The Sizewell C Project

6.3 Volume 2 Main Development Site

Chapter 8 Conventional Waste and Material Resources

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Contents

Tables

Plates

None provided.

Figures

None provided.

Appendices

8. Conventional Waste and Material Resources

8.1 Introduction

8.1.1 This chapter of **Volume 2** of the **Environmental Statement** (**ES**) presents an assessment of the material resource use and conventional waste generation effects arising from the construction and operation of the main development site and associated development sites and removal and reinstatement of the temporary development (collectively referred to throughout this chapter as the 'Sizewell C Project'). This includes an assessment of potential impacts, the significance of effects, the requirements for mitigation and the residual effects.

8.1.2 Detailed descriptions of the Sizewell C Project, the sites for the construction and operation of the Sizewell C Project and the different phases of development are provided in **Chapters 1** to **4** of **Volume 2** and **Chapters 1** and **2** of **Volumes 3** to **9** of the **ES** (Doc Ref. Book 6). A description of the anticipated activities for the decommissioning of the Sizewell C power station, including a summary of the types of environmental effects likely to occur, is provided in **Chapter 5** of **Volume 2** of the **ES**. A glossary of terms and list of abbreviations used in this chapter is provided in **Volume 1, Appendix 1A** of the **ES**.

8.1.3 The proposed arrangements for the management of radioactive wastes and spent fuel are summarised in **Chapter 7** of this volume.

8.1.4 Further detail on the proposed **Conventional Waste Management Strategy** is provided in **Appendix 8A** of this volume.

8.1.5 A standalone ES was prepared for the Sizewell B relocated facilities works for submission with the hybrid planning application under the Town and Country Planning Act 1990 (East Suffolk Council application ref. DC/19/1637/FUL). The Sizewell B relocated facilities ES, as provided in **Volume 1, Appendix 2A** of the **ES**, scoped out the assessment of effects associated with material use and waste, as no potential for likely significant effects from the Sizewell B relocated facilities works on their own were identified. However, the assessment presented within this chapter does account for the effects of the Sizewell B relocated facilities works, as they form part of the Sizewell C Project.

8.2 Legislation, policy and guidance

8.2.1 **Volume 1, Appendix 6D** of the **ES** identifies and describes legislation, policy and guidance of relevance to the assessment of the potential material resource uses and conventional waste generation impacts associated with the Sizewell C Project.

8.2.2 This section provides an overview of the specific legislation, policy and guidance of relevance to the material resource use and conventional waste assessment of the Sizewell C Project.

a) International

8.2.3 The overarching European Directives that are applicable to the assessment of material resource use and waste generation are set out below:

- Waste Framework Directive (2008/98/EC) (Ref. 8.1);
- Landfill Directive (1999/31/EC) (Ref. 8.2); and
- Hazardous Waste Directive (91/689/EEC) (Ref. 8.3).

8.2.4 The Waste Framework Directive is the key piece of legislation and sets out a five-step hierarchy for waste management as an important requirement which applies to anyone who produces or manages waste. The waste hierarchy requires that waste is dealt with in the following order of priority:

- prevention;
- preparing for re-use;
- recycling;
- other recovery (for example energy recovery); and
- disposal, only as a last resort.

8.2.5 The following considerations must also be taken into account:

- environmental protection principles of precaution and sustainability;
- proximity principle for treatment and disposal of waste to be as close to its source as possible;
- technical feasibility and economic viability;
- protection of resources; and
- overall environmental, human health, economic and social impacts.

8.2.6 **Volume 1, Appendix 6D** of the **ES** provides further information on the requirements of the international legislation summarised above.

b) National

i. Legislation

8.2.7 A wide range of national legislation that regulate the control and management of waste and use of material resources have been considered. The key legislation relevant to the Sizewell C Project include the following, with further summaries of the relevant requirements provided in **Volume 1, Appendix 6D** of the **ES**:

- Environmental Protection Act 1990 (Ref. 8.4);
- The Waste (England and Wales) Regulations 2011 (Ref. 8.5), as amended;
- Environmental Permitting (England and Wales) Regulations 2016, as amended (Ref. 8.6);
- Controlled Waste (England and Wales) Regulations 2012 (Ref. 8.7);
- Hazardous Waste (England and Wales) Regulations 2005 (Ref. 8.8), as amended;
- Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (Ref. 8.9);
- Waste Batteries and Accumulators Regulations 2009 (Ref. 8.10); and
- Control of Pollution (Oil Storage) (England) Regulations 2001 (Ref. 8.11).

ii. Policy

8.2.8 As stated in **Volume 1, Chapter 3** of the **ES**, whilst other matters may constitute important and relevant considerations in the decision making process under section 105(2)(c) of the Planning Act 2008, significant weight should be given to the policies contained within the Overarching National Policy Statement (NPS) for Energy (NPS EN-1) (Ref. 8.12) and the NPS for Nuclear Power Generation (NPS EN-6) (Ref. 8.13).

8.2.9 A summary of the relevant NPS EN-1 requirements, together with consideration of how these requirements have been taken into account, is provided in **Volume 1, Appendix 6D** of the **ES**. There are no specific requirements in NPS EN-6 in relation to the topic of conventional waste management and material resource use.

8.2.10 Other national policies relevant to this assessment include:

- The Waste Management Plan for England 2013 (Ref. 8.14);
- The Waste Prevention Programme for England 2013 (Ref. 8.15);
- National Planning Policy Framework 2019 (Ref. 8.16);
- National Planning Policy for Waste 2014 (Ref. 8.17); and
- Government's 25 Year Environment Plan (Ref. 8.18) – in particular Chapter 4 – Increasing resource efficiency and reducing pollution and waste and section 8 on minimising waste.

8.2.11 A summary of the above relevant policies, together with consideration of how these have been taken into account in this assessment, is provided in **Volume 1**, **Appendix 6D** of the **ES**.

c) Regional

8.2.12 The regional policy considered relevant to the Sizewell C Project comprises:

- Suffolk Minerals and Waste Local Plan 2019 (Ref. 8.19), which once adopted will supersede the existing Suffolk Minerals Core Strategy (adopted 2008), Suffolk Minerals Site Specific Allocations (adopted 2009), and Suffolk Waste Core Strategy (adopted 2011).

8.2.13 Further details on this policy can be found in in **Volume 1, Appendix 6D** of the **ES**.

d) Local

8.2.14 Local policy deemed relevant to the Sizewell C Project is identified below:

- Suffolk Coastal District Council Local Plan Core Strategy and Development Management Polices, 2013 (Ref. 8.20); and
- Suffolk Coastal District Council Final Draft Local Plan (Ref. 8.21).

8.2.15 Further details of these policies can be found in in **Volume 1, Appendix 6D** of the **ES**.

e) Guidance

8.2.16 Additional guidance relevant to this assessment includes:

- Site Waste Management Plans – Guidance for Construction Contractors and Clients Voluntary Code of Practice (2004) (Ref. 8.22);

- Construction Code of Practice for Sustainable Use of Soils on Construction Sites (2009) (Ref. 8.23); and
- CL:AIRE Definition of Waste: Development Industry Code of Practice (2011) (Ref. 8.24);
- Where appropriate, Design Manual for Roads and Bridges (DMRB) Volume 11, Section, Part 5 Assessment and Management of Environmental Effects (HE 205/08) (Ref. 8.25); and
- Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 13 LA 110 Sustainability and Environment Appraisal. Material assets and waste (Ref. 8.26).

8.3 Methodology

a) Scope of the assessment

8.3.1 The generic Environmental Impact Assessment (EIA) methodology is detailed in **Volume 1, Chapter 6** of the **ES**.

8.3.2 The full method of assessment for conventional waste and material resources that has been applied for the Sizewell C Project is included in **Volume 1**, **Appendix 6D** of the **ES**.

8.3.3 This section provides specific details of the conventional waste and material resource use methodology applied to the assessment of the Sizewell C Project and a summary of the general approach to provide appropriate context for the assessment that follows. The scope of assessment considers the impacts of the construction and operation of the main development site and associated development sites and removal and reinstatement of the temporary development.

8.3.4 The scope of this assessment has been established through a formal EIA scoping process undertaken with the Planning Inspectorate. A request for an EIA Scoping Opinion was initially issued to the Planning Inspectorate in 2014, with an updated request issued in 2019.

8.3.5 Comments raised in the EIA Scoping Opinions received in 2014 and 2019 have been taken into account in the development of the assessment methodology. These are detailed in **Volume 1, Appendices 6A** and **6C** of the **ES**.

b) Consultation

8.3.6 The scope of the assessment has also been informed by ongoing consultation and engagement with statutory consultees throughout the

design and assessment process. On 13th June 2019, a joint consultation meeting was held with the Environment Agency and Suffolk County Council. The meeting was attended by the interested stakeholders and a presentation on the proposed **Conventional Waste Management Strategy**, appended at **Appendix 8A** of this volume, was given. A summary of the general comments raised and responses to the comments are provided in **Volume 1, Appendix 6D** of the **ES**.

c) Study area

8.3.7 Geographically distinct areas to examine the use of material resources and the generation and management of waste have been defined, as described in **Volume 1, Appendix 6D** of the **ES**.

8.3.8 The first study area is the area within the site boundary of the Sizewell C Project, as this constitutes the area within which construction materials would be consumed (used, reused and recycled) and within which waste would be generated.

8.3.9 The second study area needs to be sufficient to identify the suitable waste management infrastructure likely to accept the waste generated by the Sizewell C Project, and its location and capacity to accept waste. It also takes into consideration the feasible sources and availability of construction materials required for the Sizewell C Project. Non-hazardous and hazardous waste would be sent to facilities in the east of England, as there are no appropriate non-hazardous or hazardous waste management facilities in Suffolk. Therefore, for the purposes of this assessment, this second study area is the county of Suffolk for inert waste, extended to a radius of up to 100km from the main development site boundary to cover facilities within the east of England for non-hazardous and hazardous waste.

