The Sizewell C Project

8.4 Planning Statement Appendix 8.4A Site Selection Report

Revision: 1.0

Applicable Regulation: Regulation 5(2)(q)

PINS Reference Number: EN010012

May 2020

Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

APPENDIX 8.4A: SITE SELECTION REPORT

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1. Introduction

1.1 Purpose of this document

1.1.1 This Site Selection Report sets out SZC Co.'s approach to site selection, and consideration of alternatives for the proposals - from initial conception, through the various consultation stages, to the final scheme design.

1.1.2 The purpose of the report is to provide the full account of this process in one place, but it is also supplemented by the alternatives chapters contained within the **Environmental Statement** (**ES**) (Doc Ref. Book 6), which draw on this report, to specifically address the requirements of Regulation 2(1) and Schedule 4 of the Environmental Impact Assessment (EIA) regulations for the **ES** to *"outline the main alternatives studied by the applicant and an indication of the main reasons for the choice made, taking into account the environmental effects".* The **ES** chapters, therefore, focus on the comparative potential environmental effects of the alternatives studied by SZC Co. which are in this Site Selection Report.

1.2 Approach to alternatives and site selection

a) Geographic location

1.2.1 The need for a new power station at Sizewell C is firmly established within the Government's policy on national significant energy infrastructure.

1.2.2 The National Policy Statement for Nuclear Power Generation (EN-6) (NPS EN-6) (Ref 1.1) identified eight sites, including Sizewell C, as potentially suitable locations for the deployment of new nuclear power stations in England and Wales by 2025.

1.2.3 NPS EN-6 (Ref 1.2) was underpinned by a Strategic Siting Assessment (SSA) of the eleven sites promoted through a nomination-driven process. The Government also undertook a strategic level screening process (the Alternative Sites Study) to identify if there were any potentially suitable sites that were not put forward through nominations.

1.2.4 The Appraisal of Sustainability (AoS) (Ref 1.3), took into account both alternative strategies (i.e. whether the objectives of the NPS could be achieved though alternative options) and the potential acceptability of the

eleven sites originally nominated to the SSA based on selected exclusionary and discretionary criteria[1].

1.2.5 Of the eleven original sites, one site (Dungeness) was excluded from the first draft Nuclear NPS published in November 2009, and following updated site assessments, Braystones and Kirksanton were also excluded in October 2010. The Government concluded that eight of the original 11 sites were suitable, namely Bradwell, Hartlepool, Heysham, Hinkley Point, Oldbury, Sellafield, Sizewell, and Wylfa.

1.2.6 Paragraph 4.4.3 of NPS EN-6 confirms that, as a result of the SSA and Alternatives 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. It also states at paragraphs 2.4.4 and 2.5.4 that the Government considers that all eight sites are required to be listed in the NPS.

1.2.7 Of the eight sites included within NPS EN-6, only Hinkley Point C has been granted a Development Consent Order (DCO) consent, in March 2013. An application by Horizon Nuclear Power in June 2018 for a new nuclear power station at Wylfa is awaiting determination.

1.2.8 The location of the Sizewell C power station, to the north of the existing Sizewell B power station, and the approximate location of the temporary construction area for the main development site are indicated in plans appended to NPS 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.

1.2.9 Whilst SZC Co. remains confident that Sizewell is suitable for the deployment of a new nuclear power station, it is no longer possible for deployment to take place by the end of 2025. The Ministerial Statement on Energy Infrastructure published on 7 December 2017 ('2017 Ministerial Statement') (Ref 1.4) states that for projects yet to apply for development consent and due to deploy beyond 2025, the Government continues to give its strong in principle support to proposals at those sites currently listed in NPS EN-6.

[1] Exclusionary criteria were those which, if breached, would categorically exclude all or part of a site from further consideration (for example, demographic risk or proximity to certain military activities). Discretionary criteria were those that the Government considered, for various reasons, could, either singly or in combination, make all or part of a site unsuitable but which needed to be carefully considered in order to come to a conclusion as to the site's strategic suitability (for example, flood risk and proximity to hazardous facilities).

1.2.10 The 2017 Ministerial Statement explains that the Government is confident that both Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) and NPS EN-6 incorporate information, assessments and statements which will continue to be important and relevant for projects which will deploy after 2025, including statements concerning the need for nuclear power, as well as environmental and other assessments that continue to be relevant for those projects. The 2017 Ministerial Statement recognises that, in deciding whether or not to grant development consent to such a project, the Secretary of State would be required, under section 105(2)(c) of the Planning Act 2008, to have regard to the content of NPS EN-1 and NPS EN-6, unless they have been suspended or revoked (which they had not been at the date of submitting the Application).

1.2.11 The 2017 Ministerial Statement concludes that in respect of matters where there is no relevant change of circumstances, it is likely that significant weight would be given to the policy in NPS EN-1 and NPS EN-6. For the reasons set out in **Chapter 2** of the **Planning Statement** (Doc Ref. 8.4), there have been no relevant change of circumstances which would suggest that anything less than significant weight should be given to the policy in NPS EN-1 and NPS EN-6.

1.2.12 In adopting NPS EN-6 the Government confirmed that as a result of the SSA and Alternative Sites Study it did not believe that there were any alternatives to the eight listed sites capable of deployment before the end of 2025. It also stated that the Government considers that all eight sites were required to be listed in the NPS (paragraphs 2.4.4 and 2.5.4 of EN-6).

1.2.13 NPS EN-6 therefore advises the decision maker to *"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".* In other words, the listed sites are not competing against each other. Only one of the eight sites has come forward through the granting of a DCO consent. Even if all of the other sites came forward this would not mean that Sizewell should not.

1.2.14 This principle is supported by paragraph 4.4.3 of NPS EN-1 which states, with regard to nuclear, that where there is reason to suppose that the number of sites suitable for deployment of a technology on the scales and within the period of time envisaged by the relevant NPSs is constrained the decision maker should not "*reject an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site, and it should have regard as appropriate to the possibility that all suitable sites for energy infrastructure of the type proposed may be needed for future proposals".*

1.2.15 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 beyond 2025. SZC Co. nominated Sizewell as a site that is suitable for the deployment of a new nuclear power station by 2035.

1.2.16 The Government Response (July 2018) (Ref 1.5) confirmed that the proposed process for assessing and designating potential sites was firstly to carry the list of potentially suitable sites from EN-6 through to the new NPS subject to them meeting the updated siting criteria and updates of their environmental statements. The response confirmed that there would be no window for new site nominations until the 2020s.

1.2.17 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".*

1.2.18 The approach adopted in EN-6, that the eight sites were not alternatives to each other, remains applicable now. As set out in **Chapter 3** of the **Planning Statement,** the need for new nuclear power is now even greater than before. Paragraph 2.3.2 of NPS EN-6 is clear that all eight sites are required to be listed in the NPS so that they are each available as a potential opportunity for nuclear development subject to consideration through the DCO process. It follows that even if new potential locations were to be located through the new NPS 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.

1.2.19 Against this policy basis, alternative geographical locations for a nuclear power station are not considered further in this Site Selection Report.

b) Reactor design

1.2.20 The UK EPR™ reactor developed by AREVA and SZC Co. is proposed for Sizewell C. This reactor has completed the UK's GDA process with the award of a Design Acceptance Confirmation (DAC) (Ref 1.6) from the ONR and a statement of Design Acceptability (SoDA) from the Environment Agency 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.

c) Strategic and site-specific alternatives

1.2.21 Although it is not necessary to consider alternative geographical locations for a new nuclear power station, or the type of reactor design, it is necessary to consider the approach to identifying the need for associated development that would be required and where these should be located.

1.2.22 There is no prescribed process for site selection set out in the NPSs, and paragraph 4.4.1 of NPS EN-1 confirms that, from a policy perspective, the NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option. Paragraph 4.4.3 of NPS EN-1 does, however, establish useful guiding principles in considering alternative strategies, sites and designs:

- the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner;
- the decision maker should be guided by whether there is a realistic prospect of an alternative delivering the same infrastructure capacity in the same timescale as the proposed development;
- alternatives not among the main alternatives studied by the applicant should only be considered to the extent the decision maker thinks they are both important and relevant to the decision;
- an alternative proposal which would mean the development would not be in accordance with the relevant NPSs is unlikely to be important and relevant;
- alternative proposals that would mean the development could not proceed because they are not commercially viable or physically suitable are not important and relevant to decision making; and
- alternative proposals that are vague or inchoate can be excluded.

1.2.23 Given the urgency of the need for new nuclear power, one of the overarching principles for alternative strategies and site selection is the delivery of new nuclear power generation as soon as possible, within the obligation to minimise impacts on the environment and local communities.

1.2.24 SZC Co. has adopted a two-stage approach to the consideration of alternatives and site selection.

i. Strategic alternatives

1.2.25 The first stage involves the consideration of alternative strategies, and the consequent need for associated development, in relation to:

- the movement of people;
- the movement of freight; and
- the accommodation of the construction workforce.

1.2.26 These key strategic decisions are addressed at **Chapter 2** of this Site Selection Report with the full detail of the transport and accommodation strategies contained within **Chapter 5** of the **Transport Assessment** (Doc Ref. 8.5) and the **Accommodation Strategy** (Doc Ref. 8.10).

ii. Site-specific alternatives

1.2.27 The second stage relates to site-specific alternatives for each element of the proposals. This includes a consideration of alternative design solutions for the different components of the main development site, and the location and design of each of the required associated developments.

1.2.28 The alternatives considered in relation to the main development site (including, for example, the size and boundaries of the Temporary Construction Area, the design of the Site of Special Scientific Interest (SSSI) crossing, location of the borrow pits etc.) are addressed at **Chapter 3** of this report.

1.2.29 The consideration of site-specific alternatives in relation to each of the associated development components is addressed in this report as follows:

- Chapter 4 – Northern Park and Ride;
- Chapter 5 – Southern Park and Ride;
- Chapter 6 – Two village bypass;
- Chapter 7 – Sizewell link road;
- Chapter 8 – Freight Management Facility;
- Chapter 9 – Yoxford Roundabout and other highways improvements; and
- Chapter 10 – Rail improvements.

1.2.30 Consultation on a new power station in Sizewell has been ongoing since 2008. There were four stages of statutory pre-application consultation, between 2012 and 2019. Informal consultation and engagement has also taken place outside of these consultation stages.

1.2.31 As well as through responding to feedback through the consultation process, the design of the proposed development components has also evolved through an understanding of 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. Experience at Hinkley Point C has also been an important consideration.

1.2.32 There are examples of potential site-specific proposals which, as a consequence of strategic decisions, are not required as part of the Sizewell C Project. For example, as part of the 'rail-led' approach to freight management (rejected in favour of the integrated approach as explained in the **Planning Statement**), a bypass of Theberton would have been proposed rather than the full Sizewell link road, and that strategy would have required various upgrades to the East Suffolk line and level crossing works, which are not required as part of the integrated freight management strategy. In light of the decision to progress the integrated strategy, it is not necessary to address site-specific options that do not form part of the integrated approach in this report.

1.2.33 The site selection methodology for each required associated development has broadly followed a "two-filter" process.

- First Filter stage - to identify potential options or sites which met the key operational pre-requisites for that associated development. If these pre-requisites would not be achieved, and the alternative would not meet the requirements of that element of associated development, it was discounted and not considered in further detail.
- Second Filter stage - to consider alternatives that would potentially achieve the objectives, against relevant environmental, planning, engineering and commercial criteria. These criteria are not necessarily common to all elements of the project, and further detailed explanation of the process for each associated development is provided in the relevant chapter.

2. Strategic Alternatives

2.1 Introduction

2.1.1 This chapter addresses the decision-making process in relation to key strategies which underpin the construction stage of the Sizewell C Project, namely the accommodation of the construction workforce, and the transportation of freight and people.

2.1.2 The construction of Sizewell C would need a peak workforce of up to 7,900 on the main development site. Whilst SZC Co. and its contractors would seek to recruit as many of the construction workforce as possible from the local area, it is likely that a large proportion would be recruited from further afield (it is estimated that up to 5,880 workers could be recruited from outside the local area).

2.1.3 SZC Co. has developed a Gravity Model that uses transport and socio-economic information, along with accommodation data, to assess where both home-based (HB) and non-home based (NHB) workers would be likely to live across the region at peak construction.

2.1.4 Given the number of workers who would be recruited from outside the local area, it is clear that new infrastructure would be required to accommodate and transport the construction workforce. Alongside the construction workforce requirements, SZC Co. has also considered the large volumes of freight that would need to be transported to site during the construction programme.

2.1.5 The decision-making process for each of these strategies is considered below, before concluding the suite of associated developments required to deliver them.

2.2 Accommodation infrastructure

2.2.1 In response to the requirement for a non-home-based workforce, SZC Co. has developed a balanced strategy which makes use of existing local accommodation where possible, in addition to a single accommodation campus on the main development site and a caravan site on the Land to the East of Eastlands Industrial Estate (LEEIE) in Leiston. The proposals are explained in the **Accommodation Strategy** (Doc Ref. 8.10).

2.2.2 The overarching aim of the **Accommodation Strategy** (Doc Ref. 8.10) is to ensure that there is a range of accommodation that is attractive to the workers in the vicinity of the construction sites, and to ensure that this can be

managed in such a way that any disturbance to the housing market and communities is minimised as far as possible.

2.2.3 This section sets out the decision making process that has led to the selection of the proposed **Accommodation Strategy** (Doc Ref. 8.10), told through the four stages of statutory consultation.

a) Stage 1 consultation

2.2.4 At Stage 1 consultation it was estimated that, during peak construction, around 2,000 workers would be drawn from the existing labour market, and therefore commute from their current home to work on a daily basis, with the remainder moving into the area temporarily. It was identified that a substantial proportion of the workforce would stay in temporary purpose-built accommodation (around 2,000 – 3,000 people) in the form of a specially built campus. The remaining 'non-home based' workforce would be anticipated to stay in a variety of different types of accommodation including privately-rented accommodation and spare rooms in existing homes, tourist accommodation caravans, and in some cases buying homes for the duration of their contract/role.

2.2.5 The alternatives to a single on-site accommodation campus were considered at an early stage, though an off-site campus (either as an alternative, or an addition to a smaller, on-site accommodation campus) would be unlikely to make a significant difference in terms of any localised community or environmental impacts around the main development site. It would on the other hand lead to the reduction, or loss of, the many benefits of an on-site accommodation campus in terms of reduced journeys, and wider worker management, safety and effects on public services. It was concluded that providing a single, on-site accommodation campus would also help to mitigate the impacts of large groups of construction workers in a number of otherwise small rural communities. A multiple-campus option would spread the workforce across a wider area and increase the difficulty in managing effects on those communities, as well as increasing traffic through more (and longer) bus journeys across multiple shifts.

2.2.6 A multiple campus option was not therefore identified as a reasonable alternative in the Stage 1 consultation.

2.2.7 The search area for potential sites for an accommodation campus sites was defined to the north by Theberton, and to the south by Leiston. Sites further afield were not considered 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.

2.2.8 The Stage 1 consultation considered three possible sites within this area for the proposed campus, one adjacent to the main development site and two alternative near-site options. The site-specific selection process for the accommodation campus is addressed in this report at **Chapter 3**.

2.2.9 With regard to residual effects on other types of accommodation, preliminary studies at Stage 1 identified that overall there would be sufficient capacity to accommodate residual non-home-based workers without significantly affecting housing need or capacity for local residents and for tourists visiting the area.

2.2.10 A range of responses were received to the Stage 1 consultation (as detailed in the **Consultation Report** (Doc Ref 5.1) that related to the **Accommodation Strategy** (Doc Ref. 8.10) and specifically the proposal for a single on-site campus.

2.2.11 This included comments on the effects of Sizewell A and B development on the local community. Experience of Sizewell B and also from Hinkley Point B and evidence from contractors at Hinkley Point C, supports a single campus approach – providing flexible accommodation of a size that would allow the provision of amenities and make it attractive to the workforce and lead to few potential problems in terms of worker behaviour and community impacts. The Sizewell B accommodation campus was widely regarded as a success, in that it generated minimal disturbance and provided an effective means of managing the workforce. The campus also proved very popular with construction workers, with a waiting list throughout the construction phase. The number of workers likely to occupy private rented sector accommodation in Leiston ward is far lower than experienced at Sizewell B, due to the presence of a larger, single, on-site campus.

2.2.12 Other Stage 1 consultation comments suggested that the accommodation should provide legacy benefits through the provision of permanent housing. Given that the effects of the Sizewell C Project in terms of accommodation issues would only occur during the construction phase, however, permanent accommodation would be disproportional to mitigate these effects. The delivery of permanent housing has not been considered as a reasonable alternative to the on-site campus.

2.2.13 Some responses suggested that more accommodation in locations like Leiston should be used to accommodate workers rather than building new sites. Other responses suggested that the **Accommodation Strategy** (Doc Ref. 8.10) should avoid the use of tourist accommodation. As set out above, the provision of an on-site campus strikes an appropriate balance between placing too much pressure on existing stock, and maximising the economic

benefits of a NHB workforce in the area by using otherwise spare tourist accommodation. It would also be disproportionate for SZC Co. to regulate the private market in its entirety, as tourist and rented accommodation is often preferred by certain parts of the workforce and their contractors.

b) Stage 2 consultation

2.2.14 Stage 2 provided more localised information on the potential for workers to seek accommodation in areas close to the main development site, via a Gravity Model. At Stage 2 SZC Co. confirmed that, in response to the potential for construction workers to place pressure on local housing markets, an **Accommodation Strategy** (Doc Ref. 8.10) was being developed in which, as set out at Stage 1, a large proportion of the construction workforce would be accommodated in a temporary accommodation campus. The consultation material identified that the preferred location for the campus was adjacent to the main construction area (again, the location of the campus is addressed at **Chapter 3** of this report), and identified three potential layout options.

2.2.15 At Stage 2 SZC Co. also identified the LEEIE as a potential location for the construction of managed areas for caravan accommodation for workers.

2.2.16 At the time of the Stage 2 consultation, it was estimated that the project would require around 5,600 workers at peak, of which up to 3,600 would be NHB workers requiring temporary accommodation in the area, and that the accommodation campus would be capable of accommodating up to 2,400 of these NHB workers. The Stage 2 consultation again identified that the remaining NHB workforce would be likely to look for temporary accommodation in a range of different sectors and that SZC Co. would set-up measures to provide a signposting service to this workforce and their contractors (both to help providers benefit from short-term rentals and to deliver a flexible approach to manage potential adverse effects).

2.2.17 Although the detailed assumptions of the Gravity Model were updated at Stage 2, the overarching principles introduced at Stage 1 - of a strategy which seeks to strike a balance between the use of existing accommodation capacity in the area to maximise economic benefits, while also providing a purpose built campus - was retained. Further comments in relation to the proposed on-site campus approach were received in response to the Stage 2 consultation. These included for example suggestions for an alternative approach to the campus **Accommodation Strategy** (Doc Ref. 8.10) by dispersing the campus around larger villages. As recognised at Stage 1 in developing the single campus approach, a split campus approach would likely increase the number of road trips. A split campus is unlikely to be as

attractive to workers, particularly those moving to an area temporarily who would seek to live as close to the site as possible, and it would affect the efficient delivery of the Sizewell C Project.

c) Stage 3 consultation

2.2.18 By Stage 3 consultation SZC Co. had progressed a more detailed understanding of the characteristics of the accommodation sector through detailed engagement with local stakeholders and review of public datasets.

2.2.19 At Stage 3, based on analysis of the range of accommodation likely to be used by the workforce, SZC Co. therefore retained the proposals to deliver a temporary accommodation campus for up to 2,400 construction workers (located east of Eastbridge Road) as well as accommodation for approximately 400 caravans at the LEEIE. At this stage, based on feedback from stakeholders and information gained from Hinkley Point C, SZC Co. refined assumptions about which accommodation sectors are most likely to be used by workers – with a shift towards the private rented sector (PRS), and away from the tourist sector.

2.2.20 SZC Co. continued at Stage 3 to identify the potential effects of a 'central case' estimate of 5,600 workers at peak, but also considered the implications of a larger workforce.

2.2.21 The strategy for the single on-site campus was widely supported in response to the Stage 3 consultation. Comments were more commonly related to the choice of location for the campus, which is considered at **Chapter 3** of this report.

d) Stage 4 consultation

2.2.22 The strategy to provide a single temporary campus to the east of Eastbridge Road and around 400 caravans at the LEEIE (which could accommodate up to around 600 workers) remained unchanged at Stage 4 consultation, as did assumptions about the use of other local accommodation by NHB workers.

e) Development Consent Order Submission

2.2.23 The overarching strategic approach is to seek to maximise local recruitment of the workforce so that local people can benefit from the Sizewell C Project. It is anticipated that between approx. 2,000 and 2,400 workers could be recruited from the local labour market (the Construction Daily Commuting Zone (CDCZ) defined by a 90 minute commute) at peak, leaving between approx. 5,420 and 5,880 workers to be drawn from further afield, requiring

temporary accommodation in areas within around an hour from the main development site.

2.2.24 The approach to accommodating the NHB workers set out in the DCO submission is consistent with the approach set out throughout the consultation process, namely a single purpose-built accommodation campus supplemented by a worker caravan park at LEEIE. The remaining workforce would be accommodated in caravan sites, other tourist accommodation (including new accommodation in the tourist sector such as Airbnb), PRS, owner occupied accommodation, and additional, latent accommodation that is likely to come forward as a result of demand (e.g. people taking in lodgers and renting out spare rooms).

2.2.25 The decision to provide campus accommodation for construction workers took account the need to minimise potential adverse effects on existing accommodation within the local area.

2.2.26 At a strategic level, SZC Co. considered and discounted the principle of providing multiple campus for the reasons introduced above and set out in the **Accommodation Strategy** (Doc Ref. 8.10). In summary, this is because a single campus strategy would be likely to:

- greatly reduce the number of journeys on local roads, as well as time associated with travelling to and from the construction site;
- increase productivity and reduce potential health and safety risks associated with long travel and work times; and
- achieve the important benefit that key workers are resident on-site, so they could be flexible in terms of the out of hours working that may be necessary to respond to emerging site needs and maintain construction productivity and progress.

2.2.27 A single site campus would generate a critical mass that would in turn allow the provision of a range of amenities to workers. This will make the campus environment more attractive and also encourage workers to stay on-site, leading to reduced risk of community disruption.

2.2.28 An accommodation campus that would provide up to 2,400 bed spaces is considered to be appropriate, taking into account:

- operational requirements (i.e. the ability to deliver the Sizewell C Project to the highest standards and on time), and the benefits of providing substantial campus accommodation for attracting the best workforce;

- an understanding of workforce and contractor needs and preferences (i.e. to be close to the site and have sufficient facilities and amenities), based on learning from other projects, including Hinkley Point C;
- the scale of the anticipated peak workforce, duration of the peak and the proportion of local recruitment;
- the estimated level of accommodation capacity in the area - striking a balance between placing too much pressure on existing stock and maximising the economic benefits of a NHB workforce in the area;
- the ability to provide a safe, secure facility; and
- the objective to minimise traffic disruption from workers travelling to and from the site, and effects on local communities including concerns about safety, community cohesion, and use of community facilities and space.

2.2.29 The scale of campus accommodation represents a balance of these factors and what can be achieved in close proximity to the main development site with regard to height, development density etc.

2.2.30 SZC Co.'s experience has highlighted that caravan accommodation would be popular with some NHB construction workers, especially in the early years of construction. Accordingly, the decision was taken to provide caravan accommodation within the LEEIE. This will be available in the early years of construction, before the campus is established, as well as helping to provide resilience for the workforce at the peak of construction and reduce effects on other accommodation sectors.

2.2.31 With regard to the other sources of NHB worker accommodation, the **Accommodation Strategy** (Doc Ref. 8.10) sets out the measures that SZC Co. would employ to avoid significant effects on the operation of the housing and tourism markets.

f) Conclusion

2.2.32 From an early stage of consultation, SZC Co. has been clear that a single accommodation campus near to the main development site, as well as the provision of nearby caravan accommodation is considered to be the optimum accommodation strategy. Whilst SZC Co. considered alternative strategies for the dispersal of the workforce (including more than one campus) these were discounted.

2.2.33 Further details on the site-specific alternatives considered for the accommodation campus, and the rationale for the siting of the campus at land to the east of Eastbridge Road are considered at **Chapter 3** of this Site Selection Report.

2.3 Movement of people

2.3.1 Estimates of where the HB and NHB workforce (living away from the accommodation campus or LEEIE caravans) may be drawn from has been informed by a Gravity Model which uses transport, socio economic, accommodation information, and data to predict the spatial distribution of the workforce.

2.3.2 SZC Co. has developed measures, throughout the consultation process and feeding through into the DCO proposals, to manage and reduce the daily traffic associated with the construction workforce during the peak years of construction.

2.3.3 As set out above, this includes an accommodation campus near the main development site from early stages of consultation, to help to significantly reduce the number of workforce journeys through towns, villages and rural roads.

2.3.4 This section explains the decision-making process for the other measures proposed to manage the movement of the construction workforce, as set out through the consultation stages.

a) Stage 1 consultation

2.3.5 The Stage 1 consultation set out a range of approaches for the movement of people to and from the main development site during the construction period. This included the potential for walking or cycling, the need for some workers to drive directly to site and the provision of a range of bus services – including direct buses, bus pick-ups from nearby railway stations on the East Suffolk line, and buses from park and ride sites to the north and south of the main development site near the A12.

2.3.6 The assessment of where the peak construction workforce would be likely to live at early stages of construction suggested that substantial numbers of workers would travel to the main development site from both the north and south, with a relatively even distribution between the two. If travelling by car, it is likely that the majority of these workers would use the A12 for a substantial proportion of their journey. The requirement for two park and ride sites on the A12 - one to the north of the main development site, and one to

the south was therefore identified at an early stage and proposed at Stage 1 consultation.

2.3.7 The approximate locations were chosen with the aim of intercepting construction-related traffic at strategic locations to reduce traffic through the towns and villages closer to the main development site. The search area for the northern park and ride sites was defined to the south by the A12/B1122 road corridor north of Theberton. The search area for the southern park and ride was defined by the A12 road corridor between Woodbridge and Friday Street (the existing A12/A1094 road junction).

2.3.8 Three potential locations were identified at Stage 1 consultation for both the northern and southern park and rides. The sites specific selection process is addressed in **Chapters 4** and **5** of this Site Selectin Report.

2.3.9 The proposals to include direct bus services from central Ipswich and Lowestoft were introduced during Stage 1 consultation, and would represent an alternative to the use of the park and ride facilities for workers living beyond the area bounded by the A12, River Deben and River Blyth.

2.3.10 The Stage 1 consultation material explained the relatively small role envisaged for rail in the movement of the construction workforce, for the following reasons:

- only a limited proportion of the construction workforce is likely to live sufficiently close to a rail station to make daily travel by rail an attractive proposition;
- the attractiveness of using rail for workers is likely to be further limited by the constrained frequency of services on the East Suffolk Line, and the relatively slow journey time by rail from many locations when compared to travel by car or bus;
- start and finish times for the workforce would not be likely to coincide with available rail services, whereas park and ride and direct bus services can be more easily timed and flexibly adapted to meet the required demand; and
- there is no passenger rail service to Leiston and providing such a service would not be economic or sustainable.

2.3.11 For those reasons it was identified that the strategy for the movement of construction workers would not include dedicated rail services.

2.3.12 However, proposals were introduced to provide bus pick up services from the nearest railway stations on the East Suffolk line to the main development site, namely Darsham and Saxmundham.

2.3.13 The Stage 1 consultation set out the proposal to allow workers living in the area bounded by the A12 and rivers Deben and Blyth to drive directly to the construction site. The rationale being that it would not be sensible or sustainable for these workers to travel away from the construction site to a park and ride facility. The Stage 1 consultation identified proposals for a construction site car park of 1,000 spaces with a permit system in place to actively manage the on-site parking.

2.3.14 Stage 1 also identified that those living close to Sizewell C would be encouraged to walk or cycle where practicable, and that SZC Co. would explore measures to encourage cycling and walking – for example, by improving footpaths and cycle ways.

2.3.15 Feedback on the approach and options presented in relation to the movement of people was received following Stage 1 consultation. The principle of park and ride was for example welcomed by the majority of respondents (the preferences expressed for certain sites is addressed in **Chapters 4** and **5** of this report)**.**

b) Stage 2 consultation

2.3.16 Following in principle support for these measures received to the Stage 1 consultation, the proposals for two park and ride facilities, and the direct and rail pick up bus services, were retained and progressed for Stage 2 consultation.

2.3.17 At Stage 2 SZC Co. introduced a proposed short-term park and ride area at the LEEIE, to allow workers to be shuttled by minibus to the power station platform, until a SSSI crossing has been established and the workforce can use the main construction car park.

2.3.18 The Stage 2 consultation presented the same three options for the northern park and ride and three options for the southern park and ride. Again, the site selection process for these sites is addressed in **Chapters 4** and **5** of this report.

c) Stage 3 consultation

2.3.19 Whilst SZC Co. received varied views on the site-specific options presented at Stages 1 and 2, the overall strategy initially presented at Stage 1 - for two park and rides (one to the north and one to the south), direct buses from

Leiston, Ipswich and Lowestoft, rail station bus pick up services, and the encouragement of cycling and walking - was retained at Stage 3.

2.3.20 Although at Stage 1 and Stage 2 consultation the proposed options indicated facilities with 1,000 space capacities (for both the north and south facilities), it was noted at Stage 3 that there would be an increased need for parking at the two park and ride sites, and proposed that the preferred locations at Darsham and Wickham Market would accommodate up to 1,250 spaces each.

2.3.21 SZC Co. reconfirmed in the Stage 3 consultation that it expects to run direct bus services from central Ipswich and Lowestoft during the peak years of construction. These services would be an alternative to the use of park and ride for workers living beyond the area bounded by the A12, River Deben and River Blyth. In addition, following further modelling work that has been undertaken, SZC Co. proposes to run direct bus services from the Leiston area.

2.3.22 SZC Co. set out at Stages 2 and 3 consultation the management strategy for the park and ride facilities, which would include an actively managed parking permit system for the construction workforce to limit and control the allocation of permits for the car park on the main development site during construction. It was proposed at these consultation stages that only workers living inside the area bounded by the A12, River Blyth and River Deben (except those living in the Leiston area) would be issued a parking permit. Workers without a parking permit (including those living in the Leiston area) would need to use one of the park and ride sites, a rail pick-up, or the direct bus services from Ipswich, Lowestoft or the Leiston area, or cycling or walking to the site.

d) Stage 4 consultation

2.3.23 The proposals for the movement of people, through the Park and Ride and Shuttle Bus Strategy set out at Stage 3, was not amended at Stage 4 consultation.

e) Development Consent Order proposals

2.3.24 The final proposed strategy for the transportation of the workforce has retained the overarching principles established at Stage 1 and 2 consultation, namely the on-site accommodation campus and caravan site at LEEIE, the principle of two park and ride facilities, direct buses, constrained car parking and promotion of walking and cycling.

2.3.25 These principles are retained in the detailed strategy, which includes in summary, at peak construction:

- park and ride facilities at Darsham and Wickham Market (with the choices of these locations, as explained in **Chapters 4** and **5,** chosen with the aim of intercepting construction workforce traffic at strategic locations);
- direct bus services to the main development site from key locations where there would be concentrations of workers at peak construction, including Ipswich, Lowestoft, Saxmundham rail station and Leiston;
- the provision of 1,000 car parking spaces at the main development site controlled by a permit system to actively manage parking, which would provide only 12% of the construction workforce with the ability to park at the main development site;
- the provision of a footpath linking the caravan site at the LEEIE to the main construction site.

2.3.26 During the early years of construction, the workforce would be smaller but the associated developments and other mitigation measures would not yet be in place. The strategy for the early years includes:

- buses between the caravan site at the LEEIE and the main development site in order to minimise trips;
- the temporary park and ride facility at the LEEIE with 600 car parking spaces;
- direct bus services;
- the provision of 300 car parking spaces at the main development site.

2.3.27 SZC Co. considered the retention of the additional park and spaces at the LEEIE beyond the early years, though this would not be necessary with the park and ride facilities at Darsham and Wickham Market in place and the approach to parking permits, which will mean that the 1,000 spaces at the main development site are sufficient at peak.

2.3.28 A **Construction Worker Travel Plan** (CWTP) (Doc Ref. 8.8) has been developed for the construction phase of the Sizewell C Project, which will be in place from commencement of the development in order to manage workforce travel during the construction phase.

f) Conclusion

2.3.29 The proposed strategy for the movement of construction workers was introduced at Stage 1 consultation and has remained largely unchanged through to the DCO submission.

2.3.30 The strategy identified the need for two park and ride facilities, one to the north, and one to the south, in order to reduce the amount of traffic generated by the construction workforce on local roads, and through local villages. Whilst alternative options for the location of these park and ride facilities has been considered in detail through consultation (as addressed in **Chapters 4** and **5**), the need for these two facilities as part of the strategy for the movement of people has been considered consistent throughout the consultation process.

2.3.31 Different options have been considered by SZC Co. with regard to how best to manage the parking permit system for the main development site. At Stage 3, SZC Co. suggested that only workers living inside the area bounded by the A12, River Blyth and River Deben (except those living in the Leiston area) would be issued a parking permit. This approach enables parking to be constrained at the main development site.

2.3.32 Throughout the consultation stages, SZC Co. has explained that for assessment purposes no construction workers have been assumed to walk or cycle to the main development site or park and ride sites, although measures to encourage cycling and walking would be explored and encouraged where practicable. This has now been developed through a **Construction Worker Travel Plan** (**CWTP**) (Doc Ref. 8.8) submitted as part of the DCO application.

2.3.33 The strategy for the transport of the construction workforce is set out in more detail at **Chapter 4** of the **Transport Assessment** (Doc Ref. 8.5).

2.4 Movement of freight

2.4.1 This section explains the decision-making process for the proposals for the movement of freight during the construction stages, as set out through the consultation stages.

2.4.2 Construction of Sizewell C would require large volumes of freight to be transported to the main development site. The principles informing SZC Co.'s overall strategy for managing materials and freight movements are as follows:

- First, wherever practical and cost effective, SZC Co. and its contractors have sought to reduce the volume of materials that require movement off-site, either through the re-use of excavated material as fill, landscaping or via the deployment of the borrow pits to both source material on-site and deposit of other material.
- Secondly, where materials must be imported to, or exported from the site, to seek to move bulk materials, and containerised goods by sea or by rail where this is practical and cost effective.
- Thirdly, where movement of materials by road remains necessary, to manage this in a way which reduces local impacts via the use of defined routes for Heavy Goods Vehicles (HGVs), and systems which can monitor, manage and control the number and timing of HGV movements to the site.

2.4.3 In line with this strategy, SZC Co. has evaluated the possibility of moving bulk materials and containerised goods by sea or by rail. This has included:

- evaluating the capability of the options for sea and rail deliveries, including assessment of potential constraints on delivery (e.g. weather and navigational constraints in respect of sea delivery and rail pathing/infrastructure constraints in respect of rail deliveries);
- assessing the key material requirements that would arise over time during the construction phase, for each key area of the project build, and from this identifying the periods during which demand for materials is greatest;
- considering the scope to move each major category of materials by sea and rail, taking account of the nature of the materials and possible supply sources; and
- consideration of the environmental impact of each of the main strategies.

a) Stage 1

2.4.4 Stage 1 set out the emerging proposals for the key components of the freight management facility, including the following:

- Rail Improvements: potential upgrades and extensions to parts of the rail network near Sizewell so that it could be used for the delivery of freight during construction;

- Sea Transport: proposed a jetty (or marine off-loading facility) to allow sea delivery of bulky materials, Abnormal Indivisible Loads (AILs) and export unsuitable excavated soil; and
- Road freight: indicating that typically be between 100 and 300 lorry or HGV deliveries per day might be required (representing between 200 and 600 two-way movements).

2.4.5 Paragraph 5.13.10 of NPS EN-6 states that "*Water-borne or rail transport is preferred over road transport at all stages of the Project, where cost-effective*". The feasibility of a marine led strategy has therefore been considered.

2.4.6 As part of Stage 1 consultation a wide jetty was one of the three options proposed for a marine delivery facility. A wide jetty would have enabled the delivery of bulk materials, containerised goods and AILs by sea during the construction phase.

2.4.7 Responses to the Stage 1 Consultation highlighted that traffic and environmental impacts during the construction phase were a major concern for the local authorities and communities, in particular the potential impact of HGVs on local roads and villages, including Theberton.

b) Stage 2

2.4.8 Stage 2 set out the updated proposals for the Freight Management Strategy and included the following details:

- That SZC Co. sought to move material on and off the main development site by rail or sea where practical;
- Rail options: two options were being considered:
  - green rail route; and
  - temporary rail terminal.
- Sea transport: three options were being considered:
  - wide jetty (temporary);
  - narrow jetty (temporary); and
  - beach landing facility (construction phase).
- Lorry management: it was confirmed that this was no longer deemed necessary; and

- Road Improvements: set out a series of options for road improvements that sought to minimize impacts on local communities.

2.4.9 A marine-led freight management option was advocated by the local authorities and was considered by SZC Co. Such an option would be predicated on the required infrastructure needed for a marine landing facility to be considered feasible. Preliminary environmental assessment of the three sea transport options was undertaken by SZC Co. between Stages 2 and 3, which identified several significant environmental impacts associated with a wide jetty. These included:

- Both jetty options would result in severe underwater noise during construction as a result of the nature of the construction works, and the significant amount of time required to construct the jetty. This noise would likely extend to a radius of several kilometres (km). This would cause significant adverse effects on marine ecology and fisheries, which could only be limited, but not removed by extensive seasonal controls on construction activity, which would greatly extend the construction programme and the commencement of operation of the power station.
- The jetty options would result in greater habitat loss associated with the footprint of the piles.

2.4.10 The Beach Landing Facility (BLF) also requires piling, but to a greatly reduced extent, and only in shallow waters which greatly attenuates the radius of underwater noise. The BLF is therefore predicted to have a more limited impact on the environment, shipping and navigation activities compared with either of the jetty options and would not require removal as it would be retained for use during the operation of the power station.

2.4.11 Whilst the wide jetty option would not have caused permanent change to the shoreline alignment, it would likely have caused greater temporary effects, such as a reduced wave height at the shore, and associated short-term changes to the alignment of the shoreline. Measures to reduce these impacts would significantly increase the overall time taken to construct the power station, would not fully address those impacts, and it could delay the overall construction programme.

2.4.12 The narrow jetty would not have allowed the type of material needed during construction and therefore would not have been able to make any meaningful contribution to the construction phase. SZC Co. therefore discounted the narrow and wide jetty options following Stage 2 consultation and progressed with a BLF, in order to retain the ability to deliver AILs by sea that would be too large to be delivered by road or rail. The decision was informed by design

development and environmental work, and SZC Co.'s experiences from the construction of Hinkley Point C in relation to the type of material and deliveries needed during construction.

2.4.13 A BLF is now to be the only marine based capacity promoted. It will allow for the delivery of AILs throughout the construction phase and during the operational phase, to remove heavy and oversized loads from the road network.

c) Stage 3 Consultation

2.4.14 Responding to concerns raised during Stages 1 and 2, along with the feasibility testing undertaken following Stage 2, Stage 3 set out two alternative freight delivery options for the project; a rail-led and road-led option. Both options included the movement of freight by both road and rail, with the road-led option allowing for up to 30% of materials to be moved by rail, and the remaining 70% by road (construction materials by weight). The rail-led option then allowed for 45% by rail and 55% by road.

2.4.15 In their response to Stages 1 to 3, the local authorities advocated the rail-led options, along with the wide jetty option that had been referred to during Stage 1. Their preference was for sea-based and then rail-based transport. They state in their Stage 3 response that a road-led approach would lead to a significant increase in the number of HGV movements.

2.4.16 Several concerns were raised in relation to the road-led strategy, including the impact of HGVs on local roads, and the potential relaxation of HGV delivery hours.

2.4.17 Network Rail's Stage 3 response identified the work currently being undertaken by SZC Co. and Network Rail; that high-level work is to understand the improvements needed to support two freight trains per day, and then to support five freight trains per day. In Network Rail's Stage 3 response they identified a number of risks to the rail-led solution that could potentially impact the Sizewell C programme. They note *"[t]herefore, SZC Co. and Network Rail recognise that this could affect their decision as to which strategy to pursue"*.

2.4.18 Consultation responses stated a preference for a rail-led strategy, and strong opposition to a road-led strategy. Most people who supported the rail-led strategy argued that it reduces the burden on the local roads, particularly the A12, and could help to mitigate road congestion for locals and tourists, as well as construction workers.

2.4.19 Many also stated that the environmental impact of the rail-led strategy would be less than the road-led strategy, because there would be less vehicle emissions.

i. Deliverability

2.4.20 Funding the construction of nuclear power stations poses unique challenges due to the high cost of construction, the long construction period, and the perceived risk of programme delays. It is therefore necessary for SZC Co. to take into account the potential cost implications of the respective transport options, along with the risks of delay to delivery.

2.4.21 In order for these issues to be taken into account in the proposed freight strategy, the deliverability of the road and rail-led strategies was considered in detail by SZC Co., in consultation with Network Rail between Stage 3 Consultation and the submission of the DCO application.

2.4.22 SZC Co. and Network Rail undertook feasibility work in relation to the rail works necessary for the road and rail-led strategies, based on the indicative scheme designs and programme assumed within the Stage 3 consultation material. This work identified that the rail-led strategy requires significant improvement works to the East Suffolk Line, including a new passing loop, improvements to 33 existing level crossings and the closure of a further twelve. Due to the complexity of these works, Network Rail was unable to give SZC Co. the necessary level of assurance regarding the programme for the works to the East Suffolk Line.

2.4.23 Feasibility works undertaken by SZC Co. and Network Rail indicated a series of critical, major and significant risks that could further delay the programme or lead to unknown cost increases. SZC Co. has considered the potential for the works to the East Suffolk line to be included as part of the DCO, but the risks identified in relation to the East Suffolk Line works are not unique to Network Rail delivering those works and would apply equally to a scenario where SZC Co. elected to deliver those works. This is principally because the risks arise from undertaking complex rail works to an operational passenger line.

2.4.24 Whilst further work might clarify the precise programme and cost implication, SZC Co. and Network Rail agree that the extent of rail works needed for the Rail-Led Strategy could not be guaranteed to be delivered within the required timescales. This position was confirmed in Network Rail's Stage 4 consultation response which noted:

> *As previously noted, Network Rail has identified a number of risks to the viability of a rail-led solution that could potentially*

impact the programme in terms of the submission date for the DCO. Therefore, EDF and Network Rail recognise that this could affect their decision as to which strategy to pursue.

2.4.25 SZC Co. and Network Rail have continued discussions and Network Rail support the alternative 'Integrated Strategy' for freight management during the construction phase.

2.4.26 The level of uncertainty in delivering the works needed in delivering the rail-led option would affect SZC Co.'s ability to secure the necessary funding for the project, and its ability to demonstrate to the Government that the project can be deployed in time to meet the urgent need for new nuclear power generation.

2.4.27 On the basis of these concerns, SZC Co. concluded that the works needed to support a rail-led strategy would not be deliverable. Instead, an integrated strategy was developed to seek to secure the best deliverable rail outcome, whilst addressing the concerns expressed in relation to the road-led strategy.

d) Stage 4 Consultation

2.4.28 Rail provides the opportunity to reduce the number of HGVs on the road, and/or mitigates road traffic capacity issues. Bypass(es) would also provide amenity (noise/emissions) mitigation. However, as Network Rail identified, the rail-led strategy includes a number of risks that could impact on the deliverability of the project within the required programme.

2.4.29 The same impacts were not identified for the road-led scheme, but such a strategy would lead to greater levels of impacts associated with HGV movements, leading to a number of significant noise and air quality impacts.

2.4.30 SZC Co. therefore proposed a third strategy; the integrated strategy. This sought to maximise the use of rail by committing to only those rail works that could be carried out by SZC Co., or where there was sufficient programme certainty. This would allow for up to three trains per day (six movements), and would include the green rail route and upgrades to the branch line.

2.4.31 The Integrated strategy therefore includes the following components:

- The green rail route.
- Refurbishment of the branch line.
- Freight management facility.
- Sizewell link road.

- The two village bypass.
- Upgrades to 9 level crossings on the branch line.
- Beach landing facility.

2.4.32 **Plate 2.1** below provides a summary of the three freight management options that were consulted on during Stage 4.

Plate 2.1: Stage 4 consultation freight management options

Rail-led	Integrated	Road-led
Rail works proposed		
Green rail route	Green rail route	-
East Suffolk line improvements including a new passing loop between Melton and Campsea Ashe	-	-
East Suffolk line level crossing works: 12 closures, 33 upgrades	-	-
Saxmundham to Leiston branch line track upgrade	Saxmundham to Leiston branch line track upgrade	Saxmundham to Leiston branch line track upgrade
Saxmundham to Leiston branch level crossing works: 9 upgrades	Saxmundham to Leiston branch level crossing works: 9 upgrades	Saxmundham to Leiston branch level crossing works: 9 upgrades
Highway works proposed		
Theberton bypass	Sizewell link road	Sizewell link road
Two village bypass	Two village bypass	Two village bypass
Nine other highway improvements (including Yoxford roundabout and Mill Street)	Eight other highway improvements (including Yoxford roundabout)	Eight other highway improvements (including Yoxford roundabout)
-	Freight management facility along the A14	Freight management facility along the A14
Marine works proposed		
Beach landing facility	Beach landing facility	Beach landing facility

e) Development Consent Order Submission

2.4.33 The Integrated Strategy seeks to minimise the volume of traffic associated with the construction of the Sizewell C Project as far as reasonably practical, through the delivery of the following infrastructure:

- The green rail route.
- Refurbishment of the branch line.
- Freight management facility.
- Sizewell link road.
- The two village bypass.
- Upgrades to 9 level crossings on the branch line.

- Beach landing facility.

2.4.34 These are then summarised below.

i. Beach landing facility

2.4.35 A beach landing facility (BLF) is proposed to be constructed at the main development site to allow for the delivery of AILs throughout the construction phase and during the operational phase, to remove heavy and oversized loads from the road network.

ii. Green rail route

2.4.36 The green rail route would involve the construction of a temporary rail extension which would branch off the existing Saxmundham to Leiston branch line into the main development site. The purpose of the green rail route would be to facilitate the delivery of up to three trains per day (six movements) to the main development site during peak construction, which would allow for almost 40% of construction materials (by weight) to be delivered to site by rail. The existing branch line would also be refurbished to allow the number and type of freight trains expected to use this route.

iii. Management of residual freight by road

2.4.37 The above package of measures would result in the following residual number of HGV movements to and from the main development site at peak construction:

- 650 two-way HGV movements on a typical day (i.e. 325 HGVs in each direction); and
- 1,000 two-way HGV movements on the busiest day (i.e. 500 HGVs in each direction).

2.4.38 In order to reduce the impact on the local communities and the highway network, Sizewell link road and the two village bypass are proposed to reduce traffic impacts on the local villages, responding to concerns raised during consultation.

2.4.39 The residual HGV movements are proposed to be managed on the local highway network through the implementation of following measures:

- a delivery management system;
- a freight management facility; and

- construction traffic management plan.

f) Conclusion

2.4.40 There is a clear preference in NPS EN-1 and NPS EN-6 for rail over road for the movement of materials needed during construction. NPS EN-1, para 5.13.10, states that water borne, and rail transport is preferred over road transport at all stages of the project, where cost-effective. NPS EN-1, 5.13.11, acknowledges that even having regard to the preference for water and rail borne transport there may well still be a substantial level of HGV traffic associated with developments of this type and scale. This is confirmed in C.8.123 of Volume II of III, which states:

> *"Development at the Sizewell site is assessed by the AoS as having the potential for some adverse impacts locally from additional traffic generated during construction and wider negative effects on regional road infrastructure."*

2.4.41 Specific proposals for controlling HGVs are summarised below.

- control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements as far as practicable;
- make sufficient provision for HGV parking, either on-site, or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads, prolonged queuing on approach roads, and uncontrolled on-street HGV parking in normal operating conditions; and
- ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers, and the responsible police force.

2.4.42 The key policy thrust for the freight management strategy is therefore considered to be one that:

- maximises rail (or marine) based transport so far as practicable;
- controls HGVs in order to reduce and minimise adverse impacts in terms of:
  - routes;
  - numbers; and
  - delivery hours.

- is cost effective; in terms of being affordable in the context of the wider context of project costs and is deliverable in terms of providing an acceptable level of risk to potential investors.

2.4.43 The integrated strategy seeks to overcome the deliverability issues associated with the rail-led strategy by including only those rail improvements that do not require works to the main East Suffolk line within the DCO application. These include the green rail route, and the refurbishment works needed to upgrade the branch line. To increase SZC Co.'s confidence in delivering these works, it is proposed to include all the necessary powers to undertake the works within the DCO. The integrated strategy allows for up to three trains per day, meaning that the delivery of construction materials by rail would play an important, and meaningful role in the construction of the project.

2.4.44 **Table 2.1** sets out the comparison of the proportions of construction materials (by weight) that each of the options might be able to deliver.

Table 2.1: Proportions of construction material

Construction Materials % (by weight).	Road	Integrated	Rail
HGV	70	61	45
Sea	1	1	1
Rail	29	38	54

2.4.45 The additional train movements allowed for in the integrated Strategy enable a substantial reduction in the HGV movements from 750 HGVs on the busiest day, down to 500. The average would also be reduced from 375 to 325 HGVs. Whilst the levels of HGVs are substantially reduced in thei integrated Strategy, the construction stage would still involve a large number of vehicles travelling to and from the main development site. This means that the park and ride sites, freight management facility, two village bypass and Sizewell link road would still provide an important role in reducing and mitigating impacts associated with the construction stages.

2.4.46 The EIA has identified a number of receptors that are predicted to experience significant noise impacts along the rail line during the construction phase. These impacts are in some cases higher than Lowest Observable Adverse Effect (LOAEL), but with mitigation in place would be lower than Significant Observed Adverse Effect Level (SOAEL). The preliminary environmental

information also identified that the road-led strategy required extended hours for HGV operation (beyond 7am to 11pm), which would result in a number of significant noise impacts arising from night-time road noise. Further environmental assessment work undertaken as part of Stage 4 therefore concluded that the predicted impacts of the three options are broadly comparable and therefore, there was no environmental reason to prefer road based strategy, having regard to the clear policy preference for rail over road where practicable.

2.4.47 Since Stage 4, SZC Co. has undertaken further analysis and have considered the potential advantages of the integrated strategy over the road-led strategy, in addition to consistency with the clear policy preference. The key benefits are as follows:

- **Increased proportion of material transported by rail**: the integrated strategy allows for 38% of construction materials (by weight) to be transported to the main development site by rail, or 39% by rail and sea. This is 9% more than that possible under the road led option and provides a significant advantage in terms of overall sustainability.
- **Reduction in HGV movements**: the integrated strategy would reduce the busiest day HGV limits by a third, from 750 to 500. This reduction in HGVs would substantially reduce noise and air quality impacts to the receptors along the HGV routes, along with reducing the amount of traffic on the roads themselves.

2.4.48 SZC Co. concluded that the Integrated Strategy provides an appropriate strategy to move materials for the construction of the Sizewell C Project.

