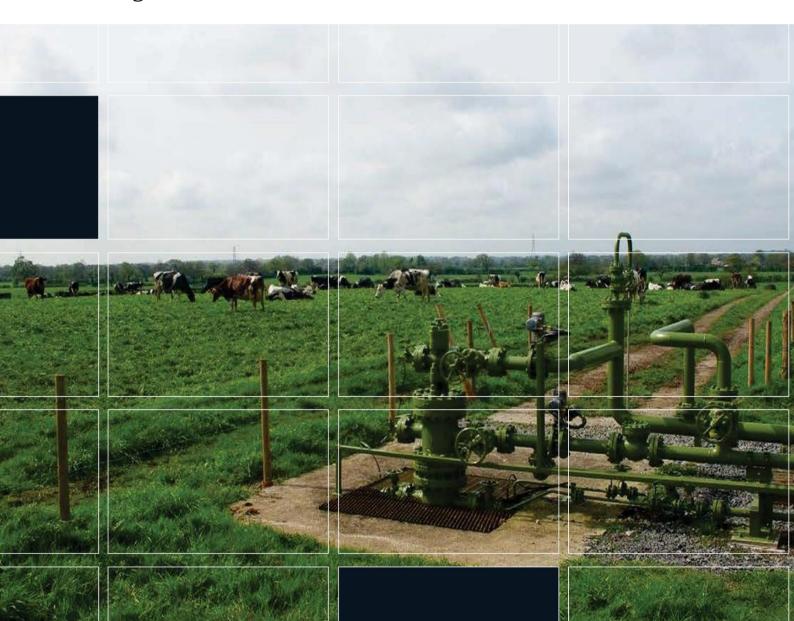


Keuper Gas Storage Project

Preliminary Environmental Information Report – Waste Management PREPARED FOR Keuper Gas Storage Limited

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
CWAC	Cheshire West and Cheshire Council
DCO	Development Consent Order
DoW CoP	The Definition of Waste: Development Industry Code of Practice
EA	Environment Agency
EIA	Environmental Impact Assessment
ERM	Environmental Resources Management
ES	Environmental Statement
IEMA	Institute of Environmental Management and Assessment (now known as ISEP)
ISEP	Institute of Sustainability and Environmental Professionals
KGSL	Keuper Gas Storage Limited
KGSP	Keuper Gas Storage Project
LoW	List of Waste
MC	Material Change
MMP	Materials Management Plan
NMC	Non-Material Change
NPPW	National Planning Policy for Waste
PEIR	Preliminary Environmental Information Report
RWC	Reasonable Worst Case



Acronym	Description
WFD	Waste Framework Directive
WMP	Waste Management Plan



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16. WASTE MANAGEMENT

16.1 INTRODUCTION

16.1.1.1 Whilst waste was considered in the Consented Development and Non-Material Change (NMC), there was no standalone chapter for this topic.

- 16.1.1.2 Changes to national policy and guidance since the submission of the Consented Development now recommend waste is included in Environmental Statements (ES) in the form of a standalone chapter.
- 16.1.1.3 Therefore, waste has been added as a new, separate chapter in this Material Change (MC) PEIR.
- 16.1.1.4 This chapter details the baseline conditions, potential effects, mitigation and impact assessment with respect to waste generation and management for the Proposed Development. The potential effects of the Proposed Development in the context of waste have been identified through a technical review of the current design, construction, operational and decommissioning principles of the Proposed Development.
- 16.1.1.5 The assessment especially focuses on the potential for waste generated in the construction and operational phases of the Proposed Development to present a risk of exceeding the planned landfill capacity in the Cheshire region.
- 16.1.1.6 This chapter considers solid waste only. Management of wastewater associated with the Proposed Development is considered in **Chapter 7, Hydrology and Flood Risk**, noting that disposal routes for wastewater discharges have not materially changed from the Consented Development.

16.2 LEGISLATION, POLICY AND GUIDANCE

- 16.2.1.1 Key items of legislation, policy and guidance specifically relevant to waste generation and management for the Proposed Development are as follows:
 - The Control of Pollution (Amendment) Act 1989¹;
 - Waste Framework Directive 2008²;
 - Waste (England and Wales) Regulations (2011)³;
 - Waste (England and Wales) (Amendment) Regulations 2014⁴;

https://www.legislation.gov.uk/uksi/2014/656/contents/made



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¹ Control of Pollution (Amendment) Act, 1989. Available at:

https://www.legislation.gov.uk/ukpga/1989/14/contents

² Directive 2008/98/EC of the European Parliament and of the Council. Available at:

https://www.legislation.gov.uk/eudr/2008/98/contents

³ The Waste (England and Wales) Regulations, 2011. Available at:

https://www.legislation.gov.uk/uksi/2011/988/contents

⁴ The Waste (England and Wales) (Amendment) Regulations, 2014. Available at:

- Controlled Waste (England and Wales) Regulations 2012⁵;
- The Hazardous Waste (England and Wales) Regulations 2005⁶;
- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (Schedule 4)⁷
- National Policy Statements (including NPS for Overarching Energy $(EN-1)^8$;
- National Planning Policy for Waste⁹;
- Waste Management Plan for England 2021¹⁰:
- Cheshire West and Chester Council (CWAC) Local Plan¹¹;
- The Definition of Waste: Development Industry Code of Practice (DoW: CoP)12; and
- Institute of Environmental Management and Assessment (IEMA) Guide to Material and Waste in Environmental Impact Assessment¹³.
- 16.2.1.2 Relevant aspects of these items are outlined in the following sections.

