Moderate adverse	Moderate adverse	No change
24	A12 Stratford St Andrew	Moderate beneficial	Moderate beneficial	No change

With positive benefits also arising on the B1122 once the SLR was complete

5.5.75. The Applicant confirms that the proposals do not build on formal sports or open space. Local sports and recreation facilities would, however, be enhanced through the investment in community sports facilities at the Alde Valley Academy in Leiston.

5.5.76. Additionally, through the commitment in advance of the application, the Applicant has created wetland at Aldhurst Farm and has subsequently provided 27ha of open access land at Aldhurst Farm for recreation.

5.5.77. Further enhancements are committed to at Aldhurst Farm and to public access on the EDF estate in the DoO and these complement the commitment to enhance local public rights of way.

5.5.78. The Applicant regards enhancement as a characteristic consequence of much of the embedded and additional mitigation proposed as part of the Sizewell C application. The Applicant’s proposals for the treatment of existing rights of way is set out in the Rights of Way and Access Strategy

[REP10-037] including the necessary diversions and closures as well as long-term improvements.

- 5.5.79. During the course of the DCO Examination, the Applicant adjusted the proposals to provide an agreed investment of £2.5 million for the enhancement of public rights of way within the PRow fund in the vicinity of Sizewell C.

Cumulative effects

- 5.5.80. The ES also considered the inter-relationship effects as identified in [APP-267] and the corresponding chapters on amenity and recreation for the ADS taking into account the effects due to changes in views, noise, lighting, air quality and traffic on receptors, and no further inter-relationship effects have been identified.

The Planning Issues

Impacts on amenity through severance of PRow and the local highway network

- 5.5.81. A number of IPs including [RR-643, RR-809, RR-765, RR-1170, RR-1231] expressed concern over impacts on public rights of way, particularly with regard to the severance of footpaths, cycling paths and bridleways. More specific concerns were raised in relation to impacts on Sandlings Walk, Bridleway 19, the coast path, access to the beach, the footpaths severed by the TVB, SLR and the green rail route (GRR).
- 5.5.82. Additionally, proposals for new public rights of way were not regarded as appropriate, with the new routes suggested taking footpaths from rural country lanes to running adjacent to roads with noise and air pollution affecting users as a consequence.

Impacts on amenity and recreation as a consequence of the Proposed Development and the influx of construction workers

- 5.5.83. IPs including [RR-0124, RR-1162, RR-1170], argued the development including the provision of the accommodation campus was not suitably sited being in a rural location affecting the AONB, the rural landscape, and would cause disruption and have an adverse impact on the local environment and amenity.
- 5.5.84. In combination with the physical effects of the buildings and activity, the influx of workers staying within the accommodation campus would negatively impact on the area detracting from the amenity of the environment, the locality and local community, particularly in Eastbridge, Leiston and Theberton and the AONB.
- 5.5.85. The AONB Partnership [REP2-164, amongst others set out objections that the Proposed Development would adversely affect the statutory designation of the AONB and the purposes it is there to achieve.

Suitability of Assessment of Impacts on the AONB and the recreational areas of Minsmere and Dunwich

- 5.5.86. Regan Scott on behalf of S.A.G.E [REP8-258] following ISH12 questioned the suitability of the assessment and its lack of a holistic approach, which he considered consequently fails to fully appreciate the degree of effects on the local environment and community.
- 5.5.87. These concerns were shared by RSPB/SWT [RR-1059] and the National Trust [RR-877] who indicate that they do not consider the displacement of tourists and visitors from the current pattern of visiting has been undertaken in a way which could be regarded as precautionary, it could therefore underestimate the effects on both the National Trust land at Dunwich, and the RSPB Minsmere site but also elsewhere.
- 5.5.88. Many IPs cited access to green space and overall recreational opportunities to exercise and enjoy the health and welfare benefits of doing so, and the construction activities and the influx of workers would compromise the suitability of the recreational space and effect the enjoyment of and opportunities for the benefits that were currently available.

Impacts upon amenity of communities along and either side of the B1122 in the early years

- 5.5.89. Use of the B1122 in the early years and the significant adverse effects this would have on the amenity of residents remained a significant concern to IPs throughout the Examination. These concerns were expressed by Theberton and Eastbridge PC [RR-1214], Yoxford PC [REP2-500], and Middleton cum Fordley PC [RR-628] amongst others.

Impacts on amenity through severance of PRow and the local highway network

- 5.5.90. For clarity the issues of Agricultural severance identified within the Examination are covered within the Agriculture Chapter of this Report at section 5.2.
- 5.5.91. The Local Access Forum (LAF) a statutory body set up under the Countryside and Rights of Way Act 2000 [RR-1175] identified three key areas of concern in respect of the Proposed Development:
- 1) *"The impact on the local and wider public rights of way network that the long construction phase will have, due to closures and diversions, and the consequential damage to the local tourism economy.*
 - 2) *The impact of the suggested road schemes, and the increased traffic on the A12 on the rights of way network."*
 - 3) The need for a public access strategy during construction and a robust access legacy package to include all permissive routes and diversions to become definitive rights of way"
- 5.5.92. IPs including [RR-287, RR-0136, REP2-371] identified adverse effect on Theberton, Middleton, Middleton Moor due to the introduction of the SLR which would cut across the local high network resulting in isolation from services within the local towns.

- 5.5.93. Additionally, the severance created by the new roads or the changes to those roads and rights of way meant that severance would occur within that community preventing or impacting upon the accessibility to services, schools or facilities that were a main stay of that community. This was particularly prevalent for residents in Eastbridge, Middleton Moor and Theberton, but was raised by many who reside along or either side of the B1122 route.
- 5.5.94. The approach of using the B1122 in the early years in conjunction with the construction of the SLR created significant adverse cumulative effects on these communities in advance of any mitigation the SLR might ultimately provide.
- 5.5.95. Severance of Theberton church from the community which it serves was also raised by [RR-1138], and severance in Yoxford due to increased traffic on the A12 and B1122 were identified by Yoxford PC [RR-1277].
- 5.5.96. The closure of Pretty Road was identified by many including [RR-1272]. This specific issue though was resolved by the introduction of the change to provide a crossing over the SLR.
- 5.5.97. Residents of Marlesford and Glemham including [RR-1018, RR-758] express concern regarding the adverse effect increased traffic would have from the proposed development, in combination with the positioning of the Southern Park and Ride. This combined with the lack of a bypass to the villages, would result in unacceptable impacts in terms of access to the A12 and severance from the facilities on the southern side of the A12.
- 5.5.98. Marlesford was identified by the Councils within the LIR as an area of particular concern with regard to the increase in severance and reduced amenity.
- 5.5.99. The LIR [REP1-045] agreed that the increased traffic on the wider road network would have an adverse impact on non motorised users causing severance and displacement, with impacts along the route of both the TVB and SLR.
- 5.5.100. In the Applicant's ES Transport Chapter [APP-198] four locations were identified where severance was regarded as having a significant effect in ES terms. This is set out in Table 10.14 which is copied below. The Applicant however, concluded that in each instance that in applying professional judgement and examining each of these links through the IEAMA Guidance that there would not be a significant effect when considering the particular circumstances in each location.

Table 5.5.03 Potential severance in 2023 – representative hour 07:00-08:00

Table 10.14 : Severance 2023 Representative Hour (07:00-08:00) Total Traffic

Link Number	Link Name	2023 Reference case (total traffic in the hour)	2023 Reference + Sizewell (busiest) total traffic in the hour	% Change	Magnitude	Sensitivity	Effect Significance
11	B1125 through Westleton	235	375	59.6%	Low	High	Moderate adverse
13d	A1120	287	399	39.0%	Low	High	Moderate adverse
17b	B1125	191	319	67.0%	Medium	High	Major adverse
90	A1120 Sibton (east of Mill Hill)	272	383	40.8%	Low	High	Moderate adverse

5.5.101. The Applicant concluded that with the mitigation in place any adverse effects of severance would be mitigated to a degree that was not significant. The mitigation covers the following elements of the Proposed Development:

- Southern and northern park and ride facilities;
- Freight management facility;
- Beach landing facility;
- Green rail route;
- Accommodation campus;
- 400 space caravan park at the ACA;
- Two village bypass;
- Sizewell link road;
- Yoxford roundabout Highway improvement works;
- Construction Traffic Management Plan;
- Construction Workforce Travel Plan;
- Traffic Incident Management Plan;
- Delivery Management System;
- Driver behaviour;
- Worker code of conduct.

5.5.102. From the submissions that were made during the Examination, IPs expressed concern with regards to the impacts the Proposed Development would have on the connectivity they currently enjoyed between their rural communities and the towns such as Saxmundham, Leiston and Yoxford. The provision of the SLR and the TVB would introduce new barriers to the current connections that were available via the local highway network.

5.5.103. IPs were concerned that it was not only the physical barrier that would arise, but the additional traffic associated with the Proposed Development that would in itself create problems with crossing either existing roads or proposed new ones.

5.5.104. IPs in Theberton and Eastbridge went further in expressing their anxiety that the consequential effects would prevent them from being able to access schools and other facilities or that it would be safe to do so for children in particular, with the significant increase in traffic particularly HDVs associated with the Proposed Development.

5.5.105. The early years of the construction period created different problems because of the lack of mitigation and the reliance on the B1122 as the

principal route for all construction traffic. The increase in HDVs by up to 600 associated with the construction programme in addition to the current traffic levels IPs identified as a very significant adverse effect of the Proposed Development.

- 5.5.106. The LIR concurred in many respects in supporting these communities in identifying areas of severance due to both direct and indirect effects. The areas identified were:
- B1122 along its whole length prior to the delivery of the SLR;
 - The SLR itself would introduce severance;
 - B1125 Theberton to Blythburgh;
 - A1120 Yoxford to the A140.
- 5.5.107. The applicant in contrast saw the provision of the SLR and TVB as providing opportunities for improving connectivity both during the construction, but beyond into the operational phase seeing it as a legacy benefit for the community.
- 5.5.108. In respect of the Southern P&R the LIR also identified the potential for severance in Wickham Market but in contrast the TVB was seen in the LIR as having a positive effect on amenity and severance for the Farnham and Stratford St Andrews communities.

PRoW routes, closures and diversions.

- 5.5.109. In the LIR [REP1-045] the Council's identified that the Proposed Development would have a negative effect on the quality and amenity of the recreation and access network, with impacts being both direct from closures or diversions and indirect through changes to amenity value and quality of experience with the construction phase having a greater adverse effect.
- 5.5.110. The LIR identified significant adverse impacts on the amenity and recreation value of the PRoW in the Main Development Site, and main development construction site with disturbance at the beach front and temporary closure of the Coast path the proposed England Coast Path National Trail along the coastal frontage and closures of public footpath (E-363/021/0), the public bridleway through the campus site (E-363/019/0), and closure of the permissive path along Goose Hill which is used by the Sandlings Walk.
- 5.5.111. In addition, significant concern that the proposed design places the public footpath and footpath corridor seaward of its current location and further seaward from the original submission, leaving it more vulnerable to erosion from coastal processes and subject to beach recharge works during operation and perhaps during construction.
- 5.5.112. Significant adverse effects on the amenity and recreation value of the network of PRoW affected by the TVB, SLR and GRR. Creating the potential to adversely affect the communities of Kelsale cum Carlton as during construction the SLR will isolate and sever the Parish by impeding access to PRoW.

Recreational and Amenity Impacts on communities and the AONB

- 5.5.113. In summary the concerns raised by IPs raised issues in respect of the general amenity of the area would be disrupted, and enjoyment of wildlife / landscapes lost. The Sizewell C Project would destroy the peaceful nature and tranquillity of the area. The perception of the area as a desirable place to live and visit would be greatly diminished.
- 5.5.114. Recreational Impacts within the AONB, were also identified by the AONB Partnership [RR-1170] in part because of the impact upon the loss of tranquillity. The concern was also identified at Minsmere by the RSPB/SWT [RR-1059].
- 5.5.115. The LIR [REP1-045] identifies that
- "The Councils consider that the AONB-defined characteristic of relative tranquillity would be adversely impacted by the introduction of construction noise, traffic and significant light pollution, as well as the introduction of additional power lines, which will affect, for example, perceptions of a natural landscape, peace and quiet, stars at night, and natural sounds."*
- 5.5.116. The LIR states that the very value of the coastal area for the quality and connectivity of the access network that enables enjoyment of the outstanding scenery, the peace and quiet and the abundant wildlife which attracts people there in the first place will be harmed.
- 5.5.117. This view was endorsed by Theberton and Eastbridge PC [REP10-638] who identify considerable concern regarding the negative impact on the AONB, Heritage Coast and designated sites at Minsmere, Sizewell and Dunwich both during development and operation.
- 5.5.118. The AONB Partnership following ISH12 confirmed their concern over impacts on the AONB and the effects that could arise from the Proposed Development on amenity and recreational benefits of the AONB. Stating that
- "The AONB Partnership concurs with view of East Suffolk Council and Suffolk County Council Local Impact Report that [REP01 045] includes the following: the development of Sizewell C will have a negative impact on the quality and amenity of the recreation and access network. This could have a consequential impact on the tourism offer in this area.*
- Impacts will be direct (diversions and closures)*
- indirect (changes to the amenity value and quality of the user experience due to increased activity such as traffic, noise, loss of views).*
- The construction phase will have a greater negative impact than the operation phase.*
- There will be adverse impacts during the construction of the Beach Landing Facilities and sea defences, and this continues throughout the construction period."*

Quality and suitability of Assessment

- 5.5.119. Evidence was presented by RSPB/SWT, the National Trust, and Natural England that the assessment of recreational effects was not supported by best available scientific evidence and they considered this undermined the conclusions reached from the Applicant's approach. These concerns can be summarised as the following:
- out-of-date data from 2014/2015 has been used to establish the baseline position on visitor pressure;
 - no consideration of other plans and Projects to identify cumulative effects;
 - reliance on a Rights of Way and Access Strategy to mitigate potential significant effects, yet the strategy has no specific details on the affected sites or any proposed measures;
 - draft Section 106 Heads of Terms refer to a contingency fund for European sites to mitigate effects arising from recreational displacement and there is also reference to 'resilience funds' for RSPB Minsmere and the National Trust Dunwich Heath and Beach.
- 5.5.120. The IPs considered that the need for these funds undermines the conclusion that the proposed development will not adversely affect the integrity of any European sites. SZC Co. appears to agree that there is uncertainty. It was also, not certain which avoidance/mitigation measures these funds would be used for, the mechanism for delivery of remedial work, if required, or how this would be agreed with the relevant authorities.
- 5.5.121. The issue of impacts on European sites is covered in the HRA Chapter of this report.
- 5.5.122. A number of RRs indicated objection to the scheme on the basis that in their view the development would adversely affect the enjoyment of their home either through increased traffic, or the consequential noise or air pollution associated with that traffic.

SLR

- 5.5.123. The issue of the closure of Pretty Road was picked up by a number of IPs and was the subject of FWQs AR.1.24, this was addressed by the Applicant's first change request which allowed for the retention of a vehicular crossing of the SLR at Pretty Road (Change 18) and detailed in [REP5-069] and [REP5-058].

TVB

- 5.5.124. Schedule 16 of the Draft Deed of Obligation identifies a Marlesford and Little Glemham Improvement Contribution to be used by SCC for the design and implementation of local improvements to mitigate Sizewell C impacts. The proposed improvements include new 30mph speed limit through Marlesford and extension of the existing 40mph speed limit, traffic calming, gateway features, new and wider footways and crossings. The Applicant considers that these measures adequately mitigate any potential effects.

- 5.5.125. [REP2-270] from Farnham Environment Residents & Neighbours Association (FERN) expresses deep concern over the adverse impact on the resident's amenity from the TVB and the adverse effect on the severance of the PRow circular route currently enjoyed by many. Currently being an enjoyable walk through the countryside where tranquillity and nature can be enjoyed. This would be lost by the route chosen by the Applicant. Resulting in a direct adverse effect on users of the PRow but also direct adverse effect on the properties in the Farnham Hall enclave.
- 5.5.126. Mollets Farm Partnership [REP2-380] advised that the severance of the PRow to Friday Street and the businesses there would directly and adversely affect their business as visitors took advantage of the current route across the fields to access these facilities and avoid the use of the roads. This was a significant benefit the business relied upon to support its sustainable credentials.

Safety of users of the Highway including PRow

- 5.5.127. As mentioned in the transport section of this Chapter the Applicant has undertaken Stage 1 Road Safety audits of all of their proposed highway interventions. This includes the SLR and the TVB. As part of the detailed design process two more stages of the audit would be undertaken by a road safety auditor, who would be independent of the design process. This process would identify any significant road safety concerns with the design. It also allows for the design to be amended if mitigation is required. Once the highway works are completed and in operation there is in addition a Stage 4 audit. This final audit would look again at the completed works to identify any further interventions that may be required. This is the industry standard approach to new highway design, and we consider that in this case it is a robust mechanism that would ensure that road safety issues with PRow crossings would be minimised, and as a consequence the amenity and recreational benefits derived from these routes would be maintained.

Recreational Impacts

- 5.5.128. In seeking to understand the potential for effects on recreation and sports provision more generally the ExA sought evidence at ISH4 from the Applicant on whether the ES assessment of amenity and recreation had properly assessed impacts.
- 5.5.129. The Applicant provided a detailed response both at the Hearing and in [REP5-116]. The Applicant considered that the formal assessment within the ES [APP-195] and [APP-267] set out an appropriate level of assessment of demand for informal recreation, formal sport and recreation activities, and is accurate to the scope of the assessment as set out in the Scoping Report [APP-168] having had regard to the Scoping Opinion [APP-169].
- 5.5.130. The ES recognised in paragraph 9.7.159 of [APP-195] that

"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."

- 5.5.131. The Applicant proposed the provision of a full size all weather sports pitch and two multi use games areas (MUGAs) at the Alde Valley Academy in Leiston. The sports facility would be made available for the workforce but also the public and academy at certain times, subsequently at the end of the construction period it would be available as a community asset.
- 5.5.132. Much of the debate that occurred in discussing recreational opportunities that currently exist within the area focused in on the benefits that were derived from the quality of the local environment and the area of outstanding natural beauty and the enjoyment that the public got from utilising these areas to the benefit of their health and well being.
- 5.5.133. The RSPB and SWT in addition to the National Trust continue to dispute the figures that the applicant relied upon in assessing the numbers of people that would continue to visit, enjoy come and benefit from these recreational areas [REP7-087, REP8-170].
- 5.5.134. The Applicant had undertaken a series of surveys of both current users but also examining the profile of the workforce and their use of informal recreational open spaces compared with the general population. The applicant maintained that the consequential effects of the development from the accommodation workforce had been properly assessed and any adverse effects resulting from the increase in numbers of people in the local area have been fully understood and reasonable predictions of impacts presented within the ES.
- 5.5.135. With the mitigation in place secured through the DoO, the CoCP and appropriate provision of recreational opportunities both through the sports pitches in Leiston, the informal recreation at Aldhurst Farm and the gym and footpath at the accommodation campus the Applicant remained firmly of the view that any adverse effects were appropriately mitigated.

AONB

- 5.5.136. The potential effects of the Proposed Development up on the enjoyment and use of the Area of Outstanding Natural Beauty have been recognised from the onset of the assessment of the site and its inclusion within the National Policy Statement (NPS) EN-6 as a site potentially suitable for the deployment of a nuclear power station.
- 5.5.137. A large number of IPs identified this issue and the consequential significant adverse effects they considered would arise to the enjoyment and use of this part of the county. EN-6 makes clear that adverse effects upon this designated landscape could be expected in the event that the

development of another nuclear power station were to take place. Paragraph 3.10.3 states:

"There is the potential for long-term effects on visual amenity, especially at ... Sizewell, given the Suffolk Coast and Heaths Area of Outstanding Natural Beauty.

5.5.138. In respect of the recreational and amenity aspects of the development, the importance of tranquillity is recognised in the NPPF paragraph 185 advising that planning decisions

"should protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."

5.5.139. The Suffolk Coastal District Council Local Plan Core Strategy and Development Management Policies the Suffolk Coast and Heaths Area of Outstanding Natural Beauty Management Plan 2018 -2023 and the Suffolk Coast and Heaths Area of Outstanding Natural Beauty Natural Beauty and Special Quality Indicators. [REP1-079].

5.5.140. These characteristics are identified of importance to the AONB and have been agreed with the Councils and the Applicant as a basis against which to judge the effects of the Proposed Development on the protected landscape and its special qualities. An extract from that document is set out below indicating the contribution of tranquillity to the AONB purpose.

Table 5.5.04 Extract from AONB purposes

Relative tranquillity	Contributors to tranquillity	Presence and / or perceptions of natural landscape, birdsong, peace and quiet, natural –looking woodland, stars	Areas of semi natural habitat, where there is a general absence of development and apparent human activity, contribute to a sense of relative tranquillity. Further enhanced by sounds (bird calls, the wind through reeds in estuaries, waves on shingle) and relatively dark skies.
		at night, stream, sea, natural sounds and similar influences	
	Detractors from tranquillity	Presence and/or perceptions of traffic noise, large numbers of people, urban development, overhead light pollution, low flying aircraft, power lines and similar influences	Some local detractors from tranquillity include the seasonal influx of visitors to coastal towns, low flying aircraft noise and urban development on fringes of the AONB.

5.5.141. Within the LIR [REP1-045] the Councils identified that relative tranquillity would be compromised. The defined characteristic of relative tranquillity

includes example indicators such as perceptions of a natural landscape, peace and quiet, stars at night and natural sounds.

- 5.5.142. The construction and operation phases of the proposed development would have a negative impact on these identified qualities by the introduction of construction noise, traffic and significant light pollution.
- 5.5.143. The Applicant in [APP-267] recognised that there would be harm to tranquillity, and this is recognised in the ES. In each of the areas the Applicant identifies as having an adverse effect in ES terms tranquillity forms part of that assessment and the conclusions the ES sets out has not been disputed.
- 5.5.144. The Councils noted that, given the significant residual impacts on the AONB Special Qualities, the Natural Environment Fund would be essential to mitigate / compensate for these residual impacts and needs to have a geographical focus on the AONB.
- 5.5.145. While ESC did not fully agree with the Applicant's assessment of the impacts of the Project on the amenity and recreational value of the AONB, it was satisfied the Natural Environment Improvement Fund, which is secured through Schedule 11 of the Deed of Obligation.
- 5.5.146. ESC particularly welcomes the proposal for an element of the Natural Environment Improvement Fund to be ring-fenced for spending in the AONB (see paragraph 2.3 of Schedule 11 to the Deed).
- 5.5.147. SCC confirmed, subject to finalising the relevant obligations, that with all of the provisions and funds that are anticipated to be in place, adequate mitigation for the amenity and recreational impact on the Area of Outstanding Natural Beauty would be achieved. [REP8-183].
- 5.5.148. TASC in [REP8-286] regarded the loss of quietness and the AONB Landscape Quality relating to Tranquillity as having a direct impact on any Health and Wellbeing benefits that make the area special.

AONB cumulative effects

- 5.5.149. 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. The methodology for assessment is set out in Appendix 6K of [APP-171].
- 5.5.150. 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, but also the Nautilus Interconnector, Eurolink Interconnector, Greater Gabbard extension and Galloper Extension Offshore Wind Farms could affect amenity and recreation in Visual Receptor Group 19 Aldringham Common and The Walks.

- 5.5.151. In the event these projects were to occur at the same time as the early years construction at the MDS the Applicant concludes these schemes would be likely to have effects on some receptors and this would be regarded as significant at Receptor Group 12, 15, and along the two linear routes of Sandlings Walk and the Suffolk Coast Path and future England Coast Path.
- 5.5.152. Matters in relation to the recreational effects in the AONB were considered in ISH 12 where ESC confirmed they were content the obligations secured through Schedule 11 of the DoO, would provide appropriate mitigation to address the recreational impacts in the AONB [REP8-150], this view was endorsed by SCC [REP8-183].
- 5.5.153. The AONB Partnership [REP8-265] considers that the findings set out in the LIR [REP1-045] which conclude that there would be a negative effect on the quality and amenity and recreation of the access network from both direct and indirect effects with the construction phase having the greater negative effect.

Public Rights of Way (PRoW)

- 5.5.154. A range of mitigation proposals are set out in the ES to minimise effects on PRoW users, such as minimising physical disruption, closures and diversions, as far as possible. The long-distance walking routes along the coast (the Suffolk Coast Path, and the future route of the England Coast Path) would remain open during construction and operation of Sizewell C, except in rare circumstances where it is considered unsafe to do so. An inland diversion would be provided for periods of temporary closure to ensure that people can continue to walk the Suffolk Coast Path, Sandlings Walk and the England Coast Path at all times, albeit along a longer inland route. The period of these closures and diversions would be minimised as far as possible.
- 5.5.155. Enhancements to the PRoW and wider access network are included within the proposals:
- enhanced north-south recreational routes through the creation of a 4.5km off-road multi-user bridleway for equestrians, cyclists and pedestrians. This includes off-road routes where existing rights of way and the Sustrans cycle route currently run along roads, and the creation of new routes where none exist at present;
 - a new off-road bridleway from Valley Road, connecting to the new off-road bridleway described above;
 - a new formalised permissive footpath from Kenton Hills car park, connecting to the extensive permissive footpath network in the woodland and to the Sandlings Walk and the Coast Path;
 - the provision of additional spaces at Kenton Hills car park, surface improvements, selective vegetation removal to create a more open environment and improvements to signage;
 - a permanent new footpath north of Leiston connecting two existing PRoW and Abbey Lane; and
 - the creation of a naturalistic coastal grassland/dune setting to the Coast Path on and east of the new sea defences as part of the

accessible 'coastal margin' which will be designated under the Marine and Coastal Access Act 2009.

- 5.5.156. The DCO changes includes a link from Aldhurst Farm to Kenton Hills car park via a crossing over Lover's Lane. This will substantially improve the west to east connectivity and the surrounding PRow network. The link will be provided for pedestrians during construction and it will be upgraded to a Bridleway following completion of construction.
- 5.5.157. Road safety audits have been completed for the TVB and SLR, and other highways within the scheme to minimise the risk of accidents on PRow. In line with the recommendations of the road safety audits, adequate warning will be provided for vehicles that pedestrians may be crossing the carriageway and adequate visibility will be provided to allow pedestrians to safely judge gaps in traffic prior to crossing. The Highway Authority have not identified a highway safety issue in this regard and the ExA do not consider there to be a safety argument that has been supported by evidence.

Suffolk Coastal Path

- 5.5.158. It was recognised early on during the assessment of the proposed development there would be potentially adverse effects upon the operation and use of the coastal path. Following the receipt of the first change request and the addition and amendment of the beach landing facilities the Applicant adjusted the assessment of impacts, as it was no longer considered necessary to close the path for prolonged periods.
- 5.5.159. As set out in [AS-181] paragraph 2.10.38
- "Further detailed design work, which has been carried out since the submission of the Application, has identified measures which would enable the Coast Path to remain open during construction of the permanent BLF, except in rare circumstances where it is considered unsafe to do so. It would therefore now be assumed to remain open for substantially more of the construction period than in the submitted Application. However, shorter term temporary closures remain possible."*
- 5.5.160. Nevertheless, the introduction of the BLF would continue to have an impact upon the users of the coastal path and this was the subject of discussion at ISH and subject to ExA questions
- 5.5.161. The Applicant confirmed that the Coast Path would now remain open during use of the permanent BLF by providing two alternative routes along the coast. The preferred route would be along the proposed permanent alignment of the Coast Path across the BLF access road. This would provide access at all times, except for when it would be necessary to temporarily close the Coast Path for approximately 1-2 hours whilst Abnormal Indivisible Loads (AILs) are delivered. During this time, a second route would be available along the beach, underneath the BLF deck, which would be open at all times. By having both options available, access along the coast would be kept open during BLF deliveries.

- 5.5.162. During operation the permanent BLF would have an increased number of piles to support the extended length and horizontal cross beams would also remain when not in use, this increases the visual effects on recreational receptors which the Applicant considered to be of limited effect.
- 5.5.163. The Coast Path would remain open during AIL deliveries and the inland diversion that had originally been proposed and detailed in [APP-267] would not now be required except in very rare events according to the Applicant in the region of once every 5-10 years.
- 5.5.164. The AONB Partnership noted [REP8-265] that existing public rights of way on the coast, the Suffolk Coast Path, the proposed England Coast Path National Trail and the Sandlings Walk would all be adversely affected by the construction activities on the beach itself and from the main platform. This would include temporary closures and would negatively impact those wishing to use them. Although the Applicant's proposals aspire for the coastal access to be maintained, it is recognised that there could be times when it is unsafe to do so and there would as a consequence be closures.

Bridleway 19

- 5.5.165. Representations were also received concerning the potential effects on Bridleway 19 including [REP7-265, REP7-266, REP7-267] particularly with regard to accessibility and safe use for horse riders and the concern that this route would be closed without a temporary or suitable diversion being in place. Which could then prevent the use of this important route throughout a significant part of the construction of the project if not all of it.
- 5.5.166. Bridleway 19 is regarded as an important route by IPs allowing connection to the beach and having an important role as part of a circular route. IPs including [AS-333, REP7-265, REP8-271, REP9-043, REP10-394] all expressed concern about the adverse effects on this route and the suitability of the mitigation offered for users of this route.
- 5.5.167. Bridleway 19 passes through the proposed construction site, it is regularly used, a suitable and safe alternative must be provided to any part of it being stopped up. According to [AS-261], the proposed alternative route would not be in place for pedestrians until after the initial construction stage and not at all for equestrians until the entire construction of SZC is complete.
- 5.5.168. SCC as highway authority acknowledged in [REP8-183] following ISH12 the need for BR19 to be closed during the construction period, the main outstanding matter of concern to SCC was that the northern end of the BR19 diversion users would have to walk in the road on the final 750m of the route into Eastbridge near The Round House. The road is narrow, lacking opportunities to step off the carriageway, and SCC considers that to properly deliver the mitigation offered by the BR19 off road diversion there is a need to 'finish off' this final section. SCC confirmed that an

alternative must be available before the closure of either the coast path or Bridleway 19.

5.5.169. The Applicant responded [REP8-126] committing to the continuity of the route, stating it:

"commits to continuity of Bridleway 19 on its current route during the early years of the development until such time as the diversion on a new permanent off-road bridleway around the construction site is completed. Upon restoration of the site, Bridleway 19 will be reinstated on its existing route, with the legacy benefit of the permanent off-road bridleway remaining to the public."

5.5.170. This control on the power to stop up/close public rights of way is standard drafting in DCOs and it ensures that the public rights of way network would remain open for use throughout the construction and operational phases of the proposed development.

Green Infrastructure

5.5.171. NPS EN-1 identifies that green infrastructure plays an increasingly important role in mitigating or adapting to the impacts of climate change (NPS EN-1, para 5.10.2).

5.5.172. Applicants are to consider providing new or additional open space including green infrastructure to substitute for any losses resulting from their proposals (NPS EN-1, para 5.10.6).

5.5.173. In reaching a decision on green infrastructure, the SoS should consider:

- imposing requirements to ensure the connectivity of the green infrastructure network is maintained (NPS EN-1, para 5.10.20); and
- whether mitigation of adverse effects is adequately provided for by means of planning obligations eg for appropriate management and maintenance agreement (NPS EN-1, para 5.10.21).

5.5.174. The general question of green infrastructure was not a principal issue identified at the outset, nor was it raised by IPs as something of specific concern to them, nevertheless the ExA has considered the approach the Applicant has taken in considering the recreational and ecological effects of the Proposed Development.

5.5.175. The Applicant in response to concerns from RSPB and National Trust amongst others prepared responses to the concerns on visitor displacement and the adequacy of amenity and recreational effects, and their response is summarised in [REP8-122] following debate at ISH12.

5.5.176. Two Monitoring and Mitigation plans have been submitted during the course of the Examination which are included in the DoO (Annex U and Annex V.). These plans have been prepared to monitor and mitigate for the potential disturbance at seven European Sites.

5.5.177. In addition, in response to the concerns raised by NE and ESC the Applicant has adapted their approach to availability of access to green

space which has resulted in the contribution towards the RAMS and adaption of the plans for Aldhurst Farm. NE confirmed that at the end of the Examination this had overcome their concern with regard to the need for SANGS which they had previously identified.

- 5.5.178. In these circumstances the ExA are content that the combination of measures formulated by the end of the Examination and secured through the DCO, and DoO would result in an appropriate response to the policy objectives set out in EN-1.

The ExA's Consideration and conclusions

- 5.5.179. It is recognised that any new road brings the potential for new severance effects. The alignment of the TVB dissects existing public rights of way (PRoW). The SLR alignment dissects existing PRoW as well as a number of rural roads. The severance effects of the new roads crossing the existing public rights of way are summarised in Volume 1, Chapter 2 of the ES Addendum [AS-181].
- 5.5.180. The ExA considers the Applicant's assessment reasonably reflects the degree of severance that would occur as a result of the Proposed Development both during construction and subsequent operation. The change to retain a vehicular crossing of the SLR at Pretty Road is a positive response to the concerns that were identified by IPs and is welcomed.
- 5.5.181. In order to mitigate effects, a new non-motorised user bridge is proposed over the TVB as well as a vehicular bridge over the SLR at Pretty Road. In addition, junctions have been provided along the SLR to provide access to the existing network of rural roads.
- 5.5.182. The Applicant considered that the new roads themselves provide mitigation of severance effects within communities that would have been experienced if the roads were not provided. Furthermore, the new roads have been designed to provide connectivity across the roads both for non-motorised users and vehicles.
- 5.5.183. The severance created by the combination of the construction of the SLR and the use of the B1122 in the early years does in the ExA's view result in harms to the communities in this location. The communities of Theberton, Middleton and Eastbridge would find themselves divorced from the main service centres of Saxmundham and to a lesser extent Leiston for a period of up to 2 years 9 months according to the Applicant's programme. This would result in significant severance for this period with both the physical construction activities and increased traffic to contend with.
- 5.5.184. This could be reduced in the event that these activities were not running simultaneously as the Applicant proposes.
- 5.5.185. It was recognised at the outset of the site nomination within EN6 that the construction of the power station would have adverse effects particularly during the construction period. A construction project of this scale will

inevitably cause disturbance and result in significant changes both directly and indirectly.

- 5.5.186. The Applicant has recognised this and sought to develop a series of mitigation measures to address these concerns and the ExA in most cases agree with those findings.
- 5.5.187. We also recognise that there are some positive benefits in terms of amenity and recreation that would arise from the Proposed Development taking place and that would provide some legacy benefits for the community into the future which must weigh in the planning balance in favour of the proposal. These include the provision of the sports facilities at the Alde Academy, upgrades to the PRoW network, and provision of and access to Aldhurst Farm. The ExA ascribes little weight to matters relating to the issue for the making of the Order
- 5.5.188. The creation of the TVB and SLR would also have amenity benefits for residents either side of the A12 and the B1122, and while there remain concerns over the route selection, in amenity terms the ExA concludes on balance the benefits outweigh the harms that would otherwise arise.
- 5.5.189. The existing path Sandlings Walk is in parts a permissive path, which will be closed throughout the construction phase, but its status and benefit would be enhanced by the application proposals post-construction. The Deed of Obligation includes provision for ‘a new bridleway through Kenton Hills and Goose Hill, linking Bridleway 19 with the accessible coastline, during the operational phase’. This is a positive benefit of the proposals. The ExA ascribes little weight to matters relating to this issue for the making of the Order
- 5.5.190. The effects on the Coast path and the implications for the amenity of users has been carefully considered and a programme of mitigations devised which has developed through the Examination which ultimately the Councils have agreed as set out on the SoCG. There will be adverse effects on the user experience particularly during construction but additionally through operation of the power stations. The ExA is however of the view that the mitigation package does satisfactorily deal with the adverse effects, and this should not weigh against the scheme in the planning balance.
- 5.5.191. In respect of the England Coast Path (ECP), at the end of the Examination, Natural England had submitted their report to the SoS for Defra, but the final route had not been set. The ExA have assumed that NE have followed their guidance ‘Version 2 of Natural England’s Approved Scheme, 2013’, (“the Scheme”), which is the methodology for implementation of the England Coast Path (ECP) and associated coastal margin of coastal land and that the proposed route is to follow the route of the current Suffolk Coast Path.
- 5.5.192. During the construction period the beach, coast path and route of the proposed ECP national trail would be affected and on a small number of occasions closed. EN-1 at paragraph 5.10.16 expects Applicants to have

taken advantage of opportunities to maintain and enhance access to the coast. In the ExA's view this has been achieved through the range of controls and mitigations included in the final DoO and DCO commitments.

- 5.5.193. The final siting of the coast path will be subject to approval by SCC via Requirement 10 of the DCO in line with the Rights of Way Access Strategy and the ExA conclude this is a suitable solution to the issues that were raised during the Examination.
- 5.5.194. The SoS should be aware that the DCO has not brought through the suggestion from the Right of Way Access Strategy that Natural England be consulted as part of the final route for the ECP, this the ExA considers would be prudent in light of Natural England's role in preparing the route for the national trail, and the current status of the route of the national trail awaiting approval of the SoS for Defra.
- 5.5.195. The ExA conclude the Applicant has satisfied the tests in the Marine and Coastal Access Act 2009 and with the modest change to the DCO the SoS obligations will be satisfied.
- 5.5.196. Bridleway 19 was the subject of a series of concerns and the Applicant has responded with revised arrangements to improve the safety and accessibility of this route both during construction and subsequent operation. SCC as the highway authority has agreed the approach as set out in the SoCG. This introduces Pegasus Crossings which while not to all IPs satisfaction are a recognised system of creating safe crossings with horses. The ExA accepts that the works will result in a degree of disruption on this important route but conclude the package of measures offered in conjunction with the safeguards built into the CoCP and other control documents are a satisfactory form of mitigation to address the challenges presented to achieve this extensive project.
- 5.5.197. With regard to the AONB the Applicant agrees there would be significant adverse effects on the recreational benefits currently enjoyed by users of the AONB, Minsmere and Dunwich. There remains a difference of views as to how best to assess the effects on recreational areas and whether the surveys used appropriately assessed the effects of the construction and workforce effects.
- 5.5.198. The Applicant undertook a tranquillity assessment which recognises the current baseline conditions and sets out in a numerical way what the public were saying in any event about the quality of the environment that they experienced in and around the site
- 5.5.199. The tranquillity assessment was not disputed and recognises that large areas around the MDS would be changed by the construction of the project and these effects would be significant even with mitigation in place.
- 5.5.200. The AONB Partnership maintained throughout that the proposal would not meet the purposes of the AONB and that these purposes were

statutory. The ExA conclude that there would be harm to the recreational benefits of the AONB and the land to the north identified within the ES.

- 5.5.201. The ExA conclude that the assessment undertaken can be regarded as robust, and the mitigation offered and agreed by the RSPB/SWT, National Trust and the Councils through the variety of funds offered and secured through the DoO would result in a suitable package of mitigation measures to address the construction and operation phases of the development.
- 5.5.202. It is however recognised by all parties that even with these measures in place residual harms would remain to the AONB and the recreational areas to the north of the MDS particularly during the construction phase, but harms would also remain once construction had been concluded during the operational phase of the development.
- 5.5.203. The ExA conclude that during the construction period, there would be substantial harm to the recreational and amenity benefits provided by the AONB at the MDS and in its immediate environs as set out within the Tranquillity Assessment, but this would reduce to little harm for the operational period once construction is complete the ExA ascribes little weight against the Order being made on this aspect of the project.
- 5.5.204. With regards to the cumulative effects that could arise in the event other projects were to coincide with the construction at the MDS, 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 mitigation included in respect of the MDS would be appropriate.
- 5.5.205. Nevertheless, in relation to the overall effect on the amenity and recreation enjoyed within the AONB and SHC, despite the proposed mitigation measures, residual adverse amenity and recreation effects would remain. The ExA therefore ascribes substantial weight in respect of the construction phase and little weight in respect of the operational phase to these matters against the Order being made.
- 5.5.206. Where the ExA remain concerned is the timing of the provision of the SLR and the ongoing adverse effect the traffic associated with the development would have on residents and highway users alike. The construction traffic would significantly change the character of and harm the amenity of residents to a significant degree during a time where according to the Applicant's own construction programme the greatest number of HGVs are required for the construction programme.
- 5.5.207. The mitigation offered by way of traffic controls through the CTMP and CWMP as well as limiting HGV numbers and timing of deliveries are not sufficient in the ExA's view to resolve the amenity issues that would arise during the early years construction period.

- 5.5.208. The additional highway measures that are promoted through the DoO could provide some community benefits, however they were not sufficiently developed prior to the close of the Examination to be able to fully understand what benefits they might actually bring for the community. Even had they been, the Applicant's position of not delaying works at the MDS in advance of these works commencing means any benefits that they might generate won't be in place at the time of greatest need. In this respect, they do not resolve the fundamental problem in amenity terms of directing up to 600 HDVs in addition to construction worker traffic along the B1122 a rural B road which the Applicant and SCC as highway authority both agree is not suitable for the construction traffic for the project.
- 5.5.209. The Applicant's professional judgement is in the ExA's view flawed in coming to the conclusion that it has. There is no obvious explanation why a road seen as unsuitable for the construction of the project, could be suitable for the early years when the greatest level of HDV traffic is proposed.
- 5.5.210. This in the ExA's view weighs against the scheme and the Exa ascribes moderate weight against the Order being made to this element of the Proposed Development.
- 5.5.211. As currently drafted The SLR (Work No. 11), the TVB (Work No. 12) and the temporary Beach Landing Facility must be available for use either within six months of the commencement of Phase 3, or before the Phase 3 Installation of the Reactor Building Liner can be installed. This was a welcome addition to the controls the Applicant agreed to during the Examination, but they do not resolve the early years impacts of the use of the B1122 for the construction and worker traffic.
- 5.5.212. Two Monitoring and Mitigation Plans have been submitted during the course of the Examination, to reflect the different approaches required in the light of the Shadow HRA Report [APP-145 to APP-149] and Shadow HRA.
- 5.5.213. These are set out in the Second ES Addendum [REP2-032], and are appended to the final Deed of Obligation [REP10-074]:
- *Monitoring and Mitigation Plan for Minsmere-Walberswick European Site and Sandlings (North) European Site; and*
 - *Monitoring and Mitigation Plan for Sandlings (Central) and Alde-Ore Estuary European Sites.*
- 5.5.214. The two plans set out how monitoring and mitigation with respect to recreational disturbance must be implemented at seven European sites to ensure that adverse effects on the integrity of the sites does not arise as a consequence of this effect pathway. This Chapter does not deal directly with the ecological impacts, but it is important to understand in the round, how the proposals respond to the concerns raised with regard to recreational effects.

- 5.5.215. This package of works in conjunction with the funds to be delivered through the DoO and the control mechanisms delivered through the CoCP and other supporting documents the ExA concludes would be sufficient to address the recreational and amenity affects identified in the ES although it must be understood that residual harm would remain to both the AONB and Heritage Coast.
- 5.5.216. The scheme if granted could achieve a series of benefits in amenity and recreational terms, each of these are elements that would count in favour of the scheme in the overall planning balance.
- 5.5.217. PRoW improvements would be facilitated through the Proposed Development in respect of existing routes but also new improved routes. This will have lasting legacy benefits for the local community and visitors alike and should be weighed in the balance in favour of the scheme.
- 5.5.218. Provision of the off-site sports pitches at Alde Valley Academy Leiston would result in positive community benefits that would continue as a legacy benefit.
- 5.5.219. With the SLR in place the amenity of residents along the B1122 would improve, and this route should become more attractive for residents, cyclists and other users. This could be improved further by the enhancements secured under the DoO to promote the B1122 post construction as a repurposed road with the provision of the additional measures provided by the B1122 early years scheme in Theberton and Middleton Moor and the B1122 repurposing scheme.
- 5.5.220. The provision of the TVB would improve the amenity of residents living either side of the A12 who would be bypassed, it should also be recognised it has the potential to improve the amenity of drivers using the A12. On the other hand, the scheme could result in harms to residents not currently affected by road traffic that should weigh against the scheme in the planning balance.
- 5.5.221. While the Applicant does promote controls on movements through the CTMP this only prevents vehicles leaving the MDS after 23.00 or arriving before 07:15. The DMS which is also a requirement of the CTMP is there to manage deliveries but to
- 5.5.222. *"Effectively plan all HGV movements to/from the main development site in accordance with the construction programme to maximise construction and site efficiency"* and to *"Regulate the flow of HGVs to/from the main development site by providing a set number of delivery slots per day (in accordance with the Sizewell C HGV limits and timing restrictions)."* [REP2-054].
- 5.5.223. The ExA recognise that one of the objectives of the CTMP is to minimise impacts on local communities. It is also there to ensure an efficient management and delivery of the construction programme which the Applicant was at pains to present was the overriding objective in terms of need and urgency of delivery.

- 5.5.224. In these circumstances it is considered that if there were to be a conflict between these two objectives, the delivery of the programme would be prioritised by the Applicant and the contractors.
- 5.5.225. The AM Peak hour restriction of 57 two-way movements also part of the CTMP is indicative of the scale of the number of HDV that could be travelling along this route in any given hour. This and the evening peak hour are the only times where a maximum number of HDVs are limited in any given hour and is not an indication of the maximum number of vehicles that might be travelling through a community at any one time or arriving or leaving the MDS.
- 5.5.226. Residents would potentially be subject to significant adverse effects of these HDVs travelling through their communities a considerable number of which could be in the evenings and late at night on a road which the Applicant has themselves described as unsuitable for the construction traffic, and the SCC as highway authority described as having "*poor alignments and passing through villages.*" [REP4-005].
- 5.5.227. The ExA is not satisfied that the strategy adopted by the Applicant would afford a suitable degree of protection for residents or highway users in the early years without the SLR in place. Nor does the offer of the remedial mitigation offered through the DoO for communities on the B1122 fully resolve this issue particularly as there is no certainty on the timing of the delivery of these additional measures.
- 5.5.228. The ExA considers that these additional mitigations could be of benefit to the local community, but it is not satisfied that even if they were delivered in advance of the main construction works commencing, they would remedy the problem that arises by routing the construction traffic along the B1122 in the early years. The ExA ascribes moderate weight against the Order being made in regard to this element of the Amenity and Recreational effects that arise in recognition of the temporary nature of the harms.

5.6. BIODIVERSITY AND ECOLOGY TERRESTRIAL

- 5.6.1. 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.
- 5.6.2. By the end of the Examination there remained a very large number of matters where agreement was not reached between the Applicant and Natural England (NE). The ExA's consideration of those, so far as they do not relate to HRA matters, is set out after the summary of policy and law on terrestrial issues. In relation to HRA matters they are addressed in Chapter 6 of this report.
- 5.6.3. The Applicant divided its consideration of terrestrial ecology and ornithology into the main site and then the associated development sites

(the park and rides and so on). The ExA has adopted the same approach in this report. The ES chapters were all supported by extensive appendices.

Policy

National Policy Statements

- 5.6.4. National Policy Statement (NPS) EN-1 section 5.3 sets out national policy for NSIPs on biodiversity and geological conservation. There are also helpful lists of policy provided by the Applicant [APP-224, Tables 14.1 and 14.2] and [AS-033, Tables 14.1 and 14.2]. 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.
- 5.6.5. 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.
- 5.6.6. Regional and local sites, which include Local Nature Reserves and Local Sites include County Wildlife Sites in the context of the Proposed Development. They have a fundamental role to play in meeting overall national biodiversity targets. However, such designations are not, given the need for new infrastructure, reasons in themselves to refuse development consent.
- 5.6.7. Ancient woodland is valuable for biodiversity and longevity as woodland. EN-1 states that consent is not to be granted if there would be loss or deterioration of ancient woodland, unless benefits of (including need for) development at that location outweigh the loss. Veteran trees are valuable for biodiversity and their loss should be avoided. If affected, conservation proposals should be included; if loss is unavoidable the reason must be set out.
- 5.6.8. Decisions on DCO applications are to maximise opportunities to build in beneficial diversity as part of good design both in and around developments.
- 5.6.9. Protection of habitats and other species occurs under a range of legislative provisions, for example the Wildlife and Countryside Act 1981, the Habitats Regulations and the Protection of Badgers Act 1992.

- 5.6.10. Other species and habitats are of principal importance for the conservation of biodiversity (see also ss 40 and 41 of the Natural Environment and Rural Communities Act 2006). Policy 5.3.17 of EN-1 requires them to be protected from the adverse effects of development. Consents should be refused where harm to the habitats or species and their habitats would result, unless the benefits of the development outweigh that harm. Substantial weight is to be given to detriment to biodiversity features of national or regional importance.
- 5.6.11. Integral mitigation should be incorporated, confining construction activities to the minimum areas required; following best practice to minimise the risk of disturbance or damage to species or habitats; restoring habitats where practicable after construction and taking opportunities to enhance existing habitats and create new ones, or value, within landscaping proposals. Other mitigation may need to be secured by requirements or planning obligations. Measures agreed with NE or the MMO should be taken into account, including whether NE or the MMO intend to grant or refuse any relevant licences.
- 5.6.12. EN-6 para 3.9 applies the above policies and contains further policy on biodiversity in the case of nuclear power stations.
- 5.6.13. Effects on groundwater and effects on terrestrial / coastal habitats are to be addressed and baseline studies on nationally and internationally important habitats and species which may be affected are to be carried out, so as to inform the assessment of cumulative effects.
- 5.6.14. EN-6 also refers to the Nuclear AoS and HRA which have identified possible mitigation options. The ExA highlights para 5.13 of the AoS¹³ and 5.14¹⁴. The HRA report also gives further information. Paragraph 5.18 of the AoS could not at that stage rule out significant strategic effects on international and national sites but considered there was potential for mitigation or compensation in some cases, including the

13

5.13 "There will be a need for the developer to avoid or minimise such losses and disturbance to protected species through careful site layout, design, routing, location of the development, associated infrastructure, and construction management and timings. There is potential for habitat creation within the wider area in order to replace lost 'wet meadows' habitats of the Sizewell Appraisal of Sustainability Site Report for Sizewell Marshes SSSI, but it may not be possible to fully compensate for losses of this habitat. The developer will therefore need to develop an ecological mitigation and management plan to minimise the impacts."

¹⁴ 5.14 "Cooling water abstraction may impact on fish species as the coastal waters adjacent to the site are important and prosperous fisheries for a range of commercial species. The incorporation of fish protection measures within cooling water intake/system design will therefore need to be secured to safeguard the marine environment. Discharge of heated waters into the North Sea may affect aquatic ecology but further studies by the developer are necessary to determine impact. Increased boat activity in the Outer Thames Estuary SPA related to a marine landing station may also impact aquatic ecology but again further studies by the developer would be required to determine the impact."

creation of compensatory habitat for UK designated (rather than internationally designated) sites. Advice on internationally designated sites was contained in the nuclear HRA.

The National Planning Policy Framework

- 5.6.15. The National Planning Policy Framework (NPPF) does not contain specific policies for NSIPs which it recognises are to be determined within the decision-making framework of the Planning Act 2008. That allows for the NPPF to be an important and relevant matter. Section 15 of the NPPF sets out requirements for conserving and enhancing the natural environment through planning so as to minimise impacts on habitats and biodiversity. Planning Practice Guidance 2019 explains key issues in implementing the NPPF to protect and enhance the natural environment, including local requirements.

The Government's 25 Year Environment Plan 2018.

- 5.6.16. A plan on how to improve natural health of the UK through improving air and water quality, protection of threatened species and improving the diversity of habitats, as well as tackling climate change. It has goals and policies on sustainable land management, landscapes and biodiversity, resource efficiency, reducing waste and pollution and the UK's contribution to improving global environment.

Regional policies

- Suffolk Nature Strategy developed by SCC in conjunction with SWT, RSPB and others outlines county priorities and the contribution to economic growth, health and wellbeing of Suffolk landscape and wildlife. It sets out recommendations for protection of wildlife sites, priority species and habitats and other related matters
- Suffolk Local Biodiversity Action Plan (BAP) 2012 and Suffolk's Priority Species and Habitats list 2015. The latter is a continually evolving list published on-line. It is incorporated into the Suffolk BAP 2012. The Applicant explains in [APP-171] Appendix J para 1.2.31 (epage 373) that this effectively takes the place of the UK BAP 1994 in Suffolk.

Local policies

- 5.6.17. The relevant local plan at the time of the application was the Suffolk Coastal Local Plan which comprises saved policies of the Suffolk Coastal Local Plan 2001 and 2006, the Core Strategy and Development Plan Document 2013 and the Site Allocations and Area Specific Policies Development Plan Document 2017. A new draft local plan was submitted to the SoS for examination in January 2019. It was adopted in September 2020. In the draft plan the Applicant identified two relevant policies only in relation to biodiversity, namely 10.1 and 10.3. (See [APP-171] epage 375 para 1.2.40. The ExA notes that paragraph also lists policies 10.2 and 10.4. However 10.2 simply reflects the HRA duties and policy 10.4 relates to landscape character.) In [REP7-072] at Appendix A epage 5 onwards the Applicant compared the adopted plan with the National Policy Statements 1 and 6. It concluded that those plan policies as adopted were either in conflict with the NPS or that the NPS was more

detailed and specific. There was one exception to this, namely the part of 10.1 which required environmental net gains in terms of green infrastructure and biodiversity. The Applicant did not state in terms that this was in conflict with the NPS but phrased its response as "Not in NPS policy" which we consider is much the same. The Applicant's position on the relevance of local plan policy is set out in [APP-590] and after consideration states: "*There are no adopted or emerging regional or local planning policies that relate to matters not covered by the NPSs that are relevant to the application*" [APP-590, para 3.10.14].

Relevant legal provisions

- 5.6.18. Whilst there are many legal provisions, some highlighted by policy referred to above, this section sets out two of particular importance. The provisions of the Wildlife and Countryside Act 1981 (W&C Act 1981) may require steps to be taken by the SoS in their decision-making period following the delivery of this report.

The Wildlife and Countryside Act 1981

- 5.6.19. Section 28G of the W&C Act 1981 creates a duty on the SoS (who is a s.28G authority) to take reasonable steps, consistent with the proper exercise of the authority's functions, to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest.
- 5.6.20. By s.28I(2) before permitting the carrying out of operations likely to damage any of the flora, fauna or geological or physiographical features by reason of which a site of special scientific interest is of special interest, a section 28G authority shall give notice of the proposed operations to NE. This is relevant in this case because the part of the development will take place in the Sizewell Marshes SSSI
- 5.6.21. By s.28P (5A) a s.28G authority who permits the carrying out of an operation which damages flora, fauna or geological or physiological features by reason of which the SSSI is of special interest without complying with s.28I(2), (4) or (6) without reasonable excuse commits a criminal offence.
- 5.6.22. By s.28I(1) it is a criminal offence for any person to carry out operations specified in the notification of land as an SSSI without the consent of NE. There are rights of appeal to the SoS in s.28F. However, more practically, it is a reasonable excuse if the operation in question was "*permitted by a section 28G authority which has acted in accordance with section 28I*".
- 5.6.23. To comply with s.28I the SoS will need to take the following steps:
- The SoS would have to give notice to NE before making the DCO – s.28I(2),
 - The SoS would then have to wait 28 days – s.28I(4),
 - The SoS would have to take into account any advice from NE – s.28I(5),

- If the SoS does not follow the advice of NE they would have to give notice of the DCO in its final form and state how the advice of NE had been taken into account - s.28I(6)(a), and
- Not make the DCO until 21 days had elapsed - s.28I(6)(b).

5.6.24. The ExA draws these s.28I provisions to the attention of the SoS as complying with them will take at least 49 days during their three month decision period in s.107 of the Planning Act 2008.

5.6.25. The ExA specifically drew the Applicant's attention to these provisions in ExQ1. The Applicant has responded to both in its responses to ExQ1 (see also the subsequently revised version at [REP7-057, Appendix 2A pages 3-424] in response to ExQ2) and at Issue Specific Hearing (ISH) 7. The ExA drew attention to them again at ISH7 and the Applicant's summary of its submissions to ISH7 [REP5-112].

The Natural Environment and Rural Communities Act 2006

5.6.26. Section 40 of this Act imposes duties on the SoS in exercising their functions, as follows:

- *"(1) The public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.*
- *(2) In complying with subsection (1), a Minister of the Crown or government department must in particular have regard to the United Nations Environmental Programme Convention on Biological Diversity of 1992".*

5.6.27. Section 41 of the same Act requires the SoS to publish a list of organisms and habitats of principal importance for conserving biodiversity and to

- *"(a) take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or*
- *(b) promote the taking by others of such steps".*

5.6.28. The ExA also specifically drew the Applicant's attention to these provisions in ExQ1. The Applicant's response combined with its response to the s.28G and s.28I aspects was revised at DL7 and is at [REP7-057] Appendix 2A at pages 3-424.

Other particular provisions

5.6.29. The SoS will need to carry out their duties in accordance with the requirements of the Habitats Regulations, as set out in Chapter 6 of this Report. The RSPB have also drawn attention to Regulations 10 and 16A of the Habitats Regulations.

Local Impact Report

5.6.30. At the end of the Examination, at DL10, East Suffolk Council (ESC) and Suffolk County Council (SCC) submitted a Local Impact Report (LIR)

Review [REP10-183] which updated the ExA on the matters outstanding between them and the Applicant by reference to the LIR itself. It is intended to be read alongside the final Statement of Common Ground (SoCG) [REP10-102] between them and the final and executed Deed of Obligation. The LIR Review states that "*Elements not included within this document should be considered to be resolved between the Applicant and the Councils*". Clearly much had been resolved, whether by discussion and understanding, changes to the scheme or – in many cases – the creation and submission of new or the amendment of already proposed control documents. Some of the amendments to documents were to be submitted at DL10. As a result, ESC would not have had sight of them. However, the ExA has compared the relevant DL10 documents with what ESC says it was expecting and is satisfied that the Applicant has done what was expected. The LIR review no longer identified any further significant impacts. There were two outstanding matters not agreed with the Applicant in relation to terrestrial ecology and ornithology on the MDS, as follows:

- SSSI crossing; ESC is content that the proposed bridge (Change 6) offers a reasonable compromise for landscape and ecological purposes but also considers that it is worse than the three-span option, primarily due to the greater land-take.
- Wet woodland; ESC wants the habitat creation to take place in advance, whereas the Applicant cannot agree to this and does not consider it to be necessary in advance.

5.6.31. This is consistent with the Final SoCG [REP10-102].

Main Issues in Biodiversity – Terrestrial Ecology and Ornithology

5.6.32. In our Initial Assessment of Principal Issues, we listed effects on the Minsmere-Walberswick designated sites, other European sites and to SSSIs; appropriate assessment under the Habitats Regulations, eels, biodiversity net gain, the sum of effects and their mitigation and compensation; the weight to be given to Suffolk priority habitats and species, monitoring and further steps, the design and options for the SSSI crossing, its effects and the loss of watercourses, and the effects of the cut-off wall.

5.6.33. These were developed and refined these during the Examination and the following main issues are reported below:

- The Sizewell Marshes SSSI and in particular the proposed SSSI crossing, Fen meadow replacement, wet woodland replacement, water level monitoring;
- Minsmere – the marsh harrier and compensatory measures, the need (or otherwise) for the Westleton compensatory site, the gadwall and shoveler. These issues are primarily addressed in Chapter 6 (HRA) but are included here where relevant to the ES assessment of likely significant effects;
- Protected species;

- Designated sites;
- Ancient woodland, ancient and veteran trees and the route of the Two Village Bypass (TVB);
- The Sizewell Link Road (SLR), mitigation for loss of watercourses;
- Collision risk for birds;
- Associated Development Sites; and
- Duties under ss.28G-28I of the Wildlife and Countryside Act 1981 and duties under ss 40 and 41 of the Natural Environment and Rural Communities Act 2006 and EN-1 policy 5.3.17.

5.6.34. Before reporting on those issues above, a section is included on matters which were not agreed between the Applicant and Natural England (NE) to provide relevant background. Our report is structured as follows from here:

- Disagreements between Natural England and the Applicant
- The Main Development Site
- Associated Development Sites
- Biodiversity Net Gain
- Biodiversity benefits and good design
- Mitigation plans and compensatory habitat
- Collision risk
- The Natural Resources and Rural Communities Act and Wildlife and Countryside Act
- Conclusions
- Conclusions on policy

The discussion in the first section is drawn on in subsequent sections.

Disagreements between Natural England and the Applicant

5.6.35. The source for the matters on which NE and the Applicant were unable to reach agreement by the close of the Examination is their final SoCG [REP10-097]. NE allocated each of its issues with Issue Number (IN) from the outset in its Relevant Representation (RR) [RR-0878]. Those matters which were not agreed (the Outstanding Issues) and which are HRA issues are dealt with in Chapter 6. This section looks at the issues in the EIA context.

5.6.36. Page numbers and paragraph numbers are to the final SoCG [REP10-097] unless stated otherwise. The final SoCG comprises the streamlined SoCG at the beginning of the document, which was prepared between DL9 and DL10, with the former SoCG included [REP10-097, Appendix 1]. In some cases, issues relate to HRA designations as well as national/ EIA matters. They were allocated separate Issue Numbers in the SoCG and when they overlap, they were brought together by the Applicant in the Streamlined SoCG with both Issue Numbers. The first number is the HRA matter. For example, the matter of water strategy appears in the Streamlined SoCG as 3/13 with the number 3 being the HRA issue.

IN10: Ecology: Protected species' mitigation, compensation and licencing approach for the project as a whole

5.6.37. NE confirms that draft species licences have been received, but it is not yet in a position to issue letters of no impediment (LoNI). It is still in the process of reviewing and until it has undertaken reviews it will be unable to advise prior to close of the Examination whether there is any fundamental reason why the relevant licences would not be granted. [REP10-097, IN10, epage 18].

5.6.38. The Applicant's position is that "*The very fact that there is a licensing process, which requires the approval of Natural England, should itself be of assurance to Natural England that there are complementary regimes, each with their part to play (and that its own approval process will not risk adverse effects arising)*".

The ExA's consideration and conclusion of IN10

5.6.39. The Planning Inspectorate's Advice Note 11, Annex C Appendix I sets out the timescale NE expects to meet when draft licences are submitted. It expects drafts to be submitted before an NSIP application is made and states that "*Within 30 working days, Natural England will either issue:*

'a letter of no impediment' stating that it is satisfied in principle, in so far as it can make a judgement on the information reviewed, that the proposals presented comply with the 3 licensing tests, or

a letter outlining why we believe the proposals currently do not meet licensing requirements and what further information is required. If further information is required, this is likely to result in the need for further advisory services under the pre-submission screening agreement of the revised draft licence application. It should be noted that time taken by you to provide any amended / enhanced / new information does not count towards the 30 working day customer standard target."

5.6.40. The Applicant submitted all the required draft applications to NE after the application was made. They were submitted on various dates between 95 days and 33 days prior to DL10 and in some cases were updates to applications submitted simultaneously with the NSIP application [REP10-097, epage 18] and the Applicant's Comments on responses to Change Request 19 [REP10-165, para 2.82.15]. NE agreed that it has received "*all the draft species licences outlined by the Applicant*" [REP10-097, epage 18]. (To be clear the ExA does not read the words "*outlined by the Applicant*" to be a suggestion that others are required and there is no express suggestion to that effect.) The Applicant reports that it "*has not received feedback on any of these [draft applications]*" [REP10-165 para 2.18.15]. NE was unable to advise prior to close of the Examination whether there is any fundamental reason why the relevant licences would not be granted. On the other hand, NE does not say that any of the licences would not be granted.

5.6.41. As noted above the Applicant observes: "*The very fact that there is a licensing process, which requires the approval of Natural England, should itself be of assurance to Natural England that there are complementary regimes, each with their part to play (and that its own approval process will not risk adverse effects arising)*" [REP10-097, epage 19].

- 5.6.42. In the ExA's view, whilst the failure to submit draft licences before making the NSIP application and the later delay by NE in responding to the drafts when they were actually made are unfortunate, they do not cast relevant doubt on the assessment of ecological effects, nor on the HRA process for the purpose of this application. The assessment has to be made on the basis of the available evidence. It obviously has relevance to the timing of commencement of the project and to whether the project will proceed.
- 5.6.43. Whether or not NE is likely to grant the licence applications and the assessment of the drafts are matters of judgment for the SoS who may wish to enquire of NE and the Applicant as to the position on the draft licence applications prior to deciding the application. The SoS will wish to know that on the final day of the Examination NE made a late submission, accepted by the ExA, in which it wrote that it aimed to complete its review of the licence applications "*in full by 11 November, and provide comment on what may need to be improved upon in order to satisfy a potential licence application. We ... would very much request that these are passed on to the Secretary of State when the time comes, as agreed via telephone conversation*". The SoS will therefore have the necessary information as to whether the protected species licences can be granted.

IN13: Water use Impacts from a Number of Proposed Development Elements, (including potable and non-potable freshwater supply) and Subsequent Ecological Effects on Internationally Designated Sites and Nationally Designated Sites and their Notified Features

- 5.6.44. This addresses the water strategy. It affects the Alde-Ore Estuary SSSI, the Leiston – Aldeburgh SSSI, the Minsmere – Walberswick Heath and Marshes SSSI and the Sizewell Marshes SSSI. By the end of the Examination, it was linked strongly to Change 19 (temporary desalination plant) and issues which were highlighted by or emerged from that. The issue is water use effects from a number of project elements including potable and non-potable freshwater supply. This issue is addressed in Section 5.11, Flood Risk Ground Water and Surface Water.

IN15: Airborne Pollution Effects on Nationally Designated Sites from a Number of Proposed Development Elements

- 5.6.45. Relevant sites are the Alde-Ore Estuary SSSI, the Leiston – Aldeburgh SSSI, the Minsmere – Walberswick Heath and Marshes SSSI and the Sizewell Marshes SSSI.
- 5.6.46. The final SoCG records that in May 2021 the SoCG there was no disagreement in relation to dust impacts and NE agreed they would be adequately managed by the Outline Dust Management Plan and CoCP. Combustion effects were still under consideration by NE.
- 5.6.47. By the end of the Examination there was still an issue in relation to combustion impacts, but it has narrowed. The streamlined SSSI records that the disagreement is only as to effects from combustion and on the

Minsmere – Walberswick European Sites only. The Minsmere – Walberswick SSSI is no longer mentioned in the list of sites, although it does of course underpin the European Sites and is larger than the European sites. The issue is solely about HRA criteria. There is therefore no disagreement on EIA or SSSI matters. The conclusion in the Applicant’s ES for the MDS [APP-224], unaltered by the subsequent changes, is that there would be no likely significant adverse effect and no harm to the SSSI therefore stands for EIA purposes. The other sites were also removed in the streamlined SoCG.

IN17: Ecological Effects from Physical Interaction Between Species and Proposed Development Infrastructure

- 5.6.48. The only remaining matter in relation to SSSIs is the risk of birds strike s with overhead lines and pylons. The relevant SSSIs are the Alde-Ore Estuary SSSI and the Minsmere – Walberswick Heaths and Marshes SSSI. The Streamlined SoCG records that NE’s concerns have been addressed by the mitigation measures in the Terrestrial Ecology Monitoring and Mitigation Plan (TEMMP) and that the outstanding matter are methodologies and triggers for the retrofitting of line markers which would be needed before AEOI of the internationally designated sites and or adverse impacts on SSSIs can be ruled out [REP10-097, epage 16 to 17]. Internationally designated sites are addressed in Chapter 6.
- 5.6.49. The final version of the TEMMP which is secured by R4 sets out that there must be monthly surveys for a year following installation of overhead lines to survey for bird carcasses by walking the route of the lines to check for any bird remains [REP10-089, epage 19]. If markers are installed the surveys continue for a further year. A monthly report would be submitted to the Ecology Working Group (EWG) which is created and secured in the DoO, Schedule 11 para 17. It would determine if line markers would be required. The EWG would have one member nominated by NE. The target and effectiveness measure would be to determine mortality for all bird species associated with bird strike to decide whether installing markers to increase visibility is necessary.
- 5.6.50. NE would not have had the opportunity to comment on the final version of the TEMMP. The ExA is of the view that the TEMMP satisfactorily sets out the methodology and way to determine if retrofitting of line markers would be necessary, that there would be no likely significant adverse effects and that the SSSI would not be harmed.

IN19: Cumulative Assessment

- 5.6.51. 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. NE requires the resolution of all outstanding issues alone before progress can be made on cumulative assessment. There are several issues not agreed. NE considers that there have not been sufficiently robust assessments of impacts from all elements on the listed SSSIs and their notified features, which it considers a crucial element of the EIA process. NE maintained this position throughout the Examination [REP10-097, epage 17 to 18].

- 5.6.52. 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].
- 5.6.53. The ExA agrees 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 terrestrial SSSIs and ecology.

IN21: Main Development Site Ecology: Loss of/ damage to ancient woodland and ancient or veteran trees

- 5.6.54. NE says that in relation to fragmentation and severance, the ES does not cover these potential effects in detail. The *"15m buffer at Foxburrow Wood, only accounts for direct tree root impacts and takes no account of other impacts, such as air pollution, where a negative impact has been demonstrated. The nature and scale of the development and its assessed impacts indicates that a significantly larger buffer zone is likely to be required to protect the ancient woodland."* [REP10-097, epage 38 to 39 and Appendix A epage 196 to 200].

- 5.6.55. The Applicant disagrees saying that the matter has been comprehensively addressed in the ES, the various ES addenda and other submitted material summarised in the response.

"SZC Co. has submitted detailed evidence about air quality and water impacts at Foxburrow Wood to the examination and there is simply no evidence to indicate that any buffer large than the recommended 15m, which will be provided, is needed."

"Mitigation for the unavoidable loss of veteran trees is defined in the updated LEMP [which] was submitted at Deadline 8 [REP8-078 and [REP8-079]. Natural England has not engaged with SZC Co.'s evidence that the loss of a limited number of veteran trees is unavoidable – and necessary – given the benefits of the two bypasses which other parties have been happy to acknowledge." [REP10-097, epage 39].

- 5.6.56. Farnham Environment Residents & Neighbours Association (FERN) and the Woodland Trust also made related submissions. In *"Trees & Woodland in the vicinity of the proposed Two Village Bypass"* [REP10-266] FERN says that two veteran trees (which they identify as Tree 97 and Tree 119) together with one Listed Ancient Oak (Tree 98) and a mature ash (Tree120) would be felled [REP10-266, epage 2]. FERN also expresses concern about potential hydrological impact on Foxburrow Wood from the deep cutting of the TVB.

- 5.6.57. FERN also argues that the route of the TVB should go east of Foxburrow Wood through the relatively thin woodland, referred to in some documentation as part of Palant's Grove, between it and the eastern part of Palant's Grove. One factor on this argument is whether or not Palant's Grove is ancient woodland. The area of thin woodland was in fact

removed from the ancient woodland inventory on 6 March 2020 as is made clear in Appendix 2 to FERN's Written Representation (WR) in ecology where it append copies of the relevant documentation from NE [REP2-265]. The eastern part of Palant's Grove remains as ancient woodland as does Foxburrow Wood. The area removed is where the Farnham with Stratford St. Andrew Parish Council's alternative scheme would pass. However, it should be noted that the whole block from Foxburrow Wood to East Palant's Grove including the part which is no longer ancient woodland remains as a County Wildlife Site (CWS). The Parish Council's suggested eastern route would therefore cut through the CWS.

- 5.6.58. These matters do not however affect consideration of any damage to ancient woodland by the cutting adjacent to Foxburrow Wood on the proposed alignment though they are relevant to the number of veteran trees which would be lost and to the consideration in Section 5.4 of this Report of the alternative route suggested by Farnham with Stratford St. Andrew Parish Council.
- 5.6.59. In relation to hydrology, FERN drew attention to oak stress in Foxburrow Wood and to a new trench dug by the farmer in the winter of 2020/21 which it says compromises hydrology [REP2-266]. They question whether proper hydrological studies have been undertaken and say none have taken account of the farmer's trenching. In relation to this the ExA notes that in answer to its specific question at ISH7 Part 1, the Applicant stated that no hydrological impact was expected at Foxburrow Wood as the water table lies below the cutting.
- 5.6.60. The Woodland Trust also commented on fragmentation and the loss of veteran trees. Its WR largely refers the ExA to advice and policy. It states that no veteran trees should be lost and that such losses would be "*highly deleterious to the wider environment of veteran trees within close proximity which may harbour rare and important species*" [REP2-497].
- 5.6.61. The ExA is satisfied that these matters have been taken into account in the ES.

The ExA's consideration of IN21: Ancient woodland and Ancient and Veteran Trees

- 5.6.62. Loss of/damage to ancient woodland and ancient or veteran trees. Whilst this matter occupies a considerable amount of Appendix A to the SoCG, by the end of the Examination it had been whittled down to the following:
- a. NE stated that its complaint on habitat fragmentation related to the wider habitat network and not to direct woodland fragmentation.
 - b. NE alleged that the 15m buffer to Foxburrow Wood did not account for impacts other than direct tree root impacts, such as air pollution and that it does not take account of the nature and scale of the development.
 - c. NE registered its disappointment at the loss of irreplaceable ancient and veteran trees.

- 5.6.63. The ExA addresses these in turn below.
- a. Habitat fragmentation
- 5.6.64. NE's RR clearly refers on this issue to fragmentation of ancient woodland "*which would reduce the ecological connectivity between them*" [RR-0878]. The point being made seems to be that the interposition of development between blocks of ancient woodland can adversely affect species movement and create divisions between habitats. An additional interpretation may be that one or more areas of ancient woodland itself would be being fragmented.
- 5.6.65. Later NE's point became that the fragmentation and severance comments related to "*the wider habitat network rather than direct woodland fragmentation*". The ExA notes that Foxburrow Wood is a CWS and that CWSs support habitat types listed under section 41 of the NERC Act and are targeted for action under the Suffolk BAP and Suffolk's Priority Species and Habitats list.
- 5.6.66. The Applicant's response to this is that there are only two areas of ancient woodland and that they are on Associated Development sites. One such area is Foxburrow Wood. That wood is being retained in its entirety. The other, also retained in its entirety, is Buckles Wood which is adjacent to the Green Rail Route. Whilst the distances between the two are not specified, one is on the edge of Leiston and the other near the village of Farnham [REP10-097, epage 196 to 201].
- 5.6.67. An examination by the ExA of the Ordnance Survey map at [REP2-109, epage 155] shows (on a precautionary approach) a distance of 6kms. The Applicant also states that there is no fragmentation of ancient woodland. That is correct as the ancient woodland is retained in its entirety. Fragmentation between habitats which are 6km apart seems unlikely. However that would be to ignore closer ancient woodlands. The Applicant states that there are two listed ancient woodlands close to the TVB, namely Foxburrow Wood and Pond Wood [REP3-042].
- 5.6.68. The effects of fragmentation were clearly considered in the TVB ES [APP-425, epage 56] where fragmentation was scoped out in relation to Foxburrow Wood, whilst recognising that there would be loss of hedgerows connecting with Foxburrow Wood. Because those hedgerows do not connect to other substantial woodland the Applicant concluded there was no significant fragmentation effect. Fragmentation effects on hedgerows were however assessed separately [APP-425, para 7.6.4]. Other consideration of fragmentation is also included for both construction and operation [APP-425, para 7.6.11 and following, 7.6.17 and following and 7.6.120]. There are several other references to and assessments of fragmentation and connectivity throughout [APP-425].
- 5.6.69. Given that fragmentation in relation to Foxburrow Wood was scoped out, the issue of whether there is a connection to Pond Wood would have been considered at that stage.

- 5.6.70. Similarly the fragmentation of habitat was also considered in the decision to scope it out. The Applicant notes that the hedgerows at Foxburrow Wood do not connect to other substantial woodland. We note that Foxburrow Wood is a CWS. There is therefore the potential for harm to s.41/ BAP species from fragmentation of habitat or severance. Whilst the Applicant has not addressed severance by name, the ExA can see the argument that the loss of those species-rich hedgerows would be unlikely to lead to significant severance or harm as they do not connect with other habitats. To scope out fragmentation on the basis of the information available is a matter of judgment. We note that the point was not made by NE until late in the Examination which suggests that any effect is less likely. The ExA also notes that the wood itself was scoped in on account of its s.41 status and that no likely significant effect was found.
- 5.6.71. Buckles Wood is the other area of ancient woodland noted. Effects on it are addressed in the ES chapter on terrestrial ecology and ornithology relating to rail [APP-555]. It would be retained in its entirety along with other woodland blocks and most hedgerows within the rail works boundary [APP-555, para 7.6.9]. Fragmentation, habitat loss and severance is extensively considered in relation to Buckles Wood. We cannot in these circumstances see that there would be any fragmentation or severance or harm.
- 5.6.72. For the reasons set out, the ExA does not agree with NE's complaint that fragmentation has not been considered, whether it relates just to the alleged fragmentation of ancient woodland or to the wider habitat network and therefore considers this matter would not weigh against the Order being made.
- b. Foxburrow Wood
- 5.6.73. In relation to Foxburrow Wood and the 15 metre buffer zone, NE's RR point 21 highlights the following: "*Damage: damage to ancient woodland should also be avoided. The NE/Forestry Commission Ancient Woodland Standing Advice advises a minimum buffer of 15 meters (sic) between development and any ancient woodland. However, the advice also says that the size of the buffer should be suitable for the scale, type and impacts of the development and that a wider buffer may be suitable. The minimum 15 meter buffer is to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone is likely to be needed e.g. to avoid the effect of air pollution from ... development that results in a significant increase in traffic*". The SoCG records NE's view that "*a negative impact [from air pollution] has been demonstrated*" [REP10-097, epage 361 to 362].
- 5.6.74. The Applicant states that there would be a 15 metre buffer, although with some limited footpath works at the edge of the zone [APP-425, para 7.5.4]. It states that "*Effects of changes in water quality, local hydrology and hydrogeology, and air quality on Foxburrow Wood CWS: given the embedded mitigation, Foxburrow Wood CWS would unlikely be impacted and there would be no significant effect on this receptor. Embedded mitigation includes the development of an appropriate dust management*

plan, pollution prevention control measures, and any dewatering would be localised and of short duration. In addition, both Chapter 5 [air quality] and Chapter 12 [ground water and surface water] have assessed no significant effects due to the proposed development”.

5.6.75. Susceptibility of Foxburrow Wood to air quality effects during operation is considered and negligible adverse non-significant effect is found [APP425, para 7.6.125 to 129]. Air quality effects and the 15 metre buffer zone are taken into account the results of air quality effects on receptors in the vicinity of the wood are found to be negligible.

5.6.76. Once the Proposed Development is finished, the Sizewell C construction traffic would no longer be on the road. At that point there may be the possibility of recovery by the woodland if there has been any adverse effect. Although not mentioned specifically by NE, the potential for water quality effects on Foxburrow Wood has also been addressed [APP-425 e.g. para 7.6.4, 7.6.10, 7.6.118). We note that although NE stated that *“a negative impact [from air pollution] has been demonstrated”* we have not seen what that is from NE’s submissions. The Applicant points out that 95% of the area of UK woodlands exceeds the nitrogen critical load, but we do not think that is what NE is referring to. Given the Applicant’s evidence that results of adverse effects on receptors are negligible we consider the Applicant’s conclusion of no significant effect is acceptable.

c. Ancient and veteran tree loss

5.6.77. NE expressed disappointment at the loss of irreplaceable ancient and veteran trees. NE originally said that there was no identification or mention of ancient or veteran trees [REP10-097, epage 198].

5.6.78. The Applicant responded that *“Veteran Trees have only been identified along the route corridor of the Two village bypass and Sizewell link road.”* These were (TVB) one tree considered ancient, two trees considered veteran, and one tree considered notable all within the proposed vegetation removal zone and (SLR) two trees considered veteran within the proposed vegetation removal zone. A total of six veteran, ancient or notable trees are to be lost. (It should be noted that *“notable trees”* are not veteran trees and that ancient trees are veteran – as the Applicant clarified at ISH7. A total of three veteran trees including one ancient tree would be felled for the TVB [REP6-002, epage 85]. The Applicant also responds with a complaint that NE has failed to engage with the argument that *“the loss of a limited number of veteran trees would be unavoidable – and necessary – given the benefits of the two bypasses”*.

5.6.79. The policy in EN-1 para 5.3.14 on aged or veteran trees is as follows: *“Aged or ‘veteran’ trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development proposals the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons why”*. A footnote adds that *“This does not prevent the loss of such trees where the IPC is satisfied that their loss is unavoidable”*.

- 5.6.80. It is not apparent to the ExA where the Applicant has made that argument. The trees in question are on the line of the works and the two bypasses are necessary. Thus, the policy in relation to the removal of aged or veteran trees is met.
- 5.6.81. Subject to that caveat, the ExA does not accept NE's argument if it is stating that the trees should be retained. The ExA also observes that NE does not appear in the final SoCG to be arguing for their retention or even that the mitigation proposed is inadequate. The ExA concludes that there is no longer objection by NE.

IN37: Protected Species mitigation and compensation for MDS effects

- 5.6.82. This relates to bats, natterjack toads, otter, reptiles, water vole, badger, Deptford Pink and breeding birds which would be affected by the MDS. NE wrote in the SoCG that all draft licences had been received. However *"Until we have undertaken reviews in the necessary level of detail, we are unable to advise prior to examination close as to whether there are any fundamental reason why the relevant licences would not be granted."*
- 5.6.83. The Applicant replied that it *"submitted all required draft protected species licences for the main development site to Natural England during the examination process. These drafts were submitted to Natural England on various dates between 95 days and 33 days prior to Deadline 10 ..."* [REP10-097, epage 310 to 311].

ExA's consideration of IN37

- 5.6.84. This appears to be the same issue as IN10 on epage 18 of the SoCG (Issue IN10 in this section). The only difference being that this issue is for the MDS and IN10 is project-wide.
- 5.6.85. The Issue Summary in Appendix A for this matter IN37 is *"Protected species' mitigation and compensation for MDS impacts"* whereas in the streamlined SoCG it is simply *"Protected Species"*. Similarly, the explanation of NE's position is reduced from extensive critique of inadequate survey information to the statement that draft species licence applications have been received and are being considered.
- 5.6.86. Given that part of the SoCG process is to narrow the issues and that the Applicant in Appendix A described what further information had been submitted, it would appear that the information sought by NE has been provided by the Applicant and that the question of *"mitigation and compensation for MDS impacts"* on protected species has been resolved to NE's satisfaction. That is also consistent with the ExA's Procedural Decision of 1 October 2021 [PD-055] which at point 3 said: *"However, as a general and overall comment the ExA would be grateful if it would also set out what is actually agreed and disagreed between the parties"* and reminded NE and the Applicant that it had directed that SoCGs *"should contain a summary of matters agreed; and A summary statement of matters not agreed or outstanding"*. It is also consistent with the

response to [PD-055] in the final SoCG where at para 1.4.3 states:
"Appendix A is the superseded detailed SoCG previously submitted at Deadline 8 [REP8-094]. It has been updated to account for the Rule 17 Letter: Request for further information published 1st October but does not reflect the latest position of the parties".

- 5.6.87. In that case the outstanding question is whether the licences will be granted. It is of course possible that further information may be needed for that to happen, but that is something which only NE can say and they gave no indication prior to the close of the Examination. The SoS may wish to ascertain the up-to-date position.

IN38: Marsh Harrier, Gadwall and Shoveler

- 5.6.88. These are sub-issues of IN 27/ 38 where NE and the Applicant disagree over effects on terrestrial bird species that are qualifying features of European and breeding and non-breeding SSSI bird features. That disagreement is focussed on HRA issues and the ExA notes that in EIA and SSSI terms the Applicant submits there is no likely significant effect. However, NE's case is that the same matters apply in the SSSI context. The Applicant also applies its HRA response here. Given our conclusions on the marsh harrier, gadwall and shoveler in Chapter 6 on HRA, we arrive at the view that harm to the Minsmere SSSI is likely and the ExA ascribes moderate weight to this issue against the making of the Order unless wetland compensation is put in place and functional before the disturbance due to construction occurs.

IN38 (new sub-issue) Impacts from light, noise and visual on internationally designated sites (i.e. SACs, SPAs and Ramsar sites) and nationally designated sites (i.e. SSSIs) and their notified features.

- 5.6.89. The sub-issue relates only to SSSIs, being Wetland SSSI bird interest and non-designated species within wetland SSSI boundaries. This issue was not raised until after DL9, in the last few days of the Examination and so has no issue number of its own. It is however a sub-issue in Issue 27/38.
- 5.6.90. There is a suggestion that these birds have SPA status, though it seems to be acknowledged this is in dispute. NE says that whether or not birds present on the Minsmere South Levels and adjacent wetland SSSI are "deemed" to be part of the SPA populations "*SSSI and wider biodiversity considerations remain for these same birds, irrespective of whether impact to the SPA can be excluded*". NE says that the survey of notified bird interest of the wetland SSSIs has been inadequate, as well as the survey of wider environment birds where they are found within SSSI boundaries.

"Consequently, it is not possible to accurately predict impact, or to offset loss, unless habitat is created to offset a worst case scenario (which is not the case).

Whilst the use of sub-optimal habitat has been addressed in relation to marsh harrier, it cannot support displaced SPA waterbirds that, unlike marsh harrier, cannot utilise non-wetland habitats. Therefore, an area of wetland compensation would not only offset impact to marsh harriers but could also accommodate other displaced birds within wetland SSSI.” [REP10-097, epage 237 to 255].

- 5.6.91. The ExA notes that NE did not explain what were the “*wider biodiversity considerations*” to which it referred.
- 5.6.92. It is necessary at this point to clarify what is meant by “*Minsmere South Levels*”; it is important to know whether they are in or out of an SPA or other international designation. This geographical expression phrase is not defined in the SoCG. However, the ExA notes that the Applicant states: “*Minsmere South levels comprises part of the Minsmere SSSI, although outside of the SPA boundary*” [AS-033, epage 159] (the terrestrial ecology chapter of the ES for the MDS). Also it writes: “*Although the Minsmere South Levels (which occur outside the SPA but are part of the Minsmere and Walberswick Heaths SSSI) comprise habitat that may be used by breeding avocet, and may be functionally linked with the SPA avocet population...*” [AS-033, epage 191]. Other references in [AS-033] are consistent with this and the ExA concludes that Minsmere South Levels is part of the Minsmere and Walberswick Heaths SSSI but is outside the SPA and is not part of any international designation.
- 5.6.93. There is also the Southern Minsmere Levels CWS. The location of this can be seen to adjoin the Minsmere and Walberswick Heaths SSSI [REP2-109 inset to Appendix 7A Annex 1 Figure 1 Sheet 1] submitted as part of the Applicant’s response to ExQ1. However, the ExA has concluded that NE did not intend to refer to this area or address birds within it as its submission is clearly labelled “*Wetland SSSI bird interest & non-designated species within wetland SSSI boundaries*”.
- 5.6.94. For discussion of the compensatory habitat for the marsh harrier and whether it is sub-optimal see Chapter 6, HRA.
- 5.6.95. The Applicant responds “*This issue was added by Natural England in a late iteration of this streamlined SoCG*” (which means that it was after 1 October 2021 when the ExA issued the Procedural Decision which led to the streamlined SoCG, less than 11 days before the final deadline and less than 14 days before the close of the Examination). The Applicant says the point has already been addressed in the ES and other submitted material. It also draws attention to the additional wetlands already created at Aldhurst Farm and the additional wetland habitat to be created at Abbey Farm as part of the Marsh Harrier mitigation.

The ExA’s consideration of IN38 (new sub-issue) and conclusion

- 5.6.96. NE says that the issue is about SSSI bird interest within SSSI wetland. It says that the survey of notified bird interest and of wider environment birds where found within the SSSI is inadequate and that as a result accurate prediction of impact or of what is necessary to offset a loss is

not possible, unless habitat is created to offset a worst case scenario which it says is not the case. But NE concludes "*Whilst the use of sub-optimal habitat has been addressed in relation to marsh harrier, it cannot support displaced SPA waterbirds that, unlike marsh harrier, cannot utilise non-wetland habitats. Therefore, an area of wetland compensation would not only offset impact to marsh harriers but could also accommodate other displaced birds within wetland SSSI.*" The reference to displaced SPA waterbirds seems to be to explain that if the compensation does not include wetland, a lack which the marsh harrier can tolerate, it is not suitable for the SPA wetland birds.

5.6.97. The Applicant on the other hand says that the issue has been comprehensively addressed in its material before the Examination. But it has not specified which parts of its extensive materials. Additionally, it says it has already created wetlands at Aldhurst Farm which already support species from the Sizewell Marshes SSSI. Whilst the temporary construction area (TCA) is a likely barrier effect to the marsh harrier, they say the habitats at Aldhurst Farm "*are directly relevant to the Sizewell Marshes bird assemblage and non-designated species within the SSSI boundaries*". This they say has been explained in the ES and to the Examination. They also point out the Abbey Farm marsh harrier compensatory habitat area will include wetland likely to support breeding and wintering wetland bird species, characteristic of the Sizewell Marshes bird assemblage and non-designated species within wetland SSSI boundaries. The ExA notes from other evidence submitted that the proposed Abbey Farm marsh harrier compensatory habitat area can be reached from the Minsmere South Levels without the need to overfly the TCA.

5.6.98. The ExA has had regard to the information provided by the Applicant and the position reached in relation to the impact on relevant features of the SSSI. Although the Applicant has proposed a number of measures including compensation to address the effects of disturbance, in particular to marsh harrier during construction, this does not appear to have addressed NE's concerns in relation to waterbird species that also form part of the SSSI citation. NE's response in the SoCG [REP10-097] suggests that additional compensatory measures, targeted at waterbirds, may resolve this position. In absence of any such proposal being made and noting the similar finding reached in relation to the relevant SPA and Ramsar designation, in the HRA Chapter of this report, the ExA concludes that harm to the SSSI is likely. As such the ExA ascribes moderate weight to this issue against the making of the Order unless wetland compensation is put in place and functional before the disturbance due to construction occurs.

IN39: Changes to Coastal Processes

5.6.99. This relates to the Minsmere – Walberswick Heath and Marshes SSSI. The streamlined SoCG records that NE has significant outstanding concerns regarding particle size and habitats and was written assuming that the Applicant would not provide further information until after the close of the Examination. The importance of particle size and habitats is

explained in the RSPB/ SWT submissions [REP2-506] and [REP5-163], their WR and post ISH6 summary of their submissions respectively. The RSPB had explained that the Applicant maintained the vegetated shingle along the southern Minsmere sea frontage had been lost in 2010. But the RSPB/ SWT disagreed. They stated that in reality it has persisted since then and is still present. Vegetated shingle is a priority habitat under the UK BAP 1994 whose health depends on a continuous supply of shingle. The RSPB/ SWT further explained that vegetated shingle feature is related to the dynamic processes of the beach frontage, and particularly to the supra-tidal shingle - the finer grain shingle and sand that moves around on that frontage. They feared that some of the mitigation could impact on the movement of supra-tidal shingle and submitted that the fine-grained shingle and sand that moves around should be taken into consideration in the plan [REP5-163].

- 5.6.100. NE echoed this in its DL10 submission [REP10-200, epage 8 and following]. The Applicant's report Preliminary Design and Maintenance Requirements for the Sizewell C Coastal Defence Feature (Cefas TR544) in its DL9 version did not recognise the need for native particle size sediments to be used in recharging the defence feature and the draft Coastal Processes Monitoring and Mitigation Plan [REP7-101] did not recognise the vegetated shingle.
- 5.6.101. The Applicant revised both documents at DL10 to acknowledge that the vegetated shingle is still in existence and to state that native particle size material would be used for recharge. It referred to this in the SoCG with the RSPB / SWT [REP10-111]. We have checked both documents [REP10-124] (the updated TR544) and [REP10-041] (the updated draft Coastal processes monitoring plan) and confirm that the changes have been made. In the ExA's view that satisfies the concerns of both NE and RSPB/ SWT on issue 39. There is therefore no outstanding disagreement.

IN48: Permanent landtake of Sizewell Marshes SSSI – reedbed and ditches

- 5.6.102. The SSSI Crossing is the issue here. NE prefers the three-span bridge on which there were consultations or other consulted designs but which have not been proposed by the Applicant. The application proposal as amended by Change 6 is for a single span bridge [REP10-097, epage 59].
- 5.6.103. The Applicant's position is that the advance delivery of 6ha of wetlands at Aldhurst Farm would address the loss due to the SSSI crossing (which is a loss of 3ha). Also, it states that there are discussions on designating those wetlands as an extension to the Sizewell Marshes SSSI. The Applicant says the bridge design is preferable and draws attention to its explanation at ISH7 [REP5-112]. The difference in landtake is only 0.02ha (200m² or an area 10m x 20m.) It is wet woodland (not reed-bed as the Applicant says NE claims). The Applicant ultimately argues that construction of the three-span bridge would take significantly longer and so delay the operation of the power station and production of low carbon energy. That is a benefit/ adverse effect balance to be struck if adverse effects cannot be eliminated.

5.6.104. NE states in the SoCG that it is satisfied with the provision, quantity and quality of tall herb fen (reedbed) and lowland ditch created as compensation at Aldhurst Farm.

The ExA's consideration of IN48 Permanent landtake of Sizewell Marshes SSSI – reedbed and ditches

5.6.105. The SoCG with NE records their position as follows: “We welcome the continued optimisation of the SSSI crossing design and that while our preference remains for a three-span bridge we acknowledge that the current design represents a best alternative. However, this issue will remain ‘red’ as we still believe that there are potentially less damaging alternative options as previously proposed by the Applicant at pre-application (e.g. three-span bridge design) which would have a lesser impact ecologically on Sizewell Marshes SSSI”.

5.6.106. NE’s RR stated: “EDF Energy have proceeded with a culvert with embankment design for the SSSI crossing when potentially less damaging options for its design exist. Several alternative design options were presented to us by EDF Energy during preapplication and Natural England’s preferred option remains that which would have the least environmental impact, including on the SSSI.

One of the alternative design options included a three span bridge which we understand would be less damaging to these particular SSSI features (reedbed and ditches) by requiring less land take of these habitats”.

5.6.107. The “culvert with embankment” design referred to in the RR was the design in the original application. It has been superseded by Change 6, the single span bridge design.

5.6.108. The pre-application design options referred to in the RR are summarised in the Consultation Report [APP-068] at para 6.2.1 as follows:

- Option 1: causeway over culvert for both the construction and operational phase.
- Option 2: single span bridge with vertical wing walls.
- Option 3: three span bridges for both the construction and operational phases.
- Option 4: a causeway over a culvert with an adjacent short-term bridge.

5.6.109. They are described in greater detail in [APP-190] MDS Alternatives and Design Evolution which is part of the ES at para 6.2.37 and following and at Table 6.1.

5.6.110. The design which came forward in the application was for a causeway with culvert. However there was criticism of this from IPs for the length and darkness of the culvert which would have deterred some species from using it. The Applicant revised the design shortly after acceptance of the application and proposed the current bridge design (Change 6).

5.6.111. In their WR [REP2-153] NE welcomed the change which they saw as an improvement in terms of ecological impacts including reduced direct loss

of habitat. However they maintained their view that there were potentially less damaging options for its design including the three span bridge.

5.6.112. NE do not state which of the other three options they prefer, mentioning the three span bridge as only an example. It was Option 3. The design put forward with the application was based on Option 1, so given that that was rejected on ecological grounds and that the revised design (Change Request 6) is the design now forming part of the application, which appears to derive from Option 2 (Single span bridge with vertical walls) the ExA concludes that NE is referring to Option 4, the Causeway over Culvert with adjacent short-term bridge. This had the highest SSSI land take of the four options, at 4460m². In comparison, the three span bridge land SSSI take was given in [APP-190] MDS Alternatives as 1865 m². The ExA concludes the choice proposed by NE in reality is just between the three span bridge and Change 6. NE have not given any reasons why any other should be considered.

5.6.113. At ISH7 the differences between the bridge and the three span bridge design were discussed. The Applicant's submissions are summarised at [REP5-112] para 1.2.7 and following.

"1.2.8 Mr Richard Jones explained the differences between the proposed single-span bridge and discounted triple-span bridge and why the difference in permanent SSSI land take is limited to 0.02ha ... 1.2.10 The two further bridge spans associated with the discounted triple span bridge do not reduce the SSSI land take, because only the southernmost span of the triple-span bridge is in the SSSI. To construct the bridge support structures for the triple-span a working platform is needed in the SSSI, due to the underlying peat which has very little structural strength. To lay that working platform, ground improvements are needed, in the same way that they are for the HCDF where peat is present. In practice that means a tight grid of rigid inclusions needs to be installed into the wetlands before the working platform can be placed on top. We consider that the part of the SSSI that will be subject to that grid of piles could never become SSSI again. Therefore, in a SSSI land take sense, there is no relative benefit from that section of the SSSI containing either a 20m bridge or an extra 20m of embankment.

1.2.11 Due to slightly different designs, there is a small amount of additional wet woodland (0.02ha) that would be lost within the SSSI with the proposed bridge compared to the discounted alternative.

1.2.12 As set out in SZC Co's. Response to First Written Questions [REP2-100] at G.1.34, there is a 6-12 month programme saving, which means the construction impacts of the project are 6-12 months shorter and the public benefits of the project would be realised 6-12 months sooner."

5.6.114. The ExA concludes that the difference in land take is that the proposed bridge (Change 6) results in a loss of 200 m² more of the SSSI than the three-span bridge.

- 5.6.115. In [REP5-112] the Applicant summarises NE's view that the extra 0.02 ha of SSSI which will be lost in the case of the bridge design (Change 6) is reed-bed. (It should be noted that REP5-112] at this point says the extra loss is 0.2 ha but the ExA has concluded that this is a misprint. In coming to this conclusion the ExA has noted in particular [REP6-002] Appendix F, submitted by the Applicant specifically in response to the discussion on this point at ISH7; it shows in a plan and table that the difference in land take is 0.02ha.) The Applicant states that it is wet woodland. Either way however it is an additional loss of SSSI. Apart from that loss however the ExA cannot see that NE has really made a case for why the three span bridge is a better ecological outcome. Nor was the Applicant's case that Change 6 is a better ecological outcome. The Applicant simply says that there will be a six to nine month delay if the three-span bridge is chosen and therefore, with the only difference between the two being 0.02 ha the urgent need for nuclear electricity justifies that loss.
- 5.6.116. We conclude that the reed bed habitat has been satisfactorily reprovided at Aldhurst Farm, in view of NE agreement on that in the SoCG.

IN49: Permanent landtake of Sizewell Marshes SSSI, Fen Meadow

- 5.6.117. NE says *"While it is extremely difficult to replicate, our advice is the best chance of successfully delivering fen meadow (and wet woodland) is by providing a natural ecohydrological regime within a site. This has implications for the amount of land necessary to instate such a regime."* *"... the Fen Meadow Plan as submitted at Deadline 6 [REP6-026] still relies on a range of artificial hydrological management techniques limiting the chances of successful delivery."* NE suggests that the Fen Meadow Plan is further revised [REP10-097, epage 60]. NE provides its opinion on the likelihood of successful Fen meadow habitat creation at the three sites [REP8-298d].
- 5.6.118. The Applicant says it considers *"that this matter has been resolved through the secured Fen Meadow Strategy (Doc Ref. 10.16) and the draft Fen Meadow Plan (Doc Ref. 10.6) (both secured pursuant to Requirement 14B), which will deliver 4.14ha of fen meadow habitat, delivering Natural England's required 9x multiplier. Deliverability evidence is at Appendix 7H of SZC Co.'s Responses to the Examining Authority's First Written Questions (ExQ1) - Volume 3 - Appendices Part 3 of 7 [REP2-110].*

[The Applicant's] understanding is that Natural England's position is based on (i) choice of SSSI Crossing design (notwithstanding that the choice does not impact fen meadow habitats) (ii) queries on site-specific hydrological matters as defined in the Fen Meadow Plan and (iii) the timing of delivery.

[The Applicant] has prepared a response to Natural England's site-specific comments on the draft Fen Meadow Plan (Appendix M and N of Doc Ref. 9.120) and this is submitted at Deadline 10. This note explains why creating natural hydrological regimes across wider areas would be unacceptable in any of the three locations given impacts for other landowners, uses and nearby protected sites (e.g. Pakenham Fen) which depend on the wider existing hydrological regimes." [REP10-097]

[The Applicant] has responded on the timing of delivery in Bio2.2 [REP7-051]”.

The ExA’s consideration of IN49: Permanent landtake of Sizewell Marshes SSSI Fen Meadow

- 5.6.119. In relation to the loss of Fen meadow at the Sizewell Marshes SSSI and the mitigation (or compensation) measures are proposed by the Applicant, NE and the Applicant do not agree on a wide range of technical issues.
- 5.6.120. At this point it is necessary to explain what is proposed and why. As a result of the development some SSSI will be lost. This will be to accommodate the main platform and SSSI Crossing, the realignment of the Sizewell Drain and the restringing of pylons [APP-224 / AS-033 para 14.7.126]. We note from [APP-190] - the consideration of alternatives that the SSSI crossing does not result in the loss of Fen meadow. Some of the land to be lost or adversely affected by the Proposed Development includes Fen meadow within the SSSI. The area of Fen meadow which will be permanently lost is approximately 0.46ha. (It is useful to note at this point that the areas of the SSSI temporarily or permanently lost were reduced during the course of the Examination and the final figures are given in [REP8-120] at epage 33.) This part this section of our report – and NE’s issue number 49 – concern only the loss of Fen meadow.
- 5.6.121. The policy on the protection of SSSIs is at EN-1 beginning with paragraph 5.3.10. which requires SSSIs to be given “a *high degree of protection*”. (There is a higher standard of protection for SSSIs which are also internationally designated. But the Sizewell Marshes SSSI does not fall into that category.) There is a presumption against making a DCO where an adverse effect on an SSSI unless benefits including need outweigh the impacts on the site and the national network. We also note the EN-6 policy C.8.63 that there is potential to create habitat in the wider area to replace lost wet meadows.
- 5.6.122. The Applicant’s proposal is to recreate Fen meadow (known more technically in the documentation as “M22” or “M22 fen meadow”) at offsite locations. Water levels at Fen meadow sites are important. Three sites are proposed; Benhall which is relatively nearby, close to Snape; Halesworth, further away towards Southwold; and Pakenham which is some considerable distance away, towards Bury St Edmunds. These sites were identified following a search of the whole of Suffolk and were among five identified for further investigation. Permission was granted to survey four of the sites. All four now form the basis for the three sites put forward for Fen meadow compensation. (One of the sites – Benhall – is based on two of the surveyed sites which explains why four have become three.) This is described in [APP-258], the Fen Meadow Compensation Study. NE has specified that the amount of Fen meadow to be recreated is to be nine times the amount lost. That gives an area of 4.14ha. The multiplier is to account for complexity and the risk of failure. It will take some time for the projects to reach fruition and so at the end of 11 years (counting from the commencement of Work No. 1A – the work which can encroach on the SSSI) it is expected that 4.14ha will

have been delivered. There will have been monitoring over that period and reporting to the Ecology Working Group. If less than 4.14 ha are delivered then money is paid out from the Fen Meadow Contingency Fund on a graduated scale depending on the shortfall. The total in the fund is £3 million which the ExA was told by the Applicant at ISH[10] is double the cost of creating Fen meadow. It is paid to ESC who are then to use it for creation or improvement of Fen meadow habitats elsewhere in East Anglia.

- 5.6.123. The Applicant expresses confidence that 4.14 ha of Fen meadow can be recreated on the three sites within the timescale. In fact, its draft Fen Meadow Plan [REP10-131] states (para 5.1.4) that in total the three sites could deliver as much as 8.13 ha of Fen meadow. That figure was in the first draft of the plan issued at DL6 [REP6-026].
- 5.6.124. NE however emphasise the difficulty of recreating Fen meadow. They also state it is desirable that a near-natural hydrological regime is established for the restoration sites.
- 5.6.125. At DL10 the Applicant submitted appendices M and N as part of its *Comments on Earlier Deadlines, Subsequent Written Submissions to ISH11-14 and Comments on Responses to Change Request 19 [REP10-158]*. The two appendices reply to two sets of comments by NE on the Fen Meadow Plan Draft 1, [REP6-026]. Appendix M is a response to comments made by NE to the Applicant on a working draft of the SoCG but not submitted to the Examination. Appendix N is a response to NE's comments in [REP8-298d]. They are summarised by the Applicant or set out in [REP10-158] which then contains the Applicant's response.
- 5.6.126. NE's overall approach is that the hydrology of the compensation sites should be natural or more natural as opposed to being human controlled. The Applicant's position is that the controls are as natural as possible but also need to avoid hydrological impacts on third party land and structures. NE ask many questions of the Applicant and question the efficacy of the proposals. As they are summarised at [REP10-158] Appendices M (which is our only source for the working draft SoCG comments on Draft 1 of the Fen Meadow Plan) and N we shall use that document and its epage numbers for convenience.
- 5.6.127. For example Appendix M records that NE asked why at Benhall the River Fromus is not controlled (epage 47). They suggest that there is "*lower confidence*" in the successful creation of Fen meadow at the three compensation sites because "*Although the 'M22 character' may persist with some eutrophication it will be of less nature conservation value than stands supplied with meso / oligo water, with fewer species and higher risk of dominance of competitive species*" (epage 49).
- 5.6.128. The Applicant replied (epage 49) that if there are low river levels that may reduce groundwater levels on the Fen meadow compensation site. But rather than controlling the River Fromus (which may have hydrological impacts on third party land, including the Benhall sewage

treatment works) the Applicant proposes to disrupt the land drains and to create a level controlled drainage network.

- 5.6.129. NE said there were issues with catch drain restoration and suggested that infilling the existing "catch drain" at Halesworth "may offer a better chance of success" (epage 50).
- 5.6.130. The Applicant replied that it was not clear to what issues NE was referring but that in respect of restoring natural hydrological regimes and disabling the catch drain the Applicant's proposals go some way towards that. They include a structure to control levels on the catch drain and infilling the ditch which carries drainage from the nearby industrial estate to the River Blyth. This approach – primarily the installation of the control structure allows water to be adjusted if too high or too low.
- 5.6.131. At Pakenham NE commented that there are very high NO₃ concentrations in groundwater apart from in dipwells which may have implications for sustainability in the longer term (epage 51). That relates to nutrient concentrations. They also said that "if the proposed works can help to raise the water table in this site, then it would likely be beneficial". (epage 52). They noted the existing complex drainage arrangements at Pakenham which limit re-naturalisation of drainage and advise re-evaluation to a more ambitious programme which they say is "clearly justified". They continued: "The platform location [at Sizewell] is constrained to the west and north by the SSSI and to the east by the coast and the appropriate coastal defence alignment such that the loss of this area of fen meadow is unavoidable" (epage 53).
- 5.6.132. The Applicant explained that it is not necessary to have "no nutrient concentrations". Low nutrient conditions (one of the key conditions to support M22) does not mean "no nutrient".
- 5.6.133. On raising water levels, the Applicant replied that neighbouring landowners' farming practices may be adversely affected by doing that and that there are elevated NO₂ concentrations at the northern end of the site. NE's suggestion would require further assessment of potential effects.
- 5.6.134. On the complex drainage and unavoidable loss of Fen meadow from Sizewell Marshes SSSI the Applicant replied that re-naturalisation at Pakenham could impact farming practices, and have the potential to affect the nearby SSSI, and the listed Pakenham Water Mill which relies on water passing down the valley to operate the mill. The Applicant instead proposes to disrupt land drains to reduce drainage
- 5.6.135. In our opinion these are reasoned, convincing and practical answers which show that as much is being done as is practical in all the circumstances and we accept the Applicant's view.
- 5.6.136. Moving on to Appendix N we summarise the NE points and the Applicant's replies, using the Applicant's numbering in that document.

- 5.6.137. a) General i[i] NE consistently recommended as most desirable a scheme which would be near-natural. The plans are some way off this and NE would like to see further consideration of re-naturalisation.
- 5.6.138. The Applicant replied that the measures re-naturalise the hydrological regime as far as possible whilst ensuring that hydrological impacts on third party land and structures are avoided. The NE suggestions would unacceptably impact nearby designated sites, flood risk and other off-site receptors. It would not be possible, with the constraints of landowners and avoiding wider impacts, to consider wider re-naturalisation.
- 5.6.139. a) General i)[ii] NE considered the extent currently identified for compensation to be a minimum to achieve any semblance of the sustainable expression of Fen meadow as part of a peatland ecosystem.
- 5.6.140. The Applicant noted the comment and added that it had taken account of the required multiplier and uncertainty to ensure that at least 4.14 ha of Fen meadow is created.
- 5.6.141. a) Benhall [i] NE wrote that the data indicate the potential to achieve conditions for Fen meadow habitat creation. The Applicant noted this. It is a positive point.
- 5.6.142. a) Benhall [ii] NE commented that the interventions fall short of the desire to restore natural hydrological function.
- 5.6.143. The Applicant responded that the proposals deliver habitats that are groundwater influenced, exposed to the annual natural rise and fall of groundwater levels likely to result in development of Fen meadow habitat. Were river or canal levels to be controlled the very likely result would be the backing up of flows to third party land including the Benhall sewage treatment works which would be unacceptable.
- 5.6.144. a) Benhall [iii] NE said the site could be at risk to incursion by nutrient rich water from the River Fromus and the canal, a risk to success.
- 5.6.145. The Applicant responded that the key conditions to support M22 include *"limited nutrient concentrations [which] does not mean no nutrient concentrations"*. A relevant published paper indicates that M22 can accommodate considerable eutrophication without significant change to basic species composition, provided active management continues, and that the risk of nutrient incursions exists at many existing Fen meadow locations including those at Sizewell Marshes SSSI. Whilst the same paper acknowledges that examples in low nutrient situations may be adversely affected by increased nutrient levels Benhall would not be considered a low nutrient environment. The Applicant pointed out that in respect of the character of M22 its Fen Meadow Strategy *"indicates 'the defining characteristic, in what can be a habitat of relatively low floral diversity, is the presence of Juncus subnodulosus (blunt-flowered rush) and this species is used as the key indicator of fen meadow establishment within this strategy'". The target is therefore for development of a community identifiable as M22 under the National Vegetation Classification. There is no stated target for a specific species*

richness, or conservation value and therefore, contrary to Natural England's comment, SZC Co. believes it can be confident in the development of M22 as the long-term outcome".

- 5.6.146. a) Benhall [iv] NE questioned whether the licensed groundwater abstraction 200m away would really not have a significant impact on water levels at the site as impacts had not been quantified.
- 5.6.147. The Applicant responded that abstraction at the maximum licensed rate could only be maintained for a period of 78 days and actual abstraction is understood to be at a much lower rate; that the Environment Agency's (EA) records do not show any significant drawdown; and that the abstraction does not capture water which would have flowed beneath the Benhall site. Thus effects are unlikely and so no further quantification was necessary.
- 5.6.148. b) Halesworth [i] NE wrote that the data indicate the potential to achieve conditions for Fen meadow habitat creation. It also gave some advice on appropriate soil levels where a central ditch was to be infilled. The Applicant noted this.
- 5.6.149. b) Halesworth [ii] NE questioned why the catch-dyke and other on-site drainage ditches would not be back-filled and why an artificial water control structure would be introduced to raise their water levels, contrary to re-naturalisation of hydrological functions; why had back-filling the catch-dyke not been assessed?
- 5.6.150. The Applicant responded that the approach adopted allows for the control of water levels via management, which would not be possible if the catch drain was infilled, such that they can be adjusted if too high, or too low. Taking this approach the Applicant believed it could be confident in the development of M22 as the long-term outcome.
- 5.6.151. b) Halesworth [iii] NE questioned why no work was proposed to control water levels on either the Walpole River or the eastern boundary drain, which it said may both continue to act as a discharge point for groundwater.
- 5.6.152. The Applicant referred to its response at para 1.1.4 (of Appendix N in [REP10-158]). The ExA does not understand how that response is relevant as para 1.1.4 relates to a general comment by NE on a different aspect. It is likely that the reference should be to para 1.1.3 which explains that the approaches proposed in the Fen Meadow Plan Draft 1 are designed to reduce the existing drainage effects in the habitat creation areas and deliver habitats that are groundwater influenced, exposed to the annual natural rise and fall of groundwater levels. This would be consistent with the Applicant's response to a) Benhall [ii] which makes the same erroneous reference to para 1.1.4 but where 1.1.3 would make more sense. If that is correct it sets out the Applicant's reason for not intervening in the Walpole River. In relation to the eastern boundary drain the Applicant explains that it would not directly affect the proposed maintenance levels in the ditches and that the works to create

the Fen meadow stand off this ditch by 20-30 m and therefore the potential to affect groundwater levels is significantly reduced. It appears to the ExA that some risk cannot be ruled out.

- 5.6.153. Halesworth, Para 1.10 – NE approve of the diversion of the drainage from an industrial estate to the north of the site. The Applicant noted this.
- 5.6.154. c) Pakenham [i] NE commented that the risks of failure are higher at this site and state that there is no ongoing groundwater monitoring.
- 5.6.155. The Applicant replied that in fact there is monitoring which is showing results consistent with its conceptual model and corresponding monitoring data.
- 5.6.156. c) Pakenham [ii] NE question the Applicant's assumptions about the profile of the water table and state that excavations (which are to lower the ground level as part of the way to create Fen meadow) are deeper than at the other two sites.
- 5.6.157. The Applicant replied that topography, observation and monitoring all support the water table profile assumptions and that the excavations are the same as at the other two sites, except at the south which is 5 cm deeper to encounter the underlying marl and create slightly deeper water initially for the creation of wet woodland.
- 5.6.158. c) Pakenham [iii] NE comment that there is less reliance on raising water levels as a result of the absence of any kind of water control and ground levels are lowered instead.
- 5.6.159. The Applicant agrees and repeats that the approaches proposed in the Fen Meadow Plan Draft 1 are designed to reduce the existing drainage effects in the habitat creation areas and deliver habitats that are groundwater influenced, exposed to the annual natural rise and fall of groundwater levels. The Applicant is confident this will result in development of Fen meadow habitat. However, it also draws attention to surrounding ownerships and uses such as the Pakenham Meadows SSSI, Pakenham Water Mill which still operates and neighbouring farming practices.
- 5.6.160. c)Pakenham [iv] NE again comment that there does not seem to be much consideration of potential for greater restoration of natural hydrological function.
- 5.6.161. The Applicant response indicates that a balance must be struck between re-naturalisation and hydrological impacts on third party land. Drawing on its response to c)Pakenham[iii] about incompatibility with farming practices (the cross-reference in the text to para 1.1.7 should clearly be to 1.1.6) the Applicant states that raising water tables in fields across the site more generally would result from wider re-naturalisation, would be resisted by landowners and is not required.
- 5.6.162. i NE para 1.12 (The ExA notes that this paragraph clearly relates to Pakenham. However the Applicant's numbering system treats it

separately. For ease of reference the ExA follows the Applicant's system. This comment applies also to the Applicant's comments on NE para 1.13.)

- 5.6.163. i NE para 1.12[i] NE state that nutrients from Pakenham Stream which leaks into the ditch network may limit the site's suitability for Fen meadow creation.
- 5.6.164. The Applicant's response suggests that the ditches maintain groundwater water levels. It states that water levels in the ditches will be maintained for that purpose and are not going to be raised or used to inundate the site and support Fen meadow habitat. Thus exposure to ditch water would only occur in flood conditions when nutrient concentrations would be diluted.
- 5.6.165. i NE para 1.12[ii] This leak has not been quantified, and nor has its seasonal variability been investigated.
- 5.6.166. The Applicant agrees but says that it was not discovered till after the installation of the monitoring network. Quantification is not possible using existing monitoring. We have considered this matter and conclude that as the ditches are stated by the Applicant only to be used for ground water support and not for inundation the evidence suggests that quantity and variability of the leak is of no consequence.
- 5.6.167. i NE para 1.12[iii] NE comment there is elevated nitrate recorded in groundwater at some locations indicating potential risk to Fen meadow establishment.
- 5.6.168. The Applicant responds in a similar way to its response on a) Benhall [iii] – limited nutrient concentrations does not mean no nutrient concentrations and whilst the same paper acknowledges that examples in low nutrient situations may be adversely affected by increased nutrient levels Pakenham would not be considered a low nutrient environment.
- 5.6.169. The Applicant pointed out again that in respect of the character of M22 its Fen meadow strategy "*indicates 'the defining characteristic, in what can be a habitat of relatively low floral diversity, is the presence of *Juncus subnodulosus* (blunt-flowered rush) and this species is used as the key indicator of fen meadow establishment within this strategy'. The target is therefore for development of a community which is identifiable as M22 under the National Vegetation Classification. There is no stated target for a specific species richness, or conservation value and therefore, contrary to Natural England's comment, SZC Co. believes it can be confident in the development of M22 as the long-term outcome*".
- 5.6.170. i NE para 1.13[i] NE drew attention to a licensed water abstraction of 1.44Ml/d for spring and summer on site which takes water from the drains. The Plan recommends that it cease, yet this is not guaranteed and it could result in drawdown of the water table presenting a risk to Fen meadow habitat.