8.3.10 For the assessment of material resource use, an assessment against the UK national demand is also undertaken.

d) Assessment scenarios

8.3.11 The conventional waste and material resource use assessment considers two scenarios, one for construction and one for the operational phase of the Sizewell C Project. Decommissioning of the Sizewell C power station is considered in **Chapter 5** of this volume.

i. Construction

8.3.12 The construction assessment scenario covers the entire Sizewell C Project construction duration and includes:

- activities occurring during the construction phase at the main development site, including:
  - construction at the main development site
  - operational wastes from the accommodation campus and caravan park; and
  - removal and reinstatement of temporary development from the temporary construction area and Land East of Eastlands Industrial Estate (LEEIE).
- construction, operation and removal and reinstatement of the following associated developments:
  - northern park and ride at Darsham;
  - southern park and ride at Wickham Market;
  - green rail route; and
  - freight management facility.
- construction of:
  - two village bypass;
  - Sizewell link road;
  - Yoxford and other highway improvements; and
  - rail improvements.

8.3.13 Construction phase impacts from the activities listed above may potentially arise during the whole of the construction works, which is expected to be a period of 9-12 years in total. The assessment takes into account peak years during which works are going to be undertaken.

ii. Operational Phase

8.3.14 The operational assessment scenario starts once the Sizewell C power station is operational and includes:

- Operation of the main development site (the Sizewell C power station). The operational life of the Sizewell C power station is assumed to be 60 years.
- Operation of the following permanent associated developments:
  - two village bypass;
  - Sizewell link road; and
  - Yoxford and other highway improvements.

8.3.15 For these developments the temporal scope has been determined by the assumed date of the first electricity generation in 2034.

e) Assessment criteria

8.3.16 As described in **Volume 1**, **Chapter 6** of the **ES**, the EIA methodology considers whether impacts of the proposed development would have an effect on any resources or receptors. Assessments broadly consider the magnitude of impacts and value/sensitivity of resources/receptors that could be affected in order to classify effects.

8.3.17 The assessment criteria used to assess the potential effects on conventional waste and material resource use arising from the Sizewell C Project differ from the generic EIA methodology and are described in detail **Volume 1, Appendix 6D** of the **ES**, with a summary provided below.

8.3.18 The significance of effects has been assessed using waste management capacity and material resource demand information, where the estimated quantities of wastes generated by the Sizewell C Project and requirements for material resources have been compared with waste management capacity and existing resource use demand to identify the likely magnitude of effects on existing waste management infrastructure and material resource markets respectively, as shown in **Table 8.1**.

i. Magnitude of effect

8.3.19 The magnitude of effect is a measure of the scale or extent of the change in the baseline condition, irrespective of the value of the receptor(s) affected. The criteria used to determine the magnitude of effect and its significance are set out in **Table 8.1**.

Table 8.1: Criteria used to determine the magnitude of effect and its significance

Magnitude	Topic specific criteria	Significance of effect
Major	The proportion of the waste management capacity that the waste would require is 10% and over of the waste infrastructure capacity in Suffolk and east of England. Resource use forms more than 10% of the demand, potentially causing a significant burden on the material resource markets.	**Significant**
Moderate	The proportion of the waste management capacity that the waste would require is greater than 5% but	

Magnitude	Topic specific criteria	Significance of effect
	less than 10% of the infrastructure capacity in Suffolk or east of England. Resource use forms more than 5% but less than 10% of the demand, potentially causing a significant burden on the material resource markets	
Minor	The proportion of the waste management capacity that the waste would require is between 1% and 5% of the infrastructure capacity in Suffolk or east of England. Resource use forms more than 1% but less than 5% of the demand, potentially causing a small effect on the material resource markets.	**Not Significant**
Negligible	The proportion of the waste management capacity that the waste would require is less than 1% of the infrastructure capacity in Suffolk or east of England. Resource use forms less than 1% of the demand, which would not significantly affect the material resource markets.	

8.3.20 Whilst this assessment considers the adverse effects of resource use, the economic benefits of the additional spend are considered within **Chapter 9** of this volume.

ii. Assessment of significance

8.3.21 This assessment considers an effect to be 'significant' for the purposes of the EIA, if it is identified to result in a major or moderate magnitude of effect to the waste management capacity or resource demand. For the effect to be considered 'not significant', it is identified to result in a minor or negligible magnitude of change. Significance is determined with consideration for the mitigation measures identified in **section 8.5** of this document.

8.3.22 Professional judgement has been used in relation to the specific circumstances and anticipated effects on treatment/disposal route and capacity of waste management facilities when attributing the level of significance. There may be instances where professional judgement and experience would result in the prediction of a different level of effect (e.g. where identified receptors experience instances of combined beneficial and adverse effects).

f) Assessment methodology

8.3.23 The material resource use and conventional waste management assessment determine the potential impacts on material resource demand and waste

management infrastructure which are likely to arise from the construction and operation of the Sizewell C Project. The full methodology for the assessment presented in this chapter is set out in **Volume 1, Appendix 6D** of the **ES**. However, a summary is provided below for context to the assessment that follows.

8.3.24 The receptors likely to be subject to impacts as a result of the use of material resources include quarries and other sources of minerals, and other finite raw material resources. The potential impacts associated with the use of material resources on these receptors include:

- the depletion of non-renewable resources; and
- the impact on the national demand for materials.

8.3.25 The receptors likely to be subject to impacts as a result of waste generation and management are landfills and other waste management infrastructure potentially suitable for accepting waste from the Sizewell C Project. These include (but are not limited to) material recovery facilities, waste transfer and treatment stations, composting facilities, energy recovery facilities, incineration plants and landfills.

8.3.26 The potential impacts associated with the generation and management of waste on these receptors include:

- utilisation and depletion of the remaining local landfill capacity; and
- suitability and occupation of available waste management infrastructure.

8.3.27 The assessment of effects on material assets and waste generation includes effects arising during:

- the construction of the Sizewell C Project up until the point when the Sizewell C Project is operational; and
- the operation of the Sizewell C Project in relation to maintenance for the lifetime of the Sizewell C Project.

8.3.28 Significant environmental effects are more likely to arise from those materials or waste which:

- are associated with the largest quantities;
- are primary/virgin materials; and
- have hazardous properties.

8.3.29 To establish the existing baseline, information on the demand for key construction materials within the UK and Suffolk has been used to provide the baseline for material resources. This information has been determined through a desk-study using a number of readily available resources, as set out in **Volume 1, Appendix 6D** of the **ES**.

8.3.30 In addition, the most recent information available relating to current waste generation and operational waste facilities in Suffolk and the east of England region has been gathered to provide the baseline for the assessment. Information on the current waste arisings and the waste management facilities have been determined through a desk-top study using a number of readily available resources listed in **Volume 1, Appendix 6D** of the **ES**.

8.3.31 The methodology for calculating the anticipated waste arisings to be generated by the Sizewell C Project and its associated developments are set out in section 1.4 of the **Conventional Waste Management Strategy**, as provided in **Volume 2, Appendix 8A** of the **ES**. This is summarised below.

8.3.32 In order to calculate the anticipated waste volumes and arisings for the construction of the main development site and associated developments, waste quantities for similar facilities at Hinkley Point C have been reviewed and adjusted accordingly to the floor areas, number of parking spaces, etc. specific to the Sizewell C Project.

8.3.33 The construction waste arisings from the rail and road infrastructure were based on BRE Smartwaste's waste benchmark data (Ref. 8.27).

8.3.34 The operational waste arisings generated at the Sizewell C power station were based on the annual arisings estimates given in EDF Energy and Areva's 'Generic Design Assessment (GDA) UK EPR™ – Integrated Waste Strategy Document' for EPR™s (Ref. 8.28).

8.3.35 The operational waste volumes estimated for the accommodation campus were based upon the Department for Environment, Food and Rural Affairs' (Defra) local authority collected waste generation statistics from April 2018 to March 2019 for Suffolk County Council (SCC) and Suffolk Coastal District Council (SCDC) (Ref 8.29). Furthermore, consideration was given to British Standard 5906 (Ref 8.30), which provides estimates of operational waste generation for various developments, in addition to other data sources.

8.3.36 The waste volume estimates for the removal and reinstatement of temporary developments were based on relevant Hinkley Point C figures.

8.3.37 The figures for the material resource use have been taken directly from **Volume 2, Chapter 3** and **Volumes 3** to **9, Chapter 2** of the **ES**.

8.3.38 The assessment of effects on material resource use demand and waste management facilities includes a comparison of estimated material use and waste quantities associated with the Sizewell C Project against existing material resource demand and capacity within the waste management infrastructure respectively. The assessment is undertaken against the criteria set out in **Table 8.1**.

g) Assumptions and limitations

8.3.39 A summary of key assumptions and limitations is provided below:

- The material resources and waste management assessment has been based on the description of the Sizewell C Project detailed in **Chapters 2** to **4** of this volume and **Chapter 2** of **Volumes 3** to **9** of the **ES**. The assumptions made for the calculation of material and waste quantities are outlined in **Chapter 3** of this volume, **Chapter 2** of **Volumes 3** to **9** and in **Appendix 8A** of this volume. These figures are intended for the purpose of the current assessment only and have been based on a likely worst-case scenario, using the design information currently available.
- Baseline information, potential effects and mitigation are described based on available information. The level of detail provided at this time to estimate waste tonnages and waste management requirements is limited by the design information available. The assessment assumes that there will be no requirement for export of clean excavated material from the Sizewell C Project area.
- This assessment has not considered the environmental effects associated with the off-site extraction of raw materials used for the off-site manufacture of products. These stages of the products' or materials' lifecycles are outside of the scope of the assessment due to the range of unknown variables associated with the processes involved and are not considered to form part of the Sizewell C Project. In most cases, it can also be assumed that these processes would have already been subject to EIA in securing consents for the facilities' operation.
- The assessment has not considered waste and material types and quantities for the decommissioning of the Sizewell C power station at the end of its lifetime. Arrangements for the decommissioning process would be refined periodically, and a Decommissioning Waste Management Plan developed in line with existing regulatory requirements, prior to commencement of decommissioning, which will detail information on decommissioning waste and materials types and quantities and how this would be managed. Refer to **Chapter 5** of this volume for further information.