16.2.2 **LEGISLATION**

Control of Pollution (Amendment) Act 1989

- 16.2.2.2 The Control of Pollution (Amendment) Act 1989 provides for "the registration of carriers of controlled waste and to make further provision with respect to the powers exercisable in relation to vehicles shown to have been used for illegal waste disposal".
- 16.2.2.3 It is an offence for anyone who is not a registered carrier of controlled waste to transport any controlled waste to or from a place in Great Britain whether for profit or for business.

https://www.legislation.gov.uk/uksi/2012/811/contents

https://www.legislation.gov.uk/uksi/2005/894/contents

https://www.gov.uk/government/collections/national-policy-statements-for-energy-infrastructure

 $[\]overline{}^{13}$ Institute of Environmental Management and Assessment Guide to Material and Waste in EIA, 2020. Available at: https://www.iema.net/media/0t5fwyhj/iema-materials-and-waste-in-eia-march-2020.pdf



⁵ The Controlled Waste (England and Wales) Regulations, 2012. Available at:

⁶ The Hazardous waste (England and Wales) Regulations, 2005. Available at:

⁷ The Town and Country Planning (Environmental Impact Assessment) Regulations, 2017, Schedule 4. Available at: https://www.legislation.gov.uk/uksi/2017/571/schedule/4

⁸ National Policy Statements for Energy Infrastructure, 2023 (revised 2024). Available at:

⁹ National Planning Policy for Waste, 2014 Available at:

https://www.gov.uk/government/publications/national-planning-policy-for-waste/national-planningpolicy-for-waste

¹⁰ Waste Management Plant for England, 2021, Available at:

https://www.gov.uk/government/publications/waste-management-plan-for-england-2021

¹¹ Cheshire West and Chester Local Plan Part 1 (adopted 2015) and Part 2 (adopted 2019). Available at: https://consult.cheshirewestandchester.gov.uk/kse/folder/59487

¹² CL:AIRE, Definition of Waste: Development Industry Code of Practice (DoW: CoP), version 2, 2011. Available at: https://claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dowcop-main-document

Waste Framework Directive 2008

16.2.2.4 Article 3(1) of the Waste Framework Directive (WFD) defines 'Waste' as: "any substance or object which the holder discards or intends or is required to discard"

- 16.2.2.5 Article 4 sets out the "waste hierarchy" which applies priority to waste prevention and management in the following order:
 - Prevention;
 - Preparing for re-use;
 - Recycling;
 - Other recovery (e.g. energy recovery); and
 - Disposal.
- 16.2.2.6 This hierarchy has been applied to legislation and policy published since 2008, and provides a framework for many local waste management plans.

Waste (England and Wales) Regulations 2011

- 16.2.2.7 The Waste (England and Wales) Regulations 2011 update earlier aspects of waste controls and emphasise the need for waste permits and authorisations for certain activities. The regulations aim to protect the environment and human health by preventing or reducing the generation of waste, reducing the adverse impacts of the generation and management of waste, and reducing the overall impacts of resource use.
- 16.2.2.8 The regulations implement the revised WFD under the Duty of Care Regulations 1991, and require businesses to:
 - apply the waste hierarchy when transferring waste and to include a declaration on their waste transfer note or consignment note; and
 - require a new waste hierarchy permit condition and where appropriate a condition relating to the mixing of hazardous waste.
- 16.2.2.9 The regulations also:
 - introduce a two-tier system for waste carrier and broker registration, which includes those who carry their own waste, and introduces a new concept of a waste dealer;
 - make amendments to hazardous waste controls and definition;
 and
 - exclude some categories of waste from waste controls, notably animal by-products, whilst including a small number of radioactive waste materials.



Waste (England and Wales) (Amendment) Regulations 2014

16.2.2.10 These regulations amend the Waste (England and Wales)
Regulations 2011, adding in regulation 29, a list of offences for the purposes of refusing registration of carriers, brokers and dealers of controlled waste. This amendment also added a new part (Part 10A) relating to the production of authority for transporting controlled waste, specifying how an authority to transport waste must be presented.

Controlled Waste (England and Wales) Regulations 2012

16.2.2.11 Under these regulations, waste from construction or demolition works, including preparatory works, are to be classified as 'Industrial', and treated as household waste for the purposes of Section 34(2) and (2A) of the Act only.

The Hazardous Waste (England and Wales) Regulations 2005

- 16.2.2.12 These regulations set out the regime for the control and tracking of hazardous waste in England and Wales. Under these regulations, a process of the registration of hazardous waste producers and a new system for recording the movement of hazardous waste was introduced.
- 16.2.2.13 Under the regulations, all industrial and commercial premises producing more than 500 kg of hazardous waste must notify their existence to the EA. In practice, the Environment Agency (EA) released updated guidance in this regard in April 2016 which withdrew the need for such notification.
- 16.2.2.14 Under the regulations, the movement of wastes is controlled by a documentation system which has to be completed whenever waste is removed from premises. From the waste producer's perspective, a Consignment Note must be produced and completed before waste can be removed and the following information must be provided:
 - a description of the waste;
 - the process giving rise to the waste;
 - the quantity of waste;
 - the chemical (and/or biological) components and their concentrations;
 - the hazard codes, the List of Waste (LoW) code;
 - the container type;
 - the locations of origin and destination of the waste; and
 - the consignment notes with a unique number ('consignment note code').