5.6.171. The Applicant responded that the risk is restricted to the northern compartment, and particularly to the smaller Fen meadow creation area located to the west of the central drain nearest to the abstraction location. The main area is buffered by two watercourses including the Pakenham Stream and by distance. Other mitigating factors are the leak from the Pakenham Stream whilst it continues, the deliberate disruption of land drains (which reduces drainage potential) and the relatively short duration of the abstraction each year.

The ExA's Consideration and Conclusions on Fen Meadows in IN49.

5.6.172. First the ExA notes that the choice of these sites comes from a survey of the whole county of Suffolk. The Phase 1 and 2 studies are at [REP4-007] and [APP-258] respectively. Five sites (two of which are the basis of the Benhall site) were identified by the Phase 1 study as being suitable to be taken forward for further investigation. In the case of one of the five the landowner did not give permission for investigation, and it was dropped. Subject to the possibility that the fifth site would also have been appropriate the four sites are clearly the most appropriate available in the County.

5.6.173. The Applicant has developed a draft Fen Meadow Plan ([REP10-132] and a Fen Meadow Strategy [REP10-042]. These are secured by Req 25 of the dDCO. They respond to policy C.8.63 of EN6 *"to develop 'an ecological mitigation and management plan' to replace the 'lost wet meadows"*. Whilst NE has made a number of criticisms of the draft plan, the Applicant is confident that it will work and has responded convincingly to NE's critique. We conclude that the draft plan goes as far as can be expected in all the circumstances to ensure that Fen meadow will be successfully recreated.

5.6.174. During the course of the Examination we heard evidence that Fen meadow is of regional or even of national significance. The Fen Meadow Contingency Fund can be used for sites in East Anglia as a whole and not just Suffolk. It could be argued that the Applicant's original site search was too limited. Had it been wider other more appropriate sites might have been found. That is not a point which was made by NE in either their RR or their WR. In their WR however NE wrote this: *"In terms of the contingency measures to be put in place should the compensatory fen meadow habitat creation attempts fail, we advise that potential compensation sites further afield (i.e. not restricted to Suffolk) should be investigated. The SSSI habitat to be lost is important at a national level and, if necessary, the compensation options should therefore be explored at that scale to ensure the overall amount of this habitat type is not reduced nationally"*.

5.6.175. The Deed of Obligation secures the Fen Meadow Contingency Fund and it can be used over the wider of East Anglia. NE is objecting to that limit as being too restrictive given the national importance of Fen meadow.

5.6.176. It is clear that there are doubts over the likelihood of success of recreation of Fen meadow. NE have raised many potential problems and the preceding paragraphs deal with those which remained in the final

Streamlined SoCG. The Applicant on the other hand remains confident that it can successfully deliver M22 to at least the minimum area required by NE. It has also put in place a Fen Meadow Contingency Fund in case the re-creation of Fen meadow is not successful. The fund works by paying out money depending on the amount of any shortfall. We asked during the Examination whether it would be cheaper for the Applicant to pay out the fund, which would remove the incentive to attempt the Fen meadow recreation at all. The final figure was agreed with ESC and the evidence from the Applicant at ISH10 is that the amount is about twice the cost of the recreation work (see [REP7-069] para 1.4.11 of the post-ISH10 submissions). So we are satisfied that the fund does not disincentivise the Applicant.

- 5.6.177. The issue of timing has also been raised not only by NE but also for example by the RSPB. They both say that the mitigation for the loss should be in place before the loss occurs. To this the Applicant replies (at ExQ2 Bio2.2) [REP7-052] that the scheme depends on the powers in the DCO and also that because it also involves the movement of the turves from part of the protected site to the receptor site loss must happen in advance of re-creation. The result is not going to be known for 10 years and there will be monitoring by the Ecology Working Group during that period. It is in the interest of the Applicant to deliver the re-created Fen meadow as the Fen Meadow Contingency Fund is set at about double the cost of the re-creation work. In addition the re-creation of the Fen meadow is secured by the obligation in the DoO to use reasonable endeavours to deliver the Key Environmental Mitigation. That is a continuing obligation which bites from the outset; it is not left until the expiry of 10 years to see what is the result.
- 5.6.178. In the ExA's opinion, whether or not recreation of Fen meadow is a success is only going to be known by carrying out the scheme. It cannot be done in advance of some loss. The Fen Meadow Contingency Fund is set at a level which incentivises effort to achieve success and provides funds for improvement and recreation of Fen meadow elsewhere.
- 5.6.179. The ExA is satisfied with the Applicant's answers given to NE's critiques of the Fen Meadow Plan. They do not remove all doubt, but it is likely that the critiques will have brought to the Applicant's attention some matters which would not otherwise have come to light at this stage. The Applicant has proposed measures which will re-naturalise the hydrological regime as far as possible whilst ensuring that hydrological impacts on third party land and structures are avoided.
- 5.6.180. The use of the Fen Meadow Contingency Fund is limited to East Anglia. In the context of a habitat of national importance this limit is criticised by NE. However the limit does result in re-creation in some proximity to the loss, a point made by ESC at ISH7, as well as the Applicant, and the ExA's view is that it is justified.
- 5.6.181. For conclusion please see below on the Sizewell Marshes SSSI

IN50: Permanent Landtake of Sizewell Marshes SSSI, Wet Woodland (supporting SSSI invertebrate assemblage)

- 5.6.182. This is linked with the SSSI crossing. NE's position is that it is satisfied with quantity of wet woodland and the compensatory sites selected but says that the best chance of success would be by using a natural ecohydrological regime.
- 5.6.183. *"The information provided to the examination so far goes some way towards considering the feasibility of each site and outlining how habitat creation would be achieved. However, there is significantly more work required to present a natural hydrological regime at the delivery sites."* [REP10-097, epage 61].
- 5.6.184. The Applicant's position is that *"[it] considers that this matter has been resolved through the secured Wet Woodland Strategy submitted to examination at Deadline 1 [REP1-020], and the draft Wet Woodland Plan [REP8-129], submitted to examination at Deadline 8. These documents are revised slightly at Deadline 10 (Doc Ref. 10.31 and Doc Ref. 10.13 secured pursuant to Requirement 14C) to reflect the updated landtake figures (revised slightly lower figure of 2.77ha landtake of wet woodland) provided to the examination at Deadline 8 and thus a revised requirement for 2.77ha of wet woodland habitat, delivering Natural England's required 1x multiplier. The wet woodland strategy was updated to include Natural England's preferred approach to habitat creation."*
- 5.6.185. ESC has no concerns about delivery. In the Applicant's view it is simple to create, but creating natural hydrological regimes across wider areas is unacceptable (see the comments above on Fen meadow).
- 5.6.186. The Applicant continued *"[The Applicant] understands that Natural England's 'disagree' position is also based on, (i) as defined in the SoCG Sept 2021, the choice of SSSI crossing and also (ii) in other recent reps, on the timing of delivery. [The Applicant] has responded on the timing of delivery in response to Bio2.2 [REP7-051] although this is not reflected in the updated position provided by Natural England in [the final] SoCG"*. [REP10-097, epage 61 to 62]
- 5.6.187. In passing on the question of loss of invertebrate assemblage, the ExA notes from the Applicant's assessment of alternatives [APP-190] that the loss of 0.4 ha of SSSI for the crossing would directly affect invertebrates of national importance and high conservation value by reducing the amount of breeding, foraging and sheltering habitat, areas of similar habitat would remain supporting the same wetland assemblages as the habitat lost. The amounts lost varies between the options but the effect was not considered significant for any of the four options as a result of the SSSI Crossing alone.

The ExA's consideration and conclusion on IN50

- 5.6.188. Firstly, the ExA notes that the Wet Woodland Strategy states *"In the unlikely event that there is a shortfall in the 2.36ha which is to be delivered between the Benhall and Pakenham sites after a ten-year*

period, the balance of wet woodland would be delivered on newly created wetland areas on the EDF Energy estate although this is not the preferred approach” [REP1-020, para 1.1.4].

- 5.6.189. Revision 2 was issued at DL8. [REP8-091] shows tracked changes and [REP8-092] is the clean version. A further version, Revision 3 of the Strategy, was to have been issued at DL10. This is known from the SoCG [REP10-097] epage 61, IN50. However it was omitted from the DL10 submission. As a result the ExA does not know what changes were made between the two. According to the SoCG they only address the revised landtake figure. If that is the case and there are no other changes from the DL8 version there is no difficulty. But the SoS should obtain the revised document and check. The SoS should note that the Wet Woodland Strategy is to be a certified document. R26 of the dDCO secures the development and implementation of the Wet Woodland Strategy.
- 5.6.190. The fallback wording at para 1.1.4 of the DL10 version was also in the DL8 version.
- 5.6.191. Turning now to substantive matters, the original amount of wet woodland to be lost and therefore recreated was 3.06ha with 0.7ha on the EDF Energy estate and 2.36ha between the Benhall and Pakenham sites. Following amendments during the Examination the loss, by the end of the Examination, was 2.77ha. Of that it remained the Applicant’s intention to provide 0.7ha on the EDF Energy Estate but to reduce the area split between Benhall and Pakenham to 2.07. Thus 2.77ha would be reprovided in total [REP8-120, Table 2.2, epage 33].
- 5.6.192. The issues relating to the desirability and practicality of re-naturalising the hydrology and its likely success were addressed by the Applicant in relation to recreation of Fen meadow. The ExA reaches the same conclusion as for Fen meadow – see paragraph above.
- 5.6.193. The incentive effect of the Fen Meadow Contingency Fund is relevant to wet woodland as so much of it is to be provided at Pakenham and Benhall.
- 5.6.194. The Applicant’s response on timing and sequence at ExQ2.Bio2.2 also applies to the creation of wet woodland given that there are the same desires to move towards re-naturalisation, the same need for extra land and that the majority of the wet woodland is to be located at Pakenham and Benhall. Whilst there is no need for translocation for wet woodland alone the advantages of co-locating wet woodland and Fen meadow at Pakenham mean that it is a relevant factor.
- 5.6.195. For conclusion please see the section below on the SSSI Crossing.

Associated Development Sites

IN52, 54, 55, 57, 58, 59, 60, 61, 62: All Associated development sites, Protected species,

5.6.196. NE's and the Applicant's positions are as for IN10 [REP10-097, epage 63]. The ExA reaches the same conclusion.

IN53: TVB Ancient Woodland

5.6.197. NE states that the effect on tree roots at the north west corner of Foxburrow Wood is the greatest problem; veteran trees must not be affected and there is no evidence of no impact. A 15m buffer only addresses root protection. It says that evidence needed of no other impacts e.g. air pollution and in general that the issue is not addressed in enough detail by Applicant [REP10-097, epage 64].

5.6.198. It is difficult to see that this is any different from the issues at IN21 and the ExA's conclusions there apply to IN53 also.

IN56: Theberton bypass Protected species

5.6.199. This issue is included in the SoCG for reasons of form alone, not substance. NE's position is as with IN10. The Applicant states that the Theberton Bypass option no longer forms part of the Sizewell C proposals. A bypass around Theberton forms part of the Sizewell Link Road proposals and so is addressed above [REP10-097, epage 65]. This row can therefore theoretically be deleted and is only retained here to ensure no loss of the original NE issue number (56).

5.6.200. The ExA notes that this matter relates to draft licences. It is the same as IN10. In addition as the Applicant explains the Theberton Bypass is no longer part of the Proposed Development. The row in REP10-097 was only retained to ensure no loss of NE's issue number (56) and the ExA's position would be the same as for IN10.

Terrestrial Ecology and Ornithology, Main Development Site

5.6.201. The Applicant's ES on this subject was first set out in the chapter of that name, [APP-224]. The ExA asked the Applicant to number or letter the headings for clarity and this was done in [AS-033]. The ES was updated by the ES addendum [AS-181] when Changes 1-15 were submitted. It was updated by the Second ES addendum [REP5-063 to 065] when Changes 16-18 were submitted on 23 July 2021. When Change 19 was submitted the ES was updated by the Fourth ES Addendum [REP7-030]. The Fifth Addendum related to changes to order limits. Changes were made to the limits of the three sites for the creation of Fen meadow. (The third ES addendum was not related to any change request and dealt with corrections to road traffic noise assessment.)

5.6.202. In the original submissions of the Applicant [APP-224] / [AS-033], there would be likely significant adverse effects after primary, tertiary and secondary mitigation were taken into account in five cases, namely direct land take from the Sizewell Level and Associated Area CWS and Southern Minsmere Levels CWS, direct land take from the Suffolk Shingle Beaches, land take for (and resulting need for translocation of) the Deptford Pink, an invertebrate assemblage in the Sizewell Marshes SSSI and to the

barbastelle bat. In the case of the marsh harrier no significant effect was likely in EIA terms, but it was not possible to exclude adverse effect on integrity under the Habitats Regulations. These are summarised in Table 5.6.1 below which also includes the Applicant's findings of significant beneficial effects.

Table 5.6.1 – Main Development Site residual significant effects

ExA No.	Receptor	Impact	Residual effects
1	Sizewell levels and Associated Areas CWS and Southern Minsmere Levels CWS	Direct land-take resulting in habitat loss.	Moderate adverse (significant)
2	Suffolk Shingle Beaches CWS	Direct land take	Moderate adverse (significant)
3	Deptford Pink	Direct land take	Moderate adverse (significant)
4	Assessment Compartments 1, 2 and 4 – wet woodland invertebrate assemblage.	2.5ha of wet woodland supporting an associated invertebrate assemblage of high conservation value would be lost during construction.	Moderate adverse (significant).
5	Assessment compartments 4/4a, 5,6, 13, 14 and 15.	Landscape restoration (through the oLEMP) on the EDF Energy estate whereby arable land is being converted to dry acid grassland characteristic of the Suffolk Sandlings.	Major beneficial (significant)
6	Reptile Assemblage	Landscape scale creation of acid grasslands across the EDF Energy estate through the oLEMP	Moderate beneficial (significant)

ExA No.	Receptor	Impact	Residual effects
7	Barbastelle bat	Habitat fragmentation	Moderate adverse (significant) in the short term (construction phase), reducing to not significant after construction
8	Suffolk Sandlings habitat	Landscape scale restoration of EDF Energy estate to create a unified coordinated approach to habitat restoration and management	Moderate beneficial significant

- 5.6.203. In the ES Addendum [AS-181] submitted with the first set of changes the loss of wet woodland was revised upwards to 3.06ha but the residual effects remained the same. At DL8 it was revised downwards to 2.77ha (see the SoCG with NE [REP10-097] epage 61).
- 5.6.204. Changes 1-15 included the addition of the Pakenham Fen meadow compensation site near Bury St Edmunds. This site had not been part of the original submission at all. The area being taken was undesignated and so was screened out from environmental assessment for terrestrial ecology and ornithology. Effects on the immediately adjacent Pakenham Meadows SSSI were considered and the Applicant concluded that there would not be any likely significant effects on the SSSI. Of these changes, Change 6 introduced a modified design for the SSSI Crossing. Neither that nor any of the other changes comprising Changes 1-15 resulted in any change in the conclusions of the terrestrial ecology and ornithology assessment. These matters are described in the ES Addendum for the MDS ES, [AS-181] epage 189 and following.
- 5.6.205. Of Changes 16-18 Change 16 was relevant to the MDS. It comprised a change to Bridleway 19, including the removal of a strip of trees and the repositioning of a proposed mammal culvert. The Second ES addendum [REP5-063] assessed this change. Whilst both proposals were in the Applicant's view improvements on the design as originally submitted the improvements did not result in any change in the assessment.
- 5.6.206. Change 19 was the introduction of a temporary desalination plant to provide water during the construction phase (Change 19), assessed in the fourth ES Addendum, [REP7-030]. Given that the temporary desalination plant would be sited within areas already identified as construction areas and away from the site boundaries, including noise

sensitive receptors, and that the Applicant assumed the connecting pipework between the proposed location of the desalination plant within the TCA and the marine infrastructure would run across the SSSI crossing above the soffit level of the bridge, no changes for terrestrial ecology and ornithology effects were predicted.

- 5.6.207. By way of summary, the Applicant's approach and methodology has been to incorporate primary mitigation into the design and planning of the development. Tertiary measures are also taken into account, being legal measures or standard practices which will be implemented. The assessment is on the basis that they are in place. If notwithstanding that there are likely significant effects then the Applicant applies Secondary mitigation. Only if that fails to remove likely significant effects therefore are there likely significant effects which need to be reported. In many cases there are minor or negligible effects, but they are not significant.
- 5.6.208. We now consider the main issues noted above, in that order, insofar as they relate to the MDS.

Sizewell Marshes SSSI

Sizewell Marshes SSSI - the SSSI Crossing

- 5.6.209. The SSSI has to be crossed to reach the main platform on which the Proposed Development is proposed to be constructed and operated. It is also used during construction.
- 5.6.210. Submissions were made during the Examination by other parties including ESC and SCC. By the end of the Examination ESC was of the view that the crossing (which by then was in its Change 6 form) offered a reasonable compromise for landscape and ecological purposes. It also considered that it is worse than the three-span option, primarily due to the greater landtake. SCC's position on the SSSI Crossing is different from ESC's. In its [RR-1174 it raised serious concerns about the original causeway and culvert proposal because of its impact on the SSSI and connectivity for species. The RR suggested that the three-span bridge – one of the consultation options – should be adopted. In the LIR their position was that a full open span bridge with no embankment would be preferable as it would have less ecological impact on the SSSI; the Applicant, it said, had not provided conclusive arguments why it is not a possible option (LIR Para 8.40). At ISH7 it reminded us of the principle that mitigation should be provided in advance of the harm. EN-1 policy 5.3.7 required consideration to be given to alternatives and there was a presumption of refusal in SSSIs in policy 5.3.11 with exceptions only where benefits clearly outweigh impacts on special features. They stated that three span bridge would have better ecological connectivity than the Change 6 design. Although the width of the bridge would be reduced once the construction period was over relevant species may find it difficult to recover after a ten year construction period. By the end of the Examination they remained opposed to the Change 6 design.
- 5.6.211. NE informed us at ISH7 that their position on the crossing is set out in IN48 of their written representations [Rep2-153] which we have

addressed above in the section on NE/Applicant disagreements. Their conclusion in the SoCG was that they welcome Change 6, and whilst they prefer a three span bridge Change 6 represents a best alternative. They welcomed the improved connectivity between Aldhurst Farm and Sizewell Marshes SSSI using an improved mammal culvert under the dividing road. Should the SSSI Crossing and other losses at Sizewell Marshes SSSI be considered acceptable then NE was satisfied in principle with the quantity and quality of tall herb fen (reedbed) and lowland ditch systems created at Aldhurst Farm as compensation.

- 5.6.212. The EA had concerns about the impacts of the original culvert design on invertebrates, designated species and some mammals. It objected to the original causeway and culvert design of the SSSI Crossing for its land take, ecological impact and habitat fragmentation. The culvert through which the Leiston Beck would flow would present problems for invertebrates whose larvae develop in freshwater. They would either not go through the culvert or if they attempt to travel over the causeway and road would mistake the road for a watercourse and lay their eggs on the road surface. (The EA explained that both water and road surfaces emit polarized light which is used by such species for navigation.) The EA doubted that the culvert would be used by otters or water voles either. Also in relation to invertebrates, wet woodland compensation should be functionally linked to fen and ditch habitats to compensate for the loss to invertebrates. The EA's view was that culverts can inhibit fish movement and it sought evidence that that would not be the case. (See paras 6.7 to 12 of [RR-0373]).
- 5.6.213. By the end of the Examination their final SoCG [REP10-094 epage 17, row MDS_TE2] records an agreed position on the SSSI Crossing that the revised bridge design and further improvements since the submission of Change 6 resulted in environmental adverse effects being reduced to an acceptable level provided construction was in accordance with the revised plans in "*Chapter 2.5 Main Development Site: Permanent and Temporary Beach Landing Facility & SSSI Crossing Plans – Plans Not For Approval Rev 3 Part 2 of 2*" (Doc Ref 2.5(B) submitted at DL7. This would be secured by R12C. That document is [REP7-005]. Three plans are mentioned in what was R12C and is now R20 of the final submitted DCO [REP10-009]. They are all in [REP7-005]. R20 requires compliance with two of them and general accordance with one. (See Chapter 9 for full discussion on the meaning of general accordance which is defined in para 1 of Schedule 2 - requirements.) Compliance is unless otherwise approved by ESC in consultation with the EA.
- 5.6.214. That wording was in the dDCO when the SoCG was finalised. The DL10 version (which is revision 11) also specified consultation with the EA which was not in Revision 10 (the version current when the SoCG was settled). The words are helpful to the EA and we cannot imagine it would object to them. But it also omitted words which required the temporary SSSI crossing also to be constructed in general accordance with Chapter 5 of the Design and Access Statement (DAS) as well as those drawings. That wording has been moved so that it now governs the construction of the permanent crossing. The change is not referred to in the SoCG with

the EA. Nor is it explained in document [REP10-012] entitled "*Proposed Changes to the DCO*". Two of the plans specified in the SoCG relate to the temporary crossing and are in the same sentence of R20. Whilst the ExA concludes that the plans required by the EA have been included, the version of R20 which the EA will have been considering also included the obligation to comply with Chapter 5 of the DAS and its agreement will have been on the expectation that its provisions would have applied. We recommend therefore that the SoS reinstates them. We see no need however to remove them from R20(2) to where the Applicant had inserted them and have made the change in the rDCO.

5.6.215. Other IPs (such as Mr Collins for Minsmere Levels Stakeholders) made submissions about the SSSI crossing which we have taken into account. We note that the RSPB expressed concerns that temporary losses would become permanent. However we also note that the SoCG with ESC and SCC finds the measures in the TEMMP to protect the areas subject to temporary landtake to be acceptable. Were the three-span bridge to have been chosen by the Applicant rather than the bridge version which forms Change 6 there would have been a further reduction in the loss of SSSI by 0.02ha.

5.6.216. For our conclusion on this, please see our conclusion below on the Sizewell Marshes SSSI.

Sizewell Marshes SSSI – reed bed

5.6.217. Please see the discussion above under IN48 and the SSSI crossing and conclusion below on the Sizewell Marshes SSSI.

Sizewell Marshes SSSI - Fen Meadow

5.6.218. The Proposed Development encroaches onto the Sizewell Marshes SSSI. The losses by habitat feature were originally shown in Table 14.10 of [AS-033]. This table was superseded by Table 2.36 of [AS-181] the ES addendum which accompanied the first set of changes requests, Changes 1-15. That table was in turn superseded at DL8 by Table 2-2 at [REP8-120]. The revised table showed a permanent loss of 0.46ha of Fen Meadow. One of the habitats for which Sizewell Marshes SSSI is notified is its Fen meadow habitats and the loss of the Fen meadow habitat from the SSSI leads to a need to provide compensatory habitat for this loss. NE advised the Applicant that the extent of compensatory habitat required would be nine times the loss "*given the complexity of habitat type to be lost, the risk and uncertainty involved in the habitat restoration being successful and the time to fully functioning habitat*".

5.6.219. The Applicant's proposal is to provide 4.14 ha of compensatory habitat across three sites, at Benhall, Halesworth and Pakenham. That is nine times the area permanently lost and so the NE multiplier would be met. There are concerns about the likelihood of successful re-creation of Fen meadow, as we have explained in the section above on NE's view. At Pakenham there is also a nearby SSSI. Effects on that have been addressed in the Applicant's ES addendum and the Applicant concludes

that there will be only negligible non-significant adverse effects on it during construction. The Applicant reports [AS-181, para 2.9.9.94]:

"The construction phase works would result in some localised disturbance to existing habitats and potentially water level changes within the fen meadow compensation site. It is possible that water control mechanisms and ground levels may be required on the compensation site and so some short-term construction activity could be required including earthworks and removal of field drains. This would result in some changes to the current habitat conditions on the compensation site but no impacts are anticipated on the SSSI to the east of the stream. All works would be carried out as detailed in the Fen Meadow Strategy"

- 5.6.220. In operation the Applicant finds there would be minor beneficial not significant effects on the SSSI (see paras 2.87 and 88) of [AS-181].
- 5.6.221. Hydrological and flood risk implications have been addressed by the Applicant who has explained in the ES Addendum [AS-181], the Second Relevant Representations Report [REP3-041] and the Schedule of Other Consents [REP10-023] that following the completion of 12 months of hydrological data collection (which began in March 2021) details of Fen meadow design and methods of creation will be specified. Design would be developed so as not to result in a significant effect on surface water receptors. Specifically on drainage and flood risk and the back gardens of adjacent properties the Applicant confirmed that changes to the ground water and surface water flows would be confined within the boundary of the Fen meadow site. Design would be developed so as not to increase risk at off-site receptors". The consenting and licensing process includes not only approval of the Fen meadow plan under R25 but also the involvement of the EA, Internal Drainage Board and Lead Local Flood Authority and other permits.
- 5.6.222. The Applicant also finds that if the works at all three sites are successful in establishing replacement Fen meadow habitats this would result in an overall total of 8.1ha of compensatory Fen meadow habitat compared to the 0.46 ha permanent loss from the Sizewell Marshes SSSI.
- 5.6.223. It was the view of NE at ISH7 that it was not possible to conclude that the loss of Fen meadow would not be significant. However, its view on that issue (IN49) was, according to the Applicant, based on the understanding that the land lost was Fen meadow. No Fen meadow would be lost because of the SSSI Crossing [REP10-097, Appendix A, IN49]. NE maintained the issue IN49 on the basis of the difficulty of re-creating Fen meadow habitat. NE's position in the SoCG is that the Fen Meadow Plans should be further revised with their comments on natural ecohydrological regimes in mind. The ExA notes the Applicant's rebuttal of these comments (discussed above in the section on disagreements between NE and the Applicant). The ExA also notes that R25 provides for the final Fen Meadow Plans to be approved by ESC (or SCC in the case of the plan for Pakenham) in consultation with NE, and that the plans must be in "general accord" (that is to say "consistent") with the Fen Meadow Strategy and Draft Fen Meadow Plan and must include details of

"water management measures". There may therefore be some room for adjustment if it is justified.

- 5.6.224. This also satisfactorily addresses the issue of hydrological and flood risk implications of the proposed use of land at Pakenham as Fen meadow including in relation to neighbouring properties and existing ecology with particular regard to the nearby SSSI and CWS which we raised in our Initial Assessment of Principal Issues [-027].
- 5.6.225. Other IPs also raised concerns about the loss of Fen meadow, including ESC and SCC in the LIR. However PD, by the end of the Examination the Councils' concerns had been assuaged and the LIR Review [REP10-183] does not record concerns about Fen Meadow.
- 5.6.226. The essence of the objection is that the re-creation is uncertain and that it is not provided before the loss. But re-creation would take about ten years and success cannot be assessed until then. So if successful re-creation must occur before the loss, it would not be possible to commence construction of the Proposed Development for ten years. We also note paragraph C.8.63 of EN-6 Part II that: "*The Appraisal of Sustainability finds that there is potential for habitat creation within the wider area in order to replace lost 'wet meadows' habitats of the Sizewell Marshes SSSI, but also finds that it may not be possible to fully compensate for losses of this habitat. The applicant will need to develop an ecological mitigation and management plan to minimise the impacts*". We also note the possibility that more than the NE multiplier of Fen Meadow could be re-created.
- 5.6.227. For our conclusion on this please see our conclusion below on the Sizewell Marshes SSSI.

Sizewell Marshes SSSI - Wet woodland

- 5.6.228. The Applicant's ES Addendum accompanying the first set of changes [AS-181, Table 2.36] shows that 3.06 ha of wet woodland would be lost from the Sizewell Marshes SSSI. Whilst the site is not notified for wet woodland, the feature supports invertebrates for which the site is notified.
- 5.6.229. The original chapter of the ES, [APP-224] and [AS-033] concluded that effects "*were considered to be moderate adverse and significant for the wet woodland assemblage (based on consideration of habitat loss in compartments 1, 2 and 4a) and minor adverse / negligible and not significant for other compartments and assemblages*". The upwards revision of the area did not change the assessment of the effect. By the end of the Examination the figure for loss of wet woodland had been revised downwards to 2.77ha.
- 5.6.230. The Final SoCG with NE records that it is satisfied with the quantity of wet woodland to be provided and the compensatory sites selected. ESC had confirmed that it had no concerns. The Applicant submitted that it is relatively easy to create, a matter reflected in the low multiplier (1x) required by NE.

- 5.6.231. NE on the other hand took the view at the end of the Examination that wet woodland is likely to occur under similar conditions to Fen meadow and the best chance of successfully re-creating wet woodland would be with a natural ecohydrological regime. This is the same as the argument on Fen meadow. NE's view on the likelihood of success is not supported by ESC nor by the Applicant. The Applicant has responded convincingly to NE's preference for natural ecohydrology. We take view there is no change in the assessment of likely significant effect from that assessed by the Applicant.
- 5.6.232. For our conclusion on this please see our conclusion below on the Sizewell Marshes SSSI.

Sizewell Marshes SSSI - Water level monitoring

- 5.6.233. As we observe in Section 5.11 of tis Report, the water level monitoring in the Sizewell Marshes SSSI has been carried out since 2011. The approach was agreed with stakeholders including the EA, NE, ESC, the IDB, the RSPB and the Suffolk Wildlife Trust.
- 5.6.234. Suffolk Coastal Friends of the Earth (SCFoE) [REP2-463] in its WR set out its reservations about the Applicant's assessment.

It states "The ecohydrological analysis and conceptual model presented by the Applicant has failed to identify the controlling variables and mechanisms which directly control the variables defining the hydrological supporting conditions for the M22 community within Sizewell Marshes SSSI. This means that knowledge of the sensitivity and vulnerability of this community to the Proposed Development, and therefore the impact assessment, falls significantly short of current knowledge and practice in wetland ecohydrology.

It is our view that the hydro(geo)logical functioning of the shallow zone within Sizewell Marshes SSSI, which controls the variables which define the hydrological supporting conditions for the M22 fen-meadow, should have been monitored, analysed and characterised in much more detail, using a contemporary ecohydrological approach. This would have allowed the hydrological dependencies and vulnerabilities of the M22 to be understood in more detail, and with less uncertainty, which would in turn have greatly improved the quality of the impact assessment.

From the available evidence we conclude that direct, upwards groundwater flow and discharge, in response to the hydraulic gradient from the Crag to the Peat, is almost certainly a critical source of water to some of the stands of M22. It is critical because it allows favourable hydrological supporting conditions to be maintained, in terms of water table elevation regime and water quality, for these stands"

- 5.6.235. It's view can be summarised as:

"The M22 within Sizewell Marshes SSSI is significantly more vulnerable to the projected lowering of the water table elevation within the Peat during the period of construction dewatering than is portrayed in the SZC Co. submissions; and

The design of the sensitivity analyses is overly optimistic; the effects of a three- to five-fold increase in the hydraulic conductivity of the cut-off wall should have been tested, and some (not unlikely) combinations of single sensitivity analysis scenarios should have been tested. If this had been done, it would have shown that there is a reasonable chance that projected drawdowns will be significantly larger than the base-case model, and in turn that the M22 community is potentially significantly more vulnerable to the proposed development."

- 5.6.236. The Applicant responded to the details of SCFoE concerns "*The summary presented is based on unjustified assertions. In summary, SZC Co considers that the expert report is an emotional response that is not evidence based.*" [REP3-042].
- 5.6.237. The Applicant also submitted its paper "*Mechanisms of change in groundwater in the Sizewell Marshes SSSI*" This summarised the key findings and evidence relating to the predicted effects of the Proposed Development on the water environment in Sizewell Marshes SSSI [REP3-043].
- 5.6.238. At Part 1 of ISH7 Biodiversity and Ecology [EV-129] to [EV-132] SCFoE maintained its concerns about the Applicant's assessment of the impacts on the M22 vegetation community. In its later submission of their oral case [REP5-271] It says "*it is worth noting that relatively little information is available about the hydrological supporting conditions for many wetland vegetation communities, including M22. To grossly underestimate the value of - and as a result to underuse - the information, which is available, is a critical failing of SZC Co's assessment, which has markedly reduced its quality and utility.*"
- 5.6.239. SCFoE maintained its view that the Applicant's assessments had fundamental failings of the eco-hydrological understanding of critical protected areas.
- 5.6.240. At the close of the Examination the parties still disagreed over the effects of dewatering/ the cut-off wall on the eco-hydrology of the Sizewell Marshes SSSI. The SoCG [REP10-120] sets out their position. SCFoE accepted that it may be possible to retain satisfactory water levels, it remained particularly concerned about the effects of water quality on the M22 community within the Sizewell Marshes. The Applicant's position remained unchanged in that it considered it had adequately assessed the effects of dewatering and the cut off wall on the eco-hydrology of the marshes.
- 5.6.241. The SoCG [REP10-111] with the RSPB/ SWT also identifies that they agree with SCFoE submissions about the effects on the Sizewell Marshes SSSI. In this document the Applicant expresses some confusion about the change in the position by the RSPB/ SWT with respect to groundwater levels in the Sizewell Marshes, from the draft SoCG [REP9-019]. In that version they were satisfied that the impacts on groundwater levels within the Sizewell Marshes could be reduced to acceptable levels using the measures set out in the ES. Also, in that version the Applicant notes that Sizewell Marshes has remained in

favourable condition both during and after construction of the Sizewell B plant, which also relied on the installation of a cut off wall to allow its construction.

- 5.6.242. The SoCG [REP10-114] with the Minsmere Levels Stakeholder Group also indicates its support for the SCFoE submissions on this topic.
- 5.6.243. SCFoE referred to EA guidance within its submission in particular in [REP2-463] that detailed their concerns. This EA guidance is "*Ecohydrological guidelines for lowland wetland plant communities. Fens and mires update, March 2010.*" The EA has not expressed any such concerns about the Applicant's approach to the eco-hydrological conditions in the Sizewell Marshes SSSI. In its SoCG [REP10-094] they indicate that they have no disagreement with the Applicant's modelling and assessment of groundwater and surface water, or assessment of terrestrial ecology relating to the construction of the main platform.
- 5.6.244. In addition, the SoCG with NE [REP10-097] indicate that with respect to the Sizewell Marshes SSSI there are no areas of disagreement on ecology arising from groundwater and surface water impacts.
- 5.6.245. Although the SCFoE has maintained its criticism of the Applicant's approach they do not provide evidence of an alternative analysis. Their opinion of the Applicant's assessment is not shared by either the EA or NE. Taking this into account we consider there is little evidence before us that the Applicant's approach is erroneous.
- 5.6.246. The controls secured in R11 and R21 of the proposed dDCO [REP10-009] would in our view ensure that the eco-hydrological impact of the Proposed Development on the M22 Fen meadow community would be adequately managed and mitigated within the Sizewell Marshes SSSI.

Conclusions on the Sizewell Marshes SSSI

- 5.6.247. Before we conclude we would draw attention to the Applicant's final NPS tracker [REP10-125] in its comments on EN-1 para 5.3.11, so far as the Sizewell Marshes SSSI is concerned. It says "*with successful mitigation in place there would be minor adverse (not significant) residual effects on Sizewell Marshes SSSI during construction in relation to direct land take resulting in loss and fragmentation, hydrological change, and certain changes in air quality. The former is dependent on successful habitat compensation*". Para 5.3.11 has two parts. If there are adverse effects on the features for which an SSSI is notified, the development should not normally be granted consent. Only where an adverse effect after mitigation is clearly outweighed by the benefits, including need, can an exception be made.

Change 6 or the Three-span Bridge

- 5.6.248. The Applicant's major argument for Change 6 over the three-span bridge is that the latter would only reduce the land take from the SSSI by 200 square metres but it would take 6-12 months longer to deliver, delaying the delivery of the Proposed Development for which there is an urgent

need. Against that SCC argues that the alternative three-span bridge would have less ecological impact. We note on this that SCC's point was put in terms of generalities. No species were identified and nor was there any expert ecological evidence on this point. The EA and NE similarly

- 5.6.249. The earlier delivery of the Proposed Development by adopting the Change 6 design is a matter to be put into the balance of likely adverse effect on notified features against the benefits of the development. The benefits must clearly outweigh the adverse effect. We note there is no suggestion the SSSI Crossing would not be needed. The Applicant says that the urgent need clearly outweighs the impacts on the SSSI and the national network of SSSIs. However, the SoS should note that if they accept our conclusion in relation to the SLR that it is provided in advance of construction then this would need to be reconsidered.

Fen meadow

- 5.6.250. The ExA concludes that Applicant's proposals to recreate Fen meadow are acceptable. The Applicant has explained the difficulties of going further with an eco-hydrological scheme. In addition, the Fen Meadow Compensation Fund coupled with the continuing obligation to use reasonable endeavours to deliver the Fen meadow are strong drivers to striving to deliver it. The Applicant is confident its proposal would be successful. The alternative would be to wait for perhaps ten years before commencing the work of the Proposed Development. Whether this would be acceptable depends on whether the benefits of the development clearly outweigh the adverse effect. We put it into the balance. Were it total loss we would give it substantial weight against the making of the Order. But as the loss is likely to be temporary (albeit for 10 years) we think it is right to give it moderate weight against the making of the Order. The possibility of more than the nine times multiplier being delivered is something to which we do not attribute weight.

Wet Woodland

- 5.6.251. In relation to the wet woodland, NE is satisfied with quantity and location. Re-creation is not difficult though we note that NE prefers a more natural hydrological regime. Our comments on the same issues for Fen meadow apply equally here. There would be loss of habitat for a valuable invertebrate assemblage, but the evidence is that there would be a more than adequate suitable habitat remaining in the rest of the SSSI. The question which remains is whether the benefits including need outweigh the adverse effect, and so we take this to the planning balance. We ascribe moderate weight against the making of the Order to the loss of the wet woodland.

Other landtake

- 5.6.252. There is also landtake for the main platform and temporary landtake for restringing the pylons and some construction work. That aspect of the Proposed Development did not take up much time in the examination. We are satisfied that the land take has been minimised. The permanent land-take is 5.74 ha with temporary landtake of 1.99 ha – see table 2-2

on page 33 of [REP8-120]. The features identified by the Applicant are the reedbed, Fen meadow and wet woodland supporting the invertebrate assemblage which have all been addressed above.

Overall conclusion on the Sizewell Marshes SSSI

- 5.6.253. The Applicant says that the urgent need clearly outweighs the impacts from Change 6 design over the three span bridge alternative on the SSSI and the national network of SSSIs. We agree with that conclusion. However the SoS should note that if they accept our recommendation in relation to the SLR that it is provided in advance of construction this will need to be reconsidered.
- 5.6.254. For completeness the ExA considers that the main thrust of NE's view is that it considers on the SSSI crossing that the DCO should not be made with the current bridge design (Change 6) because of the extra 0.02ha of SSSI loss and other unspecified damage to biodiversity. The ExA does not see that NE have proposed any further conditions to deal with this issue. Given that their position is that the bridge design (Change 6) is inappropriate that is a logical position as conditions could not address their concern.
- 5.6.255. In relation to the effects as a whole, we consider that the benefits of the development as a whole outweigh the harm to the SSSI and the national network. We carry forward to the planning balance the moderate weight in relation to Fen meadow and wet woodland.

Protected species

- 5.6.256. The comments above in relation to the disagreement between the Applicant and NE over protected species licencing and the absence of LoNIs are relevant here (IN10). In the LIR [REP1-045] ESC (together with SCC) made representations in respect of natterjack toads, otters, water voles, reptiles in general and (extensively) bats. By the close of the Examination however, all these matters had been resolved between the Councils and the Applicant. In its [RR-0373] the EA had raised concerns that the advance mitigation established at Aldhurst Farm had not been intended to address the SSSI Crossing and that species connectivity between Aldhurst Farm and the Sizewell Marshes SSSI was inadequate because an existing culvert joining the two under Lovers Lane was not of a good enough specification. By the end of the Examination the design of the SSSI Crossing had changed and a further change accepted by the ExA which provided for a new, different culvert under Lovers Lane. The final SoCG [REP10-094] did not record disagreement on matters of terrestrial ecology in the MDS and the ExA concludes that on all the matters described above (apart from the question of permits) the EA's concerns were met to its satisfaction whether by discussion and understanding, changes to the scheme or the creation and submission of new or the amendment of already proposed control documents.
- 5.6.257. The ExA notes that the control documents include mitigation and monitoring, for example the TEMMP [REP10-090], the Reptile Mitigation Strategy and non-licensable method statements under the Code of

Construction Practice [REP10-070] and [REP10-072] respectively. Between them they deal with a wider range of protected species than those noted by ESC and SCC and the EA.

- 5.6.258. The National Trust raised concerns on protected species in their written submissions following ISH7 [REP5-155, section 3] it drew attention to the existence of a number of protected species at its estate at Dunwich Heath, including the stone curlew, listed in s.41 of the NERC Act 2006 which it considered had not been included in the HRA or the ES.
- 5.6.259. At DL10 a SoCG was submitted between the Applicant and the National Trust [REP10-112]. At E1.2 it records NT's view *"with specific regard to the assessments supporting the application the NT considers that the impacts arising from the displacement of visitors have not been adequately assessed in the ES and HRA against ecological receptors with some ecological receptors not having been considered. The NT does not agree with [the Applicant's] assumptions on visitor behaviours"*.
- 5.6.260. The Applicant states that *"Impacts on all ecological receptors have been considered and, as appropriate, robustly assessed in the EIA and HRA. Revision 7 of the Monitoring and Mitigation Plan for Minsmere – Walberswick European Sites and Sandlings (North) European Site ... has been updated to include important non-HRA features including stone curlew."* [REP10-112].
- 5.6.261. The matter is recorded in the SoCG as *"partially resolved"* and that the parties agree that the plan covers all relevant receptors. The measures are set out at paragraph 2.1.4 of that plan which is secured by the DoO. In the ExA's view the widely drawn provision adequately addresses the concern of the National Trust and also the s.40/41 duties in respect of the relevant species located there. Matters relating to the National Trust in relation to HRA are considered separately in Chapter 6 of this Report.
- 5.6.262. The MDS ES chapter [APP-244] and [AS-033] had considerable material on bats and there were significant submissions by for example the RSPB/ SWT [REP2-506]. ESC also raised concerns in its [RR-0342] and LIR [REP1-045]. The potential lighting effects of the SSSI Crossing were considered in the ES. The Applicant's conclusion was that the only likely significant effect on bats would be a moderate adverse effect, significant, on the Barbastelle during the construction phase.
- 5.6.263. By the end of the Examination there were no issues between the Applicant and the host authorities, nor NE (save in relation to the absence of licences and LoNIs) in relation to bats. The RSPB/ SWT in their final submission [REP10-204] remained concerned on a number of issues, requesting greater clarity and certainty. The Lighting Management Plan [REP10-033] has been amended at DL10 to respond to their concern about the impact on bats of allowing fixed safety lighting on Bridleway 19. Not all of their concerns have been accepted by the Applicant. However we note that ESC is content with the protections for bats and the relevant control documents, and also that in one case at least the matter which concerns the RSPB (vagueness around the

statement “*Further consideration will be given to how additional noise and light monitoring can be used at other times to determine whether interventions are required*” [REP10-204 epage 17]) is one which feeds into the reviews by the EWG established under the DoO. Taking all these matters into account and other representations the ExA is satisfied on the issue of bats, noting that moderate significant adverse impact remains for the barbastelle during the construction period.

- 5.6.264. The Deptford Pink, a nationally scarce plant protected under Sch 8 of the W&CA 1981, was identified by the Applicant in its ES [AS-033]. It is growing within the site on the sea defence and would need to be translocated. A site on the existing sea defence for Sizewell B would be chosen and the translocation would need a licence from NE. As the translocation cannot be guaranteed to be successful the effect was assessed as moderate adverse, significant.
- 5.6.265. The Deptford Pink is not the only species for which a licence from NE would be needed. As noted in the section above on the differences with NE, licences were not sought in advance and whilst sought during the Examination NE was not able to respond or issue LoNIs during the Examination. If licences cannot be obtained that would impact in varying degrees on the delivery of the Proposed Development. As also noted above, NE expects well before the submission of this report to the SoS to have reached its view and submitted that to the SoS. Our comments above in the section on Applicant/ NE disagreements on the course of action the SoS may wish to take at that stage apply equally here.
- 5.6.266. Subject to that, and noting the significant effects identified, the ExA is satisfied that the effects on protected species are satisfactorily addressed in the control documentation.
- 5.6.267. The ExA attributes substantial weight against the making of the Order to the harm to barbastelle bats and the Deptford Pink, and to the habitat of the latter, in accordance with EN-1 policy 5.3.17 on the protection of habitats and other species.

Minsmere, the Marsh harrier (including whether to include the land at Westleton in the DCO), gadwall and shoveler and SSSI water birds

- 5.6.268. The effects on the marsh harrier and mitigation/ compensation were considered extensively in ISHs. In summary, the Applicant could not demonstrate no adverse effect on integrity in HRA terms in relation to noise and visual disturbance from construction activities. The Applicant however maintained that there were no significant adverse environmental effects in EIA terms. The HRA Chapter 6 of this Report addresses the HRA aspects. The issue is mainly that the birds, which breed in the Minsmere bird reserve to the north forages in, amongst other places, the wetland of the Sizewell Marshes SSSI which is west of the main platform, behind Sizewell B and, if this DCO is made, Sizewell C. The temporary construction area (TCA) would be between the two and it is not clear whether the bird would be deterred from reaching the Sizewell Marshes. Accordingly, the Applicant began some years ago to

establish a mitigation area at Abbey Farm for foraging. This is immediately adjacent to the Minsmere bird reserve. The aim is to create an area where the prey of the marsh harrier would inhabit. It is however a dry area. Extra wetland can be incorporated in the winter following the commencement of construction (see also the Wet Woodland section above, with which it is combined). The Applicant does not accept that extra land would be necessary but has included a further dry foraging area by the nearby village of Westleton and asks the SoS to exclude the site and corresponding Work from the DCO if the SoS does not consider the extra land is necessary in HRA terms.

- 5.6.269. There was little discussion of the significance of the impact in EIA terms at the ISHs. The matter was live in HRA terms however and is addressed in Chapter 6 where the ExA concludes that the Westleton site is not needed. Should the SoS take a different view they will need to be aware that there were submissions to the Examination that there was a better site available. The submissions came late, about half way through the Examination, and there would have been procedural difficulties in adding the site suggested.
- 5.6.270. The submissions on this question were made on behalf of Nat and India Bacon and Ward Farming, to which we now turn. At ISH7 the ExA heard from Dr Buisson on behalf of Nat Bacon, India Bacon and Ward Farming, Interested Parties, in relation to the Westleton Compensatory Habitat. His submissions are summarised at [REP5-208].
- 5.6.271. Dr Buisson's case is that there is a better site than Westleton. It is in the ownership of his clients and they are ready to make it available to the Applicant. However, no steps were taken by them or Dr Buisson to comply with the necessary procedures to include it in the DCO.
- 5.6.272. The case made by Dr Buisson was that the Applicant's site selection process and choice of Westleton was flawed as:
- it did not include wetland (Westleton is a wholly dry habitat) and the Applicant's case is that wetland is optimal habitat for the marsh harrier;
 - the Westleton site adjoins Westleton Village and that would cause disturbance to the marsh harrier, and bring cats – a competitor predator to the bird, meaning the site would be less likely to be used by the marsh harrier;
 - the Westleton site is 3.5 kms from Minsmere which is at the outer limit of the Applicant's own preferred maximum distance (4km); the foraging adult birds would expend more time and energy flying back and forth to the nest than if a closer site were chosen; and
 - Westleton is not therefore the best from the perspective of providing resources for breeding marsh harriers.
- 5.6.273. Further submissions were made at ISH10 and are summarised at [REP7-171]. The Applicant had submitted that the site had been excluded from their search because it was under an "agri-environment agreement". Dr Buisson submitted that such an agreement is not a "designation" (the Applicant's criterion for exclusion), that the agreement was for delivering

narrow field margins and rotational provision of habitat for farmland birds; that the agreement covers a much larger area than the parcel his clients offered and did not create habitat suitable for marsh harrier; and lastly that the agreement ends on 30 November 2023, and thus would not be in place at the time the Applicant would seek to take control of the land

5.6.274. In comparison with the land at Westleton, Dr Buisson submitted that his clients' land was superior. He listed the following:

- 2 kms rather than 3.5 kms from the Minsmere reedbeds;
- 0.00 km rather than 1.4 km from wetland habitat within the SSSI;
- potential for wetland creation; and
- not adjacent to a settlement or village.

5.6.275. The Applicant's post-ISH7 written summary of oral submissions [REP5-112] does not record what it said in reply. The ExA summarises its submissions as concentrating on the procedural difficulty of adding the land to the order at that stage and that the onus would be on Dr Buisson's clients to address that. No such steps were taken by them. The ExA has been unable to find any other submissions by the Applicant on this. Given the ExA's recommendation that the compensation with wetland proposed at Abbey Farm is satisfactory, subject to the timing of its delivery, there is no need for additional compensation whether at Westleton or on Mr & Mrs Bacon's land the ExA

Is the mitigation and/ or compensation adequate?

5.6.276. NE advised in its SoCG [REP10-097] that the Abbey Farm marsh harrier compensation would be adequate, except for the timing and the ExA accepts that advice. The timing issue is further addressed in Chapter 6 HRA. NE also accepted that terrestrial non-wetland habitat was sub-optimal but agreed that had been addressed for the marsh harrier. The ExA interprets this as a reference to the inclusion of wetland as part of the wet woodland. Our conclusions in HRA terms are set out in Chapter 6 and we will not repeat them here. We also discuss the marsh harrier, gadwall and shoveler and the SSSI waterbirds in the section on the disagreements between NE and the Applicant. Given our conclusions on the marsh harrier in Chapter 6 we arrive at the view that harm to the SSSI is likely and, as stated in the section on disagreements between NE and the Applicant the ExA ascribes moderate weight to this issue against the making of the Order.

Other designated sites

5.6.277. In relation to Minsmere – Walberswick Heaths SSSI we have already addressed the effects and harm in relation to the marsh harrier, gadwall and shoveler and other SSSI waterbirds and that substantial weight should be attributed to those losses.

5.6.278. The Applicant addresses effects on all other relevant SSSIs in its ES [APP-224 / AS-033] where it concludes there are no likely significant adverse effects. It also summarises the position in its NPS Tracker

[REP10-125]. We have considered the Sizewell Marshes SSSI extensively above. The other SSSIs assessed where there are minor adverse effects are the Orfordness to Shingle Street SSSI, Minsmere to Walberswick Heaths SSSI, and the SSSIs underpinning the Sandlings SAC. None of these featured prominently in the examination. (The Alde-Ore Estuary SSSI is considered in the marine ecology section of this report – 5.15.)

The Orfordness – Shingle Street SAC and SSSI.

- 5.6.279. In considering whether consent should be refused because of adverse effects on the Orfordness – Shingle Street SSSI, the ExA notes that this SSSI is not listed in the NE SoCG. There are no agreed or disagreed matters in relation to it therefore. The Applicant's assessment is that adverse residual effects are minor. The effects relate only to effects from disturbance caused by trampling due to displacement of recreational users. We accept that assessment. The effect is limited to the construction period. In our view, the benefits of the Proposed Development do clearly outweigh the residual adverse effects.

The SSSIs which underpin the Suffolk Sandlings SPA

- 5.6.280. The relevant SSSIs are Blaxhall Heath, Sandling Forest, Snape Warreen, Tunstall Forest and Leiston to Aldeburgh. With the exception of Leiston - Aldeburgh SSSI none of these are listed on the SoCG with NE. The reason for the listing of Leiston – Aldeburgh is water supply (IN3/13) in relation to which we make a separate recommendation. We conclude there are no relevant issues therefore in relation to these SSSIs and we accept the Applicants' conclusion of minor significant adverse effects.

Minsmere – Walberswick SSSI

- 5.6.281. As we have explained above the only outstanding issues with which concern NE in relation to Minsmere – Walberswick SSSI –are those relating to birds discussed above. We have considered the other evidence submitted to the examination and accept the Applicant's conclusion of minor adverse non-significant effects.
- 5.6.282. In relation to all of these sites and the Alde-Ore Estuary SSSI we ascribe little weight to matters relating to the issue against making the order
- 5.6.283. The sites within this heading are the Suffolk Shingle Beaches CWS and the Sizewell Levels and Associated Areas CWS. Both are partially lost to the Proposed Development and that is assessed in the ES Chapter 14 [AS-033] as moderate adverse significant effect.
- 5.6.284. Part of the Suffolk Shingle Beaches CWS is lost as new coastal defences would be constructed. No specific compensation measures are proposed. (There is translocation of the Deptford Pink – see above on protected species.) ESC and SCC drew attention to this in their LIR and sought mitigation or compensation which was at that time missing from the proposals. It was highlighted by them again at ISH7 [REP5-145] and [REP5-178]). The site also hosts nationally important vegetated shingle flora. The Councils had concerns that the need for recharge of the soft

coastal defence from time to time would prejudice the re-establishment of the vegetated shingle flora.

- 5.6.285. In relation to the Sizewell Levels and Associated Areas CWS no specific compensation measures were proposed either. Post-construction habitat creation was proposed by the Applicant (much of this CWS is taken for the TCA) and this is secured by the Estate-Wide Management Plan and Landscape and Ecology Management Plan, R8 and R24.
- 5.6.286. The ExA notes that para 5.3.13 of EN-1 states that given the need for new infrastructure, regional and local biodiversity designations should not be used in themselves to refuse development consent. ESC, SCC and the Applicant agreed that the CWSs fell within para 5.3.13 of EN-1. Therefore, and taking into account also the Estate Wide Management Plan and LEMP the ExA would take the view that the loss should be given little weight. However they are habitats for species of principal importance for the conservation of biodiversity and under policy 5.3.17 substantial weight is to be attributed to their loss by the ExA against the Order being made.
- 5.6.287. In relation to the SSSIs please see our conclusions below in the section on The Natural Environment and Rural Communities Act 2006 (NERC Act) and Wildlife and Countryside Act 1981 (W&C Act 1981) and policies 5.3.11 and 5.3.17 of EN-1

Collision risk for birds

- 5.6.288. This issue is dealt with in the section above on disagreements with NE where it is IN17. Line markers on cables have been agreed and this main issues has been resolved. Impacts to qualifying features of European sites from collision risk are considered in HRA Chapter 6.

The hydrological and flood risk implications of the proposed use of land at Pakenham as Fen meadow including in relation to neighbouring properties and existing ecology with particular regard to the nearby SSSI and CWS.

- 5.6.289. This has been addressed above in the section "Sizewell Marshes SSSI - Fen Meadow".

Associated Development Sites: Terrestrial Ecology

The Two Village Bypass

- 5.6.290. Of the main issues we identify above, Protected species, Other designated sites and Ancient woodland, veteran trees and the route of the TVB are relevant to the TVB.
- 5.6.291. In relation to protected species, invertebrate assemblages, breeding bird assemblage, bat assemblages, otters and water voles were scoped in.
- 5.6.292. In relation to other designated sites (that is non-international designations) Foxburrow Wood is a CWS and ancient woodland. There are veteran trees nearby. As we note above in the section on ancient and

veteran tree loss under the matters not agreed with NE on the route of the TVB *"one tree considered ancient, two trees considered veteran, and one tree considered notable all within the proposed vegetation removal zone"* will be lost [REP10-097 epage 198].

- 5.6.293. The Applicant's ES [APP-425] as updated by the Addendum when the first set of changes were submitted [AS-184] identified no significant effects, adverse or beneficial. All were minor or negligible even with the changes made to the Proposed Development during the course of the Examination.
- 5.6.294. Change 17 comprised three changes; the reduction in the length of flood relief culverts through the River Alde overbridge embankment from 70m to 50m to meet the EA's maximum preferred culvert length; the removal of a proposal to upgrade a footpath to a bridleway; and a change to rights of way plans to provide a non-motorised use between what would become the former A12 and former A1094 at the proposed Friday Street roundabout (where the TVB rejoins the route of the A12). The change to the flood relief culverts also led to a change in the gradient of a livestock and farm vehicle accommodation track to 10%.
- 5.6.295. The site is covered by the TEMMP. There is also a Two Village Bypass Landscape and Ecology Management Plan [REP10-066] whose overriding intention is *"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 two village bypass, such as Foxburrow Wood, Pond Wood and Nuttery Belt"*. The reference to *"where practicable"* in relation to Foxburrow Wood is assumed to be erroneous as the Applicant has made it clear in ISHs and in writing that Foxburrow Wood, which is ancient woodland, is to be retained in its entirety. Whilst the meaning of the phrase *"where practicable"* in Level 1 control documents such as this LEMP is strong (for example *"In practice this means that something that would avoid a significant impact must be done in almost all circumstances"*¹⁵) The reference in the TEMMP is superfluous but there is no real difficulty.
- 5.6.296. The LIR [REP1-044] to [REP1-058] identified adverse ecological effects from the TVB in relation to loss of connectivity for foraging and commuting bats due to hedgerow loss/ re-orientation; loss of habitat for breeding birds; impact on Foxburrow Wood CWS; loss of veteran trees and loss of floodplain grazing marsh (a UK Priority Habitat). However, the LIR Review [REP10-183] explains that the concerns in relation to bats

¹⁵ The Final Update to the Planning Statement text in full is: *"Where practicable': means that the action should be done unless the degree of risk in a particular situation cannot be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid the risk. In practice this means that something that would avoid a significant impact must be done in almost all circumstances. It would only be acceptable not to take the relevant step if there would not be a significant impact as a result, and therefore the risk would be low."*

had been dealt with by various control documents, reports, other changes and the need for bat licences.

- 5.6.297. It challenged the Applicant's view that replacement planting would be functional 10 years after planting as being overly optimistic and asked for that to be taken into account when considering weighting. In relation to veteran trees the Councils sought a commitment to plant specimen trees. This was to be included in the final LEMP but that document was not made available to them in time. The SoCG [REP10-102] states that the LEMP includes the relevant matters. The ExA has examined it [REP10-067] and concluded that it does include a commitment to plant specimen trees.
- 5.6.298. FERN, in its Written Representation on ecology [REP2-265] made many detailed criticisms of the Applicant's survey work in relation to woodland' hedgerows and ancient / veteran trees, wood pasture and parkland, arable farmland, and protected species and made more general criticisms in their overview [REP2-263]. The Applicant responded generally to FERN's critique in [REP3-042] specifying the steps it had taken in carrying out the ES for the TVB. It committed to further tree surveys and ecological surveys following the ExA's request for information [PD-027]. Further information [REP4-006] was provided at Deadline 4 in response to [PD-027] on which FERN also commented critically.
- 5.6.299. However, the ExA notes that whilst ESC had the opportunity to criticise the ES for the TVB and were critical of the Applicant in a number of ways, they were, by the end of the Examination, content with the Applicant's position [REP10-102].
- 5.6.300. We will first address other designated sites and ancient woodland, veteran trees and the route of the TVB. The effects on Foxburrow Wood (which is a CWS and ancient woodland) and on veteran trees were considered during the Examination both in writing and orally. We took careful note of the position on the ground during our accompanied site inspection and asked the Applicant for further submissions in [PD-027] which were provided at Deadline 4. The effects on Foxburrow Wood and veteran trees are one of the matters of disagreement between NE and the Applicant. We have addressed it above and considered also the views of FERN and other parties and concluded above in the differences section. Those conclusions apply to the consideration of the TVB at this point of our Report as well.

Protected species.

- 5.6.301. The ExA notes that the concern of NE in relation to protected species was that the applications for licences had not been submitted for them, in practice - see the discussion of this matter above in the section on disagreements between NE and the Applicant. FERN raise issues in relation to bats, but ESC's concerns on that aspect were assuaged by the end of the Examination.
- 5.6.302. FERN however raised a number of other protected species in its WR on ecology [REP2-265], including dormice, badgers, great crested newts,

barn owls and other bird and it stated that dormice were active at Farnham Barn”.

- 5.6.303. In reply [REP3-042] the Applicant did not specifically address FERN’s ecology WR [REP2-265] choosing instead to deal with the summary passage in FERN’s overview WR [REP2-263]. The Applicant explained that they had followed the CIEEM guidance in carrying out their environmental assessment, thus determining baseline conditions through a combination of desk-studies and field studies. They also undertook to carry out additional surveys in response to our information request [PD-027]. We have seen the submitted surveys [REP4-006] and found them helpful to our understanding.
- 5.6.304. The Applicant undertook a dormouse survey – desk top and in the field [REP7-028] – in accordance with NE guidelines. Whilst there was one desktop result from 2017 of a dormouse 2.18km away there were no dormice identified from the field survey. Based on the available information the ExA considers it proper for the Applicant’s ES to have concluded there are no likely significant effects on dormice.
- 5.6.305. Bearing in mind also that ESC was, by the end of the Examination, not maintaining any critique, the ExA is also content that the Applicant carried out adequate surveys of protected species and supplied adequate information.
- 5.6.306. We turn now to the question of the route of the TVB, in other words to consideration of the alternative proposal. Both FERN and the Farnham with Stratford St. Andrew Parish Council [REP2-273] submitted that the TVB should be routed to the east of Foxburrow Wood rather than between the wood and the dwellings in the Farnham Hall area represented by FERN. The Applicant’s response [REP4-006] to our request for information [PD-027] shows that for example Farnham Hall Farmhouse would only be 92.8 metres from the edge of the carriageway (though its owners are not part of FERN) and the next closest, Farnham Barn 2a, would be only 139.7 metres away. The furthest would be 194.9 metres away (Farnham Manor). These distances are all to the buildings, not to the gardens which are usually closer.
- 5.6.307. FERN’s ecological case, in summary terms was that going east of Foxburrow Wood limited fragmentation of habitats of a number of species including bats; limited loss and damage to ancient hedgerow, ancient trees, and ancient woodlands including Foxburrow Wood and Pond Wood and possible ancient woodland at Nuttery Belt; reduces pollution of biodiversity; and protected the western edge of Foxburrow Wood from further decline. In contrast, the loss would only be the thin strip between Foxburrow Wood and Palant’s Grove [REP2-271]. However, the Applicant points out [REP2-108] that:
- the alternative route would only be 21.6 metres from Walk Barn Farm (a dwelling) as opposed to 83 metres from the nearest dwelling in the case of the proposed route;

- additional land would be required to facilitate construction of the alternative alignment and to create a new access to serve Walk Barn Farm to the east of the property;
- the Parish Council's alternative alignment would pass between Foxburrow Wood Ancient Woodland and Palant's Grove Ancient Woodland, requiring the removal of the central neck of Palant's Grove, a CWS;
- in addition to the road itself, the Parish Council alignment would require a corridor approximately 14m to 20m wide on both sides of the road alignment (assuming no earthworks are required) including to accommodate haul routes, drainage, PRow changes (specifically E-243/006/0) and a fence either side of the haul routes and this corridor would be wider if the earthworks are required. *"These corridors, which are needed to facilitate the safe construction of the alignment, would impact on the 15m buffer to Foxburrow Wood and Palant's Grove Ancient Woodland. These corridors, and the road itself, would result in a permanent loss of 1,834sqm of the County Wildlife Site"* – the Applicant at [REP2-108].

5.6.308. The Applicant satisfied the concerns of ESC in relation to bats and they would be subject to protected species licensing requirements. Fragmentation of habitats of other species was not an issue with ESC. Insofar as it concerned NE we have considered that above. The Applicant in its comments on WRs [REP3-042] maintained that Nuttery Belt is not ancient woodland and pointed out that it is not on NE's Ancient Woodland inventory. Elsewhere the Applicant has described the 15 metre buffer to Foxburrow Wood which is recommended by NE as the minimum to avoid root damage. The water table is below the level of the cutting into which the TVB is sunk adjacent to Foxburrow Wood. The Applicant acknowledged that the strip between Foxburrow Wood and Palant's Grove East is no longer ancient woodland but pointed out that it is nonetheless still part of the CWS which encompasses Foxburrow Wood and Palant's Grove. The Applicant drew attention to SCC's response following the ExA's [PD-027] information request that: *"The non-Ancient Woodland part of the CWS joins the two larger parts of the woodland and remains important for its ecological functioning"*.

5.6.309. The application route for the TVB would result in the loss of three veteran trees and EN-1 states their loss should be avoided or where their loss is unavoidable the reason why should be set out. The reason is that they are on the route of the TVB and try though the Applicant might, their loss cannot be avoided if that route is chosen. The Applicant explained in its post ISH10 submissions [REP7-073] that the knock-on effects of avoiding the three veteran trees produced less desirable effects, including in one case impact on Foxburrow Wood (where 29m² would be lost and the 15m buffer eroded). In addition, the land to the west of Foxburrow Wood over which it would pass does not have any statutory or non-statutory biodiversity designation.

5.6.310. On the other hand, we note that the alternative route would cut through and fragments a CWS and EN-1 states that they have a fundamental role to play in meeting overall national diversity targets; due consideration

should be given but their designation alone is not to be used to refuse development consent. Like the veteran trees, the policy is to retain them unless their loss is unavoidable. It would require a 14-20 metre wide corridor between Palant's Grove and Foxburrow Wood, plus buffers to protect trees, and result in the loss of 1,834 square metres of CWS

Conclusion on the TVB

- 5.6.311. The choice in pure ecology policy terms is between the loss of three veteran trees (where the policy is not to lose them unless that is unavoidable) and the severing of a County Wildlife Site (which is not to be used as a reason to refuse development consent, not the case here) and loss of 1,834 square metres of CWS. There may be other reasons why the alternative route is not acceptable or justifies it notwithstanding policy on veteran trees. But in terms of ecology policy, the loss of the veteran trees could be avoided if the alternative route were to be adopted.
- 5.6.312. The Applicant has explained why the loss of three veteran trees is unavoidable. There is a buffer zone of 15 metres (save for a very small incursion) to protect Foxburrow Wood. The EA's concerns over culvert length are resolved by the reduction in length. We have addressed NE's objection in the differences section. We agree with the Applicant's conclusion that there are no significant adverse effects (taking mitigation into account). We are therefore satisfied on the main issues and other issues for the TVB so far as biodiversity is concerned. The alternative route is addressed in section 5.4 of our report.

Sizewell Link Road

- 5.6.313. Of the main issues we identify above protected species are relevant to the SLR. We also specifically list above, in relation to the SLR, mitigation for loss of watercourses, mammal and invertebrate surveys.
- 5.6.314. There are 12 statutory designated sites of nature conservation importance within 5 km of the site and 15 non-statutory designated County Wildlife Sites within a 2km radius, listed at para 7.4.5 of the ES chapter on the SLR [APP-461].
- 5.6.315. As there is no land take from any of these sites, statutory or non-statutory, they were scoped out of the ES, although it is noted (para 7.4.6) that the CWSs support habitat types listed under section 41 of the NERC Act and are targeted for action under the Suffolk BAP and Suffolk's Priority Species and Habitats list.
- 5.6.316. After a review of the baseline the Applicant scoped into its ES and took forward for assessment the following features
- Lowland mixed deciduous woodland;
 - Hedgerows;
 - Ponds;
 - Great crested newt;
 - Breeding bird assemblage; and

- Bat assemblage.

- 5.6.317. The Applicant's ES [APP-461] identified no residual significant effects after primary, tertiary and secondary mitigation, adverse or beneficial. All were minor or negligible even with the changes made to the Proposed Development during the course of the Examination. The ES for terrestrial ecology and ornithology for the SLR was updated by the Addendum when the first set of changes were submitted [AS-185] and the second Addendum when the second set of changes were submitted [REP5-069].
- 5.6.318. Change 12 of the first set of changes comprised extensions and reductions of the Order Limits for works on the Sizewell link road as well as minor changes to public right of way proposals.
- 5.6.319. Of the second set of changes the ones relevant to the SLR were comprised in Change 18. They included changing the proposed Pretty Road Bridge from pedestrian to vehicular and a number of changes to order limits and highways layouts to improve tie-ins between highways, drainage and in two cases departures from Design Manual for Roads and Bridges standards (see [REP5-002]).
- 5.6.320. In their LIR [REP1-045] ESC and SCC noted negative ecological impacts in terms of loss of connectivity for foraging and commuting bats due to hedgerow loss/re-orientation; loss of habitat for breeding birds; small amount of woodland lost to construction loss of ponds (one permanently) and loss of habitat and habitat fragmentation impacts on great crested newts.
- 5.6.321. They sought a LEMP, adequate monitoring (expressing some concern at the provisions of the draft TEMMP) and suitable mammal culverts for otters. Concerns were raised about effects on bats displaced from the Main Site (ES), the duration of construction impacts on great crested newts, and the length of time likely to be needed for new woodland and hedge planting to become established. These latter two should be weighed in the benefits / impacts balance. New ponds proposed as a result of pond losses would need to be located where appropriate to support relevant species.
- 5.6.322. There is a specific LEMP for the SLR [REP10-064] and the TEMMP has been revised several times since the submission of the LIR. The final TEMMP is [REP10-089]. By the end of the Examination the updated LIR recorded the Councils' position and there were no outstanding matters in relation to ecology on the SLR. The same conclusion was reached in the SoCG [REP10-102].
- 5.6.323. Leaving aside the issues of protected species licensing, there were no outstanding points between the Applicant and NE in relation to the SLR by the end of the Examination (see the final SoCG [REP10-097]).
- 5.6.324. The EA raised issues in relation to the SLR regarding loss of watercourses, otters and biodiversity net gain in its WR [REP2-135].

- 5.6.325. In relation to the EA's concerns we note the response of Mr Lewis for the Applicant during ISH7 [REP5-112]. On watercourses his evidence was that there are seven watercourses that vary in width, they are very small, and they are ephemeral in nature. Of the seven water courses, six of them would be crossed using portal culverts which retain the beds of the river retain the banks of the river and the Applicant would maximise the height of the culverts, subject to the vertical alignment of the road. We asked for an explanation of "portal culverts"; they are three sided, like a bridge, rather than four-sides with a floor. This also helps to avoid fragmentation if there are any dispersing voles or otters.
- 5.6.326. However by the end of the Examination there were no areas of disagreement between the EA and the Applicant in relation to the SLR (see SoCG [REP10-094]). We note however that that the EA in its submission [REP7-128] requested the insertion of a note into the SLR Mitigation Strategy. This is at Appendix A. The note recorded that the EA found some mitigation for impacts to watercourses as a result of construction of the SLR to be acceptable. We cannot see that it has been incorporated. The SoS may wish to satisfy themselves on this.
- 5.6.327. We note that the RSPB/ SWT WR [REP2-506] raised issues in relation to bats and the SLR, specifically that its importance for bats had been underestimated, that more mitigation should be provided and on the design and location of road crossing points. By the end of the Examination the concern had narrowed to whether there should be additional crossing point surveys (see RSPB / SWT final submissions [REP10-204] and SoCG [REP10-111]). Given in any case the position of the Councils the ExA is satisfied that the issue has been adequately addressed.
- 5.6.328. In relation to mammal and invertebrate surveys several IPs had expressed concern that the Applicant had either not done sufficient surveys or were carrying them out too late. Mr Lewis for the Applicant explained to us at ISH7 that most of the surveys being undertaken in 2021 were to inform applications for protected species licences [REP5-112]. They are not being used to supplement the environmental impact assessment and do not affect its conclusions. We are satisfied on that issue.
- 5.6.329. There are no impacts identified on designated sites, international, national or local. No ancient woodland or veteran trees are affected. relevant policies in section 5.3 of the EN-1 are met. Specifically we draw attention to policy 5.3.18 (Mitigation) which requires the Applicant to take opportunities to enhance existing or create new habitats; the number of ponds being created exceeds those lost although we note that this is only a minor non-significant beneficial effect. (Policies 5.3.17 and 18 are separately addressed in this report.)
- 5.6.330. We have considered the evidence of other parties and agree with the Applicant's assessment of no likely significant adverse effects taking into account mitigation. The ExA therefore attributes no weight against the making of the Order to ecological effects arising from the SLR.

Northern Park and Ride

- 5.6.331. The main issue in relation to this site was in relation to protected species, with particular concerns on whether the ecological parts of the ES were adequate.
- 5.6.332. There were only minor boundary reductions to the Northern Park and Ride (NPR) site in the first set of changes to the application and none thereafter.
- 5.6.333. The Applicant's ES concluded that after mitigation there were no significant ecological impacts.
- 5.6.334. The LIR identified an ecological impact in terms of the loss of habitat for wintering and breeding birds. In relation to great crested newts and bats it did not disagree with the Applicant's conclusion of no significant adverse effect but pointed out that the identified mitigation would need to be secured via the CoCP and LEMP. The TEMMP would need to address monitoring.
- 5.6.335. The nearby Heveningham Hall Estate (HHE) submitted an extensive WR [REP2-287]. In it they challenged the adequacy of the ecological surveys carried out, generally on the basis that the data was out of date or methods inadequate. Other criticisms were that there is no management plan for the NPR; that NE is unlikely to grant a necessary European Species Mitigation Licence in relation to great crested newts because of the age of the survey data in the light of the cases of *Morge v. Hampshire CC* [2011] UKSC 2 and *Prideaux v. Buckinghamshire CC* [2013] EWHC 1054 (Admin); that the built in mitigation is not appropriate for all reptile species; a sharp decline in the number of high potential bat roost trees was implausible; whether or not Little Nursery Wood was ancient woodland.
- 5.6.336. At ISH7 HHE also asked how Pond 78 which would be important for great crested newt mitigation was to be protected and secured by the DCO or other control documentation; given that landowner consent would be necessary for protection of a different on-site pond, what would happen if that consent were not forthcoming; that the age of the Applicant's bat surveys and the absence of tree-climbing bat surveys there was an absence of scientific certainty and a precautionary approach had to be taken which would mean assuming that the site may be used by light sensitive species such as *Barbastelle*; that mitigation for lighting effects was too generic [REP5-279].
- 5.6.337. The Applicant's reply [REP3-042] rejected the criticisms in HHE's WR and drew attention to additional surveys carried out in 2020 and reported at [AS-036], and to further surveys of wintering birds and breeding birds to be carried out in 2021. In relation to whether Little Nursery Wood is ancient woodland the Applicant replied that not only was it not on NE's list but its earliest appearance on maps was on the maps of the Rous estate in 1803. To be "*ancient*" woodland must date from 1600 and it was not on the next earliest map, Hodskinson's of 1783. HHE had also said the Applicant was inconsistent for noting possible vestiges of ancient

woodland but maintaining that the wood was modern. The ExA notes that the Applicant also drew attention to the 1982 Ordnance Survey map on which the north and south extensions visible today first appeared. The two statements can therefore both be true.

- 5.6.338. In relation to other criticisms made by HHE of the Applicant's approach the ExA considers they relate to matters where there is a degree of judgment or where the licensing system would operate. Whilst NE did not by the close of the Examination issue any LoNIs, neither did we have any indication from NE that licences would not be granted.
- 5.6.339. There are some elements of the HHE critique to which the Applicant does not appear to have given an answer. These are whether the built in mitigation is suitable for all reptile species; how Pond 78 is to be protected; the question of landowner consent or great crested newt mitigation where if the Applicant cannot obtain landowner consent it will propose alternative mitigation; whether there should be an operational management plan; and need for scientific certainty. In relation to the last of those (scientific certainty) the ExA observes that this criticism in relation to EIA. Assessment there is to ascertain likely environmental effects and scientific certainty – if such a concept exists in practice – is not required.

Conclusions on the Northern Park and Ride

- 5.6.340. In relation to all those unanswered elements the ExA notes that the Councils had few concerns in relation to ecological matters at the NPR and that the concerns they did have were met during the course of the Examination – see their SoCG [REP10-102] LIR [REP1-045] and the LIR Review [REP10-183]. On the question of the possible lack of landowner consent, in the final analysis this may mean that there would be harm to great crested newts which are identified by the Applicant in the NPS Tracker as key protected species under policy 5.3.17.
- 5.6.341. The ExA does not disagree with the Applicant's assessment of significant adverse effects except in relation to great crested newts on account of the uncertainty of obtaining landowner consent for the mitigation. The ExA is satisfied that this matter could be resolved through finding an alternative site for the translocation. The SoS might wish to update themselves on whether an alternative site is necessary and if so the certainty of another site being delivered.
- 5.6.342. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The proposed development at this site is compliant with the other relevant policies.
- 5.6.343. The ExA considers that there are no biodiversity or ecological matters relating to the Northern park and ride that would weigh for or against the making of the Order.

Yoxford roundabout and other highway improvements

- 5.6.344. This heading comprises both improvements at Yoxford and also some small highway improvements elsewhere. Those other highway improvements were considered not likely to result in significant adverse environmental effects and were scoped out. This section therefore only addresses the Yoxford improvements. The main issue in relation to the Yoxford roundabout is protected species.
- 5.6.345. The Changes comprise minor reductions to the site boundary at Yoxford roundabout (as part of Change 12), the A12/B1119 junction at Saxmundham and the A1094/B1069 south of Knodishall junctions (as part of Change 14). They did not affect the Applicant's assessment of ecological and ornithological impacts.
- 5.6.346. The LIR [REP1-045] identified a neutral impact to Roadside Nature Reserve 197 (RNR197) which hosts a protected fungi species, the Sandy Stilt Puffball fungus (*Battarraea phalloides*) on account of which it is designated. Mitigation measures would be delivered through the CoCP. The site and the species were assessed together.
- 5.6.347. The site is hydrologically linked to the Minsmere to Walberswick Heaths and Marshes SPA, SAC, Ramsar Site, and SSSI, Minsmere Valley Reckford Bridge to Beveriche Manor CWS and Darsham Marshes CWS through the River Yox. Those sites were scoped in. Although there are other statutorily designated sites of conservation importance within 5km and five other non-statutorily designated sites within 2km given the actual distance to these other sites, no land take from them and no clear impact pathways they were scoped out.
- 5.6.348. With the exception of the Sandy Stilt Puffball, all the important ecological features scoped in therefore were sites. RNR197 would be retained in its entirety with no habitat loss. After mitigation, no likely significant adverse effects were identified.
- 5.6.349. HHE in their WR [REP2-287] suggested that the site for the roundabout had not been surveyed for Sandy Stilt Puffball other than within RNR197 and that protection for the Puffball had not been considered. The Puffball is protected under Schedule 8 of the Wildlife and Countryside Act 1981 and is also a Suffolk priority species.
- 5.6.350. Roosting bat survey work was considered necessary to establish if the site supported roosting bats and no survey work for reptiles had been carried out. HHE continued to make the point about the Puffball at ISH7 when they submitted that the survey of the site had been made at the wrong time of year [REP5-279, para 4.8]. That is consistent with the Applicant's ES which recognises [APP-494, para 7.4.14] that the survey was not carried out in the Autumn which is the only time of year that the Puffball is visible.
- 5.6.351. The Applicant replied to the WR asserting that the Puffball and the RNR were clearly recognised and that working practices in the CoCP would protect adjacent habitats (which would include RNR197). The assessment

considered the site to have limited potential for reptiles and there was limited suitability for bats; that was a combination of assessment and professional judgment [REP3-042].

- 5.6.352. The Applicant did not however deal with the point that the remainder of the site for the Yoxford roundabout – that is the parts which are not in RNR197 – had not been surveyed at a time when the Puffball would have been visible. The Puffball is a plant protected under s.13 and Sch 8 of the Wildlife and Countryside Act 1981. It is an offence to pick, uproot or destroy it (s.13). If the destruction of the plant is an incidental result of a lawful operation and could not reasonably have been avoided, such as a planning permission then no offence is committed.

Conclusions on the Yoxford Roundabout

- 5.6.353. As the Puffball is a s.41 species the test is whether the adverse effect is outweighed by the benefit of the Proposed Development, including need. We note that HHE have not themselves identified any specimens outside the RNR. We therefore put this into the planning balance. We give this matter substantial weight against the making of the Order.
- 5.6.354. In other respects the ExA is satisfied that the Applicant has properly assessed the effects. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The other relevant policies in EN-1 are met.

Southern Park and Ride

- 5.6.355. The only Important Ecological Feature taken forward for assessment was bats. That comes within the main issue of protected species.
- 5.6.356. Change 10 to the Southern Park and Ride (SPR) site was an extension of landscaped bund, other minor changes at the SPR, including a minor reduction of the site boundary. There were no significant effects identified in the Applicant's ES and that assessment was unchanged by Change 10.
- 5.6.357. The Councils identified bats in their LIR [REP1-045] and considered the mitigation measures to be appropriate provided they were adequately secured and implemented. They also identified a negative impact on breeding and wintering birds, but recognised that it was below the level of significance for wintering birds. The LIR Review [REP10-183] did not identify any matters outstanding.
- 5.6.358. NE had no issues specific to the SPR. The only relevant issue for it was protected species and their licensing. Bats are a protected species. The EA did not have any issues.
- 5.6.359. The ExA is satisfied that the assessment of likely significant effects is robust and appropriate. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which

addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The other relevant policies in EN-1 are met.

- 5.6.360. The ExA considers that there are no biodiversity or ecological matters relating to the Southern park and ride that would weigh for or against the making of the Order.

Freight Management Facility

- 5.6.361. A bat assemblage was the only Important Ecological Feature scoped into the ES ([APP-523] Freight Management Facility, Terrestrial Ecology and Ornithology) and we shall treat that as the main issue. It is relevant to note that after recognising that all bats are protected under the Habitats Regulations and W&CA 1981, the Applicant in scoping noted: *“There were no records of bats within the site boundary and most of the habitats within the site are of limited value to foraging and commuting bats. There are 18 trees within the site with moderate or low potential to support roosting bats. The degree of sensitivity bats display varies between species; however, it is recognised that all bat species can be negatively impacted by human activities”*.
- 5.6.362. No changes were made to the design of the FMF as submitted.
- 5.6.363. The Councils in the LIR identified that bats use the site. There would be neutral impact in their view. They identified a negative impact but below the level of significance for assessment in the ES, in relation to both breeding and wintering birds. The LIR Review [REP10-183] did not identify any matters outstanding. NE did not have any issues which were specific to the FMF. Nor did the EA.
- 5.6.364. The site lies within the area of Levington Parish Council which submitted a RR [RR-0686] but not a WR. The RR did not raise any specifically
- 5.6.365. After mitigation the Applicant’s ES identified no significant adverse effects.

Conclusion on the Freight management facility

- 5.6.366. The ExA is satisfied the assessment of likely significant effects is robust and appropriate. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this Report. The other relevant policies in EN-1 are met.
- 5.6.367. The ExA considers that there are no biodiversity or ecological matters relating to the Freight Management Facility that would weigh for or against the making of the Order.

Rail extension

- 5.6.368. The rail extension route comprises the temporary extension of approximately 1.8 km from the Saxmundham – Leiston line to a new level crossing over Abbey Road so that the railway can enter the TCA on the MDS, and also improvements to the Saxmundham – Leiston line – track replacement and level crossing upgrades. Within the MDS the green
- 5.6.369. Buckle’s Wood CWS, great crested newts and roosting, foraging and commuting bats were scoped into the assessment and in our view they were the main issues. All other designated sites were scoped out.
- 5.6.370. The LIR did not identify any environmental impacts from the rail extension route [REP1-045].
- 5.6.371. By the end of the Examination NE’s only issue in relation to rail was the need for protected species licences. We have addressed this in the section above on differences between NE and the Applicant. The EA did not raise any issues of ecology specific to the rail extension.
- 5.6.372. Leiston–cum–Sizewell Parish Council, whilst they participated extensively in the Examination, did not raise any ecological or ornithological issues in relation to the rail extension.
- 5.6.373. The Applicant’s assessment did not find any significant adverse effects, after mitigation.
- 5.6.374. The ExA is satisfied the assessment of likely significant effects is robust and appropriate. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The other relevant policies in EN-1 are met.

Biodiversity Net Gain

- 5.6.375. The Applicant submitted a biodiversity net gain report with the application documentation. Later, at Deadlines 1 and 5 updated reports were submitted. The full suite is [REP1-004] BNG for the MDS [REP5-090] BNG for the SLR; [REP5-091] BNG for the TVB; [REP5-092] BNG for the Yoxford Roundabout.
- 5.6.376. There was considerable discussion and criticism of the reports. It should be noted first that BNG reports are not required by law or policy for NSIPs, and that the reports were prepared using the then current measuring tool, Metric 2.0. That metric has since been replaced by Metric 3.0, published by NE. However NE’s advice is that projects where an application has already been submitted, such as this application, do not have to revise their calculations and redo them under Metric 3.0.
- 5.6.377. The main critique was made by SCFoE, Mr Paul Collins and Theberton Parish Council at ISH7 ([REP5-288] and [REP6-075]), and by Mr Dominic Woodfield from Bioscan.

- 5.6.378. The Applicant defended its BNG assessments. Its position was that it followed the guidance for carrying out BNG, that BNG is not required and that it was done at the request of stakeholders. Having heard detailed and extensive submissions from Mr Collins at ISH10 we suggested that he and the Applicant meet to see if they could arrive at a SoCG and thus narrow the issues. Mr Woodfield also became part of that interaction.
- 5.6.379. Time was however against them all. Whilst we have an SoCG it is a statement of differences between the Applicant and Mr Collins, but they are helpfully tabulated. Other commitments prevented Mr Collins from seeing or agreeing the document offered by the Applicant and ultimately submitted at DL10 [REP10-122] but the Applicant affirms that it has faithfully set out his submissions.
- 5.6.380. Mr Woodfield doubts that the Applicant has correctly applied Metric 2.0 to the Fen meadow creation proposals and did not at Deadline 2 have access to the Applicant's calculations. He says "*it is nonetheless possible to identify sufficient problems and errors with the Applicant's approach that call into serious question the veracity of such claims. These include artificial suppression of baseline condition of affected habitats and exaggerated assumptions about the likely success or timeframes of habitat creation or enhancement*" and claims there is in fact biodiversity net loss [REP2-226].
- 5.6.381. SCFoE doubted that the Applicant would in fact achieve the improvements claimed and claims there have for example been instances of failure to maintain Aldhurst Farm (a field becoming overgrown with ragwort) [REP2-455] and [REP2-460].
- 5.6.382. The SoCG with Mr Collins showed that his calculations do not get to the Applicant's figure for BNG (he reaches 13.4% whereas the Applicant claims 19% increase). Mr Collins criticises Metric 2.0 and questions the use of biodiversity gains outside the sites (or part of the development) where there are losses. He seeks some recognition for the duration of the impacts on biodiversity pending restoration of the sites after construction.
- 5.6.383. The Applicant continued to maintain its position that it had correctly applied the Metric. Mr Woodfield was present at a meeting with the Applicant in the closing stages of the Examination and the Applicant states that it submitted an account and response [REP10-158, Appendix O]. However, that Appendix was accidentally omitted when [REP10-158] was submitted and the ExA does not have it.
- 5.6.384. However, the SoCG with Mr Collins [REP10-122] records that at the close of the September meeting the Applicant stated: "*The BM 2.0 calculations were entirely a voluntary assessment carried out at the request of stakeholders to demonstrate the effectiveness of the landscape design, not to claim BNG. The Biodiversity Units calculated will not formally be claimed to offset any impacts, they are a means of measuring the effectiveness of the design and will be repeated over time*". The Applicant is clearly not relying on the BNG calculation as support for the

application. We afford it limited benefit but given that there is no legal basis for doing a BNG assessment, the Applicant has gone over and above what is required.

Biodiversity Benefits and Good Design

- 5.6.385. Turning to opportunities for building in biodiversity benefits as part of good design, the ExA is satisfied that the Applicant has maximised opportunities where possible. In particular, the updated Estate Wide Management Plan (EWMP) and the Outline Landscape and Ecology Management Plan (oLEMP), both of which are secured in the dDCO, set out objectives and general principles for the establishment and longer-term management of newly created landscape areas. These would 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 [REP10-136] and [REP10-061].
- 5.6.386. Following construction, the temporary construction area at the MDS would be restored to a new landscape. This would be undertaken by creating a mosaic of some of the most valued habitats comprising locally characteristic Sandlings habitat, which would include approximately 121ha of dry Sandlings grassland and 51ha of mixed woodland. Once fully established, the Applicant argues that the habitat mosaic would have a higher biodiversity value than the existing habitats, specifically as extensive arable areas and plantations would be replaced with locally characteristic semi natural habitats at scale [REP10-061].
- 5.6.387. Added to this, the Applicant has proposed a Natural Environment Improvement Fund, which is contained within Schedule 11 of the DoO [REP10-076]. During construction, and for three years following the end of construction, applications for funding from the Improvement Fund would be invited. One of the aims of the Fund is 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 and would enhance biodiversity.
- 5.6.388. This would also contribute to improvements which we consider would bring multiple benefits to the wider area in terms of biodiversity, but also landscape, visual and green infrastructure benefits, as described in Sections 5.5 and 5.14.
- 5.6.389. In looking at how the Applicant has provided opportunities for building in beneficial biodiversity features within the Proposed Development as part of good design, the ExA considers that the Applicant has made opportunities for biodiversity enhancement, and that mechanisms for achieving this are adequately secured in the dDCO (EN-1, para 5.3.15).
- 5.6.390. In reaching conclusions on how biodiversity benefits contribute to good design, the ExA has also taken into account the residual adverse effects on biodiversity elsewhere and the need for discharge of post-consent

approvals to deliver what is intended by the outline control documents. Therefore, the ExA attributes little weight against the Order being made to the biodiversity element of good design.

Mitigation plans and Compensation Habitat Strategy

- 5.6.391. Part of the Applicant's mitigation is contained in various monitoring and mitigation plans and similar documents such as the Terrestrial Ecology Monitoring and Mitigation Plan (TEMMP) [REP10-090]. The scheme for the governance and enforcement of the plans is described in the Applicant's document [REP10-068] Planning Statement Final Update Appendix B. We have summarised that in Chapter 9. Some plans are also secured under requirements (or in the case of marine plans the DML). Some plans when submitted are be in general accordance with an outline plan or strategy, such as the Fen Meadow Plan and the DCO makes provision for what standard that imports. Req 4 specifies that the construction and operation of the development must be in accordance with the Terrestrial Ecology Monitoring and Mitigation Plan.
- 5.6.392. We draw attention to the Wet Woodland Strategy the final version of which was in error not submitted to the Examination at DL10. The Applicant's navigation document [REP10-002] lists it as Doc 9.8B and in the Final Mitigation Route Map [REP10-073] it is Doc 10.31, which is the same as 9.8B. The SoS will need to obtain it. It is in the list of certified documents at Schedule 24 of the dDCO. The RSPB sought amendments to this plan, summarised in its final submission [REP10-204, para 7.1], for functional, proximate and adequate compensation before habitat loss. These matters, apart from timing, already feature in the [REP8-091] version of the strategy. We have advised above in relation to timing of the delivery of wet woodland and Fen meadow.
- 5.6.393. We also draw attention to the On-site Marsh Harrier Compensatory Habitat Strategy [REP10-128]. This is secured by R27 and must be implemented as approved. In the light of our conclusions on AEoI in relation to the marsh harrier in Chapter 6, the wetland creation and timing elements of this strategy the SoS may wish to satisfy himself as to any consequential amendments to it.
- 5.6.394. In relation to the TEMMP [REP10-090] RSPB / SWT asked in [REP10-204] at para 10.3 for the plan to include additional targets regarding the geographical extent of marsh harrier foraging habitat and the need to minimise disturbance so as to be consistent with the NE supplementary advice on Conservation Objectives for the Minsmere-Walberswick Marsh Harrier Feature. We note the concerns raised by the RSPB but also that the proposed monitoring measures have been agreed with NE [REP6-042] and secured by the TEMMP and that there are potential interventions which could be deployed in response to the findings of monitoring, if necessary. We conclude the additional targets RSPB seek are not necessary.

- 5.6.395. There are many comments from IPs on the plans, not all of which have been accepted by the Applicant. However, we are satisfied that there are provisions elsewhere in the control documents (including the DCO and DoO) or the issues have been addressed to the satisfaction of the Host Authorities or statutory advisers. We consider the system for approval and enforcement of mitigation and monitoring plans and governance to be satisfactory.

Collision risk for birds

- 5.6.396. We have reported on this above in the section on disagreements between the Applicant and NE, IN37.

The Natural Environment and Rural Communities Act 2006 (NERC Act) and Wildlife and Countryside Act 1981 (W&C Act 1981) and policies 5.3.11 and 5.3.17 of EN-1

- 5.6.397. We drew attention to ss.40 and 41 of the NERC Act and ss.28G and 28I of the W&C Act 1981 at the opening of this section where we also summarised policy 5.3.17. In ExQ1 we asked the Applicant *"to set out in a concise explanatory note the steps which it considers the SoS should take in relation to this application to comply with their duties in s.40 of the Natural Environment and Rural Communities Act 2006 to have regard "so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". For the avoidance of doubt, this should include the United Nations Environmental Programme Convention on Biological Diversity of 1992"* (Bio1.6). We also asked the Applicant *"to set out in a concise explanatory note the steps which it considers the SoS should take in relation to this application to comply with their duties in s.41 of the Natural Environment and Rural Communities Act 2006 (a) to take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or (b) to promote the taking by others of such steps. The application affects a number of such organisms and habitats. The note should deal with each such organism and habitat, explain briefly the steps and conclusion which show that the duties will have been discharged and refer the ExA to the documents and paragraphs in the ES (and other application material) where the supporting evidence and conclusions are to be found"* (Bio.1.7).
- 5.6.398. In response to both questions the Applicant submitted [REP2-109, Appendix 7B]. In response to ExQ1 Bio1.7 it also responded *"The Applicant considers that in order to comply with their duties in s.41 of the Natural Environment and Rural Communities Act 2006, the Secretary of State (SoS) should review the mitigation measures proposed and the extent to which they are secured and come to a view on the ability of these measures to ensure that the conservation status of these species will not be compromised.*

The steps outlined in these measures will preserve and, in some cases, enhance the conservation of the Section 41 species and habitats within the main development site and associated development site boundaries which will allow the SoS to comply with their duties to promote the taking of others of such steps”.

5.6.399. We asked a supplementary question at ExQ2 (Bio2.11) to ensure the material supplied in the earlier questions applied across the entire Proposed Development. The Applicant confirmed that it did and took the opportunity to submit an updated Appendix 7B with a clearer structure and to include additional mitigation measures set out in documents which had been submitted to the Examination [REP7-057, Appendix 2A]. There were no comments from NE, the EA or the Councils on the responses to these questions.

5.6.400. Policy 5.3.17 of EN-1 states:

"Other species and habitats [that is those not covered by legislation such as the W&CA 1981, or the Protection of Badgers Act 1992] have been identified as being of principal importance for the conservation of biodiversity in England and Wales and thereby requiring conservation action [lists are published under s.41]. The IPC should ensure that these species and habitats are protected from the adverse effects of development by using requirements or planning obligations. The IPC should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits (including need) of the development outweigh that harm. In this context the IPC should give substantial weight to any such harm to the detriment of biodiversity features of national or regional importance which it considers may result from a proposed development."

5.6.401. Sections 40 and 41 are broad in their scope as is policy 5.3.17. Appendix 2A (like Appendix 7B before it) is a substantial document [REP7-057]. The duty in s.40 falls on both the SoS and the ExA. The s.41 duty is that of the SoS alone. The Applicant has carried out environmental assessment which we have taken into account and which includes but is not limited to terrestrial biodiversity and ornithology and marine ecology. We also note the Applicant's Shadow HRA (sHRA) material, mitigation and monitoring plans and other material submitted to the inquiry. We draw attention to the many references in the Applicant's ES to species and habitats under s.40 and 41 and to species and habitats listed in the Suffolk Biodiversity Action Plan and /or Suffolk's Priority Species and Habitats list in the Applicant's ES. We note the submissions of the SoS's statutory advisers and other IPs. We confirm that we have taken the contents of [REP2-109] and [REP7-057] into account and had regard to the purpose of conserving biodiversity and the United Nations Environmental Programme Convention on Biological Diversity 1992.

5.6.402. The Applicant, in the NPS Tracker [REP10-125] specifically drew attention to the Barbastelle bat and the Deptford Pink (a nationally scarce plant), both subject to significant adverse effects in the context of policy 5.3.17, as well as to key protected species including bats, water voles, otters, badgers, reptiles, natterjack toads, (all in relation to the MDS and to

great crested newts (SLR and NPR only). At Appendix 2A in [REP7-057] our attention is drawn to a broad range of species and habitats, to s.41 habitats and s.41 fish, and to measures to be taken to conserve them such as lighting strategies for bats, buffer zones around otter holts, phased topsoil stripping to discourage brown hare and hedgehogs from the site, translocation exercises for natterjack toads and the creation of new habitats for birds. We take into account the Suffolk Shingle Beaches, (habitat for the Deptford Pink) and the Assessment Compartments 1, 2 and 4 – wet woodland invertebrate assemblage in the Sizewell Marshes SSSI. We note also that there is some uncertainty in relation to translocation of great crested newts at the Northern Park and Ride site, though we are satisfied the matter is likely to be resolved as we state above.

- 5.6.403. We also note that the measures for s.41 bird species are not species-specific and are general measures which apply to all bird species. They include habitat creation at Aldhurst Farm, marsh harrier compensation habitat, the appointment of an Ecological Clerk of Works to advise, inspect and alert, avoiding the removal of trees and grounds clearance during breeding seasons. These are appropriate steps and means in the context of this application for the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom.
- 5.6.404. The Applicant's assessment is that save in the case of the Barbastelle bat and the Deptford Pink, Suffolk Shingle Beaches and Assessment Compartments 1, 2 and 4 (wet woodland invertebrate assemblage) there are no likely significant adverse effects on terrestrial or marine ecology and ornithology, taking into account primary, secondary and tertiary mitigation. There are some cases in which we have not accepted the Applicant's position on biodiversity, (including HRA) leading to our recommendation not to make the DCO and there are others where we have suggested that the SoS may wish to satisfy themselves. There are also cases where we have differed from the Applicant's assessment of the significance of an effect. However there are very substantial benefits from the development which do in our view outweigh the harm arising from the Proposed Development to species of principal importance for the conservation of biodiversity.
- 5.6.405. We are satisfied that we have met the duty in s.40 and that the SoS can be assured that they would meet their own duty. The s.41 duty falls upon the SoS who will need to come to their own conclusion on it if they decide to grant the Order. Turning to policy 5.3.17 it requires consent to be refused where there is harm to species of principal importance for the conservation of diversity. It is unrealistic to expect that a development on this scale with the wide range of species and habitats specified in the policy could take place without some harm, not just to specific species such as the Barbastelle, but also for example to other species which fall within its very wide ambit. The balance in the second part of policy 5.3.17 is engaged. The ExA ascribes substantial weight against making the Order not only to the significant adverse effects on the Barbastelle bat and Deptford Pink but to any other harm to species and habitats

within the policy. Applying the planning balance, the benefits of the development do / do not outweigh the harm.

- 5.6.406. We turn to s.28G which we have also set out at the opening of this Section, but for convenience as the duty is quite short, it is "*The duty is to take reasonable steps, consistent with the proper exercise of the authority's functions, to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest*". The ExA and the SoS are s.28G authorities bound by the duty. It is focussed on SSSIs.
- 5.6.407. We asked the Applicant in ExQ1.Bio.1.5, to provide us with "*a list and concise explanatory note of the reasonable steps it proposes in the application for the SoS to take in relation to this application, consistent with the proper exercise of the SoS's functions, to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest (s.28G Wildlife and Countryside Act 1981). The note should specify the relevant flora, fauna or geological or physiographical features, where the steps are described in the application documents, where they are assessed, and how they enable the SofS to meet their duty in s.28G*".
- 5.6.408. The response is the one referred to above [REP2-109, Appendix 7B] updated by [REP7-057, Appendix 2A]. The Applicant pointed us to Table 1 of the Appendix 7B. In Appendix 2A the measures are in Tables 3-1 to 3.15. Given that Appendix 2A is more recent we recommend the SoS to use it.
- 5.6.409. NE submitted to us at ISH7 that in its view, "*an outcome that leads to any deterioration in the status of SSSI special features is incompatible with this duty*". The ExA considers the duty does not involve an outright prohibition of harm to the SSSI, but instead a requirement to take reasonable steps, in the context of the exercise of the SoS's decision-making functions, to protect the SSSI.
- 5.6.410. The SoS would need to take their own view as to what steps would be reasonable in the context of grant contrary to our recommendation. If our recommendation were to be overcome then we would consider the steps in the DCO, DoO and other control documentation to be reasonable steps to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which a site is of special scientific interest. That conclusion also applies to the Alde-Ore Estuary SSSI referred to in the marine ecology section 5.15 of this report. In the case of the Sizewell Marshes SSSI there is harm discussed above but the mitigation proposed – creation of replacement Fen meadow, wet woodland, and reedbed, together with other measures during the construction period are intended to compensate for that. There is not complete agreement with NE about the measures. However we are satisfied that they are reasonable steps in this context to further the conservation and enhancement of the features for which the site is designated.

- 5.6.411. We turn now to policy 5.3.11 of EN-1 – Sites of Special Scientific Interest. We have already considered the relevant SSSIs – both Sizewell Marshes SSSI and the others referred to in the Other Designated Sites section above. The adverse effects on the sites and on the national network of SSSIs are in our view clearly outweighed by the very substantial benefits of the Proposed Development and they are not a reason not to make the order
- 5.6.412. We turn to consider s.28I, also summarised and set out at the opening of this Section, but the duty is quite short. “*Before permitting the carrying out of operations likely to damage any of the flora, fauna or geological or physiographical features by reason of which a site of special scientific interest is of special interest, a section 28G authority shall give notice of the proposed operations to Natural England*”. The subsequent steps and timeframe are summarised at the opening of this section. We drew them to the attention of the Applicant and NE in ISH7. The operations in question may be on or off the relevant SSSI. The duty falls on the SoS and it is a criminal offence to fail, without reasonable excuse, to comply with s.28I.
- 5.6.413. We draw attention to the fact that we have disagreed with NE on some issues and the recommendation that the works in the Sizewell Marshes SSSI for example would be permissible if the Order were to be made is contrary to its view. We also decided that chemical and thermal plumes for example are unlikely to damage the Alde-Ore Estuary SSSI; NE’s view is that it requires more evidence. The Applicant, in its NPS Tracker [REP10-125], specifically refers to the minor adverse effects on the Orfordness to Shingle Street SAC and SSSI, Minsmere to Walberswick Heaths and Marshes SSSI and the SSSIs underpinning the Sandlings SPA during construction as well as to other unspecified minor adverse effects on other SSSIs. The SoS will need to satisfy themselves as to what operations fall within s.28I and consult NE accordingly.

Conclusions on Terrestrial Biodiversity and Ecology

Disagreements between the Applicant and NE

IN10: Protected Species’ Mitigation, Compensation and Licensing

- 5.6.414. The issue is protected species licensing. No LoNIs were issued by NE by the close of the Examination for a number of reasons, principally that the Applicant had not submitted the applications before making the DCO application and that NE was not meeting its normal turnaround times. However, NE made a submission on the final day of the Examination to say it expected to deliver its responses by 11 November [REP10-634]. The SoS will be able to take those into account in their decision. As stated earlier, the ExA considers that matters relating to protected species licensing would not weigh against the making of the Order.

IN13: Water use Impacts from a Number of Proposed Development Elements

5.6.415. This is essentially the water strategy issue, which the ExA concludes in Section 5.11, Flood Risk, Ground Water, Surface Water of the Report.

IN15: Airborne Pollution Impacts at a Number of Sites

5.6.416. Originally this included the Minsmere – Walberswick Heath and Marshes SSSI. This has narrowed to an HRA question alone in relation to the Minsmere European sites only. The Applicant’s EIA conclusion of no likely significant adverse effect and no harm to the SSSI stands. As stated earlier, the ExA agrees with the Applicant’s assessment and therefore the ExA considers that airborne pollution impacts would not weigh against the making of the Order.

IN17: Physical Interaction between Species and Proposed Development Elements

5.6.417. This had been distilled down to risks of collisions by birds with pylons and overhead power lines. The Streamlined SoCG records that NE’s concerns have been addressed by the mitigation measures in the TEMMP and that the outstanding matters are methodologies and triggers for the retrofitting of line-markers. The ExA is of the view that whilst the final version of the TEMMP will not have been seen by NE it satisfactorily sets out the methodology and way to determine if retrofitting of line markers is necessary, and that there will be no likely significant adverse effects and that the SSSI is not harmed. Therefore, the ExA considers that matters relating to physical interaction between species and project elements would not weigh against the making of the Order. The HRA aspects are addressed in Chapter 6.

IN19: Cumulative Assessment

5.6.418. We agree with NE’s position that single issues need to be resolved to reach cumulative assessment and have therefore assessed the outstanding individual issues. This is a procedural matter and we give it no weight.

IN21: Loss or Damage to Ancient Woodland and Ancient or Veteran Trees.

5.6.419. The issue was focussed on Foxburrow Wood, which is close to the line of the proposed Two Village Bypass. We conclude that there would be no likely fragmentation effects as a result of the construction and use of the TVB. In relation to ancient and veteran tree loss the loss would be of six veteran, ancient or notable trees. The loss would be unavoidable as they would be on the line of the TVB or the SLR. EN-1 para 5.3.14 allows for explained unavoidable losses. The trees are on the line of the bypass and the link road and they are necessary. In the case of the TVB there is the possibility of an alternative route. This is considered below in the section on the TVB. No argument has been made that the loss of the trees on the line of the SLR is avoidable.

5.6.420. In relation to air quality and the size of the buffer from Foxburrow Wood, we conclude that it would not be necessary to have a buffer greater than 15 metres in view of the air quality modelling results, the dust

management plan, the reduction in traffic which will occur once the Proposed Development is constructed and the fact that 95% of the area of UK woodlands exceeds the nitrogen critical load. Thus the Applicant's conclusion of no likely significant adverse effect is in our view acceptable.

- 5.6.421. Neither harm nor significant adverse effect are likely and therefore the ExA considers that loss or damage to ancient woodland and ancient or veteran trees would not weigh against the making of the Order.

IN37: Protected Species and Mitigation for the MDS

- 5.6.422. The same considerations conclusions apply as for IN10.

IN38: Sub-issues, Marsh harrier, Gadwall and Shoveler

- 5.6.423. We conclude in Chapter 6 that adverse effect on integrity cannot be ruled out – indeed the Applicant concedes that in the case of the marsh harrier. We conclude also that the wetland compensation may not be in place before the adverse effect occurs. As stated in Chapter 6, the SoS may wish to consult with parties as to how this would be achieved in practice. The disagreement between the Applicant and NE is focussed on HRA issues and the case made by NE is that the same matters apply in the EIA and SSSI context. Noting our findings there we agree with NE that harm to the SSSI is likely and the ExA therefore ascribes moderate weight to this issue against the making of the Order unless the wetland compensation is put in place and functional before the disturbance to construction occurs.

New Sub-issue SSSI bird interest in SSSI Wetland, Impacts from Light, Noise and Visual

- 5.6.424. We have had regard to the information provided by the Applicant and the position reached in relation to the impact on relevant features of the SSSI. Although the Applicant has proposed a number of measures including compensation to address the effects of disturbance, in particular to marsh harrier during construction, this does not appear to have addressed NE's concerns in relation to waterbird species that also form part of the SSSI citation. NE's response in the SoCG [REP10-097] suggests that additional compensatory measures, targeted at waterbirds, may resolve this position. In absence of any such proposal being made and noting the similar finding reached in relation to the relevant SPA and Ramsar designation, in the HRA Chapter of this report, the ExA concludes that harm to the SSSI is likely. As such the ExA ascribes moderate weight to this issue against the making of the Order, again unless the wetland compensation is put in place and functional before the disturbance to construction occurs.

IN39: Impacts from changes to coastal processes

- 5.6.425. This refers to Minsmere – Walberswick Heaths and Marshes SSSI. This matter has been resolved by the documents submitted at DL10. The Applicant has accepted that the vegetated shingle is still in existence and has committed to use native particle size sediments for SCDF recharge. This is secured in the draft Coastal Processes Monitoring Plan. Therefore,

the ExA considers that impacts from changes to coastal processes would not weigh against the making of the Order.

IN48, 49 and 50: Permanent Landtake of Sizewell Marshes – Reedbed and Ditches; Fen Meadow and Wet Woodland

5.6.426. See our conclusions on the Sizewell Marshes SSSI, below.

IN52, 54, 55, 57, 58, 59, 60, 61, 62: Protected species.

5.6.427. Again the issue is licences, though these INs are in relation to the Associated Sites. The conclusion at IN10 applies here as well.

IN53: TVB ancient woodland.

5.6.428. This issue is the same as IN21. The Applicant makes the same argument and we reach the same conclusion as below for the TVB.

IN56:

5.6.429. This is included in the SoCG for form alone. No conclusion is necessary.

Sizewell Marshes SSSI Conclusions

5.6.430. Before we conclude we would draw attention to the Applicant's final NPS tracker [REP10-125] in its comments on EN-1 para 5.3.11, so far as the Sizewell Marshes SSSI is concerned. It says "*with successful mitigation in place there would be minor adverse (not significant) residual effects on Sizewell Marshes SSSI during construction in relation to direct land take resulting in loss and fragmentation, hydrological change, and certain changes in air quality. The former is dependent on successful habitat compensation*". Para 5.3.11 has two parts. If there are adverse effects on the features for which an SSSI is notified, the development should not normally be granted consent. Only where an adverse effect after mitigation is clearly outweighed by the benefits, including need, can an exception be made.

SSSI Crossing: Change 6 or the Three-span Bridge?

5.6.431. The Applicant's major argument for Change 6 over the three-span bridge is that the latter will only reduce the land take from the SSSI by 200 square metres and take 6 to 12 months longer to deliver, delaying the delivery of the Proposed Development for which there is an urgent need. That is a matter to be put into the balance of likely adverse effect on notified features against the benefits of the Proposed Development. The benefits must clearly outweigh the adverse effect. We note there is no suggestion the SSSI Crossing is not needed. In our view, if the SoS decides not to follow our conclusion on the provision of the SLR before construction then the benefits do outweigh the adverse effects. If the SoS decides however to follow that recommendation, they will need to come to their own view.

Reedbed and ditches

5.6.432. NE is satisfied with the provision, quantity and quality of tall herb reed fen (reedbed) and lowland ditch created as compensation at Aldhurst Farm – IN48 above. This has already been reprovided but the issue is marked as red – a disagreement between NE and the Applicant. We conclude from our review of the disagreement above that the question is centred on the small extra loss of 0.02 ha of SSSI. That in turn centres on the urgent need for the Proposed Development. Given that the reedbed has already been provided, we give this matter little weight against the making of the Order.

Fen meadow

5.6.433. The ExA concludes that Applicant's proposals to recreate Fen meadow are acceptable. The Applicant has explained the difficulties of going further with an ecohydrological scheme. In addition, the Fen Meadow Compensation Fund coupled with the continuing obligation to use reasonable endeavours to deliver the Fen meadow are strong drivers to striving to deliver it. The Applicant is confident of its proposal's success. The alternative would be to wait for perhaps ten years before commencing the work of the Proposed Development. Whether this is acceptable depends on whether the benefits of the development clearly outweigh the adverse effect. We put it into the balance. Were it total loss we would give it substantial weight against the making of the Order. But as the loss is likely to be temporary (albeit for 10 years) the ExA gives it moderate weight against the making of the Order. The possibility of more than the nine times multiplier being delivered is something to which we do not attribute weight.

Wet woodland

5.6.434. NE is satisfied with quantity and location. Re-creation is not difficult though we note that NE prefers a more natural hydrological regime. Our comments on the same issues for Fen meadow apply equally here. There will be loss of habitat for a valuable invertebrate assemblage but the evidence is that there is an more than adequate suitable habitat remaining in the rest of the SSSI. The question which remains is whether the benefits including need outweigh the adverse effect, and so we take this to the planning balance. The ExA ascribes moderate weight against the Order being made to the loss of the wet woodland.

Protected species

5.6.435. No LoNIs had been submitted by the end of the end of the Examination. We have commented on that above. The ES assesses a moderate significant adverse effect on the Barbastelle bat during construction and the same for the Deptford Pink which would need to be translocated as its habitat would be removed. Success of translocation cannot be guaranteed. They are species of principal importance for the conservation of biodiversity. EN-1 policy 5.3.17 states that consent should be refused where harm to their habitats or species and their habitats would result. Subject to that and to our comments below on mitigation plans and control documents we are satisfied that protected species are satisfactorily addressed in the control documentation. The ExA attributes

substantial weight against the making of the Order to the harm to Barbastelle bats and the Deptford Pink and its habitat, in accordance with EN-1 policy 5.3.17 on the protection of habitats and other species.

Minsmere - Marsh Harrier, Gadwall and Shoveler and SSSI waterbirds

Discussion on these and weighting are set out in the section on disagreements between the Applicant and NE.

Other designated sites

- 5.6.436. Other relevant SSSIs are the Orfordness to Shingle Street SSSI, Minsmere to Walberswick Heaths SSSI, and the SSSIs underpinning the Sandlings SAC. In relation to all of these sites the Applicant concludes only minor non-significant likely significant effects. We have already considered the Minsmere-Walberswick Heaths SSSI. In relation to the others we ascribe little weight against the making of the order.
- 5.6.437. Suffolk Shingle Beaches CWS and the Sizewell Levels and Associated Areas CWS are partially lost. The former hosts the Deptford Pink and nationally important vegetated shingle flora. They are therefore habitats for species of principal importance for the conservation of biodiversity and under policy 5.3.17 substantial weight is to be attributed against the Order being made to their loss. The Sizewell Levels CWS would become post-construction habitat, secured by the Estate Wide Management Plan and the LEMP.

Associated Development Sites

TVB

- 5.6.438. The choice in pure ecology policy terms is between the loss of three veteran trees (where the policy is not to lose them unless that is unavoidable) and the severing of a County Wildlife Site (which is not to be used as a reason to refuse development consent, not the case here) and loss of 1,834 square metres of CWS. There may be other reasons why the alternative route is not acceptable or justifies it notwithstanding policy on veteran trees. But in terms of ecology policy, the loss of the veteran trees could be avoided if the alternative route were to be adopted.
- 5.6.439. We have also considered acceptability the application route in the absence of the alternative (or in other words if the alternative is rejected). The Applicant has explained why the loss of three veteran trees is unavoidable. There is a buffer zone of 15 metres (save for a very small incursion) to protect Foxburrow Wood. The EA's concerns over culvert length are resolved by the reduction in length. We have addressed NE's objection in the differences section. We agree with the Applicant's conclusion that there are no significant adverse effects (taking mitigation into account). We are therefore, in the event that the alternative is rejected, satisfied on the main issues and other issues for the TVB so far as biodiversity is concerned. We ascribe little weight (on

account of the loss of veteran trees) to matters in relation to the TVB. The reasoning regarding the alternative is set out in Section 5.4.

The SLR

- 5.6.440. There are no impacts identified on designated sites, international, national or local. No ancient woodland or veteran trees are affected. relevant policies in section 5.3 of the EN-1 are met. Specifically, we draw attention to policy 5.3.18 (Mitigation) which requires the Applicant to take opportunities to enhance existing or create new habitats; the number of ponds being created exceeds those lost, although we note that this is only a minor non-significant beneficial effect. (Policies 5.3.17 and 18 are separately addressed in this report.)
- 5.6.441. We have considered the evidence of other parties and agree with the Applicant's assessment of no likely significant adverse effects taking into account mitigation. The ExA considers that this matter does not weigh against the Order being made.

Northern Park and Ride

- 5.6.442. On the question of the possible lack of landowner consent for a translocation site, in the final analysis this may mean that there would be harm to great crested newts which are identified by the Applicant in the NPS Tracker as key protected species under policy 5.3.17. The ExA is satisfied that this matter could be resolved through finding an alternative site for the translocation. The SoS might wish to update themselves on whether an alternative site is necessary, and if so, another site could be delivered.
- 5.6.443. The ExA does not disagree with the Applicant's assessment of significant effects except in relation to great crested newts on account of the uncertainty of obtaining landowner consent for the mitigation. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The Proposed Development at this site is compliant with the other relevant policies.
- 5.6.444. There are no biodiversity or ecological matters relating to Northern park and ride that would weigh for or against the making of the Order.

Yoxford Roundabout and other improvements (and the Sandy Stilt Puffball)

- 5.6.445. As the Puffball is a s.41 species the test is whether the adverse effect is outweighed by the benefit of the Proposed Development, including need. We note that HHE have not themselves identified any specimens outside the RNR. We therefore put this into the planning balance. The ExA gives this matter substantial weight against the Order being made.
- 5.6.446. In other respects the ExA is satisfied that the Applicant has properly assessed the effects. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41

of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The other relevant policies in EN-1 are met.

Southern Park and Ride

- 5.6.447. The ExA is satisfied that the assessment of likely significant effects is robust and appropriate. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The other relevant policies in EN-1 are met. The ExA considers that this matter does not weigh against the Order being made.