- The assessment has not considered the sterilisation of any mineral safeguarding areas or peat resources, as this has been dealt with in **Chapter 18** of this volume and **Volumes 3** to **9, Chapter 11,** 'Geology and Land Quality', of the **ES**.
- Operational waste such as office, canteen and maintenance waste is included in the assessment; however, due to their limited nature the operational waste associated with green waste, clinical waste and feminine hygiene has not been estimated. See **Volume 1, Appendix 6D** of the **ES** for further information.
- Information on permitted capacity of waste management facilities has been used in the assessment, based on current publicly available data (at the time of writing). However, it should be noted that the capacity information obtained from the Environment Agency for the sites and regions identified does not necessarily mean that the capacity detailed would be available to use by the Sizewell C Project.
- It is noted that any future changes to this permitted capacity and throughput are uncertain. It is also difficult to assess the available capacity due to the commercial sensitivity of existing contracts and the timescales over which waste would be produced by the Sizewell C Project. It is likely that additional capacity would become available. However, it is not currently possible to predict the timeframes for when these new waste management facilities would become available and, therefore, how many of these sites would be available to accommodate waste arisings from the Sizewell C Project. It is also possible that some of the existing waste management facilities might close or be unavailable during the lifetime of the Sizewell C Project.
- The procurement strategy for the materials required for the construction of the Sizewell C Project is unknown at this stage. For the purposes of this assessment, it has been assumed that, apart from bulk fill, not all materials would be available to be sourced regionally (within Suffolk), and that the majority would be sourced nationally (within the UK). This represents the (environmentally) worst case scenario.

8.4 Baseline environment

8.4.1 This section presents a description of the baseline environmental characteristics within the two study areas identified for the Sizewell C Project. The most recent publicly available information relating to material use and current waste generation and operational waste management facilities in Suffolk, east of England and England has been gathered to provide the baseline context for this assessment. Information on the current waste arising and the waste management facilities have been determined through a desk-

top study, using a number of readily available resources, in particular data from the Environment Agency, Defra and SCC.

a) Current baseline

i. Material resources

8.4.2 **Table 8.2** outlines the total aggregate supply in 2017 and steel supply in 2018 in Great Britain.

Table 8.2: Total aggregate supply in GB (million tonnes)

Mineral	Tonnage (million tonnes)
Aggregates, of which:	
• Crushed rock	114.5
• Sand and gravel	61.8
Total Primary	**176.3**
Recycled aggregates, of which:	
• Construction, demolition and excavation waste (incl. railway ballasts)	58.5
• Asphalt planings	6.1
Total recycled sources	**64.6**
Secondary sources, of which	
• China and ball clay waste	2.5
• Colliery spoil	0
• Furnace bottom ash	0.1
• Incinerator bottom ash	1.8
• Fly ash	0.2
• Iron and steel slag	0.9
• Slate waste	0.6
• Clay and shale	0.8

Mineral	Tonnage (million tonnes)
• Chalk	0.5
Total secondary sources	**7.4**
Total aggregate	**248.2**
Steel	**7.3**

Source: Minerals Products Association 2019 (Ref. 8.31) and International Steel Statistics Bureau (2017) (Ref. 8.32)

8.4.3 **Table 8.3** provides an overall summary for the availability of aggregate in Suffolk in 2018. Besides indigenous land-won sand and gravel, the supply of aggregates to Suffolk is made up from sand and gravel imported from surrounding counties, imported crushed rock, marine dredged sand and gravel and indigenous and imported recycled construction, demolition and excavation waste.

8.4.4 High quality aggregates such as limestone for use in the Sizewell C Project and granite for roads are not found in sufficient quantities in Suffolk and would be required to be supplied by road, rail or indirectly by sea from outside Suffolk.

8.4.5 The Suffolk Waste Study 2018 (Ref. 8.33) indicates that in 2015, there were 529,000 tonnes of construction, demolition and excavation waste managed within Suffolk of which over 91.4% were recycled, giving a total figure of 484,000 tonnes of recycled aggregates per annum. In addition, the energy from waste facility at Great Blakenham recycles 60,000 tonnes per annum of bottom ash from local authority collected waste into aggregates.

8.4.6 Suffolk has no indigenous resources of crushed rock and therefore relies on supplies imported by road, rail or sea. There are a number of railheads located along the A14 and wharves at Ipswich and Lowestoft used for the importation of crushed rock. There is also a wharf at Lowestoft that is used for the importation of armour stone for use in sea defence works. The quantities of crushed rock imported to Suffolk are substantial but data are not available for this for commercial reasons.

8.4.7 Within the “regions” along the Suffolk coast, there are licences for the dredging of up to 7.9 million tonnes of sand and gravel within the “east coast region” and a further 3.8 million tonnes within the “Thames Estuary region” on an annual basis. Although a major proportion of this total is dredged, the vast majority of this is brought ashore in London, or is sent to London by rail. This is due to the lack of indigenous supplies of aggregates in London. The

tonnages of marine dredged sand and gravel used in Suffolk are therefore substantially lower than the overall level of licensed resources.

Table 8.3: Aggregates in Suffolk

Type of aggregate	Availability, Mt	Number of sites
Recycled aggregate, 2015 data	0.484	32
Bottom ash, recycled	0.060	-
Crushed rock	None	-
Aggregate railheads	-	4
Aggregate wharves	-	4
Landing of marine dredged sand and gravel	11.73 (licences for dredging)	-
Landbank of permitted sand and gravel	10.69	-
Quarries in Suffolk	-	16
Chalk quarries	-	1
Asphalt and concrete plants	-	4
Concrete batching plants	-	13

Source: Suffolk Local Aggregates Assessment (2018 data) (Ref. 8.34)

8.4.8 In Suffolk, the near surface sand and gravel deposits are generally sand rich and there is a shortage of stone. The projected future provision is based upon an average of the last ten years' sales within the Suffolk Minerals and Waste Local Plan and details of the provisions of land won sand and gravel are given in **Table 8.4.**

Table 8.4: Provision of land won sand and gravel in Suffolk

Aggregate	Sales (2018)	Average 10-year sales	Average 3-year sales	Reserves at end 2018	Landbank (remaining years)	Number of quarries
Sand and gravel	1.2 Mtpa	1.1 Mtpa	1.2 Mtpa	10.7 Mtpa	9.7	16

Source: Suffolk Local Aggregates Assessment (2018 data) (Ref. 8.34)

8.4.9 Suffolk has four asphalt and concrete plants and 13 concrete batching plants that add value to the aggregates. For concrete batching plants, the sand and gravel are mostly supplied by local land won sources and supplemented by the marine dredged sand and gravel. Crushed rock imported by road, rail or sea is used in asphalt plants.

ii. Waste management

8.4.10 The latest data from the Environment Agency (Ref. 8.35 and Ref. 8.36) indicate that England produced a total of over 213 million tonnes of all waste types in 2018 (**Table 8.5**), which was managed in 6,324 permitted waste facilities. Suffolk produced 3.2 million tonnes of waste in 2018.

Table 8.5: Waste breakdown by site type (2018)

Site type	England (tonnes of waste)	East of England (tonnes of waste)	Suffolk (tonnes of waste)
Landfill	44,079,000	8,560,000	370,000
Transfer	45,806,000	5,255,000	508,000
Treatment (excluding metal recycling sector)	81,561,000	10,822,000	1,481,000
Metal Recovery	15,698,000	2,549,000	145,000
Incinerated	14,351,000	1,303,000	397,000
Use of Waste	165,000	0	0
Borehole and lagoon inputs	437,000	204,000	0
Deposits in landfill for recovery	10,904,000	1,924,000	338,000
Total	213,001,000	30,617,000	3,239,000

Sources: Environment Agency (2019) (Ref. 8.35) and Environment Agency (2019) (Ref. 8.36)

8.4.11 Due to the extent of the Sizewell C Project and constraints at the main development site and the associated development sites (e.g. lack of available space, environmental constraints), it will not be practical to treat waste on-site. As a result, the existing waste infrastructure within the surrounding and wider area of Suffolk would be used to re-use, recycle and recover the waste produced.

8.4.12 **Appendix 8A** of this volume lists the operators of permitted waste management facilities in Suffolk with information on licensed capacities, if available.

8.4.13 With respect to construction, demolition and excavation waste, the Environment Agency (Ref. 8.36) recorded the inert construction, demolition and excavation waste that was managed and deposited in landfills in 2018 as approximately 3.7 million tonnes in the east of England and 91,000 tonnes for Suffolk. There are no data available showing how much construction, demolition and excavation waste was recovered or recycled in 2018. However, the ENV23 – Statistics on Waste (Ref. 8.37) outlines that of the 59.6 million tonnes of non-hazardous construction, demolition and excavation waste generated in England in 2018 55 million tonnes were recovered (which comprises 92.1% of the total generated).

8.4.14 According to the Environment Agency data (Ref. 8.35 and Ref. 8.36), 19,000 tonnes of waste were used in construction (under permits) in England in 2018, none of which were used in the east of England.

8.4.15 The Environment Agency data (Ref. 8.35 and Ref. 8.36) recorded that 57,000 tonnes of waste were used for reclamation purposes in England in 2018, none of which were reused in the East of England.

8.4.16 In Suffolk, there are several medium to large scale material recycling facilities/waste transfer stations and numerous small-scale facilities which can take mixed waste and segregate it for processing.

8.4.17 An assessment of operational material recycling facilities, waste transfer stations and facilities that can accept inert waste within Suffolk that lie within 100km of the main development site has been undertaken, primarily using information provided in SCC's Minerals and Waste Local Plan – Suffolk Waste Study, April 2018 (Ref. 8.33) and the Environment Agency Public Register (Ref. 8.38), as well as other documents listed in **Volume 1, Appendix 6D** of the **ES**. The annual tonnage capacity of each facility is provided in **Appendix 8A** of this volume, where this information was available. Material recycling facilities and waste transfer stations with known capacities less than 4,999tpa have been excluded from consideration.

8.4.18 With regards to hazardous waste, **Table 8.6** below outlines the quantities managed and deposited in 2018 in England, east of England and Suffolk. Of the 63,649 tonnes managed in Suffolk, 1,822 tonnes were specified as construction and demolition waste and asbestos.