2.5 Summary of associated development requirements

2.5.1 The strategic alternatives process has identified the need for the following associated development to support construction of Sizewell C:

- an on-site temporary accommodation campus;
- an on-site BLF;
- two temporary park and ride sites;
- a freight management facility (FMF);
- a bypass around Farnham and Stratford St Andrew on the A12;

- a bypass linking the A12 to Sizewell around Theberton and Middleton Moor;
- rail infrastructure for the delivery of construction materials; and
- road infrastructure to improve the viability of the delivery of construction materials by HGV.

2.5.2 **Chapter 3** of this report addresses those elements of associated development that need to be delivered as part of the main development site, along with other design options on the main development site, with the remaining chapters addressing the off-site associated developments.

3. Main Development Site

3.1 Introduction

3.1.1 This section presents a description of the site selection process which SZC Co. has undertaken in relation to development on the main development site. This chapter is structured in relating to different locations within the main development site:

- Main platform: the area that would become the power station itself.
- Sizewell B relocated facilities and National Grid land: the area that certain Sizewell B facilities would be moved to in order to release other land for the proposed development, and land required for the National Grid infrastructure.
- Offshore works area: the area where offshore cooling water infrastructure and other marine works would be located.
- Temporary construction area: the area located primarily to the north and west of the proposed site of special scientific interest (SSSI) crossing, which would be used to support construction activity on the main platform.
- Land to the East of Eastlands Industrial Estate (LEEIE): the area to the north of Sizewell Halt and King George's Avenue, which would be used to support construction on the main platform and temporary construction area.
- Off-site sports facilities at Leiston, which would be used during the construction stage as a shared outdoor sports facility for Alde Valley School, the local community and construction workers.

- Fen meadow compensation sites to the south of Benhall and to the east of Halesworth.
- Marsh harrier habitat improvement area to the west of Westleton (if required).

3.2 Main platform

3.2.1 NPS EN-6, paragraph 4.1.1, identifies part of the main development site at Sizewell as one of a small number of sites in the UK that the Government considers to be 'potentially suitable' for the deployment of new nuclear power stations.

3.2.2 The main platform is located within the listed site and would contain the power station. As such, the principle of nuclear power generation on the main platform is established through the NPS process, and no alternative sites have been considered.

3.2.3 A description of the main platform and other main development site components is provided at **Chapter 4** of the **Planning Statement** and is not therefore repeated here.

a) Crossing of the Sizewell Marshes SSSI

3.2.4 The proposed location of the platform for the Sizewell C power station requires a small element of land take from the Sizewell Marshes SSSI to form the western edge of the power station platform, as well as a crossing across a watercourse within the SSSI – the Leiston drain – to provide the main site access during both construction and operation.

3.2.5 The site assessment for the Sizewell C Project at paragraph C.8.62, Annex C of NPS EN-6, recognised that the site boundary indicated land take from the Sizewell Marshes SSSI, and that construction and the presence of development are likely to lead to direct loss and fragmentation of habitats within the Sizewell Marshes SSSI. The Government considered, however, that this was not sufficient to prevent the inclusion of Sizewell in the NPS.

3.2.6 The Sizewell Marshes SSSI is designated for its large expanse of unimproved wet meadow which supports outstanding assemblages of invertebrates and breeding bird. The area of Sizewell Marshes SSSI that is located within the main development site comprises mainly reed beds, lowland ditches, and scrub/wet woodland habitats, with some limited areas of grazing marsh/fen meadow habitat. The wet woodland habitat is not a designated feature of the SSSI.

3.2.7 As a result of the staged process in which the power station would be built, the proposals would require the construction of more than one crossing across the SSSI, namely:

- a short-term crossing to enable the construction of the cut off wall;
- a temporary crossing during construction to move full material to and from the site; and
- a permanent crossing used during construction by heavy earthmoving plant and to bring in AILs (and to provide operational access).

3.2.8 Alternative options for the SSSI crossing have been considered throughout the consultation stages, leading to the final design, which comprises a vehicular and pedestrian crossing in the form of a culverted embankment.

3.2.9 This section summarises the process of optioneering for the SSSI crossing from Stage 1 consultation through to the final proposals.

i. Stage 1

3.2.10 SZC Co. identified at an early stage, through the Stage 1 consultation in 2012, that the Sizewell C Project would require a small part of the Sizewell Marshes SSSI to be developed (consistent with the site assessment within NPS EN-6), but that SZC Co. would seek to use as little SSSI land as practicable (at Stage 1 it was estimated that around 4.6 hectares (ha) of the SSSI would be removed permanently as a result of the proposals as a whole), and that opportunities to provide replacement habitats nearby were being actively explored.

3.2.11 The need for a crossing over the Sizewell Marshes SSSI watercourses was identified at that stage, and at that time it was suggested that the proposals could include building a permanent bridge (as well as two temporary bridges) located to the north-east of the main platform, positioned where they could cross the SSSI watercourses with a single span, and be screened from Goose Hill to the north. At that stage it was identified that the environmental and ecological qualities of the SSSI needed to be examined further and taken into account in further developing the bridge design.

3.2.12 SZC Co. subsequently undertook further technical work and environmental studies - in relation to groundwater, surface water, ecology, flooding and landscaping and visual impacts – which informed the identification of alternative options for the SSSI crossing. This included bridge options as initially suggested in the Stage 1 consultation, as well as options involving a causeway over a culvert as an alternative to bridge options. This process led

to the presentation of four potential options as part of the Stage 2 consultation.

ii. Stage 2

3.2.13 The Stage 2 Consultation documents explained that less land within the Sizewell Marshes SSSI was required compared to the estimate at Stage 1 - achieved by a reduction in construction usage, the reconfiguration of buildings in the north-west as part of the main platform, and repositioning of the crossing further east (at the closest practicable location to the narrowest part of the SSSI corridor). It was noted that the precise quantum of SSSI permanently lost would depend on the chosen option for the SSSI crossing. Four different alternatives were identified (resulting in the loss of between 5.04 – 5.55ha of the Sizewell Marshes SSSI depending on which SSSI crossing was chosen), as set out at **Table 3.1**.

Table 3.1: SSSI Crossing options

Option	Stage 2 Consultation Description.
Option 1: Causeway over culvert	An embankment wide enough for both permanent and temporary road crossings. The initial phase of its construction would involve the establishment of an early lower level causeway, followed by a higher-level permanent arrangement.
Option 2: Single span bridge with vertical wing walls	In this option the bridging arrangements would be as follows: a short-term bridge (to be used in the early phase of construction) would be erected in the location of the permanent bridge. At the same time a temporary bridge would be erected alongside the short-term bridge. Once the construction of the temporary bridge is complete the short-term bridge would be dismantled, and the permanent bridge (which would also be used during construction) would be erected in its place. On completion of construction the temporary bridge would be removed.
Option 3: Three span bridges	In this option the bridging arrangements would be as follows: a short-term bridge (to be used in the early phase of construction) would be erected in the location of the permanent bridge. At the same time a temporary bridge would be erected alongside the short-term bridge. Once the construction of the temporary bridge is complete the short-term bridge would be dismantled, and the permanent bridge (which would also be used during construction) would be erected in its place. On completion of construction the temporary bridge would be removed.
Option 4 Causeway over culvert with	This option is a variant of option 1 but with a narrower causeway of 28 metres (m). During construction, the causeway would accommodate both the permanent and temporary crossings,

Option	Stage 2 Consultation Description.
adjacent short-term bridge	which would be feasible if supplemented by an adjacent short-term bridge for preliminary works.

3.2.14 The Stage 2 consultation material noted that the land lost within the Sizewell Marshes SSSI (as a whole – not solely as a result of the SSSI crossing) would comprise reedbed, wet woodland and fen meadow, and introduced SZC Co.'s habitat creation scheme at Aldhurst Farm, and that work was ongoing to compensate for the loss of fen meadow habitat (although the SSSI crossing would not be a contributing factor for fen meadow loss).

3.2.15 Preliminary environmental information (PEI) on these four options was presented at Stage 2 in relation to topics where it was considered there was potential for different environmental effects - namely terrestrial ecology and ornithology, landscape and visual and groundwater and surface water.

3.2.16 Guided by the PEI, SZC Co. concluded that Option 1 was preferable given its speed and ease of construction, taking into account its potential environmental impacts, both negative and positive. This included a recognition that Option 1 resulted in a slightly greater land take from Sizewell Marshes SSSI compared to some other options, though that the affected habitats would be compensated for at the Aldhurst farm habitat creation scheme.

3.2.17 Important factors identified at Stage 2 were the more straightforward construction of Option 1, which would involve a single operation in the SSSI which, once constructed, would leave the surroundings undisturbed with no need to remove temporary structures and re-profile land, which would be required for each of the other options. This would result in a shorter and simpler build which would represent a significant advantage to the project.

3.2.18 At Stage 2 it was noted that whichever option was progressed it would have to be designed to minimise adverse effects on geomorphology, flood risk and ecology including fish, water voles and bats.

3.2.19 During the operational phase it was identified that Option 1 would allow vegetation planting on the slopes, and either side of the access road platform, allowing the feature to settle into its surroundings, and create a boundary between the power station and its surroundings. It was also concluded at Stage 2 that Option 1 would offer the best scope for adaptation if required for the protection of the power station against flood risk (which the bridge options would not offer).

iii. Stage 3

3.2.20 The Stage 3 consultation confirmed that SZC Co. proposed to progress with the SSSI crossing in the form of a causeway over a culvert as it remained the best response to environment and programme considerations. This represented a refined version of 'Option 1' presented at Stage 2 consultation.

3.2.21 In response to varied feedback from respondents to the Stage 2 consultation with regard to the preferred SSSI crossing approach (in relation to loss of habitat, restriction of movement of wildlife and increased flood risk) the four options were, however, presented again at Stage 3 with further detail of the proposed design, and updated PEI.

3.2.22 This explained that although the bridge options required less direct land take from the SSSI, the difference would be relatively small (around 0.25ha), and the bridge options would not deliver comparable benefits of construction. Whilst (as identified at Stage 2 consultation) the causeway option would involve a single and time-limited procedure, the bridge options would require the construction and removal of a separate temporary structure prior to the permanent crossing.

3.2.23 The Stage 3 consultation explained that the embankment side slopes would be set at a gradient of 1:2, which would be the minimum practicable gradient that would still allow landscaping to grow. At this slope grassland, scrub, and potentially some trees would grow over time, which would help integrate the crossing into the surrounding landscape. This compares with the bridge options, which would appear as distinct elements in the landscape in local views.

3.2.24 SZC Co. also explained that the SSSI land lost as a result of the crossing would predominantly comprise reedbed and wet woodland, and (as introduced at Stage 2) compensation for the loss of reedbed had already been provided for as part of the Aldhurst Farm habitat compensation scheme. It was also noted that wet woodland is not a feature for which the SSSI is designated, and majority of wet woodland within Sizewell Marshes SSSI would be retained. The crossing would facilitate movement of wildlife through the culvert, and that the culvert has been designed to mitigate flood risk.

3.2.25 The updated PEI provided a summary of potential effects on the Sizewell Marshes SSSI as a whole (including the effect of the SSSI crossing), and concluded that during construction (with the compensatory habitat creation in place) the only significant residual effect on the SSSI would be at the local level on the loss of wet woodland within the Sizewell Marshes SSSI. SZC Co.'s strategy in relation to compensation for wet woodland habitat has progressed from Stage 3 consultation, and as addressed below, now

includes an appropriate strategy to mitigate the impacts on wet woodland habitat.

3.2.26 The PEI at Stage 3 also dealt with the operational phase, and concluded that there would be **no significant** residual effects on the Sizewell Marshes SSSI.

iv. Additional consultation

3.2.27 At Stage 4 consultation, SZC Co. confirmed that the preferred approach remained the causeway over culvert option for the SSSI crossing, but introduced newly proposed Flood Compensation Areas to create sufficient additional floodplain volume of around 90,000 cubic metres to mitigate the loss of floodplain at the SSSI crossing. The Stage 4 consultation set out different options for this flood compensation land.

3.2.28 Although the principle of the preferred causeway over culvert approach remained unchanged, the design of the scheme continued to evolve through the Stage 4 consultation process up to the final design submitted as part of the DCO application.

v. Assessment of alternatives

3.2.29 The environmental considerations relevant to the choice of SSSI crossing are set out in **Volume 2, Chapter 6** of the **ES,** and summarised below, along with other factors in relation to construction and operational flexibility. This analysis presents a comparative analysis of the proposed SSSI crossing design (Option 1) with Options 2, 3 and 4 presented during consultation.

3.2.30 This analysis draws on the preliminary conclusions made during consultation, as set out above, and the assessment of environmental effects reported in the **ES**.

Permanent SSSI land take

3.2.31 The proposed SSSI crossing would result in the permanent loss of approximately 0.40ha of the Sizewell Marshes SSSI, which (as set out at **Table 3.2**) is slightly greater than both of the bridge options at around 0.22ha for Option 2, and 0.19ha for Option 3 (Option 4 would result in the greatest land take).

Table 3.2: SSSI crossing options – land take comparison

	Option 1.	Option 2.	Option 3.	Option 4.
Permanent SSSI Land take	Second highest land take estimated to be 3,975m^2 (0.40ha) assuming a 1:2 slope.	Second lowest land take - estimated to be 2,175m^2 (0.22ha).	Lowest land take - estimated to be 1,865m^2 (0.19ha).	Highest land take estimated to be 4,460m^2 (0.45ha) assuming a 1:2 slope.

3.2.32 Whilst the proposed SSSI crossing would result in more land take compared to the bridge options, the quantum of land take required for any of the options comprises a relatively small proportion of the total necessary land take from the Sizewell Marshes SSSI, which was recognised by Government in including Sizewell as a potentially suitable site in NPS EN-6.

3.2.33 The development as a whole would lead to the permanent loss of approximately 7ha of the Sizewell Marshes SSSI, comprised of Fen Meadow (around 0.7ha), Wet woodland (around 2.6ha) and reedbed and ditches (3.7ha).

3.2.34 The 0.40ha contribution to this loss as a direct result of the SSSI crossing would represent only 0.38% of the total 105ha that comprise the full extent of the Sizewell Marshes SSSI. The habitats lost as a direct result of the SSSI crossing would primarily be reedbed and wet woodland with a smaller amount of ditch habitat.

3.2.35 Measures to create replacement reedbed and ditch habitat (to compensate for the loss of this habitat as a whole, not just the SSSI crossing) have already been implemented at Aldhurst Farm, adjacent to the western edge of Sizewell Marshes SSSI. Further compensatory habitats including wet woodland and reedbeds are now proposed in the north of the main development site in close proximity to the temporary water resource storage area.

3.2.36 The ecological effects of the direct land take resulting in habitat loss and fragmentation (for the project as a whole) are considered at **Volume 2, Chapter 14** of the **ES** and summarised below.

3.2.37 Whilst the bridge options would result in less direct habitat loss, the difference is relatively small and the embankment and culvert option is only marginally less preferable on this basis alone, particulary given the wider habitat loss associated with the contruction of the platform.

Construction and operational flexibility

3.2.38 A causeway and culvert option would take much less time to construct, resulting in a significantly reduced construction programme (saving six to twelve months compared to the three-span bridge option). This represents an important benefit for the delivery of the project.

3.2.39 The causeway and culvert option would also result in less disruption during construction than a bridge option. Once constructed the surroundings would be left undisturbed. It also provides greater flexibility during construction through the ability to modify carriageways, which the narrower causeway (Option 4) and the bridge options would not provide.

3.2.40 The proposed approach is also the simplest option to construct avoiding the need for large crane lifts which could result in programme risks (as very large cranes need to be booked a long time in advance so avoiding this requirement reduces schedule risk). The chosen option reduces the need for wet concrete construction with associated issues of the loading that wet concrete will apply to structures while it gathers strength, as well as the Care of Substances Hazardous to Health (COSHH) risk that wet concrete carries in terms of manual handling, and the potential environmental damage of concrete spillage (although best practice measures would be employed in any event).

3.2.41 The proposed option is the only option which delivers the potential to adapt during the operational phase to perform as a flood defence.

Ecology

3.2.42 **Volume 2, Chapter 14** of the **ES** concludes that the residual effects of the Sizewell C Project as a whole, as a result of direct land take from the Sizewell Marshes SSSI, would be not significant during both construction and operational phases with compensatory habitats fully established. This conclusion is based on the total amount of land take resulting from the Sizewell C Project including the proposed SSSI crossing. Whilst the quantum of SSSI lost would be marginally less adopting a bridge option, this would have no bearing on the overall conclusion of residual effects.

3.2.43 As confirmed at **Volume 2, Chapter 14** of the **ES** the impact of habitat fragmentation on invertebrate assemblages would constitute a negligible adverse effect which is not significant.

3.2.44 Project-wide embedded mitigation includes receptor habitat for water voles already created in advance at Aldhurst Farm and a detailed water vole mitigation strategy based on translocating water voles and excluding them

from the SSSI crossing footprint. The choice of SSSI crossing would have no bearing on the overall conclusion that the effects of the project on incidental mortality to water voles and loss of habitat would be not significant.

3.2.45 **Volume 2, Chapter 14** of the **ES** also considers the potential effects of the SSSI crossing on connectivity for various species, including water voles, otters and bats. An embankment with culvert is not considered to represent a major barrier to the passage of these species, with primary mitigation proposed to allow the passage of otter. **Volume 2, Chapter 14** of the **ES** concludes, therefore, that habitat fragmentation as a result of the proposed SSSI crossing would be not significant.

3.2.46 With regard to bats, a culvert option is likely to be more successful than a bridge in delivering a functional dark "movement corridor", along the Leiston drain, because it will be easier for bats to avoid disturbance from light and noise. Whilst the area underneath a bridge option would be sufficient for the majority of bats to use (other than certain species which fly at a height where they are unlikely to be constrained by the crossing at all), the noise and lighting environment in the vicinity of bridges, even with mitigation provided by fences, could be such that bats are discouraged from moving along the Leiston drain.

Groundwater

3.2.47 SZC Co. have assessed the potential impacts of the four options on the peat groundwater system. This is generally low in value in its own right but supports important assemblage of flora and fauna, and is therefore considered to have a high value and sensitivity, given it supports, or contributes to, designated habitats that support or contribute to designated species of natural, or international, importance that are sensitive to changes in the groundwater regime.

3.2.48 The assessment of impacts on groundwater has included a) long-term changes to water levels and flows, b) changes to water levels and flows during construction, c) changes to water quality from increased upflow, and d) changes to water quality from embankment materials.

3.2.49 The effect of each option in relation to long term changes to water levels and flows would be minor as the predicted changes from all four options is well within baseline groundwater level variation.

3.2.50 Changes to water levels and flows during construction would be similar for each of the options and the predicted changes would be well within the baseline ground water level variation.

3.2.51 The predicted effect for all four options on changes to water quality from increased upflow and changes to water quality from embankment materials, would be minor.

Surface water

3.2.52 SZC Co. has assessed the potential impacts of the four options on surface water hydrology, geomorphology, and water quality of the Leiston drain (which is the only surface water receptor that could be potentially affected by the proposed SSSI crossing options).

3.2.53 Although the surface water system is generally of low value in its own right, it supports an important assemblage of aquatic flora and fauna (as considered above) which partly account for the designation of the Sizewell Marshes SSSI.

3.2.54 The assessment of impacts on Leiston drain has included analysis of a) direct loss of natural geomorphology in the crossing footprint, b) changes to geomorphology upstream and downstream of crossing c) changes to geomorphology resulting from changes to water level and flow and d) changes to surface water chemistry resulting from changes to groundwater.

3.2.55 The bridge options would not result in any geomorphological changes in the development footprint, though any direct loss of natural channel habit from Option 1 would be small and will not have the potential to affect the wider geomorphological functionality of the river. With regard to upstream and downstream changes, whilst increased water levels and decreased energy upstream of a culvert could increase sedimentation, and increased flow velocities through a culvert could increase scour, these potential impacts can be readily mitigated.

3.2.56 The changes to water levels as a result of any of the four options are not considered to be sufficient to result in geomorphological changes. Some increase in exchange between groundwater and surface water would be expected for any of the four options, though the effect for each option would be minor.

Flood risk

3.2.57 There would not be any significant differences between the four options in the extent of flooding in the event of coastal inundation or a breach of coastal defences. The SSSI crossing restricts flow between the Minsmere Levels and the Sizewell Belts when the whole system is significantly inundated, with water depth increase occurring in the Minsmere Levels, and a slight reduction

in Sizewell Belts. However, there is not a significant effect in terms of depth, duration or extent.

3.2.58 Construction of the SSSI crossing would provide safe access and egress from the Temporary Construction Area to the main platform without any significant wave overtopping during the construction phase. The road would also be safe in the unlikely event of a breach of the coastal defences north of the main platform. During operation the risk of overtopping remains low.

3.2.59 The culvert size requirements are based on width of current watercourse, flood levels, ecological connectivity, plus safe access for inspection and maintenance. The combination of these factors results in a culvert that is much larger than just dictated by flood flow capacity. The culvert would accommodate more than the fluvial 1 in 100 annual probability plus climate change flows without a significant throttling effect.

3.2.60 The surface water from both sides of the crossing would be drained to the north into a swale in the Temporary Construction Area before infiltrating to the ground. The drainage system on the permanent crossing would remain in place after the construction phase.

3.2.61 The chosen SSSI crossing also provides the capability to increase its crest height to up to 10.5mAOD to meet the Nuclear Site Licence requirement of responding to much more stringent levels of flood risk than required by the planning process. Further details are set out in **Chapter 2, Volume 2** of the **Environmental Statement** (Doc Ref. 6.3) and the **Main Development Site Flood Risk Assessment** (Doc Ref 5.2).

Landscaping

3.2.62 The dimensions for each of the crossing options are broadly similar, so the extent of visibility would be generally the same for each option. The potential effects on visual amenity and landscape character are likely to be broadly the same for each option.

3.2.63 The causeway options, however, have the greatest potential to support mitigation planting which will help to soften the engineered appearance, whilst also providing some screening of close views, and allowing for the establishment of vegetation along its eastern edge that would be retained into the operational phase.

3.2.64 The bridge options would have a broadly comparable effect on visual amenity and landscape character, but with less scope to support mitigation planting.

vi. DCO submission

3.2.65 The final proposals for Sizewell Marshes SSSI crossing are a progression of Option 1, presented throughout consultation - comprising an embankment and culvert, with the culvert of sufficient dimensions to leave the bank and channel of the Leiston drain intact. The SSSI crossing has been designed to be an embankment and culvert. The culvert would be of sufficient size to facilitate the passage of fish, bats, otters, and water voles through the structure, and a ledge would be installed to enable passage by otters during any periods of high flow (complete with fencing to guide otters to the SSSI crossing). Appropriate lighting measures are secured in **Appendix 2A, Volume 2** of the **Environmental Statement** (Doc Ref. 6.3) to ensure the culvert is viable for use by bats.

3.2.66 Work on construction of the crossing would begin with advanced ecological mitigation, including water vole translocation, site clearance, and establishment of a temporary works areas for the SSSI crossing to the north and south.

3.2.67 To ensure works to construct the cut-off wall can progress as soon as possible, early access from the Temporary Construction Area to the main platform area would be provided using a short-term bridge, and would be designed to cater for lighter site traffic and material deliveries. Prior to this, all construction traffic including materials, plant, equipment, and labour would access the main platform via the Sizewell B site access route.

3.2.68 Ground stabilisation works across the footprint of the causeway would be undertaken. Piling may be required.

3.2.69 Part of the pre-cast concrete box culvert would then be installed, allowing a temporary causeway connection to be made. This would be followed by removal of the short-term bridge, installation of the remaining part of the box culvert, and completion of the causeway to provide the construction phase connection.

3.2.70 Two access routes would be provided to enable segregation of general site traffic from heavy earthmoving plant, which is considered essential for site safety.

3.2.71 A cross-section showing how the SSSI crossing would interface with the SSSI, and Sizewell drain is shown at **Figure 3.11, Volume 2** of the **Environmental Statement** (Doc Ref. 6.3).

vii. Conclusions

3.2.72 In principle, the potential for some effects on the Sizewell Marshes SSSI was understood by Government, and recognised as necessary for the delivery of the power station when NPS EN-6 was designated.

3.2.73 Paragraph 5.3.7 of NPS EN-1 requires development, as a general principle, to aim to avoid significant harm to biodiversity through mitigation and consideration of reasonable alternatives, and then, when significant harm cannot be avoided to seek appropriate compensation measures.

3.2.74 The sections above demonstrate 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. That work has enabled the ES to conclude that habitat loss would result in not significant residual effects on the SSSI and therefore that the preferred causeway option in isolation does not give rise to significant residual effects.

b) Electrical connection to the National Grid substation

3.2.75 It will be necessary to provide an electrical connection between Sizewell C and a National Grid substation to export the electrical output of Sizewell C. SZC Co. 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.

i. Stage 1 consultation

3.2.76 At Stage 1 it was recorded that the proposals would include a new National Grid substation on land currently used by Sizewell B, which would provide the connection for Sizewell C to the transmission system. At that stage it was thought that one National Grid pylon would need to be relocated to allow the overhead lines to connect to the new substation.

ii. Stage 2 consultation

3.2.77 At Stage 2 consultation SZC Co. reported that the electrical connections from Sizewell C could potentially be made via underground cables to the new substation.

iii. Stage 3 consultation

3.2.78 Following Stage 2 consultation, the development of plans for the proposed development highlighted significant safety and programme risks associated with the construction and operation of an underground cable option, namely:

- Additional underground galleries would be required to contain the power export cables. Due to the large number of galleries and underground infrastructure already planned for the site, the options available to introduce additional galleries are extremely limited.
- Potential routes to Unit 1 were considered, but none were found to be feasible within the constraints of the site. Deep excavation and dewatering would be required in part of the site where these activities are not permissible, due to the close proximity to the existing Sizewell B site and lack of sufficient space for construction activities.
- Potential routes to Unit 2 were considered separately, but to create space to construct an additional gallery through the site would significantly delay the construction programme due to the impact on site logistics and would require enlargement of the main platform to the north, leading to further loss of land within the Sizewell Marshes SSSI.
- The selection of an underground cable in place of an overhead line does not present an option where nuclear safety risks are ALARP.
- In addition to the above, an overhead connection is a significantly more reliable, and cost-effective proposal, that would ultimately deliver better value to customers.

3.2.79 At Stage 3 consultation, SZC Co. therefore proposed four pylons (each 65m in height) to export electricity via overhead power lines to the National Grid substation.

iv. Stage 4 consultation

3.2.80 In response to feedback from consultees at Stage 3, SZC Co. sought to reduce the visual impact of the pylons, and amended the option shown at Stage 3 by refining the location of pylons, and finding opportunities that would allow three of the four pylons to be reduced in height by around 25%. The accompanying preliminary environmental information was based on the reduction in height of only two pylons to ensure a robust worst case was assessed. The accompanying preliminary environmental information was based on the reduction in height of only two pylons to ensure a robust worst case was assessed.

3.2.81 The consultation also introduced an alternative option at Stage 4, for a five-pylon option which would facilitate the reduction in height of all of the pylons by approximately 25% - enabled through the introduction of the additional pylon. The additional pylon would be introduced in the vicinity of the SSSI crossing within the main power station platform, which would allow the

overhead line to go around the emergency diesel generator building rather than over it. The accompanying preliminary environmental information was based on the reduction in height of only four pylons to ensure a robust worst case was assessed.

3.2.82 SZC Co. also noted a preference from consultees for the undergrounding of the connection, to remove the need for overhead lines. The consultation confirmed that SZC Co. would continue to assess the practicability of this, and the implications for the Sizewell C Project – although noting that these implications were likely to be significant.

3.2.83 SZC Co. therefore consulted on, or made a commitment to considering further, three possible alternatives at Stage 4, as set out in Table 3.3.

Table 3.3: Description of options

	Description
Pylon Option 1.	A four-pylon scheme, two (pylons 2 and 3) at circa 48m in height and two (1 and 4) at circa 65m in height. The indicative location of the pylons is shown at **Plate 3.15**.
Pylon Option 2.	A five-pylon scheme, four at 48m (pylons 2-5) and one at 65m (pylon 1). The indicative location of the pylons is shown at **Plate 3.16**.
Undergrounding	SZC Co. committed to exploring further the potential for undergrounding, though did not propose an option at Stage 4 consultation.

Plate 3.1 – Option 1 Four pylon scheme

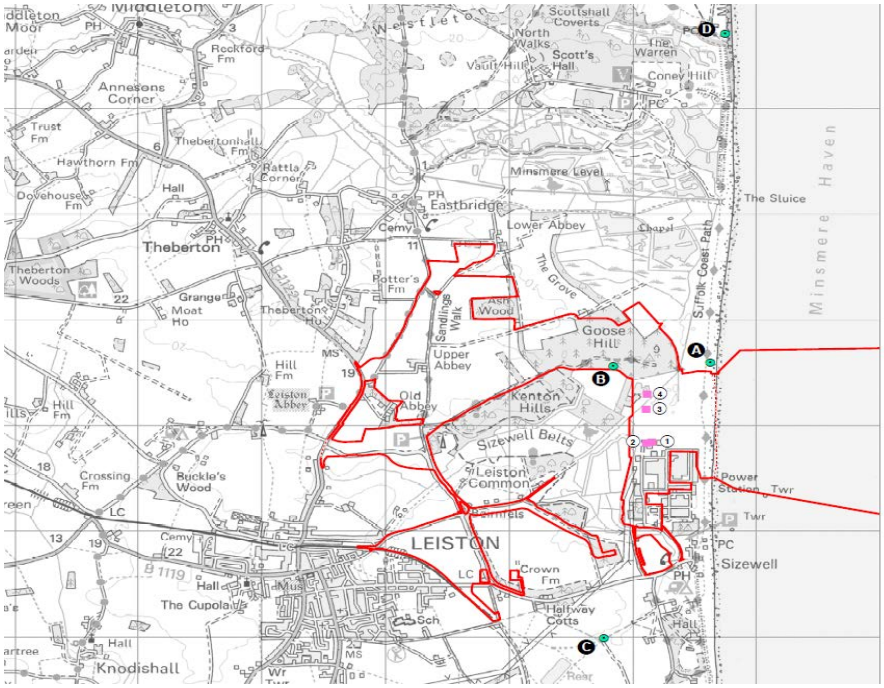
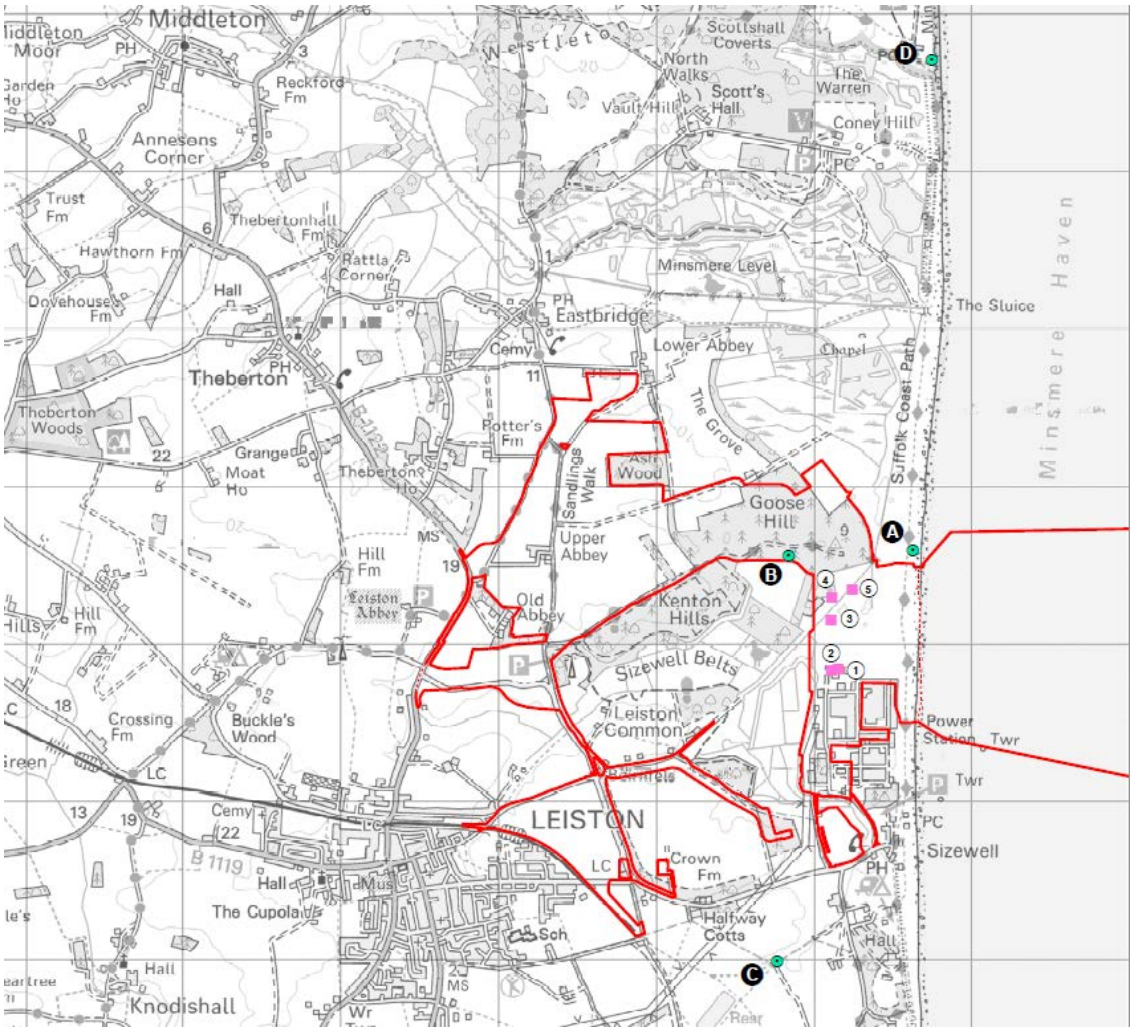


Plate 3.2: Option 2 Five pylon scheme



Landscape and visual analysis of pylon options presented at Stage 4

3.2.84 Following Stage 4 consultation, SZC Co. undertook further analysis of Options 1 and 2 presented at Stage 4 consultation, from four appraisal viewpoints. Details of the appraisal viewpoints, including a brief description of the existing view is set out at **Table 3.4**. **Table 3.5** then provides a comparative analysis of Options 1 and 2 for each of these viewpoints.

Table 3.4: Appraisal viewpoints

Viewpoint	Location	Visual receptors	Current view
A. Beach east of Goose Hill.	On/adjacent to Suffolk Coast Path. Within Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). Within Suffolk Heritage Coast.	Footpath users. Visitors to Sizewell beach.	The view south along Sizewell beach includes the principal structures at Sizewell A and Sizewell B. The sea defences/Northern Mound screen low lying structures and activity (such as vehicle movements etc.). Visible power station structures are relatively simple and benign geometric blocks with few scalable features/detailing. There is limited associated infrastructure within the view. Lighting columns adjacent to Sizewell A are visible and glimpsed views towards offshore infall/outfall structures (outside of photograph) are possible. No pylons are visible in views south along Sizewell beach.
B. Sandlings walk at Goose Hill.	On/adjacent to Sandlings Walk. Within Suffolk Coast and Heaths AONB. Within Suffolk Heritage Coast.	Footpath users.	The view south-east across low lying marshes and tree belts includes the upper portions of the principal structures at Sizewell A and Sizewell B. Tree belts screen views to lower lying structures and activity (such as vehicle movements etc.) and the visible elements of the power station structures are relatively simple and benign geometric blocks with few scalable features/detailing. Several pylons are visible to the west of Sizewell A. These are of relatively limited visual intrusion due to their distribution in the view, and visual relationship to the existing tree belts (which screen views to the majority of the pylons and power cables between the pylons). There is no other infrastructure visible. The remaining views from this location are to woodland/forest and wetlands.
C. Junction of footpaths, the walks.	At junction of footpaths south-east of Halfway Cottages. Within Suffolk Coast and Heaths AONB.	Footpath users.	The view north-east includes the principal structures at Sizewell A and Sizewell B. Vegetation/tree belts and woodland screen the majority of lower lying structures and activity (such as vehicle movements etc). However, glimpsed views are possible to office buildings south of the main Sizewell A structures. The main power station structures

Viewpoint	Location	Visual receptors	Current view
			of are relatively simple geometric blocks with few scalable features/detailing. Pylons are relatively prominent element in the view. Approximately eight pylons and power cables are visible to the west of Sizewell B. Beyond the existing Sizewell A and Sizewell B power stations and pylons, there is no other infrastructure visible in views from this location. The remaining views from this location are to woodland/farmland.
D. National Trust Dunwich Coastguard Cottages Car Park.	Adjacent to car park/within seating/picnic area. Within Suffolk Coast and Heaths AONB. Within Suffolk Heritage Coast.	Visitors to Dunwich Coastguard Cottages. Footpath users.	The view south across Sizewell beach, and the Minsmere Level, includes the principal structures at Sizewell A and Sizewell B. The Northern Mound, and areas of woodland/forest (including Goose Hill/Kenton Hills), screen low lying structures and activity. Visible power station structures are relatively simple geometric blocks above a 'datum' line formed by vegetation. In addition to the main structures of Sizewell A and Sizewell B, ancillary Sizewell B buildings are visible to the west of the main reactor building. Offshore infall/outfall structures are also visible, but not prominent. Overhead pylons are visible in the view. Approximately eight pylons are visible as a group to the west of Sizewell B. Further west, pylons are relatively evenly distributed above the wooded 'datum' (formed by Goose Hill/Kenton Hills). These are visible as closely spaced pair of pylons. Despite the viewing distance cables between upper pylons are visible above the tree-line.

Table 3.5: Appraisal of Option 1 and Option 2

Viewpoint	Option 1.	Option 2.
A. Beach east of Goose Hill.	A single pylon (pylon 4) is visible from this location. Power cables are visible linking pylon 4 and pylon 3 (which is screened from view from this specific location), and to the mono-poles which are located north of the northernmost Turbine Hall.	Two pylons (pylons 4 and 5) are visible from this location. Power cables are visible linking pylons 4 and 5, and are also visible linking to pylon 3 (which is screened from view from this specific location), and to the mono-poles which are located north of the northernmost Turbine Hall.

Viewpoint	Option 1.	Option 2.
B. Sandlings walk at Goose Hill.	All four of the proposed pylons are visible from this location. Pylons 3 and 4 are visible in the foreground of the reactor buildings. Power cables are also visible linking to the mono-poles, which are partially screened by intervening vegetation and proposed buildings and running between pylons 4, 3, 2 and 1. The upper portions of pylons 1 and 2 are visible above the Interim Spent Fuel Store which screens their lower portions. Pylons 4 and 3, are visible in the immediate context of Sizewell C. Pylons 1 and 2 are less visually prominent, and are viewed in the context of the existing pylons, albeit in closer proximity and of a different design.	Four of the five pylons are visible from this location (pylon 5 is screened by vegetation). Pylons 3 and 4 are visible in the foreground of the reactor buildings. Power cables are visible linking to pylon 5. Power cables are also visible running between pylons 4, 3, 2 and 1. On the basis that pylon 5 is not visible from this location, the effects arising from visible pylons are similar to Option 1. However, the effects are marginally reduced by pylon 4 being shorter (48m tall) in Option 2 (in contrast to 65m tall in Option 1). Should pylon 5 be visible (i.e. resulting from the loss of the trees that screen it from view), it is judged on balance that the effects of Option 2 would be greater than Option 1.
C. Junction of footpaths, the walks.	All four of the pylons are visible in the view, with lowest portions screened by landform/ vegetation.	Four of the five pylons are visible in the view, with lowest portions screened by landform/vegetation. Pylon 5 is screened by proposed power station structures. The layout and difference in pylon heights between Options 1 and 2 make a marginal difference to the effects arising from this viewpoint.
D. National Trust Dunwich Coastguard Cottages Car Park.	All four of the pylons are visible, with lowest portions screened by landform/vegetation.	All five pylons are visible in the view, with lowest portions screened by landform/vegetation. Pylon 1 is predominantly screened by proposed structures. The layout and difference in pylon heights between Options 1 and 2 make a marginal difference to the effects arising from this viewpoint.

3.2.85 Of the viewpoints considered in the appraisal, Sizewell beach is closest to the proposed development, and currently comprises views south along the beach that are not influenced by overhead power lines.

3.2.86 It was judged that Option 2 generated greater adverse effects in views from Sizewell beach than Option 1. Option 2 would have resulted in a greater

amount of visual 'clutter' extending out from the existing and proposed power station structures into what is an otherwise relatively simple coastal landscape. As such, particular consideration should be given to visual receptors in this location, their sensitivity and susceptibility to change.

3.2.87 Whilst adverse effects are anticipated on visual receptors along Sizewell beach during construction and operation arising from the power station structures/sea defences, the choice of an option that would reduce the visibility of pylons from Sizewell beach would be preferable. The difference in pylon heights between Options 1 and 2 makes a marginal difference to the effects arising from the remaining viewpoints assessed. On balance reducing the visibility of pylons from Sizewell beach is considered to be more important and so the four-pylon option (Option 1) is preferred.

Undergrounding

3.2.88 A number of significant safety and programme risks associated with the construction and operation of an underground cable option were identified following Stage 2 consultation. These are listed above.

3.2.89 SZC Co. has subsequently undertaken further work to consider different potential options for the undergrounding of cables.

3.2.90 The simplest method of installing cables is to directly bury them in the ground. However, this method was discounted for the following reasons:

- Protection of the cables: external damage by third party (typically by excavators) is the main cause of failure of underground cables. Once installed, they are not visible and so are at risk of damage during future works if not protected. Even in a privately owned and controlled area this risk cannot be fully eliminated.
- Safety of people and other installations: failures of cables can be catastrophic in nature and need to be contained to avoid external consequences.

3.2.91 The standard method of installing underground cables is in ducts buried in the ground, due to the enhanced mechanical protection provided by the duct, and the ease with which cables can be removed and replaced following a fault. A corridor at least 4.75m in width would be required for the cable ducts to each unit, and SZC Co. has considered potential routes through the site, along which ducts could be buried to install the power export cables. However, space reservation for the required jointing bays would be extremely challenging at Sizewell C due to the compact nature of the site. In addition, the presence of other underground services to support the power station

would require the cables to be buried at least 2m below the surface, which is deeper than a typical installation of this type. At this depth, the main concern is that the heat generated by the cables in service cannot be adequately dissipated This can sometimes be mitigated by spacing the cables further apart, which is not possible due to the space constraints already imposed for the cable route, or by increasing the cable size to allow more power to be transferred before the temperature limit of the cable is reached. However, preliminary modelling has shown that the cables required to export power from one unit would overheat even if their size is increased to 2,500mm^2, which is considered to represent the maximum size limit. The option of installing cables in ducts was, therefore, also discounted.

3.2.92 From operational experience, given the need to inspect and maintain the cables, the only appropriate method of installation would be in galleries (underground cable tunnels). This provides an opportunity to install cables in air, which could be naturally or mechanically ventilated, to avoid the overheating problem described above. Galleries can also be built deep underground to avoid other utilities and structures. From the perspective of cable protection, thermal rating, maintenance access, and reduced space requirement at surface level, installation in a gallery would represent the only potentially feasible method of cable containment for Sizewell C.

3.2.93 Due to the large number of galleries and underground infrastructure already planned for the Sizewell C Project site, the options available to introduce additional galleries are extremely limited.

3.2.94 Construction of an underground gallery solution for Unit 1 would not be feasible. The proximity of Unit 1 to Sizewell B means that constructability and space constraint issues are not surmountable at the Sizewell C Project site.

3.2.95 Construction of an underground gallery solution for Unit 2 could be considered, but could only be achieved by increasing the size of the main platform to the north to create space for the gallery. This would result in additional permanent landtake of the Sizewell Marshes SSSI, comprising around 0.2ha of wet woodland and 0.4ha of reedbed habitats. Although compensatory habitats have been or would be put in place to offset the loss of reedbeds, ditches and wet woodlands from the SSSI based on the DCO proposals, the extent of compensatory habitats has not got an embedded contingency sufficient to offset the additional habitat loss which would be associated with the undergrounding solution for Unit 2. In turn, the net habitat loss is therefore likely to 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.

3.2.96 In addition to this loss, the construction schedule would be prolonged by a significant period of time as there would still be insufficient space to accommodate the excavations required to construct the gallery without halting or severely disrupting other construction site activities.

3.2.97 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. Nuclear safety could be degraded compared to Hinkley Point C.

3.2.98 In summary, undergrounding of the cables connecting the turbine halls to the National Grid substation would not be feasible for either Units 1 or 2, and overhead power lines are therefore progressed through the DCO.

v. DCO submission

3.2.99 The electrical connections from the main platform would be made via overhead lines to a new National Grid 400kV substation, which in turn would connect into the National Grid high voltage transmission system. Six monopoles (in two groups located adjacent to the turbine halls) and four pylons would be required to make the connections between the power transmission platforms and the substation.

vi. Conclusion

3.2.100 SZC Co. have 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.

3.2.101 The alternative option of undergrounding has been considered by SZC Co.. This represents a significant safety and programme risks and would also involve further encroachment into the Sizewell Marshes SSSI and further habitat loss, for which no compensatory habitats have been developed.

3.2.102 Whilst the pylons would contribute towards visual effects, compared to an undergrounding option which would not, this must be considered in the context of the visual effects of the main development site as a whole. Considered in this context the pylons are not likely to contribute to any change in the significance of residual visual effects, albeit it is acknowledged that the nature of effects on visual receptors would be different by the introduction of pylons to the effects resulting from the proposed power station structures, and in particular in views from close proximity, including along Sizewell beach, which is within the Suffolk Coast and Heaths AONB and Suffolk Heritage Coast. The undergrounding option would by comparison be

likely to increase the level of harm to ecology within the SSSI to significant even with the compensation measures in place.

3.3 Sizewell B relocated facilities

3.3.1 The location of Sizewell B relocated facilities is largely determined by the location of the Sizewell B power station for which the facilities to be relocated are associated. The facilities to be relocated are required to be in a relatively close proximity to the existing Sizewell B station to ensure safe, secure and efficient working practices.

3.3.2 A sequential approach was applied to the siting of the facilities (given the limitation of available land) which sought to:

- rationalise the facilities by co-locating or combining compatible uses into new facilities, wherever possible;
- relocate facilities to within the existing Sizewell B station perimeter, as far as practicable;
- locate facilities in close proximity to Sizewell B within the Sizewell power station complex utilising the most suitable land, including exploring the potential re-use of Sizewell A land without conflicting with the Sizewell A decommissioning activities, such as using land used previously for Sizewell A reservoirs or Sizewell A car parks; and
- locate remaining facilities away from the Sizewell power station complex but only where the level of interaction with the Sizewell complex is less intensive and suitable land can be identified.

a) Facilities within the Sizewell B Station Perimeter

3.3.3 Two development areas within the existing Sizewell B station perimeter have been selected to accommodate the Sizewell B Relocated Facilities.

3.3.4 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.

b) Facilities Outside the Sizewell B Station Perimeter

3.3.5 Facilities for the relocation of parking for cars, coaches, contractor vehicles, cycles and motorcycles are required. The parking areas to be relocated include parking for normal operation as well as outage conditions when demand is higher.

3.3.6 Four options were developed which would meet the required number of spaces and which were considered to be technically achievable. The options were:

- Option 1: the existing operational at-grade Sizewell B western car park would have been retained and provided with a deck to form a multi-storey parking area (two levels including ground level) for the sole use of Sizewell B. It would have provided 640 operational spaces. The existing Sizewell A at-grade car park would also have been modified to accommodate a multi-storey car park (five levels including ground level), providing 988 operational and outage spaces and the existing Sizewell A at-grade overflow car park would have been modified to accommodate a multi-storey car park (3 levels including ground level), providing 178 operational and outage spaces;
- Option 2: the existing operational at-grade western car park would have been retained providing 409 operational spaces and a new multi-storey car park (four levels including ground level) would have been provided at the current location of Coronation Wood, providing 1,037 operational and outage spaces;
- Option 3: the existing operational western car park would have been retained and would have provided an elevated deck to form a multi-storey parking area (two levels including ground level) for sole use of Sizewell B, providing 640 operational spaces. A new at-grade parking area would have been provided at the former site of the disused Sizewell A reservoirs, providing 230 operational spaces as well as a new at-grade outage parking area within Pillbox Field, providing 576 outage spaces.
- Option 4 (chosen option): provision of a car park during normal operation at the current location of Coronation Wood, requiring clearance of the existing trees, and a car park on Pillbox Field for use during outages only.

3.3.7 Option 4 would provide a new at-grade replacement car park at Coronation Wood and provide the opportunity to locate the Training and Visitor Centre adjacent to the Sizewell B power station. Whilst this option requires the

clearance of Coronation Wood, the existing tree stock within this area was demonstrated to be of low ecological value. An at-grade car park on this site would not be able to provide sufficient car parking spaces to meet the requirement during outages. Therefore, the outage car park will be provided on Pillbox Field. The proposed replacement and outage car parks will provide a similar number of spaces as the existing facilities (with 12 additional spaces to meet current standards). Furthermore, the use of the outage car park in Pillbox Field would be infrequent in nature and avoids the need for a multi-storey car park which would have been more visually intrusive.

3.3.8 The use of Sizewell A car parks proposed in Option 1 was discounted as the facilities would be unavailable to meet demand due to the decommissioning programme for Sizewell A, as well as constraints on engineering activities due to underground utilities. Option 2 was discounted as it would be significantly more expensive than Option 4, and provide a greater number of spaces above the existing provision, which is unnecessary. Option 3 was discounted as it would not be feasible to construct an over-deck on the existing Sizewell B operational car park (Western Car Park) due to the 400kV overhead power lines

3.3.9 There was also early consideration of an offsite park and ride as an alternative to Pillbox Field for the outage car park only. However, this option was discounted due to the increased logistics and costs that would be incurred around the critical outage periods.

3.3.10 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.

3.4 National Grid land

3.4.1 An extension to the existing National Grid 400kV substation would be required to accommodate the additional generation output of Sizewell C. The overhead lines that currently terminate at the existing National Grid 400kV substation would be diverted into a new substation building built alongside and interconnected with the existing substation building, so that the electricity generated by both the existing Sizewell B and new Sizewell C power stations can be exported to the National Electricity Transmission System. As the substation needs to be interconnected no reasonable alternatives exist. Further details on the wider electrical connections to and from the power station are set out above.

3.5 Offshore works area

a) Intake and outfall heads locations

3.5.1 The Sizewell C site requires the installation of sea water intake and outfall structures on the seabed to ensure the safe and efficient operation of the station. Aside from engineering practicability, there are two primary considerations for the appropriate positioning of cooling water intake and outfall structures – the need for safe and efficient operation of the cooling water infrastructure itself and the need to consider environmental sensitivities.

3.5.2 When deciding on the location of the intake and outfall, a detailed understanding of the physics and ecology of the local marine environment is required, together with that of the dynamic processes that would govern the behaviour of the resultant cooling water plume. The location of the cooling water infrastructure has taken due regard of the Environment Agency evidence report (Ref. 4.3).