Freight management facility

- 5.6.448. A bat assemblage was the only Important Ecological Feature scoped into the ES ([APP-523] Freight Management Facility, Terrestrial Ecology and Ornithology)

- 5.6.449. The ExA is satisfied the assessment of likely significant effects is robust and appropriate. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The other relevant policies in EN-1 are met. The ExA considers that this matter does not weigh against the Order being made.

Rail extension

- 5.6.450. The ExA is satisfied the assessment of likely significant effects is robust and appropriate. Policies 5.3.15 (Biodiversity within Developments), 5.3.17 (Protection of Habitats and Other Species) which addresses s.41 of the NERC Act and the fourth bullet of policy 5.3.18 (taking opportunities to enhance or create new habitats) of EN-1 are dealt with separately in this report. The other relevant policies in EN-1 are met. The ExA considers that this matter does not weigh against the Order being made.

Biodiversity Net Gain

- 5.6.451. The Applicant is clearly not relying on the BNG documents as support for the application. We recognise that there is no legal basis for doing a BNG assessment and the Applicant has gone over and above what is required. The ExA gives little weight to the benefits that would arise from the BNG contribution to the making of the Order.

Biodiversity Benefits and Good Design

- 5.6.452. There are many opportunities for biodiversity benefits which would be built into the wider landscape proposals for the Proposed Development, the principles for which, we consider are adequately secured in the dDCO

and the DoO (EN-1, para 5.3.15). In reaching conclusions on how biodiversity benefits contribute to good design, the ExA has also taken into account the residual adverse effects on biodiversity elsewhere and the need for discharge of post-consent approvals to deliver what is intended by the outline control documents. Therefore, the ExA attributes little weight against the Order being made to the biodiversity element of good design.

Policy

- 5.6.453. The ExA is satisfied that the Applicant has carried out environmental assessment as required by policy 5.3.3. and 5.3.4 of EN-1.
- 5.6.454. The second part of policy 5.3.11 is engaged in relation to effects on the Sizewell Marshes SSSI, the Orfordness to Shingle Street [SAC and] SSSI, Minsmere to Walberswick Heaths and Marshes SSSI and the SSSIs underpinning the Sandlings SPA during construction as well as other negligible adverse effects in relation to SSSIs. We have concluded above that the very substantial benefits of the Proposed Development outweigh the impacts on the SSSIs and the national network of SSSIs.
- 5.6.455. We also conclude that the benefits of the Proposed Development outweigh any harm to species and habitats of principal importance for biodiversity, both national and regional. Therefore policy 5.3.17 is complied with.
- 5.6.456. The Applicant has taken advantage of the opportunities to build in biodiversity benefits as required by policy 5.3.15.
- 5.6.457. Subject what we say below in relation to European sites 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.
- 5.6.458. 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

5.7. CLIMATE CHANGE AND RESILIENCE

Legal and Policy considerations

International Legislation

- 5.7.1. The UK is a party to the Paris Agreement (2016) which is an agreement to enhance the United Nations Framework Convention on Climate Change. Its purpose aims to strengthen the global response to the threat of climate change by holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

National Legislation

5.7.2. The Environmental Statement (ES) Volume 2 Chapter 26 [APP-342] has taken the following national legislation into account in the climate change assessment:

- Climate Change Act 2008
- Climate Change Act 2008 (2050 Target Amendment) Order 2019
- Carbon Budget Order (2011) (4th Carbon Budget, 2023 to 2027)
- Carbon Budget Order (2016) (5th Carbon Budget, 2028 to 2032)
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended)
- The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended).

5.7.3. In addition the ExA has had regard to:

- The Carbon Budget Order 2021 which came into force on 24 June 2021, and secures the carbon budget for 2033-2037 (the Sixth Carbon Budget), as a matter of law.
- Section 10(3)(b) PA2008 which refers to the desirability of mitigating and adapting to climate change.

National Policy

National Policy Statements

5.7.4. EN-1, section 4.8, relates to climate change adaptation. It explains how applicants and the decision-maker should take the effects of climate change into account when developing and consenting infrastructure. It states that the ES should set out how the proposal will take account of the projected impacts of climate change and this should include climate change adaptation. Paragraph 4.8.11, indicates that any adaptation measures should be based on the latest set of UK Climate Projections, the Government's latest UK Climate Change Risk Assessment, when available¹⁶ and in consultation with the Environment Agency (EA). The generic impacts advice in EN-1 provides additional information on climate change adaptation.

5.7.5. EN-1, section 5, addresses the topic of coastal change. Paragraph 5.5.7 requires the ES to incorporate an assessment of the effects on the coast including the impact of the proposed project on coastal processes and geomorphology by taking account of potential impacts from climate change, and the vulnerability of the Proposed Development to coastal change, taking account of climate change, during the project's operational life and any decommissioning period.

5.7.6. EN-6, section 2.10, also relates to climate change adaptation. Paragraph 2.10.2 highlights that nuclear power stations need access to cooling water. This means that nuclear power stations in the UK are most likely to be developed on coastal or estuarine sites. Without appropriate mitigation measures, the potential effects of climate change could mean these sites become at greater risk of flooding than if they were located

¹⁶ s.56 Climate Change Act 2008.

inland. EN-6 therefore requires the Applicant to provide information as to how the development incorporates adaptation measures to take account of the effects of climate change, including: coastal erosion, and increased likelihood of storm surge and rising sea levels; effects of higher temperatures; and increased risk of drought, which could lead to a lack of available process water.

5.7.7. EN-6, paragraphs 2.10.4 to 2.10.6, considers the Generic Design Assessment (GDA) process which looks at the capability of the power station's generic design features to take into account the effects of climate change, and the role of the Nuclear Regulators. Paragraph 2.10.6 explains that the decision-maker should have regard to advice from the Nuclear Regulators, in particular the Office for Nuclear Regulation (ONR) and the EA, in relation to climate change impacts, and their views on the adaptation measures proposed.

5.7.8. The draft Overarching National Policy Statement for Energy (EN-1) was published for consultation on 6 September 2021. Part 2 of the NPS covers the Government's energy and climate change strategy, and Section 4.9 considers climate change adaptation.

The National Planning Policy Framework

5.7.9. A revision to the NPPF, was published on 20 July 2021. It was supported by the publication of updated guidance on climate change allowances by the EA on the same date. A clarification to this update was subsequently published by the EA on 27 July 2021 to confirm that UKCP18 projections were used in the updated guidance.

5.7.10. Section 14 of the NPPF considers the challenge of climate change, flooding, and coastal change. Paragraph 152, states that the planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should, amongst other things, help to support renewable and low carbon energy, and associated infrastructure.

Regional Policy

The East Inshore and Offshore Marine Plans

5.7.11. The East Inshore and Offshore Marine Plans include the objective to facilitate action on climate change adaptation, and mitigation in the East Marine Plan areas.

The Suffolk Climate Action Plan (2017)

5.7.12. The Suffolk Climate Change Partnership (SCCP) consists of Suffolk's local authorities and the EA. The plan explains that in line with the Climate Change Act 2008 the SCCP has set its own target: "*To facilitate a reduction in absolute carbon emissions in Suffolk of 35% on 2010 levels by 2025 and 75% by 2050, in line with the UK Climate Change Act 2008.*"

Local Policy

5.7.13. The Suffolk Coastal Local Plan [REP1-062] Section 9 sets out the local policies relevant to climate change. The Plan notes that the NPPF sets out strong measures to address climate change as well as encouraging local planning authorities to set target contributions, and promote the uptake of decentralised renewable or low-carbon energy in developments.

The Applicant's approach

The ES assessment

5.7.14. The ES [APP-342], paragraphs 26.5.21 to 26.5.38, summarises measures which would mitigate the effects of climate change on the Proposed Development. The key mitigation measures include:

- specification of minimum main platform and SSSI crossing crest heights to minimise the risk of flooding;
- provision of sea defences and specification of a minimum crest height to reduce the risk of overtopping, with an adaptive design to raise the sea defence in the future, if required;
- specification of the Drainage Strategy [REP10-030 to REP10-032] to account for an increase in surface water flows with climate change at the main development site and associated developments;
- specification of planting tolerant of likely future site and environmental conditions, and long-term management and monitoring of planting through the Outline Landscape and Ecology Management Plan (oLEMP) [REP10-061];
- other measures which provide climate change resilience; and
- specification of measures within the Code of Construction Practice (CoCP) [REP10-072] which includes provisions relating to greenhouse gas emissions.

5.7.15. The measures specified to achieve Climate Change Resilience (CCR) cover the time period for which the mitigation has been specified. For example, the main platform height, SSSI crossing crest height and sea defence crest height are defined based on protection of the site until all nuclear wastes and spent fuel have been removed from the site, (i.e. up to 2140). The ES states that performance requirements relating to design life, such as sea levels and wave overtopping (which are influenced by climate change and sea level rise), are captured in the design of the sea defence crest height. In addition, degradation of the sea defence is considered and accounted for within the design to ensure that appropriate measures are taken (such as concrete cover for the crest wall and erosion protection for the backslope) that ensure the design life can be met.

The ES Greenhouse Gas (GHG) Impact Assessment

5.7.16. The ES, Section 26.4, Volume 2, Chapter 26 [APP-342], sets out the GHG assessment. The GHG primary (embedded) mitigation measures are provided at Table 26.7 and control measures to mitigate GHG impacts are included in Table 26.8. The GHG emissions for construction and operation are respectively set out in Tables 26.9 and 26.10. The Applicant's approach to decommissioning is set out in the MDS Chapter 5 Description of Decommissioning [APP-189].

- 5.7.17. The GHG assessment concludes that there would be unavoidable GHG emissions resulting from both the construction and operation of the Proposed Development. However, the GHG assessment of construction emissions finds that construction emissions for the Proposed Development would not exceed 1% of the total five year UK carbon budget period in which they arise. Since the construction of the Proposed Development would not have a significant impact on the UK meeting its five carbon budgets through to 2032, the effect is considered by the Applicant to be not significant.
- 5.7.18. The ES estimates that GHG emissions from the construction of the Proposed Development would be offset within the first six years of operation by GHG emissions displaced, assuming the equivalent energy were otherwise to be generated by the anticipated mix of grid electricity generation sources including fossil fuels and renewable energy.
- 5.7.19. A comparison of the Proposed Development's annual operational GHG emissions of 19,328 tCO₂e against the total projected GHG emissions generated in the UK from the grid electricity production, equates to around 0.1% of total annual sectoral emissions. The ES concludes that, overall, the effect is not therefore significant.
- 5.7.20. The ES in comparing the GHG impact of electricity generated at the Proposed Development against the impact of generating the equivalent energy from the anticipated future mix of alternative generation, concludes that it would provide a significantly beneficial impact. GHG emissions reduced as a result of the Proposed Development would equate to over 3% of total energy sector emissions in 2034.

The ES Climate Change Resilience Assessment

- 5.7.21. The ES, Section 26.5, Volume 2, Chapter 26 [APP-342], sets out the CCR assessment. The study area for the CCR assessment comprises any physical assets and associated activities for the construction and operation of the Proposed Development. The CCR assessment scenarios consider climate change impacts during the construction and operation of the Proposed Development on the main development site and the associated developments through to 2099, the last year for which UKCP18 climate projections are provided. The scenario took into account the resilience of the construction and operation of the Proposed Development to climate change, resulting from projected increases in temperature, high winds, flooding (associated with increases in precipitation and sea level change). The CCR assessment uses a stepped approach to identify potential climate change impacts on the Proposed Development. It considers the potential consequence of the impacts and identifies appropriate mitigation and adaptation measures. The CCR, paragraphs 26.5.21 to 26.5.38, summarises measures which would mitigate the effects of climate change on the Proposed Development.
- 5.7.22. The assessment finds that for the construction phase the effects of climate change might result in a range of short-term climate risks during the construction of the Proposed Development through the potential increase in the occurrence and/ or magnitude of extreme weather

events, including heatwaves and heavy precipitation. The outcome of the CCR assessment in Appendix 26A [APP-343] shows that no significant effects have been identified at this stage of design either for the construction or operation phases taking into account the incorporation of primary (embedded) and tertiary mitigation measures. A summary of the CCR assessment is provided in Table 26.18 of ES Chapter 26 [APP-342]. The CCR assessment has therefore considered the resilience of the construction and operation of the Proposed Development against the predicted impacts of future climate change and finds that further to the inclusion of embedded and tertiary mitigation there are anticipated to be no significant climate change effects on the Proposed Development.

The ES In-Combination Climate Change Impact (ICCI) Assessment

- 5.7.23. The ES section 26.5 Volume 2 Chapter 26 [APP-342] sets out ICCI Assessment. Appendix 26B presents a table detailing the outputs of the ICCI assessment [APP-343]. The Tables within Appendix 26B encompass the MDS and associated development sites where potential ICCI's relate to the site as a whole. Table 1.1 relates to the construction stage, Table 1.2 relates to the operation stage, and Table 1.3 records potential climate hazards and likelihood of occurrence. Environmental receptors that have been identified as being potentially sensitive to the combined impacts of climate change and the Proposed Development have been assessed to consider the likelihood and consequence of an ICCI occurring. A summary of the ICCI assessment is provided in Table 26.19. The ICCI assessment concludes that there would be no significant ICCI impacts on identified receptors in the surrounding environment.

The ES Addendum and other documentation

- 5.7.24. The ES Addendum [AS-179 to AS-260] that was subsequently prepared considered any Additional Information and the proposed changes to the application (Changes 1-15), which were accepted by the ExA on 21 April 2021 [PD-013].
- 5.7.25. The ES Addendum Volume 1, Chapter 2 [AS-181] includes updates to the CCR assessment. Paragraph 2.21.16 of the Volume 1, Chapter 2 of the ES Addendum [AS-181] concludes that the proposed design changes either result in no change or improve the CCR of the Proposed Development as regards flood resilience. Therefore, no further additional mitigation or adaptation measures were identified.
- 5.7.26. The Applicant has also provided Volume 3, Appendix 9A Carbon focused Lifecycle Assessment of the proposed Sizewell C nuclear power plant (LCA) which was submitted as part of the Responses to the ExA's first written questions [REP2-110], and the Desalination Plant Greenhouse Gas Emissions Assessment [REP10-152].

The Planning Statement

- 5.7.27. The Planning Statement [APP-590], Section 7.3, g), paragraph 7.3.63, asserts that the Applicant has complied with the EN-1 requirements in relation to climate change.
- 5.7.28. The Planning Statement Final Update and Signposting document, part one [REP10-068], provides an update against Sections 1-10 of the Planning Statement. This identifies that since the submission of the application, the Applicant has increased the height of the permanent hard coastal defence feature (HCDF) to 12.6m AOD, with the maximum crest height of the adaptive sea defence up to 16.4m AOD. In addition, the minimum crest height of the SSSI crossing has been increased to 8.6m. The Applicant has also submitted the following additional information into the Examination which is relevant to climate change resilience: Coastal Processes Monitoring and Mitigation Plan (CPMMP); Flood Risk Assessment Addenda [AS-157 to AS-172; REP2-026 to REP2-031, REP5-045 to REP5-046] to take into account changes to the application, corrections, and additional information; and responses to the ExA's First, Second and Third Written Questions [REP2-100], [REP7-050] and [REP8-116].
- 5.7.29. The Planning Statement Final Update and Signposting document [REP10-068] Appendix A provides an assessment of the Proposed Development against the draft NPS EN-1.
- 5.7.30. The NPS Tracker [REP10-125] in relation to climate change adaptation sets out why the Applicant considers that the Proposed Development would comply with EN-1 paragraphs 4.8.5 to 4.8.8 and 4.8.10 to 4.8.12, and with EN-6 paragraphs 2.10.1 to 2.10.3.

Matters arising during the course of the Examination

- 5.7.31. The main issues relating to climate change that arose during the Examination came under the following headings:
- Climate change resilience, and adaptation
 - Site suitability in the light of climate change
 - GHG emissions and carbon footprint
 - Climate change and the need for the development
 - Flood risk
 - Coastal processes
 - Radioactive waste management.
- 5.7.32. The flood risk and coastal processes aspects of climate change are considered in detail elsewhere in sections 5.8 and 5.11 of Chapter 5 of this Report. The ExA has also considered site selection in the 'Alternatives' section 5.4; general aspects of climate change pertaining to the Applicant's 'need' case in the Policy and Need section 5.19, and radiological matters including radioactive waste storage in section 5.20 of Chapter 5 of this Report. In this section of the Report, we shall draw on those conclusions, and consider matters specifically relating to climate change, to provide our overall conclusion on this topic.

The ExA's Considerations

Climate change resilience, adaptation, and site suitability

The submissions of IPs

- 5.7.33. During the Examination, many IPs, made submissions in relation to the potential impacts of climate change, and the difficulties associated with reliable forecasting at this time. For example, at ISH6 Wayne Jones raised the issue of storms and sea surges in the context of climate change, and the increasing difficulties of predicting such events [REP5-302].
- 5.7.34. Professor Blowers OBE [REP2-209], [REP5-189] made detailed submissions in relation to various matters in the light of climate change, including site suitability, resilience, and adaptation. He questions the effectiveness of the proposed sea defences and managed adaptation against the credible maximum (CM) scenario of climate change impacts of sea level rise, storm surges and coastal processes. He also raises the issue of the security of stored nuclear wastes on the site against the background of climate change and sea level rise [REP2-209]. His 'Supplement to Statement of Interest' [REP5-189] concludes that the resilience of the site and proposals for adaptive management during the period of operations until the end of the century should be considered in terms of recent forecasts, modelling, and scenarios of climate change impacts on sea level rise and coastal processes.
- 5.7.35. In relation to site suitability, Professor Blowers submits that during the time the Proposed Development would occupy the site, conditions are likely to deteriorate under the impacts of climate change in the form of sea level rise, storm surges, coastal erosion, and inundation. He contends that it is not possible, at this time, to forecast the pace, acceleration, or consequences of those impacts. A precautionary approach should therefore be adopted, and the suitability of the site examined in the context of climate change.
- 5.7.36. In Professor Blowers' statement for ISH9 on Policy and Need [REP7-169], he asserts that as uncertainty increases with respect especially to sea level rise, storm surges and coastal processes, there will be a low but increasing risk of high possibly catastrophic consequences. He contends that the most recent Intergovernmental Panel on Climate Change (IPCC) and other scientific reports on the uncertainties of climate change impacts require a thorough reappraisal of the Proposed Development taking into account the increasing possibility that extreme events will be more likely, and may become more frequent, and that they pose a potential existential threat especially during the next century.
- 5.7.37. Stop Sizewell C [REP2-449b] make the point that sea level rise is significantly faster than previously thought, resulting in more frequent and destructive storms, storm surges, severe precipitation, and flooding. This is expanded upon in their Written Representation - Climate Change UK Nuclear [REP2-449k] which provides the report 'Climate Change Nuclear' by Dr Paul Dorfman. This states that: "*Due to ramping climate induced sea-level rise, storm, storm surge, severe precipitation and raised river-flow, UK nuclear installations are set to flood – and much*

sooner than either the nuclear industry or regulators suggest. This is because risks to nuclear installations from sea level rise driven extreme climate events will not be linear, as thresholds at which present natural and built environment coastal and inland flood defence barriers are exceeded.” Site selection also remains an area of dispute in the Final SoCG between Stop Sizewell C and the Applicant [REP10-116].

5.7.38. Together Against Sizewell C (TASC) in their DL10 submissions raise the question of uncertainty associated with climate change and advocate the application of the precautionary principle [REP10-423]. TASC in their comments on the ‘Sizewell C Coastal Defences Design Report’ [REP8-096], and related issues [REP10-427], also refer to modelling for storm surges in the light of recent disasters throughout the world demonstrating various extreme weather events together with the recent IPCC AR6 report and the ‘Climate Change Risk Assessment Report 2021’ issued by Chatham House in September 2021 which point to worsening weather conditions. TASC believe that storm forecasts used in the Applicant’s modelling are not extreme enough, nor do they assess the likely impact from multiple storms that could hit the proposed sea defences in a sequence that would not allow for replenishment of the soft coastal defence feature (SCDF) which in turn has implications for the integrity of the hard coastal defence feature (HCDF).

5.7.39. The DL5 submission of Mr Bill Parker [REP5-191], raises concerns as to how the coastline would develop in the long-term, and how the resilience of the Proposed Development would be maintained over the anticipated site life, including the prospect of the creation of a headland on which it would sit.

The Applicant’s response

5.7.40. The Applicant has provided responses on this topic in its Written Submissions Responding to Actions Arising from ISH6 [REP5-118], responses to First Written Questions [REP2-100], Comments on Responses to the ExA’s First Written Questions [REP5-121], responses to Second Written Questions [REP7-052] and in response to the ExA’s Third Written Questions [REP8-116]. The Applicant’s written summary of oral submissions made at ISH6 [REP5-111], Main Development Site (MDS) Flood Risk Assessment Addendum (FRA) [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].

5.7.41. EN-1, paragraphs 4.8.6 and 4.8.7, sets out the need to use current climate projections, follow the current Representative Concentration Pathway (RCP) and show projection percentiles of 10%, 50%, and 90%. To satisfy these requirements, the ES [APP-342] presents the future baseline with all three of these attributes, as detailed from paragraph 26.5.17 onwards. In response to CC.1.17 [REP2-100], the Applicant confirms that UKCP18 RCP8.5 95th percentile climate change allowance has been adopted within the assessment of flood risk, in respect of the main platform and sea defence designs, in accordance with the guidance set out in the Position Statement on the Use of UK Climate Projections

2018 by GB Nuclear Industry, March 2019, which was the latest guidance at the time of the assessment.

- 5.7.42. The Applicant, in response to CC.2.0 to CC.2.2 [REP7-052], confirms that climate change scenarios for all sources of flooding, including peak river flow allowances, have been assessed in the MDS FRA [AS-018] and MDS FRA Addendum [AS-157]. Revision 1 UKCP18 by GB Nuclear Industry guidance was published in November 2020. The Applicant has reviewed the updated guidance to confirm the use of appropriate climate change allowances for the Proposed Development. Since the 95th percentile of RCP8.5 for sea level rise allowance has been applied in the assessment of flood risk, no update to the assessment is required.
- 5.7.43. The Applicant's response to CC.3.1 [REP8-116] also confirms that for the assessment of flood risk to the Proposed Development, climate change allowances were adopted in line with the EA and ONR Position Statement on the use of UKCP18 projections (Revision 1). The assessment considers climate change through the scenario RCP8.5 at the 95th percentile up to 2140. The Applicant submits that the HCDF design meets the necessary criteria for the worst case but plausible climate change scenario (RCP8.5), and would protect the site up to and throughout the decommissioning phase. Furthermore, the credible maximum climate change scenario was considered in the FRA, and it also resulted in a tolerable rate of overtopping of the HCDF up to the end of the operational phase. The flood risk up to 2140 would be managed with appropriate mitigation measures and actions, as set out in Appendix F of the MDS FRS Addendum, namely the MDS Flood Risk Emergency Plan [AS-170], including in relation to decommissioning of the site and radioactive waste management.
- 5.7.44. In response to CC.3.2 [REP8-116], the Applicant accepts that it is not possible to clarify long-term coastal change beyond three to five decades after development. After this point, the direction and scale of environmental changes become increasingly uncertain. However, in anticipation that there would be shoreline retreat at the site, the SCDF has been designed and its viability tested across the station life to show that it would be viable through to the end of the Decommissioning Phase (2140), including for the adaptive design at 2140 [REP7-101 and REP7-045]. This means that with the SCDF in place, and providing mitigation to prevent exposure of the HCDF, the formation of a headland is not predicted. At ISH6, the Applicant confirmed that the HCDF would remain on site, at a minimum, until all nuclear fuel had been removed at the end of the decommissioning phase and no longer served any operational purpose [REP5-111].
- 5.7.45. Based on the above scenario, the Applicant contends that the resilience of the site to coastal erosion would be maintained by appropriate actions set out in the CPMP [REP10-041]. The Applicant therefore submits that the level of flood risk to the site throughout its life-time would be in accordance with the risk identified and summarised in the MDS FRA [AS-018], and subsequent MDS FRA Addendum [AS-157]. The flood risk up to 2140 would therefore be managed with appropriate mitigation measures

and actions, as set out in Appendix F of MDS FRA Addendum, [AS-170], including in relation to the decommissioning of the site and radioactive waste management.

- 5.7.46. The ES paragraph 26.7.7, Volume 2, Chapter 26 [APP-342], confirms that the CCR assessment considered the resilience of the construction and operation of the Proposed Development against the predicted impacts of future climate change. The Applicant submits that the CCR assessment has demonstrated that further to the inclusion of embedded and tertiary mitigation there are anticipated to be no significant climate change impacts on the Proposed Development. The Applicant also points out that the ONR would need to be satisfied that the site is protected from external hazards, taking full consideration of climate change and extreme events, prior to issuing the Nuclear Site Licence (NSL). In response to CC.3.1 [REP8-116], the Applicant contends that its approach is in accordance with EN-6, paragraph 2.7.3, which states that the Planning Inspectorate "*should not duplicate the consideration of matters that are within the remit of the Nuclear Regulators.*"

The ExA's conclusions

- 5.7.47. EN-6, paragraph 2.10.6, explains that the decision-maker should have regard to advice from the Nuclear Regulators, in particular the ONR and the EA, in relation to climate change impacts, and their views on the adaptation measures proposed. The question of whether the proposed nuclear power station is capable of being designed to have robust defences against the site-specific external hazards would also form part of the NSL considerations. The ONR in response to CC.1.13 [REP2-159] indicates that as part of ONR's assessment, they are currently engaging with the Applicant in relation to climate change. The information shared by the date of their response suggests it is likely that the Applicant's approach to assessing and managing climate change, including adaptation measures, will meet ONR's expectations for the NSL. That remained the position of the ONR at DL7 in response to CC.2.8 [REP7-150].
- 5.7.48. As indicated above, the ExA has taken into account the concerns raised by IPs in relation to the siting of the Proposed Development in the 'Alternatives' section 5.4 of Chapter 5. We conclude that the fact that the Applicant has not considered an alternative site for the location of the proposed nuclear power station represents an entirely reasonable and proportionate approach. In reaching that conclusion, the ExA has had regard to the role played by the ONR in assessing site suitability as part of the NSL process and we have also considered the criticism made by IPs of the reliance placed upon EN-6. In the 'Policy and Need' section 5.19 of this Report, 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 Written Ministerial Statement. The ExA's position is that EN-6, and its identification of Sizewell C as a potentially suitable site, remains an important and relevant consideration.

- 5.7.49. Those aspects of Professor Blowers' and other IPs submissions relating to the ability of the Proposed Development to safely withstand the external effects associated with climate change during the long period that this very substantial structure would occupy the coast are also relevant to the topics of coastal processes and flood risk. Such matters relate to the adequacy and resilience of the mitigation measures proposed to safeguard the site against climate change impacts in the long-term. Subject to those measures being assessed as providing satisfactory mitigation for the necessary period, we do not consider that the suitability of the site needs to be revisited, as a matter of principle, in the light of climate change.
- 5.7.50. The proposed mitigation measures designed to achieve resilience, and the provision for future adaptation are set out above, and have been considered in sections 5.8 and 5.11 of this Report. These include the suitability and maintenance of the proposed sea defence features for the requisite timescale.
- 5.7.51. In relation to the prospect of severe precipitation and raised river flows as a result of climate change, the risk of flooding on the main platform has been assessed for a range of return period events, and climate change scenarios, considering all sources of flooding, as reported in the MDS FRA [AS-018], and the MDS FRA Addendum [AS-157]. In section 5.11 of this Report in relation to flood risk at the MDS and elsewhere, we conclude that the Applicant has demonstrated that it has satisfied the requirements of both NPS EN-1 and EN-6 in relation to flood risk, and the provision of mitigation including the drainage strategy.
- 5.7.52. In section 5.8 of this Report, the ExA concludes that the Adaptive Design would provide a feasible means of increasing the crest height of the HCDF so that the sea defence could adapt to a CM sea level rise should that scenario develop as a result of climate change. As regards the resilience of the HCDF and the SCDF, the EA are supportive of the mitigation measures proposed but they have identified a small number of gaps in the assessment relating to what they consider to be reasonable worst case scenarios for impacts to coastal geomorphology [REP10-094].
- 5.7.53. Whilst the ExA agrees that the risk of those additional scenarios occurring is expected to increase as the impacts of climate change become more severe, as we have indicated in section 5.8 of this Report, we consider that the CPMMP would provide an appropriate mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work which has been undertaken, including any additional cumulative impacts. The ExA also concludes in relation to the Sizewell B salient, and the associated implications for the resilience of the coastal defences, that the CPMMP recharging mitigation would remain effective following the cessation of the Sizewell B operation. However, as we have indicated in section 5.8 of this Report, the Secretary of State may wish to consider if it would assist to have further evidence in relation to the Sizewell B salient and the effects associated with the Sizewell B cessation of operation.

- 5.7.54. In accordance with EN-1, the ES has taken into account the potential impacts of climate change using the latest UK Climate Projections available at the time it was prepared and the assessment covers the estimated lifetime of the new infrastructure up to the end of the decommissioning period. The November 2020 revision to those projections has also been taken into account, although no update to the assessment was required. The ExA finds the Applicant's assessment to be suitably precautionary in its consideration of climate change and is cognisant of the uncertainty associated with the prospect of environmental change. It has appropriately taken into account the potential effects of climate change for the period required by EN-1.
- 5.7.55. The ExA is therefore content that in accordance with EN-1, paragraph 5.5.7, the assessment of the Proposed Development has taken account of potential impacts from climate change and that any adverse impacts resulting from it on other parts of the coast would be minimised. Furthermore, in the light of EN-1, paragraph 5.5.10, we believe that the Proposed Development would be resilient to coastal erosion and deposition, taking account of climate change, during its operational life and any decommissioning period. The assessments have shown the necessary resilience and the suitability of the proposed adaptation measures for the Proposed Development. We conclude that all potential impacts of climate change in relation to these matters have been appropriately taken into account and with those measures secured there would be no adverse implications arising from the siting of the Proposed Development in this coastal location.

Green House Gas Emissions (GHG) and carbon footprint

The submissions of IPs

- 5.7.56. Many IPs have raised issues and concerns in relation to the GHG emissions resulting from the Proposed Development. TASC [RR-1231] complain that there is a lack of information for independent verification of the Applicant's carbon emission claims. The initial SoCG [REP2-087] between the Applicant and TASC identifies as an area of disagreement the adequacy of the Applicant's evidence on the carbon impacts of the construction, decommissioning and storage phases of the Proposed Development. The Final SoCG between the parties [REP10-110] records that the respective positions of the parties remain unchanged.
- 5.7.57. TASC in their comments on responses to ExA's First Written Questions [REP3-145] point out that in their answer to question CC.1.3, the Applicant states that they have updated their analysis of the construction carbon footprint and calculated a revised carbon footprint of 3.8Mt [REP2-100]. This figure compares to 6.2Mt stated in the documents previously submitted. TASC have been unable to find a detailed explanation for this change in figures. They submit that the Applicant's LCA (Appendix 9A [REP2-110]) appears to provide data by way of percentages but offers no reconciliation of absolute figures in terms of the carbon debts arising from the relevant contributory elements and the calculations that use these figures to produce the summarised figures in the LCA report. Stop Sizewell C's DL7 submission [REP7-226] also

queries the Applicant's estimation of the carbon footprint of the build and how, after increasing almost 10% from 5.7Mt to 6.2Mt CO₂ (e) this would seem to have fallen some 40% to around 3.8Mt.

- 5.7.58. TASC in response to CC.2.5 [REP7-251], indicate that there has been very little narrowing of the disagreement between the parties and the detail necessary to justify the Applicant's figures has not been provided. While they accept that the figures arrived at in the Sizewell B Dry Fuel Store Carbon Footprint Assessment [REP7-252], and those which may be arrived at in any project-wide assessment, cannot be precisely calculated, they believe that an effort to itemise those aspects of the Proposed Development which would generate a carbon footprint should be made, and ascribed a figure based on known or estimated units and metrics to allow a much clearer picture of the carbon debt the Proposed Development represents to be presented. They submit that such greater clarity would also allow more in-depth scrutiny of the figures and adjustments.
- 5.7.59. In TASC's DL7 response to CC.2.5 [REP7-251] they provided a copy of the detailed carbon footprint calculation for the Sizewell B dry fuel store [REP7-252]. They suggest that this indicates that a transparent methodology is possible if the Applicant chooses to adopt it, and raise concerns that IPs cannot comment on a confidential document.
- 5.7.60. TASC's summary of issues and observations at the close of the Examination [REP10-419] indicates that they remain concerned that they have not had access to the Applicant's detailed carbon footprint calculations, and hence the true level of the carbon debt from the full lifecycle of the Proposed Development. They submit that it is clear that carbon produced from the Proposed Development will have increased from the original application figures due to the greater scale of the cut-off wall from that first envisaged; HGVs travelling from further distances; more shipping; the construction, operation and waste disposal related to the temporary desalination plant; construction of a new water main from a different area/ a permanent desalination plant; water being taken to the site in tankers; greater scale and the need for SCDF replenishment and potentially adaptation of the sea defences.
- 5.7.61. Turning to other matters raised under this topic heading, Theberton and Eastbridge Parish Council [RR-1214] submit that the operational waste heat vented to the environment has not been assessed against Paris Agreement, 2050 net zero commitments or UK Committee for Climate Change reports.

The Applicant's response

- 5.7.62. The ES Chapter 26 [APP-342] concludes that the construction emissions for the Proposed Development would not exceed 1% of the total five year UK carbon budget period in which they arise, and its construction would not have a significant impact on the UK meeting its five carbon budgets through to 2032. The ES, paragraph 26.4.61, states that as carbon budgets have only been set by Government through to 2032, it is not

possible to assess the operational impact of the Proposed Development in the context of the UK meeting its carbon budget targets.

- 5.7.63. In response to CC.1.3 [REP2-100], the Applicant acknowledges that the GHG assessment presented in the ES [APP-342] was undertaken before the publication of the Climate Change Committee's (CCC) recommendations for the Sixth Carbon Budget in December 2020. The response includes a table which presents the impact of the Proposed Development in each carbon budget period. The Sixth Carbon Budget period (2033-2037) includes the final year of construction and first four years of operation. The Applicant points out that despite the Sixth Carbon Budget being a significant reduction from previous years, the predicted emissions from the Proposed Development only account for 0.06% of this budget. The Applicant states that under the significance criteria used, this would remain of low magnitude and would not have a significant effect on the UK's ability to meet its carbon budget commitments. Furthermore, in response to CC.2.3 [REP7-052], the Applicant recognises that the Carbon Budget Order 2021 came into force on 24 June 2021 and confirms that its CC.1.3 response [REP2-100] in relation to the Sixth Carbon Budget remains valid.
- 5.7.64. Since the preparation of the ES, the Applicant has undertaken an LCA to inform its Environmental Product Declaration (EPD) (Appendix 9A [REP2-110]). The LCA provides a more detailed calculation of the GHG emissions from the Proposed Development over its lifetime and calculates a carbon intensity value to achieve the energy output. This independent assessment calculated the carbon intensity to be 6.1 g CO₂e per kWh generated (compared 4.5 g CO₂e per kWh within the ES). The updated analysis identifies a lower total construction carbon footprint of c3.8Mt compared to the original ES estimate.
- 5.7.65. The Applicant submits that the importance of low carbon power generation projects such as the Proposed Development for the UK's carbon budgets should also be considered from the perspective of the carbon emissions that would otherwise be produced by other sources if they were not generating. In summary, the Applicant contends that the emissions produced during the construction would be insignificant relative to the carbon budget. Furthermore, meeting the steepening carbon budgets is expected to require an increased need for new low carbon power generation projects such as the Proposed Development.
- 5.7.66. In response to CC.1.5 [REP2-100], the Applicant explains that the LCA has been independently reviewed and verified by a third-party (WSP), with the verification statement certificate attached to the report. The LCA provides a more detailed calculation of the GHG emissions from the Proposed Development over its lifetime than the carbon assessment provided in the ES, with updates to data (where available), and was performed using different software tools. The LCA includes the full 'cradle to grave' lifecycle activities of Sizewell C including:

- all upstream activities required for the supply of nuclear fuel (including uranium mining, conversion, enrichment, and fuel fabrication);
- construction materials and activities;
- Sizewell C operational activities (in addition to the supply of nuclear fuel); and
- decommissioning and waste management infrastructure and activities.

5.7.67. The Applicant submits that whilst the LCA provides an updated estimate of GHG emissions associated with the Proposed Development, it does not change the overall conclusions of the assessment presented within the ES [APP-342], namely, that the Proposed Development would provide a significant contribution to reducing GHG emissions from electricity generation in the long-term. In the short-term, the updated assessment shows that the expected GHG emissions associated with the construction of the Proposed Development would be lower than the estimate provided in the ES. Therefore, the ES conclusion that the construction of the Proposed Development would not affect the ability of the Government to meet its relevant carbon budgets remains robust.

5.7.68. In response to CC.1.9, the Applicant states that in preparing its response to the ExA's questions and comments made by IPs on the assessment, it has considered the issue further and concluded that within the context of the Proposed Development, and any other new low carbon generation project, the grid average comparison approach used in Volume 2, Chapter 26 of the ES [APP-342] is overly conservative and has significant limitations as a means of assessing the carbon savings that new low carbon generators can provide. The reasons for this are outlined in response to G.1.21 [REP2-100]. However, this does not affect the overall conclusion of the assessment presented within the ES [APP-342], namely, that the Proposed Development would provide a significant contribution to reducing GHG emissions in the long-term. In the short-term, the GHG emissions associated with the construction of the Proposed Development would not affect the ability of the Government to meet its relevant carbon budgets.

5.7.69. The Applicant's Comments on Responses to the ExA's First Written Questions Submitted at DL3 [REP5-121] in response to TASC, explains that the two carbon calculations within the ES and the LCA differ for a number of reasons. The report which explains the LCA calculation has been submitted as part of the earlier response [Appendix 9A in REP2-110]. This explains in detail the data used for the calculation and how the calculation has been performed. As the report states, the methodology followed in the calculation and the level of detail provided in the report by Ricardo (the Environmental Consultants) and verified by an Independent Third Party (WSP) follow Product Category Rules (PCR) for electricity generation which sets out how lifecycle carbon calculations should be calculated and reported.

5.7.70. The Applicant provided a detailed response to CC.2.4 [REP7-052], in which it indicates that the LCA was done from first principles through an

extensive data calculation and gathering exercise rather than an evolution from the work done from the ES. Although there is some cross over for some of the data inputs used between the LCA and ES, much of the data for the LCA was collected or calculated specifically to undertake the LCA and was not available for use in the ES. The Applicant explains that the absolute carbon figures can be calculated from the report using lifetime net generation, and data presented in section 5 of the LCA. The Applicant confirms that transport strategies assumed were consistent with those provided in the updated view of the bulk materials transport assessment including the detailed models of delivery and source of the material [AS-266].

- 5.7.71. In response to CC.2.6 [REP7-052] the Applicant provides a detailed explanation for the difference in calculated construction phase emissions in the ES with those calculated in the LCA. This arises because of differences in various factors: input data for the volumes/amounts of materials, energy and transport used during construction (for example the tonnes of steel used during construction); different sources for life cycle impacts of the materials, energy and transport used during construction (for example the carbon footprint of a tonne of a type of steel); and the LCA calculation was undertaken using a specialist LCA software package (SimaPro) whereas the ES calculation was done using a Microsoft Office tool (Excel). The LCA was undertaken in line with requirements of the International EPD System's PCR, by a specialist LCA consultancy and in line with the best practice for producing a through life LCA.
- 5.7.72. The LCA exercise was conducted in conjunction with Hinkley Point C (HPC) in order to assimilate detailed data that was relevant to both projects (in particular where the design of the plant is the same). As the data inputs for the LCA were collected after the ES there was more information available on construction methodology and a more mature design. The underlying estimate of materials use (steel, concrete, etc) for construction is particularly important for the difference in construction emissions. The Applicant asserts that the large number of differences in input data and methodological approaches means that it is not possible to precisely quantify the causes of the differences in carbon emissions between the application documents and the LCA. However, the Applicant's response identifies key drivers of the difference, which are responsible for the majority of the divergence.
- 5.7.73. In response to CC.3.3 [REP8-116], the Applicant referred to its comments on responses to CC.2.5 [REP8-115]. This explains that the LCA performed for the Proposed Development by Ricardo AEA used a proprietary database (Ecoinvent1). Ricardo AEA has paid for a licence to use the database and publish analysis which makes use of the data. However, as the data is the property of Ecoinvent, Ricardo (and other users of the database) cannot publish the Ecoinvent data in the public domain. The study was conducted under publicly available Product Category Rules (PCR) which define rules, requirements, and guidelines for developing EPDs in order to ensure the approach taken to calculation was transparent and to the extent possible met standards required to

obtain an EPD. Third-party verification of the analysis was performed by WSP UK Ltd, who scrutinised the analysis including the data used, calculation approach and consistency with the PCR requirements.

- 5.7.74. WSP's final review statement (which is included in the LCA report) states: *"The carbon LCA report: Ref: ED 13018102 has been independently reviewed by WSP and deemed to be fully conformant with the requirement of ISO 14040:2006 and ISO 14044:2006 and partially conformant with the PCR - Electricity, Steam and Hot Water Generation and Distribution PCR2007:08, version 4. The LCA model, its underlying data, data assumptions, impact assessment method, results and interpretations were fully disclosed by Ricardo for verification and are adequately elucidated in the LCA report to enable transparent communication with the public"*. The Applicant therefore submits that the further details sought by TASC cannot and do not need to be provided. It considers that the approach adopted is robust and in accordance with best practice and guidance, and offers appropriate transparency.
- 5.7.75. Following the acceptance by the ExA of Change Request 19, the Applicant provided the Sizewell C Desalination Plant GHG Emissions Assessment [REP10-152]. This GHG report sets out to quantify the supplementary carbon impact of the proposed temporary desalination plant in the broader context of the previous GHG assessments for the Proposed Development. The temporary desalination plant GHG assessment results are summarised in Table 4.1, and Table 4.2 sets out the indicative change to the Proposed Development's GHG assessment with GHG emissions from the desalination plant. The indicative emissions estimate from the desalination plant represents 1.3% of the total construction GHG emissions and 0.5% of the total lifetime GHG emissions from the carbon focused LCA calculation for the Proposed Development. This shows that the desalination plant would have a negligible impact on the overall construction and lifecycle GHG emissions of the Proposed Development.
- 5.7.76. The Applicant's position as recorded in the Final SoCG [REP10-110] between the parties is that the ES assessed the Proposed Development from a climate change (including matters relating to carbon) perspective [APP-342]. The ES, paragraph 26.7.4, Volume 2, Chapter 26 conservatively estimates that GHG emissions from the construction of the Proposed Development will be offset within the first six years of operation by GHG emissions displaced, assuming the equivalent energy were otherwise to be generated by the anticipated mix of grid electricity generation sources.
- 5.7.77. The ES assessment was subsequently updated within the ES Addendum Volume 1 [AS-181], and the Sizewell C Desalination Plant GHG Emissions Assessment [REP10-152] with further information provided in responses to the ExA's First Written Questions [REP2-100]. In the context of the wider electricity generation sector, there are significant benefits in the long-term, as nuclear power stations produce no GHG emissions while generating electricity. Government modelling supporting the Energy

White Paper confirms the importance of new nuclear generation as part of the energy mix necessary to achieve net zero by 2050.

- 5.7.78. On the topic of waste heat, the Applicant's response to CC.1.10 indicates that the GHG assessment presented in the ES [APP-342] has been undertaken in line with the World Resources Institute & World Business Council for Sustainable Development GHG Protocol⁷, and IEMA guidance for assessing the GHG impacts of a project for EIA. The GHG impact assessment is reported as tonnes of carbon dioxide equivalent (tCO₂e) and includes the seven Kyoto Protocol gases. The Paris Agreement, 2050 net zero commitments and UK CCC reports concern GHGs. Waste heat is not considered as a GHG and does not contribute to global warming, and is therefore not considered applicable to the assessment of impacts on carbon budgets, presented within the ES [APP-342]. However, an assessment of the thermal plume on the marine environment is presented within Volume 2, Chapter 21 (Marine Water Quality and Sediments) of the ES [AS-034]. The effects are identified as minor adverse, not significant.

The ExA's conclusions

- 5.7.79. The ES Chapter 26 [APP-342] concludes that the construction emissions for the Proposed Development would not exceed 1% of the total five year UK carbon budget period in which they arise, and its construction would not have a significant impact on the UK meeting its five carbon budgets through to 2032. The Applicant's Sizewell C Desalination Plant GHG Emissions Assessment [REP10-152] quantifies the supplementary carbon impact of the proposed temporary desalination plant in the broader context of the previous GHG assessments for the Proposed Development. This concludes that the desalination plant would have a negligible impact on the overall construction and lifecycle GHG emissions of the Proposed Development.
- 5.7.80. The ES assessment was undertaken before the publication of the Sixth Carbon Budget. However, the Applicant's response to CC.1.3 [REP2-100] includes a table which presents the impact of the Proposed Development in each carbon budget period including the Sixth Carbon Budget period. This confirms that despite the Sixth Carbon Budget being a significant reduction from previous years, the emissions only account for 0.06% of this budget. The ExA concur that emissions of the magnitude demonstrated would not have a significant effect on the UK's ability to meet its carbon budget commitments.
- 5.7.81. The initial SoCG [REP2-087] between the Applicant and TASC identifies as an area of disagreement the adequacy of the Applicant's evidence on the carbon impacts of the construction, decommissioning and storage phases of the Proposed Development.
- 5.7.82. Since the preparation of the ES, the Applicant has undertaken an LCA (Appendix 9A [REP2-110]) which provides a more detailed calculation of the GHG emissions from the Proposed Development over its lifetime. The LCA assessed the potential carbon intensity of the Proposed Development's generation as 6.1 g CO₂e per kWh generated (compared

4.5 g CO²e per kWh within the ES). The updated analysis identifies a lower total construction carbon footprint of c3.8Mt compared to the estimated 5.7Mt provided in the ES.

- 5.7.83. However, TASC in their comments on responses to ExA's First Written Questions [REP3-145] complain that they have been unable to find a detailed explanation for this change in figures. Likewise, Stop Sizewell C's DL7 submission [REP7-226] queries the Applicant's estimation of the carbon footprint of the build and how, after increasing almost 10% from 5.7Mt to 6.2Mt CO₂ (e) this would seem to have fallen some 40% to around 3.8Mt.
- 5.7.84. In the light of the concerns raised by TASC in relation to the LCA, CC.2.4 requested the Applicant to explain what assumptions have been adopted in the revised calculations and which transport strategies have been assumed. In addition, CC.2.6 sought a further detailed explanation for this change, and requested the Applicant to set out how the two figures have been calculated and provide a reconciliation of the differences.
- 5.7.85. In summary, the Applicant's responses to CC.2.4 and CC.2.6 [REP7-052] explain that the LCA was done from first principles rather than as an evolution from the work done from the ES with much of the data for the LCA not available for use in the ES. The differences in data are a function of many factors which are explained in response to CC.2.6. They also affect estimates of the carbon emissions for the operating and decommissioning phases. The Applicant's response identifies key drivers of the differences which are responsible for the majority of the divergence.
- 5.7.86. The ExA is satisfied that the Applicant's responses to CC.2.4 and CC.2.6 provide a full and reliable explanation for the change in the estimation of the carbon footprint of the Proposed Development in the LCA compared to that provided by the ES. We also note that the transport strategies assumed were consistent with those provided in the updated view of the bulk materials transport assessment including the detailed models of delivery and source of the material. Consistent with the transport assessment, 40% of bulk materials were assumed to be brought to site by HGVs (and 60% by rail/sea).
- 5.7.87. Nevertheless, in the light of TASC's response to CC.2.5, the ExA's CC.3.3 requested the Applicant to explain and justify the absence of the details sought by TASC and why those aspects of the Proposed Development which would generate a carbon footprint could not be itemised and ascribed a figure based on known or estimated units and metrics to enable a more transparent picture of the carbon debt that the Proposed Development represents to be ascertained.
- 5.7.88. The Applicant's response [REP8-116] explains that the LCA was performed using the Ecoinvent1 proprietary database, and that data cannot be published in the public domain. However, given that third-party verification of the analysis was performed by WSP UK Ltd, who scrutinised the analysis including the data used, the calculation approach

and consistency with the PCR requirements, the ExA is content that the findings of the LCA can safely be relied upon. In reaching that conclusion, we note that the LCA model, with its underlying data, data assumptions, impact assessment method, results and interpretations were fully disclosed by Ricardo for verification. We recognise that given the data proprietary issue referred to above, the Applicant is unable to provide the further details sought by TASC to the Examination. However, since third party scrutiny of the LCA has taken place, we do not find the provision of those details to be necessary to support the reliability of the Applicant's approach which we accept accords with best practice and guidance.

5.7.89. As regards the matter raised by Theberton and Eastbridge Parish Council [RR-1214] in relation to the omission of an assessment of operational waste heat vented to the environment, the Applicant's response to CC.1.10 [REP2-100] is relevant. The ExA accepts that since waste heat is not considered as a GHG, and does not contribute to global warming, it is not applicable to the assessment of impacts on carbon budgets, presented within the ES [APP-342].

5.7.90. The ExA concludes that the ES [APP-342], as updated by [AS-181, REP2-110], and [REP10-152], demonstrates that construction emissions from the Proposed Development would be less than 1% of the UK Government's carbon budget for the relevant period, and would not be significant in accordance with the criteria as described in Chapter 26 [APP-342]. The ExA is therefore content that those emissions would not materially affect the ability of the Government to meet the UK's obligations under the Paris Agreement. Similarly, the gross emissions associated with the operational phase have been found to be less than 1% of relevant periods in which they arise. The ExA also recognises the support provided by national policy for low carbon power generation projects such as the Proposed Development, and that the importance for the UK's carbon budgets should also be considered from the perspective of the carbon emissions that would otherwise be produced by other sources, if they were not generating. The national policy support for such low carbon generation projects has been considered in detail in section 5.19 of this Report.

Other Matters

In-combination climate change impact (ICCI) assessment

5.7.91. The ES Chapter 26, paragraphs 26.6.7 to 26.6.9 [APP-342], explains that limitations associated with the approach taken for the ICCI assessment relate to uncertainties inherent within UKCP18 Projections. To overcome uncertainty issues, forecast climate change data from UKCP18 has been used coupled with the replication of proven effective approaches undertaken for similar project types. Assessments made in relation to 'consequence' and 'likelihood' rely on professional judgement and evidence gathered through other environmental disciplines. The ExA therefore sought further explanation as to the approaches which have been replicated and the project types to which they relate and requested the Applicant to identify the elements of professional judgement relied upon and the other environmental disciplines to which they relate.

5.7.92. In response to CC.1.19 [REP2-100], the Applicant explains that the methodology and approach for the ICCI assessment is presented in Volume 2, Chapter 26 of the ES [APP-342], section 26.6a. The Applicant noted that this approach has been used to assess in-combination climate change impacts at other major infrastructure projects, including HS2 Phase 2b and the A303 Amesbury to Berwick Down NSIP. The 'consequence' and 'likelihood' classifications of potential ICCI's were determined through discussions with other relevant EIA disciplines. Each technical assessment team were presented with the climate change projections, and were supported to determine the influence that these climate change hazards could have on the sensitive receptors considered within their technical assessment. Professional judgement was used to support the technical teams in determining these classifications. As the assessment is semi-quantitative in nature, it requires professional judgement to be applied. The environmental disciplines to which this applies include the technical assessment areas referenced within Table 26.19 of Volume 2, Chapter 26 of the ES [APP-342].

5.7.93. In the light of the further explanation provided by the Applicant, the ExA is satisfied that the ICCI assessment set out in the ES, Volume 2, Chapter 26 [APP-342] has appropriately considered the combined impact of the Proposed Development and future climate change on receptors in the surrounding environment. We find no reason to disagree with the conclusion of the ICCI assessment set out in paragraph 26.7.9 of ES Chapter 26, that there would be no significant ICCI impacts on identified receptors in the surrounding environment.

Overall conclusions on Climate Change

5.7.94. EN-1, section 4.8, sets out how applicants and the decision-maker should take the effects of climate change into account when developing and consenting infrastructure. The ExA considers that, in accordance with EN-1 section 4.8, paragraphs 4.8.5, 4.8.6, 4.8.7, and 4.8.11, the ES as updated during the Examination, has appropriately set out how the Proposed Development would take account of the projected impacts of climate change including climate change adaptation. Furthermore, the ES has taken into account the potential impacts of climate change using the latest UK Climate Projections available at the time it was prepared and the assessment covers the estimated lifetime of the new infrastructure up to the end of the decommissioning period. The November 2020 revision¹⁷ to those projections has also been taken into account. The ES concludes that there would be no significant climate change impacts or effects associated with the Proposed Development. The ExA finds the Applicant's assessment to be suitably precautionary in its consideration of climate, change and appropriately recognises the uncertainties that remain.

5.7.95. In relation to EN-1, paragraph 4.8.8, the Applicant's response to CC.1.1 [REP2-100] explains that the critical features of the scheme would be located on the main platform within the MDS. The proposed level of the

¹⁷ Revision 1 UKCP18 by GB Nuclear Industry guidance published in November 2020

platform, itself, has been set to 7.3m AOD to ensure that it would be raised above extreme sea levels, considering sea level rise for the reasonably foreseeable climate change scenarios (i.e. up to the 1 in 10,000-year event in 2140).

- 5.7.96. The specific nature and adequacy of the proposed adaptation measures and whether they would give rise to consequential impacts for flood risk and coastal change have been considered in detail in sections 5.8 and 5.11 of Chapter 5 of this Report. In relation to flood risk at the MDS, the ExA concludes that the Applicant has demonstrated that it has satisfied the requirements of both EN-1 and EN-6. The same conclusion is reached in relation to flood risk along the Sizewell Link Road and the Two Village Bypass and other associated development.
- 5.7.97. For coastal change, the ExA concludes that the Adaptive Design would provide a feasible means of increasing the crest height of the HCDF, so that the sea defence could adapt to a CM sea level rise should that scenario develop as a result of climate change. We also conclude positively in relation to the resilience of the Proposed Development to coastal erosion and deposition in the light of climate change, during its operational life and any decommissioning period. We have reached those conclusions notwithstanding the matters raised in relation to the Sizewell B salient, and the gaps in the assessment identified by the EA. However, as explained in section 5.8 of this Report, the Secretary of State may wish to consult with IPs in relation to the information provided by the Applicant at DL10 [REP10-124], and in relation to the Sizewell B salient before reaching a final decision. These matters are therefore set out in Appendix E to this Report.
- 5.7.98. In accordance with EN-6, paragraph 2.10.6, the ExA has had regard to the submissions of the Nuclear Regulators, namely the ONR and the EA, in relation to climate change impacts, and their views at this stage on the adaptation measures proposed. We also note that the possible effects of climate change will be taken into account in ONRs determination of the site suitability as part of the ongoing assessment of the NSL [REP2-078].
- 5.7.99. The ExA concludes in relation to EN-1, paragraph 4.8.8, that there are no features of the design of new energy infrastructure critical to its operation which may be seriously affected by more radical changes to the climate beyond that projected in the latest set of UK climate projections, taking account of the latest credible scientific evidence and that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime. Likewise, for EN-6, paragraph 2.10.2, we conclude that the proposed adaptation and mitigation measures have appropriately taken into account climate change impacts and the coastal location of the Proposed Development. We are content that all relevant mitigation measures would be secured through the Draft DCO [REP10-009].
- 5.7.100. On GHG emissions, the ES [APP-342], as updated by [AS-181, REP2-110, and [REP9-025], demonstrates that construction emissions from the Proposed Development would be less than 1% of the relevant UK

Government's carbon budget for the relevant period. Similarly, the gross emissions associated with the operational phase have been found to be less than 1% of relevant periods in which they arise. The ExA concludes that emissions of the magnitude demonstrated would not have a significant effect on the UK's ability to meet its carbon budget commitments or the ability of the Government to meet the UK's obligations under the Paris Agreement. The emissions would also be consistent with the aims of relevant regional and local plan policies.

- 5.7.101. The draft updating of EN-1 was published for consultation on 6 September 2021. Whilst any emerging draft NPS is potentially capable of being an important and relevant consideration, given the stage that this draft NPS has reached in the process leading to its designation the ExA attaches little weight to it in the specific circumstances of this application. Nevertheless, we do not find the current application to be inconsistent with the aims of Part 2, and Section 4.9 of the draft EN-1.
- 5.7.102. The ExA concludes that all potential impacts of climate change including those associated with the siting of the MDS in this coastal location have been appropriately taken into account. The provision of the proposed mitigation and adaptation measures would ensure that there would be no significant climate change effects on or arising from the Proposed Development which would be consistent with the Government's aims of achieving sustainable development through mitigating and adapting to climate change. Therefore, there are no matters relating to climate change impacts which would weigh for or against the Order being made.

5.8. COASTAL GEOMORPHOLOGY

Legal and Policy considerations

National Legislation

- 5.8.1. The following national legislation and policies are relevant to the coastal geomorphology and hydrodynamics assessment. Further details are provided in Appendix 6P of Volume 1 of the ES [APP-171].

- Wildlife and Countryside Act 1981
- Marine and Coastal Access Act 2009
- Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)

National Policy

National Policy Statement for Energy (EN-1)

- 5.8.2. EN-1, section 5.5, deals with coastal change. The following paragraphs are of particular relevance:
- 5.8.3. EN-1, paragraph 5.5.1, sets out the Government's aim as being to direct development away from areas vulnerable to coastal change and to: *"...ensure that the risk to development which is, exceptionally, necessary in coastal change areas because it requires a coastal location and provides substantial economic and social benefits to communities, is*

managed over its planned lifetime; and ensure that plans are in place to secure the long term sustainability of coastal areas”.

- 5.8.4. EN-1, paragraph 5.5.2, explains that coastal change means physical change to the shoreline, i.e. erosion, coastal landslip, permanent inundation, and coastal accretion. It emphasises that: *“Where onshore infrastructure projects are proposed on the coast, coastal change is a key consideration”.*
- 5.8.5. EN-1, paragraph 5.5.7, states: *“Applicants should assess the impact of the proposed project on coastal processes and geomorphology, including by taking account of potential impacts from climate change. If the development will have an impact on coastal processes the applicant must demonstrate how the impacts will be managed to minimise adverse impacts on other parts of the coast.”* They should also assess, amongst other things, *“the implications of the proposed project on strategies for managing the coast as set out in Shoreline Management Plans (SMPs)”*; together with the *“effects of the proposed project on marine ecology, biodiversity and protected sites”*; and *“the vulnerability of the proposed development to coastal change, taking account of climate change, during the project’s operational life and any decommissioning period”.*
- 5.8.6. EN-1, paragraph 5.5.10, requires the decision-maker to *“be satisfied that the proposed development will be resilient to coastal erosion and deposition, taking account of climate change, during the project’s operational life and any decommissioning period.”*
- 5.8.7. EN-1, paragraph 5.5.11, states that: *“The IPC should not normally consent new development in areas of dynamic shorelines where the proposal could inhibit sediment flow or have an adverse impact on coastal processes at other locations. Impacts on coastal processes must be managed to minimise adverse impacts on other parts of the coast. Where such proposals are brought forward consent should only be granted where the IPC is satisfied that the benefits (including need) of the development outweigh the adverse impacts.”*
- 5.8.8. EN-1, paragraph 5.5.12, indicates that: *“The IPC should ensure that applicants have restoration plans for areas of foreshore disturbed by direct works and will undertake pre- and postconstruction coastal monitoring arrangements with defined triggers for intervention and restoration”.*
- 5.8.9. EN-1, paragraph 5.5.16, states that: *“Substantial weight should be attached to the risks of flooding and coastal erosion. The applicant must demonstrate that full account has been taken of the policy on assessment and mitigation in Section 4.22 of this NPS, taking account of the potential effects of climate change on these risks as discussed above”.*

**National Policy Statement for Nuclear Power Generation (EN-6)
Vol I**

- 5.8.10. EN-6, paragraph 2.8.2, in relation to good design, advises that for some structures where the functional requirements may change over the lifetime of the structure, such as sea defences, they should be capable of being adapted if the need were to arise in future without major re-design or significant physical disruption.
- 5.8.11. EN-6, section 2.10, relates to climate change adaptation. Paragraph 2.10.2 explains that nuclear power stations need access to cooling water. This means that nuclear power stations in the UK are most likely to be developed on coastal or estuarine sites. Without appropriate mitigation measures the potential effects of climate change could mean these sites become at greater risk of flooding than if they were located inland. Applicants are therefore required to provide information as to how the development incorporates adaptation measures to take account of the effects of climate change.
- 5.8.12. EN-6, section 3.8, considers the impacts and general siting considerations of new nuclear power stations in relation to coastal change. The following paragraphs are of particular relevance:
- *EN-6, paragraph 3.8.3, states: "...applicants should assess the site's geology, soils and geomorphological processes in order to understand the ongoing natural ecological, coastal and geomorphic processes. This will include identifying impacts on coastal processes, intertidal deposition and soil development processes that maintain terrestrial/coastal and/or marine habitats."*
- 5.8.13. EN-6, paragraph 3.8.5, advises: *"In applying the policy on mitigation set out in Section 5.5 of EN-1, and having taken account of the effects of climate change over the lifetime of the project (including any decommissioning period), the IPC should be satisfied that the application will include measures where necessary to mitigate the effects of, and on, coastal change."*

UK Marine Policy Statement 2011

- 5.8.14. The UK Marine Policy Statement is the framework for preparing Marine Plans and sets out the environmental, social, and economic considerations for decisions affecting the marine environment. The relevant section of the Policy Statement (Section 2.6.8, pertaining to coastal change and flooding) indicates that any development which may affect areas at high risk and probability of coastal change should not be considered unless the impacts upon it can be managed. Developers should also seek to minimise or mitigate changes in geomorphology and coastal process (including sediment movement).

Regional policies

- East Inshore Marine Plan (Defra 2014), which sets out policy requirements for the management of the East Inshore area, including its resources, activities and development which take place within this area. The East Inshore Marine Plan area extends from Flamborough Head in the north to Felixstowe in the south with a seaward limit

stretching 12 nautical miles offshore. The Marine Management Organisation (MMO) is responsible for the East Inshore Marine Plan, overseeing the area's resources and the activities and interactions that take place within them, to provide Integrated Coastal Zone Management and sustainable development. At DL7, the Applicant submitted a checklist for the Proposed Development against the policies in the 2014 East Inshore and East Offshore Marine Plans [REP7-074], to test and demonstrate compliance.

- Suffolk Shoreline Management Plan¹⁸ (SMP7, Policy Development Zone 4: Dunwich Cliffs to Thorpeness – Management Areas MIN 12 and 13) which defines the approach to the management of coastline. The aim of the SMP in this location is to maintain the defence of Sizewell but to generally allow the natural development of the coast. These two aims are not seen as being in conflict. The long-term result of this policy approach will be increased marine incursion to the Minsmere Valley.

Local Policies

Suffolk Coastal Local Plan (adopted September 2020)

- 5.8.15. Policy SCLP9.3: Coastal Change Management Area states that proposals for new or replacement coastal defence schemes will only be permitted where it can be demonstrated that the works reflect the management approach for the frontage presented in the relevant Shoreline Management Plan and/or endorsed Coastal Strategy, and there will be no material adverse impact on the environment, including exacerbation of coastal squeeze¹⁹. It indicates that essential infrastructure, including transport infrastructure, utility infrastructure and wind turbines will only be permitted in the Coastal Change Management Area where no other sites outside of the Area are feasible and there is a management plan in place to manage the impact of coastal change including their future removal and replacement [REP1-062].

The Applicant's general approach

The ES assessment of the coastal impacts of the Proposed Development

- 5.8.16. The ES Chapter 20 Coastal Geomorphology and Hydrodynamics [APP-311] presents the Applicant's assessment of the coastal geomorphology and hydrodynamics effects arising from the construction and operation of the Proposed Development at the main development site (MDS) which is located on the coast. This takes into account potential impacts from climate change.

¹⁸ Suffolk Coastal District Council, Waveney District Council and Environment Agency are responsible for this document.

¹⁹ Coastal squeeze is the term used to describe the process whereby habitats on the coast are 'squeezed' between man-made barriers, such as river walls, sea walls and farmland, and rising sea levels, resulting in inter-tidal habitat loss.

- 5.8.17. This assessment has been informed by data presented in Appendix 20A to Chapter 20, Sizewell Coastal Geomorphology and Hydrodynamics Synthesis for Environmental Impact Assessment (Marine Synthesis Report 1) [APP-312].
- 5.8.18. Table 20.8 of Chapter 20 provides a summary of effects for the construction stage and Table 20.9 provides a summary of effects for the operational stage. They present the receptor likely to be impacted, the level of effect and, where the effect is deemed to be significant due to impact magnitude, receptor value, or uncertainty in the assessment, the tables include the mitigation proposed and the resulting residual effect. The ES does not identify any residual significant effects for any receptor listed.
- 5.8.19. However, the need to assess a future shoreline baseline is demonstrated in section 20.4 of Chapter 20 and detailed in sections 7.1 – 7.3, Appendix 20A. Expert Geomorphological Assessment (EGA) shows that, without secondary mitigation, shoreline recession (a shifting future baseline) is very likely to expose the Hard Coastal Defence Feature (HCDF) within the operational life of the Proposed Development. An exposed HCDF could disrupt, and eventually block, shingle transport, leading to potential event-based and net downdrift erosion. A plausible time window for such exposure of 2053 to 2087 is identified.
- 5.8.20. Future shoreline baseline, pre-emptive mitigation and potential post-mitigation impacts are therefore considered in section 20.14 of Chapter 20. In order to prevent exposure of the HCDF, secondary (additional) mitigation in the form of a beach and sediment management plan is proposed. This would also prevent localised direct erosion as a result of wave turbulence during reflection from an exposed northern flank. The mitigation objective is to maintain a shingle beach in front of the HCDF, preventing its exposure, thereby keeping the longshore shingle transport corridor open and avoiding a blockage and potential downdrift (north or south) starvation. Mitigation would be triggered by a threshold low beach volume (to be determined as part of the monitoring plan) and an assessment based on future monitoring evidence that shows a potential significant effect were mitigation not to be undertaken. Details of the triggers for mitigation and cessation of mitigation are in section 7.6, Appendix 20A [APP-312]. These triggers would be formally developed as part of the beach monitoring plan, which would be a condition of the Deemed Marine Licence (DML) and require approval from the MMO before activities affecting geomorphic receptors commenced. Plate 20.1 in Chapter 20 summarises the monitoring and mitigation cycle, which includes steps to determine whether a mitigation action should be undertaken or whether mitigation should cease.
- 5.8.21. The ES Chapter 20 also gives consideration to potential post-mitigation residual effects within section 20.14, although it states that these are: “...not suitable for impact assessment and compensation evaluation, due to the very high uncertainty in both the geomorphic setting and designated features”. Paragraph 20.14.59 indicates that the potential post-mitigation effects set out are intended to be evolved with future

evidence, which would give the necessary certainty to any future assessment for significance and, if needed, compensation. The potential residual significant effects are also considered in section 7.7.2, Appendix 20A.

- 5.8.22. The Fourth Environmental Statement Addendum - Volume 1: Main Text - Revision 1.0 [REP7-030] has been provided in relation to additional information and Change 19. The additional information submitted into the Examination in relation to the coastal geomorphology and hydrodynamics assessment is summarised within Table 2.19. The additional information comprises clarifications to the ES only, including to help define the detail of mitigation, and does not change the conclusions of the ES, as updated by the subsequent ES Addenda.
- 5.8.23. The ES Chapter 5 Description of Decommissioning [APP-189] sets out the Applicant's approach to decommissioning. This explains that at this time, it is difficult to predict the specific characteristics of the environmental baseline conditions that will apply at the end of the operational life of the Proposed Development. These issues represent substantial uncertainties with respect to the outcome of the assessment of impacts that can be undertaken at present. These uncertainties necessitate that the EIA for decommissioning will need to be completed nearer to the time before work will commence.
- 5.8.24. The Fourth Environmental Statement Addendum - Volume 3: Appendices Part 1 of 2 - Revision 1.0 [REP7-032] Appendix 2B provides an update to decommissioning. This states that for the purposes of the EIA, it is assumed that the end of operation of the Sizewell C power station will be in 2090s. By 2140s, the Interim Spent Fuel Store (ISFS) will have been decommissioned and 2190 has been assumed as the theoretical maximum site lifetime.

The Planning Statement

- 5.8.25. The Planning Statement [APP-590], section 8.4 Coastal Change, provides a summary of the national and local policy of relevance to the main development site assessment and seeks to demonstrate how the Proposed Development would accord with national and local policy in relation to coastal change.
- 5.8.26. To facilitate engagement with statutory stakeholders on the marine assessments, the Sizewell Marine Technical Forum (MTF) was established in 2014 and full details of the consultation undertaken as part of the MTF in relation to the coastal geomorphology and hydrodynamics assessment are provided at Volume 1, Appendix 6P of the ES [APP-171].
- 5.8.27. The Applicant submits that in accordance with EN-1, paragraph 5.5.7, the design of the Proposed Development includes a series of mitigation measures, and these are described in Chapter 20 of the ES. They include the location and design of the HCDF and soft coastal defence feature (SCDF), the use of a small number of slender piles for the beach landing facility (BLF), the use of shallow draft vessels and a plough dredger to

minimise dredging and retain sediment in the system and the use of subterranean tunnels connecting the outfalls to the power station.

- 5.8.28. As a result of the mitigation measures no significant effects for coastal geomorphology and hydrodynamics are predicted from the construction and operation of the Proposed Development. In accordance with paragraph 5.5.12 of EN-1, the ES Chapter 20 proposes a series of monitoring specifications for coastal geomorphology receptors, with details on the recommended monitoring techniques, frequency, and extent. The Applicant considers that the Proposed Development would be resilient to coastal erosion and deposition, taking account of climate change and would accord with paragraph 5.5.10 of EN-1.
- 5.8.29. The Planning Statement Final Update and Signposting document, part one [REP10-068], provides an update against Sections 1-10 of the Planning Statement. This identifies that since the submission of the application, the Applicant has increased the height of the permanent HCDF to 12.6m AOD, with the maximum crest height of the adaptive sea defence up to 16.4m AOD. In addition, the minimum crest height of the SSSI crossing has been increased to 8.6m.
- 5.8.30. The National Policy Statement Tracker [REP10-125] in relation to coastal change sets out why the Applicant considers that the Proposed Development would comply with EN-1 paragraphs 5.5.6, 5.5.7, 5.5.9 to 5.5.17 and with EN-6 paragraphs 3.8.3 to 3.8.5.

The Design of the Coastal Defences

- 5.8.31. The construction methodology for the sea defence was set out in ES Volume 2, Chapter 3 Description of Construction [APP-184]. This explains that the area currently benefits from protection by the Bent Hills, a man-made bund structure constructed as part of the landscaping scheme for Sizewell B. The Bent Hills extend from south to north along the top of the shore, merging to the north with an east-west feature known as the Northern Mound. For the construction of the Proposed Development, a new HCDF would be required which would replace the Bent Hills. To protect Sizewell C once the power station is operational, the Northern Mound would act as part of the HCDF. The sea defences would include the retention and extension of the existing 5m high sacrificial sand dune in front of the HCDF, known as the SCDF. The permanent parameters for the sea defence were set out in the ES Volume 2, Chapter 3 Description of Permanent Development [APP-180]. The ES Addendum provided an update to those design parameters [AS-181].
- 5.8.32. The Sizewell C Coastal Defences Design Report [REP8-096] describes the engineering design of the proposed sea defences. This document has been updated to incorporate details of further design review and optimisations since the submission of the original application. The principal outcomes of those optimisations is to reduce the seaward extent of the toe of the HCDF, a paring-back of the HCDF alignment at the BLF/ Northern Mound area, and elimination of the sheet piled temporary HCDF around the Northern Mound. The main features of the design are now explained.

Temporary Hard Coastal Defence Feature

- 5.8.33. A temporary sea defence is proposed to protect the existing Sizewell B nuclear power station and the Proposed Development Main Construction Area (MCA) excavation from coastal flooding during the construction phase. This would take the form of a sheet piled wall, with crest height +7.3m OD, overlapping the existing Sizewell B sea defences at the south, running northwards to form the perimeter of the MCA, and tying-in with the Northern Mound.

Permanent Sea Defence

- 5.8.34. The Permanent Sea Defence comprises two distinct, but functionally and spatially interconnected, elements; the permanent HCDF and the SCDF. There is also provision for an Adaptive Design of the Permanent Sea Defence to be implemented should future circumstances dictate the need for greater levels of protection than currently adopted. The Adaptive Design would only be implemented if mean sea level rise exceeds the reasonably foreseeable (RF) design value during the operational life of the structures from about 2030 to 2140.

Hard Coastal Defence Feature (HCDF)

- 5.8.35. The engineered structure of the HCDF comprises a rock revetment with a double armour layer of 6 to 10 tonne quarried armour stone rock over a rock underlayer, granular core and ground improvements (where needed). A landscape treatment would be applied to the surface of the HCDF. The primary physical elements of the HCDF design cross section include the crest height, slope angle, rock size, toe level, core fill material specification, and foundation design. Table 3-2 of the Design Report lists the physical design parameters that affect the form and level [REP8-096].

Soft Coastal Defence Feature (SCDF)

- 5.8.36. The proposed SCDF refers to an enhanced and maintained upper (shingle) beach at Sizewell. The upper beach is distinct from the sandy mostly sub-tidal beach that extends offshore and includes sand bar features. The purpose of the SCDF is to maintain the natural alongshore drift of sediments, and to prevent undermining of the HCDF toe. In so doing, by virtue of its physical presence, it would also afford protection from wave attack and be a source of accretion to the downdrift beaches.
- 5.8.37. The BEEMS technical report TR544 [REP10-124] proposes that beach recharge would be based on a volumetric approach. The SCDF is conceptually divided into two main components:
- landward safety buffer volume (V_{buffer}), which is not intended to be depleted or frequently exposed but is sufficiently large in itself to avoid HCDF exposure under severe storms,
 - seaward sacrificial volume V_{sac} , which would be allowed to erode as far back as V_{buffer} , before being recharged. The rationale for the safety buffer component is to protect against storms or storm sequences just prior to recharge.

- 5.8.38. The SCDF is therefore defined by an upper profile that would be created from beach recharge (sacrificial layer) and a lower profile that would be the recharge threshold that the beach profile should always be above. An initial recharge of the beach during construction would create the upper profile. There would be subsequent periods of recharge during the life of the sea defences, if and when the beach erodes to the extent that triggers the need for recharge. This is described further in the Design Report Figure 3-12, Figure 3-13, and Appendix A.4 [REP8-096].

Geomorphology considerations of the design

- 5.8.39. The ES Volume 2, Chapter 20 [APP-311], indicates that the Sizewell frontage is comparatively stable compared to neighbouring shorelines. However, the EGA contained in Appendix 20A of the ES [APP-312] concludes that, without mitigation, the shore would erode back within a few decades following construction of the Proposed Development, risking exposure of the HCDF by 2053-2087. This would occur naturally, irrespective of whether the Proposed Development takes place or not. The proposed SCDF would be deliberately sacrificial, releasing sediment into the local sediment system in major storm events that would reduce erosion rates along the frontage. The SCDF would be recharged as necessary in order to maintain the beach. This would prevent the HCDF being exposed over the lifetime of the power station, including decommissioning, avoiding significant impacts on neighbouring shorelines.

Design summary

- 5.8.40. The Sizewell C Coastal Defences Design Report [REP8-096] sets out further detail of the design of the SCDF, the SCDF and Beach Maintenance, SCDF and BLF interface, Adaptive Design Trigger Levels for Adaptive Design, Minimising eastward extent of the HCDF, and the Alignment at BLF. The Design Summary Table 3-4 summarises the principal dimensions and levels of the May 2020 application, January 2021 Change Submission, and further developments within the established parameters up to DL8.

Matters arising during the course of the Examination

- 5.8.41. The main issues relating to Coastal Geomorphology and Hydrodynamics that arose during the Examination came under the following headings:
- The assessment principles adopted by the Applicant
 - The Applicant's assessment of the potential coastal impacts of the Proposed Development and the information submitted by it to the Examination
 - The strategies for managing the coast as set out in the Shoreline Management Plan (SMP)
 - Potential impacts on coastal processes and geomorphology including those arising from the proposed HCDF and the SCDF and the temporary and permanent BLFs and associated activities including:
The vulnerability of the coastline to erosion with particular regard to the role played by the Sizewell-Dunwich banks and the Coralline Crag

- outcrop; the spatial scale of the coastal processes assessment and whether the geomorphic context should be regarded as extending beyond Greater Sizewell Bay; whether other locations, such as Southwold, Thorpeness and Aldeburgh, should be included in the baseline monitoring and mitigation proposals; the potential impacts upon the Minsmere frontage, and the role of the Minsmere sluice; for the permanent BLF, during the construction phase, the impacts of any dredging, and the barge berthing platform and cumulative impacts
- The adequacy of the proposed climate change adaptation measures, and the resilience of the Proposed Development to ongoing and potential future coastal change during its operational life and any decommissioning period including: The scope for the HCDF to undergo design adaptation to maintain nuclear safety against predicted sea level rises; and the resilience of the Proposed Development, taking account of climate change, in response to shoreline evolution and change scenarios over the anticipated site life.
 - Mitigation and controls including draft DCO, the DML, the Coastal Processes Monitoring and Mitigation Plan (CPMMP); whether any additional requirements, would be necessary to address adverse physical changes to the coast; and whether the draft DCO should make provision for the removal of the HCDF at decommissioning.

The ExA's considerations

The assessment principles adopted by the Applicant

The submissions of IPs

- 5.8.42. There has been much criticism by IPs of the scope of the assessment principles adopted by the Applicant. For example, the DL2 Written Representation (WR) of Stop Sizewell C [REP2-449r] includes a response by Professor Derek Jackson and Professor Andrew Cooper to the Applicant's BEEMS technical Report TR311. This includes a detailed criticism of the Applicant's study including in relation to the inadequate future timescale, the insufficient spatial scale, the inadequate consideration of the dynamics of the nearshore banks, no consideration of the complex system behaviour, and the use of false assumptions underlying the EGA.
- 5.8.43. The final SoCG between the Applicant and the MMO [REP10-107] Table 2.1 sets out the position of the parties. For coastal geomorphology and hydrodynamics this records all items as being agreed including the overarching methodology for the assessment of impacts. The detailed comments of the parties are set out in Table A3 of that document.
- 5.8.44. The final SoCG between the Applicant and the Environment Agency (EA) [REP10-094] records a number of areas of disagreement including the overarching methodology for the assessment of impacts on coastal geomorphology and hydrodynamics due to a number of small gaps in the work done to date.

The Applicant's response

- 5.8.45. The ES Main Development Site Chapter 20 Coastal Geomorphology and Hydrodynamics [APP-311], paragraph 20.2.8 explains that the assessment is based on the methods outlined under the Marine Evidence based Sensitivity Assessment (MarESA) framework and Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines.
- 5.8.46. The generic EIA methodology and the full method of assessment for coastal geomorphology and hydrodynamics that has been applied for the Proposed Development is detailed in Appendix 6P of Volume 1 of the ES [APP-171].
- 5.8.47. The evidence base used to underpin the assessments, has been developed and discussed with the coastal geomorphology subgroup of the MTF through several meetings and technical report reviews by specialists, which has helped to develop the work over a seven-year period. The MTF consists of the MMO, ESC, the EA and NE.
- 5.8.48. The scope of the assessment was established through a formal EIA scoping process undertaken with the Planning Inspectorate. Comments raised in the EIA Scoping Opinions received in 2014 and 2019 were taken into account in the development of the assessment methodology. These are detailed in Appendix 6A to 6C of Volume 1 of the ES [APP-168 to APP-170].
- 5.8.49. The Zone of Influence (ZoI) for the coastal geomorphology assessment was defined in agreement with the MTF as the Greater Sizewell Bay (GSB) (see [APP-311], Figure 20.1). The study area for coastal geomorphology extends from Walberswick in the north to the Coralline Crag formation at the apex of the Thorpeness headland in the south. The seaward boundary extends to beyond the eastern flank of the Sizewell-Dunwich Bank and includes the proposed cooling water infrastructure on the east side on the bank.
- 5.8.50. At ISH6 [REP5-111] the Applicant responded to concerns raised such as that it did not look beyond the period of the 1830s. The Applicant clarified that it has looked at all the available information, including historical records, and is very aware of the historical erosion that happened at Dunwich, which precipitated significant amounts of accretion at Sizewell as a result of coastal realignment.
- 5.8.51. Cefas, on behalf of the Applicant, has looked at coastal change extensively from historical data, aerial photographs back to 1940, and the beach profile data collected by the current station operators and the EA through the Anglian Coastal Monitoring Programme, which provides 30 years of very detailed shoreline change data in this area. Cefas has also looked into the offshore area, using multibeam bathymetric surveys and collected over 600 seabed samples used to characterise the sediments and support the computer modelling of sediment transport.
- 5.8.52. The Applicant highlighted that some of the difficult questions on this coastline are not amenable to the normal/ traditional techniques that a developer might use so it has also developed novel approaches such as

the use and interpretation of data from a standard ships radar deployed at Sizewell A; the use of over 2000 pebble tracers, and the use of a small drone to obtain continuous, topographic data across the frontage and a range of numerical models to understand the system and predict impacts.

- 5.8.53. In TR545 Storm erosion modelling of the Sizewell C Soft Coastal Defence Feature using the XBeach modelling suite [REP3-048], the Applicant has modelled out to the longer timescale of 2099 and has used very severe events (including the full Beast from the East (BfE) storm sequence which is a 1:107-year storm in terms of its energy content), and what that does to the coast. The Applicant has looked at the conditions that are important for shaping the coast as well as toward more extreme aspects.
- 5.8.54. In Edition 3 of TR545 [REP9-020] further model runs were conducted testing the SCDF and Adaptive Design against the 1:20 year South East (SE) and BfE storm during the decommissioning phase, up to 2140. The SCDF is tested against sea level rise predictions of RCP4.5 with the 1:20 SE and BfE storms. The Adaptive design is predicted to only be required during the decommissioning phase under RCP8.5 sea level rise conditions. As such, the Adaptive Design is tested against those conditions only in relation to the BfE storm.
- 5.8.55. The Applicant submits that, overall, this represents a very comprehensive data set on which to base the understanding of impacts and impact assessments for coastal geomorphology.
- 5.8.56. The SoCG between the Applicant and the EA records the overarching methodology for the assessment of impacts on coastal geomorphology and hydrodynamics as an area of disagreement. In relation to the concerns raised by the EA [REP10-094] regarding the overarching methodology for the assessment of impacts on coastal geomorphology and hydrodynamics, the Applicant's position is that although some scenarios remain to be tested the overarching methodology used for modelling (XBeach) is agreed as appropriate and the outputs to date are not disputed. All modelled scenarios tested to date demonstrate that maintenance of the SCDF is viable.

The ExA's conclusions

- 5.8.57. The assessment of the coastal geomorphology as set out in the ES Chapter 20 Coastal Geomorphology and Hydrodynamics [APP-311] is based on the methods outlined under the MarESA framework and CIEEM guidelines to ensure compatibility with the marine ecology assessments. The impact assessment followed standard procedures that are used in the marine environment and all of the impacts and activities have been assessed against each of the geomorphic receptors [APP-171].
- 5.8.58. The ExA also notes that the evidence base used to underpin the assessments, has been developed and discussed with the coastal geomorphology subgroup of the MTF. The ZoI for the coastal geomorphology assessment was defined in agreement with the MTF as

the Greater Sizewell Bay [APP-313, Figure 20.1]. Furthermore, the scope of the assessment was established through a formal EIA scoping process undertaken with the Planning Inspectorate.

- 5.8.59. At ISH6 [REP5-111], the Applicant confirmed that it has looked at all the available information, including historical records, aerial photographs back to 1940, and the beach profile data collected by the current station operators and the EA through the Anglian Coastal Monitoring Programme, which provides 30 years of very detailed shoreline change data in this area. The Applicant also provided further details of the surveys and seabed samples that have been used to characterise the sediments and support the computer modelling of sediment transport and the novel approaches it has taken.
- 5.8.60. The SoCG between the Applicant and the MMO [REP10-107] records for coastal geomorphology and hydrodynamics all items as being agreed including the overarching methodology for the assessment of impacts.
- 5.8.61. The SoCG between the Applicant and the EA [REP10-094] indicates that the EA is supportive of the overarching approach to modelling as detailed in Volume 1 Appendix P and section 20.3 of Volume 2 Chapter 20 of the ES [APP-311], as well as many of the conclusions of the assessment. However, the EA submit that there are a number of small gaps in the work done to date which affect their level of confidence in the conclusions.
- 5.8.62. The ExA has given careful consideration to the criticisms made by IPs of the scope of the assessment principles adopted by the Applicant. However, we are reassured by the standard methods used, the EIA scoping process that was followed and the role played by the MTF. The Applicant has subsequently provided modelling that reflects the timescale sought by statutory consultees. Insofar as the overarching methodology for the assessment of effects is concerned, the ExA considers that the assessment principles adopted by the Applicant are satisfactory and fitting. The detailed concerns of IPs in relation to the assessment of matters such as the Sizewell B salient, the dynamics of the nearshore banks and the gaps in the assessment work referred to by the EA are considered below.

Whether the potential coastal impacts of the Proposed Development can be satisfactorily assessed from the information submitted by the Applicant by the close of the Examination

The submissions of IPs

- 5.8.63. A number of IPs including ESC, MMO, EA, and NE highlighted the need for additional information and modelling to be provided in relation to the coastal defences and the BLF at various points during the Examination. For example, ESC made requests in relation to the provision of details in relation to HCDF design in their comments on the coastal defences design report [REP3-062]. ESC in its written summary of oral case at ISH6 [REP5-144] sets out under item 2(b) a list of information and details that it seeks.

- 5.8.64. The EA's written summary of oral submissions at ISH6 [REP5-148] indicates that it agrees with the Applicant's assessments of the potential impacts up to 2099, and that the impacts should be possible to mitigate through the CPMMP. The EA considers the work that has been done to be robust, and the CPMMP is the framework to deal with unavoidable residual uncertainty in this time, which is good practice for long-term projects. However, at ISH6 it sought more severe sea level rise and storm scenarios to be presented in the outstanding assessments post-2099.
- 5.8.65. The EA DL10 Comments on DL 8 and 9 Coastal Processes Submissions [REP10-191] refers to the Coastal Defences Design Report revision 2.0 [REP8-096]. This report refers to modelling of a 1 in 10,000 year joint probability event combining extreme surge, wave, and tide conditions to assess impacts on beach level. The EA supports the principle of modelling conditions more extreme than those previously considered, but notes that the outputs will not be available for review until after the close of the Examination. It is therefore unable to comment on the full range of conditions used to determine the design of the coastal defences at this time.
- 5.8.66. The EA has considered the TR545 Storm Erosion Modelling of the Sizewell C Soft Coastal Defence Feature [REP9-020]. It welcomes the inclusion in this edition of the RCP8.5 sea level rise projection extended to 2140, as well as modelling of the adaptive HCDF design, and it is in agreement with a number of the conclusions of the assessment. However, the EA submits that there are a small number of gaps in the assessment relating to what it considers to be reasonable worst case scenarios for impacts to coastal geomorphology which affect its level of confidence in the conclusions. In particular, the need for modelling of a more severe storm scenario than the BfE sequence, which is the most extreme storm modelled and which equates to a 1 in 107 year return period for cumulative wave energy; and further analysis of the risk posed by two or more severe events occurring sequentially and without a safe operating window in between for delivery of mitigation measures such as beach renourishment. The EA notes, for example, that no modelling has been provided which utilises the eroded beach output of a previous model run, and would therefore simulate sequential storms without mitigation. This reflects its view that the risk of both of these scenarios is expected to increase as the impacts of climate change become more severe.
- 5.8.67. The SoCG between the Applicant and the EA [REP10-094] records as an area of disagreement the proposed primary, and secondary mitigation measures to mitigate impacts as detailed in Chapter 20 of the ES [APP-311]. Since the modelling has not incorporated what the EA regards as the full range of reasonable worst case scenarios it is unable to conclude that the mitigation approach would be viable for the full duration of the operational and decommissioning phases.
- 5.8.68. The Final SoCG between the Minsmere Levels Stakeholders Group and the Applicant [REP10-114] indicates that their concerns relating to the assessment of coastal geomorphological impacts over time, the role of

the Sizewell-Dunwich Banks and coastal breach remain areas of disagreement.

- 5.8.69. Alde and Ore Association [REP8-190] submit that there is no indication of how any impact to the north and south of the Proposed Development is going to be identified. They contend that it is not clear how data collection on shingle movement along the SCDF will reveal changes in where the shingle is going nor, if it is static or is being recycled, and the impact that stoppage on longshore drift would have on other parts of the coastline.
- 5.8.70. The DL5 submission of Mr Bill Parker [REP5-191], highlights some areas which he submits have been overlooked in the modelling provided to date. The DL5 comments of Mr Nick Scarr on the oral submissions made at ISH6 [REP5-253, 254], also raises a number of such issues.
- 5.8.71. Together Against Sizewell C (TASC) DL5 Post Hearing submissions including written submissions of oral case relating to ISH6 [REP5-297] make a number of points under this topic heading including that modelling up to 2140 does not necessarily recognise the full active lifetime of the site. TASC [REP6-079] also seek reassurance that the Applicant's modelling would be assessing storm conditions arriving from the north-east and assess a situation where the Sizewell-Dunwich Bank potentially no longer exists and covers the period until the site is returned to a greenfield site, if at all possible. They submit that it seems from other IPs, including representations from Mr Bill Parker [REP5-191], Mr Nick Scarr [REP5-253] and the Alde and Ore Association [REP5-187], that the Applicant's modelling falls short by under-assessing the risk of erosion and therefore flood-risk.

Consideration of Tsunami risk

- 5.8.72. The consideration of the risk of a Tsunami was raised by Mr Bill Parker and he provided a paper on this topic at DL2 [REP2-228]. His conclusions are set out at paragraph 1.14. His position, in summary, is that there is a quantifiable geohazard risk of a tsunami, that the Applicant has not taken into account. He submits that the level of risk is such that it makes the site of the Proposed Development too vulnerable to be built.
- 5.8.73. This matter was also raised by the WR of the Minsmere Levels Stakeholders Group [REP2-377]. They state that the Applicant has only considered tsunami events triggered from the Azores. No consideration has been given to a tsunami event triggered by an undersea slide from the Norwegian Coast, similar to the Storrega event 8,200 years ago which was estimated to produce a 30m tsunami in the North Sea.

The Applicant's response

Additional information/assessment sought by ESC

- 5.8.74. The Applicant's response to CG.3.5 [REP8-116] comments on information sought by ESC at ISH6 [REP5-144], and in ESC's 'Comments on Temporary and Permanent Coastal Defence Feature Plans [REP5-015]' [REP6-032].

- 5.8.75. The Applicant considers that all the information sought has been provided. The evidence that the HCDF is located as landward as possible is provided in Section 3.9 of [REP2-116], as updated at DL8 [REP8-096]. The DL8 update also explains how a further 5m of landward movement of the main run of HCDF, and of 15m at the BLF/ Northern Mound area have been achieved. The HCDF alignment with these reductions, placing the HCDF toe at Eastings 647615, is shown in [REP5-015].
- 5.8.76. The evidence that the HCDF foundation is resilient to coastal change over the life of the Project is assured by the provision, and through-life maintenance of the SCDF, described in Section 3.7 of [REP2-116] and also in the Preliminary Design and Maintenance Requirements for the Sizewell C Coastal Defence Feature - Revision 3.0 [REP7-101] which has been updated to 2140 timeframe. Viability of maintenance is also addressed in that document [REP7-101]. The update of [REP2-116] has been provided at DL8 [REP8-096]. The evidence that the profile and make-up of the SCDF will not obstruct native sediment transport along the frontage is in the Preliminary Design and Maintenance Requirements for the Sizewell C Coastal Defence Feature - Revision 3.0. [REP7-101]. At DL10 the Applicant submitted the Preliminary design and maintenance requirements for the Sizewell C Soft Coastal Defence Feature (Version 4) TR544 [REP10-124].
- 5.8.77. The evidence that maintenance of the SCDF is viable over the required lifetime is described in Section 3.7.d of [REP2-116] and [REP7-101]. The proposed conventional maintenance activities of recharge with imported material would be supported by the CPMMP [REP5-059].
- 5.8.78. The assessment of the impact of the HCDF in relation to sediment transport now includes the adaptive design [REP7-101]. The Applicant has also provided design details of the HCDF and SCDF at typical locations in [REP2-116], and in the DL8 update [REP8-096] with additional details at the Northern Mound in [REP5-015].
- 5.8.79. As regards evidence that the initial ES conclusions regarding HCDF impact and methods of mitigation [APP-311, APP-312] have not changed in light of the subsequent seaward advance of the HCDF, [REP7-101] now includes the 5m setback, the pared back alignment at the BLF and the Sizewell B overlap alignment. No change to the likely impacts and mitigation are foreseen as a result.
- 5.8.80. The Final SoCG between the Applicant, ESC and SCC [REP10-102] records a number of areas of disagreement in relation to marine and coastal issues. However, in many instances they consider that the matters can be resolved through Requirements and/or the CPMMP and it is not suggested by the Councils that further modelling or assessment work would resolve the issues.

Additional information/assessment sought by the EA

- 5.8.81. The SoCG between the Applicant and the EA [REP10-094] records a number of areas of disagreement. As regards the proposed primary, and secondary mitigation measures, as detailed in sections 20.5 and 20.12 of

Chapter 20 ES [APP-311], including the CPMMP, the Applicant indicates that TR544 and TR545 have been provided to the EA and the principles of mitigation are agreed. The Applicant understands that the EA concerns relate only to the sustainability of the SCDF. The Applicant's position is that all modelled scenarios to date show maintenance of the SCDF would be viable throughout the operation and decommissioning and, in any event, other mitigation including sediment by-passing is proposed to mitigate impacts on coastal geomorphology.

- 5.8.82. In relation to the assessment of impacts and also the assessment of residual effects associated with the HCDF and the SCDF, the Applicant states that the EA requested modelling to be extended to beyond 2099, and include assessment using RCP8.5 climate change scenarios. This has been provided for DL7 [REP7-101]. The Applicant submits that the modelling shows maintenance of the SCDF would be viable under all scenarios tested including RCP8.5 and that impacts from the SCDF, itself, would be negligible or beneficial.
- 5.8.83. The SoCG between the Applicant, and the EA [REP10-094], also records as an area of disagreement the assessment of combinations of spatially and temporally overlapping marine components as described in section 20.11, Chapter 20 of the ES. The Applicant's position is that the EA's concerns appear to be solely based on the viability of maintaining the SCDF which is independent of any other element of the Proposed Development and has been assessed.
- 5.8.84. The Preliminary Design and Maintenance Requirements for the Sizewell C Soft Coastal Defence Feature (Version 4) TR544 [REP10-124] sets out the main coastal processes design parameters (volume, crest height and composition) of the SCDF together with the numerical modelling. The Applicant submits that this shows that the SCDF volume would be substantially larger than that required to withstand two to three severe sequential storms, even along sections where the SCDF would be relatively small such as near the permanent BLF.
- 5.8.85. The TR544 Version 4 Report also considers the situation in which the HCDF would be altered to its adaptive design, with a crest height of 16.4 m Ordnance Datum Newlyn (ODN) and a more seaward protrusion of the HCDF using the 1:20 NE storm model. The Applicant considers this to be the worst-case scenario and it is included within the report as a safety case.

Consideration of Tsunami risk

- 5.8.86. The Applicant has made written responses on the subject of Tsunami Risk in AI.1.4 [epage 159 REP2-100] and CG.2.0 [epage 97 REP7-052] outlining the position and replying directly to IP queries. The Applicant has also provided the Sizewell C Coastal Defences Design Report - Revision 1.0 [REP2-116] which has been revised and updated at DL8 [REP8-096] capturing the various additional submissions, questions and updates that have occurred during the Examination. The Applicant considers its approach to be in accordance with NPS EN-6, which states at paragraph 2.7.3 that the Planning Inspectorate "*should not duplicate*

the consideration of matters that are within the remit of the Nuclear Regulators.” Paragraph 2.7.4 confirms that this includes the site licensing process.

Additional information/assessment sought by the MMO

- 5.8.87. The SoCG between the Applicant and the MMO [REP10-107] Table 2.1 sets out the position of the parties. For coastal geomorphology and hydrodynamics (detailed comments in Appendix A3) this records all items as being agreed including the overarching methodology for the assessment of impacts. In relation to Change 19, the Applicant has confirmed that the desalination intake is seaward of the outer longshore bar and the outfall is on the seaward flank (seaward of the crest) of the outer longshore bar. The headworks are seaward of the outer bar crest and the MMO agrees that impacts would not be significant.

The ExA’s conclusions

- 5.8.88. At the Preliminary Meeting (PM) Part 1, the ExA requested the Applicant to provide additional information and modelling relating to the proposed coastal defences and this was subsequently reflected in the Examination Timetable [PD-015]. The Applicant provided the Modelling of the Temporary and Permanent Beach Landing Facilities at Sizewell C report at PDB [PDB-010], the One Dimensional Modelling of the SCDF - Revision 1.0 [REP2-115], and the Sizewell C Coastal Defences Design Report - Revision 1.0 [REP2-116]. At the PM Part 1, the Applicant also indicated that, in the light of the interest in this matter from the coastal stakeholders, it had progressed additional modelling relating to the maintenance of the SCDF. The results of that modelling would be shared with the Examination when available which was then anticipated to be at the end of May/ early June 2021 and at the end of June 2021.
- 5.8.89. A number of IPs including ESC, MMO, EA, and NE also sought further information and modelling in relation to the assessment of effects arising from the Proposed Development during the Examination. In response, the Applicant has provided various additional information, modelling and reports at different deadlines.
- 5.8.90. Although the Final SoCG between the Applicant, ESC and SCC [REP10-102] records a number of areas of disagreement in relation to marine and coastal issues, the Councils do not suggest that further modelling or assessment work would resolve the issues. The Joint LIR Review [REP10-183] also confirms that whilst ESC does not agree that a worst case/ precautionary approach has been used in the assessment, it does not consider that further assessments would be able to conclusively resolve this matter of difference. The ESC relies upon the obligations in the CPMMP to sustain the longshore sediment transport process. The ESC DL10 submission [REP10-177] in considering the Sizewell C Coastal Defences Design Report [REP8-096] also identifies additional information that they seek. However, it considers that there is a defined pathway to resolving them through ongoing discussions leading to the approval of the HCDF and SCDF design under the dDCO Requirement 19 (formerly

12B). The HCDF interface with the Sizewell B defences, and compliance with the SMP policy of 'hold the line' will be considered below.

- 5.8.91. The Fourth ES Addendum [REP7-032] confirms that for the purposes of the EIA, it is assumed that the end of operation of the Sizewell C power station will be in the 2090s. By the 2140s, the Interim Spent Fuel Store (ISFS) will have been decommissioned, and 2190 has been assumed as the theoretical maximum site lifetime.
- 5.8.92. In response to the EA's request that modelling be extended to beyond 2099 and include assessment using RCP8.5 climate change scenarios, this has been provided by the Applicant at DL7 [REP7-101]. The assessment of the impact of an Adapted HCDF in relation to sediment transport now includes the adaptive design [REP7-101]. The Sizewell C Coastal Defences Design Report [REP8-096] sets out further details of the design of the SCDF, the SCDF and Beach Maintenance, SCDF and BLF interface, Adaptive Design Trigger Levels for Adaptive Design, Minimising eastward extent of the HCDF, and the Alignment at BLF. The Storm Erosion Modelling of the Sizewell C Soft Coastal Defence Feature using XBeach-2D and XBeach-G - Revision 3.0 has also been provided at DL9 [REP9-020].
- 5.8.93. The EA [REP10-191] has considered the Sizewell C Coastal Defences Design Report [REP8-096] and note that this report refers to modelling of a 1 in 10,000 year joint probability event combining extreme surge, wave, and tide conditions to assess impacts on beach level. The EA supports the principle of modelling conditions more extreme than those previously considered. However, since the outputs were not available for review before the close of the Examination, it could not comment on the full range of conditions used to determine the design of the coastal defences.
- 5.8.94. Notwithstanding the inclusion in the DL9 version of the Storm Erosion Modelling of the Sizewell C Soft Coastal Defence Feature [REP9-020] of the sea level rise projection extended to 2140, as well as modelling of the adaptive HCDF design, the EA identifies a small number of gaps in the assessment relating to what it considers to be reasonable worst case scenarios for impacts to coastal geomorphology [REP10-191]. In particular, the modelling of a more severe storm scenario than the BfE sequence; and further analysis of the risk posed by two or more severe events occurring sequentially and without a safe operating window in between for delivery of mitigation measures such as beach renourishment.
- 5.8.95. At DL10 the Applicant submitted the Preliminary design and maintenance requirements for the Sizewell C Soft Coastal Defence Feature (Version 4) TR544 [REP10-124]. The main coastal processes design parameters (volume, crest height and composition) of the SCDF have been set out. The Applicant contends that together with the numerical modelling this shows that the SCDF volume would be substantially larger than that required to withstand two to three severe sequential storms, even along sections where the SCDF would be relatively small such as near the

permanent BLF. The TR544 Version 4 Report [REP10-124] also considers the situation in which the HCDF would be altered to its adaptive design, with a crest height of 16.4 m ODN and a more seaward protrusion of the HCDF using the 1:20 NE storm model. This is considered by the Applicant to be the worst-case scenario and is included within the report as a safety case.

5.8.96. The ExA recognises that the modelling of the additional scenarios sought by the EA would add to the knowledge base, and that the risk of those scenarios occurring is expected to increase as the impacts of climate change become more severe. However, we also agree that the CPMMP would provide an important mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work. The modelled scenarios provided prior to the submission of the latest version of TR544 [REP10-124] show that maintenance of the SCDF would be viable under those situations assessed throughout operation and decommissioning.

5.8.97. Whilst the ExA has the benefit of the Applicant's DL10 updated TR544 submission [REP10-124], and we observe that this shows that the SCDF volume would be substantially larger than that required to withstand two to three severe sequential storms, that is information on which we do not have the benefit of input from other IPs, including relevant statutory consultees. We do not therefore place reliance upon that document in reaching our conclusions on this topic. However, given the role that the CPMMP would play as a means for addressing uncertainty in the future, we consider that the earlier assessments are sufficient to enable the potential coastal impacts of the Proposed Development to be satisfactorily assessed. Nevertheless, should the Secretary of State disagree with that view, he may wish to consult with IPs in relation to the information provided by the Applicant at DL10, and obtain confirmation from the EA that this now meets the gaps in the assessment identified by them before reaching a final decision.

Consideration of Tsunami risk

5.8.98. The ExA has considered the Applicant's written responses to AI.1.4 [REP2-100] and CG.2.0 [REP7-052] together with the Sizewell C Coastal Defences Design Report - Revision 1.0 [REP2-116] and the DL8 update of that document [REP8-096]. The Applicant indicates that all external hazards, including those associated with coastal flooding such as tsunami, are being treated as part of the Nuclear Safety Case in line with the appropriate regulation, standards and relevant good practice including the Nuclear Site Licence (NSL) Conditions. The sea defences form part of the protection against coastal flooding and their design includes consideration of the associated hazard.

5.8.99. As regards the specific risk of tsunamis, the Applicant confirms that a bespoke analysis has been carried out for the Proposed Development site in order to characterise the hazard base using reports issued by Defra and that a "Storegga-type" event has been considered within this assessment. The ExA takes the view that the Applicant's approach to this aspect of the Proposed Development is in accordance with EN-6,

paragraphs 2.7.3 and 2.7.4, and that any further safety assessment in relation to this matter is appropriately considered within the remit of the Nuclear Regulators.

Change Request 19 – the desalination plant

- 5.8.100. In relation to dDCO Change 19, the MMO sought clarity from the Applicant that the headworks would be located on the outside of the offshore longshore bar. The SoCG between those parties [REP10-107] records that the Applicant has confirmed that the desalination intake is seaward of the outer longshore bar and the outfall is on the seaward flank (seaward of the crest) of the outer longshore bar. The headworks are seaward of the outer bar crest. Therefore, the ExA is content that the necessary information to resolve this matter has been provided.

The implications of the Proposed Development for the strategies for managing the coast as set out in the Shoreline Management Plan (SMP)

The SMP policy boundary between MIN 12.2 and 13.1.

The submissions of IPs

- 5.8.101. At ISH6, ESC [REP5-144], confirmed that the SMP policy boundary between MIN 12.2 and MIN 13.1 shown in SMP7 page PDZ4:24 is not considered to be correctly drawn, in that it is not coincident with the Sizewell C northern site limit. The northern extent of the Proposed Development is shown within the MIN 12.1 frontage that has a policy of Managed Realignment. The remainder of the site has a SMP policy of Hold the Line. The SMP text is consistent with a policy change at the Sizewell C site northern boundary rather than as shown on the plan. ESC considers that the discrepancy between text and plan is attributable to an inaccuracy in the plan.

The Applicant's response

- 5.8.102. At ISH6, the position of the SMP policy boundary between MIN 12.2 and MIN 13.1 shown in SMP7 page PDZ4:24 was discussed. The Applicant submits that it is not correctly drawn, in that it is not coincident with the northern site limit for the Proposed Development. The Applicant agrees with ESC [REP5-144], that the discrepancy between text and plan is attributable to an inaccuracy in the SMP plan.

The ExA's conclusions

- 5.8.103. At ISH6, ESC [REP5-144], confirmed that the SMP policy boundary between MIN 12.2 and MIN 13.1 shown in SMP7 page PDZ4:24 [REP1-072] is not correctly drawn, in that it is not coincident with the Proposed Development northern site limit. However, the SMP text is consistent with a policy change at the northern boundary of the site rather than as shown on the plan. The ExA notes that both ESC and the Applicant agree that the discrepancy between text and plan is attributable to an inaccuracy in the plan and that is the basis upon which we have considered the application.

The MIN 13.1 policy to 'Hold the Line to 2105', and whether the more seaward position of the HCDF and the SCDF for Sizewell C relative to the Sizewell A and B sites would be in conflict with the SMP

The submissions of IPs

- 5.8.104. ESC consider that the seaward extent of the proposed HCDF and SCDF results in a conflict with the SMP Hold the Line policy [REP5-144]. The SMP Intent for Management and Future Management Action Plan for unit MIN 13.1 is based on an assumption that any new power station development would not breach the line of the existing coastal defence features for Sizewell A and B. The proposed coastal defence features for the Proposed Development extend further seaward than the existing coastal defence features of Sizewell B by about 40 to 50m, resulting in conflict with the Hold the Line policy.
- 5.8.105. ESC recognises that constraints exist which limit the area in which the platform can be accommodated, including the constraints imposed by the SSSI, which may make a breach of the Hold the Line policy inevitable if the Proposed Development is to be constructed. However, given the policy in the SMP, ESC submit that the Applicant should minimise the seaward extent of the coastal defence features as far as possible and should seek to avoid any further seaward advance of the Adaptive HCDF which may be required to address a rise in sea levels associated with climate change.
- 5.8.106. ESC has provided its comments on the Design Report at DL10 [REP10-177]. The ESC/ SCC Joint LIR Review [REP10-183] states that they have accepted non-compliance with the 'Hold the Line' policy over the northern and central parts of the HCDF, but they do not consider sufficient evidence has been provided to justify the more recent 26m seaward advance of the HCDF at the south end of the Sizewell B overlap.
- 5.8.107. The Minsmere Levels Stakeholders Group, Stop Sizewell C and Theberton and Eastbridge Parish Council [REP5-287] submit that it is clear that the new frontage of the HCDF would go significantly seaward of the existing Bent Hills defence for Sizewell B. The new SCDF would overlay and extend further seaward than the existing sacrificial dune. Both features would be in advance of the defences at Sizewell A and B. They contend that they would therefore be in conflict with the Hold the Line SMP policy. They support the National Trust [EV-110] assertions in this regard, especially as it is unclear what effect this advance would have on the coast both north and south of the Proposed Development.
- 5.8.108. TASC DL5 in their post hearing submissions including written submissions of oral case relating to ISH6 [REP5-297] note that ESC has confirmed that the location of the HCDF is in conflict with the SMP, and acknowledged the conflict between building further into the SSSI in the west, as opposed to building further east i.e. closer to the shoreline and impacting on more of the Heritage Coast. TASC consider that this conflict confirms that the site is too small for the Proposed Development.

The Applicant's response

- 5.8.109. At ISH6 [REP5-111], the Applicant clarified that it does not propose to make a change to the SMP. The Applicant confirmed that the intent for the HCDF and SCDF is to maintain the shoreline where it presently is. There is no intention to reclaim land. The SCDF has been designed with ability to maintain natural sediment drift and sediment movement across its frontage as needed by the SMP.
- 5.8.110. The Sizewell C Coastal Defences Design Report [REP8-096], explains the design optimisation which has taken place from the submission of the application to DL8. Table 3-4 provides a summary of changes to the HCDF from the original application to DL8. The design of the interface with the Sizewell B (SZB) defences has been refined since the design phase underpinning the submission of the application in May 2020, and why it is necessary to separate the two defence structures from one another. The sea defence for the Proposed Development included in the January 2021 Change submission therefore overlaps the SZB defence, as shown in Figure 3-8, rather than merging into it.
- 5.8.111. The Sizewell C Coastal Defences Design Report [REP8-096] section 3.12 considers the scope for minimising the eastward extent of the HCDF. The HCDF construction is constrained by the minimum 5m stand-off from the outer security fence to the landward toe of the sea defence in the Adaptive Design configuration, as shown in Figure 3-15 and A.5. For the reasons set out in the Design Report, the Applicant concludes that it is not practicable to modify the operational platform position or configuration of the Proposed Development, nor the position of the outer security fence relative to the internal platform area to lessen the seaward extent of the sea defences.
- 5.8.112. The Applicant has considered a number of options to reduce the overall width of the HCDF including increasing gradients, reducing crest level, and reducing crest width. For the reasons set out in the Design Report, increasing gradients to minimise the eastward extent and a reduction in the Eastern extent of the HCDF were considered but discounted. However, a 5m reduction in the width of the crest plateau in the Adaptive Design has been implemented. This reduction in width would apply along the entire North-South run of the HCDF and is shown on Figure 3.17. The baseline Permanent HCDF would in effect be repositioned 5m landward of its original position shown in the January 2021 Change submission.

The ExA's conclusions

- 5.8.113. The issue to be determined is whether or not the Proposed Development would constitute a breach of MIN 13.1 policy to 'Hold the Line to 2105' and if so, the implications for the SMP strategy for managing the coast [REP1-072]. The Final SoCG between the Applicant, ESC and SCC [REP10-102], sets out the Applicant's position which is that due to spatial constraints, it is not possible for the sea defences, in particular the HCDF, to comply with the SMP policy of 'Hold the Line'.

- 5.8.114. The Sizewell C Coastal Defences Design Report [REP8-096], considers the scope for minimising the eastward extent of the HCDF, either by moving it further inland, or by reducing its overall width. The Applicant concludes that it is not practicable to modify the operational platform position or configuration of the Proposed Development, nor the position of the outer security fence relative to the internal platform area to lessen the seaward extent of the sea defences.
- 5.8.115. The Applicant has considered a number of options to reduce the overall width of the HCDF including increasing gradients, reducing crest level, and reducing crest width. For the reasons set out in the Design Report, increasing gradients to minimise the eastward extent, and a reduction in the Eastern extent of the HCDF were considered but discounted. However, a 5m reduction in the width of the crest plateau in the Adaptive Design has been achieved which would apply along the entire North-South run of the HCDF.
- 5.8.116. The Final SoCG between the parties [REP10-102], indicates that this matter is not agreed, but ESC considers that non-compliance with SMP policy will be acceptable if the Applicant demonstrates that the HCDF is as landward as possible. ESC agrees that the matter can be dealt with through the discharging of the relevant dDCO Requirement, and that there is therefore a defined pathway to resolving such matters after the close of the Examination.
- 5.8.117. The ExA concludes that there would be a breach of SMP policy MIN 13.1, but we consider that, in the light of the information provided by the Applicant on this topic, the HCDF has been positioned as landward as possible. In addition, the dDCO Requirement 19 (formerly 12B) provides a means whereby the design details of the HCDF, including layout, would require ESC approval in consultation with the MMO and the EA before the commencement of that work which provides an additional opportunity for consideration of the detailed layout. Given those circumstances, we do not find that the Proposed Development would have any substantive implications for the overall SMP strategy for managing the coast.

Whether there is a need for a further Expert Geomorphological Assessment (EGA) to be carried out

The submissions of IPs

- 5.8.118. This is a matter that was raised by a number of IPs. For example, the National Trust's submission in lieu of attendance at ISH6 [EV-110], seeks a full EGA once all elements of the Proposed Development are defined and not subject to further substantive change. They consider it imperative to have a report that looks specifically at the totality of all the assessments into the individual components that have been undertaken to date so that the cumulative impacts of the Proposed Development can be acknowledged.
- 5.8.119. TASC's DL5 Post Hearing submissions including written submissions of oral case relating to ISH6 [REP5-297] submit that once the Applicant has prepared final definitive proposals, there should be an independent

expert assessment of the coastal geomorphology which is reported direct to the Planning Inspectorate.

- 5.8.120. The DL5 submission of Mr Bill Parker [REP5-191] is critical of the assumptions underlying the EGA including the use of RF conditions. The DL5 comments of Mr Nick Scarr on the oral submissions made at ISH6 [REP5-253, 254], also raises a number of issues including in relation to the EGA.

The Applicant's response

- 5.8.121. At ISH6 [REP5-111], in response to a suggestion from an IP that the design of the HCDF and SCDF should be subject to an independent review, the Applicant noted that the Examination has the benefit of the detailed review/assessment of those features and their impacts by ESC, the EA and the MMO. Each of these parties has a statutory responsibility in this area, and as a consequence is able to draw on its own internal expertise and experience when undertaking its independent review of the project's design and impacts. There is no reason to doubt their independence or to question the level of rigour with which they are undertaking their review.
- 5.8.122. The Applicant states that the EGA referred to in the ES was undertaken by an independent panel of experts with the right kind of knowledge and a good knowledge of the local coastline. The EGA's fundamental purpose was to establish whether mitigation was needed (to avoid HCDF exposure and the impacts it would entail). The EGA did show that the HCDF exposure could begin as early as 2053 without any mitigation, and the Applicant recognises that the SCDF mitigation is needed.

The ExA's conclusions

- 5.8.123. The ExA has considered whether there is a need for a further EGA to be carried out that would take into consideration all additional information and assessment that has been submitted on this topic, and provide an independent expert assessment of the issues. However, we do not find such an assessment to be necessary. We have had the benefit of the input provided by statutory consultees and other IPs, including expert evidence presented on their behalf during the Examination. In addition, the MTF (EA, MMO, ESC and NE) serves to provide independent scrutiny of the assessments, monitoring and mitigation during pre-application, the Examination, and post Examination. The ExA considers that this provides robust scrutiny of the Applicant's evidence, and that a further EGA would be superfluous.

The vulnerability of the coastline to erosion with particular regard to the role played by the Sizewell-Dunwich banks and the Coralline Crag outcrop

The submissions of IPs

- 5.8.124. At ISH6, [REP5-144] ESC confirmed that its position is aligned with that of the EA. The Sizewell-Dunwich banks and Coralline Crag play a key role in coastal processes for this region. ESC is satisfied that the Applicant's

investigation and identification of natural features that have potential to modify coastal processes is comprehensive and accurate. The Applicant's assessment of how the Sizewell-Dunwich banks and the Coralline Crag outcrop have and will continue to influence coastal processes is also accepted as comprehensive and accurate. However, ESC regard protection of the Crag from avoidable unnatural deterioration as a priority and seeks to include measures to secure its protection via the CPMMP.