Schedule 4 of the EIA Regulations

16.2.2.15 Article 1(d) of Schedule 4 of the EIA Regulations requires an ES to consider the quantities and types of waste to be produced during the construction and operational phases of a Proposed Development. The design life of the Proposed Development is expected to be at least 40 years. After this period, the Proposed Development is likely to be decommissioned. Decommissioning is expected to take between 12 and 24 months and could be undertaken in phases. Therefore, waste generated during the decommissioning phase will also be considered.

16.2.3 NATIONAL POLICY

National Policy Statements

- 16.2.3.2 The Overarching NPS for Energy (EN-1) is relevant to the Proposed Development in the context of waste management. NPS EN-1 acknowledges that all large infrastructure projects are likely to generate wastes but encourages the protection of human health and the environment by producing less waste and using it as a resource wherever possible.
- 16.2.3.3 Section 5.15 of NPS EN-1 advocates the implementation of sustainable waste management practices, in line with the waste hierarchy. Where disposal is required, waste should be disposed in line with waste management regulations.

National Planning Policy for Waste

- 16.2.3.4 The National Planning Policy for Waste (NPPW) provides the context for how local authorities should manage waste in their area and sets out considerations that must be taken into account during planning applications.
- 16.2.3.5 The NPPW also sets out detailed waste planning policies to ensure sustainable waste management, emphasises the need to minimise the amount of waste arising and supports the reuse and recycling of waste where possible.

Waste Management Plan for England 2021

- 16.2.3.6 The Waste Management Plan (WMP) for England fulfils the requirements of the Waste (England and Wales) Regulations 2011 (as amended) for the WMP 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 (as amended).
- 16.2.3.7 The plan 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.

16.2.3.8 The 2021 plan supersedes the previous WMP for England and includes changes to WMP requirements which have been made by the Waste (Circular Economy) (Amendment) Regulations 2020 where appropriate.

16.2.4 LOCAL PLANNING POLICY

Cheshire West and Chester Council (CWAC) Local Plan

- 16.2.4.2 Policy ENV 9 of Part One of the CWAC Local Plan (adopted 2015) provides for waste management in the borough, by:
 - managing waste as a resource;
 - promoting waste minimisation and increasing waste awareness;
 - · delivering sustainable waste management; and
 - providing waste management infrastructure.
- 16.2.4.3 The policy promotes the use of the waste hierarchy and safeguards landfill capacity in the district. The Local Plan demonstrates that there is sufficient landfill capacity to meet the waste requirements of the borough until 2030.
- 16.2.4.4 Part Two of the CWAC Local Plan (adopted 2019) further details how sustainable waste management provision will be maintained in the borough, including review of the Waste Needs Assessment and setting out criteria which must be met for waste management proposals.

16.2.5 GUIDANCE

The Definition of Waste: Development Industry Code of Practice (DoW: CoP)

- 16.2.5.2 This Code of Practice (CoP) sets out good practice for the development industry to use when:
 - assessing on a site-specific basis whether excavated materials are classified as waste or not;
 - determining on a site-specific basis when treated excavated waste can cease to be waste for a particular use; and
 - it describes an auditable system to demonstrate that this CoP has been adhered to.
- 16.2.5.3 The EA will take account of this CoP in deciding whether to regulate the materials as waste. If materials are dealt with in accordance with the CoP the EA considers that those materials are unlikely to be waste if they are used for the purpose of land development. This may be because the materials were never discarded in the first



> place, or because they have been submitted to a recovery operation and have been completely recovered so that they have ceased to be waste.

ISEP Guide to Materials and Waste in Environmental Impact Assessment

16.2.5.4 The IEMA Guide to Material and Waste in EIA sets out guidance and significance criteria to assess the potential impacts on a development resulting from disposal of waste to landfill. The quidance advocates the use of one of two assessment methodologies, based on void capacity or landfill diversion. Assessment based on landfill void capacity is the recommended methodology for statutory EIAs.

16.3 CONSULTATION

- 16.3.1.1 This section provides a summary of the consultation undertaken to date regarding waste management associated with the Proposed Development.
- 16.3.1.2 A Scoping Opinion was sought from the Planning Inspectorate to determine the content of the EIA, as well as the approach and methods to be used. A Scoping Opinion was received from the Planning Inspectorate on 5 June 2025 (**Appendix 1B**).
- 16.3.1.3 **Table 16.1** summarises how this chapter of the PEIR addresses key points from the EIA Scoping Opinion related to waste management.

TABLE 16.1 - PLANNING INSPECTORATE'S SCOPING OPINION RESPONSE IN RELATION TO WASTE MANAGEMENT

Consultee	Topic	Summary of Comment	How this is Addressed in the PEIR
The Planning Inspectorate	Effects on landfill capacity from handling and disposal of decommissioning phase waste	This matter is proposed to be scoped out on the basis that handling and disposal of waste during decommissioning would be undertaken in line with legal requirements at the time, decommissioning is unlikely to generate large volumes of inert material and the likely effects are considered no more than construction.	N/A – matter scoped out.