3.5.3 A key tool within this process was the use of predictive numerical hydrodynamic models. Two models have been used to model the discharge plumes for the Sizewell C Project. Ensemble modelling (use of two or more different models) is preferred as it reduces the bias or weaknesses of any particular single approach (Ref. 4.2). The models provide an understanding of the dispersion of a cooling water plume in the marine environment, and its spatial extent relative to the locations of sensitive environmental receptors. In addition, the models enable the interaction between cooling water intake and outfall locations to be determined both with respect to the proposed Sizewell C Project infrastructure, and the existing Sizewell B Project infrastructure. Avoidance of recirculation of discharged cooling water is a fundamental requirement to ensure that the efficiency of the cooling water circuits for the existing Sizewell B Project and proposed Sizewell C power stations is maintained.

3.5.4 Design work has concluded that the Sizewell C Project site intake and outfall heads would be situated east of the sea-bed feature known as the Sizewell-Dunwich Bank, at around 3km from the shore, at depths of approximately 13-15m below Ordnance Datum. The Sizewell bank is gradually moving towards the coast together with localised infilling to the west so placing the intake and outfall structures to the east ensures that they are not at risk of being smothered by the advancing back. The deeper water to the east of the sandbank increases clearance above the heads thereby reducing navigational risks and ensuring sufficient water levels overlying the structures for uninterrupted cooling water supply. In addition, the deeper water at the

location of the outfall allows stratification so that the warm water discharged rises rapidly to the water surface (due to lower density) and loses heat efficiently to the atmosphere.

3.5.5 The selection of an outfall location beyond the Sizewell bank would also greatly reduce the Sizewell C plume adding to and reinforcing the presence of the existing Sizewell B plume (which is located inside of the Sizewell bank). The water inside of the Sizewell bank is constrained somewhat by the sandbank and significant increases in temperature would occur if both stations discharged their thermal loads in that area; avoiding this greatly reduces potential effects on marine water quality and ecology.

3.5.6 Intake head locations considered the potential impacts of entrapment of marine biota and in particular avoid fish spawning grounds, fish migratory pathways and sensitive benthic habitats (Ref 4.1), which the proposed offshore locations achieve.

3.5.7 The location of the intake and outfall heads were also influenced by the siting of the main platform.

b) Fish recovery and return outfall heads locations

3.5.8 The location of the fish recovery and return (FRR) outfall heads is dictated by the need to ensure the head is submerged at all times of even the lowest tide (Lowest Astronomical Tide (LAT)), which allows continuous return of fish and other biota to sea. Other constraints are then considered to optimise the location including reducing the time required to return fish to sea and the potential fate of fish and biota once they have been released – essentially a shorter tunnel is preferred to reduce transit time of fish through the tunnel, but the precise discharge location must ensure that the returned fish are (a) not at risk of being drawn into the Sizewell B cooling water intake and (b) discharged at sufficient distance offshore that they do not become immediately caught in the surf and washed ashore (important also for consideration of dead and moribund animals being washed ashore).

3.5.9 Numerical modelling (particle tracking) has been used to assess the potential for fish released from the FRR outfalls to be entrapped in the Sizewell B cooling water intake. The outputs of this modelling have been used to inform how far offshore the outfalls should be.

3.5.10 The FRR outfall head location for Unit 2 is optimised to lie due east its respective filtering debris recovery pit, thus providing the shortest distance to return to sea. However, the FRR outfall for Unit 1 would lie to the south east of its respective filtering debris recovery pit - this is a compromise to ensure both a short transit time and maintain sufficient distance from the Sizewell B

intake while also maintaining sufficient distance from the combined drainage outfall (CDO) to the north so that potential impacts of commissioning discharges on returned fish and biota minimised.

3.5.11 As with the cooling water infrastructure, the siting of the FRR outfalls takes due regard of Environment Agency evidence.

3.5.12 The locations of the fish recovery and return outfall heads were also influenced by the siting of the main platform.

c) Combined drainage outfall head location

3.5.13 The location of the CDO head is a compromise between engineering and environmental constraints. The CDO tunnel and outfall would be:

- close to shore to reduce tunnel length, thereby simplifying the engineering and amount of spoil arisings;
- towards the north of the site to allow routing of construction and commissioning discharges to the CDO tunnel; and,
- located in a north-south alignment that (a) reduces potential impacts of the discharge plume on both the fish returned from Unit 1 (which would become operational while commissioning, and construction discharges are still being made via the CDO) and (b) mitigates the potential incursion of CDO discharges into Minsmere via the sluice to the north of the proposed development.

3.5.14 The location of the combined drainage outfall head was also influenced by the siting of the main platform.

3.6 Temporary construction area

a) Alternative site

3.6.1 The SSA which underpins NPS EN-6 was designed to identify sites in England and Wales that are potentially suitable for the deployment of new nuclear power stations, and areas were defined for each of those sites. A significant proportion of the temporary construction area was included in the nominated site boundary set out in NPS EN-6. However, as stated in paragraph 2.3.3 of NPS EN-6, it was not anticipated that the listed site would include all of the land required for construction of the power station:

> *"The boundary of the nominated area may, however, vary from the site boundary that is proposed for development consent. It*

was not considered reasonable to expect nominators to have established, at the time of requesting nominations, detailed lay-outs for the whole of their proposed developments, including for example any additional land needed for construction or decommissioning."

3.6.2 Paragraph 2.3.4 of NPS EN-6 goes on to say that:

"The SSA has therefore been carried out on the basis that applications for development consent may also include land additional to the boundary of the listed site for other elements of the power station, such as car parks, access roads, or marine landing facilities, or for the construction, and/or decommissioning of the power station.

3.6.3 On this basis, SZC Co. has chosen to site the Temporary Construction Area around the listed site, in close proximity to the main platform, and around the access road. Siting the Temporary Construction Area in a location remote from the listed site would not be practical given the very large quantities of construction materials, vehicles and components involved.

i. Site requirements

3.6.4 The area of land required for construction has been defined by the approach to construction. Further details on this are set out in **Chapter 3, Volume 2** of the **ES**. Given the scale of the Sizewell C Project, a substantial volume of materials, machinery, and other specialist equipment would need to be brought to, stored at, processed and removed from the main development site during the construction phase. This phase, therefore, requires careful planning, including the identification of dedicated construction areas for specific activities.

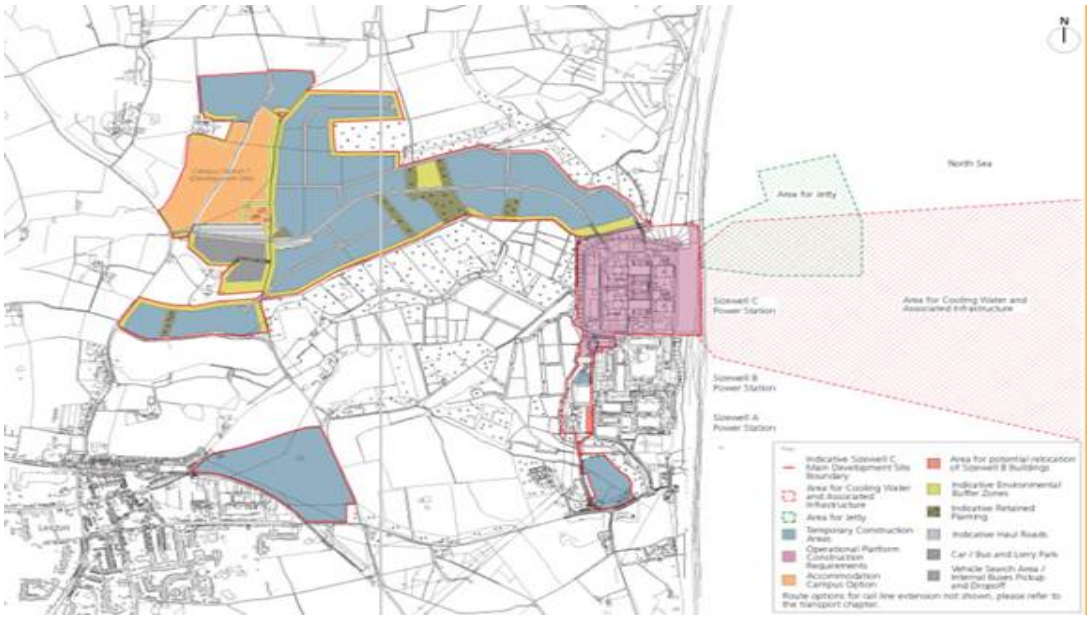
3.6.5 The common user facilities area, which would include concrete production, and the prefabrication facilities for essential components which are too large to be delivered from remote locations, would need to be located as near to the main platform as possible in order to maximise logistical efficiency. For a similar reason, the contractors' compounds would need to be located near to the common user facilities, yet the accommodation campus should be sited a suitable distance from the main construction worksites to minimise impacts on the residential workforce.

ii. Stage 1 consultation

3.6.6 The extent of the Temporary Construction Area, as shown at **Plate 3.17** was largely established at Stage 1 and included land for:

- construction working areas, including laydown areas, workshops, storage and offices;
- temporary structures, including a concrete batching plant;
- material storage areas in the form of stockpiles;
- crossing of the Sizewell Marshes SSSI;
- jetty (referred to as a marine off-loading facility);
- rail extension into the Temporary Construction Area;
- works areas for the installation of cooling water infrastructure and coastal defences;
- construction roads, fencing, lighting and security features;
- site access arrangements and parking; and
- accommodation campus.

Plate 3.3: Main development site boundary, including Temporary Construction Area – Stage 1.



iii. Stage 2 consultation

3.6.7 The Temporary Construction Area had evolved by Stage 2 to reflect the development of the **Outline Drainage Strategy (Appendix 2A**, **Volume 2** of the **ES**) including space for a series of attenuation ponds to control surface water run-off. These ponds would also treat surface water as required prior to discharge to either watercourses or to ground.

3.6.8 It had also become clear by Stage 2 that both Lover's Lane and Abbey Road would require highway improvements and were therefore added to the development boundary.

iv. Stage 3 consultation

3.6.9 The requirements of the project had further evolved by Stage 3 to include the following additional elements:

- Land was added north of Sizewell Gap to provide for underground electricity cables, for use during the construction and operation phases. The cables would complete the electrical connection between the Leiston 132kV substation at Sizewell Wents and a new substation to be located east of Old Abbey Farm, to reduce reliance on diesel generators at the earliest opportunity during construction.
- Additional land at Goose Hill was added into the Temporary Construction Area boundary to allow for active management of this area to help ensure its long-term longevity.
- The relocation of certain ancillary facilities within Sizewell B, which is required to release land for Sizewell C, was included in the development following the Stage 2 consultation. Prior to this point, the planning strategy was to apply for it solely as a separate planning application.
- Land east of Sandy Lane (Pillbox Field) was included in the boundary in order to release land for Sizewell C.
- Additional land north of Kenton Hills and south of Goose Hill was included to help ensure construction ground levels can tie in with levels in the surrounding area.
- Land north of Sizewell Gap for the provision of a helipad.

3.6.10 Sizewell B currently use the northern outage car park for the landing of helicopters. As that car park needs to be relocated to provide space for the Sizewell C main platform, space for a dedicated helipad was added on land north of Sizewell Gap in the Stage 3 consultation. However, further

investigation into the emergency requirements in this regard have shown that a dedicated facility is not necessary and it has therefore been removed from this application.

v. Stage 4 consultation

3.6.11 The Stage 4 consultation included further amendments to the red line boundary as a result of project evolution:

- The red line boundary was extended at the proposed access to the main entrance hub in order to accommodate a change to the location and increase in size of the proposed roundabout.
- Additional land was included in relation to public rights of way and Bridleway 19 diversion to allow for a wider bridleway corridor and other minor design changes was proposed which required additional land off Lover's Lane, Sizewell Gap and Abbey Road.
- A residential property (the Round House) was enclosed by the red line boundary since the Stage 1 consultation as the land was necessary for construction works, including earthworks stockpiles. The land is now included within the red line and it will be protected *in-situ* during the construction phase.

vi. DCO submission

3.6.12 Final minor amendments to the red line weremade post Stage 4 consultation which comprised removal of several small parcels of land, including certain land north of Sizewell Gap as a dedicated helicopter landing pad is no longer an operational requirement.

3.6.13 Additional land was added to the south of land identified as a northern flood compensation area to facilitate that change in use of this land since Stage 4 to provide a water supply reservoir, with additional land to provide a piped connection to the main body of the Temporary Construction Area.

vii. Conclusion

3.6.14 SZC Co. has chosen to site the Temporary Construction Area around the site listed in NPS EN-6.

3.6.15 The extent of the Temporary Construction Area has been driven by the need to strike a balance between project efficiency, programme, and environmental constraints. The following factors were considerations in the siting of the Temporary Construction Area:

- Locating construction activities with the potential to cause disturbance away from where people live, as far as reasonably practicable.
- Minimising land take from within Sizewell Marshes SSSI.
- Avoiding the most sensitive landscapes within the AONB.
- Limiting disturbance to deciduous woodlands, significant, and/or important hedgerows and tree belts.
- Avoiding the non-essential use of land along the foreshore (i.e. in front of Sizewell C) that forms part of the AONB and Suffolk Heritage Coast.
- Remaining as close as reasonably practicable to the main platform, to minimise the logistical and safety challenges of moving workers and construction materials, storing and backfilling spoil material and supporting construction activity.
- Locating construction areas near to the proposed access road and avoiding the need to use the existing access to the Sizewell B and Sizewell A power stations where possible.
- Using flat and well-drained land, where practicable, to avoid substantial re-grading.
- Limiting disturbance to retained and newly created habitats.
- Minimising disturbance to designated habitats, including: Minsmere to Walberswick Special Protection Area (SPA) and Ramsar; Minsmere to Walberswick Heaths and Marshes Special Area of Conservation (SAC) and SSSI; Outer Thames SPA; Sizewell Marshes SSSI; and, Leiston-Aldeburgh SSSI.
- Maintaining access to recreation and amenity areas including public and permissive rights of way where practicable.
- Having regard to the setting of heritage assets.

3.6.16 Siting the Temporary Construction Area in a location remote from the listed site would not be practical given the very large quantities of construction materials, vehicles and components involved.

3.6.17 Another factor in the siting of the Temporary Construction Area was to use land within the SZC Co. Estate where possible. It was considered that using land that is owned and managed by SZC Co. would reduce disturbance to

surrounding landowners, and land ownership arrangements, and be more cost-effective than purchasing land.

b) Power station access roads and junctions

3.6.18 NPS EN-6 also identifies land for the formation of access junctions and roads to the power station from Abbey Road (B1122), and via the existing access road for Sizewell A and B. There is a regulatory requirement for two separate accesses to the operational power station, and therefore no in principle alternative sites have been considered.

3.6.19 The primary access would provide capacity during both the construction and operational phases, and serve operational car parking spaces in close proximity to the station entrance. A permanent two-lane access road is required, with a segregated route for cyclists and pedestrians.

3.6.20 The existing access road for Sizewell A and B would provide the secondary access. This access was not considered as an option for the primary route to Sizewell C, because it would not be able to provide regular capacity given its proximity to Sizewell B. In addition, the space constraints around the main platform for Sizewell C would limit the opportunity to provide operational car parking adjacent to a southern entrance.

3.6.21 The detailed text below describes how the design of the access roundabout has evolved through consultation.

i. Stage 1 consultation

3.6.22 At Stage 1 consultation, it was proposed that the primary access road would be routed in a westerly direction from the power station, to adjoin the B1122 to the south of the existing Eastbridge Road junction in the form of a priority junction. Prior to Stage 1, significant bat populations were identified on the SZC Co. Estate, which resulted in the decision being taken to propose the access road further north than originally envisaged to reduce adverse effects.

ii. Stage 2 consultation

3.6.23 By Stage 2 consultation, the design of the junction had progressed, and a roundabout was proposed, which would be located in the southern part of the field between the existing Eastbridge Road and Greenhouse Plantation. The roundabout would, therefore, be located slightly eastwards of the existing alignment of the B1122.

3.6.24 Two options were proposed for the roundabout arrangement, which were driven by the layout options proposed for the accommodation campus (see **section 3.4** of this statement):

Option 1

3.6.25 Option 1 involved a permanent diversion of the Eastbridge Road to form a new independent access off the B1122 near to Greenhouse Plantation. Under this arrangement the roundabout would have had four arms: the B1122 north towards Theberton; Sizewell C construction workers' entrance; Sizewell C freight entrance; the B1122 south towards Leiston (running clockwise from north-west).

Plate 3.4: Site access – Option 1

Option 2

3.6.26 Option 2 would have involved a significantly shorter section of Eastbridge Road being diverted, compared with Option 1, to tie into the new roundabout. Provision of a dedicated arm at this junction would allow vehicles to access the village directly. This arrangement would have resulted in the existing Eastbridge Road being closed to the east of Abbey Cottages, allowing access from the B1122. Under this arrangement the proposed roundabout would have had five arms: the B1122 north towards Theberton; a realigned Eastbridge Road; Sizewell C construction workers' entrance; Sizewell C

freight entrance; the B1122 south towards Leiston (running clockwise from north-west).

Plate 3.5: Site access – Option 2.

iii. Stage 3 consultation

3.6.27 The preferred solution identified at Stage 3 consultation for the main development site primary entrance directly related to the preferred approach to delivering the on-site accommodation campus, as described in **section 3.4** of this report. This resulted in Option 2 becoming the preferred option for the site entrance.

iv. Stage 4 consultation

3.6.28 In response to the Stage 3 consultation, Suffolk County Council (SCC) expressed a preference for the speed limit through the roundabout to be 40 miles per hour (mph), rather than 30mph as proposed at Stage 3. Increasing the speed of vehicles approaching the roundabout may have required design changes to comply with standard specification for vehicles travelling at this speed. Additional land was included within the application boundary to facilitate this, subject to further discussions with SCC, and consultee feedback.

v. DCO submission

3.6.29 Feedback from the Stage 4 consultation, further discussions with SCC, and further detailed design testing have resulted in minor changes to the alignment of the approach roads to the roundabout.

vi. Conclusions

3.6.30 From the outset of the project it has been clear that a primary entrance to the north of the site was necessary due to space and capacity constraints from the south, via the existing Sizewell power station complex. Connecting the north of the site directly to the B1122 was also the only viable option as this is the first road with sufficient capacity to serve the power station. Land was included within the NPS EN-6 listed site accordingly, and no alternative sites have been considered.

3.6.31 The chosen design of the access roundabout is closely related to the approach to the chosen accommodation campus, which is proceeding on land to the east of Eastbridge Road as set out in **section 3.2** of this document. This solution allows direct access to Eastbridge from the roundabout and reduces the extent of diversion works on Eastbridge Road compared with Option 1.

c) On-site campus location

3.6.32 The strategic approach to accommodating construction workers is described in **Chapter 2** of this report. This section sets out the site selection process and the rationale for proposing to site the accommodation campus on land to the east of Eastbridge Road.

3.6.33 The site selection process commenced in 2010 (ahead of Stage 1 consultation) with a total of thirteen potential campus sites considered at 'Step 1', which represented a site identification and pre-screening exercise. The national and legal policy context, relating to planning, environment and transport was considered and initial studies were commissioned from external consultants. Work included:

- High level assessment against sizing criteria.
- Site visits.
- Preliminary desk studies.
- Phase 1 Habitat Surveys including Bird, Great Crested Newt and Reptile survey during March-June 2011.

- Early information on EIA topic areas from scoping.
- Initial socio-economic assumptions on peak workforce (5600), home-based workers at peak (34%) and shift patterns.
- Gravity Model and Transport Modelling.
- Marine off-loading facility study.
- Rail Study.
- Constructability Study.

3.6.34 Initially, off-site campus options were considered close to Leiston, north of Leiston and in more distant satellite locations.

3.6.35 Thirteen potential campus sites were considered in the initial appraisal process which took place from 2010 to 2011. These sites were selected in various ways, including project field survey, approaches by Agencies or Landowners and suggestions by SCC and Suffolk Coastal District Council (SCDC). Three of the thirteen were ruled out at the initial screening stage, two further sites were retained for consideration for potential associated development use but discounted for campus, one of which became the proposed northern park and ride site at Darsham. Eight of these were taken forward to Step 2 and ten new potential campus sites added.

3.6.36 The eighteen sites underwent an internal screening process, involving field survey of the sites and their environs from public rights of way to determine land-use, make a preliminary visual assessment of their environmental setting and to identify obvious potential environmental constraints. This was followed by a desk-based review of potential flood risk and a review of statutory landscape and ecological designations relating to the sites and their surrounds.

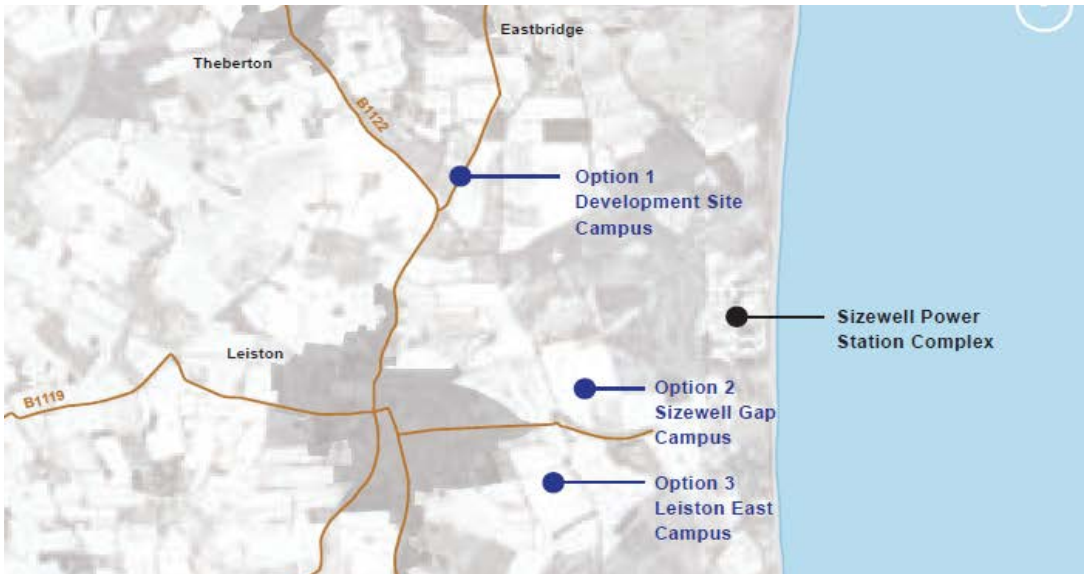
3.6.37 Following this, five sites were discounted, a further five were taken forward but discounted for campus use, and two were merged into other sites, therefore leaving a total of six campus sites taken forward to detailed Technical Appraisal by SZC Co.'s consultants. This was to ensure that specialist technical evaluation of site conditions and development potential was provided at an early stage in the process of decision making. Following Technical Appraisal, a workshop was held with the Councils to set out the work undertaken and proposed layouts for each of the associated development sites. It was explained that three campus sites had been selected to take forward to Stage 1 consultation which ran from November 2012 to February 2013.

i. Stage 1 consultation

3.6.38 In the Stage 1 consultation, SZC Co. stated a requirement for approximately 2,000 to 3,000 bed spaces plus associated infrastructure on a site in excess of 30 hectares. This resulted in consultation on three potential sites as shown in **Plate 3.6**:

- **Option 1:** a campus next to the main development site entrance (which was stated as the preferred option);
- **Option 2:** a Sizewell Gap campus located to the south of Sandy Lane and north of Sizewell Gap, approximately 2.4km from the main development site entrance; and
- **Option 3:** a Leiston East campus located in fields to the south of the Sizewell Sports and Social Club, approximately 2.7km from the main development site entrance.

Plate 3.6: Stage 1 accommodation campus site options



Main Development Site campus (Option 1)

3.6.39 Option 1 comprised two parcels of land totalling approximately 34 hectares of farmland and was located just to the north of the proposed construction site entrance off Abbey Road (B1122) as shown in **Plate 3.7**. It adjoined the Sizewell C main development site construction area to the east and to the south.

3.6.40 Option 1 lay wholly outside of the AONB and was furthest away from European designated sites. Effects on the setting of the AONB needed to be considered, but effects are temporary and in the context of the adjoining construction area. Other potential effects on ecology and heritage required careful consideration, with particular regard given to potential effects to nearby ecological receptors and the second Leiston Abbey site.

3.6.41 The Stage 1 consultation explained that substantial benefits for the Sizewell C Project would be secured through the prompt access by workers into the construction site, more efficient night-time working and reduced emergency response times, all helping to reduce the scope for delay to the Sizewell C Project schedule. Furthermore, it was considered that the availability of good quality campus accommodation with direct access to the site would help to attract and retain the high-quality workforce required for the Sizewell C Project.

3.6.42 Option 1 would have been more efficient in terms of reduced travel time between the accommodation campus and the construction site. This would have facilitated a significant increase in construction efficiencies, with lower overall costs.

3.6.43 Option 1 would have been located furthest from Leiston town centre and its associated shops and services. There would therefore have been reduced scope for workers to utilise these local facilities on a daily basis, with greater reliance upon on-site facilities.

Plate 3.7: Development site campus (Option 1)

Sizewell Gap campus (Option 2)

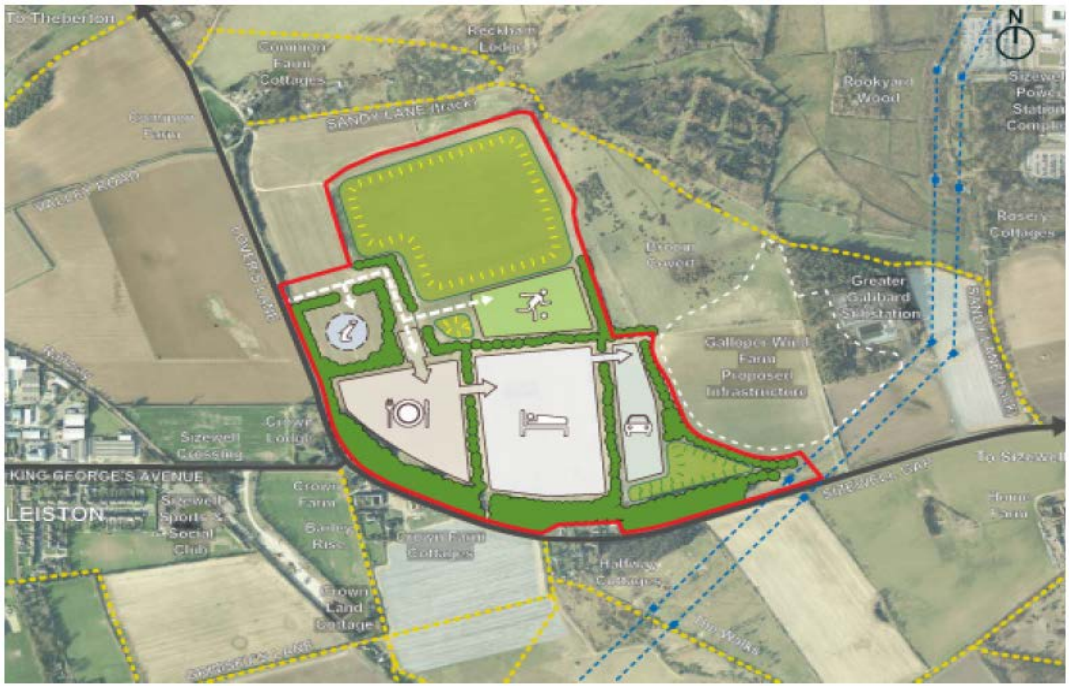
3.6.44 Option 2 was approximately 45 hectares in size and located to the east of Leiston and to the north of Sizewell Gap, as shown in **Plate 3.8**. The site would have been accessed from Lover's Lane and comprised of farmland.

3.6.45 The Stage 2 consultation explained that Option 2 was located entirely within the AONB and closer to European sites than Option 1, including the nearby Sandlings SPA. This generates the potential for direct and indirect disturbance to the habitat of protected bird species (Woodlark and Nightjar).

3.6.46 An accommodation campus located away from the main development site would generate a need for shuttle bus movements along Lover's Lane and Abbey Road (B1122) to move workers to and from the site. It would also generate additional management and security costs both on-site and off-site.

3.6.47 Option 2 offered greater potential for expenditure by construction workers within Leiston town centre compared with Option 1. This needed to be weighed against the issues of workforce management and potential community impacts as well as increased traffic movements.

Plate 3.8: Sizewell Gap campus (Option 2)



Leiston East campus (Option 3)

3.6.48 Option 3 was approximately 41 hectares in size and the main part of the site is positioned to the west of the existing rail head and dismantled railway, as shown in **Plate 3.9**. The northern boundary of the site lay to the rear of the Sizewell Sports and Social Club that is owned by SZC Co. The north-western boundary abutted a school sports field with residential properties beyond the school. Within the southern end of the plot there were existing high voltage overhead power lines along with a pair of pylon structures. The site was generally flat with a slight slope from west to east, and was separated by a public bridleway.

3.6.49 Option 3 was partially located within the AONB and close to European designated sites, including the nearby Sandlings SPA generating the potential for direct and indirect disturbance to the habitat of protected bird species (Woodlark and Nightjar).

3.6.50 An accommodation campus located away from the main development site would generate a need for shuttle bus movements along Lover's Lane and Abbey Road (B1122) to move workers to and from the site. It would also generate additional management and security costs both on- and off-site.

3.6.51 Option 3 offered greater potential for expenditure by construction workers within Leiston town centre compared with Option 1. This needed to be weighed against the issues of workforce management and potential community impacts and increased traffic movements.

Plate 3.9: Leiston East campus (Option 3)

ii. Stage 2 consultation

3.6.52 SZC Co. stated in its Stage 1 consultation that the development site accommodation campus option was its preferred option. This was on the basis that it would reduce the amount of travel by construction workers to and from the construction site, be more attractive to workers, provide greater construction efficiencies and facilitate implementation of worker codes of behaviour.

3.6.53 However, SZC Co. noted the concerns raised by the nearby communities of Eastbridge and Theberton at Stage 1 and carefully considered the benefits of the development site campus with the other two site options presented.

3.6.54 The Option 2 site at Sizewell Gap received only limited support - a common concern being its location entirely within a relatively open area of the AONB. This area is now being used to create new reptile habitat. The Option 3 site at Leiston East was also partially located within the AONB.

3.6.55 Option 1, however, was favoured strongly by SZC Co.'s construction team. The logistical benefits of an 'on-site' campus were considered to be very strong. With this in mind and having regard to the fact that the alternative options created their own difficulties and had inherent disadvantages, SZC Co. decided to promote only the on-site campus at Stage 2. SZC Co. therefore proposed to progress a single campus within walking distance of the construction site, rather than dispersed multiple campuses, or a single campus away from the site. This is because a single on-site campus:

- reduces the number of journeys on local roads, as well as time associated with travelling to and from the site;
- increases productivity and reduces potential health and safety risks associated with long travel and work times; and
- gives rise to particular benefits if key workers are resident on-site, so they can be flexible in terms of the out of hours working that may be necessary to respond to emerging site needs and maintain construction productivity and progress.

3.6.56 At the Stage 2 consultation two main options were therefore presented, which were both variants of Option 1:

- **Option 1a:** built development east and west of Eastbridge Road, comprising three and four storey accommodation blocks. This option required a realignment of Eastbridge Road, as shown in **Plate 3.10**; and

- **Option 1b:** built development on the east side of Eastbridge Road, comprising three, four and five storey accommodation blocks, with sub-options for the siting of the sports pitches:
  - sports facilities to the west of Eastbridge Road, as shown in **Plate 3.11**; or
  - sports facilities located remotely, as shown in **Plate 3.12**.

Plate 3.10: Built development east and west of Eastbridge Road (Option 1a)

Plate 3.11: Built development east of Eastbridge Road and sports facilities to the west of Eastbridge Road (Option 1b(i))

Plate 3.12: Built development east of Eastbridge Road and sports facilities located remotely (Option 1b(ii))

3.6.57 All options were capable of accommodating up to 2,400 workers. These options were influenced by the following siting considerations:

- accommodate the required bed space numbers, amenity hub, infrastructure, and associated parking required;
- provide an attractive and practical environment for the workforce;
- accommodate the realigned Bridleway 19, and retain its rural character as far as possible;
- be sympathetic to the relationship and compatibility with adjoining land uses (existing and proposed);

- consider the design of the proposals in relation to the proximity to the AONB; impact on key viewpoints e.g. Whin Hill and impact on the setting of important buildings e.g. Leiston Abbey;
- take into account the character of the existing natural environment and built environment e.g. Upper Abbey Farm;
- retain existing landscape features within the site where possible and provide a bat corridor along the eastern edge; and
- ensure safe pedestrian and vehicular movement.

Environmental considerations for the accommodation campus

3.6.58 The Stage 2 consultation explained that many of the environmental considerations are common to the layout options consulted upon at Stage 2; but where there were differences these are identified below.

Socio-economics

3.6.59 The operational considerations for the accommodation campus are broadly similar, irrespective of which option is progressed. However, siting the sports facilities within the accommodation campus (i.e. Option 1 and 1b(i)) would encourage workers to use them and reduce traffic effects on local communities, but may potentially reduce the economic benefits of off-site expenditure by campus-based workers. Conversely, siting facilities within existing communities (e.g. Leiston) as proposed in Option 1b(ii) would provide community benefits through the potential for increased public access.

Landscape and visual

3.6.60 The Stage 2 consultation also explained that the campus layout options are located outside of, but immediately adjacent to, the AONB and within an area designated as a Special Landscape Area. The built development for all options and sports facilities (for Options 1 and 1b(i)) would have been located within a well-established vegetation framework comprising mature trees and hedgerows.

3.6.61 Option 1 would have had a larger development footprint and would have required new infrastructure (i.e. a road) to be constructed. As such, landscape and visual effects can be regarded as more significant compared to Option 2(i), and particularly Option 2(ii) as there would have been no sports pitches requiring external lighting.

3.6.62 From lower lying areas, mature hedgerows and tree belts would typically screen/filter views of built development and sports facilities, including from locations in Eastbridge and from Eastbridge Road. There is the potential for views of built development from local roads and rights of way networks, residences (notably Theberton House and Potter's Farm) and the second Leiston Abbey site. Built development in all options was likely to be visible from elevated locations to the north (including Whin Hill).

Amenity and recreation

3.6.63 Option 1 would have required the diversion of Suffolk Coast Path, Sandlings Walk, Bridleway 19 and Sustrans route, due to the need to close Eastbridge Road. It was proposed that the diversion would run parallel to the proposed new Eastbridge Road, west of the accommodation campus boundary.

3.6.64 Option 1b(i) and (ii) would have required the diversion of the Suffolk Coast Path, Sandlings Walk and Bridleway 19, to run parallel with the line of the existing Eastbridge Road along a new route between the road and the accommodation campus boundary. The Sustrans cycle route would have remained on its existing line along this road.

3.6.65 In terms of Option 1b(ii), residents of the accommodation campus wishing to use the remote sports facilities may have given rise to a more intensive use of proposed rights of way diversions parallel to B1122 by pedestrians and cyclists.

Terrestrial historic environment

3.6.66 Buried archaeology may be present within the accommodation campus site. Setting impacts on nearby designated heritage assets, including Upper Abbey Farm and the second Leiston Abbey site are important.

3.6.67 Under Option 1b(i) and (ii) there would have been greater distance separation between Leiston Abbey and the accommodation campus, particularly with Option 1b(ii). This would have been likely to offset the potential harm to the setting of the higher buildings proposed in this option.

Noise and vibration

3.6.68 The accommodation campus is not expected to give rise to significant noise levels. However, since there would be some noise from heating and ventilation equipment, vehicle movements and some recreational activities, the proximity of the boundary of the site to nearby residential uses has the potential to result in minor differences in noise exposure. These are unlikely to be significant. On this basis, Option 1 had a slightly greater potential for

noise impact as it would have noise sources closer to nearby residential uses. Option 1b(i) would have likely resulted in slightly lower off-site noise levels than Option 1 at nearby noise sensitive places as the majority of sources would be further away. Option 1b(ii) would have resulted in the lowest noise impact because of the absence of the sports pitches.

Air quality

3.6.69 Diversion of the road to Eastbridge would have brought traffic emissions to within 200m of a residential receptor (Potter's Farm) at the northern end of campus. Air quality impacts may have been partially mitigated by topsoil storage mounds, depending on the spoil storage option chosen. However, given the typical traffic volumes on the Eastbridge Road, the air quality effects of this change were expected to be minor.

Groundwater and surface water

3.6.70 There is potential for surface water run-off to increase the mobilisation of contaminants. This would be mitigated by appropriate drainage arrangements. Groundwater levels would be monitored during construction to assess the level of change. Foul water will be routed to a sewage treatment works where it will be treated prior to discharge to sea.

iii. Stage 3 consultation

3.6.71 In July 2017, SCC published a "Sizewell C Accommodation Campus Study" (dated 21.6.17) (Ref. 4.4). This was produced by Boyer / Cannon and its purpose was to evaluate the preferred accommodation campus proposed by SZC Co. at Stage 2 and assess whether there were "*any sites that might be genuine alternatives that would be better placed to accommodate the campus development*". SZC Co. reviewed this report, though considered that it did not identify any better sites that have not yet been considered by the project.

3.6.72 Between Stage 2 and Stage 3 and with the benefit of feedback from the consultation Option 1b(ii) was chosen, which locates the built form of the accommodation campus on the east side of Eastbridge Road. The rationale for this is that it increases the distance between Leiston Abbey and the development site, reduces landscape impacts and thereby reducing potential noise and visual impacts. Removal of the sports pitches off-site also reduces noise and lighting impacts on the Abbey complex.

3.6.73 Re-masterplanning of Option 1b(ii) between Stage 2 and Stage 3 also reduced the height of the buildings to accommodation blocks of three or four storey only, as shown in **Plate 3.13**, further decreasing visual impacts from

the Abbey complex and addressing concerns raised on five storey buildings at Stage 2.

Plate 3.13: Accommodation campus layout – Stage 3

iv. Stage 4 consultation and DCO submission

3.6.74 The strategy to provide a single temporary campus to the east of Eastbridge Road remained unchanged at Stage 4 consultation and in this DCO submission.

v. Conclusion

3.6.75 The on-site accommodation campus offers a number of benefits, notably: reduced number of journeys on local roads and travelling time to and from the construction site; increased productivity and reduced health and safety risks associated with long travel and work times, and flexibility in terms of the out of hours working that may be necessary to respond to emerging site needs, and maintain construction productivity and progress.

d) Borrow pits

3.6.76 SZC Co. has evaluated the potential for on-site borrow pits to provide a source of sands and gravel for use as backfill material for the main construction. Refer to **Volume 2**, **Chapter 3**, of the **Environmental**

Statement (Book 6) for more details. Once the borrow pit material has been excavated, the ground would then be reinstated by filling the pit with other excavated materials from across the site that are unsuitable for re-use in construction (principally peat materials).

i. Site requirements

3.6.77 Use of on-site borrow pits reduces the need to import aggregate from off-site locations, whether by road, rail or sea, and was preferred as it would be a more sustainable and cost-effective spoil management option, and in accordance with the Waste Framework Directive. It also reduces the need to export material excavated from across the site, as this excavated material can be filled into the borrow pits.

ii. Stage 1 consultation

3.6.78 At Stage 1 consultation, no specific proposals were identified, but the concept of using borrow pit(s) within the Temporary Construction Area to help source engineering fill material for the main platform was introduced.

iii. Stage 2 consultation

3.6.79 At Stage 2 consultation four fields, totalling 40ha, within the north-west of the main development site were considered as potential locations for borrow pits. It was estimated at that time that approximately 15ha of land would be required but, due to each of the fields measuring less than 15ha and the practicalities of the borrow pit operation, three combinations of pairs of those four fields were considered. Those were fields one and two (east and west of Eastbridge Road), fields two and three (east of Eastbridge Road and north of Ash Wood), or fields three and four (north and west of Ash Wood). The sites were chosen because they contained the necessary geology to provide suitable engineering fill material; the groundwater table was sufficiently deep to enable excavation; and, a haul road connection could be provided to and from main platform that minimised effects on nearby sensitive receptors.

3.6.80 An alternative option was consulted upon at Stage 2 to ship excavated material to the Royal Society for the Protection of Birds Wallasea Island Wild Coast Project in Essex, where material would have been used to contribute to the ongoing habitat creation scheme, was also included at Stage 2 consultation. Following further consideration, SZC Co. is satisfied that it can sensitively incorporate material in the borrow pits and on-site as part of the land restoration works and that this approach is more sustainable than shipping that the material off-site.

iv. Stage 3 consultation

3.6.81 Following further consideration, SZC Co. is satisfied that it can sensitively incorporate material on-site as part of the land restoration works, and that this approach is more sustainable than shipping the material off-site.

3.6.82 Field one has been discounted as it would have been the most visually exposed of the four fields. It would be visible from the north including from the Public Rights of Way south of Eastbridge, and has intermittent views from Eastbridge Road. Potters Farm, Eastbridge Farm and Leiston Abbey are also nearby, and are likely to have had direct views of this borrow pit if it was progressed. Field one would also have required large construction vehicles to cross Eastbridge Road. Whilst it is the only borrow pit option that is not in the AONB, for the above reasons SZC Co. considered that use of this field was the least appropriate solution for borrow pit construction works.

3.6.83 Whilst the options that were presented at Stage 2 identified two borrow pit fields are likely to be required, further consideration led to the conclusion that the remaining three borrow pit fields should be included in the application for development consent.

v. Stage 4 consultation and DCO submission

3.6.84 The strategy to provide for up to three borrow pit sites within the Temporary Construction Area remained unchanged at Stage 4 consultation and in this DCO submission.

vi. Conclusions

3.6.85 The borrow pits were sited to balance operational requirements with environmental considerations and through consultation and design evolution the most visually exposed borrow pit has been discounted. The proposed solution contains heavy earthmoving equipment east of Eastbridge Road, meaning no interaction with the public highway is necessary in this regard.

3.6.86 It is estimated that approximately 1.1 million m3 of peat and alluvium will be excavated from the main construction area. Material must meet specific qualities to be suitable for backfilling for the main construction and the inclusion of three borrow pit fields significantly increases the amount of backfill material that is likely to be sourced on-site. It also creates additional capacity to sensitively place the material excavated from the main construction area on the site.

3.7 Land east of Eastlands Industrial Estate

a) Rail infrastructure

3.7.1 The **Transport Assessment** (Doc Ref. 8.5) sets out how SZC Co. aims to transport a proportion of the Sizewell C Project construction materials to the main development site via rail. Options were therefore considered throughout the project.

3.7.2 The existing rail terminal at Leiston, known as Sizewell Halt (located south of King George's Avenue, at the end of the Saxmundham to Leiston branch line) could be used to bring freight deliveries close to the site by rail. However, it would require refurbishment, and freight would then need to be transferred to the construction site by HGVs via Lover's Lane.

3.7.3 The capacity of Sizewell Halt, and the existing local rail infrastructure to support rail freight deliveries, is limited to one freight train per day, which would be insufficient for achieving the aim of substantially reducing road freight.

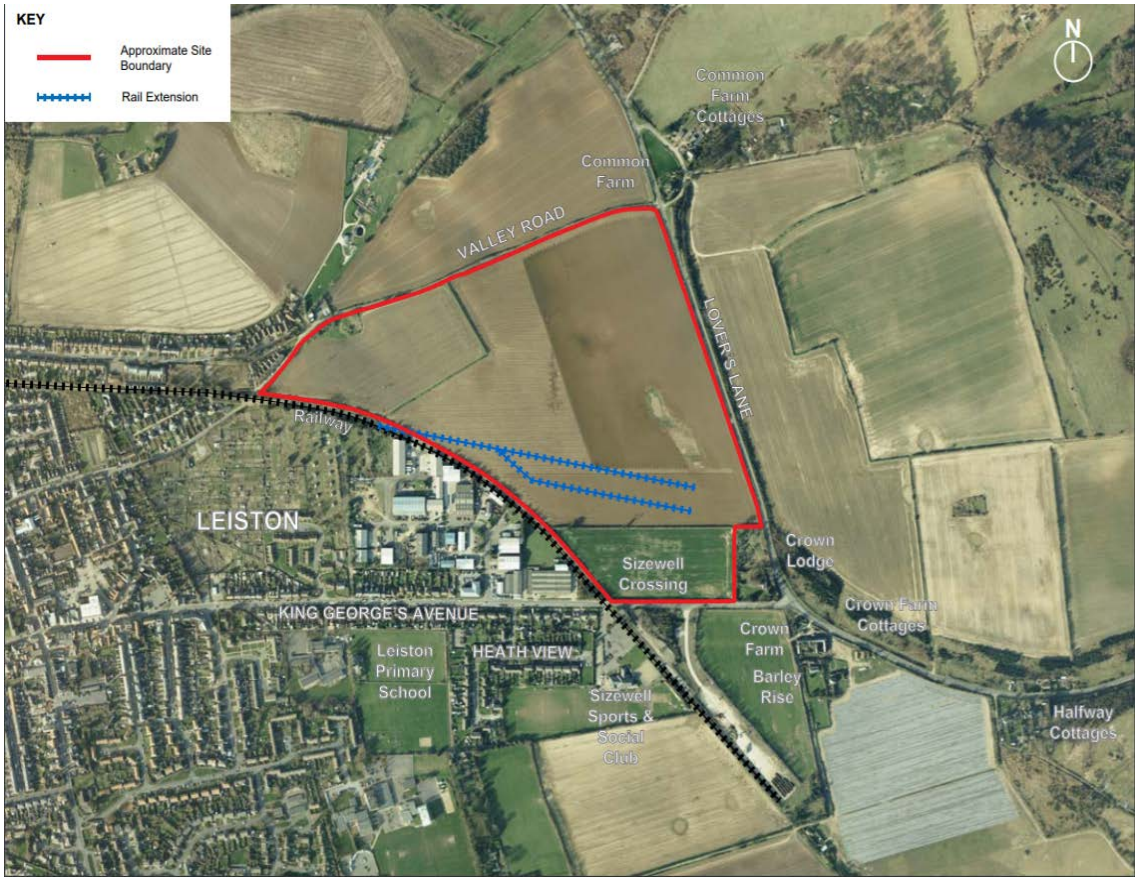
i. Stage 1 consultation

3.7.4 At Stage 1 consultation it was proposed that the land to the east of Eastlands Industrial Estate (or 'the area north of King George's Avenue' as it was referred to at the time) could be used for a new rail terminal, and freight laydown area to support the construction programme, as shown in **Plate 3.14**.

3.7.5 SZC Co. invited views on a number of proposals at the first consultation stage, which would enhance the scope for using rail for freight. Three options involved a spur off the existing Saxmundham to Leiston branch line, each of which would require additional rail infrastructure including new sections of track, and level crossings at either the B1122 or Lover's Lane, combined with a new rail terminal within the Temporary Construction Area.

3.7.6 A fourth option was to make use of the existing branch line as far as Leiston (with local upgrades as necessary), and to develop a new rail terminal to the north of King George's Avenue without building a rail line extension into the main development site. This would have been located on LEEIE, and would have been included in the Sizewell C main development site construction area.

Plate 3.14: Rail terminal – Stage 1



ii. Stage 2 consultation

3.7.7 Following Stage 1 consultation, and the identification of Sizewell Halt as a viable facility for the delivery of material by rail, it was considered that the LEEIE could play an important role in the construction of Sizewell C for the delivery and storage of materials. This would particularly be the case in the early phase of the Sizewell C Project, when space at the main construction area would be limited. Therefore, the green rail route and LEEIE were presented as options at Stage 2 consultation, with the latter being proposed as either:

- a new rail terminal with additional construction and accommodation campus purposes; or
- for construction and caravan accommodation purposes only.

iii. Stage 3 consultation

3.7.8 The Stage 3 consultation included a rail-led freight management strategy, and a road-led freight management strategy. Rail options at the LEEIE differed as follows:

- Rail-led strategy: use of either Sizewell Halt, see **Plate 3.15**, or a newly proposed rail siding at LEEIE, see **Plate 3.16,** during the early years of construction, while the green rail route would be under construction.
- Road-led strategy: use of either Sizewell Halt or a newly proposed rail siding at LEEIE for the entire construction period. This would be based on the green rail route not being delivered and instead being replaced with road-led solutions such as the Sizewell link road and a FMF.

Plate 3.15: Sizewell Halt– Option 1

Plate 3.16: Rail siding – Option 2

iv. Stage 4 consultation

3.7.9 In the Stage 4 consultation an additional option was introduced for a new rail spur located more centrally within the LEEIE, as shown in **Plate 3.17**. This option refined the option set out in Stages 1-3 with a straighter rail alignment, thereby allowing longer trains to be used, and more freight to be delivered per train.

Plate 3.17: Rail spur – Option 3

3.7.10 With appropriate mitigation in place, the rail spur was not predicted to give rise to any new or significantly different environmental impacts from those presented at Stage 3 consultation.

v. DCO submission

3.7.11 As set out elsewhere in this document, the DCO is proposing use of the green rail route throughout the construction phase. Environmental considerations, and operational benefits, have resulted in the rail spur option being proposed for the reasons set out below.

vi. Conclusions

3.7.12 The site selection process has considered options for a rail siding, use of Sizewell Halt, and two variants on a rail spur into LEEIE, as part of its wider freight management strategy. The DCO is proposing the rail spur consulted upon at Stage 4 as this provides equal ability to mitigate potential adverse effects, whilst allowing longer trains to be delivered into LEEIE.

3.8 Leiston off-site sports facilities

3.8.1 The proposed off-site sports facilities at Leiston would be located adjacent to Alde Valley Academy and Leiston Leisure Centre. They would comprise enhancements to an existing facility and would leave a positive legacy benefit for the local community.

3.8.2 The decision to locate facilities at Leiston, rather than directly adjacent to the accommodation campus was also taken to help minimise the footprint of the Temporary Construction Area and minimise adverse landscape and visual effects in close proximity to the Suffolk Coast and Heaths AONB. Further details on siting options relating to the accommodation campus are set out earlier in this chapter.

3.9 Fen meadow compensation land

3.9.1 Approximately 0.7ha of fen meadow is being lost from the Sizewell Marshes SSSI in the main development site to provide the western edge of the Sizewell C platform. Fen meadow compensation areas have now therefore been identified to facilitate the creation of new areas of fen meadow habitats.

3.9.2 A study was undertaken to identify potential sites for provision of fen meadow habitat based on the following criteria:

- Site size: the site has to be of sufficient size to provide adequate compensation for any unavoidable fen meadow habitat lost at Sizewell Marshes SSSI taking account of requirements for conservation management and the need to be sustainable (e.g. resilient to potential effects of climate change such as sea level rise).
- Site status: not currently under conservation management, existing habitats should not be classified as existing fen meadow and should offer significant potential for creation of fen meadow habitats.
- Environmental setting: appropriate hydrology, hydrogeology; hydrochemistry and substrate.
- Connectivity: proximity to existing areas of fen meadow/rush pasture or grazing marsh habitat under appropriate conservation management.
- Accessibility: must be readily accessible for any initial capital works and ongoing conservation management.

3.9.3 Further details on the site selection process are set out in **Appendix 14C4** of **Volume 2** of the **ES**.

3.9.4 Two sites were consulted upon at Stage 4:

- **Site 1** is comprised of 12.68ha and is located to the south of Benhall. The A1094 runs along the southern boundary of the site and is predominantly improved pasture, as shown on **Plate 3.18**.
- **Site 2** is comprised of 4.26ha and is located to the east of Halesworth. The south-west boundary is the A144 and Blyth Road marks the north-west boundary. The site is predominantly improved pasture, as shown on **Plate 3.19**.