- 5.8.125. The EA's written summary of oral submissions at ISH6 [REP5-148], states that the Sizewell-Dunwich bank complex is a major control on morphology in the Greater Sizewell Bay by restricting inshore wave height, as is the Coralline Crag both directly on beach morphology and indirectly through its role anchoring the Sizewell-Dunwich bank complex. The EA is satisfied that the work done looking at these features is robust, and provides a good understanding of the dynamics of these controls historically. There is no strong evidence to suggest the system would lose these controls in the lifetime of the project. Moreover, the latest beach erosion assessment work in TR545 [REP3-048] uses wave data from a buoy offshore of the Sizewell-Dunwich banks, and so effectively discounts the influence of the banks on wave height. This makes it suitably precautionary, and the outputs can therefore accommodate natural dynamics including fluctuations in bank crest elevation for the duration of the project. The CPMMP is the mechanism to pick up any other fluctuations in bank topography.
- 5.8.126. The DL6 submission of Mr Nick Scarr [REP6-068], states that: "*the safety of Sizewell C cannot be entrusted to an 'adaptive plan', if indispensable geomorphological receptors are not within the control of human agency*". He has also provided a summary of his papers [REP2-393, REP5-253 and REP7-219] in relation to the Sizewell-Dunwich banks. His DL8 and DL9 responses [REP8-248 and REP8-249, REP9-040] are also relevant.
- 5.8.127. The DL10 submission of Mr Nick Scarr [REP10-345] provides a response, to the Applicant's later assessment of the role of the Sizewell-Dunwich banks. In summary, he highlights the changing approach of the Applicant to the role of the Sizewell-Dunwich banks, and notes that the Applicant has now moved a stage further in late Examination by claiming that the loss of the Dunwich bank would be in fact, beneficial to the Proposed Development. He submits that this 'particular' appraisal, is tending to overlook historical precedent, empirical evidence, and accredited academic work; mainly the accredited academic work of the Applicant itself in the various BEEMS reports to which he refers. He submits that it is reasonable to conclude that the loss of the Dunwich bank is likely to result in a less felicitous outcome for the Sizewell and Minsmere shoreline than is now being presented at this somewhat late stage by the Applicant.
- 5.8.128. Mr Scarr contends that this gives rise to important points, firstly, there is no basis to assume resilience of the Dunwich bank as it has no hard geology. This also applies to significant areas of the Sizewell bank. In his view, there is no plausible mechanism that could justify the assumption

for the maintenance and preservation of the Dunwich bank over the next two 100-year episodes of coastal processes, the uncertainties of which can only be increased by climate change sea level rise and storm level change. In that respect, he refers to the Chatham House policy institute climate change study that challenges what is considered worst-case (conservative, precautionary) modelling [REP8-328].

- 5.8.129. His position is that should the Dunwich bank be lost, then the inshore wave climate will increase. This will result almost certainly in the depletion of the nearshore, longshore bars, resulting in areas of the Sizewell-Minsmere shoreline now being vulnerable to all storm levels, low, moderate and high, from the north-north-east, north-east and easterly which are the directions that are responsible for the significant and sudden erosive activity on this stretch of coastline with adverse effects including the flooding of the Sizewell and Minsmere wetlands immediately to the north of the Proposed Development. He submits that given the anticipated lifespan of the nuclear plant it would be reasonable and correct for conservative, precautionary modelling of flood risk and shoreline change to assume the possibility of significant depletion or loss of at least the Dunwich bank and nearshore bars, particularly as both wave relief offshore features are outside the control of human agency. He concludes that the Applicant's 'conservative, precautionary modelling', including a shoreline change assessment from Sizewell to at least Minsmere sluice, should be considering these scenarios.
- 5.8.130. The DL2 WR of Stop Sizewell C [REP2-449g] includes a response to the Applicant's BEEMS technical Report TR311 by Professor Derek Jackson and Professor Andrew Cooper. This includes a detailed criticism of the Applicant's consideration of the offshore stability of the Sizewell-Dunwich banks.
- 5.8.131. Mr Bill Parker's ISH6 submissions [REP5-191] indicate that he has no confidence that the Applicant has fully taken into account the potential failure of the Coralline Crag and the impact this may have on the coast. He stated that the Applicant has yet to define their methodology for 'ground improvement' that will be a key element in determining how resilient this structure will be in the long term.
- 5.8.132. TASC DL5 Post Hearing submissions including written submissions of oral case relating to ISH6 [REP5-297] state that they consider that the Applicant has not fully recognised the reduction in the protection provided by the Dunwich-Sizewell Bank if it erodes and/or we experience rising sea levels and increased storm surges. Storm conditions normally impact the Proposed Development site from a north-easterly direction, not an easterly direction as is currently modelled. TASC believe that the Applicant needs to model a more realistic scenario with reducing protection from the Dunwich-Sizewell Bank and storms arriving from a north-easterly direction.
- 5.8.133. TASC [REP6-079] in their comments on the Applicant's DL5 submissions on ISH6 submit that the Applicant cannot be certain that the Sizewell Coast will not revert to its historic state of extensive erosion. Rather than

undertaking comprehensive modelling which would be likely to show a greater risk of erosion, the Applicant is proposing a plan of adaptive management of the sea defences which, in TASC's opinion, is merely pushing any potential problems into the future. They contend that as Sizewell's offshore geomorphology cannot be controlled, there is a reasonable expectation that severe erosion is possible which means that catastrophic impacts could not be ruled out and adaptive management could not be relied upon as an effective tool.

- 5.8.134. The WR of the Minsmere Levels Stakeholders Group [REP2-377] also raise the issue of the Sizewell-Dunwich Bank and its role in reducing wave heights and wave energy reaching the shoreline at Sizewell C. The Final SoCG between the Minsmere Levels Stakeholders Group and the Applicant [REP10-114] indicates that their concerns relating to the role of the Sizewell-Dunwich Banks remains an area of disagreement.
- 5.8.135. Walberswick Parish Council [RR-1257] submits that the Applicant has not justified the assertion that coastal effects to the south will not extend beyond the Coralline Crag to the north of Thorpeness.

The Applicant's response

The Sizewell-Dunwich banks

- 5.8.136. At ISH6 [REP5-111], the Applicant explained that there is a complex geomorphic interplay between rising sea levels, and the effect that it has on erosion of cliffs in the area, particularly as far north as Covehithe. As time goes by, and sea levels rise, the cliffs erode, and a greater length of cliffs will become vulnerable (available for erosion). There is a general expectation that sediment supply will rise as a result of sea level rise. Sediment moves down the coast and the sediment transport pathways are such that the sandy component, a good percentage of it, arrives at the Sizewell-Dunwich Banks.
- 5.8.137. The Applicant submits that because of the complex interplay, it is not really possible to predict very well, exactly what will happen to the bank in future. This bank is moderately deep, and it has some sections that are really quite deep, in particular, between the Sizewell part and the Dunwich part of the bank. The modelling established that the bank's primary role, especially the shallower parts of it, are to effectively put a cap on those very large storm events, but less so for moderate and very regular energy arriving at the coast. The Applicant states that if, in the future, the bank does not keep pace with sea level rise, and does become deeper, the inshore wave energy will rise relative to the offshore wave energy.
- 5.8.138. The Applicant emphasises that an important point is that the UKCP18 climate change predictions show that the annual wave height and the annual maximum wave height, which effectively captures those largest storms, is predicted to decrease. The Written Submissions Responding to Actions Arising from ISH6 [REP5-118] provides further information in relation to UKCP18 and tidal range. Figure 2 shows that the increase in tidal range along the Suffolk coast that would be expected from a 2m sea

level rise is about 5cm. That level of increase in tidal range is very small compared with the existing tidal range at Sizewell of about 2.1m (between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS)). The Applicant contends that overall the effect of minor increases in tidal range is not considered to be likely to make a material change to the impacts and extents of the activities under the EIA as part of the coastal geomorphology assessment [APP-311].

- 5.8.139. At ISH6 [REP5-111], the Applicant explained that Cefas had used the BfE event as measured from outside of the sandbank, by the wave buoy and taken those conditions directly inshore (which effectively considers a no-bank situation).
- 5.8.140. The Applicant has also provided a response to CG.3.4 [REP8-116] in relation to the submissions of Mr Nick Scarr [REP6-068, REP2-393, REP5-253, REP7-219]. As regards the Sizewell Dunwich Banks, the Applicant submits that there is no identified pathway for the Proposed Development to impact the Dunwich Bank [APP-311], so no assessment is deemed necessary. Changes to the geomorphology of the banks through natural processes is most likely at Dunwich Bank, which is historically variable and not afforded the stable tidal and sediment circulation patterns that give rise to the stability observed at Sizewell Bank. The Applicant recognises that a significant reduction in Dunwich Bank could re-initiate the former severe phase of cliff erosion near Dunwich, and increase the supply of sediment to the southern Sizewell Bay, which historically resulted in shoreline accretion. The negative implications of natural changes in the offshore banks have been considered in BEEMS Technical Report TR544 [REP7-101] through the application of several layers of conservative calculations into the modelling and viability of the SCDF to account for uncertainty. This includes the modelling approach in BEEMS Technical Report TR545 [REP7-045] that excludes the bank, which is equivalent to a no-bank scenario. As the modelling without the bank demonstrates, offshore changes only influence (increase or decrease) the maintenance requirement for the SCDF, but do not affect viability.
- 5.8.141. The Applicant does not agree with the proposition that the Dunwich Bank represents a key driver to shoreline security. The Applicant contends that the safety of the Proposed Development would not rely on the stability of offshore geomorphology. The Applicant has tested the extreme conditions using a range of bank configurations (bank in situ, bank eroded, and bank fully removed) to determine which would result in the greatest risk of overtopping. This is discussed in Section 5.3 of Appendix A of the Coastal Modelling Report (Appendix 1 of the MDS Flood Risk Assessment (FRA) [APP-094] (epage 67)), where the assessment concluded that the Baseline scenario, i.e. with the Sizewell - Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with its removal and subsequently the assessment assumed a greater risk of overtopping. As such, the worst case scenario was adopted in the MDS FRA and the results presented in Table 4.1 of the MDS FRA Addendum [AS-157] (epage 55) show that for the basis of design event (1 in 10,000-year) with climate change allowances, the

HCDF would protect the site keeping the overtopping rates within a tolerable level.

- 5.8.142. On the question of how an adaptive plan would respond to the changes or loss of such features in the future, the Applicant acknowledges that natural events may precipitate changes in the SCDF maintenance regime, increasing it or decreasing it. However, as this is trigger based, it would already be specified in the CPMMP, and so is not part of the Adaptive Environmental Assessment and Management. The CPMMP will undergo regular review through the life of the Proposed Development, and any changes to monitoring extent or mitigation that are necessary can be made, if approved by ESC and the MMO.
- 5.8.143. The FRA also considered different bank scenarios to determine the worst-case bank scenario for the FRA (discussed in Appendix 1 of the MDS FRA [APP-094] (epage 67)) that would result in the greatest overtopping risk to the site, and as a result adopted a conservative approach. The EA confirmed at ISH11 (transcript for ISH11 Session 2 epage 3 [EV-196]) that they were content with how it was modelled, and how it was represented within the FRA. For coastal geomorphology, the modelling to test the viability of the SCDF excluded the influence of the Bank, increasing the conservative nature of the assessment. The EA agreed that this approach was suitable at ISH6 [REP5-148].
- 5.8.144. The Applicant does not agree that if the Dunwich bank is lost and the shoreline returns to a period of acute erosion, it would result in flooding of the Minsmere levels and Sizewell marsh with consequential flooding to the landward side of the platform. The Applicant contends that if Dunwich Bank were lost or substantially reduced (in extent or elevation) there is a greater potential for erosion of the shoreline around Dunwich and, importantly, the Minsmere – Dunwich Cliffs, resulting in a local increase in the supply of sand and pebbles (i.e., beach shingle) from the cliffs. This sediment would move south and could reduce erosion rates. Reduced erosion rates could tend to increase resistance to flooding over the Minsmere and Sizewell frontages.

The Coralline Crag

- 5.8.145. At ISH6 [REP5-111], the Applicant referred to the topography of the Crag as it extends out from the north side of Thorpeness towards Sizewell Bank as a series of north, northeast trending ridges. Those ridges are present in all of the bathymetric data sets that the Applicant has heading back to the 1830s, indicating that they are fairly stable and resilient. The Applicant states that as a morphological feature, there has been no change over the last 150 years, and it is not expected to change naturally over the life of the Proposed Development.
- 5.8.146. The Applicant's Written Submissions Responding to Actions Arising from ISH6 [REP5-118] provide further information in relation to the Coralline Crag. The Applicant submits that no activity undertaken by it will affect the robustness or integrity of the Coralline Crag outcrop at Thorpeness.

The ExA's conclusions

The Sizewell-Dunwich banks

- 5.8.147. As indicated above, there has been strong criticism made by various IPs in relation to the Applicant's assessment of how the Sizewell-Dunwich Banks and the Corraline Crag have and will continue to influence coastal processes. In contrast, ESC [REP5-144] is satisfied that the Applicant's investigation, and identification of natural features that have the potential to modify coastal processes is comprehensive and accurate. ESC also accepts that the Applicant's assessment of how the Sizewell-Dunwich Banks and the Coralline Crag outcrop have influenced, and will continue to influence coastal processes is comprehensive and accurate.
- 5.8.148. Likewise, the EA [REP5-148], is satisfied that the Applicant's assessment of these features is robust, and provides a good understanding of the dynamics of these controls historically. Furthermore, the EA advises that there is no strong evidence to suggest the system would lose these controls in the lifetime of the Proposed Development.
- 5.8.149. At ISH6 [REP5-111], the Applicant explained that the assessment carried out by Cefas on its behalf had used the BfE event as measured from outside of the Sizewell-Dunwich Bank, by the wave buoy and taken those conditions directly inshore (which effectively considers a no-bank situation). The EA [REP5-148], confirms that the Applicant's beach erosion assessment work in TR545 [REP7-045] effectively discounts the influence of the Sizewell- Dunwich Banks on wave height. It is content that the outputs could therefore accommodate natural dynamics including fluctuations in bank crest elevation for the duration of Proposed Development.
- 5.8.150. The Applicant has also provided further details on this matter in response to CG.3.4 [REP8-116]. The negative implications of natural changes in the offshore banks has been considered by the BEEMS Technical Report TR544 [REP7-101] through the application of several layers of conservative calculations into the modelling and viability of the SCDF to account for uncertainty. This includes the modelling approach in BEEMS Technical Report TR545 [REP7-045] that excludes the bank. The modelling without the bank demonstrates that offshore changes would only influence the maintenance requirement for the SCDF, and would not affect viability.
- 5.8.151. The Applicant [REP8-116] also explained how the CPMMP as an adaptive plan would respond to the changes or loss of such features in the future. As specified in the CPMMP, the response to changes in the SCDF maintenance regime which might be precipitated by natural events would be trigger-based. The CPMMP would undergo regular review through the life of the Proposed Development which means that any necessary changes to monitoring extent or mitigation could be made, if approved by ESC and the MMO.
- 5.8.152. Although IPs have highlighted the Applicant's change in approach to the role of the banks, and the potential consequences should they be lost, the ExA agrees with the EA that the Applicant's assessment is suitably precautionary. In addition, the CPMMP has been updated at DL10

[REP10-041], and section 2 includes monitoring techniques that are targeted to the elements of the coastal geomorphology receptor, namely, beach and shoreline position, longshore bars, and the Sizewell-Dunwich Bank. The ExA concludes that the CPMMP would provide an appropriate mechanism to pick up any fluctuations in bank topography, and that this is a matter that can be safely left to that process.

The Coralline Crag

- 5.8.153. The Applicant's assessment concludes that no activity undertaken by it would affect the robustness or integrity of the Coralline Crag outcrop at Thorpeness. Both the EA and ESC are satisfied with that assessment and the ExA finds no reason to disagree. However, in the light of ESC's outstanding concern, the ExA considers that measures to secure the protection of the Corraline Crag from avoidable unnatural deterioration should be included in the CPMMP. Indeed, the CPMMP has been updated at DL10 [REP10-041], and section 2 now includes targeted monitoring techniques, and it is proposed to extend the five-yearly background environmental monitoring of the Sizewell-Dunwich Bank to include the Thorpeness Corraline Crag outcrops, and ensure that any unexpected natural changes which may affect impact detection are detected.
- 5.8.154. The ExA has, of course, given careful consideration to all the submissions made on this topic. However, we conclude that the Applicant's assessment of these features is comprehensive and robust, and that appropriate mitigation would be provided by means of the CPMMP which in turn would be secured by the DCO/DML.

The spatial scale of the coastal processes assessment and whether the geomorphic context should be regarded as extending beyond Sizewell Bay

The submissions of IPs

- 5.8.155. At ISH6 and ISH11, IPs raised concerns about the geographical scope of monitoring and effects on the longevity of the Proposed Development.
- 5.8.156. For example, the Alde and Ore Association [REP5-187] submit that the Applicant's principles for coastal assessment are deficient in time and geographical extent. They contend that the Applicant has shown no understanding that the Suffolk coast is a geomorphological entity, and that its formation and evolution are involved in a continuous process so that any man-made obstacles such as the Proposed Development would cause damage along the coastline including possibly to Orford Ness, and the Alde and Ore River. They request that any monitoring and mitigation plan should have a wide geographical coverage going at least as far south as Shingle Street with time intervals for monitoring set appropriately.
- 5.8.157. The Alde and Ore Association [REP8-190] at ISH11, commented on the Applicant's modelling for the SCDF through decommissioning to 2140. In relation to longshore drift, they point out that the modelling still only relates to the Greater Sizewell Bay. Despite numerous references in the

Applicant's papers to the long shore drift²⁰, they submit that there is still no recognition of the fact that there is a net long-term transport south of the Greater Sizewell Bay. This is a dynamic coast with many changes in rates of erosion and deposition over time, and the drift exists as a matter of fact. It has contributed to the evolution of the coast further south including the Orford Ness shingle shoreline that forms and protects the eastern bank of the Alde and Ore Estuary. The particular concern of the Alde and Ore Association is that if that drift is cut off, the shingle will not be renewed but what there is on the Ness will continue to drift south thinning the shoreline of the unique Ness and protection for the estuary. They reiterate that data collection needs to be adequate to provide a benchmark for changes including along the coastline beyond the Greater Sizewell Bay.

- 5.8.158. Suffolk Coast Acting for Resilience (SCAR) [RR-1171] raise the issue of coastal erosion outside the narrow Sizewell Bay and the assumption that nothing will change south of the Great Sizewell Bay.
- 5.8.159. Stop Sizewell C (Theberton & Eastbridge Action Group) [RR-1162] also raise the potential for coastal effects to the south extending beyond the Coralline Crag to the north of Thorpeness.
- 5.8.160. Mr Bill Parker at ISH6 submitted [REP5-191] that the restricted and constrained areas of interest and timescales proposed by the Applicant, do not reflect the true impact that the Proposed Development would cause. He contends that the Applicant should include a wider geographical range of locations in the monitoring and mitigation proposals.

The Applicant's response

- 5.8.161. The Applicant's Written Submissions Responding to Actions Arising from ISH6 [REP5-118] note that the spatial scale of the monitoring would be a matter to be approved and adapted, if necessary, under the CPMMP [REP10-041] pursuant to Requirement 7A of the draft DCO [REP10-009] and Condition 17 of the DML.
- 5.8.162. The Applicant highlights that the key point to focus on is the impact that the Proposed Development would have. The Applicant's position is that it would not remove any sediment from the system, and would have very minor impacts in terms of magnitude and spatial extent. The reason why the Applicant has not focused beyond the Greater Sizewell Bay is because the impacts are contained very well within it. If the Applicant's modelling demonstrated there would be impacts that went beyond the boundaries of the area set in the scoping report (the Greater Sizewell Bay), then this would necessitate a need to look at a wider area.
- 5.8.163. The Applicant's response to CG.3.12 [REP8-116] refers to the submission of Mr Bill Parker [REP5-191] on this topic. The Applicant recognises the complexity of marine geomorphology, and the Sizewell Bay environment.

²⁰ See Footnote 21 on page 30 of REP7-101

In relation to the assessment of long-term impacts and, the potential for “*emergent behaviour*” from the natural environment, the Applicant indicates that considered from a systems perspective, the coastal geomorphic impacts of the Proposed Development would occur in the same spatial area, and would affect the same environmental variables in any given future scenario, (i.e. wave and tidal flows in the nearshore, and longshore sediment transport). The assessments that have been undertaken have established the scale, extent and significance of the impacts using standard EIA approaches. The effect significance has been classified as minor or negligible.

- 5.8.164. ‘Emergent dynamics’ were identified in the context of a shoreline displaying change behaviours which show no clear correlation with simplistic ‘linear’ representations of the hydrodynamic forcing. This complexity is recognised throughout Section 2 of Volume 2, Appendix 20A of the ES [APP-312], but particularly Section 2.4 in discussing future change.
- 5.8.165. For the impacts originating at the Proposed Development to influence the regional geomorphic system, local effects would need to radiate outwards from the point of impact. The proposed SCDF monitoring and mitigation is designed to avoid HCDF exposure and minimise any adverse impacts by avoiding disruptions to longshore sediment transport. Since the activities do not remove sediment from the system and do not impose barriers, the impacts would be small. As the impacts would be localised, have been minimised and confined (through design), and would be monitored and mitigated (if needed), they would not spread to a larger sub-regional or regional scale, and hence emergent behaviour at a systems level is not expected or predicted.
- 5.8.166. At ISH11, the Applicant [REP8-121] responded to concerns raised by IPs, including the Alde and Ore Association, as regards the geographical scope of monitoring and effects on the longevity of the proposals. The Applicant has examined the question of the shingle material, and whether it moves or not, and there is no potential for any effect to move around the headland. All effects would be contained, close to the station, well monitored. The Applicant would be able to see early, if any of the predictions were not correct, and would be able to adjust for those, if necessary.

The ExA’s conclusions

- 5.8.167. The ExA has had regard to the concerns expressed by IPs as regards the Applicant’s coastal assessment being deficient in relation to timescales and extent; that a wider area than Greater Sizewell Bay should have been considered in the light of coastal erosion outside that area; that the Applicant has shown no understanding that the Suffolk coast is a geomorphological entity, and in relation to the extent of the modelling for the SCDF.
- 5.8.168. However, the ExA notes that the study area was defined in agreement with the MTF. We are satisfied with the Applicant’s explanation in relation to its approach to these matters in the Written Submissions Responding

to Actions Arising from ISH6 [REP5-118], and in response to CG.3.12 [REP8-116]. That evidence strongly supports the view that the effects would be contained within Greater Sizewell Bay, and we find the Applicant's approach to focus upon that area to be entirely reasonable.

- 5.8.169. The Applicant's assessments have established the scale, extent and significance of the potential impacts using standard EIA approaches, and the effect significance was classified as minor or negligible. Hence, no significant effects are predicted by the ES. The ExA accepts that the impacts are likely to be localised; that they would be minimised and confined through design, and would be monitored and mitigated, if necessary. That all supports the conclusion that significant effects are not likely to occur at a larger sub-regional or regional scale, and emergent behaviour at a systems level is not expected or predicted.
- 5.8.170. At ISH11, the Applicant [REP8-121], in response to concerns raised by IPs in relation to the geographical scope of the SCDF modelling, clarified that the model domain has a total onshore length of 4.5km, centred on the proposed SCDF, not 3km in extent. The Applicant's assessment shows that the shingle material would be contained within Greater Sizewell Bay with minimal potential for any effect to move around the headland. The ExA agrees that the impacts are likely to be small, and the proposed monitoring extents are much larger than anticipated impacts. The ExA is also content that the Applicant would be able to see early, from the monitoring that would be secured through the CPMMP, if any of the predictions were not correct and would be able to adjust for those, if necessary. The ExA therefore finds the spatial scale of the Applicant's coastal processes assessment to be entirely reasonable, and proportionate in its extent.

Whether other locations, such as Southwold, Thorpeness and Aldeburgh, should be included in the baseline monitoring and mitigation proposals

The submissions of IPs

- 5.8.171. A number of IPs have expressed concern that the scheme could inhibit sediment flow or have an adverse impact on coastal processes at other locations and for that reason these other locations should be included in the baseline monitoring and mitigation proposals.
- 5.8.172. For example, Dr Kay Laskey [RR-0329] draws attention to existing rapid coastal erosion especially either side of the MDS at both Thorpeness, and Covehithe.
- 5.8.173. The National Trust's submission in lieu of attendance at ISH6 [EV-110], states that they believe the current monitoring and mitigation extent is far too limited and that this should include their frontage at Dunwich Heath.
- 5.8.174. The Alde and Ore Association Written Submission for DL5 providing commentary on ISH6 [REP5-187], submits that the CPMMP should have a wide geographical coverage going at least as far south as Shingle Street

with appropriate time intervals for monitoring. That proposition is supported by other IPs including Mr Bill Parker.

- 5.8.175. At ISH6 [REP5-144], ESC confirmed that it was satisfied that the spatial scale of the coastal processes assessment carried out to date is reasonable. However, ESC considers that the Sizewell Bay area should include the Thorpeness beach frontage given sediment transmission link between the areas. ESC submits that it is important to closely monitor any potential links to the Proposed Development that may change over time and suggests an alternative arrangement may be for the Applicant to provide funding to ESC to monitor the Thorpeness frontage.
- 5.8.176. The EA's written summary of oral submissions at ISH6 [REP5-148] indicates that it regards Blyth harbour arm to be an appropriate northern boundary for the immediate assessment area. It is aware of erosion pressure issues at Thorpeness Village linked to wave propagation as a result of the Sizewell-Dunwich sandbank and Coralline Crag. ESC is the lead authority for Thorpeness village, and the EA supports ESC's preference for an extension of monitoring to the south.
- 5.8.177. The MMO's letter in lieu of attendance at ISH11 [EV-142g] submits that due to the high uncertainty of the impact on the surrounding foreshores from the SCDF, the area coverage of the monitoring surveys proposed in the CPMMP should be carefully considered, and should possibly be extended further than initially indicated by the modelling to monitor impacts on the wider area.
- 5.8.178. TASC DL5 Post Hearing submissions including written submissions of oral case relating to ISH6 [REP5-297] indicate that they agree that assessments and monitoring should be extended much further south, at least to Slaughden, and north to Benacre Cliff.
- 5.8.179. The DL5 submission of SCAR [REP5-269] also submits that the spatial scale for baselining and monitoring is too narrow and should be broadened to include Benacre, and Shingle St. They support the position of the Alde and Ore Association in that respect.

The Applicant's response

- 5.8.180. The Applicant's written summary of oral submissions made at ISH6 [REP5-111] explain that monitoring and consideration of the extents is really about tracking the impacts, to understand if their predicted impacts are correct. This means that everything is within the scope of an adaptive monitoring plan that is able to respond if it proves that the modelling is incorrect. The effects on sediment transport would begin at the Proposed Development site. If they were persistent, they would radiate out from that point generally in a southerly direction concordant with the net sediment transport, although there would be a small degree of potential impact going northward under individual south-southeast storms.
- 5.8.181. The Applicant emphasises that the transmission of impacts is the important element, not the transmission of sediment. The reason that

the Applicant disagrees with ESC, about the monitoring of the area around the Thorpeness village is that Cefas have not seen any evidence with respect to the pebbles that would have an impact reaching anywhere near close to that location. The monitoring plan is designed to capture any movement, and, in both directions, it is a long way away from the concerned sites.

- 5.8.182. The Applicant asserts that if the predicted impacts proved to be incorrect, then the monitoring would extend over a wider area. The whole region is monitored by the East Anglian Monitoring Programme. This provides a long and excellent (baseline) record that could be drawn upon if the predicted impacts were much, much larger than anticipated. The Applicant has also applied very wide buffers around these impacts. The Applicant is not expecting that they would go outside of those extents, but if they did, then the monitoring would be adjusted accordingly.
- 5.8.183. The Applicant provides further details in its response to CG.3.8 [REP8-116] which refers to the ESC submissions in its 'Comments on the CPMMP Revision 2 [REP5-059]', [REP6-032]. The Applicant maintains the view that there is no identified pathway for the Proposed Development to impact the Thorpeness or Minsmere frontages. This site is a well-studied location and therefore it is inappropriate to use a fixed multiplication factor that disregards location, coastal processes, uncertainty, existing understanding of the site and Value, as proposed in ESC's DL6 submission [REP6-032].
- 5.8.184. The Applicant also explains that the monitoring area is a function of impact extent, and it is standard practice in setting survey areas to elucidate the full extent of the impact before determining the relevant spatial scale of survey effort. For Sizewell, there has been significant monitoring effort over many years, employing a range of different novel and traditional techniques to determine the full scale of potential effects. As the CPMMP is adaptive then should impacts approach or exceed the monitoring extents, they would be expanded as necessary.

The ExA's conclusions

- 5.8.185. The ExA recognises that this is a matter of great concern to many IPs. The ExA has also visited Thorpeness and seen the extent of the coastal erosion in that location. Against that background, we note the EA's [REP5-148] reference to erosion pressure issues at Thorpeness, and their support for ESC's preference, as lead authority for Thorpeness village, for an extension of the proposed monitoring, and mitigation to the south.
- 5.8.186. Following ISH6 [REP5-118], the Applicant explained that if the predicted impacts proved to be incorrect, then the monitoring would be adjusted accordingly over a wider area. The East Anglian Monitoring Programme already provides a baseline record that could be drawn upon, if required. The ExA also notes the Applicant's response to CG.3.8 [REP8-116] and we agree that for this location it would be inappropriate to use a fixed multiplication factor, as proposed by ESC. Since the CPMMP is adaptive, the ExA is content that should the impacts approach or exceed the

monitoring extents, then this would provide an appropriate means for the extent of the monitoring to be expanded as necessary.

- 5.8.187. The MMO letter in lieu of attendance at ISH11 [EV-142g] raises the issue of the uncertainty of the impact on the surrounding foreshores from the SCDF, and suggests consideration of the possible extension of the area coverage of the monitoring surveys proposed in the CPMMP beyond that initially indicated by the modelling. However, the Final SoCG between the MMO and the Applicant [REP10-107] records the assessment of impacts associated with the SCDF as having been resolved with the change in default position in the CPMMP to native particle size which also impacts upon the case for monitoring of a wider area.
- 5.8.188. The ExA concludes that it is not necessary or reasonable to require other locations to be included in the baseline monitoring and mitigation proposals and that the CPMMP would provide a satisfactory means of achieving that outcome in the unlikely event that impacts would be greater in extent and nature than predicted.

The potential impacts upon the Minsmere frontage, and the role of the Minsmere sluice

The submissions of IPs

- 5.8.189. There have been concerns raised by various IPs in relation to this topic. For example, the East Suffolk Internal Drainage Board (ESIDB) initially raised concerns in relation to the Minsmere Sluice and whether it would be negatively impacted by the Proposed Development, including through changes in sediment flow along the coast [RR-0345]. The Final SoCG between the Applicant and ESIDB [REP10-093] confirms that they defer to the EA assessment of that matter.
- 5.8.190. The EA at ISH6 [REP5-148] noted that the SCDF is presented as having a minor beneficial effect to the Minsmere frontage. They explained that under normal conditions, there will be a supply of sediment to the north at Minsmere frontage. In the case of southerly dominated sediment transport, it should still offer a minor beneficial effect due to the retention of naturally placed material. Sediment transport is restored by artificial placement, but at that time this had been demonstrated only up to the year 2099. They did not anticipate significant impact on the Minsmere Sluice which faces two challenges in the long term; coastal erosion, and the ability to drain the sluice by gravity because of sea level rise. The EA has conducted various assessments, most recently as part of the refurbishment of the outfall in 2013, which has suggested a residual life of 50 years+. The work they did in 2013 has a design life of 20 years before the next capital refurbishment. They believe it is reasonable to anticipate being able to maintain the Minsmere Sluice in the current situation for 50 years. The work undertaken in 2013 only addressed issues relating to the landward aspects of the sluice chamber. They anticipate significant works may be needed over the 50 year timeframe to the outfall elements of the sluice structure.

- 5.8.191. At ISH6 [REP5-144] ESC confirmed that it was generally satisfied with the Applicant's assessment of potential impacts on the Minsmere frontage of the HCDF, as shown in report TR311 [APP-312] section 7, and of the BLFs, in TR543 [PDB-010]. ESC is content with the Applicant's assessment of how future changes in the condition of the Minsmere sluice outfall might affect the Proposed Development site.
- 5.8.192. At ISH6 the RSPB and SWT [REP5-163] stated that their main concern, and they are aware that NE has also raised concerns around this interest feature, is that the vegetated shingle that is currently present along that southern Minsmere frontage, which is an internationally important recognised feature, part of the Minsmere to Walberswick Heath and Marshes Special Area of Conservation (SAC) and Minsmere-Walberswick Ramsar feature did not appear to have been acknowledged. The vegetated shingle feature is related to the dynamic processes of the beach frontage, and particularly to the supra-tidal shingle - the finer grain shingle and sand that moves around on that frontage and some of the mitigation measures could impact on the movement of the supra-tidal shingle, and ultimately, therefore, impact on the vegetated shingle interest feature. They want to make sure that this is taken into consideration as part of the coastal processes monitoring. The final position of the RSPB and SWT on this matter is set out in the Final SoCG between them and the Applicant [REP10-111]. The final position of NE on this topic is set out in the Final SoCG between NE and the Applicant [REP10-097].
- 5.8.193. Mr Bill Parker at ISH6 [REP5-191] contended that more information was necessary from the Applicant so that a full and complete analysis of its proposals in relation to the Minsmere Sluice could be undertaken and assessed.
- 5.8.194. Theberton and Eastbridge Parish Council [REP5-287] question whether the Applicant's modelling is with the Sizewell-Dunwich Bank removed, as a result of using the wave rider buoy, to give the wave climate from outside the Sizewell-Dunwich Bank complex on the inshore wave climate. If that is the worst case, then if the impacts are still low according to that modelling and the FRA, they acknowledge that that would be a significant piece of information.

The Applicant's response

- 5.8.195. At ISH6 [REP5-111] the Applicant explained that the basis for identifying a potential beneficial impact on the very southern part of the Minsmere frontage is that the SCDF would be supplying shingle material to the coast that it would otherwise not receive. There would become a point where natural erosion would lead to a sediment trap for both natural sediments and sediments sourced from the SCDF.
- 5.8.196. The Applicant's response to CG.3.0 [REP8-116] provides further information in relation to the Minsmere Sluice. The Minsmere Sluice Operation and Impacts Review, at paragraph 1.5.26, [Appendix M to REP6-024], sets out the reasons why the Applicant considers that the potential accretion on the Minsmere frontage arising from the deposition

of SCDF sediments would not extend to the sluice, and hence would not affect the sluice's ability to discharge. The evidence for each point (a) to (c) of the Minsmere Sluice Operation and Impacts Review paragraph 1.5.26 [Appendix M, REP6-024] is contained in Section 2.3.4.2 of Volume 2, Appendix 20A of the ES [APP-312].

- 5.8.197. The existing coastal processes, and the relatively small volumes of sediment added by the SCDF do not support transport to, nor cause deposition at, the sluice that could interfere with its operation. The evidence for this derives from:
- the literature on longshore transport (all studies indicate net southward transport – that is away from the sluice, not toward it; Volume 2, Appendix 20A of the ES [APP-312]) and
 - the Applicant's shingle transport study synthesised in Section 2.3.4.2 of Volume 2, Appendix 20A of the ES [APP-312].
- 5.8.198. Furthermore, the Applicant contends that the sediment available for transport during storms is effectively the same with and without the SCDF as waves can only mobilise sediment from the exposed beach face.
- 5.8.199. The Applicant states that, as explained in Section 2.1 and the photographs shown in Figure 2 of BEEMS Technical Report TR544 [REP7-101], the sluice's outfall pipe cuts directly through the beach and runs to about 30m seaward of the shoreline. As a result, it is a barrier to longshore sediment transport and acts like a groyne causing a build-up on the updrift side and erosion downdrift (which reverses with storm direction). Although some beach shingle can pass over the outfall pipe (above the high tide mark) and subtidal sands pass around its 30m protrusion into the sea, sub-aerial beach sediment will continue to be locally trapped until the barrier – the outfall pipe – is removed or naturally decays. Furthermore, at ISH11 [REP8-156] the EA agreed that the activities associated with the Proposed Development, and specifically the SCDF, would not affect the sluice's ability to discharge.
- 5.8.200. The Applicant's position in relation to the RSPB/ SWT outstanding concerns relating to the shingle particle size and the potential effects on the supra-tidal shingle and associated ecological interest are set out in the Final SoCG between the parties [REP10-111]. Likewise, for the outstanding areas of disagreement with NE in relation to impacts from changes to coastal processes, with a particular concern being particle size and habitats, the Applicant's position is set out in the Final SoCG with NE [REP10-097].

The ExA's conclusions

- 5.8.201. The Minsmere Sluice Operation and Impacts Review, paragraph 1.5.26, [Appendix M to REP6-024], sets out the reasons why the Applicant considers that the potential accretion on the Minsmere frontage arising from the deposition of SCDF sediments would not extend to the sluice, and hence would not affect the sluice's ability to discharge. It identifies where the evidence to support the points made in the Review can be found. This matter is further explained in response to CG.3.0 [REP8-

116], and reliance is also placed upon section 2.1 and the photographs shown in Figure 2 of BEEMS Technical Report TR544 [REP7-101].

- 5.8.202. The ESIDB initially raised concerns in relation to the Minsmere Sluice, and whether it would be negatively impacted by the Proposed Development [RR-0345]. However, the Final SoCG between the Applicant and ESIDB [REP10-093] confirms that they defer to the EA assessment of the effect. Likewise, ESC defer to the EA's opinion on the matter.
- 5.8.203. The EA at ISH6 [REP5-148] confirmed that they did not anticipate any significant impact on the Minsmere Sluice. They believe it is reasonable to anticipate being able to maintain the Minsmere Sluice in its current situation for 50 years, although they anticipate significant works may be needed over the 50 year timeframe to the outfall elements of the sluice structure. Likewise, at ISH11 [REP8-156], the EA did not dispute that the activities associated with the Proposed Development, including the SCDF, would not affect the sluice's ability to discharge.
- 5.8.204. In relation to the Theberton and Eastbridge Parish Council [REP5-287] query regarding the Applicant's modelling, the ExA notes that the EA considers that the Applicant's modelling using wave data from a buoy offshore of the Sizewell-Dunwich Banks, effectively discounts their influence on wave height. We agree and are content that the modelling has assessed that scenario.
- 5.8.205. The concerns of the RSPB and SWT [REP5-163] and NE relate to the vegetated shingle feature and particularly the supra-tidal shingle that is currently present along that southern Minsmere frontage, which is an internationally important recognised feature, part of the Minsmere to Walberswick Heath and Marshes SAC and Minsmere to Walberswick Ramsar feature. This matter is considered elsewhere in this Report in the Biodiversity and Ecology Terrestrial section 5.6 of Chapter 5 and in the HRA Chapter 6 of this Report.
- 5.8.206. The ExA considers that the Applicant has provided the necessary evidence to support the conclusion that since the Proposed Development would not affect the wave and tidal flows that determine the quantity of sediment which reaches this location, the natural function of the sediment transport around the sluice outfall would not be affected by it. We conclude that the Proposed Development would not affect the sluice's ability to discharge.

For the permanent BLF, during the construction phase, the impacts of any dredging, and the barge berthing platform

The submissions of IPs

- 5.8.207. The operational impacts of the permanent BLF in terms of dredging were raised in the ESC/ SCC Joint LIR [REP1-045]. At ISH6 [REP5-144] ESC confirmed that it was generally satisfied with the conclusion of the Applicant's assessment of potential impacts during the construction phase of any dredging associated with installation and operation of the

permanent BLF, and the installation and operation of the barge berthing platform stated in TR543 [PDB-010].

5.8.208. The MMO Post Hearing submissions including written submissions of oral case [REP6-039] indicate that there could be impacts on coastal geomorphology from dredging at the permanent BLF during construction. Although the Applicant states that ploughed sediment will disperse due to the wave conditions, the MMO has concerns that some of the coarser sediment could remain where it is ploughed to. This could result in a bed feature with potential to alter the near shore wave conditions. This is more likely to be a risk due to the initial capital dredge, or for the first maintenance dredge in advance of the season of operations. Therefore, the MMO recommends the outcome of the initial capital dredge is monitored. If it can be confirmed that all of the ploughed material disperses then the issue could be considered dealt with. The MMO advises that additional surveys three months and six months after the initial capital dredge should be undertaken to monitor this. Additionally, the CPMMP states that the overall bathymetry of the banks will be surveyed within the background monitoring programme, that is to say, once every five years. It is the MMO's view that five years would be too long to alert the Applicant to any unexpected changes which can occur in a dynamic marine environment, at least during the early years of the construction programme. As there is uncertainty in the response of the outer longshore bar to the continued maintenance dredging related to the permanent BLF, the MMO advises that there should be annual surveys for the duration of the construction phase to monitor the outer longshore bar.

5.8.209. The NE comments on revision 4 of the draft DCO/DML [REP5-159] question the assessment of the use of temporary rock construction or jack-up barge and indicate that this has not been assessed in the ES marine ecology chapter.

The Applicant's response

5.8.210. The Applicant's Written Submissions responding to actions arising from ISH11: Flooding, Water and Coastal Processes [REP8-125], responds to the MMO's letter in lieu of attendance [EV-142g]. As regards dredging and scour monitoring, the MMO letter described concerns around the frequency of monitoring dredge impacts on the nearshore bars, scour protection around nearshore outfalls, scour around the offshore structures and target accuracies of the beach volume measurements. The Applicant confirmed that all these matters would be addressed by the final draft of the CPMMP to be submitted at DL10 [REP10-041].

5.8.211. In response to CG.3.9 [REP8-116], which refers to the MMO's comments in relation to the permanent BLF during the construction phase and the impacts of any dredging and the barge berthing platform, the Applicant agrees to monitoring the nearshore zone including the longshore bars on an annual basis during the construction phase. This commitment has been secured by the draft CPMMP revision for DL10 [REP10-041].

- 5.8.212. The Applicant has also provided a response to CG.3.3 [REP8-116] which considers the NE comments on revision 4 of the draft DCO/DML [REP5-159] which highlight that the use of temporary rock construction or jack-up barge is not assessed in the Marine Ecology Chapter of the ES. The Applicant explains that jack-up barges would be required for the installation of mooring dolphins associated with the BLF ([AS-181] see Table 2.37). The impacts of the jack-up activities at the terminus of the BLF are anticipated to occur within the footprint of dredge activities. Dredging activities associated with the BLF are outlined in Table 2.42 of [AS-181]. The use of jack-up barges to construct the BLF was not assessed in the Marine Ecology Chapter but was assessed in the Coastal Geomorphology and Hydrodynamics Chapter of the ES [APP-312] in relation to scour at section 20.8.9 which states that: *"The impacts of a jack-up barge would be equivalent to that of the BLF structure (presence of piles), albeit for a substantially shorter duration, and so would not be significant. The jack-up barge would have minor hydrodynamic effects around the legs and would not be present for long enough to allow equilibrated scour pits to develop. It would have a negligible effect (not significant) on the outer longshore bar near the mooring dolphin locations."*
- 5.8.213. At the Marine Bulk Import Facility (MBIF), a jack-up barge will be used for the installation (and removal) of the mooring dolphins as these are too far from the BLF decks to use a cantilever installation method ([AS-181] see Table 2.38). Section 2.2.82 of [AS-181] specifies that *"with the exception of the mooring dolphins, which would be installed using a jack-up barge, the temporary BLF [MBIF] would be predominantly constructed without placing construction vehicles into the sea."*
- 5.8.214. The Applicant indicates that no dredging on the seabed is required for the MBIF. The presence of the jack-up barge and anchor chains would result in localised surface and sub-surface abrasion in the soft sediment environment near the mooring dolphins of the MBIF. The predicted depression and scour pit resulting from the jack-up spuds as well as infilling rates has been modelled (Appendix 20A [APP-312], see paragraphs 4.2.1.3 and 4.3.1.2). Results showed that scour is likely to occur over a very small area, and in the worst-case scenario, infilling rates are such that changes to the seabed would be short term.

The ExA's conclusions

- 5.8.215. The ESC/ SCC Joint LIR [REP1-045] initially raised concerns in relation to the impacts of the permanent BLF and associated need for dredging. At ISH6 [REP5-144] ESC confirmed that it was generally satisfied with the conclusion of the Applicant's assessment of potential impacts during the construction phase of any dredging associated with the permanent BLF and barge berthing platform stated in TR543 [PDB-010]. The Joint LIR Review [REP10-183] confirms that the Councils agree with the assessment conclusions for the BLF and MBIF. Thus, the Councils concerns in relation to this issue have been resolved.
- 5.8.216. At ISH6, the MMO [REP6-039] submitted that there could be impacts on coastal geomorphology from dredging at the permanent BLF during

construction. The MMO made recommendations in relation to monitoring and the carrying out of additional surveys.

- 5.8.217. The Applicant's Written Submissions responding to actions arising from Issue Specific Hearing 11: Flooding, Water and Coastal Processes [REP8-125] in response to the MMO's letter in lieu of attendance [EV-142g] confirms that in relation to dredging and scour monitoring, that all the matters raised by the MMO would be addressed by the final draft of the CPMMP [REP10-041]. In response to CG.3.9 [REP8-116], the Applicant confirms that it agrees to monitoring the nearshore zone including the longshore bars on an annual basis during the construction phase and to include this commitment in the updated CPMMP [REP10-041].
- 5.8.218. The SoCG between the Applicant and the MMO [REP10-107] for coastal geomorphology and hydrodynamics, records all items as being agreed. The ExA concludes that the monitoring and mitigation provided for by the CPMMP and secured by the dDCO would provide the necessary safeguards in relation to impacts and effects of any dredging associated with the permanent BLF/ MBIF or barge berthing platform.
- 5.8.219. As regards NE's concerns relating to the ES assessment of the jack barge, the Applicant has provided a full response in CG.3.3 [REP8-116]. This explains that the use of jack-up barges to construct the BLF was assessed in the Coastal Geomorphology and Hydrodynamics Chapter of the ES [APP-312] in relation to scour. The ExA is satisfied that the required information in relation to impacts on coastal geomorphology arising from this issue has been submitted. Furthermore, the outcome of the assessment does not reveal any significant effects that would be associated with the jack-up barge activities either in connection with the BLF or the MBIF. The ExA finds no reason to question that conclusion. The HRA aspects of the matters raised by NE are considered in Chapter 6 of this Report.

Cumulative impacts

The submissions of IPs

- 5.8.220. The assessment of cumulative impacts of the marine components was a matter raised by various IPs during the Examination. For example, at ISH6 the EA's position [REP5-148] was that with regards to the BLF, HCDF and SCDF, they could not scrutinise the combined effects of the Proposed Development at that stage because of outstanding modelling. As regards cumulative effects with other projects such as EA1N and EA2 wind farms, they could not make an informed judgement until all the modelling had been completed and designs finalised.
- 5.8.221. The SoCG between the Applicant and the EA [REP10-094] records as an area of disagreement the assessment of the combinations of spatially and temporally overlapping marine components as described in section 20.11 Volume 2 Chapter 20 of the ES. The EA's position is that whilst it is comfortable with the assessment relating to a number of the components of coastal and marine infrastructure such as the BLFs and the cooling water infrastructure, it cannot agree with the full assessment of

cumulative impacts due to their residual concerns around the modelling of the coastal defences.

- 5.8.222. The DL2 WR of Stop Sizewell C [REP2-449g] includes a response to the Applicant's BEEMS technical Report TR311 by Professor Derek Jackson and Professor Andrew Cooper. This includes a detailed criticism of the cumulative environmental assessment for coastal geomorphology.
- 5.8.223. TASC DL5 Post Hearing submissions including written submissions of oral case relating to ISH6 [REP5-297] state that once the Applicant has provided a complete set of proposals for all matters affecting the coast and coastal processes, then they would like to see an overall assessment of the cumulative impacts of the Proposed Development, as well as an assessment of the cumulative impact with other major projects affecting East Suffolk.
- 5.8.224. Mr Bill Parker at ISH6 [REP5-191] submitted, in relation to cumulative impacts, that there needs to be a recognition that Sizewell Bay is a complex and dynamic environment and a need to focus on the long-term impacts taking account of integrated system elements of the design and response from the natural environment. They cannot be assessed and will not operate in isolation from one another.

The Applicant's response

- 5.8.225. The ES Chapter 20 [APP-311] considers project wide interrelationship effects at section 20.11. In summary, this concludes that the combination of vessel anchoring scour and scour protection at the Combined Drainage Outfall (CDO) could increase the impact extent on the seaward side of the outer longshore bar. Finally, the piles and the reprofiled bed (when the BLF is in use), and the docked barge and scour around the CDO, could increase localised impacts on the hydrodynamics and lowering of the inner-longshore bar. However, the effects classification is considered to remain not significant due to their short-term and localised extent.
- 5.8.226. The Fourth ES Addendum [REP7-030], in relation to coastal geomorphology concludes that the additional (individually negligible) impacts of the desalination works do not affect the potential for cumulative impacts, hence the original assessment presented in Volume 10, Chapter 4 of the ES [APP-578] as updated by the First ES Addendum, Volume 1, Chapter 10 [AS-189] is considered to still be appropriate and the measures in the CPMMP sufficient to capture and remedy any potential effects.
- 5.8.227. In response to Cu.3.0 [REP8-116], the Applicant confirms that the updated modelling of the SCDF included in BEEMS Technical Reports TR544 and TR545 [REP7-101 and REP7-045] has not caused it to revise its position in relation to cumulative impacts and so the assessment of cumulative impacts provided in the First ES Addendum, Volume 1, Chapter 10 Project wide, cumulative and transboundary effects [AS-189] remain its position. This is that the likely significance of cumulative effects are assessed as minor (not significant) but in recognition of

uncertainty with regard to longshore bar dynamics, provision for monitoring of these features (and mitigation if required) is made within the CPMMP [REP5-059].

- 5.8.228. The final SoCG between the Applicant and the EA [REP10-094] in relation to coastal processes identifies the assessment of combinations of spatially and temporally overlapping marine components, as described in the ES section 20.11 of Volume 2 of Chapter 20 [APP-311], as an issue that is not agreed. The Applicant's position is that the modelling demonstrates maintenance of the SCDF is viable under all scenarios tested to date including RCP8.5. The Applicant submits that the EA concerns appear solely based on the viability of maintaining the SCDF which is independent of any other element of the Proposed Development.

The ExA's conclusions

- 5.8.229. Whilst the Applicant maintains that the cumulative impacts would not be significant, in recognition of uncertainty with regard to longshore bar dynamics, provision for monitoring of these features (and mitigation if required) is made within the CPMMP [REP5-059].
- 5.8.230. The EA could not at the close of the Examination agree with the full assessment of the cumulative impacts owing to their residual concerns around the modelling of the coastal defences [REP10-094]. Whilst further work was planned by the Applicant to address some of these concerns, the results of this work was not available for the EA to comment on during the Examination.
- 5.8.231. The ExA has given serious consideration to the concerns raised by IPs in relation to the fragility of the coastline, and the potential cumulative impacts of the Proposed Development. Whilst the ExA notes the EA's concerns in relation to the perceived gaps in the modelling, we consider that the CPMMP would provide an appropriate mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work which has been undertaken, including any additional cumulative impacts. However, as indicated above, the Secretary of State may wish to consult with IPs in relation to the information provided by the Applicant at DL10 [REP10-124], and obtain confirmation from the EA that this now meets the gaps in the assessment identified by them, and their remaining concerns in relation to cumulative impacts before reaching a final decision.

The adequacy of the proposed climate change adaptation measures, and the resilience of the Proposed Development to ongoing and potential future coastal change during the Project's operational life and any decommissioning period:

The scope for the HCDF to undergo design adaptation to maintain nuclear safety against predicted sea level rises

The submissions of IPs

The Adaptive Design

- 5.8.232. A number of IPs have raised strong concerns in relation to the design of the HCDF. At ISH6, ESC [REP5-144], indicated that their interest in the adaptive design relates to coastal processes rather than nuclear safety, which is the subject of a separate regulatory regime. ESC consider that there is scope for the HCDF to undergo design adaptation but any seaward movement of the toe of the HCDF may give rise to an adverse impact on coastal processes, which needs to be assessed. ESC expressed concerns over the seaward extent of the HCDF and that the foundation for the HCDF is unusually high for such a feature. This gives rise to a concern that if it becomes exposed, this may require an early adaptation for the feature that would not otherwise be required by sea level rise alone. The profile of the Adaptive HCDF is also of concern. If it is required to raise the profile, it will move both the HCDF and the SCDF further seawards and further into the inter-tidal zone. ESC queried the 'buildability' of an Adaptive profile many decades into the future when shoreline change may have made the HCDF intertidal part a marine structure [REP3-032, REP2-116].
- 5.8.233. ESC have concerns that a change in shoreline over the life of the Proposed Development has the potential to put at risk the foundation level of the HCDF feature based on current designs. ESC are also concerned that potentially the HCDF with SCDF in front, both in the original design and adaptive design, might become a promontory with erosion of the surrounding shoreline moving behind it.
- 5.8.234. At ISH6 [REP5-180] Woodbridge Town Council raised the issue of the HCDF toe depth and extent, as it is crucial to the toe not being undermined so as to prevent unravelling of the rock slope. They made the point that the adaptive design includes a deeper and wider toe to be built, but it would be sensible to construct that deeper, wider buried toe now, as matters such as sea level rise and the SCDF could pose construction difficulties in the future. As regards the foundations for the HCDF, they submit that raising an embankment on peat requires more than just considering traditional foundation and slope behaviour that one gets with traditional sand, silt, and clay foundations. Many ground improvement techniques struggle to cope with this type of foundation behaviour and can fail in their function due to displacements. Notwithstanding such potential failures, the embankments would have a propensity to become compromised through the peat's behaviour. They contend that it is likely that this would also compromise the rock armour and therefore impact on the coastal processes. Finally, without the details of the ground improvement, the impact on coastal processes and geomorphology if the HCDF is removed, cannot be assessed. They contend that there is need for the ground improvement design to be provided by the Applicant, so this can be looked at with regard to the coastal process and future geomorphology of the coast.
- 5.8.235. The submission of Mr Bill Parker [REP5-191], questions the methodology for 'ground improvement' that will be a critical element in determining the resilience of the development in the long-term.

- 5.8.236. TASC DL5 Post Hearing submissions including written submissions of oral case relating to ISH6 [REP5-297] raise concerns including how far seaward the proposed HCDF would be built; the seaward position and risk to the toe being undermined by the sea; potential impacts on coastal processes in the event that the height of the sea defences needs to be raised in line with the adaptive design involving the toe being moved towards a rising sea level; and the apparent lack of assessment relating to the construction of the HCDF on soft (peat) ground.
- 5.8.237. The Minsmere Levels Stakeholders Group in the Final SoCG with the Applicant [REP10-114] note that the Applicant's submission [REP8-096] shows the HCDF moved back from the coast by 5m but they record that only the northern half has been shown and updated with the new position of the permanent BLF compared to prior versions.

Modelling relating to the detailed design of the adapted HCDF

- 5.8.238. The Alde and Ore Association [REP8-190] raise concerns in relation to the modelling for the detailed design of the adapted HCDF. They state that there is no recognition of the long-shore drift south of Greater Sizewell Bay. In recent public announcements, the Applicant stated that the concerns about the eroding coast were groundless because neither Sizewell A nor Sizewell B had been inundated. However, the design required for the HCDF and SCDF is necessary as the Proposed Development cannot be built on higher ground, of which there is none left north of Sizewell B. Instead, it has to be on land at or close to sea level which needs to be dug out and replaced with firmer foundation material. The need for an extensive HCDF and SCDF is recognition that the basis for building the Proposed Development is very different. They assert that it also remains a fact the HCDF will protrude out into the sea because the shoreline is eroding, and this protrusion will have potential negative effects on the longshore transport of material.
- 5.8.239. The SoCG between the Applicant and the EA [REP10-094] records as an area of disagreement the assessment of impacts associated with the HCDF as described in section 20.6 Volume 2 Chapter 20 of the ES and Appendix 20A. The EA is pleased to see that modelling has been extended to 2140 and includes the adaptive design under RCP8.5 sea level projection and they are in agreement with a number of the conclusions in the assessment. However, the EA takes the view that the latest modelling work has not yet considered the full range of reasonable worst case scenarios. They note that the CPMMP represents an important mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work and that this approach is in line with best practice for addressing uncertainty.

The Applicant's response

The Adaptive Design

- 5.8.240. The Written Submissions Responding to Actions Arising from ISH6 [REP5-118] Appendix A: Coastal Defences – Reduction in Seaward extent explain that the Applicant has continued to evolve the seaward extent of

the HCDF in response to stakeholder concerns and is reducing the seaward extent of the permanent HCDF in two ways: firstly, by paring back the main permanent HCDF frontage along the beach by 5m, and secondly, by paring back the HCDF at the intersection with the BLF by 15m, to align with the reduced seaward extent.

- 5.8.241. The Sizewell C Coastal Defences Design Report [REP8-096] considers the scope for minimising the eastward extent of the HCDF by moving the HCDF further inland or reducing its width. The Design Report concludes that it is not practicable to move the HCDF further inland. However, as indicated above, a 5m reduction in the width of the crest plateau in the Adaptive Design has been implemented.
- 5.8.242. The Sizewell C Coastal Defences Design Report [REP8-096] also provides an update on the proposed design on the HCDF and a description of the Adaptive Design is set out at section 3.11. This explains that the HCDF is designed to protect the Proposed Development from a 1 in 10,000yr storm event with RF climate change effects up to the end of its design life in 2140. Due to the inherently uncertain nature of climate change, the Applicant recognises that the RF climate change scenario may be exceeded, leading to more onerous climate change effects becoming prevalent. Office for Nuclear Regulation (ONR) and EA guidance therefore requires that the sea defence be capable of adaptation to a Credible Maximum (CM) sea level rise. The CM scenario is defined as the H++ climate change scenario as defined in UKCP09 (as UKCP18 refers back to the UKCP09 estimates and does not provide updated estimates). The sea defences have therefore been designed to allow for future adaptation to accommodate the CM scenario, should it develop. The modified defences that would be delivered through implementing these future adaptations are termed the "*Adaptive Design*". At ISH6, the Applicant confirmed that any adaptation to the Northern Mound area would be achieved by adapting the sea defence height into the plot, away from the seaward face [REP5-111].
- 5.8.243. The Sizewell C Coastal Defences Design Report [REP8-096] Figure 3-15 shows the Adaptive Design, with tidal levels shown reflecting RF sea level rise to 2140. A larger-scale section is provided at Appendix A.5. The Adaptive Design of HCDF would retain an SCDF in front of it. In the Adaptive Design, concrete armour units would be overlaid on the previously placed rock revetment, and the toe section extended further seaward to a lower level. A toe level of -1.5m OD would be required, that is to say 1.5m deeper compared to when the proposed HCDF is originally built.
- 5.8.244. The Sizewell C Coastal Defences Design Report [REP8-096] Construction and Sequencing for the Adaptive Design Section 4.4 indicates that the Adaptive Design has been developed to provide a simple means of increasing the crest height of the HCDF. Construction of the Adaptive Design would involve placing additional armour, a wave wall and landscaping on the top of the Permanent Sea Defence, reaching a crest level of 16.4m OD. The core and associated foundations required to support the Adaptive Design would be installed as part of the initial

permanent HCDF construction and would not require further intrusive work at a later stage. The Adaptive Design would be implemented by placing an overlay of rock armour or concrete units over the originally placed revetment. The embankment and toe would be extended outwards and downwards as part of the Adaptive Design implementation. These Works would include excavation within the beach/ SCDF to permit the extension and lowering of the HCDF toe, and the transport and placing of armourstone units to form the new revetment. Placement of the toe armour would be within the tidal zone.

Trigger Levels for Adaptive Design

- 5.8.245. The implementation of measures to enact the Adaptive Design would be driven by progressively observed effects of climate change, specifically mean sea level rise. The need to implement the Adaptive Design is only expected to occur if mean sea level is forecast to exceed the RF design value (RCP8.5 95%ile). It will be obvious which trajectory is being followed decades before the design value is exceeded, allowing implementation of the Adaptive Design before the threshold is reached.
- 5.8.246. The MDS FRA paragraph 7.1.37 [AS-018] confirms that the impacts of climate change on sea level rise would be monitored and assessed at set intervals to determine the trajectory of the projections and consider whether there is any change from either the currently considered projections or the climate change guidance as applied within the application. This is in line with the NSL requirements, whereby an appropriate monitoring programme needs to be in place and that a periodic safety review is undertaken. The monitoring arrangements for this would be secured by draft DCO Requirement 19 (previously Requirement 12B) [REP10-009].

The HCDF alignment at BLF

- 5.8.247. The Sizewell C Coastal Defences Design Report [REP8-096] at 3.12.15 considers the HCDF alignment with the BLF. The eastward protrusion in the HCDF alignment at the BLF/ Northern Mound area shown in the application has been eliminated, to provide an HCDF toe alignment which follows the main run. Figure 3-18 shows the modified alignment at the BLF area and figure 3-19 shows the permanent BLF interface. This has been achieved through an optimisation of earthworks profiles and operational space within the works area. The reduction in seaward extent will be 15m, to align the toe in this area with the general line of the toe, at Eastings 647615. The Applicant has provided updated design drawings [REP5-015].

The integration of the HCDF with the SSSI crossing, the BLF and jetty

- 5.8.248. The Applicant has provided a response to CG.3.11 [REP8-116] which refers to the DL5 submission of Mr Bill Parker [REP5-191] which sought details as to how the HCDF would be integrated with the SSSI crossing, the BLF and jetty. The integration between Permanent HCDF, SSSI crossing, Permanent and Temporary BLF is illustrated on drawing SZC-SZ0100-XX-000-DRW-100261, included in [REP5-015]. Further details of

the Permanent and Temporary BLF have been provided on drawings submitted at DL7 [REP7-004] and SZC-EW0610-XX-000-DRW-100265 in [REP5-015]. Further details of the SSSI crossing have been provided on drawings at DL7 in [REP7-005].

- 5.8.249. The HCDF would run South to North along the foreshore, and would turn inland between the position of the Temporary and Permanent BLFs. This section of HCDF running inland would be formed by the reconstructed Northern Mound and would tie in with the higher ground adjacent to the SSSI Crossing, set back from the coastline. The Permanent BLF would land to the seaward side of the HCDF, and the BLF approach road would climb from the BLF to the higher ground at the SSSI Crossing along the outer face of the HCDF. The Temporary BLF would not interface with the permanent HCDF, as the Temporary BLF will have been removed prior to the construction of the HCDF.

Modelling relating to the detailed design of the adapted HCDF

- 5.8.250. The Applicant's Written Summaries of Oral Submissions made at ISH 11: Flooding, Water and Coastal Processes [REP8-121], responds to the ESC requests in their comments on the coastal defences design report [REP3-062]. An update on the additional modelling work is contained in the Applicant's Written Submissions Responding to Actions Arising from ISH11 [REP8-125].

Methodology for Ground Improvement

- 5.8.251. The Applicant has provided a response in CG.3.10 [REP8-116] to the submission of Mr Bill Parker [REP5-191] in relation to the methodology for 'ground improvement' that will be a critical element in determining the resilience of the development in the long-term. The Applicant indicates that ground improvement is included beneath that part of the HCDF which sits over extensive peat/ alluvium deposits. A number of ground improvement methods are under consideration, and the HCDF may include more than one method. In addition to the Applicant's view of the most appropriate technical solution, any proposed method(s) would require the agreement of the ONR. Details of the proposed ground improvement will be prepared during the detailed design stages pursuant to Requirement 19 (formerly 12B) of the draft DCO.

The ExA's conclusions

The Adaptive Design

- 5.8.252. The Sizewell C Coastal Defences Design Report [REP8-096] provides a design description of the HCDF Adaptive Design at section 3.11. The HCDF is designed to protect the Proposed Development from a 1 in 10,000yr storm event with RF climate change effects up to the end of its design life in 2140. However, the Applicant recognises that, given the inherently uncertain nature of climate change, the RF climate change scenario may be exceeded, leading to more onerous climate change effects becoming prevalent. Therefore, the ONR and EA guidance requires that the sea defence be capable of adaptation to a CM sea level rise. The sea defences have therefore been designed to allow for future

adaptation to accommodate the CM scenario, should it develop. The Applicant's position is that the Adaptive Design would provide a simple means of increasing the crest height of the HCDF to reach a crest level of 16.4m OD.

- 5.8.253. The implementation of measures to enact the Adaptive Design would be driven by progressively observed effects of climate change, specifically mean sea level rise. The MDS FRA, paragraph 7.1.37 [AS-018], confirms that the impacts of climate change on sea level rise would be monitored and assessed at set intervals to determine the trajectory of the projections, and consider whether there is any change from either the currently considered projections or the climate change guidance as applied within the application. It would therefore be obvious which trajectory is being followed decades before the design value is exceeded, allowing implementation of the Adaptive Design before the threshold is reached.
- 5.8.254. There have been issues raised by IPs in relation to the details of the Adapted Design and its implementation, as opposed to matter of principle or whether what is proposed would serve its intended purpose. For example, ESC [REP5-144] expressed concerns over the seaward extent of the HCDF; the foundations being unusually high for such a feature and its profile. The Woodbridge Town Council [REP5-180] also raised the issue of the HCDF toe depth, and extent; the foundations for the HCDF, and the difficulties associated with raising an embankment on peat.
- 5.8.255. In relation to the seaward extent of the HCDF, the Applicant's Written Submissions Responding to Actions Arising from ISH6, Appendix A [REP5-118], explain the means whereby it is proposed to reduce the seaward extent of the permanent HCDF in response to such concerns. The Sizewell C Coastal Defences Design Report [REP8-096] section 3.12 considers the scope for minimising the eastward extent of the HCDF, and the HCDF alignment at the BLF. The Applicant has also provided a response to CG.3.11 [REP8-116] which identifies where the details as to how the HCDF would be integrated with the SSSI crossing, the BLF and jetty have been provided.
- 5.8.256. The ExA takes the view, as indicated above in relation to the SMP, and having regard to the details and explanations provided by the Applicant on this topic, that the HCDF, including the Adapted Design, would be positioned as landward as possible. In addition, the dDCO Requirement 19 (formerly 12B) would provide a means whereby the design details of various aspects of the HCDF would require ESC approval in consultation with the MMO and the EA before the commencement of that work. The ExA considers that this would provide an appropriate safeguard at detailed design stage in relation to matters relating to layout, scale, and external appearance of the HCDF, and its integration with other marine infrastructure.
- 5.8.257. As regards the feasibility of implementation, particularly given the prospect of sea level rise, the Sizewell C Coastal Defences Design Report, section 4.4 [REP8-096], explains that the core and associated

foundations required to support the Adaptive Design would be installed as part of the initial Permanent Sea Defence construction. The Design Report provides further details as to how the Adaptive Design would then be implemented in full at a later date, and what those works would entail.

- 5.8.258. On the question of ground conditions, the Applicant has provided a response to CG.3.10 [REP8-116], in relation to the methodology for 'ground improvement'. This is relevant to the resilience of the development in the long-term including the prospect of implementing the Adapted Design. It confirms that ground improvement would be included beneath that part of the HCDF which sits over extensive peat/ alluvium deposits. There are presently a number of ground improvement methods under consideration by the Applicant, and the technical solution to be used would require the agreement of the ONR. The details of the proposed ground improvement would be prepared during the detailed design stages for the HCDF pursuant to Requirement 19 (formerly 12B) of the dDCO. The ExA considers that this would provide an appropriate means of securing the details of the ground improvement works. Taken together with the role played by the ONR, there would be adequate safeguards in terms of ensuring the resilience of this feature in the long-term.
- 5.8.259. The Applicant's Written Summaries of Oral Submissions made at ISH 11: Flooding, Water and Coastal Processes [REP8-121], responds to the ESC requests in their comments on the coastal defences design report [REP3-062]. An update on the additional modelling work is contained in the Applicant's Written Submissions Responding to Actions Arising from ISH11 [REP8-125].
- 5.8.260. The ExA concludes that the Adaptive Design would provide a feasible means of increasing the crest height of the HCDF so that the sea defence could adapt to a CM sea level rise should that scenario develop as a result of climate change. We are content that appropriate arrangements would be in place for monitoring and assessing the impacts of climate change on sea level rise to determine the trajectory of the projections. That, in turn, would enable implementation of the Adaptive Design to occur before the threshold was reached.

The resilience of the Proposed Development, taking account of climate change, in response to shoreline evolution and change scenarios over the anticipated site life

The submissions of IPs

- 5.8.261. A number of different issues in relation to the resilience of the Proposed Development were raised by IPs during the Examination.
- 5.8.262. The National Trust's submission in lieu of attendance at ISH6 [EV-110], highlights that the focus of the assessments to date were on the risk to the Proposed Development itself, whereas they were concerned that greater emphasis should be placed on the role that it might have in affecting coastal change on this part of the coast (including potential

impacts on third parties such as the National Trust Dunwich Heath). A similar point was made by Mr Parker at ISH6 [REP5-191]

The SCDF design

- 5.8.263. The SoCG between the Applicant and the EA [REP10-094] records as an area of disagreement the assessment of impacts associated with the SCDF as described in section 20.7 Volume 2 Chapter 20 of the ES and Appendix 20A. The EA makes similar points in relation to the modelling work not considering the full range of reasonable worst case scenarios for the SCDF as it does for the HCDF. They again note the mechanism provided by the CPMMP to identify and assess coastal change.
- 5.8.264. The SoCG between the Applicant and the EA [REP10-094] also records as an area of disagreement the residual effects of impacts associated with the SCDF as described in section 20.7 Volume 2 Chapter 20 of the ES and Appendix 20A. The EA makes a similar point in relation to the residual effects as it does for the assessment of impacts associated with the SCDF.
- 5.8.265. The Final SoCG between the Minsmere Levels Stakeholders Group and the Applicant [REP10-114] also records as an area of disagreement the coastal defence design, including the design of both the HCDF and the SCDF. They note the Applicant's reference [REP8-096] to the use of bulldozers on the beach for the creation and maintenance of the SCDF. They are concerned that the use of heavy machinery on the beach would have damaging effects on beach performance compared to the natural beach on either side of the Proposed Development's frontage.
- 5.8.266. The MMO letter in lieu of attendance at ISH11 [EV-142g] raises an outstanding issue in relation to particle size for the SCDF. The MMO could not conclude that there would not be a negative impact on the neighbouring coastline and nearshore morphology caused by the SCDF if a much coarser material is used for the sacrificial outer layer, in comparison to the native sediment in the area. The MMO does not consider that the use of a much coarser material is justified.
- 5.8.267. At ISH6, ESC [REP5-144], expressed concern that the design of the SCDF now favoured a more resilient non-native beach composition which might inhibit the transportation of sediment. Although a more resilient composition for the SCDF is likely to require less maintenance and beach management, ESC is concerned that the baseline sediment pathway might be impacted as a result of the non-native beach composition. ESC's preferred position is for the SCDF design to provide a sacrificial surface layer that is able to be mobilised by waves and tidal currents in a fashion that is comparable to adjacent beaches.
- 5.8.268. The Alde and Ore Association [REP8-190] at ISH11, commented on the modelling for the SCDF through decommissioning to 2140. They submit that the data for the modelling is inadequate to deal with the impact on coastal development of the protrusion of Proposed Development into the sea. The Applicant recognises that this will happen after 50 or so years which is long before the end of the life of the Proposed Development

because the coast naturally is eroding westwards. They also submit that the timeline of the modelling is not long enough. They point out that sea level rise will be continuing after 2070, the cut-off date given to the EGA for their modelling. They contend that there is not enough understanding as to what might happen on the coastline in the many decades following 2070 up to decommissioning and then dismantlement.

- 5.8.269. The Alde and Ore Association [REP8-190] also comment on coastal changes both natural and due to construction. They submit that the more the interference by new construction on the coastline the harder for natural processes to return to their natural course.

The Sizewell B salient

- 5.8.270. At ISH 11 [REP8-280], Mr Paul Collins made detailed submissions in relation to the extent and significance of the Sizewell B Salient and the effect of its defensibility on the HCDF and SCDF as well as the location of those features. He points to inadequacies in the Applicant's modelling including the one dimensional modelling of the SCDF in [REP2-115] and the X-Beach Modelling [REP7-045]. He submits that the Applicant has provided insufficient design, modelling and impact assessment to support the application.

- 5.8.271. In [REP8-280] the Minsmere Levels Stakeholders Group pose several questions concerning the position of the southern termination of the HCDF/SCDF which they consider are not addressed in [REP8-096] with regard to its exact position relative to the natural embayment profile of Sizewell Bay from Minsmere Sluice to the Ness at Thorpeness, and the impact of the operational cessation of Sizewell B and its maintenance of the Sizewell A/B salient.

The potential risk posed by the Sizewell B defences to either site in the long-term

- 5.8.272. The DL7 submission of Mr Nick Scarr [REP7-218 to REP7-220] highlights the fact that the adjoining Sizewell B has a 10m AOD sea defence crest height and the new proposed sea defence for Sizewell C (14.6-16.4m AOD) does not appear to cover the frontage of Sizewell B.

Climate change implications for coastal processes and the safety and security of the site

- 5.8.273. The Alde and Ore Association [REP8-190] notes that the Applicant maintains that climate change may not give rise to more frequent and ferocious storms. However, sea level rise is a known fact, and the current violent storms and surges will therefore have a greater impact on the coastline, even if ferocity does not increase. In addition, Section 2.4 of [APP-312] states that sea level rise may increase the rate of longshore transport and there could be an altered sediment supply regime in and out of the Greater Sizewell Bay. This statement is a recognition of longshore sediment transport. They submit that it confirms that longshore sediment needs monitoring.

- 5.8.274. Professor Blowers' OBE WR [REP2-209] submits that the project should be assessed as a whole on whether the site is 'potentially suitable' for the deployment of a new nuclear power station. He states that: *"During the period of operation up to the end of this century it must be questioned whether proposed defences and managed adaptation will be fully effective against the maximum credible scenario of climate change impacts of sea-level rise, storm surges and coastal processes."*
- 5.8.275. Professor Blowers also states (Section 2: SZC and Climate Change): *"One study that includes ice sheet contributions to SLR indicates that a high though by no means improbable global warming of 5°C could lead to a 2m rise in sea-levels by 2100 (Bamber et al., 2019). The impacts of such rises in terms of flooding, storm surges and coastal processes are uncertain and, according to UKCP18, 'we don't yet know whether storm surges will become more severe, less severe or remain the same' (UKCP18, 2018, p.2)....".* He continues: *"A process of monitoring is proposed with 'adaptive management' measures (such as increasing the height of defences) if necessary. It must be questioned whether these defensive measures will be proof against any eventuality or against deteriorating circumstances such as cliff and beach erosion or severe flooding or storm surges. And the impacts of the defences on coastal processes, erosion and flooding are also issues for careful consideration."*
- 5.8.276. Professors Blowers' submission also concerns the security of stored nuclear wastes on site, possibly until 2165, in the context of climate change and sea level rise. He notes: *"beyond 2100, the uncertainties in modelling the rate of global warming, SLR and other impacts of climate change lead into the realm of indeterminacy..."*. He concludes that: *"[Future] generations will have little or no benefit from SZC but will bear the burdens of risk, cost and effort of continuing to manage the decommissioning and radioactive wastes on a site that will become increasingly vulnerable to flooding and the impacts of climate change on coastal processes."*
- 5.8.277. Professor Blowers [REP5-189] in his 'Supplement to Statement of Interest' presented at the ISH6 also raises a number of issues including the potential suitability of the site and the long-term management of waste. He notes from the discussion which took place that it appears the EA and ESC have some reservations about the overall resilience of the defensive system. He submits that the Applicant has more work to do to provide evidence to support its claims. There seems to be a reliance on levels of sea level rise and coastal impacts that reflect a maximum scenario of 4°C. There needs to be consideration of the risks of severe impacts especially towards the end of the century when some of the more extreme forecasts of temperature rise and sea level rise arising from ice melt may begin to have impact. His overall impression of the discussion on coastal geomorphology up to the end of the century was that it was cautious but had not fully grasped the implications of some of the most recent modelling and forecasting.
- 5.8.278. Professor Blowers [REP5-189] identifies two issues arising from discussion at ISH6 that he found to be profoundly disturbing, namely,

decommissioning, and radioactive waste management. He contends that it would be premature to grant approval in the absence of consideration of the viability of the site beyond 2100. He submits that it is imperative that the ExA pronounces on the issue of long-term management of wastes and not take the approach that this is a matter that lies within another remit. He concludes that the resilience of the site and proposals for adaptive management during the period of operations until the end of the century should be considered in terms of recent forecasts, modelling and scenarios of climate change impacts on sea level rise and coastal processes.

- 5.8.279. Mr Bill Parker's supporting evidence follow oral submission at ISH6 [REP5-191] submits that a core issue is that the space between the sea to the east and the SSSI Sizewell Marshes to the west is too narrow to accommodate this specific nuclear power station design. He contends that the ExA should question why only this particular design of nuclear station has been presented and that other more appropriate and suitably sized options have not been assessed. He also questions the reliance placed by the Applicant on the use of RF conditions, the short-term detailed information about the coast and on monitoring that does not safely mitigate against future challenges this development may face in future.
- 5.8.280. TASC DL5 Post Hearing submissions including written submissions of oral case relating to ISH6 [REP5-297] submit that the climate change impacts need to be assessed beyond decommissioning so as to include the maximum period during which spent fuel will still be stored on site. The impacts of climate change are unpredictable in terms of magnitude and timing so any resilience built into the project can only be a guestimate at best and the adoption of the precautionary principle should apply. Although the Applicant's position is that impacts from climate change will be slow and provide time for managed adaptation of the sea defences and the SSSI crossing, they draw attention to the recent floods in Germany which have been described as more extreme and happening quicker than anyone had predicted. This follows on from extreme weather events all over the world that are beyond previous predictions.

The Applicant's response

The SCDF design

- 5.8.281. The Applicant at ISH11 [REP8-121] explained that, in relation to sea level rise, modelling had considered sea level rise scenarios, all the way up to the end of decommissioning at 2140. For the safety case modelling (RF Design Basis) the approach taken, which is standard for that work, was to increase the wave conditions by 10%.
- 5.8.282. At ISH6 [REP5-111], the Applicant agreed that the SCDF maintained coast at the Proposed Development could become a foreland. The Applicant also recognises that even though the SCDF is releasing sediment, it might begin to disrupt longshore sediment transport. However, the Applicant submits that the proposed monitoring would detect whether there has been a blockage. The plan is to have three

mitigation methods for beach maintenance, in order to correct that. The CPMMP has been amended to explicitly reflect this point.

- 5.8.283. In the future, as a result of maintaining the SCDF whilst adjacent shorelines are likely to naturally recede, changes in shoreline angle might lead to a slight foreland and localised trapping of sediment moving from north to south. This situation has been modelled in BEEMS Technical Report TR545 [REP7-045]). First principles and the modelling demonstrate that the SCDF would erode more quickly. The CPMMP [REP5-059] is designed to measure the volumes across the SCDF, and to the north and south, in detail, and would be able to detect the formation of an SCDF foreland and whether it would result in a net deficit to longshore sediment transport. The process of checking for SCDF foreland disruption and applying further mitigation is to be included in the CPMMP [REP10-041].
- 5.8.284. The Applicant's Comments on Earlier Deadlines, Subsequent Written Submissions to ISH11-14 and Comments on Responses to Change Request 19 [REP10-156] responds to the MMO's comments [REP9-030] made in respect of the effectiveness of the coastal protection provided by the SCDF including minimising the negative impact on neighbouring shores. In the updated Revision 03 of TR545 [REP9-020], the Applicant commits to the use of the natural grain size as a default, which avoids the concerns for potential impacts to neighbouring shores. The subsequent Version 04 of TR544 [REP10-124] no longer recommends coarsening the SCDF relative to the native distribution.
- 5.8.285. The Applicant [REP8-125], explains that the concerns of various IPs have been heard and it is comfortable with the native particle size distribution, not to coarsen it and to take this as the default position going forward. This includes the MMO's request in its letter in lieu of attendance [EV-142g] that the particle size of the SCDF be representative of the natural particle size. The CPMMP will secure the default assumption as being that the SCDF will comprise sediment within the native particle size range subject to confirmation at the discharge of Requirement 19 (formerly 12B) of the draft DCO.

The Sizewell B salient

- 5.8.286. The Applicant's Written Summaries of Oral Submissions made at ISH11 [REP8-121] responds to the topic of the Sizewell B salient (an accumulation of beach sediment opposite the Sizewell B outfall) which was raised by an IP. The salient is considered to have formed as a result of the Sizewell B outfall interfering with the position of the outer longshore bar. The Applicant notes that a salient was also observed at Sizewell A when it was operating, but states that it disappeared within in a year or two once operation ceased. The sediment in the salient is then redistributed to the adjacent shorelines, and the same is expected once Sizewell B ceases operation.
- 5.8.287. Although the coast is expected to straighten, this would not correspond to continuous erosion. The Applicant contends that there would be a short phase of erosion whilst the sediment from the Sizewell B salient is

re-distributed and the shoreline straightens. The important point is shown by the TR544 and TR545 modelling reports [REP7-101 and REP7-045] (which do not include the Sizewell B outfall) where the models show that the SCDF could be comfortably maintained throughout the life of the Proposed Development.

The potential risk posed by the Sizewell B defences to either site in the long-term

- 5.8.288. The Applicant has provided a response to CG.3.13 [REP8-116], which refers to the DL7 submission of Mr Nick Scarr [REP7-219] which highlights the fact that the adjoining Sizewell B has a 10m AOD sea defence crest height and the new sea defence for the Proposed Development (14.6-16.4m AOD) does not appear to cover the frontage of Sizewell B.
- 5.8.289. The Applicant states that the Sizewell B and Proposed Development sea defences are conceived to protect their respective stations against wave run-up and excessive overtopping throughout the life of their respective stations. The key objectives of the Proposed Development sea defences are to protect it without placing any reliance on the presence or condition of the Sizewell B sea defences, and not to prejudice the continuing operation of the Sizewell B sea defences. The continuing protection of the Sizewell B site will be delivered by the Sizewell B sea defences, including any potential future modifications or extensions which may be required to maintain the safe operation and decommissioning of Sizewell B.
- 5.8.290. The Proposed Development sea defences have therefore been designed to be independent of the Sizewell B sea defences, including features such as the overlapping configuration extending part-way along the Sizewell B frontage, independent foundations, and the roundhead termination of the Proposed Development's HCDF.
- 5.8.291. The sea defences for the Proposed Development are required to protect that site for a longer period than the Sizewell B sea defences are required to protect the Sizewell B site. The sea defences for the Proposed Development therefore provide a higher crest level, to address the higher potential for climate change effects such as sea level rise to occur during the life of the Proposed Development. It should also be noted that the functional crest level of the HCDF for the Proposed Development is 12.6m (increased from the 10.2m OD stated in paragraph 3.2.20 of [APP-617]) with landscaping material undulating between 12.6m and 14.6m OD, and the potential for a future increase to 16.4m in the Adaptive Design.
- 5.8.292. Whilst the crest levels of Sizewell B and the Proposed Development's sea defences are different, the Applicant does not see this as a discrepancy, but rather reflecting their different and independent functions. The design parameters of the defences for the Proposed Development are secured by Requirement 19 (formerly 12B) of the draft DCO.

Climate change implications for coastal processes and the safety and security of the site

- 5.8.293. At ISH6, the Applicant submitted that section 2.11 of EN-6 makes it clear that the arrangements for the disposal of nuclear waste resultant from new nuclear stations are not matters for the Examination. Further, the question of the need for the Proposed Development and the urgency of that need have both been established as a matter of Government policy through the Energy NPSs, (see Applicant's Response to G.1.5 [REP2-100]). The Applicant contends that this is not a matter for the Examination. In relation to matters of safety and security, EN-6 makes clear that this is also not a matter for the Examination. The Applicant's response to the G.1.5 [REP2-100], and NPS EN-1, paragraph 4.15.3, are also relevant.
- 5.8.294. The Applicant has provided its response to Professor Blowers' WR in the Applicant's Written Submissions Responding to Actions Arising from ISH6 [REP5-118]. The CPMMP [REP10-041] outlines measures designed to maintain the natural function of the geomorphic system over the operations and decommissioning phases. The Preliminary Design and Maintenance Requirements for the Sizewell C Coastal Defence Feature [REP3-032] shows that the soft defences would be suitable for the stated timescale. The design meets the necessary criteria for the worst case but plausible climate change scenario (RPC8.5). Furthermore, the ONR would need to be satisfied that the site is protected from external hazards, taking full consideration of climate change and extreme events, prior to issuing the NSL. The impact of the defences on coastal processes have been assessed and this shows that there would be no impact from the HCDF unless it is exposed. The CPMMP [REP10-041] outlines mitigation via the SCDF to ensure that the HCDF is not exposed.
- 5.8.295. A significant part of Professors Blowers' submission concerns the security of stored nuclear wastes on site, possibly until 2165, in the context of climate change and sea level rise. He notes: "*beyond 2100, the uncertainties in modelling the rate of global warming, SLR and other impacts of climate change lead into the realm of indeterminacy...*".
- 5.8.296. The Applicant contends that waste disposal routes and site security are, again, not directly matters for this Examination. However, the Applicant recognises the indeterminacy referred to by Professor Blowers, and the ES has made no specific projections for coastal change this far into the future. Instead, the approach is to extend assessment of the function of the proposed mitigation (SCDF) beyond 2100, and this further modelling of more extreme future coastal conditions has been provided at DL7 [REP7-045]. The impacts of climate change on coastal processes have been assessed based on UKCP18 projections for changes in wind, wave, and water levels.

The ExA's conclusions

The HCDF and the SCDF

- 5.8.297. The Applicant's modelling has considered sea level rise scenarios all the way up to the end of decommissioning at 2140 [REP8-121]. The Applicant acknowledges that, as a result of maintaining the SCDF, whilst adjacent shorelines are likely to naturally recede, changes in shoreline

angle may lead to a slight foreland and localised trapping of sediment moving from north to south. This situation has been modelled in BEEMS Technical Report TR545 [REP7-045]) and first principles and the modelling demonstrate that the SCDF would erode more quickly. However, the ExA consider that the CPMMP [REP10-041] would provide an appropriate means of detecting the formation of an SCDF foreland, and whether it would result in a net deficit to longshore sediment transport which could be mitigated. We find that the measures to be included in the CPMMP would satisfactorily address this particular situation.

5.8.298. The EA [REP10-094] takes the view that for the assessment of impacts associated with the HCDF, including the adaptive design under RCP8.5 sea level projection, the latest modelling work has not yet considered the full range of reasonable worst case scenarios. The SoCG between the Applicant and the EA [REP10-094], records as an area of disagreement the assessment of impacts and the residual effects of impacts associated with the HCDF and the SCDF. The EA makes similar points in relation to the modelling work not considering the full range of reasonable worst case scenarios for the SCDF, as it does for the HCDF. However, in both instances, the EA notes the mechanism provided by the CPMMP to identify and assess coastal change.

5.8.299. The ExA has already indicated above in our consideration of the additional information sought by IPs at the close of the Examination, that we consider the CPMMP would provide an appropriate mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work which has been undertaken, including in relation to the design of the HCDF and the SCDF. However, the Secretary of State may wish to consult with IPs in relation to the information provided by the Applicant at DL10 [REP10-124] and obtain confirmation from the EA that this now meets the gaps in the assessment identified by it and meets its remaining concerns in relation to the SCDF, and consequently the HCDF, before reaching a final decision.

SCDF particle size

5.8.300. This was a matter raised by a number of IPs including the MMO [EV-142g], and ESC [REP5-144]. The Applicant [REP8-125], has explained that the concerns of various IPs have been heard, and it is comfortable with the native particle size distribution. The DL10 version of the CPMMP [REP10-041] makes a clear commitment to use the native particle size. If future modelling should indicate that this may no longer be feasible, the MTF must agree any proposed change in approach. The default assumption is therefore that the SCDF would comprise sediment within the native particle size range subject to confirmation at the discharge of dDCO Requirement 19 (formerly 12B).

5.8.301. Given the Applicant's change in position on this matter, and the means whereby it would be secured, the ExA consider this matter to be satisfactorily resolved. In addition, we believe that this also answers concerns raised regarding the extent of the monitoring should coarser sediment be used.

The Sizewell B salient

- 5.8.302. At ISH11, Mr Paul Collins on behalf of Theberton and Eastbridge Parish Council, Stop Sizewell C and Minsmere Levels Stakeholders Group [REP8-280] made detailed submissions in relation to the implications for the proposed coastal defences of the Sizewell B salient. He referred to the positioning of the HCDF toe at the most south-eastern point of the defence for the Proposed Development which appears to be significantly seaward on the Sizewell B hydraulic groyne or 'salient'. He submitted that the extensive reach of the Sizewell B salient to the north has significant maintenance challenges for the proposed sea defences, and the CPMMP, given the current 2035 date for cessation of the Sizewell B operation [REP8-280]. He contends that as soon as Sizewell B ceases to operate, and the salient sustaining outflows cease, the coast will begin returning to its natural embayment, and the new outfalls for the Proposed Development will not be capable of maintaining or creating a similar protective structure for it. He asserts that the longshore drift process will be unstoppable and beach re-charge will be unable to stop this process. This means that the forward position of the HCDF toe, particularly at the southern end will potentially be in significant jeopardy from the day that Sizewell B is finally shut down.
- 5.8.303. The Applicant at ISH11 [REP8-121] sought to respond to the topic of the Sizewell B salient providing a short oral response, and indicating that a full response would be made later in writing. This indication was repeated at DL8 [REP8-125] which stated that a full response to the very detailed statement made by Mr Collins on coastal processes would be provided at DL10. However, no such response was forthcoming by the close of the Examination.
- 5.8.304. The Applicant, in its oral submissions at ISH11, explained that the salient is considered to have formed as a result of the Sizewell B outfall interfering with the position of the outer longshore bar. It expects that once Sizewell B ceases operation, the sediment in the salient would be redistributed to the adjacent shorelines in the same way that the Sizewell A salient disappeared within in a year or two once operation ceased.
- 5.8.305. On the latter point, the photographic evidence of Mr Collins shows that the remains of the Sizewell A salient are still visible in Sizewell Bay, despite the plant having been shut down in 2006. In support of his argument, he relies upon the Applicant's own submissions in the ES Volume 2 Chapter 20 Coastal Geomorphology and Hydrodynamics, paragraphs 20.9.25-20.9.27 and paragraphs 20.12.22 to 20.12.25 [APP-311], and Volume 2 Chapter 20 Coastal Geomorphology and Hydrodynamics Appendix 20A Coastal Geomorphology and Hydrodynamics: Synthesis for Environmental Impact Assessment [APP-312].
- 5.8.306. The Applicant acknowledges that the coast is expected to straighten following the shutdown of Sizewell B, but submits that this would not correspond to continuous erosion. There would be a short phase of erosion whilst the sediment from the Sizewell B salient is re-distributed and the shoreline straightens. The Applicant relies upon the TR544 and

TR545 modelling reports [REP7-101 and REP7-045] to show that the SCDF could be comfortably maintained throughout the life of the station.

- 5.8.307. The EA's comments on DL8 and DL9 Coastal Processes Submissions [REP10-191] respond to the Sizewell C Coastal Defences Design Report [REP8-096], and the Storm Erosion Modelling of the Sizewell C Soft Coastal Defence Feature using XBeach-2D and XBeach-G [REP9-020]. Whilst the EA has pointed to a small number of gaps in the assessment, it does not otherwise criticise the XBeach modelling, nor does it seek further assessment of the impact of the Sizewell B salient either in that document or in the Final SoCG [REP10-094].
- 5.8.308. The ES has given some initial consideration to the Sizewell B salient, although it does not feature in subsequent modelling. The Applicant has pointed out that the TR544 and TR545 modelling reports do not include the Sizewell B outfall. Furthermore, the detailed layout of the sea defences is subject to the approval process pursuant to the discharge of dDCO Requirement 19 (formerly 12B). Taking the evidence as a whole, the ExA find the risk posed by the Sizewell B salient to be overstated. We do not consider that the effects of the Sizewell B cessation of operation would be such as to render the CPMMP recharging mitigation to ensure maintenance of the sea defences ineffective.
- 5.8.309. The ExA takes the view that there is sufficient evidence to enable us to reach a conclusion on this matter. However, the Secretary of State may wish to consider if it would assist to have further evidence on this matter before reaching a final decision.
- The potential risk posed by the Sizewell B defences to either site in the long-term*
- 5.8.310. The DL7 submission of Mr Nick Scarr [REP7-218 to REP7-220] highlights the fact that the adjoining Sizewell B has a 10m AOD sea defence crest height, and the new sea defence for the Proposed Development (14.6-16.4m AOD) does not appear to cover the frontage of Sizewell B.
- 5.8.311. The Applicant's response to CG.3.13 [REP8-116], explains that the Sizewell B and Proposed Development sea defences are conceived to protect against wave run-up and excessive overtopping throughout the life of their respective stations. The key objectives of Proposed Development sea defences are to protect the Proposed Development without placing any reliance on the presence or condition of the Sizewell B sea defences, and not to prejudice the continuing operation of the Sizewell B sea defences. The sea defences for the Proposed Development have therefore been designed to be independent of the Sizewell B sea defences.
- 5.8.312. Since the Proposed Development's sea defences are required to protect that site for a longer period than the Sizewell B sea defences are required to protect that site, provision is made for the former to have a higher crest level, to address the higher potential for climate change effects to occur during the life of the Proposed Development.

5.8.313. In the light of the Applicant's explanation, the ExA agrees that the different crest levels of the sea defences for Sizewell B and the Proposed Development should not be seen as a discrepancy, but rather as reflecting their different and independent functions. Furthermore, the design parameters of the sea defences for the Proposed Development would be secured by Requirement 19 (formerly 12B of the dDCO). This would require the approval of the layout, scale, and external appearance of the details of the works by ESC, in consultation with the MMO and the EA, thus providing an additional safeguard. The ExA is therefore satisfied that the Sizewell B defences would not represent a danger to that site or the Proposed Development site by 2046.

Climate change implications for coastal processes and the safety and security of the site

5.8.314. The Alde and Ore Association [REP8-190] assert that the effects of climate change are likely to have a greater impact on the coastline, and that sea level rise may increase the rate of longshore transport resulting in an altered sediment supply regime in and out of the Greater Sizewell Bay that needs monitoring. However, as indicated above, the ExA considers that the proposed monitoring and mitigation would satisfactorily identify and respond to such changes. We do not consider that any additional provision over and above that which would be made via the CPMMP with its adaptive capability is necessary to respond to this potential climate change effect.

5.8.315. Professor Blowers' OBE [REP2-209] questions the effectiveness of the proposed defences and managed adaptation against the CM scenario of climate change impacts of sea level rise, storm surges and coastal processes, and the issue of the security of stored nuclear wastes on the site. His 'Supplement to Statement of Interest' [REP5-189] concludes that the resilience of the site and proposals for adaptive management during the period of operations until the end of the century should be considered in terms of recent forecasts, modelling, and scenarios of climate change impacts on sea level rise and coastal processes.

5.8.316. The Applicant's response [REP5-118] refers to the Preliminary Design and Maintenance Requirements for the Sizewell C Coastal Defence Feature [REP3-032] as showing that the soft defences would be suitable for the stated timescale, and the design would meet the necessary criteria for the worst case but plausible climate change scenario. The Applicant also mentions the role of the CPMMP [REP10-041] in securing measures designed to maintain the natural function of the geomorphic system over the operations and decommissioning phases. The CPMMP would ensure via the SCDF that the HCDF is not exposed. The Applicant has also submitted additional reports at DL8 and DL9 including the Storm Erosion Modelling of the Sizewell C SCDF [REP9-020] which covers the RCP8.5 sea level rise projection extended to 2140, and the modelling of the HCDF Adapted Design.

5.8.317. The EA's comments [REP10-191] on the additional reports submitted by the Applicant at DL8 and DL9 have already been discussed and its remaining concerns in relation to the modelling identified. The ExA

considers that the Applicant's assessment has given appropriate consideration to the climate change implications for coastal processes including sea level rise projection and timeline. In addition, as the Applicant points out, the ONR would need to be satisfied that the site would be protected from external hazards, taking full consideration of climate change and extreme events, prior to issuing the NSL.

- 5.8.318. In response to Professor Blowers' concerns in relation to the security of stored nuclear wastes on site in the context of climate change and sea level rise, the Applicant [REP5-118] confirms that the ES has made no specific projections for coastal change that far into the future. Instead, the approach is to extend assessment of the function of the proposed mitigation (SCDF) beyond 2100 and this further modelling of more extreme future coastal conditions has been provided at DL7 [REP7-045]. The ExA is content with that approach and consider the 2140 timeline to be reasonable and appropriate in those circumstances.
- 5.8.319. Professor Blowers also refers to the potential suitability of the site, and the long-term management of waste. EN-6, paragraph 2.11.4, confirms that the question of whether effective arrangements will exist to manage and dispose of the waste that will be produced from new nuclear power stations has been addressed by the Government, and that the arrangements for the disposal of nuclear waste resultant from new nuclear stations are not matters for the Examination. The ExA has considered matters raised in relation to the need for the Proposed Development, site suitability, radiological issues and matters specific to climate change in sections 5.4, 5.7, 5.19, and 5.20 of Chapter 5 of this Report.
- 5.8.320. The ExA concludes that the Applicant has appropriately taken account of climate change during the necessary period. In the light of EN-1, paragraph 5.5.10, the ExA is satisfied that the Proposed Development would be resilient to coastal erosion and deposition, taking account of climate change, during its operational life and any decommissioning period.

Mitigation and controls including the Coastal Processes Monitoring and Mitigation Plan (CPMMP)

The submissions of IPs

The Draft DCO, the DML and the CPMMP

- 5.8.321. There was much discussion throughout the Examination as regards the proposed mitigation and controls. The main points raised include the following:
- Draft DCO Requirement 12 (formerly 7A), DML Condition 14 (formerly 17) and the CPMMP*
- 5.8.322. The Alde and Ore Association [REP8-190] refer to the ISH11 discussion in relation to the MTF and the CPMMP. They submit that provision needs to be made for baseline data of shingle shore/volumes to both the north and south of the Proposed Development and that the mitigation proposed

by way of recharging or recycling shingle along the SCDF is inadequate, as other parts of the coast are likely to be affected. They also raise the issue of financing and framework for decisions for the CPMMP.

- 5.8.323. NE's Comments on the Preliminary Design and Maintenance Requirements for the Sizewell C Coastal Defence Feature [REP5-158] raise issues in relation to the securing of mitigation and the wording of the CPMMP.
- 5.8.324. At ISH6, the RSPB and SWT [REP5-163] raised a number of issues in relation to the detailed drafting of the CPMMP and the scope of the mitigation and monitoring that would be secured.
- 5.8.325. At ISH6, ESC [REP5-144] indicated that its outstanding concern relates to the interaction between Requirement 12 (formerly 7A) of the draft DCO and Condition 17 of the DML. The latter requires the submission and approval of a CPMMP to the MMO. ESC has engaged with the MMO as to the best way to manage the overlapping jurisdiction in the intertidal area and at that time this was a matter for ongoing discussions.
- 5.8.326. SCAR [REP5-269] submit that the CPMMP is inadequate in scope, geographically, and over time. They contend that it should cover the coastline from Benacre to Shingle St. It also needs to address the period beyond decommissioning for which there appears to be no allowance.
- 5.8.327. The MMO [REP6-039] requires updates to the CPMMP to address adverse physical changes to the coast, such as including additional monitoring surveys.
- 5.8.328. The National Trust's submission in lieu of attendance at ISH6 [EV-110], strongly believes that the scope of the CPMMP should include the designated sites to the north of the site up to the northern boundary of its land and should monitor long term coastal change over the full lifetime of the Proposed Development through to full decommissioning.

Draft DCO Requirement 19 (formerly 12B)

- 5.8.329. At ISH6 [REP5-144] ESC indicated that Requirement 19 (formerly 12B) provides for the submission and approval of certain design details for Marine Infrastructure to be submitted to and approved by ESC, in consultation with the MMO. ESC sought to ensure that this Requirement covers all aspects of the design of the Marine Infrastructure that have the potential to affect coastal processes; that the Applicant clearly identifies any design changes at detailed design stage compared to the applicant/examination stage, and that the overlapping jurisdiction of ESC and the MMO in the intertidal area is properly managed. ESC also noted that text concerning the BLF is now included as part of Requirement 19 (formerly 12B). As such, they agreed that no additional Requirement in respect of the BFL was necessary.

The Applicant's response

Draft DCO Requirement 12 (formerly 7A), DML Condition 14 (formerly 17) and the CPMMP

- 5.8.330. The Applicant's position is that the necessary monitoring, mitigation, and controls would be secured, and are incorporated within the latest revisions of the draft DCO Requirements, the DML and the CPMMP.
- 5.8.331. Requirement 12 (formerly 7A) has been updated in response to the comments made by ESC at ISH11. The Applicant has engaged with both ESC and the MMO in relation to the detailed drafting of the CPMMP, and the final version was submitted at DL10 [REP10-041]. The Applicant has provided comments on IP responses to CG.2.6. in relation to the drafting of the CPMMP at DL8 [REP8-115]. This includes a comment on the Alde and Ore Association's suggestion that matters affecting longshore transport and coastal change have not been taken into account by the CPMMP [REP5-059]. It also responds to monitoring and survey methods and mitigation triggers.
- 5.8.332. The equivalent provision in the DML is Condition 14 [REP10-009], and this relates to the submission, approval, and implementation of a CPMMP (marine). It is to be approved by the MMO in consultation with the EA.
- 5.8.333. The Applicant in response to CG.3.7 and ESC's 'Comments on the CPMMP Revision 2 [REP5-059]', [REP6-032], points out that the CPMMP is a draft and that its final form will need to be approved by ESC pursuant to Requirement 12, following consultation with stakeholders. The CPMMP has been updated for DL10 [REP10-041]. The amendments made include to section 2 which relates to monitoring techniques and baseline, and section 3 which considers the monitoring of the offshore cooling water infrastructure.

Section 2 includes techniques that are targeted to the elements of the coastal geomorphology receptor, namely, beach and shoreline position, longshore bars, and the Sizewell-Dunwich Bank. It now states that: "*The five-yearly bathymetric survey is included as changes in the bank over the decades of Sizewell C operation and decommissioning may result in subtle natural changes to nearshore conditions (the ES identified no significant effects on the bank from the Sizewell C development). The five-yearly interval is considered sufficient because the bank volume and form changes very slowly.*

As shown in the Figure 20.1 of the ES (Volume 2, Chapter 20) [APP-313], there is no pathway to impact on the Coralline Crag outcrops that anchor Thorpeness and Sizewell Bank from any of the Sizewell C activities, and therefore Crag monitoring is not a requirement. However, because of its important roles in defining the edge of the coastal sediment cell and bank stability, SZC Co. proposes to extend the proposed five-yearly background environmental monitoring of Sizewell – Dunwich Bank (see Section 2.3) to include the Thorpeness Coralline Crag outcrops and ensure that any unexpected natural changes which may affect impact detection are identified".

- 5.8.334. The CPMMP takes an adaptive approach to monitoring and has the facility to undertake ad hoc surveys built-in should reason arise for conducting an interim survey.

Change Request 19 – the desalination plant

- 5.8.335. The Applicant's response to CG.3.14 [REP8-116], states that the main safeguarding mechanism would be the CPMMP which must be adhered to during construction and operation. Any potential impacts on coastal geomorphology receptors from the desalination plant would automatically be picked up by the CPMMP [REP10-041]. The DL10 update includes amendments to specify the desalination plant in the plan where necessary (for example, scour monitoring at the intake and outfall locations). Mitigation within the CPMMP would be equally applicable for any identified impacts from the desalination plant so no additional mitigation is envisaged by the Applicant.

Draft DCO Requirement 19 (formerly 12B) of the DCO

- 5.8.336. This Requirement now includes reference to the permanent BLF, and the temporary MBIF, as well as the HCDF and the SCDF in response to concerns raised by ESC in the Joint LIR [REP1-045]. The Requirement specifies the details to be included and provision is made for the Proposed Development to be carried out in accordance with the approved details.

The ExA's conclusions

Requirement 2 and the Code of Construction Practice (CoCP), Part B, Section 12

- 5.8.337. This Requirement would secure the construction of the authorised development and the removal and reinstatement of the temporary works must be carried out in accordance with the CoCP. The CoCP [REP10-072] Part B, Section 12 includes control measures which have been drawn from the assessments of impacts on coastal geomorphology. The initial objections raised by ESC in relation to this Requirement have now been resolved. The ExA considers that given the clarification of the phrase 'general accordance' in the interpretation Requirement 1(4), that Requirement 2 would be effective in securing the CoCP measures, and that no amendment of the drafting is required.

Draft DCO Requirement 12 (formerly 7A), DML Condition 14 (formerly 17) and the CPMMP

- 5.8.338. Requirement 12 secures the approval of the CPMMP (Terrestrial) prior to the commencement of development of the HCDF and the SCDF. The Plan must be in general accordance with the draft CPMMP, include the specified details, and is required to be implemented.
- 5.8.339. The equivalent provision to Requirement 12 in the DML is Condition 14 [REP10-009] which relates to the submission, approval, and implementation of a CPMMP (Marine). It is to be approved by the MMO in consultation with the EA. The issue raised by ESC at ISH6 [REP5-144], in

relation to the best way to manage the overlapping jurisdiction in the intertidal area has been resolved following discussions between the parties.

- 5.8.340. The Joint LIR Review [REP10-183] confirms that the principle of mitigation and mitigation measures secured through the CPMMP are agreed but the Councils expect there to be further commitment in the CPMMP to the effect that the SCDF would comprise sediment that matches the size range and grading of the native material. The Applicant has updated this Requirement to respond to that matter and other comments made by ESC at ISH11. The Applicant has engaged with both ESC and the MMO in relation to the detailed drafting of the CPMMP, and the final version was submitted at DL10 [REP10-041]. The amendments made include section 2 which relates to monitoring techniques and baseline, and section 3 which considers the monitoring of the offshore cooling water infrastructure. The additional scope of section 2 in relation to the proposed extension of the five-yearly background environmental monitoring of the Sizewell-Dunwich Bank to include the Thorpeness Corraline Crag outcrops has already been mentioned.
- 5.8.341. The ExA considers that Requirement 12 would be effective in securing the approval and implementation of the CoCP measures. The latest draft of the CPMMP responds to issues raised during the Examination including monitoring and survey methods, and mitigation triggers. We welcome the fact that the CPMMP takes an adaptive approach to monitoring, and has the facility to undertake ad hoc surveys built-in should reason arise for conducting an interim survey.
- 5.8.342. In relation to the proposed desalination plant the subject of Change Request 19 the main safeguarding mechanism for potential impacts on coastal geomorphology receptors would be the CPMMP which must be adhered to during construction and operation. The ExA notes that the DL10 update to the CPMMP [REP10-041] includes amendments to specify the desalination plant where necessary (for example, scour monitoring at the intake and outfall locations). Given the mitigation that would be secured through the CPMMP we do not consider that any additional provision for mitigation of coastal impacts in relation to the desalination plant is required.

Draft DCO Requirement 19 (formerly 12B) of the DCO

- 5.8.343. This requires that details of the layout, scale, and external appearance of the permanent BLF, the SCDF, the permanent HCDF preceded by the temporary HCDF, and the temporary MBIF are submitted to and approved by ESC in consultation with the MMO, and the EA, before the commencement of that work. The Requirement specifies the details to be included, and provision is made for the Proposed Development to be carried out in accordance with the approved details. Since this Requirement now covers all aspects of the design of the marine infrastructure with specific reference to the BLF and the MBIF, no separate Requirement for those aspects of the Proposed Development is now necessary. As indicated above, the question raised by ESC in relation to the management of the overlapping jurisdiction of ESC and

the MMO in the intertidal area has been resolved. The ExA considers that draft DCO Requirement 19 would be effective in securing the submission, approval, and implementation of the details of the matters which it now encompasses, and no amendment of the drafting is required.

Whether any additional requirements, including those relating to the Marine Technical Forum (MTF), and the MAP would be necessary to address adverse physical changes to the coast

The submissions of IPs

- 5.8.344. At ISH6, [REP5-144] ESC confirmed that they had agreed with the Applicant that the MTF could be secured through the Deed of Obligation rather than through a requirement in the DCO. ESC also proposed other Requirements that did not appear in the draft DCO including for a Maintenance Activity Plan (MAP), and the funding of the CPMMP.
- 5.8.345. The National Trust's submission in lieu of attendance at ISH6 [EV-110] indicates that they believe that the membership of the MTF needs to include independent roles and to also include landowners who may be impacted by the development over its lifetime and decommissioning (such as the National Trust). They also indicated that some consideration needs to be given to the provision of a relevant funding mechanism for appropriate mitigation/ compensation should monitoring evidence impacts on their land attributable to the development.
- 5.8.346. The DL5 submission of Mr Bill Parker in relation to ISH6 [REP5-191], suggests that certain aspects should be built into the structure of the MTF including having meaningful local community membership, and being open to public scrutiny.
- 5.8.347. TASC in their written submissions of oral case at ISH6 [REP5-297] agree with the National Trust that the MTF membership should include large landowners such as the RSPB and the National Trust, in addition to the local parish/town councils representing the relevant coastal communities.

The Applicant's response

- 5.8.348. The MTF has terms of reference agreed by its members (the Applicant, MMO, EA, NE, and ESC) and the intention is for the MTF to continue its role post-consent. Its continued existence is secured in the Deed of Obligation [REP10-082]. At ISH6, the Applicant submitted that it has been appropriately constituted, and does not require any additional members [REP5-111].
- 5.8.349. The Applicant also clarified the purpose of the inclusion of the MAP in Condition 34 (now Condition 31) of the DML in response to a query from ESC as to whether it was similarly required in the DCO and to be subject to their approval. It was included specifically to cover certain activities that would become licensable once the nuclear station becomes operational. These are activities that are fully within the remit of the MMO, and there are no maintenance activities that would be covered in this plan that would relate to activities on land above MHWS which are not already covered by the CPMMP. The Applicant does not consider

there to be a need for the same commitment to be made within a separate Requirement to the DCO because the underlying rationale for its inclusion in the DML was simply absent [REP5-111].

The ExA's conclusions

- 5.8.350. At ISH6, [REP5-144] ESC confirmed that they had agreed with the Applicant that the MTF would be secured through the Deed of Obligation. The MTF Terms of Reference are included in the Deed of Obligation Annex I [REP10-082]. It is not therefore necessary for the MTF to be secured through a requirement in the dDCO.
- 5.8.351. At ISH6, a number of IPs suggested that the MTF membership should have a broader base and should include landowners. The MTF was established in 2014 and its terms of reference are agreed by its members (the Applicant, MMO, EA, NE, and ESC). The intention is for the MTF to continue its role post-consent [REP5-111]. Since the MTF includes relevant statutory environmental bodies, and the local coastal authority, the ExA does not consider that it is necessary for a broader base membership to be specified at the outset. However, we note that there might be the scope for additional participation with the agreement of MTF members when specific issues were being discussed. That is an approach that we would welcome.
- 5.8.352. At ISH6, the Applicant also clarified [REP5-111] the purpose of the inclusion of the MAP in Condition 34 (now Condition 31) of the DML in response to a query from ESC as to whether it was similarly required in the DCO, and to be subject to their approval. The ExA agrees that there is no need for the same commitment to be made within a separate Requirement of the draft DCO.

Whether it would be necessary and reasonable to make provision in the draft DCO for the removal of the HCDF at decommissioning

The submissions of IPs

- 5.8.353. A number of IPs made different points on this topic. They include the EA [REP5-148] who would welcome a provision in the draft DCO requiring the removal of the HCDF after decommissioning. This point was also made by a number of other IPs. At ISH6, ESC [REP5-144] sought to establish a default position that the HCDF should be removed at the decommissioning phase. They also submitted that the site funding plan should be based on the premise that this feature would be removed, subject to future assessment confirming otherwise.
- 5.8.354. The ISH6 summaries of the submissions of the Minsmere Levels Stakeholders Group, Stop Sizewell C, Theberton and Eastbridge Parish Council and Cllr. Mr Paul Collins [REP5-287] make the point that if the HCDF is removed, then that leaves the cut-off wall as being the only thing that would be there. They contend that the cut-off wall is not really something which would encourage any sort of natural process to return, should the sea come anywhere near that structure. They therefore query

this Requirement, and the process whereby the HCDF and all that it entails would be removed.

- 5.8.355. The National Trust's submission in lieu of attendance at ISH6 [EV-110], indicates that they consider it is necessary and reasonable to make provision in the draft DCO for the removal of the HCDF at decommissioning. This is due to the unique and special nature of the heritage coast and designated landscape within which the site of the Proposed Development is located. They believe that this should include provision for the removal of the HCDF along with all other associated infrastructure.
- 5.8.356. TASC in their written submissions of oral case at ISH6 [REP5-297] agree that there should be a provision for the removal of the HCDF together with all associated infrastructure. However, they seek clarification that the reference to 'decommissioning' means after all the spent fuel and all contaminants have been removed from the site. They also assert that the draft DCO or Deed of Obligation (DoO) needs to provide the mechanism for funds to have been set aside for this purpose.
- 5.8.357. Professor Blowers [REP5-189] in his 'Supplement to Statement of Interest' presented at the ISH6 notes the possibility of the removal of the coastal defences at the end of operations. In that event, he is concerned that the nuclear island, including the waste stores, would be left entirely exposed. Although it is possible that the defences would afford little effective protection at that point, he contends that their removal would be an act of gratuitous folly suggesting an unclear and uncaring approach to conditions in the far future.

The Applicant's response

- 5.8.358. The Applicant has confirmed that the forecast date (2140) when the HCDF is no longer needed to protect the nuclear site, is the date by which all nuclear materials and safety functions will have been removed from the site of the Proposed Development, following decommissioning of the Sizewell C Plant and removal of spent fuel from the site.
- 5.8.359. The Applicant has provided a response on this topic to CG.3.1 [REP8-116]. The Applicant does not consider there to be any technical reason which would prevent removal of the HCDF after decommissioning. However, that decision will be subject to assessment at the time (to be set out in a monitoring and mitigation cessation report in accordance with the CPMMP [REP10-041]. The CPMMP also records the default position to be removal of the HCDF, but confirms that such decision must be subject to, and only confirmed after, assessment at that later point in time.

The ExA's conclusions

- 5.8.360. A number of IPs have put forward differing views on this matter. There are those who seek a provision in the dDCO requiring the removal of the HCDF after decommissioning, whereas others raise concerns as to the safety and feasibility of so doing.

5.8.361. In relation to the safety aspect, the Applicant has confirmed that the forecast date (2140) when the HCDF is no longer needed to protect the nuclear site, is the date by which all nuclear materials and safety functions will have been removed from the site of the Proposed Development, following its decommissioning, and removal of spent fuel from the site. The Applicant has also confirmed in response to CG.3.1 [REP8-116] that it does not consider there to be any technical reason which would prevent removal of the HCDF after decommissioning. The CPMMP [REP10-041] records the default position to be removal of the HCDF. However, such decision would be subject to assessment at the time in accordance with the CPMMP. The ExA considers that this provides an appropriate means of addressing this issue, and that no separate draft DCO Requirement is therefore necessary.

Overall Conclusions

- 5.8.362. The ExA has considered the detailed criticisms made by IPs of the scope of the assessment principles adopted by the Applicant. However, insofar as the overarching methodology for the assessment of effects is concerned, we believe that the assessment principles adopted by the Applicant are satisfactory and fitting.
- 5.8.363. The modelled scenarios provided prior to the submission of the latest version of TR544 [REP10-124] show that maintenance of the SCDF would be viable throughout operation and decommissioning. Since the ExA does not have the benefit of input from other IPs, including relevant statutory consultees, regarding the updated TR544 submission, we have not relied upon that document in reaching our conclusions on this topic. However, given the role that the CPMMP would play as a means for addressing uncertainty in the future, we consider that the earlier assessments submitted to the Examination are sufficient to enable the potential coastal impacts of the Proposed Development to be satisfactorily assessed.
- 5.8.364. On the question of the assessment of tsunami risk, the ExA considers that the Applicant's approach to this aspect of the Proposed Development is in accordance with NPS EN-6, paragraphs 2.7.3 and 2.7.4, and that any further assessment of the safety aspects of this matter is appropriately considered within the remit of the Nuclear Regulators.
- 5.8.365. NPS EN-1, paragraph 5.5.7, requires the Applicant to assess, amongst other things, "*the implications of the proposed project on strategies for managing the coast as set out in Shoreline Management Plans (SMPs)*". The ExA concludes that there would be a breach of SMP policy MIN 13.1 [REP1-072], but we consider that the HCDF has been positioned as landward as possible. We do not find that the Proposed Development would have any substantive implications for the overall SMP strategy for managing the coast. In addition, the draft DCO Requirement 19 (formerly 12B) provides a means whereby the design details of the HCDF, including layout, would require ESC approval in consultation with the MMO and the EA before the commencement of that work which provides an additional safeguard.