Consultee	Topic	Summary of Comment	How this is Addressed in the PEIR
		The Inspectorate is content to scope this matter out of further assessment on this basis.	

16.3.1.4 No other consultation has been undertaken outside of the EIA Scoping Opinion in relation to waste management.

16.4 BASIS OF THE ASSESSMENT

- 16.4.1.1 Waste management is a new standalone chapter in the MC and therefore, there is no direct comparison between the assessment of the Consented Development and the MC. Some elements of waste management were considered as part of **Chapter 6**, **Geology and Ground Conditions** (e.g. potential effects on land and the water environment) and **Chapter 7**, **Hydrology and Flood Risk** (e.g. effects of wastewater discharges) of the PEIR.
- 16.4.1.2 The changes to the Proposed Development from the Consented Development, as described in **Chapter 2, Proposed Development Description**, are not anticipated to materially impact the nature of waste generated during construction.
- 16.4.1.3 Minor changes to the volume of waste produced during the construction of above ground infrastructure may be anticipated due to the removal of the National Transmission System (NTS), reduction in infrastructure at SMC3, increase in size of the Gas Processing Plant (GPP) and other additional/relocated ancillary elements (site roads, utility compound, maintenance stores building).
- 16.4.1.4 However, the changes to the above ground infrastructure are not expected to increase the significance of effects for waste compared to the Consented Development. Furthermore, proposed mitigation remains the same.
- 16.4.1.5 The basis for this assessment uses the updated guidance for waste and does not reflect material changes in the anticipated waste management aspects of the Proposed Development. Therefore, the current assessment is limited to those elements which have not previously been assessed through the Consented Development, i.e. the burden on regional landfill capacity.
- 16.4.1.6 Design parameters that are of relevance to waste generation and management, and which have been used to assess the potential



waste-related effects of the Proposed Development, are presented in the following sections.

16.4.1.7 At this stage in the design process, some specific design information is yet to be defined or cannot yet be fixed. Where this is the case, the Rochdale Envelope approach has been utilised (as outlined in **Chapter 5, EIA Methodology and Consultation**) and the realistic worst-case has been assessed using known maximum and minimum design parameters, where appropriate. These cases are described in the following sections. Where information gaps and uncertainties remain, key assumptions are presented in 'Addressing Uncertainty' (**Section 0**), below.

16.4.2 CONSTRUCTION

- 16.4.2.1 The greatest potential for impacts regarding waste management will be during the construction phases from activities including:
 - Site clearance, preparation, levelling and possible generation of surplus soil and subsoil that need to be removed from the site;
 - Excavations and piling generating surplus soil;
 - Drilling cuttings from boreholes associated with cavern construction;
 - · General construction activities; and
 - Potential encounters with contaminated soils.
- 16.4.2.2 The majority of construction wastes are likely to be as surplus site preparation and excavation materials, i.e. soils, which are anticipated to be re-used at the Site (e.g. landscaping) where possible. Other construction waste types will be generated in smaller quantities, with the majority of this waste expected to be recycled by the construction contractor as set out in a Site Waste Management Plan (SWMP, see **Section 16.7.2**).
- 16.4.2.3 The remainder of the waste will be disposed of offsite by a licensed waste management contractor to be appointed by the construction contractor. If alternative options can be established using the DoW: CoP, these will be pursued in preference to landfilling.
- 16.4.2.4 However, the assessment considers a worst-case scenario, assuming it is not possible to retain or reuse any excavated materials on site which therefore require landfill disposal. Further consideration of retaining or reusing material will be developed as the Proposed Development design develops and will be presented in the ES, where applicable.

Quantification of Surplus Soil Wastes from Construction

16.4.2.5 Elements of the Proposed Development which are anticipated to generate excess soils during construction are summarised in **Table 16.2**, below, alongside the anticipated volumes. The information provided is based on the design information at the time of this PEIR.



> Further detail and refinement on waste volumes will be undertaken for the ES once additional design parameters are known.

- 16.4.2.6 General assumptions applicable to all elements of the Proposed Development are as follows:
 - A surface strip up to 0.9 m depth is required in all construction areas to create a suitable building platform;
 - Where the surface strip encounters topsoil only, this will be reused on site and is therefore not considered a 'waste';
 - Where deeper excavations are required, e.g. for foundations, a reasonable worst case (RWC) scenario has been assumed whereby offsite disposal of soil is required. Anticipated foundation dimensions are currently unknown and will be included in the ES;
 - Any building not specifically listed in **Table 16.2**, below, is assumed to be situated on a concrete pad foundation, not requiring additional excavation beyond 0.5 m depth;
 - Any natural soils requiring offsite disposal will be classified as 'inert' waste;
 - Made Ground is only anticipated to be present in locations of previous development (see Section 16.6.3);
 - Potential for contamination exists where Made Ground is present and/or in locations of previous development/potentially contaminative activities (see Section 16.6.3 and Chapter 6, Geology and Ground Conditions); and
 - A bulking factor of 1.5 is assumed for all excavated soil material.

