Botley West Solar Farm

Environmental Statement

Volume 1

Chapter 18: Waste and Resources

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Contents

Tables

Glossary

Term	Meaning
The Applicant	SolarFive Ltd
The Project	Botley West Solar Farm
Code of Construction Practice	A document detailing the overarching principles of construction, construction related environmental management measures, pollution prevention measures, and monitoring processes.
Mineral Safeguarding Area	An area designated by minerals planning authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development.
Site Waste and Resources Management Plan	A Plan setting out how wastes and consumption of key resources will be minimised and managed during the construction process. The Plan will set targets for diverting waste from landfill; during construction the Plan will be updated as waste is moved from the types and quantities of waste predicted to be generated.
Operational Waste Management Plan	A Plan setting out the types of waste that will be generated during the operation and maintenance phase and how these wastes will be managed in accordance with the waste hierarchy.
Study Area	This is an area which is defined for each environmental topic which includes the Order Limits as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each topic is intended to cover the area within which an impact can be reasonably expected.

Abbreviations

Abbreviations	Meaning
AMR	Authority Monitoring report
C&I	Commercial and Industrial Waste
CDE	Construction, Demolition and Excavation Waste
Defra	Department for Environment and Rural Affairs
DMRB	Design Manual for Roads and Bridges
ES	Environmental Statement
NGET	National Grid Electricity Transmission
NPPF	National Planning Policy Framework
NPS	National Policy Statement
OWMP	Operational Waste Management Plan
PEIR	Preliminary Environmental Information Report

Abbreviations	Meaning
PV	Photovoltaic
SWRMP	Site Waste and Resources Management Plan
WPA	Waste Planning Authority

Units

Unit	Description
%	Percentage
m	Metres

18 Waste and Resources

18.1 Introduction

Overview

18.1.1 This chapter of the Environmental Statement (ES) has been prepared by RPS for Photovolt Development Partners GmbH (PVDP) on behalf of SolarFive Ltd (the Applicant).

18.1.2 This ES chapter forms part of the application submitted by PVDP to the Planning Inspectorate (PINS) on behalf of the Applicant for development consent under the Planning Act 2008. The proposal is to install and operate approximately 840MWe of solar generation across approximately 839 ha. The Project extends from an area of land in the north, situated between the A4260 and the Dorn River Valley near Tackley and Wootton (Northern Site Area), through a central section, situated broadly between Bladon and Cassington (Central Site Area), and connecting to a section further south near to Farmoor Reservoir and north of Cumnor (Southern Site Area), where the Project will connect to the National Grid transmission network.

18.1.3 The Project lies within the administrative areas of Cherwell (CDC), West Oxfordshire (WODC) and Vale of White Horse (VWHDC) District Councils, and Oxfordshire County Council (OCC). Most of the Project lies within West Oxfordshire District Council.

18.1.4 This ES is submitted as part of the development consent application in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended (the EIA Regulations), and other required documents including a statement on pre-application consultation.

18.1.5 This ES chapter has been prepared in accordance with the approach set out in the Scoping Report, Chapter 4: Approach to Environmental Assessment **[EN010147/APP/6.3]** .

18.1.6 This chapter draws upon information contained within

- Volume 1, Chapter 6: Project Description **[EN010147/APP/6.3]**;
- Volume 1, Chapter 11: Ground Conditions **[EN010147/APP/6.3]**;
- Volume 1, Chapter 12: Traffic and Transport **[EN010147/APP/6.3]**; and
- Volume 1, Chapter 14: Climate Change **[EN010147/APP/6.3]**.

18.2 Legislative and policy context

Legislation

18.2.1 This chapter of the ES has considered the legislative framework as defined below.

European Legislation

European Waste Directive Framework (2008/98/EU)

18.2.2 Article 3(1) of the revised European Waste Framework Directive (2008/98/EU) defines waste as:

'Any substance or object which the holder discards or intends to discard or is required to discard'.

18.2.3 'Discard' includes the recovery and recycling of a substance as well as its disposal in order to ensure that recovery operations are carried out in a way which protects the environment and human health.

18.2.4 Article 3(1) was not amended as part of the Waste (Miscellaneous Amendments) (EU Exit) Regulations 2019 and this definition is still applicable in the UK.

18.2.5 When assessing whether a material has been discarded, the Environment Agency considers a number of factors including:

- Burden;
- Certainty of use;
- Fit for purpose;
- Environmental harm;
- A specific purpose; and
- Reuse.

18.2.6 These factors form part of the Environment Agency's 'Check if your material is waste' online guidance (Environment Agency, 2022), which provides a practical guide about whether a material is a waste, is a by-product or meets 'end of waste' status. The Environment Agency also provides a 'definition of waste service' to advise if a material is a waste.

National Legislation

18.2.7 The UK legislative framework for the management of construction wastes comprises the following:

- Environment Act 2021;
- Waste (Circular Economy) (Amendment) Regulations 2020;
- Environmental Permitting (England and Wales) Regulations 2016;
- Waste (England and Wales) Regulations 2011;
- Waste Management (England and Wales) Regulations 2006;
- Hazardous Waste (England and Wales) Regulations 2005;
- Environment Act 1995; and
- Environmental Protection Act 1990.

Environment Act 2021

18.2.8 The Environment Act 2021 (the 2021 Act) provides a legal framework for environmental governance and makes specific provision for the improvement of the environment. With regards to waste and resources, the 2021 Act provides the legislative framework needed to deliver on many of the commitments in 'Our Waste, Our Resources: A Strategy for England' (Defra, 2018) by introducing new powers and amending existing legislation such as the Environment Act 1995 and the Environmental Protection Act 1990. This includes extending producer responsibility to make producers pay for 100% of cost of disposal of products, starting with plastic packaging; a deposit Return Scheme for single use drinks containers; and obligations to be placed on producers in relation to the re-use, redistribution, recovery and recycling of products.

Waste (Circular Economy) (Amendment) Regulations 2020

18.2.9 The Waste (Circular Economy) (Amendment) Regulations 2020 amends legislation that transposed waste-related EU Directives (including the Waste Framework Directive 2008/98/EU) and makes the legislative changes required to transpose the 2020 Circular Economy Package (CEP) measures. The CEP identifies steps for the reduction of waste and establishes a long-term plan for waste management and recycling.

18.2.10 One of the CEP measures relates to preparing waste for reuse and recycling. It states that legislative changes and industry guidance will be implemented to:

- promote the selective demolition to enable the removal and safe handling of hazardous substances;
- facilitate the reuse and high-quality recycling by selective removal of materials; and
- ensure the establishment of sorting systems for construction and demolition waste for wood, mineral fractions, metal, glass, plastic and plaster.

18.2.11 The CEP also requires that records must be kept of the material and product quantities resulting from preparing for reuse, recycling or other recovery of hazardous waste. These records must also be made available to the Environment Agency through the electronic registry.

Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 and Waste Electrical and Electronic Equipment (Amendment) Regulations 2018

18.2.12 The WEEE Regulations 2013 apply to all Electrical and Electronic Equipment ('EEE') placed on the market in the UK covered by the scope of the regulations. Obligations are imposed on producers, distributors and consumers of EEE.

Waste (England and Wales) Regulations 2011 (as amended)

18.2.13 The framework of waste management legislation in the UK is currently shaped by the Waste (England and Wales) Regulations 2011. These regulations

require all businesses and organisations that produce waste to take all reasonable measures to prevent waste, to apply the waste hierarchy when transferring waste using the definitions in Article 3 of Directive 2008/98/EC and include a declaration on their waste transfer notes or consignment notes to that effect. Standard Industry Classification (SIC) Codes (Companies House, 2018) of the waste producer will also be provided in the waste transfer note. The SIC is a system for classifying industries by a five-digit code.

18.2.14 The Waste (England and Wales) Regulations 2011 also require that any organisation which collects waste paper, metal, plastic or glass must do so using separate collections to facilitate or improve recovery of these materials and where it is technically, environmentally and economically practicable.

Hazardous Waste (England and Wales) Regulations 2005

18.2.15 The Hazardous Waste (England and Wales) Regulations 2005 set out the requirements for controlling and tracking the movement of hazardous waste and bans the mixing of different types of waste. Under the Regulations 'mixing' includes mixing of different categories of hazardous waste, non-hazardous wastes or any other substance or material.

Planning policy context

18.2.16 The Project would be located in the county of Oxfordshire, across an area of approximately 1,300 ha. The name 'Botley West' is derived from the location of the grid connection point.

18.2.17 The Project lies within the administrative areas of Cherwell District Council (CDC), West Oxfordshire District Council (WODC) and Vale of White Horse District Council (VWHDC) and Oxfordshire County Council (OCC). The majority of the Project lies within West Oxfordshire.

National Policy Statements

18.2.18 There are currently six designated energy National Policy Statements (NPSs), of which NPS EN-1 Overarching National Policy Statement for energy is relevant to waste and resources.

18.2.19 **Table 18.1** sets out a summary of the policies within NPS EN-1, relevant to waste and resources.

Table 18.1: Summary of designated NPS document requirements relevant to waste and resources

Summary of NPS requirements	How and where considered in the ES
The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a report that sets out the sustainable management of waste and use of resources throughout any relevant demolition, excavation and construction activities. (paragraph 5.15.8 of NPS EN-1)	The strategy for managing waste during the construction, operation and decommissioning phases of the project are set out in section 0 of this chapter. The management of waste will follow the waste hierarchy (see paragraphs 18.2.29 to 18.2.31). The waste hierarchy is a key element of sustainable waste

Summary of NPS requirements	How and where considered in the ES
The arrangements described and a report setting out the sustainable management of waste and use of resources should include information on how re-use and recycling will be maximised in addition to the proposed waste recovery and disposal system for all waste generated by the development. They should also include an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation. (paragraph 5.15.9 of NPS EN-1) The applicant is encouraged to refer to the 'Waste Prevention Programme for England' and should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental outcome. (paragraph 5.15.10 of NPS EN-1)	management and aims to avoid waste and divert waste from landfill. The existing waste management infrastructure and its capacity are described in Section 18.9**.** An Outline Site Resources and Waste Management Plan (SRWMP) is appended to the Outline Code of Construction Practice (CoCP) **[EN010147/APP/7.6.1]** that sets out the likely wastes that will be generated during the construction process and how these wastes will be managed. The Outline SRWMP identifies the key resources that will be used in construction and opportunities to use secondary and recycled content materials. An Operational Waste Management Plan (OWMP) will be prepared and agreed with the relevant waste planning authority prior to construction commencing as secured through the Operational Management Plan **[EN010147/APP/7.6.2]**]. It describes the wastes that will be generated during the operation and maintenance phase and how they will be managed.
The UK is committed to moving towards a more 'circular economy'. Where possible, applicants are encouraged to source materials from recycled or reused sources and use low carbon materials, sustainable sources and local suppliers. Construction best practices should be used to ensure that material is reused or recycled onsite where possible. (paragraph 5.15.12 of NPS EN-1)	The Outline SRWMP [**EN010147/APP/7.6.2]** considers the key resources required during construction and will include targets for the use of recycled or secondary materials.
Applicants are also encouraged to use construction best practices in relation to storing materials in an adequate and protected place on site to prevent waste, for example, from damage or vandalism. The use of Building Information Management tools (or similar) to record the materials used in construction can help to reduce waste in future decommissioning of facilities, by identifying materials that can be recycled or reused. (paragraph 5.15.13 of NPS EN-1)	The Outline SRWMP **[EN010147/APP/7.6.1]** includes measures for minimising waste including appropriate storage of materials and ordering of materials.
The Secretary of State should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the Project. The Secretary of State should be satisfied that: • any such waste will be properly managed, both on-site and off-site. • the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not	The ES considers the strategy for managing wastes during all phases of the Project. The measures set out within the Outline SRWMP **[EN010147/APP/7.6.1]**, Outline OMP **[EN010147/APP/7.6.2]** and the Outline Decommissioning Statement [**EN010147/APP/7.6.4]** provide an effective system for the sustainable management of waste. The ES identifies the existing waste management infrastructure in the vicinity of the Project. This provides the context of the

Summary of NPS requirements	How and where considered in the ES
have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area. • adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where that is the best overall environmental outcome.	existing facilities available and the available capacity to manage waste.
Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate measures for waste management are applied. (paragraph 5.15.16 of NPS EN-1) Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate measures for waste management are applied. (paragraph 5.15.7 of NPS EN-1)	Measures for managing waste during the construction phase are set out in the Outline SRWMP [**EN010147/APP/7.6.1**]. Measures for managing waste during the operational and decommissioning phases will be set out in an Operational Waste Management Plan (as secured in the OMP [**EN010147/APP/7.6.2**]) and a Decommissioning Waste Management Plan (as secured in the Decommissioning Plan **[EN010147/APP/7.6.4**]) .
The Secretary of State should have regard to any potential impacts on the achievement of resource efficiency and waste reduction targets set under the Environment Act 2021 or wider goals set out in the government's Environmental Improvement Plan. (paragraph 5.5.18 of NPS EN-1)	Measures for managing waste during the construction and operation and maintenance phases are set out in the Outline SRWMP [**EN010147/APP/7.6.1**.] and the Outline OMP [**EN010147/APP/7.6.2]** .