Plate 3.18: Fen meadow compensation land – Site 1

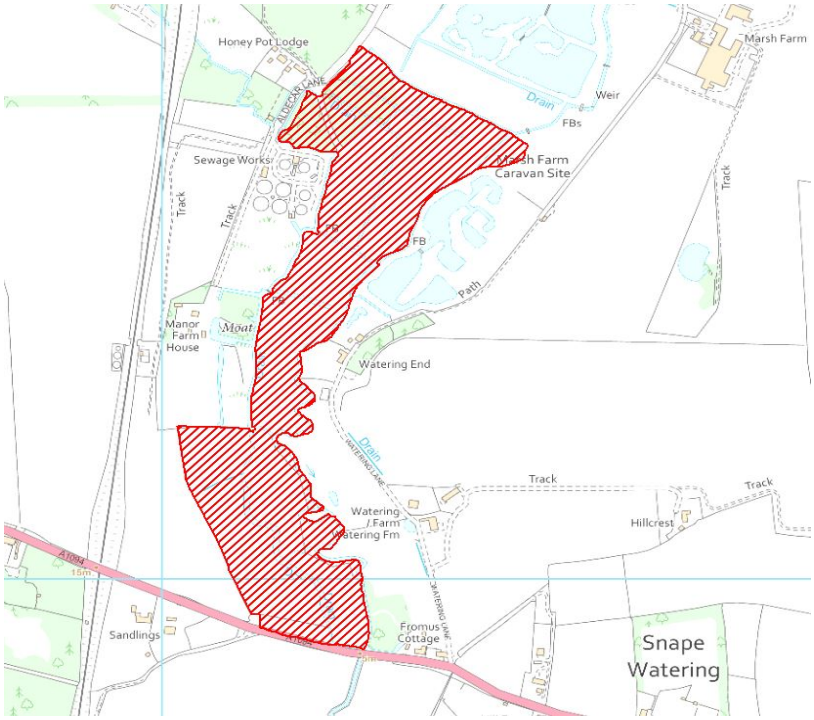
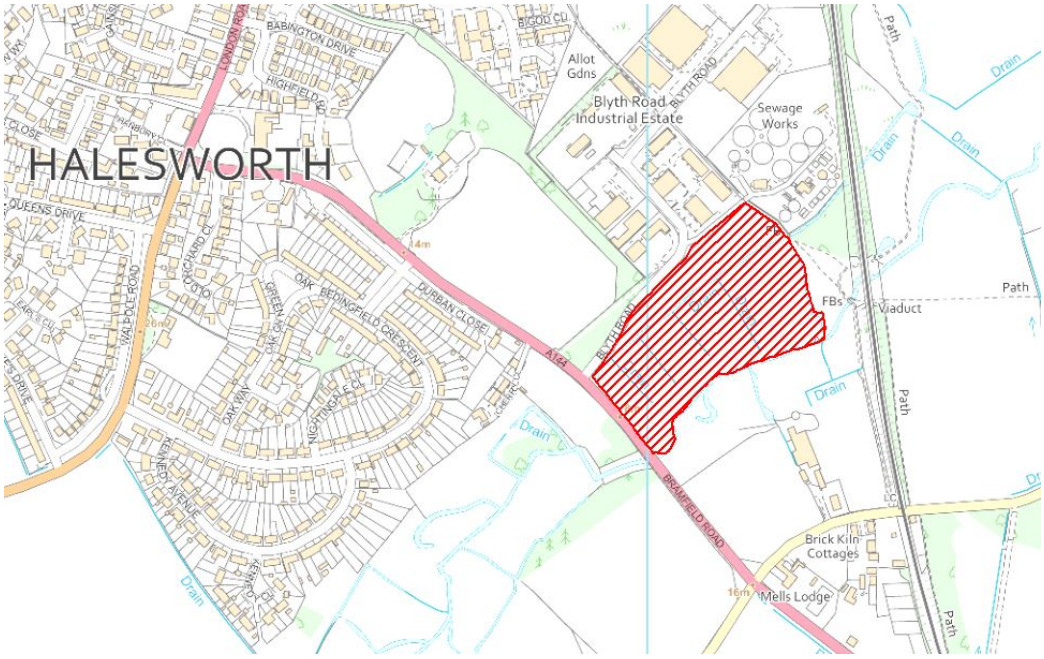


Plate 3.19: Fen meadow compensation land – Site 2



3.9.5 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 DCO submission for the compensatory habitat. Two sites are included to maximise the likelihood of successful fen meadow establishment.

3.10 Marsh harrier habitat improvement area

3.10.1 The conclusion of the **Shadow Habitats Regulation Assessment Report** (Doc Ref. 5.10) and the **Shadow Habitats Regulation Assessment** Volume 4 – Compensatory Measures Report is that the permanent habitat improvement area of 47.8ha that has been established, but is being further improved, at the northern edge of the EDF Energy Estate (UK grid reference: TM 46318 65222) would provide sufficient foraging to be regarded as appropriate compensation for the predicted 'loss of foraging' over the Sizewell Marshes SSSI, arising as a result of a barrier effect created by the temporary construction area. This effect is assessed within Chapter 14 of this volume and also in the **Shadow Habitats Regulation Assessment Report** (Doc Ref. 5.10).

3.10.2 However, if it is determined by the Secretary of State that additional marsh harrier foraging habitats are required, then the marsh harrier habitat improvement area (Westleton) would be temporarily used to provide this.

Further details on alternative sites to the Westleton site that were considered are set out below.

3.10.3 Based upon the calculated potential loss of the wetland foraging resource on the Sizewell Marshes SSSI, it is estimated that the permanent marsh harrier habitat improvement area at the northern edge of the EDF Energy estate would need to provide a total foraging resource (indexed in terms of flight activity) of approximately 19 m/hr/ha (representing an approximate four-fold increase in the existing flight activity).

3.10.4 At a Habitats Regulations Assessment (HRA) workshop in November 2018, stakeholders suggested that the approach for calculating the 'lost' foraging resource should include arable as well as wetland habitat. The position of the HRA assessment has been to consider that compensatory habitat is required only in relation to wetland habitats, because these provide the key existing foraging areas, whilst arable is a widely available habitat of low foraging value, and marsh harriers would compensate for 'loss' of arable foraging areas through behavioural changes. This was considered a robust position, and is assumed for the basis of the HRA assessment.

3.10.5 However, it is recognised that there is an alternative view, and that if 'lost' arable is included in the calculations of the 'lost' foraging resource, the on-site mitigation land would need to provide a total of c.35 m/hr/ha of foraging resource to fully offset the 'lost' resource. This approximates to a seven-fold increase in the estimated existing flight activity on the on-site habitat improvement land. It is unrealistic to expect the existing habitat improvement area, even when fully optimised, to deliver such a high foraging resource. This leads to a potential requirement to identify additional off-site marsh harrier habitat improvement land, if it was eventually determined that it was appropriate to include for 'lost' arable.

3.10.6 A key consideration in identifying additional land for foraging marsh harriers is the proximity of any new habitat improvement area to the nesting area in the Minsmere reedbeds. The usage of land by marsh harriers for foraging drops substantially with distance from the nesting areas (see ref), and so a distance of 4km from the western side of the Minsmere reed-beds was set as an appropriate search area for identifying potentially suitable land parcels.

3.10.7 A search for land parcels was undertaken using satellite imagery, in accordance with the following criteria:

- a target land parcel of approximately 30-50ha;

- to exclude the SZC Co. Estate (no unaccounted-for land available), the RSPB Minsmere reserve, and any area with a statutory nature conservation designation;
- excluding woodland areas within the target quantum;
- a strong preference for selecting intensively farmed arable areas, which when appropriately managed, would provide the greatest possible habitat gains for marsh harriers;
- land with appropriate access to enable the land to be managed for marsh harriers; and
- a preference for areas with no, or few PRoW, which could act to reduce the potential for use by foraging marsh harriers (irrespective of the habitat management undertaken).

a) Stage 4 consultation

3.10.8 A total of three sites were identified within the Stage 4 consultation which fulfilled the criteria outlined above. These were:

- **Site 1**, as shown on **Plate 3.20**, which is 54.26ha and is located to the west of Westleton. The site includes predominantly arable land. The southern boundary is Yoxford Road and the eastern boundary is Darsham Road. The properties to the west of Darsham Road and Wash Lane are not included in the site.
- **Site 2**, as shown on **Plate 3.21**, which is 46.21ha and is located to the south of Westleton. This site includes land either side of Reckford Road with residential properties along that road and in Westleton excluded. Black Slough Road is along the south-eastern boundary of the site.
- **Site 3**, as shown on **Plate 3.22**, which is 61.52ha and is located to the south of Eastbridge, east of Theberton and to the north of the proposed accommodation campus. The site is comprised of four separate parcels of land that are predominantly arable land. There is land included both north and south of Onner's Lane, in between Potter's Street, Baker's Hill and Eastbridge Road and east of Eastbridge Road.

Plate 3.20: Marsh Harrier improvement area – Site 1

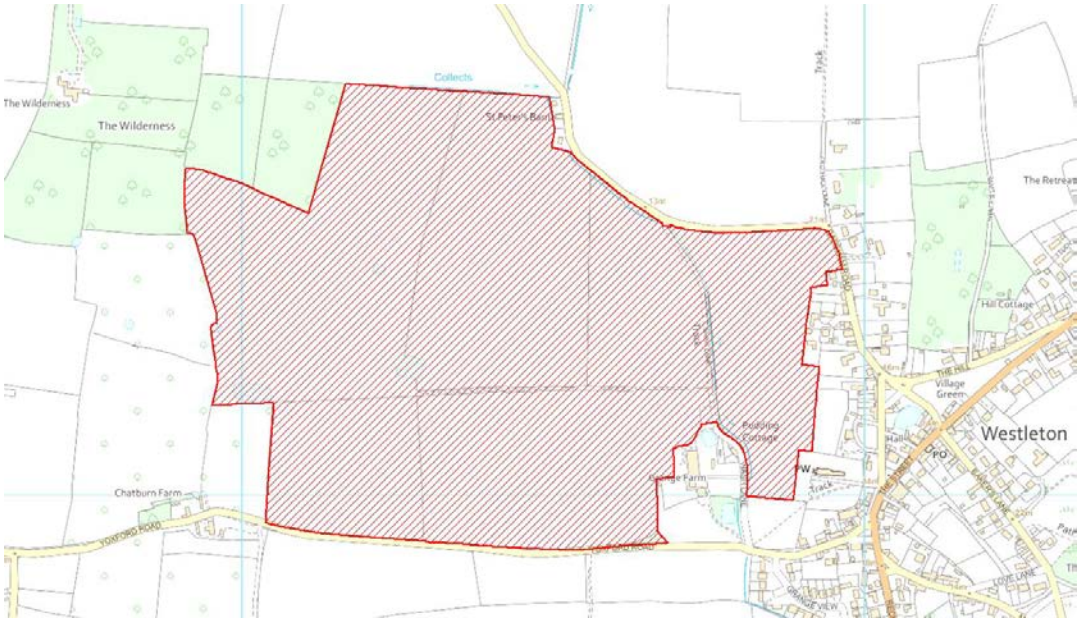


Plate 3.21: Marsh Harrier improvement area – Site 2

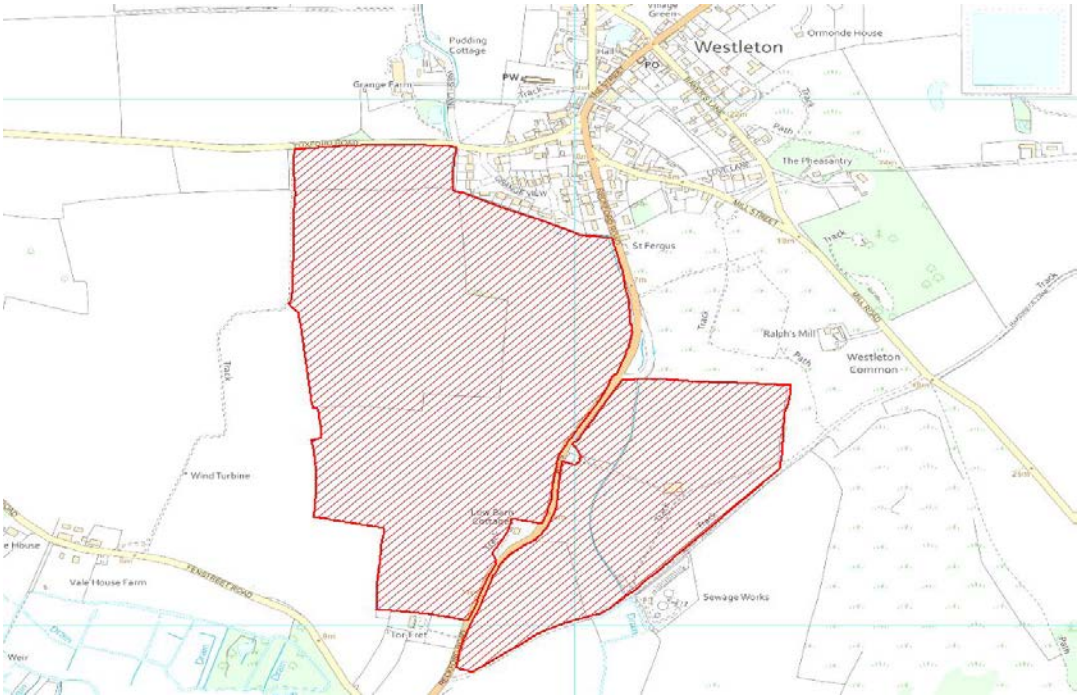
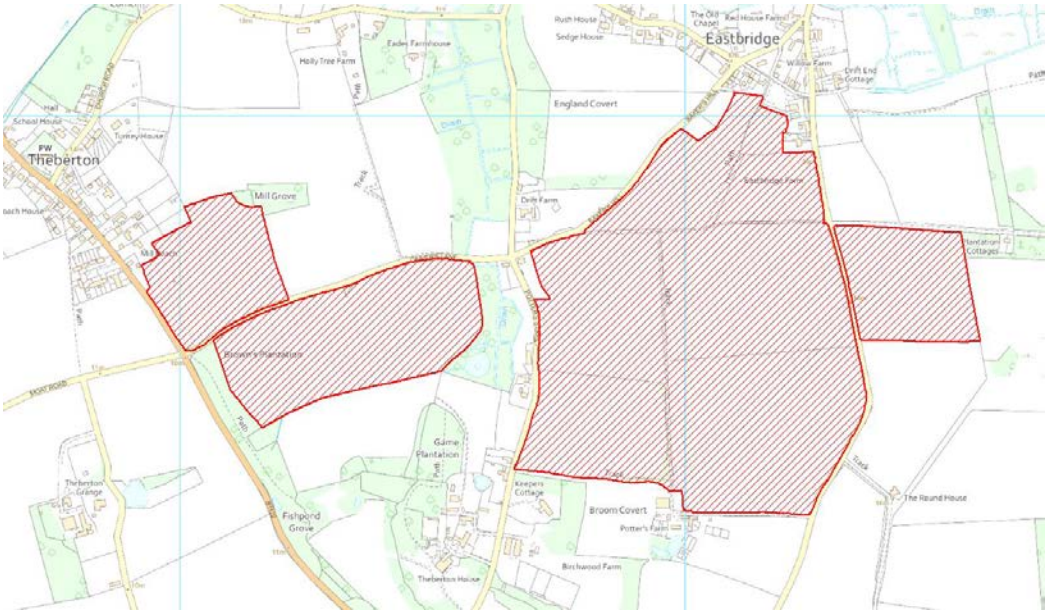


Plate 3.22: Marsh Harrier improvement area – Site 3



b) DCO submission and conclusion

3.10.9 It was explained at Stage 4 that it would be unlikely for all of the three sites to be required in DCO submission. 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.

4. Northern Park and Ride

4.1 Introduction

4.1.1 This section presents a description of the site selection process which SZC Co. undertook in relation to the proposed northern park and ride. This section is structured as follows:

- Site requirements.
- First filter stage.
- Second filter stage:
  - Stage 1.
  - Stage 2.
  - Stage 3.

- Stage 4.
- DCO Proposals.

- Conclusions.

4.2 Site requirements

4.2.1 The rationale for a park and ride facility to the north is to capture construction workers' vehicle movements, and take them off the wider highway network to reduce the volume of traffic passing through smaller settlements, such as Yoxford, Middleton Moor, and Theberton, and to reduce traffic volumes on the A12 and local road network east of the A12.

4.2.2 A park and ride would assist in maximising the use of more travel by sustainable modes, whilst bringing benefits to local communities.

4.2.3 To be successful, the park and ride needs to be appropriately located close to the predicted routes that would be used by the construction workforce at a point in the journey where it would be effective, but also attractive, to use.

4.2.4 The **Transport Assessment** (Doc Ref. 8.5) predicts that the majority of the construction workforce would use the A12.

4.2.5 SZC Co.'s Sizewell C Gravity Model (the Gravity Model) which estimates the residential location of the peak construction workforce, has informed the required number of car parking spaces. For the park and ride to operate efficiently it needs to be on a site that can accommodate:

- car parking areas for approximately 1,250 spaces (this was increased from 1,000 in the Stage 3 consultation), of which 40 would be accessible spaces and ten would be drop off only spaces);
- ten spaces for minibuses/buses/vans;
- eighty motorcycle parking spaces;
- secure cycle parking for approximately 20 bikes;
- secure bus terminus and parking, including shelters;
- perimeter security fencing and lighting;
- an amenity and welfare building comprising toilets, bus drivers' rest room, security and administration offices;

- a security building;
- a security booth;
- on-site topsoil and sub-soil storage to facilitate site restoration, following cessation of use of the park and ride facility;
- external areas including roadways, footways, landscaping, surface water management areas, and drainage infrastructure; and
- a 5-10m buffer between built development and the site boundary.

4.2.6 The estimated total area required for a 1,250 space park and ride site is approximately 15ha.

4.2.7 To be identified as potentially suitable, sites needed to be of sufficient size to accommodate the facilities, but also to allow them to be 'self-contained' with respect to, for example, any requirements for perimeter landscaping, sustainable drainage, and interim soils storage prior to restoration following the cessation of operational activities.

4.3 First filter stage

4.3.1 During early work carried out for the Sizewell C Project in 2010 and 2011, a number of potential sites were identified for specific activities including park and ride facilities. The initial sites were identified from a combination of desk-based studies, and field surveys carried out by SZC Co., and through discussions with officers at SCDC (now East Suffolk Council (ESC)) and SCCs.

4.3.2 SZC Co.'s review of sites took into account environmental mapping data for sites, information from site visits and survey work (e.g. ecological surveys, air quality monitoring) to identify whether potential environmental constraints to development existed, and to reach preliminary conclusions as to the significance of such constraints. Initial constraints considered included:

- boundary conditions, specifically the presence of hedgerow and trees with respect to their age, maturity, and the degree of screening afforded by them;
- landscape setting/degree of screening;
- highway conditions;
- topography;

- proximity to nearest dwellings and settlements;
- evidence of flood risk (i.e. related to topography and proximity to watercourses);
- presence of PRoW;
- existing land usage within and adjacent to the sites was noted together with the presence and condition of surface water features (ditches, ponds and streams);
- contaminated land (i.e. evidence of made ground or local sources of potential contamination, such as landfills); and
- ecological constraints, such as semi-natural habitats, ponds and watercourses.

4.3.3 In addition, observations were made as to the existence of potential engineering/construction constraints notably topography, access/egress issues and existence of utilities, such as 132 kilovolts (kV), and 400kV overhead power lines.

4.3.4 A review of services information (e.g. gas, water, electricity), and Ordnance Survey (OS) mapping was undertaken to establish the general context of the sites, with respect to highways and access issues.

4.3.5 The process resulted in three sites being shortlisted and presented as options at the Stage 1 consultation.

4.4 Second filter stage

a) Stage 1

4.4.1 The three alternative options that were consulted on for the northern park and ride at the Stage 1 consultation were:

- Option 1 – Yoxford Road;
- Option 2 – Darsham; and
- Option 3 – A12/A144 Junction.

4.4.2 Option 1 was approximately 23ha, and located next to the B1122 (Yoxford Road), north of Littlemoor Road, and approximately 1.5km to the south-east of Yoxford.

4.4.3 Option 2 was approximately 28ha, and located to the north of Darsham, adjacent to the railway line.

4.4.4 Option 3 was approximately 15ha in area, and located to the east of the A12 opposite the A12/A144 junction.

4.4.5 Each of the three site options included in the Stage 1 consultation are 'greenfield' sites currently in agricultural use.

4.4.6 The three options, referred to as Park and Ride north Options 1, 2 and 3, are shown in **Plate 4.1,** and the Schematic Zoning Diagrams in **Plates 4.2** and **4.3.** These schematics included early consideration of site layout, including potential access points, and opportunities for creating buffers, or screening, to nearby properties, and to protect views into the site.

Plate 4.1: Stage 1 consultation site option for the northern park and ride.

Plate 4.2: Stage 1: Park and ride north Option 1 Yoxford Road – Schematic Zoning Diagram.

Plate 4.3: Stage 1: Park and ride north Option 2 Darsham - Schematic Zoning Diagram.

i. Option 1 – Yoxford Road

4.4.7 Option 1 is well placed to intercept southbound commuter traffic from the A12 near Yoxford. It is also ideally placed to intercept commuters travelling east along the A1120, without the need to divert north along the A12, as would be required with the other two options. The site would not have any beneficial impact on traffic flows through Yoxford but would reduce traffic passing through Theberton. Initial transport assessments also noted that this site would increase the number of vehicles travelling along the B1122, with potential for amenity effects to the residential properties located along this stretch of the highway.

4.4.8 During the consultation, the SCDC stated that Option 1 should be discounted as it was too close to the main development site, and therefore would not have the benefits that a park and ride should offer.

4.4.9 Preliminary environmental assessments were undertaken to assess the site. It was noted that the site was constrained in environmental terms, specifically in respect of landscape and visual impact, due to the River Yox Special Landscape Area (SLA) less than 150m north of the site.

4.4.10 Owing to the local topography and existing vegetation, the southern half of the site, and the section along the B1122 frontage, are reasonably well screened locally, whereas the central portion, on inclining ground, is more open in aspect, with potential long-distance views from the generally higher ground to the north of the Yoxford Road.

4.4.11 There are no ecological designations within 1km of the site, however habitats within and bordering the site, have the potential to support protected species.

4.4.12 It was identified that whilst there were no designated heritage assets located within the site, there were three Grade II listed buildings within 500m of the eastern boundary, and one Grade II listed building just over 500m from the western boundary.

4.4.13 The site has no PRoW passing through it or adjoining its boundary. The closest PRoW is located on the opposite side of the B1122 near Moor Farm.

4.4.14 There is a residential property and a care home called Norwood House at the junction, between the B1122 and Littlemoor Road at the site's eastern corner. The care home is registered to provide care for older people, and people suffering from dementia and other mental health issues. Respondents to the Stage 1 consultation highlighted concerns about the potential for negative effects on the Norwood House care home.

4.4.15 Option 1 (Yoxford Road) was considered the least likely to generate socio-economic benefits compared to Option 2 and 3, due to its rural location away from existing businesses.

ii. Option 2 - Darsham

4.4.16 The initial transport assessments highlighted that the site is in proximity to Darsham railway station, and would therefore facilitate worker interchange between rail and bus. As such, it was considered to have the most potential to reduce overall traffic movements compared with the other site options, as workers who travel by train would not require any additional car movements to get to the park and ride site.

4.4.17 The preliminary assessments highlighted that the Suffolk Coast and Heaths AONB lies 4km to the west of the site, however, due to distance and topography, it was considered that there would be no adverse impact on the AONB.

4.4.18 The site lies approximately 600m to the north of the River Yox SLA. The assessments concluded that the site is relatively well screened, but the potential impact on the SLA would need to be considered in more detail if this option was taken forward.

4.4.19 There are no statutory ecological designations within 1km of the site. The woodland along the western boundary could potentially support roosting bats, and this will need to be investigated further if this site is taken forward.

4.4.20 There are no designated heritage assets located within the site boundary, or the 250m study area around the site.

4.4.21 Along the eastern boundary of Option 2 (Darsham), there are three residential dwellings, and there is potential for amenity effects to these properties. It was noted that the park and ride would require careful layout design and appropriate boundary treatment (such as bunding or fencing), so that no significant impacts on residential amenity to the dwellings within proximity to the site would occur.

4.4.22 The site was considered to offer a number of potential socio-economic benefits, including the increased business to the nearby Darsham service station and Darsham Nurseries, Shop and Café.

4.4.23 During the consultation, more respondents identified Option 2 (Darsham) as an appropriate location for the northern park and ride than the other options. The SCDC also stated Option 2 (Darsham) was the Council's relative

preference, though it was noted that it may be too close to the main site, and further work would be required to justify the location.

iii. Option 3 – A12/A144 Junction

4.4.24 The site lies a little over 2.5km to the west and south-west of the Suffolk Coast and Heaths AONB. Visual effects on the AONB are unlikely at this distance. The site lies approximately 1.7km to the north of the River Yox SLA.

4.4.25 There are no ecologically designated sites within 1km of the site and, given the arable nature of the site itself, there is unlikely to be significant ecological interest.

4.4.26 There is potential bat habitat within existing woodland to the west and north, but it is considered that any potential effects on this habitat could be mitigated.

4.4.27 The preliminary assessments identified that were no designated heritage assets located within the site, however, there was one Grade II Listed Building (Stone Cottage) located within 250m (on the other side of the A12 at the junction between the A12 and A144. The assessments also noted that there is the potential for below ground archaeological remains at the site.

4.4.28 The site has no PRoW passing through it, or adjoining the site boundary.

4.4.29 Option 3 (A12/A144 Junction) has a higher number of residential properties closer to the site boundaries than the other two options, and the preliminary assessments concluded that this would need to be considered further in terms of potential effects from noise, air quality, and lighting if this site was progressed.

4.4.30 It was considered that Option 3 (A12/A144 Junction) may generate some increased socio-economic activity in the surrounding area, although to a lesser extent compared to Option 2 (Darsham). Businesses with the potential to benefit could include the nearby caravan park and golf course, and, to some extent, local businesses at Darsham.

4.4.31 During the consultation, respondents noted that the site was more rural compared to Option 2 (Darsham), and the SCDC stated that Option 3 should be discounted, as it would have environmental and traffic safety impacts.

iv. Comparison of options following Stage 1

4.4.32 Both Option 1 (Yoxford Road) and Option 3 (A12/A144 Junction) are more distinctly rural in character than Option 2 (Darsham), which makes the latter

preferable. Whilst all three options would give rise to potential environmental effects, the increased traffic along part of the B1122 associated with Option 1 (Yoxford Road), and visibility from the Minsmere Valley SLA makes it the least favourable in this respect.

4.4.33 Of the three options presented at Stage 1, more respondents identified Option 2 (Darsham) as an appropriate location for the northern park and ride than the other options. The fewest number of respondents identified Option 1 (Yoxford Road) as an appropriate location.

4.4.34 The environmental effects expected at Option 2 (Darsham) were considered capable of being mitigated, and therefore this option was considered by SZC Co. to be the preferred option in terms of environmental effects.

4.4.35 Further traffic modelling was undertaken on this option, and it was put forward for Stage 2 consultation. It was considered that given the site's proximity to Darsham railway station it would facilitate worker interchange between rail and bus. It therefore has the potential to reduce overall traffic movements compared with the other sites proposed at Stage 1. An A12 location for the park and ride is also considered more suitable than Option 1 (Yoxford Road), as it would enable traffic to be intercepted on the network prior to reaching the B1122.

4.4.36 Although SZC Co. 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.

b) Stage 2

4.4.37 It was clear from the Stage 2 consultation that there was continued support for a northern park and ride as an appropriate way to capture traffic from the north.

4.4.38 At Stage 2 SZC Co. explained that there are no significant differences in constructability between the options that were previously proposed. The main factor distinguishing the sites in terms of operational considerations relates to the cost efficiencies of running each of the site options. Although other potential sites were closer to the main development site, Darsham site is more sustainable because it is close to Darsham railway station, allowing for rail-bus interchange, and intercepting workers further from the main development site. Having regard to the construction and operational

requirements, SZC Co. considered Darsham to be the best option from these operational perspectives.

4.4.39 The majority of respondents agreed that Darsham was an appropriate site for this facility. However, some concerns were raised regarding access. SZC Co. proposed access to the site from the south near to Darsham railway station and the level crossing. Some respondents noted that more frequent use of the level crossing combined with the new access would cause increased congestion through Darsham.

4.4.40 Respondents also noted that the proximity of the southern access to the entrance to Darsham railway station, the petrol station, and other businesses at that junction would also contribute to congestion.

4.4.41 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. SZC Co. considered that these potential effects could be limited through careful design. Of the three sites that SZC Co. initially considered, the Darsham site has the lowest impact on residential properties.

c) Stage 3

4.4.42 Following Stage 2, SZC Co. 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.

4.4.43 SZC Co. 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.

4.4.44 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.

4.4.45 At Stage 3 SZC Co. had sufficient confidence in the site at Darsham, and its suitability that the A12/A144 site (Option 3) was no longer held in reserve.

4.4.46 General support for the overall park and ride proposals in reducing the amount of additional traffic generated by the construction workforce was reiterated in responses to the Stage 3 consultation.

4.4.47 Environmental concerns were raised by the local community, including the effect of increased traffic on Darsham, and the impact on the dark skies.

4.4.48 SCDC continued to support the Darsham park and ride site as the location for the northern park and ride facility subject to further detail, assessments and, where required, mitigation, in particular with regard to ecology, landscape and surface water.

d) Stage 4

4.4.49 Following the Stage 3 consultation, SZC Co. continued to progress the Darsham site for Stage 4 consultation.

4.4.50 At Stage 4, the proposal remained broadly similar to those presented at Stage 3, with only minor design changes. For example, alterations to the site boundary to include land to access the fields to the north, a route for AILs to the access roundabout was added, and refinements to the **Drainage and Lighting Strategy** were made. A full description of the design evolution of the site is contained within **Chapter 3** of **Volume 3** of the **ES**.

4.4.51 The preliminary environmental assessments were reviewed, and the minor changes proposed at Stage 4, did not alter any of the previous findings.

4.4.52 At the Stage 4 consultation, comments were received regarding the access to the site, and requesting reassurances that traffic travelling north and south along the A12, that does not need to turn off into the park and ride, will not be compromised by the park and ride users. Respondents also wanted assurance that additional traffic flow due to the park and ride would not make the junction to Darsham Services more dangerous and difficult to navigate.

4.4.53 Requests were made at the Stage 4 consultation that the site is returned to agricultural use when no longer needed for use as a park and ride. Other respondents however requested that some parking was kept on the site when no longer needed by SZC Co. to facilitate parking for users of the railway at Darsham Station.

4.4.54 Concerns were raised regarding amenity impacts on nearby residents due to potential light and sound pollution.

e) Development Consent Order proposals

4.4.55 Following the Stage 4 consultation, SZC Co. continued to progress the Darsham site for the DCO submission proposals, and conducted further environmental impact assessment. The results of this environmental impact assessment have not led SZC Co. to reconsider the site selection.

4.5 Conclusions

4.5.1 This section of the planning statement has assessed the alternative site options that have been considered in selecting the proposed northern park and ride 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.

4.5.2 The site at Darsham has emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed northern park and ride. The proposed development incorporates the site requirements set out above as well as the environmental mitigation required to be acceptable.

5. Southern Park and Ride

5.1 Introduction

5.1.1 This section presents a description of the site selection process which SZC Co. undertook in relation to the proposed southern park and ride. This section is structured as follows:

- Site requirements.
- First filter stage.
- Second filter stage:
  - Stage 1.
  - Stage 2.
  - Stage 3.
  - Stage 4.
  - DCO Proposals.
- Conclusions.

5.2 Site requirements

5.2.1 The rationale for a park and ride facility to the south is to reduce traffic flows through the four villages north on the A12, and to reduce cross country trips through rural areas such as Snape and Tunstall on the B1069, Leiston and surrounding settlements. It would assist in minimising travel demand and maximising opportunities to travel by sustainable modes. This has multiple

benefits: reducing carbon emissions, reducing impacts on the amenity of local people and reducing potential traffic congestion.

5.2.2 A principal requirement for the park and ride is for it to be located close to the predicted routes that would be used by the construction workforce.

5.2.3 The **Transport Assessment** (Doc Ref. 8.5) predicts that the majority of the construction workforce would use the A12. Therefore, any park and ride site needs to be located close to the A12.

5.2.4 For the park and ride to operate efficiently it needs to be on a site that can accommodate:

- car parking areas for approximately 1,250 spaces (this was increased from 900 in the Stage 3 consultation) (of which 40 would be accessible spaces and ten would be pick up only spaces) when refinements to construction worker numbers were made). SZC Co.'s Sizewell C Gravity Model (the Gravity Model) which estimates the residential location of the peak construction workforce, has informed the required number of car parking spaces;
- ten spaces for minibuses/buses/vans;
- eighty motorcycle parking spaces;
- secure cycle parking for approximately 20 bikes;
- secure bus terminus and parking, including shelters;
- perimeter security fencing and lighting;
- an amenity and welfare building comprising toilets, bus drivers' rest room, security and administration offices;
- a security building;
- a security booth;
- a postal consolidation building;
- a Traffic Incident Management Area (TIMA);
- on-site topsoil and sub-soil storage to facilitate site restoration following cessation of use of the park and ride facility;
- external areas including roadways, footways, landscaping, surface water management areas and drainage infrastructure; and

- a 5-10m buffer between built development and the site boundary.

5.2.5 The estimated total area required for a 1,250 space park and ride site is approximately 15ha.

5.2.6 To be identified as possible locations, however, the sites needed to be of sufficient size to accommodate the facilities, but also to allow them to be 'self-contained' with respect to, for example, any requirements for perimeter landscaping, sustainable drainage, and interim soils storage prior to restoration following the cessation of operational activities.

5.3 First filter stage

5.3.1 During early work carried out for the Sizewell C Project in 2010 and 2011, a number of potential sites were identified for specific activities including park and ride facilities. The approach taken has been explained in **section 4** of this report.

5.3.2 The process resulted in three sites being shortlisted, and presented as options at the Stage 1 consultation.

5.4 Second filter stage

a) Stage 1

5.4.1 The three alternative options that were consulted on for the southern park and ride at the Stage 1 consultation were:

- Option 1 – Wickham Market;
- Option 2 – Woodbridge; and
- Option 3 – Potash Corner.

5.4.2 Option 1 was located at the junction between the A12, and the B1078/B1116 to the north-east of Wickham Market. At the Stage 1 consultation the site was made up of two areas – one to the north of the northbound A12 merge slip road, and between the slip road and the A12. The combined area was 25ha.

5.4.3 Option 2 was located to the west of the A12 at the A12/A1152 Woods Lane Junction, north-west of Woodbridge. The site comprised arable fields covering approximately 35ha.

5.4.4 Option 3 was located at Potash Corner on Scott's Lane, to the west of the A12, and in close proximity to the village of Bredfield, which lies to the north. The site consisted of farmland covering approximately 24ha.

5.4.5 The three options, referred to as park and ride south Options 1, 2 and 3, are shown in **Plate 5.1** below and the Schematic Zoning Diagrams in **Plates 5.2 to 5.4** of this appendix. These schematics included early consideration of site layout, including potential access points, and opportunities for creating buffers, or screening to nearby properties and to protect views into the site.

Plate 5.1: Stage 1 consultation site options for the southern park and ride.

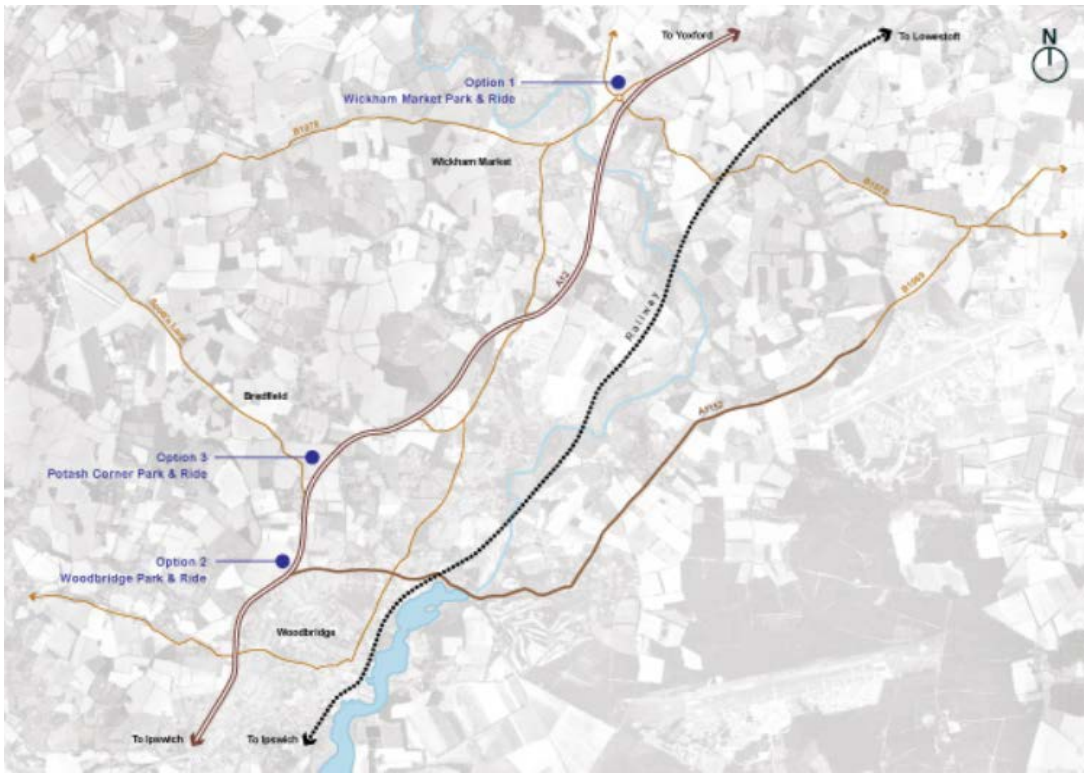


Plate 5.2: Park and Ride south Option 1 Wickham Market - Schematic

Plate 5.3: Park and ride south Option 3 Potash Corner – Schematic Zoning Diagram.

Plate 5.4: Park and ride south Option 2 Woodbridge – Schematic Zoning Diagram.

b) Stage 1

i. Option 1 – Wickham Market;

5.4.6 Preliminary environmental assessments were undertaken to assess the site. It was noted that the site has higher archaeological potential than the other two options considered, as well as long distance landscape sensitivity (notably views from Wickham Market and from the River Deben SLA).

5.4.7 While all Stage 1 site options are in a good location for intercepting worker traffic from the south, Option 1 (Wickham Market) was considered to be in the optimal position. It is located just before the single lane stretch of the A12 northbound through the villages of Marlesford, Little Glemham, Stratford St Andrew and Farnham, and would be closest to the main development site. This site was also considered as the best place to intercept any traffic travelling towards the site on the B1078 via Wickham Market, and the B1116 through Hacheston.

5.4.8 Option 1 (Wickham Market) has good access to and from the A12, with slip roads in each direction, allowing all southbound and northbound car and bus traffic to access the site. Some local concerns were raised about the potential

for delays at the junction of the B1078 and B1116. However, SZC Co. does not anticipate that the scale of additional traffic is likely to give rise to any significant highway safety, or congestion problems at this location.

5.4.9 At Stage 1 it was thought that there may be some benefit for local businesses close to Option 1 (Wickham Market). However, greater benefits would be expected from Option 2 (Woodbridge), where there are more nearby facilities likely to attract workers. Socio-economic benefits from Option 3 (Potash Corner) would be limited, as it has relatively few shops, services or facilities close by.

ii. Option 2 – Woodbridge

5.4.10 Option 2 (Woodbridge) lies on the west side of the A12 beyond the built-up area of Woodbridge, and has similar long-distance landscape and visual considerations to the Wickham Market site (Option 1). It is also considered to have some potential for unrecorded archaeology.

5.4.11 Option 2 (Woodbridge) and Option 3 (Potash Corner) were both considered to be potentially suitable sites in transport terms, but were in less optimal locations. This is because they have the potential to cause greater issues in terms of congestion, as well as access, and highway safety, when compared with Option 1 (Wickham Market). Option 2 has direct access to the Woods Lane roundabout, which was considered beneficial, although this could exacerbate existing congestion problems at this roundabout.

5.4.12 Consultees raised concerns of adverse effects due to the proximity of the site to residential areas and schools. Concerns were raised regarding the location of Option 2, as it was considered by consultees that the development may create a precedent for development to the west of the A12, which would make future development more difficult to resist.

iii. Option 3 – Potash Corner

5.4.13 Option 3 (Potash Corner) has a number of residential dwellings overlooking the site in a more 'intimate' village setting compared to the other two sites. The site is also crossed by PRoWs, and there is woodland/ditch habitat along its eastern and northern boundaries.

5.4.14 Option 3 was considered to be potentially suitable in transport terms, but is in a less optimal location than Option 1. Consultees raised highway safety concerns due to the new access that would be created, and due to increased traffic levels. Consultees were also concerned regarding the potential impacts on residential amenity due to the close proximity of the site to Bredfield Village.

c) Stage 2

5.4.15 At Stage 1 consultation, Option 1 (Wickham Market) was generally supported by respondents, and became the preferred location for the southern park and ride facility at Stage 2, with Option 3 (Woodbridge) held in reserve.

5.4.16 Following the Stage 1 consultation, SZC Co. undertook archaeological geophysical survey on the Stage 1 consultation Option 1 (Wickham Market) site. This suggested that extensive archaeological remains associated with the Roman 'small town' of Hacheston extend across the site. The area of investigation was broadened to include land immediately to the east of the Option 1 site. This additional geophysical survey suggested that the potential for archaeology was lower to the east of the Option 1 site, and was largely confined to the southern part of the field where the original Option 1 site was proposed. Therefore, a revised location (revised Wickham Market site) was put forward at Stage 2.

5.4.17 The revised Wickham Market site was assessed against all of the site selection considerations. It was considered that, with the exception of clear differences in archaeological constraints, the conclusions of the assessment of the original Option 1 (Wickham Market) site presented at the Stage 1 consultation generally applied to the revised site, given the similar locational and physical characteristics of the sites. The revised Wickham Market site would retain the same access arrangements as the original site, but would require an extended access road from the slip road junction into the site. In addition, the revised site access road would be bisected by a PRoW. Both of these factors have engineering and operational implications, but these were considered to be outweighed by the suitability of the revised site in terms of archaeological considerations. Therefore, the revised site at Wickham Market became SZC Co.'s preferred southern park and ride site for the Stage 2 consultation.

5.4.18 The revised site boundary for the Wickham Market site presented at the Stage 2 consultation is shown in **Plate 5.5** below.

5.4.19 At the Stage 2 consultation, some respondents suggested generally that Brownfield sites should be used, closer to Felixstowe, so as not to damage more land than necessary. Several respondents suggested alternatives to the Wickham Market site, usually closer to Ipswich. A common suggestion was the siting of the park and ride at Martlesham, an existing park and ride site that is under threat of closure. Woodbridge was also a preferred location for several respondents, the reason given was that it has more 'benefits for local businesses' and allows for a wider catchment area. SCC and SCDC

raised concerns with the Wickham Market site due to visual impacts, and requested consideration of sites south of Woodbridge.

5.4.20 Another suggestion was to locate the park and ride closer to Wickham Market (Campsea Ashe) railway station, allowing workers to arrive by train, and then transfer directly to the park and ride buses.

5.4.21 The gravity modelling has however shown that the number of workers anticipated to live close to other stations on the East Suffolk line (and thus able to travel conveniently to Wickham Market station by rail) is low. Direct buses would run from Ipswich and Lowestoft to Sizewell C, allowing workers and visitors travelling from further afield by rail to interchange onto buses.

5.4.22 The southern park and ride would not be better suited at a site closer to Campsea Ashe railway station, primarily because it is not adjacent to the A12. It would, therefore, involve workers driving from the A12 along the B1078 through Lower Hacheston and Campsea Ashe to the station, and then back along the same route to travel up the A12 towards the Sizewell C main development site on the bus. It would also likely have significant impacts on those living in close proximity to the station in terms of traffic and lighting.

5.4.23 Once the construction workforce starts to be mobilised, SZC Co. would monitor the geographical distribution of workers and, if large numbers are found to live close to railway stations on the East Suffolk line, additional buses could be run from Saxmundham, which would be the closest railway station to the Sizewell C main development site. SZC Co. has, however, discounted the idea of transporting large numbers of construction workers by rail because of the much greater flexibility offered by a bus service. Passenger trains are infrequent and not flexible around arrival and departure times, whereas a bus service can offer regular and flexible departures.

5.4.24 At the Stage 1 consultation, SZC Co. had consulted on the possibility of co-locating a lorry park, an induction centre for construction workers and a postal consolidation facility at the southern park and ride site. However, by Stage 2, SZC Co.'s preference was for the postal consolidation facility to be located at the southern park and ride site (with no comparable facility to be located at the northern park and ride site), to no longer propose a lorry park, and for the induction centre to be located at the main development site. This was considered to offer the greatest efficiencies for the Sizewell C Project in relation to the management and integration of induction activities into the wider operation of the main development site and accommodation campus.

Plate 5.5: Stage 2: Park and ride at Wickham Market – Masterplan.

5.4.25 Hacheston Parish Council raised concerns at the Stage 2 consultation over the site's potential impacts on listed buildings in Wickham Market. They considered that those assets are extremely sensitive to any design that would impact on the overall rural feel of the area.

5.4.26 The setting of the assets is defined by their relationship to adjacent buildings and agricultural land. Any perceptual change would be insufficient to give rise to adverse effects given the distance of the assets from the park and ride site, intervening planting and the existing A12. The retention of boundary hedgerow, and the use of bunding to site boundaries, help to mitigate potential impacts. Furthermore, the removal of the proposed development, the return of the site to agricultural use and the restoration of hedgerows which would be removed at construction, would reverse any permanent perceptual change in the historic landscape.

5.4.27 At the Stage 2 consultation a few respondents also expressed concerns over the general land take from the two proposed park and ride sites. They were

concerned about perceived increased urbanisation of their rural communities, and stipulated that all the land should be returned to rural countryside once construction of the main development site is complete. SZC Co. explained at the Stage 2 consultation that on cessation of use as a park and ride facility, SZC Co. intends to reinstate the land for agricultural use.

5.4.28 A primary concern raised about the Wickham Market site at Stage 2 was the potential impact of increased traffic on local villages. Respondents were concerned that traffic would travel along local roads such as the B1078, B1079, A1152, C309, U3621 and the B1116, which are all already regarded as congested and subject to incidences of speeding. Respondents, including Theberton and Eastbridge Parish Councils, were concerned that any incident on the A12 would drive traffic on to local roads, and believed SZC Co.'s diversionary routes to be inadequate to deal with the issue. They also believed that the A12 itself has many bottlenecks. It is noted, however, that the Park and Ride Strategy minimises additional Sizewell C construction worker traffic on the A12 between the two sites at Darsham and Wickham Market.

5.4.29 Several respondents raised concerns that the local infrastructure around Wickham Market is not suitable to deal with the increased traffic brought about by the park and ride. Some respondents considered that the site is unsuitable due to its narrow streets and existing local traffic, a problem exacerbated by residential parking which narrows the streets further in some places to single lane traffic. As explained further below, two options for dealing with this option were proposed at Stage 3.

5.4.30 Several respondents were concerned about the safety of local pedestrians in the Wickham Market area. They felt that the combination of speeding traffic and poor visibility puts pedestrians at risk.

5.4.31 Respondents believed that the current 30mph speed limit through Wickham Market is very rarely adhered to, and thought that the park and ride site would need to include methods of enforcing these restrictions. SZC Co. is proposing to request that SCC reduce the speed limit from 60mph to 30mph on the B1078 that crosses the A12 north-east of Wickham Market. This would have the effect of making it easier for vehicles to exit from the A12 onto the B1078 in safety. However, SCC would remain the responsible body for enforcing restrictions in its capacity as the local highway authority.

5.4.32 Many respondents also expressed concerns about the junction north of Wickham Market onto the A12. They said that this is already a very dangerous junction for those entering, and exiting the village, with poor visibility as the dual-carriageway narrows to a single carriageway. However,

the accident record over the last five years does not support this view. They feared that the likelihood of accidents in this area would increase with such a heavy increase in traffic being proposed. However, the increased traffic volume in this area is small because the park and ride site intercepts most Sizewell C car traffic.

5.4.33 At the Stage 2 consultation SZC Co. explained that the Wickham Market site provides potential to have a beneficial effect on local businesses close to the site. The construction workers using the park and ride facility are likely to use the services that these local businesses offer.

5.4.34 Some respondents expressed a preference for Woodbridge from a socio-economic perspective, as they considered it would have more benefits for local businesses.

5.4.35 Stage 2 feedback and further design studies helped to develop the proposed design, and confirm the suitability of the Wickham Market site as our preferred option for the southern park and ride location. As a result, there is sufficient confidence in the site, and its suitability that the site at Woodbridge is no longer required to be held in reserve.

d) Stage 3

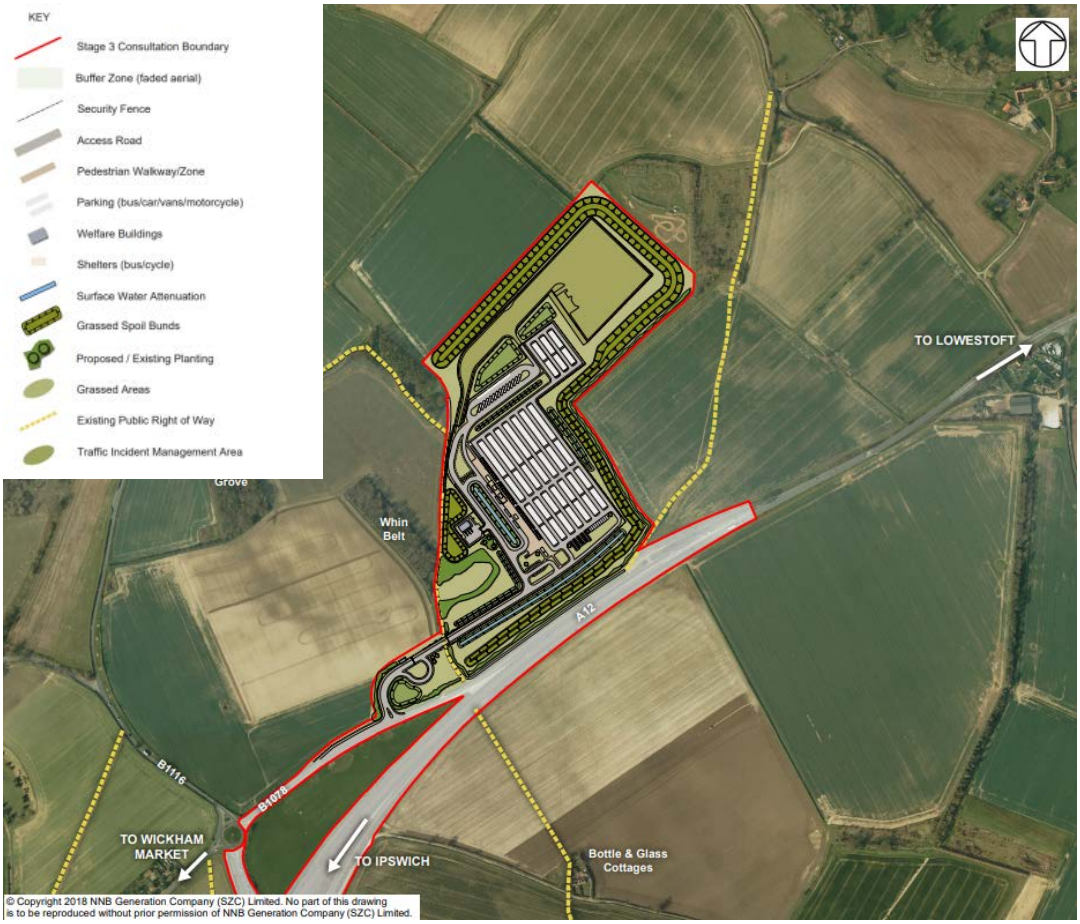
5.4.36 At Stage 3 the Wickham Market site continued to be the proposed site for the southern park and ride. The masterplan presented at Stage 3 is shown in **Plate 5.6** below.