TABLE 16.2 - ESTIMATED QUANTITIES OF EXCESS SOIL GENERATED **DURING CONSTRUCTION**

Element of the Proposed Development	Assumptions	Estimated Surplus Soil Volume	Potential for Contamination
GPP	 Three compressor buildings (24 m x 28 m) Dehydration columns (up to 10 no., max. 5 m diameter) Flares (2 m and 5 m diameter) Surplus soil from 	Low Foundation design to be confirmed for the ES to allow surplus soil volume to be estimated.	Very Low. No known previous development or potentially contaminative activities identified in locations of GPP.



Element of the Proposed Development	Assumptions	Estimated Surplus Soil Volume	Potential for Contamination
	foundations >0.5 m deep will require offsite disposal.		
Utilities Compound	Utility compound (footprint ~7,500m²), consisting of: 33kV Substation 11kV switchroom E&I building Nitrogen and air compressors Surplus soil from foundations >0.5 m deep will require offsite disposal.	Low Foundation design to be confirmed for the ES to allow surplus soil volume to be estimated.	Very Low. No known previous development or potentially contaminative activities identified in location of Utilities Compound.
Maintenance Stores	One building. Surplus soil from foundations >0.5 m deep will require offsite disposal.	Very Low Foundation design to be confirmed for the ES to allow surplus soil volume to be estimated.	Very Low. No known previous development or potentially contaminative activities identified in location of Maintenance Stores.
Site Roads	Permanent site roads will require excavation to a depth of 0.815 m to	Low Road layout / construction methods to be confirmed for the ES to allow	Low. Potential to intersect areas of previously- developed land (i.e. Made



Element of the Proposed Development	Assumptions	Estimated Surplus Soil Volume	Potential for Contamination
	permit construction in line with best practice guidance. • Surplus soil from foundations >0.5 m deep will require offsite disposal.	surplus soil volume to be estimated.	Ground) and/or localised point sources of contamination.
Utility network	 Buried cabling, pipework etc (electricity, hydrogen). to be installed by trenching. Excavated material to be re-used as backfill, subject to suitability (see right). Assumes maximum 5% of total excavated soil is unsuitable for re-use. 	Very Low Utilities layout / construction methods to be confirmed for the ES to allow surplus soil volume to be estimated.	Low. Potential to intersect areas of previously-developed land (i.e. Made Ground) and/or localised point sources of contamination.

- 16.4.2.7 Most total surplus soil generated is anticipated to comprise natural topsoil and subsoil from previously undeveloped areas; with limited identified potential sources of contamination (see **Chapter 6**, **Geology and Ground Conditions**).
- 16.4.2.8 Based on the current concept design, as much material as possible will be reused onsite as part of the Proposed Development (such as backfilling or landscaping works). For the remaining material that cannot be re-used onsite (likely to be that from below 0.5 m depth in foundation excavations), it is assumed that this material will be classified as 'inert' for offsite (landfill) disposal purposes.



16.4.2.9 Foundation, road and utility network design are undergoing refinement and, as such, estimated of surplus soil volumes cannot currently be made. However, based on the relatively small nature of the buildings and likely shallow excavations for foundations etc., the total volume of surplus soil generated is likely to be low.

- 16.4.2.10 Furthermore, since the vast majority is anticipated to be clean, natural topsoil and subsoil which is likely to be suitable for re-use onsite, the volume of surplus soil requiring offsite disposal is anticipated to be low.
- 16.4.2.11 Based on currently available information, a reasonable worst-case of 2% of the surplus soil resulting from excavations for site roads and utilities is anticipated to comprise Made Ground and / or soil which has been impacted by potentially contaminative activities, which is unlikely to be suitable for re-use onsite.
- 16.4.2.12 Anticipated volumes of construction waste soil by waste classification (inert / non-hazardous / hazardous) which will be generated by the Proposed Development will be calculated in the ES once design parameters are available.

Quantification of General Construction Wastes

- 16.4.2.13 In addition to surplus soil, general construction waste will be generated during construction of the Proposed Development.
- 16.4.2.14 It is not considered possible at this stage to accurately estimate the quantities of different waste types that will be generated during construction. However, **Table 16.3**, below, presents an indication of anticipated waste types along with their anticipated management option. The majority of general construction waste types are anticipated to be recyclable; only general waste is anticipated to require offsite disposal to landfill.

TABLE 16.3 - ANTICIPATED TYPES OF GENERAL CONSTRUCTION WASTE

Waste Type	Example Source	Anticipated Management Option
Aggregates	Removal of temporary compounds, surplus from foundations	Recycling
Metal	Cabling, concrete reinforcement	Recycling
Timber	Fencing, pallets, cable reels	Recycling
Plastics	Packaging	Recycling
Cardboard	Packaging	Recycling



Waste Type	Example Source	Anticipated Management Option
General waste	Packaging, welfare at construction compounds	Assumed offsite disposal (landfill)

16.4.2.15 For the ES, general construction waste volumes will be estimated using average composition data published by WRAP¹⁴ and Smartwaste Waste Benchmark Data¹⁴ to provide an estimate of the total volume of construction wastes requiring disposal to landfill.

16.4.3 OPERATION

- 16.4.3.1 Wastes arising during operation will be minimal and significantly less in volume than those during construction. Day to day operation of the Proposed Development generate negligible waste volumes. The requirement for material assets during the operational phase will be limited to maintenance and replacement components, as required, but may include materials that require specialist treatment and disposal. For example, components of equipment (e.g. spent hydrogen sulphide removal bed material) which may be classified as hazardous waste.
- 16.4.3.2 The disposal of operational waste will be managed so far as is as reasonably practicable to reduce any adverse environmental effects of disposal in accordance with the relevant waste management regulations, as will be outlined in the ES.