The National Planning Policy Framework

18.2.20 The National Planning Policy Framework (NPPF) was published in 2012 and most recently updated in 2023 (Department for Levelling Up, Housing and Communities, 2023). The NPPF sets out the Government's planning policies for England.

Table 18.2: Summary of NPPF requirements relevant to this chapter

Key provisions	How and where considered in the ES
National Planning Practice Framework	
One of the overarching objectives of sustainable development (as described in the NPPF) is to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy. (paragraph 8 of the NPPF)	The applicant will apply the waste hierarchy principle and will seek to identify opportunities to minimise waste through the design process and best construction practices. The strategy for managing construction waste is set out in the Outline SRWMP [**EN010147/APP/7.6.1].** An OWMP will be prepared and agreed with the relevant waste planning authority prior to construction commencing as secured through the Operational Management Plan **[EN010147/APP/7.6.2].** .
So far as practicable, new development should take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary	The SRWMP **[EN010147/APP.7.6.1]** considers the key materials to be used in the construction process. Recycled content targets will be set to reflect the contribution that substitute, or secondary and recycled materials make.

Key provisions	How and where considered in the ES
materials, whilst aiming to source minerals supplies indigenously. (paragraph 210 of the NPPF)	

18.2.21 The contents of the NPPF are not intended to inform policy relating to waste or decisions relating to waste development, however the NPPF should be read in conjunction with the Government's waste planning policy which is summarised below.

The Waste Prevention Programme for England: Maximising Resources, Minimising Waste (2023)

18.2.22 The waste prevention programme follows on from the Resources and Waste Strategy (2018) see below. The programme sets out the priorities to manage resources and waste in accordance with the top layers of the waste hierarchy i.e. prevention and re-use. The programme will follow a policy approach encompassing the following themes:

- Designing out waste: e.g. consumer information requirements
- Systems and services: e.g. including collection and take-back services to encourage reuse
- Data and information: including materials databases and product passports to support improved outcomes e.g. higher quality recycling.

18.2.23 The waste programme is being targeted at seven key sectors which have been selected on the basis of their waste arisings or known carbon emissions. One of the sectors is construction.

Waste Management Plan for England (2021)

18.2.24 The Waste Management Plan for England (Defra, 2021) fulfils the requirements of the Waste (England and Wales) Regulations 2011 for the waste management plan to be reviewed every six years. It provides an analysis of the current waste management situation in England and evaluates how it will support the implementation of the objectives and provisions of the Waste (England and Wales) Regulations 2011. The Waste Management Plan for England also provides an overview of the type, quantity and source of waste generated within England; existing waste collection schemes and major disposal and recovery installations; an assessment of the need for new collection schemes; and general waste management policies. The Waste Management Plan for England includes recent changes to waste management plan requirements which have been made by the Waste (Circular Economy) (Amendment) Regulations 2020 where appropriate.

A Green Future: Our 25 Year Plan to Improve the Environment (2018)

18.2.25 Published in 2018, the 25-year plan sets out the government goals for improving the environment within a generation. It details how the government will work with communities and businesses to do this. The following policies are relevant:

- Make sure that resources are used more efficiently and kept in use for longer to minimise waste and reduce its environmental impacts by promoting reuse, remanufacturing and recycling.
- Work towards eliminating all avoidable waste by 2050 and all avoidable plastic waste by the end of 2042.
- Reducing food supply chain emissions and waste.
- Reducing litter and littering.
- Improving management of residual waste.

Our Waste, Our Resources: A Strategy for England (2018)

18.2.26 The Government published 'Our Waste, Our Resources: A Strategy for England' (the Resources and Waste Strategy (RWS)) in December 2018 (Defra, 2018b). It builds on the commitments in the 25 Year Plan to Improve the Environment and sets out the policies that will help achieve the vision of moving to a circular economy. The RWS is underpinned by natural capital thinking and is guided by two overarching objectives:

- to maximise the value of resource use; and
- to minimise waste and its impact on the environment.

18.2.27 The RWS sets out the Government's priorities for preserving material resources, minimising waste, promoting resource efficiency and moving towards a circular economy. The priorities provide a useful insight into how organisations will be required to reduce and manage their waste in the future and to follow a more considered approach to procurement.

National Planning Policy for Waste (2014)

18.2.28 The National Planning Policy for Waste (Department for Communities and Local Government (now Ministry for Housing, Communities and Local Government), 2014) provides guidance to local planning authorities when determining applications for non-waste related development. Local planning authorities are required to ensure that the '*likely impact of proposed non-waste related development on existing waste management facilities and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities*'.

18.2.29 Local planning authorities are also recommended to consider the following factors during determination:

- new, non-waste development makes sufficient provision for waste management and promotes good design with the integration of waste management within the rest of the development (for example, providing adequate storage facilities); and
- the handling of waste arising from the construction and operation of the development maximises reuse and recovery opportunities and minimises off-site disposal.

Local planning policy

18.2.30 The relevant local planning policies applicable to the Project with regards to waste are summarised in **Table 18.3.**

Table 18.3: Summary of local planning policy relevant to this chapter

Policy	Key provisions	How and where considered in the ES
Oxfordshire Minerals and Waste Local Plan Part 1 2017		
Policy W1: Oxfordshire waste to be managed	Provision will be made for waste management facilities to provide capacity that allows Oxfordshire to be net self-sufficient in the management of its principal waste streams – municipal solid waste (or local authority collected waste), commercial and industrial waste, and construction, demolition and excavation waste – over the period to 2031	Information on the existing and future capacity of the waste management infrastructure in Oxfordshire is discussed in **section 18.9** of this chapter.
Policy W2: Oxfordshire waste management targets	Provision will be made for capacity to manage the principal waste streams in a way that provides for the maximum diversion of waste from landfill, in line with its targets by 2026 • Commercial and Industrial (C&I): – composting and food waste (5%) – non-hazardous waste recycling (65%) – non-hazardous residual waste treatment (25%) – landfill (5%) • Construction, Demolition and Excavation (CDE) inert proportion (assumed to be 80%of projected arisings: – inert waste recycling (65% by 2026 and 70% by 2031) – permanent deposit of inert waste (other than landfill) 25% – landfill (10% by 2026 and 5% by 2031) • CDE non-inert proportion (assumed to be 20% of projected arisings) – composting (5%) – non-hazardous waste recycling (65%) – non-hazardous residual waste treatment (25%) – landfill (5%) Proposals for the management of all types of waste should demonstrate that the waste cannot reasonably be	The likely types and quantities of waste that will be generated during the construction, operation and maintenance and decommissioning phases are set out in the Outline SRWMP [**EN010147/APP.7.6.1].** . Waste will be managed in accordance with the waste hierarchy principle.

Policy	Key provisions	How and where considered in the ES
	managed through a process that is higher up the waste hierarchy than that proposed.	
Policy W3: Provision for waste management capacity and facilities required	Provision will be made for the following additional waste management capacity to manage the non-hazardous element of the principal waste streams: Non-hazardous waste recycling: • by 2021: at least 145,400 tap • by 2026: at least 203,000 tap • by 2031: at least 326,800 tap	The baseline environment outlined in **section 18.9,** notes that additional recycling waste capacity is required in Oxfordshire for non-hazardous waste and that provisions will be made in the Minerals and Waste Local Plan.
Policy W7: Management and disposal of hazardous waste	Permission will be granted for facilities for the management and disposal of hazardous waste where they are designed to manage waste produced in Oxfordshire. Facilities that are likely to serve a wider area should demonstrate that they will meet a need for waste management that is not adequately provided for elsewhere.	The baseline **section 18.9** notes that permission may be granted for future hazardous waste management facilities in Oxfordshire for waste generated in the county.
West Oxfordshire Local Plan 2031		
Policy OS3: Prudent use of natural resources	All development proposals will be required to show consideration of the efficient and prudent use and management of natural resources, including: • Using recycled and energy efficient materials • Minimising waste and making adequate provision for the re-use and recycling of waste.	This policy is principally focused on residential developments as the targets in the Local Plan relate to household waste. However, the principles of waste minimisation and the efficient use of resources will be set out in the Outline SRWMP **[EN010147/APP.7.6.1]**
Vale of White Horse District Council Local Plan 2031		
Core Policy 43: Natural Resources	The Council encourages developers to make provision for the effective use of natural resources where applicable, including: • Minimising waste and making adequate provision for the recycling of waste on site • Using recycled and energy efficient materials.	The principles of waste minimisation and the efficient use of resources will be set out in the Outline SRWMP **[EN010147/APP.7.6.1]**
Development Policy 28: Waste Collection and Recycling	All development proposals will be expected to be consistent with the Council's Waste Planning Guidance. For development proposals, the Council will consider favourably the use of sustainable waste management initiatives, where there are likely to	During construction, compounds will include dedicated waste management areas. The set up of these waste management areas will include storage to facilitate recycling. During operation, it is likely that waste generated from maintenance activities will be removed off site by contractors and therefore, storage for recycling will not be required.

Policy	Key provisions	How and where considered in the ES
	provide environmental and financial benefits. Development proposals for non-residential use must ensure: • sufficient space is provided for the storage of communal recycling and refuse containers, and • provision is made that is adequate for the proposed use class. The location and design of the recycling and refuse provision should be integral to the Project. In assessing recycling and refuse provision, the following points should be considered: • the level and type of provision, having regard to the above requirements and relevant space standards; • the location of the provision, having regard to the need to provide and maintain safe and convenient; • access for occupants, while also providing satisfactory access for collection vehicles; • the impact of the provision on visual amenity, having regard to the need to minimise the prominence of the facilities and screen any external provision; • the impact of the provision on health and amenity of neighbouring development and the Project; and • the security of the provision against scavenging pests, vandalism and unauthorised use. Recycling and refuse storage should be separate from cycle storage, car parking and key circulation areas. Development will not be permitted if recycling and refuse provision that meets the above requirements cannot feasibly or practicably be provided.	
Cherwell Local Plan 2031		
Policy ESD 3: Sustainable Construction	All development proposals will be encouraged to reflect high quality design and high environmental standards, demonstrating sustainable construction methods including but not limited to:	This policy is principally focused on residential developments, however, the principles of waste minimisation and the efficient use of resources is set out in the Outline SRWMP **[EN010147/APP.7.6.1]**.

Policy	Key provisions	How and where considered in the ES
	• Maximising resource efficiency Incorporating the use of recycled and energy efficient materials • Incorporating the use of locally sourced building materials • Reducing waste and pollution and making adequate provision for the recycling of waste	

Waste hierarchy

18.2.31 The waste hierarchy ranks waste management options according to what is best for the environment. The hierarchy gives top place to waste prevention. When waste has been generated, priority is given to preparing it for re-use, then recycling, then recovery, and last of all disposal (for example, landfill), as shown in Figure 18.1. The waste hierarchy is a key element of sustainable waste management and following the hierarchy is a legal requirement of the Waste (England and Wales) Regulations 2011.

18.2.32 Defra has published guidance on how the waste hierarchy should be applied to a range of common wastes (Guidance on applying the Waste Hierarchy, Defra, 2011). It summarises the findings of current scientific research on the environmental impacts of various waste management options for a range of materials and products. The guidance states that for most materials the waste hierarchy ranking applies. However, the evidence suggests that for some materials, the preferred waste management option (i.e., with the lowest environmental impact) does not follow the waste hierarchy order.

18.2.33 In accordance with the Waste Prevention Programme for England (2023), the Project will seek to minimise the generation of waste: opportunities to design out waste will be identified during the detailed design process. These opportunities will be documented within the final SRWMP.