- 5.8.366. The ExA has considered whether there is a need for a further EGA to be carried out that would take into consideration all additional information and assessment that has been submitted on this topic and provide an independent expert assessment of the issues. However, for the reasons we have given, we do not consider such an assessment to be necessary.
- 5.8.367. The ExA has had regard to the matters raised by IPs in relation to the Applicant's assessment, and the consideration of the role played by the Sizewell-Dunwich banks and the Corraline Crag. We find the Applicant's assessment of these features to be suitably precautionary, comprehensive, and robust. In any event, we believe that the CPMMP would provide an appropriate mechanism to pick up any fluctuations in bank topography, and to secure the protection of the Corraline Crag from avoidable unnatural deterioration. However, we welcome the fact that the updated CPMMP [REP10-041] includes monitoring techniques that are targeted to the elements of the coastal geomorphology receptor, namely, beach and shoreline position, longshore bars, and the Sizewell-Dunwich bank. The ExA concludes that appropriate mitigation for these features would be secured through the CPMMP, and we have no outstanding concerns in this respect.
- 5.8.368. The ExA has had regard to the concerns expressed by IPs in relation to the timescales and extent of the Applicant's coastal assessment. However, the evidence supports the view that the effects would be contained within Greater Sizewell Bay. We consider the Applicant's approach to focus upon that area to be appropriate. The ExA is also content that the Applicant would be able to see early, from the monitoring, if any of the predictions were not correct, and would be able to adjust for those, if necessary. The ExA therefore finds the spatial scale of the Applicant's coastal processes assessment to be entirely reasonable and proportionate in its extent. We conclude that it is not necessary to require other locations to be included in the baseline monitoring and mitigation proposals, and that the CPMMP would provide a satisfactory means of achieving that outcome in the unlikely event that impacts would be greater in extent and nature than predicted.
- 5.8.369. In relation to the potential impacts upon the Minsmere frontage, and the role of the Minsmere sluice, the ExA does not consider that the Proposed Development would affect the natural function of the sediment transport around the sluice outfall. We conclude that the Proposed Development would not therefore affect the sluice's ability to discharge.
- 5.8.370. The ExA has considered the potential impacts associated with the use of a jack-up barge, dredging, and the barge berthing platform. The matters raised by ESC, NE and the MMO have been addressed by the Applicant during the Examination. The ExA concludes that the monitoring and mitigation provided for by the CPMMP, and secured by the draft DCO and DML, would provide the necessary safeguards in relation to impacts of any dredging associated with the permanent BLF, the MBLF or barge berthing platform. The HRA aspects of the matters raised by NE are considered in Chapter 6 of this Report.

- 5.8.371. The ExA has given careful consideration to the concerns raised by IPs in relation to the fragility of the coastline and the potential cumulative impacts of the Proposed Development. We consider that the CPMMP would provide an appropriate mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work which has been undertaken, including any additional cumulative impacts.
- 5.8.372. The ExA has considered the adequacy of the proposed climate change adaptation measures, and the resilience of the Proposed Development to ongoing and potential future coastal change during its operational life and any decommissioning period including the scope for the HCDF to undergo design adaptation to maintain nuclear safety against predicted sea level rises.
- 5.8.373. We conclude that the Adaptive Design would provide a feasible means of increasing the crest height of the HCDF so that the sea defence could adapt to a CM sea level rise should that scenario develop as a result of climate change. The arrangements for monitoring and assessing the impacts of climate change on sea level rise to determine the trajectory of the projections, would enable implementation of the Adaptive Design to take place before the threshold is reached. The Proposed Development would therefore comply with the requirements of EN-1 and EN-6 relating to climate change adaptation, including EN-6, paragraph 2.8.2, which relates to good design.
- 5.8.374. On the matter of the SCDF particle size, the CPMMP [REP10-041] makes a clear commitment to use the native particle size as the default assumption. If future modelling should indicate that this may no longer be feasible, the MTF must agree any proposed change in approach. The ExA considers this matter to be satisfactorily resolved together with the concerns raised regarding the extent of the monitoring should coarser sediment be used.
- 5.8.375. In relation to the resilience of the HCDF and the SCDF, the ExA believes that the CPMMP would provide an appropriate mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work which has been undertaken, including in relation to the design of those features. We conclude that, in accordance with EN-1 paragraph 5.5.10, the Proposed Development would be resilient to coastal erosion and deposition, taking account of climate change, during its operational life and any decommissioning period.
- 5.8.376. The ExA has considered the matter of the Sizewell B salient and the implications for the overall defensibility of the SCDF, and hence the HCDF, upon cessation of the Sizewell B operation. We find the risk posed by the Sizewell B salient to be overstated, and that the CPMMP recharging mitigation would remain effective following the cessation of the Sizewell B operation.
- 5.8.377. The ExA considers that the necessary monitoring, mitigation, and controls are incorporated within the latest revisions of the draft DCO requirements, the DML and the CPMMP. We are content that with those

measures in place, and secured through the draft DCO, the Proposed Development would not inhibit sediment flow or have an adverse impact on coastal processes at other locations.

- 5.8.378. The ExA therefore concludes in relation to EN-1, paragraph 5.5.7, that the assessment of the Proposed Development has taken account of potential impacts from climate change and any adverse impacts resulting from it on other parts of the coast would be minimised. It would also be consistent with the UK Marine Policy Statement, and would not conflict with the aims of regional planning policies.
- 5.8.379. The ExA recognises that coastal change is a key consideration in this case. This is an area that is vulnerable to coastal change, and EN-1 indicates that the Government's aim is to direct development away from such areas. We shall consider whether the Proposed Development is exceptionally necessary in this location in our overall conclusions in Chapter 7 of this Report. However, we are satisfied that appropriate monitoring and mitigation would be in place to ensure management of any risks to the Proposed Development, and to secure the long-term sustainability of the coastal area. Therefore, the ExA concludes that there are no matters relating to Coastal Geomorphology and Hydrodynamics which would weigh for or against the Order being made.
- 5.8.380. Whilst the ExA takes the view that there is sufficient evidence to enable us to safely conclude on these various matters, we have also highlighted in relation to the modelling and assessment work, including cumulative effects, that the Secretary of State may wish to consult with IPs in relation to the information provided by the Applicant at DL10 [REP10-124], and obtain confirmation from the EA that this now meets its remaining concerns in relation to the SCDF, and consequently the HCDF, before reaching a final decision. In addition, the Secretary of State may consider that it would assist to have further evidence on the topic of the Sizewell B salient. These matters are included in Appendix E to this Report as considerations for the SoS.

5.9. COMMUNITY EFFECTS

- 5.9.1. This Chapter covers the community effects raised through the Examination Policy Considerations
- 5.9.2. EN-1 notes decision-makers should consider any relevant positive provisions the developer has made, or is proposing to make, to mitigate impacts (for example through planning obligations) and any legacy benefits that may arise.
- 5.9.3. It also recognises that the influx of construction workers and associated local demographic changes may alter demand for services and facilities in settlements nearest the development which can then have the potential for effects on social cohesion.
- 5.9.4. Paragraph 4.2.2 of EN1 expects Applicant's to set out information within their ES on the likely significant social and economic effects and show how any likely significant negative effects are avoided or mitigated.

5.9.5. Paragraph 4.2.4 states *"The IPC should satisfy itself that likely significant effects, including any significant residual effects taking account of any proposed mitigation measures or any adverse effects of those measures, have been adequately assessed."*

5.9.6. Paragraph 5.12.3 advises further that the assessment should consider all relevant socio-economic impacts, which may include:

"• the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development."

5.9.7. The IPC (now SoS) should have regard to the potential socio-economic effects and should consider any relevant positive provisions the Applicant has made or proposes to make, to mitigate for adverse impacts and any legacy benefits that may arise.

NPPF

5.9.8. The NPPF makes clear that policies and decisions should aim to achieve healthy, inclusive and safe places which promote social interaction, are safe and accessible, and enable and support healthy lifestyles. Paragraph 130 sub paragraph f) states that planning decisions should ensure that developments:

"create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience."

The Development Plan

5.9.9. East Suffolk Local Plan Policy SCLP 3.4 recognises as a key consideration for major energy infrastructure projects. The potential for adverse impacts on local communities, with the potential for community safety and cohesion impacts which consequently will need to be a consideration in decision-making.

The Applicant's Case

5.9.10. The Applicant's Community Impact Report [APP-156] sets out the scope and approach that was taken having first been agreed with ESC and SCC. The Applicant recognised the project could have both positive and adverse effects on local communities during both construction and operation.

5.9.11. The Community Impact Report was divided geographically into 6 areas Leiston, Yoxford, Saxmundham, Aldeburgh and Snape, the rest of East

Suffolk and finally neighbouring local authorities and outer areas, this is shown on Figure 1 of [APP-157].

- 5.9.12. Within each of the sections for the respective areas, the assessments set out an overview for each area and describes the construction and operational effects on the economy, accommodation, community cohesion, safety and services before setting out the proposed mitigation and subsequent residual effects.
- 5.9.13. The Community Impact Report refers to effects that are discussed in other chapters of the ES, recognising the inter-related nature of these matters. Within [APP-156] the Applicant set out where there was considered to be residual community affects from the proposed development for each of the respective areas studied. This set out both the benefits and harms that had been identified, and the residual benefits and harms once mitigation had been considered.

Leiston Area

- 5.9.14. Within the Leiston area, the Applicant found there to be significant benefits arising from the project including:
- Direct and indirect job opportunities through construction and operation;
 - The potential for higher wages to be created locally resulting in more spending within the local economy creating an economic multiplier effect; Provision of new sports facilities at the Alde Academy;
 - Transport improvements; and
 - Health and wellbeing benefits due to the improved economic opportunities.
- 5.9.15. In recognition of the disturbance that would arise particularly in the construction period, the Applicant, working with the Councils, has prepared a series of measures to respond to these effects. Provision of screening through planting and barriers, a transport strategy seeking to minimise disturbance with support through funding for the public realm, pedestrian and cycle improvements. Noise issues would be managed through best practice in combination with physical barriers and recreational routes would be diverted or permanently closed.
- 5.9.16. The Community Impact Report also recognises there would be project wide effects which could influence economic, community and health and wellbeing issues.
- 5.9.17. The Applicant identifies the primary mitigation in the Leiston area as the provision of an accommodation campus of up to 2,400 bed spaces, a caravan park at the ACA for up to 400 caravans, accommodating up to 600 workers. A 24/7 on site occupational health service, new sports facilities at the Alde Academy, design of the campus and caravan park with noise screening and landscape bunding, diversions of PRow and various transport proposals to minimise adverse traffic effects.

- 5.9.18. Tertiary measures such as the Code of Worker Conduct would also assist in managing the project. With secondary mitigation through financial contributions towards the Community Fund, Housing Fund, Tourism Fund and Public Services Contingency Fund secured through the DoO.
- 5.9.19. The Applicant states that the project at the peak of construction would require up to 7,900 workers as well as 600 associated development staff. The aim is to employ 2410 workers recruited locally (within 90 minutes of the MDS) The job opportunities represent a significant benefit for the local area.
- 5.9.20. An employment skills and education strategy which is set out in Appendix A to the Economic Statement [APP-611], provides a strategic approach based around four strategic priorities with measures intended to leave a long-term legacy locally, meet key government and regional policy priorities.
- 5.9.21. This would be further supported through a skills initiative, flexible skills enhancement and capability fund with funding in place for a Regional Skills Coordinator which are included within the DoO.
- 5.9.22. Once operational, the power station would provide around 900 jobs. The Applicant estimates 370 permanent operational jobs would be filled by existing residents within 25 miles of the power station. During outages this would increase by around 1000 of which 850 would be non-home based. This is planned to occur every 18 months per unit and last around two months.
- 5.9.23. Business supply chain opportunities would arise during construction and operation with an estimated value of £20 billion. Drawing on the experience from Hinkley, the Applicant estimates that in the region of £1.55 billion could be committed to local or regional companies in the East of England.
- 5.9.24. The supply chain would be supported by the Sizewell C Supply Chain Team and a supply chain portal a partnership with the Suffolk Chamber of Commerce.
- 5.9.25. The local and regional firms would be supported by the education and skills strategy and create a pathway for legacy benefit for contracts with these firms and the corresponding employment opportunities into the operational phase. Creating a significant beneficial effect for the regional economy.
- 5.9.26. This would feed positively into the wages and spending in the local area with an estimate of £1.1 billion over the construction period. This is considered to be a significant beneficial effect.
- 5.9.27. Spending by employees once the power station was operational would be expected to boost local average earnings, and spending on local services. In turn, this would boost the local economy, supporting additional jobs, a further significant beneficial effect.

- 5.9.28. The SLR would relieve traffic on the B1122 and provide a more direct high-quality route to Leiston, whilst the Applicant also proposes to contribute towards town centre traffic management measures in Leiston.
- 5.9.29. During construction the Applicant proposes to develop a Tourism Fund to promote the area, to reduce risks of change to visitor behaviour and from the experience of Hinkley, the Applicant concludes there would not be a residual significant effect on tourism including in Leiston.
- 5.9.30. In terms of effects on accommodation, the Applicant estimates that 634 non-home-based workers would live within existing housing within Leiston, with the additional 3,000 at the accommodation campus and caravan park.
- 5.9.31. The Applicant recognised in paragraph 2.6.27 of [APP-156] that
"If suitable mitigation was not implemented, this number of workers could have adverse effects on how the private rented and tourist sectors operate in Leiston."
- 5.9.32. Mitigation would be provided by the accommodation campus and caravan park and would be supported by a Housing Fund, Accommodation Management Strategy with information gathered through regular work force surveys and monitoring.
- 5.9.33. The Applicant recognises that the change in the Leiston population would be significant but did not consider it possible (para 2.6.30) [APP-156]
"to assess whether it would be a beneficial or an adverse effect."
- 5.9.34. The Applicant's ES on socio-economic effects undertook an assessment on community services and having regard to the mitigation proposed, considered that there would be negligible effects on community services, safety or cohesion apart from sports provision.
- 5.9.35. This would be addressed through the sports facilities provided at the Alde Academy, and the on-site gym provision for workers. The new permanent facilities would be available for shared use by workers, the school and the local community during construction, and would remain as a legacy post-construction. This would help to avoid effects on community cohesion and would provide a significant beneficial effect on sports provision locally.
- 5.9.36. To aid in community cohesion, the Applicant would ensure the accommodation would be managed actively, require workers to sign up to a code of conduct, and have pre-employment checks and ongoing drug and alcohol testing and security vetting. This would be supported through a Community Safety Management Plan (CSMP) [APP-635].
- 5.9.37. Funds would also be provided through the Public Services Contingency Fund, Community Fund secured through the DoO and managed through a series of working groups to effectively allocate resources to avoid or reduce potential effects on public services.

- 5.9.38. The Applicant concludes that there would be significant beneficial residual effects on people, jobs and homes in Leiston and this is summarised in table 2.1 of [APP-156].
- 5.9.39. The Transport mitigation and effects are covered in the transport chapter of this Report, and it is not intended to repeat these here. It is recognised however, that as part of the project wide management of the project, a series of traffic management issues are included and in respect of Leiston, a specific pedestrian and cycle fund for public realm improvements is proposed and this is secured in the DoO.
- 5.9.40. The ES concludes despite these, there would be residual significant adverse effects on the B1122 in the early years.
- 5.9.41. Health and wellbeing issues are addressed in Chapter 5.12 of this report, however, within the ES chapter on community impacts, the Applicant includes as part of their mitigation a series of health care initiatives including a Healthcare Planning Contribution and, Community Fund.
- 5.9.42. The Applicant concludes, that taking mitigation into account there would be significant residual benefits during construction and operation for the:
- Socio-economic health benefits –employment and income effects (key determinants of health influencing social, mental and physical health);
 - while there would be significant adverse health and wellbeing effects due to the temporary increase in significant residual night-time noise exposure between the Saxmundham and Leiston branch line and from localised construction activities. Summarised in (Table 2.3) of [APP-156].
- 5.9.43. A summary of the amenity and recreation, landscape and visual, noise and vibration, and air quality assessments are included within the community impacts report and these issues are covered in their respective chapters of this Report.
- 5.9.44. With regard to project wide cumulative effects in Leiston, significant adverse residual effects were identified in the early years of construction at the PRow group north of Leiston, and for the construction period at Leiston Abbey including the Pro Corda Trust.
- 5.9.45. During construction, the combined noise and vibration, air quality and\or landscape and visual effects are likely to lead to an increased sense of disturbance and additional significant adverse effects to the following residential or representative residential receptors in Leiston:
- Abbey Cottage, 1 and 2 Upper Abbey Farmhouse, Upper Abbey Farmhouse, Lower Abbey Farm, Abbey Road Leiston, Ash Wood Cottages, Common Cottages, 158 King George’s Avenue, Keepers Cottage, Lovers Lane/Sandy Lane junction, 1 and 2 Common Farm Cottages, Lovers Lane/Sandy Lane junction, Old Abbey Farm and Abbey Farm Care Home, Plantation Cottages, Rosery Cottages, Round House, The Studio, Sizewell Sports and Social Club, Abbey View Lodges, Orchard House 105 Abbey Road.

- 5.9.46. In the operational phase, significant adverse effects from the combined noise and vibration, air quality and/or landscape and visual effects are likely to lead to an increased sense of disturbance and additional significant adverse effects to the following residential or representative residential receptors in Leiston:
- 2 Upper Abbey Farmhouse, Ash Wood Cottages, Common Cottages, Keepers Cottage, Lovers Lane/Sandy Lane Junction. 1 and 2 Common Farm Cottage, Lovers Lane/Sandy Lane Junction. Plantation Cottages. Rosery Cottages. The Studio.
- 5.9.47. Cumulative effects with other projects and plans pertinent to Leiston identifies the potential for significant beneficial effects on the labour market at a regional scale during construction (Sizewell C Project and East Anglia THREE) and at a local scale during operation (Sizewell C Project and East Anglia ONE North, East Anglia TWO, East Anglia THREE).
- 5.9.48. With significant adverse visual effects during construction in the early and peak years at:
- Visual Receptor Group 18: Knodishall and Aldringham from (Sizewell C Project and East Anglia ONE North and East Anglia TWO cable route and substation);
- and significant adverse visual and amenity and recreation effects at:
- Visual Receptor Group 19: Aldringham Common from (Sizewell C Project and East Anglia ONE North, East Anglia TWO, Nautilus Interconnector, Eurolink Interconnector, Greater Gabbard extension and Galloper Extension Offshore Wind Farms).

Yoxford Area

- 5.9.49. Within the Yoxford area the Applicant found there to be significant benefits arising from the project including direct and indirect job opportunities through construction and operation. The potential for higher wages to be created locally resulting in more spending within the local economy creating an economic multiplier effect. Provision of new sports facilities at Leiston, transport improvements with new and improved recreational routes and health and wellbeing benefits due to the improved economic opportunities.
- 5.9.50. In recognition of the disturbance that would arise particularly in the construction period the Applicant working with the Councils has prepared a series of measures to respond to these effects. Construction measures (such as screening and landscaping) and the layout of the MDS itself have been designed to be as sympathetic as practicable to the surroundings. A transport strategy would be put in place to minimise disturbance as far as practicable.
- 5.9.51. Disruption to PRow would be managed by following best practice and would include the control of the methods of working through the CoCP in addition to the provision of physical barriers to control noise.

- 5.9.52. Within the Yoxford area, the Applicant identifies the primary mitigation as the Northern P&R, the SLR and Yoxford roundabout improvements.
- 5.9.53. Tertiary mitigation and enhancement are to be provided through the Worker Code of Conduct. With secondary mitigation, including financial contributions through the Community Fund, Housing Fund, Tourism Fund and Public Services Resilience Fund secured through the DoO.
- 5.9.54. The Applicant confirms the same approach as set out for the Leiston Area in providing evidence for significant benefits of the scheme to employment, the supply chain, and increased wages supported by the schemes already cited.
- 5.9.55. Within the Yoxford area, the assessment indicates 131 non-home-based workers are likely to live in the area during construction and without appropriate mitigation, could have an adverse effect on the private rented and tourist sectors. The accommodation requirements of the project and management structures are delivered through those cited in the Leiston area assessment.
- 5.9.56. Taking into account the mitigation measures proposed, the Sizewell C Project would be expected to have negligible effects on community cohesion, safety and on community services, excluding sports provision which is addressed by the sports facilities at the MDS and the Alde Valley Academy in Leiston.
- 5.9.57. During the construction and the removal and reinstatement phases of the northern park and ride site (Darsham), combined noise and vibration, air quality and landscape and visual effects are likely to lead to an increased sense of disturbance and additional significant adverse effects to the following residential or representative residential receptors in Yoxford:
- Residential properties on the western side of Main Road adjacent to the eastern boundary of the site (northern park and ride site).
- 5.9.58. In the operational phase of the northern park and ride site, combined noise and vibration, air quality and landscape and visual effects are likely to lead to an increased sense of disturbance and additional significant effects to the following residential or representative residential receptors in Yoxford:
- Residential properties on the western side of Main Road adjacent to the eastern boundary of the site (northern park and ride, Darsham).
- 5.9.59. In respect of the SLR, a similar combination of effects is identified to have a significant adverse effect during construction and subsequent operation at Vale Cottage, Oakfield House, Valley Farm House, Annersons Cottage and Coronation Cottages.

Saxmundham Area

- 5.9.60. This area includes parts of the SLR and highway improvements on the A12 west of Saxmundham.

5.9.61. The community and economic effects of construction workers moving into the area are part of the project wide effects assessed, which is covered by the mitigation schemes referred to in the previous sections. The Applicant confirms the same approach as set out for the Leiston Area in providing evidence for significant benefits of the scheme to employment, the supply chain, and increased wages.

5.9.62. During the construction and operational phases of the Sizewell C Project, combined noise and vibration, air quality and landscape and visual effects are likely to lead to an increased sense of disturbance and additional significant adverse effects to the following residential or representative residential receptors in the Saxmundham area:

- Eastbridge.
- Potters Farm.
- Potters Street.

5.9.63. During the construction of the SLR, combined noise and vibration, air quality and landscape and visual effects are likely to lead to an increased sense of disturbance and additional significant adverse effects to the following residential or representative residential receptors in the Saxmundham area:

- Kelsale Lodge Cottages.
- Fir Tree Farm.
- Forge Cottage and Walnut Cottage.
- The Granary and Theberton Lodge.
- Red House Farm and Rosetta Lodge.

These significant adverse effects would continue through the operation phase at:

- Fir Tree Farm.
- Forge Cottage and Walnut Cottage.
- Red House Farm and Rosetta Lodge.

5.9.64. The significant beneficial effects on the labour market from the cumulative effects with other plans and projects would also extend through to the Saxmundham area.

Aldeburgh and Snape

5.9.65. This area includes the TVB around Farnham and Stratford St Andrew.

5.9.66. The assessment identified project wide effects on the community, caused by construction workers and their families temporarily moving to the area to work on the construction of the Sizewell C Project, and the associated health and wellbeing effects associated with the economic effects experienced by communities.

5.9.67. The mitigation schemes referred to in the previous sections are project wide and reflect similar effects in this area. The Applicant confirms the same approach as set out for the Leiston Area in providing evidence for

significant benefits of the scheme to employment, the supply chain, and increased wages.

5.9.68. No significant residual project-wide cumulative effects are expected in Aldeburgh and Snape.

5.9.69. During the construction and future operation of the TVB, combined noise and vibration, air quality and/or landscape and visual effects are likely to lead to an increased sense of disturbance and additional significant adverse effects to the following residential or representative residential receptors in the Aldeburgh and Snape area:

- Hall Cottages and Farnham Hall, Farnham.
- Farnham Street Farm.
- Rosehill Cottages.
- The Red House.
- Timbers.
- Farnham Hall Farmhouse

Additional significant adverse effects from operation would also adversely affect:

- Tinker Brook and Park Gate Farm,
- Pond Barn Cottages.

5.9.70. The significant beneficial effects on the labour market from the cumulative effects with other plans and projects would also extend through to the Aldeburgh and Snape area.

5.9.71. Significant adverse visual effects during the construction in the early and peak years is also identified in Receptor Groups 18 and 19 and 20, from the cumulative effects with Sizewell C Project and East Anglia ONE North, East Anglia TWO, Nautilus Interconnector, Eurolink Interconnector, Greater Gabbard extension and Galloper Extension Offshore Wind Farms.

5.9.72. These adverse effects are also recorded as affecting amenity and recreation during the same period at Receptor Groups 19 and 20.

The rest of East Suffolk district

5.9.73. Associated development comprises:

- Wickham Market (southern) park and ride.
- Freight management facility at Seven Hills.
- Highways and junction improvements.
- Safety measures at the B1078/B1079 junction east of Easton and Otley College to be secured by the DoO; and
- A12/A144 highway layout.

5.9.74. Figure 6 of [APP-157] shows the parts of the development that would happen in in the rest of East Suffolk district.

5.9.75. Given the scale of the Proposed Development project wide effects would be felt across the district.

- 5.9.76. The mitigation schemes referred to in the previous sections are project wide. The Applicant confirms the same approach as set out for the Leiston Area in providing evidence for significant benefits of the scheme to employment, the supply chain, and increased wages.
- 5.9.77. In addition to the project-wide mitigation above, the following additional secondary mitigation would be implemented in Wickham Market:
- Financial contributions for Wickham Market through the legal undertaking to provide pedestrian, cycle and public realm improvements with the aim of directing traffic to use the A12 rather than less suitable routes such as the B1078 through Wickham Market.
- 5.9.78. No project-wide cumulative effects are expected in the rest of East Suffolk.
- 5.9.79. In respect of cumulative effects with other plans and projects the Applicant reaffirmed the significant socio-economic benefits during construction and operation in conjunction with the Sizewell C Project and East Anglia ONE North, East Anglia TWO, East Anglia THREE.
- 5.9.80. A significant adverse effect from traffic along the A12 at Little Glemham and Marlesford during the construction peak was also identified within the assessment.

Cumulative effects in Mid Suffolk, West Suffolk local authority areas

- 5.9.81. Highway safety measures at the A140/B1078 junction west of Coddendam are within Mid Suffolk Council area. These safety measures include improvements of visibility splays and signage and road markings which will be secured through the DoO.
- 5.9.82. Following the Change Request to include Pakenham, the ES Addendum from the Applicant did not indicate any change to assessment of community impacts, Pakenham being located in the West Suffolk Council area.
- 5.9.83. The project wide effects would continue in respect of this broader area in respect of the community and economic benefits previously identified.
- 5.9.84. The mitigation schemes referred to in the previous sections are project wide and reflect similar effects in this broader area. The Applicant confirms the same approach as set out for the Leiston Area, in providing evidence for significant benefits of the scheme to employment, the supply chain, and increased wages.
- 5.9.85. No project-wide cumulative effects are expected in the neighbouring local authorities' area.
- 5.9.86. The Applicant prepared a Community Safety Management Plan (CSMP) [APP-365] which set out:

- *"a precautionary approach to manage impacts on community safety, cohesion and public services, with a focus on prevention where possible and measures to raise awareness of the Sizewell C Project's changes/risks to community safety;*
- *information for accommodation providers in the PRS and tourism sectors, setting out details of the workforce profile and the Code of Conduct;*
- *a mechanism for the local community to register public concerns, through (for example) a hotline;*
- *provision of occupational health services to reduce pressure on existing facilities and a review of any residual public health care requirements from NHB workers and their dependants; and*
- *provision of project-recreational facilities, including off-site sports pitches, helping to manage the demand from workers."*

5.9.87. The CSMP is not of itself secured by the DoO but the measures it refers to are. This in conjunction with the Community Fund promoted by the Applicant would address many of the issues that were recognised within the assessment, having recognised that the construction of the Sizewell C project over an extended period would have a wide range of effects in the local area, including negative effects.

5.9.88. The Applicant also recognised that even with the mitigation proposed that "there would be other intangible impacts on the general quality of life locally from the presence of such a major construction project, bringing such significant change to the local area." [APP-590 para 10.5.2].

Matters arising during Examination

5.9.89. Matters that arose during the Examination in relation to Community Effects include in essence:

- Effects on accommodation;
- Effects on fly parking;
- Effects on community cohesion due to a large external workforce;
- Recreational and cultural effects;
- Effects on the passenger rail service and rail safety;
- Effects on communities as a result of construction and workforce traffic;
- Effects on public services including capacity constraints.

5.9.90. A significant number of parish and town councils raised concerns with regard to each of these issues for the respective communities they represent. These include Campsea Ashe [REP2-235], Farnham with Stratford St Andrew [REP2-273], Hacheston [REP2-283], Kelsale cum Carlton [REP8-231], Leiston cum Sizewell [REP8-235], Marlesford [REP2-365], Melton [REP2-367] Middleton cum Fordley [REP8-243] Theberton and Eastbridge [REP8-277], Walberswick [REP2-487], Westleton [REP2-490] Wickham Market [REP2-493], Woodbridge [REP2-196] and Yoxford [REP2-500].

- 5.9.91. Community/Action Groups such as Farnham Environment Residents and Neighbours Association (FERN) [REP2-262] and the B1122 Action Group [REP3-098] expressed concerns in respect of the TVB and B1122 respectively. While public service providers such as the Ipswich and East Suffolk Clinical Commissioning Group (CCG), Police and Ambulance Services identified concerns that were county wide and Together Against Sizewell C (TASC) [REP2-481, REP2-481a – 481n] and Stop Sizewell C [REP2-508] raised community issues that were project wide.
- 5.9.92. It is also recognised that many of the issues which have the potential to affect communities both in a positive and negative way are covered within individual chapters of this report and it is not intended to duplicate what they assess but seek to draw on the elements raised in order to set out the ExA's conclusions in respect of effects on the communities involved.
- 5.9.93. It is also important to recognise that community effects are likely to arise from a combination of factors and the cumulative assessment chapter also covers these aspects of the proposal.
- 5.9.94. A broad range of community concerns were identified by a variety of IPs which are summarised below.
- 5.9.95. Kelsale cum Carlton Parish Council (PC) [RR-0655] consider the development will have significant impacts on Kelsale-cum-Carlton in addition to neighbours in Leiston, Eastbridge & Theberton, Middleton-cum-Fordley and Yoxford - seriously impacting the life, wellbeing and mental health of residents, and all communities adjacent to the A12. Works undertaken in each corner of the parish Leiston branch line works to the south, the SLR to the north, increased traffic to the west on the A12 to the east the bypassing of Theberton and the severance this creates. The direct impact is cumulatively reducing the ability of; local businesses, residents, visitors, tourists, carriers and couriers to go about their respective activities without hindrance.
- 5.9.96. Middleton cum Fordley PC [RR-0795] considered that from the Seven Hills junction with the A14, all the way to the site, regardless of projected by-passes and a new link road (both of which are seen as hopelessly inadequate, badly sited but nonetheless needed to be in place before work commences), will increase to such a level that the daily lives and livelihood of people along the route will be severely disrupted by delays and excessive pollution – noise, light and airborne matter. It is also going to adversely affect the ability of the Emergency Services to speedily answer calls will be prejudiced to a life-threatening degree. In the event of road repairs being required, or a traffic accident, the intended roads leading to Sizewell have no viable alternative routes, which would not only hold up work at the site but seriously threaten the life of the local population.
- 5.9.97. The PC considered that there will be a tangible loss of amenities and the quality of life, regardless of EDF's efforts to 'minimise' the impacts.

- 5.9.98. Westleton PC [RR-1264] Construction will cause significant environmental, social & economic damage to the local area. The extensive scale of the construction site, the associated workforce and the location of the site itself will severely damage an area of outstanding natural beauty which is the basis of a significant and flourishing tourist economy and will place significant burdens on local services, housing and disrupt the local economy.
- 5.9.99. Walberswick PC [REP5-224] considered the impacts in the early years had been ignored. With the potential for up to 3,000 workers and the accommodation not provided there would be significant pressure on the local housing market.
- 5.9.100. Within the LIR [REP1-045] the Councils identified the risk of anti-social behaviour, crime and non-crime community safety issues in the locality, with the potential for increased tension in the community as a result of the incoming workforce. In addition, the risk of criminal exploitation, additional violence and hate crime were also identified as a community issue. The ExA have considered these aspects under the community safety and cohesion section below.

Effects on accommodation

- 5.9.101. In light of the risks identified within the ES of the effects of the workforce in the local area and the concerns expressed in the LIR [REP1-045] in this regard, the ExA asked questions about this topic in EXQ1 [AI.1.8, G.1.52, CI.1.0, AR.1.10] and pursued it further at ISH4 and ISH12.
- 5.9.102. SCC were also concerned that there could be adverse effects on the local highway network which would have a knock on effect on the local community if provision of suitable accommodation was not delivered as the applicant intends. This in turn would lead to a challenge to the potential traffic controls which should be delivered the CWTP and CTMP [REP8-183].
- 5.9.103. The location of the accommodation campus at the MDS was also an issue of concern raised by IPs including [RR-0124, RR-0490], due to the noise, light and social effects of the buildings but also the consequent effect of the work force on a rural and small scale community at Eastbridge and Theberton. IPs pointed to the number of beds (2400) that the accommodation blocks would provide which would dwarf the existing population in Eastbridge and Theberton. This could damage the communities and the current character and ambience of village life which was so highly regarded by so many.
- 5.9.104. Leiston cum Sizewell Town Council (TC) [RR-679] stated that:
- "more than 80% of the construction work and workforce will be based in the parish of Leiston-cum Sizewell. Personnel movement into and out of the town to access services, leisure and businesses would put a lot of pressure on the amenity of local residents particularly with housing, access to footpaths and create pressure on the social cohesion of the*

community. The TC also considered it would make huge changes to the current level of socio-economic activity."

- 5.9.105. The TC considered the effect on residents needs to be acknowledged by the Applicant and appropriately mitigated.
- 5.9.106. The Applicant's Accommodation Strategy [APP-613] consists of several elements:
- a caravan park of 400 pitches, each pitch would be provided with electricity and separate toilet shower facilities in line with ESC standards;
 - An accommodation campus adjacent the MDS of up to 2,400 bed spaces;
 - Accommodation management system; and
 - Housing Fund.
- 5.9.107. The caravan park was added to the DCO under numbered works Work No. 1A (dd) and described as "*serviced pitches for up to 400 caravans and 400 temporary car parking spaces.*" The Accommodation Campus and caravan park is then secured separately by Schedule 3 of the Deed of Obligation.
- 5.9.108. The Applicant also responded in answer to ExQ2 CI.2.1 that the Accommodation Strategy clearly understood that in the early years of construction, prior to the caravan park being delivered, the number of workers would be below the number of workers that would be associated with an outage at Sizewell B. This is already accommodated within the housing and tourism accommodation market. The market would be supported by the Housing Fund's Tourist Accommodation Market Supplement element giving more support than currently is in place.
- 5.9.109. The Councils and IPs [RR-0262] expressed concerns that housing displacement of vulnerable residents would result from the natural inclination of landlords to increase rents and that this could be a by-product of increased accommodation pressure (28.44 of LIR) [REP1-045].
- 5.9.110. Adverse effect on the local community from the accommodation campus were identified in representations including [RR-0124]. This was considered to have significant impacts on local communities during construction and thereafter because of noise, light, pollution, traffic and the consequent social pressures. RRs did not consider the developer provides sufficient justification for the accommodation campus location and impacts, and the alternatives offered by Suffolk County Council had not been seriously considered. The campus buildings provide no legacy use for the buildings or the site.
- 5.9.111. Summarised below are the different concerns raised by various groups:
- 5.9.112. Stop Sizewell C [RR-1162] amongst others identified that the development would lead to unacceptable pressure on the local housing

market, and tourism accommodation particularly during the construction period.

- 5.9.113. Stop Sizewell C [RR-1162] Consider that there would be unacceptable impacts on local communities, in particular Leiston, Eastbridge and Theberton; and settlements along the B1122 and A12. Nearby residents would experience noise increases 600 times ambient levels; noise levels at Old Abbey Care Home will increase 200 times.

The campus would have significant impacts on local communities during construction and thereafter because of noise, light, pollution, traffic and social pressures. The developer does not provide sufficient justification for its location and impacts.

- 5.9.114. ESC in response to ExQ1 AR.1.10 confirmed they considered the accommodation campus would be unlikely to cause disturbance to the tranquillity of the AONB or disturbance to the residents of Eastbridge. In their view, the noise and disturbance from the main development site and construction area is likely to exceed any noise or disturbance arising from the campus.

- 5.9.115. TASC [REP6-078] considered that the Applicant's assessments on the housing market was not up to date and was undertaken pre pandemic, consequently, there was no recognition that the housing market has come under increased pressure with larger numbers of people seeking to relocate to the countryside and house prices rapidly increasing. Making it even more difficult for local people to get on the housing ladder. TASC do not consider there to be any benefit to the local community in respect of housing and indeed see it as a further negative against the proposal.

- 5.9.116. Apart from the accommodation provided by the Applicant from the accommodation blocks and caravan site, it is anticipated that around 800 workers will seek a range of tourist accommodation, a further 1,200 would seek longer lets, and a figure of 880 are expected to buy in the area. These figures in TASC's view seem, at this time, impossible to achieve given that local estate agents are having such a busy time.

- 5.9.117. Great Glemham PC [RR-438] were concerned about the location and sequence of construction for the accommodation unit(s) and it requested reassurance that these proposals included relevant additional services such as GPs and welfare support, rather than workers seeking these from the tightly stretched local facilities.

- 5.9.118. Snape PC [RR-1132] expressed the view that the present accommodation strategy envisages significant numbers of the workforce in the construction phase renting local accommodation and this is bound to directly impact local tourism. Public Services will also be affected by increased demand on all public services with a major influx of additional people. The demand on already overstretched health and police resources will be significant and has not been addressed. The development of Sizewell B brought with it additional policing and health demands which were only recognised at a late stage and this aspect of potential impact on the area needs focus.

- 5.9.119. Theberton and Eastbridge PC [RR-1214] identified accommodation impacts from the 2,400-worker campus and expected both the traffic and the impact from the number of workers compared to the parish and Leiston populations to be excessive.
- 5.9.120. Yoxford PC [RR-1277] considered the accommodation need would distort the private rental sector of the local housing market making it harder for local people to secure housing. That would have a knock-on increase on demand for social housing from local people. The housing need would encourage the repurposing of current tourist accommodation for Sizewell C workers reducing the number of tourist beds in the area. Fewer tourists would negatively impact tourist focussed businesses not involved in accommodation.
- 5.9.121. SCC [REP8-183] expressed concern that the timing of the accommodation campus was important to allow the Applicant to deliver on its obligations in the transport strategy. Without it there could be adverse traffic effects which would need to be addressed.

ExA Consideration

- 5.9.122. The consideration of the accommodation strategy was the subject of ExA questions and a topic of discussion in ISH12 and ISH14 in dealing with community and DCO issues respectively.
- 5.9.123. The ExA had expressed concern about reliance upon 'reasonable endeavours' to deliver the accommodation, with no trigger, or no requirement to deliver the accommodation which had been identified as a project need by the Applicant but was not to be delivered by a prescribed threshold or timed event which could then be enforced. ESC in [REP7-120] highlighted their concern on this matter.
- 5.9.124. The Applicant maintained it was in their interest to provide the accommodation as without it they could not deliver on the project. Nevertheless, they remained of the view it was not necessary or reasonable to require a more stringent requirement on the delivery of this key element of mitigation.
- 5.9.125. At ISH 12 and ISH14 the timing of the provision of the accommodation was explored further and whether the back stop arrangements that had been developed would safeguard the local community from the potential harms that could materialise in the event the accommodation strategy did not deliver the bed spaces forecast to be required in a timely manner.
- 5.9.126. The ExA also sought additional clarification from the Councils and the Applicant in both ExQ2 and ExQ3 and the responses can be found at [REP8-115 and REP8-116]. The Applicant also provided a detailed response to the ExA's request for further information in [REP8-130] that provides a comprehensive response how the different elements of the accommodation strategy and the supporting housing funds would be delivered.

- 5.9.127. ESC at this point in the Examination confirmed their satisfaction with the position, but SCC had outstanding reservations as there were potential knock-on effects to the transport strategy in the event the accommodation was not delivered on programme.
- 5.9.128. This has, at the end of the Examination, resulted in a series of measures being added into the DCO and DoO which provides for a timetable of delivery, in line with the Implementation Plan [REP2-044] and the Construction Method Statement [REP10-025]. Both Councils confirmed they were content with the final position in the SoCG [REP10-102].
- 5.9.129. The combination of the physical provision of accommodation, the funding in the event there is a shortfall or late delivery in conjunction with the management of accommodation through the whole accommodation strategy had developed through the Examination process.
- 5.9.130. The provision of suitable quantity and quality of accommodation in a timely manner is an important part of ensuring the potential impacts from the development are suitably addressed. The Councils and the Police were ultimately satisfied by the Applicant's proposals by the end of the Examination as set out in their SoCG and this is persuasive.
- 5.9.131. The consideration of the location of the accommodation campus adjacent the MDS is considered in the Alternatives section of this chapter of the report.
- 5.9.132. The ExA explored the methodology of assessment and the suitability of the Accommodation Strategy throughout the Examination which in conjunction with the accommodation provided directly by the Applicant, should in the ExA's view, result in appropriate mitigation for this part of the project.

Fly Parking

- 5.9.133. Snape PC [RR-1132] and Kelsale cum Carlton PC [REP2-351] did not consider that there has been proper assessment of the potential for fly parking by work force traffic during construction and operation. The PCs are aware that this has been an issue with current work at Hinkley Point C. This issue was also raised by the Councils in the joint LIR [REP1-045] section 31.14.
- 5.9.134. The ExA sought the views of the Applicant and the Councils at ExQ1. AR.1.28 and TT.1.36 The Applicant considered that the CWTP (Annex L of the DoO [REP10-078] addresses the potential to encourage a mode shift from car to more sustainable modes of travel. The workforce transport strategy embedded in the DCO delivers a very high non-car mode share, even before the CWTP is implemented. A key focus of the CWTP is therefore 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 Sizewell C construction works.
- 5.9.135. The Applicant considered that the Sizewell C Project will achieve a significant sustainable travel mode share during the construction phase,

with 80% of the construction workers in the early years and 83% at peak construction making their daily journey to work at the main development site via sustainable modes for at least part of their journey.

- 5.9.136. Travel to work by car would be managed through the commitment to achieve the mode share targets, coupled with the control on parking spaces and parking permits.
- 5.9.137. The Applicant also proposes to employ a fly parking patrol team to carry out daily patrols to identify possible cases of fly parking. They will be both proactive and reactive, following up reports from local residents to the Sizewell C community help line. Workers would be allocated to a mode of travel during their induction based on the principles set out in the CWTP. Compliance with the CWTP (Annex L of the Deed of Obligation) [REP10-078] would be a requirement of all construction employees and contractors working at the MDS. It would be reinforced through a consenting and management process which would be produced in discussion with the local authorities.

ExA Consideration

- 5.9.138. In recognising from the outset, the potential problems that fly parking could cause, the Applicant has prepared a comprehensive range of measures in order to respond to this risk. This has been adapted through the Examination in response to concerns raised by IPs and both Councils. These measures include:
- Fly parking patrol teams;
 - The Sizewell community Helpline;
 - Worker code of conduct with disciplinary rules; and
 - Monitoring data being reported to the Transport Review Group.
- 5.9.139. The ExA consider that the combination of these elements to be delivered through the DoO and DCO would provide an adequate way of monitoring and managing the potential risks of fly parking from the development and these concerns should not weigh against the making of the Order.

Effects on community cohesion

- 5.9.140. A large influx of workers is recognised as a challenge that will need to be carefully managed to achieve a positive outcome for the workforce and the host community as EN-1 states at 5.12.3:

"the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work."

- 5.9.141. The Councils in the joint LIR [REP1-045] recognised this and identified concerns with regard to potential adverse effects on community cohesion including community safety. Both of which needed to be mitigated or the impacts could be severe.

- 5.9.142. In addition, Leiston cum Sizewell Town Council [RR-0679] identified this as a significant issue. Leiston cum Sizewell TC stated that from the town's perspective, the numbers, age and sex profile of the workforce population was likely to be at odds with the local community. The TC considered this could bring about pressure on these local communities and services, resulting in potential conflict, challenges to the cohesion of the local community and in the worst case scenarios result in criminal behaviour, prostitution and exploitation.
- 5.9.143. Leiston cum Sizewell TC and the Police amongst others reflected that this had been experienced during the construction of Sizewell B, a project that was both physically smaller and shorter in duration than the current proposal and did not want a repeat of those experiences.
- 5.9.144. Suffolk Constabulary [REP2-167] identified concerns for community safety with regard to three areas;
- Substantial demographic change;
 - Substantial traffic changes, including large numbers of AILs; and
 - Substantial changes to health and safety risks with the occurrence of protests, disturbances leading to additional emergency preparedness and incident response requirements.
- 5.9.145. Theberton PC [RR-1214] understood that EDF expects to import most of the supply chain and workforce from Hinkley Point whilst most of the 'local' people to be employed are expected to fill the lower-skilled/paid jobs in "Site Support". With this there will be considerable additional pressure on health, social and emergency services in particular on policing.
- 5.9.146. The Applicant referred to the success that had been achieved at Hinkley as evidence of the positive way a construction project of this scale could be managed. Utilising best practice from Hinkley and lessons learned, would further support the positive management of this project to ensure a successful development. Within [APP-635] the Community Safety Management Plan (CSMP), the Applicant identifies a series of measures which it considers will assist in supporting existing community safety arrangements, such that the Proposed Development can progress without significant adverse effects arising in the local community.
- 5.9.147. It also disputed the conclusions reached by the Councils on the degree of effect that would arise in respect of community safety and cohesion, the Applicant does not consider the assertions made have been supported by evidence. Nevertheless, plans have been developed to provide mitigation on a precautionary basis.
- 5.9.148. These plans include an ongoing role for the Community Safety Working Group secured through Schedule 5 of the DoO. This is further supplemented by amongst other things the provision of an Emergency Co-ordinator, an Emergency Services contingency contribution and Public Services Resilience Fund, all secured within the DoO. The Applicant also proposes the provision of a worker code of conduct, although this would

be a contractual arrangement outside of the DoO to be agreed with employees.

- 5.9.149. ESC in answer to ExQ1 CI.1.11 [REP2-176] state that through the DoO mitigation measures, the impact and issues that will be created through an influx of 5,900 Non-Homebased (NHB) workers into East Suffolk and surrounding areas, with a particular impact on the Leiston community. The East Suffolk Community Safety Partnership is proposing a number of mitigating measures to address the risk effects of the projected influx of NHB workers and provide support to the workers and local community to diffuse the potential tension in the area including – bolstering local Voluntary Community Social Enterprise groups to provide activities and support. Re-introducing successful schemes including pubwatch, Nightsafe and Town pastor schemes and bolstering existing schemes to promote responsible drinking, reduce risks and fears experienced by communities and to support vulnerable people in terms of the night-time economy. Training will be provided to local communities including publicans in conflict management.
- 5.9.150. The Applicant confirmed that it recognised Leiston would experience temporary and permanent change as a result of the Sizewell C Project and has designed a package of mitigation measures which will proportionately focus on Leiston’s residents, workers and businesses, including generating a range of legacy benefits for Leiston’s future advantage.
- 5.9.151. As part of the ES [APP-195] provides an assessment of the likely significant effects on public services and community facilities, and this provides the mitigation proposed for the significant impacts of the Sizewell C Project. A wide range of embedded and additional mitigation is proposed to support the community during the construction and operation of the Sizewell C Project, including in relation to an increase in NHB workers.
- 5.9.152. The Community Safety Management Plan [APP-635] has been developed in collaboration with the Councils, emergency services and health stakeholders and includes means of monitoring and mitigating potential impacts relating to community safety, community cohesion, and the provision of policing, fire and rescue services.
- 5.9.153. Additionally, the Sizewell C Community Fund would be made available to fund schemes, measures and projects to help mitigate intangible, residual in-combination effects on local communities as a result of combined environmental effects, both perceived and real. The Community Fund would be secured through the DoO.
- 5.9.154. The Community Fund proposed by the Applicant seeks to address a wide range of effects across the local area. The Community Fund aims to address the intangible effects on the quality of life which would come about during the construction of this national project, which is recognised would bring about significant change to the local area.

- 5.9.155. Paragraph 10.5.2 of the Planning Statement [APP-590] states:
- "Those intangible impacts are hard to define but SZC Co. does not dispute that there would be residual effects on the quality of life locally. For example, whilst many people react differently to changes in circumstances, it is likely that some people in the local area would sense or recognise a change in their local area through the extended period of construction activity, which may affect the way they feel about the quality of life experienced by them and by their communities. Residents of communities such as Eastbridge, Theberton, or Leiston are likely to be relevant in this context."*
- 5.9.156. This aims to provide a fund that would provide compensatory enhancement to quality of life which can be used for a wide range of measures such as the repair of community facilities, support for local events and activities. They would not directly mitigate for specific effects but can contribute towards offsetting residual harms to the quality of life.
- 5.9.157. This principle was accepted as part of the Hinkley Point C development and the ExA do not consider that this is an unreasonable approach as it would go some way towards assisting in reducing some of the effects of the development and provide potential opportunities for the local community to see tangible benefits from the proposal that otherwise may not be realised.
- 5.9.158. The ExA agree with the Applicant's assessment that the community fund is a material consideration that should be taken into consideration. It has been prepared as a consequence of and response to the development of the Sizewell C project, the effects of the development will be material to the quality of life for local communities. The governance arrangements allow for the affected community to be part of the process in delivering the benefits that would come from the fund and this will respond directly to the effects of the development over a prolonged period of time.
- 5.9.159. The CCG [RR-0500] and the Suffolk Constabulary [RR-1140] both expressed concerns with regard to the assumptions of impacts on the local community, as to whether they could be regarded as conservative and had fully assessed the likely impacts.
- 5.9.160. The Constabulary in their WR [REP2-168] set out detailed criticisms of the approach undertaken by the Applicant and highlighted their concerns with regard to policing, the impacts upon community safety, and road safety. In preparing a detailed policing impact assessment the Police identified a range of community safety and policing impacts.
- 5.9.161. In summary the Constabulary found that the consideration of community safety was undermined by:
- The narrow scope of assessment;
 - Limited consideration of demographic factors;
 - Over reliance on evidence from Hinkley.

This in turn in the Constabulary's submission results in an inappropriate replication of the modelling and resourcing between the Sizewell and Hinkley projects when a bespoke solution specific to the local requirements is required.

- 5.9.162. The Constabulary concluded the ES had not fully addressed or identified the likely significant adverse effects on community safety and policing. In order to try to address the differences between the parties a Police Impact Assessment (PIA) was carried out on behalf of the Constabulary using staffing and traffic data supplied by the Applicant [REP2-519].
- 5.9.163. The Applicant responded to these concerns in reply to EXQ CI.1.14-1.16 in [REP2-100] where they reiterated their position that they consider the ES has properly identified the impacts that would arise on community safety aspects of the proposals and that financial contributions to support the community stakeholders including the emergency services is secured through the DoO.
- 5.9.164. The Applicant in addition made reference to [APP-635] where within Table 5.1 a series of mitigation measures to be secured through the CoCP and DoO are set out. For ease of reference this Table is copied below:

Table 5.9.01 Project mitigation measures contributing to community safety

Measure	Details
24/7 on site security team.	<ul style="list-style-type: none"> • Will include Operation Spire to support dealing with any on-site protests. • Main development site will have security fencing, CCTV and badged access via turnstiles only. • Associated Development sites will have 24/7 security. • Secured by design and target hardening measures will be set out in detailed design as part of requirements discharge, where applicable. <p><i>NOTE: The Developer's security remit extends only to workers on the main development site or associated development sites (including campus and caravan site only) – Suffolk Constabulary would be responsible for responding to crime by or against the workforce in the community.</i></p>
On site fire and rescue capability.	<ul style="list-style-type: none"> • 24/7 on-site fire to provide first response to incidents / deal with small fires. • Contractors to be required to effect their own rescue from any equipment they bring on to site. • Suffolk Fire and Rescue Service required for larger fires
Emergency co-ordinator.	<ul style="list-style-type: none"> • Co-ordinator to appraise incident / situation; allocate available site-based resource; contract emergency services to request assistance. • Ensures one point of contact for 999 calls. • Will meet emergency services at agreed rendezvous point and escort emergency services to scene of incident. • In addition, contact person for each emergency service for day-to-day liaison, site familiarisation visits etc. to be identified. • Site familiarisation visits to be agreed / funded for emergency services under Strategic Relationship Protocols and Section 106 Agreement (see draft Section 106 Heads of Terms).
Occupational Health Service.	<ul style="list-style-type: none"> • The provision of a comprehensive on-site occupational health service providing a wide range of services as secured through an obligation in the Section 106 Agreement (see draft Section 106 Heads of Terms). The full scope is set out in Chapter 28, Volume 2 of the ES (Health and Wellbeing) and Appendix 28A - Health Technical Note 1. • All Tier 1 contractors will have TMIC (trauma and medical immediate care training) (or similar), allowing site to effect first response to incidents, supported by Sizewell Health. • East of England Ambulance Service support will be required for

Measure	Details
	workers injured on construction sites and associated development sites (including accommodation campus and caravan site) needing accident and emergency care.
Security vetting of workers on main development site.	<ul style="list-style-type: none"> Vetting to ensure that workers do not pose a risk to the Sizewell C Project, other workers or the community.
Drug and alcohol testing.	<ul style="list-style-type: none"> Mandatory testing pre-start on project plus random and for cause testing on site. Limits will be applied for ability to work on site. Drug and alcohol testing will be set out in the Worker Code of Conduct and therefore will apply to every contractor or worker on the Sizewell C Project.
Accommodation campus and caravan site.	<ul style="list-style-type: none"> Good quality project managed accommodation will help attract and retain a high quality workforce as well as helping manage worker behaviour. On site campus bars, restaurants, gym and campus-run events e.g. quiz nights, available to all Sizewell C workers.
Sport and recreation facilities	<ul style="list-style-type: none"> Off-site sports facilities to be provided in Leiston as part of the Sizewell C Project and available to all workers. SZC Co. will construct or provide a contribution to fund the construction and maintenance of a 3G pitch and two multi-use games areas in Leiston (see draft Section 106 Heads of Terms). Location at Alde Valley School and adjacent to Leiston leisure centre will allow shared community use and promote community cohesion e.g. through leagues.
Accommodation Strategy.	<ul style="list-style-type: none"> Including a portal to allow providers to register available accommodation which would also be used to communicate required safety / quality standards e.g. fire safety. A housing fund will be provided via the Section 106 Agreement to provide grants / loans to implement improvement measures / meet required standards (see draft Section 106 Heads of Terms). Workforce survey will allow identification of concentrations of NHB workers and help determine allocation of Section 106 funds via a socio-economic advisory group. See Accommodation Strategy (Doc Ref. 8.10) for additional detail.
Transport mitigation measures.	<ul style="list-style-type: none"> Including new road and rail infrastructure and highway improvements, plus a CWTP (Doc Ref. 8.8), CTMP (Doc Ref. 8.7) and a TIMP (Doc Ref. 8.6). See Transport Assessment (Doc Ref. 8.5). The implementation of the CWTP, CTMP and TIMP will be secured through the Section 106 Agreement (see draft Section 106 Heads of Terms). See below for details.
Employment, Skills and Training Strategy.	<ul style="list-style-type: none"> A set of measures with the aim of helping local people to secure work on the Sizewell C Project and with a focus on social value. See Employment, Skills and Education Strategy - Annex A to the Economic Statement (Doc Ref. 8.9). The implementation of the Employment, Skills and Education Strategy will be

Measure	Details
	secured through the Section 106 Agreement (see draft Section 106 Heads of Terms).

5.9.165. The ExA examined these matters further at ISH12. The Constabulary confirmed in [REP8-175] that their concerns in respect of community safety and cohesion were summarised in four key interlinking principles:

- Funding with a reserve for funding and a contingency;
- the management and movement of AILs;
- appropriate auditing of any funding; and
- governance arrangements for the Transport review Group (TRG) and Community Safety Working Group (CSWG).

5.9.166. They also confirmed that progress had been made in respect of each of these items. By the end of the Examination discussion between Suffolk Constabulary and the Applicant, has resulted in agreement as to the potential level of impact, and the appropriate measures for mitigation, which would allow for preventative, as well as if required reactive activities. This principle is reflected in the DoO and confirmed in the final SoCG [REP10-106].

5.9.167. The mitigation measures agreed with the Applicant through the DoO relate to impacts/increases of activity of criminal exploitation, including county lines and modern slavery, as well as domestic abuse and sexual violence. The funding is proposed for preventative work, as this is key to avoiding as much as possible such impacts. It would also cover a reasonable and proportionate level of contribution towards support services related to domestic abuse.

ExA Consideration

5.9.168. Suffolk Constabulary had maintained objection to the project throughout the Examination and were still opposed to how the project had set out how the potential for community safety and cohesion pressures were to be managed at ISH12. This reiterated and supported the approach that had been set out in their earlier submissions at [REP7-155].

5.9.169. The Constabulary’s evidence was considered further by the Applicant which led to changes to the CTMP to manage AILs, and adjustments to the support and funding packages the Constabulary considered necessary to allow them to provide suitable policing for the project.

5.9.170. SCC in their post summary hearing comments [REP8-183] confirmed that further discussions had been undertaken with the Applicant, and SCC state:

5.9.171. *"we have reached agreement as to the potential level of impact, and an appropriate scale of mitigation, which would allow for preventative, as well as if required reactive activities. This principle is reflected in the draft Deed of Obligation."*

- 5.9.172. ESC confirmed in [REP8-150] that agreement had been reached on how mitigation could be delivered through the Public Services resilience Fund which is secured by way of Schedule 5 of the DoO and confirmed their confidence that this would allow joint working with partners including the Police and community groups to promote community cohesion and *"improve the integration of workers, reduce community tensions, and mitigate any potential risks to community safety."*
- 5.9.173. The approach taken by the Applicant and the final raft of mitigation offered has been agreed by the Councils and the Constabulary as confirmed in their respective SoCGs [REP10-102, REP10-106] and the ExA are satisfied these measures provide for appropriate safeguards to avoid significant adverse effects in respect of community safety and cohesion and we conclude that there are no issues which would weigh for or against the making of the Order.

Recreational and cultural effects

- 5.9.174. The Applicant proposes a track for exercise and small gym at the accommodation campus at the MDS, and a new 3G pitch with two Multi Use Games Areas (MUGAs) on land adjacent the Leiston Leisure Centre and Alde Valley Academy.
- 5.9.175. In order for the sports pitch to provide facilities for the workforce, the timing of the provision of sports and recreational facilities were the subject of examination and included within the agenda for ISH4. The Applicant confirmed that this would be in place, in line with the delivery of on-site accommodation, but it is subject to the completion of design and contractual commitments to be delivered by ESC through the DoO. ESC confirmed they were content with this approach.
- 5.9.176. Recreational impacts from the increase in the size of the community from the increased worker population was raised by RSPB/SWT [RR-1059] and the National Trust amongst others. The effects of concern over impact upon European protected sites is covered within the HRA Chapter 6 of this report.
- 5.9.177. It is worth noting however, that Natural England in their submission [REP10-200] did confirm that they were content that following additional submissions and explanations from the Applicant in [REP8-135] that their concerns had been addressed.
- 5.9.178. In [REP8-135] Informal Recreation and Green Space Proposals, the Applicant provided a more detailed explanation of the additional green space and recreational routes that would be available. These would provide a mix of recreation activities in close proximity to the MDS and the accommodation provided at the MDS and ACA which will provide opportunities for construction workers as well as the existing population.
- 5.9.179. The Applicant has in addition, offered as part of the DoO a payment in line with ESC's calculation for RAMs which was calculated on a similar basis to that which you would expect from a similar increase in

population from a housing scheme. ESC are content with this as an approach to address these concerns.

5.9.180. Leiston TC in answer to ExQ1 AR.1.21 [REP2-184] were concerned that there were other pressures that would arise from this development which sports pitches would not address, and additional support was required for a broader range of facilities in the town to support existing cultural activities and events.

5.9.181. In answer to ExQ1 CI.1.11 the Applicant confirmed that they recognise:

"Leiston will experience temporary and permanent change as a result of the Sizewell C Project and has designed a package of mitigation measures which will proportionately focus on Leiston's residents, workers and businesses, including generating a range of legacy benefits for Leiston's future advantage."

5.9.182. The mitigation the Applicant cites includes the accommodation campus, caravan park, the sports pitches at Leiston Academy, a Code of Construction Practice, Community Safety Management Plan and transport measures and accommodation strategy. These will be supported by the Public Services Resilience Fund.

5.9.183. The Applicant confirms that Schedule 14 of the DoO includes a ringfenced sum from the Sizewell C Community Fund which will be applied solely for projects within the ward of Leiston, and

"in particular Leiston-cum-Sizewell". The Sizewell C Community Fund will be used to mitigate intangible and residual impacts of the Sizewell C Project on communities via grants for schemes, measures and projects which promote economic, social and environmental well-being and improvements to quality of life. This may include cultural or recreational activities tied to these principles."

5.9.184. The ExA also note that as reported on in section 5.5 of this Chapter, specific schemes are proposed for the Leiston ward including the Leiston Scheme (Annex R) and Leiston cycling and walking improvements (Annex Y) of the DoO

5.9.185. The ExA are satisfied that the combination of mitigation offered will allow the opportunity to provide recreational and broader cultural opportunities in the local area which will support both the workforce and the resident population. These factors the ExA consider do not weigh for or against the making of the Order.

Effect on Passenger Rail Services and Rail Safety

5.9.186. Rail safety was raised as a specific issue with regard to the Darsham level crossing. Network Rail (NR) confirmed that the park and ride facility at Darsham would need to be relocated so it did not affect the level crossing or funding provided to upgrade the crossing.

5.9.187. NR confirmed in answer to TT.2.5 [REP7-146] that an application for funding was to be made in March 2024. They also noted should funding

not be secured, the mitigation works could not be delivered, and NR could not support the Park & Ride car park operation due to the unacceptable risk. The Applicant has agreed a 50% contribution to the works, but delivery of the works will be dependent on NR securing funding for the other 50%.

5.9.188. SCC in their response to TT.3.3 [REP8-180] stated:

"The County Council considers that the additional use by pedestrians accessing the park and ride together with the increase traffic resulting from construction of SZC would not result in a detrimental impact on road safety. However, SCC does not have the expertise to calculate the theoretical impact using Network Rail's accepted methodology and cannot quantify this risk."

5.9.189. NR maintain that without the upgrades the P&R should not go ahead. The position at the end of the Examination did not secure the provision of the upgrades and this remains of concern.

5.9.190. While the Applicant did not consider that the traffic generated by their proposal was such that it justified in planning terms the full cost of the upgrades being met by them, they acknowledged that in the event that NR were not successful in gaining funding they would be willing to enter into further discussions on the issue.

5.9.191. A number of IPs including [PDB-053, REP2-249] identified that there was a risk to the passenger rail service by the addition of freight trains onto the line. Experience from users of the current service identified delays already occurring particularly when the London train was delayed and the connection was held.

5.9.192. With the line being a single line with limited passing spaces any impact at one end could have a consequential effect in the opposite direction of travel. SCC had undertaken a report by AECOM which identified some of the challenges facing the proposal and the time available to deliver the improvements necessary for the freight service proposed.

5.9.193. The LIR [REP1-045] recorded the aspiration to improve the network as a factor to support the planned economic growth in the area, and the adoption of the rail strategy promoted by the Applicant would compromise any ability to make the upgrades necessary to facilitate the other improvements. The Councils considered it was regrettable that the improvement of the line by the addition of a passing loop between Woodbridge and Saxmundham as proposed at stage 3 consultation was no longer proposed.

5.9.194. By adopting the current strategy, it represented a significant lost opportunity for a genuine legacy benefit to be realised for the local and regional community.

5.9.195. NR [REP10-099] SoCG at the end of the Examination confirmed that the Applicant and NR were finalising the terms of an Implementation Agreement to deliver the necessary upgrades of level crossings on the

East Suffolk line, to ensure the works can be delivered to meet the SZC Co. programme.

- 5.9.196. NR also confirmed a final form Basic Services Agreement had been agreed by both parties and was ready for signature. The current intention is to complete the services by the end of 2021. Services within the agreement will assess track condition of the East Suffolk line.
- 5.9.197. The Applicant in responding to IP concerns during the Examination and in conjunction with NR provided evidence that the current passenger service would be maintained, with the freight trains using the nighttime capacity that was currently largely unused.
- 5.9.198. This followed on from confirmation from the Applicant to the response to ExQ1 HW.1.19 and HW.1.27 which confirmed the progress being made to developing the strategy for dealing with safety issues on the rail line as a consequence of the increased rail traffic.
- 5.9.199. By having holding positions on the branch line and beyond Ipswich the main line passenger service would not be compromised by the addition of freight trains in line with the timetabling as proposed.

ExA Consideration

- 5.9.200. The ExA are of the view that the Applicant and NR have developed a positive working relationship to deliver the rail improvements necessary to facilitate the project within the time frame envisaged, but there remains some uncertainty as to whether this will actually happen as several stages of the process still need to be gone through to ensure this can take place.
- 5.9.201. If the momentum is maintained and results in the appropriate delivery of the improvements required, and the construction of the Green Rail Route along with the other changes envisaged, the passenger rail services should not be adversely affected by the operation of the freight service.
- 5.9.202. Any upgrades to the lines by way of improvements to the Saxmundham junction, improvements to level crossings and welding of the line may have some effects on services dependent on how they were to be planned but would be of a temporary nature. They should deliver benefits which would in the view of the ExA be of greater public benefit in the long term irrespective of any short term inconvenience that may result whilst the upgrades were facilitated. The ExA ascribes little weight relating to this issue for the making of the Order.
- 5.9.203. The ExA consider that a safety case is being presented by NR and in our view, there is insufficient evidence to go against the conclusions that they have reached. A mechanism therefore should be in place to ensure that the upgrades at Darsham are delivered even in the event that NR are unsuccessful in their bid for funds.

Effects on communities along the rail line from nighttime freight services

- 5.9.204. As the Applicant explained in response to ExQ1 NV.1.11 and NV.1.26 the final timing of trains would be set out in a freight access contract, but an illustrative timetable was provided in chapter 11 of the Consolidated Transport Assessment [REP2-045].
- 5.9.205. The operation of these trains would also be governed by the obligations set out in the draft Rail Noise Mitigation Plan (RNMP) [REP10-043] which needs to be approved in advance of trains running by ESC as secured under DCO Requirement 39.
- 5.9.206. Public Health England's response at Deadline 2 [REP2-161] to ExQ1 NV.1.19 was helpful in explaining their view and including reference to some of the research on the potential impacts of noise on sleep patterns and the effects of such disturbance.
- 5.9.207. The second aim of the Noise Policy Statement for England (Defra, 2010) is to "*mitigate and minimise adverse impacts on health and quality of life*" through the effective management and control of environmental noise.
- 5.9.208. The health effects attributable to transportation noise are associated with both the long-term averaged noise, and the maximum noise level of each passby²¹. The latter is particularly relevant to physiological sleep disturbance (sometimes known as EEG awakenings). The scientific evidence has shown that every noise event above a certain threshold has an associated probability of disrupting sleep. Therefore, when carrying out a risk assessment for physiological sleep disturbance above the LOAEL it is important to take into account both the maximum levels and the number of events that occur during the night^{22,23}.
- 5.9.209. PHE considers the dose-response relationships derived for the systematic review commissioned by the WHO to be the most scientifically robust for estimating noise induced physiological sleep disturbance. Using these relationships, and assuming a conservative 10dB outdoor to indoor level difference (equivalent to windows wide open, for example to mitigate overheating), PHE has translated the levels assigned to "Low", "Medium" and "High" magnitude of impact associated with new or altered railway lines from Table 4.7 of [APP-545] this is set out below.

²¹ M. Basner, S. McGuire. WHO Environmental Noise Guidelines for the European Region: A Systematic Review on Environmental Noise and Effects on Sleep. Int. J. Environ. Res. Public Health 2018, 15, 519.

²² M. Basner, A. Samel, U. Isermann. Aircraft noise effects on sleep: Application of the results of a large polysomnographic field study. J. Acoust. Soc. Am. 119 (5), May 2006.

²³ M. Basner, U. Müller, B. Griefahn. Practical guidance for risk assessment of traffic noise effects on sleep. Applied Acoustics 71 (2010) 518–522.

Table 5.9.02 Magnitude of noise impacts from rail

Maximum noise level outside (L _{Amax,outside})	Maximum noise level inside bedroom (L _{Amax,inside})	Probability of noise-induced sleep state change	Minimum no. of train passbys required to result in one additional awakening per night*
60	50	3.8%	26
70	60	6.9%	15
77	67	9.5%	11

- 5.9.210. PHE confirm a note of caution with this advice as the studies were undertaken based on physically healthy subjects and therefore the effects on those with a pre-existing medical condition would be unknown, the results could underestimate the effect of noise on sleep on the general population.
- 5.9.211. PHE further warn that the predicted noise levels may underestimate what may actually occur and indicates that the uncertainties could be addressed by widening the scope of the monitoring currently set out in the CoCP.
- 5.9.212. The Applicant responded to these concerns confirming that the threshold for the Noise Mitigation Scheme had now been lowered reducing it below the SOAEL and the threshold for noise levels within bedrooms of 65dB L_{AFmax} cited by PHE forms the basis of the derivation of the SOAEL for railway noise.
- 5.9.213. ESC set out their ongoing concerns in response to the same series of questions from the ExA which is summarised as an uncertainty regarding the deliverability of the full package of measures forming the RNMP. The RNMP is proposed as primary mitigation and therefore the updated assessment of effects assumes that these would be adopted in their entirety. If these measures are not deliverable, then this would presumably change the assessment of effects. The revised NMS eligibility thresholds (in line with the EIA significance) are welcomed, but if the RNMP is not deliverable then no other physical mitigation is currently proposed between LOAEL and SOAEL.
- 5.9.214. Woodbridge Town Council (TC) supported the concerns raised by ESC and felt that nighttime freight trains proposed an unacceptable risk to health and wellbeing of people living in Woodbridge.
- 5.9.215. The Applicant reiterated their confidence in the delivery of the RNMP and by having a safeguard that required ESC's approval written into the DCO at Requirement 39 The Council's position was safeguarded, and residents appropriately protected.

ExA Consideration

- 5.9.216. Within the SocG with NR [REP10-099] NR confirm that the details for the final implementation of the level crossing upgrades for the East Suffolk Line are being finalised to allow their delivery in line with the programme agreed with the Applicant.
- 5.9.217. The provision of the RNMP and the addition of requirement 39 in the dDCO gives a significant degree of control to ESC as the rail transport necessary to implement the project cannot commence in advance of the final RNMP being agreed by ESC. With the physical improvements to the rail line at both Saxmundham junction and along the branch line itself, the ExA are content the Applicant has appropriately addressed the concerns identified by IPs such that significant adverse effects from the operation of the rail line would be managed and mitigated to an appropriate level.
- 5.9.218. The ExA considers that there are no matters relating to Passenger Rail Services and Rail Safety matters which would weigh for or against the making of the Order, other than the outstanding issue at Darsham referenced in the Transport section of this Report.

Effect on the community from construction and workforce traffic

- 5.9.219. In preparing the application the Applicant established a highway corridor to facilitate construction, this is identified on Fig10.10 of [APP-200] and was agreed with Highways England and SCC as the highway authority.
- 5.9.220. This route therefore creates a corridor of effects which in transport terms is considered elsewhere within this report, but it creates a principal route for potential effects on those communities either directly on the route or near to it. This part of Suffolk is a principally rural area with the A12 as it's main artery which many IPs consider during the summer months in particular can be congested with the single carriage way sections and junctions being vulnerable to queuing and delay.
- 5.9.221. The Applicant developed a strategy for both construction traffic and worker traffic supported by the two park and ride facilities and freight management facility with a CMTP and CWTP to seek to manage these effects. IPs remained throughout the Examination concerned that this route would be adversely affected which consequently would lead to adverse effects on each of the communities.
- 5.9.222. The area is heavily dependent upon the tourism industry and the traffic during the traditional holiday season was noticeably more than at other times of the year. The combination IP's felt could harm the attractiveness of the area and subsequently the tourism industry.
- 5.9.223. Concerns were reflected by numerous parties along the traffic routes identified by the Applicant but beyond. These include:
- 5.9.224. Concerns as to how Wickham Market [RR-0959, RR-1266] could be adversely affected by traffic impacts from noise vibration and disruption and potential loss of parking on B1078 [RR-762] resulting in greater adverse effect on people with disabilities.

- 5.9.225. Coddendam Parish Council (PC) [RR-0248] remain extremely concerned at the proposal in relation to the impact on the rural highway network and environment and in particular on the B1078 which runs right through the heart of the village. The information made available so far fails to adequately address or even discuss in certain respects the extreme difficulties associated with the prospect of additional traffic movements on the B1078 through the village centre.
- 5.9.226. Blythburgh PC [RR-0143] identify adverse traffic impacts upon the local community from rat running and fly parking within the village and along the B1125 which they do not consider have been addressed.
- 5.9.227. Campsea Ashe PC [RR-0170] is gravely concerned that traffic issues arising from the anticipated volume of cars, LGV's & HGV's will overwhelm the A12 in the Woodbridge area and again in the Hacheston/Marlesford area, resulting in increased rat-running on an inadequate and at times already dangerously stretched rural network of roads and lanes, especially the A1152 / Woods Lane towards Tunstall and the B1078 from Hacheston through Campsea Ashe to Tunstall/Snape.
- 5.9.228. The PC believe that quality of life will be majorly impaired over the likely 12-year build period to a level, that makes this project questionable for many residents. Impacts are not just immediate, but also include the wider recreational space, the Suffolk Coast & Heath AONB. The cumulative effects of the project running alongside the proposals from Scottish Power Renewables, as well as the future growth in housing and business along the A12 have not been adequately addressed. This underlines the very important need for full mitigation of the impacts that will be felt by local residents. Without it, the quality of life of residents as well as the attractiveness of Coastal Suffolk as a recreational AONB will be dealt a severe and irrevocable blow.
- 5.9.229. Malesford PC (PC) [RR-758] and neighbouring parishes of Wickham Market, Hacheston, Campsea Ashe, Pettistree, Little Glemham and Parham have identified areas of common interest and many of the issues are shared concerns across the parishes.
- 5.9.230. Marlesford PC does not support the proposals for the Two Village Bypass (TVB). as the proposals do not allow for a comprehensive long-term strategic bypassing solution for the A12 at Marlesford and Little Glemham which would provide the only conceivable long-term solution to the growing traffic problems faced by these communities.
- 5.9.231. This community will suffer heavily as a result of the direct impact of the Southern Park and Ride (SP&R), increased HGV, LGV and bus use of the A12 through Marlesford, and will be affected by the expected congestion in Wickham Market. This is a high price to pay over the anticipated 12 - 15 year build period and, the Applicant should be held responsible for the considerable costs involved in making life bearable for the residents of Marlesford and Little Glemham and providing legacy benefits in the event that the two villages are not bypassed.

- 5.9.232. Pettistree PC argue [RR-982] the Proposed Development will adversely affect the community especially during the construction phase. The plans submitted do not mitigate the problems identified, despite the problems (especially 'rat runs') being highlighted from the outset in the community forums.
- 5.9.233. Congestion of road traffic using the B1078 into Wickham Market, caused by traffic accessing the Park-and-Ride at Hacheston, will limit access to this important service-centre for surrounding villages. While traffic trying to avoid the above congestion and access the A12 will lead to 'rat runs' forming through the narrow lanes of Pettistree causing damage to road surfaces and verges. The traffic will be a hazard to pedestrians as there is no lighting or pavements. The tracking of Sizewell-bound HGVs is welcomed by the PC but this needs to be applied to all goods vehicles and small vans supplying Sizewell to stop them using unsuitable routes.
- 5.9.234. The PC also consider that the non-Sizewell traffic of all kinds will be forced on the 'rat runs' by the congestion on the approved route.
- 5.9.235. Woodbridge TC [RR-1276] does not consider the application has properly assessed the impact of contractor/subcontractor, consultants or EDF off site facilities on road usage, local employers and accommodation in the greater Suffolk area. The study of road-based transportation does not address the impact on Woodbridge and its environs or propose any avoidance or mitigation as it fails to:
- *"consider the use that site staff, visitors and delivery drivers can make of non A12 routes to Sizewell or any off-site facilities. Traffic enabled GPS often directs this route;*
 - *the route likely to be directed is via the A1152 and B1069. This has pinch points at the junction with the B1438 and at Melton railway level crossing. There are no options to improve traffic flow. Significant additional traffic flow will cause queues to extend over the level crossing;*
 - *the impact of additional traffic on extending periods of current queuing on the A12 south of the B1079/A12 roundabout to the B1438/A12 roundabout d) the use of B1438 through Woodbridge to the A1152 or onto the A12."*
- 5.9.236. Yoxford PC [RR-1277] The proposed development is too dependent on roads for transport. There will be significant adverse impact to local communities and businesses from noise and increased journey times. The increased road traffic and congestion will deter visitors and significantly impact tourism and associated local jobs. It is not reasonable for tourism to bear this cost. The problem could be mitigated by a marine led transport strategy and/or increased use of rail.
- 5.9.237. Bredfield PC [RR-0146] if traffic on the A12 does not remain free flowing it would impact on the access into and out of the village adversely affecting the community and tourism businesses alike. The current junction arrangements should be improved.

ExA Consideration

- 5.9.238. The Transport section of this Chapter has concluded that in traffic terms the combination of park and ride facilities, freight management facility and the supporting management plans creates an appropriate solution in transport terms apart from along the B1122 in the early years. It is not necessary to rehearse these arguments here.
- 5.9.239. In concluding that the highway network can accommodate the traffic from the Proposed Development in line with the physical mitigation and action plans the communities on these highway networks will be safeguarded from any unreasonable or significant adverse effects which may arise from this traffic. The ExA recognise that there will be effects from the traffic on these communities but not to a degree that it weighs against the development.
- 5.9.240. The B1122 in the early years is not seen in the same light. It is a rural B road which has been described by the Applicant [REP2-108] and summarised as:
- 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 30 mph, 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.
- 5.9.241. The Applicant has stated that even with the controls in place through the limitation on HGV movements and the control of worker traffic via the provision of the CMTP and CWTP there would still be a 277% increase in HGV movements and 27% increase in total movements. [REP2-112].
- 5.9.242. Despite the mitigation being offered by the Applicant the adverse effects on these communities from the significant levels of HGV and worker traffic during these early years, and potentially for around three years should be regarded as something which must weigh against the scheme in the planning balance.
- 5.9.243. The mitigation proposed by the Applicant which is summarised in Appendix 24C of [REP2-112] recognises that there would still be significant adverse effects and that *"It would be unacceptable for these effects to be imposed on the communities along the B1122 for the whole 10-12 year construction programme."*
- 5.9.244. The Applicant argues that the effects are only acceptable if there is no practical alternative. What the Applicant has not done in presenting evidence is provide an explanation in community impact terms why this level of activity along the B1122 would be acceptable for around three years or provide any justification beyond the urgency of need argument.
- 5.9.245. The issue relating to the urgency of the need is discussed elsewhere in this Report, but it is the ExA's view that in community terms that the SLR

should be in place in advance of commencement on the main site due to the community impacts from the transport along the B1122 for a period of up to two years and nine months otherwise.

- 5.9.246. The ExA is of the view that the adverse effect of the traffic along the B1122 in the early years when weighed in the planning balance is an element to which we ascribe moderate weight against the making of the Order due to the adverse effect on these communities.
- 5.9.247. The ExA recognise that the road traffic from this project has caused a significant degree of anxiety on how it could adversely affect communities in a variety of ways. In transport terms, apart from the outstanding matters identified within the Transport section of this Report the ExA is content adverse effects have been addressed through the combination of the provision of NPR and SPR, traffic management and controls delivered through the combination of plans secured within the DCO and DoO which are supported by appropriate monitoring regimes.
- 5.9.248. In these circumstances the ExA do not consider that the traffic effects would adversely affect communities to such an extent that it would warrant being a matter that would be weighed against the scheme in the overall planning balance.

Effect on Public Services and their capacity

Driver delay and potential impact upon the emergency services

- 5.9.249. The councils in the LIR [REP1-045] identified the potential for driver delay stating *"Despite the measures put forward by the Applicant, the proposed development will still result in a significant negative impact on the highway network. A substantial amount of additional road traffic will be created as a result of the construction activity, with associated impacts on severance, pedestrian delay, pedestrian amenity, fear and intimidation, driver delay."*
- 5.9.250. The CCG in their [RR-500] expressed concern that the assessment had failed to identify the impact of Abnormal Indivisible Loads (AIL) and the potential impact on general traffic and emergency services. They went further in [REP1-141] *"Community Services provision are likely to see operational impact due to the potential disruption caused by delayed travel times, noise and the potential general disruption the construction period will bring to the crucial home visits by health and care staff to support vulnerable people in their own homes."*
- 5.9.251. East of England Ambulance Service [AS-100] reported a similar concern stating *"The ES has not, however, adequately assessed the likely impacts arising on EEAST's emergency and urgent care services, particularly category 1 and 2 tasking related to life threatening illness/ injury or emergencies, or on health and blue light partner organisations."*
- 5.9.252. Suffolk Constabulary [RR-1140], [REP2-165-REP2-168] also identified concern with regard to driver delay *"The Constabulary considers that the increase in HGVs and as a percentage of the traffic is likely to bring an*

increase in incidents involving HGVs and delays to general journey times leading to driver frustration.” They also advise that the conditions on the A12 currently include delay due to congestion at peak periods behind slower moving traffic such as HGVs and agricultural vehicles. The Police expect therefore that the increased density of HGVs and AILs along the A12 corridor *“will impact on response reliability and times.”*

- 5.9.253. The issue of the potential for driver delay was raised at the ISH4 where the applicant responded reaffirming their confidence in the modelling which was supported by SCC as highway authority.
- 5.9.254. The Applicant in considering [APP-346] the health and wellbeing of the local community set out within the assessment the potential impacts on driver delays and how this would affect the ability to serve the community (i.e. travel associated with community healthcare, ambulance conveyance and emergency response).
- 5.9.255. The Applicant sets out their response on journey times in [AS-181] at paragraphs 2.5.44, 2.23.32 and 2.23.49. These timings set out a range of impacts modelled at different times of the day and at different times in the project, nevertheless they indicate the range of effects likely to occur under different scenarios. The Applicant concludes in all respects that the delays over the length of journey are negligible.

	Early years	Peak Construction	Busiest Day
Northbound	Average 18 seconds	Up to 62 seconds in the 8-9 a.m. peak. Up to 36 seconds at other times	11-42 seconds
Southbound	Average 12 seconds	Up to 28 seconds	Up to 29 seconds

Table 5.9.03 Summary of travel time delays

- 5.9.256. The SoCGs [REP10-103] Fire, [REP10-105] East of England Ambulance Service NHS Trust and [REP10-106] the Police have no outstanding concerns and indicate they are happy with the Applicant's approach to manage traffic including AIL movements to minimise impact on responses times.
- 5.9.257. By the end of the Examination discussion between SCC and the Applicant, has resulted in agreement as to the potential level of impact, and an appropriate scale of mitigation, which would allow for preventative, as well as if required reactive activities. This principle is reflected in the DoO.

- 5.9.258. As part of the Applicant's response to these concerns the Applicant includes an Emergency Response Post within the DoO to support emergency teams and improve emergency response times locally.

ExA Consideration

- 5.9.259. The ExA are content that this issue has been thoroughly considered and the degree of effect properly represented through the modelling that has been undertaken. The agreement of the main parties as confirmed through the final SoCG with SCC [REP10-102], Suffolk Constabulary [REP10-106], and the East of England Ambulance NHS Trust [REP10-105] is also persuasive.
- 5.9.260. The ExA ascribes little weight to this matter against the making of the Order

The ExA's Conclusions

- 5.9.261. Both EN-1 and EN-6 recognise that the development of national infrastructure projects have the potential to generate adverse effects on local communities.
- 5.9.262. The Sizewell C Non-Technical Summaries for the submitted Environmental Statement and for the ES Addendum [APP-159, AS-179, REP5-062 and REP7-029] do identify significant adverse effects in relation to noise, landscape & visual impacts, ecology, amenity and recreation and soils and agriculture each of which is recognised as having an effect on the local community.
- 5.9.263. The increased traffic through some communities particularly along the B1122 in the early years and on the A12 within Farnham prior to the provision of the SLR and TVB also have the potential to be of material harm creating significant adverse environmental effects on these communities.
- 5.9.264. Indeed, the severance of the communities of Marlesford and Little Glemham is specifically identified, and a package of measures is proposed to address this concern.
- 5.9.265. It is also recognised that there will be an adverse impact upon the AONB during the construction period affecting the quality and tranquillity of the area, reducing the benefit that they provide to the local community and impacting upon the very qualities that attract people in the first place compromising their ability to contribute to health and wellbeing, and act as a resource for community benefit
- 5.9.266. On the other hand, the Applicant has in preparing the application and the ES recognised the sensitivity of the location and presented a range of extensive measures in order to mitigate the impacts that will arise in order to offset the worst of these adverse effects.

- 5.9.267. A broad range of topics raised by the concerns of the community and recognised by the Applicant have therefore become part of the mitigation package now presented. These include the following measures:
- Temporary accommodation campus;
 - Temporary caravan park;
 - Permanent off site sports pitches;
 - Code of Construction Practice which includes a strategy for communication, community and stakeholder engagement, and community liaison activities, to address issues relating to community cohesion and integration;
 - Community Safety Management Plan;
 - Traffic Incident Management Plan;
 - Construction Worker Travel Plan;
 - Construction Traffic Management Plan.
- 5.9.268. In addition, the Applicant has set up a community fund in order to address non tangible effects which are not easily identified but nevertheless give the community an opportunity to work with the Applicant to manage impacts through contributions towards community schemes.
- 5.9.269. The ExA consider this can be a material consideration which the SoS can take into account. There clearly will be effects on the local communities of East Suffolk from this NSIP and they will continue over a prolonged period of time. The ExA are of the view that however good the ES is considered to be in identifying specific issues and presenting a plan for mitigating those effects so that they can be managed to an acceptable degree, there will be other effects which will arise and will adversely affect the quality and way of life of these communities.
- 5.9.270. In such circumstances it is in the ExA's view, an appropriate and reasonable response that provide a mechanism to address these concerns as they arise through the construction of such a project as the one proposed.
- 5.9.271. The Applicant has set out their reasoning why the Community Fund is an appropriate response to such concerns in the planning statement [APP-590] e page 291 and the ExA are persuaded that this is a proportionate response to the community impacts identified in these circumstances. When read as a package of measures alongside the other mitigation provided through the strategy of plans and controls through requirements and the DoO, the ExA are of the view the whole package together would achieve a suitable degree of mitigation.
- 5.9.272. The extent of mitigation now set out in the DCO, the DCO Requirements and the DoO is comprehensive and detailed in respect of each topic area. As a result, agreement on the scale and terms of that mitigation has been reached with ESC and SCC (and with all funding recipients), with the result that neither authority now considers that development consent should be refused.

- 5.9.273. With mitigation in place the Sizewell C Project will result in some residual adverse effects, as anticipated in the NPS. We regard however that the Community Fund has an important role to play. It is based on the approach which has been found to be successful at Hinkley Point C: a fund for the community run by the community focused on enhancing the quality of life for communities that may be affected by residual impacts from Sizewell C.
- 5.9.274. By the end of the Examination SoCG had been agreed with the Suffolk Constabulary [REP10-106], East of England Ambulance Service NHS Trust [REP10-105], Ipswich and East Suffolk Clinical Commissioning Group [REP10-104] and the Councils [REP10-102] and the ExA gives this substantial weight in drawing on its conclusions on the community matters.
- 5.9.275. The ExA recognise that the effects from the Proposed Development will not be felt equally across the community. In certain places Theberton and Middleton Moor for example the adverse effects particularly in the early years will be substantially adverse. While Leiston will be affected by large population increases and workforce activity throughout the construction programme.
- 5.9.276. Communities that are more distant or offset from the traffic or rail routes are likely to see a very different range of effects many of which would be beneficial including from the uplift in socio-economic activity that would arise.
- 5.9.277. On balance therefore the ExA are of the view that the adverse effects to some of the communities that do arise from the construction and operation of the Proposed Development can be ascribed little weight to matters against the making of the Order.

5.10. CUMULATIVE IMPACT

Legislation and Policy considerations

Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regs) and the Marine Works (Environmental Impact Assessment) Regulations 2007

- 5.10.1. The EIA Regs transpose the EIA Directive 2014/52/EU into UK law. This states that the interaction between different environmental factors must be considered and how an EIA should cover cumulative effect.
- 5.10.2. The Marine Works (Environmental Impact Assessment) Regulations 2007 are also applicable to the assessment of offshore impacts.

The Conservation of Species and Habitats Regulations 2017 (the HRA Regs) and the Conservation of Offshore Marine Habitats and Species Regulations 2017

- 5.10.3. Regulation 63 of the HRA Regs requires an assessment of the Proposed Development with other plans and projects, referred to as an 'in-combination' assessment.

- 5.10.4. The Conservation of Offshore Marine Habitats and Species Regulations 2017 are also applicable to the offshore impacts.

The Overarching National Policy Statement for Energy (EN-1)

- 5.10.5. In relation to the ES and the consideration of cumulative impacts, paragraph 4.2.5 states that: *"When considering cumulative effects, the ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence). The IPC may also have other evidence before it, for example from appraisals of sustainability of relevant NPSs or development plans, on such effects and potential interactions. Any such information may assist the IPC in reaching decisions on proposals and on mitigation measures that may be required"*.
- 5.10.6. Paragraph 4.2.6 states that: *"The IPC should consider how the accumulation of, and interrelationship between, effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place"*.

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

- 5.10.7. The NPS EN-6 references cumulative effects as an important consideration throughout. The nuclear Appraisal of Sustainability (AoS) indicates that cumulative effects need to be considered in project level EIAs and Habitat Regulations Assessments (HRAs). EN-6 Vol I paragraph 3.7.4 states that: *"The Infrastructure Planning Commission (IPC) should consider the cumulative effects of a development consent application for the construction of a new nuclear power station at a specific site with other major infrastructure proposals in accordance with the requirements of EN-1 (in particular Section 4.2 of EN-1)"*.
- 5.10.8. EN-6 Vol I paragraph 3.9.4 states that: *"At the project level, baseline studies on nationally and internationally important habitats and species that may be affected as a result of the development should be undertaken by the applicant to inform the assessment of the cumulative ecological effects"*.
- 5.10.9. EN-6 Vol I paragraph 1.7.4 states that: *"significant trans-boundary 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."*

International and national legislation and guidance relevant to the transboundary effects assessment additionally include:

- 5.10.10. Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention).

- 5.10.11. Regulation 32 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 imposes a requirement for all significant transboundary issues set out in the EIA Directive to be assessed through the EIA process.
- 5.10.12. Planning Inspectorate's Advice Note Ten, and Planning Inspectorate's Advice Note Twelve.

Relevant case law

- 5.10.13. In the case of *R (Pearce) v Secretary of State for Business, Energy and Industrial Strategy [2021] EWHC 326 (Admin)*, the claimant argued that cumulative impacts from the onshore project substations for both the Norfolk Vanguard and Norfolk Boreas projects needed to be addressed when determining the Norfolk Vanguard application and that the Secretary of State's failure to do so was unlawful and in breach of the applicable EIA Regs (ground 1). He also argued that the reasons given for deferring the assessment of cumulative impacts were irrational (ground 2). The High Court upheld both grounds.
- 5.10.14. On the primary ground, the Judge articulated the essential principle as follows (at para.120 of the judgment):
- "The effect of Directive 2011/92/EU, the 2009 Regulations and the case law is that, as a matter of general principle, a decision-maker may not grant a development consent without, firstly, being satisfied that he has sufficient information to enable him to evaluate and weigh the likely significant environmental effects of the proposal (having regard to any constraints on what an applicant could reasonably be required to provide) and secondly, making that evaluation."*
- 5.10.15. The Judge held that the cumulative impacts were significant effects that needed to be evaluated and that the Secretary of State's justification for deferring assessment – *"the limited information available"* on the Norfolk Boreas project – was not, on the facts of the case, lawful or rational.

The Applicant's approach

- 5.10.16. The Environmental Statement (ES) Volume 10 presents details of the different cumulative effects assessments of the Proposed Development [APP-572 to APP-582]. However, Appendices 1A-1B [APP-573] are now superseded by Volume 3, Appendix 2D of the Fourth ES Addendum (Part 1 of Appendix) [REP7-032] and Appendix 2A [APP-576] has been superseded by Volume 10 Project-Wide, Cumulative and Transboundary Effects - Chapter 2 Inter-relationship Effects Appendices 2A to 2B [AS-016].
- 5.10.17. These take into account the following: inter-relationship effects; project-wide effects; effects with other plans, projects, and programmes; and transboundary effects. The ES Volume 10 Chapter 1 provides details of the following for three of the four (interrelationship, project-wide, and other plans, projects and programmes): the scope and structure of the assessments; relevant legislation, policy and guidance; and the assessment methodology. The cumulative effects assessment (for inter-

relationship effects, project-wide effects, and effects with other plans, projects and programmes) is then set out in Chapters 2 to 4 respectively. Chapter 5 sets out the scope and structure, relevant legislation, policy and guidance, assessment methodology, and the assessment of transboundary effects.

- 5.10.18. The Fourth ES Addendum [REP7-030], presents an assessment of any new or different significant effects that are likely to result from: any Additional Information that has been submitted by the Applicant over the course of the Examination; and Change 19 to provide for a temporary desalination plant at the main development site (MDS). It includes updated assessments for cumulative effects. An updated list of cumulative schemes (i.e. non-Sizewell C projects, plans and programmes) has been provided within Volume 3, Appendix 2.D of the Fourth ES Addendum. The updated assessment considers whether new significant cumulative effects are likely to occur as a result of the updated list of cumulative schemes (see Annex C of Volume 3, Appendix 2.D) and other Additional Information listed within Sections 2.2 to 2.23 of the Addendum.
- 5.10.19. In terms of the assessments presented within Volume 10 of the ES [APP-572 to APP-580], as updated by the subsequent ES Addenda [AS-189, REP6-017], there is no change to the cumulative assessments for terrestrial environment topics and the transboundary effects assessments as a result of Change 19. However an update of the cumulative effects assessments for the marine environment topics is included. This concludes that there are no new or materially different significant effects as a result of Change 19. Whilst the provision of the desalination plant will introduce new effects within the marine environment, each of these effects has been assessed as not significant, with appropriate mitigation in place.

Project-wide effects

- 5.10.20. The ES Volume 10 Project-wide, Cumulative and Transboundary Effects Chapter 3 Assessment of Project-wide Effects [APP-577] provides the assessment of project-wide effects where environmental impacts from different components of the Proposed Development combine, resulting in the potential for a significant cumulative effect. In summary, several effects are assessed to have greater in-combination project-wide effects than they would for the individual project components. The assessment has identified no change in the magnitude of effects for the following topics: air quality; landscape and visual; geology and lands quality; and groundwater and surface water.
- 5.10.21. The following effects have been assessed to be greater at the project-wide scale compared with the effects from the individual project components as being significant: Effects from noise and vibration at Leiston Abbey including Pro Corda from construction, depending on the timing of the works relative to the activities at Leiston Abbey; loss and fragmentation of woodland and hedgerow habitats during the early years of construction; effects from views of construction, temporary PRoW closure, noise and traffic on the amenity and recreational receptor Group

16 during the early years of construction; effects on the setting and heritage significance of the Grade I listed St Mary's Abbey and the Scheduled Leiston Abbey (second site) during the early and peak year of construction; temporary loss of best and most versatile (BMV) land during the early years of construction; permanent loss of BMV land during the early years of construction; temporary loss of agricultural land production during the early years of construction; permanent loss of agricultural land production during the early years of construction. The effects on the historical landscape character of the wider area during the early and peak year of construction are assessed as minor adverse, not significant.

- 5.10.22. The Additional Submission in relation to the Applicant's request for changes to the application and Additional Information ES Addendum Volume 1: Environmental Statement Addendum Chapter 10 Project Wide, Cumulative and Transboundary Effects - Revision 1.0 [AS-189] presents the Additional Information prepared and the changes to the cumulative effects assessment as a result of the changes to the Proposed Development submitted in January 2021. For project-wide effects, the review concludes that none of the Additional Information and changes would change the conclusions of the project-wide effects assessment and effects would remain as presented within Volume 10, Chapter 3 of the ES [APP-577].

Inter-relationship effects

- 5.10.23. The ES Volume 10 Project-wide, Cumulative and Transboundary Effects Chapter 2 Inter-relationship effects [APP-575] provides a summary of the inter-relationship effects detailed within each technical assessment chapters in Volumes 2 to 9 of the ES and assesses the potential for residential properties, commercial facilities, and schools to experience effect interactions as a result of the Proposed Development. For example, paragraph 2.3.10 identifies that a number of receptors within close proximity to the MDS have a high potential for combined effects arising from noise and vibration, air quality and views during construction. In addition, paragraph 2.3.13, identifies a number of receptors that are also likely to have high potential for combined effects arising from impacts during operation. There are also areas where new and/or different environmental effects may be experienced including properties between Yoxford and Leiston, close to the B1122.
- 5.10.24. In relation to the Northern Park and Ride (NPR), the ES Chapter 2, paragraph 2.3.22, identifies receptors at residential properties on the western side of Main Road adjacent to the eastern boundary of the site that have a high potential for combined effects arising from noise and vibration, air quality and landscape and visual impacts, during construction, operation and removal and reinstatement.
- 5.10.25. For the Two Village Bypass (TVB), the ES Chapter 2 identifies receptors at The Red House and Timbers, Main Road; Hall Cottages, Farnham Hall, Farnham Street Farm; Farnham Hall Farmhouse; and Rosehill Cottages that have a high potential for combined effects arising from noise and vibration, air quality and landscape and visual impacts, during

construction. Paragraph 2.3.36, identifies a number of receptors are also likely to have high potential for combined effects arising from impacts during operation.

- 5.10.26. As regards the Sizewell Link Road (SLR), the ES Chapter 2, paragraph 2.3.43, identifies receptors at Kelsale Lodge Cottages; Fir Tree Farm; The Red House Farm and Rosetta; Vale Cottage and Oakfield house; Valley Farm House; Annesons Cottage; Coronation Cottages; Forge Cottage and Walnut Cottage have a high potential for combined effects arising from noise and vibration, air quality and landscape and visual.
- 5.10.27. For the Freight Management Facility (FMF), ES Volume 10 Project-wide, Cumulative and Transboundary Effects, Chapter 2 Interrelationship effects [APP-575], paragraph 2.3.57, identifies residential properties at 1 and 2 Keepers Cottage have a high potential for combined effects arising from noise and vibration, air quality and landscape and visual.
- 5.10.28. In relation to the Green Rail Route, the ES Volume 10 Project-wide, Cumulative and Transboundary Effects, Chapter 2 Interrelationship effects [APP-575] paragraph 2.3.65, identifies that during construction, noise generated from rail movements on the East Suffolk line have the potential to interact with air quality effects from road traffic and rail emissions and could result in new and or different environmental effect within a number of areas. It recognises that there is a potential for effect interaction to occur and result in a further significant effect at those receptors where noise effects from the rail movements would be significant (within 20 m of the East Suffolk Line). The rail noise effects would be mitigated where possible through the implementation of speed restrictions along the East Suffolk Line.
- 5.10.29. Appendix 2A Table 2A.1 presents a summary of the residual environmental effects reported within each of the technical chapters of Volume 2 of the ES and describes how the individual effects could be experienced in combination [AS-016]. Appendix 2B: Table 2B.1 assesses the potential for inter-relationship effects on residential receptors, commercial facilities, community facilities and schools from activity at the MDS [AS-016]. There are a number of locations identified as having high potential to experience various combinations of effects during construction and/or operation and where an additional significant adverse inter-relationship effect is therefore likely.
- 5.10.30. The Additional Submission in relation to the Applicant's request for changes to the application and Additional Information - ES Addendum Volume 1 Chapter 10 Project Wide, Cumulative and Transboundary Effects - Revision 1.0 [AS-189] explains that all of the Additional Information and proposed changes²⁴ 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 inter-relationship effects, presented within Volume 10, Chapter 2 of the ES [APP-575]. There is only one instance where the Additional

²⁴ 15 proposed changes to the application accepted by the ExA in April 2021 [PD-013]

Information and proposed changes lead to an adverse change to the inter-relationship assessment. As a result of the updated road traffic noise assessment for Yoxford roundabout and other highway improvements, as detailed in Chapter 7 of the ES Addendum [AS-186], there is now a high potential for combined effects arising from noise and vibration, air quality, and views of the proposed infrastructure and lighting at night. Combined, these effects are likely to lead to an increased sense of disturbance for the receptors at The Old Barn (noise receptor location 14) during operation of Yoxford roundabout, peak construction of the Sizewell C Project, and so an additional significant adverse inter-relationship effect is likely. Mitigation as set out in the 'Noise Mitigation Scheme' in Volume 2, Chapter 11 Appendix 11G of the ES [APP-210] will be applied, where appropriate.

- 5.10.31. Whilst there are some instances of residual effects improving for individual topic areas at specific residential receptors, when considered in combination there is no change to the likelihood of inter-relationship effects experienced at these receptors. Therefore all other interrelationship effects are considered to be no worse than predicted within Volume 10, Chapter 2 of the ES [APP-575].

Cumulative effects with other plans, projects, and programmes

- 5.10.32. The ES Volume 10 Project-wide, Cumulative and Transboundary Effects Chapter 4 Assessment of Cumulative Effects with Other Plans, Projects, and Programmes [APP-578] provides the assessment of cumulative effects with other plans, projects, and programmes. This concludes that the majority of effects experienced on receptors as a result of the construction and operation of the Proposed Development would not increase when in combination with the non-Sizewell C schemes identified in the long list.
- 5.10.33. Those effects that have been found to be greater in-combination with the other schemes than for the Proposed Development alone are summarised in Table 4.16. These effects include for conventional waste and material resources, a significant effect during construction. In relation to transport, the A12 at Little Glemham and Marlesford during peak construction is identified as having the potential for cumulative moderate adverse effect on fear and intimidation with the Proposed Development and East Anglia ONE North Offshore Wind Farm (EA1N) and East Anglia TWO Offshore Wind Farm (EA2).
- 5.10.34. For landscape and visual impact, Visual Receptor Group 18: Knodishall and Aldringham during construction would experience significant visual effects in combination with EA1N and EA2 cable route and substation. Visual Receptor Group 19: Aldringham Common and The Walks and Visual Receptor Group 20: Sizewell to Thorpeness Coast during construction would experience significant visual effects in combination with EA1N and EA2, Nautilus Interconnector, Eurolink Interconnector, Greater Gabbard Extension and Galloper Extension Offshore Wind Farms.
- 5.10.35. For amenity and recreation, Visual Receptor Group 19 and Receptor Group 20 during construction would also experience significant effects in

combination with EA1N and EA2, Nautilus Interconnector, Eurolink Interconnector, Greater Gabbard Extension and Galloper Extension Offshore Wind Farms.

- 5.10.36. For health and wellbeing, and the effects associated with changes to noise and vibration, there would be a significant adverse effect from the rail proposals during construction, and a significant adverse effect for some properties for the TVB during construction and operation.
- 5.10.37. The ES Addendum Volume 1: ES Addendum Chapter 10 Project Wide, Cumulative and Transboundary Effects - Revision 1.0 [AS-189] discusses the Additional Information and proposed changes to the Sizewell C Project and any implications these changes may have on the assessment of cumulative effects with other plans, projects and programmes as presented within Volume 10, Chapter 4 of the ES [APP-578]. Overall, the Additional Information and proposed changes would result in no new or different significant effects than those reported in Volume 10, Chapter 4 of the ES [APP-578].
- 5.10.38. The Applicant's DL2 response Appendix 13A 'Update to cumulative effects assessment' [REP2-110] has been prepared to consider any changes that have been made to nearby energy Nationally Significant Infrastructure Projects (NSIPs) scoped into the cumulative effects assessment in the ES since the submission of the application in May 2020. It concludes that overall the changes to the nearby energy NSIPs would result in no new or different significant effects than those reported in Volume 10 Chapter 4 of the ES [APP-578] or in Volume 1 Chapter 10 of the ES Addendum [AS-189].
- 5.10.39. In response to ExQ2 Cu.2.6, [REP7-052] the Applicant has also prepared an updated Table 1.1 of Appendix 13A [REP2-110] to provide an update on the status of NSIPs in close proximity to the Proposed Development as of August 2021. This is included in Appendix 3A [REP7-057] to the ExQ2 responses. In summary, there is no new information and all other energy projects remain in the pre-application stage. The energy NSIPs in close proximity to the Proposed Development included in Table 1.1 are as follows: EA1N, EA2, EA3, Eurolink Interconnector, Nautilus Interconnector, Great Gabbard Extension OWF, and the Galloper Extension OWF.
- 5.10.40. The Applicant has also reviewed applications made to ESC, SCC and to Ipswich Borough Council and Babergh and Mid Suffolk Councils, where parishes are located within the zone of influence, between January 2020 and June 2021. This exercise has been undertaken to provide an update to the long list and short list of non-Sizewell C plans, projects, and programmes relevant to the cumulative effects assessment. An updated cumulative impact assessment is presented within Volume 1, Chapter 2 of the Fourth ES Addendum [REP7-030].

Transboundary effects

- 5.10.41. 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 MDS and the construction, operation and removal and reinstatement (where applicable) of the associated development sites. This concludes that potential transboundary effects have been considered for individual topic areas, which are described within this chapter, based upon available information and professional judgement. The ES details the assessment for each topic area and for each of the developments associated with the Proposed Development. The potential for transboundary effects (i.e. 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. Likely Significant Effects have also been considered in the HRA, including the potential for significant transboundary effects. It is predicted that there will be no significant transboundary effects as a result of the Proposed Development.

- 5.10.42. 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.
- 5.10.43. 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 Nuclear Site Licence and the Euratom Treaty obligations. It indicates that the proposed UK EPR™ design of reactor has been the subject of a regulatory justification process.

Main issues arising during the Examination

General Matters

- 5.10.44. The main issues relating to cumulative impact that arose during the Examination came under the following headings:
- Project-wide effects
 - Interrelationship effects
 - Cumulative effects with other plans or projects
 - Overall cumulative effect on the Suffolk Coast and Heaths AONB
- 5.10.45. The ExA has considered any relevant issues raised by IPs in relation to the potential for transboundary effects including radiological concerns under the relevant topic area within Chapter 5 of this Report. Those matters relating to HRA issues are considered in Chapter 6 of this Report.

The ExA's considerations

Project-wide effects

Leiston Abbey and Pro Corda music school

The submissions of IPs

- 5.10.46. In Pro Corda and EHT's responses to Cu.1.37 they recognise that there has been positive engagement between Pro Corda and EDF's Noise Impact Consultant but their position at that time was that more needed to be done. Pro Corda explain that one of the main benefits for students with autism who come to them from SEND schools nationally is the unique combination of their curriculum and the tranquility of the site. The biggest disruption that would occur to their curriculum and its life-transforming outcomes over the construction period is the noise disturbance. Pro Corda's other main concerns on noise are first, the impact on the very regular series of public community concerts which are now run by Pro Corda at Leiston Abbey, and secondly, the impact on their music coaching across all our other courses for talented young instrumentalists from across UK and beyond.
- 5.10.47. EHT is concerned about the noise effects of the Proposed Development on the setting and heritage significance of the Leiston Abbey (second site). The Abbey site has developed over the centuries as a fairly remote and tranquil location (which is why the Pro Corda music school also use part of the site), and any changes to this setting and feel will disproportionately affect the heritage significance, visitor experience, and understanding of the site. Management and mitigation from the Proposed Development, to protect the Scheduled Monument and listed buildings, is required. EHT notes the proposed agreement to secure contributions for its work (for heritage management and conservation), and for Pro Corda. Appropriate financial contributions, for EHT could help to offset the harm to the site by improving the visitor experience in many ways. This would, in turn, help visitors to better understand the site, and better reveal the site's significance. Most critically those contributions would help EHT to promote and achieve a sustainable state of conservation and maintenance at the ruined site. This underpins the public's continued long-term enjoyment of the site. Day to day upkeep, security, and improved interpretation are all also important.

The Applicant's response

- 5.10.48. In response to Cu.1.37 [REP2-100], the Applicant states that following a site visit by an acoustics specialist in July 2020 to better understand Pro Corda's activities, and their specific sensitivities and facilities, and how the predicted noise and vibration levels might affect them in a way that might be different from a more typical receptor, discussions had taken place to further that understanding, and to determine what mitigation would be of benefit to address the particular needs of the school.
- 5.10.49. The detailed scope and quantum of mitigation has been agreed with Pro Corda, as explained in response to Cu.2.8 [REP7-052]. This includes a contribution for indoor and outdoor sensory spaces to help address the

effect of noise on pupils with autism. This will be secured by the Pro Corda Resilience Fund. In addition, the Noise Mitigation Fund will provide noise insulation measures for Pro Corda's residential accommodation which is located in the Guesten Lodge and the Retreat House, due to the presence of pupils with a disability need involving a particular sensitivity to noise. These funds will be secured by the Deed of Obligation (DoO) [REP10-084]. In addition, the Applicant is in agreement with EHT that enjoyment of the monument ruins is enhanced by them being well presented and in good repair, with good on site interpretation. This will also be secured by the DoO.

The ExA's conclusions – Leiston Abbey and Pro Corda music school

- 5.10.50. As regards the Leiston Abbey, and Pro Corda music school, the Applicant has explained the process undertaken to determine the appropriate scope and quantum of mitigation for the Pro Corda music school and for EHT in respect of Leiston Abbey (see Applicant's responses to ExQ1 Cu.1.37, and ExQ2 Cu.2.8) [REP2-100], [REP7-052]. The mitigation for the Pro Corda music school includes a contribution for indoor and outdoor sensory spaces to help address the effect of noise on pupils with autism that would be secured by the Pro Corda Resilience Fund. The Noise Mitigation Fund would provide noise insulation measures for Pro Corda's residential accommodation. The Applicant is also in agreement with EHT that enjoyment of the monument ruins is enhanced by them being well presented and in good repair, with good on site interpretation. All these matters will be secured by the DoO [REP10-084].
- 5.10.51. The Final SoCG between the Applicant and Leiston Abbey/Pro Corda Music School [REP10-109] records that all matters are now agreed, and the DoO sets out the agreed scope and quantum of mitigation. It attaches at Appendix B a "Pro Corda Construction Timeline" Note setting out how noise may be experienced over different areas of the site throughout the MDS construction phase. The DoO would also secure the matters sought by EHT. The ExA are content that the project-wide impacts relating to the Pro Corda music school and Leiston Abbey with the potential for a significant cumulative effect have been satisfactorily resolved.

Project-wide ecology impacts

The submissions of IPs

- 5.10.52. Table 3.4 of Volume 10, Chapter 3 of the ES [APP-577] provides a summary of potential terrestrial ecology project-wide cumulative effects. NE's RR raised concerns that a suitably robust assessment had not been undertaken on cumulative impacts from all elements of the Proposed Development on nationally designated sites (SSSIs) and their notified features [RR-0878].

The Applicant's response

- 5.10.53. The Applicant's response to Cu.1.1 [REP2-100], explains that Table 3.4 of Volume 10, Chapter 3 of the ES [APP-577] provides a summary of potential terrestrial ecology project-wide cumulative effects. This table

identified that there is potential for certain components of the Proposed Development to impact upon the same nationally designated site, Minsmere to Walberswick Heaths and Marshes SPA, SAC, Ramsar Site, and SSSI, through the potential to alter local hydrology and hydrogeology in the Minsmere River catchment. The assessment identified that following the implementation of the mitigation (including consideration of primary measures), there would be no potential for the impacts of the individual sites to combine into an increased project-wide effect during construction or operation (paragraphs 3.5.4 and 3.5.15).

- 5.10.54. The Final SoCG between the Applicant and NE [REP10-097] in relation to project-wide effects considers the project-wide ecological groundwater and surface water impacts of a number of project elements and subsequent ecological effects on internationally designated sites and nationally designated sites. This is recorded as an area where issues have been resolved in relation to the effects of groundwater and surface water on the Sizewell Marshes SSSI and NE agrees that the mitigation approach is satisfactory.

The ExA's conclusions – project-wide ecology impacts

- 5.10.55. The Final SoCG between the Applicant and NE [REP10-097] records the project-wide effects of the ecological groundwater and surface water impacts of a number of project elements and subsequent ecological effects on internationally designated sites and nationally designated sites as an area where issues have been resolved in relation to the effects of groundwater and surface water on the Sizewell Marshes SSSI. NE agrees that the proposed mitigation approach would be satisfactory. The ExA is content that this aspect of the ecological effects has been satisfactorily resolved.
- 5.10.56. However, we note that the Final SoCG between the Applicant and NE [REP10-097] records a number of outstanding areas matters between the parties where agreement has not been reached. Further detailed consideration is given to air quality, water use impacts and physical interaction between species and project infrastructure in the biodiversity and ecology terrestrial and marine, the air quality, and the groundwater sections 5.3, 5.11, 5.6, and 5.15 of Chapter 5 and in the HRA Chapter 6 of this Report.

The ExA's overall conclusions on project-wide impacts

- 5.10.57. The ExA concludes that the project-wide impacts relating to the Pro Corda music school and Leiston Abbey with the potential for a significant cumulative effect have been satisfactorily resolved. Likewise, project-wide effects of the ecological groundwater and surface water impacts on the Sizewell Marshes SSSI are no longer in issue.
- 5.10.58. The ES also assessed various other effects to be greater at the project-wide scale compared with the effects from the individual project components as being significant including loss and fragmentation of woodland and hedgerow habitats during the early years of construction, effects from views of construction, temporary PRoW closure, noise and

traffic on the amenity and recreational receptor Group 16 during the early years of construction, effects on the setting and heritage significance of the Grade I listed St Mary's Abbey during the early and peak year of construction, temporary and permanent loss of BMV land and temporary and permanent loss of agricultural land production.

- 5.10.59. These matters are considered further in sections 5.2, 5.5, 5.6 5.13 and 5.14 of Chapter 5 of this Report. In relation to the effects on views during construction, the ExA finds no reason to disagree with the Applicant that when the MDS and associated development sites are combined they will not result in greater project-wide visual effects. For St Mary's Abbey we conclude that the significant effects would be temporary and the harm would be less than substantial. As regards the temporary and permanent loss of BMV land and temporary and permanent loss of agricultural land production, we conclude that adverse effects would remain in respect of these project-wide issues. However, we are content that the proposed mitigation measures have been designed to reduce the effects on both the soil resources and agricultural holdings as far as is reasonably practicable.
- 5.10.60. The harm identified within those other sections of this Report will be carried forwards into the overall planning balance in Chapter 7 of this Report. There are no additional matters relating to cumulative project-wide impacts that would weigh for or against the making of the Order.
- 5.10.61. For the purposes of compliance with the relevant legislation and policy relating to the assessment of cumulative impacts, the ExA is satisfied that the ES has given appropriate consideration to the project-wide implications of all such matters. The ExA concludes that in relation to project-wide issues all applicable conventions, international and national legislation, and policies have been complied with.

Interrelationship effects

The Submissions of IPs

- 5.10.62. A number of IPs expressed concern as regards the potential for the combined effects arising from noise and vibration, air quality and landscape and visual impact including in the location of the NPR, the SPR, the TVB, the SLR, the FMF, the Yoxford roundabout and the Green Rail route.
- 5.10.63. For example, Stop Sizewell C, Theberton and Eastbridge Parish Council and the B1122 Action Group submit that the Applicant has failed to consider the scale of combined and cumulative impacts of its approach [REP2-224]. The B1122 Action Group identify concerns relating to unmitigated community severance, noise, and air pollution arising from additional traffic [REP2-224]. Hacheston Parish Council mention the combined effect upon residents of visual impact, noise, air, and light pollution at the SPR site [REP2-283]. TASC express concern in relation to the effect of the Proposed Development on the health and wellbeing of people living in the East Suffolk area from noise, dust, light, and traffic during its construction [REP2-481].