Quantification of Operational Phase Waste

- 16.4.3.3 Based on existing operation of similar facilities, waste types generated by operation of and maintenance activities associated with the Proposed Development are anticipated to include:
 - General and sanitary waste from maintenance activities, including temporary welfare facilities;
 - Dry mixed recyclables, including wood, metal, plastic, paper and cardboard; and
 - Small amounts of special / hazardous waste from plant and equipment maintenance.
- 16.4.3.4 As a worst-case scenario, general and sanitary waste is assumed to require landfill disposal. Some special wastes from maintenance of equipment may require disposal as hazardous waste, although recycling will be employed as the first option where feasible.

¹⁴ Building Research Establishment (BRE) waste benchmarking data (updated June 2012), published based on information from BRE's 'SMART Waste Plan'.



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16.4.3.5 The volume of general and hazardous waste requiring landfill disposal is anticipated to be negligible, although not readily quantifiable at this stage. Further details will be provided in the ES.

16.4.4 DECOMMISSIONING

- 16.4.4.1 Decommissioning will take place after an anticipated 50 years of operation and will consider the legal requirements at the time and be undertaken in accordance with a decommissioning plan approved by the relevant regulatory authority.
- 16.4.4.2 It is anticipated that application of the waste management hierarchy will be at the core of a future decommissioning plan.

 Decommissioning has been scoped out of this assessment and is therefore not considered further in this chapter.

16.5 ASSESSMENT METHODOLOGY

16.5.1.1 This section sets out the scope and methodology for the assessment of the impacts of waste generated during construction and operation phases of the Proposed Development, where not considered as part of the Consented Development.

16.5.2 SCOPE OF ASSESSMENT

- 16.5.2.1 In the context of the waste assessment, receptors are considered to be registered landfill facilities in the North-West planning region and Cheshire sub-region.
- 16.5.2.2 Registered landfill sites used by the Proposed Development may be affected by construction, operation and decommissioning works through a material increase in the volume of waste types received. This is most likely to occur during the construction and decommissioning phases of the Proposed Development, during which projected waste volumes are expected to be the highest.
- 16.5.2.3 As described in Section 16.4, the current waste assessment is limited to those elements which were not previously assessed as part of the Consented Development, i.e. potential effects on regional landfill capacity, since no material change in surplus waste generation is anticipated as a result of the MC.

16.5.3 STUDY AREA

- 16.5.3.1 For the purpose of the waste assessment, the Study Area is considered to be the North West planning region, and more specifically the Cheshire sub-region, as defined by the Environment Agency for waste reporting.
- 16.5.3.2 The use of planning regions and sub-regions to define the Study Area for this topic is aligned with IEMA guidance for waste impact assessments¹³.



16.5.4 BASELINE SURVEY METHODOLOGY

16.5.4.1 Existing baseline conditions within the Study Area in relation to waste management have been defined using publicly available data from the Environment Agency, including:

- Waste Data Interrogator (2023)¹⁵;
- 2023 Remaining Landfill Capacity¹⁶; and
- Waste Summary Tables for England (2023)¹⁷.
- 16.5.4.2 In addition, the baseline conditions within the Site Boundary are defined based on the existing setting and current and historical land use, which may affect the nature of surplus (waste) soil generated by the Proposed Development, particularly during construction.
- 16.5.4.3 No different future baseline conditions are considered as part of the assessment. In the absence of the Proposed Development, waste will continue to be generated from the construction of other new developments and general economic activity.
- 16.5.4.4 As part of the Local Plan¹¹, CWAC has committed to sustainable waste management policies and strategies to deliver sufficient waste management capacity. Therefore, regional capacity to handle waste is anticipated to remain unchanged.

16.5.5 METHODOLOGY FOR THE ASSESSMENT OF EFFECTS

16.5.5.1 In order to assess the significance of the Proposed Development on the baseline landfill capacity, the following significance criteria are applied, in line with IEMA guidance¹⁶:

TABLE 16.4 – EVALUATION CRITERIA FOR ASSESSMENT OF EFFECTS ON LANDFILL CAPACITY (IEMA, 2020)

Significance of Effect	Criteria for Effects of Waste Generated during Construction and/or Operational Phases			
	Inert / Non-Hazardous Waste	Hazardous Waste		
Negligible (Not Significant)	Waste generated by the development will reduce regional landfill capacity by <1%	Waste generated by the development will reduce regional landfill capacity by <0.1%		

Environment Agency, 2023 Remaining Landfill Capacity, dated June 2025. Available at: https://www.data.gov.uk/dataset/237825cb-dc10-4c53-8446-1bcd35614c12/remaining-landfill-capacity1
 Environment Agency, 2023 Waste Summary Tables for England, dated June 2025. Available at: https://environment.data.gov.uk/dataset/134f7ce9-5123-4813-b4e5-c4fdf621200d



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¹⁵ Environment Agency, 2023 Waste Data Interrogator (wastes received), dated June 2025. Available at: https://environment.data.gov.uk/dataset/134f7ce9-5123-4813-b4e5-c4fdf621200d