18.2.34 All waste generated by the Project will be managed in accordance with the waste hierarchy unless it can be demonstrated that an alternative option lower down the hierarchy is the best overall environmental outcome (for example, waste wood is often used for biomass heat recovery rather than being recycled). The measures that will be used to manage waste from the construction phase are set out in the Outline SRWMP [**EN010147/APP.7.6.1].** These measures will be updated during the detailed design stage and set out in the final SRWMP. A Measures for managing waste during the operational and decommissioning phases will be set out in an Operational Waste Management Plan (as secured in the OMP [**EN010147/APP/7.6.2**]) and a Decommissioning Waste Management Plan (as secured in the Decommissioning Plan **[EN010147/APP/7.6.4]**)

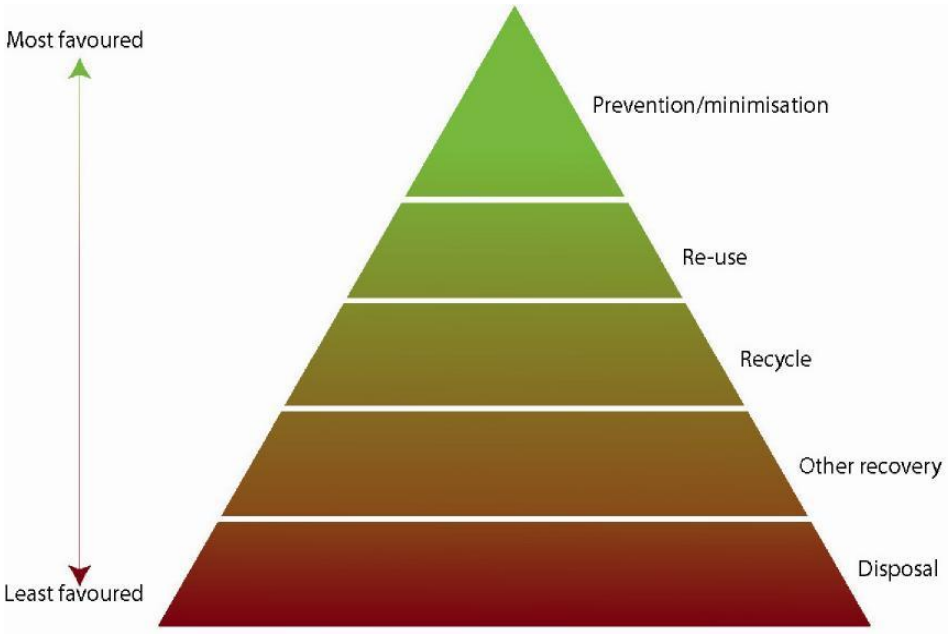

Figure 18.1: Waste hierarchy

18.3 Consultation and Engagement

18.3.1 On 15 June 2023, the Applicant submitted a Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects for the construction, operation and maintenance and decommissioning phases of the Project. It also described those topics or sub-topics which were proposed to be scoped out of the EIA process and provided justification as to why the Project would not have the potential to give rise to likely significant environmental effects in these areas.

18.3.2 Following consultation with the appropriate statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on 24 July 2023. Key issues raised during the scoping process specific to waste are listed in **Table 18.4,** together with details of how these issues have been addressed within the ES.

Table 18.4: Summary of scoping responses

Comment	How and where considered in the ES
Planning Inspectorate	
Scoping Report paragraph 9.3.1 acknowledges that the project is likely to generate waste during construction and decommissioning and that waste generation during operation will be minimal; Scoping Report paragraph 6.2.1 states that failed infrastructure will require replacement during operation. Whilst an outline code of construction practice is proposed to set out how waste will be managed during construction, the management of waste during operation and decommissioning is unknown. The Inspectorate does not agree to scope out impacts from waste. The ES should quantify waste anticipated to be generated during construction, operation and	This waste and resources chapter considers the likely wastes that will be generated during the lifetime of the Project (including the operation and maintenance phases). and how wastes will be managed. The potential for cumulative effects has also been assessed.

Comment	How and where considered in the ES
decommissioning and explain how waste will be managed at each phase. This should include consideration of any potential cumulative waste generation and associated significant effects.	

Infrastructure Planning Commission

Excavated materials that are recovered via a treatment operation can be re-used on site under the CL:AIRE Definition of Waste: Development Industry Code of Practice. This voluntary Code of Practice provides a framework for determining whether excavated material arising from site during remediation and/or land development works are waste. Developers should ensure that all contaminated materials are adequately characterised both chemically and physically (in line with British Standards) and that the permitting status of any proposed on site operations are clear. If in doubt, the Environment Agency should be contacted at an early stage to avoid delay. We recommend that developers should refer to our: • Position statement on the Definition of Waste: Development Industry Code of Practice: and • Website at https://www.gov.uk/government/organisations/ environment-agency for further guidance Contaminated soil that is, or must be disposed of, is waste. Therefore, its handling, transport, treatment and disposal is subject to waste management legislation. Any waste soil arising will need to be properly classified in accordance with Waste Classification Technical Guidance – WM3 and sent to an appropriately permitted facility. If any waste materials are to be imported for use in construction, an environmental permit may be required.	The CL:AIRE Definition of Waste Code of Practice has been included as a one of the measures within the Outline SRWMP **[EN010147/APP.7.6.1]**.for managing excavated material from the Project.

Oxfordshire County Council

Management of the waste relating to the replacement of any of the solar panels during the lifetime of the development and at the final decommissioning stage should be scoped in.	The waste and resources chapter considers the likely wastes that will be generated during the lifetime of the Project (including the operation and maintenance phases). The chapter assesses the potential reduction in landfill capacity for inert, non-hazardous and hazardous wastes as a result of waste generated by the Project.

Vale of White Horse District Council

The disposal of materials and plant following the decommissioning of the development should be scoped into the EIA.	The waste and resources chapter assesses the potential reduction in landfill capacity for inert, non-hazardous and hazardous wastes as a result of waste generated during the decommissioning of the Project.

Comment	How and where considered in the ES
Cumnor Parish Council	
'*Council is both astonished and concerned that the applicant proposes to scope waste 'out'. The applicant's meagre five bullet point justification for this completely ignore the rate of replacement of inverters etc, required for a 42-year site operational life, let alone the decommissioning of panels, inverters, cabling, buildings etc*'.	The waste and resources chapter considers the wastes likely to be generated during all phases of the Project and explains how wastes will be managed.

Preliminary Environmental Information Report

18.3.3 The preliminary findings of the EIA process were published in the Preliminary Environmental Information Report (PEIR) as part of the statutory consultation period between 30 November 2023 and 8 February 2024. This included consultation with statutory bodies under section 42 of the Planning Act 2008.

18.3.4 A summary of the key issues raised specific to waste and resources and how the ES has considered these issues is presented in **Table 18.5**.

Further Engagement

18.3.5 Consultation (in addition to scoping and statutory consultation) has been undertaken with Oxfordshire County Council. A summary of the key items raised specific to waste and resources and how the ES has considered these issues is presented in **Table 18.5**.

Table 18.5: Summary of consultation relevant to this chapter

Date	Consultee and type of response	Issues Raised	How and where considered in the ES
Section 43 Feedback			
8 February 2024	Oxfordshire County Council	Oxfordshire County Council welcomes that waste is now 'scoped in' to the Environmental Statement, particularly for the decommissioning stage.	Information on the management of waste from the decommissioning stage is presented in **the Outline Decommissioning Plan (EN010147/APP.7.6.4]**
8 February 2024	Oxfordshire County Council	The proposals lie within minerals safeguarding areas. Within these areas, mineral would be sterilised for the duration of the development (35 to 42 years) which could reduce sit options for the new Minerals and Waste Plan. IN accordance with the adopted Minerals and Waste Local Plan policy M8, the applicant has provided OCC with a Mineral Resource Assessment which puts forward a case that the need for solar energy outweighs the economic and social need for mineral resource in the applicable areas during this period. The County is currently reviewing this document and will respond to it in due course.	The Applicant notes the response
8 February 2024	Cherwell District Council	In respect to [DCO] requirements, Cherwell District Council recommend that requirements to cover the following matters are considered: • Site Waste and Resources Management Plan.	An Outline SRWMP is included in doc ref. The Outline SRWMP forms part of the Outline CoCP **[EN010147/APP7.6.1**] and is secured through the DCO.
Additional Consultation			
9 September 2024	Oxfordshire County Council	A meeting was held with members of Oxfordshire County Council's Waste Planning team. The purpose of the call was to discuss the Waste Local Plan and information on waste flows and capacity within the region.	Information on the capacity of the region's waste management infrastructure is presented in section

18.4 Assessment Methodology

Relevant guidance

18.4.1 Relevant guidance to inform the baseline assessment is set out within the DMRB Sustainability and Environment Appraisal; LA110 Materials and Waste 2019 (Highways England et al, 2019). Whilst this originally related to road projects, it is accepted that energy projects that include cable routes, such as the Project can also follow the guidance due to their linear nature. IEMA's Guide to Materials and Waste in Environmental Impact Assessment (IEMA, 2020) (specifically the W1 l- void capacity method) has also been applied in the characterisation of the study area and identification of sensitive receptors and incorporated into the assessment.

18.4.2 The waste and resources baseline conditions are defined by the following attributes:

- Waste
  - Forecast arisings within the region for relevant waste streams (i.e. construction and demolition wastes, commercial and industrial wastes).
  - The capacity of the existing and proposed waste management infrastructure.
- Resources
  - Predicted availability of key resources.

Scope of the assessment

18.4.3 The scope of this ES follows that of the Scoping Opinion and has been developed in consideration of the relevant statutory and non-statutory consultees as detailed in **Table 18.5.** The scope of the assessment focuses on three key stages being the: construction, operation and maintenance and decommissioning of the Project. .

18.4.4 Taking into account the scoping and consultation process, **Table 18.6** summarises the activities considered as part of this assessment.

Table 18.6: Activities considered within this assessment

Activity	Potential likely significant effects scoped into the assessment
Construction phase	
Activities required to facilitate the construction of the Project that generate waste materials which have to be managed with local or regional waste management infrastructure.	A reduction in the capacity of waste management infrastructure (landfill and recycling) arising from the generation of waste during the construction of the Project.
Activities required to facilitate the construction of the Project that require the consumption of key resources (key construction materials including concrete, steel, asphalt and aggregates only)	A depletion of resources arising from the use of resources in the construction of the Project.

Activity	Potential likely significant effects scoped into the assessment
Operation and maintenance phase	
Activities required to facilitate the operation and maintenance of the Project that generate waste materials which have to be managed with local or regional waste management infrastructure.	A reduction in the capacity of waste management infrastructure (landfill and recycling) arising from the generation of waste during the operation and maintenance of the Project.
Decommissioning phase	
Activities required to facilitate the decommissioning of the Project that generate waste materials which have to be managed with local or regional waste management infrastructure.	A reduction in the capacity of waste management infrastructure (landfill and recycling) arising from the generation of waste during the decommissioning of the Project.

18.4.5 Effects which are not considered likely to be significant have been scoped out of the assessment. A summary of the activities scoped out is presented in **Table 18.7.**

Table 18.7: Activities scoped out of the assessment.

Activity	Justification
Construction phase	
Waste arising from the extraction, processing and manufacture of construction components and products	This issue has been scoped out on the basis that such matters cannot be accurately predicted and assessed in the ES as they relate to procurement decisions. Whilst these matters are proposed to be scoped out, embedded and good practice mitigation measures including waste minimisation and sustainable procurement practices are provided in the SWRMP [].
Operation and maintenance phase	
Resource use during operation	Activities requiring the use of key resources (e.g. concrete, aggregates) are considered unlikely to be undertaken during the operation and maintenance phase.

Matters considered in other topic chapters

18.4.6 The matters considered in other topic chapters of the ES include:

- Impacts on mineral safeguarding areas are considered in Volume 1, Chapter 11: Ground Conditions [**EN010147/APP/6.3**]
- Environmental impacts associated with the management of waste and resources are considered in Volume 1, Chapter 13: Noise and Vibration and Chapter 14: Climate Change **[EN010147/APP/6.3]**.

Study area

18.4.7 The waste and resources study area to be used for the assessment has been established in accordance with the IEMA Guidance 'Materials and Waste in

Environmental Impact Assessment' (IEMA, 2020). It focuses on where potential impacts are most likely to occur on waste and resources receptors.

18.4.8 The study area takes into account the range of potential impacts arising from activities associated with the Project. The waste and resources study area is defined below:

- ''Expansive Study Area' - extends to the availability of construction materials and capacity of waste management infrastructure and remaining landfill void within a defined region.:
  - Oxfordshire (sub regional) in relation to inert, non-hazardous construction, operational and decommissioning waste management.
  - South East (regional) in relation to hazardous construction, operational and decommissioning waste management.
  - UK (national) in relation to availability of key construction materials.

18.4.9 The management of waste and sourcing of materials will be undertaken at a sub regional, regional and national level and therefore, the expansive study area is appropriate to the assessment of the Project.