5.4.37 Key changes to the proposals since the Stage 2 consultation comprise:

- Change to the parking numbers (1,250 spaces as opposed to 900 in Stage 2 consultation);
- Inclusion of a deceleration lane on the entrance to the site to separate those vehicles slowing to enter the park and ride and others accelerating to join the A12 northbound;
- On the A12 north-east of Wickham Market, it was proposed to reduce the A12 from two lanes to one before the northbound slip road joins the A12 (to avoid the A12 reducing from three lanes of traffic to one). It is also proposed to request that SCC reduce the speed limit from 60mph to 30mph on the B1078 that crosses the A12 northeast of Wickham Market;
- An exit loop was proposed at the site entrance barrier to allow errant vehicles to be turned away if necessary; and

- two potential traffic mitigation proposals were presented, namely to either a) divert Sizewell C traffic via Valley Road, Easton Road and the B1116, or b) temporarily relocate the on-street parking on B1078 between Border Cot Lane and the River Deben bridge to an off-site location nearby.

Plate 5.6: Stage 3: Park and ride at Wickham Market – Masterplan.



5.4.38 The Stage 3 feedback showed that there was continued support for a southern park and ride as an appropriate way to capture traffic from the south.

5.4.39 Concerns were raised by the local community regarding the suitability of Glevering Bridge for additional levels of traffic. Alternatives were suggested by consultees for mitigating delays to through traffic in and around Wickham Market.

5.4.40 Concerns were also raised by consultees about environmental and pollution impacts and negative effects of increased traffic on the community due to the southern park and ride proposals.

e) Stage 4

5.4.41 Following Stage 3 consultation, SZC Co. continued to progress Wickham Market site for Stage 4 consultation.

5.4.42 The masterplan for the Wickham Market site presented at Stage 4 is shown in **Plate 5.7**.

Plate 5.7: Stage 4 Park and ride at Wickham Market – Masterplan

5.4.43 The proposals remained broadly similar to Stage 3, with only minor alterations to the red line boundary. These were to align more accurately with land ownership boundaries, and to include the B1078/B1116 roundabout, which was previously excluded from the Stage 3 boundary (to facilitate the provision of walking/cycling improvements within highway land if the results of detailed design work show that this is necessary). It was also proposed to make a further extension to the south of the junction of the A12 and B1078,

to include additional highways land. This is required to extend the taper road marking further south for highway safety reasons.

5.4.44 Following feedback from the community, further consideration of how to minimise delays to through traffic in and around Wickham Market was given by SZC Co.. As well as the two options presented at Stage 3, namely a) the temporary removal of on-street parking on the B1078 or b) a diversion route (with associated highway improvements) via Valley Road and Easton Road, a further option was explored. The alternative option included working with the Parish Council to bring forward a public realm improvement scheme within the public highway, which would represent the first phase of the implementation of the Wickham Market Neighbourhood Plan. This would consider footway and pedestrian crossing provision as well as the optimal location of on-street parking to meet parking demand. This alternative option was consulted on at Stage 4.

5.4.45 As part of the Stage 4 consultation a preliminary environmental assessment of the design changes presented as part of Stage 4 consultation was undertaken. This included a consideration of the changes to Stage 3 baseline conditions (such as potential additional receptors affected and any changes to the extent of the study area), the assessment of effects, and mitigation required. The design changes proposed at Stage 4 do not alter the baseline, mitigation proposals, the assessment of potential impacts, and residual effects for any of the other environmental assessment topic areas, as presented in the Stage 3 PEI.

5.4.46 Respondents to the Stage 4 consultation generally supported the location of the southern park and ride at Wickham Market.

5.4.47 Concerns were however raised by the local community at Stage 4 regarding the proposed options to reduce congestion through Wickham Market. Concerns included potential reduced pedestrian safety though Wickham Market, due to increased traffic and comments noting that the priority junctions between the A12 slip roads and the B1078 needing improvement, potentially by signalisation. A suggestion was also made for a satellite car park on Border Cot Lane for construction workers (so they could park there and be ferried along the High Street to the park and ride facility). The aim being to reduce traffic through Wickham Market.

f) Development Consent Order proposals

5.4.48 Following the Stage 4 consultation, SZC Co. continued to progress the Wickham Market site for the DCO submission proposals, and SZC Co. conducted further EIA.

5.4.49 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, including:

- refinements were made to the drainage design – for example, the inclusion and repositioning of infiltration ponds;
- refinements to the lighting design including incorporation of measures to reduce light spill; and
- with regards to reducing delay though Wickham Market, SZC Co. decided to proceed with working with the Parish Council, to bring forward a public realm improvement scheme within the public highway which would represent the first phase of the implementation of the Wickham Market Neighbourhood Plan (rather than temporarily removing on-street parking on the B1078 or constructing a diversion route via Valley Road and Easton Road).

5.5 Conclusions

5.5.1 This section of the planning statement has assessed the alternative site options that have been considered in selecting the proposed southern park and ride 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.

5.5.2 The site at Wickham Market has emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed southern park and ride. The proposed development incorporates the site requirements, as well as the environmental mitigation required to be acceptable.

6. Two Village Bypass

6.1 Introduction

6.1.1 This section presents a description of the site selection process undertaken in relation to the proposed two village bypass. This section is structured as follows:

- Scheme requirements.
- First filter stage.
- Second filter stage.

- response to Stage 1 and proposals at Stage 2;
- response to Stage 2 and proposals at Stage 3;
- response to Stage 3 and proposals for Stage 4; and
- response to Stage 4 and proposals for DCO application.

- Conclusions - DCO Submission.

6.2 Scheme requirements

6.2.1 The transport strategy aims to minimise the impact of traffic associated with the construction of Sizewell C on the road network. Nevertheless, the temporary increase in journeys on the network in some cases justifies specific mitigation to relieve potential problems at particular locations. The works proposed at points on the highway network are proposed where they are considered necessary for the highway safety, and/or highway capacity reasons.

6.2.2 The A12 between Ipswich and Lowestoft would be the main route corridor for Sizewell C construction traffic on the highway network. Early traffic modelling identified that, whilst the majority of the A12 would not experience congestion, the section of the A12 through Farnham may experience potential traffic impacts. Other areas which may experience potential traffic impacts are discussed in **Volumes 6** and **7** of the **ES.**

6.2.3 There has been a long-standing concern from residents regarding the existing traffic levels through the four villages of Farnham, Stratford St. Andrew, Little Glemham and Marlesford. The road narrows, and has a tight bend at Farnham, which reduces capacity and creates a potential safety concern, particularly when two large vehicles are passing at once. The proposed Sizewell C Project would increase construction traffic levels along this section of the A12, and there are also potential impacts on residential amenity within the village of Farnham due to the increase in traffic flows and the proximity of traffic to the frontage of properties.

6.2.4 Having identified the need to mitigate the impacts of traffic travelling to, and from, the main development site on the section of the A12 in Farnham, further consideration was given to the potential options to alleviate traffic impacts. Alternative options were identified from a combination of desk-based studies, observation of driver behaviour, and through consultation with Suffolk Coastal District Council (SCDC), now part of East Suffolk Council (ESC), and Suffolk County Council (SCC).

6.2.5 For the two village bypass, a two-filter process was adopted:

- Filter 1 – determine the principal options for improvement if necessary.
- Filter 2 – schemes are then compared and contrasted against a common set of planning and environmental criteria.

6.2.6 The design evolution of proposed highway works changed through the consultation period (Stages 1 to 4), due to consultation feedback and further traffic and environmental studies. This report details the design evolution of the proposed two village bypass, but should be read in conjunction with **Chapter 3** of **Volume 5** of the **ES,** which focusses on the environment impacts of the proposals as required by Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the "EIA Regulations").

6.3 First filter stage

6.3.1 As set out in **Volume 1, Chapter 2** of the **ES**, SZC Co. has developed a strategy to transport a proportion of the Sizewell C Project construction materials to the main development site via the rail network where possible. There are limited rail movements permissible on the Saxmundham to Leiston branch line (up to 3 trains per day) and so, an amount of construction materials will need to be transported by road.

6.3.2 Whilst use of rail would reduce the number of HGV movements on the local road network from the road-led strategy previously consulted on, additional mitigation would be required on the highway network to account for the impact of increased construction-related traffic.

6.3.3 The proposed two village bypass has evolved through an understanding of the following:

- a review of alternative and historic proposals on the A12;
- the operational pre-requisites of mitigating impacts on the A12 during construction of the power station;
- the outcomes of the environmental assessment process; and
- consultation feedback on alternative and historic proposals on the A12.

6.3.4 Prior to the first stage of consultation for the Sizewell C Project, SZC Co. was aware that a bypass on the A12 had been a long-standing option explored by SCC, to relieve traffic and congestion on the four village stretch of the A12

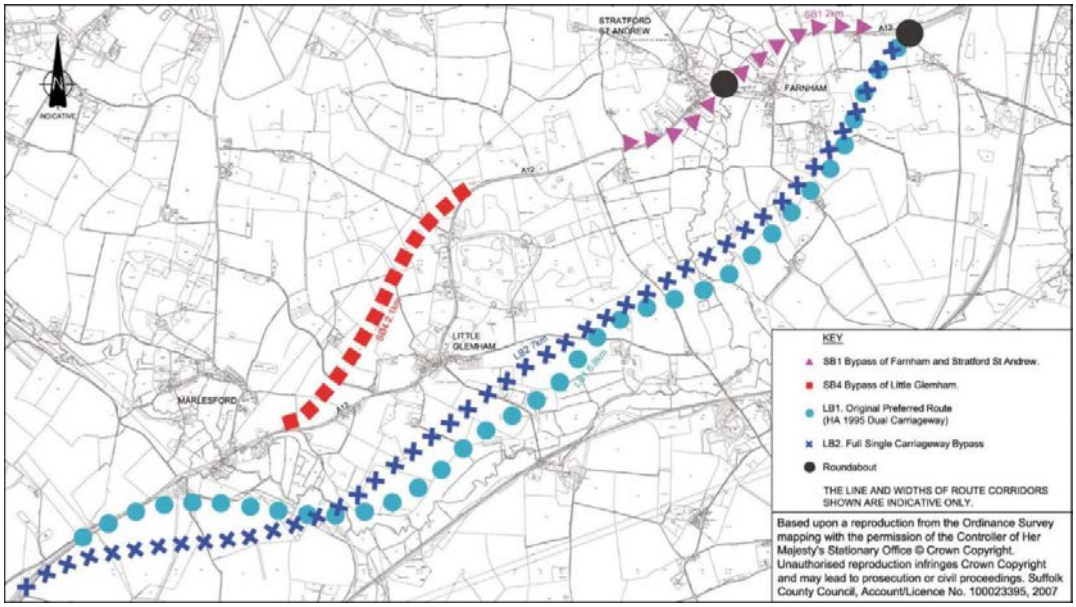
through Marlesford, Little Glemham, Stratford St Andrew and Farnham. The main pinch point was, and remains, the narrow bend at Farnham.

6.3.5 A detailed technical study was undertaken by SCC in 2006 (A12 Four Villages Study) (Ref. 4.5) which looked at a number of bypass alignments, partly to overcome the Farnham bend.

6.3.6 The 2006 study also looked at a four village bypass, but it concluded that the combined environmental, landscape, and heritage impacts arising from the construction of a full four village bypass (bypassing Marlesford, Little Glemham, Stratford St Andrew, and Farnham) would be unlikely to be deemed acceptable against the tests set by planning policies at that time.

6.3.7 Four route options had been considered together with an option for a new roundabout at Farnham. Each option was subject to environmental assessment. The route options are shown in **Plate 6.1.**

Plate 6.1: A12 – Four village route options.



(Source: A12 Four Villages Study, December 2006)

a) LB1 – Pale blue original 'preferred route'

6.3.8 In 1995 a full dual carriageway bypass scheme had been taken successfully through Public Inquiry, but subsequently removed from the spending programme in early 1996, due to national funding constraints. LB1 is the original Highways Agency dual carriageway alignment from 1995. It was the longest route with a correspondingly large land take.

6.3.9 The principal environmental impacts were:

- Greenhouse gases – an increase in Carbon Dioxide emissions due to the length of the route, and the increased speeds.
- Landscape – substantially damaging impacts on views and the tranquillity and character of river valleys, at odds with the pattern and scale of landscape and landform which cannot be adequately mitigated.
- Heritage – particular impact at southern end on Roman small-town east of Fiveways, also two ring ditches. The survey of the rest of the route in 1995 indicated no major archaeological sites, but the route would require extensive evaluation, and has wet deposits in valley bottom areas.
- Biodiversity – it would affect nationally and regionally important species and habitats.
- Water Environment – the route would cross two river floodplains, and runs alongside a third.

b) LB2 – Dark blue full bypass

6.3.10 This was a single carriageway option using the most direct route. The principal environmental impacts were:

- Landscape – some impact on views from Farnham and Marlesford, at odds with landform and pattern of landscape in places, adverse impact on tranquillity and an environmental sensitive area without additional mitigation.
- Heritage – as for LB1, but with a more limited effect on the Roman small town at the southern end.
- Biodiversity – it would affect nationally and regionally important species and habitats.
- Water Environment – the route would cross two river floodplains.

c) SB1 – Pink bypass of Farnham and Stratford St Andrew

6.3.11 This was a short, minimum bypass near the rear of existing dwellings on the Farnham bend junction. The alignment would have a further roundabout with the A12 close to the River Alde bridge. The alignment could continue to the

south and west of Stratford St Andrew to terminate at an improved junction with the staggered junction serving Blaxhall.

6.3.12 The principal environmental impacts were:

- Landscape – some slight impact on views around Farnham. Cannot be completely mitigated. Some adverse impact on floodplain and an environmentall sensitive area.
- Heritage – potential effect on wet deposits with preservation of organic remains. It would also be on the fringe of an area of medieval settlement. At the northern end it would impinge on Benhall Lodge Park.
- Biodiversity – it would affect nationally and regionally important species and habitats.
- Water Environment – the route would cross a river floodplain.

d) SB4 – Red bypass of Little Glemham

6.3.13 This was the most direct and smoothest alignment, in cutting on the A12 between Glemham Hall bend and Marlesford. The principal environmental impacts were:

- Landscape – it would affect degraded area of Grade II parkland, and there would be some severance of mature hedges and tree belts.
- Heritage – it would affect the setting of Moat Farm. There was also evidence of medieval activity nearby, and at the northern end it would impinge on what was part of Glemham Park.
- Biodiversity – it would affect nationally and regionally important species and habitats.
- Water Environment – only minor adverse impacts.

6.3.14 The report noted that a particular constraint to many of the potential options would be one of funding.

6.3.15 It concluded that, of the options assessed, SB1 and SB4 could deliver benefits with only moderate adverse impacts and recommended that these two options should be considered as an alternative to a full four village bypass.

6.3.16 SZC Co. reviewed the technical study and considered that, out of the routes analysed, the most appropriate route for a bypass of Farnham would be to the north of the village. This route was put forward as part of the Stage 1 consultation.

e) Two village bypass operational pre-requisites

6.3.17 The rationale for proposing the two village bypass is to mitigate the impacts of traffic travelling to and from the main development site on the A12, particularly on the bend through Farnham.

6.3.18 The narrow bend at Farnham is widely recognised to be the most significant existing issue on the four villages stretch of the A12. It is the section which is closest to capacity, and the narrow bend creates a potential safety concern, particularly when two large vehicles are passing at once. An online solution would also have an impact on amenity in Farnham, due to the scale of traffic flows on the A12, and the immediate proximity of traffic to the frontage of properties.

6.3.19 Therefore, the principal requirement for the two village bypass is to overcome the issue of the narrow bend at Farnham and associated amenity effects of heavy traffic through the village. Additionally, any route should be as short as is practical, whilst observing environmental constraints, in order to reduce journey times compared with the use of the existing A12, so as to make it an attractive option for motorists to use.

f) Environmental and planning criteria

6.3.20 In order to select a preferred option to address issues in Farnham, whilst also ensuring that there is minimum impact on the surrounding area, SZC Co. identified a number of considerations against which to assess options:

- transport implications;
- landscape setting/degree of screening;
- proximity to nearest dwellings and settlements;
- proximity to designated heritage assets and archaeological remains;
- evidence of flood risk (i.e. related to topography and proximity to watercourses);
- presence of PRoW;

- contaminated land (i.e. evidence of made ground or local sources of potential contamination, such as landfills);
- ecological constraints, such as semi-natural habitats, ponds and watercourses;
- proximity to SAC, SPA and SSSI;
- planning policy designations;
- stakeholder feedback; and
- land availability.

6.3.21 It was acknowledged that the considerations above cannot necessarily be attributed equal weight in assessing each site, as for example, certain factors may be more important in the assessment of one site than another.

6.3.22 A wholly quantitative scoring system, therefore, was not applied on the basis that this type of assessment is not considered appropriate for balancing the complex factors involved, but the information gathered was used to aid decision-making.

6.4 Second filter stage

6.4.1 A bypass was not the only solution that was considered to alleviate the A12 near Farnham.

6.4.2 During Stage 1 and 2 consultations, other options put forward included widening the road at Farnham bend, or alternatively to put in place a traffic control system to prevent more than one HGV passing through the bend at any one time. A no change scenario was also considered.

6.4.3 Feedback from the Stage 1 and 2 consultations, from the Councils and local residents, was strongly to the effect that these options would not solve the localised or wider traffic impacts around Farnham. These options were discounted following the Stage 2 consultation.

6.4.4 The sections below focus on the site selection and option considerations for a bypass at Farnham.

a) Stage 1

6.4.5 At the Stage 1 consultation SZC Co. sought views on proposals for potential road and junction improvements to alleviate transport impacts.

6.4.6 An initial Transport Strategy and Supporting Information report (Ref. 4.6) assessed the existing transport conditions around Sizewell, and the likely transport impacts of the construction and operation of Sizewell C.

6.4.7 Preliminary findings in the report supported the previous assumptions that traffic issues associated with the Sizewell C Project would be most significant at the narrow bend in Farnham.

6.4.8 The Farnham bend is the area which is closest to capacity, and the narrow bend creates a potential safety concern, particularly when two large vehicles are passing at once. A solution is also required to to address associated amenity effects of increased traffic through the village. For these reasons it was considered that measures to improve the position at Farnham bend may be justified by the Sizewell C Project.

6.4.9 Other highway improvements were considered necessary to reduce road traffic impacts on the B1122 and other local roads. These are detailed further in **section 9** of this Site Selection Report for the Yoxford Roundabout and other highway improvements, and **Volume 7**, **Chapter 3** of the **ES**.

i. Farnham

6.4.10 Preliminary modelling identified the A12 between Ipswich and Lowestoft as the main corridor for the majority of Sizewell C traffic. It suggested that the total traffic impact would be in the region of a 5-15% increase to all-vehicle daily traffic flows at the point of peak construction, which would last one to two years.

6.4.11 The three possible solutions to relieve the likely capacity and congestion impacts in Farnham that were presented at Stage 1 consultation were:

- Option 1: provision of a bypass to the north of Farnham (between Farnham and Stratford St. Andrew);
- Option 2: widening the road at Farnham bend; and
- Option 3: provision of HGV traffic controls at Farnham.

ii. Farnham bypass

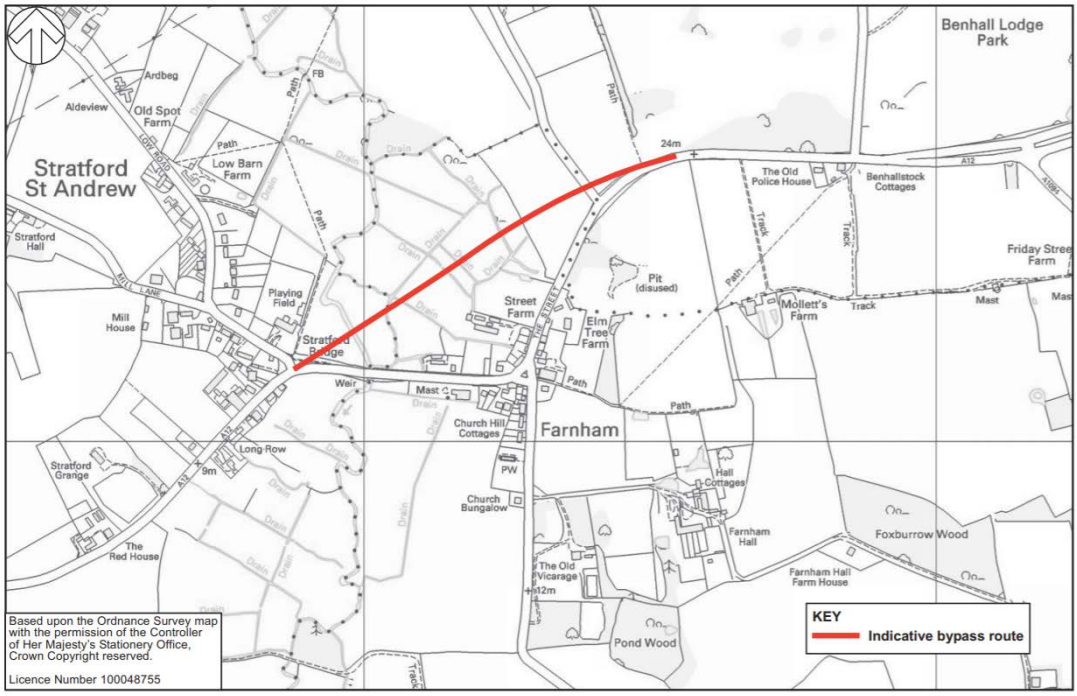
6.4.12 It was considered that the most appropriate route for a bypass of Farnham would be to the north of the village. It would be approximately 1km in length, and composed of a single lane carriageway in each direction with accompanying landscape mitigation. At the southern end of the route it would adjoin the existing A12 close to Stratford St Andrew and northern end

it would adjoin the existing A12 north of Farnham, illustrated at **Plate 6.2** below.

6.4.13 Whilst details of the bypass and junction arrangements would be subject to further work if this option were progressed, it was considered that a bypass of this kind would remove all existing capacity, and safety concerns associated with the current bend at Farnham, improving traffic flow and reducing accident risks. Properties near the road in Farnham would benefit from a large reduction in traffic flows through the village.

6.4.14 It was recognised that there would be some environmental impacts (in particular landscape, ecology and heritage – detailed further in the Sizewell C Stage 1 Environmental Report (November 2012) and Volume 5, Chapter 3 of the ES) associated with constructing a short new stretch of road through an area of existing farmland and open countryside. However, it was considered that these impacts could be reduced through sensitive design and landscaping.

Plate 6.2: Stage 1 – Farnham Bypass Option.



iii. Road widening at Farnham bend

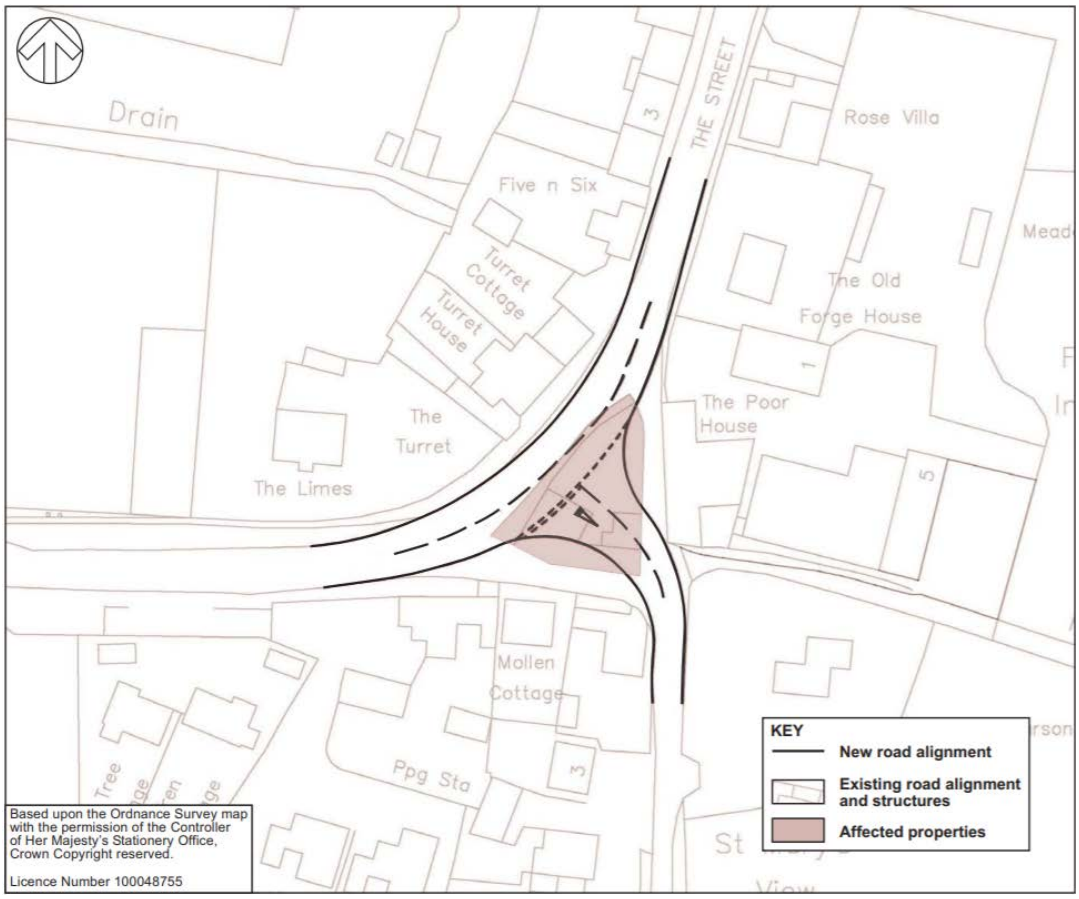
6.4.15 A more limited intervention to improve Farnham bend was considered to be to widen and smooth the existing bend to reduce the potential for traffic

congestion at peak times, and remove safety concerns associated with the narrowness of the bend, illustrated at **Plate 6.3** in this section.

6.4.16 However, to implement this option would require the acquisition and demolition of a small number of properties, including a Grade II Listed Building.

6.4.17 The Sizewell C Stage 1 Environmental Report (November 2012) considered that, with the exception of the direct impact on residential properties, this option would have less of an adverse environmental effect than the bypass. However, whilst it could be effective in addressing the current safety concerns associated with the bend, it would not have the effect of removing traffic from the village of Farnham.

Plate 6.3: Stage 1 – Indicative Farnham bend alteration.



iv. Heavy Goods Vehicles traffic controls at Farnham bend

6.4.18 The most limited form of intervention at Farnham bend could involve implementation of a traffic control, warning or signalling system. In principle

this could range from a simple warning to a more sophisticated detection, and control system with the aim of preventing two HGVs passing through the bend in opposite directions at once.

6.4.19 Such a system could be relatively effective in reducing safety risks at Farnham bend, and improving the ability of pedestrians and other road users to cross the A12 in this area.

6.4.20 However, this type of intervention would have no positive effect on traffic flow through the bend, and indeed could exacerbate the potential for congestion and associated potential adverse air quality effects. In addition, as with a road widening scheme, all A12 traffic would continue to route through Farnham.

Preliminary assessments and Stage 1 consultation responses

6.4.21 Overall, it was considered by SZC Co. that Option 1 (Farnham bypass) would be the most effective in reducing potential traffic impacts, and impacts on residential amenity when compared to Options 2 and 3. Option 1 would reduce traffic through Farnham, and avoid construction traffic associated with Sizewell C passing through the village once operational. This would in turn would improve the character, noise levels, and secluded feel of the village.

6.4.22 Option 1 was also favoured by respondents who generally considered that the bypass would represent a long-term solution to traffic issues at Farnham. However, as the works in Option 1 would be more extensive, it would likely have greater impacts on the wider landscape character and ecology than Option 3.

6.4.23 Many respondents cited that Option 1 would be most effective at improving residential amenity given it would take traffic out of Farnham village. However, concerns were raised regarding the potential environmental effects, and proximity of the bypass to the Riverside Centre, and adjacent amenity land used by the local community.

6.4.24 Respondents did also request that SZC Co. look at the possibility of a more extensive four village bypass for the villages of Farnham, Stratford St. Andrew, Little Glenham and Marlesford. However, analysis suggested that congestion was only likely within Farnham due to the narrowing of the road at the Farnham bend. Therefore, SZC Co. concluded that the impact of Sizewell C traffic would not be sufficient to justify a bypass of all four villages.

6.4.25 The assessments noted that the bypass would be effective at improving residential amenity given it would take traffic out of Farnham Village, and that

the consequential benefits in terms of improvements to the character, noise levels and secluded feel of the village were significant.

6.4.26 It was considered that the bypass would remove existing capacity and safety concerns associated with the current bend at Farnham, improve traffic flow, and reduce accident risks.

b) Response to Stage 1 and proposals at Stage 2

6.4.27 SZC Co. reviewed the comments received from Stage 1 and the initial transport analysis. The responses included a report by Aecom, commissioned by SCC, and issued in February 2013. The A12 Four Villages – Sizewell C Traffic Impacts report set out the analysis of current and forecast traffic conditions with, and without the development, providing a high level update of the 2006 Study with respect to traffic, journey times, accidents, and air quality, and the case for a bypass to relieve the pressure on the A12 as a result of the construction of Sizewell C.

6.4.28 The report concluded that the review of current traffic conditions (circa February 2013) showed that the priority for interventions to the A12 through the four villages was likely to have slightly reduced in comparison to the findings from earlier studies, as traffic growth of the magnitude forecast was not realised. However, the report stated that the impact of the Sizewell C traffic required mitigation through the four villages, and the full bypass provides a clear solution. It could therefore be considered as 'associated development' and included for consideration in the DCO Application.

6.4.29 SZC Co. continued to consider the issues raised and undertook its own assessment of the traffic effects of the Sizewell C Project on the A12 through the four villages. Consistent with SZC Co.'s initial suggestions set out in the Stage 1 consultation, this work identified that:

- there has been a long-standing public concern that something should be done about the existing traffic levels through the four villages. Traffic associated with Sizewell C would further increase traffic levels along the A12. SZC Co.'s modelled analysis shows that Sizewell C traffic would increase total traffic volume in the order of 3-6% through the four villages during the peak construction phase, which is expected to last about 1-2 years. 3% is based on an assumption that some traffic (excluding buses and HGVs) would re-route to take the quickest route available. Without re-routing, the increase in total traffic volume would be in the order of 6%. HGV flows through the four villages were expected to increase in the order of 40% during the peak construction phase;

- there are no technical highway capacity issues with the A12 in three of the villages (Marlesford, Little Glemham and Stratford St Andrew), but there may be a capacity issue at Farnham bend, due to the narrowing of the road, compounded by the tight configuration of the bend. However, investigations suggested that the main effect of the bend is to slow traffic; and

- there was a clear amenity issue already in Farnham caused by the proximity of traffic to the frontage properties, and by the tight configuration of the bend.

6.4.30 In light of the above, SZC Co. considered that the impact of Sizewell C traffic would not be sufficient to justify a bypass of all four villages. A bypass of this scale would have significant environmental impacts, as noted in the 2006 study, and would bring benefits to some but would be to the detriment of others. A four village bypass would be a disproportionate intervention to mitigate the effects of Sizewell C traffic, and therefore it could not be included within the application for development consent for the Sizewell C Project. However, it did remain necessary to give further detailed consideration to more local issues and, particularly, issues arising from the bend in Farnham.

i. Stage 2 consultation

6.4.31 Following the conclusion of the Stage 1 consultation consideration was given to the responses raised by consultees including the highway and planning authorities and other statutory bodies. Further consultation was undertaken at Stage 2, where four options were presented:

- Option 1: no change to the existing road layout (i.e. the application for development consent would not propose any physical interventions).

- Option 2: road widening at the Farnham bend, involving the demolition of properties

- Option 3: a Farnham bypass (also known as the one village bypass). The alignment of the bypass was amended following Stage 1 to move the road further away from the Riverside Centre as much as possible to reduce the impact of the bypass on the community land. There were two designs presented in Stage 2 for this option which were similar save for the proposed arrangements for connecting with the existing A12 leading into Farnham from the north-eastern end at Sweffling Road (Option 3A), and from the south-western end of Low Road/Great Glemham Road (Option 3B). Both options would include a pedestrian/cycle link between Farnham and Stratford St. Andrew, passing under the bypass at the River Alde.

- Option 4: a Stratford St Andrew and Farnham bypass (also known as the two village bypass) to the south of the villages. This alignment was originally designed and suggested by SCC, and then adopted by SZC Co. as one of the options presented for consultation at Stage 2.

6.4.32 The proposals for a two village bypass, including the proposed route alignment, and the supporting environmental information presented at Stage 2 was drawn from the work commissioned by SCC, and undertaken by Aecom. The PEI presented at Stage 2 was also drawn from SCC's work.

6.4.33 Plate 6.4 shows the masterplan for Option 4 presented at Stage 2.

Plate 6.4: Stage 2 - Masterplan for Option 4: Stratford St Andrew and Farnham bypass

ii. Preliminary assessments and Stage 2 consultation responses

6.4.34 Option 1 would not have altered the existing road layout and the potential for adverse environmental effects would arise from traffic, and traffic-related

effects due to the presence of construction traffic flows from the Sizewell C Project on the A12. Option 1 would have resulted in increased traffic flows through Farnham during the construction of the Sizewell C Project, and would have likely resulted in increased congestion, and risk of accidents. Option 1 was considered the least likely to generate socio-economic benefits due to there being no physical interventions.

6.4.35 Option 2 was not expected to give rise to significant changes to noise levels during operation and air quality levels would have been below the air quality objective. However, mitigation required to minimise construction noise, and site specific dust management measures would need to have been implemented to control dust during construction. Option 2 would have required the demolition of the Grade II listed building known as the Post Office Stores, and would have likely affected the setting of the Grade II listed buildings within the village, including The George and Dragon Public House (immediately south), Turret House and Turret Cottage (immediately west) and Elm Tree Cottage and Elm Tree Farmhouse (approximately 50m north) and the immediate townscape character. Public access would have needed to be maintained and possibly temporarily diverted during construction, however there would have been no public right of ways (PRoW) that would require permanent stopping up or diversion. Option 2 may have generated some increased business activity in the surrounding area, although to a notably lesser extent compared to Options 3 and 4, which would have offered a number of socio-economic benefits, and would likely require a large workforce.

6.4.36 Options 3 (one village bypass) and 4 (two village bypass) were subject to preliminary planning and environmental assessments against the criteria outlined in **section 6.3** of this report.

iii. One-village bypass

6.4.37 Initial assessments for Option 3 (the one village bypass) noted that there would have been a beneficial noise effect for residents in properties in the village of Farnham, and an improvement in air quality within the village, due to a reduction in vehicle movements through the village. Vehicle emissions would have increased along the bypass route due to the introduction of a road, but they would be below the air quality objective. It was noted that existing views, and the landscape character would have been altered. There was also the potential for adverse impacts on the community due to potential severance, and division between the villages of Farnham and Stratford St. Andrew as a result of the bypass. The villages are currently very closely linked.

6.4.38 The Councils also noted that flood mitigation required for this route, given it lies within a flood plain, could create significant impacts on ecology, archaeology, and on the landscape.

6.4.39 Option 3 would have resolved the safety concerns and congestion associated with Farnham Bend. However, it would still have required traffic to pass between Farnham and Stratford St. Andrew, which may have introduced severance related impacts between the two communities.

6.4.40 Overall, Options 3 and 4 were considered to present the most socio-economic benefits because of the benefits of a larger workforce.

iv. Two village bypass

6.4.41 The initial assessments considered the two village bypass to improve air quality overall, and would likely result in improvements in both Nitrogen Dioxide, and particulate matter concentrations. It was noted that this option would have some negative effects on biodiversity, including the loss of habitat, but these effects could be reduced through mitigation measures. This option would have an adverse impact on the character of the landscape, but sufficient landscaping would lessen the impact.

6.4.42 Whilst it was considered that this option would result in the part or complete loss of some other heritage assets, including an old field system, two flint scatters and a lithic scatter, these are considered to be of low archaeological value. It was noted that this option would improve the setting of historic assets within the village of Farnham.

6.4.43 During the consultation, the Councils noted that whilst there might be some ecological impacts, the two village bypass would pass through less ecologically sensitive land compared to the one village bypass. The majority of respondents, including the Councils, considered the two village bypass to be the most effective in overcoming the narrow bend at Farnham.

6.4.44 Option 4 was considered to be the most effective in overcoming the safety and congestion issues related to the narrow bend at Farnham, whilst also diverting traffic (existing and construction traffic associated with the Sizewell C Project) around Farnham and Stratford St. Andrew, thereby avoiding severance related impacts between the two communities.

6.4.45 Overall, whilst Options 3 and 4 would impact a wider area and potentially increase impacts on the landscape character and biodiversity, these options would reduce traffic-related impacts within the village and improve existing air quality and noise levels. There are no works associated with Option 1, and the construction works associated with Option 2 would have been less

extensive, however, neither option would have avoided the need for construction traffic to travel through the village, and would increase traffic-related impacts such as severance, air quality and noise.

c) Response to Stage 2 and proposals at Stage 3

6.4.46 The majority of respondents to the consultation selected Option 4 as the preferred option, with the primary benefits perceived by respondents being an improvement in traffic flow, alleviating congestion, reducing the impact of HGV and construction traffic, and being a long-term solution. Respondents viewed the removal of traffic from the villages as having further benefits for residents, including air quality and noise. This option was presented by SCDC and SCC as being less damaging than the other options set out by SZC Co. at Stage 1. The SCDC and SCC response to the Stage 2 consultation confirmed that Option 4 was their preferred option with regard to air quality. SCDC and SCC recognised that, whilst some additional properties would be affected by noise from the Option 4 route, these are significantly more limited in number and to a large extent these new receptors are at a considerably greater distance from the road than would be the case with other options. SCDC and SCC noted that Option 4 would result in an improved setting for heritage assets within Stratford St Andrew and Farnham (in comparison with the one village bypass) and that this should be afforded significant weight. SCDC and SCC considered that, while the two village bypass is more extensive than the one village bypass, having a much larger total footprint, the ecological and landscape sensitivity of the receiving land is, for the most part, less than that of the one village bypass route.

6.4.47 Overall, it was considered that Options 1 and 2 would not have resolved the safety concerns and congestion issues associated with the bend at Farnham, nor the amenity impacts of increased traffic, which would have been exacerbated during the construction of the Sizewell C Project. Additionally, Option 2 would have resulted in the demolition of a designated heritage asset and properties. Options 3 and 4 were considered effective at resolving the safety concerns associated with the bend at Farnham whilst also improving traffic flow, alleviating congestion and reducing the amenity impact of HGVs. However, Option 3, would have introduced severance between Farnham and Stratford St Andrew, even though a pedestrian/cycle link between the two villages, passing under the bypass at the River Alde, would have been included.

6.4.48 Following Stage 2, SZC Co. reviewed comments and decided to progress with the two village bypass.

6.4.49 The two village bypass design was slightly amended for the Stage 3 consultation to reduce the environmental impact of the scheme.

6.4.50 The proposed western roundabout was relocated circa 150m further east to reduce the potential impact on Stratford Plantation, which is within Glemham Hall registered park and garden. The retention of established vegetation and the introduction of appropriate landscape proposals was proposed to mitigate impacts on this asset.

6.4.51 The route was realigned considerably further south to avoid any impact on Nuttery Belt and Pond Wood, both of which would have been adversely affected by the Stage 2 alignment.

6.4.52 The proposed bridge near Pond Barn Cottages at Stage 2 (which passed over the proposed bypass route and would have been prominent in the landscape) was removed given the low traffic volume on the (unnamed) minor road for Pond Barn Cottages. Instead, the route of the two village bypass was revised, so that the minor road meets the bypass at an at-grade staggered crossroads to reduce the earthworks needed at this location, while retaining access across the bypass.

6.4.53 The Stage 2 scheme proposed an underpass beneath the bypass for the track leading southeast from Farnham Hall towards Walk Barn Farm. To reduce earthworks at this location, access for Farnham Hall was proposed via the existing track to the west, the new at-grade junction described above, and a new access track that would run along the southern side of the bypass.

6.4.54 The eastern roundabout was relocated from the A12/A1094 Friday Street junction, so that it can largely be built off-line to minimise traffic management requirements, and potential disruption to A12 and A1094 traffic flows during construction.

i. Stage 3 consultation responses

6.4.55 The feedback from the Stage 3 consultation was largely positive, with the majority of respondents supporting the two village bypass of Stratford St Andrew and Farnham, describing the bypass as long overdue. Many respondents stated that Stratford St Andrew and Farnham are already struggling with increased traffic levels.

6.4.56 A number of respondents still strongly advocated the four-village bypass that includes Marlesford and Little Glemham, arguing that building the two village bypass would be insufficient.

6.4.57 Other emerging themes concerned the impact on local woodland (Foxburrow Wood in particular) and access for pedestrians and local cyclists to the existing amenity and recreation routes.

d) Response to Stage 3 and proposals at Stage 4

6.4.58 Following the completion of Stage 3 consultation, a number of minor changes were made to the two village bypass for the Stage 4 consultation. These minor amendments are detailed in full within **Volume 5**, **Chapter 3** of the **ES** but are summarised as follows:

- the repositioning of the western roundabout;
- the inclusion of additional land to accommodate flood compensation land;
- a higher alignment over the River Alde to enable agricultural movements between land either side of the bypass;
- an extension of the site boundary along Tinker Brook;
- a change to the site boundary at the Farnham Hall track to exclude the north-west corner of Foxburrow Wood; an extension of the site boundary to the south of Foxburrow Wood in connection with the proposed pedestrian bridge crossing over the bypass;
- positioning of the bypass in a deeper cutting to help facilitate this bridge and reduce noise impacts on Farnham Hall and surrounding properties;
- at the north-eastern roundabout, an extension to the site boundary to accommodate potential changes to the drainage proposals; and
- the inclusion of additional land to accommodate the existing Farnham Hall track to enable it to be upgraded from a footpath to a bridleway.

6.4.59 The proposed expansion of the red line to the western end of the bypass is proposed to facilitate the minor changes to the positioning of the western roundabout, and because it is now proposed as a four arm rather than three arm roundabout.

6.4.60 The extension of the site boundary along Tinker Brook is proposed in order to accommodate farm traffic via the roundabout, thus reducing the interaction with the national cycle route travelling north to south across the A12. The extension to the red line avoids encroachment into Stratford Plantation which is designated as Historic Parks and Gardens.

6.4.61 At the Farnham Hall Track, the proposed red line changes are to:

- exclude the north-west corner of Foxburrow Wood; and
- provide additional land required to facilitate works to ramp up to the proposed bridge.

6.4.62 The proposed bridge at the Farnham Hall Track would allow pedestrian, cyclist and equestrian access over the bypass, which would be in a cutting at this point. Placing the bypass in a 4.5m deep cutting would help to reduce the noise impact on Farnham Hall, and its nearby neighbouring properties.

6.4.63 To allow for sufficient headroom above the bypass, the proposed bridge would be 2.5m above existing ground levels. West of the bypass, the existing track would rise on a 2.5m high embankment that would further reduce noise impacts from the bypass on the neighbouring properties. The cutting would also reduce the visual impact of the bypass on this part of its route. East of the bypass, the track would ramp back down to existing ground levels.

6.4.64 The additional land on the A12 would be required following design development of the proposed A12/A1094 roundabout. The extension into the field to the south-east is to allow for a revised Drainage Strategy following feedback from Stage 3 consultation.

6.4.65 A preliminary environmental assessment of the design changes was presented as part of Stage 4 Consultation which is detailed in **Volume 5**, **Chapter 3** of the **ES**.

i. Stage 4 consultation responses

6.4.66 The Stage 4 consultation raised similar issues to those at Stage 3. The main themes of response related to the environmental concerns about the two village bypass, with the primary concern being a perceived impact on air quality in the area. Another common concern was the effect of the bypass on Foxburrow Wood in terms of pollution, and whether the cuttings would affect the hydrology of the wood.

6.4.67 Other environmental concerns highlighted include:

- an increase in light pollution;
- an increase in noise pollution and vibrations from traffic passing by;
- the impact on wildlife and ecology; and
- the visual impact of the bypass.

6.4.68 Some respondents were concerned that the mitigation offered would be inadequate as the elevated height of the new non-motorised user overbridge east of Farnham Hall would impact on the privacy of nearby properties. Concern was raised that the screening proposed would be ineffective for much of the year, and may not successfully grow in the first place.

6.4.69 However, many respondents remained positive about the two village bypass as they felt that it will improve traffic on the A12, and provide greater safety than the existing route.

6.4.70 The Councils welcomed SZC Co.'s commitment to a two village bypass. However, Farnham with Stratford St Andrew Parish Council objected to the proposed alignment of the two village bypass at the Stage 3 consultation, and suggested an alternative route.

6.4.71 The alternative alignment put forward by the Parish Council suggests routing the two village bypass (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.

6.4.72 The alternative alignment put forward by the Parish Council was reviewed, taking into account the impacts on woodland, environment and nearby receptors as well as operational matters, but it was not considered to be a better solution.

6.4.73 Any proposed bypass must offer road users a viable, alternative route that would be perceived as quicker than travelling through the villages in order to provide the relief sought to these local communities. The route proposed by SZC Co. is shorter than the alternative alignment put forward by the Parish Council and is therefore more likely to encourage road users to bypass the current A12 route through Stratford St. Andrew and Farnham.

6.4.74 The alternative alignment would be closer to Walk Barn Farm than the SZC Co. proposal is to any neighbouring property. The proposed alignment has been routed as far away from residential properties as possible, whilst still avoiding the environmentally important woodland and gardens.

6.4.75 The Parish Council's alternative alignment would have significant effects on Friday Street Farm, as it would bring the two village bypass closer to the Farm Shop and Cafe. It would sever the fields west of the car park of the farm, from which views of the fields where fresh produce is grown is important to the Farm's commerciality, and there would be a potential impact on the 'pick-your-own' area to the south of the Farm Shop. The alternative

alignment could therefore have a negative impact on the commercial success of this local business. Given a number of respondents at Stage 3 were concerned that the two village bypass would damage local businesses, forcing some of them to close, this is a significant factor for the viability of this local business.

6.4.76 The route proposed by SZC Co. would avoid the Foxburrow Wood ancient woodland and Stratford Plantation, which is part of Glemham Hall Registered Park and Garden. By passing Foxburrow Wood on its east side, the alternative alignment would bisect Palant's Grove, which would be permanently lost as a result. It is also anticipated that with the alternative alignment it would be difficult to maintain a 15m buffer to Foxburrow Wood, which is achievable with SZC Co.'s proposal.

6.4.77 Farnham with Stratford St Andrew Parish Council have questioned the validity of the ancient woodland designation of Palant's Grove based on reports undertaken in 1994 analysing the origin of the woodland. However, both the Department for Environment, Food and Rural Affairs, and Natural England confirm that the entirety of Foxburrow Wood and Palant's Grove are designated as ancient woodland, as they are both on the Ancient Woodland Inventory. In any event, both Foxburrow Wood and Palant's Grove are a County Wildlife Site. Therefore, any permanent loss of Palant's Grove would be a loss of important habitat resulting in irreversible harm. The bisecting of Palant's Grove would also reduce ecological connectivity. It was therefore considered that the proposed SZC Co. route for the two village bypass is preferable to that proposed by Stratford St Andrew Parish Council.

e) Response to Stage 4 and proposals for Development Consent Order application

6.4.78 The design for the proposed development is described in **Volume 5**, **Chapter 2,** and is illustrated in **Figure 2.1** of the **ES**. Since the Stage 4 consultation, the following updates have been made:

- the extent of land take required for the construction and operation of the proposed development has been reduced by 15 hectares where practicable, reducing the areas of land required from land holdings and reduce habitat loss. Further consideration was also given to the areas of land required permanently for the proposed development as well as those required to facilitate construction and would be returned to agricultural use upon completion of construction;
- An increase in length of the bridge over the River Alde from 36m to 60m to reduce permanent loss of flood plain. In addition, there have been

amendments to the design of the culverts along the embankment either side of the bridge, choosing bigger culverts, to lessen the impact on watercourse banks and improving afflux in the event of a flood event. This allowed for the reduction in areas which could be used for flood compensation;

- Refinements of ramps associated with the Foxburrow Wood footbridge to avoid earthworks within 15m of Foxburrow Wood County Wildlife Site and Ancient Woodland, and reduce potential impacts on this site;
  - accommodation access tracks and private means of access have been added / refined to reduce severance impacts. The changes include:
  - realignment of the existing accommodation access track connected to Parkgate Farm which would be diverted to pass under the new road on the western side of the River Alde. A livestock path would be provided to the west of the proposed River Alde overbridge to allow cattle to move north and south of the route of the bypass. On the east side of the river, east of the existing crossing, a diversion will be provided from the existing accommodation access to pass beneath the River Alde overbridge, and then directed east along the embankment until it meets its existing alignment. The bridge would maintain a headroom clearance of 6m from river bank level to the underside of the bridge, to allow its use by agricultural vehicles.
  - Provision of an accommodation track on the south side of the proposed route to maintain access to Pond Barn Cottages.
- addition of a mammal culvert to the east side of the River Alde overbridge to improve ecological connectivity across the route;
- additional landscaping has been added to reduce habitat fragmentation and improve biodiversity (including enhancement of planting for bat-hop overs and provision of new ponds); and
- refinement of proposed PRoW diversions, as well as inclusion of temporary diversions, to ensure connectivity across the proposed development during both construction and operation. Further details are shown on the Rights of Way plans included in Book 2.

6.4.79 The design for the proposed development is described in **Chapter 2** of **Volume 5** of the **ES**.

6.5 Conclusions – Development Consent Order Submission

6.5.1 This report presents the criteria for site selection for the proposed two village bypass, and the design evolution which resulted in the final proposed alignment.

6.5.2 The two village bypass as proposed complies with relevant policies of NPS EN-1 and NPS EN-6, and represents the best form of associated development to support the construction of Sizewell C, whilst also providing a legacy benefit to the area.

6.5.3 There would be adverse impacts as a result of the two village bypass, but these would be minimised through mitigation measures, and outweighed by the benefits of the bypass, and the benefits of meeting the need for energy infrastructure and job creation. It would also provide long-term benefits to the existing road network in and around Farnham, and therefore complies with the general principles of the NPS.