Significance of Effect	Criteria for Effects of Waste Generated during Construction and/or Operational Phases					
	Inert / Non-Hazardous Waste	Hazardous Waste				
Minor (Not Significant)	Waste generated by the development will reduce regional landfill capacity by 1 - 5% Waste generated by the development will reduce regional landfill capacity by 1 0.1 - 0.5%					
Moderate (Significant)	Waste generated by the development will reduce regional landfill capacity by 6 - 10%	Waste generated by the development will reduce regional landfill capacity by 0.5 - 1%				
Major (Significant)	Waste generated by the development will reduce regional landfill capacity by >10%	Waste generated by the development will reduce regional landfill capacity by >1%				

16.5.6 ADDRESSING UNCERTAINTY

- 16.5.6.1 The anticipated volumes of waste generated during construction and operation of the Proposed Development are currently not able to be quantified. For the ES, waste volumes requiring landfill disposal will be estimated as a reasonable worst-case scenario.
- 16.5.6.2 The true volumes of waste generated are expected to be lower than the estimates which will be presented, and the proportional split of waste types generated may vary within, and across, different design scenarios.
- 16.5.6.3 Furthermore, this assessment conservatively assumes that all waste requiring offsite disposal is sent to landfill.

16.6 BASELINE

16.6.1 INTRODUCTION

16.6.1.1 The following sections establish the remaining landfill capacity of registered landfills in the North West planning region and Cheshire sub-region, as well as the existing annual volume of waste materials disposed to landfill. This information provides a baseline against which to assess the effects of construction and operation of the Proposed Development on the available landfill capacity, and the volume of waste delivered to receiving landfills annually.



16.6.2 REGIONAL LANDFILLING AND WASTE MANAGEMENT

16.6.2.1 The number of operational landfill facilities in the North West region and Cheshire sub-region as of 2023 is shown in **Table 16.5**.

TABLE 16.5 - OPERATIONAL LANDFILL FACILITIES IN THE CHESHIRE SUB-REGION (2023)

	North West Planning Region	Cheshire Sub- Region	Cheshire West & Chester (CWAC) District
Number of operational landfill facilities	40	10	3

Source: Environment Agency, Waste Data Interrogator 2023¹⁵

16.6.2.2 The locations of the operational landfill facilities within the Cheshire sub-region and the CWAC district are shown in **Table 16.6**.

TABLE 16.6 - OPERATIONAL LANDFILL FACILITY LOCATIONS

Facility address	Planning Region	Planning Sub- Region	Local Authority District	Site Type	
CWAC District					
Holford Brinefield Landfill Site, Lostock Gralam, CW9 7TD	North West	Cheshire	CWAC	L04 – Non- Hazardous	
Frodsham Marsh Lagoons	North West	Cheshire	CWAC	L05 – Inert	
Huntington Water Treatment Works	North West	Cheshire	CWAC	L05 – Inert	
Wider Cheshire Sub-Region					
Maw Green Landfill, Maw Green Lane,	North West	Cheshire	Cheshire East	L04 – Non- Hazardous	



Facility address	Planning Region	Planning Sub- Region	Local Authority District	Site Type
Crewe, CW1 5NG				
Hilltop Farm Brinefields, Warmingham, CW10 0HQ	North West	Cheshire	Cheshire East	L04 – Non- Hazardous
Eardswick Hall Landfill Site, Minshull Vernon, Crewe, CW1 4RQ	North West	Cheshire	Cheshire East	L01 - Hazardous
Risley Landfill, Silver Lane, Warrington, WA3 6BY	North West	Cheshire	Warrington	L04 – Non- Hazardous
Woolston Deposit Grounds	North West	Cheshire	Warrington	L07 - Restricted
Rixton Landfill, Moss Side and Fir Tree Farms, Rixton, Warrington, WA3 6EN	North West	Cheshire	Warrington	L04 – Non- Hazardous
Southworth Quarry Landfill, Winwick Lane, Winwick, Warrington, WA3 7EW	North West	Cheshire	Warrington	L05 – Inert

Source: Environment Agency, Waste Data Interrogator 2023¹⁵

16.6.2.3 The annual tonnage sent to landfill in the North West planning region and Cheshire sub-region is shown in **Table 16.7**.



TABLE 16.7 - ANNUAL TONNAGE DISPOSED TO LANDFILL (2023)

	Annual Tonnage Disposed to Landfill (tonnes/yr, 2023)				
	Hazardous	Non- Hazardous (SNRHW)	Non- Hazardous	Restricted	Inert
Cheshire Sub-Region (Total)	28,944	-	172,279	-	336,650
North West Planning Region	284,096	779,081	1,443,117	-	641,103

Source: Environment Agency, Waste Summary Tables 2023¹⁷

16.6.2.4 The total remaining landfill capacity for the CWAC district, Cheshire sub-region and wider North West planning region, as of the end of 2023, is shown in **Table 16.8**

TABLE 16.8 - REMAINING LANDFILL CAPACITY (END 2023)

	Remaining Capacity (m³, end 2023)					
	Hazardous	Non- Hazardous (SNRHW)	Non- Hazardous	Restricted	Inert	
CWAC District	19,690	-	1,107,244	-	-	
Cheshire Sub- Region (Total)	1,371,914	-	4,172,116	-	747,473	
North- West Planning Region	3,009,862	7,172,482	10,488,254	-	5,278,827	

Source: Environment Agency, Remaining Landfill Capacity¹⁶

16.6.3 LAND QUALITY

16.6.3.1 Although excavated soils will be reused within the Proposed Development where possible, a large proportion of the waste generated by the Proposed Development will be surplus soils resulting from earthworks and excavations during construction. The waste classification of the surplus soils will affect the outcome of the assessment in relation to landfill capacity.