18.5 Assessment Criteria and Assignment of Significance

Overview

18.5.1 The waste and resources impact assessment has followed the methodology set out in Volume 1, Chapter 4: Approach to Environmental Assessment of the ES. Specific to the hydrology and flood risk impact assessment, the following guidance documents have also been considered:

- DMRB Sustainability and Environment Appraisal; LA110 Materials and Waste 2019 (Highways England et al, 2019);
- IEMA's Guide to Materials and Waste in Environmental Impact Assessment (IEMA, 2020);
- Waste Duty of Care: Code of Practice (Defra and Environment Agency, 2018);
- Definition of Waste: Development Industry Code of Practice version 2 (CL:AIRE, 2011);
- Designing Out Waste: A Design Team Guide for Civil Engineering (WRAP, 2010);
- Building Research Establishment Environmental Assessment Methodology BREEAM New Construction Manual (BRE Global Ltd, 2018);
- London Plan Circular Economy Statement Guidance (Greater London Authority, 2022);
- Embedding circular economy principles into infrastructure operator procurement activities (Major Infrastructure – Resource Optimisation Group (MI-ROG), 2016)

18.5.2 The assessment considers the effects of the Project on the depletion of resources (specifically key resources during construction) and the depletion of landfill capacity during construction and operation and decommissioning. The operation of the Project is not envisaged to involve the use of many resources: it is not possible to allocate a sensitivity to these key resources due to the limited publicly available information on the UK demand for such key resources.

18.5.3 The approach to determining the significance of effects is a two-stage process that involves defining the magnitude of the impact and the sensitivity of the receptor. This section describes the criteria that will be applied to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on and have been adapted from those used in the Design Manual for Roads and Bridges (DMRB) methodology (Highways England, et al, 2020) and IEMA guidance (IEMA, 2020).

Sensitivity criteria

18.5.4 The sensitivity of landfill capacity relates to the availability of regional (and where appropriate, national) landfill void capacity in the absence of the Project. Landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste. The IEMA criteria (IEMA, 2020) are described in **Table 18.8** and will be used to determine the sensitivity of landfill void capacity. Inert and non-hazardous landfills have been combined in **Table 18.8** as the sensitivity criteria is the same. Criteria for hazardous landfills are set out in **Table 18.9**.

Table 18.8: Sensitivity criteria of inert and non-hazardous landfill void capacity

Sensitivity	Definition for inert and non-hazardous landfill void capacity
Very High	Across construction, operation and/or decommissioning, the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity: • is expected to reduce very considerably (by >10%); • is expected to end during construction or operation or decommissioning. • is already known to be unavailable; or • would require new capacity or infrastructure to be put in place to meet forecast demand.
High	Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity is: • expected to reduce considerably: by >5-10% as a result of wastes forecast.
Medium	Across construction, operation and/or decommissioning, the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity is: • expected to reduce noticeably by 1-5% as a result of wastes forecast.
Low	Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity is:

Sensitivity	Definition for inert and non-hazardous landfill void capacity
	• expected to reduce minimally by <1% as a result of wastes forecast.
Negligible	Across construction and/or operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity is: • expected to remain unchanged or is expected to increase through a committed change in capacity.

Table 18.9: Sensitivity criteria of hazardous landfill void capacity

Sensitivity	Definition for hazardous landfill void capacity
Very High	Across construction, operation and/or decommissioning, the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity: • is expected to reduce very considerably (by >1%); • is expected to end during construction, operation or decommissioning. • is already known to be unavailable; or • would require new capacity or infrastructure to be put in place to meet forecast demand.
High	Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity is: • expected to reduce considerably: by >0.5 - 1% as a result of wastes forecast.
Medium	Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity is: • expected to reduce noticeably by 0.1 – 0.5% as a result of wastes forecast.
Low	Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity is: • expected to reduce minimally by <0.1% as a result of wastes forecast.
Negligible	Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity is: • expected to remain unchanged or is expected to increase through a committed change in capacity.

18.5.5 The sensitivity of resources relates to the availability and type of resources to be consumed by the Project. The IEMA guidance (IEMA, 2020) criteria has been used to determine the sensitivity of materials (see **Table 18.10**).

Table 18.10: Sensitivity of depletion of resources

Sensitivity	Definition for depletion of resources
Very High	On balance, the key materials required for the construction of the Project are: • known to be insufficient in terms of production, supply and/or stock; and/or • comprise no sustainable features and benefits compared to industry-standard materials.
High	On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information): • to suffer from known issues regarding supply and stock; and/or

Sensitivity	Definition for depletion of resources
	• comprise little or no sustainable features and benefits compared to industry-standard materials.
Medium	On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information): • to suffer from some potential issues regarding supply and stock; and/or • are available comprising some sustainable features and benefits compared to industry-standard materials.
Low	On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information): • to be generally free from known issues regarding supply and stock; and/or • are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.
Negligible	On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information): • to be free from known issues regarding supply and stock; and/or • are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials*.
*Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts.	

Magnitude of impact

18.5.6 The IEMA guidance (IEMA, 2020) criteria to be used to assess the magnitude of impact for waste and resources are outlined in **Table 18.11**, **Table 18.12** and **Table 18.13** below. The Void Capacity Method W1 in IEMA's guidance, has been used to determine the percentage of the remaining landfill void capacity that will be depleted by waste produced during the construction and operation phases of the development.

Table 18.11: Impact magnitude criteria for inert and non-hazardous waste

Magnitude of impact		Definition for inert and non-hazardous waste
High	Adverse	Waste generated by the Project will reduce Expansive Study Area landfill void capacity baseline by >10%.
Medium	Adverse	Waste generated by the Project will reduce Expansive Study Area landfill void capacity baseline by >5-10%.
Low	Adverse	Waste generated by the Project will reduce Expansive Study Area landfill void capacity baseline by 1-5%.
Negligible	Adverse	Waste generated by the Project will reduce Expansive Study Area landfill void capacity baseline by <1%.
No change		Zero waste generation and disposal from the Project

Table 18.12: Impact magnitude criteria for hazardous waste

Magnitude of impact		Definition for hazardous waste
High	Adverse	Waste generated by the Project will reduce Expansive Study Area landfill void capacity baseline by >1%.
Medium	Adverse	Waste generated by the Project will reduce Expansive Study Area landfill void capacity baseline by >0.5 – 1%.
Low	Adverse	Waste generated by the Project will reduce Expansive Study Area landfill void capacity baseline by <0.1 – 0.5%.
Negligible	Adverse	Waste generated by the Project will reduce Expansive Study Area landfill void capacity baseline by <0.1%.
No change		Zero waste generation and disposal from the Project

Table 18.13: Impact magnitude criteria for resources

Magnitude of impact		Definition for resources
High	Adverse	The assessment is made by determining whether, through the development, the consumption of one or more materials is >10% by volume of the national baseline availability.
Medium	Adverse	The assessment is made by determining whether, through the development, the consumption of one or more materials is between >5-10% by volume of the national baseline availability
Low	Adverse	The assessment is made by determining whether, through the development, the consumption of one or more materials is between >1-5% by volume of the national baseline availability
Negligible	Adverse	The assessment is made by determining whether, through the development, the consumption of no individual material type is equal to or less than 1% by volume of the national baseline availability.
No change		The assessment is made by determining whether, through the development, the consumption of no materials is required.

18.6 Significance of effect

18.6.1 The significance of the effect upon waste and resources has been determined by taking into account the sensitivity and the magnitude of the impact. The method to be employed for this assessment is presented in **Table 18.14**. Where a range of significance levels is presented, the final assessment for each effect will be based upon professional judgement.

18.6.2 In all cases, the evaluation of sensitivity, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached.

18.6.3 For the purpose of the assessment, any effects with a significance level of minor or less are not considered significant in terms of the EIA Regulations.

Table 18.14: Assessment matrix

Sensitivity of Receptor	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
Negligible	Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	Negligible	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	Negligible	Negligible or Minor	Minor	Moderate	Moderate or Major
High	Negligible	Minor	Minor or Moderate	Moderate or Major	Major
Very High	Negligible	Minor	Moderate or Major	Major	Substantial

18.6.4 The definitions for likely significance of effect levels are described as follows:

- Substantial: Only adverse effects are normally assigned this level of significance. These effects are generally, but not exclusively, associated with sites or features of international importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of national importance may also enter this category.
- Major: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category. Effects upon human receptors may also be attributed this level of significance.
- Moderate: These beneficial or adverse effects have the potential to be important and may influence the key decision-making process. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse or beneficial effect on a particular resource or receptor.
- Minor: These beneficial or adverse effects are generally, but not exclusively, raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the Project.
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
- No change: No loss or alteration of characteristics, features or elements; no observable impact in either direction.

18.7 Assumptions and limitations

18.7.1 Information on the current and permitted landfill capacity and resource availability is taken from the 2020 AMR (Oxfordshire County Council, 2023). There is no publicly available information on any changes to this permitted capacity during the operation of the project.. Anticipated waste streams set out in **Table 18.25**, **Table 18.26** and **Table 18.27** do not cover all types that have been considered in this chapter. As such, professional judgement has been used to qualitatively estimate if likely waste streams from unmeasured sources are likely to be significant or not. As such, these waste streams are not included in the total calculation of anticipated waste volume or weight for each phase of the Project. Based on professional judgement, information available is considered sufficient to establish the baseline within the study area, therefore, there are no data limitations that would affect the conclusions of this assessment.

18.8 Baseline Environment Conditions

Methodology for baseline studies

Desk studies

18.8.1 Information on the existing capacity and future capacity requirements of the waste management infrastructure and the availability of material resources was collected through a desktop review of existing studies and datasets. These are summarised in **Table 18.15**.

Table 18.15: Summary of desk study sources used

Title	Source	Year	Author
Oxfordshire Minerals and Waste Core Strategy	Oxfordshire County Council AdoptedMineralsWasteCoreStrategySept2017.pdf (oxfordshire.gov.uk)	2017	Oxfordshire County Council
Mineral and Waste Annual Monitoring Report	Oxfordshire County Council Authority Monitoring Report 2020 (oxfordshire.gov.uk)	2020	Oxfordshire County Council
Waste Summary Tables for England – Version 3	2021 Waste Summary Tables for England – Version 3 (data.gov.uk)	2021	Environment Agency
Waste Data Interrogator	Environment Agency	2023	Environment Agency

18.8.2 The baseline consists of:

- Landfill void capacity in the Expansive study area (for non-hazardous, inert and hazardous waste);
- Capacity of other waste management infrastructure for non-hazardous waste in the Expansive study area;
- Forecasts for landfill capacity; and

- National and regional consumption for key construction materials.

18.8.3 The most recent published data from Oxfordshire County Council, Environment Agency and other industry reports (as listed in **Table 18.15**) has been used to establish the quantitative baseline for Construction, Demolition and Excavation (CDE) and Commercial and Industrial (C&I) waste.

18.9 Baseline environment

18.9.1 The Oxfordshire Minerals and Waste Local Plan: Part 1 – Core Strategy (Oxfordshire County Council, 2017) (Core Strategy) is the current strategy in place, as at the date of this chapter. The Core Strategy provides the framework for monitoring policies that control waste management in Oxfordshire for the plan period up to 2031. The Core Strategy is supported by Oxfordshire Minerals and Waste Authority Monitoring Reports (AMR), the most recent of which is 2020.

18.9.2 A new Minerals and Waste Plan for Oxfordshire is currently in preparation and once adopted, it will replace the Core Strategy (2017). Initial consultation on the Issues and Options for the Plan concluded in September 2023 and the new Minerals and Waste Plan is expected to be adopted in March 2026.

Waste

Existing waste arisings and management of waste

Inert and Non-hazardous Waste

18.9.3 The Waste Summary tables for Oxfordshire (Environment Agency, 2023) show that landfill inputs in Oxfordshire in 2023 were as follows:

- Non-hazardous wastes: 850,000 tonnes
- Inert wastes: 745,000 tonnes

18.9.4 In addition to the above, 220,000 tonnes of waste was deposited in landfill for recovery.

CDE waste

18.9.5 The AMR 2020 (Oxfordshire County Council, 2023) estimated that approximately 1,059,347 tonnes of CDE waste were generated in Oxfordshire in 2020.

18.9.6 The AMR (Oxfordshire County Council, 2023) detailed that landfill diversion targets for all the waste streams were being met. Of the 1.059 million tonnes of CDE waste estimated to originate in Oxfordshire in 2020, over half (57%) was recovered and approximately 39% was recycled, with the remaining 4% sent for disposal.

C&I waste

18.9.7 The AMR (Oxfordshire County Council, 2023) estimated that approximately 0.492 million tonnes of C&I waste were generated in Oxfordshire in 2020.

With regards to C&I waste, approximately 96% was diverted from landfill in 2020. This was achieved through recycling (approximately 63%), composting (approximately 19%), other treatment (14%) and landfilling (4%).