The Applicant's response

- 5.10.64. The Applicant's response to Cu.1.26 [REP2-100], explains how the overall effects on health and well-being for the various individual communities affected has been considered by the application. The health and wellbeing assessment [APP-346], as updated by the ES Addendum [AS-181], drew from and built upon the interrelating technical disciplines within the ES Volume 2 (MDS) and Volumes 3-9 (associated development) as updated by the ES Addendum. The change in magnitude and distribution of all tangible environmental, social, and economic impacts and benefits were considered, assessed, and further addressed through a combination of primary, secondary, and tertiary mitigation.
- 5.10.65. In response to Cu.1.27 [REP2-100], the Applicant has prepared a summary of the Mitigation Route Map for each of the sites to summarise the mitigation considered within the inter-relationship effects assessment. These summaries can be found in Appendix 13B: Mitigation route map summary for inter-relationship effects [REP2-110]. Tables 1.1 to 1.8 provide a summary of the mitigation measures of relevance to inter-relationship effects assessment for the MDS, the NPR, the SPR, the TVB, the SLR, the Yoxford roundabout and other highway improvements, the FMF, and rail proposals respectively.
- 5.10.66. As explained in response to Cu.1.28, where a high potential for interrelationship effects has been identified, each effect contributing to the combined effect would still need to be mitigated through the measures specified within the relevant topic chapters. The measures summarised within Appendix 13B [REP2-110] are considered to comprise all practicable measures to mitigate these effects. The Applicant also recognises that there will be residual, intangible effects on communities which may result in perceptions of a reduction in quality of life. As such, a Community Fund is proposed as part of the Draft DoO that will be used to fund measures, projects and programmes in local communities which seek to improve quality of life for those most affected.
- 5.10.67. In response to Cu.1.29, the Applicant states that for the NPR measures proposed to mitigate the interrelationship effects on properties on the western side of Main Road adjacent to the eastern boundary of the site, are summarised within Appendix 13B and are considered to comprise all practicable measures to mitigating these effects. There are no additional proposed mitigation measures to overcome the new and or different environmental effects identified within the interrelationship effects assessment [APP-575] beyond those measures already defined within the individual topic assessments presented within Volume 3 of the ES.
- 5.10.68. Likewise, in response to Cu.1.30, the Applicant indicates that for the TVB measures proposed to mitigate the interrelationship effects on properties The Red House and Timbers, Main Road; Hall Cottages, Farnham Hall, Farnham Street Farm; Farnham Hall Farmhouse; and Rosehill Cottages, are summarised within Appendix 13B. There are no additional proposed mitigation measures to overcome the new and or different environmental effects identified within the inter-relationship effects assessment [APP-

575] beyond those measures already defined within the individual topic assessments presented within Volume 5 of the ES.

- 5.10.69. Similar responses are provided in Cu.1.31 for measures proposed to mitigate the interrelationship effects on properties at Kelsale Lodge Cottages; Fir Tree Farm; The Red House Farm and Rosetta; Vale Cottage and Oakfield house; Valley Farm House; Annesons Cottage; Coronation Cottages; Forge Cottage and Walnut Cottage, and Cu.1.32 for measures proposed to mitigate the interrelationship effects on properties at 1 and 2 Keepers Cottage. These are all summarised within Appendix 13B. The response to Cu.1.33 provides details in relation to the properties likely to experience significant effects and the mitigation of impacts arising from the rail proposals. The Draft Rail Noise Mitigation Plan has now been submitted [REP10-043]. The rail noise mitigation would be secured by Requirement 39 of the draft DCO [REP10-009] which provides for the approval by ESC and subsequent implementation of the rail noise mitigation plan.

The ExA's overall conclusions on interrelationship effects

- 5.10.70. In relation to the Green Rail Route, the ES Volume 10 Project-wide, Cumulative and Transboundary Effects, Chapter 2 Interrelationship effects, paragraph 2.3.65 [APP-575], recognises that there is a potential for effect interaction to occur and result in a further significant effect at those receptors where noise effects from the rail movements would be significant. However, the rail noise effects would be mitigated where possible, as summarised within Appendix 13B [REP2-110], and rail noise mitigation would be secured by Requirement 39 of the draft DCO [REP10-009].
- 5.10.71. The updated road traffic noise assessment for Yoxford roundabout and other highway improvements, as detailed in Chapter 7 of the ES Addendum [AS-186], identified that for the receptors at The Old Barn (noise receptor location 14) during operation of Yoxford roundabout during peak construction of the Proposed Development, an additional significant adverse inter-relationship effect is likely. For that reason, mitigation would be applied where appropriate as set out in Annex W of the DoO [REP10-084].
- 5.10.72. The ExA notes that for other locations where a high potential for interrelationship effects has been identified, each effect contributing to the combined effect would be mitigated through the measures summarised within the Applicant's Appendix 13B [REP2-110]. In addition, the Community Fund would be used to fund measures, projects and programmes in local communities which seek to improve quality of life for those most affected [REP10-076, Schedule 14].
- 5.10.73. Further consideration is given to the air quality, noise and vibration and visual impacts of the various elements of the Proposed Development and the adequacy of the mitigation proposed to overcome adverse effects within those assessment areas in sections 5.3, 5.14 and 5.18 of Chapter 5 of this Report. The ExA identifies as areas of outstanding concern the inter-relationship effects of landscape design and noise barriers along the

TVB and SLR and the early years use of the B1122 through Theberton in respect of amenity/community effects and transport effects.

- 5.10.74. The ExA also identifies as areas of outstanding concern the inter-relationship effects on the communities along the B1122 in the Early Years on amenity as set out in Section 5.5 and the adverse effects on fear and intimidation resulting from increased traffic as set out in Section 5.22.
- 5.10.75. As required by paragraph 4.2.6 of EN-1, the ExA has had regard to how the accumulation of, and interrelationship between, effects might affect the environment, economy, or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place. The various interrelationship effects have been identified and consideration given to the adequacy of the mitigation proposed in the light of those cumulative effects. The ExA concludes that with the exception of the matters identified in the preceding paragraphs the additional significant adverse inter-relationship effects likely to be experienced by the identified receptors would be satisfactorily mitigated. There are no additional cumulative interrelationship effects over and above those identified elsewhere in this Report that would weigh for or against the making of the Order.
- 5.10.76. For the purposes of compliance with the relevant legislation and policy relating to the assessment of cumulative impacts, the ExA is satisfied that the ES has given appropriate consideration to the interrelationship effects that would result from the Proposed Development. The ExA concludes that in relation to those interrelationship effects all applicable conventions, international and national legislation, and policies have been complied with.

Cumulative effects with other plans, projects, and programmes

General assessment issues

The submissions of IPs

- 5.10.77. The Anglian Energy Planning Alliance [REP10-174], submits that the Applicant has only fully considered SPR's EA1N, EA2 and EA3 energy projects in its cumulative effects assessment. They are aware that as well as EA1N and EA2 six other projects under development by National Grid or others have been offered, or may be offered, connection to the National Grid Electricity Transmission plc (NGET) substation at Friston. If connected, they would be co-located with the EA1N and EA2 developments. The area affected by this potential cumulation extends far beyond Sizewell and Friston and includes the towns of Leiston and Aldeburgh and the villages of Thorpeness, Aldringham, Knodishall, Snape and their surrounding areas.
- 5.10.78. They refer to the *Norfolk Vanguard* judgment, and submit that the Applicant is obliged to include in its cumulative effects assessment all other infrastructure projects that will be or are likely to be developed within this wide area, or that could have effects upon it. Once the

Examination was closed National Grid made public details of its Nautilus Interconnector project. It also confirmed that its Eurolink Interconnector project would be co-located and connect at the same NGET substation. The Anglian Energy Planning Alliance submit that this new information should have been provided to the ExA by the Applicant and National Grid to enable a comprehensive assessment of their potential cumulative effects with the Proposed Development.

- 5.10.79. Anglian Energy Planning Alliance contend that Planning Inspectorate Advice Note 17 has no statutory status and should not be relied upon to justify the failure to obtain and include sufficient information on cumulative effects. It states that projects and plans that may affect a proposed development, and are “*reasonably foreseeable*” must be included in an applicant’s assessment. The Applicant has failed to do this and therefore its cumulative effects assessment must be considered inadequate.

The Applicant’s response

- 5.10.80. The Applicant’s response to Cu.1.22 [REP2-100], confirms that it has reviewed the list of cumulative schemes considered within the ES against the cumulative schemes listed within the Joint LIR [REP1-044] and has concluded that no additional schemes would need further assessment. Appendix 13A ‘Update to cumulative effects assessment’ [REP2-110] considers any changes that have been made to nearby energy NSIPs scoped into the cumulative effects assessment in the ES since the submission of the application in May 2020. The NSIPs listed in paragraph 1.3.12 of that Appendix include the SPR projects, the Eurolink Interconnector, and the Nautilus Interconnector. Table 1.1 identifies the status of energy NSIPs in close proximity to the Proposed Development.
- 5.10.81. For the Nautilus Interconnector a change in construction programme is noted, and for the Eurolink Interconnector it records no new information as being available. The changes to the SPR schemes, the Greater Gabbard and Galloper offshore windfarm extensions, and the Nautilus Interconnector are all considered in terms of the cumulative effects assessment presented in the ES. The updated assessments for landscape and visual, transport, socio-economics, marine ecology, coastal geomorphology, and marine navigation are presented in section 1.5 of Appendix 13A. This concludes that overall the changes to the nearby energy NSIPs would result in no new or different significant effects than those reported in Volume 10 Chapter 4 of the ES [APP-578] or in Volume 1 Chapter 10 of the ES Addendum [AS-189].
- 5.10.82. The Applicant has also reviewed applications made to ESC, SCC and to Ipswich Borough Council and Babergh and Mid Suffolk Councils, where parishes are located within the zone of influence, between January 2020 and June 2021. This exercise has been undertaken to provide an update to the long list and short list of non-SizeWell C plans, projects, and programmes relevant to the cumulative effects assessment [REP2-110, REP7-057].

5.10.83. The Applicant has updated its cumulative impact assessment in the light of changes which have been made to the application. These are considered in the 'First ES Addendum' [AS-179 to AS-292], Second ES Addendum' [REP5-062 to REP5-069], and the Fourth ES Addendum [REP7-030]. A further update to Appendix 13A was provided at DL7 [REP7-057] but this simply records that no new information was then available since the May 2021 update.

The ExA's conclusions

5.10.84. At the outset of the Examination SCC [RR-1174], and other IPs questioned whether the full cumulative impacts of the existing and potential future projects in the East Suffolk area had been adequately assessed.

5.10.85. The DL10 submission of Anglian Energy Planning Alliance [REP10-174], draws attention to the cumulative impact over a broad area of various projects that have been offered or may be offered connection to the NGET substation at Friston. They refer in particular to the Nautilus Interconnector project close to Leiston, East Suffolk and submit that new information relating to this project and its grid connection should have been provided to the Examination. In the light of the *Norfolk Vanguard* judgment, they contend that this failure renders the Applicant's cumulative effects assessment inadequate and not in compliance with the EIA Regs.

5.10.86. Whilst the ExA notes the concerns raised by Anglian Energy Planning Alliance in relation to the Applicant's cumulative effects assessment, we do not consider the particular facts and circumstances of this application to be directly comparable to the *Norfolk Vanguard* case. The process of EIA includes an assessment by the decision-maker of the likely significant effects of a project on the environment and the measures to mitigate those effects. The ExA is satisfied from the information provided by the Applicant to the Examination through the ES and its updates that the cumulative effects of the Proposed Development in association with the relevant NSIPs are unlikely to be significant. These are not projects with the same degree of association and common features as was the case with the Norfolk projects.

Transport

The submissions of IPs

5.10.87. EA1N [RR-0340] and EA2 [RR-0341] indicate that the Order Limits for EA1N and EA2 and the Proposed Development overlap in three areas of the public highway, namely: Sizewell Gap (close to the Junction of Sizewell Gap/King George's Avenue); the junction of A12/A1094 (Friday Street); and the junction of A1094/A1069 (Snape Road). The works at Sizewell Gap and the junction of A1094/A1069 (Snape Road) may conflict in terms of the Proposed Development and EA2 and EA1N seeking to undertake works at these junctions at the same time, and potentially seeking to undertake similar works. Interaction at the junction of A12/A1094 (Friday Street) would be more significant. Protective

Provisions are sought to ensure early engagement between the parties to prevent any conflict and allow for the effective planning of highway works at this junction. Further information is provided in the EA1N and EA2 Sizewell C Cumulative Impact Assessment Note (Traffic and Transport) - Version 02 which has been submitted to that Examination. It sets out the worst case cumulative transport metrics that have been utilised to inform the EA1N and EA2 DCO applications.

- 5.10.88. SCC [RR-1174] submits that the full cumulative impacts of the existing and potential future projects in the East Suffolk area have not been adequately assessed. For transport, this includes the A12 at Little Glemham and Marlesford. SCC considers that mitigation is required at this location in a Proposed Development only scenario and therefore for all cumulative scenarios as well and believe that mitigation should be delivered very early in the programme to avoid disruption on a haul route for both this Project and the EA1N and EA2 projects, and to minimise disruption on a strategic corridor. Further information is provided in SCCs response to Cu.1.3 and Cu.1.11 [REP2-192].
- 5.10.89. ESC [RR-0342] accepts that the primary issues arising in the cumulative assessment are predominantly managed with the proposed transport strategy. However, one element that continues to raise concern is the A12 west of Woodbridge and the A12/A1094 junction to Aldeburgh pre TVB construction. Further information is provided in ESC's response to Cu.1.18 [REP2-176].
- 5.10.90. Stop Sizewell C and Theberton and Eastbridge Parish Council [REP2-450, Section 6.9] raise various concerns in relation to cumulative impact. They state cumulative impacts will arise from the Proposed Development, Sizewell B, the Scottish Power Renewables (SPR) proposals for onshore wind farm infrastructure and the European and UK interconnector projects, as well as the construction of permanent and temporary mitigations. They make specific reference to the Nautilus Interconnector, the Eurolink Interconnector, the Greater Gabbard Extension, now North Falls OFW and the Galloper Extension, now Five Estuaries OFW.
- 5.10.91. They submit that adverse impacts would arise from construction activity, community impacts (noise, light, dust and particulates, health), transport impacts including the failure to deliver mitigation prior to early construction phases and the construction of a link road that would leave no useful legacy, landscape damage both on site and in the surrounding areas, harm to the built and natural heritage, flood risk, damage to the visitor economy, housing impacts, and public service impacts. They express concerns in relation to impacts on local communities including from a noise perspective, and assert that overall the cumulative impact of the SLR and the B1122 roads on the south of the village would be higher than current levels and decidedly not beneficial.

The Applicant's response

- 5.10.92. The Applicant's response to ExQ1 Cu.1.22 [REP2-100], explains that it proposes to monitor the cumulative effects of the Proposed Development with EA1N and EA2 during the construction phase and, if any significant

effects arise, could utilise the Transport Contingency Fund²⁵ [REP10-075] to implement additional measures to manage/reduce effects of the Proposed Development. The Applicant would support a proportionate approach to funding of any mitigation measures in the event that significant cumulative transport effects arise through the monitoring process.

- 5.10.93. The Draft DoO Annex S [REP10-083] makes provision for a Marlesford and Little Glemham Improvement Contribution to be used by SCC for the design and implementation of local improvements to mitigate the impacts of the Proposed Development. Potential improvements in Marlesford and Little Glemham have been discussed with SCC and the Parish Council. The response to question TT.1.22 [REP2-100] explains further monitoring and control measures, and a separate contingency fund, proposed to mitigate potential impacts on the A12. The Applicant's responses to Cu.1.12 and TT.1.99 are also relevant to this topic.
- 5.10.94. In response to Cu.2.0, the Applicant points out that the updated cumulative transport environmental assessment has been provided within the Fourth ES Addendum submitted at DL7 [REP7-032]. The revised assessment addresses all of SCC's comments. The transport mitigation has now been agreed with SCC and is set out in the draft DoO [REP10-082].
- 5.10.95. The Applicant's DL3 comments on SCC response to Cu.1.3 [REP3-046] indicates that in addition to the proposed Marlesford and Little Glemham Improvement Contribution, demand management measures are included in the Construction Traffic Management Plan (CTMP) [REP2-054], Construction Worker Travel Plan (CWTP) [REP2-055], which are to be secured through the Draft DoO [REP10-082].
- 5.10.96. The Applicant's response to Cu.2.1 [REP7-052] explains that the package of proposed transport improvements to be delivered by the Applicant in addition to the works included in the draft DCO has now been agreed with ESC and SCC and is set out in the draft DoO. These include pedestrian enhancements, formal pedestrian crossings, village gateways and speed limits for Marlesford and Little Glemham and for the B1122 early years, village gateways at Theberton and Middleton Moor, pedestrian enhancements and formal pedestrian crossing in Theberton, and road safety improvements. In addition, a series of transport related contributions have been agreed with SCC and ESC and are set out in the draft DoO [REP10-076].
- 5.10.97. As explained in response to Cu.2.3 [REP7-052], the temporal overlap of traffic demand between EA1N, EA2 and the Proposed Development is clarified in the Sizewell C Cumulative Impact Assessment Note (Traffic and Transport) Version 2 which has been submitted to that Examination. The SPR note identifies potential residual pedestrian amenity impacts on

²⁵ The Contingent Effects Fund in the DoO, section 4.6, Schedule 16

Link 2 (A12, Yoxford) and Link 3 (A12, Marlesford and Little Glemham) for which mitigation would be secured via the DoO [REP10-083].

- 5.10.98. In response to Cu.1.7 [REP2-100], the Applicant states that it continues to engage with SPR to ensure coordination between EA1N and EA2 and the Proposed Development. The response to TT.1.62 describes discussions between the parties in relation to consistency between traffic models. A technical note (Appendix 24B [REP2-112]) has been produced summarising the differences in the SPR Preliminary Environmental Information Report (PEIR) and ES traffic inputs. The response to Cu.2.2 is also relevant to this topic and confirms that the Applicant is having regular and constructive meetings with EA1N/EA2 and will continue to do so during the lead up to construction and during the phase of the construction periods that overlap.
- 5.10.99. The Applicant's responses to Cu.1.8 and TT.1.63 [REP2-100] outline the coordination of highway mitigation proposed by the Applicant with EA1N and EA2. The Applicant proposes to establish clear communications protocols between all three parties, which will be defined in the terms of reference of the Transport Review Group.
- 5.10.100. In response to Cu.1.9, the Applicant, refers to Appendix 13A [REP2-110]. The assessment of cumulative impacts is based on a worst case assumption that the SPR 'concurrent build' traffic flows occur at the same time as Proposed Development peak construction in the 'cumulative' scenario. The impacts identified in the 'cumulative' assessment could be avoided or mitigated through coordinated programming of works between the two projects.
- 5.10.101. In relation to other energy projects in the vicinity of the Proposed Development, the Applicant has prepared Table 1.1 of Appendix 13A [REP2-110] to provide an update on the status of NSIPs in close proximity to the Proposed Development and an updated assessment based on any new information was presented in Section 1.5. The only new information at that stage was the updated construction programme for EA1N and EA2. The Applicant has prepared an update to this table in response to Cu.2.6 which identifies that all other energy projects remain at the pre-application stage and therefore there is still not sufficient information available for a cumulative transport assessment to be undertaken.
- 5.10.102. In response to Cu.1.18, the Applicant states that the TVB will be delivered in the early years of the Proposed Development, with the delivery of the A12/A1094 (Friday Street) roundabout prioritised, as shown on the Implementation Plan [REP2-044]. The construction of the Friday Street roundabout will be prioritised early in the construction of the TVB. The construction of the Friday Street roundabout will involve substantial works off-line with no disruption to the existing A12 and A1094 road networks. This work will then be followed by a Phased Traffic Management Plan to facilitate the connection of the proposed TVB with the existing A12 and A1094. The Friday Street roundabout will be completed and operational early in the construction phase. The Applicant

also refers to its response to Chapter 15 of the Local Impact Report [REP1-045] as regards its position on the impact of the Proposed Development on the A12 corridor between Seven Hills and A1152 [REP3-046].

5.10.103. The DL10 submissions include the East Anglia ONE North Order Limits Interaction - Offshore Plan [REP10-005], the East Anglia ONE Sizewell Gap Transport Interaction Plan [REP10-006], the East Anglia TWO Order Limits Interaction - Offshore Plan [REP10-007] and the East Anglia TWO Transport Interaction Plan [REP10-008].

5.10.104. In the Final SoCG with EA1N and EA2 [REP10-115], in relation to highway works, the parties recognise that all projects involve works at Friday Street, Sizewell Gap and Snape Road and they will engage regularly with each other during design and construction of their respective projects so that any interface between the projects can be considered at an early stage, recognising it is in their interests as well as the wider community that works in these areas are coordinated as far as reasonably practicable.

The ExA's conclusions

5.10.105. ESC [RR-0342] seeks the provision of the TVB and the Friday Street element of the TVB to be prioritised in the Applicant's Implementation Plan. During the Examination, the Applicant confirmed that the TVB would be delivered in the early years of the Proposed Development, and that the construction of the Friday Street roundabout would be prioritised early in the construction of the TVB, as shown on the Implementation Plan [REP10-082] (Cu.1.18 [REP2-100]).

5.10.106. The Applicant has also responded to Chapter 15 of the LIR [REP1-045] in relation to the impact of the Proposed Development on the A12 corridor between Seven Hills and A1152 [REP3-046]. The ExA concurs that a contribution towards capacity improvements on the A12 between Seven Hills and A1152 is unnecessary based on the VISSIM traffic modelling of the corridor summarised in the Consolidated Transport Assessment [REP2-045 to REP2-052], and the proposed demand management measures included in the CTMP [REP2-054], CWTP [REP2-055].

5.10.107. EA1N [RR-0340] and EA2 [RR-0341] initially raised concerns in relation to the overlapping Order limits for the EA1N and EA2 and the Proposed Development at Sizewell Gap (close to the Junction of Sizewell Gap/King George's Avenue); the junction of A12/A1094 (Friday Street); and the junction of A1094/A1069 (Snape Road). Likewise, SCC as local highway authority [RR-1174] raised the issue of cumulative associated with transport including the A12 at Little Glemham and Marlesford.

5.10.108. The Final SoCG between the Applicant and EA1N and EA2 [REP10-115], in relation to highway works, recognises that all projects involve works at Friday Street, Sizewell Gap and Snape Road and they will engage regularly with each other during design and construction of their respective projects so that any interface between the projects can be considered at an early stage, recognising it is in their interests as well as

the wider community that works in these areas are coordinated as far as reasonably practicable. The DL10 submissions include the East Anglia ONE Sizewell Gap Transport Interaction Plan [REP10-006], and the East Anglia TWO Transport Interaction Plan [REP10-008].

- 5.10.109. In addition, the Applicant proposes to monitor the cumulative effects of the Proposed Development with EA1N and EA2 during the construction phase and, if any significant effects arise, could utilise the Transport Contingency Fund to implement additional measures to manage/reduce effects of the Proposed Development (CU.1.22 [REP2-100]).
- 5.10.110. The package of proposed transport improvements to be delivered by the Applicant in addition to the works included in the draft DCO has now been agreed with ESC and SCC and is set out in the draft DoO [REP10-077 to 084]. This includes the Marlesford and Little Glemham Scheme [REP10-083]. In addition, a series of transport related contributions have been agreed with SCC and ESC and are also set out in the draft DoO.
- 5.10.111. The ExA considers that the cumulative transport effects with other plans, projects, and programmes identified in the 'cumulative' assessment would acceptably and reasonably be mitigated through coordinated programming of works as proposed between the Proposed Development and EA1N and EA2 and the mitigation and transport related contributions that would be secured by the DoO [REP10-082].

Coastal processes

The submissions of IPs

- 5.10.112. During the Examination, a number of IPs highlighted the various other projects proposed for the area that would be impacting upon the Suffolk coastline. They emphasised the fragility of the Suffolk coast and the need to consider the interaction of coastal processes over a wider stretch of the coastline. The cumulative impacts of all these projects for the stability of the coast gave cause for concern.
- 5.10.113. The EA's post hearing submission of oral case at ISH6 [REP5-148] states that with regard to the BLF, HCDF and SCDF it could not scrutinise cumulative impacts at that stage because of outstanding modelling in relation to the adapted HCDF design and morphodynamics of the SCDF beyond 2099 which are required to inform their position. The same applies to in-combination impacts with other projects such as EA1 and 2.
- 5.10.114. The final SoCG between the Applicant and the EA [REP10-094] in relation to coastal processes refers to the assessment of combinations of spatially and temporally overlapping marine components as described in the ES section 20.11 of Volume 2 of Chapter 20 [APP-311]. Although the EA are comfortable with the assessments relating to a number of the components of the coastal and marine infrastructure such as the BLFs and the cooling water infrastructure, they could not agree with the full assessment of the cumulative impacts owing to their residual concerns around the modelling of the coastal defences.

The Applicant's response

- 5.10.115. The First ES Addendum, Volume 1, Chapter 10 [AS-189] assesses the cumulative impacts of the various changes to the Proposed Development submitted in January 2021 including those which have the potential to impact upon coastal processes. This concludes that overall the Additional Information and proposed changes discussed above would result in no new or different significant effects than those reported in Volume 10, Chapter 4 of the ES [APP-578]. The Fourth ES Addendum [REP7-030], in relation to coastal geomorphology concludes that the additional (individually negligible) impacts of the desalination works do not affect the potential for in-combination or cumulative impacts, hence the original assessment presented in Volume 10, Chapter 4 of the ES [APP-578] is considered to still be appropriate and the measures in the Coastal Processes Monitoring and Mitigation Plan (CPMMP) sufficient to capture and remedy any potential effects.
- 5.10.116. In response to Cu.3.0, the Applicant confirms that the updated modelling of the SCDF (which itself is mitigation) included in BEEMS Technical Reports TR544 and TR545 [REP7-101 and REP7-045] has not caused it to revise its position in relation to cumulative impacts and so the assessment of cumulative impacts provided in the First ES Addendum, Volume 1, Chapter 10 [AS-189] remain its position which is that having assessed the likely significance of cumulative effects, these are assessed as minor (Not Significant) but in recognition of uncertainty with regard to longshore bar dynamics, provision for monitoring of these features (and mitigation if required) is made within the CPMMP [REP5-059].

The ExA's conclusions

- 5.10.117. The ExA finds no reason to question the ES approach to the assessment of cumulative effects associated with the coastal processes aspect of the Proposed Development or the outcome of the findings to date. However, we note from the Final SoCG [REP10-094] between the EA and the Applicant, that the EA is unable to agree with the full assessment of cumulative impacts due to residual concerns around the modelling of the coastal defences, in relation to outstanding modelling.
- 5.10.118. This matter is considered further in the Coastal Geomorphology and Hydrodynamics Section 5.8 of Chapter 5 of this Report. The ExA concludes that the CPMMP would provide an appropriate mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work which has been undertaken, including any additional cumulative impacts. However, we have also highlighted that the SoS may wish to consult with IPs in relation to the information provided by the Applicant at DL10 [REP10-124] before reaching a final decision.

Landscape and Visual Impact

The submissions of IPs

- 5.10.119. The SCC and ESC in the Joint LIR, Section 32 [REP1-045] raise various concerns in relation to landscape and visual impacts. They draw attention

to the potential for cumulative impacts given that in recent years there have been a number of proposals for energy related development in the administrative area of ESC. There are a number of consented and operational offshore windfarms with onshore infrastructure, the existing nuclear power station sites, and proposals for further offshore windfarms and interconnectors. They submit 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. This was also a concern raised by many other IPs.

The Applicant's response

- 5.10.120. The Applicant's response to Cu.1.4 highlights that paragraphs 4.7.10 to 4.7.11 and 4.9.9 of Volume 10, Chapter 4 of the ES [APP-578] explain the increase in cumulative effects for Receptor Groups 18, 19 and 20 during the construction period in relation to landscape and visual impact, and amenity and recreation, respectively. In all cases, the increase in effects comes as a result of the closer proximity of the construction effects of the EA1N and EA2 cable route and substations. The ESs for those other schemes indicate that mitigation has been embedded to reduce landscape and visual effects, but significant effects are anticipated during the relatively short-term construction period. The Applicant submits that it is not proportionate for it to provide off-site mitigation for effects that may be caused by the EA1N and EA2 cable route and substations. The ES concludes that the construction effects of the Proposed Development would not be significant for those Visual Receptor Groups.

The ExA's conclusions

- 5.10.121. The landscape and visual impact of the Proposed Development during construction has been considered in Section 5.14 of Chapter 5 of this Report. The ExA concludes that the construction effects of the Proposed Development would not be significant for Visual Receptor Groups 18, 19 and 20. Although there would be an additional cumulative impact, given the reasons for that impact and the mitigation to be provided by the EA1N and EA2 schemes, the ExA does not consider that it would be proportionate to require the Applicant to provide additional off-site mitigation in response to effects that might be caused by their cable route and substations.

Offshore works

The submissions of IPs

- 5.10.122. The RRs of EA1N and EA2 [RR-0340, RR-0341] highlight that whilst the Applicant's Work Nos. 2B, 2D and 2F fall outside the EA1N Order Limits, there remains an overlap in the Order Limits between the Proposed Development and EA1N and EA2 offshore works. The EA2 and EA1N draft DCOs include Protective Provisions in favour of the Applicant which requires EA2 and EA1N to consult with the Applicant in the formulation of the proposed method of working and timing of execution of works, to the extent that it relates to such overlapping Order Limits. They seek

reciprocal Protective Provisions within the draft DCO for the Proposed Development.

The Applicant's response

- 5.10.123. The Applicant's response to Cu.1.13 [REP2-100] confirms that the EA1N and EA2 Order Limits would be located 152m from Work No. 2F and an indicative 500m working width area is required between the EA1N and EA2 Order limits and the location of offshore export cables. There is a minimum indicative separation distance of 652m between the cooling water intakes for the Proposed Development at Work Nos.2B, 2D and 2F and the nearest potential location of the EA1N and EA2 offshore export cables.
- 5.10.124. The Final SoCG with EA1N and EA2 [REP10-115] records that the parties have agreed Protective Provisions for inclusion in the draft DCO [REP10-009] to protect the EA1N and EA2 interests during the Applicant's work in this area.

The ExA's conclusions

- 5.10.125. As regards the interaction of the Proposed Development with the EA1N and EA2 offshore export cable, the parties have agreed Protective Provisions for inclusion in the draft DCO [REP10-009] to protect the EA1N and EA2 interests during the Applicant's work in this area. In those circumstances, the ExA does not believe that the proximity of the offshore works associated with these various projects would result in any significant adverse cumulative consequences.

Local Housing stock

The submissions of IPs

- 5.10.126. The RR of SCC [RR-1174] considers that the cumulative pressure on the local housing stock might increase impacts in East Suffolk and push workers to look further afield creating pressures on adjacent authorities such as Ipswich and Mid Suffolk. In response to Cu.1.25 [REP2-192] SCC provide more information on this topic. They have concerns that the large influx of the Applicant's workers could push some local housing needs onto adjacent housing authorities. They have a particular service responsibility for specialist and supporting housing customers. ESC is the lead authority on Housing, and the accommodation related issues are identified in Chapter 29 of the LIR [REP1-045].

The Applicant's response

- 5.10.127. The Applicant's response to Cu.1.25 indicates that the cumulative effect on demand for accommodation is considered in Volume 10, Chapter 4, paragraphs 4.3.64 - 4.3.66, of the ES [APP-578]. It is not clear from information provided by other projects in the public domain that there would be a substantial demand for accommodation from their non-home-based workforce, particularly in the areas around the MDS where accommodation effects from the Proposed Development are likely to be greatest. As set out in Volume 2, Chapter 9 (Socio-economics) of the ES

[APP-195], the cumulative effects are likely to be negligible at the wider scale with localised significant adverse effects likely to be concentrated in areas of east Suffolk very close to the MDS, prior to mitigation.

- 5.10.128. The Applicant has developed a detailed set of measures including a Housing Fund, alongside an Accommodation Management System and measures to support the tourist accommodation sector and the resilience of statutory housing services for ESC. Proposed measures are detailed in the Accommodation Strategy [APP-613] and the Draft DoO [REP10-077 to 081]. It is therefore not considered that anything else should be included in the accommodation strategy and other measures related to housing, in addition to those measures already set out in the Mitigation Route Map [REP10-073].
- 5.10.129. The Applicant [REP3-046] in its comments on the SCC response to Cu.1.25 [REP2-192] indicates that its assessment of effects is considered at the level of housing service provision, and taking into account the propensity for non-home-based workers seeking accommodation to look within 60 minutes of the MDS, and predominantly in the local area (Leiston and surrounding wards), resulting in a negligible effect at wider scales. The response to Cu.1.25 [REP2-100] sets out the proposed approach to mitigation, and approach to cumulative non-home-based worker assumptions for other projects.
- 5.10.130. The Accommodation Strategy was a topic for discussion at ISH 4 and further information is provided in the Applicant's 'Written Submissions Responding to Actions Arising from ISH4: Socio-economic and Community Issues' [REP5-116]

The ExA's conclusions

- 5.10.131. The ES Volume 10, Chapter 4, paragraphs 4.3.64 - 4.3.66 [APP-578], explains that mitigation strategies have been put in place to mitigate the peak effects of the Applicant's workforce. It is acknowledged that there is limited information regarding the operational workforce associated with other NSIP projects in terms of their level of local recruitment, spatial distribution and characteristic. However, given the relatively long timescale, slow build-up, and capacity within accommodation markets to respond to change, the cumulative effects are considered negligible and therefore not significant.
- 5.10.132. The Applicant's response to Cu.1.25 [REP2-100] provides a detailed reply to the concerns raised by SCC in relation to the potential for cumulative pressure on the local housing stock. It sets out the Applicant's proposed approach to mitigation, and to cumulative non home based worker assumptions for other projects. From a review of offshore wind projects, it appears that there are significant differences in the demand for accommodation in terms of the sector of accommodation being sought, and peak demand would occur well before the peak of the Applicant's demand. The ExA note that this conclusion has also been reached by SPR in its further consideration of cumulative accommodation effects related to EA1N and EA2 with the Proposed Development.

- 5.10.133. The ExA finds no reason to disagree with the conclusion reached that the cumulative effects on local housing stock are likely to be greatest as a result of the effect of the Proposed Development's peak non home-based construction workforce. These matters including the likely effects at a wider scale and the adequacy of the proposed mitigation have been considered in detail in section 5.9 and 5.21 of Chapter 5 of this Report. In relation to any additional cumulative impacts arising from other NSIPs and schemes in the area, the ExA agree with the ES assessment that such additional impacts are likely to be negligible and no further mitigation would be required.

Electricity Connection

The submissions of IPs

- 5.10.134. Norfolk County Council [RR-0906] raises cross-boundary electricity transmission issues in respect of the 400kV network which runs between Norfolk and Suffolk including the potential for reinforcement and new lines in both Norfolk and Suffolk. They draw attention to the amount of electricity coming ashore from offshore wind energy projects off the Norfolk and Suffolk Coasts, and the need to address the in-combination impact on the 400kV transmission network in the wider strategic area, including the potential for reinforcement and new lines in both Norfolk and Suffolk.
- 5.10.135. In its DL2 response [REP2-146] NGET states that in general terms, it is well established that improvements to the electricity transmission network in East Anglia are required over the next decade to accommodate the increased amount of electricity that will come from offshore wind and interconnector developments, as well as the Proposed Development.
- 5.10.136. The offshore wind and interconnector developments, as well as the Proposed Development will mean that improvements to East Anglia's transmission system are required in the ten years to 2030. It outlines the process by which reinforcement projects would be taken forward.

The Applicant's response

- 5.10.137. The Applicant indicates that it is continuing to engage with National Grid to inform the need for any works required to the transmission network. The ES does not consider the cumulative impact on the 400kV transmission network in the wider strategic area as an individual receptor as it is not identified as an environmental resource or a receptor that is likely to experience an environmental effect as a result of the Proposed Development. The Applicant draws attention to the Grid Connection Statement [APP-583] which explains that National Grid would be responsible for carrying out any studies into the implications of planned and emerging energy projects on the existing 400kV network. responsibility.

The ExA's conclusions

- 5.10.138. NGET [REP2-147] confirms that the offshore wind and interconnector developments, as well as the Proposed Development will require improvements to East Anglia's transmission system in the ten years to 2030. It outlines the process by which reinforcement projects would be taken forward.
- 5.10.139. The ExA notes from the Grid Connection Statement, paragraph 1.3.8 [APP-583], that it is the responsibility of National Grid to develop and maintain the National Electricity Transmission System, and any studies into the implications of planned and emerging energy projects on the existing 400kV network would be carried out by National Grid as part of this responsibility. The ES does not consider the cumulative impact on the 400kV transmission network in the wider strategic area as an individual receptor. The ExA considers that to be a reasonable approach given that it is not identified as an environmental resource or a receptor that is likely to experience an environmental effect as a result of the Proposed Development.

Labour market, skills, and employment strategy

The submissions of IPs

- 5.10.140. A number of IPs raised issues in relation to the supply chain and employment strategy. For example, the RR of Norfolk County Council [RR-0906] indicates that they would like to see further evidence and studies setting out the full implications of both the Proposed Development and the planned/ emerging offshore wind energy projects on the existing 400kV network across the two Counties. They also raise issues in relation to the Supply Chain Strategy, and the need for any accompanying strategies having regard to matters such as the wider consideration of supply chain issues. They seek to ensure that any Education, Skills and Employment Strategy considers the wider cumulative impacts arising from other planned NSIPs in the area and appropriate collaboration with neighbouring authorities and the Local Enterprise Partnership.
- 5.10.141. ESC [RR-0342] raise concerns that during the construction phase of the Proposed Development, particularly the peak years, cumulative effects related to the labour market may arise in-combination with other NSIPs in the region.
- 5.10.142. SCC [RR-1174] are critical of the ES consideration of the potential in-combination effects on the labour market of the Proposed Development with other major construction projects. In addition, they point out that the timelines for construction of EA3 have changed and are significantly different to the timelines presented in the application.

The Applicant's response

- 5.10.143. The Applicant's responses to Cu.1.16 and SE.1.39 [REP2-100], consider the potential cumulative effects on the labour market of the Proposed Development with other major construction projects. Appendix 23B (Response Paper – Cumulative Effects (Skills and Labour Market) [REP2-

112] concludes that the proposed scope of the original assessment is appropriate, and that the update provided within Appendix 23B results in no change in significance compared to the original assessment. Appendix 23B also sets out how mitigation has been developed (and is secured within the Draft DoO [REP10-082] to contribute towards the wider effects of labour/skills demand on the regional workforce from other infrastructure construction projects. The responses to Cu.1.17, Cu.1.24 and SE.1.39 are also relevant to this topic.

- 5.10.144. The Applicant recognises the value of the Technical Skills Legacy Study and contributed proactively to it by providing data on skill requirements for the Proposed Development, but its scope is necessarily different from the scope of an EIA-led cumulative impact assessment in terms of selection of plans, projects, and programmes [REP2-112]. Appendix 23B also provides further detailed assessment of cumulative schemes to provide an assessment of updated timescales for the delivery of EA3, and any other infrastructure projects where assumptions may have materially changed since submission of the application and illustrative consideration of schemes that were not included within the original assessment as a result of their location, but where overlapping labour market demand is feasible. It provides consideration of different skill-sets needed over time from the regional labour market for cumulative schemes. The update provided within Appendix 23B results in no change in significance compared to the original assessment within Volume 10, Chapter 4 of the ES [APP-578].

The ExA's conclusions

- 5.10.145. The cumulative effect on employment, skills and education is considered in ES Volume 10, Chapter 4, paragraphs 4.3.43 - 4.3.47, and the supply chain is considered at paragraphs 4.3.48 to 4.3.56 [APP-578]. The Applicant recognises the importance of taking a holistic approach to supporting labour market resilience and support for the region's growth strategies and key sectors including construction and energy, in order to avoid risks of exceeding capacity in key skills within the labour market for the delivery of all of the NSIPs in the East of England.
- 5.10.146. The Applicant's Appendix 23B [REP2-112], concludes that the proposed scope of the original assessment is appropriate, and that the update provided within Appendix 23B results in no change in significance compared to the original assessment. Appendix 23B also sets out how mitigation has been developed and is secured within the Draft DoO [REP10-082] to contribute towards the wider effects of labour/skills demand on the regional workforce from other infrastructure construction projects. In addition, other NSIPs would have their own mitigation packages for employment, skills, and education.
- 5.10.147. These employment related issues including the adequacy of the proposed mitigation have been considered in detail in section 5.21 of Chapter 5 of this Report. In the light of the ES assessment together with the Appendix 23B update and the Applicant's responses to Cu.1.25, Cu.1.17, Cu.1.24 and SE.1.39 [REP2-100], the ExA does not consider that there would be any significant adverse additional cumulative effects associated with such

matters arising from the Proposed Development together with other NSIPs and schemes in the area.

Ecology terrestrial

The submissions of IPs

- 5.10.148. SCC [RR-1174] in respect of the cumulative ecological impact, submit that it is not clear why the construction of EA1N and EA2 have been scoped out of the assessment of cumulative impacts, particularly in respect of Natura 2000 sites, when the cable corridor passes relatively close to the Proposed Development.
- 5.10.149. The Joint ESC and SCC LIR [REP1-045] raises issues in relation to bats. However, the Final SoCG between the Applicant, SCC, and ESC [REP10-102] in relation to bats records that the various impacts and effects on bats, including those arising between the MDS and the SLR, do not add together to cause a further 'project-wide' significant effect on bat populations.

The Applicant's response

- 5.10.150. The Applicant's response to Cu.1.23 refers to Volume 10, Chapter 4 of the ES [APP-578] which considered the potential for cumulative ecological effects to arise with the offshore components of EA1N and EA2 along with EA3. This concluded that there would not be a potential for the onshore components of these schemes to result in cumulative ecological effects when considered in combination with the Proposed Development.
- 5.10.151. The Applicant presented additional information on the cumulative ecological effects with the onshore components in Volume 3, Appendix 10.4.C of the ES Addendum [AS-201]. It considered the potential for cumulative effects with EA1N, EA2 and EA3 on the following receptor groups during construction: Designated sites; Farmland birds; and Bats. The updated assessment concluded that construction and operation of the onshore elements of the three offshore windfarms, would not change the conclusions of the operational cumulative ecological effects and would remain as described within Volume 10, Chapter 4 of the ES [APP-578].
- 5.10.152. In addition to this, Appendix 13A considers any recent changes that have been made to the nearby energy NSIPs, scoped into the cumulative effects assessment in Volume 10 of the ES [APP-572 to APP-582]. In relation to the three offshore wind farms, the new information relates to the construction programme only which does not change the conclusions of cumulative ecological effects assessment described within Volume 10, Chapter 4 of the ES [APP-578].

The ExA's conclusions

- 5.10.153. The ExA finds the Applicant's approach to the assessment of the cumulative ecological impact within the ES (as updated) to be reasonable and proportionate. This topic including the adequacy of the proposed

mitigation has been considered in section 5.6 of Chapter 5 of this Report. The associated HRA matters have been considered in Chapter 6 of this Report. The ExA does not consider that there would be any significant adverse additional cumulative effects arising from terrestrial ecological impacts resulting from the Proposed Development in association with other NSIPs and schemes in the area.

Amenity and Recreation

The submissions of IPs

- 5.10.154. ESC [RR-0342] in relation to amenity and recreation notes that during the early years of construction there may be impacts in some areas should other NSIPs be under construction simultaneously. The majority of these impacts will be on receptor groups using public footpaths. The majority are considered to be not significant, but receptors at Aldringham Common and The Walks are likely to experience significant effects.

The Applicant's response

- 5.10.155. The Applicant's response to Cu.1.19 [REP2-100], indicates that the additional cumulative effects on Receptor Group 19: Aldringham Common and The Walks would occur mainly due to construction of the landfall and cable route elements of EA1N, EA2, Nautilus Interconnector, Eurolink Interconnector, Greater Gabbard Extension and Galloper Extension Offshore Wind Farm which are likely to take place within this receptor group and mitigation should be provided by those projects for adverse impacts they generate. However, the Applicant is in discussion with SCC and ESC regarding additional mitigation required for recreational receptors within Receptor Group 19 for the Proposed Development, through measures such as Public Rights of Way (PRoW) improvements and signage and secured by the DoO [REP10-077].

The ExA's conclusions

- 5.10.156. The ES Volume 10, Chapter 4, section 4.9, assesses cumulative impacts in relation to amenity and recreation [APP-578]. For users of Receptor Group 19: Aldringham Common and The Walks, this identifies that the effect of the construction of the MDS on this receptor group has been assessed to be moderate adverse and considered to be significant. The addition of the localised, up to medium scale, short to medium-term construction effects from the cumulative schemes would result in significant adverse effects.
- 5.10.157. The ExA notes the Applicant's response to Cu.1.19 [REP2-100], which highlights the ongoing discussions with SCC and ESC regarding additional mitigation required for recreational receptors within Receptor Group 19 and the means whereby this would be secured. The amenity and recreation impacts of the Proposed Development including for Receptor Group 19 have been considered in Section 5.5 of Chapter 5 of this Report. The ExA concludes that although there would be additional cumulative effects on Receptor Group 19: Aldringham Common and The Walks, the mitigation proposed and that would be secured by the DoO is

reasonable and proportionate and that no additional off-site mitigation is required.

Health and well-being and effects

The submissions of IPs

- 5.10.158. In addition to the cumulative of impacts on health and wellbeing associated with rail noise and the TVB that were identified as being significant by Table 4.12 Chapter 4 of the ES, IPs also raised concerns in relation to changes to general stress and anxiety as a result of there being other larger scale projects in the region as well as the Proposed Development. For example, TASC raise such concerns [REP2-481].

The Applicant's response

- 5.10.159. The Applicant's response to Cu.1.4 refers to Table 2.1 of Volume 10, Chapter 2 of the ES [APP-575]. The potential effects on health and wellbeing from transport, noise and vibration, and air quality are inherently considered within the health and wellbeing assessment. On this basis, the effects identified for Receptor Groups 18, 19 and 20 within paragraph 4.4.9, Volume 10, Chapter 4 of the ES [APP-578] represent the combined effects.
- 5.10.160. The overall cumulative and combined effects on health and wellbeing are considered within Volume 10, Chapter 4, Section 4.21 of the ES [APP-578]. The assessment concludes that the construction effects of the Proposed Development would not be significant for amenity and recreation Receptor Groups 18 and 20. They would be significant for Recreation Receptor Group 19 (Table 15.11 of Volume 2, Chapter 15 (Amenity and Recreation) of the ES [APP-267]). The Applicant is in discussion with SCC and ESC regarding additional mitigation for recreational receptors within Receptor Group 19, through measures such as PRow improvements and signage.
- 5.10.161. In response to ExQ1 Cu.1.26 [REP2-100], the Applicant explains how the overall effects on health and well-being for the various individual communities affected has been considered by the application. A cumulative effects assessment with other projects was presented within Volume 10, Chapter 4 of the ES [APP-578], as updated by Volume 1, Chapter 10 of the ES Addendum [AS-189]. Furthermore, the effects by communities were summarised within the Community Impact Report [APP-156]. The Applicant proposes additional mitigation by way of a Community Fund that would be secured by the Draft DCO [REP10-076].

The ExA's conclusions

- 5.10.162. The ES has assessed the overall cumulative and combined effects on health and wellbeing [APP-578], [AS-189]. For health and wellbeing, and the effects associated with changes to noise and vibration, there would be a significant adverse effect from the rail proposals during construction, and a significant adverse effect for some properties for the TVB during construction and operation.

- 5.10.163. The ES also considered potential changes to general stress and anxiety as a result of there being other larger scale projects in the region as well as the Proposed Development. This concludes that since each individual development would inherently manage stress and anxiety associated with the planning application process, the cumulative health and wellbeing effects would not be significant.
- 5.10.164. The Applicant's response to Cu.1.26 [REP2-100], confirms that as part of the Draft DCO, it proposes a Community Fund that would be used to fund measures, projects and programmes in local communities which seek to improve quality of life for those most affected [REP10-076].
- 5.10.165. The impacts upon health and well-being of the Proposed Development have been considered in Section 5.12 of Chapter 5 of this Report. For the purposes of the cumulative assessment with other plans, projects, the ExA does not consider that there would be any additional adverse cumulative impacts other than those which have been identified by the ES.

The ExA's overall conclusions on cumulative effects with other plans, projects, and programmes

- 5.10.166. The ExA considers that the Applicant has appropriately reviewed the relevant schemes and, in accordance with paragraph 4.2.5 of EN-1, has adequately assessed how the effects of the Proposed Development would combine and interact with the effects of other development. However, should the SoS have any outstanding concerns in this regard, and believe that new important and relevant information may now be available in relation to the potential cumulative effects of the Nautilus Interconnector or the Eurolink Interconnector with the Proposed Development, he may wish to seek further information on this matter.
- 5.10.167. The ExA considers that the cumulative transport effects with other plans, projects, and programmes identified in the cumulative effects assessment would be satisfactorily mitigated through coordinated programming of works as proposed between the Proposed Development and EA1N and EA2 and the mitigation and transport related contributions that would be secured by the DoO, Schedule 16 [REP10-076].
- 5.10.168. There are no other issues of significance in relation to such residual cumulative impacts other than those identified by the ES, in relation to landscape and visual impacts, amenity and recreation, and health and wellbeing, arising under this aspect of cumulative impact. For health and wellbeing, these are the effects associated with changes to noise and vibration which would result in a significant adverse effect from the rail proposals during construction, and a significant adverse effect for some properties for the TVB during construction and operation. For amenity and recreation there would be additional significant adverse cumulative effects on Receptor Group 19: Aldringham Common and The Walks. For landscape and visual impact there would also be an increase in cumulative effects for Receptor Groups 18, 19 and 20 during the construction period but this would not be significant. These topics have been considered in sections 5.3, 5.14 and 5.18 of Chapter 5 of this

Report. The harm identified within those other sections of this Report will be taken into account in the overall planning balance in Chapter 7 of this Report.

- 5.10.169. The ExA concludes that the mitigation that is proposed and would be secured by the DoO [REP10-076] is reasonable and proportionate and no additional mitigation is required. There are no additional matters relating to cumulative project-wide impacts that would weigh for or against the making of the Order.

Transboundary Issues

- 5.10.170. 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 Inspectorate re-notified all EEA States and signatories of the UNECE Espoo and Aarhus conventions.
- 5.10.171. For the purposes of compliance with the relevant legislation and policy, the ExA is satisfied that the ES has given appropriate consideration to the transboundary implications of such matters. The ExA concludes that in relation to transboundary issues all applicable conventions, international and national legislation, and policy have been complied with. Those matters relating to radiological issues are considered in section 5.20 of Chapter 5 and those which relate to the HRA assessment are considered in Chapter 6 of this Report.

The cumulative impact on the Suffolk Coast and Heaths AONB

The submissions of IPs

- 5.10.172. Many IPs raised concerns in relation to the potential cumulative impact upon the AONB taken as a whole from a variety of sources.
- 5.10.173. The Beach View Holiday Park [RR-0126] propose that an independent 'cumulative impact study' should be undertaken to safeguard the AONB and wider area from the impact on multiple large-scale industrial projects including Sizewell C, EA1N and EA2 wind farms, Nautilus and Eurolink and SCD1 and SCD2 Interconnector.
- 5.10.174. The ESC and SCC Joint LIR [REP1-045], Table 2, provides a summary of identified impacts upon the AONB and outlines the mitigation sought and how it would be secured. It highlights all the relevant impacts with regard to the special qualities of the AONB, which may have an effect on the purpose of its designation. The impact across the range of Special Qualities as identified and agreed by the Applicant, SCC, ESC and the AONB Partnership in 2016 is set out in Suffolk Coast and Heaths AONB Natural Beauty and Special Qualities Indicators (Appendix 1.19) [REP1-079].

- 5.10.175. The Councils consider this list of effects on AONB special qualities suggest a risk of significant impacts on the AONB and the purpose of the designation, a risk that has been identified in the site nomination material within EN-6 Vol II. The mitigation required, and resulting requirements and obligations, are discussed in more detail in the relevant topic sections, particularly in the landscape and ecology sections of the LIR.
- 5.10.176. At DL10 the Joint Councils' review of the LIR [REP10-183] refers to ESC's position in the LIR (at 7.7 -7.8) that the development will have a considerable adverse impact on the statutory purpose of the AONB designation. The review notes that the Applicant has proposed, and ESC has signed a DoO that includes provision for a Natural Environment Improvement Fund during the construction period and the three years immediately after to carry out projects within the improvement area and wider if they meet the objectives of the Fund. ESC considers that this Fund will enable the adverse impact of the proposal on the AONB to be adequately addressed during the construction and immediate post-construction phase of the Proposed Development. SCC largely shares the comments made by ESC. However, SCC considers that the mitigations secured by the DoO on their own will not overcome the residual adverse impacts of the proposal on the natural environment and the AONB. In that regard, SCC has welcomed the Applicant's proposal to provide funding for the Environment Trust, secured in a separate Deed which has now been agreed and executed in parallel to the DoO. Further detail on this point is set out in SCC's DL10 submission on its final position [REP10-210]. The Final SoCG between the Applicant, ESC and SCC also sets out the latest positions of the parties on this topic [REP10-102]
- 5.10.177. Suffolk Coast and Heaths AONB Partnership [REP5-270] submits that although the proposals relate to a limited geographical area of the AONB this should not imply that the proposals will not have a negative impact on the AONB as a whole. The position that the AONB as a whole will be damaged is one shared by NE in its Written Representations [REP2-150].
- 5.10.178. The Suffolk Coast and Heaths AONB Partnership [REP10-393] recognise that any proposals for a Sizewell Transfer Main, to supply water to the site will not form part of the application but consider that such a development may be crucial to the delivery of the Proposed Development. They are concerned that a Sizewell Transfer Main would require the installation of a new pipeline and other infrastructure in the AONB and may cause negative impacts on the natural beauty of the nationally designated landscape.
- 5.10.179. TASC [RE8-286a] state that they do not consider that the Applicant has given adequate consideration to the defined qualities of the AONB, and they expand upon their concerns in that respect. They question whether appropriate and proportional mitigation in respect of cumulative impacts would be secured for the Proposed Development. The final submissions of TASC [REP10-419] state that the adverse impacts on the attributes that support the AONB's designation remain a major concern for them.

The Applicant's response

- 5.10.180. The Applicant's response to Cu.1.21 explains that section 4.7 of Volume 10, Chapter 4 of the ES [APP-578] considers the potential cumulative landscape and visual effects of the Proposed Development with other proposed projects, utilising the methodology determined for the EIA as a whole. This includes EA1N and EA2 and in particular the onshore elements of these projects. Other proposed projects at a much earlier stage in their development were identified but not assessed in detail due to the level of information available on what the proposals would entail.
- 5.10.181. Those schemes of potential relevance to the Suffolk Coast and Heaths AONB were: Nautilus Interconnector; Eurolink Interconnector; Greater Gabbard Extension and Galloper Extension offshore windfarm. Other potential cumulative schemes identified by Suffolk Coast and Heaths AONB Partnership [RR-1170] were not included within the cumulative effects assessment due to a lack of available information on these projects due to their stage of development.
- 5.10.182. The Applicant does not consider that the exclusion of schemes too early in the planning process to be included in the assessment of cumulative effects underplays likely cumulative effects. In addition, the landscape and visual assessment for the MDS at Volume 2, Chapter 13 of the ES [APP-216] identifies localised significant effects on some of the natural beauty and special qualities indicators of the AONB as a result of the construction of the MDS. Volume 10, Chapter 4 of the ES [APP-578] goes on to acknowledge that other proposed projects could affect the same area of the AONB, and that effects on some of the natural beauty and special qualities indicators of the AONB would continue to be significant when additional cumulative effects are taken into consideration. Any additional effects on these natural beauty and special qualities indicators are acknowledged rather than underplayed. The existing power stations are considered as part of the baseline for the assessment of effects from the MDS rather than included separately within the cumulative assessment.
- 5.10.183. In response to Cu.1.2, the Applicant acknowledges that the present context of Sizewell B will alter with the Proposed Development and as a result will be viewed in a different context, especially from the north. While Sizewell B's appearance in views along the coast will alter, it will remain visible, sitting in a sequence of three periods of nuclear power generation. The design principles described in the Design and Access Statement [APP-585 to APP-587] identify the importance of securing the alignment of each power station's major structures on a common axis to allow each to be read as separate objects without distorting their legibility through changes in orientation. This design discipline will be apparent in views along the coast from the north.
- 5.10.184. The Draft DoO [REP10-076] includes a 'Natural Environment Improvement Fund' which would fund measures to mitigate the residual landscape and visual effects of the Proposed Development. The Applicant submits that the application of the fund could reasonably be expected to mitigate the in-combination effects of the Proposed Development with

other existing energy infrastructure within the Natural Environment Improvement Area.

- 5.10.185. The response to Cu.1.15 is also relevant. Volume 10, Chapter 4 of the ES [APP-578] acknowledges that other cumulative projects could affect the same area of the AONB, and that effects on some of the natural beauty and special qualities indicators of the AONB would remain significant. It assesses the cumulative effects of those projects where there is sufficient information available to make informed judgements on the likely impacts of the proposals. Any additional 'cumulative impact study' would similarly only be able to assess the impacts of projects based on information currently available. This would be the case whether the assessment was undertaken by the consultant team that prepared the ES for the Proposed Development or by an independent body.
- 5.10.186. In response to Cu.3.2 [REP8-116], the Applicant explains that Tables 13.14 and 13.17 in Volume 2, Chapter 13 of the ES [APP-216] present an assessment of the susceptibility of each of the natural beauty and special qualities indicators of the AONB, a description of the nature of effects and a judgement of the scale and extent of the effects arising during construction and operation. This assessment represents a holistic approach to looking at all the effects on the AONB. Where relevant and appropriate the consideration of effects on natural beauty and special qualities indicators refers to the findings presented in other technical ES chapters, to inform a holistic assessment. Judgements of the overall effects on the AONB arising from construction are presented in paragraphs 13.6.145 to 13.6.150. Judgements of the overall effects on the AONB arising from operation are presented in paragraphs 13.6.316 to 13.6.321.

The ExA's conclusions on the cumulative impact on the Suffolk Coast and Heaths AONB

- 5.10.187. EN-1, paragraph 5.9.9, requires the decision-maker to have regard to the specific statutory purposes of the AONB in its decisions. EN-6 Vol II C.8.81 notes that the Appraisal of Sustainability identified that there is the potential for some long lasting adverse direct and indirect effects on landscape character and visual impacts on the Suffolk Coast and Heaths AONB, with limited potential for mitigation given that the site is wholly within the AONB. Paragraph C.8.82 acknowledges that this could have an effect on the purpose of the designation, and that further detailed assessment at project level is required.
- 5.10.188. The ES Chapter 4, Section 4.7 [APP-578] assesses the potential cumulative landscape and visual effects of the Proposed Development with cumulative effects of those projects where there is sufficient information available to make informed judgements on the likely impacts of the proposals. The ExA is content that those schemes of potential relevance to the Suffolk Coast and Heaths AONB have been considered. Furthermore, that it was reasonable not to include the other potential cumulative schemes identified by Suffolk Coast and Heaths AONB Partnership [RR-1170] given their stage of development and the lack of available information on those projects at this time.

- 5.10.189. The landscape and visual impact assessment for the MDS, Volume 2, Chapter 13 of the ES [APP-216] identifies localised significant effects on some of the natural beauty and special qualities indicators of the AONB as a result of the construction of the MDS. Volume 10, Chapter 4 of the ES [APP-578] goes on to acknowledge that other proposed projects could affect the same area of the AONB, and that effects on some of the natural beauty and special qualities indicators of the AONB would continue to be significant when additional cumulative effects are taken into consideration.
- 5.10.190. Any additional 'cumulative impact study' would similarly only be able to assess the impacts of projects based on information currently available. The ExA does not consider that an independent 'cumulative impact study', as sought by The Beach View Holiday Park [RR-0126], would assist in the understanding of potential cumulative impacts on the AONB over and above the information provided by the ES.
- 5.10.191. The Draft DoO [REP10-074] includes a 'Natural Environment Improvement Fund' which would fund measures to mitigate the residual landscape and visual effects of the Proposed Development. The mitigating effect of this fund is recognised by the Final SoCG between the Applicant, SCC, and ESC [REP10-102]. This records the agreed position of the parties to be that with all of the provisions that are anticipated to be in place adequate mitigation for the overall impact on the AONB will be achieved.
- 5.10.192. The ExA has considered the outstanding points raised by SCC in its Final Position Statement [REP10-210] in sections 5.6, 5.14 and 5.22 of Chapter 5 of this Report. The ExA concludes in relation to the use of pylons for the power export connection that a less intrusive technical solution such as the use of GIL would not be feasible. As regards the provision of an outage car park in the AONB, the ExA considers that the provision of this facility would be necessary and reasonable and that the shared use of the Sizewell B outage car park would not be feasible. For the SLR, we believe that this should be permanently retained as a legacy benefit. Finally, the ExA does not consider the alternative SSSI crossing favoured by SCC to be necessary and reasonable given the acceptability of what is proposed as part of the application. The ExA has therefore considered the overall impact on the natural environment and the AONB in the light of the retention of those features.
- 5.10.193. The Suffolk Coast and Heaths AONB Partnership [REP10-393] raise concerns in relation to the proposed desalination plant the subject of Change 19 including the impact that it would have on the statutory purpose of the AONB. The ExA has had regard to this aspect of the Proposed Development in Section 5.14 of Chapter 5 of this Report and in assessing the overall impact on the AONB.
- 5.10.194. The AONB Partnership are also concerned that the provision of a Sizewell Transfer Main would require the installation of a new pipeline and other infrastructure in the AONB that may cause negative impacts on the natural beauty of the nationally designated landscape.

- 5.10.195. The SoCG between the Applicant and Northumbrian Water Limited (NWL) [REP10-092] sets out the agreed position between the parties in relation to the supply of water to the site. This has been considered further in section 5.11 of Chapter 5 of this Report. In relation to the prospect of the installation of a new water supply pipe by NWL this is not a matter that forms part of the application. There is to date little available information on the timing or the form that the provision of this infrastructure would take. The impacts of that development including on the AONB will fall to be assessed at that time.
- 5.10.196. Tables 13.14 and 13.17 in Volume 2, Chapter 13 of the ES take a holistic approach to looking at all the effects on the AONB. The direct and indirect effects on tranquillity, landscape character and visual impacts on the purpose of the designation and the special qualities of the Suffolk Coast and Heaths AONB have been considered in sections 5.14 and 5.18 of Chapter 5 of this Report. The adverse impact on the purpose of the designation, and harm to the special qualities of the AONB identified in those sections will be taken into account in the overall planning balance in Chapter 7 of this Report.
- 5.10.197. The Applicant acknowledges the potential for other proposed projects to affect the same area of the AONB and additional mitigation by way of the Natural Environment Improvement Fund would be provided to mitigate the residual landscape and visual effects of the Proposed Development. The ExA is content that the mitigation proposed is reasonable and proportionate and no further practicable mitigation is available.
- 5.10.198. However, despite the mitigation measures the ExA attributes substantial weight to the residual construction cumulative effects and moderate weight to the residual operational cumulative effects upon the AONB that weigh against the Order being made.
- 5.10.199. For the purposes of compliance with the relevant legislation and policy, the ExA is satisfied that the ES, as updated during the Examination, has given appropriate consideration to the cumulative impact upon the AONB. This provides a detailed assessment of the potential effects on the purpose of the designation, and the special qualities of the AONB at project level, as advised by EN-6 Vol II paragraph C.8.82. The ExA concludes that in relation to the assessment of the cumulative impact on the AONB all applicable conventions, international and national legislation, and policies have been complied with.

The ExA's Overall Conclusions on Cumulative Impacts

- 5.10.200. The ExA considers that the Applicant has appropriately reviewed the relevant schemes and, in accordance with paragraph 4.2.5 of EN-1, has adequately assessed how the effects of the Proposed Development would combine and interact with the effects of other development. However, should the Secretary of State have any outstanding concerns in this regard, and believe that new important and relevant information may now be available as regards the potential cumulative effects of the Nautilus Interconnector or the Eurolink Interconnector with the Proposed Development, we may wish to seek further information on this matter.

- 5.10.201. In accordance with EN-1, paragraph 4.2.6, the ExA has considered how the accumulation of, and interrelationship between effects might affect the environment, economy, and community as a whole.
- 5.10.202. The ExA is content that the project-wide impacts relating to the Pro Corda music school and Leiston Abbey with the potential for a significant cumulative effect have been satisfactorily resolved. The other project-wide impacts identified by the ES have been considered further where they remain relevant in the appropriate sections of Chapter 5 of this Report and any residual harm identified will be taken into account in the overall planning balance.
- 5.10.203. For interrelationship effects, various such effects have been identified and consideration given to the adequacy of the mitigation proposed in the light of those cumulative effects. The ExA concludes that the mitigation proposed to overcome the additional significant adverse inter-relationship effect that is likely to be experienced by the identified receptors would be satisfactory and would achieve that purpose.
- 5.10.204. In the light of EN-6 Vol I paragraph 3.7.4, the ExA has considered the cumulative effects of the Proposed Development with other major infrastructure proposals. The ExA believes that the cumulative transport effects with other plans, projects, and programmes identified in the 'cumulative' assessment would be acceptably and reasonably mitigated through coordinated programming of works as proposed between the Proposed Development and EA1N and EA2 and the mitigation and transport related contributions that would be secured by the DoO [REP10-076].
- 5.10.205. The assessment of combinations of spatially and temporally overlapping marine components remains an outstanding area of disagreement in the in the Final SoCG [REP10-094] between the EA and the Applicant. The EA is unable to agree with the full assessment of cumulative impacts due to residual concerns around the modelling of the coastal defences, in relation to outstanding modelling. This also applies to in-combination impacts with other projects such as EA1 and 2.
- 5.10.206. This matter is considered further in the Coastal Geomorphology and Hydrodynamics Section 5.8 of Chapter 5 of this Report. The ExA concludes that the CPMMP would provide an appropriate mechanism to identify and address coastal changes beyond those predicted by the modelling and assessment work which has been undertaken, including any additional cumulative impacts. However, we have also highlighted that the SoS may wish to consult with IPs in relation to the information provided by the Applicant at DL10 [REP10-124] before reaching a final decision.
- 5.10.207. There would be no other such cumulative impacts of significance other than those identified by the ES in relation to landscape and visual impact, amenity and recreation, and health and wellbeing. These matters are considered in the relevant generic sections of Chapter 5 of this Report. However, the ExA believes that the mitigation that is proposed to

alleviate those impacts, and would be secured by the DoO [REP10-076], is reasonable and proportionate and that no further mitigation is required.

- 5.10.208. As regards transboundary issues, for the purposes of compliance with the relevant legislation and policy, the ExA is satisfied that the ES has given appropriate consideration to the transboundary implications of such matters. Those matters relating to the HRA in-combination assessment are considered in Chapter 6 of this Report.
- 5.10.209. The cumulative impacts of the water supply strategy have been considered in Section 5.11 of Chapter 5. In that section, we conclude that as there is no identified water permanent supply solution there has been no assessment of the potential cumulative environmental effects of any solution that is ultimately proposed. The ExA is therefore unable to provide a reasoned conclusion in respect of the cumulative environmental effects of the water supply solution.
- 5.10.210. With the exception of that outstanding matters, the ExA concludes in relation to project-wide effects, interrelationship effects, and cumulative impacts with other plans and projects that all applicable conventions, international and national legislation, and policy have been complied with. Furthermore, there are no additional matters over and above those identified in the relevant generic topic sections of Chapter 5 of this Report relating to cumulative project-wide impacts, interrelationship effects or the cumulative effects with other plans, projects or programmes that would weigh for or against the making of the Order.
- 5.10.211. However, in relation to the overall effects on the AONB, there would be an adverse impact on the purpose of the designation, and harm to the identified special qualities of the AONB after taking mitigation into account, as identified in section 5.14 and 5.18 of this Report. The ExA attributes substantial weight to the residual construction cumulative effects and moderate weight to the residual operational cumulative effects upon the AONB that weigh against the Order being made.
- 5.10.212. The consequences of the need for further details to be provided in relation to the water supply and the cumulative harm identified in this and other sections of the Report will be taken into account in the overall planning balance in Chapter 7 of this Report.

5.11. FLOOD RISK, GROUNDWATER, SURFACE WATER

Introduction

- 5.11.1. This section addresses the water environment effects of the Proposed Development in terms of flood risk, water quality and resources.
- 5.11.2. Effects on European sites are considered in the HRA Chapter 6 of this Report.

Policy Considerations

National Policy Statements

- 5.11.3. Paragraph 5.7.3 of NPS EN-1 states that development and flood risk must be taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding. Where new energy infrastructure is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and, where possible, by reducing flood risk overall.
- 5.11.4. Paragraph 5.7.4 of NPS EN-1 states that all proposals for energy projects located in Flood Zones 2 and 3 in England should be accompanied by a Flood Risk Assessment (FRA), which should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account.
- 5.11.5. Paragraphs 5.7.13 to 5.7.16 of NPS EN-1 set out the need for development to pass a Sequential Test, then an Exception Test if development is to be considered permissible in a high-risk Flood Zone area. Paragraph 5.7.12 of NPS EN-1 states that the SoS should not consent development in Flood Zone 3 unless they are satisfied that the Sequential and Exception Test requirements have been met.
- 5.11.6. Paragraphs 3.6.9 and 3.6.10 of NPS EN-6 set out that the Government has already undertaken a Sequential Test for all the sites listed in the NPS. Paragraph 3.6.11 also sets out that Applicants will still need to submit a flood risk assessment in accordance with Section 5.7 of EN-1. This must demonstrate a sequential approach has been applied at the site level to ensure that, where possible, critical infrastructure is located in the lowest flood risk areas within the site.
- 5.11.7. Paragraphs 3.6.12 and 3.6.13 of NPS EN-6 set out that an Exception Test is required for all sites within Flood Zone 3, but the second limb of the Exception Test does not apply to new nuclear development.
- 5.11.8. Section 5.15 of NPS EN-1 addresses water quality and resources recognising that infrastructure development can have adverse effects on groundwater, inland surface water, transitional waters and coastal waters. The possibility of adverse impacts on health or on protected species and habitats could arise and result in a failure to meet environmental objectives established under the Water Framework Directive (WFD). Activities that discharge to the water environment are subject to pollution control whilst the abstraction licensing regime regulates activities that take water from the water environment.
- 5.11.9. Where the project is likely to have effects on the water environment applicants should undertake an assessment addressing water quality, water resources and physical characteristics of the water environment according to paragraph 5.15.2 of NPS EN-1 and Section 3.7 of NPS EN-6.
- 5.11.10. The Draft NPS for Water Resources Infrastructure (November 2018) sets out the need and Government's policies for, development of nationally significant infrastructure projects (NSIPs) for water resources in England. The ExA consider that this draft does not directly relate to the Proposed

Development, but we are also aware that any permanent water supply solution may need to consider the draft NPS.

National Planning Policy Framework

- 5.11.11. Paragraphs 148 to 165 of the NPPF outline the development requirements in terms of climate change and flood risk confirming the requirement for a site-specific FRA. Paragraph 155 confirms that inappropriate development should be avoided in areas at the highest risk of flooding and where development is necessary in those areas it should be made safe without increasing flood risk elsewhere.

SUBMITTED APPLICATION

- 5.11.12. There are sections on the following:

- Flood risk;
- Outline Drainage Strategy;
- Groundwater and surface water;
- WFD compliance assessment; and
- Water Supply

Flood Risk – Summary of the Applicant’s Case

- 5.11.13. The Applicant submitted the following Flood Risk Assessments (FRA):

- 1) Main Development Site FRA [APP-093], amended prior to Examination [AS-018];
- 2) Northern Park and Ride FRA [APP-115];
- 3) Southern Park and Ride FRA [APP-117];
- 4) Two Village Bypass FRA [APP-119];
- 5) Sizewell Link Road FRA [APP-136];
- 6) Yoxford Roundabout/ Other Highway Improvements FRA [APP-139];
- 7) Freight Management Facility FRA [APP-141]; and
- 8) Rail FRA [APP-143].

1 Main Development Site (MDS) FRA [AS-018]

- 5.11.14. The MDS FRA presents an assessment of existing flood risk from all sources to the MDS of the Proposed Development. The FRA describes future flood risks to the site including the consequences of climate change and also considers possible changes in flood risk to off-site receptors as a result of the Proposed Development.

- 5.11.15. The structure of the MDS FRA contains:

- Climate change considerations;
- Baseline flood risk;
- The sequential and exception tests;
- Main platform flood risk;
- SSSI crossing flood risk;
- Construction area flood risk;
- Ancillary Construction Area (ACA) flood risk; and
- Off-site impacts and mitigation.

- 5.11.16. The FRA considered the following flood risks:
- Coastal;
 - Coastal defences breach;
 - Fluvial;
 - Surface water;
 - Groundwater;
 - Reservoir; and
 - Sewer.
- 5.11.17. The FRA also considered the flood risk in three phases. These are construction, operation, and decommissioning.
- 5.11.18. The FRA considers the application of both the Sequential Test (for areas outside of the original site area considered by the Government in NPS EN-6) and the Exception Test. It concludes that all of the works within the MDS are part of the Proposed Development and that there is demonstrable community, environmental and safety benefits and consequently that the Exception Test requirements are met.
- 5.11.19. The proposed main development platform area would involve extensive alterations to the existing ground levels to facilitate the platform construction. The proposed platform location is located behind existing sand dunes with a shingle beach and an earth embankment, known as the Bent Hills. The Bent Hills would be excavated in stages during the first phase of construction of the platform. The Hard Coastal Defence Feature (HCDF) would be constructed between the reinstated sand dunes with a shingle beach, known as the Soft Coastal Defence Feature (SCDF), and the proposed platform. The proposed main platform and SSSI crossing are to be at a level of 7.3m AOD.
- 5.11.20. In the originally submitted FRA [AS-018] it was stated that the HCDF would be designed to protect the main platform from still water levels up to 1 in 10,000-year return period for the entire operation phase and the spent fuel store decommissioning phases. The sea defence crest level would initially be constructed to a level of 10.2m AOD with adaptive design to potentially raise the defence in the future up to 14.2m AOD, if sea level changes require. The SSSI crossing would be set back from the coastline and would not directly benefit from the HCDF. As coastal change occurs the coastline is predicted to progress inland to the SSSI crossing leading to an increased risk of wave overtopping and it would experience higher rates of wave overtopping. The proposed SSSI crossing design would have the potential to incorporate adaptive flood defences with a crest level of 10.5m AOD on the crossing, from 7.3m AOD.
- 5.11.21. Breach modelling was undertaken to assess the risk to the MDS if the coastal defences were to fail. Three breach locations were considered at the area known as tank traps (to the north of the main platform), at the Sizewell Gap (to the south of the main platform) and a breach of the HCDF for the main platform (adjacent to the platform). The breach modelling presented in the FRA shows the main platform area is not at flood risk from a breach of the existing sand dunes. However, the off-site

impacts equate to an increase of the maximum water depths by up to 0.19m, although the increase is to over 3m depth of water at the 1 in 200-year event in 2030 and about 5.7m depth at the 1 in 200-year event in 2190. This increase does not lead to new flooding of residential property and does not affect the overall duration of flooding.

- 5.11.22. Once constructed, the main platform and SSSI crossing would be above the current and future 1 in 1,000-year fluvial flood extents including allowances for climate change. However, the platform and the SSSI crossing do encroach into the existing fluvial floodplain of the Leiston Drain and would slightly reduce the flood storage volume.
- 5.11.23. The fluvial modelling results predict a change in the maximum water levels of up to 15mm for the range of considered scenarios from 1 in 5-year annual probability event up to 100-year event with 65% climate change allowance. The Environment Agency has confirmed, to the Applicant, that flood storage compensation or flood mitigation would not usually be required when the change in flood depth is less than 30mm, where the impacts are insignificant. The 15mm additional flood depth would be considered to have an insignificant impact on the floodplain and any off-site receptors. This was because it would not lead to new flooding of residential properties, and would not change the duration of flooding, which could have been significant for the habitats in the RSPB Minsmere reserves or Minsmere Levels. Therefore, no flood storage compensation or flood mitigation measures are proposed in the FRA.
- 5.11.24. In terms of surface water flooding the FRA concludes that there is a low risk of flooding for all phases of development. Temporary and permanent surface water drainage systems would be designed in accordance with the submitted outline Drainage Strategy (oDS) [APP-181]. The oDS would be secured through Requirement 5 of the dDCO.
- 5.11.25. The main platform and SSSI crossing areas were identified in the FRA as being predominantly in an area with 'no' potential for groundwater flooding with a smaller area with 'limited' potential for groundwater flooding. The groundwater modelling results indicate that during the construction phase the dewatering activities would reduce the groundwater levels in the vicinity of the platform area and in adjacent off-site areas, reducing groundwater flood risk further. To facilitate excavation, the main platform site would be dewatered within a below ground cut-off wall. While the groundwater levels would fluctuate due to the dewatering activities in the construction phase, the overall groundwater flood risk would remain as being of 'limited' potential. Following cessation of the construction phase dewatering, the limited drawdown beyond the cut-off wall would no longer occur. Groundwater levels outside the cut-off wall would re-equilibrate and are expected to recover fully by the operation phase.
- 5.11.26. The main platform and SSSI crossing areas are currently classified by the Environment Agency as being outside the maximum flood extents for the Sizewell Walks reservoir. Only the access road to the south of Sizewell A is partially within the maximum flood extent. Alternative access through

the SSSI crossing exists as an alternative if this very low probability of reservoir breach occurs, making this a low risk overall to the Proposed Development.

- 5.11.27. The construction of the main platform with the power station facilities would introduce the risk of sewer flooding on-site as no sewers were previously present. During the construction phase only, these sewers would be conveyed across the SSSI crossing. The FRA states that through appropriate design, installation and management of the foul water system, the risk of sewer flooding would remain low.
- 5.11.28. During the early construction phase, The FRA identifies that there is a risk of coastal flooding to both the main platform and SSSI crossing areas for a short period while the new HCDF is still under construction. A flood risk emergency plan would be developed and used to manage this risk. The main platform and access via the SSSI crossing are designed for a safety case of a 1 in 10,000-year storm event.
- 5.11.29. The FRA concludes that once the site is operational, the main platform would be at low risk of flooding for the reasonably foreseeable climate change scenario for 1 in 1,000-year probability of occurrence and for the more extreme safety case event for 1 in 10,000-year probability of occurrence.
- 5.11.30. The FRA also concludes that the main platform in the decommissioning phase would be at low flood risk. While the flood risk associated with breach to the platform is low, the off-site water depths during a breach would increase along with the associated flood risk.
- 5.11.31. The Applicant stated that a Flood Risk Emergency Plan (FREP) in accordance with the standards set out in the Environment Agency and ONR Joint Advice would be developed to ensure people on-site are safe in the event of a flood. At the time of submission, no draft plan was provided. The FREP is discussed further in the Examination section of this chapter.
- 5.11.32. The Applicant submitted an Addendum [AS-157] to the MDS FRA. This is dealt with in the Pre-Examination section below.

Ancillary Construction Area (ACA)

- 5.11.33. The Ancillary Construction Area (ACA) (Also known as the Land East of Eastlands Industrial Estate (LEEIE) earlier in the Examination) site would be used temporarily for contractor compounds, workers' accommodation, and stockpiles for the construction phase only.
- 5.11.34. Taking into account the oDS in terms of the proposed approach with respect to surface water drainage the FRA assesses that the ACA site would be at a low level of flood risk at present and during the Proposed Development construction phase. Once the Proposed Development has been built, the ACA would be removed, and the area would be returned to its former use.

Off-Site Sports Facilities

- 5.11.35. The off-site sports facilities are a proposed permanent feature and were assessed to be at low risk of flooding from all but surface water and sewer flooding. The embedded design approach and mitigation set out in the oDS is assessed, by the Applicant, to maintain low flood risk for both surface water and sewer flooding.

Fen Meadow Sites and Marsh Harrier Habitat Improvement Area

- 5.11.36. The Fen meadows are permanent sites, water compatible and the FRA considers them to be appropriately located in accordance with the Sequential Test.
- 5.11.37. The Fen meadow sites and the marsh harrier habitat improvement area are considered to be at low risk of flooding from sewers, coastal and breach. The marsh harrier habitat improvement area is not at fluvial or reservoir flood risk. The marsh harrier habitat improvement area, at Westleton, is a temporary site that would be returned to its former agricultural use at the end of the construction period.
- 5.11.38. The Fen meadow sites would remain as permanent developments and are a water compatible land use. There are no planned alterations to the sites created in the construction, operation and decommissioning phases. The FRA states that the only anticipated change to flood risk is associated with the predicted climate change projections. The flood risk would remain similar to the construction phase depending on the sensitivity of the source of flood risk to climate change.

Sizewell B Relocated Facilities

- 5.11.39. The Sizewell B relocated facilities are to be moved from the Proposed Development main platform area onto the existing Sizewell B site, the Coronation Wood development area and the Pillbox Field to the south of the Sizewell A and B platforms. The facilities relocated onto the Sizewell B site and the Coronation Wood development area are at low risk of coastal inundation, tidal breach, fluvial, surface water, groundwater, reservoir and sewer flooding. The design life of the relocated facilities is up to 2055. Therefore, the future water extents, depths and velocities in 2055 are expected to be closer to those modelled in 2030 rather than 2190.
- 5.11.40. The proposed vehicular access road crossing to Pillbox Field is within the 1 in 200-year and 1 in 1,000-year extents for coastal inundation, tidal breach and fluvial flooding in 2030. The FRA concludes that the relocated facilities would not alter any off-site flood risks. These on-site and off-site flood risks would continue from the construction phase into the operation phase of the Proposed Development.

2 Northern Park and Ride (NPR) FRA [APP-115]

- 5.11.41. This FRA presents an assessment of existing flood risk from all sources of flooding to the proposed Northern Park and Ride. The FRA also describes future flood risk to the site taking account of climate change and

considers possible changes in flood risk to off-site receptors as a result of the NPR. It also presents mechanisms for managing residual risk. The proposed development is in Flood Zone 1. The site is at low flood risk from fluvial, coastal, groundwater, sewers and reservoir sources.

- 5.11.42. Flood risk from surface water is variable across the site. The majority of the site is at 'very low' risk of flooding from surface water, however, land along the south-west and northern edges of the site are at 'high' risk of flooding from this source. These isolated 'high' risk areas have been avoided for vulnerable uses or integrated into the drainage system. The FRA states that surface water flood risk would be managed as part of oDS [APP-181].
- 5.11.43. The Proposed Development is in Flood Zone 1 and is classed as 'low probability of flooding from river or sea' under the NPPF guidance for flood risk and coastal change. The proposed development is considered appropriate in terms of flood risk vulnerability that passes the Sequential Test.

3 Southern Park and Ride (SPR) FRA [APP-117]

- 5.11.44. The FRA presents an assessment of existing flood risk from all sources of flooding to the proposed Southern Park and Ride. The FRA also describes future flood risk to the site taking account of climate change and considers possible changes in flood risk to off-site receptors as a result of the proposed development. It also presents mechanisms for managing residual risk. The proposed development is in Flood Zone 1. The site is at low flood risk from fluvial, coastal, groundwater, sewers and reservoirs.
- 5.11.45. Flood risk from surface water is variable across the site. The majority of the site is at 'Very Low' risk of flooding, however a very small, isolated pocket of land at 'High' risk of flooding was identified. This isolated 'high' risk area has been avoided in terms of vulnerable uses. Therefore, the SPR is considered appropriate in terms of flood risk vulnerability and, therefore, passes the Sequential Test.

4 Two Village Bypass FRA [APP-119]

- 5.11.46. The site is located in Flood Zones 1, 2, 3a and 3b. Flood risk from fluvial sources is high where the bypass crosses the River Alde. Hydraulic modelling was undertaken to assess the potential impact of the proposed development on flood risk. The FRA states that results of the modelling show that the on-site risk of fluvial flooding of the crossing itself is negligible due to the level of the crossing being much higher compared to the surrounding ground levels and resulting flood levels for all considered scenarios.
- 5.11.47. Elements of the site are within Flood Zones 3 and 3b so the Exception Test has been undertaken by the Applicant. The Applicant concludes that , "on consideration of the information provided in the flood risk assessment, supporting hydraulic modelling, the need for the Proposed Development, the consideration of alternative routes and methods of construction, and the potential impacts of the proposed development on

the local community and environment, the development is considered to satisfy the Exception Test as it will be safe for users and does not cause a significant impact to adjacent areas”.

- 5.11.48. The FRA states that fluvial modelling shows the proposed development would result in a localised increase in flood levels upstream of the River Alde bridge, with maximum in-channel increase of 0.014m AOD during a 1 in 100-year event with 35% climate change allowance. The land affected on both sides of the River Alde are agricultural fields. And the FRA states that the Applicant is in talks with and will continue to engage with the landowner for the affected area, with the view to reaching an agreement for the increased flood depth, hazard and velocity.
- 5.11.49. On consideration of the information provided in the flood risk assessment, supporting hydraulic modelling, the need for the Sizewell C Project, the consideration of alternative routes and methods of construction, and the potential impacts of the proposed development on the local community and environment, the development is considered to satisfy the Exception Test as it will be safe for users and does not cause a significant impact to adjacent areas. This matter is discussed further in the Examination section of this chapter.

5 Sizewell Link Road (SLR) FRA [APP-136]

- 5.11.50. The proposed development includes seven watercourse crossings, which in the FRA, were numbered sequentially from west to east starting at SW1 and finishing at SW7. The SLR is shown to be at low tidal, fluvial, groundwater, sewers and reservoir flood risk. Flood risk from surface water is variable across the site. The majority of the site is at ‘very low’ risk of flooding from surface water. However, areas associated with watercourses are at ‘high’ risk of flooding from this source. Due to this identified risk, hydraulic modelling was undertaken for five of the seven watercourse locations.
- 5.11.51. Based on the off-site modelling results, the FRA concluded that due to the embedded designs, the SLR watercourse crossings have negligible impact on off-site receptors.
- 5.11.52. The FRA sets out that the site is located in Flood Zone 1. In addition, the flood risk from the identified watercourses has been shown to be low and therefore the proposed SLR passes the Sequential test. However due to the route of the SLR crossing two main rivers the Exception Test has been applied. In conclusion, the Applicant sets out that the proposals “as a result of the modelling exercise and the mitigation measures included within the design it has been demonstrated that the proposed development passes all elements of the Exception Test”.

6 Yoxford Roundabout and Other Highway Improvements FRA [APP-139]

- 5.11.53. This FRA considered the flood risk for the following highway improvements and highway safety measures:

- Yoxford Roundabout, A12/ B1122 junction;
- A1094/ B1069, junction south of Knodishall;
- A12/ A144, junctions south of Bamfield;
- A12/ B119, junction at Saxmundham;
- B1078/ B1079, junction east of Easton and Otley College; and
- A140/ B1078, junction west of Coddendam.

5.11.54. Of these the only one where there is significant change to the highway layout as proposed is the Yoxford Roundabout so the other improvements where only minor, if any, changes where undertaken were scoped out of the FRA.

5.11.55. The FRA sets out that the flood risk from the identified watercourses has been shown to be low and therefore passes the Sequential test.

5.11.56. The flood risk from tidal, fluvial, groundwater, sewers and reservoirs is stated as low.

5.11.57. The increase in impermeable area associated with the works is addressed in the drainage strategy through sustainable surface water management for any additional surface water run-off. A combination of infiltration and controlled discharge methods are proposed for the discharge of surface water runoff.

5.11.58. The FRA states that based on the information presented, the proposed mitigation measures, the development site is considered to be appropriate in terms of flood risk.

7 Freight Management Facility (FMF) FRA [APP-141]

5.11.59. The FRA sets out that the proposed development is in Flood Zone 1. The site is at low flood risk from fluvial processes, coastal processes, groundwater, sewers and reservoirs. It is therefore considered appropriate in terms of flood risk vulnerability and passes the Sequential Test. Flood risk from surface water is variable across the site. The large majority of the site is at 'very low' risk of surface water flooding. Two isolated small pockets of land exist at 'low' risk at the north-western edge and middle of the site, and a very small patch of land at 'high' risk of flooding outside the proposed development itself, but along the existing Felixstowe Road at the western boundary.

5.11.60. The proposed development would use sustainable drainage to manage the potential increase of surface water run-off through the attenuation and controlled discharge of flows to ground and local watercourses.

5.11.61. The FRA states that based on the information presented and the proposed mitigation measures the development site is considered to be appropriate in terms of flood risk.

8 Rail FRA [APP-143]

5.11.62. This FRA sets out that the proposed rail extension route is not at fluvial flood risk. The Saxmundham to Leiston branch line has a short section that crosses Flood Zones 2 and 3. However, the risk of fluvial flooding

here is low, due to the existing culvert enabling flow conveyance under the existing railway line and the higher topographic levels of the railway line compared to the surrounding ground levels. Flood risk from surface water is variable across the site. The majority of the site is at 'Very Low' risk of flooding from surface water. Isolated areas of 'High' risk have been avoided in terms of vulnerable uses or integrated into the drainage system. The flood risk from tidal, groundwater, sewers and reservoirs is considered to be low. The rail extension route has been designed using sustainable drainage systems (SuDS) principles to collect run-off in swales which would then infiltrate to ground. The improvements to the Saxmundham to Leiston branch line would not change the existing impermeable area.

- 5.11.63. The proposed rail extension route is considered appropriate in terms of flood risk vulnerability and, passes the Sequential Test. The existing Saxmundham to Leiston branch line improvements requires the application of the Exception Test due to the watercourse crossings. As the Saxmundham to Leiston branch line is to enable the national critical infrastructure, the Applicant considered that it demonstrates wider community sustainability benefits. The improvement works do not increase the existing flood risk. It is therefore considered by the Applicant that the Saxmundham to Leiston branch line upgrades pass the Exception Test.

OUTLINE DRAINAGE STRATEGY [APP-181]

- 5.11.64. The main drainage principle proposed by the Applicant for the Proposed Development is to mimic the existing environmental runoff patterns where possible. The overarching surface water drainage philosophy would follow conventional Sustainable Drainage (SuDS) steps/ hierarchy presented below, moving from each stage to the next only when the current stage is deemed not practicable within the Proposed Development:

- store rainwater for later use (e.g., rainwater harvesting);
- use infiltration techniques (e.g., porous surfaces, swales, trenches);
- attenuate rainwater in basins or open water features for gradual release;
- attenuate rainwater by storing in tanks for gradual release through an outlet; and
- discharge rainwater direct into watercourse or sea.

- 5.11.65. It is proposed that rainwater harvesting and reuse would form part of a holistic approach to surface water management, particularly in areas that will have a high-water demand such as the Accommodation Campus. The viability of rainwater harvesting will be assessed at detailed design stage as part of the design process. There is a variability of groundwater and strata across the construction sites including the main construction area (MCA), the temporary construction area (TCA), the Ancillary Construction Area (ACA) and the associated development sites, and as such each area has a flexibility to the approach taken and the approach has been adapted to suit each area.

- 5.11.66. The MCA will require provision of surface water drainage as soon as construction commences. The requirements will change with development and there will be a need to ensure flexibility over time to allow for transition from current undeveloped site, through construction drainage, to the permanent drainage network. The operational power station site will be provided with a permanent surface water drainage network. It will be designed to drain all impermeable areas which will include roofs, roads, footpaths and car parks, and will discharge through the cooling water tunnel.
- 5.11.67. The TCA is sub-divided into separate Water Management Zones (WMZs) where surface water would be managed in accordance with the uses within each of the WMZs, using SuDS techniques, infiltrating where possible. Detention basins within each WMZ would store excess runoff. Again, there will be a need to ensure flexibility over time to allow for transition from current undeveloped site, through construction drainage, and back to the former uses upon completion of construction.
- 5.11.68. The overarching strategy for the surface water run-off associated with the ACA is storage with infiltration where possible. Storage would be used to balance runoff from the ACA with outfalls to watercourses at greenfield rates. Extreme storm runoff will be attenuated in an attenuation pond within the main development site to the east of the ACA before release to the environment through infiltration or discharged at greenfield runoff rate.
- 5.11.69. The strategy for the surface water run-off associated with the bypasses, access roads, Park and Ride and Freight Management Facilities uses the same SuDS techniques. The strategy will drain the surface water run-off through infiltration techniques and ensure no additional rainwater runoff area would be added to the site wide drainage system. Where impervious surfacing is necessary, the outline drainage strategy would convey run-off from these areas into either permeable paving systems (for the car park and laydown areas), infiltration trenches or into discrete soakaways located alongside the operational car parks.

Foul water management

- 5.11.70. The overarching foul water outline drainage strategy provides conventional drainage through the steps/ hierarchy presented below, moving from each stage to the next only when the current stage is deemed not practicable within the Proposed Development:
- Transfer flows to Treatment Works.
 - Introduce local foul treatment package plant.
 - Specialist low flow package plant.
 - Tankering to works.
- 5.11.71. It is intended that the oDS will be secured by Requirement 5 in Schedule 2 of the dDCO [REP10-009]

GROUNDWATER AND SURFACE WATER

5.11.72. Groundwater and surface water was covered within a chapter of the submitted ES. The Applicant submitted the following chapters for the different sites:

- Main Development Site [APP-297];
- Northern Park and Ride [APP-376];
- Southern Park and Ride [APP-407];
- Two Village Bypass [APP-441];
- Sizewell Link Road [APP-476];
- Yoxford roundabout and other highway improvements [APP-507];
- Freight Management Facility [APP-536]; and
- Rail [APP-570].

General Approach

5.11.73. Groundwater and surface water assessments were undertaken for both the construction and operational phases of development using the following approach:

- Establishing the baseline conditions for the study area with respect to geology, hydrology, hydrogeology, and water dependent resources and receptors;
- Identification of potential impacts on identified water dependent resources and receptors from the construction and operational phases of the proposed development;
- Assessment of the significance of likely effects from the proposed development including the consideration of primary and tertiary mitigation measures; and
- Identification of any residual effects and secondary mitigation where required.

Main Development Site [APP-297]

Construction

5.11.74. The assessment considered the impacts of the following:

- Construction of the SSSI crossing;
- Sizewell Drain realignment along the western boundary of the main platform area;
- Construction of sheet pile walls and a hydraulic cut off wall within the main platform area;
- Use of borrow pits, WMZs and other works within the temporary construction area; and
- Works within the ACA.

5.11.75. The construction of the SSSI crossing would impact on the Leiston Drain and the Sizewell Marshes SSSI. Measures to minimise impacts from works within the watercourses are set out in the Code of Construction Practice (CoCP) [APP-615]. With mitigation in place, the effects are assessed as not significant.

5.11.76. The realignment of the Sizewell Drain has the potential to alter groundwater flow and potentially affect the associated Sizewell Marshes SSSI. However, control structures would be installed along the realigned

Sizewell Drain to manage water levels within the drain and hence manage groundwater flow in the area. The effect on groundwater from the realignment activity would therefore not be significant.

- 5.11.77. Dewatering is required in the footprint of the main platform, in order to reduce groundwater levels to facilitate construction. A low permeability cut-off wall would be installed to stop groundwater flow into the deep excavation on the main platform. As a result, the effect on groundwater levels is assessed as not significant. Groundwater monitoring would be undertaken throughout the dewatering operation and action taken in the event that groundwater levels outside the cut-off wall fall below agreed thresholds.
- 5.11.78. The implementation of the proposed surface water drainage (set out in the oDS [APP-181]) would act to manage and control discharge of surface water to the ground at an acceptable rate. The proposed WMZs would intercept surface water run-off prior to discharge into a surface watercourse or to ground. As a result, no significant effects on groundwater flows and quality would occur. The excavation and backfilling of borrow pits are likely to have a temporary effect on the groundwater flow and quality in this area. However, this would be limited and not significant.

Operation

- 5.11.79. The completed MDS would increase the impermeable surface area compared to baseline conditions. Engineered drainage that would be incorporated into the Proposed Development would act to channel water falling on impermeable surfaces into sustainable drainage infrastructure. The hydraulic cut-off wall and sheet piled support wall would be left in-situ for the operational phase of the development. Whilst this has the potential to alter the groundwater flow regime below the operational site, modelling has shown it would have no discernible effect on groundwater flows. Therefore, no significant effects on groundwater recharge and flows during operation have been identified.

Northern and Southern Park and Ride sites

Northern Park and Ride site [APP-376]

- 5.11.80. Several aquifers lie beneath the site; the windblown deposits and chalky till which are classified as Secondary Aquifers, and the sandstone bedrock is classified as a Principal Aquifer. The chalky till at the site is expected to be of relatively low permeability, and therefore has a limited connectivity to groundwater within the underlying bedrock.
- 5.11.81. The site is located within the River Yox catchment area and within the reach of the Minsmere Old River water body. The River Yox is located approximately 900m to the south of the site, however a smaller, unnamed watercourse flows along the western boundary of the site before joining the Minsmere Old River approximately 1.2km south-east of the site.
- 5.11.82. There are no known water abstractions within 500m of the site.

Southern park and ride site [APP-407]

- 5.11.83. Two Secondary Aquifers lie beneath the site of the Southern Park and Ride. The Lowestoft Formation Secondary A Aquifer, which comprises consolidated sands and gravel sediments and the Lowestoft Formation diamiction Secondary Aquifer (undifferentiated), which comprises poorly consolidated sediments.
- 5.11.84. The site is also located within the catchment of the River Deben to the south-west and the River Ore to the north-east (the site does not drain directly into either of these water bodies), and within the reach of the Deben (Brandeston Bridge - Melton) water body. The River Deben is located approximately 800m to the south-west of the site, however, the River Deben floodplain includes a network of drainage ditches and small storage reservoirs which are located approximately 250m to the south of the site.
- 5.11.85. There are two known water abstractions within 500m of the site (one groundwater and one surface water). A further three groundwater abstractions and one surface water abstraction are located within 1km of the site.

Applicant's Assessment of both park and ride sites.

- 5.11.86. Construction activities could impact upon groundwater and surface water receptors through reduction in discharge to ground, changes to surface water flows and hydromorphology. The increase in the supply of fine sediment, or release of fuels, oils and lubricants through leaks and spills, could have adverse impacts on both groundwater and surface water hydrology, geomorphology and water quality.
- 5.11.87. The CoCP [APP-615], which would be secured by Requirement 2 of the dDCO, sets out proposed measures that would be implemented by the construction contractors to protect groundwater and surface water. In addition, ground investigation and relevant risk assessments would be undertaken prior to commencement of construction works, with remediation completed, if necessary. With these measures in place, no significant effects on groundwater and surface water resources during the construction phase have been identified.
- 5.11.88. An oDS [APP-181] has been developed for the park and ride sites to manage and control surface water run off rates and quality through infiltration to ground. Pollution prevention techniques would be implemented through standard good practice and good design, including the use of sustainable drainage systems, such as swales and infiltration basins. The drainage strategy incorporates measures to minimise effects on groundwater and surface water flows and to prevent contamination from accidental spills and leaks during the operation of the park and ride. As a result, the effect from the operation of the proposed park and ride facilities on groundwater and surface water levels and quality would be considered to be not significant. The oDS was discussed further during the Examination. This is set out in more detail later in this chapter.

5.11.89. During the removal and reinstatement phase the sites would be reinstated to existing conditions as far as reasonably practicable. The removal and reinstatement activities would result in similar impacts as during the construction phase. In addition, intrusive activities from the removal of infrastructure could create new pathways for contamination. However, as during the construction phase, works would be undertaken in accordance with the CoCP [APP-615]. Further ground investigation and risk assessment post operation would confirm the risks at the time of removal and reinstatement and identify if there are areas requiring further remediation. With these measures in place, no significant effects are anticipated on groundwater and surface water resources during removal and reinstatement phase.

Two Village Bypass [APP-441]

5.11.90. Several aquifers lie beneath the site; the poorly consolidated sediments that underlie the majority of the site are classified as a Secondary Aquifer (undifferentiated) whereas the consolidated sands and gravel sediments are Secondary A Aquifers. The deeper bedrock aquifers are classified as Principal Aquifers. The Secondary Aquifer (undifferentiated) is expected to be of relatively low permeability and have limited connectivity to underlying aquifers.

5.11.91. The western end of the site crosses the River Alde and associated floodplain. The site is also partially within the catchment of the River Fromus. There are ten licensed groundwater abstraction and one licensed surface water abstraction within 1km of the site.

Construction

5.11.92. Construction activities could impact upon groundwater and surface water drainage through a reduction in discharge to ground, changes to surface water flows and hydromorphology. There is also the potential for an increase in the supply of fine sediment, or release of fuels, oils and lubricants through leaks and spills, which could have adverse impacts on both groundwater and surface water hydrology, geomorphology and water quality. The removal of on-site vegetation and the compaction of soils due to construction vehicles and materials storage may locally reduce the rate at which rainfall makes its way into the groundwater for a short duration. However, the overall volume of water discharging to ground is unlikely to change. Therefore, the effect is considered to be not significant.

5.11.93. Whilst the current groundwater levels at the site have not been established, available hydrogeological data suggest that it varies across the site. It is anticipated that the construction of the cutting where the route of the proposed TVB passes Foxburrow Wood would be wholly within the Lowestoft Formation (diamicton). Consequently, it is considered unlikely that the groundwater of the sands and gravels of the Lowestoft Formation, alluvium and the bedrock groundwater will be encountered during the proposed works. Due to the anticipated limited lateral extent of groundwater within the Lowestoft Formation and its low permeability, it is likely that any groundwater control measures required

to dewater the superficial aquifer during the construction of the cuttings would be localised and of short duration. The impact to the very low value Lowestoft Formation aquifer would be low and the effect classified as negligible. The effect would be not significant.

- 5.11.94. The flow regime of the River Alde and associated floodplain, as well as surface drainage, would be altered by the embankment across the floodplain during periods of higher (out of bank) flow. The offset between the banks of the River Alde and the proposed bridge structure would avoid direct interaction of the development with the current river channel. No effect is therefore predicted for the River Alde. During construction, works would be phased to minimise floodplain constraints to within those identified within the final design. Whilst there would be disruption to the floodplain, and impacts on surface drains, overall the effects are considered to be not significant.
- 5.11.95. Construction activity has the potential to introduce new sources of contamination to the site or mobilise existing sources through the creation of new pathways. The CoCP [APP-615] sets out proposed measures to be implemented by the construction contractors to protect groundwater and surface water. In addition, ground investigation and relevant risk assessments would be undertaken prior to commencement of construction works, with remediation undertaken, if necessary. Overall, with these measures in place, no significant effects arising from contamination are anticipated on groundwater and surface water resources during the construction phase.
- 5.11.96. Construction activity within the floodplain and adjacent to the River Alde has the potential to put the workforce at risk from a flood event. The CoCP [APP-615] sets out measures to alert and protect the workforce. This would be further developed in a flood risk emergency plan (FREP). The FREP would be secured within the CoCP by Requirement 2 of the dDCO.

Operation

- 5.11.97. An oDS has been developed [APP-181] to manage and control surface water run off rates through infiltration to ground and includes pollution prevention techniques that would be implemented through standard good practice and good design. This would include the use of sustainable drainage systems such as the provision of swales along the length of the route of the proposed TVB and associated link roads, and infiltration basins. On this basis, the effect of the proposed TVB on groundwater and surface water levels and quality is considered to be not significant.

Sizewell Link Road (SLR) [APP-476]

- 5.11.98. Several aquifers lie beneath the site; the windblown deposits and poorly consolidated sediments that underlie the majority of the site are as classified as Secondary Aquifers (undifferentiated), whereas the consolidated sands and gravel sediments are Secondary A Aquifers. The deeper bedrock aquifer is classified as a Principal Aquifer. The poorly

sorted sediment aquifer is expected to be of relatively low permeability and have limited connectivity to underlying aquifers.

- 5.11.99. The proposed SLR would cross seven watercourses west to east along its route : Fordley Road (a main river), Garden House Farm Watercourse, Hawthorn Road Watercourse, Theberton Hall Watercourse, Pretty Road Watercourse, Moat Road (a main river - tributary of the Minsmere Old River) and Fish Grove Pond Watercourse. Nine licensed groundwater abstraction and one licensed surface water abstraction have been located within 1km of the site.

Construction

- 5.11.100. Construction activities could impact upon groundwater and surface water drainage through reduction in discharge to ground, changes to surface water flows and hydromorphology. There is also potential for an increase in the supply of fine sediment, or release of fuels, oils and lubricants through leaks and spills, which could have adverse impacts on both groundwater and surface water hydrology, geomorphology and water quality. The removal of onsite vegetation and the compaction of soils due to construction vehicles and materials storage may locally reduce the rate at which rainfall makes its way into the groundwater for a short duration. However, the overall volume of water discharging to ground is unlikely to change. Therefore, the effect is considered to be not significant.
- 5.11.101. Whilst the current groundwater levels at the site have not been established, available hydrogeological data suggest that it varies across the site. The construction of a series of cuttings at depths of up to 6 metres below ground level is anticipated to be wholly within the poorly sorted consolidated sediment Secondary (Undifferentiated) aquifer, and so it is considered unlikely that the groundwater of underlying aquifers would be affected, due to its limited connectivity and low permeability. If required, any dewatering would be localised and short-term in nature. The effect is, therefore, considered to be not significant.
- 5.11.102. Construction activity has the potential to introduce new sources of contamination to the site or mobilise existing sources through the creation of new pathways. The CoCP [APP-615] sets out proposed measures to be implemented by the construction contractors to protect groundwater and surface water. In addition, ground investigation and relevant risk assessments would be undertaken prior to commencement of construction works, with remediation undertaken, if necessary. With these measures in place, no significant effects are anticipated on groundwater and surface water resources during the construction phase.
- 5.11.103. Construction activity within the floodplain and adjacent to the Fordley Road watercourse has the potential to put the workforce at risk from a flood event. The CoCP [APP-615] sets out measures to alert and protect the workforce. This would be further developed in a flood risk emergency plan (FREP). The FREP would be secured within the CoCP by Requirement 2 of the dDCO.

Operation

- 5.11.104. An oDS [APP-181] has been developed for the site to manage and control surface water run off rates through infiltration to ground and includes pollution prevention techniques that would be implemented. These include the use of sustainable drainage systems such as the provision of swales along the length of the route of the proposed Sizewell link road and associated link roads, and infiltration basins. The drainage strategy incorporates measures to minimise effects on groundwater and surface water flows and to prevent contamination from accidental spills and leaks during the operation of the SLR. Therefore, the effect of the proposed development on groundwater and surface water levels and quality is considered to be not significant.

Yoxford Roundabout/ Other Highway Improvements [APP-507]

- 5.11.105. The wind-blown sediments in the north of the site are classified as a Secondary Aquifer (undifferentiated), and the Crag Group bedrock underlying the site as a Principal Aquifer. The River Yox is located directly to the north of the site and an unnamed tributary of the River Yox is located 10m to the east of the site. Additionally, a sewage treatment works is located to the north-east of the site, approximately 100m from the site boundary. Two licensed groundwater abstractions and one licensed surface water abstraction have been identified within 1km of the site.

Construction

- 5.11.106. Construction activities could impact upon groundwater and surface water drainage through reduction in discharge to ground, changes to surface water flows and hydromorphology. The increase in the supply of fine sediment, or release of fuels, oils and lubricants through leaks and spills, could have adverse impacts on both groundwater and surface water hydrology, geomorphology and water quality. Construction drainage and pollution prevention principles are set out within the CoCP [APP-615]. In addition, ground investigation and relevant risk assessments would be undertaken prior to commencement of construction works, and remediation undertaken, if necessary. With these measures in place, no significant effects on groundwater and surface water quality and levels have been identified.
- 5.11.107. The cutting for the construction of the realignment of the B1122 is unlikely to encounter groundwater in the underlying Crag aquifer during construction. This is due to the cutting not being excavated down to the level of the groundwater. Therefore, groundwater dewatering during construction is not likely to be required. There would also be no effect on the River Yox or its tributary with respect to groundwater level and flow.

Operation

- 5.11.108. An oDS [APP-181] has been developed for the site to manage and control surface water run off rates through infiltration to ground. The drainage strategy incorporates measures to minimise effects on groundwater and surface water flows and to prevent contamination from accidental spills

and leaks during the operation of the roundabout. Therefore, the effect of the proposed Yoxford roundabout on groundwater and surface water levels and quality would be not significant.

Freight Management Facility [APP-536]

- 5.11.109. Several aquifers lie beneath the site, including a Secondary A Aquifer and a Principal Aquifer. The closest surface water feature to the site is a balancing pond located immediately adjacent to the northern boundary and a second pond is located approximately 400m to the south-west. There are no known water abstractions within 500m of the FMF site.

Construction

- 5.11.110. Construction activities could impact upon groundwater and surface water receptors through reduction in discharge to ground, changes to surface water flows and hydromorphology. The increase in the supply of fine sediment, or release of fuels, oils and lubricants through leaks and spills, could have adverse impacts on both groundwater and surface water hydrology, geomorphology and water quality. The CoCP [APP-615] sets out measures to be implemented by the construction contractors to protect groundwater and surface water. In addition, ground investigation and relevant risk assessments would be undertaken prior to commencement of construction works, with remediation completed, if necessary. With these measures in place, no significant effects on groundwater and surface water resources during the construction phase have been identified.

Operation

- 5.11.111. An oDS [APP-181] has been developed for the site to manage and control surface water run off rates through infiltration to ground. Pollution prevention techniques would be implemented through standard good practice and good design, including the use of sustainable drainage systems, such as swales and infiltration basins. The drainage strategy incorporates measures to minimise effects on groundwater and surface water flows and to prevent contamination from accidental spills and leaks during the operation of the freight management facility. As a result, the effect on groundwater and surface water levels and quality is considered to be not significant.

Removal and Reinstatement

- 5.11.112. During the removal and reinstatement phase, the freight management facility site would be reinstated to existing conditions, as far as reasonably practicable. The removal and reinstatement activities would result in similar impacts as during the construction phase. In addition, intrusive activities from the removal of infrastructure could create new pathways for contamination. As during the construction phase, works would be undertaken in accordance with the CoCP [APP-615]. Further ground investigation and risk assessment post operation would confirm the risks at the time of removal and reinstatement and identify if there are areas requiring further remediation. With these measures in place, no

significant effects are anticipated on groundwater and surface water resources during the removal and reinstatement phase.

Rail [APP-570]

- 5.11.113. Several aquifers lie beneath the site; including Secondary A Aquifer, a Secondary A (undifferentiated) Aquifer and a Principal Aquifer.
- 5.11.114. The Leiston Drain is located approximately 950m to the east of the proposed rail extension route site. The River Hundred is located approximately 740m to the west of the proposed rail extension route site.
- 5.11.115. There are three known groundwater abstractions and no known surface water abstraction within 500m of the proposed rail extension route site; the nearest located approximately 265m south-west.

Construction

- 5.11.116. Construction activities could impact upon groundwater and surface water drainage networks through reduction in discharge to ground, changes to surface water flows and hydromorphology. The increase in the supply of fine sediment, or release of fuels, oils and lubricants through leaks and spills, could have adverse impacts on both groundwater and surface water hydrology, geomorphology and water quality. The CoCP [APP-615] sets out proposed measures to be implemented by the construction contractors to protect groundwater and surface water. In addition, ground investigation and relevant risk assessments would be undertaken prior to commencement of construction works, with remediation undertaken, if necessary. With these measures in place, no significant effects are anticipated on groundwater and surface water resources during construction phase.

Operation

- 5.11.117. An Outline Drainage Strategy [APP-181] has been developed for the site to manage and control surface water run off rates through infiltration to ground. Pollution prevention techniques would be implemented through standard good practice and good design, including the use of sustainable drainage systems such as the provision of swales and infiltration basins.
- 5.11.118. The drainage strategy incorporates measures to minimise effects on groundwater and surface water flows and to prevent contamination from accidental spills and leaks during the operation of the site. Therefore, the effect of the rail proposals on groundwater and surface water levels and quality is considered to be not significant.

Removal and Reinstatement

- 5.11.119. During the removal and reinstatement phase, the site would be reinstated to existing conditions, as far as reasonably practicable. The removal and reinstatement activities would result in similar impacts as during the construction phase. In addition, intrusive activities from the removal of infrastructure could create new pathways for contamination.

However, as during the construction phase, works would be undertaken in accordance with the CoCP [APP-615].

- 5.11.120. Further ground investigation and risk assessment post operation to confirm the risks at the time of removal and reinstatement would also be undertaken to identify if there are areas requiring further remediation, with remediation activities undertaken if necessary. With these measures in place, no significant effects are anticipated on groundwater and surface water resources during the removal and reinstatement phase.

WATER FRAMEWORK DIRECTIVE COMPLIANCE

- 5.11.121. A detailed Water Framework Directive Compliance Assessment (WFDCA) was undertaken to determine whether the Proposed Development is compliant with the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (SI 2017/407). The WFDCA is divided into four parts:

- Part 1: Introduction and method [APP-620];
- Part 2: Main development site [APP-621];
- Part 3: Associated development sites [APP-622]; and
- Part 4: Cumulative effect assessment [APP-623].

WFDCA Introduction and Method [APP-620]

- 5.11.122. In line with published guidance produced by the Environment Agency "Clearing the Waters for All" (2016) and Planning Inspectorate, Advice Note 18 WFD (2017), the WFDCA process consisted of three distinct stages:

- Stage 1: Screening and collation of baseline information. This stage collates all available baseline data that will be necessary to complete the Proposed Development WFDCA i.e. collates all information on the scheme, the baseline environment and the water bodies which could potentially be impacted.
- Stage 2: Scoping. This stage identifies whether there is a potential risk to any of the water bodies identified in Stage 1 and is undertaken separately for each water body and each activity (or group of activities). Water bodies and activities can be scoped out of detailed assessment if it can be satisfactorily demonstrated that there is no risk to the water body. If a risk is identified, it is necessary to undertake a Stage 3 detailed assessment.
- Stage 3: Detailed compliance assessment. This stage determines whether the activities that have been put forward from Stage 2 will cause deterioration and whether this deterioration will have a significant non-temporary effect on the status of one or more WFD quality elements at water body level. If it is established that an activity is likely to affect water status at water body level, potential measures to avoid the effect are investigated.

WFDCA Main Development Site [APP-621]

Construction

- 5.11.123. Works associated with the initial site preparation and earthworks for the platform development may affect the hydrological regime and morphological conditions of Leiston Beck and Minsmere Old River along with general physico-chemistry elements due to a potential rise in specific pollutants. Biological elements including aquatic flora, benthic invertebrates and fish may also be affected. These quality elements may also be affected by the potential discharge of foul and surface water.
- 5.11.124. The Waveney and East Suffolk Chalk and Crag groundwater body could also be affected by these construction activities. Groundwater levels may be affected along with the associated Groundwater Dependent Terrestrial Ecosystems (GWDTEs). Issues such as saline intrusion, and changes to water balance may also arise and affect dependent surface waters, whilst the quality of the groundwater is vulnerable to change through diffuse pollution, saline intrusion and pollutant trends.
- 5.11.125. The chemical and physico-chemical water quality elements of Suffolk Coastal water body and its associated habitats may be affected by the construction of marine structures and the discharge of foul, surface and any other water and by discharge of commissioning water via the CDO.

Operation

- 5.11.126. The presence of the power station platform and cut-off wall has the potential to affect hydromorphological and physico-chemical quality elements in both the Leiston Beck and Minsmere Old River. It is likely to affect the quantity and quality of the Waveney and East Suffolk Chalk and Crag groundwater body, and consequently also the GWDTEs and dependent surface water bodies, through potential saline intrusion and water balance. The permanent SSSI crossing and site access road may also affect the hydromorphology and physico-chemistry of Leiston Beck and impact on aquatic flora, benthic invertebrates and fish.

Stage 3: Detailed assessment

- 5.11.127. The Stage 3 assessment demonstrated that, following the implementation of the suite of control measures embedded in the scheme design or set out in the Code of Construction Practice (CoCP) [APP-615], no parameters would be at risk of a level of deterioration that would lead to a decrease in class status for any of the parameters. As a result, the proposed construction and operational activities at the main development site are considered to be compliant with the requirements of the WFD and the proposed project activities would not counteract or otherwise affect the delivery of mitigation measures (both in place and not in place) that have been identified in the River Basin Management Plan (RBMP)

WFDCA Associated Development Sites [APP-622]

Northern Park and Ride (NPR)

Stage 1 – Screening

5.11.128. The initial screening exercise identified a range of activities associated with the NPR site that could potentially impact upon WFD quality elements in the Minsmere Old River and Waveney & East Suffolk Chalk and Crag water bodies:

- Construction: Site preparation, earthworks and construction including vegetation clearance, removal of topsoil, installation of drainage infrastructure, including SuDS, laying of base materials for parking areas and internal circulation routes, installation of final surface layers, construction of buildings and installation of utilities, and management of construction-stage surface water and foul drainage;
- Operation: Operational use of the site and associated water management measures (including surface water drainage and foul water); and
- Removal and reinstatement: Demolition and removal of buildings and site infrastructure, reinstatement of agricultural land.

Stage 2 – Scoping

5.11.129. The Stage 2 assessment concluded that project activities associated with the NPR during construction, operation and removal and reinstatement would not have direct or indirect effects on the Minsmere Old River and Waveney & East Suffolk Chalk and Crag water bodies, or any other water bodies, that would be sufficient to cause deterioration in the status of the water body or Protected Areas located within the water bodies. Furthermore, the proposed project activities would not counteract or otherwise affect the delivery of mitigation measures (both in place and not in place) that have been identified in the RBMP.