Table 8.6: Hazardous waste managed and deposited in 2018

Hazardous waste	England (tonnes of waste)	East of England (tonnes of waste)	Suffolk (tonnes of waste)
Managed	5,132,482	445,873	63,649

Hazardous waste	England (tonnes of waste)	East of England (tonnes of waste)	Suffolk (tonnes of waste)
Deposited	5,516,142	477,674	58,658

Source: Environment Agency (2019) (Ref 8.35) and Environment Agency (2019) (Ref. 8.36)

8.4.19 **Appendix 8A** of this volume lists the hazardous waste facilities in Suffolk and neighbouring counties along with their throughput in 2018 as obtained from the Waste Data Interrogator. 8 hazardous waste facilities have been identified within 50km of the main development site, corresponding to approximately 85,000 tonnes of throughput in 2018, while 50 hazardous waste facilities have been identified within 100km of the main development site, corresponding to approximately 810,000 tonnes of throughput in 2018.

8.4.20 **Appendix 8A** of this volume lists the landfills with remaining capacities available within 100km of the main development site. The closest landfills with significant capacity remaining at the end of 2018 according to the Environment Agency and which accept construction and demolition waste are Cartwrights Covert Landfill, Masons Landfill and Shrublands Quarry, all of which lie between 42 and 45km road distance from the main development site. Masons Landfill and Shrublands Quarry are operated by Viridor and Brett Aggregates respectively and had a remaining capacity at the end of 2018 of approximately 3.3 million m^3 and 0.42 million m^3. Cartwrights Covert Landfill had a remaining capacity of 0.18 million m^3 at the end of 2018 and is operated by Cemex.

8.4.21 **Appendix 8A** of this volume lists the composting and anaerobic digestion facilities available in Suffolk within 100km of the main development site that can accept food or vegetation waste arising from its operation. There are currently two anaerobic digestion facilities within 26km of the main development site that may be able to accept such waste. In terms of composting facilities, Parham Recycling Centre, an in-vessel composting facility, constitutes the most desirable option, as it lies only 20km from the main development site and has a capacity of 35,000tpa. The closest energy from waste facility able to accept significant volumes of waste is located opposite to Masons Landfill, approximately 45km away from the main development site . It was opened in December 2014 by Suez Environment and has the capacity to treat 269,000 tonnes of residual waste per year. There are only two other energy from waste facilities in Suffolk, the Eye Power Station and Ipswich energy from waste facility, however these are unsuitable for Sizewell C needs since their feedstock material requirements are animal by-products and clinical waste respectively.

8.4.22 The total indicative permitted capacity in Suffolk of different waste facilities located within 100km of the main development site is shown in **Appendix 8A** of this volume. A summary of this information is presented in **Table 8.7**. It should be noted that permitted capacity information was not available for several facilities. The throughputs for the year 2018 are provided for relevant hazardous waste facilities instead, as obtained from the Waste Data Interrogator (Ref. 8.37), while hazardous waste facilities located in neighbouring counties are also included.

Table 8.7: Summary of available facilities, site types and permitted capacities within 100km of main development site

	Number of facilities					Permitted capacities (tonnes)				
Site Type	**Within 10km**	**Within 25km**	**Within 50km**	**Within 75km**	**Within 100km**	**Within 10km**	**Within 25km**	**Within 50km**	**Within 75km**	**Within 100km**
Landfill	3	3	5	9	10	0	0	3,687,478	5,769,605	6,819,605
Transfer stations	2	3	26	36	52	99,998	174,997	1,422,483	1,752,477	2,252,722
Metal recycling	0	2	10	12	15	0	149,998	509,991	531,991	636,990
Biological treatment	0	3	7	8	11	0	104,000	268,499	268,500	378,500
Use in construction	0	0	1	1	1	0	0	49,999	49,999	49,999
Use/recovery of Inert waste	0	1	5	7	9	0	99,999	347,497	597,494	725,398
Material recycling	0	0	2	2	4	0	0	224,999	224,999	374,998
Physical/Chemical treatment	0	0	6	9	11	0	0	724,996	734,994	804,994
Incineration	0	0	1	1	1	0	0	4,999	4,999	4,999
Hazardous waste facilities	0	0	8	24	50	0	0	84,730	362,591	809,323

b) Future baseline

8.4.23 The future baseline has been assessed on the basis of a desktop review of the waste forecast data from the Suffolk Waste Study 2018 (Ref. 8.33):

- estimates for construction, demolition and excavation waste arisings across Suffolk are approximately 460,000 tonnes in 2022 decreasing to 379,000 tonnes in 2032;
- estimates for commercial and industrial waste arisings across Suffolk are approximately 892,000 tonnes in 2022, assuming high growth, increasing to 1,039,000 in 2032;
- estimates for hazardous waste arisings across Suffolk are approximately 38,294 tonnes in 2022 decreasing to 31,090 tonnes in 2031; and
- estimates for municipal solid waste across Suffolk are approximately 422,000 tonnes in 2022/23 increasing to 460,000 in 2032/33.

8.4.24 Any future changes to this permitted capacity and throughput of waste management facilities are uncertain. It is also difficult to assess the future available capacity due to the commercial sensitivity of existing contracts and the timescales over which waste would be produced by the Sizewell C Project. It is likely that additional capacity would become available. However, it is not currently possible to predict the future timeframes for when new waste management facilities would become available and, therefore, how many of these sites would be available to accommodate waste arisings from the Sizewell C Project. It is also possible that some of the existing waste management facilities might close or be unavailable during the lifetime of the Sizewell C Project.

8.4.25 Changes to existing conditions were also considered with due regard to committed developments, existing and proposed land uses. On the basis of a review of committed developments that are assumed to form part of future baseline, as provided in **Volume 10, Chapter 1** of the **ES**, no significant changes to the material resource use and waste baseline were identified. A cumulative assessment with non-Sizewell C developments is provided in **Volume 10** of this **ES**.

8.5 Environmental design and mitigation

8.5.1 As detailed in **Volume 1**, **Chapter 6** of the **ES**, a number of primary mitigation measures have been identified through the iterative EIA process and have been incorporated into the design and construction planning of the Sizewell

C Project. Tertiary mitigation measures are legal requirements or are standard practices that would be implemented as part of the Sizewell C Project.

8.5.2 The assessment of likely significant effects of the Sizewell C Project assumes that primary and tertiary mitigation measures are in place. These measures are identified below, with a summary provided of how the measures contribute to the mitigation and management of potentially significant material resource use and conventional waste generation effects.

8.5.3 There is substantial overlap in the mitigation for both material resource use and conventional waste generation due to the synergies between the re-use of materials and the avoidance of waste generation.

a) Conventional Waste Management Strategy

8.5.4 As set out in the **Conventional Waste Management Strategy**, provided in **Appendix 8A** of this volume, mitigation measures that would be implemented on-site during the construction phase for efficient use of material resources and reduction of waste arisings, and to reduce the potential impacts are as follows:

- materials would be delivered on an 'as required' basis to avoid damage or contamination and therefore limit the likelihood of waste;
- where site-won material is not available or suitable for re-use, secondary or recycled materials would be procured, where available and practicable;
- the design of the temporary roads would incorporate geogrid or lime stabilisation methods to reduce the amount of granular fill required;
- all suitable excavated material would be re-used in the construction of the Sizewell C Project and in landscaping features to reduce the requirement to import materials for construction and reducing the need to remove surplus materials from site;
- temporary stockpiling of fill materials prior to incorporation in the Sizewell C Project would be avoided, where possible, so that double handling and damage is minimised. However, where required, materials would be stockpiled in accordance with best practice and managed appropriately to limit the likelihood of damage or contamination;
- locally sourced materials and suppliers would be identified and used where practicable; and

- pre-cast elements would be used where practicable for efficient use of materials and to avoid the generation of waste arisings from cut-offs.

8.5.5 Measures to reduce the effects of material resource use throughout the design process involve the reduction in the use of virgin materials and aggregates, which may be achieved through reducing the material requirements in the design itself, the use of site-won or recycled materials and the use of materials with a high proportion of recycled content.

8.5.6 Furthermore, the Sizewell C Project would apply the waste hierarchy to minimise disposal and maximise reuse and recycling. Opportunities for re-use and recycling of waste include (but are not limited to):

- re-using excavated soils on-site in the landscaping features of the Sizewell C Project;
- chipping green waste on-site for use in the landscaping for the Sizewell C Project;
- composting of green waste;
- recycling of inert material by crushing, blending and subsequent re-use, as an aggregate;
- re-using waste on other nearby schemes; and
- re-using waste for uses with clear benefits to the environment, for example in the remodelling of agricultural land or in the restoration of nearby quarries or other excavation sites.

8.5.7 Facilities would be provided on-site to separate out waste, for example for recycling. Where excavated materials cannot be re-used or recycled onsite, opportunities would be sought for the reuse of material on other nearby schemes, or in other uses with clear benefits to the environment, e.g. in the re-profiling of re-instated landscapes, or in the restoration of nearby quarries or other excavation sites. By reusing and recycling as much material as possible, this would reduce the amount of waste going to landfill.

8.5.8 Where waste must be taken to recycling/disposal facilities, these facilities would have the appropriate permits to minimise environmental risks. The recycling/disposal facilities should be located as close to the works as possible to minimise transport, thereby reducing greenhouse gas emissions resulting from transportation. The closest and most relevant treatment and disposal sites will be identified by the appointed contractor.

8.5.9 When considering the requirement for the supply of materials for use on site, local suppliers should be identified, where possible, to reduce fuel requirements and cost of delivery to reduce greenhouse gas emissions resulting from transportation.

8.5.10 The permitted waste management facilities in Suffolk, the hazardous waste facilities in Suffolk and regional areas, the facilities available to treat contaminated soil, composting and anaerobic digestion facilities will be utilised as part of the mitigation plan to reuse, recycle and recover materials from the waste that will be generated by the construction and operation of the main development site and the associated developments, as well as the removal and reinstatement of the temporary development.

8.5.11 Once the Sizewell C Project has been built, the temporary buildings and associated infrastructure including hard-standing and drainage would be removed in accordance with a demolition plan, which would maximise the potential for re-use of buildings and materials. When the sites have been cleared, the areas would be re-instated either to agricultural uses, where relevant, or, on the main development site, in accordance with the **Outline Landscape and Ecology Management Plan (oLEMP)** (Doc Ref. 8.2).