Hazardous waste

18.9.8 Waste statistics (Environment Agency, 2021) identify that 77,312 tonnes of hazardous waste were generated in Oxfordshire in 2021; this is an increase from 52,000 tonnes reported in 2012 (Oxfordshire County Council, 2017). Over half of Oxfordshire's hazardous waste is generated from construction and demolition activities and includes asbestos. Oxfordshire is a net exporter of hazardous waste: where hazardous waste is managed within Oxfordshire, the waste is primarily transferred for recovery.

Forecast waste generation

18.9.9 Forecasts of waste generation in Oxfordshire will vary over time as circumstances affecting the amount of waste produced and new information becomes available. The forecasts reported in the Core Strategy (Oxfordshire County Council, 2017) for C&I waste is summarised below:

- 0.564 million tonnes (2021)
- 0.573 million tonnes (2026)
- 0.583 million tonnes (2031)

18.9.10 These forecasts take into account Oxfordshire and Defra economic growth national predictions.

18.9.11 Future CDE waste arisings will be largely determined by the rate of new building work. No forecasts were included in the Core Strategy (Oxfordshire County Council, 2017), however, using guidance from the national Planning Policy Guidance, the Core Strategy estimates that a minimum of 1.033 million tonnes per annum of CDE waste will require management in Oxfordshire throughout the Waste plan period up to 2031.

Existing and Permitted Waste Management Capacity

18.9.12 The strategy for identifying and delivering the future waste capacity for Oxfordshire up to 2031 is set out in the Oxfordshire Adopted Waste Core Strategy (Oxfordshire County Council, 2017). This is based on a Waste Needs Assessment (Oxfordshire County Council, 2015) and comprises estimates of the quantities of waste that will need to be managed in Oxfordshire, the waste management capacity currently available, and the additional capacity that may be required up to 2031. These estimates are monitored and updated in the Council's Minerals and Waste AMR.

Non-hazardous waste Landfill

18.9.13 Oxfordshire is served by a network of waste management facilities including non-hazardous landfill sites at Slape Hill Quarry and Sutton Courtenay in the centre north and south of the county, respectively together with a wide distribution of recycling/transfer facilities. The data from the AMR 2020

(Oxfordshire County Council, 2023) (see **Table 18.16)**, confirms that the total remaining non-hazardous landfill capacity was 3,373,000 m^3, which, according to the AMR (Oxfordshire County Council, 2023) is sufficient to last up to 2031 based on Oxfordshire's 2020 waste arisings.

18.9.14 According to the Waste Summary tables for Oxfordshire (Environment Agency, 2023), the remaining non-hazardous waste landfill capacity is 1,988,000 m^3. This is a reduction from:

- 2,347,000 m^3 in 2022,
- 2,767,000 m^3 in 2021
- 3,373, 000 m^3 in 2020

Inert Landfill

18.9.15 Estimates of inert landfill capacity (existing and permitted) remaining in Oxfordshire as reported in the AMR 2020 (Oxfordshire County Council, 2023) is 7,608,903 tonnes, this is detailed in **Table 18.17**. This takes into account the planning consent in 2020 for inert landfilling of an additional 2,400,000 tonnes for restoration purposes at Shellingford Quarry.

18.9.16 In 2020, approximately 602,742 tonnes of inert waste generated in Oxfordshire was deposited at inert landfill (Oxfordshire County Council, 2023) Based on these production rates '*there is currently sufficient inert landfill capacity to manage Oxfordshire's arisings to the end of the plan period and beyond*' (Oxfordshire County Council, 2023).

18.9.17 According to the Waste Summary tables for Oxfordshire (Environment Agency, 2023) the remaining inert waste landfill capacity is 2,059,000 $m^{3.}$. This is a reduction from:

- 2,605,000 m^3 in 2022
- 2,105,000 m^3 in 2021
- 2,414,000 m^3 in 2020.

Table 18.16: Non-Hazardous Landfill

Site	Operator	Facility Category	District	End Date	Permitted Capacity (TPA)
Finmere Quarry	Opes Industries	Non-hazardous landfill	Cherwell	Temporary – 2028	419,016
Sutton Courtenay	FCC	Non-hazardous landfill	Vale of White Horse	Temporary – 2030	2,954,359

Table 18.17: Inert Landfill

Site	Operator	Facility Category	District	End Date	Permitted Capacity (TPA)
NewBarn Farm	Grundon	Inert landfill	South Oxfordshire	2039	1,400,000
Ewelme No.2 Landfill	Grundon	Inert landfill	South Oxfordshire	2032	120,240
Shellingford Quarry Landfill	Earthline	Inert landfill	Vale of White Horse	2044	800,000
Shellingford Quarry Landfill (western extension)	Earthline	Inert landfill	Vale of White Horse	2043	1,600,000
Upwood Quarry	Hills	Inert Landfill	Vale of White Horse	2029	327,449
Bowling Green Farm	Hills	Inert Landfill	Vale of White Horse	2038	891,838
Gill Mill	Smiths	Inert Landfill	West Oxfordshire	2044	729,724
Caversham (extension)	Lafarge	Inert landfill	South Oxfordshire	2029	762,066
Old Quarry Worsham	Brize Norton Gun Club	Inert landfill	West Oxfordshire	2026	10,470

Table 18.18: Hazardous/Radioactive facilities

Site	Operator	Facility Category	District	End Date	Permitted Capacity (TPA)
Ewelme No. 1	Grundon	Hazardous/Radioactive	South Oxfordshire	Permanent	11,000
Harwell Western Storage	Magnox	Hazardous/Radioactive	Vale of White Horse	Permanent	500,000
Harwell B462	Magnox	Hazardous/Radioactive	Vale of White Horse	Permanent	3.000

Site	Operator	Facility Category	District	End Date	Permitted Capacity (TPA)
Drayton Depot Transfer Station	OCC	Hazardous/Radioactive	Vale of White Horse	Permanent	20,000
Oxford Road Depot	Vale Housing	Hazardous	Vale of White Horse	Permanent	100
Lower Yard (Unit 8)	Amity Insulation	Hazardous/Radioactive	West Oxfordshire	Permanent	100

Hazardous/Radioactive

18.9.18 Estimates of hazardous/radioactive waste management sites (permitted and remaining) in Oxfordshire as reported in the AMR 2020 (Oxfordshire County Council, 2023) is approximately 0.590 million tonnes, this is detailed in **Table 18.18**).

Other Waste Management Facilities

18.9.19 Other waste management facilities in Oxfordshire are listed below together with the 2020 permitted/remaining capacity in tonnes per annum (as reported in the AMR 2020 (Oxfordshire County Council, 2023):

- Municipal Solid Waste (MSW) and C&I (non-hazardous) recycling: 636,400
- Composting/biological treatment: 239,600
- CDE (inert) recycling: 1,499,199
- Metal recycling: 163,100

18.9.20 Based on the actual tonnages for MSW and estimated tonnages for C&I in 2020, the AMER confirms there is sufficient waste management capacity to manage these wastes.

18.10 Available Resources

National Construction Resources

18.10.1 **Table 18.19** summarises the national consumption in 2018 for steel, aggregates, asphalt and concrete (the most recent year for which data is available), which are the key construction materials expected to be used during the construction of the Project.

Table 18.19: National consumption of key construction resources (2018)

Material	National consumption (million tonnes, year)	Baseline data year	Data description
Steel	17	2018	UK total consumption (Make UK, 2019)
Aggregates (including)	251	2018	Minerals and mineral products sales in Great Britain (MPA, 2021)
Crushed rock	117.30		
Sand and gravel – land won	48.9		
Sand and gravel – marine	13.7		
Recycled and secondary	71		
Asphalt	25.4		
Concrete (including)	86.2		
Ready-mixed concrete	54.2		
Concrete products	32		

Mineral Working Sites in Oxfordshire

18.10.2 Oxfordshire contains various mineral resources. Sand and gravel are typically found in river valley deposits along the River Thames and its tributaries. These resources are primarily used to make concrete. Soft sand deposits are mainly found in the Southwest of the county, and they are used in the production of mortar and asphalt. In the north and west of the county are limestone and ironstone which are primarily used as crushed rocked aggregate as well as building and wall stone. The active mineral working sites (as reported in the 2020 AMR) are set out in **Table 18.20**.

Table 18.20: Active Mineral working sites in Oxfordshire (end of 2020)

Mineral Site Name	Site Operator	Status
Burford Quarry	Smith & Sons (Bletchington) Ltd	Active
Dewars Farm Quarry	Smith & Sons (Bletchington) Ltd	Active
Duns Tew Quarry	Smith & Sons (Bletchington) Ltd	Active
Gill Mill Quarry	Smith & Sons (Bletchington) Ltd	Active
Whitehill Quarry	Smith & Sons (Bletchington) Ltd	Active
Rollright Quarry (Phase II)	Smith & Sons (Bletchington) Ltd	Active
Cassington Quarry	Hanson UK	Active
Sutton Courtenay Quarry (Bridge Farm)	Hanson UK	Active
Chinham Farm Quarry (Bowling Green)	Hills Quarry Products Ltd	Active
Upwood Quarry	Hills Quarry Products Ltd	Active
Hatford Quarry	Earthline Ltd. (Hatford Quarry Ltd)	Active
Shellingford Quarry	Earthline Ltd. (Multi-Agg Ltd)	Active
Shipton-on-Cherwell Quarry	Earthline Ltd. (Shipton Ltd)	Active
Wroxton Quarry	Earthline	Active
Sutton Wick Quarry	H Tuckwell & Sons	Active
Great Tew Quarry	Great Tew Farm Partnership	Active
Finmere Quarry	AT Contracting & Plant Hire Ltd	Active
Faringdon Quarry	Grundon Sand and Gravel Ltd	Active
Caversham Quarry	Lafarge Tarmac	Active
New Barn Farm, Cholsey	Grundon Sand and Gravel Ltd	Active

18.10.3 Annual production of aggregates (sand, gravel and crushed rock) in Oxfordshire almost halved between 2004 and 2013 to just over one million tonnes, however in 2015, production rose again to just under two million and comprised 52% sand and gravel and 48% crushed rock.

18.10.4 The AMR (Oxfordshire County Council, 2023) confirmed that Oxfordshire County Council met its target (and the NPPF requirement) to maintain a landbank for at least seven years for sharp sand and gravel and for soft sand.

At the end of 2020, permitted reserves of sharp sand and gravel were 11.439 million tonnes and the landbank was recorded at 11.27 years. For soft sand, permitted reserves were 3.915 million tonnes at the end of 2020 with a landbank of 16.11 years.

18.10.5 At the end of 2020, permitted reserves of crushed rock were 7.151 million tonnes and the landbank was reported to be 9.19 years (Oxfordshire County Council, 2023). This was below Oxfordshire County Council's target (and NPPF requirement) of maintaining a landbank of 10 years for crushed rock. A planning application was granted at Shellingford Quarry in 2020 for the extraction of 1.8 million tonnes of limestone (crushed rock) alongside soft sand.

Secondary and Recycled Aggregate Capacity

18.10.6 In 2020, Oxfordshire County Council met its target to maintain a (minimum) production capacity of 0.926 million tonnes per year of recycled and secondary aggregate. The total operational capacity at the end of 2020 was 1,458,699 tonnes (Oxfordshire County Council, 2023). The CDE recycling facilities located in Oxfordshire and the capacity of each facility are set out below in **Table 18.21**.

18.10.7 In 2020, permission was granted to extend the life of an operational CDE waste recycling facility with temporary planning permission. The facility is located at Shellingford Quarry: the planning consent will extend the life of the facility from 2020 to 2044 and will provide a capacity of 100,000 tonnes per annum.

18.10.8 The 2020 Local Aggregate Assessment (Oxfordshire County Council, 2021) has recorded sales in recycled and secondary aggregate of 0.439 million tonnes. This is largely due to the wide network of CDE recycling facilities available in Oxfordshire (see Table **18.21**). This accounts for approximately 17% of the total sales of aggregates produced in Oxfordshire (2.565 million tonnes).