5.11.130. Consequently, the Proposed Development has not been progressed to the Stage 3 detailed compliance assessment, and the NPR was considered to be compliant with the requirements of the WFD.

Southern Park and Ride (SPR)

Stage 1 – Screening

5.11.131. The initial screening exercise identified a range of activities associated with the SPR site that could potentially impact upon WFD quality parameters in the River Deben (Brandeston Bridge - Melton), River Ore and Waveney & East Suffolk Chalk and Crag water bodies:

- Construction: Site preparation, earthworks and construction including vegetation clearance, removal of topsoil, installation of drainage infrastructure including SuDS, laying of base materials for parking areas and internal circulation routes, installation of final surface layers, construction of buildings and installation of utilities, and management of construction-stage surface water and foul drainage;
- Operation: Operational use of the site and associated water management measures (including surface water drainage and foul water); and
- Removal and reinstatement: Demolition and removal of buildings and site infrastructure, reinstatement of agricultural land.

Stage 2 – Scoping

- 5.11.132. The Stage 2 assessment concluded that proposed project activities during construction, operation and removal and reinstatement would not have direct or indirect effects on the River Ore, River Deben and Waveney & East Suffolk Chalk and Crag water bodies that are sufficient to cause deterioration in their status or the status of Protected Areas located within the water bodies. Furthermore, the proposed project activities would not counteract or otherwise affect the delivery of the RBMP improvement or mitigation measures (both in place and not in place) that have been identified for these water bodies. Therefore, the SPR was considered to be compliant with the requirements of the WFD.

Two Village Bypass (TVB)

Stage 1 – Screening

- 5.11.133. The initial screening exercise identified a range of activities associated with the TVB that could potentially impact upon WFD quality elements in the River Alde, River Fromus and Waveney & East Suffolk Chalk and Crag water bodies:
- Construction: Site preparation, earthworks and construction including vegetation clearance, removal of topsoil, surface materials, installation of drainage infrastructure (including SuDS) and flood compensation measures, laying of base materials and surfacing, management of construction-stage surface water and foul drainage. Import and storage of material from elsewhere. Construction of a bridge across the River Alde, construction of culverts across ordinary watercourses; and
 - Operation: Operational use of the site and associated water management measures for surface water. Permanent presence of bridge across River Alde and enhanced flood plain measures. Permanent presence of culverts across other water courses.

Stage 2 – Scoping

- 5.11.134. The Stage 2 assessment concluded that the majority of the proposed project activities during the construction and operation of the TVB would not have any direct or indirect effects on the River Alde, River Fromus or Waveney & East Suffolk Chalk and Crag water bodies that are sufficient to cause deterioration in their status or the status of Protected Areas located within the water bodies.
- 5.11.135. However, the construction and operation of watercourse crossings has the potential to affect the hydromorphology and biology of the River Alde and counteract or otherwise affect the delivery of three RBMP improvement measures (removal or easement of barriers to fish migration, increase in-channel morphological diversity, and habitat improvements) identified for the water body. The potential impacts of these activities, therefore, had been considered in more detail in the Stage 3 assessment.

Stage 3 – Detailed Assessment

- 5.11.136. The detailed assessment demonstrated that the construction of watercourse crossings and the permanent presence of the bridge and culverts would not result in deterioration in the hydromorphology and biology of the River Alde or connected water bodies. Furthermore, the proposed activities would not counteract or prevent the implementation of improvement measures identified for the water body. The TVB is therefore considered, by the Applicant, to be compliant with the requirements of the WFD.

Sizewell Link Road (SLR)

Stage 1 – Screening

- 5.11.137. The initial screening exercise identified a range of activities associated with the SLR that could potentially impact upon WFD quality elements in the Minsmere Old River and the Waveney & East Suffolk Chalk and Crag water bodies:
- Construction: Site preparation, earthworks and construction activities including vegetation clearance, removal of topsoil, surface materials, installation of drainage infrastructure including SuDS, laying of base materials and surfacing, management of construction-stage surface water and foul drainage from compounds. Crossing of two unnamed watercourses which would be culverted below the proposed road; and
 - Operation: Operational use of the site and associated water management measures (including surface water). Crossing of two unnamed watercourses which would be culverted below the proposed road.

Stage 2 – Scoping

- 5.11.138. The Stage 2 assessment concluded that the majority of the proposed project activities during construction and operation of the SLR would not have any direct or indirect effects on the Minsmere Old River or Waveney & East Suffolk Chalk and Crag water bodies that would be sufficient to cause deterioration in their status or the status of Protected Areas located within the water bodies.
- 5.11.139. However, the construction and operation have the potential to affect the hydromorphology and biology of the Minsmere Old River and counteract or otherwise affect the delivery of four mitigation measures (remove or soften hard bank, preserve or restore habitats, in-channel morphological diversity and enhance ecology) identified for the water body. The potential impacts of these activities, therefore, were considered in more detail in the Stage 3 assessment.

Stage 3 – Detailed Assessment

- 5.11.140. The detailed assessment demonstrated that the construction and operation of watercourse crossings would not result in deterioration in the hydromorphology or biology of the Minsmere Old River or any other water body. Furthermore, the proposed activities would not counteract or prevent the implementation of improvement measures identified for the

water body. The SLR was, therefore, considered to be compliant with the requirements of the WFD.

Yoxford and other highway improvements.

Stage 1 – Screening

- 5.11.141. The initial screening exercise identified a range of activities associated with Yoxford and other highway improvements that could potentially impact upon WFD quality elements in the Minsmere Old River and the Waveney & East Suffolk Chalk and Crag water bodies:
- Construction: Site preparation, earthworks and construction at Yoxford roundabout and A12/ A144 junction south of Bramfield including vegetation clearance, removal of topsoil, installation of drainage infrastructure including SuDS, surfacing, management of construction-stage surface water and foul drainage; and
 - Operation: Management of surface water during the permanent operation of the Yoxford roundabout and A12/ A144 junction south of Bramfield.

Stage 2 – Scoping

- 5.11.142. The assessment concluded that proposed project activities during construction and operation would not have direct or indirect effects on the Minsmere Old River and Waveney & East Suffolk Chalk and Crag water bodies that would be sufficient to cause deterioration in the status of the water body or Protected Areas located within the water bodies. Furthermore, the proposed project activities would not counteract or otherwise affect the delivery of the mitigation or improvement measures that have been identified in the RBMPs for these water bodies.
- 5.11.143. This means that the project would not have non-temporary impacts on water body status that are sufficient to result in the deterioration of these water bodies. Furthermore, the project would not prevent any water body status objectives being achieved in the future. The proposed highway improvements were, therefore, considered to be compliant with the requirements of the WFD at this stage.

Freight Management Facility (FMF).

Stage 1 – Screening

- 5.11.144. The initial screening exercise identified a range of activities associated with the FMF that could potentially impact upon WFD quality elements in the Orwell and Felixstowe Peninsula Crag & Chalk water bodies:
- Construction: Site preparation, earthworks and construction activities including vegetation clearance, removal of topsoil, installation of drainage infrastructure including SuDS, laying of base materials for parking areas and internal circulation routes, installation of final surface layers, construction of buildings and installation of utilities, management of construction-stage surface water and foul drainage;

- Operation: Operational use of the site and associated water management measures (including surface water and foul drainage); and
- Removal and reinstatement: Demolition and removal of buildings and site infrastructure, reinstatement of agricultural land.

Stage 2 – Scoping

- 5.11.145. The assessment concluded that project activities during construction, operation and removal and reinstatement would not have direct or indirect effects on the Orwell and Felixstowe Peninsula Crag & Chalk water bodies that would be sufficient to cause deterioration in the status of the water body or Protected Areas located within the water bodies. Furthermore, the proposed project activities would not counteract or otherwise affect the delivery of the improvement measures that have been identified in the RBMPs for the groundwater body.
- 5.11.146. This means that the project would not have non-temporary impacts on water body status that are sufficient to result in the deterioration of these water bodies. Furthermore, the project would not prevent any water body status objectives being achieved in the future. Consequently, no elements of the proposed development have been progressed to Stage 3 detailed compliance assessment, and FMF was considered to be compliant with the requirements of the WFD.

Rail

Stage 1 – Screening

- 5.11.147. The minor works to renew existing track and upgrading of existing crossings are considered unlikely to present a risk to the water environment given the nature and small scale of the proposed works. They were therefore not considered in this assessment. The proposed rail extension route would require more significant construction that could affect the water environment. The screening assessment identified that the following activities could potentially impact upon WFD quality elements in the Leiston Beck and Waveney & East Suffolk Chalk and Crag water bodies:
- Construction: Site preparation, earthworks and construction including earthworks, level crossings, landscaped bunds, embankments, drainage infrastructure including SuDS;
 - Operation: Operational use of the site and associated water management measures; and
 - Removal and reinstatement: Removal of site infrastructure, removal of track and ballast, reinstatement of agricultural land.

Stage 2 – Scoping

- 5.11.148. The assessment concluded that project activities during construction, operation and removal and reinstatement would not have direct or indirect effects on the Leiston Beck and Waveney & East Suffolk Chalk and Crag water bodies that are sufficient to cause deterioration in the status of the water body or Protected Areas located within the water

bodies. Furthermore, the proposed rail extension route would not counteract or otherwise affect the delivery of the mitigation measures (both in place and not in place) that have been identified in the RBMP for these water bodies. Consequently, no elements of the proposed rail extension route have been progressed to the Stage 3 detailed compliance assessment. Rail improvements were therefore considered to be compliant with the requirements of the WFD.

WFDCA Cumulative Effects [APP-623]

5.11.149. The assessment considers:

- Project-wide effects (intra-project): Effects that occur when environmental impacts from different elements of the Proposed Development combine, resulting in the potential for a significant effect (for example, from the combination of construction of one element and road traffic noise from another proposed development project on a residential receptor). If considered in isolation, the individual environmental impacts may not lead to significant effects; and
- Cumulative effects with other projects: Cumulative effects arise when impacts from the Proposed Development combine with impacts from other third party projects (normally in the vicinity of the site), resulting in a change to the overall magnitude of impact acting on a receptor and potentially resulting in a significant effect.

5.11.150. The ExA notes that the assessments of the Main Development Site and Associated Development Sites in Parts 2 and 3 of the WFD Compliance Assessment have demonstrated that the effects of the proposed development are restricted to water bodies within the Anglian River Basin District. There are therefore no transboundary effects, which occur when the impacts of a proposed development extend to European Economic Area (EEA) states.

5.11.151. The assessments summarised in section 3 of Part 4 of the WFDCA demonstrated that any project wide effects would not be greater than those effects predicted for each activity alone. Furthermore, the assessment presented in section 4 of Part 4 demonstrated that cumulative effects between the Proposed Development and other planned or potential third party projects would not be greater than those effects predicted for the Proposed Development alone. The assessment did not therefore indicate that any quality elements in any water body were at increased risk of deterioration such that the class status for any of the parameters would decrease. As a result, the proposed activities were considered to be compliant with the requirements of the WFD.

Applicant's Overall Conclusion

5.11.152. Following the screening and scoping process of the Main Development Site, construction and operational activities were assessed in detail (Stage 3) for the Leiston Beck, Minsmere Old River, Waveney East Suffolk Chalk and Crag and Suffolk coastal water bodies.

- 5.11.153. With regard to the associated development sites, following the screening and scoping process, only the Two Village Bypass (River Alde water body) and the Sizewell Link Road (Minsmere Old River water body) were carried forward to a detailed assessment (Stage 3).
- 5.11.154. The result of the stage 3 detailed assessments indicated that for all water bodies and activities, no change in the status of these water bodies is predicted, and no prevention of the implementation of improvement measures. This is due to the localised and impermanent nature of the effects related to construction activities, and the lack of deterioration in status predicted. The implementation of a CoCP also reduces the likelihood of an impact. The operational impacts were also predicted to be small and localised and therefore not contributing to a deterioration in the status of the water bodies.
- 5.11.155. The assessment found that no project wide effects would be greater than those predicted for each activity alone, and no effects between the Proposed Development and other planned or potential third party projects would be greater than those predicted for the Proposed Development alone.
- 5.11.156. No water bodies are at risk of deterioration such that the class status for any of the parameters would decrease. Consequently, the Applicant considered the proposed activities to be compliant with the requirements of the WFD.
- 5.11.157. The Applicant has submitted WFDCA Addendum [AS-279] that is dealt with later in this section.

Site Water Supply Strategy [APP-601]

- 5.11.158. The Applicant's proposal for its principal potable water supply at the time of application was intended to be from mains water, supplied by Essex & Suffolk Water from within the Blyth Water Resource Zone (WRZ). The Applicant also considered using a combination of water supply options that would ensure security of supply and help to reduce the demand for potable water from mains supply.
- 5.11.159. The primary components of the sustainable water supply strategy for the main development site were:
- Mains water supply provided by Essex and Suffolk Water from within the Blyth WRZ;
 - Mains water supply provided by Essex and Suffolk Water from within the Northern/Central WRZ via a new pipeline transfer connection to the Blyth WRZ;
 - Additional potential mains water supply enabled by licence trading with local licence holders;
 - Storage of non-potable water in the proposed water storage area in the north of the main development site. Water may be derived from a number of sources including water pumped from a new pumping station at Minsmere Sluice, effluent from Sizewell B or the Proposed Development, or greywater from the Proposed Development; and

- Water efficiency measures to reduce the demand from mains supply (e.g. using water efficient fixtures and fittings, rainwater harvesting and greywater reuse).

5.11.160. It was acknowledged that there was still ongoing work being undertaken, during the Examination, and the key tasks being progressed included:

- The completion of modelling work undertaken by Essex and Suffolk Water and the Environment Agency to confirm the volume of potable water that can be supplied from the Blyth WRZ for the Proposed Development;
- Continued engagement with the Essex and Suffolk Water and the Environment Agency regarding the potential to transfer mains water from within the Northern/Central WRZ via new pipeline transfer connection to the Blyth WRZ; and
- An initial review of local licensed abstractions, to shortlist potential abstractions for trading, and understand available volumes from these licences.

PRE-EXAMINATION MATTERS

5.11.161. The Initial Assessment of Principal Issues [PD-007] set out that we would conduct the Examination with the following objectives in mind:

- Effectiveness of Flood Risk Assessments (FRA) for the main development site and all other associated development sites in considering the effects of coastal, fluvial, surface water, groundwater, sewers and other sources of flooding, taking into account climate change;
- Effects on groundwater and surface water, including Source Protection Zones, water dependent resources and receptors from the construction and operational phases of the proposed development;
- Effectiveness of mitigation measures and monitoring;
- Compliance with the WFD; and
- Effects on the supply of potable and non-potable water during construction.

5.11.162. In addition, there were over 440 Relevant Representations (RR) relating to the topic of flooding and water resources. The main issues arising from these were:

- Main Development Site – flood risk including modelling;
- Sizewell Link Road - flood risk including modelling;
- Two Village Bypass – flood risk;
- Drainage Strategy and sustainable drainage systems;
- Main Development Site - groundwater and surface water;
- Water Supply; and
- Water Framework Directive compliance.

5.11.163. This is the basis on which we conducted the Examination.

5.11.164. Also prior to the start of the Examination the Applicant submitted the following documents in addition to the original application set out above.

Applicant's Change Request [AS-105]

- 5.11.165. 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. There were fifteen changes. Change 5 made some alterations to the water resource storage area and included further flood mitigation measures. Change 6 changed the SSSI crossing design to a single span bridge. Change 8 related to the provision of a temporary surface water outfall from the main platform to discharge on the foreshore. Change 9 related to increases in height to the design of the sea defences.

Main Development Site FRA Addendum [AS-157]

- 5.11.166. To support the submitted changes the Applicant also submitted an addendum to the MDS FRA that examined the implications for the MDS flood risk of the following:
- Increase in height of HCDF – In the submitted application the sea defence met the basis of design by addressing coastal overtopping for the 1 in 10,000-year return period scenario, including a reasonably foreseeable allowance for climate change (based on the United Kingdom Climate Projections (UKCP18) RCP 8.5 projections), for the operational phase of the development. However, the Applicant's assessments at that time showed that the raised HCDF of 14.2m AOD (maximum crest height presented in the application) would need to be established by 2046, a relatively short period of time after the completion of construction at the main development site in 2034. Furthermore, in the period since the application submission, the Applicant has, in consultation with internal and external stakeholders, established an initial set of Safety Functional Requirements for the HCDF as part of the ongoing design process.

Correspondingly, in order to delay future HCDF raising activities, and to take account of the revised design basis limit for the HCDF, a revised initial height of 12.6m AOD (from 10.2m AOD minimum crest height presented in the submitted application) has been established for both the HCDF and Northern Mound. This gives a total height with landscaping of up to 14.6m AOD. Based on the UKCP18 RCP 8.5 projections, the raised 16.4m AOD HCDF would not be required until after 2140.

Results of the updated wave overtopping assessment show that the revised defence design would be sufficient to protect the site against the 1 in 200-year and 1 in 1,000 year events up to the end of the theoretical maximum site lifetime (2190 epoch) under the reasonably foreseeable climate change scenarios.

- A further proposed change would increase flood storage capacity by providing an additional flood mitigation area in place of a water resource storage area presented in the submitted application.

The updated scheme design with embedded mitigation had been assessed in updated hydraulic modelling to review the assessment of

on-site and off-site flood risk impacts presented in the application. The results of this additional hydraulic modelling confirm that the main development site and the SSSI crossing would not be at risk of fluvial or coastal inundation and tidal breach flooding throughout the development lifetime.

No additional properties would be at risk of flooding as a result of the scheme with embedded mitigation in place. There is a limited impact on flood depth to some residential and non-residential properties that would be flooded without the proposed development, however there is no significant impact on flood velocity or hazard rating to any of the affected properties.

- The methodology and sequencing for the construction of the MDS had been progressed since submission of the application. A temporary sheet pile wall is proposed to be constructed prior to removal of the existing defences in front of the Proposed Development that would protect the construction site until the core of the HCDF is constructed. This proposed change (i.e. the temporary sheet pile wall) would therefore reduce the risk of wave overtopping to the construction site and its users throughout the construction phase, mitigating the risk that was identified in the submitted application.
- To manage surface water flood risk during the construction phase of the main platform, measures set out in the oDS [APP-181] comprise a Combined Drainage Outfall (CDO) to discharge treated surface water run-off from the site and use of WMZ 1 and 2 while the CDO is being constructed. Residual risk was identified in the MDS Flood Risk Assessment [AS-018], where at times of high surface water inundation, there may be a necessity to include additional attenuation storage within the main construction area as temporary measures.

To mitigate the residual risk, a temporary outfall is proposed, so that surface water from the main platform area would be pumped over the temporary sea defences and into a chamber before discharging through a gravity pipe towards the shoreline. The temporary outfall would be in operation prior to the commissioning of the permanent outfall (CDO) for approximately a 2-year period. Once the CDO is constructed the temporary outfall would be removed.

The new temporary outfall would allow more efficient drainage prior to construction of the CDO, when compared with the approach set out in the submitted application. As such it is concluded that it would provide improved mitigation of the surface water flood risk within the main platform area during the early construction phase.

- Details on management of flood risk during the early construction phase and throughout the operational and decommissioning phases are set out in the Main Development Site Flood Risk Emergency Plan (FREP) Appendix F [AS-170]. Procedures for safe access and egress, flood warning, evacuation and need for safe refuge in response to a flooding event are described in the FREP.

TVB FRA addendum [AS-171]

- 5.11.167. The TVB FRA [APP-119] confirmed that, following review of all sources of flooding there would be no additional flooding to properties as a result of the Proposed Development. While there was a slight increase in flood risk, the impact was concluded as being very low, as it was very localised i.e. affecting agricultural land immediately upstream of the proposed bridge crossing over the River Alde and only affected low-lying areas that were already at risk of flooding.
- 5.11.168. Following submission of the application, review of the TVB FRA [APP-119] and subsequent consultation with the Environment Agency, a number of comments had been received. These comments were primarily in relation to the hydraulic modelling, including queries on general model schematisation and overall model performance, as well as comments on construction phasing, surface water drainage and the need for a flood risk emergency plan. While the Environment Agency agreed that the impact of flooding was low, they also requested that agreement be sought with the landowner affected by the localised increase in flood depth to confirm that the increase in risk was accepted.
- 5.11.169. To provide clarification additional modelling, including sensitivity testing, has been carried out. Additionally, this FRA Addendum and its accompanying appendices provide clarification on the comments received. The Applicant was in talks with the landowner for the affected area, with the view to obtaining confirmation that the increased flood depth, hazard and velocity is accepted by the landowner. The results of the additional modelling exercise, including sensitivity testing, has confirmed that the conclusions presented in the TVB FRA Addendum remain unchanged from those set out in the TVB FRA [APP-119].

Water Monitoring and Response Strategy [AS-236]

- 5.11.170. The monitoring strategy set out in this document relates to the groundwater monitoring arrangements that would be undertaken to understand the effect of the Proposed Development. It considers the effects on the site in comparison to baseline conditions and validates the effectiveness of the mitigation measures implemented. The precise monitoring arrangements for the Sizewell Marshes SSSI would then be set out within a monitoring plan, developed following consultation with appropriate stakeholders. This monitoring plan could also be used to inform a revised Water Level Management Plan for the SSSI that would be prepared and owned by the East Suffolk Internal Drainage Board (ESIDB). Sentinel boreholes will be used to identify any potential changes that may extend to the Minsmere Walberswick Heaths and Marshes SSSI.
- 5.11.171. The monitoring plan would be secured by a Requirement in the dDCO and submitted to East Suffolk Council for approval prior to the commencement of works in a defined area of land. The monitoring plan would define the proposed monitoring arrangements, such as water level, flow and water quality. It would also explain the relationship that these measures would have with the monitoring that would be secured through other consents, licences or permitting regimes enacted by regulators and statutory authorities such as the Environment Agency and ESIDB.

ES Addendum – Cumulative and Transboundary Effects [AS-189]

- 5.11.172. Paragraphs 10.4.229 to 10.4.258 set out a brief consideration of the cumulative environmental effects of the original preferred water supply transfer main from the Northern/ Central WRZ. As this project would be delivered by Essex and Suffolk Water separate from the application for the Proposed Development, this is the only consideration of likely significant effects of any potential water supply solution within the ES as submitted prior to the Examination starting.
- 5.11.173. It concludes that “overall the preferred water supply connection strategy would result in no new or different significant effects than those reported in Chapter 4 of the ES [APP-578]”.

EXAMINATION MATTERS

- 5.11.174. During the Examination we analysed and assessed all of the Applicant’s submissions. In our considerations we also took account of all of the evidence submitted by IPs. We took into account all of the policy considerations set out in both NPS EN-1 and EN-6. The assessments detailed in the rest of this chapter relate to what we consider were the areas where we needed to examine matters in more detail during the Examination.
- 5.11.175. The Examination mainly focused on the following areas:
- Main Development Site - Flood Risk;
 - Sizewell Link Road – Flood Risk;
 - Two Village Bypass – Flood Risk;
 - Main Development Site – Groundwater and surface water;
 - Drainage Strategy;
 - Water Supply;
 - Water Framework Directive – Compliance.

Main Development Site – Flood Risk

- 5.11.176. The Environment Agency (EA) [REP2-135] expressed concerns about the impact of flooding on other areas as presented in the MDS FRA Addendum [AS-157]. The modelling shows that there is a predicted increase in depth of up to 0.24m depth in the 1 in 200 annual probability flood event in 2090. The land is already at risk of flooding by over a metre in this flood event. The Applicant had yet to evidence that they had secured landowner consent for this increased flood depth by way of mitigation. The Applicant [REP3-042] responded that they were in discussion with the landowner (RSPB) and they would seek to achieve landowner consent. The signed SoCG with the EA [REP10-094] indicates that the Applicant had agreement in place. The signed SoCG with the Royal Society for the Protection of Birds (RSPB)/ Suffolk Wildlife Trust (SWT) [REP10-111] confirms their agreement that the increased flood risk is insignificant.
- 5.11.177. Tidal breach modelling additionally showed that there would be a very small increase in flood depth (up to 50mm) in parts of the Minsmere and Eastbridge marshes in the same 1 in 200 annual probability flood event

in 2090. Given that the baseline modelling, without the Proposed Development, indicates flooding for this scenario well above 1.0m in depth across the area, we agree with the Applicant's assessment that this is not a significant effect.

- 5.11.178. The EA in their RR [RR-0373] were also concerned about the lack of a FREP and the risk to construction workers in advance of the construction of the HCDF. The Applicant, to address the risk to workers, was proposing a temporary sheet pile wall to protect the main platform work area, as set out in the MDS FRA Addendum [AS-157]. Additionally, a FREP was submitted [AS-170] prior to the start of the Examination.
- 5.11.179. We asked in ExQ1 [PD-020] FR.1.50 how this would be secured within the dDCO. The Applicant [REP2-100] responded the FREP would be secured within the CoCP by Requirement 2 of the dDCO [REP10-009]. The need to develop a FREP in consultation with the EA is set out in Table 11.2 of the final CoCP [REP10-072]. In that table it sets out that a FREP *"must be developed in consultation with the Environment Agency and in compliance with Environment Agency guidance to ensure that in the event of flooding occurring on site, appropriate plans are in place to manage the risks and ensure that there is no increased risk to human health and that risks to property are managed appropriately."* The EA acknowledged in their signed SoCG [RE10-094] that the submitted FREP was an accurate description of the residual risks.
- 5.11.180. Mr Nick Scarr [REP2-393] expressed concerns about the coastal geomorphology assessments undertaken by the Applicant. Issues relating to climate change and coastal geomorphology are discussed in sections 5.7 and 5.9 respectively.
- 5.11.181. His main area of concern, with respect to flood risk, relates to the Sizewell - Dunwich offshore bank. He is concerned that the MDS FRA and Addendum does not adequately examine the effects of either the removal of the offshore banks or indeed significant changes to the banks. Such occurrences, in his view, could lead to an increased coastal flood risk.
- 5.11.182. A similar concern was expressed by Mr Bill Parker [REP2-228] about the stability of the off-shore banks and the implications for flood risk.
- 5.11.183. Mr Parker also expressed concern about the possibility of a tsunami and the ability of the coastal defence design to deal with such an extreme event. The Applicant [REP8-125] responded that their approach is in accordance with NPS EN-6, which states at paragraph 2.7.3 that the ExA *"should not duplicate the consideration of matters that are within the remit of the Nuclear Regulators."* Paragraph 2.7.4 confirms that this includes the site licensing process, referring to earthquake and tsunami implications being primarily within the regulator's remit.
- 5.11.184. The Applicant [REP2-100] also responded to ExQ1 Al.1.4 stating they *"considered tsunami risk to help inform the design of the Sizewell C sea defences. This work is covered through the ongoing external hazards workstream in support of the safety case and the Nuclear Site Licence"*

application. Existing work has analysed all potential sources of tsunami and estimated the return period associated with their occurrence as well as their severity. Concerning tsunami events of up to a 1 in 10,000 year return period, they have been estimated to have an amplitude of less than 0.3m. Concerning "Storegga-type" tsunami events, they have an estimated return period of greater than 1 in 10,000 years (less frequent). This information is all being considered as part of the ongoing external hazards safety case work which is supported by the design of the sea defences."

- 5.11.185. We have not been presented with any evidence that we should disagree with that approach set out in NPS EN-6. Consequently, given this forms part of the Nuclear Site Licence application work, we are satisfied this is not a matter that should be part of our planning assessment for the Proposed Development.
- 5.11.186. Mr Scarr in reply to the Applicant's response to coastal geomorphology questions in ExQ1 [PD-019] reiterated his concern that the Applicant had not adequately assessed the implications for flood risk of the instability of the Sizewell – Dunwich bank. Mr Scarr [REP3-119] submitted further evidence about the effects on coastal geomorphology and the potential to affect flood risk.
- 5.11.187. The Applicant [REP5-121] responded that the Coastal Processes Monitoring and Mitigation Plan (CPMMP) [REP5-059], final version [REP10-041], would be an adaptive plan and would remain a live document throughout the operational and decommissioning period. In their view, this allows for the recognition of possible expansion or contraction of effects due to the localised impacts over time.
- 5.11.188. Mr Scarr [REP6-068] responded stating he did not consider that the critical importance of the Sizewell – Dunwich bank stability should be entrusted to the CPMMP. Mr Scarr also included a professorial review of his earlier paper [REP3-119], which supported the views expressed in his paper.
- 5.11.189. In response ExQ2 CG.2.10 the Applicant [REP7-052] confirmed that no additional modelling had taken place for the MDS FRA to demonstrate the effect of the potential removal of the Sizewell - Dunwich bank. They maintained that wave conditions would not be worse if the bank was not there. They stated that they considered that the modelling they had done represented the worst case. They also confirmed that the CPMMP proposed bathymetric surveys of the bank every 5 years so its condition could be monitored, and adaptive action taken as necessary. The EA [REP7-129] in their response to this question also agreed with the Applicant's position.
- 5.11.190. Mr Scarr [REP7-218 and REP7-220] maintained that the Applicant's research was inconsistently applied and maintained his view that the MDS FRA approach was not properly evidenced.

- 5.11.191. We discussed this issue at ISH11 [EV-191 to EV-194] and The Applicant agreed to meet Mr Scarr to establish whether they could agree a SoCG.
- 5.11.192. The EA [REP8-156] set out its position in their post hearing submission. They stated "The latest modelling (as reported in TR545) uses wave data from a buoy located offshore of the Sizewell – Dunwich banks and applies this into a model domain inshore of the feature. This means that the waves used in the model have not been impacted by the banks (which are known to cap inshore storm wave height). Various bank scenarios have also been assessed involving different sizes, orientation, height etc. as part of the expert geomorphological assessment work. The Environment Agency therefore agrees with the applicant that the modelling is suitably conservative. We had previously questioned the degree of conservatism when examining earlier technical reports, but after further discussions with the applicant and subsequent review of the updated versions of TR545 and TR544 we are satisfied that our concerns have been addressed."
- 5.11.193. Mr Scarr [REP8-248 and REP8-249] maintained his position with respect to the Applicant's assessments. Mr Scarr [REP9-040] further reiterated his views. In his final submission [REP10-345] Mr Scarr concluded that *"Erosional stress and loss of wave relief features could overwhelm a limited area CPMMP policy, flood the Sizewell/Minsmere wetlands immediately to the north of Sizewell C both raising average water levels and reducing their effectiveness in wave mitigation. The loss of the Dunwich bank would also almost certainly have a knock-on effect at the Sizewell bank."*
- 5.11.194. It is therefore clear that for a nuclear plant with a lifespan that extends to the end of the twenty second century it would be reasonable and correct for conservative, precautionary modelling of flood risk and shoreline change to assume the possibility of significant depletion or loss of at least the Dunwich bank and nearshore bars, particularly as both wave relief offshore features are outside the control of human agency. In my view, the Applicant's 'conservative, precautionary modelling' including a shoreline change assessment from Sizewell to at least Minsmere sluice, should be considering these scenarios."
- 5.11.195. No SoCG has been submitted between the Applicant and Mr Scarr and there is still an area of outstanding difference between their views as to the implications of the Sizewell – Dunwich bank on the conclusions for the MDS FRA. The EA confirmed in the final signed SoCG [REP10-094] that there are no outstanding areas of disagreement with the Applicant with respect to the MDS FRA.
- 5.11.196. We have considered all of the evidence submitted by Mr Scarr and the Applicant alongside the views of the Environment Agency. On balance we consider that the Applicant's approach has been realistic and robust. We also consider that the adaptive nature of the final CPMMP [REP10-041] represents a realistic approach to ensuring that changes that may occur in the Sizewell – Dunwich Bank can be monitored, and suitable adaptive

management can be taken when and if appropriate. The CPMMP is secured in Requirement 12 of the DDCO [REP10-009]

ExA's Conclusion on MDS FRA

- 5.11.197. In conclusion on flood risk at the Main Development Site, we consider that the Applicant has demonstrated that they have satisfied the requirements of both NPS EN-1 and EN-6.

Sizewell Link Road – Flood Risk Assessment (SLR FRA)

- 5.11.198. The EA [RR-0373] expressed concerns about missing elements of the SLR FRA [APP-136]. The proposed route of the SLR crosses water bodies at seven locations and two of the crossings had not been modelled. The Applicant explained that one was not on the proposed route and the other they had not been able to obtain enough survey data to enable accurate modelling. The Applicant went on to explain that the overall capacity of the crossing would be the same and an overflow culvert would be provided. The EA requested additional modelling. They also expressed concern that the SLR FRA also did not include full flood mapping to show that the SLR will be safe for its lifetime without increasing flooding elsewhere.
- 5.11.199. We also asked about the gaps in the flood risk modelling in ExQ1 FR.1.21 [PD-020]. The Applicant had continued to engage with key stakeholders including the EA and submitted the SLR FRA Addendum [REP2-026]. The Applicant had further developed and revised the design of some aspects of the scheme. The Applicant hoped to provide better alignment with the existing conditions and ensure there was appropriate mitigation against potential flood risk and environmental impacts.
- 5.11.200. The EA in their WR [REP2-135] accepted the new modelling and conclusion but highlighted there were a number of areas where the flood depths on the B1122 would increase slightly. The Applicant had not identified the need for mitigation or compensation. The Applicant [REP3-042] responded that the flood depth was only predicted to increase from 10mm to 20mm for a short period during a flood event. Consequently, they were not proposing any further mitigation measures to address this limited change in the existing flood risk.
- 5.11.201. The EA confirmed in their signed SoCG [REP10-094] that there were no longer any outstanding areas of disagreement with the Applicant about the SLR FRA.
- 5.11.202. A number of IPs had concerns about Fordley Road and the potential for the construction of the SLR to increase the propensity of flooding around the new junction.

ExA's Conclusion on SLR FRA

- 5.11.203. No evidence has been submitted to us that the construction of the SLR would increase flood risk along Fordley Road. In addition, we are also satisfied that the impact on the flooding on the B1122 is very small and creates little change in flood risk. Taking this into account we agree with

the Applicants final assessment of the flood risk associated with the construction and operation of the SLR. We are therefore satisfied that the Applicant SLR FRA [APP-136] and the SLR FRA Addendum [REP2-026] fully addresses the issues relating to flood risk along the SLR.

Two Village Bypass – Flood Risk Assessment (TVB FRA)

- 5.11.204. The EA in both RR [RR-0373] and their WR [REP2-135] highlighted the FRA has assessed fluvial flood risk and demonstrated some localised areas of increased depths as a result of the proposals. The EA requested confirmation of written consent from the landowner should be submitted into the Examination. This is required to demonstrate that they accepted the increased flood depth, hazard and velocity on their land in order for this to be acceptable without further mitigation.
- 5.11.205. The Applicant [REP3-043] submitted evidence of the relevant landowner's consent. The EA in the signed SoCG [REP10-094] confirmed they were satisfied with this approach.

ExA's Conclusion on TVB FRA

- 5.11.206. Taking this into account we are satisfied that the Applicant has secured the agreement of landowners where there will be increased flood risk on their land and the Applicant is not required to provide further mitigation measures. Having clarified this we are satisfied that the Applicant has addressed the flood risk associated with the construction and operation of the Two Village Bypass.

Other Flood Risk Concerns

- 5.11.207. Numerous IPs raised concerns about flooding in general both at the MDS and at the Associated Development sites. These included Darsham Parish Council [REP2-251] who had site specific concerns about the Northern Park and Ride FRA [APP-115]. We consider that the Northern Park and Ride FRA adequately addresses flood risk issues at this site.
- 5.11.208. We took into consideration all of the issues raised by IPs in our assessment of the Applicant's submission and during the Examination.

ExA Conclusion on Flood Risk Assessment

- 5.11.209. The EA [REP10-094] in the signed SoCG confirmed that there were no areas of disagreement with the Applicant on any issues relating to the flood risk assessment.
- 5.11.210. We have examined all of the Applicant's submitted assessments and considered more detailed concerns during the Examination. We are satisfied that the Applicant has fully addressed the flood risk associated with construction and operation of the Proposed Development.
- 5.11.211. Consequently, we consider that the Applicant's assessment of flood risk complies with the NPS EN-1 policy aim of making the Proposed Development safe without increasing flood risk elsewhere.

Main Development Site – Groundwater and surface water

- 5.11.212. The EA [REP2-135] in their WR confirmed that they were content, following extensive pre-application discussions, that the groundwater modelling submitted by the Applicant was a sound evidence base to inform the ES.
- 5.11.213. The RSPB and SWT [REP2-506] expressed concerns that the wetland areas of Minsmere and Sizewell Marshes would be at risk from changes to their hydrology. They had concerns about any potential impacts on Minsmere Sluice. They also had concerns that the hydrological cut-off wall would mean that parts of Sizewell Marshes become wetter and some southern parts of the Minsmere South Levels become slightly drier leading to changes to habitats in these areas, and the species they support.
- 5.11.214. The Suffolk Coastal Friends of the Earth (SCFoE) [REP2-458] were also concerned about the ecological impact of the Proposed Development on the Sizewell Marshes SSSI resulting from the approach the Applicant had taken with respect to the Water Monitoring and Mitigation Plan. This concern was also shared by a number of other IPs.
- 5.11.215. The Applicant [REP3-042] responded to the concerns of the RSPB/SWT with respect to the Minsmere sluice, by explaining that the Sizewell Drain realignment would be designed to mimic baseline flows so as to avoid changing the upstream regime in the Sizewell Marshes. Overall, the drainage strategy they propose would be designed to limit discharge to greenfield runoff rates. The Applicant also explained that there would be water control structures in the realigned Sizewell Drain approximately 5 - 10m south of the confluence with the Leiston Drain. They maintained this would ensure water levels that would otherwise have changed as a result of the Proposed Development can be mitigated, where this is necessary to conserve biodiversity interests. Such control structures would include passage for fish, including eels.
- 5.11.216. With respect to the concerns of the SCFoE, the Applicant submitted the Groundwater Conceptual Model Paper, which is Appendix B in [REP3-043]. This paper they considered would provide the background evidence for the approach they had taken with respect to groundwater monitoring and mitigation. The Applicant also clarified that they would be submitting the Water Monitoring and Mitigation Plan (WMMP) to accompany the submitted Water Monitoring and Response Strategy (WMRS). The purpose of the WMMP would be to secure both the monitoring and response arrangements. Both the WMRS and the WMMP would be secured by Requirement 11 of the dDCO.
- 5.11.217. The Applicant [REP5-120] also submitted details of the Sizewell Drain Management Control Structure to provide the outline design options so that stakeholders could make comment on the design options for fine tuning the water levels in the Sizewell Marshes SSSI.
- 5.11.218. SCFoE [REP5-271] maintained their concerns that the Applicant would be monitoring the wrong soil water level variable within the Sizewell

Marshes SSSI. In particular they questioned whether the use of piezometers was the most appropriate method of monitoring the water table elevation. They were also concerned that the Applicant's mitigation plan did not fully take into account the effects of the control of water levels in the ditches in the SSSI.

- 5.11.219. The Applicant submitted the Water Monitoring and Management Plan (WMMP) [REP7-075] that set out the proposed water monitoring arrangements. We asked for views from the EA, SCFoE and other IPs concerning the new WMMP at ISH11 [EV-191 to EV-194]. The Applicant confirmed that they do not anticipate changing the mechanism of water supply within the Sizewell Marshes SSSI and they had no intention of irrigating the site using water from the Leiston Drain. In response to the ongoing SCFoE concerns about the monitoring of water levels, the Applicant stated that the water table would be monitored by the installations in the Sizewell Marshes rather than the piezometric surface as SCFoE appeared to be suggesting [REP5-271].
- 5.11.220. SCFoE [REP8-269] reiterated their concerns about the Applicant's approach to monitoring and in addition expressed concerns about the periods of monitoring within the WMMP. They maintained that the Applicant's approach is fundamentally a failure of the eco-hydrological understanding of critical protected areas. SCFoE [REP10-396] reiterated some of their concerns that the work done to date by the Applicant would mean that *"important decisions will have to be made on the basis of highly sub-optimal information, and in the context of many unresolved (but resolvable) uncertainties."*
- 5.11.221. The Applicant [REP10-048] submitted the final WMRS, which is proposed to be a certified document. The Applicant [REP10-156] set out their response to SCFoE where they reiterated their position with respect to monitoring. In addition, they referenced that the water level monitoring in the Sizewell Marshes SSSI commenced in 2011. The approach to water level monitoring was then agreed with stakeholders including the Environment Agency, Natural England, East Suffolk Council, East Suffolk IDB, RSPB, and Suffolk Wildlife Trust. The monitoring programme has been actively managed since inception to ensure the data collected is representative and provides a robust basis for conceptualisation of the groundwater and surface water environment. With respect to trigger levels, Requirement 11 of the dDCO [REP10-009] secures that the WMMP needs to be approved by East Suffolk Council following consultation with the stakeholders listed above. It must then be implemented as approved. The DoO [REP10-077] in Schedule 17 also sets out that the process is to be subject to continued oversight by East Suffolk Council and relevant stakeholders through monitoring and reporting to the Water Management Working Group. This group will include appropriate technical specialists, in conjunction with key stakeholders.
- 5.11.222. In their SoCG SCFoE [REP10-120] reiterated their concerns about the ecohydrological effects and their view was also supported by the RSPB/ SWT SoCG [REP10-111]. The Environment Agency in their SoCG [REP10-094] have no areas of disagreement with the Applicant's approach to

groundwater management and the Water Management and Response Strategy.

- 5.11.223. It is clear SCFoE still have differing views to the Applicant concerning the effects on the groundwater and surface water regime in the Sizewell Marshes SSSI.
- 5.11.224. We consider that the ongoing monitoring approach established since 2011 of the water regime in the Sizewell Marshes taken together with the controls secured by Requirement 11 of the dDCO would ensure that there would be effective ongoing monitoring of the water regime within the Sizewell Marshes SSSI. We are further satisfied that the EA have no disagreement with the Applicants approach to groundwater management.
- 5.11.225. The implications for terrestrial ecology, in particular the M22 Fen meadow community are dealt with in section 5.6 of this report.

ExA Conclusion on Groundwater and Surface Water

- 5.11.226. We have considered all of the Applicant's submissions with respect to groundwater and surface water and sought greater clarification on matters of detail throughout the Examination. Taking into account all of the submitted evidence and our consideration set out above we are satisfied that the Applicant's approach to groundwater and surface water management is appropriate.
- 5.11.227. We also consider that the controls that would be secured within Requirement 11 of the dDCO would ensure that there would be effective ongoing monitoring of the water regime within the Sizewell Marshes SSSI.

Drainage Strategy

- 5.11.228. In their joint LIR, with ESC [REP1-045] Suffolk County Council (SCC) were concerned that the oDS [APP-181] did not have sufficient details about the surface water drainage strategy with respect to infiltration testing undertaken by the Applicant. SCC are the Lead Local Flood Authority (LLFA). They also commented that where the Applicant is reliant on a method of surface water disposal other than infiltration, they must demonstrate that their Order Limits are of sufficient extent to discharge to this location, and if required, obtain permission from the asset owner. They went on to say that the Applicant did not explain the potential pollution assessment methodologies to be used for various parts of the Proposed Development.
- 5.11.229. We raised a number of questions in ExQ1 [PD-020] to clarify the detail provided in the oDS. One particular area was the lack of reference to the proposed temporary marine outfall proposed in Change 8 [AS-105]. In response, the Applicant submitted a revised oDS [REP2-033]. This addressed our original comments about the detail and also explained the position with respect to the temporary marine outfall.

- 5.11.230. We also asked stakeholders, about the suitability of the Outline Drainage Strategy in FR.1.74 ExQ1 [PD-020].
- 5.11.231. ESIDB [REP2-133] commented that there was insufficient detail about how surface water will be managed in the WMZ. Additionally, they were also concerned about the lack of infiltration testing to evidence the oDS and also that it lacked sufficient detail to evidence that the proposed attenuation features were of a sufficient size. Finally, they made the point that no details are provided about the drainage strategy for the operational period of the MDS.
- 5.11.232. SCC [REP2-192] in response to our question reiterated similar concerns to ESIDB. They were also concerned that in all cases sufficient space for SuDS should be identified and protected prior to other site uses being proposed. Additionally, they stated that no details had been provided to demonstrate that the proposed surface water strategies provide sufficient surface water treatment. They were concerned that the methodology for assessing surface water hazard & mitigation was not identified in the oDS.
- 5.11.233. The Applicant [REP3-046] responded that a series of technical design notes have been shared with both the ESIDB and SCC. These included site specific drainage details and a summary of infiltration testing. In their view these notes demonstrated that a SuDS led drainage strategy could be achieved. The notes also included the Applicant's approach and methodology to pollution assessment and treatment.
- 5.11.234. The Applicant [REP5-120] consequently, submitted the following technical notes:
- Appendix B, ACA Drainage Strategy Technical Note;
 - Appendix D, MDS WMZ Summary;
 - Appendix E, Temporary Marine Outfall;
 - Appendix F, SLR Preliminary Drainage Design Note;
 - Appendix G, TVB Preliminary Drainage Design Note; and
 - Appendix H, Yoxford Roundabout drainage strategy.
- 5.11.235. Following their submission, we asked in ExQ2 [PD-035] for the views of the EA, ESIDB, ESC and SCC about the technical notes.
- 5.11.236. The EA [REP7-129] had no comments on any of the above technical notes.
- 5.11.237. ESIDB [REP7-122] requested more evidence as to the assumptions, background data and calculations provided in the MDS WMZ Summary in order to ascertain the suitability of the Applicant's approach.
- 5.11.238. SCC [REP7-163] referred to their earlier responses to the technical notes [REP6-049]. Their comments were:
- Appendix B, ACA Drainage Strategy – They supported the general principles but considered that it lacked supporting information such as

calculations, dimensioned plans and sections of the proposed SuDS strategy.

- Appendix D, MDS WMZ Strategy - They supported the general principles but considered that it lacked supporting information such as calculations, dimensioned plans and sections of the proposed SuDS strategy.
- Appendix E, Temporary Marine Outfall - They wanted more detail on the scope, duration and thresholds for any proposals to discharge surface water through the temporary marine outfall.
- Appendix F, SLR Preliminary Drainage Design Note - They supported the general principles but considered that it lacked supporting information such as calculations, dimensioned plans and sections of the proposed SuDS strategy.
- Appendix G, TVB Preliminary Drainage Design Note - They supported the general principles but considered that it lacked supporting information such as calculations, dimensioned plans and sections of the proposed SuDS strategy.
- Appendix H, Yoxford Roundabout updated drainage strategy - They supported the general principles but considered that it lacked supporting information such as calculations, dimensioned plans and sections of the proposed SuDS strategy.

5.11.239. The overall conclusion from SCC was that there was more work required on the detail of these notes before they could reach agreement over the proposed drainage strategy.

5.11.240. The Applicant [REP7-017] submitted a revised Drainage Strategy (formerly Outline Drainage Strategy [REP2-033]) at Deadline 7.

5.11.241. We discussed the outstanding issues relating to the Drainage Strategy (DS) at ISH11 [EV-191 to EV-194].

5.11.242. The ESIDB [REP8-138] explained they had not had the opportunity to review the latest DS but expressed their ongoing concerns about the levels of detail and infiltration that would be achievable. They also at this point deferred to SCC as LLFA on both of these matters.

5.11.243. SCC [REP8-182] set out their numerous concerns, stating that the Applicant should demonstrate the following:

- Primary mitigation is suitable, sufficient and deliverable within the Order Limits;
- The details in the additional technical notes submitted by the Applicant are fully integrated into the DS;
- Further details of infiltration testing methods;
- Land requirements for SuDS; and
- Pollution assessments.

5.11.244. SCC did also comment that since ISH11 there had been several meetings with the Applicant in an attempt to resolve outstanding matters relating to the Drainage Strategy.

- 5.11.245. The Applicant [REP8-125] provided, in Appendix 2, a Drainage Strategy Action Plan agreed with SCC. This set out the issues of difference with SCC and a timetable for resolving all the outstanding concerns. The Applicant [REP8-050] submitted a further revision to the Drainage Strategy.
- 5.11.246. The Applicant [REP10-031 to 033] submitted their final Drainage Strategy at Deadline 10. In their final joint SoCG [REP10-102] ESC, agreed that the Drainage Strategy delivers the agreed objectives and is a suitable document to be a certified document. SCC did not agree on this point and considered there was still not enough detail in the Drainage Strategy submitted
- 5.11.247. SCC [REP10-211] set out their outstanding concerns with respect to what is required from the Applicant in order to have an acceptable Drainage Strategy. They set out that, whereas good progress has been made, the Applicant has not been able to resolve all of the issues by the close of the Examination. They have agreed that an acceptable drainage strategy, must:
- Demonstrate that proposals provide for the effective drainage of all development sites;
 - Demonstrate that the proposals do not increase off-site surface water flood risk; and
 - Demonstrate that proposals do not increase risk of surface water pollution.
- 5.11.248. They have asked "*that the ExA in its final report, recommend that the Secretary of State consult the Applicant, SCC and other relevant stakeholders as to whether an updated version of the Drainage Strategy has been developed that is acceptable to all parties and that could replace the Deadline 10 Drainage Strategy as a control document and be referred to in Schedule 22 to the Order as made, in the list of certified documents*". It should be noted that the list of certified documents in the final dDCO submitted by the Applicant [REP10-009] is contained in Schedule 24 and not Schedule 22 as quoted above.
- 5.11.249. Another issue of concern to SCC related to the discharging authority in Requirement 5 of the dDCO. They requested alternative wording for this Requirement such that SCC as LLFA would be the discharging authority for the details of the surface water drainage and ESC would be the approving authority for the foul water drainage system. ESC and the Applicant did not support such as change on the basis it was appropriate for the local planning authority to make the judgement on the planning balance in any approval for both surface and foul water.
- 5.11.250. In their final position statement [REP10-210] SCC proposed an amendment to Requirement 5 so that a final drainage strategy would be submitted to and approved by the Lead Local Flood Authority prior to commencement.
- 5.11.251. The Applicant acknowledged the outstanding concerns with respect to the Drainage Strategy and proposed amendments to the dDCO [REP10-009]

to allow for the submission of a final drainage strategy for approval by ESC.

- 5.11.252. There are clearly a number of outstanding concerns that SCC have about the work still required by the Applicant on the Drainage Strategy. Given this and their duties as LLFA, it is our view that it would be appropriate for SCC to be the discharging authority for surface water drainage and for the final approval of the Drainage Strategy. We would recommend that a change is made to Requirement 5 of the dDCO as set out in the DCO chapter of this report.

ExA Conclusion on Drainage Strategy

- 5.11.253. At the start of the Examination the Outline Drainage Strategy was lacking in sufficient detail to satisfy us, or relevant stakeholders, that it could be used as a certified document as the basis for the design of surface and foul water drainage design. Throughout the Examination we have endeavoured to address the areas of concern. At the end of the Examination, we still had a number of outstanding concerns from SCC as LLFA. We agree that the view expressed by SCC that the final version of the Drainage Strategy [REP10-031 to 033] would not be suitable as a certified document within Schedule 24 of the dDCO [REP10-009].
- 5.11.254. We understood there was ongoing work between the Applicant and SCC taking place at the end of the Examination to try and resolve all of the outstanding concerns. We did not have sufficient time during the Examination to progress this further and as a result we would recommend that the SoS, prior to any decision, may wish to consult both parties to establish whether they have an agreed revision to the Drainage Strategy that can become the certified document within the DCO. Additionally, the SoS may wish to consult other IPs on any agreed document before any inclusion in Schedule 24 as a certified document.
- 5.11.255. Given that SCC as the LLFA are continuing to work with the Applicant to resolve their outstanding concerns with regard to the Drainage Strategy, we consider that it would be appropriate for them to be the approving authority for surface water drainage systems in Requirement 5 of the dDCO. SCC are the statutory body for surface water drainage and there is also precedent for the LLFA being the approving authority in other granted DCO, namely the Southampton to London Pipeline Development Consent Order 2020 and the Northampton Gateway Rail Freight Interchange Development Consent Order 2019. On this basis we recommend a change to the dDCO as set out in Chapter 9 of this report.

Water Supply

- 5.11.256. In the Applicant's [APP-601] submitted application the Site Water Supply Strategy set out the possible water supply options during construction and also during operation of the Proposed Development. They were still exploring a number of options at the time of submission. Numerous RR expressed concern that the Proposed Development did not specify how the water demand would be supplied. They were concerned about the implications of the additional demand created by the Proposed

Development on local water supplies. Their concerns were shared by ESC [RR-0342], SCC [RR-1174] and the EA [RR-0373], who stated that the water supply options described do not provide evidence to demonstrate that a suitable and ecologically sustainable source of water can be provided to the Proposed Development.

- 5.11.257. We asked for an update on the water supply strategy in ExQ1 [PD-022] from the Applicant and the Essex and Suffolk Water Company. The Essex and Suffolk Water Company is a trading division of Northumbrian Water Limited (NWL).
- 5.11.258. In response, the Applicant [REP2-100] confirmed that peak construction demand for potable water was at that time estimated to be 4.0 MI/ day, 2.0 MI in operation and 2.9 MI with one unit in outage.
- 5.11.259. The Applicant's preferred potable water supply was then a new transfer main from NWL's Northern/Central Water Resource Zone (WRZ). This scheme was referred to by the Applicant as the 'supply transfer main'. The water would be supplied from NWL's existing supply headroom in its Northern Central Water Resource Zone. In August 2020, NWL provided a high level outline design and cost estimate for the main, based on an assumed demand of 3.5MI/d during construction and 2MI/d during operation, although it was understood that the exact demand profile was still to be confirmed by the Applicant following further design development work.
- 5.11.260. The sustainability of the Northern Central WRZ abstraction which would be used to supply the Proposed Development was subject to a Water Industry National Environment Programme (WINEP) investigation. An interim report by NWL was due in early June 2021. This would be followed by a full feasibility study, including detailed design, programming and delivery of any necessary planning permission(s), licenses and consents.
- 5.11.261. The Applicant also confirmed that they were developing sources of non-potable water, the details of which would be included in a revised Water Supply Strategy to be submitted at a later deadline.
- 5.11.262. NWL [REP2-158] responded to our ExQ1. At that time, they confirmed on an indicative basis they considered that it may be possible to deliver the supply transfer main scheme by September 2024 at the earliest. This projection was subject to additional ongoing work. They were preparing a supply profile to confirm what water they may be able to supply between April 2022 and September 2024.
- 5.11.263. At DL2, a number of IPs expressed significant concerns about the progress of the Applicant's water supply strategy and ensuring sustainability of supply that did not adversely affect already stressed local water resources.
- 5.11.264. NE [RR-0878] (Issue 3) [REP2-153] raised concerns regarding the source of water required for various elements of the Proposed Development and the potential for consequent ecological effects on European sites and

their qualifying features. NE stated that Suffolk and the wider East Anglia area is under serious water stress and asked the Applicant to demonstrate that the level of abstraction required can be sourced sustainably, without adverse impacts on European sites. NE highlighted the potential for water use/ abstraction (and/or associated works, such as any transfer mains) to damage the notified habitats and bird supporting habitats.

- 5.11.265. The RSPB/SWT [REP3-074] supported NE's concerns and considered that in the absence of a strategy for water supply there remains a potential threat to the qualifying features associated with the current hydrological management in the Minsmere to Walberswick SPA and Ramsar.
- 5.11.266. Walker Morris, on behalf of NWL, [REP5-257] indicated that the Blyth WRZ in which the Proposed Development falls, does not have 4 MI/ day of supply headroom. Additionally, they state that the EA considers NWL abstractions in the Blyth WRZ to be over licensed and that NWL could not meet additional water demand by abstracting more water. These issues were being addressed by the WINEP process. Walker Morris go on to say that the water supply for Proposed Development would require a new water main pipeline from another water catchment area. NWL considered that any additional infrastructure required would likely take until September 2026 at the earliest to deliver, assuming no delays. They considered that this position jeopardised their ability to enter into a Section 55 agreement (pursuant to the Water Industries Act 1991 (WIA)) with the Applicant for the supply of non-domestic water to the Proposed Development.
- 5.11.267. In addition, NWL were aware that the Applicant had indicated they were seeking to requisition a water main to serve the accommodation campus, using the powers under Section 41 of the WIA. Because the accommodation campus would fall into the category of domestic supply NWL were concerned they may be compelled to supply water creating a critical risk to its existing customers in the absence of additional infrastructure.
- 5.11.268. Taking all of this into account Walker Morris (on behalf of NWL) considered it appropriate, at that stage, to issue a holding objection to the application. This would remain until such time as a suitable mechanism has been proposed by the Applicant (which NWL considers should be included within the terms of the DCO itself) ensuring that NWL would not be required to provide the relevant water supply until its additional infrastructure was in place.
- 5.11.269. NWL [REP7-147] provided an update of their position. They stated at that time they were unable to confirm that they would be able to supply water or related infrastructure for the Proposed Development having regard for their duties under the WIA. They had the following concerns:
- Domestic supply (accommodation campus) – NWL requested suitable wording in the dDCO to ensure statutory provisions in the WIA do not compel it to provide either infrastructure or water, which would be

environmentally unsustainable and/ or result in capacity shortfalls for existing customers.

- Supply to remainder of the Proposed Development - NWL stated at that time they can no longer commit to entering into a Section 55 Agreement to supply water and infrastructure for non-domestic purposes to the Applicant. To do so would lead to direct conflict with NWL's statutory duties.

- 5.11.270. NWL stated future modelling is required to assess the precise quantum of sustainable water supply in the Northern/ Central Water Resource Zone. Until that work was complete, they advised that they would not be able to provide more certainty.
- 5.11.271. At DL7, the Applicant submitted a revised Water Supply Strategy [REP7-036] and separately submitted Change 19 [REP7-286]. This proposed a temporary desalination plant to supply potable water during the early construction phase until such a time as the NWL supply transfer main could be operational. The revised approach involved use of water tankers to supply potable water for construction, prior to the desalination plant being operational. The desalination plant would operate until the supply transfer main was available late in the construction period.
- 5.11.272. We accepted this change on 10 September 2021 [PD-050]. Given the significant change to the original Water Supply Strategy and the potential for different environmental effects we took the decision to hold an additional ISH15 on the environmental effects of the temporary desalination plant. In advance of this specific ISH we discussed the current position with respect to water supply at ISH11 [EV-191 to EV-194] on Flooding, Water and Coastal Processes. Numerous IPs expressed concerns about the changes to the Applicant's water supply strategy. These included where the temporary tankered water supply would come from, the lack of clarity of the permanent water supply and also the timing of the change application so late in the Examination.
- 5.11.273. At ISH11 [EV-191 to EV-194] we discussed how the short term tankered water supply would be sourced. The Applicant explained that they would seek nearby available sustainable abstraction sources and it would not impact on local water supplies. With respect to the water source for the tankers, the SoCG [REP10-092] confirmed that NWL would look at several sources for the water in the Essex Supply Area. It also confirmed that there was no availability within the Suffolk Network.
- 5.11.274. At ISH11 [EV-191 to EV-194] we also discussed the certainty of NWL being able to supply water to the Proposed Development. NWL's concern was that the Northern Central WRZ's ability to provide supply for the transfer main relied on extraction from the River Waveney. Recent discussions with the EA, concerning sustainable extraction levels from the River Waveney had led them to conclude that they may be required to cut extraction levels from the River Waveney by as much as 60%. They went on to say they would not be able to understand this fully until the modelling had been completed and reviewed by the EA. NWL added that should the abstraction from the River Waveney be capped then they would require significant capital projects such as (for instance) a

permanent desalination plant, or sewerage effluent reuse plant, to meet anticipated future demand.

- 5.11.275. The Applicant explained that the temporary desalination plant could be retained through the construction period. They were also confident that working with NWL they will be able to resolve the permanent water supply issues for the Proposed Development.
- 5.11.276. During ISH11, Emma Bateman and Paul Collins expressed concerns about the non-potable water supply solution proposed by the Applicant. The Applicant [REP8-125] responded to these concerns reaffirming their commitments set out in the Water Supply Strategy [REP7-036] for supply of non-potable water throughout the construction period.
- 5.11.277. Walker Morris on behalf of NWL [REP8-167] explained their ongoing modelling work was due to complete on 30 September and after that the EA would need to review the modelling. The Examination was due to close on 14 October and the EA review would be unlikely to be completed by the close of the Examination. This would be required to enable NWL to understand whether they would have a sustainable source of water supply in the Northern Central WRZ for the Proposed Development.
- 5.11.278. At ISH15 [EV-224 to EV-227] we asked about the water supply solution during the reinstatement period for the temporary construction area and also onwards through the operation of the Proposed Development.
- 5.11.279. The Applicant criticised the alternative put forward by IPs in terms of water supply strategy of putting the project on hold until a water main had been put in place, as being a clear attempt to frustrate the delivery of an urgently required NSIP, particularly when there was an acceptable way of supplying water in the interim. The Applicant submitted that it is plainly pursuing the most sustainable water supply strategy in the circumstances that exist in this case.
- 5.11.280. During ISH15, Phillip North, representing Therese Coffey MP, made representation as to whether the Examination should be extended until such a time that there was certainty about the permanent water supply. The Applicant responded to the effect that there is no justification for an extension of the Examination in this case. Even if the modelling process concluded that there was no capacity in the Northern Central WRZ, the Applicant is content that the Proposed Development could still be consented and that the requisite supply would be available. The Applicant stated that in those circumstances the water supply would be dealt with under a separate statutory regime, which would provide a mechanism for delivering a supply.
- 5.11.281. NWL confirmed that the outcome of the ongoing WINEP modelling was further delayed and unlikely to be complete until 14 October. The EA would then need to review the modelling before any decisions could be made about capacity in the Northern Central WRZ. This meant that the outcome of the modelling exercise would be unknown at the close of the Examination.

- 5.11.282. The Applicant and NWL (also referred to as Essex and Suffolk Water (ESW) in the dDCO) are both confident that they could work towards a permanent water supply solution, which would be available later in the construction period. This position is confirmed in the SoCG [REP10-092]. They have agreed the necessary protective provisions (Part 6 Schedule 19 dDCO [REP10-009]). The protective provisions set out the following:
- i. Paragraph 69 – The Applicant will not request a domestic water supply (for accommodation provision) unless agreed by ESW; and
 - ii. Paragraph 70 - ESW will use its reasonable endeavours to supply potable water to the Proposed Development, subject to the following conditions:
 - o ESW can confirm *“there is sufficient water in the North Central WRZ to meet the demand”*; or
 - o *“New supply schemes have been identified and approved in ESW’s Water Resources Management Plan 2024.”*
- 5.11.283. If the WINEP modelling process does not identify enough capacity in the Northern Central WRZ to supply the Proposed Development, NWL [REP10-092] will identify new supply schemes in their Water Resources Management Plan 2024, which may take longer to deliver. They agreed that; *“2032 has been identified by the Applicant as the backstop date for the long term supply to be fully available”*. This date would correspond with the end of the proposed construction period and prior to commencement of the cold functional testing of the Proposed Development.
- 5.11.284. NE [REP10-097] (Issue 3) submit that the pipeline/ mains transfer is a fundamental component of the eventual operation of the Proposed Development; therefore, the potential impacts of its construction should be clearly assessed in accordance with the NPS and the SoS’ Scoping Opinion. NE state that without such impact assessments being available, it is unable to advise on whether this key element of the Proposed Development may have an impact on designated sites already considered by the Applicant, or others further afield that may be affected by an abstraction of this scale. It is therefore unable to advise whether adverse effects on designated sites from these elements can be ruled out. NE also referenced the water supply in its concerns regarding cumulative and ‘in combination’ effects [REP10-199]. Stating that *“It is Natural England’s advice that pushing any Habitats Regulations Assessment (HRA) conclusions for integral and inextricably linked elements of the project down the line into other consenting regimes beyond the Development Consent Order (DCO) raises the likelihood that cumulative and ‘in combination’ impacts in these regards may get missed/ downplayed, and we wish to draw the Examining Authority’s attention to this point.”*
- 5.11.285. With regards to the pipeline/ transfer main or other solution, the information available on the potential cumulative and ‘in combination’ effects of the transfer main is currently limited, as the chosen source and location of the transfer main is not yet known and the findings of the WINEP study are required to determine the preferred, sustainable option for a supply. The latter will be subject to its own assessments, including

HRA. The Applicant's cumulative assessment of the preferred pipeline/transfer main [AS-189] was high-level and contained no conclusions specific to matters of HRA. Chapter 6.0 of this report contains more details on the HRA considerations on this matter.

- 5.11.286. The Applicant responded at ISH15 [REP10-161] and in response to the RIES [REP10-155] that the DCO application does not include a request to abstract water. In the event that the transfer main was pursued it would be promoted by the water company and would undergo its own planning process which would include assessment under the Habitats Regulations as necessary. In the Applicant's view there can be no requirement to assess at this stage, development which is not applied for as part of the DCO application. In those circumstances, the Applicant considered there was no need for environmental assessment of any such abstraction during this DCO process. In the ExA's view, the Applicant's stance however does not address the need to fully consider the cumulative assessment of the environmental effects of the proposed water supply solution that is fundamental to the operation of the Proposed Development.
- 5.11.287. The ExA agrees with NE, that it is unable to undertake a meaningful assessment of potential effects arising from the chosen solution for operational supply in combination with the Proposed Development from the evidence presented to the Examination. Accordingly, the ExA considers it has not been provided with sufficient information or certainty on the issue of permanent water supply.
- 5.11.288. We asked in ExQ3 [PD-049] R.3.1, the Office for Nuclear Regulation (ONR) about the situation with respect to the nuclear site licence application and the lack of certainty about the permanent water supply. The ONR [REP8-168] responded "*There is no specific Licence Condition covering the requirement for a reliable water supply. However, Licence Condition 14 (safety documentation) requires the licensee to make and implement adequate arrangements for the production and assessment of safety cases; Licence Condition 19 (construction or installation of new plant) requires the licensee to make and implement adequate arrangements to control the construction or installation any new plant which may affect safety and Licence Condition 21 (Commissioning) requires the licensee to make and implement adequate arrangements for the commissioning of any plant or process which may affect safety. In fulfilment of these Licence Conditions, 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.*"
- 5.11.289. TASC [REP10-421] suggest that any DCO granted should be on the basis of a Requirement only allowing commencement if the water company can guarantee water supply throughout operation and decommissioning. However, whilst such a requirement could prevent the power station from operating and hence nullify the benefit of any consent granted, it would

not in itself achieve the desired objective of a sustainable water supply solution. The ExA does not consider that such an approach would provide a satisfactory means of controlling this fundamental aspect of the project.

ExA Conclusion on Water Supply

- 5.11.290. At the close of the Examination there was still no certainty as to where the permanent water supply would be sourced from and how the necessary water would be transferred to the Proposed Development.
- 5.11.291. At ISH 15, both the Applicant and NWL were confident that a permanent water supply solution would be developed. Balanced against this are the protective provisions that would allow NWL not to agree to the supply of domestic water and also the necessary long term supply of potable water if the conditions outlined above are not met.
- 5.11.292. In these circumstances we have to consider the possibility that a sustainable water supply may not be able to be identified. That being the case it is clear from what the ONR have set out there remains a possibility that the Proposed Development may not be able to operate.
- 5.11.293. We also need to consider the potential cumulative environmental effects of any potential water supply solution. The Applicant [AS-189] briefly outlined a consideration of a cumulative assessment of the originally proposed transfer main solution from the Northern Central WRZ. The assessment concluded that there were no new or different significant effects from those in ES Volume 10, Chapter 4 [APP-578]. This assessment however was only based on a very small scale plan (Plate 1.2 of [AS-202]) showing the potential route of this transfer main. The Applicant's cumulative assessment of the preferred pipeline/ transfer main does not contain any conclusions specific to matters of HRA. In any event given the lack of certainty of this routeing option being the final water supply solution we give this assessment little weight.
- 5.11.294. No cumulative effects assessment has been provided in respect of the other potential solutions outlined by the Applicant and NWL. The Applicant's position is that any water supply would be delivered under a separate statutory regime and as such any environmental assessment required would be undertaken as part of that process. The concerns expressed by NE about the implications for the HRA are discussed in more detail in Chapter 6 of this report. The ExA accepts the position reached by NE that the water supply strategy is a fundamental component of the operational Proposed Development.
- 5.11.295. Taking into account that the Applicant has not identified a permanent water supply solution at the close of the Examination, we are not able to recommend that the DCO should be granted without greater clarity about a sustainable water supply solution and any consequential environmental effects.
- 5.11.296. We would therefore recommend that the SoS may wish to consult with the Applicant, NWL, the EA and other IPs to identify whether there has

been progress on the identification and assessment of effects of a sustainable permanent water supply for the Proposed Development, prior to making a decision on the application for the DCO.

Water Framework Directive (WFD) Compliance

- 5.11.297. In its RR the Environment Agency (EA) [RR-0373] expressed concerns that the submitted assessments had not identified all the potential impacts under the WFD. Additionally, that the Applicant had not adequately assessed the potential for deterioration in the status of WFD water bodies affected by the development. If a deterioration in water body status cannot be ruled out an exemption would be required in accordance with Article 4.7 of the WFD and the Applicant had not made a case to support such a derogation if required.
- 5.11.298. The Applicant prior to the start of the Examination submitted an Addendum to their WFD Compliance Assessment (WFDCA) [AS-279] to take account of the Changes 1-15 [AS-105] and their potential implications for the WFDCA.
- 5.11.299. We asked a series of questions of clarification of some details in the WFDCA in ExQ1 [PD-020]. We also asked whether the water supply solutions were also considered in the Applicant's WFDCA. The Applicant [REP2-100] responded clarifying a number of details about coverage and interpretation of their WFDCA.
- 5.11.300. The EA [REP2-135] set out their outstanding concerns with respect to the WFDCA. These concerns were:
- Seeking assurance that water supply options would not adversely create WFD impacts;
 - Invertebrate connectivity in the Leiston Beck water body;
 - Fish entrapment from cooling water abstraction in the Ore/ Alde water body;
 - Low Velocity Side Entry intake design as described in the WFDCA;
 - Predicted fish impingement numbers set out in WFDCA due to bulk sampling issues;
 - Stock areas proposed are not suitable in terms of detecting a potential for deterioration under the WFD; and
 - Cumulative effects assessment still lacking some information to allow conclusions to be made.
- 5.11.301. The Applicant [REP3-042] responded saying they were continuing discussions with the EA about the WFDCA.
- 5.11.302. In the SoCG at Deadline 7 [REP7-090] it was confirmed that the EA and the Applicant had resolved some of their concerns. Additional work was being progressed to resolve the remainder. In addition, the SoCG identified a new concern over the WFD impact of Change 19 for the temporary desalination plant. In an effort to address this new issue the Applicant also submitted a second addendum to the WFDCA [REP7-284]. In this second addendum the Applicant concluded that the proposed

addition of a temporary construction-phase desalination plant would not alter the findings of WFDCA.

- 5.11.303. The Stage 3 detailed assessment, in this addendum [REP7-284], considered the potential impacts on the chemistry, physico-chemistry (salinity and nutrient loading), biology resulting from the discharge or reject water, and also considered the potential for cumulative impacts with other components of the project. However, the assessment did not identify any parameters at risk of deterioration such that class status for any of the parameters would decrease. As a result, the proposed activities alone and in combination with other construction-stage activities, were considered to be compliant with the requirements of the WFD.
- 5.11.304. We discussed outstanding concerns with respect to the WFDCA at ISH11 [EV-191 to EV-194]. The EA considered that the revised SSSI crossing design [REP7-005] would reduce the risk of deterioration, under the WFD Regulations 2017, to an acceptable level, and would not require a regulation 19 exemption. In addition, with respect to the EA's concern over invertebrate connectivity in the Leiston Beck the Applicant has included consultation with the EA in Requirement 20 of the dDCO [REP10-009] for both the temporary and permanent sections of the crossing.
- 5.11.305. In Section 7 of their post hearings submissions [REP8-156] the EA reiterated their concerns about entrapment losses to some fish species from the operation of the Proposed Development. This would result in a reduction in the number of fish entering the Ore & Alde and Blyth water bodies, which has the potential to lead to a deterioration of this biological element of their WFD status. In order to maintain WFD compliance they recommended requirements are included in the DCO to address this potential impact. These requirements would secure robust monitoring and provide mitigation and compensation to undertake improvements which would benefit fish in the affected water bodies should a deterioration occur.
- 5.11.306. In terms of the combined assessment for WFD compliance, they also highlighted that through the Environmental Permitting Regime, they would also need to complete a combined assessment to ensure WFD compliance. This would include consideration of impacts associated with operational and construction related permits, such as the water discharge activity and the combustion activity permits. They concluded that they would only be able to complete this when they had determined those permits. The position with regard to these permits remained unknown at the end of the Examination and the SoS may wish to confirm the EA's position on the WFD combined compliance assessment in advance of deciding this application.
- 5.11.307. Discussion continued between the Applicant and the EA to resolve the outstanding issues.

- 5.11.308. To overcome their concerns over the Ore & Alde and Blyth water bodies, the EA, as a third party, have signed a Deed of Covenant with the Applicant [REP10-088]. This secures a contribution to eel and migratory fish mitigation measures subsequent to Schedule 11 Section 9 Fish Monitoring and Mitigation of the Deed of Obligation [REP10-076]. Additionally, the Fish Impingement and Entrainment Monitoring Plan (FIEMP) would be secured as Condition 44 in Schedule 21 (the Deemed Marine Licence) in the dDCO [REP10-009]. This condition would have the final FIEMP approved by the MMO in consultation with the EA.
- 5.11.309. The SoCG [REP10-094] confirms that the EA do not agree with the Applicant's assessment of the potential impacts on fish. They are, however, content that the dDCO/DML conditions and the Deed of Covenant will ensure that suitable mitigation would be available. There are no other outstanding areas of disagreement between the Applicant and the EA identified in the SoCG.

ExA Conclusion on Water Framework Directive

- 5.11.310. We have assessed the Applicant's WFDCA and Addenda and considered all representations made through the Examination. We are satisfied that the Applicant has demonstrated compliance with the Water Framework Directive as far as it is possible without the combined consideration of effects from the EA.
- 5.11.311. The EA still need to complete the combined assessment for WFD compliance, after completion of the relevant environmental permitting processes. Given this was not completed at the end of the Examination, the SoS may wish to consult both the Applicant and the EA to establish the position prior to deciding on the making of any Order.

Conclusions on Flooding and Water Resources.

- 5.11.312. We have examined all of the Applicant's submitted assessments and considered more detailed concerns raised during the Examination. The ExA is satisfied that the Applicant has fully addressed the flood risk associated with construction and operation of the Proposed Development and has demonstrated that the flood risks associated with the Proposed Development can be satisfactorily mitigated and managed. Consequently, we consider that the Applicant's assessment of flood risk complies with the NPS EN-1 policy aim of making the Proposed Development safe without increasing flood risk elsewhere.
- 5.11.313. At the close of the Examination there was an outstanding issue with respect to the approval of the Drainage Strategy. SCC were still in discussion with the Applicant seeking to agree the final Drainage Strategy that would need to replace the Deadline 10 version as a certified document. Additionally, this outstanding issue between SCC (the LLFA) is in our view a sound reason why SCC should be the discharging authority for the surface water drainage designs. To take account of both of these factors we are therefore recommending the dDCO is suitably amended as set out in Chapter 9 of this report.

- 5.11.314. We have considered all the Applicant's submissions with respect to groundwater and surface water and sought greater clarification on matters of detail throughout the Examination. Taking into account all of the submitted evidence and our considerations during the Examination we are satisfied that the Applicant's approach to groundwater and surface water management is appropriate. This matter does not weigh for or against the Order being made.
- 5.11.315. With respect to compliance with the requirements of the Water Framework Directive, the EA will need to complete their assessment of the combined effects once they have concluded the relevant environmental permitting processes. This is also something the SoS may wish to consult both the Applicant and the EA on prior to determination of the application to ensure compliance in respect to the WFD.
- 5.11.316. We conclude that the Applicant has fully considered the significant effects of the Proposed Development with respect to the policy requirements set out in both NPS EN1 and EN-6.
- 5.11.317. In addition, there is still uncertainty with respect to a permanent potable water supply. At the close of the Examination, it was still unknown whether NWL would be able to supply water from the North/ Central WRZ via a new transfer main to the Proposed Development. Both the Applicant and NWL were confident that they would be able to work together to develop a sustainable long term water supply for the Proposed Development. However, it remains the case that there was no secured permanent supply identified at the close of the Examination.
- 5.11.318. The Applicant's cumulative assessment of the preferred pipeline/ transfer main does not contain any conclusions specific to matters of HRA. In any event given the lack of certainty of this routing option being the final water supply solution we give this assessment little weight. No cumulative effects assessment has been provided in respect of the other potential solutions outlined by the Applicant and NWL. The Applicant's position is that any water supply would be delivered under a separate statutory regime and as such any environmental assessment required would be undertaken as part of that process. The ExA accepts the position reached by NE that the water supply strategy is a fundamental component of the operational Proposed Development and that the effects associated with it should be assessed.
- 5.11.319. The ExA is of the view that there could be potential effects during construction and operation, either alone or in combination with solutions, such as the preferred pipeline/ transfer main. Accordingly, the ExA has not been provided with sufficient information or certainty and advises that information necessary to inform the examination of the effects is incomplete in this regard.
- 5.11.320. Since there is no identified water supply solution there has been no assessment of the potential cumulative environmental effects of any solution proposed. Considering these factors, we are unable to recommend that this application is capable of approval without further

details on the water supply and the consequential cumulative environmental effects.

5.12. HEALTH AND WELLBEING

Policy Considerations

National Policy

- 5.12.1. Paragraph 1.7.2 of EN-1 refers to positive health and wellbeing effects of energy including "secure affordable supplies of energy and minimising fuel poverty; positive medium and long term effects are also likely for equalities."
- 5.12.2. Paragraph 4.2.2 of EN-1 advises that applicants should set out the potential effects, on social and economic effects how any likely significant negative effects would be avoided or mitigated.
- 5.12.3. Paragraph 4.13.1 of NPS EN-1 states that *"Access to energy is clearly beneficial to society and to our health as a whole."*
- 5.12.4. The NPS recognises however there is the potential for negative effects on some people's health as a consequence of the production, distribution and use of energy. At paragraph 4.13.2 the NPS expects any adverse health effects to be identified and measures taken to:

"avoid, reduce, or compensate for those impacts as appropriate."
- 5.12.5. Turning to EN-6 specifically paragraph 3.12.5 states:

"the construction, operation and decommissioning of new nuclear power stations could affect health care provision. For example, the facility could increase demand on health monitoring services."
- 5.12.6. It also recognises at paragraph 3.12.6:

"The Nuclear Appraisal of Sustainability also identified that there could be positive effects for health and wellbeing resulting from the positive socio-economic benefits of new nuclear power stations."
- 5.12.7. NPS EN-6 advises that the IPC (now SoS) should consider the positive effect of employment on health and wellbeing and additionally have regard to the SoS Regulatory Justification decision when considering impacts on health and wellbeing.
- 5.12.8. NPS EN-6 paragraph 3.12.4 states that the application should be determined on the basis that regulation would adequately mitigate radiation exposure to workers, the public and the environment. Based on this clear direction, the ExA has not examined the potential radiological effects that could arise as a result of the Proposed Development and how these may affect health and wellbeing.
- 5.12.9. The NPS goes further in paragraph 3.12.10 and confirms that the IPC (SoS) assessment and decision on the DCO should be undertaken on the

basis that the regulatory regime will be properly applied as referred to in section 2.7 of this Recommendation Report.

National Planning Policy Framework (NPPF)

- 5.12.10. Section 8 of the NPPF promotes healthy and safe communities, and that policies and decisions *"should aim to achieve healthy, inclusive and safe places"*.

Development Plan

- 5.12.11. The Suffolk Coastal Local Plan 2020 at policy SCLP3.4 deals with major infrastructure proposals setting out a framework for consideration of the strategic issues that can arise, and which should be considered as a part of the development. Sub section i) seeks to achieve proposals that deliver positive outcomes for the local community.
- 5.12.12. The Local Plan recognises at paragraph 10.16 "The high-quality natural environment is important to many local communities as it positively contributes to quality of life, quality of place and mental health".

The Applicant's Case

- 5.12.13. ES Chapter 28 [APP-346] provides the Applicant's assessment of the effects on the health and wellbeing on sensitive receptors from the construction, operation and where relevant removal and reinstatement activities associated with the Sizewell C project.
- 5.12.14. This was updated in the First ES Addendum [AS-181] and Third ES Addendum [REP6-017] which concluded that the proposed changes did not materially change the conclusions made in the original assessment.
- 5.12.15. The health and wellbeing assessment includes an assessment of potential impacts, the significance of effects, the requirements for mitigation and the residual effects. It was supported with a series of Appendices which can be found in [APP-347].
- 5.12.16. The health and wellbeing assessment was undertaken in accordance with the following Health Impact Assessment (HIA) guidance documents:
- *"West Midlands Public Health Observatory: A Critical Guide to HIA*
 - *Health Impact Assessment: A practical guide*
 - *Fair Society, Healthy Lives: The Marmot Review. Strategic review of health inequalities in England post-2010.*
 - *Healthy Lives, Healthy People: Our strategy for public health in England.*
 - *Planning Policy Guidance: Healthy and safe communities.*
 - *Reuniting Health with Planning - Healthier Homes, Healthier Communities "*
- 5.12.17. It considers both physical and mental health, and interfaces with the Equality Statement [APP-158] to consider both population level effects and any disproportionate risk to sensitive community groups. The assessment is therefore based on both social and environmental

determinants of health. It follows a source- pathway-receptor approach to identify and assess health and wellbeing effects.

- 5.12.18. The assessment during construction was split to cover the Main Development Site (MDS) and Associated Development Sites (ADS) each being subdivided into the following health determinants that had the potential to affect health and wellbeing:
- Changes in emissions to air;
 - Additional transport movements;
 - Changes in noise exposure;
 - The introduction of a temporary non home based workforce;
 - Benefits associated with socio-economic factors; and
 - General stress and anxiety impacting upon quality of life and wellbeing.
- 5.12.19. For the operational period, the assessment covers the MDS and the permanent ADS being the Two Village Bypass (TVB), Sizewell Link Road (SLR), and Yoxford roundabout and highway improvements. The health determinants identified with the potential to affect health and wellbeing include:
- changes in electromagnetic field exposure;
 - change in emissions to air;
 - change from additional transport movements;
 - changes to noise exposure;
 - benefits associated with socio-economic factors; and
 - general stress and anxiety impacting on quality of life and wellbeing.
- 5.12.20. In assessing the baseline the Applicant concluded that the health status was better than the national average and more comparable to the regional average. This would not exclude however, that groups or some individuals would not conform to the overall profile, with the potential for areas of inequality.
- 5.12.21. As such the Applicant elected to identify all residential receptors as highly sensitive to environmental or socio-economic change and all health care provision to be of high value and sensitive to change in demand.
- 5.12.22. The Applicant did not identify any forecasted changes or commitments to developments that would alter the baseline position.
- 5.12.23. The ES Addendum [AS-181] states that all the changes identified, either reduce the adverse impacts reported in the ES [APP-451]), or are beneficial, reducing noise exposure and contributing to health and wellbeing benefits at these human receptors. It recognised; however, a residual number of Heavy Goods Vehicles (HGV) movements would remain, and while representing an improvement to what was previously assessed within [APP-346], this does not materially change the health and wellbeing effects reported.
- 5.12.24. The Applicant also provided an Equality Statement [APP-158] and a subsequent update [REP10-024] to address the changes to the project

since the application had been made. This examines the impacts on groups with protected characteristics. The Equality Statement concludes that the Proposed Development is likely to provide a range of benefits for groups with protected characteristics, whilst also having a number of impacts where groups with protected characteristics may experience disproportionate effects. Effects include:

- Increase in noise levels during construction of the Proposed Development for some residential properties and community facilities in the area. This may disproportionately and/or differentially affect children and older people.
- Effects from traffic, transport and effects on physical access with temporary diversions and closures to PRowS and footpaths as well as permanent changes to routes involving crossings of the Proposed Development. This may have a differential impact on people with mobility issues and footpaths that have a higher use of groups with protected characteristics.
- Potential differential effects for drivers using the network including drivers with disabilities, younger people, older people and women (due to lower average employment rates) including pregnant women.

5.12.25. Age as a protected characteristic is a key issue in this area with the baseline data identifying that the proportion of older people is higher than the national average. Figures extrapolated from the ONS mid year population estimates from 2019 are set out in table 9.3 of [APP-195] As set out in paragraph 1.6.7 of [APP-158]:

"In the five-ward area around the main development site, 31.6% of residents are aged 65 or older, almost double the average for England (16.3%) and East of England (17.5%). In Aldeburgh ward the proportion is 42.7%."

5.12.26. The Applicant also considered that as the area as a whole has a significantly higher than average proportion of older people, the noise and air quality effects may disproportionately affect older people, who spend more time at home.

5.12.27. The Applicant recognises that the Proposed Development has the potential to affect people with protected characteristics disproportionately and in doing so has built into the Code of Construction Practice (CoCP) obligations to mitigate against these effects to minimise these impacts.

Mitigation

5.12.28. The Applicant states that the primary mitigation is set out in the ES Chapters on

- Socio-economics [APP-195];
- transport [APP-198];
- air quality [APP-212];
- noise and vibration [APP-202]; and
- radiological considerations [APP-340].

And that the mitigation identified to address the issues raised within these topic areas will also reduce any adverse effects on health and wellbeing.

- 5.12.29. The application includes occupational health provision for the construction workforce. This is secured by way of the Deed of Obligation (DoO) Schedule 6 [REP10-075].
- 5.12.30. Tertiary mitigation is provided through a series of documents and working practices again linking back to the other chapters of the ES referred to in the other sections of this Report, but these include:
- The CoCP [REP10-072] which provides for a range of controls including physical screening to ameliorate some of the impacts from noise and air quality;
 - A Noise Mitigation Scheme (NMS) (Annex W of the DoO) [REP10-080];
 - Community Fund to ensure that residual in-combination effects of the Sizewell C Project may be addressed and to enable communities to maximise the opportunities offered by the Sizewell C Project. This would be delivered through Schedule 14 of the DoO [REP10-076].
- 5.12.31. Furthermore, mitigation includes employment and training activities and local business engagement to secure local recruitment set out in the Employment, Skills and Education Strategy (Appendix A to the Economic Statement) [APP-611] and the Supply Chain Strategy (Appendix B to the Economic Statement) [APP-611]. These mitigation measures enhance the socio-economic and wellbeing aspects of the Proposed Development and are secured in Schedule 7 of the DoO.[e page 63 REP10-075]
- 5.12.32. A specific package of measures has also been agreed with the Pro Corda Trust and English Heritage (Schedule 13 of the DoO) [e page 114 REP10-075]which provides a contribution for indoor and outdoor sensory spaces suitable for children with autism and other special educational needs and disabilities.
- 5.12.33. Improvements to the sound insulation of properties fronting the B1122 would be provided via Schedule 12 of the DoO [e page 112 REP10-075] and a Draft Rail Noise Mitigation Plan [REP10-043] has been prepared to reduce railway noise and vibration which is secured by way of Requirement 39 of the DCO.
- 5.12.34. Residual noise effects at Leiston Old Abbey Care Home are to be addressed with acoustic barriers and through the NMS [REP7-022].
- 5.12.35. Air quality is assessed to be within national air quality standards and objectives, protective of the environment and health, and not requiring additional mitigation. However, a number of precautionary measures have been proposed, including use of Euro VI engine vehicles. In addition, monitoring to ensure compliance (including NO_x, PM₁₀ and PM_{2.5}) will be carried out in accordance with the Dust Monitoring and

Management Plan as committed to in the CoCP and secured by Requirement 2 of the DCO.

- 5.12.36. A series of management measures are in place to mitigate transport effects including the Traffic Incident Management Plan (TIMP), Construction Traffic Management Plan (CTMP) and Construction Workforce Travel Plan (CWTP).
- 5.12.37. In terms of the general equality implications of the effects on transport, any additional severance, delay, amenity, or fear/intimidation effect from traffic has the potential to differentially affect people with particular protected characteristics, where that characteristic affects their mobility. With the high proportion of older people these transport implications could disproportionately affect older people.
- 5.12.38. In addition, funds have been made available, secured through the DoO for improvement schemes in Leiston (Annex R of DoO) and Wickham Market (Annex T of DoO), Little Glemham and Marlesford (Annex S of DoO).
- 5.12.39. Schemes are also included for the B1122 in the early years (Annex Q DoO) and subsequently the provision of a repurposing scheme once the SLR is operational.
- 5.12.40. A B1125 scheme to fund pedestrian improvements and safety measures in Westleton and Walberswick (Annex N of DoO), a Leiston Walking and Cycle project [REP9-022] and PRow Fund are included as part of the mitigation package. These mitigations and enhancements are likely to benefit less mobile pedestrians the most including those with protected characteristics.
- 5.12.41. The Rights of Way and Access Strategy [REP10- 037] secured by Requirement 10 of the DCO sets out the principles underlying the approach to the rights of way implementation plans and is to be approved by Suffolk County Council (SCC). As part of the requirement, it states:

"Comply with the legal requirements of the Equality Act 2010 and the Countryside and Rights of Way Act 2000 in terms of temporary access infrastructure and management, by ensuring that there are no physical barriers to access without lawful authority and that reasonable adjustments are made to facilitate participation by all".

Applicant's conclusions

- 5.12.42. In considering the Quality of Life (QoL) and the concern around the general stress and anxiety from the project, the Applicant uses the QoL defined by the WHO

"an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns".

The Applicant concludes that overall, the impact upon health and wellbeing would be low and does not result in a significant effect.

- 5.12.43. In determining the impact, the Applicant considers the assessment undertaken has taken account of both the tangible effects but also the more subjective and intangible elements that arise from the construction of the project and the perception and risk identified by the local community. From this assessment the Applicant concludes there will not be a significant effect taking into account the mitigation that would arise from the controls that are proposed through the CoCP and the mitigation .
- 5.12.44. In respect of inter-relationship effects because the Health and Wellbeing chapter is predicated on the mitigation set out in other chapters of the ES no further inter-relationship effects have been identified in relation to health and wellbeing.

Matters arising during the course of the Examination

- 5.12.45. Health and wellbeing was identified in our Initial Assessment of Principal Issues [PD-007] including the following specific areas:
- Potential adverse effects on human health and the living conditions of local residents during construction and operation including those arising from air quality, noise and vibration, visual impact and pollution.
 - Potential beneficial effects on human health and the living conditions of local residents during construction and operation.
 - The overall impact upon human health and the living conditions of local residents taking into account the cumulative effects of the Proposed Development itself and with other development.
 - Whether there is a need for on-going monitoring of any potential adverse health effects?
- 5.12.46. There were 308 RR received relating to the health and wellbeing issues arising from the Proposed Development.
- 5.12.47. The Applicant [REP1-013] summarised the issues identified under five headings and the ExA consider this is a reasonable summary of the issues raised.
- Impact on local communities, quality of life and health and wellbeing;
 - Negative effects on mental health;
 - Impacts of increased traffic on emergency services and visiting health professionals;
 - Ability to exercise;
 - Concerns over health and safety management at the Sizewell C construction site
- 5.12.48. The Applicant in considering the impact on local communities and the quality of life and health and wellbeing has assessed these impacts upon likely effects on residual healthcare service demand and the effects of

other environmental change to the area on health indicators and perceptions of wellbeing. The mitigation applied to minimise impacts upon air quality, noise, radiation, traffic and transport the Applicant concludes will also reduce any adverse effect on health and wellbeing.

- 5.12.49. For the construction period, monitoring is proposed at environmental determinants and set at thresholds that are protective of the environment and health which would result in intervention in advance of the relevant threshold being exceeded. This is set out in full in the CoCP which is secured in the DCO.
- 5.12.50. The Community Fund is proposed to address the potential for the less tangible effects that could arise as a consequence of the Proposed Development and allow communities to have the opportunity to further promote economic, social or environmental wellbeing getting the opportunity to improve the quality of life.
- 5.12.51. East Suffolk Council (ESC) identified a series of concerns in their [RR-0342] along the following themes:
- General stress and anxiety impacting on quality of life and wellbeing, ESC consider it is often not possible to quantify these effects and therefore engagement with the local community prior to, during and post construction is important.
 - Operational noise impacts, and operational traffic noise; ESC accept the Applicant's assessment of effects as not significant.
 - Combustion activities, air quality impacts in relation to human health, ESC at the outset of the Examination needed to be satisfied effects were evidenced.
- 5.12.52. SCC in their [RR-1174] identified that health mitigation from an on site occupational health service would not address impacts for the local community which would be subject to stress and anxiety from the project. SCC were particularly concerned about effects on mental health, stress and anxiety and sexual health. Mitigation and monitoring of impacts upon public services is required throughout the construction programme so that impacts on public services, including the Council's public health role, could be maintained and to ensure that the health provision for residents is not unduly affected.
- 5.12.53. In the joint LIR [REP1-045] the Councils identified issues under the heading Quality of Life and Wellbeing which draws upon the conclusions reached on previous topics reflecting the concerns on behalf of the local community of the day to day effects the project would have on the quality of life both real and perceived. The Councils conclude that there will be residual effects and these would need to be offset by the proposed Community Fund.
- 5.12.54. The East of England Ambulance Service NHS Trust [AS-100] note from a review of the SZC Planning Statement Appendix 8.4J Addendum Update on the Section 106 Agreement, that a series of development consent obligations are envisaged to respond to the community safety, health and public services impacts amongst other things. At the outset of the

Examination these were welcomed, but the Trust considered further work was required to fully reflect the effects the Proposed Development would have, and a holding objection was submitted until these matters could be addressed.

5.12.55. Support for the Proposed Development came from New Anglia Local Enterprise Partnership (NALEP)[RR-0883], Suffolk New College [RR-1176] as well as a number of individual Interested Parties (IP) including [RR-1239, RR-1091] each supporting the benefits coming from the Proposed Development for their community or group.

5.12.56. Whilst a number of these IPs views are considered in other individual sections of this Report the views expressed overlay the health and wellbeing benefits these IPs consider would come from the Proposed Development.

Effects on health services and public health provision

GP Services

5.12.57. The Ipswich and East Suffolk Clinical Commissioning Group (CCG) and West Suffolk CCG [RR-0500] at the outset did not consider the assumptions and mitigations set out by the Applicant within the ES were adequate. They considered that there was a greater risk than had been identified from a transient population that would increase the scale of impact and increase pressure on GP services and housing.

5.12.58. In [APP-346] the Applicant set out within the assessment their conclusions in this respect. By providing an on site health service for the workforce the change in health care demand would be minor. Any addition attributable to families or dependants of workers was also assessed as minor. The Applicant, however, considers that public health services are a high value asset and in considering the pressure health services are under a financial contribution would be provided through the DoO.

5.12.59. This position was agreed with the Councils [REP10-102] and the CCG in their Statements of Common Ground (SoCG) [REP10-104]. The ExA consider this to be a satisfactory solution to the potential risks identified and consequently there would not be a significant adverse effect.

Journey Time Impacts on health workers and health provision

5.12.60. The CCG were not assured that the impact on journey times and the ability of health workers to get to their clients in a timely fashion was properly understood or addressed which had the potential to adversely affect health provision. The increased traffic, number of HGVs and Abnormal Indivisible Loads in conjunction with road works on the A12 would all need to be factored in to fully understand the implications for these impacts. Monitoring would need to be provided and subsequent mitigation if appropriate.

5.12.61. An assessment of the impact of journey delays for emergency services is included within the ES Addendum [AS-181]. The assessment concluded

that journey times during peak construction on the A12 northbound would be predicted to increase by up to 62 seconds between 08:00-09:00 and for all other hours the increase would be less than 36 seconds. In the southbound direction, the model predicts a journey time increase of 0-28 seconds. Over the 14 km route, this is considered to be imperceptible to drivers and even combined impacts from multiple trips throughout the day would not affect the scheduling or delivery of community health services or materially impact on ambulance conveyance and emergency response.

- 5.12.62. The traffic modelling found that the increases in traffic were typically within the network capacity. On some routes small increases in journey times may occur during early construction and at peak construction. These delays are generally small and are unlikely to be distinguishable from the daily variation in travel time. Driver delays are not therefore expected to give rise to equality effects.
- 5.12.63. Additional crossings introduced for the A12 at Yoxford and on the B1122 at Theberton have not been assessed for their potential impacts on journey times and the SoS may want to assure themselves that the implications of the additional crossings have been fully assessed including for the potential effect on journey times, air quality and noise as also referred to in the Transport section of this Report.

NHS Dental Services

- 5.12.64. NHS England who commissions dentistry services in the area, considered that the impact of the additional non home-based (NHB) workers and their families on the provision of NHS Dental services in the area would be an adverse effect. This would require an agreed monitoring process to ensure there is no detrimental impact on access in the area.
- 5.12.65. The provision of dentistry remained an area of dispute during the Examination and was the one area which the CCG could not agree as part of the SoCG [REP10-104]. All parties recognised there was a shortfall in dental provision in the area, and that despite efforts over a protracted period of time by the CCG there had not been success in recruiting new dentists to the area.
- 5.12.66. The CCG considered that the arrival of a significant new workforce into the area, would increase pressure on these services and the Applicant should assist in resolving this shortfall by contributing towards it. The Councils supported this position.
- 5.12.67. The ExA questioned the Applicant on these issues in ExQ1 CI.1.12 and the responses can be found in [REP2-100]. The Applicant confirmed in answer to the ExA's written questions the onsite health provision 'Sizewell Health' would be provided from the outset of construction, and this is committed to in the DoO Schedule 6.
- 5.12.68. The Applicant also set out a detailed response to the concerns with regard to dentistry identified by IPs, the CCG and NHS England. This refers to the Healthwatch Suffolk report referenced in [REP10-104] which

had examined the provision of dental care within Suffolk. This confirmed overall provision was poor and with the closure of the two remaining practices in Leiston the town was left with no NHS dental provision.

- 5.12.69. The Applicant considers that in such a situation there was no capacity for NHS dental care for NHB workers, but the Applicant considered that staff from the project would either use private dental care or return home for treatment.
- 5.12.70. The Applicant does not consider that the evidence which has been presented demonstrates that circumstances have changed that would result in a different outcome from that historically where the CCG have advertised to recruit dentists into the area and the vacancies have remained unfilled.
- 5.12.71. The Applicant considers if new provision were to be successfully made, as the CCG hope the increase in capacity in Leiston from zero, would be likely to only partially address the existing community need.
- 5.12.72. The Applicant does not consider that it would appear credible that this will clear the now significant backlog in local / Suffolk residents seeking an NHS dentist, let alone provide spare NHS dental capacity for any of the non-home-based workforce and their families. Nor does the Applicant consider that it would be appropriate to prioritise any provision that may arise for the Sizewell workforce as this could lead to a conflict with the local community.
- 5.12.73. The ExA recognise that the shortfall in dental provision is a substantial problem for the local community, nevertheless, this lack of provision is an existing problem which the ExA do not consider is for the Applicant to resolve. While the ExA consider that there may be some additional pressure from the increased population it is not regarded as so significant that this would warrant a financial contribution from the Applicant. Nor are the ExA persuaded that even if funds were made available this would necessarily resolve the problem which already exists. We therefore do not propose that an additional requirement within the DCO be recommended to the SoS.
- 5.12.74. Schedule 6 of the DoO provides for health and wellbeing elements including identifying key performance indicators as set out in Annex Y with contributions towards GP services, a Health and Wellbeing Officer to be employed by the Ipswich and East Suffolk CCG during construction, all to be overseen by a health and wellbeing working group. In addition, contributions for residual healthcare and sexual health services are also identified. The residual healthcare contribution will go towards both SCC and the CCG to help contribute towards the cost of mitigating the impact of the project on local health and wellbeing services.

Wellbeing of school pupils

- 5.12.75. Within the LIR the Councils identified concerns in respect of the wellbeing of pupils as a result to safeguarding concerns, emotional wellbeing on children with English as an additional language. The Applicant responded

in [REP3-044] confirming that it considered that there was no evidence for the potential for a significant effect from the project relating to the wellbeing and learning of pupils at school as a result of safeguarding concerns. Nevertheless, in recognising the importance of safeguarding for children and the potential risks identified by the Councils the Applicant has committed to providing precautionary mitigation through School and Early Years Resilience Measures which would be secured through the DoO Schedule 5.

- 5.12.76. These arrangements were agreed with the Councils and confirmed in the final SoCG [REP10-102]. The ExA are satisfied this is an appropriate response to the concern raised.

Vulnerable People and Safeguarding

- 5.12.77. The CCG and other health partners including the Suffolk Safeguarding Partnership [RR-1179] were also concerned about the possible negative effect on safeguarding particularly in respect of sex workers, County lines issues and the need to protect vulnerable individuals. The Councils within the LIR state that concerns extended to the mental health of vulnerable individuals and missing person incidents.
- 5.12.78. This topic is also touched on in the Community Impacts Section 5.9 of this Chapter as this issue was also a concern identified by the Police in their representations.
- 5.12.79. The ExA asked questions on this issue ExQ1 HW.1.14, HW.1.15, and HW.1.16. The Applicant confirmed that in working closely with the local authorities, the Constabulary and health providers the risks have been assessed within the ES [APP-195] Chapter on Socio-economics, and [APP-346] Health and Wellbeing and this had been supplemented in [AS-181]. This joint working had developed a series of mitigations to reduce these potential risks and safeguarding concerns would be managed through the measures described in the Community Safety Management Plan [APP-635]. This is supported through the DoO which provides for financial contributions to community safety stakeholders.
- 5.12.80. In considering the potential effects on vulnerable groups both in care homes and through additional pressure on the local housing market that may arise. The Applicant concluded from evidence at Hinkley the adverse effects there were negligible, but in recognising there is a potential for a different effect has committed to supporting the resilience of the ESC Housing Need and Homelessness prevention service through the Housing Fund which is secured through Schedule 3 of the DoO.
- 5.12.81. The Applicant has in the ExA's view properly identified and recognised these concerns and proposes a range of mitigation to reduce the risks that might arise. In addition to the Community Safety Management Plan the Public Services Resilience Fund also includes specific measures to expand the existing safeguarding measures that are currently provided by ESC and SCC. This is secured in the DoO Schedule 5.

Anxiety and stress related to the construction of the project

- 5.12.82. Together Against Sizewell C (TASC) in their Written Representation [REP2-481L] reflect the concerns of many IPs when they state:
- "The prospect of building a twin reactor site at Sizewell will have a deleterious effect on the health and wellbeing of thousands of people in the East Suffolk area from the noise, dust, light and traffic its construction will entail. The anticipation of the outcome of the inquiry, the uncertainty around the level of disruption that will actually occur and the worry over the wholesale change in lifestyles the influx of thousands of workers to the area will bring will cause anxiety and concern among those communities faced with the consequences of the 12+ years of construction work and the inexorable transformation of their familiar, rural environment into an urban, industrialised sprawl."*
- 5.12.83. TASC also [REP8-286] consider that the effect on the mental and physical health of local residents is difficult to imagine or quantify although the impact of noise on health is better understood. TASC refer to a study by Dr Samuel Cai, an epidemiologist at Imperial College London and quote
- "There's consistent evidence that road traffic noise leads to heart attacks." In an analysis he undertook of the health data of 356,000 people in Britain and Norway, he found that long-term exposure to traffic noise affects blood biochemistry, over and above the effects of exhaust fumes. Even with air pollution factored out of the study, he claims that "Noise seems to have its own effect on the cardiovascular system."*
- 5.12.84. As part of the concern IPs were keen to emphasise the enjoyment and health benefits that were attained through access to the countryside, the beach, and the enjoyment of the AONB as a place to relax and enjoy nature.
- 5.12.85. The AONB Special Indicators recognise the importance of the health and wellbeing benefits that arise from the AONB which includes the following:
- "Extensive rights of way network (including promoted and long distance routes), offering access to key landscape types (such as coast, Sandlings heath, forest, wetlands and estuaries) and between centres of population and key tourist destinations.*
- Areas designated as open access land, including extensive nature reserves, notably on heathland, along the coast and within woodland/forest provide opportunities for health improvement.*
- Opportunities for a range of active and passive recreational pursuits on the coast and offshore and inland including rambling, boating, bird-watching and fishing at sea and in the estuaries and rivers. In addition, many sporting events held in the landscape, such as the Heritage Coast Run and Suffolk Coast Cycle route."*
- 5.12.86. The Applicant in response to the ExAQ1 advised that by undertaking an assessment which had identified every individual as highly sensitive to every health pathway, every resident was regarded as vulnerable. As

such even though there is a variety of pathway the approach is precautionary.

- 5.12.87. In this way the Applicant concludes the mitigation devised from the assessment would appropriately respond to the concerns identified. The Applicant concludes from their assessment the effect would be minor adverse and not significant.
- 5.12.88. The CCG in their SoCG [REP10-104] did not fully agree with this position in so far as the methodology of assessment was concerned but they were content that the evidence provided was sufficient to assess the residual health care contribution which has now been agreed.
- 5.12.89. Public Health England (PHE) in response to ExQ1 HW.1.23 [REP2-161] are satisfied that the ES and Equalities Assessment adequately address reasonably foreseeable direct or indirect effects on population health. Local liaison and funding arrangements are proposed to be in place via a legal undertaking to identify and agree mitigation for unintended consequences or unforeseen impacts. The SoCG [REP2-086] with PHE identifies the requirement to add monitoring to the s106 agreement and or Terms of Reference for the Community Safety Working Group, which includes representatives from the local public health teams.
- 5.12.90. While IPs understandably expressed concern and voiced very real anxiety about the project, the scale of construction and the potential significant length of time this could last, evidence was not adduced which in the ExA's view undermined the conclusions the Applicant had reached, or the mitigation proposed to respond to these concerns.
- 5.12.91. In these circumstances, while the ExA recognise that a project of this scale and which if consented would continue for a significant period of time, is resulting in a number of IPs suffering from stress and anxiety. These effects do not ultimately provide a material justification for standing in the way of this project, and the ExA conclude that the arguments presented with regard to anxiety and stress do not weigh against the granting of the DCO.

Potential health effects from low level radiation

- 5.12.92. TASC also identify health concerns in respect of impacts on human health from low level radiation [REP8-288]. In it they state that the basis of 'safe' was formed from what the nuclear industry considered safe relative to cost and therefore what could reasonably be employed to manage the risks. Evidence from many industries has shown that standards tend to improve over time as greater knowledge has developed and the harm that was occurring was better understood.
- 5.12.93. ESC on the other hand agrees that changes in radiological exposure has been shown to be trivial, minor and not significant, while changes in electromagnetic field exposure with the existing power lines to be utilised the effect from the Proposed Development would be within exposure guidelines, therefore it is concluded that the magnitude of impact on health and wellbeing will be very low, not significant.

- 5.12.94. As is stated within this report in the Radiological section 5.20 the ExA are confident that the measures to control levels of radioactivity from the construction and operation of the power stations is something that will be appropriately controlled by the licensing and permitting regime operated by the Office of Nuclear Regulation and the Environment Agency.
- 5.12.95. Whilst we can understand the concerns presented by TASC in this respect the advice within the NPS EN-1 and EN-6 is clear that these matters are for others to address and it is not for the ExA to duplicate those controls.

Access to the Countryside and impacts upon mental health

- 5.12.96. A number of IPs identified access to the countryside, the AONB, the beach and areas of nature as a significant benefit to people's wellbeing and mental health. This was considered of even greater importance at the present time with the ongoing pandemic and the additional pressures this has brought on both health services and people in general.
- 5.12.97. During construction, SZC Co. recognises that there are likely to be significant adverse effects on the users of recreational resources due to views of the development, impacts on tranquillity, and pressure from additional visitors. A number of enhancements are therefore proposed to the PRow and wider access network, including new off-road public rights of way routes, permanent improvements to the Kenton Hills car park, provision of public access to specific areas within Aldhurst Farm habitat creation area for informal recreational use and new off-site sports facilities at Leiston.
- 5.12.98. In addition, SZC Co. has proposed a Community Fund that will be used to fund measures, projects and programmes in local communities which seek to improve quality of life for those most affected.
- 5.12.99. These issues are covered in detail in the Amenity and Recreation 5.5 section of this report where we have concluded that the mitigation offered in response to the effects identified are appropriate and will in the long term provide improvements to access across the area through the Rights of Way and Access Strategy secured through DCO Requirement 6A and DoO Rights of Way fund. In this way people's wellbeing and mental health can be safeguarded.

Benefits to health and wellbeing from socio-economic activity

- 5.12.100. It is not intended to repeat the consideration of issues covered in the Socio-economic section 5.21 of this chapter, but it must be recognised that the provision of new investment and the creation of a large number of well paid jobs has the potential to provide an uplift in the health and wellbeing of the local community.
- 5.12.101. The Applicant in [APP-346] argues that employment and income are potentially the most significant determinants of long term health. While poor economic circumstances can negatively influence health throughout a person's life.

5.12.102. Due to the scale of this project with around 40,000 roles created over the construction phase this significant investment over a prolonged period of time would benefit the health and wellbeing of the local community.

5.12.103. ESC in [RR-0342] consider there to be a moderate beneficial socio-economic health effect, which can be regarded as significant at regional level. They go on to state that:

"Overall, the construction phase represents significant direct, indirect, and induced employment and income opportunities distributed locally, regionally, and nationally. The magnitude of impact on health and wellbeing would be medium. In the context of a uniformly high sensitivity receptor, the resultant effect is considered moderate beneficial, which is significant."

5.12.104. The ExA in concluding on the socio-economic effects as set out in section 5.21 recognise there would be substantial benefits to the economy and consequently the community and this will bring about health and wellbeing benefits which the ExA consider in health and wellbeing terms can be ascribed moderate weight in favour of the granting of the DCO.

Equality Impacts and the Public Sector Equality Duty

5.12.105. We have had regard to the PSED throughout the Examination and in producing this Report. The PSED requires a public authority in the exercise of its functions to:

"(a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under this Act;

(b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it;

(c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it."

5.12.106. The Proposed Development may have a number of impacts which would result in disproportionate effects on groups with protected characteristics.

5.12.107. The Equality Statement [APP-158] recognises there is the potential for differential or disproportionate effects from the Proposed Development. The protected characteristics identified include, age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, sexual orientation. The effects on these different groups are summarised in Table 1.1 copied below.

Table 5.12.01 Groups with protected characteristics

Protected Characteristic	Effect	Potential Equality Effect
Age	Noise and air quality.	Disproportionate effect on people who may spend more time at home.
		Disproportionate effect on older people who make up a higher proportion of the population.
		Disproportionate effect on users of community facilities.
	Traffic, transport and access.	Differential effect of severance on those with mobility issues.
		Disproportionate effect on older people who make up a higher proportion of the population.
	Access to community infrastructure and services.	Differential effect on those with young, including those in pushchairs and older people mobility issues.
		Disproportionate effects on care home residents and school pupils.
		Disproportionate effect on children and elderly from any disruption to social services provision.
		Disproportionate effect on children and elderly from any disruption to health services provision.
		Disproportionate effect on older people who make up a higher proportion of the population.
Social cohesion.	Differential effect of crime or fear of crime.	
Disability	Noise and air quality.	Disproportionate effect on people who may spend more time at home.
		Disproportionate effect on users of community facilities, such as Pro Corda School.
	Traffic, transport and access.	Differential effect of severance on those with mobility issues.
	Access to community infrastructure and services.	Differential effect on those with mobility issues.
		Disproportionate effect on disabled people from any disruption to social services provision.
		Disproportionate effect from any disruption to health services provision.
Employment and skills.	Differential effect of recruitment.	
Social cohesion.	Differential effect of crime or fear of crime.	
Gender reassignment.	Employment and skills.	Possible differential effect of recruitment.
	Social cohesion.	Differential effect of crime or fear of crime.
Marriage and civil partnership.	No likely equality effects have been identified that relate to marriage or civil partnership.	

Protected Characteristic	Effect	Potential Equality Effect
Pregnancy and maternity.	Noise and air quality.	Disproportionate effect on people who may spend more time at home.
		Disproportionate effect on users of community facilities.
	Traffic, transport and access.	Differential effect of severance on those with mobility issues.
	Access to community infrastructure and services.	Differential effect on those with mobility issues. Disproportionate effect from any disruption to health services provision.
Race	Noise and air quality.	Disproportionate effect on users of community facilities.
	Access to community infrastructure and services	Potential disproportionate effect from any disruption to social services provision.
	Employment and skills.	Differential effect of recruitment.
	Social cohesion.	Differential effect of crime or fear of crime.
Religion or belief.	Noise and air quality.	Disproportionate effect on users of community facilities.
	Employment and skills.	Differential effect of recruitment.
	Access to community infrastructure and services.	Disproportionate effects on those using places of worship.
	Social cohesion.	Differential effect of crime or fear of crime.
Sex	Noise and air quality.	Potential disproportionate effect on people who may spend more time at home.
	Access to community infrastructure and services.	Disproportionate effect from any disruption to social services provision.
	Employment and skills.	Differential effect of recruitment.
	Social cohesion.	Differential effect of crime or fear of crime.
Sexual orientation.	Employment and skills.	Differential effect of recruitment.
	Social cohesion.	Differential effect of crime or fear of crime.

5.12.108. Within the Equality Statement [APP-158] and the Equality Statement Update [REP10-024] the Applicant sets out how they consider the potential for equality implications are addressed through the mitigation offered and how this responds to the concerns identified that could affect the general population and how this would also provide appropriate mitigation for people with protected characteristics.

5.12.109. With regard to the noise and air quality effects it has been recognised this may affect people differently due to their protected characteristics. The NMS secured through Annex W of the DoO has been amended to facilitate improved insulation in a manner which allows for flexibility to cater for people who may have a medical, clinical or disability need.

5.12.110. A package of improvements for sound insulation for all the properties which front the B1122 is also provided for within Schedule 12 of the DoO, which would afford additional protection for these residents.

5.12.111. To address the specific concerns highlighted at the Pro Corda Trust a specific package of measures has been agreed with the Trust and English Heritage secured through Schedule 12 of the DoO. A resilience fund for the Pro Corda Trust has also been agreed to provide a contribution

towards indoor and outdoor sensory places suitable for children with autism and other special educational needs.

- 5.12.112. A Draft Rail Noise Mitigation Plan [REP10-043] provides a basis for the mitigation of the noise and vibration from the railway line from the operation of the freight trains travelling to and from the site and this is to be agreed with ESC prior to commencement of the trains which will provide appropriate protection for those potentially affected including people with protected characteristics.
- 5.12.113. In conjunction with the Noise Monitoring and Management Plan which forms part of the CoCP noise and vibration controls are secured that would achieve an appropriate noise environment for people with protected characteristics.
- 5.12.114. In terms of air quality, the ES assessed air quality standards as within national air quality standards, however additional precautionary measures have been agreed including the use of Euro VI engine vehicles, and monitoring is to be provided through Dust Monitoring and Management Plan which is part of the CoCP. This monitoring will include NO_x, PM₁₀ and PM_{2.5}.
- 5.12.115. In transport terms there is the potential for differential effects for people with protected characteristics that affect their mobility. As set out in the Transport section (5.22) of this Chapter a range of schemes are proposed to mitigate the effects of the Proposed Development. These schemes are considered to benefit the whole community but will be of greatest benefit to the less mobile. The Rights of Way and Access Strategy [REP10-037] must be agreed by SCC prior to any work being carried out on any new or diverted PRoW.
- 5.12.116. This is secured through Requirement 10 of the DCO which states that the plans must:
- "Comply with the legal requirements of the Equality Act 2010 and the Countryside and Rights of Way Act 2000 in terms of temporary access infrastructure and management, by ensuring that there are no physical barriers to access without lawful authority and that reasonable adjustments are made to facilitate participation by all."*
- 5.12.117. The ExA consider that the Proposed Development with the mitigation in place would not harm the interests of persons who share a protected characteristic or have any adverse effect on the relationships between such persons and persons who do not share a protected characteristic. On that basis, there would be no breach of the PSED.

ExA's Conclusions on Health and Wellbeing

- 5.12.118. During the Examination many IPs, made submissions in relation to the potential adverse effects on human health and living conditions for local residents from the construction of the Proposed Development. These were the subject of debate during ISH12.

5.12.119. The health concerns raised at the hearing, included risk of road traffic accident and injury, noise related sleep disturbance, health impacts from changes in local air quality (including a study from Imperial College London on dementia and transport noise) and general fear and anxiety. In [REP8-122] the Applicant concluded that:

"No party has found any gap or flaw in the Health and Wellbeing assessment, no countervailing evidence has been provided by any party, and all of the health concerns raised by Interested Parties at Issue Specific Hearing 12 are included in the assessment."

5.12.120. In so far as health and wellbeing issues are concerned, the ExA is satisfied that the Applicant has taken into account all the issues raised through the Examination in a reasonable and proportionate way. Whilst the ExA note the concern expressed by many of those living, visiting and working in the vicinity of the Proposed Development in relation to a range of environmental effects the ExA have considered these have been appropriately addressed by the Applicant.