6.5.4 The DCO is accompanied by an **ES** which assesses each of the associated development sites (including the two village bypass) in detail. **Volume 5** of the **ES** concerns the two village bypass, and describes the aspects of the environment likely to be significantly affected by the proposal, including direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects at all stages of the project, and also of the measures envisaged for avoiding or mitigating significant adverse effects.

6.5.5 **Volume 5**, **Chapter 3** of the **ES** and this Site Selection Report include an assessment of the potential alternatives for relieving traffic and congestion on the A12, particularly at the Farnham bend, and the design evolution of the two village bypass. This has been informed by environmental, social and economic effects, together with technical solutions to inform the mitigation to be included. Thorough public consultation and environmental assessment has been undertaken throughout the process which has resulted in the selection of the two village bypass as the preferred solution for the impacts on the A12, and the proposed route as the best available in terms of its environmental impacts.

6.5.6 Consequently, the proposed two village bypass has been designed in a manner which addresses the local and regional impacts on the road network and surrounding environment, whilst also supporting the construction of Sizewell C in accordance with NPS EN-1 and NPS EN-6.

7. Sizewell Link Road

7.1 Introduction

7.1.1 This section presents a description of the site selection process which SZC Co. undertook in relation to the proposed Sizewell link road. This section is structured as follows:

- Site requirements.
- First filter stage.
- Second filter stage.
  - Stage 3.
  - Stage 4.
  - DCO proposals.
- Conclusions.

7.2 Site requirements

7.2.1 The initial transport assessments predicted that the B1122 would be the main route for construction traffic travelling to the development site. Therefore, the rationale and purpose of the Sizewell link road is to relieve the B1122 from the anticipated construction traffic associated with the main development site, and consequently reduce traffic passing through Theberton and Middleton Moor.

7.2.2 The link road should also substantially reduce traffic flow through Yoxford by removing the need for traffic from the south to access the B1122 from the A12 at Yoxford.

7.2.3 The route should be as short as is practical from the A12, whilst observing environmental constraints, in order to reduce journey times compared with the use of the B1122 to make it an attractive option for motorists to use.

7.3 First filter stage

a) Stage 2 proposals and consultation feedback

7.3.1 No direct link road from the A12 to the main development site was proposed in the Stage 1 or Stage 2 consultation.

7.3.2 At Stage 2, consultation concerns were raised regarding the impact of construction traffic on the B1122. Respondents made specific reference to proposals for a new road, known as D2, which had been put forward to facilitate the construction of the Sizewell B power station in the 1980s,although the route was never built.

7.3.3 At Stage 2 a number of other highway improvements were presented which could help mitigate the impacts of Sizewell C construction traffic on residents and road users. Refer to **Chapter 3 of Volume 7** of the **Environmental Statement** for full details regarding this. Of relevance to this chapter however, the following highway improvements were proposed at the Stage 2 consultation:

- speed limit reductions.
- improvement of the B1122 to the west of the junction with Mill Street.
- pedestrian enhancements in Theberton.
- improvement to the alignment of the B1122 between Theberton and the Sizewell C construction site entrance.

7.3.4 Further details on the improvements proposed is provided in the following sections as well responses from consultation.

7.3.5 In addition to providing comments on the options presented, there were also consultation responses which raised concerns regarding the impact of construction traffic on the B1122. The parish councils at Yoxford, Theberton and Middleton-cum-Fordley, together with Theberton and Eastbridge Action Group, were opposed to using the B1122 as the main route for Sizewell C construction traffic. Some respondents made specific reference to proposals for a new road, known as D2, put forward to facilitate the construction of the Sizewell B power station in the 1980s, however, the route was never built.

i. Speed limit reductions

7.3.6 The current speed limit on the B1122 between the A12 at Yoxford and the proposed access road to Sizewell C varies along the road between 30 miles per hour (mph), 40mph and 60mph zones.

7.3.7 The Stage 2 consultation proposed a reduction in speed limit to a maximum of 40mph on the stretch between Middleton Moor and Theberton to be more in keeping with the characteristics of the road in this location. This would have helped improve safety and reduce the noise arising from vehicle movements along this stretch.

Consultation feedback

7.3.8 Compliance with existing speed limits is a concern for residents on the B1122 and measures to help improve compliance with current and any future amended speed limits were supported.

7.3.9 However, this option would have required the support and sponsorship of SCC as the highway authority, in consultation with Suffolk Constabulary. Discussions with SCC, Suffolk Constabulary and other interested parties on the speed limits along the B1122 were ongoing at the Stage 2 consultation.

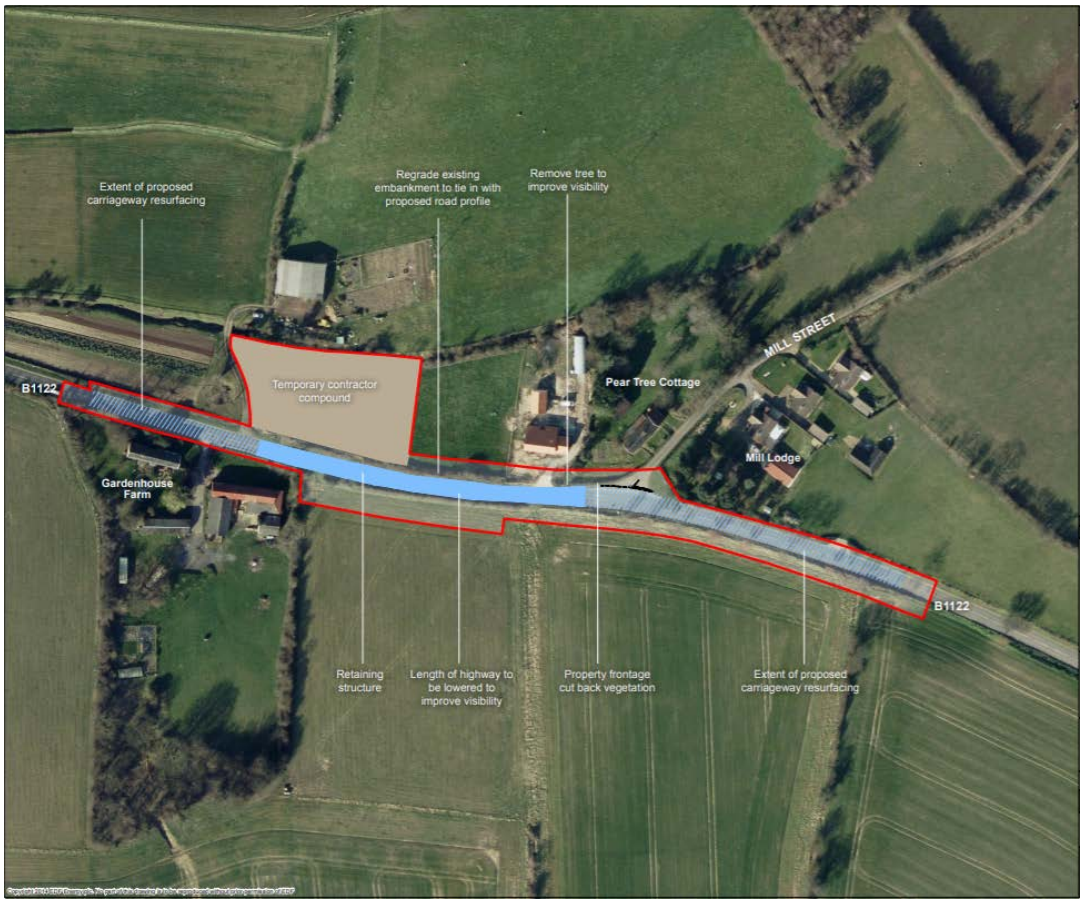
7.3.10 Following Stage 2, further options for this stretch of road evolved into proposals for the Sizewell link road and an alternative Theberton bypass dependent on the proposed freight management strategy of the project.

ii. B1122 west of the junction with Mill Street

7.3.11 At Stage 2, SZC Co. proposed to improve the vertical alignment of the B1122 to the west of the junction with Mill Street, improving visibility for traffic on the B1122 and traffic exiting Mill Street (**Plate 7.1**). The proposed improvement works would have involved the reconstruction of this part of the B1122 to improve visibility for B1122 traffic and vehicles emerging from Mill Street.

7.3.12 It was anticipated that there would have been no significant environmental effects resulting from the works with the adoption of measures during construction to maintain satisfactory level of environmental protection, whilst minimising the potential for disturbance from construction activities as far as reasonably practicable.

Plate 7.1: Stage 2 – Proposed improvement to the B1122 to the west of the junction with Mill Street



Consultation feedback

7.3.13 Following feedback from Stage 2 regarding this small-scale improvement at the B1122/Mill Street junction, these works were carried forward to Stages 3 and 4 as part of the rail-led Freight Management Strategy that included Theberton bypass.

iii. Pedestrian enhancements in Theberton

7.3.14 At Stage 2 it was proposed to create a new pedestrian crossing south of Pump Cottages and a footpath on the eastern side of the B1122 to connect to the existing footway outside Ivy Cottages in Theberton.

7.3.15 In order to re-connect with the existing footways further south, a further new pedestrian crossing on the B1122 was proposed at the point where the footway outside of Ivy Cottages ends. It would have then connected with the existing footpath on the western side of the B1122 opposite the Church of St

Peter through the addition of a new short section of footpath running just past the access to The Old Manor.

7.3.16 The implementation of both the enhancement near Pump Cottages, and the proposed pedestrian crossing near the Church of St Peter would have, in combination with existing footpaths, created a pedestrian footpath connection along the length of the village, removing the need to walk in the road at any stage. It was considered that these works would have improved pedestrian access through Theberton (**Plates 9.5 and 9.6**).

7.3.17 It was anticipated that there would have been no significant environmental effects as a result of those works with the adoption of measures during construction to maintain satisfactory levels of environmental protection, whilst minimising the potential for disturbance from construction activities, as far as reasonably practicable.

Consultation feedback

7.3.18 Some respondents supported the proposals as necessary and supported the efforts to make crossing the road safer, suggesting it is an essential improvement. A few suggested they were necessary at present as the road could already be difficult to cross.

7.3.19 Others opposed it suggesting the proposed measures were inadequate at mitigating safety issues, and the proposed footpaths and the crossing did not take into account current pedestrian flows. Some did not want to have the additional lights that they expect would come from a pedestrian crossing.

7.3.20 Some suggested that the crossing should be a pelican crossing rather than a zebra crossing to ensure safe access, or that the crossing should be adjusted to make it easier for schoolchildren to cross and reach the bus stop opposite Doughty Wylie Crescent.

7.3.21 These proposals were however not included in Stage 3 or 4 as the Sizewell link road or Theberton bypass proposals obviates the need for them.

iv. Alignment of the B1122 between Theberton and the Sizewell C construction site entrance

7.3.22 The existing horizontal and vertical alignment of the B1122 immediately east of Onner's Lane and Moat Road provides poor forward visibility for its 60mph speed limit. The visibility would remain poor, even if speed limits were reduced to 40mph on this stretch of the B1122. Therefore, it was proposed at Stage 2 to modify the alignment of the B1122 at this location to improve forward visibility for motorists.

7.3.23 Implementation of the scheme would have required some earthworks and probably the loss of a small number of existing trees from Fishpond Grove.

7.3.24 The land area shown hatched in red on **Plate 7.2** of this appendix was an indicative location for a temporary contractor's compound to deliver these works and the other proposed improvements; no permanent development would have occurred at this location.

Plate 7.2: Stage 2 – Improvement to the alignment of the B1122 between Theberton and the Sizewell C construction site entrance.

7.3.25 It was anticipated that there would have been no significant environmental effects as a result of the works with the adoption of measures during construction to maintain satisfactory levels of environmental protection, whilst minimising the potential for disturbance from construction activities, as far as reasonably practicable.

Consultation feedback

7.3.26 A few respondents supported the proposed realignment as a measure to improve visibility.

7.3.27 A greater number of respondents expressed concern about the proposed realignment, suggesting it will only make vehicles go faster and make it less safe in general. A few did not believe that the proposed realignment would have had the desired effect.

7.3.28 These proposals were however not included in Stage 3 or 4 as the Sizewell link road or Theberton bypass proposals obviates the need for them.

7.4 Second filter stage

a) Stage 3

i. Proposals at Stage 3

7.4.1 Following Stage 2 consultation, SZC Co. considered two alternative strategies for freight transport; a road-led and a rail led strategy.

7.4.2 As noted above, in response to Stage 2 consultation, concerns were raised against using the B1122 as the main route for Sizewell C construction traffic.

7.4.3 SZC Co. recognised the environmental impacts from, in particular, noise, vibration and severance from the Sizewell C traffic on the B1122 do require mitigation under both the rail-led, or the road-led freight management strategies. There were also concerns expressed at public consultation by TEAGS, Theberton Parish Council and the B1122 Action Group that the B1122 road structure would not be able to sustain the loads imposed by Sizewell C heavy goods vehicle (HGV) construction traffic. Regular and possibly significant highway maintenance could be required. This maintenance might have necessitated overnight working to reduce disruption, major traffic management measures (to maintain a safe working environment) or even temporary closure of the B1122. Such measures could impact on B1122 communities and, as alternative routes for HGV to the Sizewell C construction site would be needed during such maintenance, other communities in the area. These factors were important considerations for SZC Co. in deciding to propose a new road to relieve the B1122 of the additional traffic volumes associated with Sizewell C construction.

7.4.4 Therefore, as part of the design development process, two options were considered for the two strategies.

ii. Improvements at Theberton and Mill Street/B1122 junction improvements

7.4.5 As the rail-led freight transport strategy would have resulted in lower volumes of Sizewell C construction traffic on local roads, the Theberton Bypass was

proposed as an alternative to the Sizewell link road (proposed in the road-led Freight Transport Strategy).

7.4.6 The Theberton bypass proposals comprised the eastern end of the Sizewell link road only, and would have reduced the potential environmental impacts through Theberton associated with increased traffic levels such as severance, noise and vibration impacts on residents.

7.4.7 In addition, SZC Co. proposed the small scale improvement at the B1122/Mill Street junction.

7.4.8 These proposals replaced the small scale pedestrian enhancements in the village that were proposed at Stage 2.

iii. Sizewell link road

7.4.9 Following further technical analysis and as a result of Stage 2 consultation responses, the option of a link road (referred to as the 'Sizewell link road') was developed to assist in accommodating the anticipated construction traffic associated with the Sizewell C main development site, under a road-led strategy.

7.4.10 In order to achieve the most benefit of alleviating traffic impacts associated with construction of Sizewell C, the location of the link road would need to be positioned such that the road could accommodate construction workers arriving by car, park and ride buses from both the proposed northern and southern park and ride sites, and all heavy goods vehicles (as well as some light goods vehicles) delivering freight to the construction site. The link road would be open to public use as well as construction traffic associated with the Sizewell C Project.

7.4.11 In considering appropriate locations for the link road, the **Transport Assessment** (Doc Ref. 8.5) predicts that most construction traffic would travel along the A12 and reach the main development site via the B1122, through Theberton and Middleton Moor. By providing a link road in the vicinity of these communities, it could reduce traffic flows on the B1122.

7.4.12 Having identified the benefits of diverting traffic from the B1122, SZC Co. commenced a site selection exercise to identify potentially suitable route corridors. Potential routes for the Sizewell link road were originally identified from a combination of desk-based studies and field surveys within an area south of Saxmundham to the south of Yoxford.

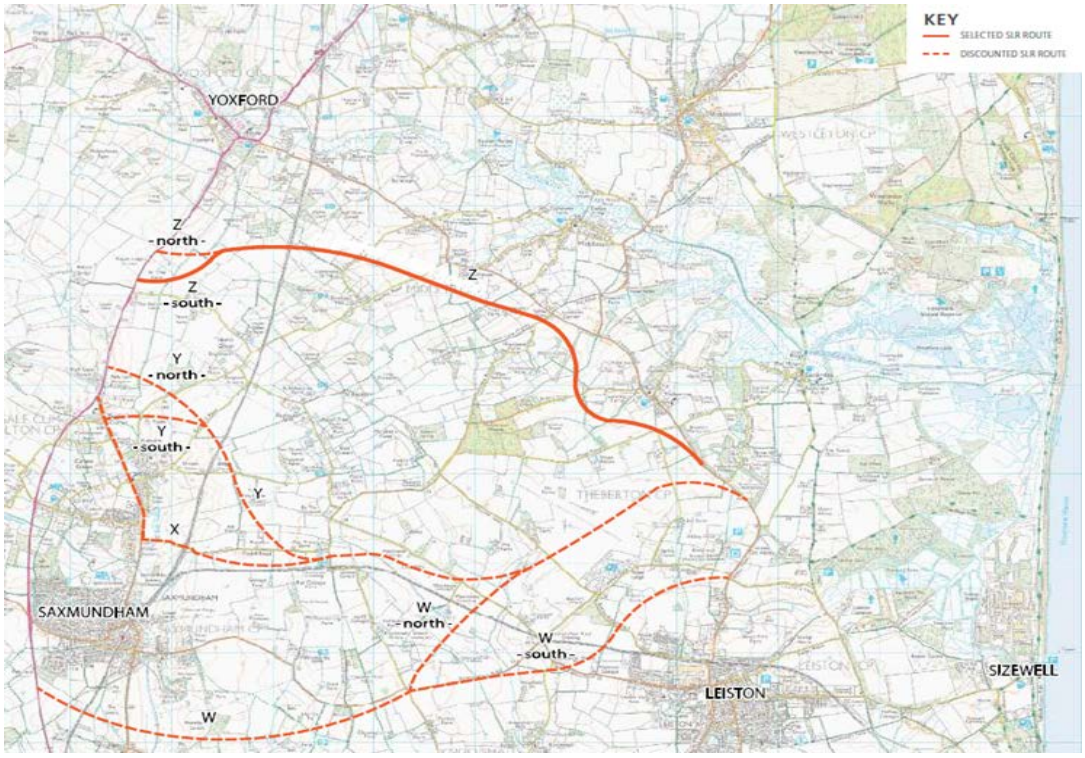
7.4.13 Four routes and alignments (north, south) were considered to be potentially suitable, as shown in **Plate 7.2** and explained below. Route Z south proceeded as an option in the Stage 3 consultation.

- Route W (W south and W north)
  - Route W south was similar to the Route D2 which was previously proposed for the construction of Sizewell B in the 1980s. The route would have started at the A12, just south of Park Farm Covert, then would have climbed, crossing over the East Suffolk line via a new bridge of approximately 15 – 20 metres (m) span to meet the B1121 at grade with a new roundabout. Travelling east, it would have crossed the River Fromus on a new bridge, and then passed just south of Bloomfield's Covert. It would have continued east, running just south of and parallel to the B1119 Saxmundham Road before crossing a watercourse near Woodfield Pit. It would then have run south of Leiston House Farm, and crossed Saxmundham Road between the farm and Highbury Cottages. Turning north, it would have crossed the Saxmundham to Leiston branch line at a new level crossing. It would have continued north, and just to the east of Buckle's Wood. It would have crossed Buckleswood Road at grade, and followed broadly the same alignment as the proposed green rail route, see **Volume 9** of the **ES**, until it reached Abbey Road where Abbey Lane and Lover's Lane meet the B1122.
  - Route W north was a hybrid route as it would have utilised the western section of the Route W south alignment and the eastern section of Route X (discussed below). The section of road joining the two routes would have run north of Clouting's Farm, north of Osierground Covert, but south of Westhouse Farm before crossing the Saxmundham to Leiston branch line at a level crossing and a watercourse, before joining Route X.
- Route X
  - Route X would have started on the B1121 in Saxmundham, north of Clayhills Road and opposite Carlton Road. The route would have risen up to cross firstly the River Fromus, and then the East Suffolk line on new bridges. It would have then turned south to cross Clayhills Road, running parallel and just north of the Saxmundham to Leiston branch line past Knodishall Crossing, Kelsale Covert and Westhouse Cottage. It would have turned north from the railway near Westhouse Crossing, crossing a watercourse and then headed north-east, following the alignment of the former RAF Leiston runway to the north-west of the Cakes and Ale caravan

park. North of Hill Farm, the route would have turned east to join the B1122 at the proposed new roundabout forming the main construction site entrance.

- Route Y (Y south and Y north)
  - Route Y would have run north of Kelsale and had two alternative connections to the A12 at the western end: Route Y south would have started at Dorley's Corner just south of Kelsale Place. It would have continued east, just north of Tiggins Lane, and then south to cross Butcher's Road at grade; Route Y north would have commenced on the A12 between Park Gate Farm and Laurel Farm. The route would have continued to the south-east, bridging over Tiggin's Lane, and then met Butcher's Road, also at grade, at the same point as Route Y south.
  - South of Butcher's Road, the route would have been common to both alignments. It would have bridged under the East Suffolk line just north of Bridge Farm and continued south to the west of the White House, east of Hill Farm and west of Oak Tree Farm. From Knodishall Crossing east, it would have followed the same alignment as Route X.
- Route Z (Z south and Z north)
  - Route Z was the furthest north and is the closest to the B1122. This route also had two potential alignments that were initially considered to tie in to the A12 at its western end. Route Z north would have started from the A12 north of Kelsale Lodge Cottages and run east to cross the East Suffolk line on a new overbridge south-east of Bobbett's Wood. Route Z south would start from the A12 just north of Town Farm Lane then turn north past Buskie Farm and cross the East Suffolk line in the same location as Route Z north.
  - From the railway bridge, there would be a single Route Z alignment (common to the north and south alignments). The route would head east, crossing Littlemoor Road and Fordley Road. The route would continue to the south of Gardenhouse Farm, broadly parallel to the B1122 past Valley Farm near Anneson's Corner. It would then pass through Plumtreehills Covert, crossing Pretty Road and continue to the south-west of Theberton. After crossing Moat Road, the route would join the B1122 alongside Brown's Plantation.

Plate 7.2: Location of Sizewell link road routes considered.



7.4.14 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. This is summarised in **Table 7.1** and below.

- Route W – this route would have likely required engineering works to traverse the landform which would have had a significant adverse effect on the existing landscape character and there was the potential for the significant of several heritage assets to be affected adversely as a result of the route's alignment. As such, the route was not considered suitable.
- Route X – this route would have likely had the greatest effect on the existing road network and substantial engineering works would have affected the local landscape character. The overall effect on increased traffic on the road networks had the potential to have significant adverse effects on the amenity of local residents and listed buildings. As such the route was not considered suitable.
- Route Y – the complexity of crossing the local road and PRoW networks and the effects on landscape character to the north of Kelsale was considered to be potentially significant and therefore this route was not considered suitable.

- Route Z – this route would connect with the A12 away from existing settlements where the effects on local residents would be minimised. Elsewhere the route is generally positioned away from existing properties. Effects on the existing road network are likely to be minimal and Route Z (South) utilities the existing topography where possible. As such, Route Z (south) was identified as SZC Co.'s preferred route.

Table 7.1: Sizewell link road environmental comparison table

Route	Key Environmental Factors					
	PRoW	Roads and Railway	Heritage Assets	Landscape Designation	Landscape Character	Residential Amenity
W (north) 8170m	12	6 roads 2 railways	Potential effects on the setting of a number of historic assets (Grade I, II and II*) along each route. Key assets to consider include Hurts Hall and Leiston Abbey.	Passes in close proximity to the north of 1 SLA.	No landscape characteristics have been identified that would be considered to be of a greater value than will be locally appreciated.	3 residential areas: • to the south of Hurts Hall; • to the west of Leiston; and • at the connection to the B1122.
W (south) 7478m	14	6 roads 2 railways				
X 6632m	4	roads 1 railway* * Crossing of railway would require substantial engineering works.	Potential effects on the setting of a number of historic assets (Grade II and Grade II*) with the extent of Saxmundham.	n/a	No landscape characteristics have been identified that would be considered to be of a greater value than will be locally appreciated.	Within the extent of Saxmundham.
Y (north) 8041m	5	8 roads 1 railway	Potential effects on the setting of Oak Tree Farmhouse (Grade II).	n/a	No landscape characteristics have been identified that would be considered to be of a greater value than will be locally appreciated.	Residential properties at Bridge Farm and Orchard House.
Y (south) 7786m	5	8 roads 1 railway				

Route	Key Environmental Factors					
	PRoW	Roads and Railway	Heritage Assets	Landscape Designation	Landscape Character	Residential Amenity
Z (north) 6390m	12	5 roads 1 railway	Potential effects on the setting of a number of historic assets (Grade II) along each route. Key assets to consider include Dovehouse Farmhouse, Theberton Hall and The Gates / Walls at Theberton Hall.	Passes in close proximity to the south of 1 SLA.	No landscape characteristics have been identified that would be considered to be of a greater value than will be locally appreciated.	2 residential areas: • to the south of Fir tree Farm and north of Buskie Farm; and • to the south of Valley Farm and Annesons Cottages.

7.4.15 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 SZC Co.'s proposals.

7.4.16 Route D2 (which is similar to Route W south described above) 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 SZC Co. as a potential route for the Sizewell link road.

7.4.17 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 (Sizewell C, Route D2 and B1122 Study–December 2014) (Ref 4.7) 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."

7.4.18 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, SZC Co. did not consider it to be a viable alternative to proposed Route Z south.

Stage 3 consultation feedback

7.4.19 The Councils 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, the Council's accepted that Route X and Y would have had significant impacts on residential areas in Kelsale and the north of Saxmundham.

7.4.20 The Councils requested comprehensive highways analysis, consideration of other environmental matters (such as landscape and visual, heritage, surface water and flood risk and ecological assessments) and consideration of any impacts on allocations within the District Council's Local Plan (Ref. 4.8), and any other potential developments.

7.4.21 SCC as the Local Highways Authority requested that SZC Co. 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. The Councils noted that transport benefits should be evidenced through modelling of capacity, road safety and journey times.

7.4.22 Following the completion of Stage 3 consultation, SZC Co. reviewed the comments and undertook further analysis of the alternative routes to ensure the most appropriate alignment was proposed.

7.4.23 The findings of these environmental and planning assessments are summarised below.

iv. Route W

7.4.24 With regards to Route W, the engineering works to traverse the landform were considered likely to have a significant adverse effect on the existing

landscape character due to the earthworks necessary to cross additional areas of undulating landform and the requirement for a second railway crossing (although engineering works would be required for Route Z South as well, it is anticipated that these would be less adverse than Route W due to the differing landscape within which each route is located). Route W (North & South) traverses a landscape typically characterised by a series of small to large scale arable and pasture fields, intersected by a network of B-roads and PROWs with occasional villages and numerous dispersed hamlets and farmsteads. Blocks of ancient semi-natural woodland are scattered throughout the area. The alignment of Route W (South) would have intersected one area of Ancient Woodland. The western section of the route comprises the landscape between the A12 and Hill Farm. Here, the topography of the landscape is formed by a series of narrow valleys that are well-vegetated. This creates a sense of intimacy that would have been disrupted by the necessary engineering works that would have been required to facilitate a highway through this area, which could have resulted in significant adverse effects. It was also considered that the route could have had an adverse effect on the setting of the existing nearby heritage assets including Hurts Hall and Leiston Abbey as they are situated approximately 450m north and 300m north of Route W respectively.

7.4.25 The visual impact of a new road from the vicinity of properties would be significant. The route rises out of the valley into quiet, and more rural country characterised by arable farmland, hedgerows, and copses. The route crosses through quiet open countryside for the majority of its length, and mitigating the significant disturbance that the road and heavy traffic would bring to the area would be difficult.

7.4.26 At the point where the route approaches the level crossing on the B1119 it could either branch south along the same alignment as the green rail route, or north around the Cakes and Ale Caravan Park and Leiston Abbey. Either way, the road would have to pass over the Sizewell branch line which would be a further visual impact issue.

7.4.27 The length of Route W was longer than Routes X and Z. Route W would also have impacted a greater number of PRoW, roads and railways compared to the other routes considered. Route W was located to the south of Saxmundham. Whilst Route W was the most southerly of alignments considered, and therefore best placed to intercept the Sizewell C heavy goods vehicles (HGV) from the south, it would have required significant engineering to climb up to cross the East Suffolk line. Route W would also not have as effectively relieved B1122 communities of traffic as more northerly routes.

v. Route X

7.4.28 Route X proposed to utilise the existing B1121 to take traffic off the A12. The route would have required substantial engineering works (comprising earthworks and bridge structures) to cross the East Suffolk line at a height that would have achieved sufficient clearance, which would have significantly affected the local landscape character (although engineering works would be required for Route Z South as well, it is anticipated that these would be less adverse than Route X due to the greater sensitivity of the landscape immediately around Saxmundham).

7.4.29 Furthermore, the overall effect of increased traffic, particularly HGV on the B1121 north of Carlton Road was considered likely to have had a significant effect on the amenity of local residents along the B1121 north of Saxmundham. While there would be no Sizewell C HGV or buses through Saxmundham, the Sizewell C car and LGV traffic using this route could have impacted listed buildings in Saxmundham. This route is likely to have the greatest effect on the existing road network.

7.4.30 Route X would pass in close proximity to seven Grade II listed buildings and one Grade II* listed building. It was judged that as the proposed route followed an existing B road, there would have been limited potential to significantly affect the significance of listed buildings which would have been in close proximity. However, there would have been potential for significant effects due to increased traffic and HGV activity on designated heritage assets immediately adjacent to the route at the junction of the B1121 and Clayhill Road. Furthermore, significant effects may have arisen from any highway works and tree removal.

vi. Route Y

7.4.31 For route Y, the proposed junction with the A12 was located near existing settlements, and the assessments noted that there was potential for significant effects on local residential amenity on residential properties near the junction with the A12 at Dorley's Corner. This included significant adverse effects for local residents at Bridge Farm and Orchard House, who also has the potential to be significantly affected by required engineering works in their vicinity. It was also considered that the likely effects on landscape character to the north of Kelsale would have been potentially significant, due to the complex combination of existing landscape features in the area and the degree of change that would have been required to accommodate the route in the area north of Kelsale. This would have had a greater effect on landscape character in the vicinity of the A12 than Route Z.

7.4.32 Route Y is positioned to the north of Saxmundham and Kelsale and well placed to intercept traffic from the south, using the existing Saxmundham bypass, and from the north. However, it was considered that the connection point with the A12 would have been constrained as visibility standards on the A12 may be difficult to achieve. The engineering works needed to cross Tiggin's Lane, Butchers Road and the PRoW networks were considered to be out of character with the area that is characterised by country lanes that follow field boundaries.

vii. Route Z

7.4.33 This route commences from the A12 between Saxmundham and Yoxford, and two options for the initial 1km have been considered prior to the route crossing the East Suffolk line. The southern option follows the natural contours of the landscape, retaining the higher ground running between Fir Tree Farm and Buskie Farm. The northern option commences from a lower ground level, and whilst more direct, the road would need to rise up through the landscape in cutting. This would result in a visual impact from the land to the east of the A12.

7.4.34 Route Z (south) was one of the shortest proposed routes, and maximised the use of existing topography where possible. Route Z connects with the A12 away from existing settlements where the effects on local residents would be minimised. Whilst the proposed alignment gives consideration to Theberton Hall and the listed buildings within Theberton village, there is potential for the significance of several heritage assets to be affected adversely due to changes in their setting resulting from the route albeit to a limited extent. Elsewhere, the route is generally positioned away from existing properties with minimal effect, although at Annesons Cottages and Valley Farm there is a potential to cause significant effects on the amenity of residents. Effects on the existing road network are likely to be minimal, although several PRoWs would be bisected, and adequate provisions would need to be provided. Option Route Z (south) utilises the existing topography where possible, and is therefore preferred.

7.4.35 Based on the above findings, SZC Co. concluded that this route would be the most suitable route, and it formed part of the Stage 3 consultation.

b) Stage 4

i. Proposals at Stage 4

7.4.36 Both rail and road-led freight management strategies were still being considered in Stage 4, and both the Sizewell link road and Theberton bypass were still being considered.

7.4.37 However, an additional freight management strategy was proposed; the Integrated Strategy. The Integrated Strategy proposals included the use of Sizewell link road.

7.4.38 At Stage 4, SZC Co. also consulted on whether the Sizewell link road should be temporary so that it is removed and the land restored once Sizewell C is operational.

ii. Stage 4 consultation feedback

7.4.39 Generally support was given for the Sizewell link road, noting that it is critical, would be an improvement to the area and would be of benefit both during construction and also during the operation of Sizewell C.

7.4.40 At the Stage 4, consultation preferences were 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.

7.4.41 Concerns were raised regarding the landscape and visual impacts of the proposed route. Some respondents considered that the proposed Sizewell link road is inadequate to deal with the volumes of traffic proposed.

7.4.42 Both support and objection were given to the proposal of restoring the land to agricultural use once the construction of Sizewell C is complete.

c) Development Consent Order proposals

7.4.43 Following completion of Stage 4 consultation and review of the technical capability and consultation responses, the integrated freight management strategy was progressed for the application for Development Consent. Therefore, the Sizewell link road is proposed rather than the Theberton Bypass. The **Planning Statement** provides detail of why the integrated strategy was selected (Doc Ref. 8.4).

7.4.44 In light of the comments received to the Stage 4 consultation, and as a result of further assessment, SZC Co. continues to support and has refined the proposals for Route Z (south) as the proposed Sizewell link road.

7.4.45 It is proposed that the Sizewell link road is proposed as a permanent development in the application for development consent due to the legacy benefits that it offers. Once operational, the Sizewell link road would be open to general traffic during and after the construction of Sizewell C. There would be a long-term legacy of 900 permanent jobs at Sizewell C, as well as a regular short-term workforce of around 1,000 people during refuelling and

maintenance outages at the main development site. These workers would make use of the Sizewell link road once in place.

7.4.46 Since Stage 4 Consultation, the following updates have been made:

- The extent of land take required for the construction and operation of the proposed development has been reduced by 22.53ha where practicable. This was to reduce the areas of land required from land holdings and reduce habitat loss. Further consideration was also given to the areas of land required permanently for the proposed development as well as those required to facilitate construction and would be returned to agricultural use upon completion of construction.

- Accommodation access tracks and private means of access have been refined or added to reduce severance impacts. This includes:

  - a new agricultural access from the A12 on the south side of the proposed Sizewell link road to maintain access to land associated with Rookery Farm (Yoxford);
  - A ghost island junction, and a new link road (the 'Middleton Moor link') from the proposed route of the Sizewell link road to the B1122 (north-west of Yankee Lodge), ensuring access remains to land associated with Fordley Hall Farm;
  - on the north side of the proposed route of the Sizewell link road, Fordley Road would be retained for use as a private means of access for Old Abbey Farm, and shared pedestrian access
  - provision of a staggered crossroads ghost island junction to give access to Trust Farm located to the south, and to the existing B1122 to the north, with a temporary access provided during construction;
  - provision of an access road from the south side of the route of the proposed Sizewell link road to Hawthorn Cottages;
  - a new overbridge to carry non-motorised users only (pedestrians, cyclists, equestrians) over Pretty Road. This will also be used to move livestock associated with Church Farm; and
  - a new junction to Moat Road to maintain access to the existing properties, including Theberton Grange and Moat House, and land associated with Moat Farm and Old Abbey farm.

- Amendments to the design of the culverts where the proposed development crosses existing watercourses. Larger portal culverts

have been introduced into the design, which would minimise the impact on the watercourse banks and improving afflux in the event of a flood event. The larger culverts would also provide ecological connectivity beneath the route. In addition, to avoid the need to cross the watercourse at Fordley Road (the 'Middleton watercourse') twice and avoid the need for a long box culvert beneath the realigned Fordley Road, the watercourse would be diverted.

- Allowances for flood relief basins have also been included within the design, if required, adjacent to proposed watercourse crossings, to minimise flood risk. The flood relief basins would be designed to cater for a 100 years flood event plus a 40% allowance for climate change.

- Additional landscaping has been added to the design, including planting for bat-hop overs and ponds which would provide replacement habitat for great crested newts as well as increase biodiversity.

- Refinement of proposed PRoW diversions, as well as inclusion of temporary diversions, to ensure connectivity across the proposed development during both construction and operation.

7.5 Conclusions

7.5.1 This section of the Site Selection Report has assessed the alternative routes that have been considered in selecting the proposed route of the Sizewell link road. The most suitable route for a road linking the A12 to the Sizewell C power station is considered to be the proposed Sizewell link road.

7.5.2 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 PROW 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 as such, this route was not considered suitable.

7.5.3 Route X relied on utilising the existing B1121 to take traffic off the A12 and across the East Suffolk railway line. It was likely to have the greatest effect on the existing road network and substantial engineering works were envisaged to upgrade the existing railway crossing on Clayhill Road, which

would have affected the local landscape character. The overall effect of increased traffic on the road network would have had the potential to have a significant effect on the amenity of local residents and some listed buildings in Saxmundham. As such, this route was not considered suitable.

7.5.4 Route Y was positioned to the north of Saxmundham and Kelsale and would likely have had a reduced effect on the existing local road network when compared to Route X. However, the proposed junction with the A12 would still have been located in close proximity to existing settlements and greater offset would be preferred. The complexity of crossing the local road and PROW networks; and the effects on landscape character to the north of Kelsale would have been considered to be potentially significant. The amenity of local residents at Bridge Farm and Orchard house, also has the potential to be significantly affected by required engineering works in their vicinity. As such, this route was not considered suitable.

7.5.5 Route Z connects with the A12 away from existing settlements where the effects on local residents will be minimised. Whilst the proposed alignment provides appropriate consideration to Theberton Hall and the listed buildings within Theberton village, there is potential for the significance of several heritage assets to be affected adversely due to changes in their setting resulting from the route albeit to a limited extent. Elsewhere the route is generally positioned away from existing properties with minimal effect, although at Annesons Cottages and Valley Farm there is a potential to cause significant effects on the amenity of residents. Effects on the existing road network are also likely to be minimal, although a number of PROW would be bisected and adequate provisions would need to be provided. Option Route Z (South) utilises the existing topography where possible and is preferred. Whilst the road may have some impacts to isolated properties, the road provides an effective bypass to both the Middleton Moor and Theberton communities.

7.5.6 The key advantages of the Sizewell link road are:

- From a landscape and visual perspective, the proposed route utilises existing topography where possible. During construction there are unlikely to be any significant residual effects on landscape character. The proposed route is preferable compared to the others considered as they would involve engineering works, which would result in significant adverse effects on the existing landscape character.
- The proposed Sizewell link road would divert through traffic away from the B1122, and by doing this residents of Yoxford would experience the benefits of reduced traffic volumes which in turn improve the pedestrian

amenity, reduce the risk of accidents, and facilitate access to and from side roads with reduced waiting times. Overall these would represent significant beneficial effects. Drivers accessing the area would benefit from quicker journey times compared to the existing route via Yoxford and the B1122. There may also be associated benefits for users of local roads such as the B1069 since the presence of the Sizewell link road would make it less advantageous for vehicles to seek alternative routes, for example towards Leiston via Saxmundham Road. The Sizewell link road would also increase the resilience of the local road network.

7.5.7 As such SZC Co. have proposed the Sizewell link road within their application for development consent.

8. Freight Management Facility

8.1 Introduction

8.1.1 This section presents a description of the site selection process which SZC Co. undertook in relation to the proposed FMF. This section is structured as follows:

- Site requirements.
- First filter stage.
- Second filter stage.
  - Stage 1.
  - Stage 2.
  - Stage 3.
  - Stage 4.
  - DCO proposals.
- Conclusions.

8.2 Site requirements

8.2.1 The rationale for proposing the FMF is to accommodate approximately 150 HGVs to allow a controlled pattern of deliveries to site with reduced movements during peak or sensitive hours on the network. The facility would provide ancillary buildings and structures where paperwork, and goods can be checked prior to delivery to the Sizewell C main construction site. The

facility would also provide a location where, in the event of an accident on the local road network HGVs could be held.

8.2.2 In considering appropriate locations for a FMF site, the **Transport Assessment** (Doc Ref. 8.5) predicts that the port of Felixstowe will play a major role in the delivery of materials to the Sizewell C main development site, and therefore the FMF site location needs to consider HGVs arriving on the A14 from the east in addition to HGVs arriving on the A14 from the west. HGVs would continue their journey to the Sizewell C main development site via the A12, and therefore the FMF needs to be located with close proximity to the A14 and A12.

8.2.3 For the FMF to operate efficiently it needs to be on a site that can accommodate:

- parking spaces for approximately 150 HGVs;
- up to 15 car parking spaces for staff and visitors, up to one accessible space, up to ten spaces for minibuses/vans, up to five motorcycle spaces, covered and secure cycle parking for up to ten bicycles, and up to six dedicated HGV spaces for HGV search and screen parking;
- access and circulation roads;
- a ghost island junction on the access road to the site, which allows right turning traffic from the east to enter the site without blocking westbound traffic using Felixstowe Road;
- security fencing and lighting;
- ancillary buildings and structures including an amenity and welfare building, a security building, a security booth, a bus shelter, a smoking shelter, and a shelter for cycle parking;
- covered search lanes to conduct search and screen activities;
- other ancillary development, including signage, fencing, lighting, CCTV, and utilities;
- three landscape bunds and additional planting;
- one swale forming part of the Sustainable Drainage System (SuDS); and
- external areas including roadways and footways.

8.2.4 The estimated total area required for the above sized FMF is approximately 10ha.

8.2.5 To be identified as potentially suitable, however, sites needed to be of sufficient size to accommodate the facilities, but also to allow them to be 'self-contained' with respect to, for example, any requirements for perimeter landscaping, sustainable drainage, and interim soils storage prior to restoration following the cessation of operational activities.

8.3 First filter stage

8.3.1 During early work carried out for the Sizewell C Project in 2010 and 2011, a number of potential sites were identified for specific activities including FMFs. The initial sites were identified from a combination of desk-based studies, and field surveys carried out by SZC Co., and through discussions with officers at SCDC (now part of ESC) and SCC.

8.4 Second filter stage

a) Stage 1

8.4.1 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:

- Option 1 (Orwell Lorry Park West);
- Option 2 (Orwell Lorry Park East); and
- Option 3 (A12/A14 Seven Hills);

8.4.2 Option 1 and 2 shared the same site, adjacent to the Ransomes Europark industrial estate, and were approximately 11ha each. For Option 1, the FMF was positioned within the western parcel of land, and for Option 2 the FMF was located within the eastern parcel of land. Both Options would have been accessed via a new junction from the A14 to the south.

8.4.3 Option 3 was located to the east of Seven Hills Crematorium, directly to the south of the A12/A14 junction and was approximately 11ha. Access would have been off Old Felixstowe Road to the south.

8.4.4 An alternative option, the co-use of the southern park and ride site, was also suggested.

8.4.5 The three options are shown in **Plate 8.1** below, and the schematic diagrams in **Plates 8.2 to 8.4** of this appendix. These early schematics

included early consideration of potential access points and opportunities for creating buffers or screening.

Plate 8.1: Stage 1 consultation site options for the freight management facility.

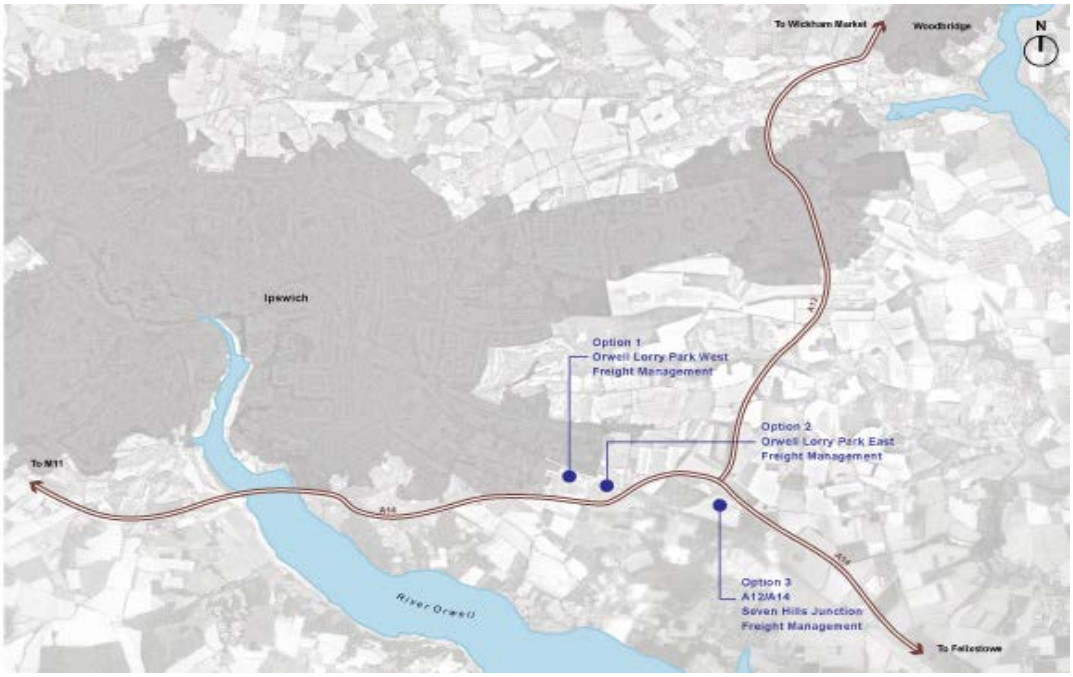


Plate 8.2: Stage 1: Freight management facility Option 1 (Orwell Lorry Park West).

Plate 8.3: Stage 1: Freight management facility Option 2 (Orwell Lorry Park East).

Plate 8.4: Stage 1: Freight Management facility Option 3 (A12/A14 Seven Hills).

i. Option 1 - Orwell Lorry Park West

8.4.6 A large commercial area lies to the west of the site. The site has been allocated by SCDC for employment use. The site is generally flat with a very slight slope from west to east.

8.4.7 Ipswich Heaths SSSI is located approximately 800m to the north of the site, and was not expected to be a constraint to development given its separation distance. There are no other ecologically designated sites within the vicinity.

8.4.8 It was noted that the site lies 150m to the west of the closest part of the Suffolk Coast and Heaths AONB, however, the assessments concluded that the site was largely screened from the AONB due to the presence of intervening woodland, existing development and boundary vegetation and therefore it was considered that there would be limited impact on the AONB.

8.4.9 The preliminary environmental assessments noted that there were no designated heritage assets located within the site, or within a radius of 250m, but there may be prehistoric archaeology remains due to the proximity of the Seven Hills Barrow Cemetery. There are also scheduled monuments within proximity to the site. Whilst the assessments did not consider these to be a major constraint on the site, the potential effects would need to be considered if this site was taken forward.

8.4.10 There are residential properties within proximity to the northern boundary, and therefore it was considered that a FMF may impact on the residential amenity of these dwellings if no mitigation was proposed. There are no PRoW within, or adjoining the site boundaries.

8.4.11 There is one active consented discharge within the site boundary and another within 10m of the site boundary that discharge to ground (related to discharge of sewage and other matter), which are likely to be related to small-scale septic tank discharges. There are no consented discharges to surface water within 500m. Registered groundwater abstractions are located over 130m to the east of the site boundary, associated with spray irrigation from the nearby Shepherd and Dog Farm.

8.4.12 During the consultation, respondents welcomed how this option would effectively be expanding on existing purpose-built facilities as the site was located adjacent to industrial land. However, SCDC noted that the site formed part of an employment land allocation, and was concerned that the FMF could conflict with this local plan designation if it were to be retained after construction of Sizewell C.

ii. Option 2 - Orwell Lorry Park East

8.4.13 Option 2 was recognised to be a constrained site in environmental terms as the site is located within the Suffolk Coasts and Heaths AONB designation.

8.4.14 Similar to Option 1, the preliminary environmental assessments noted that there were no designated heritage assets located within the site, or within a radius of 250m, but there may be prehistoric archaeology remains due to the proximity of the Seven Hills Barrow Cemetery.

8.4.15 Similar to Option 1, Option 2 is located within proximity to residential dwellings, and therefore it was considered that there could be an impact on residential amenity. However, it was considered that this impact could be managed by way of careful layout design and appropriate boundary treatment, such as bunding or fencing.

8.4.16 There is a PRoW running diagonally through the middle of the site, arising mid-way along the site's southern boundary with the A14, and leaving in the north-west corner of the site across the railway. This footpath would need to be diverted around the site boundary. Local use of the site's perimeter for walking is evident.

8.4.17 There are three consented discharges to groundwater within 500m of the site, the nearest of which is located approximately 80m from the site boundary (related to the discharge of sewage and other matter). There are registered groundwater abstractions located adjacent to the site, associated with irrigation from Shepherd and Dog Farm. Further groundwater abstractions are located beyond Felixstowe Road to the north-east.

8.4.18 During the consultation, residents raised concerns regarding the site's location within an AONB. However, SCDC noted that it is within an isolated part of AONB, and there is potential for mitigation measures to reduce any impact. The Council stated that Option 2 would be their preferred option over Option 1 or 3 as Option 1 is on allocated employment land, and they felt Option 3 would have greater environmental and heritage impacts.

iii. Option 3 – A12/A14 Seven Hills

8.4.19 The preliminary assessments noted that the site lies 100m to the north-east of (and outside) the Suffolk Coast and Heaths AONB, and 1km to the south of The Mill River SLA. However, initial assessments concluded that the views toward the site are likely to be contained. There were no ecologically designated sites within 1km of the site, but it was noted by the preliminary assessments that areas of woodland and trees which border the site have potential to support protected species.

8.4.20 There are no PRoW within or adjacent to the site. Seven Hills Crematorium is the principal local constraint, located immediately to the west.

8.4.21 Areas of woodland and trees which border the site have the potential to support protected species.

8.4.22 Similar to Option 1 and 2, the site lies in close proximity to scheduled monuments, and therefore whilst the assessments did not consider these to be a major constraint on the site, the potential effects would need to be considered if this site was taken forward as there is potential for below ground archaeological remains.

8.4.23 During the consultation, many local residents welcomed how Option 3 was the most separated from residential dwellings, however SCDC noted that it related the least to existing settlements, and raised concerns about the potential environmental impacts.

iv. Southern Park and Ride Site (alternative option for a freight management facility)

8.4.24 It was considered by SZC Co. that this option would reduce the environmental impact through development of a single combined site rather than two sites, one for a FMF, and one for a park and ride.

8.4.25 However, SCC and SCDC considered that co-locating the facility at a southern park and ride site would not provide mitigation of the traffic impact on the A12 travelling north.

8.4.26 The Councils also had reservations regarding the use of the park and ride site for incident management given that the HGVs may have to traverse travel through bottlenecks on the existing highway network.

8.4.27 The Councils strongly supported a dedicated FMF site directly off the A14, as it would result in a reduced scale of development at the southern park and ride site.

b) Stage 2

8.4.28 Following Stage 1, SZC Co. considered the comments received, and the findings from the initial preliminary environmental assessments.

8.4.29 Whilst there was considerable support for a dedicated freight management facility, concerns had been raised regarding its potential location and environmental impact.

8.4.30 At Stage 2, SZC Co. 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 it was proposed that SZC Co. would adopt a number of measures to manage and control HGV movements to and from the main development site. This included the implementation of an electronic web-based Delivery Management System, and use of Automatic Number Plate Recognition technology.

8.4.31 SCDC stated that they strongly supported the principle of a physical dedicated FMF, and were not satisfied that the proposed electronic systems combined with the southern park and ride facility at Stage 2 would be satisfactory.

8.4.32 Many respondents noted that there would be a need to administer, monitor, and control HGV movements with these electronic interventions, and raised concerns that that vehicles would not stick to specific, clearly defined, designated routes.

c) Stage 3

8.4.33 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.