Table 18.21: CDE recycling facilities in Oxfordshire

Site	Operator	Facility Category	District	End Date	Capacity (TPA)
Ardley ERF (BAA) Facility	Raymond Brown Minerals and Recycling	CDE Recycling	Cherwell	2049	90,000
Barford Farm	North Oxfordshire Topsoil Ltd	CDE Recycling	Cherwell	Permanent	5,000
Cemex batching	Fergal Contracting	CDE Recycling	West Oxfordshire	Permanent	20,000
Drayton depot	OCC	CDE Recycling	Vale of White Horse	Permanent	75,000
Ewelme No. 2	Grundon	CDE Recycling	South Oxfordshire	Permanent	12,000
Ferris Hill Farm	Matthews	CDE Recycling	Cherwell	Permanent	24,999

Site	Operator	Facility Category	District	End Date	Capacity (TPA)
Gill Mill Quarry	Smiths of Bletchington	CDE Recycling	West Oxfordshire	2040	175,000
Grove Industrial Park	Aasvodel	CDE Recycling	Vale of White Horse	Permanent	40,000
Hundridge Farm	Onsyany Skips	CDE Recycling	South Oxfordshire	Permanent	5,000
Lakeside Park	Mick's Skips	CDE Recycling	West Oxfordshire	Permanent	2,000
New Wintles Farm	David Einig Consultancy	CDE Recycling	West Oxfordshire	Permanent	170,000
Newlands Farm	Smiths of Bloxham	CDE Recycling	Cherwell	Permanent	32,000
Plyhatch Quarry	Grabloader	CDE Recycling	South Oxfordshire	Permanent	75,000
Rumbolds Pit	Richard Hazel	CDE Recycling	South Oxfordshire	Permanent	20,000
Sandfields Farm	KJ Millard	CDE Recycling	West Oxfordshire	Permanent	9.600
Shellingford Quarry	Earthline	CDE Recycling	Vale of White Horse	2044	100,000
Shipton Hill	Hickman Brothers	CDE Recycling	West Oxfordshire	Permanent	12,600
Stonepitt Barn	S. Belcher	CDE Recycling	Vale of White Horse	Permanent	75,000
Swannybrook Farm	NAP Grab Hire	CDE Recycling (soil)	Vale of White Horse	Permanent	5,000
Worton Farm (Cresswell Field)	David Einig Contracting Ltd	CDE Recycling	Cherwell	Permanent	48,000
Wroxton	Peter Bennie Ltd	CDE Recycling	Cherwell	2042	10,000

Future baseline conditions

18.10.9 In the absence of the Project, waste will continue to be generated from the construction of new developments and the operation of existing economic activities. In its role as a Mineral and Waste Planning Authority (WPA), Oxfordshire County Council is required to ensure:

- An adequate supply of minerals that meets local development needs as well as national and regional supply policies.
- Enough land is available to accommodate facilities for the treatment of all waste arising in the WPA area, or through export to suitable facilities in other areas.

18.10.10 In preparing their waste management strategies, the WPAs already take into account waste generation at the regional and sub-regional scale, and this information is used to determine the need for waste facilities.

Key receptors

18.10.11 **Table 18.22** identifies the receptors to be taken forward into the assessment and the sensitivity of each receptor.

Table 18.22: Key receptors taken forward to assessment

Receptor	Description	Sensitivity/value
Inert and non-hazardous landfill capacity	Baseline/future baseline of regional inert and non-hazardous landfill void capacity	**Negligible** - expected to remain unchanged or is expected to increase through a committed change in capacity. **Low** - expected to reduce minimally by <1% as a result of wastes forecast. **Medium** - expected to reduce noticeably by 1-5% as a result of wastes forecast. **High** - expected to reduce considerably: by 6-10% as a result of wastes forecast. **Very high** - expected to • reduce very considerably (by >10%); • end during construction or operation; • is already known to be unavailable; or • would require new capacity or infrastructure to be put in place to meet forecast demand.
Hazardous landfill capacity	Baseline/future baseline of regional hazardous landfill capacity	**Negligible** - expected to remain unchanged or is expected to increase through a committed change in capacity. **Low** - expected to reduce minimally by <0.1% as a result of wastes forecast. **Medium** - expected to reduce noticeably by 0.1 - 0.5% as a result of wastes forecast. **High** - expected to reduce considerably: by 0.5 – 1.0% as a result of wastes forecast. **Very high** - expected to

Receptor	Description	Sensitivity/value
		• reduce very considerably (by >1.0%); • end during construction or operation; • is already known to be unavailable; or • would require new capacity or infrastructure to be put in place to meet forecast demand.
Resources required for the Project	Availability of resources	**Negligible** – forecast to be free from known issues regarding supply and stock. **Low –** forecast to be generally free from known issues regarding supply and stock. **Medium** – forecast to suffer from some potential issues regarding supply and stock. **High** – forecast to suffer from known issues regarding supply and stock **Very high** – are known to be insufficient in terms of production, supply or stock.

18.11 Key parameters for assessment

Maximum design scenario

18.11.1 The maximum design scenarios identified in **Table 18.23** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group (i.e. they identify the reasonable 'worst case' scenario for adverse waste and resources effects). These scenarios have been selected from the Project Design Envelope provided in Volume 1, Chapter 6: Project description [**EN010147/APP/6.3**]. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g., different infrastructure layout), to that assessed here be taken forward in the final design scheme. As the Project design continues to be refined further, it may be that effects become less significant in some cases, but the maximum design scenarios demonstrate that even in the "worst case", effects can be appropriately managed.

Table 18.23: Maximum design scenario considered for the assessment of potential impacts

Potential impact	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
Reduction in landfill void capacity – inert and non hazardous waste	✓	✓	✓	**Construction phase** • Developable area for solar array: 247.3 ha (Northern Site Area), 545.2 ha (Central Site Area), 50 ha (Southern Site Area) • Maximum number of solar photovoltaic (PV) modules – up to 2,200,000 • Maximum solar PV module dimensions – width 1.4 m, length 2.4 m, depth 0.04 m • Minimum distance north/south separation distance (m) between tables – 1.5 m • Indicative foundation type - Driven-piles or screw piles • Maximum number of piles: 1,600,000 • Depth of piles below ground level (m) – up to 3 m • Maximum number of Power Converter Stations and dimensions – 156 (1 per ha) and dimensions – length 14 m, width 2.9 m, height 3.5 m • Maximum number of HV Transformer (Secondary Substations) and dimensions – 8 no., length 18 m x width 10 m x height 6 m. • Maximum transformer foundation dimensions (below ground level) length 22 m x width 21 m x height 1 m. • Maximum dimensions of NGET Substation – footprint 87 m x 30 m and 12.5 m in height **Operation and maintenance phase** • Principally to landscape and ecology management, equipment/infrastructure maintenance and servicing including cleaning and replacement of any components that fail. **Decommissioning phase** • all solar PV array infrastructure including solar PV modules, mounting structures, cabling, inverters and transformers will be removed	**Construction, Operation and maintenance and Decommissioning phase** The maximum design envelope is represented by the maximum developable array, number of solar PV modules, depth of piles, dimensions and number of substations as this will generate the greatest volume of earth, the greatest volume of wastes and consume the highest quantities of resources. The maximum design envelope considers that all waste generated by the Project during construction, operation and decommissioning phases is sent for landfill.
Reduction in landfill void capacity hazardous waste	✓	×	✓		
Depletion of resources	✓	×	×		

[a] C=construction, O=operation and maintenance, D=decommissioning

18.12 Measures adopted as part of the Project

18.12.1 The design process for the Project has been heavily influenced by the findings of early environmental appraisals and the EIA process. The Project has had several measures incorporated into the design to avoid or minimise environmental impacts.

18.12.2 The key aspects where the design has evolved are described in ES Volume 1, Chapter 5: Alternatives Considered **[EN010147/APP/6.3]**. These include measures required for legal compliance, as well as measures that implement the requirements of good practice guidance documents. The assessment has been undertaken on the basis that these measures are incorporated in the design and construction practices (i.e. they are 'embedded mitigation').

18.12.3 Embedded mitigation measures for the construction phase are set out in the ES Volume 1, Chapter 6: Project Description **[EN010147/APP/6.3]**, Appendix 6.1: Project Mitigation Measures and Commitments Schedule **[EN010147/APP/6.5]** and the various management plans outlined in this chapter **[EN010147/APP/7.6]**.

18.12.4 Implementation of embedded mitigation relied upon in the assessment will be secured in the DCO, including by ensuring the works described in Schedule 1 of the DCO are restricted to their corresponding works areas shown on the Works Plans **[EN010147/APP/2.3]**, a DCO requirement requiring compliance of detailed design of the Project to accord with the Outline Design Principles **[EN010147/APP/7.7]**, or through specific DCO requirements requiring compliance with a management strategy, plan, or other requirement document.

18.12.5 Consideration has been given to any ‘additional mitigation’ over and above the embedded mitigation that may be required and has the potential to mitigate any significant adverse effects identified following the assessment of the Project inclusive of its embedded mitigation. Where significant effects remain following the implementation of embedded mitigation and achievable further measures could lower the identified effect, the topic chapter identifies additional mitigation and explains how the additional mitigation is secured, for example via a specific DCO requirement, via a management plan, or document secured by a DCO requirement like the Project Mitigation Measures and Commitments Schedule **[EN010147/APP/6.5]**.

18.12.6 To the extent any likely significant effects are anticipated following the assessment of the Project after the implementation of embedded and additional mitigation, each topic chapter will report these as residual effects. Residual effects for all topics are summarised in Chapter 21: Summary of Significant Environmental Effects of the ES **[EN010147/APP/6.3]**.

18.12.7 Where relevant, measures have also been identified that may result in enhancement of environmental conditions. Enhancement measures are not required to mitigate significant effects of the Project and are not factored into the determination of residual effects. They are further measures which would have additional beneficial outcomes should they be implemented.

18.12.8 Both embedded and additional mitigation measures relevant to this chapter are summarised in **Table 18.24.**

Table 18.24: Mitigation measures to be adopted as part of the Project

Mitigation number	Measure adopted	How the measure will be secured
Embedded Mitigation		
18.1	The design of the Project predominantly uses prefabrication. This reduces the generation of construction waste on site with waste produced during the manufacture of the solar PV units, mounting structures and cabling. This means that most of the onsite construction waste associated with the Project is packaging.	
18.2	An Outline Site Resources and Waste Management Plan [**EN010147/APP-7.6.1**] has been prepared. It sets out the estimated types and quantities of waste that would be generated during the construction process, together with measures for how the waste will be managed. The Outline SRWMP is based on the waste hierarchy and proximity principles for managing waste generated by the project including targets to divert waste from landfill. The SRWMP also identifies the key resources that will be used in the construction of the project and commitments for using secondary/recycled content materials where feasible.	The SRWMP will be implemented via an Outline Code of Construction Practice **[EN010147/APP/7.6.1]**, which forms a requirement of the DCO application for the Project.
18.3	Waste Electrical and Electronic Equipment (WEEE) including photovoltaic panels and from supporting electrical infrastructure (e.g. power converter stations) generated during the operation and decommissioning phases will be recovered and recycled by an authorised reprocessor as required by the WEEE Regulations 2013. To ensure that this is done to the 'Best Available Treatment, Recovery and Recycling Techniques, a list of up-to-date authorised reprocessors will be established prior to the operational phase of the Project and kept up to date throughout the operation and decommissioning phases of the Project.	An OWMP will be prepared and agreed with the relevant waste planning authority prior to construction commencing as secured through the Operational Management Plan **[EN010147/APP/7.6.2.** A Decommissioning Waste Management Plan will be prepared and agreed with the relevant waste planning authority prior to decommissioning as secured through the Decommissioning Plan **[EN010147/APP/7.6.4]**

18.13 Assessment of effects

18.13.1 The impacts of the construction, operation and maintenance, and decommissioning phases of the Project have been assessed. The potential impacts arising from the construction, operation and maintenance and decommissioning phases of the Project are listed in **Table 18.23** along with the maximum design scenario against which each impact has been assessed.

18.13.2 A description of the likely significant effect on receptors caused by each identified impact is given below.

Reduction in landfill void capacity – inert and non-hazardous landfill

Construction

Magnitude of impact

18.13.3 Construction activities associated with the Project are anticipated to be undertaken across a 24-month construction period. Construction waste generated across all three of the Sites and the connecting Cable Route Corridor have all been assessed in this section. These activities include, but are not limited to, the below. The volumes also referenced are precautionary and a worst case scenario, which is considered to reflect the project design envelope approach.

- Piling of steel frame mounting systems in rows across the Sites;
- Mounting of the solar panels onto the frame system;
- Digging of trenches for laying of underground electrical cables;
- Creation of concrete foundation/bases as required for structures such as power converter stations
- Trenching and horizontal directional drilling of high voltage cables;
- Creation of haul roads to allow access for HGVs including abnormal indivisible loads;
- Creation of access tracks within the Sites;
- Installation of temporary and permanent security systems, such as fencing and CCTV;
- The laying of hardstanding for construction compounds and laydown areas;
- Landscaping including removal of vegetation to facilitate access to works and ground clearance; and
- Earthmoving including earth works to create habitat management areas.

18.13.4 The majority of the construction equipment will be delivered to Site for assembly, installation and connection. The types of waste streams associated with the removal of waste material during construction are summarised below in **Table 18.25**.