5.12.121. The range of mitigation secured through amongst other things the CoCP, CWTP, CMTF, Public Services Resilience Fund, Community Fund, Residual Healthcare Contribution, School and Early Years Capacity Contribution would ensure that the Proposed Development would comply with NPS EN-6 as the Applicant has worked with the Local Authorities and health care providers to identify any potentially significant health impacts and appropriate mitigation would be provided.

5.12.122. The ExA agree the potential for the Proposed Development to impact on vulnerable groups and people with protected characteristics was properly assessed through the Equalities Assessment and update. This concluded that the Proposed Development would be likely to provide a range of benefits that could be shared with groups with protected characteristics including direct benefits such as walking and cycling provision. It is also considered that the mitigation measures proposed and secured through the CoCP, DoO and DCO would assist in minimising any negative impacts. The ExA agrees with these conclusions.

5.12.123. The identified Health and wellbeing performance indicators agreed with the CCG which would be monitored through the Health and Wellbeing Group secured via Schedule 6 of the DoO would allow for ongoing monitoring through the project to ensure that the forecasts made through the ES assessment are properly monitored and if additional adverse effects arise which have not been identified provide an opportunity for additional mitigation.

5.12.124. The Applicant also recognises that there would be residual, intangible effects on communities which may result in perceptions of a reduction in quality of life. As such, a Community Fund is proposed as part of the DoO that will be used to fund measures, projects and programmes in local communities which seek to improve quality of life for those most affected.

- 5.12.125. Once operational the Applicant confirms that any changes to site transmissions infrastructure would comply with the Department for Energy and Climate Change (DECC) Code of Practice to ensure compliance with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidance set to protect health.
- 5.12.126. Where appropriate, and as detailed in the wider technical disciplines, monitoring of environmental health determinants (air quality, noise transport etc) would be provided and set at environmental thresholds that are protective of the environment and health, thereby facilitating intervention before these thresholds are exceeded. The occupational healthcare provision would be monitored, as would referral rates to test effectiveness, and iteratively refine and enhance the service where required -KPIs are set out in Annex E of the DoO Schedule 6 (Health and Wellbeing) of the DoO also sets the broad terms of reference for the Sizewell C Health Working Group though the construction phase. As set out in the Mitigation route map [REP10-073].
- 5.12.127. In addition, Schedule 14 provides for a Community Fund which intends to operate to assist in resolving the intangible elements of impact from the Proposed Development which would assist in reducing stress and anxiety which the Applicant recognises may come about from the construction of the Proposed Development.
- 5.12.128. In the medium to long term improved access to the countryside brought about by the changes to the PRoW network would be of beneficial effect to health and wellbeing which can be ascribed moderate weight for the Order being made.
- 5.12.129. With the significant employment opportunities provided during the operation of the power stations there would be the potential for significant health and wellbeing benefits to the local and regional community which the ExA ascribes moderate weight for the Order being made.
- 5.12.130. Additionally, the provision of the TVB and SLR would provide legacy benefits to health and wellbeing by removing traffic from these communities with the consequent reduction on noise, improved air quality and general sense of place as a consequence of the reduced traffic. These benefits the ExA ascribes moderate weight for the Order being made.
- 5.12.131. The B1122 repurposing scheme has the potential to provide further health and wellbeing benefits although it is not possible at this stage to be certain as to the extent of these as the scheme is yet to be finalised. The ExA is of the view benefits may well arise however we have ascribed little weight at this stage as the full details are to be finalised and the timing of their provision is subject to both further consultation and final design as well as agreement following the preparation of the Local Transport Programme.

- 5.12.132. The ExA concludes therefore that the Proposed Development would accord with the NPS EN-1 and EN-6 and that the harm identified to health and wellbeing would be adequately mitigated by the obligations in the DoO and the Requirements of the DCO.
- 5.12.133. While adverse impacts arising from the Proposed Development are identified the ExA are of the view that they are appropriately mitigated where necessary and the ExA considers that there are no matters relating to this issue which would weigh against the Order being made.

5.13. HISTORIC ENVIRONMENT (TERRESTRIAL AND MARINE)

Introduction

- 5.13.1. The historic environment was identified as a principal issue in the ExA's Initial Assessment of Principal Issues [PD-007]. This section addresses the effects of the Proposed Development on both the terrestrial and marine historic environment.

National Policy Statements

National Policy Statement for Energy (EN-1)

- 5.13.2. Overarching NPS for Energy EN-1 (NPS EN-1) requires the applicant to provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The applicant should carry out appropriate desk-based assessments, supplemented by field evaluation if the former is insufficient to assess archaeological interest (NPS EN-1, para 5.8.9).
- 5.13.3. The applicant should ensure that the extent of the impact of the proposed development can be adequately understood from the application with supporting documents and that the level of detail required is proportionate to the importance of the heritage asset (NPS EN-1, para 5.8.8 to 5.8.10).
- 5.13.4. In circumstances where an application does not preserve those elements of setting which make a positive contribution to the significance of an asset, any negative effects should be weighed against the wider benefits of the application. The greater the negative impact on the significance of the designated heritage asset, the greater the benefits that will be needed to justify approval (NPS EN-1, para 5.8.18).
- 5.13.5. In reaching a decision the Secretary of State (SoS) should:
- seek to identify and assess the particular significance of any heritage asset that may be affected, including the setting of the heritage asset (NPS EN-1, para 5.8.11);
 - take account of the particular significance of heritage assets affected by the proposed development and the value that they hold for future generations (NPS EN-1, para 5.8.12);

- take into account the desirability of sustaining and enhancing the significance of heritage assets (NPS EN-1, para 5.8.13); and
- presume in favour of conserving designated heritage assets, with the greater the significance of the designated asset, the greater the presumption in favour of its conservation (NPS EN-1, para 5.8.14).

National Planning Policy Framework

- 5.13.6. The National Planning Policy Framework (NPPF) establishes that heritage assets should be conserved in a manner appropriate to their significance. Much the same approach in respect of the historic environment as detailed in NPS EN-1 is shared by the NPPF, with an emphasis on assessing the significance of any historic assets and the likely impacts on them.
- 5.13.7. There is a requirement to weigh any harm against the wider benefits associated with Proposed Development, with greater relative weight given to any harm to the most significant assets. Section 16 of the NPPF deals with the conservation and enhancement of the historic environment.
- 5.13.8. Paragraph 202 notes that where development would lead to less than substantial harm to the significance of a designated heritage asset, the harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.
- 5.13.9. Paragraph 203 notes that in weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.
- 5.13.10. In terms of the Suffolk Heritage Coast (SHC), the NPPF confirms that decisions should be consistent with the special character of the area and major development is unlikely to be appropriate, unless it is compatible with its special character (para 178).

Other Legislation, Policies and Guidance

- 5.13.11. The legislation, policy and guidance relevant to the terrestrial and marine historic environment is set out in Appendix 6L of the EIA Methodology. This includes Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010 which requires the decision-maker to have regard to the desirability of preserving the listed building or its setting or any features of special architectural or historic interest which it possesses. In addition, when deciding an application relating to a conservation area, the decision-maker must have regard to the desirability of preserving or enhancing the character or appearance of that area [APP-171]. The Applicant's Planning Statement also details the legislative and planning policy context against which a decision will be made [APP-590].
- 5.13.12. In respect of the marine historic environment, in addition to NPS EN-1, regard must be given to the appropriate marine policy documents, as provided for in the Marine and Coastal Access Act 2009. The UK Marine

Policy Statement (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. Policy SOC2 applies to protect offshore and intertidal heritage assets.

5.13.13. The MPS (para 2.6.6.5) states that some heritage assets with archaeological interest that are not currently designated as scheduled monuments or protected wreck sites but are "*demonstrably of equivalent significance*" should be considered as subject to the same policy principles as designated heritage assets "*based on information and advice from the relevant regulator and advisors*".

5.13.14. Relevant legislation for heritage assets offshore includes:

- The Ancient Monuments and Archaeological Areas Act 1979 (as amended by the National Heritage Acts 1983 and 2002) which protects scheduled monuments that may be sites that include the remains of vessels or aircraft;
- The Protection of Wrecks Act 1973 which provides protection for sites of wrecks designated for historical, archaeological or artistic value including the provision for a restricted area around the wreck site; and
- The Protection of Military Remains Act 1986 which provides protection for the wreckage of military aircraft and designated military vessels.

The Applicant's Case

5.13.15. The Applicant's Environmental Statement (ES) contains an assessment of effects on the terrestrial historic environment for construction, operation and, where relevant, removal and reinstatement at the main development site (MDS) in Volume 2 Chapter 16 [APP-272]. 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.

5.13.16. The terrestrial historic environment comprises tangible remains of human activity within the zone above mean high water mark (MHWM), with remains below MHWM being in the marine historic environment ES chapter [APP-334]. This chapter is also supported by technical appendices and figures.

5.13.17. The design of the MDS has been guided by a series of Design Principles outlined in the Design and Access Statement (DAS) [APP-585], [APP-586] and [APP-587], updated during the Examination [REP10-055], [REP10-056] and [REP10-058]. Design principles within Table 5.1 and A.1 of the DAS make specific reference to the historic environment and design.

5.13.18. In respect of the associated development sites, the Applicant submitted the Associated Development Design Principles (ADDP) [APP-589], which was also updated during the Examination [REP10-063]. The ADDP outlines the general design principles that will apply across the

associated development sites and also outlines the site-specific design principles.

- 5.13.19. An Overarching Archaeological Written Scheme of Investigation (WSI) and Peat Strategy were submitted with the application [APP-275]. Both were updated during Examination at [REP10-050] and [REP10-036] and are secured via dDCO Requirement 3 [REP10-009]. In respect of the Overarching Archaeological WSI, no part of the terrestrial works may be carried out until a site-specific WSI for each phase of archaeological investigation relating to that part has, following consultation with Historic England (HE), been submitted to, and approved by Suffolk County Council (SCC). The site-specific WSIs are to accord with the Overarching Archaeological WSI.
- 5.13.20. Similarly, for the Peat Strategy, peat archaeological WSIs are to be prepared, in consultation with HE, for approval by SCC ahead of commencement of the works on the main platform area of the MDS. The site-specific WSIs must accord with the Peat Strategy.
- 5.13.21. In respect of the marine historic environment, there is the potential for further marine historic assets dating to all periods within the site. Although these have been identified as most likely being of low to medium heritage significance [APP-334, para 23.7.3]. A “finds reporting protocol” is therefore proposed. This would permit the identification of any encountered material of archaeological interest within the site to allow it to be appropriately investigated, recorded and disseminated, preserving the archaeological interest of these assets. This would be set out within a Marine Archaeological WSI and secured via Condition 16 of the Deemed Marine Licence (DML) which forms part of the dDCO [REP10-009].
- 5.13.22. In addition to the submissions made at the ten Examination deadlines, further submissions in the form of either supplementary submissions, additional information or change requests were made by the Applicant. Those submissions considered by the ExA to have the most relevance to the terrestrial and marine historic environment are:
- Environmental Statement Addendum Volume 1: Environmental Statement Addendum Chapters Chapter 2 Main Development Site - Revision 1.0 [AS-181]; and
 - Updated Overarching WSI [AS-210].
- 5.13.23. Tabular summaries of the assessment 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-272], the marine historic environment [APP-334] and the associated development sites [APP-368], [APP-399], [APP-432], [APP-467], [APP-499], [APP-528] and [APP-560].

Mitigation of Effects

- 5.13.24. The application includes a Mitigation Route Map [APP-616], which was updated during the Examination [REP10-073]. In tabular form, this

provides links from the construction, operational and removal and reinstatement impacts assessed in the ES to the mitigation proposed and the means of securing the mitigation.

- 5.13.25. For the MDS, the Applicant set out the embedded primary mitigation measures [APP-272, section 16.5.9]. Measures include:
- retaining and strengthening of hedgerows on the site boundary, where possible;
 - early planting, bunding and acoustic fencing, where appropriate;
 - detailed design and landscaping will seek to minimise perceptual change to setting, wherever practicable, for example, construction and operational site lighting will be designed to minimise light spill;
 - the proposed T-junction for access to the temporary construction area was replaced with a roundabout with additional landscaping to reduce visual effects on Leiston Abbey (second site);
 - the location of the accommodation campus decreased development west of Eastbridge Road and increased the distance between Leiston Abbey, thereby reducing noise and visual effects;
 - orientation of the accommodation campus block west-east to minimise the extent of built mass along the western edge of the site closest to Leiston Abbey;
 - reduction in height of the accommodation campus buildings from 5-storeys to 4-storeys, to decrease visual effects from the Leiston Abbey complex;
 - landscape buffers at the accommodation campus to enhance screening to the west of the site;
 - the proposed water management zone to the north of Goose Hill to be screened through landscape bunds and tree planting to minimise any visual intrusion of the setting of the Leiston Abbey (first site)
 - retention of the existing mature tree and hedgerow planting and repair, replacement or removal of detracting elements of the farmyard at Upper Abbey Farmhouse;
 - use of adjacent buildings and existing vegetation to screen views of the emergency equipment store and Combined Heat and Power plant from Upper Abbey Farm and Barn;
 - provision of a direct off-road link between the two Leiston Abbey sites as a result of the Suffolk Coastal Path diversion, which would restore connectivity between the two sites; and
 - the proposed freight management strategy avoids the need for a jetty, thereby reducing visual change in the settings of heritage assets which draw significance from views along the coast.

- 5.13.26. The Applicant states that detailed design and landscaping would seek to minimise perceptual change to setting, wherever practicable [APP-272, section 16.5.11]. A Lighting Management Plan (LMP) [APP-182] was submitted, which outlines the operation and maintenance procedures for the control of artificial light emissions associated with the construction and operation of the MDS. Measures included within the LMP aim to minimise the visual impact of artificial lighting during construction and operation. The LMP was updated during Examination, with the final version being [REP8-052].

- 5.13.27. An outline Landscape and Ecological Management Plan (oLEMP) [APP-588], was submitted and was updated several times during the Examination, with the final version being [REP10-061]. This would form the basis for the more detailed Landscape and Ecological Management Plan (LEMP). The LEMP, which would be provided for approval post consent, would provide management measures for the planting and replacement planting of hedgerows. The establishment and management of the restored landscape areas and new habitats/vegetation, including areas of proposed and existing planting, would provide screening. The restoration of the landscape would also respond to the local historic landscape character.
- 5.13.28. For the marine historic environment, primary mitigation measures include [APP-334, section 23.5.4]:
- the piled foundation design of the permanent Beach Landing Facility (BLF) to limit the extent of disturbance to archaeologically significant deposits;
 - the design of the temporary Marine Bulk Import Facility (MBIF) to limit the extent of seabed disturbance and minimise the effects on archaeologically significant deposits; and
 - adoption of tunnelling methods, where appropriate, to restrict effects to limited areas of mobile sediments with relatively limited archaeological potential.
- 5.13.29. The Code of Construction Practice (CoCP), which was updated during the Examination, was informed by relevant environmental legislative requirements as well as general requirements and compliance with current standards, construction and operational experience and the EIA process [REP10-072]. The CoCP states that control measures are required to mitigate potential impacts from construction on the historic environment and that Requirement 3 of the dDCO would secure all relevant mitigation and monitoring [REP10-009].
- 5.13.30. A Deed of Obligation (DoO) was also submitted by the Applicant [REP2-059] and was updated during Examination [REP10-075]. The DoO would form a contract with the relevant local authorities, and it contains the relevant obligations in the form of Schedules which the Applicant and local authorities consider necessary to mitigate the impacts of the Proposed Development and to maximise its benefits. Further detail in respect of the DoO is contained within section 9 of this Report. Schedule 8 of the DoO relates to heritage matters and details mitigation in respect of:
- Upper Abbey Farm;
 - Leiston Abbey (first site) with later chapel and pillbox;
 - Leiston Abbey (second site) and moated site; and
 - Suffolk County Council Archaeological Monitoring Contribution
- 5.13.31. Schedule 13 of the DoO relates to third party resilience funds and includes funding for the National Trust Dunwich Heath and Coastguard Cottages and the Pro Corda Trust.

5.13.32. In respect of the associated development sites, embedded mitigation measures are detailed within the ADDP [REP10-063]. The Two Village Bypass (TVB) LEMP [AS-262] and [AS-263] and the Sizewell Link Road (SLR) LEMP [AS-264] and [AS-265], both updated during Examination [REP10-066] and [REP10-065], include design objectives to minimise effects on heritage assets and include hedgerow management measures for both sites. Tertiary measures are also included in the CoCP [REP10-072].

Issues Considered in Examination

Introduction

- 5.13.33. Heritage, archaeology, historic landscape and seascape matters were mentioned in several Relevant Representations (RRs), including but not limited to [RR-0152], [RR-0688], [RR-1136], [RR-1162] and [RR-1231].
- 5.13.34. In the initial Local Impact Report (LIR), East Suffolk Council (ESC) and SCC raised several areas of contention and disagreement in respect of heritage and archaeological assets [REP1-045].
- 5.13.35. However, unless explicitly stated otherwise, both ESC and SCC concluded in their final position summaries and Statement of Common Ground (SoCG) that following revisions and amendments made by the Applicant, both Councils have reached common ground with the Applicant in respect of the historic environment [REP10-182], [REP10-183], [REP10-102] and [REP10-210].
- 5.13.36. In their final position summary ESC and SCC also confirm that they have signed and executed a DoO, and this is submitted into the Examination at DL10. In summary, ESC confirms that the dDCO and DoO would ensure the best possible mitigation package [REP10-182]. SCC states some important matters remain that have not been satisfactorily resolved but these do not relate to the historic environment [REP10-210].
- 5.13.37. Similarly, during early stages of the Examination, HE raised several areas of concern and disagreement. However, following revisions and amendments made by the Applicant, and unless explicitly stated otherwise, HE has also reached common ground with the Applicant in respect of the historic environment [REP10-096]. HE also confirms that the detail within the DoO is acceptable in principle [REP10-096].
- 5.13.38. The issues which arose during the Examination which are considered to be important and relevant in relation to the MDS are:
- archaeological heritage assets;
 - Leiston Abbey (first site);
 - Leiston Abbey (second site);
 - Upper Abbey Farm and associated structures;
 - Abbey Cottage;
 - Theberton House and Potter's Farmhouse;
 - Leiston Conservation Area;

- non-designated Coastguard Cottages, Dunwich Heath
- Pillbox in Pillbox Field;
- historic landscape character; and
- historic seascape character.

5.13.39. Matters in relation to the associated development sites and the marine historic environment are considered separately below.

Main Development Site

Archaeological heritage assets

- 5.13.40. The Applicant confirms that intrusive groundworks would take place across the MDS, including topsoil stripping and sub-soil disturbance during construction. Such works would adversely affect any surviving sub-surface archaeological remains, thereby reducing or removing their ability to be further interpreted, resulting in the loss of archaeological interest [APP-272, para 16.6.9].
- 5.13.41. In the absence of further mitigation, the Applicant confirms that the construction of the MDS would result in significant adverse effects for several groups of archaeological assets [APP-272, para 16.6.9 to 16.6.42]. During the operational phase, any ground disturbance and/ or removal of archaeological assets within the site would have already occurred, and no further effects are anticipated [APP-272, para 16.6.127]
- 5.13.42. The Applicant confirms that secondary mitigation would comprise an Overarching WSI. Additionally, individual site WSIs would be produced which would establish the requirements for further investigation of any areas that could not be surveyed pre-consent, which would allow for the agreement of finalised mitigation proposals [APP-272, para 16.7.6].
- 5.13.43. The use of WSIs would ensure that the archaeological interest of any significant deposits and features within the site, could be appropriately investigated, recorded and disseminated, thereby preserving the archaeological interest of remains [APP-272, para 16.7.5].
- 5.13.44. In addition to the Overarching WSI, a Peat Strategy was agreed with Suffolk County Council Archaeological Service (SCCAS) and HE, which also forms part of the proposed secondary mitigation measures. The Peat Strategy details investigative techniques to allow loss of archaeological interest in the peats on the main platform site to be mitigated. A WSI setting out specific details of the methodology to be adopted would be agreed with SCCAS and HE once the earthworks contractor is appointed [APP-272, para 16.7.7].
- 5.13.45. In addition, Schedule 8 of the DoO confirms payment of monies to SCC in respect of an Archaeological Monitoring Contribution [REP10-075].
- 5.13.46. Following further discussions with IPs, including ESC and SCC, various updates were made to the wording of Requirement 3 of the dDCO, and content of the Overarching WSI and Peat Strategy during the

Examination, with the final version of dDCO being submitted at DL10 [REP10-009].

ExA's consideration

- 5.13.47. The ExA is satisfied that any adverse effects on archaeological assets would be offset to levels considered not significant following mitigation and any harm would be less than substantial.
- 5.13.48. We are content that Requirement 3 of the recommended DCO (rDCO) contains the necessary mitigation measures to ensure that substantial harm to archaeological assets would be avoided. The WSI provide adequate means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.21).
- 5.13.49. Therefore, the ExA attributes little weight relating to archaeological assets against the Order being made.

Leiston Abbey (First Site) with later chapel and pillbox

- 5.13.50. The Applicant reports that during both the construction and operational phases, some significant adverse effects would be experienced [APP-272].



Figure 5.13.01: Grade I Leiston Abbey (first site) [REP10-55]

- 5.13.51. Alongside the primary mitigation measures detailed above, Schedule 8 of the DoO confirms payment of monies on or before the commencement date to ESC for onwards payment to the RSPB as a contribution towards surveys and improved interpretation at the site. Additionally, on or before the eighth anniversary of the commencement date a further payment is to be made to ESC for onward payment to RSPB as a contribution towards refreshing and improving interpretation at the site [REP10-075].
- 5.13.52. Together Against Sizewell C (TASC) raised concern in respect of the asset regarding the effect on significance. By the close of the Examination, this

remained a matter which was not agreed between TASC and the Applicant in the final SoCG [REP10-110].

- 5.13.53. In their Written Representation (WR), Stop Sizewell C and Theberton and Eastbridge Parish Council stated that the Proposed Development would have significant and adverse impacts on the historic environment of East Suffolk and the setting of many significant built heritage assets, including Leiston Abbey [REP2-449j].

ExA's consideration

- 5.13.54. The ExA accepts that during both construction and operation the introduction of the proposed built form, especially at the scale proposed, would result in a modest decline of both the appreciation of the architectural value and historic interest of the asset.
- 5.13.55. We are however content that all reasonable steps have been taken through primary design mitigation and Schedule 8 of the DoO to minimise detrimental effects on this asset. The ExA is satisfied that such measures would give rise to effects that are less than substantial in respect of harm.
- 5.13.56. The ExA considers that a description of the asset has been provided in a level of detail proportionate to the importance of the heritage asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.57. The ExA note the public benefit stated by the Applicant in respect of the provision of an off-road link between the two Leiston Abbey sites, which is stated as providing restored connectivity and an increase in historic interest. However, limited information has been provided by the Applicant as to the exact detail of the route and how historic interest would increase. Additionally, this provision is not referenced in the DoO.
- 5.13.58. The ExA therefore ascribes moderate weight against the making of the Order in respect of this asset.

Grade I and Grade II listed buildings and associated non-designated structures at Leiston Abbey (Second Site)

- 5.13.59. This asset group comprises the remains of the former Premonstratensian Abbey of Leiston. The Leiston Abbey (Second Site) complex is mainly under the control of the English Heritage Trust (EHT), on behalf of HE. The Pro Corda Trust occupy part of the Second Site from where they run their music school. The Trust also owns the underlying freehold and undertake some local day to day management by agreement with EHT.



Figure 5.13.02: Grade II Leiston Abbey (second site) [REP10-055]

- 5.13.60. The Applicant reports that during construction significant adverse effects would be experienced at St Mary's Abbey in respect of loss of historic interest. However, for the remaining assets, effects would be not significant [APP-272, para 16.6.58 to 16.6.61]. During the operational phase, effects would reduce to not significant at the Abbey and no effects would be experienced by the remaining assets within the complex [APP-272, para 16.6.140 to 16.6.141].
- 5.13.61. In addition to primary mitigation measures, Schedule 8 of the DoO confirms payment of monies to ESC for onwards payment to HE as a contribution towards surveys and improved interpretation at the site. Additionally, a separate payment is to be made to ESC for onward payment to HE, in consultation with the Pro Corda Trust, as a contribution towards the development and implementation of a landscape and access masterplan [REP10-075, Schedule 13].
- 5.13.62. The Applicant contends that during the operational phase, the additional mitigation provided in Schedule 8 of the DoO would provide a legacy benefit in terms of improvements to the longer-term conservation of the Second Site and its setting. Additionally, EHT confirmed that the proposed approach to the management, conservation and maintenance of the site would also comprise a new approach to finding sustainable solutions to the challenges faced around conservation defects and long-term maintenance, helping reduce risk, build resilience and finding new opportunities to promote and deliver their charitable objectives [REP8-154].
- 5.13.63. In respect of Pro Corda Trust, in addition to Schedule 8 of the DoO, Schedule 13 details a Pro Corda Resilience Fund. The Fund is to be applied towards:
- staffing costs;
 - provision of indoor and outdoor sensory spaces suitable for children;
 - physical security features; and

- other measures determined by the Trust to increase business resilience [REP10-075].
- 5.13.64. Schedule 12 of the DoO also details a Noise Mitigation Scheme, which includes the Pro Corda Trust accommodation who may be eligible for insulation under the Scheme. Further detail in respect of the Scheme is discussed in the section 5.18 of this Report.
- 5.13.65. The Applicant engaged with the Pro Corda Trust throughout the Examination and in the final SoCG, it was confirmed that the scope of quantum of contribution as set out in the DoO had been agreed [REP10-109].
- 5.13.66. Whilst EHT stated their concerns in respect of both the construction and operational phases, a Sustainable Conservation and Management Plan (SCMP) has been developed and the DoO agreed. The SCMP was shared with the Applicant and used as the basis of agreeing the financial contribution EHT consider appropriate to reduce the scale of effects on the Second Site [REP10-117].

ExA's consideration

- 5.13.67. The ExA concurs that the greatest perceptual change would occur at St Mary's Abbey as a result of the change in views and increase in noise levels due to construction activity. However, we accept that as construction moves eastwards away from the asset, perception levels would reduce.
- 5.13.68. Nevertheless, there would be some loss to the historic interest of the asset during the entire construction phase, although we accept that this would be temporary and transient in nature. Given the location of the other assets completing the complex, we consider the effects would be more benign and not significant.
- 5.13.69. In terms of the operational phase, the ExA is content following the completion of the construction phase once temporary development is removed, which includes the accommodation campus views from the Abbey would return to mainly that of an agricultural landscape, although views of the roundabout would be likely from viewing platforms.
- 5.13.70. Whilst the MDS would remain visible from some locations within the Abbey ruins, the removal of tall cranes and cessation of construction noise would help to restore a sense of tranquillity to the complex. The ExA is satisfied that whilst some loss of historic interest would occur, this would give rise to less than substantial harm.
- 5.13.71. The ExA is content that all reasonable steps have been taken through primary design mitigation and Schedules 8 and 13 of the DoO to minimise effects where practicable. We are satisfied that the measures proposed within the DoO would assist EHT to promote and achieve a sustainable state of conservation and maintenance. Additionally, measures would also provide visitors with a better understanding of the site and better reveal the historic significance of the site. As such, we are

satisfied that the proposed measures would provide a legacy benefit in terms of improvement to the longer-term conservation of the assets and their setting.

- 5.13.72. The ExA note the public benefit stated by the Applicant in respect of the provision of an off-road link between the two Leiston Abbey sites, which is stated as providing restored connectivity and an increase in historic interest.
- 5.13.73. However, limited information has been provided by the Applicant as to the exact detail of the route and how historic interest would increase. Additionally, this provision is not referenced in the DoO.
- 5.13.74. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.75. Overall, the ExA ascribes moderate weight against the making of the Order in respect of this asset.

Grade II listed buildings and associated non-designated structures at Upper Abbey Farm

- 5.13.76. During the construction phase there would be some loss of historic and archaeological interest to both the Farmhouse and the Barn which would result in significant adverse effects [APP-272, para 16.6.75 to 16.6.77]. In respect of the operational phase, despite the presence of the emergency equipment store, backup generator and the inevitable change to the agricultural landscape, the Applicant reports no change to heritage significance and no subsequent effect [APP-272, 16.6.134].
- 5.13.77. The Applicant states that the Barn would be repaired during the construction period, and this would be secured by Schedule 8 of the DoO [REP10-075]. Such repairs would include the making good of the historic elements of the structure and where necessary, other repairs. Such works would allow the significance of the Barn to be conserved and enhanced and retain its contribution to the setting of Upper Abbey Farm [APP-272, para 16.7.9].
- 5.13.78. Overarching Design Principle 12 in the DAS confirms that the design of the MDS will consider potential effects on both designated and non-designated heritage assets [REP10-055]. In considering potential heritage effects, paragraph A.29.1 of the DAS confirms that the massing and scale of the proposed buildings within the accommodation campus have been carefully considered, with particular attention given to potential visual and heritage impacts. Design Principle 2 of Table A.1 also makes specific reference to the aim of reducing heritage effects [REP10-058].
- 5.13.79. The oLEMP, confirms that the restoration of the agricultural and grazing land around Upper Abbey Farmhouse on completion of construction

would respond to the current and historic rural setting of the heritage assets [REP10-061, para 5.1.6].

ExA's Consideration

- 5.13.80. The ExA is satisfied that the primary mitigation measures contained within the DAS seek to mitigate the effects of the MDS and accommodation campus in respect of the Upper Abbey Farm complex.
- 5.13.81. Additionally, prior to the commencement of works, Requirement 30 of the rDCO requires the production of a statement of compliance. This statement must demonstrate how the detailed design principles of Table A.1 in the DAS, and any relevant feedback from the Design Review Panel, has been incorporated into the detailed design to be submitted for approval by ESC.
- 5.13.82. Schedule 8 of the DoO requires the Undertaker to submit a planning application to carry out works to conserve and enhance the historic significance of the Upper Abbey Farm complex. The ExA is therefore satisfied that the repair works to the Barn would be adequately secured by Schedule 8 of the DoO.
- 5.13.83. Overall, we are content that the measures set out and secured via the rDCO, oLEMP, DAS and DoO have been appropriately designed, are proportionate and would assist in mitigating adverse effects to the Upper Abbey Farm complex during construction and operation. The ExA is satisfied that whilst some loss of historic and archaeological interest would occur, this would give rise to less than substantial harm.
- 5.13.84. In respect of the Barn, the ExA are satisfied that the proposed measures would not only provide visual screening and repair the Barn but would also maintain the coherence of the unit which would be a discernible enhancement to the asset. As such, we are satisfied that the proposed improvements would provide a legacy benefit to the longer-term conservation of the assets and their setting.
- 5.13.85. The ExA considers that a description of the heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the assets have been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.86. Overall, the ExA ascribes little weight against the making of the Order in respect of this asset.

Grade II Listed Abbey Cottage, 450m south-west of Upper Abbey Farm

- 5.13.87. Despite the primary mitigation measures proposed by the Applicant, significant adverse effects are identified during the construction phase as a result of the loss of historic interest. However, no impact on heritage significance is reported during operation and no effects are anticipated [APP-272, para 16.6.81 and 16.6.149].

ExA's consideration

- 5.13.88. The ExA concurs that significant adverse effects during construction would occur due to the proximity of the Cottage to the B112 site access roundabout and main site entrance plaza. Whilst visual and audible elements of construction activities would be experienced at this asset, we are satisfied that the effects would be relatively well screened, temporary, and transient in nature.
- 5.13.89. The ExA is content that during operation, significant adverse effects would gradually reduce as vehicle movements decrease on the B1122. In particular, the removal of the accommodation campus, temporary construction compound and restoration of land to semi-improved grassland would enable the rural views north, east and southeast of the Cottage to be reinstated. The proposed planting would also aid in screening the site entrance to the MDS.
- 5.13.90. We are therefore satisfied that the historic interest associated with Abbey Cottage would be fully restored during operation. As such, the ExA is satisfied that all reasonable steps have been taken to minimise detrimental effects on this asset and we consider that any harm would amount to less than substantial harm.
- 5.13.91. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.92. Overall, the ExA ascribes little weight against the making of the Order in respect of this asset.

Grade II Theberton House and Grade II Potter's Farmhouse*

- 5.13.93. In respect of Potter's Farmhouse, the Applicant reports no significant adverse effects during construction or operation [APP-272].
- 5.13.94. Mr and Mrs Dowley, owners of Theberton House and Potter's Farmhouse raised significant concern throughout the Examination in respect of possible effects on their properties and parkland regarding the B1122 access roundabout at the main site entrance of the MDS, borrow pits and the SLR. Submissions relating to the concerns include but are not limited to [REP2-344], [REP2-370], [REP5-227], [REP10-307] and [REP10-377]. Issues relating to the SLR will be dealt with below.
- 5.13.95. Although Theberton House wasn't addressed within Chapter 16 of the ES, during Part 2 of the Compulsory Acquisition Hearing (CAH) 1 [EV-144], the Applicant confirmed no effects are predicted on the heritage significance of Theberton House or associated listed buildings [REP7-067, para 1.7.5].
- 5.13.96. The Landscape and Visual Impact Assessment concludes that the construction effects would be significant adverse for Visual Receptor

Group 10, which Theberton House falls within, in respect of the borrow pits. However, the Applicant confirms that there would be no direct view to the proposed borrow pits from Theberton House. Additionally, in respect of the nearest stockpile, which is approximately 1km from Theberton House, the existing trees would offer some screening [REP7-067].

- 5.13.97. The Applicant confirms that the borrow pits would be approximately 300m from Potter's Farmhouse, with the closest stockpile being 430m away. It is therefore considered unlikely that views of these features would be possible from either the Farmhouse or adjoining gardens [REP7-067].

ExA's consideration

- 5.13.98. We are satisfied that in respect of Potter's Farmhouse, given the distance from the borrow pits and stockpiles, no significant adverse effects would occur during either the construction or operational phases. The ExA therefore considers that the effect of the MDS on the significance of Potter's Farmhouse would be insufficient to amount to harm.
- 5.13.99. In respect of Theberton House, we are satisfied that the proposed planting as detailed within the DAS would ensure the roundabout is assimilated into the existing landscape, as far as is practicable. The ExA notes that significant adverse lighting effects would remain for those within Visual Receptor Group 10. However, given the proposed height of the lighting columns, distance from Theberton House and existing tree planting, we are satisfied that the Applicant has taken all reasonable steps to minimise effects on heritage significance of the asset.
- 5.13.100. The ExA is also content that lighting during the operational phase, which would be secured by Requirement 28 of the rDCO, would be designed as to have minimal impact on both the surrounding environment and sensitive receptors. As such, we are satisfied that any residual effects would amount to less than substantial harm.
- 5.13.101. Whilst not included within the initial heritage assessment in respect of the MDS, the ExA is satisfied that the significance of impacts on the asset has been subsequently adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.102. Overall, the ExA ascribes little weight against the making of the Order in respect of these assets.

Leiston Conservation Area

- 5.13.103. The Applicant reports a minor adverse effect during construction due to an increase in road and rail movements, which would be not significant. The increase in traffic and rail movements would reduce following the completion of construction of the MDS and no effect is reported in respect of the heritage significance of the Conservation Area during operation [APP-272, para 16.6.94 and 16.6.158].

ExA's consideration

- 5.13.104. The ExA is content that direct views of the MDS during construction and operation would be limited from within the Conservation Area, any such views are likely to be from upper storeys of buildings. Direct views are however likely to be heavily filtered due to existing topography and vegetation. Whilst some increase in road and rail movements would be experienced, this would be limited to the construction phase and therefore temporary in nature.
- 5.13.105. We are satisfied that the effects on the Conservation Area as a whole would be benign, and the character and appearance of the Conservation Area would be preserved. In our view this would amount to less than substantial harm.
- 5.13.106. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the heritage significance of impacts on the asset has been adequately assessed for construction and operational (NPS EN-1, para 5.8.10).
- 5.13.107. Overall, the ExA ascribes little weight against the making of the Order in respect of the Leiston Conservation Area.

Non-designated Coastguard Cottages, Dunwich Heath

- 5.13.108. The Applicant reports that during both the construction and operational phases, no significant effects would be experienced [APP-272].



Figure 5.13.03: Dunwich Heath and National Trust Dunwich Coastguard Cottages [REP10-055]

- 5.13.109. In respect of the Coastguard Cottages, Schedule 13 of the DoO details the content of the National Trust Dunwich Heath and Coastguard Cottages Resilience Fund. The Fund consists of payment of monies to ESC for onward payment to the National Trust (NT) on or before the

commencement of construction and a further payment on or before the sixth anniversary of the commencement date. The monies may only be applied to specific initiatives which include additional staff resourcing, infrastructure improvements, visitor and heritage enhancements. Additionally, a Natural Environment Improvement Fund is contained within Schedule 11 of the DoO. One aim of the Fund is to provide monies for projects to help mitigate the residual landscape and visual impact of the Proposed Development [REP10-075].

- 5.13.110. The ExA asked written questions regarding the Cottages during the Examination and potential effects on the asset was also discussed at ISH13 [EV-207] to [EV-209]. Following a request from the ExA, the Applicant also provided additional construction phase visualisations at DL8 [REP8-326] and [REP8-327].
- 5.13.111. In their final position statement at DL10, both ESC and SCC continue to disagree with the Applicant on the magnitude of impact and that a moderate adverse effect would occur, contrary to the conclusions of the assessment. However, both ESC and SCC state that mitigation, in the form of the Resilience Fund in the DoO, would provide adequate mitigation for any harm [REP10-183].
- 5.13.112. The NT also maintained its disagreement in respect of the significance of adverse effects reported in the assessment throughout the Examination. This is due to the elevated location of the Cottages which would provide one of the best vantage points for views of the MDS, during both the daytime and in respect of night-time effects due mainly to lighting. NT also consider that many of the adverse effects would not be able to be fully mitigated for the lifetime of the Proposed Development [REP10-112].
- 5.13.113. Despite this, the NT accepts that it would be able to access the Natural Environment Improvement Fund as set out in Schedule 11 of the DoO. Also, the proposed Resilience Fund would provide appropriate and proportionate mitigation to reduce residual adverse effects to acceptable levels [REP10-075].

ExA's consideration

- 5.13.114. We are content the construction of the MDS would not result in the loss of any architectural interest. However, construction views of the MDS would be widely experienced from the Cottages and the ExA concur that a temporary loss of historic interest would be experienced during construction.
- 5.13.115. In respect of night-time construction, we are satisfied that the Applicant undertook an adequate assessment of the potential for detrimental effects resulting from artificial light. With the proposed measures as contained in the LMP, controlled by Requirements 2 and 14 of the rDCO, the ExA is satisfied that artificial lighting and light spill would be minimised as far as possible in the surrounding coastal environment within which the Cottages are located.

- 5.13.116. Despite this, we consider wider, significant adverse effects are likely to occur in respect of the historic interest of the asset during operation than concluded in the Applicant's assessment. However, we are content that the mitigation measures contained within the proposed Resilience Fund and access to the Natural Environment Improvement Fund within the DoO would satisfactorily offset the significance of any such adverse effects. We therefore quantify the harm as less than substantial.
- 5.13.117. The ExA considers that a description of the heritage assets has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.118. Overall, the ExA ascribes little weight against the making of the Order in respect of this asset.

Non-designated Pillbox in Pillbox Field

- 5.13.119. In respect of the potential change to the setting of the Pillbox during the construction and operation of the MDS, no significant adverse effects are anticipated [APP-272, para 16.6.78 and 16.6.136].
- 5.13.120. Parking for the Sizewell B relocated facilities is proposed on the Coronation Wood development site or in Pillbox Field. The final location is dependent on the selection from two possible options by the Applicant:
- Option 1 includes an area of land forming part of the Sizewell A site and would be subject to completion of a land agreement. The option proposes the removal of replacement Sizewell B car park and associated access road from Pillbox Field. The landscape proposal would provide ecological enhancement and mitigation planting while preserving the setting of the pillbox;
 - Option 2 is considered to be an unlikely scenario by the Applicant and would only be required if the Sizewell A land isn't available. The Sizewell B outage car park would be relocated to the northern end of Pillbox Field and would provide car parking spaces for use during Sizewell B outage period. The car park would not be used outside of these periods [REP10-056, para 8.8.45 and 8.8.49].
- 5.13.121. In respect of either option, the Applicant states that no significant adverse effects in respect of setting would be experienced during construction or operation [APP-272, para 16.6.78 and 16.6.136].

ExA's consideration

- 5.13.122. The ExA agrees that in respect of the construction of the MDS, whilst some construction activities would be visible, effects would be temporary and transient in nature. We are content no significant adverse effects would occur. During the operational phase, as a reversal of any visual effects would take place, we are satisfied no significant adverse effects would be experienced.

- 5.13.123. In respect of the Sizewell B relocated facilities and option 2, even with the proposed location and planting, the ExA contends that little harm is likely to occur in respect of the setting given the infrequent use and proposed design to ensure minimal visibility which would be secured through built development principle 72 in the DAS.
- 5.13.124. In respect of option 1, the ExA is satisfied that the proposed planting associated with option 1 would deliver long-term enhancement to the local landscape character and minimise any impact on the setting and historic interest of the Pillbox.
- 5.13.125. Whilst we acknowledge that the Applicant has stated option 2 is unlikely to be progressed, by the close of the Examination the Applicant had not provided confirmation of this. Nevertheless, in respect of both options the ExA quantifies the harm to be less than substantial.
- 5.13.126. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.127. Whilst some uncertainty remained at the close of the Examination regarding which option would be progressed, the ExA attributes little weight to matters relating to this asset against the Order being made.

Historic Landscape Character

- 5.13.128. The required works necessary for the construction of the MDS introduce new visual and audible elements to a mainly agricultural landscape which would result in the loss of archaeological, historic and aesthetic interest. Whilst temporary in nature, the Applicant reports that this would represent a significant adverse effect [APP-272, para 16.6.119 to 16.6.122]
- 5.13.129. Following construction, the accommodation campus, main site entrance hub, storage areas and construction compounds would be removed. Additionally, the restoration of agricultural land and heathland and the replanting of hedgerows are designed to reflect the historic form of the landscape. Such measures would be secured through the implementation of the LEMP, and overarching design principles contained within the DAS. As such, the Applicant reports no significant adverse effects during operation [APP-272, Table 16.8].
- 5.13.130. In their joint WR Theberton and Eastbridge Parish Council and Stop Sizewell C raise objection to the level of harm to the historic landscape character resulting from the MDS [REP2-449j, section 6.1].
- 5.13.131. Although the Applicant did not respond directly to this particular WR, in a wider response to WRs it was confirmed that the proposed primary and tertiary mitigation measures address issues including change to the historic landscape character [REP3-042, para 8.2.5].

5.13.132. Additionally, the Applicant confirms that following a review in 2019, the Design Council commented that "*Extensive steps are being taken by the project team to carefully integrate the Sizewell C site into its historic, coastal setting. Overall, we think the proposal is being approached with great care and attention...*" [REP10-055, para 4.8.4].

ExA's consideration

5.13.133. The ExA accepts that the introduction of any built form, especially at the scale proposed, combined with the removal of historic field patterns and features would result in significant adverse effects of the historic landscape character during the construction phase.

5.13.134. We are however satisfied that the design response contained within the DAS, specifically Overarching Design Principle 12 and Accommodation Campus Design Principle 2, which would be secured by Requirement 24 of the rDCO, would ensure that future detailed design would be controlled appropriately in a way that would enable post consent discharge of Requirements to give careful consideration to the historic landscape character.

5.13.135. Additionally, the oLEMP 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.

5.13.136. The ExA is satisfied that these design principles are adequately controlled and secured by Requirements 24 and 30 of the rDCO and such measures would minimise the impact of the MDS and the overall character of the historic landscape during operation would be preserved.

5.13.137. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).

5.13.138. Overall, the ExA ascribes little weight against the making of the Order in respect of the historic landscape character.

Historic Seascape Character

5.13.139. The Applicant reports no change to the historic seascape character during either construction or operation and as such, no effects are reported [APP-272].

ExA's consideration

5.13.140. The ExA considers the existing historic seascape character is already dominated by the existing Sizewell A and B power station infrastructure. During construction the level of industrialisation of the area would increase particularly given the presence of large cranes and machinery in and around the shoreline area. However, the ExA accepts that during operation there would be a noticeable reduction in overall visual clutter.

- 5.13.141. We are content that whilst the presence of the MDS and associated infrastructure such as the beach landing facility would be visible, the important contrast between rural and industrial, both from views onshore and offshore, would remain and no permanent loss of heritage significance would occur.
- 5.13.142. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.143. Overall, the ExA ascribes little weight against the making of the Order in respect of the historic seascape character.

Other heritage assets

- 5.13.144. In respect of the MDS, the Applicant also assessed the following:
- Grade II listed The Watch House;
 - Grade II listed buildings at Potter's Street crossroads;
 - Conservation Area and Grade II listed buildings at Thorpeness;
 - Conservation Area and Grade I, II* and II listed buildings at Aldeburgh;
 - Scheduled Monument and Grade II* listed Slaughden Martello Tower;
 - Conservation Area and Grade I, II* and II listed buildings and non-designated assets at Southwold;
 - Scheduled Monument and Grade I listed Orford Castle, with adjoining quarry and remains of 20th century look-out post; and
 - Scheduled Monument and Grade II listed lighthouse and former military structures at Orford Ness [APP-272, para 16.4.15].
- 5.13.145. Details in respect of the assessment of the above assets is located within section 16.6 of the ES chapter, with section 16.8 detailing residual effects. It is concluded that for the above assets, no effect on heritage significance would occur during either construction or operation [APP-272].

ExA's consideration

- 5.13.146. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the assets has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.147. The ExA is content with the findings of the assessments and is satisfied that no effects would occur during the construction and operation of the MDS in respect of the above listed assets. As a result, there would be no effect on heritage significance.
- 5.13.148. Therefore, the ExA considers that there are no matters relating to the above assets which would weigh for or against the Order being made.

Marine Historic Environment

- 5.13.149. The Applicant confirms that there is the potential for further assets dating to all periods within the site, although these would be most likely of low to medium heritage significance [APP-334, para 23.7.3].
- 5.13.150. As such, the Applicant identified that the following secondary mitigation measures are necessary:
- adoption of a find reporting protocol to permit the identification of any encountered material of archaeological interest within the site to allow it to be appropriately investigated, recorded, and disseminated, preserving the archaeological interest of assets; and
 - for deposits with high geoarchaeological potential, mitigation would focus on undertaking analysis of stratified sediment samples that have already been collected from the area during geotechnical site investigation. Dissemination of results would be through the production of a scientific journal publication [APP-334, para 23.7.3 to 23.7.5]
- 5.13.151. With the mitigation measures in place, the Applicant confirms no significant adverse residual effects would occur either during the construction or operational phases [APP-334, para 23.8.1 and Table 23.4].

ExA's Consideration

- 5.13.152. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the heritage assets (NPS EN-1, para 5.8.8).
- 5.13.153. In accordance with NPS EN-1, para 5.8.10, the ExA is satisfied that the Applicant has adequately described the significance and value of marine heritage assets and has correctly assessed likely archaeological features that may be affected by the MDS and would take sufficient measures to avoid affecting offshore wrecks. The ExA quantifies this harm as less than substantial.
- 5.13.154. Additionally, the ExA is content that sufficient security is provided by the DML for the proportionate investigation, treatment, recording and advancement of understanding of the significance of heritage assets in accordance with an agreed and secured WSI in the rDML. The ExA is satisfied adequate mitigation of risk to any archaeological assets would be secured through the required marine archaeological WSI detailed in Condition 16 (1) of the rDML.
- 5.13.155. Overall, the ExA attributes little weight to matters relating to marine heritage assets against the Order being made.

Associated Development Sites

Sizewell Link Road

Archaeological heritage assets

- 5.13.156. The Applicant states that in respect of the SLR archaeological remains within the site would be substantially disturbed, if not removed entirely, by construction. This would result in significant adverse effects [APP-467, para 9.7.2].
- 5.13.157. However, the Applicant states that secondary mitigation in the form of a site-specific WSI would ensure the archaeological interest of any significant deposits and features would be appropriately investigated, recorded and disseminated. This would ensure that the magnitude of impact on buried archaeological remains from the Proposed Development would be reduced to low, resulting in a minor adverse effect, which would be not significant. Individual site WSIs would be produced which would establish the requirements for further investigation of any areas that could not be surveyed pre-consent, which would allow for the agreement of finalised mitigation proposals. The site-specific WSI would be in accordance with the Overarching WSI and secured by Requirement 3 of the dDCO. The implementation of this mitigation would reduce effects to not significant [APP-467, para 9.7.4].

ExA's consideration

- 5.13.158. The ExA is satisfied that any adverse effects on archaeological heritage assets would be offset to levels considered not significant following mitigation and any harm would be less than substantial.
- 5.13.159. We are content that Requirement 3 of the rDCO contains the necessary mitigation measures to ensure that substantial harm to archaeological assets would be avoided and that the WSI provides the means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.21).
- 5.13.160. Overall, the ExA attributes little weight relating to archaeological heritage assets against the Order being made.

Grade II Gate and Gate Piers at junction of Leiston Road and Onner's Lane

- 5.13.161. During construction and operation of the SLR no impact on heritage significance was reported with no effect identified [APP-467, para 9.6.21 and 9.6.75].
- 5.13.162. In the summary of the WR, Mr and Mrs Dowley, who are the landowners, raised concern during the Examination that the SLR would have a material adverse effect on the entrance gates and piers [REP2-343].
- 5.13.163. The concerns were reiterated during the Examination in respect of the heritage asset. The landowners further commented that they had advised the Applicant in a meeting that the SLR appeared to run straight over a listed gate to their house but that the maps they had been sent did not include the gate or any reference to it. From this, they concluded that the gate was likely to be destroyed [REP8-228].

5.13.164. At DL10, the Applicant confirmed that they are aware of the listed gate post and the road layout construction and mitigation packages have been designed to protect the listed feature [REP10-156, para 2.10.3].

ExA's consideration

5.13.165. The ExA notes that site-specific design principle 13 of the ADDP confirms that although the gate and piers are within the SLR site boundary, they will be retained within its entirety. We are also content that Requirement 35 of the rDCO adequately secures the design principles within the ADDP in respect of the SLR.

5.13.166. Whilst some perceptibility of construction activities would occur at the asset, this would be temporary, and we are content that this would not result in the loss of any heritage significance. Furthermore, once the SLR is operational, vehicle numbers on the B1122 are predicted to decrease during the operational phase, and no loss of heritage significance is anticipated. As such, the ExA agrees that no effect on heritage significance in respect of the gates and piers would occur.

5.13.167. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).

5.13.168. Overall, the ExA considers that there are no matters relating to the above assets which would weigh for or against the Order being made.

Grade II Theberton House and associated listed buildings*

5.13.169. During construction and operation of the SLR no impact on heritage significance was reported with no effect identified [APP-467, para 9.6.57 and 9.6.114].

5.13.170. Mr and Mrs Dowley, the landowners of the assets, raised concern during the Examination that the SLR, the roundabout at the MDS and borrow pits would have a material adverse effect on their home and other properties on the estate. In addition, the potential removal of a strip of protective shelter belt at the edge of the parkland immediately surrounding the Hall was also raised as a concern [REP2-344] and [REP2-370]. Matters in respect of the roundabout and borrow pits are discussed above.

5.13.171. Matters in respect of the shelter belt are discussed in Section 5.14 of this Report in more detail. However, following discussions the Applicant confirmed it was feasible to reduce the Order Limits in this location [REP8-072]. Amended figures were provided illustrating this amendment as part of the Fifth ES Addendum [REP8-073, Figure 2.4].

ExA's consideration

- 5.13.172. The ExA notes the position of Theberton House and associated properties set back from the highway and the existing mature and relatively dense screening, particularly to the north and east of the asset.
- 5.13.173. We are content that the measures contained in the ADDP, including the retention of existing woodland and hedgerows and additional planting along the route, would help to assimilate the SLR into the existing landscape. Such measures would assist in reducing the contrast between the newly constructed SLR and the historic landscape in which the assets reside. As such, the ExA agrees that no effect on heritage significance in respect of Theberton House and the associated properties would occur.
- 5.13.174. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the assets has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.175. Overall, the ExA considers that there are no matters relating to the above assets that would weigh for or against the Order being made.

Grade II buildings at Theberton Hall and gates, gateway, walling and well head 30m west of Theberton Hall

- 5.13.176. During construction and operation, no effects are anticipated for the group of assets which include the gates, gateway, walling and well head. In respect of Theberton Hall, construction would result in a temporary loss of historic interest of the asset, which would be not significant [APP-467, para 9.6.54 and 9.6.55].
- 5.13.177. In respect of operation, during the construction of the MDS, due to traffic volumes, minor adverse effects would occur. However, these would be not significant. Following completion of construction of the MDS, and the maturing of the proposed planting, no effects are anticipated [APP-467, para 9.6.110].
- 5.13.178. Throughout the Examination Mr Beaumont, who is the landowner of Theberton Hall, raised concerns in respect of the effects on the Hall given the proposed proximity of the road to the asset [REP2-363] and [REP10-330].
- 5.13.179. In response to the concerns raised, the Applicant stated that they are satisfied that the findings of their assessment are valid and that the effects of the partial loss of Plumtreehill covert has been correctly identified. Additionally, the Applicant confirms their commitment to landscape mitigation planting along the route of the SLR [REP3-044, para 12.3.55 to 12.358].

ExA's consideration

- 5.13.180. The ExA notes the content of the ADDP and the LEMP in respect of the SLR and welcomes the commitment by the Applicant to minimise potential effects on heritage assets through landscape proposals. In

particular, landscape design principle 4 within the ADDP confirms that woodland planting in the vicinity of Dovehouse Farm would compensate for the loss of woodland in the belt west of Theberton Hall. The ExA is satisfied that the ADDP and LEMP would be adequately secured via Requirements 35 and 36 of the rDCO.

- 5.13.181. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8).
- 5.13.182. However, the ExA contends that introduction of an additional highway development with permanent visual and audible elements in proximity to the designated asset on embankment on two sides of the Hall, combined with the partial loss of the covert would result in a moderate adverse effect during both construction and operation. As such, we conclude that the significance effect during both construction and operation has been underplayed. Such harm is quantified as less than significant.
- 5.13.183. The ExA therefore attributes moderate weight to matters relating to this asset against the Order being made.

Historic Landscape Character

- 5.13.184. The Applicant reports minor adverse effects in respect of the heritage significance of the historic landscape, which would result in no significant effects [APP-467, para 9.6.69 and 9.6.13].

ExA's consideration

- 5.13.185. The ExA notes the content of the ADDP and the LEMP in respect of the SLR and welcomes the commitment by the Applicant to minimise potential effects on heritage assets through landscape proposals. The ExA is satisfied that the ADDP and LEMP would be adequately secured via Requirements 35 and 36 of the rDCO.
- 5.13.186. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). However, in considering the significance of this asset, the ExA does not support the proposition that the historic landscape is of a low heritage significance (NPS EN-1, para 5.8.12). As such, we conclude that the significance effect during both construction and operation has been underplayed.
- 5.13.187. The SLR would bisect several fields and erode historic field boundaries. The ExA accepts that whilst the construction and operation of the SLR would not result in the loss of all reference to the historic landscape, elements would be diminished. As such, the ExA contends that introduction of a suburbanising feature with permanent visual and audible elements into a historic agricultural landscape would result in a moderate adverse effect during both construction and operation, which would be significant. We are however satisfied that such harm would be less than substantial.

5.13.188. The ExA therefore attributes moderate weight to matters relating to this asset against the Order being made.

Other heritage assets

5.13.189. In respect of the SLR, the Applicant also assessed the below assets in section 9.6 of the ES chapter, with section 9.8 detailing residual effects. The Applicant reports that no effect on heritage significance would occur during either construction or operation [APP-467].

5.13.190. The assets are:

- Grade II Rookery Farmhouse;
- Grade II Beveriche Manor Farmhouse;
- Grade II Fordley Hall and Vale Farmhouse;
- Grade II* Moor Farmhouse;
- Grade II Hill Farmhouse;
- Grade II Dovehouse Farmhouse;
- Grade II Valley Farmhouse, Anneson Corner and farm building 30m east of Valley Farmhouse; and
- Grade II Moats Farmhouse [APP-467]

ExA's consideration

5.13.191. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the assets has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).

5.13.192. The ExA is satisfied with the findings of the assessments in respect of the asset. Overall, the ExA considers that there are no matters relating to the above assets which would weigh for or against the making of the Order.

5.13.193. In addition to the above assets, an assessment of the below were also undertaken in section 9.6 of the ES chapter, with residual effects detailed at section 9.8:

- Grade II Thatched House;
- Grade II The Cottage;
- Grade II Pine Tree Cottage;
- Grade I Church of St Peter; and
- Grade II buildings within Theberton Village: The Old Rectory, Stable Block, Thatched House, The Cottage, Old Manor House, Flint House, The Lion Public House, 1-4 Church Road and Lilycot [APP-467].

5.13.194. The Applicant reports no impact on heritage significance of the above assets during construction and therefore no effects would occur. In respect of operation, there would be a reduction in the visibility of traffic and traffic related noise due to the diversion of vehicles onto the proposed SLR.

- 5.13.195. For the above assets, this would result in a permanent positive effect as the historic interest of the assets would be reinforced. This is stated as being a minor beneficial effect which would be not significant.

ExA's consideration

- 5.13.196. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the heritage assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the assets has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.197. The ExA concurs with the findings of the assessments and is satisfied that the construction and operation of the SLR would not result in any harm to the listed assets. Due to the likely re-routing of vehicles away from the assets and the consequential reduction in noise levels, the ExA concurs that small-scale legacy benefits in terms of the reinforcement of historic interest is likely.
- 5.13.198. Overall, the ExA gives little weight to matters relating to these assets for the making of the Order.

Route alternatives

- 5.13.199. The ExA notes the submission of a heritage assessment in respect of the SLR prepared for the Middleton and Theberton landowners [REP2-384]. The assessment has been referred to by several IPs during the Examination including [REP2-224], [REP2-252] and [REP2-449j].
- 5.13.200. The assessment concludes that the Applicant's heritage assessment regarding the SLR is flawed and that the northern variation of Route W would have the least impact on heritage assets.
- 5.13.201. In response, the Applicant stated that the independent assessment had failed to understand the comparative analysis of the Sizewell Link Road Report [APP-50] and this resulted in a conflation of the findings. Additionally, the study area for the Archaeological Desk-Based Assessment in Appendix 9B of the ES [APP-468] had been agreed with SCC [REP3-042].
- 5.13.202. The Applicant also referred to their response to ExQ1 AI.1.31 regarding the site selection of the SLR which, amongst other things, confirmed that the route selection does not just relate to heritage matters, but considers several environmental considerations [REP2-100].
- 5.13.203. At the CAH Part 1, the Applicant explained that there has been a detailed assessment of heritage assets on alternative routes. The response paper submitted at DL2 includes a detailed critique of the route, which considers heritage issues [REP2-108, Appendix 5D]. The Applicant confirmed that the assessment commissioned by LDA Design Consulting was one of many assessments, including a subsequent AECOM paper, which addressed heritage matters and which showed the balance conclusively in favour of the SLR route proposed [REP7-064].

ExA's consideration

- 5.13.204. Further issues relating to alternatives are discussed in Section 5.4 of this Report. However, the ExA has given due consideration to the independent heritage assessment submitted into the Examination. We are satisfied that the Applicant has correctly undertaken the heritage assessment and in respect of route selection find the Applicant's assessment to be robust.
- 5.13.205. Therefore, the ExA attributes no weight to this issue which would weigh for or against the Order being made.

Two Village Bypass

Archaeological heritage assets

- 5.13.206. The Applicant states that in respect of the TVB archaeological remains within the site would be substantially disturbed, if not removed entirely, by construction. This would result in significant adverse effects [APP-432, para 9.6.5 and 9.6.6].
- 5.13.207. However, the Applicant states that secondary mitigation in the form of a site-specific WSI would ensure the archaeological interest of any significant deposits and features would be appropriately investigated, recorded and disseminated. This would ensure that the magnitude of impact on buried archaeological remains from the Proposed Development would be reduced to low, resulting in a minor adverse effect, which would be not significant. Individual site WSIs would be produced which would establish the requirements for further investigation of any areas that could not be surveyed pre-consent, which would allow for the agreement of finalised mitigation proposals. The site-specific WSI would be in accordance with the Overarching WSI and secured by Requirement 3 of the dDCO. The implementation of this mitigation would reduce effects to not significant [APP-432, para 9.7.4].

ExA's consideration

- 5.13.208. The ExA is satisfied that any adverse effects on archaeological heritage assets would be offset to levels considered not significant following mitigation and any harm would be less than substantial. We are content that Requirement 3 of the rDCO contains the necessary mitigation measures to ensure that substantial harm to archaeological assets would be avoided and that the WSI provides the means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.21).
- 5.13.209. Therefore, the ExA attributes little weight relating to archaeological heritage assets against the Order being made.

Grade II Farnham Hall and adjoining assets

- 5.13.210. The Applicant reports that during both construction and operation, effects would give rise to limited harm to heritage significant, which would be not significant [APP-432, para 9.6.12 and 9.6.66].

- 5.13.211. Throughout the Examination, Farnham Environment Residents & Neighbours Association (FERN) opposed the TVB alignment on the grounds that it would cause too much harm to the built and natural environment [REP2-263].
- 5.13.212. FERN submitted a heritage assessment into the Examination as part of their WR, which concluded that:
- parties are in agreement that a bypass would create beneficial effects for the heritage assets in the villages of Farnham and Stratford St Andrew which are located on the route of the current A12;
 - the TVB would result in less than substantial harm to the identified assets, although this would be to the high end of the spectrum;
 - some assets would however experience a harmful and significant impact on setting, such assets include the Church of St Mary and the historic buildings at Farnham Hall;
 - insufficient weight has been given to the potential harm to setting and to the historic landscape, which the buildings strongly relate to; and
 - the proposal fails to comply with the provisions of the Listed Buildings and Conservation Act 1990 and guidance of the NPPF [REP2-264].
- 5.13.213. At DL10, in response to ExQ2 HE.2.7 FERN argued that the wider landscape provides the setting to the Farnham Hall complex of assets and the ability to appreciate such a related collection of heritage assets within a relatively little altered landscape context is very rare to find in England [REP10-270].
- 5.13.214. Farnham with Stratford St Andrew Parish Council also argued that the alternative alignment as suggested in their WR would take the route away from the majority of the properties surrounding Farnham Manor and the ancient woodland of Foxburrow Wood [REP2-273].
- 5.13.215. In response, the Applicant stated its position that no change would be introduced by the TVB which would affect the heritage significance of the assets as it would be screened by existing planting within the gardens and by modern estate houses and planting to the east. In respect of the rural character surrounding the assets, in its view it is the network of small woods and copses that contributes most to the historic landscape character and the proposed alignment would allow for the preservation of this network of woodland. The Applicant accepts that the grain of the existing field system would be disturbed but that the proposed mitigation planting would reflect the historic landscape character [REP3-042].

ExA's consideration

- 5.13.216. The value of the assets which comprise the Farnham Hall complex is understood by the ExA both as individual assets and when taken as a collective. Additionally, the importance of the landscape in respect of setting is comprehended.
- 5.13.217. Design objectives contained within the TVB LEMP include the aim to create and manage planting which would minimise the visual impact of

the TVB in views from the surrounding landscape. In addition, the ExA welcomes the site-specific design principles in the ADDP which confirm that the TVB would be in cutting where it passes Farnham Hall and Farnham Hall Farmhouse. Planting would be provided along the western edge of the cutting where it passes Farnham Hall and on the western side of the embankment up to the bridge to provide some visual screening.

- 5.13.218. The ExA is satisfied that the Applicant has correctly identified the cohesion with the surrounding landscape to which the complex of assets relates and that all reasonable steps have been taken to minimise adverse effects on the significance of heritage assets during construction and operation. The ExA quantifies the identified harm as less than substantial.
- 5.13.219. In respect of the alternative route suggested by Farnham with Stratford St Andrew Parish Council and supported by FERN, we note the response to WRs by the Applicant that the alternative alignment would give rise to significant adverse effects through change to the setting of two heritage assets. In comparison, no significant adverse effects are identified regarding the submitted TVB alignment.
- 5.13.220. Alternatives are considered in more detail in Section 5.4 of this Report. However, the ExA is satisfied that in respect of the historic environment the proposed TVB alignment represents the most appropriate option.
- 5.13.221. Overall, we are content that the construction and operation of the TVB would not result in effects which would harm the heritage significance of the Farnham Hall complex of assets.
- 5.13.222. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.223. Overall, the ExA ascribes little weight against the making of the Order in respect of this complex of assets.

Grade II Church of St Mary*

- 5.13.224. Whilst views of construction and operational activities may be visible to the south of the church, the Applicant states there would be no discernible impact on heritage significance, and no effects would occur [APP-432, para 9.6.16 and 9.6.68].
- 5.13.225. In their initial LIR, both ESC and SCC acknowledge that the TVB would be overwhelmingly positive [REP1-045, para 12.42]. However, both Councils consider that the setting of the Church of St Mary would be adversely affected by the TVB. 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].

- 5.13.226. The Applicant stated that three locations between the proposed roundabout at the southern end of the TVB and St Mary's Church 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].
- 5.13.227. 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].
- 5.13.228. FERN also state that the TVB would have a significant adverse effect on the Church of St Mary [REP2-264, para 12.4].

ExA's consideration

- 5.13.229. The ExA is satisfied that through the additional planting proposals included within the TVB LEMP, all reasonable steps have been taken to minimise effects on the heritage significance of the Church of St Mary. Whilst glimpses of the TVB may be possible on occasion from the south of the Church, we are content that harm would be less than substantial.
- 5.13.230. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the heritage asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.231. Overall, the ExA ascribes little weight against the making of the Order in respect of this asset.

Grade II Glemham Hall Registered Park and Garden

- 5.13.232. The Applicant reports minor adverse effects during construction of the TVB, which would result in effects which would be not significant. In respect of operation, no impact on heritage significance is recorded and therefore, no effects are anticipated [APP-432, para 9.6.42 and 9.6.95].

ExA's consideration

- 5.13.233. In respect of the construction phase, the ExA is content that views of the TVB, and in particular the new roundabout, would not be visible from the east of the Hall given the existing woodland, topography and buildings.
- 5.13.234. However, the ExA contends that the introduction of the TBV which would include lighting columns of up to 10m at the roundabout, would result in permanent visual and audible elements within the registered parkland setting. The ExA acknowledges that the archaeological and architectural interests of the asset would remain, however we consider there would be a reduction in historic interest would occur, particularly during the construction phase.

- 5.13.235. The ExA accepts that once construction activities cease, noise levels would reduce but there would still be an audible intrusion. Existing screening in the form of woodland belts and the measures contained within the ADDP, such as the provision of appropriate planting and native hedgerows, would help assimilate the TVB into the wider surrounding landscape. However, given the nature of the infrastructure proposed it is inevitable that both audible and visible elements of the TVB would remain as permanent features.
- 5.13.236. The ExA is satisfied that an adequate description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). However, we conclude that the significance of effect during both construction and operation has been understated by the Applicant.
- 5.13.237. The ExA quantifies the identified harm as less than substantial and attributes little to moderate weight to matters relating to this asset against the Order being made.

Non-designated Mollett's Farm

- 5.13.238. Mollett's Farm is a non-designated heritage asset, with the farmhouse and barn dating to the early 17th century. In their WR, Mr and Mrs Ayres, the owners of Mollett's Farm, raise concern that the asset has not been assessed in respect of the TVB and consider that the proposed alignment of the TVB would have a significant and harmful effect on the asset [REP2-380] and [REP6-066].
- 5.13.239. Mr and Mrs Ayres submitted a copy of a heritage asset assessment undertaken on behalf of SCCAS in respect of Mollett's Farm in 2011. The assessment states that most of its historic character has been lost but that the chief interest of the site *"lies in the relationship of the early-17th century barn to the surviving parlour bay of the contemporary farmhouse, which indicates the latter faced a southern courtyard flanked by the barn on the west in the typical manner of the period. The barn is also of interest as its northern gable adjoins the Benhall parish boundary and may preserve archaeological evidence of the banks and ditches often associated with features that in many instances can be shown to pre-date the Norman conquest"* [REP2-380].
- 5.13.240. The heritage impact assessment submitted by FERN as part of their WR also identifies that there has been no recognition of the non-designated heritage [REP2-264]. Farnham with Stratford St Andrew Parish Council also provide comment on the failure of the Applicant to assess Mollett's Farm [REP7-185].

ExA's consideration

- 5.13.241. Although not included in the assessment, the ExA is mindful that NPS EN-1 states the ExA *"should also consider the impacts on other non-designated heritage assets on the basis of clear evidence that the assets have a heritage significance that merits consideration in its decision,*

even though those assets are of lesser value than designated heritage assets”.

- 5.13.242. As part of the Accompanied Site Inspection in June 2021, the ExA visited Mollett’s Farm [EV-066]. This provided an opportunity to understand the characteristics of the buildings, context of the surroundings and proximity to the TVB. It was evident from the visit, that as described in the SCCAS heritage assessment, much of the historic character of the asset has been lost. Nevertheless, the ExA contends that Mollett’s Farm contributes to a sense of local character and its identity should be conserved if practicable.
- 5.13.243. The ExA notes the proximity of the TVB to the asset. We are however satisfied that the mitigation measures detailed within the ADDP, particularly the proposed use of quiet road surfaces and planting, would be successful in reducing any audible and visual effects to not significant.
- 5.13.244. Overall, we are content that the construction and operation of the TVB would not result in effects which would harm the heritage significance of Mollett’s Farm.
- 5.13.245. Therefore, the ExA attributes little weight to this issue against the Order being made.

Grade II Benhallstock Cottages

- 5.13.246. The Applicant reports minor adverse effects which would be not significant during construction. During operation, no effects are reported [APP-432, para 9.6.37 and 9.6.92].

ExA’s consideration

- 5.13.247. The ExA accepts that during construction, visible and audible effects would be experienced at this asset. However, construction activities would be both temporary and transient in nature and therefore any adverse effects in respect of heritage significance would be short term in nature.
- 5.13.248. Whilst planting would not occur until the end of the construction phase, we are satisfied that the design objectives contained within the LEMP and ADDP would deliver planting which, once mature, would minimise adverse visual effects. In respect of the roundabout, the ExA accepts that visibility of lighting columns and signage is likely from the asset. However, the existing trees in vicinity of the Cottages already offers good screening and once matured the proposed mitigation planting would assist in the further filtering of any direct views to and from the asset.
- 5.13.249. As a consequence of the diverted traffic along the TVB, a permanent reduction in traffic noise would occur. However, given the proximity of the new roundabout to the Cottage, we agree that any perceived benefit from traffic reduction is likely to be balanced by the adverse effects of the roundabout.

- 5.13.250. Despite this residual effect, the ExA is content that the level of harm in respect of heritage significance is less than substantial.
- 5.13.251. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the heritage asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.252. Overall, the ExA attributes little weight to this issue against the Order being made.

Historic Landscape Character

- 5.13.253. The Applicant reports minor adverse effects during both construction and operation of the TVB, which would result in effects which would be not significant [APP-432, para 9.6.60 and 9.6.108].
- 5.13.254. In the heritage impact assessment submitted by FERN, the TVB is stated as introducing a large scale, intrusive and modern element into a historic landscape setting which contains a number of heritage assets [REP2-264, section 7].

ExA's consideration

- 5.13.255. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8).
- 5.13.256. The ExA notes the content of the ADDP and the LEMP in respect of the TVB and welcomes the commitment by the Applicant to minimise potential effects on heritage assets through landscape proposals. The ExA is satisfied that the ADDP and LEMP would be adequately secured via Requirements 33, 35 and 36 in the rDCO.
- 5.13.257. However, even with the proposed mitigation measures in place, we consider the TVB would introduce additional linear development into an otherwise rural landscape and would bisect several historic field boundaries. Whilst the construction and operation of the TVB would not result in the total loss of all reference to the historic landscape, there is no doubt that part of its character would be diminished.
- 5.13.258. In considering the significance of this asset, the ExA disagrees that the historic landscape is of a low heritage significance. As such, we conclude that the significance of effect during both construction and operation has been understated by the Applicant. We are however satisfied that such harm would be less than substantial.
- 5.13.259. The ExA therefore attributes moderate weight to matters relating to this asset against the Order being made.

Other heritage assets

- 5.13.260. In respect of the TVB, the Applicant also assessed the below assets:

- Grade I Little Glemham Hall;
- Grade II retaining wall 30m west of Little Glemham Hall and garden wall to south of Little Glemham Hall;
- Grade II lodge at entrance to Little Glemham Hall;
- Grade II Little Glemham Stables;
- Non-designated Pond Barn;
- Grade II Elm Tree Farmhouse;
- Grade II Elm Tree Cottage;
- Grade II Post Office Stores;
- Grade II George and Dragon;
- Grade II Turret Cottage Turret House;
- Grade II* Church of St Andrew; and
- Grade II Four cottages 30 metres south of St Andrew's Church [APP-432].

5.13.261. Details in respect of the assessment of the above assets is located within section 9.6 of the ES chapter, with section 9.8 detailing residual effects. In respect of Little Glemham Hall and those assets associated with the Hall and Pond Barn, no effects are anticipated during either the construction or operational phases.

5.13.262. For the remaining assets on the list, no effect on heritage significance is identified in respect of construction. As a consequence of the diversion traffic due to the TVB, the assets would experience a permanent reduction in traffic noise. The Applicant states that this would improve how the assets are experienced and contribute to historic interest. This would result in moderate beneficial effects which would be significant [APP-432, para 9.6.69 to 9.6.89].

ExA's consideration

5.13.263. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the heritage assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).

5.13.264. The ExA concurs with the findings of the assessments and attributes moderate weight to the identified benefits in respect of the permanent reduction in traffic and subsequent contribution to historic interest for the Order being made.

Northern Park and Ride

Archaeological heritage assets

5.13.265. The Applicant states that in respect of the Northern Park and Ride site (NPR) archaeological remains within the site would be substantially disturbed, if not removed entirely, by construction. This would result in significant adverse effects. However, the Applicant states that secondary mitigation in the form of a site-specific WSI would ensure the archaeological interest of any significant deposits and features would be appropriately investigated, recorded and disseminated. The site-specific

WSI would be in accordance with the Overarching WSI and secured by Requirement 3 of the dDCO. The implementation of this mitigation would reduce effects to not significant [APP-368, para 9.7.5].

ExA's consideration

- 5.13.266. The ExA is satisfied that any adverse effects on archaeological heritage assets would be offset to levels considered not significant following mitigation and any harm would be less than substantial. We are content that Requirement 3 of the rDCO contains the necessary mitigation measures to ensure that substantial harm to archaeological assets would be avoided and that the WSI provides the means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.21).
- 5.13.267. Therefore, the ExA attributes little weight relating to archaeological heritage assets against the Order being made.

Historic landscape character

- 5.13.268. The Applicant states that effects on the historic landscape character during both construction and operation would have a minor adverse effect which would be not significant. In respect of the removal and reinstatement phase, although construction related activity would be visible, the removal of the NPR would return the site to agricultural use and the restoration of sections of hedgerows would effectively reverse any perceptual change in the historic landscape [APP-368, para 9.6.13, 9.6.24 and 9.6.27].

ExA's consideration

- 5.13.269. The ExA accepts that the construction of the NPR would result in the loss of sections of hedgerows which contribute to the overall landscape character. However, we are satisfied that the design response contained within the ADDP is appropriate. Measures in the ADDP include:
- the retention of existing woodland and hedgerows where possible;
 - planting of species-rich hedgerows; and
 - landscape bunds and buffer zones.
- 5.13.270. We are content that such measures would ensure that any change to the landscape character is relatively well contained. As the NPR is temporary, we are also satisfied that the proposed land restoration scheme as detailed in Requirement 38 of the rDCO would successfully return the NPR back to its previous agricultural use and the overall character of the historic landscape would be preserved. The ExA quantifies the identified harm as less than substantial.
- 5.13.271. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the heritage assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).

- 5.13.272. Overall, the ExA ascribes little weight against the making of the Order in respect of the historic landscape character.

Grade II listed Oak Hall

- 5.13.273. The Applicant states that during construction, operation and the removal and reinstatement phases, there would be no impact on heritage significance of Oak Hall and no effect would arise [APP-368, para 9.6.9, 9.6.20 and 9.6.26].

ExA's Consideration

- 5.13.274. The ExA notes that Oak Hall is located close to the A12 and therefore already experiences traffic and noise effects. Additionally, towards the end of the construction phase and during operation, the proposed mitigation measures contained within the ADDP would, to an extent, screen traffic and the lower sections of the NPR buildings. We are satisfied that these design principles are adequately controlled and secured by Requirements 33 and 38 of the rDCO.
- 5.13.275. Additionally, the ExA is content that the proposed land restoration scheme as detailed in Requirement 38 of the rDCO would successfully return the NPR back to its previous agricultural use.
- 5.13.276. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). However, we consider that the effects of the early construction phase have been understated as initial site clearance, earthworks and construction vehicle movements would be both audible and visible from the asset.
- 5.13.277. The ExA considers that whilst Oak Hall's architectural interest would remain intact, given the proximity of construction such activities would result in a slight loss of historic interest. Although temporary in nature, we consider this would result in a minor adverse effect which would be not significant. This would give rise to less than substantial harm to the heritage significance of the asset.
- 5.13.278. Overall, the ExA ascribes little weight against the making of the Order in respect of this asset.

Grade II Old Hall

- 5.13.279. The Applicant states that in respect of setting, during construction, operation and the removal and reinstatement phases, there would be no impact on heritage significance of Old Hall and no effect would arise [APP-368, para 9.6.11, 9.6.22 and 9.6.26].

ExA's consideration

- 5.13.280. Given the distance of approximately 500m from the NPR site and the existing mature screening, the ExA is content that no impact on heritage significance during the construction, operation or removal and reinstatement phases would occur. We are satisfied that the Hall's

architectural and historic interest would remain intact and that there would be no effect on setting.

- 5.13.281. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.282. Overall, the ExA considers that there are no matters relating to this asset which would weight for or against the Order being made.

Cockfield Hall complex

- 5.13.283. In their WR, Heveningham Hall Estate (HHE) confirms that the Cockfield Hall complex consists of eleven separate listed buildings and assets and that the Grade I Cockfield Hall is located on the edge of the 1km study area. The Cockfield Hall complex was not included within the assessment in respect of the NPR. HHE raise significant concern that the scoping out of the designated heritage assets indicates a flawed methodology and fails to take account of the assets' significance. HHE also state that the increased traffic in connection with the NPR is likely to affect the setting of Cockfield Hall and the rest of the complex [REP2-287, para 4.10].
- 5.13.284. Additionally, HHE states that the NPR includes lighting columns and as this has not been assessed, the Applicant has failed to adequately address the wider experiential qualities of setting and the contribution it makes to significance. As such, HHE state that there is a "*glaring flaw in the Applicant's methodology, rendering their conclusions unreliable*" [REP2-287, para 4.13].



Figure 5.13.04: View of Cockfield Hall from the A12 [REP2-287]

- 5.13.285. In response to the HHE WR, the Applicant commented that:

- the scope and methodology of the assessment was agreed with SCC, ESC and HE;
 - scoping considered the lighting proposed, but this was not considered likely to contribute to any adverse effect given the controls over the use of lighting included within the design set out in the LMP; and
 - the suggestion that there is an oversight or omission that may prejudice the SoS duty to consider the desirability of preserving listed buildings and their settings is incorrect [REP3-042, chapter 8].
- 5.13.286. The issue of the Cockfield Hall complex was also discussed at ISH13 [EV-207] to [EV-209]. HHE stated that it was clear that there is an impact on the significance of Cockfield Hall and there is an impact on the parkland, which in turn contributes to the Hall's significance through its setting. HHE state that "*the Applicant's attempt to disaggregate the two, and to correlate no significant harm with no harm at all is wholly unsatisfactory and wrong in law*" [REP8-272, para 2.3].
- 5.13.287. At ISH13, Yoxford Parish Council also stated support for the comments made on behalf of HHE, including their comments on the impact of the NPR [REP8-297].
- 5.13.288. The Applicant confirmed that they had fully responded to the issues raised by HHE at DL3 and further stated that the treatment of setting, assessment methodology and scope is appropriate and was agreed with ESC, SCC and HE [REP8-123].
- 5.13.289. The Applicant considers that the heritage fund proposed by HHE would offer support only for unspecified measures in respect of unspecified effects on structures which have never been specifically identified by HHE. The Applicant therefore does not consider it possible to identify mitigation that might accrue from bids into such a fund and nor would the use of the proposed Community Fund be appropriate [REP10-156, para 3.5.13].

ExA's Consideration

- 5.13.290. The ExA comprehends both the individual and group value of the assets which comprise the Cockfield Hall complex. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the heritage assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.291. The ExA is satisfied with the content and scope of the assessment and finds no reason to disagree with the adopted approach. In respect of funding for mitigation, given the lack of identified harm the ExA does not consider additional mitigation is necessary.
- 5.13.292. As such, the ExA considers that there are no matters relating to this complex of assets which would weight for or against the Order being made.

Southern Park and Ride

Archaeological heritage assets

- 5.13.293. The Applicant states that in respect of the Southern Park and Ride site (SPR) archaeological remains within the site would be substantially disturbed, if not removed entirely, by construction. This would result in significant adverse effects. However, the Applicant states that secondary mitigation in the form of a site-specific WSI would ensure the archaeological interest of any significant deposits and features would be appropriately investigated, recorded and disseminated. The site-specific WSI would be in accordance with the Overarching WSI and secured by Requirement 3 of the dDCO. The implementation of this mitigation would reduce effects to between significant to not significant during construction [APP-399, para 9.6.6 and 9.8.2].
- 5.13.294. As disturbance or removal of the archaeological assets would have occurred during construction, no further effects are anticipated during operation or the removal and reinstatement phases [APP-399, para 9.6.23 and 9.6.36].

ExA's consideration

- 5.13.295. The ExA is satisfied that any adverse effects on archaeological heritage assets would be offset to levels considered not significant following mitigation and any harm would be less than substantial.
- 5.13.296. We are content that Requirement 3 of the rDCO contains the necessary mitigation measures to ensure that substantial harm to archaeological assets would be avoided and that the WSI provides the means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.21).
- 5.13.297. Therefore, the ExA attributes little weight relating to archaeological heritage assets against the Order being made.

Historic landscape character

- 5.13.298. Minor adverse effects during construction and operation would occur which would be not significant. In respect of the removal and reinstatement phase, although construction related activity would be visible, the removal of the SPR would return the site to agricultural use and the restoration of sections of hedgerows would effectively reverse any perceptual change in the historic landscape [APP-399, para 9.6.20, 9.6.34 and 9.6.38].

ExA's considerations

- 5.13.299. The ExA accepts that the construction of the SPR would result in the loss of sections of hedgerows which contribute to the overall landscape character. However, we are satisfied that the design response contained within the ADDP is appropriate. Measures in the ADDP include:
- the retention of existing woodland and hedgerows where possible;

- planting of species-rich hedgerows; and
- landscape bunds and buffer zones.

- 5.13.300. As the SPR is temporary, we are also satisfied that the proposed land restoration scheme as detailed in Requirement 38 of the rDCO would successfully return the SPR back to its previous agricultural use and the overall character of the historic landscape would be preserved. The ExA quantifies the identified harm as less than substantial.
- 5.13.301. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the heritage assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operation and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.302. Overall, the ExA ascribes little weight against the making of the Order in respect of the historic landscape character.

Wickham Market Conservation Area and associated listed buildings

- 5.13.303. The Applicant states that during construction, operation and the removal and reinstatement phases, no effects would occur [APP-399, para 9.6.8, 9.6.25 and 9.6.37].

ExA's considerations

- 5.13.304. The ExA accepts that although the Conservation Area and its associated listed buildings would be approximately 500m from the SPR site, some views of construction may be experienced particularly during the early construction phase. However, such views would be filtered due to the presence of existing buildings within Wickham Market.
- 5.13.305. In the later stages of construction and during operation, the measures contained within the ADDP, which include the retention of existing woodland and hedgerows where possible and planting of species-rich hedgerows, landscape bunds and buffer zones, would ensure that views of the SPR are effectively screened from the Conservation Area.
- 5.13.306. The ExA is satisfied that the character and appearance of the Conservation Area and the settings of the listed buildings would be preserved. We are content that the Applicant has sought to fully identify and assess the particular significance of the Wickham Market Conservation Area and the value it holds (NPS EN-1, para 5.8.10 and 5.8.12).
- 5.13.307. The ExA quantifies any harm to the asset as less than substantial. Overall, the ExA attributes little weight relating to this asset which would weigh against the making of the Order.

Marlesford Conservation Area and associated listed buildings

5.13.308. The Applicant states that during construction, operation and the removal and reinstatement phases, no effects would occur [APP-399, para 9.6.17, 9.6.31 and 9.6.37].

ExA's consideration

5.13.309. The ExA accepts that during the early stages of construction, some noise and visibility of the construction would be evident from within the Conservation Area. However, given the existing screening views, most direct views would be filtered from within the Conservation Area.

5.13.310. In the later stages of construction and during operation, the measures contained within the ADDP, which include the retention of existing woodland and hedgerows where possible and planting of species-rich hedgerows, landscape bunds and buffer zones, would ensure that views of the SPR are effectively screened from the Conservation Area.

5.13.311. The ExA is therefore satisfied that the character and appearance of the Conservation Area and the settings of the listed buildings would be preserved. The ExA quantifies any harm to the asset as less than substantial.

5.13.312. We are content that the Applicant has sought to fully identify and assess the particular significance of the Marlesford Conservation Area and the value it holds (NPS EN-1, para 5.8.10 and 5.8.12). The ExA therefore attributes little weight relating to this asset which would weigh against the making of the Order.

Other heritage assets

5.13.313. In respect of the SPR, the Applicant also assessed the following assets:

- listed buildings at Lower Hacheston;
- listed buildings at Hacheston; and
- Grade II The Rookery [APP-399].

5.13.314. Details in respect of the assessment of the above assets is located within section 9.6 of the ES chapter, with section 9.8 detailing residual effects. It is concluded that during the construction, operation and removal and reinstatement phases there would be no impact on heritage significance and no effects would occur [APP-399].

ExA's Consideration

5.13.315. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).

5.13.316. Overall, we are satisfied with the assessment findings that no effects would occur during the construction, operation or removal and reinstatement of the SPR in respect of the above listed assets.

- 5.13.317. Therefore, the ExA considers that there are no matters relating to these assets which would weight for or against the Order being made.

Yoxford Roundabout and Other Highway Improvements

- 5.13.318. An environmental screening exercise was undertaken by the Applicant to identify which of the four proposed highway improvement works and two safety measures would give rise to environmental effects that may be significant. The exercise identified that the A12/B1122 Yoxford Roundabout and improvements at the A12/A144 junction south of Bramfield should be taken forward to the assessment of likely effects on the terrestrial historic environment [APP-499, para 9.3.10 and 9.3.11].
- 5.13.319. The ExA is satisfied with this approach and are content that the remaining proposed highway work and highway safety measures were screened out of the assessment.

Yoxford Roundabout

Yoxford Conservation Area

- 5.13.320. The Applicant reports that construction and operational effects on the Conservation Area would not be significant. Additionally, following the completion of the MDS construction and a subsequent reduction in traffic levels, no direct effect is reported [APP-499, para 9.4.73, 9.4.99 and 9.4.100].
- 5.13.321. In their WR, HE state that the quantum of development would not be a significant increase to the existing A12, and therefore would not be significantly different in this context. HE considers the roundabout would not have a significant effect on the Conservation Area and any harm would be at the lower end of less than substantial [REP2-138, para 2.150].
- 5.13.322. In respect of the Conservation Area, the HHE raise significant concerns in respect of the effects of the Yoxford roundabout on their estate [REP2-287, para 2.4]. The concerns are stated as being "*the Applicant's suggestion that the A12 is a positive contributor to the Conservation Area is surprising and erroneous. It is directly contrary to the assessment in the statutory Conservation Area Appraisal, which is to be preferred*" and "*the impact on the Yoxford Conservation Area has been underestimated and there has been no assessment of the impact of increases in construction traffic on the Yoxford Conservation Area*" [REP2-286, section 7].
- 5.13.323. Additionally, HHE consider 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 concerns. HHE suggest several amendments to the Requirements 33, 37 and 38 of the dDCO, with a focus on landscaping measures, the submission of an operational phase configuration and an increase of the replacement time period for landscaping [REP2-286], [REP2-287], [REP5-277] and [REP8-272].

- 5.13.324. The Applicant disagrees with HHE's assessment of the effects on the Conservation Area, as the ES characterises several changes in the setting of the Conservation Area which are set out in conclusion as an effect on the whole area. The Applicant considers that the assessment is in accord with both the NPS and the cited ruling [REP3-042, chapter 8].
- 5.13.325. The Applicant does not consider the proposed amendments to the Requirements necessary. The Applicant considers appropriate controls already exist within the ADDP and as a result of the defined scale and design parameters set within the dDCO [REP10-063] and [REP10-009]. The Applicant also notes that the parameters and design principles have also been discussed and agreed by both ESC and SCC [REP3-042].

ExA's consideration

- 5.13.326. The ExA accepts that the introduction of a roundabout instead of a junction would result in further highway related infrastructure in the Conservation Area. Additionally, we note that during the MDS construction period, traffic levels would increase. However, such levels would be temporary, and the additional infrastructure would be viewed within an existing highway setting.
- 5.13.327. The ExA is satisfied that the Landscape Design Principles within the ADDP would provide adequate landscape and visual measures which would provide a degree of screening of the roundabout from views within the Conservation Area. We are also content in the way in which the ADDP is secured within Requirement 33 and 35 in the rDCO.
- 5.13.328. As such, the ExA is content that any effect on the Conservation Area would be localised and very limited change to current views would occur. Whilst some loss of the historic interest of the Conservation Area would be experienced, this would be temporary in nature.
- 5.13.329. We are therefore satisfied that the character and appearance of the Conservation Area would be preserved, and any harm would be negligible. The ExA quantifies any harm to the asset as less than substantial.
- 5.13.330. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.331. Overall, the ExA attributes little weight relating to this asset which would weigh against the making of the Order.

Cockfield Hall Complex

- 5.13.332. In respect of the assessment undertaken by the Applicant, this includes Cockfield Hall Park and Cockfield Hall Lodge. For both assets during construction, the Applicant states that limited harm would occur for a

short-term temporary period and as such, effects would be not significant [APP-499, para 9.4.87 and 9.4.89].

- 5.13.333. During the operational phase, the Applicant states that any change in respect of setting would not be of sufficient magnitude to give rise to any change to the historic understanding of the asset. In respect of both assets, the operational phase is recorded as having no effect [APP-499, para 9.4.117 and 9.4.119].
- 5.13.334. In their WR, HE state that having considered the assessment within their remit, they confirm that they broadly agree with the conclusion reached. The listed buildings are set back from the Proposed Development within a mature setting and as such it is unlikely to be present in views from Cockfield Hall [REP2-138, para 2.149].
- 5.13.335. HHE however consider that the Applicant has failed to adequately assess;
- the significance of the heritage assets located on the HHE, known as the Cockfield Hall complex and;
 - the group value [REP2-287, para 4.2].
- 5.13.336. Accordingly, the HHE consider that the Applicant's determination of harm has not been properly made and impacts have been grossly underestimated. In particular, the impact of the 12-year construction phase on heritage assets and their settings has not been properly assessed [REP2-287, para 4.3].
- 5.13.337. In response to the HHE WR, the Applicant confirms that:
- the scope and methodology of the assessment was agreed with SCC, ESC and HE;
 - the decision to include only Cockfield Hall Lodge and Cockfield Park in the assessment was based on the distance of Cockfield Hall from the proposed roundabout and the nature of the parkland. This decision was agreed with ESC and HE and was not subsequently queried or challenged; and
 - the suggestion that there is an oversight or omission that may prejudice the SoS duty to consider the desirability of preserving listed buildings and their settings is incorrect [REP3-042, chapter 8].
- 5.13.338. As previously detailed, HHE also requested amendments and additional Requirements in respect of the roundabout. The same requests are applicable to this asset and as such, it is not intended to repeat the request or response by the Applicant.
- 5.13.339. The issue of the Cockfield Hall complex was also discussed at ISH13 [EV-207] to [EV-209]. HHE stated that it was clear that there is an impact on the significance of Cockfield Hall and there is an impact on the parkland, which in turn contributes to the Hall's significance through its setting. The Applicant's attempt to disaggregate the two, and to correlate no significant harm with no harm at all is wholly unsatisfactory and wrong in law [REP8-272].

- 5.13.340. HHE also maintained their request for a specific contribution for heritage mitigation within the DoO which would enable residual effects to be mitigated [REP8-272].
- 5.13.341. Following ISH13, the ExA made a request for further information under Rule 17 letter of the Infrastructure Planning (Examination Procedure) Rules 2010 to HE requesting confirmation of their position in respect of comments made by HHE and the recent Stonehenge judgement [PD-052]. In response, HE confirmed that their position remained as documented in their WR, in that they broadly agreed with the conclusion reached as the listed buildings are set back from the proposed roundabout and it is unlikely to be present in views from Cockfield Hall [REP2-138] and [REP8-162].
- 5.13.342. The Applicant confirmed that they had fully responded to the issues raised by HHE at DL3 and further stated that the treatment of setting, assessment methodology and scope is appropriate and was agreed with ESC, SCC and HE [REP8-123].
- 5.13.343. The Applicant considers that the heritage fund proposed by HHE would offer support only for unspecified measures in respect of unspecified effects on structures which have never been specifically identified by HHE. The Applicant therefore does not consider it possible to identify mitigation that might accrue from bids into such a fund and nor would the use of the proposed Community Fund be appropriate [REP10-156, para 3.5.13].

ExA's consideration

- 5.13.344. During the construction of the roundabout, the ExA accepts that some construction noise would be heard from within the setting of the Park, and also from the Lodge. Glimpses of construction activities may also occur, but these would be heavily filtered due to existing trees and hedgerows.
- 5.13.345. Once the roundabout is operational, the ExA accept that during the peak construction period of the MDS, traffic volumes would increase on the A12 and B1122. However, audible effects would be temporary and transient in nature. As such, any effect on setting would be minimal and temporary and would not result in any change to the historic understanding of Cockfield Hall Lodge.
- 5.13.346. The ExA supports the inclusion of the Landscape Design Principles within the ADDP and are satisfied that such measures would provide adequate landscape and visual measures which would provide additional screening. We are also content in the way in which the ADDP is secured within the rDCO.
- 5.13.347. Taking account of the scale and location of the roundabout, and the consideration of setting as a whole, the ExA is content that whilst some short-term temporary effects would be experienced, such effects would be not significant, and any harm would be modest. Such a degree of

harm would therefore amount to less than substantial harm (NPS EN-1, para 5.8.14).

- 5.13.348. NPS EN-1 at paragraph 5.8.15 requires “*that any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development.*” The ExA find that there is less than substantial harm and this would be strongly outweighed by the very substantial public benefits of the Proposed Development.
- 5.13.349. Additionally, and in accordance with paragraph 5.8.18 of NPS EN-1, the ExA is satisfied that the introduction of the roundabout to this location would preserve those elements of the setting that make a positive contribution to the asset.
- 5.13.350. Noting the concerns raised by HHE, the individual and group value of the assets, including any potential effect on setting, of the Cockfield Hall complex is understood by the ExA (NPS EN-1, para 5.8.12, 5.6.18). The ExA considers that even if Cockfield Hall had been included within the assessment, a departure from the assessment findings would be unlikely (NPS EN-1, para 5.8.13). Given the intervening trees and hedgerows, distance of the asset from both the A12 and the proposed roundabout and any associated acoustic effects, the ExA remains satisfied that the reported level of harm, including the consideration of setting as a whole, would remain unchanged.
- 5.13.351. Overall, the ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the heritage assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the assets has been adequately assessed for construction and operation.
- 5.13.352. However, even if the introduction of the roundabout was found not to preserve the elements of setting that make a positive contribution to the significance of the Cockfield Hall complex, any loss to heritage significance which would be experienced would be strongly outweighed by the very substantial public benefits of the Proposed Development (NPS EN-1, para 5.8.18).
- 5.13.353. In respect of funding for mitigation, such measures are required to be both necessary and proportionate. Given the level of harm identified and the primary mitigation measures to be secured through design, the ExA does not consider additional mitigation in respect of this group of assets to be necessary.
- 5.13.354. Therefore, the ExA ascribes little weight against the making of the Order in respect of the Cockfield Hall complex.

Non-designated Rookery Park

- 5.13.355. The Applicant reports that during construction no significant effects are anticipated and once traffic levels have decreased following the completion of construction of the MDS, no effects would be experienced during operation [APP-499, para 9.4.83 and 9.4.11].

- 5.13.356. HHE considers that the assessment of Rookery Park is inadequate insofar as the discernible increase in traffic would result in an unacceptable level of harm to the Park [REP2-287, para 4.20(c)(i)].
- 5.13.357. The Applicant contends that the assessment identifies that the increase in traffic would be discernible. However, as the roads are already busy any increase would not be sufficient to change the perception of those roads or their place [REP3-042, chapter 8].
- 5.13.358. The owners of Rookery Park Estate submitted a representation into the Examination at DL10, stating their concerns in respect of lighting columns surrounding the roundabout [REP10-378]. This matter is considered in section 5.14 of this Report.

ExA's consideration

- 5.13.359. The ExA concurs that in respect of the construction of the roundabout, some related activities would be visible and audible. However, these effects would be temporary and transient in nature.
- 5.13.360. During operation, whilst the MDS is under construction, we accept that traffic levels would increase and with that so would noise levels. However, when taken in context of the existing road and traffic levels combined with the temporary nature of the effects, the ExA is content this would not result in significant adverse effects.
- 5.13.361. We are also satisfied that the proposed planting, as detailed within the ADDP, would further reduce the visibility of the roundabout. Following the completion of the construction of the MDS, and traffic levels return we are content no significant adverse effects would occur.
- 5.13.362. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the asset (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.363. Therefore, the ExA ascribes little weight against the making of the Order in respect of this issue.

Other heritage assets

- 5.13.364. In respect of the Yoxford roundabout, the Applicant also assessed the following:
- listed buildings at the eastern side of Yoxford village – Grade II The Gables, Grade II Satis House, Grade II Old School Cottages, Grade II White Lodge and The White House;
 - Grade II Rookery Cottages;
 - the historic landscape character; and
 - archaeological heritage assets [APP-499].

- 5.13.365. Details in respect of the assessment of the above assets are located within section 9.4 of the ES chapter, with section 9.8 detailing any residual effects [APP-499].
- 5.13.366. During construction, The Gables, Satis House, White Lodge and the White House would experience minor adverse effects which would be not significant during construction. No effect would arise in respect of heritage significance for Old School Cottages. Additionally, no significant effects are identified in respect of Rookery Cottages or the historic landscape character during construction [APP-499]. During operation, the Applicant has not identified any effects on the listed buildings or Rookery Cottages. Negligible adverse effects in respect of the historic landscape would remain during operation, which would be not significant [APP-499].
- 5.13.367. Intrusive groundworks would adversely affect any surviving subsurface archaeological remains, thereby resulting in the loss of archaeological interest during construction. The removal of such remains would result in a significant adverse effect. However, the Applicant states that secondary mitigation in the form of a site-specific WSI would ensure the archaeological interest of any significant deposits and features would be appropriately investigated, recorded and disseminated. The site-specific WSI would be in accordance with the Overarching WSI and secured by Requirement 3 of the dDCO. The implementation of the secondary mitigation would reduce effects to not significant [APP-499, para 9.4.125].

ExA's consideration

- 5.13.368. The ExA is content that the residual effects of the construction and operation of the roundabout would amount to less than substantial harm.
- 5.13.369. In respect of archaeological heritage assets, we are satisfied that the adverse effects on archaeological heritage assets would be offset to levels considered not significant following mitigation and any harm would be less than substantial. We are content that Requirement 3 of the rDCO contains the necessary mitigation measures to ensure that substantial harm to archaeological assets would be avoided and that the WSI provides the means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.21).
- 5.13.370. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction and operation (NPS EN-1, para 5.8.10).
- 5.13.371. Overall, the ExA ascribes little weight against the making of the Order in respect of these assets.

Improvements at the A12 and A144 junction south of Bramfield

5.13.372. Stone Cottage, a Grade II listed building, is located immediately to the north of the junction between the A12 and A144. The Applicant contends that as the building is set back from the already busy junction and is sited behind dense and high hedgerows, the house and gardens are already perceptually separated from the road. No effects are reported during either construction or operation [APP-499, Table 9.6].

ExA's Consideration

5.13.373. The proposed improvement works would result in the highway moving marginally closer to Stone Cottage which, contrary to the Applicant's assessment, the ExA considers would have a temporary adverse effect on setting during construction. However, given the existing roadside location, dense screening and the temporary nature of construction works, the ExA is content this would result in less than substantial harm.

5.13.374. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).

5.13.375. Therefore, the ExA ascribes little weight against the making of the Order in respect of this asset.

Freight Management Facility

Scheduled bowl barrows and ring ditch south-west of Redhouse Farm

5.13.376. The Applicant reports that in respect of direct effect on the assets, loss of archaeological interest would occur during construction of the Freight Management Facility (FMF), which would result in significant adverse effects. In the operational, removal and reinstatement phases, any disturbance of archaeological heritage assets within the site would have already occurred and no further effects are anticipated [APP-528].

5.13.377. Minor adverse effects, which are not significant, are reported by the Applicant in respect of the two bowl barrows 900m and 980m southwest of Redhouse Farm in respect of loss of archaeological interest of the assets [APP-528, para 9.6.13]. Additionally, in the absence of mitigation, significant effects would occur in respect of the bowl barrow 1200m south-west of Redhouse Farm given its proximity to the site and construction site [APP-528, para 9.6.14].

5.13.378. To mitigate adverse effects for the bowl barrow 1200m south-west of Redhouse Farm during construction and operation, a site-specific WSI is required. This would ensure the archaeological interest of any significant deposits and features within the site would be appropriately investigated, recorded, and disseminated in order to preserve the archaeological interest of the remains. The site-specific WSI would be in accordance with the Overarching WSI and secured by Requirement 3 of the dDCO. The implementation of mitigation would reduce effects to not significant

[APP-528, para 9.7.4]. No effects on this asset would occur due the removal and reinstatement phase [APP-528, para 9.6.30].

ExA's Consideration

- 5.13.379. The ExA is satisfied that any adverse effects on archaeological heritage assets would offset to levels considered not significant following mitigation and any harm would be less than substantial. We are content that Requirement 3 of the rDCO contains the necessary mitigation measures to ensure that substantial harm to archaeological assets would be avoided and that the WSI provides the means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.21).
- 5.13.380. The ExA considers that a description of the heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the assets has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.381. Therefore, the ExA attributes little weight relating to archaeological heritage assets against the Order being made.

Historic landscape character

- 5.13.382. The Applicant accepts that during both construction and operation the change from an agricultural site to that of a large parking area would alter the character of both the site and its immediate surroundings. However, due to proposed 10m buffer zones and planting on three borders of the site and landscape bunds would result in any changes to character being kept internal to the field. Whilst minor adverse effects would be experienced, these would not be significant [APP-528, para 9.6.15 and 9.6.25].
- 5.13.383. The removal and reinstatement phase would reverse any perceptual change in the historic landscape character and no effects are anticipated. [APP-528, para 9.6.31].

ExA's consideration

- 5.13.384. The ExA accepts that the construction of the FMF in the historic landscape would result in several landscape features being modified or removed, including hedgerows and intermittent trees.
- 5.13.385. We are however satisfied that the design response contained within the ADDP which includes the planting of species-rich hedgerows, landscape bunds and buffer zones would ensure that changes to the historic landscape character are relatively well contained. As the FMF is temporary, we are also satisfied that the proposed land restoration scheme as detailed in the rDCO would successfully return the FMF back to its previous agricultural use.
- 5.13.386. The ExA is satisfied that these design principles are adequately controlled and secured by Requirements 33 and 38 of the rDCO and such measures

would minimise the impact of the FMF, and the overall character of the historic landscape would be preserved.

- 5.13.387. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.388. Therefore, the ExA ascribes little weight against the making of the Order in respect of the historic landscape character.

Rail

Archaeological heritage assets

- 5.13.389. The Applicant states that in respect of the rail extension, archaeological remains within the site would be substantially disturbed, if not removed entirely, by construction. This would result in significant adverse effects [APP-560, para 9.6.6].
- 5.13.390. However, the Applicant states that secondary mitigation in the form of a site-specific WSI would ensure the archaeological interest of any significant deposits and features would be appropriately investigated, recorded and disseminated. The site-specific WSI would be in accordance with the Overarching WSI and secured by Requirement 3 of the dDCO. The implementation of this mitigation would reduce effects to not significant during construction [APP-560, para 9.7.3].
- 5.13.391. As disturbance or removal of the archaeological assets would have occurred during construction, no further effects are anticipated during operation or the removal and reinstatement phases [APP-560, para 9.6.27].

ExA's Consideration

- 5.13.392. The ExA is satisfied that any adverse effects on archaeological heritage assets would be offset to levels considered not significant following mitigation and any harm would be less than substantial. We are content that Requirement 3 of the rDCO contains the necessary mitigation measures to ensure that substantial harm to archaeological assets would be avoided and that the WSI provides the means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.21).
- 5.13.393. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.394. Therefore, the ExA attributes little weight relating to archaeological heritage assets against the Order being made.

Grade I and Grade II listed buildings and associated non-designated structures at Leiston Abbey (Second Site)

- 5.13.395. The Applicant reports that during construction significant adverse effects would be experienced at St Mary's Abbey in respect of loss of historic interest. However, for the remaining assets, no harm to heritage significance would occur and no effects would be experienced [APP-560, para 9.6.15 to 9.6.16].
- 5.13.396. During the operational phase, Guesten Hall, the Barn and Retreat House would experience minor adverse effects in respect of historic interest which would be not significant. Significant effects would however occur in the southernmost part of the Abbey ruins due to proximity to the rail extension [APP-560, para 9.6.34 to 9.6.36].
- 5.13.397. As detailed earlier, in addition to primary mitigation measures, Schedule 8 of the DoO confirms payment of monies to ESC for onwards payment to HE as a contribution towards surveys and improved interpretation at the site. Additionally, Schedule 13 of the DoO details the Pro Corda Resilience Fund [REP10-075].
- 5.13.398. Discussion in relation to the acceptability of Schedule 8 and 13 of the DoO with HE, EHT, the Councils and the Pro Corda Trust are relevant in respect of the rail extension and detailed above and are not repeated here. The position of EHT has also been discussed previously and is not to be repeated here, other than to confirm all matters were agreed in respect of the DoO and the associated contributions by the close of the Examination [REP10-117].

ExA's consideration

- 5.13.399. The ExA concurs that during both construction, operation and to a lesser degree removal and reinstatement, the assets as a group would experience significant effects. Dependant on the phase in question, different assets would experience different effects. We are however satisfied that the effects would result in less than substantial harm.
- 5.13.400. The ExA is content that all reasonable steps have been taken through primary design mitigation and Schedules 8 and 13 of the DoO to minimise effects on the Abbey site where practicable. We are satisfied that the measures proposed within the DoO would assist EHT to promote and achieve a sustainable state of conservation and maintenance. Additionally, measures would also provide visitors with a better understanding of the site and better reveal the significance of the Abbey. As such, we are satisfied that the proposed improvements would provide a legacy benefit in terms of improvement to the longer-term conservation of the assets and their setting.
- 5.13.401. The ExA also notes that the off-road link between the two Leiston Abbey sites would result in restored connectivity to the sites and would result in an increased historic interest to both sites. However, limited information has been provided by the Applicant as to the exact detail of the route and

how historic interest would increase. Additionally, this provision is not referenced in the DoO.

- 5.13.402. The ExA considers that a description of heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.403. Therefore, the ExA ascribes moderate weight against the making of the Order in respect this asset.

Grade II Wood Farmhouse

- 5.13.404. The Applicant confirms that during construction there would be no effects on the asset due to the distance of the works and activity would not be present in views of the asset which contribute to its architectural interest. During operation some visual and audible effects would occur. However, these would be minor adverse and not significant [APP-560, para 9.6.20 and 9.6.42].

ExA's consideration

- 5.13.405. The ExA is content that any effect on setting would be small scale in nature and temporary and are satisfied that any harm would be less than substantial.
- 5.13.406. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.407. Therefore, the ExA ascribes little weight against the making of the Order in respect of this asset.

Other heritage assets

- 5.13.408. In respect of the rail extension, the Applicant also assessed the following:
- Grade II Fisher's Farmhouse; and
 - the historic landscape character [APP-560].
- 5.13.409. Details in respect of the assessment of the above assets is located within section 9.6 of the ES chapter, with section 9.8 detailing any residual effects [APP-560].
- 5.13.410. No effects are identified regarding Fisher's Farmhouse during construction, operation or removal and reinstatement [APP-560, para 9.6.19, 9.6.40 and 9.6.48].

- 5.13.411. In respect of the historic landscape character, construction and operational activities would introduce visual and audible elements to an otherwise agricultural landscape. However, this would only affect the immediate historic and aesthetic interest of the historic landscape and would be most visible during early construction. Effects would reduce following the introduction of landscape mitigation measures contained within the ADDP, including landscape bunds and species-rich hedgerow planting. Changes to the landscape during construction and operation are considered to give rise to a minor adverse effect, which is considered to be not significant [APP-560, para 9.6.24 and 9.6.44].
- 5.13.412. The removal and reinstatement phase would reverse any perceptual change in the historic landscape character and no effects are anticipated. [APP-560, para 9.6.50].

ExA's consideration

- 5.13.413. As a result of the assessment, the ExA is content that the residual effects of the construction and operation of the roundabout would amount to less than substantial harm.
- 5.13.414. The ExA considers that a description of the heritage asset has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of impacts on the asset has been adequately assessed for construction, operational and removal and reinstatement phases (NPS EN-1, para 5.8.10).
- 5.13.415. Overall, the ExA attributes little weight relating to the above heritage assets against the Order being made.

Project-wide, cumulative and inter-relationship effects

Project-wide effects

- 5.13.416. In respect of project-wide effects the Applicant confirms that effects have been assessed to be greater at the project-wide scale during the early and peak years of construction than compared with the effects from the individual project components. Such effects are assessed as being significant on the setting and heritage significance of the Grade I St Mary's Abbey and Leiston Abbey (second site) [APP-577, para 3.7.11 and 3.7.13].
- 5.13.417. However, the Final SoCG between the Applicant and the Pro Corda Trust [REP10-109] and the Applicant and EHT [REP10-117] confirmed that all matters have been agreed and as discussed previously, the DoO sets out the agreed mitigation.

Cumulative effects

- 5.13.418. In respect of cumulative considerations, the Applicant reports that the following developments may result in potential cumulative effects:

- developments at St Margaret’s Crescent, Leiston and Land East of Abbey Road, Leiston) have the potential to affect elements of the medieval agricultural landscape around Leiston and Leiston Abbey;
- development at Johnsons Farm, Saxmundham Road, Leiston has the potential to affect elements of the medieval agricultural landscape around Leiston and Leiston Abbey that would also be affected by works at the rail extension, through disturbance of remains such as former boundary ditches or trackways and possible medieval domestic plots; and
- development at Levington Lane, Bucklesham has the potential to affect archaeological remains associated with the wider prehistoric landscape including settlement and funerary activity that would also be affected by works at the freight management site [APP-578].

5.13.419. However, the Applicant confirms that where mitigation in the form of an agreed WSI is in place, no significant effects are identified. No effects are identified in respect of the historic landscape character or the setting of heritage assets.

Inter-relationship effects

5.13.420. The Applicant states that as effects such as landscape, visual, noise and vibration are included within the settings assessment, the consideration of inter-relationship effects forms an inherent part of the assessment presented within each of the relevant ES Chapters.

5.13.421. In respect of archaeological remains, as remains are not sensitive to changes predicted within the ES Chapters other than the direct disturbance already considered within each of the assessments, no inter-relationship effects are considered.

ExA’s consideration

5.13.422. The ExA is satisfied that the Applicant’s assessments in respect of cumulative, project-wide and inter-relationship effects have considered relevant historic environment aspects and is content with the findings.

5.13.423. The ExA is therefore satisfied that the Applicant has satisfactorily addressed how individual environmental effects of the Proposed Development combine together with one another and lead to significant effects on a single receptor (NPS EN-1, para 4.2.6).

5.13.424. In respect of St Mary’s Abbey and the Leiston Abbey (second site), given the measures secured within the DoO we are content that the identified significant effects would be temporary in nature and the harm would be less than substantial.

5.13.425. The ExA therefore ascribes moderate weight against the making of the Order in respect of these issues.

Conclusion

5.13.426. As required by Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010, the ExA has given specific consideration to the

desirability of preserving listed buildings and scheduled monuments or their setting or any features of special architectural or historic interest which they possess, and the desirability of preserving or enhancing the character or appearance of conservation areas.

- 5.13.427. The ExA finds that policy on the historic environment within NPS EN-1 has been followed by the Applicant. This policy is consistent with the aims of Section 16 of the NPPF and with the aims of the relevant policies of the local authorities' development plans.
- 5.13.428. The ExA considers that a description of the marine and terrestrial heritage assets has been provided in a level of detail proportionate to the importance of the assets (NPS EN-1, para 5.8.8). The ExA also considers that the significance of effect on the historic environment has been adequately assessed for the construction, operation and where relevant, reinstatement and removal phases of the Proposed Development (NPS EN-1, para 5.8.12).
- 5.13.429. The ExA considers that the necessary monitoring, mitigation, and controls are incorporated within the latest revisions of the dDCO requirements, the DML, the DAS, the LEMPs and the ADDP. We are satisfied that they would be adequately secured via the rDCO. The ExA agrees with the findings of the Applicant's ES, that the significance of any adverse effects would be reduced or offset to levels considered non-significant in EIA terms following mitigation.
- 5.13.430. With specific reference to effects on onshore and offshore archaeology, we are content that such effects would be adequately addressed and mitigated by Requirement 3 and also Condition 16 of the DML as set out in the rDCO which would secure the final WSIs. The ExA is content that the WSIs provide the means by which recording would be secured and published (NPS EN-1, para 5.8.19 to 5.8.22).
- 5.13.431. Considering the conclusions relating to each of the identified assets:
- moderate weight should be ascribed to matters relating to effects on heritage significance against the making of the Order in respect of Leiston Abbey (1st site), Leiston Abbey (2nd site and the TVB and SLR historic landscape character;
 - little to moderate weight should be ascribed to matters relating to effects on heritage significance against the making of the Order in respect of Glemham Hall Registered Park and Garden;
 - little weight should be ascribed to matters relating to effects on heritage significance against the making of the Order in respect of the non-designated Pillbox in Pillbox Field ;
 - little weight should be ascribed to benefits relating to effects on heritage significance for the making of the Order in respect of Thatched House, The Cottage, Pine Tree Cottage, Church of St Peter, listed buildings within Theberton village, Elm Tree Farmhouse, Elm Tree Cottage, Post Office Stores, George and Dragon, Turret Cottage Turret House, Church of St Andrew and Four cottages 30 metres south of St Andrew's Church; and

- little weight should be ascribed to matters relating to effects on heritage significance against the making of the Order for the remainder of the assets identified in the above conclusions.
- 5.13.432. For each of the individual identified assets, the ExA is satisfied that the Proposed Development would result in less than substantial harm to the historic significance of those assets (NPS EN-1, para 5.8.14).
- 5.13.433. The ExA is also satisfied that no oversight or omission has occurred in respect of the assessment undertaken which may prejudice the SoS duty to consider the desirability of preserving listed buildings and their settings.
- 5.13.434. The initiatives secured within the DCO will assist in mitigating any residual effects and will provide legacy benefits in terms of improvement to the longer-term conservation of assets and their settings. Additionally, measures would also enable visitors to gain a better understanding of the heritage significance of the assets through improved interpretation materials. (NPS EN-1, para 5.8.13). However, in the wider context of the scheme, we consider that little weight should be attached to the benefits arising from the initiatives secured via the DoO in respect of the Order being made.
- 5.13.435. In weighing the harmful impact on the significance of each of the historic assets against the public benefits, the ExA concludes that in all instances the very substantial public benefits of the Proposed Development would strongly outweigh the less than substantial harm to the significance of the historic asset concerned. The loss of significance to those assets would therefore be justified in this case (NPS EN-1, para 5.8.14 and 5.8.18)
- 5.13.436. The ExA ascribes moderate weight to the matters relating to the historic environment against the making of the Order in the overall planning balance.

This page is intentionally blank.