8.4.34 However, since the Stage 1 consultation, outline planning permission (LPA ref: DC/17/4257/OUT) had been granted in June 2018 for employment development of both the Orwell West and East sites (Options 1 and 2 at Stage 1) for B1, B2 and B8 purposes. Discussions were held with the landowner, and it was strongly suggested that the land would no longer be available to SZC Co. by the time development consent for the Sizewell C Project is granted.

8.4.35 The site for Option 3 in Stage 1 was also no longer available as it now forms part of an allocation (Policy Ref: SCLP12.20A) within the emerging Suffolk Coastal Local Plan (Final draft, 2019) (Ref. 8.1) for a high-quality business park.

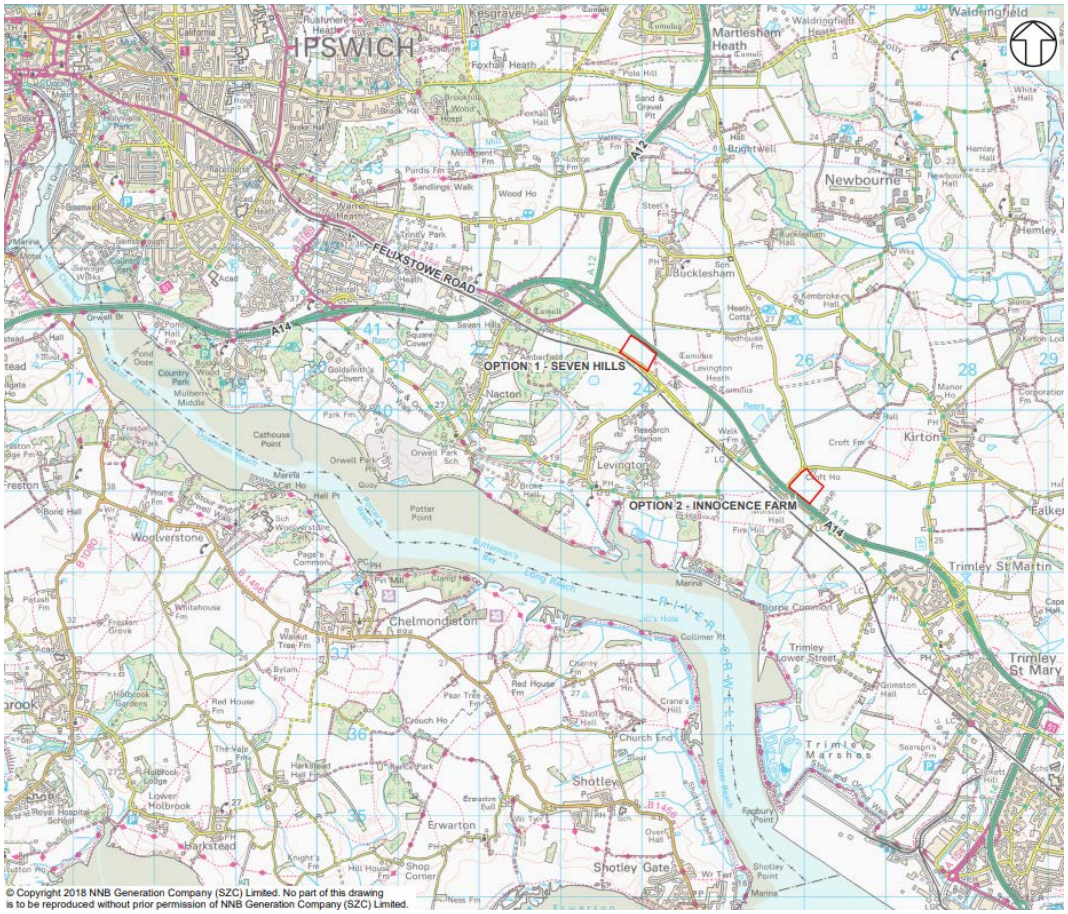
8.4.36 SZC Co. therefore looked for additional sites for the FMF that could meet the need of the FMF, and within proximity to the A12 and A14.

8.4.37 SZC Co. identified two sites through site visits and a review of available land, and similar to Stage 1, assessed these sites against the site requirements. SZC Co. also consulted on the sites to identify a preferable site for the FMF.

8.4.38 The Stage 3 consultation sought feedback on the following two potential sites for a freight management facility:

- Option 1 – Seven Hills; and
- Option 2 – Innocence Farm

Plate 8.5: Stage 3: Freight management facility standalone site options



8.4.39 Option 1 at Seven Hills is within a similar location to Option 3 at the Stage 1 consultation.

8.4.40 Option 2 is located adjacent to the communities of Kirton and Trimley St Martin at Innocence Farm and immediately north of the A14.

i. Option 1 - Seven Hills

8.4.41 The preliminary environmental assessments noted that there would be no long-term significant environmental impacts at this site. The assessments

noted that there would be a localised impact on the character of the landscape during operation, however, the impact would be temporary.

8.4.42 The site is approximately 600m north-east of the AONB. The site is located within the Countryside (outside a settlement boundary). The site is adjacent to proposed allocation for 22.5ha business park (site ref: SCLP12.20, Final Draft Local Plan, 2019) (Ref. 8.1). The site is not located within a Neighbourhood Plan area.

8.4.43 During the consultation SCDC noted that this site would be the least preferable from an archaeological perspective, due to its proximity to the scheduled barrow group setting, and that further work was required to understand the potential impacts on landscape and ecology. Historic England also noted concerns regarding the potential impact on designated heritage assets, and noted that Option 1 has a high potential for prehistoric archaeology.

8.4.44 Many local residents noted that Option 1 would be more appropriate than Option 2, due to its proximity to the A12/A14 junction, but also raised concerns about congestion. The Councils also questioned whether this option would create additional traffic movements through the Seven Hills Interchange (A12/A14), and noted that the location could impact on Operation Stack[2]. SZC Co. agreed that additional transport work would be undertaken to assess these potential impacts.

ii. Option 2 - Innocence Farm

8.4.45 Similar to Option 1, the preliminary environmental assessments noted that there would be no long-term significant environmental impacts at this site, and any visual landscape impacts would be temporary. However, the assessments did note that Option 2 was more likely to generate a significant noise impact (at one receptor), during both the construction, and removal and reinstatement phases compared to Option 1.

8.4.46 The site is located approximately 400m north of the AONB. The site is located within the countryside (outside a settlement boundary).

8.4.47 Option 2 forms part of a wider proposed 67ha allocation within policy SCLP12.35 of the emerging Suffolk Coastal Local Plan (Final draft, 2019) (Ref. 8.1) for port related businesses, including HGV parking. The policy

[2] Operation Stack is a procedure that uses parts of the M20 to queue lorries travelling towards the continent, to avoid causing gridlock across Kent's roads. It is used in emergency situations when crossings to the continent cannot happen, such as bad weather or industrial action. Kent Police are responsible for implementing Operation Stack.

states that the site could, in exceptional circumstances, be used to assist in the delivery of nationally significant infrastructure projects. The site is not located within a Neighbourhood Plan area.

8.4.48 During the consultation the Councils noted that this option has a high potential for archaeological remains from all periods, and that further work was needed to understand the potential impacts on landscape and ecology.

8.4.49 Similar to Option 1, the Councils stated that they were concerned that this option would add an additional turning movement at the A14 Junction 58, and involve additional transport movements at Seven Hills junction. The Council also noted that the location of a freight management facility could impact on Operation Stack. SZC Co. agreed that additional transport work would be undertaken to assess these potential impacts.

8.4.50 Following the completion of Stage 3, SZC Co. undertook additional transport analysis on Option 1 (Seven Hills) and 2 (Innocence Farm) to address the comments received from stakeholders, including the Council.

a) Response to Stage 3

i. Option 1 – Seven Hills

8.4.51 During Stage 3, the Council raised concerns regarding the potential impact of this option on the A12/A14 Junction.

8.4.52 The further analysis by SZC Co. identified that the westbound slip of the junction was slow moving during AM and PM peak hour, however, the only slip of the Seven Hills junction to be used by HGVs for the freight management facility at Option 1 would be the eastbound off-slip. Therefore, the FMF in this location would not put any additional pressure on this slip. Option 1 would also offer the shortest detour of HGVs required to access/egress the FMF (circa 1 mile). See **Plates 8.6 and 8.7** for further details.

Plate 8.6: Access / Egress routes for Seven Hills freight management facility for HGVs arriving from the west.

Plate 8.7: Access Egress Routes for Seven Hills freight management facility for HGVs arriving from the east.

8.4.53 The Councils raised concerns regarding the FMF when Operation Stack is active. The arrangements regarding the movements of Sizewell C-related traffic during Operation Stack have been considered and can be found in the **Traffic Incident Management Plan (TIMP)** (Doc Ref. 8.6).

ii. Option 2 – Innocence Farm

8.4.54 The further analysis undertaken by SZC Co. identified the absence of a full movement junction would mean that Option 2 would result in HGVs needing to take a 9.5-mile detour. HGVs arriving from the east would need to U-turn at the Seven Hills roundabout, which would result in all arms of the roundabout junction needing to give-way to the HGVs. See **Plates 8.8 and 8.9** for further details. The egress route for HGVs arriving from the west and east would require the same. These movements would place additional pressure on the westbound diverge slip, particularly at AM and PM peak hour and create unnecessary additional movements.

Plate 8.8: Access / Egress Routes for Innocence Farm freight management facility for HGVs arriving from the west.

d) Stage 4

8.4.55 The Stage 4 consultation continued to consider the two sites that formed part of the Stage 3 consultation, Seven Hills and Innocence Farm.

Plate 8.9: Access / Egress Routes for Innocence Farm fright management facility for HGVs arriving from the east.

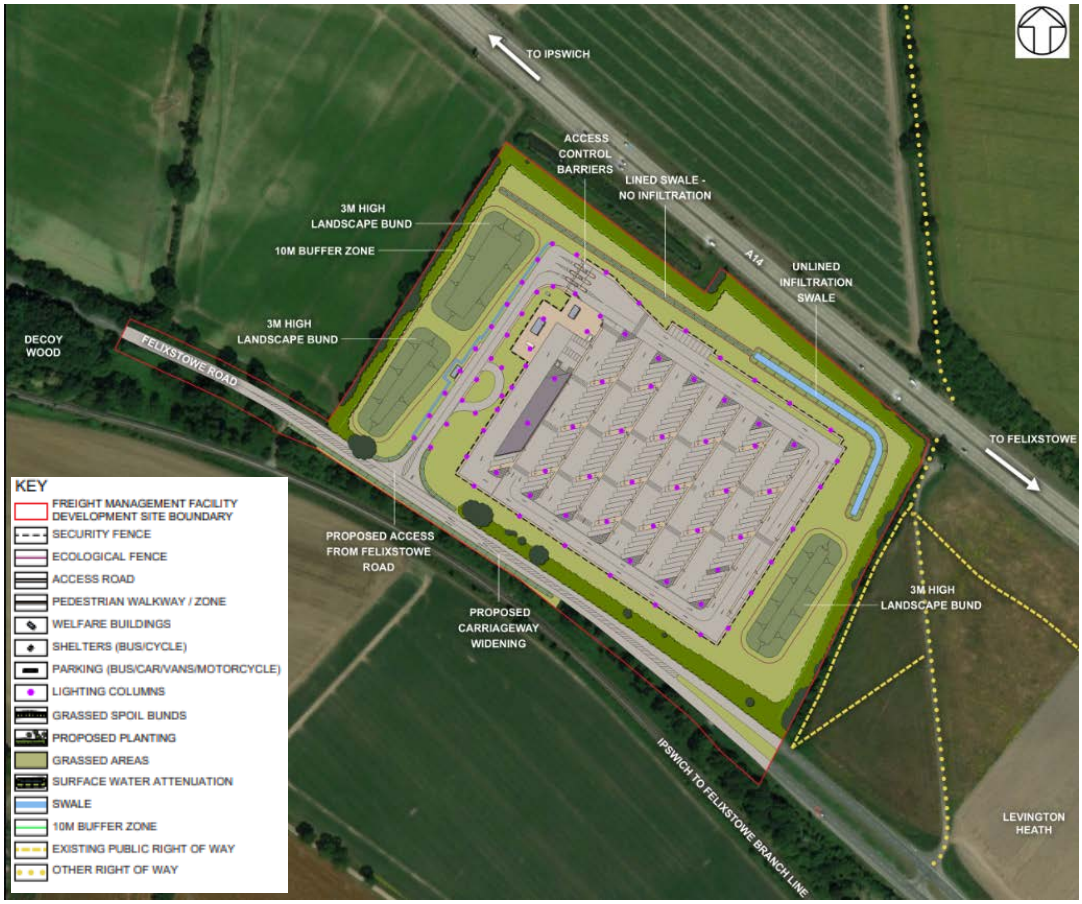
8.4.56 Minor changes were proposed to these options following further assessments. At Seven Hills the development boundary was amended to include a section of Felixstowe Road, and to exclude an existing drainage feature along the A14, and to align more accurately with land ownership boundaries.

8.4.57 At Innocence Farm site access was relocated for improved visibility, and an extension to the development boundary along the A14 was proposed.

e) Development Consent Order proposals

8.4.58 Since Stage 4 consultation, the design has developed as more information, and detail, on its precise operational requirements and environmental context has become available.

Plate 8.10: Final design: FMF Seven Hills – Masterplan



8.4.59 The proposed masterplan includes provision for parking areas, internal road network, pedestrian walkways, a welfare building, security buildings, lorry search area, smoking shelter, cycling shelter, fencing, landscape bunds, swales and planting.

8.4.60 The buildings and shelters have been positioned adjacent to landscape bunds, and the proposed planting so that they are screened from the surrounding area.

8.4.61 In terms of access arrangements, the access to the site remains unchanged from Stage 4 consultation.

8.4.62 A Lighting Strategy was developed following Stage 3 consultation, which restricts lighting to the to the parking areas, and along the main access road for security and safety reasons. Regard was given to minimising potential effects on ecological receptors.

8.4.63 The landscaping scheme developed further following Stage 3, and was designed specifically to minimise potential effects on ecological, heritage and landscape and visual receptors. The site masterplan, illustrated at **Plate 8.10** above, shows the provision of a landscape bunds on the eastern and western boundaries of the site, which would provide a noise and visual buffer between the FMF, and the surrounding area.

8.4.64 A drainage report was also prepared and SuDS have been incorporated into the design, including swales to the north and south of the site, to minimise water run-off, and control discharge to existing water courses.

8.4.65 The current design, assessed in this **ES**, has attempted to reduce, as far as practicable, the potential for significant environmental effects, whilst maintaining operational effectiveness.

8.5 Conclusions

8.5.1 This section of the Site Selection Report has assessed the alternative site options that have been considered in selecting the proposed FMF site.

8.5.2 The site at Seven Hills has emerged from the filtering process as being the most suitable and appropriate for the siting of the proposed FMF. The proposed development incorporates the site requirements set out above, as well as the environmental mitigation required to be acceptable.

8.5.3 No significant effects would be anticipated on designated sites, plants and habitats, invertebrates, reptiles, breeding birds, otters, water voles and badgers for either Option 1 or Option 2. Great crested newts and bats were considered a possibility at both locations, but any potential residual effect could be mitigated against through measures identified in a phase 1 habitat survey on the chosen option.

8.5.4 In regards to landscape and visual considerations, for both options, any effect during construction, and removal and reinstatement is unlikely to be significant. During operation it is expected that there would be a localised effect on the character of the landscape within the sites of both Option 1 and 2, arising from the change from arable fields to a HGV parking area with associated infrastructure. Whilst it is considered that effect would be significant for both options, the effect would be temporary in nature. Furthermore, the effect is localised, and beyond the site boundaries for both options the effects on the landscape rapidly reduce. No significant residual visual effects were expected for both Option 1 and Option 2.

8.5.5 In regards to the historic environment, providing that an agreed scheme of archaeological investigation is implemented, no significant residual effect

would be anticipated at Option 1 or Option 2. No significant residual effects arising from a change to setting of the heritage assets would be anticipated at either option.

8.5.6 No significant effects on Air Quality Management Areas were predicted during all phases from construction to removal and reinstatement. There would also have been no significant effects on flood risk at Option 1 or Option 2.

8.5.7 However, it has been 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 has contributed to the selection of Option 1 as the FMF in the application for development consent.

8.5.8 Option 1 could be considered the most convenient given its closer proximity to the A12/A14 junction, however, the Council questioned whether this option would impact negatively on the A12/A14 junction. Further analysis was therefore undertaken to assess the potential impacts on the A12/A14junction. The analysis identified that the westbound slip of the junction was slow moving during AM and PM peak hour, however, the only slip of the Seven Hills junction to be used by HGVs for the FMF at Option 1 would be the eastbound off-slip. Therefore, the FMF in this location would not put any additional pressure on this slip. Option 1 would also offer a shorter detour of HGVs required to access/egress the FMF (circa 1 mile) when compared to other options.

8.5.9 Option 2 forms part of a wider proposed 67ha allocation within policy SCLP12.35 of the emerging Suffolk Coastal Local Plan (Final draft, 2019) (Ref. 8.1) for port related businesses, including HGV parking. The policy states that the site could, in exceptional circumstances, be used to assist in the delivery of nationally significant infrastructure projects.

8.5.10 Further analysis however identified that Option 2 would result in HGVs taking a 9.5-mile detour to access/egress the FMF. HGVs arriving from the east would need to U-turn at the Seven Hills roundabout, which would result in all arms of the roundabout junction needing to give-way to the HGVs. The egress route for HGVs arriving from the west and east would require the same. These movements would place additional pressure on the westbound diverge slip, particularly at AM and PM peak hour, and create unnecessary additional movements. As such Option 1 has been selected for the FMF site in the application for development consent.

9. Yoxford Roundabout and Other Highways Improvements

9.1 Introduction

9.1.1 This section presents a description of the site selection process which SZC Co. undertook in relation to the proposed Yoxford Roundabout and other highway improvements. This section is structured as follows:

- Scheme requirements.
- First filter stage.
- Second filter stage.
  - response to Stage 1 and proposals at Stage 2;
  - response to Stage 2 and proposals at Stage 3;
  - response to Stage 3 and proposals for Stage 4; and
  - response to Stage 4 and proposals for DCO application.
- Conclusions - DCO Submission.

9.2 Scheme requirements

9.2.1 The **Transport Assessment** (Doc Ref. 8.5) aims to minimise the impact of traffic associated with the construction of Sizewell C on the road network. Nevertheless, the temporary increase in journeys on the network in some cases justifies specific mitigation to relieve potential problems at particular junctions. The works proposed at points on the highway network are where they are considered necessary for the highway safety, and/or highway capacity reasons.

9.2.2 As the works proposed are to existing roads, a site selection process similar to the other associated development sites, such as for the freight management facility, was not carried out. Instead, SZC Co.'s traffic modelling was used to identify exact locations on the highway network where improvements may be required.

9.2.3 The design evolution of proposed highway works changed through the consultation period (Stages 1 to 4), due to consultation feedback and adjustments to the inputs of the traffic modelling. The design was also developed by drawing on the expertise of the design team, taking into account the requirements of the construction process for the Sizewell C

project and the results of technical environmental assessments which ran throughout the consultation process.

9.2.4 This report details the design evolution of the proposed improvement works, but should be read in conjunction with **Chapter 3** of **Volume 7** of the accompanying **ES,** which focusses on the environmental impacts of the proposals as required by Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the "EIA Regulations") (Ref. 4.9).

9.3 First filter stage

9.3.1 As set out in **Volume 1, Chapter 2** of the **ES**, SZC Co. has developed a strategy to transport a proportion of the Sizewell C Project construction materials to the main development site via the rail network where possible. There are limited rail movements permissible on the Saxmundham to Leiston branch line (up to three trains per day), and so an amount of construction materials will need to be transported by road.

9.3.2 The 'Integrated' Freight Strategy would reduce the number of HGV movements on the local road network from the road-led strategy previously consulted on, but the proposed highway improvements would still be required to mitigate the impact of HGV movements on the local highway network.

9.3.3 The proposed highway improvements have evolved through the adoption of the following principles:

- Consideration of the sites' context and development constraints.
- An understanding of the operational requirements of the proposed highway improvements during construction of the power station.
- The outcomes of the preliminary environmental assessment process and consultation feedback to avoid significant environmental and local traffic effects where possible, and where this is not possible, to mitigate and manage any remaining significant effects.

9.3.4 An initial Transport Strategy and Supporting Information report assessed the existing transport conditions around Sizewell, and the likely transport impacts of the construction and operation of Sizewell C.

9.3.5 Whilst SZC Co. sought to reduce the number of HGV movements on the local road network, the report recognised that the very large quantities and wide variety of freight required for the Sizewell C Project would mean that there

would still be a certain amount of freight that could not practically, or economically, be moved other than by road. The routes for all such construction traffic were proposed to be agreed with SCC, avoiding local and rural roads as far as practicable.

9.3.6 It was anticipated that the main approved route to, and from, the Sizewell C site for HGV traffic would be the A12, and then the B1122 from Yoxford. This was the approved route during the construction of Sizewell B, and avoids vehicles having to travel through Leiston, Saxmundham and most other local towns and villages. This preliminary HGV route is shown in **Plate 9.1**.

Plate 9.1: Proposed main HGV route for Sizewell C construction traffic.

9.3.7 While this route would apply for the majority of HGV movements, the report noted that some movements may need to occur on other roads, including SCC's designated lorry routes – for example, where local companies are supplying materials to the construction site.

9.3.8 SZC Co. expected that the majority of HGV road traffic (some 85%) would route from the south via the A14, and then A12, with the remainder coming from the north on the A12.

9.3.9 In the initial traffic modelling for the impacts of the Sizewell C Project, a number of scenarios of HGV movements were considered, ranging from between 100 to 300 average HGV deliveries per day to the construction site at peak construction (representing between 200 and 600 two-way HGV movements). HGVs in this context were defined as any vehicles exceeding a maximum gross weight of 3.5 tonnes (maximum allowable total weight when loaded). This was a conservative and robust definition, as it included many vehicles which would normally be categorised as medium goods vehicles (maximum gross weight between 3.5 and 7.5 tonnes).

9.3.10 Actual HGV deliveries to site are likely to fluctuate on a day to day basis in which the "busiest day" in any given construction period could see around 50% more HGV deliveries than the average and, on a quieter day, around 50% less than the average. Therefore, the modelling was also proposed to consider scenarios where HGV deliveries are 50% higher than the average 100 to 300 deliveries per day.

9.3.11 HGV movements would be spread across the day, and the controls on the number and timing of HGV movements through the local road network would be agreed with SCC, so that HGV movements are no greater than have been assessed when considering traffic and associated environmental impacts, and to avoid or reduce movements at sensitive hours.

9.3.12 The report also considered the impact of light goods vehicles (LGVs), comprising vans, pickups, 4x4s and related vehicles with a maximum gross weight of up to 3.5 tonnes. LGVs would be used for transporting food and consumables, small items and specialist tools/equipment, and would also include contractors' fleet vehicles.

9.3.13 Based on the number of LGVs required during the construction of Sizewell B, adjusted accordingly to reflect that Sizewell C is a twin reactor project, the average number of LGVs arriving at site per day during the construction peak was estimated to be 170 (340 movements), with the busiest day being some 50% higher than this, i.e. 255 (510 movements).

9.3.14 The Transport Strategy and Supporting Information report worked on a number of estimates of the scale of HGV and LGV movements likely to be generated by the Sizewell C Project, including the final material quantities, the precise time schedule for the sequence of construction works, the final designs and decisions on the different transport strategy options. However, SZC Co. was conscious of the strong desirability of reducing HGV movements to reduce noise, air quality and amenity impacts on affected residents and communities, and developed a number of proposals to present through the consultation process. These are described in the following sections.

9.4 Second filter stage

a) Stage 1

9.4.1 At the Stage 1 consultation SZC Co. 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.

9.4.2 Preliminary modelling identified the A12 between Ipswich and Lowestoft as the main corridor for the majority of Sizewell C traffic. It suggested that the total traffic impact would be in the region of a 5-15% increase to all-vehicle daily traffic flows at the point of peak construction, which would last 1-2 years.

i. Farnham bend

9.4.3 Three options were presented at Stage 1 to plan for the increased frequency of large construction vehicles on the Farnham bend. These options, and their evolution into the two village bypass through Stages 2, 3 and 4 are detailed further in this Site Selection Report for the two village bypass and **Volume 5, Chapter 3** of the **ES**.

ii. B1122

9.4.4 At the Stage 1 consultation, SZC Co. proposed that the B1122 would be the designated HGV route for traffic between the A12, and the Sizewell C main development site. Current traffic flows on the B1122 are relatively modest and much lower than on the A12. As such, Sizewell C traffic would not be likely to cause any capacity or congestion problems on most of the B1122,

although it is recognised that the proportional impact of Sizewell C traffic would be much greater on the B1122 than on the A12, or indeed other local roads.

9.4.5 The B1122 was the approved HGV route during the construction of Sizewell B, and it avoids vehicles travelling through Leiston, Saxmundham and other local towns and villages along the B1119. The B1122 would also be the route taken by some cars, as well as buses serving the park and ride facilities, and those travelling directly to the main development site.

9.4.6 SZC Co. considered that the junction of the A12 with the B1122 at Yoxford was likely to require improvement to ensure a smooth flow of traffic and avoid disruption to flows on the A12. Further detailed proposals for the A12/B1122 junction were to be presented at a later round of consultation, but it was envisaged that a roundabout would be required.

iii. Other road traffic impacts from Sizewell C

9.4.7 The Stage 1 consultation discussed likely impacts on areas of the A12 and the B1122. Whilst it was recognised that there will be some additional traffic on many local roads and through local towns and villages, such as Leiston, it was expected that the operation of most parts of the local road network would not be materially affected by Sizewell C construction traffic.

9.4.8 One reason for this is the range of different shifts that will operate during the construction of Sizewell C, and which will act to spread workforce-related traffic through the day, often avoiding network peak periods. Another reason is the control of movements, which will be achieved through plans for defined HGV and bus routes, and for the use of park and ride facilities during peak construction. A third reason is the major plans that had been set out for using sea and rail options for moving freight where possible.

9.4.9 At Stage 1 it was noted that these conclusions remain preliminary, and subject to further transport assessment and modelling work. As the proposals developed, and decisions were made on the size, nature, and location of any associated development, the precise traffic impacts to be expected were detailed throughout the consultation process.

9.4.10 Stage 1, therefore, did not propose specific additional highway works (e.g. junction improvements), or mitigation measures as these would be determined by further work on traffic capacity and traffic-related environmental impacts (detailed further in **Volume 7**, **Chapter 3** of the **ES**).

iv. Consultation responses

9.4.11 Respondents to the Stage 1 consultation raised concerns about the impacts of increased levels of traffic on the roads, particularly on the B1122 east of Yoxford at peak periods of the day.

9.4.12 They expressed concerns that the existing road is inadequate to accommodate increased levels of traffic. Specific concerns were raised that more traffic would lead to bottlenecks along the B1122, and increased safety concerns for local residents.

9.4.13 Some respondents considered that the scale of additional traffic associated with the construction of Sizewell C should require the provision of a new direct road from the A12. SZC Co. is aware that such a new direct road was considered at the time of Sizewell B construction, and when earlier proposals for additional nuclear power stations at Sizewell were under development. However, SZC Co. did not consider it necessary or appropriate to construct a new direct road from the A12 to serve Sizewell C during construction and operation for the following reasons:

- The traffic modelling work identified that even after taking into account the additional traffic movements associated with Sizewell C construction, there is no likelihood of congestion or delay on the B1122. Traffic should continue to flow freely throughout the day, including at peak hours and times of worker changeover.
- The B1122 was the approved HGV route for Sizewell B construction and remains an approved HGV route, which continues to experience regular daily HGV movements, albeit at lower levels than would apply during Sizewell C construction phase. SZC Co. was not aware of evidence to suggest that either previous or current HGV usage of the B1122 has given rise to significant problems in terms of congestion or accidents.
- Since the construction of Sizewell B, the balance of planning policy has shifted to some degree away from the provision of new highways infrastructure, and more in favour of measures to reduce traffic demand. This policy shift is reflected in the guidance on transport impacts, as contained in NPS EN-1 which encourages applicants to consider and implement traffic demand management measures, before considering requirements for the provision of new inland transport infrastructure. SZC Co.'s proposals for a major role for sea and rail deliveries (where possible), an accommodation campus sited at the main development site and park and ride facilities are examples of demand management

measures. These would reduce traffic on the B1122, in line with national planning policy. Park and ride facilities, for example, were not a feature of the Sizewell B construction.

- Any new direct road from the A12 to the Sizewell C site would be likely to give rise to a range of adverse environmental impacts, would be costly to develop, and would in itself require significant additional HGV movements to deliver the necessary materials for construction of the road. Delivery of a new road may also require compulsory acquisition of land.

- Once the main construction phase is complete, the long-term additional traffic flows and HGV movements on the B1122 associated with the operational phase of Sizewell C would be considerably lower than during the construction phase. This, therefore, reduces the justification for a major new permanent road development in the form of a new direct road to the Sizewell C site from the A12.

9.4.14 Some residents also raised concerns at Stage 1 about the condition of the B1122 and issues of emergency access. SZC Co. anticipated entering into agreements with SCC so that the condition of the road would be assessed prior to the start of construction, maintained throughout the Sizewell C construction and improvements implemented if appropriate or necessary. With respect to issues of emergency access, it can be noted that, in the event of an incident or accident preventing the free flow of traffic on the B1122, other routes are available for both Sizewell C-related and other traffic.

9.4.15 In terms of other highway improvements, a number of respondents to the Stage 1 consultation stated that there are shortcomings in the current provision for pedestrians in Theberton. Some residents called for additional crossings in this area.

9.4.16 Following the Stage 1 consultation, transport assessment work continued to progress with regular liaison with SCC and the Highways Agency (now Highways England).

b) Stage 2

9.4.17 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 two village bypass are detailed in **section 6** and **Volume 5, Chapter 3** of the **ES**.

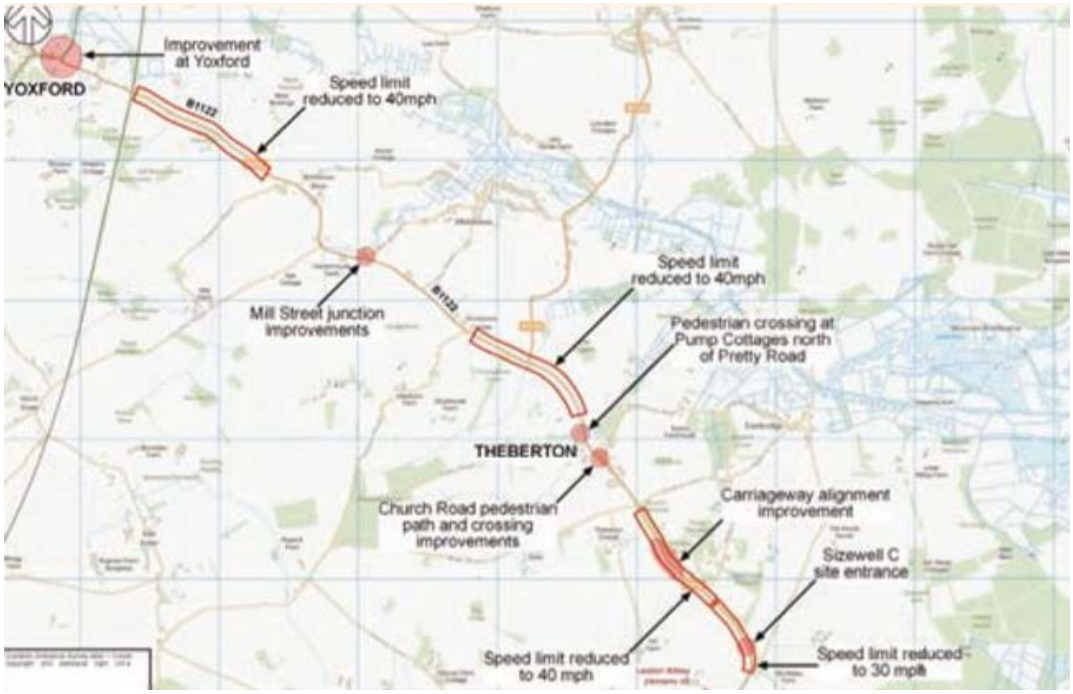
9.4.18 For the other highway improvements at Stage 2, SZC Co. conducted a review of the B1122 which identified a number of measures which could be

implemented to help mitigate the impacts of Sizewell C construction traffic on residents and road users. These included options to improve road safety for vehicles and pedestrians, and detailed the supporting preliminary environmental information for these options. The options comprised the following:

- Improvement to the A12/B1122 Yoxford junction.
- Speed limit reductions on various sections of the B1122, discussed futher in **Chapter 2** of **Volume 6** of the **ES**.
- Improvement of the B1122 to the west of the junction with Mill Street, discussed further in **Chapter 2** of **Volume 6** of the **ES**.
- Pedestrian enhancements in Theberton, discussed further in **Chapter 2** of **Volume 6** of the **ES**.
- Improvement to the alignment of the B1122 between Theberton and the Sizewell C construction site entrance, discussed further in **Chapter 2** of **Volume 6** of the **ES**.

9.4.19 At Stage 2, SZC Co. assumed that all works would be undertaken within a period of approximately six months. An overview of the B1122 proposals are detailed in **Plate 9.2.**

Plate 9.2: : Stage 2 overview of B1122 proposals.



i. A12/B1122 Yoxford junction

Proposals

9.4.20 At the Stage 1 consultation, SZC Co. indicated that the junction of the A12 with the B1122 at Yoxford was likely to require improvement, and that a roundabout could be required. Subsequent analysis identified that improvements to this junction would be required even if the Sizewell C Project did not come forward.

9.4.21 Following micro-simulation transport modelling of the local road network in 2024 both with, and without, Sizewell C construction traffic, it was found that the existing A12/B1122 junction would have insufficient capacity in 2024 in peak times, with long queues on the B1122 extending back through the B1122 level crossing. Adding Sizewell C construction traffic to the junction would further lengthen these queues, but sufficient mitigation would be provided through either a roundabout or traffic signals.

9.4.22 Neither would result in traffic queuing, including back to the junction of the A12 with the A1120, and both options would reduce accident risk, and accommodate AILS to/from the A12 north of the B1122.

*Option A – A12/B1122 roundabout (see **Plate 9.3**)*

9.4.23 The Yoxford roundabout junction presented at Stage 2 was positioned about 100m north of the existing A12/B1122 junction in order to maximise capacity for the A12 northbound traffic, and optimise the distances to the A1120 junction and the Satis House access.

9.4.24 The roundabout was shown off-set to the east of the existing A12 in order to minimise any potential impact on the trees screening Satis House. It would have also enabled the roundabout to be built offline to minimise traffic disruption during construction.

9.4.25 To accommodate the AIL movements, part of the central island would be removable. Any scheme would be designed in accordance with the required highway standards, including the design of lighting.

Plate 9.3: Option A – A12/B1122 roundabout.

9.4.26 Alternative design solutions considered also included a roundabout at the existing junction location, and a roundabout with a segregated left turn lane for the A12 northbound flows. However, both raised capacity, and/or safety concerns, and were not progressed.

*Option B – A12/B1122 signalised junction (see **Plate 9.4**)*

9.4.27 The layout of the proposed signalised junction included a separate bypass lane for the AIL vehicles. Pedestrian and cycle crossing facilities could also be accommodated.

Plate 9.4: Option B – A12/B1122 signalised junction.

9.4.28 Option B would generally be contained within the existing highway land, and would therefore require less land take than Option A (a roundabout). The proposals were not anticipated to give rise to any significant environmental effects either during construction or operation, irrespective of which option was progressed. The potential effects of both options is summarised in **Volume 7**, **Chapter 3** of the **ES.**

Consultation responses

9.4.29 At the Stage 2 consultation, SZC Co. did not express a preferred option, but the modelling demonstrated that the roundabout would have shorter queues, and impose less delay on the A12 and B1122 traffic flows.

9.4.30 Option A (roundabout) was preferred by respondents to the Stage 2 consultation, with over three times more support than Option B (signalised junction). The feedback from a number of respondents, including the emergency services, was that the roundabout would allow for greater free traffic flow than the signalised junctions. Most respondents considered that the roundabout would be better at managing traffic flow than a signalised junction. Many believed that it would reduce congestion, keep a constant flow of traffic, and aid a smoother route onto the A12 at the junction.

9.4.31 Some respondents believed the roundabout would be safer than the signalised junction. The roundabout was also considered to cause less queuing back towards the A1120 junction due to it being located further north than the signalised junction option. This would potentially reduce noise and air pollution in the village caused by standing traffic.

9.4.32 The local authorities considered that they were not in a position at Stage 2 consultation to expressly support either the roundabout or signalised junction proposals. It was concluded that more technical detail was required on how either the roundabout, or the signalised junction would perform in alleviating long queues extending back through the B1122 level crossing. Further work was also considered to be required in order to assess the impact on the setting of the Yoxford Conservation Area.

ii. Speed limit reductions

Proposals

9.4.33 The current speed limit on the B1122 between the A12 at Yoxford and the proposed access road to Sizewell C varies along the road between 30mph, 40mph and 60mph zones.

9.4.34 SZC Co. considered that it would be appropriate to reduce the speed limit of 60mph, which currently applies between the level crossing over the East Suffolk Line and Middleton Moor, Middleton Moor and Theberton, and between Theberton and the construction site entrance. Therefore, the Stage 2 consultation proposed a reduction to a maximum of 40mph on the stretch between Middleton Moor and Theberton to be more in keeping with the characteristics of the road in this location. It was also considered to help improve safety and reduce the noise arising from vehicle movements along this stretch. A reduction to 30mph between Theberton and the construction site entrance was also proposed to reduce the extent of land needed to meet visibility requirements at this location.

Consultation responses

9.4.35 SZC Co. was made aware that compliance with existing speed limits is a concern for residents on the B1122, and has been willing to support measures to help improve compliance with current and any future amended speed limits.

9.4.36 Such reductions in speed limit cannot be delivered or enforced by SZC Co.; it would require the support and sponsorship of SCC as the highway

authority, in consultation with Suffolk Constabulary[3]. Discussion with SCC, the police and other interested parties on the speed limits along the B1122 were ongoing at the Stage 2 consultation, during which SZC Co. invited comments on reducing the 60mph speed limit on sections of the B1122.

9.4.37 Following Stage 2, the need for speed reductions and further works on the B1122 lessened as options developed for both the Sizewell link road and the Theberton bypass. These options and the design evolution of the Sizewell link road are detailed in **section 7** of this report and **Volume 6**, **Chapter 3** of the **ES**.

iii. B1122 west of the junction with Mill Street

Proposals

9.4.38 The B1122 has a poor vertical alignment to the west of the junction with Mill Street, resulting in drivers having difficulty seeing traffic around this junction. It was therefore proposed at Stage 2 to improve the vertical alignment by reducing the road level west of the junction to improve visibility for traffic on the B1122 and traffic exiting Mill Street. The proposed improvement works would be relatively minor, involving the reconstruction of this part of the B1122.

9.4.39 Whilst there would have been no significant environmental effects resulting from the works, measures would have been adopted during construction to ensure satisfactory level of environmental protection, whilst minimising the potential for disturbance from construction activities as far as reasonably practicable.

Consultation feedback

9.4.40 Following feedback from Stage 2 regarding this small-scale improvement at the B1122/Mill Street junction, these works were carried forward to Stage 3.

iv. Pedestrian enhancements in Theberton

9.4.41 Following the Stage 1 feedback that highlighted shortcomings in the current provision for pedestrians in Theberton, including a lack of road crossings, SZC Co. sought to provide enhancements for pedestrians near Pump Cottages.

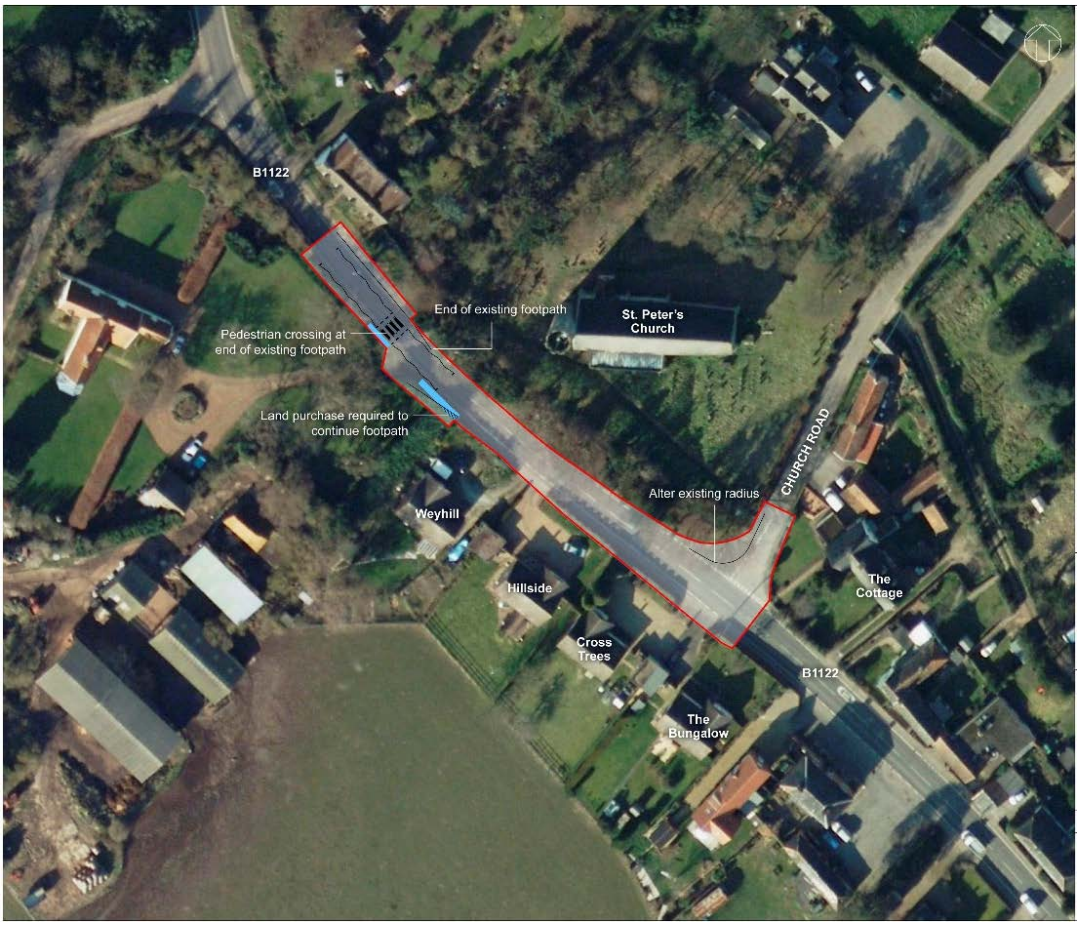
[3] Suffolk Constabulary is the territorial police force responsible for policing Suffolk in East Anglia, England

9.4.42 Pump Cottages are just north of the main section of the village with only a short section of existing footway on the western side of the B1122. There is no connection to pavements or footways within the main village of Theberton. It was therefore proposed at Stage 2 to create a new pedestrian crossing south of Pump Cottages, and also a footpath on the eastern side of the B1122 to connect to the existing footway outside Ivy Cottages (**see Plate 9.5).**

Plate 9.5: Proposed pedestrian crossing and footpath at Pump Cottages.

9.4.43 In order to re-connect with the existing footways further south within Theberton, a further new pedestrian crossing on the B1122 would be required at the point where the footway outside of Ivy Cottages ends. It would then connect with the existing footpath on the western side of the B1122 opposite the Church of St Peter, through the addition of a new short section of footpath running just past the access to The Old Manor (see **Plate 9.6**).

Plate 9.6: Proposed pedestrian crossing near the Church of St Peter.



9.4.44 The implementation of both the enhancement near Pump Cottages and the proposed pedestrian crossing near the Church of St Peter would, in-combination with existing footpaths, create a pedestrian footpath connection along the length of the village, removing the need to walk in the road at any stage. It is considered that these works would improve pedestrian access through Theberton.

v. Alignment of the B1122 between Theberton and the Sizewell C construction site entrance

9.4.45 The existing horizontal and vertical alignment of the B1122 immediately east of Onner's Lane and Moat Road provides poor forward visibility for its 60mph speed limit. The visibility would remain poor, even if SZC Co.'s proposal to reduce the speed limit to 40mph on this stretch of the B1122 was implemented. Therefore, SZC Co. proposed at Stage 2 to modify the alignment of the B1122 at this location to improve forward visibility for motorists.

9.4.46 Implementation of the scheme would require some earthworks and probably the loss of a small number of existing trees from Fishpond Grove. The land area shown in red on **Plate 9.7** is an indicative location for a temporary contractor's compound to deliver these, and the other proposed improvements; no permanent development would occur at this location.

Plate 9.7: Improvement to the alignment of the B1122 between Theberton and the Sizewell C construction site entrance.

9.4.47 SZC Co.'s proposal for a new roundabout junction at the Sizewell C construction site entrance with the B1122 is detailed in **Volume 2, Chapter 6** of the **ES**.

c) Stage 3

9.4.48 Following further work to consider the traffic impacts arising from the construction of Sizewell C and feedback from the Stage 2 consultation, SZC Co. proposed the following highway improvements at the Stage 3

consultation to mitigate the impact of Sizewell C construction traffic on the local highway and transport network:

- Yoxford roundabout.
- Mill Street/B1122 junction improvements.
- B1078/B1079 junction improvements east of Easton and Otley College.
- A1094/B1069 junction improvements south of Knodishall.
- A140/B1078 junction improvements west of Coddenham.
- A12/A144 junction improvements, south of Bramfield.
- A12/B1119 junction improvements at Saxmundham.

9.4.49 The A12/A1094 junction improvements at Friday Street, north of Farnham form part of the proposed two village bypass, and are detailed in the relevant Site Selection Report of this Planning Statement and **Volume 5, Chapter 3** of the **ES**.

i. Yoxford roundabout

9.4.50 Of the two options presented at the Stage 2 consultation (the A12/B1122 roundabout and A12/B1122 signalised junction), the Yoxford roundabout was carried forward to Stage 3. This was based on feedback received from the Stage 2 consultaton and further studies, including additional traffic modelling and the PEI Volume 2B (PEI 2B) report which formed part of the Stage 3 consultation.

Proposals

9.4.51 Following the consultation feedback and traffic modelling, the proposal for mitigating the effect of Sizewell C traffic, and minimising disruption at the existing A12/B1122 junction is the A12/B1122 Yoxford roundabout.

9.4.52 The proposed roundabout would take approximately six to nine months to construct, and work would start during the early years of the construction phase of the Sizewell C Project.

9.4.53 The Stage 3 proposal would replace the existing A12/B1122 ghost island junction and would be approximately 100m north of the existing junction, and would be built on agricultural land to the east of the existing A12. The Stage 3 masterplan of the Yoxford roundabout can be found at **Plate 9.8**.

Plate 9.8: Stage 3 Yoxford roundabout masterplan.

9.4.54 The design of the A12/B1122 Yoxford roundabout at Stage 3 was very similar to the proposals put forward at the Stage 2 consultation. However, minor amendments were required based on utilities records and topographic surveys. The changes at Stage 3 consisted of:

- defining an overrun area for HGVs on the roundabout central island;
- showing a drainage infiltration pond immediately south of the roundabout;
- showing street lighting column positions;
- more comprehensive definition of the extent of earthworks; and
- defining areas of existing carriageway that could be landscaped.

Construction and operational requirements

9.4.55 A contractor compound area would be required during construction, presented in Stage 3 within the field to the north of the B1122.

9.4.56 During the operational phase, AILs bound for Sizewell B or Sizewell C would need to pass through the A12/B1122 Yoxford roundabout since a vehicle of that size could not negotiate the roundabout. The proposed development would therefore need to be designed with a partially demountable central island in order for the AILs to cross the junction.

9.4.57 Post construction, the A12/B1122 Yoxford roundabout would remain in place as a permanent improvement to the highway network. Fence lines would be positioned generally 5m back from the top of any cutting in accordance with recognised standards and guidance for highway construction, and to provide space for maintenance.

Consultation responses

9.4.58 The feedback from the Stage 3 consultation on the above option included concern from some that the proposed roundabout at Yoxford, at the A12/B1122 junction, will either lead to, or fail to prevent, increased congestion, delays, and accidents.

9.4.59 However, some supported a roundabout at Yoxford as an alternative to the current junction in place, arguing that it would be safer.

9.4.60 Some respondents offered suggestions for the Yoxford roundabout proposal, including traffic lights instead of a roundabout, screening and minimising light pollution from the roundabout, and increased pedestrian crossings in Yoxford.

9.4.61 A few suggested that the A12/B1122 roundabout proposal should be replaced with a bypass of Yoxford, to ensure that no Sizewell traffic passes through the village. Other alterations and alternatives suggested to the proposed roundabout were the creation of a new cycle network, broader speed restrictions, a new pollution policy, and HGV restrictions.

ii. Mill Street/B1122 junction improvements

9.4.62 At the Stage 3 consultation, SZC Co. proposed the Theberton Bypass as part of the rail-led transport strategy. This replaced the pedestrian enhancement works around Theberton proposed at the Stage 2 consultation.

9.4.63 The Theberton Bypass forms part of the Sizewell Link Road at its eastern end, detailed in full **section 7** for the Sizewell Link Road and **Volume 6, Chapter 2** of the **ES**.

iii. B1078/B1079 junction improvements east of Easton and Otley College

9.4.64 The B1078/B1079 junction is a rural priority T-junction approximately 1.5km south of Otley, and 400m east of the Otley campus of Easton & Otley College. The B1078 is subject to a 40mph speed limit, whilst the B1079 is 60mph, both are single carriageways, and neither have street lighting.

9.4.65 Road safety analysis undertaken ahead of the Stage 3 consultation indicated a higher than expected number of collisions on the B1078 between the college and the B1079 junction. There is limited forward visibility which has contributed to accidents in the area. SCC has already undertaken works in the area to make drivers more aware of their surroundings, and this has been included within the assessment of the reference case.

9.4.66 Future modelling of 2022 and 2027 of scenarios both with, and without, Sizewell C in place were also undertaken. The junction modelling indicated that the B1078/B1079 junction will be above capacity by 2022 and in 2027 even without the Sizewell C development. Capacity issues arise because nearly all B1078 traffic turns right onto the B1079. The analysis demonstrated that the limited visibility at the junction has little influence on the delays.

9.4.67 With the Sizewell C development in place, the traffic at this junction is expected to increase by up to 2% by 2022 and up to 8% by 2027. This increase in traffic would impact upon the performance of the junction.

9.4.68 The additional traffic generated from the Sizewell C development could exacerbate the identified road safety issues on the B1078 between the college and the B1079 junction, resulting in additional accidents. To mitigate the effects of the Sizewell C traffic, SZC Co. proposed at the Stage 3 consultation minor safety improvements for the B1078 and at the B1078/B1079 junction.

Proposals

9.4.69 In light of the road safety analysis and future modelling, the Stage 3 consultation outlined proposed improvements to take place in the early years of the construction programme. These were:

- vegetation maintenance: to improve forward visibility on the B1078 and to increase visibility for vehicles at the B1078/B1079 junction;

- signage and road markings: additional signs on the B1078 approach to the junction. The condition of roads signs would be checked, and where necessary, cleaned or replaced during the Sizewell C construction period. The centre warning line of the carriageway would be highlighted with road studs to increase driver awareness; and
- site monitoring: SCC would undertake regular monitoring and liaise with SZC Co. as part of a monitor and review process.