18.13.5 Employee activity will generate a minimal amount of commercial, food and sewage waste. Commercial and food waste will be managed by appropriate permitted waste carriers and taken to facilities in line with environmental permits and requirements.

Table 18.25: Wastes Estimates Arising from Construction

Type of Waste	Estimated Volume/Tonnage	Management Option
Vegetation – site clearance	Low (not significant)	Composting
General waste from welfare facilities at construction compounds	Low (not significant)	Landfill/recycling
Drilling mud (e.g. bentonite)	Low (not significant)	Landfill/recycling
Module packaging		
Pallet wood – for PV module and mounting structure packaging	150,531.42 m3	Recycling
Corrugated cardboard, plastic wrap and Kraft cardboard – for PV module and mounting structure packaging	16,852.70 m3	Recycling
Tension straps and spacers	82,686.42 (number)	Recycling
Packaging for other materials		
Mounting frames	10,000 m3	Recycling
Total Packaging Waste	62,652 tonnes	
Cable drums		
6 mm2 DC cable drums Mixed wood, plastic, metal	157 tonnes	Re-use – return system
LV cable drums Mixed wood, plastic, metal	50 tonnes	Re-use – return system
Grounding cable drums Mixed wood, plastic, metal	50 tonnes	Re-use – return system
MV cable drums Mixed wood, plastic, metal	10 tonnes	Re-use – return system
HV cable drums Mixed wood, plastic, metal	5 tonnes	Re-use – return system
Excavated material - spoil		
Excavated materials from trenches unusable - elsewhere on site	50,000 m3	Landfill/recycling
Excavated material from drainage, roads, foundations – unusable elsewhere on site	15,000 m3	Landfill/recycling
Excavated material - Secondary Substation		
Excavated material from foundations unsuitable for reuse	100 m^3	Landfill/recycling
Total Excavation Waste	65,100 m^3 (162,750 tonnes)	
Haul roads and compounds		
Crushed stone from reinstatement of compounds	5,000 m^3	Crushed on site/recycling off site

Type of Waste	Estimated Volume/Tonnage	Management Option
Rubber mats	175,347 (number)	Re-use off site (5% retained on site)
Metal mats	17,177 (number)	Re-use off site (5% retained on site)

18.13.6 The total estimated CD&E waste to be generated from the Project construction is 140,524 tonnes over the 24-month construction period. Per annum, this equates to an uplift in CD&E waste of 70,262 tonnes (6.80%) compared to the combined estimated CD&E waste generation of 1.033 million tonnes for the Expansive Study Area for the years 2026-2028.

18.13.7 As the assessment of impact is based on the effects of landfill void capacity, only that waste which would be potentially sent to landfill is assessed. Based on **Table 18.25** the maximum design scenario is for all the excavated waste (65,100 m^3) and general waste from welfare facilities at the construction compounds to be disposed to landfill. This would represent a reduction in less than 5% of the non-hazardous waste landfill void capacity (based on 2023 landfill capacity). However, when a non-hazardous waste recovery rate is applied, approximately 1% of the non-hazardous waste capacity would be reduced. This impact is predicted to be of regional spatial extent, short term duration and continuous. The impact magnitude is considered to be **negligible adverse**.

Sensitivity of receptors

18.13.8 The sensitivity of the landfill void capacity for inert and non-hazardous landfill is considered to be **very high**.

Likely significance of effects

18.13.9 Overall, the magnitude of impact of the reduction in landfill void capacity is deemed to be negligible, the sensitivity of the receptor is considered to be **very high**. The effect will, therefore, be of **minor adverse significance** which is not significant in EIA terms.

Operation and Maintenance phase

Magnitude of impact

18.13.10 It is anticipated that the operation and maintenance phase will generate waste from the following activities:

- Replacement of PV and other equipment
- Packaging of replacement parts and removal of expired equipment and
- Removed vegetation (grass cuttings/hedge trimmings)

18.13.11 The predominant source of waste during the operation and maintenance phase of the Project is related to the removal of expired or broken equipment that cannot be repaired, and packaging material required for replacement

material. The replacement of PV modules undertaken as required and in accordance with the Operational Management Plan [**EN010147/APP/7.6.2**]. For the purpose of the assessment, it has been assumed that every PV module will require replacement during the operation and maintenance phase.

18.13.12 A list of anticipated waste generated per annum during the operation and maintenance phase is presented in **Table 18.26** below:

Table 18.26: Waste estimates per Annum Arising from Operation and Maintenance

Type of Waste	Estimated Volume/Tonnage	Management Option
Miscellaneous wastes from maintenance of equipment	Low (not significant)	Landfill/recycling
Vegetation – management	Low (not significant)	Composting
Replacement PV modules		
Replacement PV modules - Mixed glass, plastic, metal, electronics (unit) Year 1 – 25	814 units	Recycling
Replacement PV modules - Mixed glass, plastic, metal, electronics (unit) Year 26 – 37	31,500 units	Recycling
Module packaging Year 1 - 25		
Pallet wood - for PV module and mounting structure packing	60 m^3	Recycling
Corrugated cardboard plastic wrap and Kraft cardboard - for PV module and mounting structure packing	5 m^3	Recycling
Module packaging Year 26 - 37		
Pallet wood - for PV module and mounting structure packing	60,000 m^3	Recycling
Corrugated cardboard plastic wrap and Kraft cardboard - for PV module and mounting structure packing	5 m^3	Recycling

18.13.13 Based on the waste predictions presented in **Table 18.26,** waste generated from the operation and maintenance phase is primarily diverted from landfill and managed through composting or recycling. The maximum design scenario is that miscellaneous wastes from maintenance activities are disposed of at landfill. However these wastes are expected to be low in quantity and represent a reduction in landfill void capacity of less than 1%. This impact is predicted to be of regional spatial extent, long term duration and continuous. The impact magnitude is considered to be **negligible**.

Sensitivity of receptor

18.13.14 The sensitivity of the landfill void capacity for inert and non-hazardous landfill is considered to be **very high**.

Likely Significance of Effect

18.13.15 Overall, the magnitude of impact of the reduction in landfill void capacity is deemed to be negligible, the sensitivity of the receptor is considered to be very high. The effect will, therefore, be **minor adverse significance,** which is not significant in EIA terms.

18.14 Decommissioning Phase

18.14.1 Other than 33kV and 275 kV cables (where they have been laid in the public highway and where cables have been laid using horizontal directional drilling – either under rivers, road, rail crossings, or existing landscape features), and any NGET substation, all other solar PV array infrastructure including solar PV modules, mounting structures, cabling, inverters and transformers will be removed from the Site

Magnitude of impact

18.14.2 The main decommissioning wastes associated with the Project are as follows:

- PV modules and their associated mounting structures
- Removal of the Power Converter Stations
- Breaking of concrete bases from the Power Converter Stations
- Fencing and security gates

18.14.3 The PV modules and related components, the Power Converter Stations and ancillary infrastructure will be removed and recycled in accordance with good practice and market conditions at the time. A Decommissioning Waste Management Plan will be prepared as part of the final Decommissioning Management Plan that will be agreed with the relevant waste planning authority. The predicted volumes of these wastes are set out in **Table 18.27**.

Table 18.27: Waste from Decommissioning

Type of Waste	Estimated Volume/tonnage	Management Option
General waste from welfare facilities at construction compounds	Low (not significant)	Landfill/recycling
Mixed demolition waste – glass, metals, rubble	Low (not significant)	Landfill/recycling
Fencing (wood)	1,520 t	Recycling
Security gates (metal)	7.14 t	Recycling
Solar PV modules	(1,800,000 to 2,200,000 PV units	Recycling
Steel mounting structures	38,183 tonnes	Recycling
Power Converter Stations	4,056 tonnes	Recycling
Secondary Substations – transformer and equipment	1,372 tonnes	Recycling

Type of Waste	Estimated Volume/tonnage	Management Option
Concrete from Power Converter Stations	281.60 tonnes	Recycling
Concrete from Secondary Substations	1,500 tonnes	Recycling
Cables	1,284 tonnes	Recycling

18.14.4 Based on the waste predictions presented in **Table 18.27,** waste generated from the decommissioning phase will primarily be diverted from landfill and managed through composting or recycling. The maximum design scenario is that mixed demolition wastes and general wastes from welfare facilities are disposed of at landfill. However, these wastes are expected to be low in quantity and represent a reduction in landfill void capacity of less than 1%. This impact is predicted to be of regional spatial extent, short term duration and continuous. The impact magnitude is considered to be **negligible.**

Sensitivity of receptor

18.14.5 There are no current baseline estimates for capacity at regional recycling and landfill sites for the earliest decommissioning period of 2066 to 2068. Consequently, the sensitivity of these receptors cannot be accurately determined. It is therefore, assumed for the purpose of the assessment that sensitivity levels in 2066 are the same as those in 2023.

18.14.6 The sensitivity of the landfill void capacity for inert and non-hazardous landfill is considered to be **very high**.

Likely Significance of Effect

18.14.7 Overall, the magnitude of impact of the reduction in landfill void capacity is deemed to be negligible, the sensitivity of the receptor is considered to be very high. The effect will, therefore, be **minor adverse significance,** which is not significant in EIA terms.

Reduction in landfill void capacity –hazardous landfill

Construction

Magnitude of impact

18.14.8 Construction activities associated with the Project may generate hazardous waste, such as:

- Paints
- Solvents
- Chemical storage containers

18.14.9 These wastes cannot be quantified at this stage however they are predicted to be low in volume For the purposes of the assessment, the maximum design scenario is that the waste is sent to landfill. The likely volumes of hazardous waste would represent less than 1% of hazardous waste landfill capacity in the

south east region. This impact is predicted to be of regional spatial extent, short term duration and continuous. The impact magnitude is considered to be **negligible**.

Sensitivity of receptor

18.14.10 The sensitivity of the landfill void capacity for -hazardous landfill is considered to be **very high**.

Likely Significance of Effect

18.14.11 Overall, the magnitude of impact of the reduction in landfill void capacity is deemed to be no change, the sensitivity of the receptor is considered to be very high. The effect will, therefore, be **minor adverse significance,** which is not significant in EIA terms.

Demolition

Magnitude of impact

18.14.12 Demolition activities associated with the Project may generate hazardous waste, such as:

- Solvents
- Chemical storage containers

18.14.13 These wastes cannot be quantified at this stage however they are predicted to be low in volume For the purposes of the assessment, the maximum design scenario is that the waste is sent to landfill. The likely volumes of hazardous waste would represent less than 1% of hazardous waste landfill capacity in the south east region. This impact is predicted to be of regional spatial extent, short term duration and continuous. The impact magnitude is considered to be **negligible**.

Sensitivity of receptor

18.14.14 The sensitivity of the landfill void capacity for -hazardous landfill is considered to be **very high**.

Likely Significance of Effect

18.14.15 Overall, the magnitude of impact of the reduction in landfill void capacity is deemed to be no change, the sensitivity of the receptor is considered to be very high. The effect will, therefore, be **minor adverse significance,** which is not significant in EIA terms.

Depletion of key resources

Construction

Magnitude of impact

18.14.16 The estimated consumption of key resources by the Project is set out below and shown in Table 18.28**.**

- Aggregate for tracks : 375 t
- Crushed rock for construction compounds: 60,000 t
- Concrete for Power Converter Station bases: 281.60 t
- Concrete for Secondary Substation: 1,500 t

Table 18.28: Estimated consumption of key resources by the Project

Type of material	National annual consumption (million tonnes)	Percentage of national consumption
Aggregate	251	0.0001
Crushed rock	117.30	0.05
Concrete	86.20	0.002

18.14.17 For these key materials, no individual material type is equal; to or greater than 1% by weight of the national baseline consumption, therefore the magnitude of impact is **negligible**.

Sensitivity of receptor

18.14.18 The sensitivity of the resource receptors are considered to be **negligible** as they are generally no constraints on supply or stock and can comprise secondary or recycled content.

Likely Significance of Effect

18.14.19 Overall, the magnitude of impact on depletion of resources is deemed to be **negligible**, the sensitivity of the receptor is considered to be **negligible**. The effect will, therefore, be **negligible adverse significance** which is not considered to be significant in EIA terms.

18.15 Cumulative effect assessment

18.15.1 The waste and resources cumulative effects assessment (CEA) EA methodology has followed the methodology set out in Volume 1, Chapter 4: Approach to Environmental Assessment **[EN010147/APP/6.3]**. As part of the assessment, all projects and plans considered alongside the Project have been allocated into ‘tiers’ reflecting their current stage within the planning and development process.

- Tier 1
  - Under construction;

  - Permitted application;
  - Submitted application;
  - Those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact.
- Tier 2
  - Scoping report has been submitted.
- Tier 3
  - Scoping report has not been submitted;
  - Identified in the relevant Development Plan;
  - Identified in other plans and programmes.