8.5.12 The mitigation plan for the primary waste streams generated from the Sizewell C Project is summarised in **Table 8.8**.

Table 8.8: Management of the main waste streams

Phase	Prevent/ Reduce	Re-Use	Recycle / Recover
Earthworks	• Design of earthwork excavations and storage methods to prevent material being sent off-site.	• Storage of topsoil and subsoil on-site pending future use, for example following removal and reinstatement of the temporary construction areas. • Stripped vegetation to be re-used onsite where possible (e.g. for landscaping purposes)	• Any stripped vegetation that is not reused on-site could be recovered off-site at an appropriate facility (e.g. anaerobic digestor/composting).
Construction (exc. earthworks)	• Careful design, appropriate ordering of materials and use of best practice. For example, careful ordering of materials will	• Sell direct to the local market for re-use or send material to a treatment centre for later re-use in line with the Waste Aggregate Protocol (where appropriate). This will also reduce vehicle movements and adheres to the proximity principle.	• Send off-site to a material recycling facility.

Phase	Prevent/ Reduce	Re-Use	Recycle / Recover
	reduce the amount of unwanted material, such as aggregate, being brought to site. • Use of best practice techniques will reduce the amount of resultant waste (e.g. off-cuts). • Modular units will be prefabricated, therefore reducing the amount of off-cuts.		
Removal and reinstatement of temporary development (e.g. LEEIE, accommodation campus, park and ride facilities etc.)	• Design to reduce demolition wastes. • Use of modular units, where practicable. • Design of buildings to reduce demolition wastes.	• Sell direct to the local market for re-use (e.g. whole units or fabrics/components/materials), although dependent on changing construction standards over time and the design life of the units.	• Send off-site to a material recycling facility.

b) Other plans and strategies

8.5.13 A **Code of Construction Practice (CoCP)** (Doc Ref. 8.11) has been produced that sets out construction environmental mitigation measures to be adhered to on-site to reduce the effects on material resources and effects due to waste generation and management during the construction phase.

8.5.14 The **CoCP** (Doc Ref. 8.11) Part B requires the contractors to produce a **Site Waste Management Plan (SWMP),** which would need to specify the information required by the **Outline SWMP** in **Appendix 8A** of this volume,

which would consider the sourcing, transport and use and disposal of waste and material resources, in a sustainable manner. It would also take account of, and capture, design changes as the Sizewell C Project evolves and would allow unavoidable construction waste to be identified and managed in accordance with the waste hierarchy and other relevant legislative requirements. The **SWMP** would be used to derive the management options that would achieve the highest practicable performance levels within the hierarchy.

8.5.15 Where waste needs to be taken off-site for re-use, recycling, recovery or disposal the **SWMP** would detail information on waste carriers and the waste management facilities that should be used. The **SWMP** should be continually reviewed, by the appointed contractor, and regularly updated with the relevant information as the Sizewell C Project progresses.

8.5.16 A **Materials Management Strategy** has been produced, as provided in **Appendix 3B** of this volume, which requires the preparation of Material Management Plans in line with the requirements of the CL:AIRE Definition of Waste Code of Practice (DoWCoP) or other appropriate standards. This will enable any site-won materials (or identified, imported materials) to be used on site, providing justification and certainty of use and ensuring that the materials comply with an earthworks specification.

8.5.17 Furthermore, an **Outline Soil Management Plan** has also been produced, as provided at **Appendix 17C** of this volume, which includes requirements for the handling and management of soils, so that site-won soils could be reused following the removal and reinstatement of temporary development.

8.5.18 During operation, SZC Co. is committed to setting its own high standards in ensuring compliance with all of its legal and regulatory obligations. This would include developing appropriate management arrangements for Sizewell C that utilise best practice from industry regulators. A key aspect of the management arrangements would be that they would form part of a fully integrated management system, certified to appropriate international standards. Management arrangements would be subject to approval by the Environment Agency and the Office for Nuclear Regulation to satisfy the requirements of operational environmental permits and the Nuclear Site Licence.

8.6 Assessment

a) Introduction

8.6.1 This section presents the findings of the assessment of the effects of material resource use and waste generation as a result of the Sizewell C Project

during its construction and operation. The indicative construction programme described in **Chapter 3** of this volume has been used to inform the assessment.

b) Material resource use

i. Material resource requirements of the Sizewell C Project

Construction

8.6.2 Material resources include raw materials such as aggregate and minerals from primary, secondary and recycled sources, and manufactured construction products. Manufactured construction products can include the materials required for the construction of the Sizewell C Project including the power station and associated developments, and pre-cast elements for the construction of the various structures required.

8.6.3 The construction of the Sizewell C power station itself would require large quantities of both primary raw materials and manufactured construction products. A high proportion of material resources is likely to be imported to the main development site, although substantial volumes of some materials may also originate on site from borrow pits.

8.6.4 Material procurement would be determined by the selected contractor. Estimated material imports for the Sizewell C Project sites are provided in **Table 8.9** to **Table 8.16** below on the basis of information extracted from **Chapter 3** of this volume and **Chapter 2** of **Volumes 3** to **9** of the **ES**. It is noted that the quantities of material imports are current estimates only and are likely to change, as detailed design and construction methodologies are confirmed. For the purposes of this assessment, these quantities present the worst-case and have, therefore, been used to determine whether significant effects due to material resource use are likely.

8.6.5 A summary of the total estimated material required to be imported for the construction of the Sizewell C Project with a comparison against resource availability in Suffolk and nationally in the UK is provided in **Table 8.17**.

Table 8.9: Indicative material quantities to be imported to main development site

Material	Mass of materials required (tonnes)
Concrete, comprising:	5,050,000
Cement	*1,260,000*
Sand	*1,260,000*

Material	Mass of materials required (tonnes)
Aggregate	*2,530,000*
Backfill	2,020,000
Steel	1,010,000
Bitumen	1,010,000
Other	1,010,000

Table 8.10: Indicative material quantities to be imported for northern park and ride

Material	Mass of Materials Required (tonnes)
Concrete	8,450
Bitumen	11,900
Gravel	33,650
Steel	100
Other such as fencing, lighting, CCTV, drainage goods, etc	3,100

Table 8.11: Indicative material quantities to be imported for southern park and ride

Material	Mass of Materials Required (tonnes)
Concrete	13,400
Gravel	38,900
Bitumen	21,950
Steel	10
Other	3,050

Table 8.12: Indicative material quantities to be imported for two village bypass

Material	Mass of Materials Required (tonnes)
Concrete	2,700
Granular sub-base	35,000
Steel	350
Asphalt (including bitumen)	30,000
Other	50

Table 8.13: Indicative material quantities to be imported for Sizewell link road

Material	Mass of Materials Required (tonnes)
Concrete	1,200
Granular sub-base	80,000
Steel	600
Asphalt (including bitumen)	70,000
Other	100

Table 8.14: Indicative material quantities to be imported for Yoxford roundabout and other highway improvements

Material	Mass of Materials Required (tonnes)
Asphalt surfacing for roads (including bitumen)	8,800
Granular sub-base (similar to gravel)	10,900
Steel	20

Table 8.15: Indicative material quantities to be imported for freight management facility

Material	Mass of Materials Required (tonnes)
Concrete	24,600
Bitumen	550
Gravel	19,200
Steel	150
Other	4000

Table 8.16: Indicative material quantities to be imported for green rail route and rail improvement works

Material	Mass of Materials Required (tonnes)
Proposed rail extension route – 1.8km from the Saxmundham to Leiston branch line to the temporary level crossing at the B1122 (Abbey Road)	
Concrete	850 (based on 250kg/sleeper plus allowance for the temporary level crossings).
Gravel	17,010 (based on 2,250m^3 for roads and 7,200m^3 for rail at 1.8 tonnes/m^3).

Material	Mass of Materials Required (tonnes)
Steel	320 (based on 60 for sleeper reinforcement, 220 for rails, 40 allowance for level crossings, fencing and other items).
Bitumen	750 (based on 2.5t/m^3).
Other	10 timber (for switches and crossings).
Proposed rail improvement works – 7.2km of the existing Saxmundham to Leiston branch line	
Concrete	3,100 (based on 250kg/sleeper plus allowance for the temporary level crossings).
Gravel	33,300 (based on 4,500m^3 for roads and 28,800m^3 for rail at 1.8 tonnes/m3).
Steel	960 (based on 60 for sleeper reinforcement, 860 for rails, 40 allowance for level crossings, fencing and other items).
Bitumen	3,750 (based on 2.5t/m^3).
Other	30 timber (for switches and crossings).

Table 8.17: Summary of construction material resource use compared with resource availability in Suffolk and nationally

	Concrete (tonnes)	Bitumen (tonnes)	Steel (tonnes)	Gravel (tonnes)
Availability (Suffolk)	**604,000**	**22,904,000[1]**	**--**	**22,420,000**
Availability (UK)	**120,960,000**	**182,760,000[1]**	**7,300,000**	**126,400,000**
Main development site	5,050,000	1,010,000	1,010,000	--
Northern park and ride	8,450	11,900	100	33,650
Southern park and ride	13,400	21,950	10	38,900
Two Village Bypass	2,700	30,000[1]	350	35,000
Sizewell link road	1,200	70,000[1]	600	80,000
Yoxford Roundabout and other highway improvements	--	8,800[1]	20	10,9000

	Concrete (tonnes)	Bitumen (tonnes)	Steel (tonnes)	Gravel (tonnes)
Freight Management Facility	24,600	550	150	19,200
Rail route extension	850	750	320	17,010
Saxmundham to Leiston branch line improvements	3,100	3,750	960	33,300
Total for development	**5,104,300**	**1,157,700**	**1,012,510**	**267,960**
% of available (Suffolk)	>100%	5.05	--	1.17
% of available (UK)	4.22	0.63	13.87	0.21

1 (including asphalt) 2 (including sand)

Operation

8.6.6 There is not expected to be substantial requirement for materials during the operation of the main development site, including the Sizewell C power station, and the permanent associated development sites.