9.4.70 Whilst delays would still be expected, SZC Co. expects that these highway improvements would improve the safety of the B1078 approach and the B1078/B1079 junction.

Consultation responses

9.4.71 The feedback from the Stage 3 consultation included a few respondents registering concerns that the B1078 and B1079 are not suitable to hold construction traffic.

iv. A1094/B1069 junction improvements south of Knodishall

9.4.72 The A1094/B1069 junction is a single carriageway priority T-junction situated approximately 2.6km south of Knodishall and 1.1km south-east of Friston. The junction has a narrow, painted island provided for right-turning traffic from the A1094 onto the B1069, but this is not wide enough for through traffic to pass a vehicle waiting to turn right. The speed limit at the junction is 60mph, and neither the A1094 nor the B1069 have street lighting.

9.4.73 The safety issues at this junction are a combination of speeds on the A1094 and poor visibility from the B1069 approach to the junction.

9.4.74 Road safety analysis was undertaken ahead of the Stage 3 consultation, which showed a higher than expected accident record for the volume of traffic carried. Between 2011 and 2015, six of the eight collisions involved vehicles turning in or out of B1069, likely due to:

- poor visibility due to overgrown vegetation;
- surface defects causing skidding on the approach to the junction; or
- inappropriate speed limit due to the concealed nature of the junction.

9.4.75 Future modelling of 2022 and 2027 of scenarios both with and without Sizewell C in place were also undertaken. Modelling indicates that the A1094/B1069 junction operates within capacity in both 2022 and 2027 without the Sizewell C development (the reference case).

9.4.76 In 2022, with the introduction of the early years element of Sizewell C construction traffic, delays at the junction would remain at the same level as the reference case, i.e. although there would be an increase in traffic, there would be no impact on the operation of the junction.

9.4.77 The Sizewell C construction would increase the traffic at this junction by up to 12% by the peak construction year of 2027. Delays would remain short, comparable with reference case levels, and the junction would continue to operate with spare capacity.

9.4.78 However, the additional traffic generated from Sizewell C construction could exacerbate the identified road safety issues. To mitigate the effects of the peak Sizewell C traffic, SZC Co. proposed minor safety improvements at the A1094/B1069 junction at the Stage 3 consultation.

Proposals

9.4.79 In light of the road safety concerns, the Stage 3 consultation outlined proposed improvements to take place in the early years of the construction programme. These were:

- vegetation maintenance: to improve visibility both to the left and right for vehicles exiting the B1069;
- signage and road markings: update these to comply with current regulations and add signage, including speed limit reduction signs, to increase driver awareness prior to the junction. The condition of signs would be checked, and where necessary, they would be cleaned or replaced. Road markings would be refreshed;
- reduce the speed limit: SZC Co. would ask SCC to promote a reduction in the speed limit at the junction to 40mph. This would match the required stopping distance to the visibility available when vegetation has been maintained, therefore assisting vehicles turning right out of the B1069 to find suitable gaps in the A1094 traffic and safely complete the manoeuvre; and
- site monitoring: SCC would undertake regular monitoring and liaise with SZC Co. as part of a monitor and review process.

9.4.80 SZC Co. expects that these highway improvements would improve the safety of the A1094/B1069 junction.

Consultation responses

9.4.81 The feedback from the Stage 3 consultation on the above option was supportive, with several respondents specifically mentioning the reduced speed limit as a positive proposal. Some described the current junction as unsafe.

v. A140/B1078 junction improvements west of Coddenham

9.4.82 The A140/B1078 junction is a priority T-junction on a dual carriageway. It is situated approximately 3.2km east of Needham Market and 650m north-east of the A14/ A140 Beacon Hill junction. The A140 northbound to B1078 movement is provided by a right-turn off-slip, whilst the B1078 traffic is restricted to a left-turn movement only onto the A140 southbound. The A140 is subject to a 50mph speed limit, whilst the B1078 is 60mph (the national speed limit for a single carriageway), and neither have street lighting.

9.4.83 Road safety analysis was undertaken ahead of the Stage 3 consultation which showed a higher than expected number of collisions on wet/damp road surfaces, and a higher than expected number of Heavy Goods Vehicles (HGVs) involved in collisions at this junction. From 2011-2015, eight out of 11 collisions involved vehicles turning into the B1078 across the A140, colliding with southbound vehicles. Potential reasons for these collisions included:

- speeding on the A140 southbound due to the donward gradient of the A140;
- Visual obstruction from the ‘Give Way’ line; or
- Poor driver behaviour.

9.4.84 Future modelling of 2022 and 2027 of scenarios both with and without Sizewell C in place were also undertaken. Modelling indicates bcckground traffic growth to 2022 will mean that the queuing on the B1078 approach to the junction will increase, irrespective of Sizewell C. By 2027, delays on the B1078 will cause vehicles to divert to alternative routes. This increase in traffic will impact on the performance of the A140/B1078 junction.

9.4.85 The Sizewell C development would increase the traffic at this junction by up to 2% by 2022 and 7% by 2027. This increase in traffic could marginally impact upon the performance of the junction and delays would increase when compared with the reference case. The increase in traffic using the junction may impact saftey. To mitigate the impact, SZC Co. propose minor safety improvements to the A140/B1078 junction.

Proposals

9.4.86 In light of the road safety concerns, the Stage 3 consultation outlined proposed improvements to take place in the early years of the construction programme. These were:

- vegetation maintenance: to improve visibility for vehicles turning right inot the B1078 and left onto the A140;
- improved signage and road markings:
  - change the existing 'Give way' sign at the right turn from the A140 northbound towards the B1078 to a 'Stop' sign, requiring drivers to observe oncoming vehicles on the A140 southbound before crossing safely;
  - update signs to comply with highway regulations and provide sufficient notice in advance of the junction, where necessary. The signs would be cleaned, and where necessary, replaced during the Sizewell C construction period; and
  - extend the existing hatching to the full length of the right turn lane on both sides, preventing vehicles from stopping parallel to each other and obscuring visibility. Road markings would be refreshed.
- site monitoring: SCC would undertake regular monitoring and liaise with SZC Co. as part of a monitor and review process.

9.4.87 SZC Co. expects that whilst these junction improvement works would not increase the capacity of the junction and delays are still likely, they would improve the safety of the A140/B1078 junction.

Consultation responses

9.4.88 The feedback from the Stage 3 consultation on the above option was that several respondents expressed concern around congestion in Coddenham, arguing that the B1078 is inappropriate for large volumes of construction traffic. A few people registered concern that cyclists will be endangered at this junction.

9.4.89 Several respondents requested specifically that traffic is routed around Coddenham entirely, rather than completing the proposed works to the A140/B1079 there.

9.4.90 There was some concern about the impact on the local roads from the proposed highway improvement works overall, with some respondents

arguing that the proposed improvements would change the 'rural' feel of the area, and cause congestion on the A12 and other local roads by increasing their use. Some also suggested that it will encourage faster and more dangerous driving in an area within existing 'accident blackspots'.

9.4.91 However, generally the respondents to the Stage 3 consultation were supportive of the proposed road improvements, with many stating that the A12 is currently overwhelmed and unsafe.

vi. A12/A144 junction improvements south of Bramfield

9.4.92 The A12/A144 junction is a rural ghost island priority T-junction situated approximately 2.7km south of Bramfield and 950m north of the northern park & ride access. Both the A12 and A144 are subject to a 60mph speed limit and neither have street lighting.

9.4.93 At the Stage 3 consultation, no road safety concerns were raised at this ghost island junction, with only three slight injury accidents recorded between 2013 and 2017. It was considered to have an accident rate typical for the traffic flows carried. However, due to the speed and volume of traffic on the A12, right turning vehicles on the A144 queue and are delayed while they seek suitable gaps in the northbound and southbound traffic streams.

9.4.94 Future modelling of 2022 and 2027 of scenarios both with and without Sizewell C in place were undertaken at Stage 3. The modelling indicated that the A12/A144 junction would operate at, or close to, capacity at expected 2022 and 2027 traffic volumes without any Sizewell C construction traffic.

9.4.95 The Sizewell C development would increase the traffic at this junction by 4% in 2022 and up to 13% on the A144 and 14% on the A12 in 2027. This increase in traffic would exacerbate the queuing on the A144 arm of this junction.

Proposals

9.4.96 To increase the capacity for the right-turn movement from the A144 onto the A12, it was proposed at Stage 3 to add a physical central reservation island and waiting area. This waiting area within the junction would allow vehicles turning right from the A144 to legally undertake the manoeuvre in two stages. Drivers would need to find a suitable gap in the northbound A12 traffic, move to the central area and then find a gap in the southbound A12 traffic.

9.4.97 The central reservation and waiting area would increase the junction capacity. With the central reservation and waiting area proposals in place, junction modelling for 2027 indicates that the improvements would reduce

queueing and delay on the A144 approach to the same level as if there were no Sizewell C construction traffic. This would therefore mitigate the effect of the peak Sizewell C construction traffic on the junction.

Consultation responses

9.4.98 There was little feedback on this specific proposal following Stage 3 but many respondents supported the proposed road improvements overall.

9.4.99 Improvements to the A12, which several respondents described as overwhelmed and unsafe, were supported by many but others respondents raised concerns that there would be increased congestion on the A12 and other local roads as a result of the Sizewell C development.

vii. A12/B1119 junction improvements at Saxmundham

9.4.100 The A12/B1119 junction is a ghost island staggered crossroads on the A12 situated 1.1km west of Saxmundham. In addition to the usual staggered crossroad 'Give way' lines, there are additional 'Give way' lines for both A12 left-turn movements and offside divergent lanes for right-turning traffic. The speed limit at the junction is 60mph and neither the A12 nor the B1119 have street lighting.

9.4.101 At Stage 3 safety issues were identified as a combination of high speeds on the B1119 approaching the junction, poor signage, lighting and misjudging the speed of vehicles travelling on the A12.

9.4.102 Road safety analysis indicated a higher than expected number of collisions for the traffic volumes carried. Between 2011 and 2015, four out of five collisions were side-on collisions, and three of them occurred in conditions of low light or darkness. The collisions occurred at the northern junction and involved vehicles turning right out of the B1119 junction onto the southbound A12.

9.4.103 Future modelling undertaken for Stage 3 indicated that the A12/AB1119 junction would operate with spare capacity in both 2022 and 2027 without any Sizewell C construction traffic.

9.4.104 In 2022, during the early years Sizewell C construction traffic, traffic flows on the A12 increase by 8% but the junction would still operate with spare capacity.

9.4.105 The modelling indicated that the Sizewell C development would increase the traffic at this junction by up to 4% in 2027 but the junction would continue to operate with spare capacity.

9.4.106 However, the additional traffic generated from Sizewell C construction could exacerbate the identified road safety issues. To minimise this risk, minor safety improvements were proposed for the A12/B1119 junction at Stage 3.

Proposals

9.4.107 In light of the road safety concerns, the Stage 3 consultation outlined proposed improvements to take place in the early years of the construction programme. These were:

- vegetation maintenance: to improve visibility from the B1119;
- improved signage and road markings:
  - existing signage interferes with driver visibility in some locations, so existing signs would be mounted higher, or relocated if necessary;
  - new 'Give way' signs would be situated before the bend on the B1119 approach to the northern junction to raise awareness of the junction;
  - the existing roads signs would be, where necessary, cleaned or replaced; and
  - new road markings would be installed within the junction, to clarify the priority within the central reserve and allow right-turning vehicles from the B1119 to negotiate the junction in two manoeuvres, improving operation and safety.
- site monitoring: SCC would undertake regular monitoring and liaise with SZC Co. as part of a monitor and review process.

9.4.108 SZC Co. expects that these highway improvements would improve the safety of the A12/B1119 junction and mitigate the impact of additional Sizewell C construction traffic on the junction.

Consultation responses

9.4.109 There was little feedback on this specific proposal following Stage 3 but many respondents supported the proposed road improvements overall.

9.4.110 Improvements to the A12, which several respondents described as overwhelmed and unsafe, were supported by many but others respondents raised concerns that there would be increased congestion on the A12 and other local roads as a result of the Sizewell C development.

d) Stage 4

9.4.111 The list of potential highways improvements considered at Stage 4 consisted of:

- Yoxford roundabout;
- A140 / B1078 west of Coddenham;
- B1078 / B1079 east of Easton & Otley College;
- A12 / A144 south of Bramfield;
- A12 / B1119 at Saxmundham; and
- A1094 / B1069 south of Knodishall.

9.4.112 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 highways improvements.

i. Yoxford roundabout

9.4.113 Following the Stage 3 consultation, SZC Co. continued to progress the Yoxford roundabout for Stage 4 consultation.

9.4.114 The proposal remained broadly similar to Stage 3, though further detailed design work resulted in minor proposed changes namely:

- the relocation of the roundabout approximately 20m to the south-east to meet highways design requirements, including enabling offline construction to reduce traffic management delays; and
- a revision to the red line to the south to avoid Sandy Stilt Puffball fungi found in this location.

ii. A140 / B1078 west of Coddenham

9.4.115 The only proposed change since Stage 3 was an extension of the red line boundary to the north and south along the A140 to allow for additional signage within the highways boundary.

iii. B1078 / B1079 east of Easton & Otley College

9.4.116 The works proposed at Stage 4 did notchange since Stage 3, and included vegetation maintenance to improve visibility, various new signage and road markings, and site monitoring.

iv. A12 / A144 south of Bramfield

9.4.117 There were a series of proposed changes to the site boundary since Stage 3 which were consulted on at Stage 4, namely:

- widening the boundary along the A12 on the west of the site, and reduction to the south-east, to reduce impact on residential gardens to the south-east of the junction; and
- relocation of the A144 arm to the south to reduce the impact on Stone Cottage.

9.4.118 The proposed works include the addition of a central reservation island, and waiting area to increase the capacity for the right turn from the A144 onto the A12.

v. A12 / B1119 at Saxmundham

9.4.119 The revised proposed design at Stage 4 included a minor extension of the red line boundary to the south to include additional highway land on the A12 and to the west along the B1119.

9.4.120 This additional land within the highway provided additional flexibility for highways improvements, as the detailed design work progressed, following additional discussion with the highways authority.

9.4.121 The extension to the red line to the west was proposed to include an advanced ‘give way’ sign to the north-west on the B1119.

vi. A1094 / B1069 south of Knodishall

9.4.122 The revised proposed design at Stage 4 includes a very minor extension of the red line boundary to allow for additional speed limit signs to be incorporated at an appropriate distance from the junction.

9.4.123 The works include vegetation maintenance to improve visibility, various new signage and road markings, and site monitoring, as well as a reduction of the current 60mph speed to 40mph to assist vehicles turning right out of the B1069.

Consultation responses

9.4.124 Some respondents expressed concerns that, even with these road improvements, the A12 will be unable to cope with the increased HGV movements, and will be heavily congested as a result.

9.4.125 As one solution to this issue, a few respondents suggested the single carriageway sections of the A12 should be dualled in order to reduce congestion. Other suggested road improvements included:

- improvements to the B1125;
- a cycle lane in the central reservation of the A12/B1119 west of Saxmundham;
- more extensive improvements to the B1078/B1079 east of Easton and Otley College;
- construction of a roundabout on the A12/A144 south of Bramfield rather than the minor improvements to the junction currently proposed;
- improvements to the sharp bend in road running through the village of Coddenham to decrease congestion and increase safety; and
- more extensive improvements to the A1094/B1069 south of Knodishall.

9.4.126 The Yoxford roundabout attracted some comments from respondents with many of them expressing concern that it will lead to further congestion in the village of Yoxford, and have a harmful effect on air quality. Other concerns include the impact it will have on local properties, and fears that it would encourage cut through driving.

9.4.127 Some respondents were positive about the Yoxford roundabout. Most did not provide detailed comments, but a few suggested that it will aid the movement of HGVs towards Sizewell.

9.4.128 A few respondents provided suggestions for Yoxford roundabout, the most common of which was that a traffic management plan should be developed with the aid of the Parish Council. Other suggestions were:

- the infiltration pond to be designed to benefit wildlife as much as possible;
- SZC Co. to help fund the upkeep of Yoxford roundabout;
- a 30mph speed limit to be considered for the roundabout; and

- cycling access included in the roundabout design.

9.5 Conclusions – Development Consent Order submission

9.5.1 As previously stated, 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.

9.5.2 The design for the proposed Yoxford roundabout and other highway improvements is described in **Chapter 2** of **Volume 7** of the **ES**.

9.5.3 In summary, the designs are largely the same as proposed at Stage 4. The two B1078 schemes (the B1078 and B1079 junction east of Easton and Otley College and the A140 and B1078 junction west of Coddenham) will be secured by an obligation in the Section 106 Agreement, provided in the Section 106 Heads of Terms appended to the **Planning Statement** (Doc Ref. 8.4). The site boundary at Yoxford roundabout has been amended slightly adjacent to the roadside nature reserve containing Sandy Stilt Puffball fungi. The change would still exclude the protected flora but would include adjacent existing footway.

9.5.4 As the 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 may be required to ease congestion during the construction of Sizewell C.

9.5.5 The improvements proposed are considered the best to support the **Transport Assessment** (Doc Ref. 8.5) in its aim to minimise the impact of construction traffic on the road network. The temporary increase in journeys on the network will therefore be managed and mitigated through these permanent highway improvements, improving capacity and providing a legacy benefit to the area.

10. Rail

10.1 Introduction

10.1.1 This section presents a description of the site selection process undertaken in relation to the proposals relating to rail. The proposals considered in this report are as follows:

- the part of the green rail route comprising a temporary rail extension of approximately 1.8km from the existing Saxmundham to Leiston branch line to the proposed B1122 (Abbey Road) level crossing (the 'proposed rail extension route') as shown on **Figure 2.1** of **Volume 9**, **Chapter 2** of the **ES**; and
- Saxmundham to Leiston branch line upgrades (including track replacement and level crossing upgrades) (the 'proposed rail improvement works') as shown on **Figure 2.7** of **Volume 9**, **Chapter 2** of the **ES** (together the 'proposed development').

10.1.2 This section of the Site Selection Report is structured as follows:

- Scheme requirements.
- First filter stage.
- Second filter stage.
  - Response to Stage 1 and proposals at Stage 2;
  - Response to Stage 2 and proposals at Stage 3;
  - Response to Stage 3 and proposals for Stage 4; and
  - Response to Stage 4 and proposals for DCO application.
- Conclusions - DCO Submission.

10.2 Site requirements

10.2.1 The **Transport Assessment** (Doc Ref. 8.5) aims to transport a proportion of the Sizewell C Project construction materials to the main development site via rail. The rationale for rail is to minimise HGV movements on the road network.

10.2.2 This report presents a description of the site selection process which SZC Co. undertook in relation to the proposed rail extension route, and explains the purpose and need for the route, and the rationale for arriving at the proposed route.

10.2.3 The proposed rail improvement works on the Saxmundham to Leiston branch line relate directly to an existing line, and therefore a site selection process similar to the other associated development sites, such as for the Park and Ride facilities, was not carried out. However, the proposals for the rail

improvement works were developed through public consultation and engagement with Network Rail, SCC and SCDC (now part of ESC).

10.2.4 There is no formally prescribed process or methodology for undertaking a site selection process, so the process can be adapted to the particular characteristics of different projects. For the rail extension route, SZC Co. adopted a two-filter process:

- Filter 1 – key operational pre-requisites. The principles of a preferred scheme.
- Filter 2 – options are then compared and contrasted against a common set of planning and environmental criteria.

10.2.5 The design evolution of proposed development changed through the consultation period (Stages 1 to 4), due to consultation feedback and engagement with key external stakeholders. This report details the design evolution of the proposed rail extension route in particular, but should be read in conjunction with **Chapter 3** of **Volume 9** of the accompanying **ES** which focusses on the environment impacts of the proposals as required by Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the "EIA Regulations") (Ref. 4.9).

10.3 First filter stage

10.3.1 As set out in **Volume 1, Chapter 2** of the **ES**, SZC Co. has developed a strategy to transport a proportion of the Sizewell C Project construction materials to the main development site via the rail network where possible in order to reduce the number of HGV movements on the local road network.

10.3.2 The principal requirement for this strategy, and for the strategy to operate efficiently, is for the railway line to be as close to the development site as possible to minimise unnecessary HGV movements. This approach would enable freight trains to be unloaded close to where the materials would be used. The potential locations of the rail terminals were determined, to some extent, by the rail route alignments that were possible.

10.3.3 Therefore, there would be a need to provide new rail infrastructure in close proximity to the main development site, either through a new rail terminal or through a new railway line, and new terminal within the main development site.

a) Environmental and planning criteria

10.3.4 In order to select a preferred option, SZC Co. identified the considerations below, against which the potential options would be assessed:

- transport implications;
- landscape setting/degree of screening;
- proximity to nearest dwellings and settlements;
- proximity to designated heritage assets and archaeological remains;
- evidence of flood risk (i.e. related to topography and proximity to watercourses);
- presence of PRoW;
- contaminated land (i.e. evidence of made ground or local sources of potential contamination, such as landfills);
- ecological constraints, such as semi-natural habitats, ponds and watercourses;
- proximity to SAC, SPA and SSSI;
- planning policy designations;
- noise and vibration;
- stakeholder feedback; and
- land availability.

10.3.5 It was acknowledged that the considerations above cannot necessarily be attributed equal weight in assessing each option, as (for example) certain factors may be more important in the assessment of one site than another.

10.4 Second filter stage

10.4.1 An initial Transport Strategy and Supporting Information report assessed the existing transport conditions around Sizewell and the likely transport impacts of the construction and operation of Sizewell C.

10.4.2 The report found that the existing rail terminal at Leiston, known as Sizewell Halt (located south of King George's Avenue, at the end of the Saxmundham to Leiston branch line) could be used to bring freight deliveries close to the

site by rail. However, it would require refurbishment and freight would then need to be transferred to the construction site by HGVs via Lover's Lane.

10.4.3 The report concluded that the capacity of Sizewell Halt, and the existing local rail infrastructure to support rail freight deliveries was limited to one freight train per day, which would be insufficient for achieving the aim of substantially reducing road freight.

10.4.4 SZC Co. therefore invited views on a number of proposals at the first consultation stage, which would enhance the scope for using rail for freight. Three options involved a spur off the existing Saxmundham to Leiston branch line, each of which would require additional rail infrastructure including new sections of track and level crossings at either the B1122 or Lover's Lane, combined with a new rail terminal within the main development site.

10.4.5 A fourth option was to make use of the existing branch line as far as Leiston (with local upgrades as necessary), and to develop a new rail terminal to the north of King George's Avenue without building a rail line extension into the main development site. This would be located at the LEEIE, and would be included in the Sizewell C main development site construction area. This option has evolved over the consultation stages, and may be taken forward in addition to the rail proposals outside of the Sizewell C main development site. As such, it is detailed in full in **section 3** of this appendix, and **Volume 2**, **Chapter 6** of the **ES** concerning the alternative options and design evolution of the main development site.

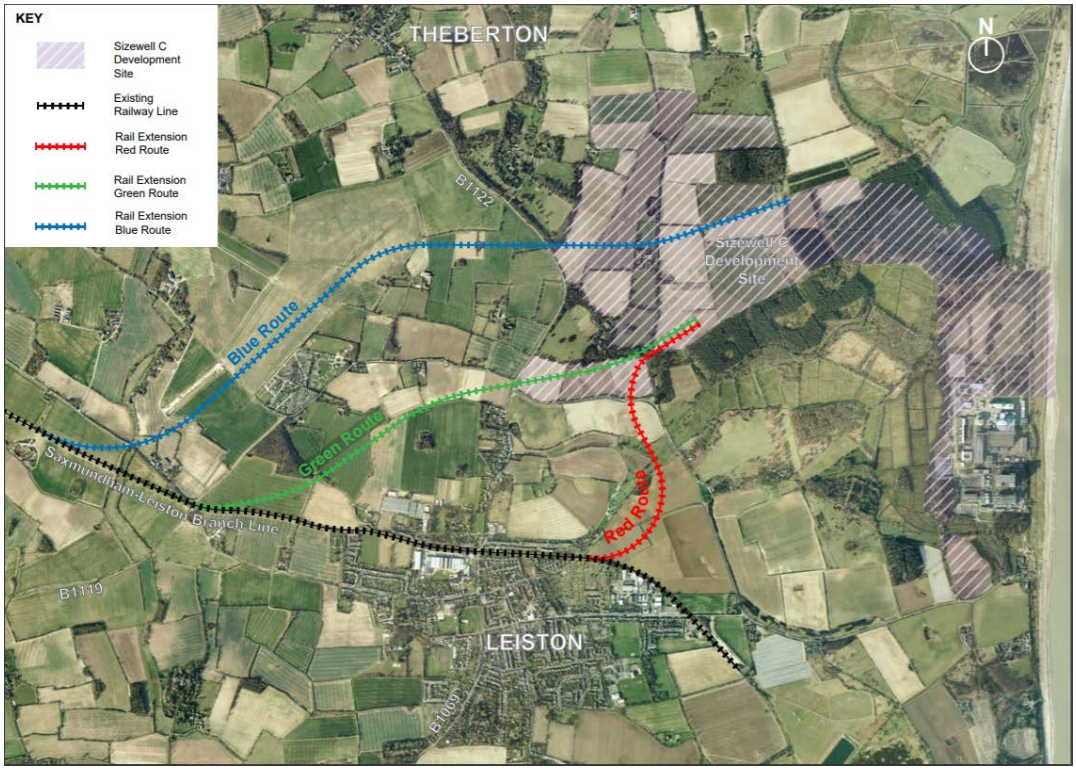
10.4.6 The three rail route options were developed and evolved through the public consultation undertaken for the development of Sizewell C. These are described in the following sections.

10.4.7 At this early stage, these routes were not subject to detailed environmental assessments (a more detailed assessment of the routes against the considerations set out in **section 10.3** of this appendix was carried out at the Stage 2 Consultation).

a) Stage 1 consultation

10.4.8 As part of the Stage 1 Consultation, three rail extension routes (blue, red and green) were presented, illustrated in **Plate 10.1** below.

Plate 10.1: Stage 1 – Rail extension route options.



(Source: Sizewell C Stage 1 Pre-application Consultation, November 2012)

10.4.9 Two of the routes (the blue and green route) would spur off the existing track to the west of Leiston and route through open countryside into the main development site. The third route (the red route) would spur off the existing track just north of Eastlands Industrial Estate in Leiston. All three routes would require a rail terminal within the main development site.

10.4.10 The red route option offered the advantage of being shorter in length than the other two options, but would involve the freight trains passing through Leiston along the existing rail corridor with associated potential noise and vibration effects. It would also involve construction across watercourses which feed into the Sizewell Belts and Marshes SSSI, as well as the likely loss of a small amount of woodland habitat, with potential impacts on protected species.

10.4.11 The blue and green routes would avoid trains passing residential properties in Leiston, which could be of particular benefit as some freight train movements may need to occur at night. However, these routes would also have the greater landscape and visual impacts on the surrounding countryside, including potential impacts on views from Leiston Abbey. The

red route was the shortest of the routes with potentially reduced visual impacts.

10.4.12 Both the blue and green route options would cross a number of roads and PRoW, requiring cuttings, bridges, crossings, and/or diversions. A number of potential adverse impacts were identified, notably in relation to landscape and visual amenity, heritage, ecology and noise and vibration.

10.4.13 The green route (and to a lesser extent the blue and red routes) would pass close to Leiston Abbey, introducing the potential for direct and indirect impacts on the abbey and its setting. The **Stage 1 Environmental Report** noted that detailed consideration of its horizontal and vertical alignment would need to be examined to establish the potential for minimising these effects.

10.4.14 The **Stage 1 Environmental Report Supporting Document** also noted that the indicative route options were subject to further design and assessment work, and should not be seen as precise alignment proposals at this stage.

Stage 1 consultation responses

10.4.15 Of the three options for the rail route presented at Stage 1, no clear preference emerged from the consultation, although the green or red rail routes were preferred over the blue rail route. The different rail options would give rise to different efficiencies in the construction of Sizewell C, as well as different environmental effects. No option would meet all project requirements whilst avoiding giving rise to any significant environmental impacts.

10.4.16 Those favouring the red rail route tended to consider that because it was the shortest of the routes, it would have the least effect on surrounding countryside. However, some raised concerns over the potential for noise and vibration impacts arising from freight trains passing through Leiston. Conversely, those in favour of the blue or green rail route options generally stated that these options avoided any concentration of residential properties in Leiston. However, some concerns were raised regarding the potential for visual effects as they would run through open countryside.

10.4.17 While consultation responses from members of the local community were generally supportive of the green and blue rail route options, responses from statutory consultees and environmental organisations were more mixed due to the limited heritage and environmental information that was provided at Stage 1.

10.4.18 SCDC stated that its preference would be for the green route, as this would reduce traffic through Leiston and on Lover's Lane. However, the Council noted that this was subject to the results of the preliminary environmental assessments.

b) Response to Stage 1 and proposals at Stage 2

10.4.19 Following the Stage 1 consultation, and further consideration of the options, preliminary assessments were carried out and SZC Co. assessed the three rail route options, and the fourth option of a new rail terminal on LEEIE, against the considerations set out in **section 10.3** of this appendix.

Environmental considerations

10.4.20 The principal environmental considerations in relation to the Stage 1 proposals were: terrestrial ecology; noise and vibration; landscape and visual, and historic environment.

i. Terrestrial ecology

10.4.21 The ecological effects associated with the green and blue rail route options, outside of the main development site on arable farmland, were considered to be relatively minor, as the arable farmland is not subject to any ecological designations, and was therefore anticipated to be of relatively low ecological value.

10.4.22 The red rail route option, however, is incompatible with the SZC Co. Aldhurst Farm Habitat Creation Scheme (the Habitat Creation Scheme), to the south and west of Lover's Lane. The Habitat Creation Scheme is being created to mitigate the loss of Site of Specific Scientific Interest (SSSI) habitat, which would occur as a result of the permanent Sizewell C development. The initial works to create the wetland and heathland habitats were completed in 2016, to allow for the habitats to establish prior to the potential future loss of the SSSI.

ii. Noise and vibration

10.4.23 A preliminary assessment of potential noise and vibration impacts indicated that rail noise and vibration would be a greater on the red route rail, as it would pass through Leiston, where there are a number of properties close to the rail line.

10.4.24 By contrast, the blue and green rail route options do not run close to any comparable concentrations of residential properties, thus fewer properties are likely to be impacted. These route option alignments are, however, closer

to the Cakes and Ale Caravan Park (in particular the blue rail route option), and the Pro Corda music school within the Grade I and II listed buildings at Leiston Abbey, although the distance to these receptors would be greater than on the red rail route. As such, the noise impacts associated with these options would be lower and would allow for mitigation to reduce any impacts.

10.4.25 All rail route options require use of the Saxmundham to Leiston branch line. There are a small number of residential properties located close to the section of the line after it branches at Saxmundham towards Leiston (west of Leiston). These properties would potentially be impacted by noise from the Sizewell C freight trains, irrespective of the rail route or rail terminal options.

iii. Landscape and visual

10.4.26 Each of the rail extension options could potentially give rise to significant landscape and visual impacts. These routes would cross areas of open countryside and generate some associated earthworks and highway works.

10.4.27 Due to the undulating terrain it would cross, the red rail route option would require major earthworks and generate relatively large volumes of spoil, despite its shorter length relative to the other route options.

10.4.28 The blue and green rail route options both cross areas of open countryside. Consequently, this would require some earthworks and associated spoil storage, which would be incorporated into landscaping along the route.

10.4.29 The blue rail route would be approximately 1.3km longer than the green rail route, and therefore bisects a greater area of open countryside. The fields crossed by the blue rail route are generally larger, with fewer intervening landscape features such as boundary hedgerows and trees. In comparison, the green rail route would cross an area of countryside characterised by smaller fields and more undulating topography, which is potentially more sensitive to change.

iv. Historic environment

10.4.30 The main issue of significance related to the potential for impacts on the setting of the scheduled monument and associated Grade I and II listed buildings of the Leiston Abbey site.

10.4.31 The alignment of the red rail route option would be sufficiently distant from the Abbey to avoid harm to its setting. However, both the blue and the green rail route options would run much closer to the Abbey giving the potential for change to its setting. This would be exacerbated when taken in-combination with the works on the main development site, in particular the site entrance

and accommodation campus. In this context, the impact on Leiston Abbey would be greater, as a result of the green rail route compared to the blue route due to its proximity to, and relative visibility from, the Abbey ruins. The ruins have the highest designation (i.e. scheduled monument/Grade I listed building) relative to the Grade II listed buildings which lie closer to the blue route.

10.4.32 However, as the rail use is only required to support the construction of the Sizewell C Project and the land would be reinstated thereafter, any harm to the setting of the Abbey would only be temporary.

Construction and operational requirements

10.4.33 From a construction and operational perspective, the rail infrastructure would need to be of sufficient capacity and flexibility to allow efficient delivery of freight by train. It would also need to avoid, or minimise, wider negative impacts on the layout or operation of the main development site. A new rail terminal and freight laydown area on LEEIE would be the most cost-effective and quickest to construct, but would require double handling of materials, which would be off-loaded from the trains onto HGVs for transfer to the main development site along Lover's Lane. It would also involve trains travelling through Leiston.

10.4.34 Extending the rail line direct into the main development site would be more efficient as it would avoid the double handling of materials and limit traffic on Lover's Lane. The green and red rail routes would cross the B1122 (Abbey Road) south of the main site entrance, and follow the alignment of the southern boundary of the construction area to the batching plant area at the eastern end of the site (i.e. within the area identified for 'common user facilities'). This alignment within the main development site would ensure minimum interference with other site activities.

10.4.35 By comparison, the alignment of the blue rail route would enter the site further north. It would have a greater impact on the layout and efficiency of the main development site, because:

- the security checking area for the blue rail route, at the point it enters the main development site, would require a significant area of cutting. This would reduce the amount of available land within the site, and significantly increase the volume of excess spoil that would need to be stored within the construction area;
- the route alignment would bisect the land identified for an accommodation campus. The loss of land would be likely to rule out the

on-site accommodation campus layout options, as there would be insufficient space;

- within the main development site, it is not possible for the route to fully align with the northern boundary; the stockpile area, the haul road, compound areas, and tree belts to be retained. This would potentially result in the sterilisation of some parcels of land within the site. The alignment would reduce the efficient use of land, and potentially lead to a requirement for additional construction land elsewhere; and
- the route alignment would not offer a satisfactory arrangement for securing direct access to the concrete batching plant, which would be one of the key efficiencies to be derived from extending the rail line directly into the main development site.

10.4.36 Unlike the blue rail route option, the green and red rail route alignments would be able to run along the southern boundary. This would make much better use of the space available within the main development site, and would not bisect or sterilise key construction areas.

Route selection

10.4.37 Following this further analysis, the blue and red routes were discounted. The blue rail route was not preferred, as it was considered to have a greater visual impact on the surrounding countryside due to its length, and it would need to enter the main development site at the preferred location for the accommodation campus, impacting on the efficiency of the main development site. In addition, it would give rise to landscape and visual effects within open countryside and, in-combination with the main site entrance and accommodation campus, would have the potential to harm the setting of the Leiston Abbey site.

10.4.38 The red route was discounted as it would be incompatible with the Habitat Creation Scheme at Aldhurst Farm, which has been created to mitigate the loss of SSSI habitat as part of the Sizewell C Project. Furthermore, this option would require routing of trains on the existing branch line through Leiston, which would give rise to noise and vibration effects for some residential properties in Leiston.

10.4.39 It is recognised that the green rail route option has the potential to give rise to landscape and visual impacts within open countryside, and potential heritage impacts in relation to the setting of the Leiston Abbey site. However, it is considered that design measures would mitigate and reduce these impacts, and the green rail route would only be in operation for the duration of the main construction phase of the Sizewell C Project. It would therefore

be temporary development, and any landscape and heritage impacts would also be temporary. The green rail route would also allow for rail freight to be delivered directly into the main development site to the batching plant area, ensuring minimum interference with other site activities.

Stage 2 consultation

10.4.40 As a result of the further assessment work outlined above, the green rail route and the new rail terminal were progressed to the Stage 2 consultation. The rail terminal options are detailed in full in **section 3** and **Volume 2**, **Chapter 6** of the **ES** but the options presented at Stage 2 for the rail extension route are outlined below.

Green rail route

10.4.41 The green rail route would involve a temporary extension connecting the Saxmundham to Leiston branch line to the main development site. The Stage 2 consultation proposals included:

- grassed spoil bunds along the length of the rail extension route to the north, and to the south of the route to the west of the B1122 (Abbey Road);
- the temporary closure of Buckleswood Road either side of the rail line extension during Sizewell C construction with a diversion for vehicles, and a new footbridge with ramped access over the railway line to retain the route for pedestrians and cyclists. The road would be reopened once the railway line has been removed;
- a level crossing where the B1122 (Abbey Road) would meet the rail extension so road users could cross safely. Each closure would last for a few minutes at most as the train passes - for a maximum of five trains (ten movements) a day at peak construction (under the rail-led strategy proposed at the time of the Stage 2 consultation) - causing limited delays to other road users;
- moving the junction of the B1122 (Abbey Road) and Lover's Lane approximately 100m to the south, a permanent realignment of Lover's Lane that would improve visibility at this junction;
- the old alignment of Lover's Lane would remain in place for cyclists and equestrians;
- the diversion of footpaths to the west of the B1122;

- integration with the wider proposals for diversion of Bridleway 19; and
- during rail route construction, vehicular access to laydown area off Buckleswood Road, and landscaped earthen mounds to screen development from residential properties on the opposite side of the road.

10.4.42 The rail extension would be designed to meet Network Rail standards. The Stage 2 consultation indicative masterplan for the green rail route is shown in **Plate 10.2** below.

Plate 10.2: Stage 2 – Indicative masterplan for the green rail route.

Stage 2 consultation responses

10.4.43 Most respondents were supportive of rail transport as a means of reducing construction traffic on local roads at Stage 2.

10.4.44 Many respondents felt that the green rail route was more appropriate than the provision of a new rail terminal on land to the north-east of Leiston industrial estate, because the latter would require road transport of freight from the new terminal to the main construction area, whereas the former

would not. It would also involve trains travelling through Leiston. The majority of respondents felt that the impacts on traffic, local residents, and the environment would be better if the green rail route option was selected rather than a new rail terminal.

10.4.45 The Councils also stated that its preference is for the green route, as this would reduce traffic through Leiston and on Lover's Lane. The green rail route would also avoid an additional ten train movements per day (under the rail-led strategy presented at the time) from travelling over the existing level crossing in Leiston. However, the Councils did note that should the green rail route be progressed further, there will need to be below ground archaeological assessment and mitigation, as there is moderate potential for medieval and earlier activity.

c) Response to Stage 2 and proposals at Stage 3

10.4.46 Following the Stage 2 consultation, SZC Co. reviewed comments received, and undertook further transport assessments. Following these assessments, it was identified that prior to the availability of the green route, existing rail infrastructure could be upgraded to enable two trains per day to use the Saxmundham to Leiston branch line to deliver freight in the early years. Two upgrade options were considered and were put forward for Stage 3:

- use of the existing Sizewell Halt rail terminal with reconfiguration of the existing railhead required in order to accommodate longer trains and provision of an overhead conveyor to transfer freight material back into the LEEIE (Option 1); or
- construction of a new rail siding adjacent to the existing branch line on the LEEIE (Option 2).

10.4.47 The above options fall within the main development site and are covered in greater detail in **section 3** and **Volume 2**, **Chapter 6** of the **ES**.

Stage 3 consultation

10.4.48 Given the overwhelming support for the green rail route over a new rail terminal on LEEIE, SZC Co. decided to take forward the green rail route as its preferred proposal for the main construction phase in the Stage 3 consultation.

10.4.49 The proposed rail extension route was largely unchanged from the Stage 2 proposal, but it included two options for the crossing at Buckleswood Road:

- Option 1: part of Buckleswood Road would be stopped up and a new footbridge would be constructed; or
- Option 2: a new level crossing would be provided on Buckleswood Road.

10.4.50 It was also considered to provide a road bridge to carry Buckleswood Road over the rail line at this location. However, the embankments required to raise the road would be likely to result in a significant visual impact, particularly since the close proximity to the railway junction restricts the possibilities for lowering the railway line in cutting within an acceptable gradient.

Construction and operational considerations

10.4.51 The green rail route would likely be privately owned and operated by SZC Co., with its construction, operation and maintenance being SZC Co.'s responsibility.

10.4.52 It would be designed and constructed to Network Rail's standards. A maximum train speed of 25mph has been assumed along the length of the route, although trains would run at lower speeds on certain sections.

10.4.53 The rail extension route would be constructed early in the construction phase of the project with construction of the rail infrastructure, starting at the eastern end and progress westwards. There would be a main contractor's compound situated at the eastern end (within the main development site), and a smaller compound at the western end of the route.

Stage 3 consultation responses

10.4.54 During the Stage 3 consultation the Councils continued to support the green rail route, subject to further assessment work on the impact of the setting of Leiston Abbey, and further information on flood and water management.

10.4.55 On the options for Buckleswood Road, respondents were generally in favour of Option 2, the new level crossing. Option 1 for the stopping up of Buckleswood Road was perceived to be disruptive, inconvenient and unnecessary, highlighting that it is a key link to towns for cyclists and pedestrians in the area. Those who did support Option 1 said that the proposed bridge will be practical and offer safety benefits.

10.4.56 People who supported Option 2 for Buckleswood Road emphasised the importance they put on maintaining public access to paths and byways. There were still some who opposed Option 2, whom considered that the

number of level crossing must be kept to a minimum, as they are dangerous and mean that railways are slower.

10.4.57 The public consultation also raised concerns over the visual impact of the proposed footbridge connecting the two parts of Buckleswood Road intersected by the proposed railway line.

d) Response to Stage 3 and proposals at Stage 4

10.4.58 The route and physical details of the proposals for the green rail route being consulted on during the Stage 4 consultation remain unchanged from those shown at Stage 3.

10.4.59 However, Stage 4 introduced the **Integrated Transport Strategy**, which would accommodate three freight trains per day at peak construction (six movements per day) on the green rail route compared to five freight trains proposed under the rail-led strategy (ten movements per day).

10.4.60 The integrated strategy combined features of both the rail-led and road-led strategies consulted on at Stage 3. The Sizewell link road and FMF would be included from the road-led strategy, together with the green rail route and improvements to the Saxmundham to Leiston branch line, including level crossing upgrades from the rail-led strategy.

10.4.61 The need to consider this additional integrated strategy arose from a concern that Network Rail may not be able to deliver the extent of improvement works necessary to the East Suffolk line to a timescale that would fit in with SZC Co.'s programme for the Sizewell C Project.

10.4.62 The only change to the proposed improvements to the Saxmundham to Leiston branch line at Stage 4 was that the entirety of the branch line, and each of the level crossings that would be upgraded, were included within the application red line boundary.

10.4.63 At the Stage 3 consultation it was assumed that Network Rail would undertake the track repairs and replacement works on the branch line. The inclusion of the Saxmundham to Leiston branch line within the red line boundary provided the flexibility for these works to be undertaken either by Network Rail or SZC Co.

10.4.64 Additional highway land, Network Rail land and third party land was included at five of the level crossings on the Saxmundham to Leiston branch line, considered necessary to undertake the upgrade works at those level crossings. The crossings on the branch line were:

- Knodishall;
- West House;
- Saxmundham Road;
- Leiston; and
- Sizewell.

10.4.65 The other four crossings at Bratts Black House, Snowdens, Buckles Wood and Summerhill, which would require minor works on Network Rail land, were also included in the red line boundary.

Selection of the new level crossings on Buckleswood Road and the B1122 (Abbey Road)

i. Buckleswood Road

10.4.66 At the Stage 4 consultation, respondents continued to favour the option of a level crossing at Buckleswood Road, rather than a footbridge option.

10.4.67 It was therefore decided to take the level crossing option forward to the DCO application. The level crossing was preferred as it would keep Buckleswood Road open to vehicular traffic and would better resolve the concerns expressed by respondents in terms of disruption, safety and access. The footbridge option would also have a greater visual impact on the surrounding landscape and was therefore discounted as an option following Stage 4.

ii. B1122 (Abbey Road)

10.4.68 To enable the rail line to cross the B1122 (Abbey Road), a level crossing was proposed. It was recognised that even a limited number of short-duration level crossing closures had the potential to disrupt local journeys, and that the provision of new level crossings is not generally favoured by the Office of Road and Rail (ORR). For this reason, alternatives to a level crossing at the B1122 (Abbey Road) were considered, but were not felt to be suitable for the following reasons:

10.4.69 A bridge carrying the B1122 (Abbey Road) at a high level over the rail route extension would have had a greater visual impact on the surrounding landscape, and on the setting of Leiston Abbey, than a level crossing.

10.4.70 A bridge carrying the rail route extension at a high level over the B1122 (Abbey Road) would have had a greater visual impact than a level crossing, due to the shallow gradient required for a rail line, which consequently would have necessitated a long embankment.

10.4.71 A tunnel taking the rail line extension beneath the B1122 (Abbey Road) would have generated substantially greater volumes of spoil than a level crossing. It would have required storage of these large volumes of spoil which would have had visual impact and land take implications.

10.4.72 In summary, whilst the level crossing would cause some short delays during periods when the road is closed to allow trains to pass, the relatively small number of train movements would mean that disruption is not expected to be significant, especially as train movements are likely to be spread throughout the day. SZC Co. held initial discussions with representatives of the ORR on this issue, who confirmed the potential acceptability of a new temporary level crossing given the more substantial implications of the alternative options above.

Stage 4 consultation responses

10.4.73 The rail-led strategy continued to be the most commonly supported transport strategy, with respondents perceiving the main benefits to be that there will be less traffic on the roads, and less damage to the environment in general.

10.4.74 The proposed integrated strategy was not commented on particularly frequently as respondents tended to focus their comments on either the road or rail-led strategies, or make general comments about the movement of materials.

10.4.75 However, some respondents expressed support for the integrated strategy, most commonly comparing it favourably to the road-led strategy as reducing road use.

10.4.76 Some respondents suggested it is the best of the three options as they argued it would reduce the number of trains passing close to homes, whilst reducing cars and HGVs on the roads to more manageable levels.

10.4.77 Some respondents argued that the integrated strategy would involve too many trains, causing noise disruption and vibrations to those living nearby. A few respondents raised the additional concern that plans to run these trains at night would be particularly disruptive for residents.

e) Response to Stage 4 and proposals for Development Consent Order application

10.4.78 Given the deliverability concerns of the rail-led strategy, due to the reliance on Network Rail to work to SZC Co.'s preferred timescale, it was considered that the integrated strategy would be the most suitable in delivering freight by rail. It was therefore taken forward to the DCO, which include the Saxmundham to Leiston branch line improvements as well as the green rail route, in order to carry up to three trains (six movements) per day. The proposals for the East Suffolk line do not form part of the rail proposals in the DCO.

10.4.79 The final proposals for the Saxmundham to Leiston branch line are largely the same as those proposed at Stage 4, including the replacement of the existing track and level crossing upgrades.

10.4.80 There are some minor changes to the proposals as follows:

- the site boundary has been slightly extended to the south of the junction with the East Suffolk line to allow for a new track crossover to be installed. This would affect Network Rail land only; and

- freight deliveries by rail in the early years would be made to a temporary rail terminal at LEEIE. As such, trains would not need to access Sizewell Halt or pass the Sizewell level crossing on King George's Avenue. Therefore, the Sizewell level crossing does not require any upgrades and has been removed from the proposed rail improvements.

10.4.81 The design for the proposed rail extension route is described in **Chapter 2**, and illustrated in **Figures 2.1 to 2.6** of **Volume 9** of the **ES**. The proposed rail improvement works are also detailed in **Chapter 2** and shown in **Figure 2.7** of **Volume 9** of the **ES**.

10.5 Conclusions – Development Consent Order submission

10.5.1 This report presents the criteria for site selection for the proposed rail extension route, and the design evolution which resulted in the final proposed alignment.

10.5.2 The proposed rail extension route as proposed complies with relevant policies of NPS EN-1, and NPS EN-6, and represents the best form of associated development to support the construction of Sizewell C.

10.5.3 NPS EN-1 (Ref. 1.1) recognises that construction of a nationally significant energy infrastructure project may give rise to substantial impacts on the surrounding transport infrastructure. Consideration and mitigation of such impacts is an essential part of the Government's policy objectives for sustainable development. In this context, NPS EN-1 provides strong policy support for the use of water-borne or rail transport, where it is cost-effective over road transport. SZC Co.'s consideration of developing rail infrastructure to support the construction of the Sizewell C Project, to facilitate efficient construction and reduce HGV movements, accord with planning policy and guidance.

10.5.4 There would be adverse impacts as a result of the proposed development, specifically on the setting of Leiston Abbey, but these would be minimised through mitigation measures. In the case of Leiston Abbey the inclusion of a 2m high landscape bund along the north side of the rail extension route would help to mitigate any noise or visual impacts. Passing trains would still be in view due to their height but, given that five of the six proposed train movements would be at night and the land would be reinstated once the rail extension route is no longer required, any impact would be temporary.

10.5.5 Furthermore, any harm resulting from the proposed development would be outweighed by the benefits of transporting freight by rail and thus, reducing the number of HGV movements on the local road network, and the proposed rail improvement works would also provide long-term benefits to the existing rail network through the upgrades to the existing track and level crossings. The proposed development would also contribute towards meeting the wider need for energy infrastructure and job creation. The proposed development therefore complies with the general principles of the NPS.

10.5.6 The DCO is accompanied by an **ES** which assesses each of the associated development sites (including the rail proposals) in detail. **Volume 9** of the **ES** concerns rail, and describes the aspects of the environment likely to be significantly affected by the proposal, including direct effects, and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects at all stages of the project, and also of the measures envisaged for avoiding or mitigating significant adverse effects.

10.5.7 **Volume 9**, **Chapter 3** of the **ES** and this Site Selection Report include an assessment of the potential alternatives, and the design evolution of the rail extension route to efficiently utilise rail, and relieve traffic on the local road network. This has been informed by environmental, social and economic effects, together with technical solutions to inform the mitigation to be included.

10.5.8 Thorough public consultation and environmental assessment has been undertaken throughout the process, which has resulted in the selection of the green rail route as the preferred option, and the proposed route as the best available in terms of its environmental impacts.

10.5.9 Consequently, the proposed rail extension route has been designed in a manner which minimises the local and regional impacts on the road network and surrounding environment, whilst also supporting the construction of Sizewell C in accordance with NPS EN-1 and NPS EN-6.

11. Summary

11.1.1 A number of decisions relating to the Sizewell C Project have been determined through other processes, policy or legislation and, therefore, SZC Co. has not considered any alternatives in this regard. In particular, the proposed siting of Sizewell C is set out in the Nuclear National Policy Statement (NPS) (EN-6) and decisions relating to the reactor design were completed through the UK Generic Design Assessment (GDA) process.

11.1.2 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.

11.1.3 These strategies have identified the need for, and set the scope for required associated development to support the construction of Sizewell C.

11.1.4 The site selection and design evolution process has ensured that the associated development would be delivered in the right place and would performs its intended function.

11.1.5 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.

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