18.15.2 This assessment is followed by all other relevant projects, identified by tier.

18.15.3 This tiered approach is adopted to provide a clear assessment of the Project alongside other projects, plans and activities in the local area.

18.15.4 The specific projects, plans and activities scoped into the CEA, are outlined in **Table 18.29**. Further detail is provided in Volume 1 Chapter 20 Cumulative Effects and Inter-relationships **[EN010147/APP/6.3]**.

Table 18.29: List of other projects, plans and activities considered within the CEA

Project/Plan	Status	Distance from the Project (nearest point, km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Project
Tier 1						
20/01734/OUT Salt Cross Garden Village Strategic Location for Growth	Outline Planning Application	Pending	2,200 dwellings and 40ha of employment land	Unknown	Unknown	Unknown
16/01364/OUT Land east of Woodstock	Permitted	Adjacent	300 residential dwellings, up to 1100sqm of A1/A2/B1/D1 floorspace;	Unknown	Unknown	Unknown
21/00189/FUL Land north of Hill Rise, Woodstock	Permitted	1.0	180 dwellings (Appeal allowed Oct 23)	Unknown	Unknown	Unknown
21/00217/OUT Land north of Banbury Road, Woodstock	Pending	0.3	235 dwellings with community space and car barns	Unknown	Unknown	Unknown
17/03155/RES Land south east of Pinsley Farm	Operational	Adjacent	120 dwellings	Unknown	Unknown	Unknown
20/01817/FUL Land Between Woodstock Sewage Works And B4027 - Solar Farm	Permitted	Adjacent	5MW generating capacity on 9.1ha of land	Unknown	Unknown	Unknown
21/03522/OUT West of Rutten Lane Yarnton	Pending	Adjacent	The erection of up to 540 dwellings (Class C3), up to 9,000sqm GEA of elderly/extra care residential floorspace (Class C2), a Community Home Work Hub (up to	Unknown	Unknown	Unknown

Project/Plan	Status	Distance from the Project (nearest point, km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Project
			200sqm)(Class E), alongside the creation of two locally equipped areas for play, one NEAP, up to 1.8 hectares of playing pitches and amenity space for the William Fletcher Primary School, two vehicular access points, green infrastructure, areas of public open space, two community woodland areas, a local nature reserve, footpaths, tree planting, restoration of historic hedgerow, and associated works. All matters are reserved, save for the principal access points. (APPEAL LODGED)			
22/01715/OUT Land south of Perdiswell Farm, Shipton Road	Outline	Adjacent	Erection of up to 500 dwellings with associated access, open space and infrastructure	Unknown	Unknown	Unknown
23/00517/FUL New Science Park West of junction with The Boulevard, Oxford Airport, Langford Lane	Full	Adjacent	Redevelopment of the site to include the demolition of existing buildings and development of new accommodation across 5 buildings for employment uses (Class E(g)(ii) and (iii)) plus ancillary amenity building, outdoor amenity space, car parking, cycle parking, landscaping and associated works	Unknown	Unknown	Unknown
23/02098/OUT Multi-phased residential-led mixed used development.	No Details	Adjacent	Up to 215,000 square metres gross external area of residential floorspace (or c.1,800 homes which depending on the housing mix could result in a higher or lower number of housing units) within Use Class C3/C4 and large houses of multiple occupation (Sui Generis); Supporting social infrastructure including secondary school/primary school(s)	Unknown	Unknown	Unknown

Project/Plan	Status	Distance from the Project (nearest point, km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Project
			(Use Class F1); health, indoor sport and recreation, emergency and nursery facilities (Class E(d)-(f)). Supporting retail, leisure and community uses, including retail (Class E(a)), cafes and restaurants (Class E(b)), commercial and professional services (Class E(c)), a hotel (Use Class C1), local community uses (Class F2), and other local centre uses within a Sui Generis use including public houses, bars and drinking establishments (including with expanded food provision), hot food takeaways, venues for live music performance, theatre, and cinema. Up to 155,000 net additional square metres (gross external area) of flexible employment uses including research and development, office and workspace and associated uses (Use E(g)), industrial (Use Class B2) and storage (Use Class B8) in connection with the expansion of Begbroke Science Park; Highway works, including new vehicular, cyclist and pedestrian roads and paths			
Tier 2						
P18/V2796/SCR Farmoor Reservoir, Farmoor	Screening decision - negative	Adjacent	Proposal to install a floating solar generator on part of Farmoor Reservoir. Request for a Screening Opinion for 7.3MW solar generator on part of reservoir	Unknown	Unknown	Unknown
Tier 3						
NGET Substation	No details	Adjacent	400kv NGET Substation proposed adjacent southwest	Unknown	Unknown	Unknown

Project/Plan	Status	Distance from the Project (nearest point, km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Project
Promotion of site (722302) Land at Pinsley Wood	Promotion	Adjacent	Request for a Scoping Opinion for a proposed 49.99MW solar scheme	Unknown	Unknown	Unknown
Cherwell Local Plan (PR8) Land east of A44	Allocation	Adjacent	Request for an EIA Screening Opinion prior to the submission of an application for the installation of a solar photovoltaic array	Unknown	Unknown	Unknown
Cherwell Local Plan (PR9) Land west of Yarnton	Allocation	Adjacent	Updated request for Screening Opinion	Unknown	Unknown	Unknown

Maximum design scenario – cumulative effects assessment

18.15.5 The maximum design scenarios identified in **Table 18.30** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative effects presented and assessed in this section have been selected from the Project Design Envelope provided in Volume 1, Chapter 6: Project Description **[EN010147/APP/6.3]**, as well as the information available on other projects and plans, in order to inform a 'maximum design scenario'. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g., different foundation type or substation layout), to that assessed here, be taken forward in the final design scheme.

Table 18.30: Maximum design scenario for the assessment of cumulative effects

Potential cumulative effect	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
The impact on waste management infrastructure .	✓	✓	✓	Maximum design scenario as described for the Project (**Table 18.23**) assessed cumulatively with the following other projects/plans within Tier 1, Tier 2 and Tier 3: • Assumed that construction works to occur concurrently with the Project	As a conservative assessment all Tier 1, Tier 2 and Tier 3 projects have been considered. For the CEA it is assumed that: • Outcome of the CEA will be greatest when projects are considered concurrently
The impact of depletion of resources	✓	✘	✘	Maximum design scenario as described for the Project (**Table 18.23**) assessed cumulatively with the following other projects/plans within Tier 1, Tier 2 and Tier 3: • Assumed that construction works to occur concurrently with the Project	As a conservative assessment all Tier 1, Tier 2 and Tier 3 projects have been considered..

[a] C=construction, O=operational and maintenance, D=decommissioning

18.16 Cumulative effects assessment

18.16.1 In the assessment of effects section set out in **section 18.13** above, there is the potential for cumulative effects to occur as a result of waste generation from other cumulative projects. This is likely to lead to further depletion of landfill void capacity. However, as part of planning requirements, other projects will be required to minimise waste and divert waste from landfill to reduce their reliance on landfill.

18.17 Transboundary effects

18.17.1 As per the scoping report, it was concluded that the proposed development is unlikely to have a significant effect either alone or cumulatively on the environment in a European Economic Area State (EEA states) and therefore a transboundary assessment is not proposed in the ES.

18.18 Inter-related effects

18.18.1 Inter-relationships are the impacts and associated effects of different aspects of the Project on the same receptor. These are as follows.

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Project (construction, operation and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases (e.g., construction noise effects from piling, operational substation noise, and decommissioning disturbance).
- Receptor led effects: Assessment of the scope for all effects (including inter-relationships between environmental topics) to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on Ground Conditions, such as water pollution, may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects may be short term, temporary or transient effects, or incorporate longer term effects.

18.18.2 It is anticipated there may be an inter-related effect between the depletion of key resources and the mineral safeguarding areas. Additional information is presented in Volume 1, Chapter 11: Ground Conditions **[EN010147/APP/6.3**].

18.18.3 **Table 18.31** lists the inter-related effects (project lifetime effects) that are predicted to arise during the construction, operational and maintenance and decommissioning phases of the Project, and also the inter-related effects (receptor-led effects that are predicted to arise for wider environmental receptors..

Table 18.31: Summary of likely inter-related effects

Description of impact	Phase			Likely significant inter-related effects	Significance
	C	O	D		
Reduction in landfill void capacity – inert and non-hazardous	✓	✓	✓	The reduction in landfill void capacity . Therefore, there is no change result from the inter-related assessment.	No change resulting from inter-related assessment
Reduction in landfill void capacity – hazardous	✓	×	✓	The reduction in landfill void capacity . Therefore, there is no change result from the inter-related assessment.	No change resulting from inter-related assessment
Depletion of key resources	✓	×	×	The depletion of key resources would only occur during the construction of the Project. There would be no additional effects during operation and maintenance and decommissioning. Therefore there is no change result from the inter-related assessment.	No change resulting from inter-related assessment

Receptor-led effects

Potential receptor led effects include those affecting mineral safeguarding areas. These effects are assessed in Volume 1: Chapter 11: Ground Conditions of the ES.

Overall, it is unlikely that receptors would experience increased significance of inter-related effects than that which has already been reported in the individual chapters for the identified receptors. Therefore, it is considered that there is no potential for identified impacts to result in significant receptor led effects.

18.19 Summary of impacts and monitoring

18.19.1 Information on waste and resources within the was collected through desktop reviews of waste management infrastructure and resource availability.

18.19.2 The potential impacts with regards to waste and resources are described in **Table 18.6** and the receptors are identified in **Table 18.22**. Measures that will be incorporated into the Project are described in **Table 18.24**.

18.19.3 **Table 18.32** presents a summary of the potential impacts and residual effects in respect to waste. The impacts assessed include:

- Reduction to landfill void capacity for inert and non-hazardous wastes
- Reduction to landfill void capacity for hazardous wastes
- Depletion of resources

18.19.4 It is concluded that there will be no likely significant effects arising from the Project during the construction, operation and maintenance or decommissioning phases.

18.19.5 **Table 18.33** presents a summary of the potential cumulative impacts and residual effects. The cumulative impacts assessed include:

- Reduction to landfill void capacity for inert and non-hazardous wastes
- Reduction to landfill capacity for hazardous wastes

- Depletion of resources

18.19.6 It is concluded that there will be no likely significant cumulative effects arising from the Project during the construction, operation and maintenance or decommissioning phases.

Table 18.32: Summary of potential environmental effects, mitigation and monitoring.

Description of impact	Phase C	Phase O	Phase D	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
Reduction in landfill void capacity – inert and non-hazardous waste.	✓	✓	✓	C: Negligible O: Negligible D: Negligible	C: Very High O: Very High D: Very High	C: Minor adverse O: Minor adverse D: Minor adverse	No further mitigation required	C: Minor adverse O: Minor adverse D: Minor adverse	No proposed monitoring required
Reduction in landfill void capacity - hazardous waste.	✓	✓	✓	C: Negligible O: Negligible D: Negligible	C: Very High O: Very High D: Very High	C: Minor adverse O: Minor adverse D: Minor adverse	No further mitigation required	C: Minor adverse O: Minor adverse D: Minor adverse	No proposed monitoring required
Depletion of resources.	✓	×	×	C: Negligible	C: Negligible	C: Negligible adverse	No further mitigation required	C: Negligible Adverse (not significant)	No proposed monitoring required

[a] C=construction, O=operational and maintenance, D=decommissioning

Table 18.33: Summary of potential cumulative environmental effects, mitigation and monitoring

Description of effect	Phase[a] C	Phase[a] O	Phase[a] D	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
Tier 1									
Reduction in landfill void capacity – inert and non-hazardous waste	✓	✓	✓	C: Negligible O: Negligible D: Negligible	C: Very High O: Very High D: Very High	C: Minor adverse O: Minor adverse D: Minor adverse se	n/a	C: Minor adverse O: Minor adverse D: Minor adverse	No proposed monitoring required

Description of effect	Phase[a]			Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D						
Reduction in landfill void capacity – inert - hazardous waste.	✓	✓	✓	C: Negligible O: Negligible D: Negligible	C: Very High O: Very High D: Very High	C: Minor adverse O: Minor adverse D: Minor adverse	No further mitigation required	C: Minor adverse O: Minor adverse D: Minor adverse	No proposed monitoring required
Depletion of resources.	✓	×	×	C: Negligible	C: Negligible	C: Negligible adverse	No further mitigation required	C: Negligible Adverse (not significant)	No proposed monitoring required

[a] C=construction, O=operational and maintenance, D=decommissioning

18.20 References

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