8.6.7 Negligible volumes of materials will be required for the maintenance of the main development site and permanent off-site associated developments. Work will include localised repairs to buildings, infrastructure and highways.

8.6.8 Routine maintenance would also include vegetation clearance, maintenance of road signs and road marking, and litter collection. Periodically, maintenance activities such as resurfacing would be required. Materials required for maintenance activities may include concrete, aggregate and bitumen as well as other materials.

8.6.9 Major maintenance and repair activities would occur infrequently, with the exception of 'outages', however, it is expected that this would require relatively small quantities of both primary raw materials and manufactured construction products compared to the construction phase.

ii. Assessment of effects

Construction

8.6.10 The implementation of mitigation measures, as outlined in **section 8.5** of this chapter, would allow the efficient use of material resources on-site. It is envisaged that all the required fill material for the earthworks will be provided

from site-won material, therefore, negating the need to import fill materials for earthworks to the site. Other construction materials would be required to be imported to site to complete the works, for example, other backfill for structures would require aggregates or aggregate-based products which would be imported to site.

8.6.11 It is estimated that in total approximately 5,104,300 tonnes of concrete would be required for the construction of the Sizewell C Project over the construction period. This represents 4.2% of the total UK availability and exceeds Suffolk's availability.

8.6.12 The magnitude of effect for resource demand is major for Suffolk in respect of concrete, and therefore it is considered **significant**. The magnitude of effect is minor in respect of concrete for the UK, therefore, it is considered **not significant**.

8.6.13 It is estimated that approximately 1,157,700 tonnes of bitumen would be required for the construction of the Sizewell C Project. This represents approximately 5.1% of total bitumen material availability in Suffolk and 0.6% of the total UK availability.

8.6.14 The magnitude of effect for resource demand is moderate for Suffolk in respect of bitumen, therefore it is considered **significant**. The magnitude of effect for resource demand is negligible in respect of bitumen for the UK, therefore it is considered **not significant**.

8.6.15 It is estimated that approximately 1,012,510 tonnes of steel would be required for the construction of the Sizewell C Project. There is no baseline available for the availability of steel in Suffolk, however, this represents approximately 13.9% of the total UK availability.

8.6.16 The magnitude of effect for resource demand is major in respect of steel for both Suffolk and the UK, therefore it is considered **significant**.

8.6.17 It is estimated that approximately 267,960 tonnes of gravel would be required for the construction of the Sizewell C Project. This represent approximately 1.2% of the total availability of gravel material in Suffolk and approximately 0.6% of the total UK availability.

8.6.18 The magnitude of effect for resource demand is minor in respect of gravel for Suffolk, therefore it is considered **not significant**. The magnitude of effect for resource demand is negligible in respect of gravel for the UK, therefore it is considered **not significant**.

8.6.19 The Sizewell C Project is also estimated to require approximately 1,017,480 tonnes of 'other materials'. These are assumed to comprise a mix of materials, goods and equipment and, therefore, it has not been possible to provide a direct assessment against a specific resource.

8.6.20 Topsoil and subsoil would be stripped and it is the intention that these materials would be re-used on-site for landscaping, where appropriate.

8.6.21 The majority of materials required for construction comprise aggregates, or aggregate based products, which is a primary material. Suffolk does not have indigenous supply of crushed rocks and good quality limestones that would be required for the Sizewell C Project.

8.6.22 However, the baseline has indicated adequate supply of aggregates within Suffolk, therefore where further supplies of aggregates are required the majority of these can be procured within Suffolk.

Operation

8.6.23 It is considered that the magnitude of effect for resource use associated with the operational activities of the Sizewell C Project is likely to be minor in respect to material volumes in both Suffolk and the UK, therefore it is considered **not significant**.

c) Generation and management of waste

i. Generation and management of waste for the Sizewell C Project

Construction

8.6.24 In considering the generation and management of construction waste, it is important to define when, under current legislation and understanding, a material is considered to be a waste. The Waste Framework Directive defines waste as "*any substance or object which the holder discards or intends to discard or is required to discard*". The definition is transposed into the UK through the Waste (England and Wales) Regulations 2011, as amended.

8.6.25 Waste arises predominantly from excavations of 'natural' and 'made' ground and from materials brought to site that are not used for their intended purposes, such as damaged items, cut offs and surplus materials. Some types of waste are harmful to human health, or to the environment, either immediately or through an extended period of time. These are defined as hazardous wastes.

8.6.26 The waste arisings that are likely to be generated by the construction of the Sizewell C Project are detailed in the **Conventional Waste Management Strategy**, provided at **Appendix 8A** of this volume, and summarised below.

Excavated materials

8.6.27 In line with the **Materials Management Strategy**, provided at **Appendix 3B** of this volume, a neutral cut and fill balance is targeted for the main development site, with any surplus excavated material to be retained on-site for re-use in landscaping. This would significantly minimise the amount of material classified as waste during the earthworks phase of construction. In addition, a slurry treatment plant would be provided on-site to enable the treatment and re-use of tunnel boring arisings within landscaping. However, it is accepted that small unknown volumes of material may be required to be taken off-site, if the material is unsuitable for reuse.

8.6.28 For the proposed roads and road improvements, and rail infrastructure included within the proposals, it is likely that any excavated material would be used in the cut and fill balance required along the road and rail alignments and will need to be managed as waste. The construction of the new roads may encounter localised hot spots of contamination (such as small isolated and unregulated landfills) and therefore, small unknown volumes of hazardous waste are also likely to be encountered.

Construction and demolition waste

8.6.29 Construction waste would be generated through off-cuts from fitting materials, breakages and spent materials and would include, but not be limited to, municipal-type wastes, concrete, metal, wood and plastic. Reference to the predicted construction waste arisings for Hinkley Point C (Ref. 8.39) suggests that a construction waste total of approximately 460,000 tonnes, requiring off-site management, would be expected for the Sizewell C Project over the course of the construction period. This total would include arisings from the main development site as well as the associated developments.

8.6.30 Construction waste arisings from the main development site are estimated to be 255,000 tonnes. For all the associated development sites, including road and rail infrastructure, the construction waste arisings are estimated to be approximately 204,000 tonnes.

8.6.31 The total hazardous waste arisings from the construction phase is estimated to be 11,800 tonnes. This will typically include chemicals and oils used as part of the construction works. The average annual hazardous construction waste arisings are estimated to be 1,070 tonnes.

8.6.32 The removal of approximately eight buildings on the Sizewell B site will be required prior to the construction on the main development site for Sizewell C. Waste from this demolition process will predominantly consist of concrete and metal, with a small quantity of other material types from the internal fittings. Demolition activities are estimated to generate approximately 5,000 tonnes of additional construction and demolition waste. It is expected that much of this waste will be retained for re-use on-site. The remaining waste will require treatment or disposal off-site.

Operational waste during construction

8.6.33 The municipal solid waste associated with the main development site, including the fully occupied accommodation campus and caravan park, is estimated to total approximately 41,000 tonnes from years 3 to 10 with an annual average of approximately 5,100 tonnes. This is likely to include general black bag waste, food waste and dry recyclables such as cardboard, paper and plastics.

8.6.34 The commercial and industrial waste generated in the northern and southern park and ride sites and the freight management facility is estimated to total approximately 4,400 tonnes over the same period with an annual average of approximately 550 tonnes. This waste is likely to include general black bag waste and dry recyclables such as cardboard, paper, green waste and plastics.

Removal and reinstatement waste

8.6.35 The accommodation campus, temporary construction area, park and ride facilities, freight management facility, LEEIE caravan park, LEEIE heavy goods vehicle and bus management areas and the green rail route would all be removed at the end of their use, and waste would be generated in the removal process.

8.6.36 The total waste associated with the removal of the campus, temporary construction area and LEEIE facilities is estimated to be 215,000 tonnes over a period of up to two years, while that associated with the removal of the other temporary associated developments is estimated to be 59,000 tonnes over the same period.

8.6.37 The waste arisings from the removal and reinstatement phase will comprise similar waste types to those generated during the construction phase.

8.6.38 The accommodation campus would be entirely removed at the end of Sizewell C construction and the land restored in accordance with the **oLEMP** (Doc Ref. 8.2). This would include removal of all infrastructure and

excavation of footings. As the living accommodation will likely comprise prefabricated modular units, there is the potential that entire units, components and building fabrics could be re-used following their removal from site, although it is recognised that this is market dependent. There is also a potential that the suppliers could enter a contract to buy back parts or all of the units (e.g. frames, fabrics, timber cladding). It is SZC Co.'s intention to re-use the modular units, where practical, although factors such as construction standards over time (e.g. insulation) would need to be considered. SZC Co. will explore the options for re-use at a later date.

8.6.39 Once Sizewell C has been built, the buildings and associated infrastructure including hard-standing and drainage on the temporary construction area, LEEIE facilities, accommodation campus, park and ride facilities, freight management facility and the green rail route would be removed in accordance with a demolition plan, which would maximise the potential for re-use of buildings and materials.

Operation

Sizewell C power station

8.6.40 In total, the commercial and industrial waste associated with the Sizewell C power station during operation is estimated to be 68,400 tonnes (over 60 years) with the average annual waste arisings estimated as 1,140 tonnes. Of the average annual arisings, it is expected that around 940 tonnes will be inert/non-hazardous, and 200 tonnes will be hazardous waste.

8.6.41 During maintenance outages, these periods will generate a higher quantity of wastes than during periods of normal operation. Outage waste quantities have been included in the annual waste arisings.

Permanent off-site associated developments

8.6.42 Material use and waste generation from maintenance activities, litter and other municipal types of waste from the users of the infrastructure are expected to be minimal during operation of the Sizewell C Project and would generally be the same (in both type and quantity) to that generated by the existing infrastructure in the vicinity.

8.6.43 Maintenance activities are likely to be infrequent and unlikely to generate large volumes of waste requiring treatment or disposal. Litter and other municipal type wastes generated by the users of the facilities are unlikely to generate large volumes over and above what is already generated by similar infrastructure currently in operation. It has not been possible to separately quantify this waste nor has separate provision been identified for the

management of operational waste, once the construction of the main development site has been completed. However, it is likely that the existing waste management facilities will be able to manage wastes generated during the operational phase.

ii. Assessment of effects

8.6.44 The methodology for the assessment of the effects of the generation and management of construction waste and excavated materials is described in detail in **Volume 1, Appendix 6D** of the **ES**.

8.6.45 The baseline study included in **Appendix 8A** of this volume indicated that the different waste facilities in Suffolk and neighbouring regions are likely to have the capacity to process all the waste that would be generated by the Sizewell C Project.

Construction

Excavated materials

8.6.46 The implementation of measures outlined in **section 8.5** of this chapter would allow the reduction of effects on waste management infrastructure through the re-use of excavated materials on-site. Whilst, it is not possible at this stage to fully determine the precise quantities of excavated material that would be deemed to be unacceptable for re-use on-site, it is expected that these would be minimal. Therefore, a minor adverse effect on the capacity of landfill sites to accept non-hazardous excavation material has been determined, which is considered **not significant**.

8.6.47 It is possible that a small fraction of the excavated materials at Sizewell C would be contaminated, particularly in the area of Coronation Wood, due to previous land uses, and if so, a percentage of this material would become waste. Most of the main development site and the sites for associated development have no history of previous development and no significant contamination is expected. It is therefore unlikely that large volumes of hazardous waste would be generated from the earthworks phase.

Construction and demolition waste

8.6.48 It is estimated that in total approximately 297,000 tonnes of inert construction waste would be generated. This waste would be dealt with in accordance with the waste hierarchy, which would require that re-use on other sites and recycling are prioritised. Demolition quantities from the Sizewell B relocated facilities works are assumed to occur concurrently with the first 3 years of the

Development Consent Order works. Any inert waste from the demolition of structures and from offcuts are likely to be minimal.

8.6.49 The remaining permitted capacity of inert recovery facilities that lie within 100km of the main development site is estimated as being approximately 1.18 million tonnes, in addition to 650,000 tonnes of physical treatment permitted capacity which may be able to accept inert material.

8.6.50 The worst-case scenario would be that this waste requires disposal to landfill, and the baseline has identified sufficient remaining inert landfill capacity in Suffolk, amounting to approximately 3 million m^3 of capacity within 100km of the main development site.

8.6.51 Inert waste not likely to be reused on site is expected to constitute less than 1% of the remaining inert landfill and inert recovery capacity within 100km of the main development site boundary, which would result in a reduction or alteration in the capacity of the waste infrastructure.

8.6.52 The magnitude of effect on the capacity of landfill sites to accept inert waste is assessed as negligible, and therefore, the effect is considered **not significant**.

8.6.53 Non-hazardous construction waste arisings have been estimated to be approximately 107,000 tonnes, in total.

8.6.54 Non-hazardous waste would be dealt with in accordance with the waste hierarchy, which would require that re-use on other sites and recycling are prioritised. However, the worst-case scenario would be that this waste requires disposal to landfill, and the baseline has identified the remaining non-hazardous landfill permitted capacity within 100km of the main development site at the end of 2018 to be approximately 3.84 million m^3, due primarily to Masons landfill which lies 45km away. Approximately 375,000 tonnes of material recycling treatment permitted capacity has also been identified within 100km of the main development site , in addition to 650,000 tonnes of physical treatment capacity.

8.6.55 107,000 tonnes of non-hazardous construction waste would constitute greater than 1% but less than 5% of the remaining waste management infrastructure capacity within 100km of the main development site boundary, which would result in a reduction or alteration in the capacity of the waste infrastructure. The magnitude of effect on landfill capacity to accept non-hazardous waste is assessed to be minor, therefore the effect is considered **not significant**.

8.6.56 The total hazardous waste arisings from the construction phase is estimated to be 11,800 tonnes. The peak annual hazardous construction waste arisings for Sizewell C are estimated as 5,200 tonnes (in year 2) which would represent approximately 14% of total Suffolk arisings in year 2. In years 1, 3 and 11 hazardous construction waste arisings are estimated as 4,600 tonnes, 120 tonnes and 330 tonnes respectively, which would represent 12%, 0.3% and 1.1% of total Suffolk arisings in the same year.

8.6.57 It is estimated that in 2018, there were approximately 85,000 tonnes of throughput at hazardous waste facilities within 50km of the main development site and 810,000 tonnes of throughput within 100km of the main development site boundary. The hazardous waste facilities in Suffolk of most interest to the Sizewell C Project are the following:

- Hollywell waste oil facility, which has a permitted capacity of approximately 75,000tpa and is situated approximately 45km away from the main development site. The site had a throughput of approximately 6,600 tonnes in 2018;
- Folly Farm waste management facility, a hazardous landfill operated by Shotley Holdings Ltd which accepts hazardous construction materials and had a throughput of approximately 129,000 tonnes in 2018.

8.6.58 It is considered, therefore, that there is sufficient capacity in Suffolk to handle hazardous waste generated by the Sizewell C Project. However, currently no contaminated soil treatment facilities exist within Suffolk, therefore this waste stream may have to be delivered to specialised sites located in surrounding regions. Two Biogenie facilities are considered to be the most desirable options treatment of contaminated soils, in particular the Westmill soil treatment facility, which lies approximately 152km from the main development site.

8.6.59 The hazardous waste arisings during the construction phases would constitute greater than 1% but less than 5% of the remaining waste management infrastructure capacity within 100km of the main development site boundary, which would result in a reduction or alteration in the capacity of the waste infrastructure. The magnitude of effect on landfill capacity to accept hazardous waste is assessed as minor, therefore, the effect is considered **not significant**.

Operational waste during construction

8.6.60 The majority of the municipal solid waste from the main development site is anticipated to be re-useable, recyclable or recoverable. The municipal solid waste associated with the main development site, including the fully occupied

accommodation campus and caravan park, is estimated to be a total of approximately 41,000 tonnes from years 3 to 10 with an annual average of approximately 5,100 tonnes. This would represent approximately 1.2% and 1.1% of total Suffolk arisings in years 3 and 10 respectively and would not impact significantly upon the existing facilities. Municipal solid waste arisings from the associated developments are anticipated to be minimal.

8.6.61 The magnitude of effect on waste management capacity for municipal solid waste is minor, compared to the regional municipal waste arisings, therefore, the effect is considered **not significant**.

8.6.62 In total, the commercial and industrial waste from the associated developments (excluding rail and road infrastructure) is estimated to be approximately 4,400 tonnes in years 3-10[1]. The baseline indicates that approximately 926,000 tonnes of commercial and industrial waste would be generated in 2024, assuming high growth, increasing to 1,039,000 in 2031. The average annual commercial and industrial arisings from the associated development sites is estimated to be approximately 550 tonnes over an 8-year period. This would represent approximately 0.06% and 0.05% of total Suffolk arisings in years 3 and 10 respectively and would not impact significantly upon the existing facilities.

8.6.63 The magnitude of effect on regional waste management capacity for commercial and industrial waste is assessed as negligible, therefore the effect is considered **not significant**.

8.6.64 It is anticipated that approximately 2,200 tonnes of organic waste will be generated from the operation of the accommodation campus, LEEIE facilities, park and rides and freight management facility during years 3-10. Organic waste could be delivered to composting and anaerobic digestion facilities, for which there is approximately 350,000 tonnes of permitted capacity within 100km of the main development site, while non-recyclable residual wastes could potentially be sent to the energy from waste facility adjacent to Viridor's Masons landfill, which has the capacity to treat 269,000 tonnes of residual waste per year.

8.6.65 The organic waste arisings generated from the operation of the accommodation campus, LEEIE facilities, park and rides and freight management facility in years 3-10 would constitute less than 1% of the

[1] Commercial and industrial waste arisings for the main development site are taken into account of within municipal solid waste volumes. Any commercial and industrial waste arisings from rail and road infrastructure are expected to be very limited and, therefore, have been excluded from the assessment.

remaining organic waste management infrastructure capacity within 100km of the main development site boundary.

8.6.66 The magnitude of effect on waste management infrastructure capacity to accept organic waste is assessed as negligible therefore, the effect is considered **not significant**.

Removal and reinstatement waste

8.6.67 The majority of the waste produced during the removal of the accommodation campus, temporary construction area, LEEIE facilities, park and rides, freight management facility and green rail route will be considered as construction and demolition waste. The total waste arisings are estimated to be 274,000 tonnes in years 11 and 12 during the removal and reinstatement phase. It is assumed that the estimated waste arisings would be generated equally during years 11 and 12. Therefore, it is estimated that 137,000 tonnes per annum will arise.

8.6.68 The baseline estimates construction and demolition waste arisings across Suffolk to be 460,000 tonnes in 2022 decreasing to 379,000 tonnes in 2032. The construction and demolition waste arisings from the removal of these facilities would represent approximately 36% of the total Suffolk construction and demolition waste arisings in year 12.

8.6.69 It is estimated that approximately 181,000 tonnes of inert waste would be generated during the removal and reinstatement phase. This waste would be dealt with in accordance with the waste hierarchy, which would require that re-use and recycling off-site are prioritised, since there would be very limited opportunity to do so on-site at this stage.

8.6.70 The worst-case scenario would be that this waste requires disposal to landfill, and the baseline has identified sufficient remaining inert landfill capacity in Suffolk, amounting to approximately 3 million m^3 of capacity within 100km of the main development site.

8.6.71 The remaining permitted capacity of inert recovery facilities that lie within 100km of the main development site is estimated as being approximately 1.18 million tonnes, in addition to 650,000 tonnes of physical treatment permitted capacity which may be able to accept inert material.

8.6.72 Therefore, basing the assessment of effects on a likely worst-case scenario, the 181,000 tonnes of inert waste generated during the removal and reinstatement phase would constitute between 1% and 5% of the remaining waste management infrastructure capacity within 100km of the main development site boundary, which would result in a reduction or alteration in

the capacity of the waste infrastructure. Effects would be adverse, direct and temporary. However, the magnitude of effect on landfill capacity to accept inert waste is assessed as minor, therefore the effect is considered **not significant**.

8.6.73 It is estimated that approximately 46,000 tonnes of non-hazardous waste would be generated during removal and reinstatement of the campus, temporary construction area, LEEIE and associated development facilities. It has not been possible at this stage to determine the proportion of waste that would need be to delivered to an appropriate waste disposal or treatment facility in Suffolk.

8.6.74 These wastes would be dealt with in accordance with the waste hierarchy, which would require that re-use and recycling off-site are prioritised, since the possibility to do so on-site would be very limited at this stage. However, the worst-case scenario would be that this waste requires disposal to landfill, and the baseline has identified the remaining non-hazardous landfill permitted capacity within 100km of the main development site at the end of 2018 to be approximately 3.8 million m^3, due primarily to Masons landfill which lies 45km away. Approximately 375,000 tonnes of material recycling treatment permitted capacity have also been identified within 100km of the main development site.

8.6.75 Therefore, basing the assessment of effects on a likely worst-case scenario, the 46,000 tonnes of non-hazardous waste generated during the removal and reinstatement phase would constitute less than 1% of the remaining waste management infrastructure capacity within 100km of the main development site boundary, which would result in a reduction or alteration in the capacity of the waste infrastructure. The magnitude of effect on waste infrastructure capacity to accept non-hazardous waste is assessed as negligible, therefore the effect is considered **not significant**.

8.6.76 It is estimated that approximately 3,100 tonnes of hazardous waste would be generated during the removal and reinstatement phase. The average annual hazardous waste arisings for years 11 and 12 is, therefore, estimated to be 1,550 tonnes. This would represent approximately 5% of total hazardous waste arisings in Suffolk in year 12.

8.6.77 It is estimated that in 2018, there were approximately 85,000 tonnes of throughput at hazardous waste facilities within 50km of the main development site, and 810,000 tonnes of throughput within 100km.

8.6.78 Currently no contaminated soil treatment facilities exist within Suffolk, therefore this waste stream may have to be delivered to specialised sites located in surrounding regions.

8.6.79 The hazardous waste arisings from the removal and reinstatement phase would constitute <1% of the total annual hazardous waste management infrastructure capacity within 100km of the main development site boundary. This would result in a reduction or alteration in the remaining capacity of the waste infrastructure in the region. The magnitude of effect on waste infrastructure capacity to accept hazardous waste is assessed as negligible, therefore the effect is considered **not significant**.

Operation

Sizewell C Power Station

8.6.80 The baseline indicates that approximately 1,039,000 tonnes of commercial and industrial waste would be generated annually between 2031 to 2036 in the absence of the Sizewell C Project. Forecast data is not available after this period.

8.6.81 The operational waste of Sizewell C would represent approximately 0.1% of total commercial and industrial waste arisings in Suffolk up to 2036. The magnitude of effect on waste infrastructure capacity is assessed negligible, therefore the effect is considered **not significant**.

Permanent off-site associated developments

8.6.82 Whilst it has not been possible to calculate waste quantities from the operation of permanent off-site associated developments, on the basis of previous project experience and professional judgement, these are considered to be limited. Therefore, the magnitude of change in waste infrastructure capacity is assessed as negligible and the effect is considered **not significant**.

d) Inter-relationships

8.6.83 There are no inter-relationship effects on the receptors assessed within this chapter (i.e. material resources and waste management infrastructure).

8.6.84 The assessment of the management of waste is inter-related with the assessment of impacts set out in the geology and soils, groundwater and surface water, air quality, noise and vibration and transport assessments. The likely presence of contaminated soil is set out in **Volume 2, Chapter 18** of the **ES** and **Volumes 3** to **9, Chapter 11** of the **ES**, **'**Geology and Soils'.

8.6.85 During the construction and operational phases, there is potential for materials and waste to leach or cause run off which could have impact on sensitive receptors, including controlled waters. The risks to the water

environment from contaminated and other waste materials are described in **Volume 2, Chapter 19** of the **ES** and **Volumes 3** to **9, Chapter 12** of the **ES,** 'Groundwater and Surface Water'.

8.6.86 Where the potential for hazardous waste from contaminated land is identified, the assessment presented within this chapter has addressed the management of this waste.

8.6.87 Effects associated with the transport of waste and materials are dealt with in the following locations within the **ES**: **Volume 2, Chapter 10 '**Transport'**, Volume 2, Chapter 11** and **Volumes 3** to **9, Chapter 4 '**Noise and Vibration'**, Volume 2, Chapter 12** and **Volumes 3** to **9, Chapter 5** 'Air Quality'.

8.7 Mitigation and monitoring

a) Introduction

8.7.1 Primary and tertiary mitigation measures which have been accounted for as part of the assessment are summarised in **section 8.5** of this document. Where further mitigation is required, this is referred to as secondary mitigation and, where reasonably practicable, secondary mitigation measures have been proposed.

8.7.2 This section describes the proposed secondary mitigation measures for material resources and conventional waste and describes any monitoring required.

b) Mitigation

8.7.3 **Section 8.6** of this document identified significant adverse effects on materials resource markets due to concrete, steel and bitumen use by the Sizewell C Project. Whilst good industry practice measures to reduce material use were set out in **section 8.5** of this document (e.g. use of site-won and recycled materials, where possible), it is not considered to be possible to mitigate this effect further.

c) Monitoring

8.7.4 The generation and management of construction waste would be monitored in accordance with measures set out in the **Outline Site Waste Management Plan**, as provided in **Appendix 8A** of this volume. The contractor would be required to measure waste arisings against targets agreed with SZC Co. Furthermore, the **CoCP** (Doc Ref. 8.11) and the **Materials Management Strategy**, provided in **Appendix 3B** of this volume, set out requirements for the monitoring of material use and management.

8.8 Residual effects

8.8.1 The following tables (**Table 8.18** and **Table 8.19**) present a summary of the material resources and waste assessment. They identify the receptor/s likely to be impacted, the level of effect and, where the effect is deemed to be significant, the tables include the mitigation proposed and the resulting residual effect for the construction and operational phases.

Table 8.18: Summary of the material resources and waste management assessment for the construction phase.

Receptor	Impact	Primary or tertiary mitigation	Assessment of effects	Additional mitigation	Residual effects
Quarries/ finite sources of virgin materials	Reducing availability of concrete in Suffolk	Measures set out within the **Conventional Waste Management Strategy**, **Code of Construction Practice** (Doc Ref. 8.11), **Materials Management Strategy**, **Outline Soil Management Plan**, as described in **section 8.5**.	Major adverse **(significant)**	None available	Major adverse **(significant)**
Quarries/ finite sources of virgin materials	Reducing availability of concrete in UK		Minor adverse **(not significant)**	None required	Minor adverse **(not significant)**
Quarries/ finite sources of virgin materials	Reduction in availability of steel in Suffolk		Major adverse **(significant)**	None available	Major adverse **(significant)**
Quarries/ finite sources of virgin materials	Reduction in availability of steel in UK		Major adverse **(significant)**	None available	Major adverse **(significant)**
Quarries/ finite sources of virgin materials	Reduction in availability of bitumen in Suffolk		Moderate adverse **(significant)**	None available	Moderate adverse **(significant)**
Quarries/ finite sources of virgin materials	Reduction in availability of bitumen in UK		Negligible **(not significant)**	None required	Negligible **(not significant)**
Quarries/ finite sources of virgin materials	Reduction in availability of gravel in Suffolk		Minor adverse **(not significant)**	None required	Minor adverse **(not significant)**

Receptor	Impact	Primary or tertiary mitigation	Assessment of effects	Additional mitigation	Residual effects
Quarries/ finite sources of virgin materials	Reduction in availability of gravel in UK		Negligible **(not significant)**	None required	Negligible **(not significant)**
Waste management infrastructure	Production of non-hazardous excavated materials requiring removal from site resulting in the temporary occupation of waste management infrastructure capacity or permanent reduction to landfill capacity.	Measures set out within the **Conventional Waste Management Strategy**, **Code of Construction Practice**, **Materials Management Strategy**, **Outline Soil Management Plan**, as described in **section 8.5**.	Minor adverse **(not significant)**	None required	Minor adverse **(not significant)**
Waste management infrastructure	Production of non-hazardous construction waste resulting in the temporary occupation of waste management infrastructure capacity or permanent reduction to landfill capacity (including municipal, commercial and industrial and food waste).		Negligible to minor adverse **(not significant)**	None required	Negligible to minor adverse **(not significant)**

Receptor	Impact	Primary or tertiary mitigation	Assessment of effects	Additional mitigation	Residual effects
Waste management infrastructure	Production of hazardous construction waste resulting in the temporary occupation of waste management infrastructure capacity or permanent reduction to landfill capacity.		Negligible to minor adverse **(not significant)**	None required	Negligible to minor adverse **(not significant)**
Waste management infrastructure	Production of inert waste resulting in the temporary occupation of waste management infrastructure capacity or permanent reduction to landfill capacity.		Negligible to minor adverse **(not significant)**	None required	Negligible to minor adverse **(not significant)**

Table 8.19: Summary of the material resources and waste management assessment for the operational phase

Receptor	Impact	Primary or tertiary mitigation	Assessment of effects	Additional mitigation	Residual effects
Quarries/ finite sources of virgin materials	Impacts on the availability of material resources, and subsequent impacts on the demand for key materials.	Operational management arrangements, as described in **section 8.5**.	Minor adverse **(not significant)**	None required	Minor adverse **(not significant)**

Receptor	Impact	Primary or tertiary mitigation	Assessment of effects	Additional mitigation	Residual effects
Quarries/ finite sources of virgin materials	Depletion of non-renewable resources.		Minor adverse **(not significant)**		Minor adverse **(not significant)**
Waste management infrastructure	Production of non-hazardous waste resulting in the temporary occupation of waste management infrastructure capacity or permanent reduction to landfill capacity.		Negligible **(not significant)**		Negligible **(not significant)**
Waste management infrastructure	Production of hazardous waste resulting in the temporary occupation of waste management infrastructure capacity or permanent reduction to landfill capacity.		Negligible **(not significant)**		Negligible **(not significant)**
Waste management infrastructure	Production of inert waste resulting in the temporary occupation of waste management infrastructure capacity or permanent reduction to landfill capacity.		Negligible **(not significant)**		Negligible **(not significant)**

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