- 16.6.3.2 In most areas, excavated soils and anticipated to comprise natural topsoils and subsoils. Detailed descriptions of the soil types present at the Site are provided in the Geology, Land and Water Quality baseline assessment in the ES for the Consented Development and Appendix 6.1, Phase 1 Environmental Site Assessment.
- 16.6.3.3 In summary, soils at the site are anticipated to comprise:
 - Made Ground: Very limited in extent; only anticipated to be present in the vicinity of previous developments (e.g. farm buildings, roads), and including potentially infilled ponds/marshland; and
 - Natural topsoils and subsoils.
- 16.6.3.4 As discussed in **Chapter 6, Geology and Ground Conditions**, the potential for widespread, gross soil contamination to be present is very low. However, the network of excavations for site roads, utility trenches etc. may encounter land which has been previously developed.
- 16.6.3.5 In these locations, Made Ground is likely to be present, which has a greater potential to contain contaminants.
- 16.6.3.6 Other potential sources of contamination were also identified on Site, including small electricity and gas distribution stations, a small landfill on the southwestern boundary of the Site and a potential burial ground associated with the 1967 foot and mouth outbreak. However, none of these potential sources are in locations of proposed ground disturbance
- 16.6.3.7 A targeted ground investigation was undertaken in the location of the GPP in 2021^{18,19}. No evidence of contamination above criteria for the projection of human health was identified in six soil samples collected for laboratory analysis. No waste classification assessment was undertaken.
- 16.6.3.8 Additional project-specific ground investigation, including chemical testing, will be undertaken in targeted areas of the Site (i.e. locations of other major ground disturbance activities) prior to construction to assess potential soil contamination and options for re-use or disposal of the excavated soil.

¹⁹ Byrne Looby, *Keuper Gas Storage – Geotechnical Design Report*. Byrne Looby ref. K0044-GEO-R002-02, dated 5th April 2022.



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¹⁸ Byrne Looby, *Keuper Gas Storage Project - Ground Investigation Report*. Byrne Looby ref. K0044-BLP-GEO-R-000, dated 20th December 2021.

16.6.3.9 If offsite disposal is required, waste classification will be undertaken on representative samples of material to be disposed offsite.

16.7 MITIGATION

- 16.7.1.1 Mitigation measures that will be adopted with respect to waste generation and handling will largely comprise standard industry practice focused on the principles for implementing the Waste Hierarchy, seeking to minimise the volume of waste sent to landfill. A review of the mitigation measures outlined in the Consented Development will be undertaken.
- 16.7.1.2 The following sections describe the mitigation measures for each phase of the Proposed Development and the mechanisms for securing these measures. The proposed measures are consistent with those for the Consented Development. However, since there was no standalone chapter at that time, the measures were not laid out in full. Therefore, relevant measures are included here for completeness.
- 16.7.1.3 The assessment of likely significant effects in Section 16.8 takes into account adoption of these measures in full.

16.7.2 CONSTRUCTION

Waste Management and Minimisation Measures

- 16.7.2.2 During construction of the Proposed Development, the contractor will be required to develop and implement a construction Site Waste Management Plan (SWMP). The SWMP will form part of the Construction Environmental Management Plan (CEMP), to be approved by the Local Planning Authority prior to commencement of the main construction phase. The SWMP will demonstrate application of the DoW:CoP, as well as the employment of a Materials Management Plan (MMP) where surplus soil is to be re-used onsite. An Outline SWMP will accompany the ES.
- 16.7.2.3 The disposal of waste, including any surplus soil, will be managed so far as is reasonably practicable to maximise the environmental and development benefits from the use of surplus material and reduce any adverse environmental effects of waste disposal in accordance with the relevant waste management regulations.
- 16.7.2.4 Waste minimisation actions that are anticipated to be implemented during the construction phase via the SWMP and CEMP include:
 - Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
 - Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste;
 - Attention to material quantity requirements to avoid overordering and generation of waste materials;



• Re-use of materials (e.g. excavated soil) where feasible;

- Segregation of waste at source where practical; and
- Re-use and recycling of materials offsite where re-use onsite is not practical (e.g. through use of an offsite waste segregation facility and re-sale for direct re-use or re-processing).

Additional Actions for Dealing with Waste

- 16.7.2.5 Further actions will be introduced as part of the construction SWMP which will contribute to the general reduction of waste generation at the Site and manage risks associated with waste handling, storage and disposal. These measures include:
 - Appointment of an environmental co-ordinator (or similar) who
 will hold overall responsibility for waste management. The role
 will include co-ordinating all waste or environmental issues on the
 Site from compiling waste data to identifying training needs.
 Sites with an environmental co-ordinator tend to perform better
 in managing waste;
 - Maintaining a good standard of housekeeping, including designated waste storage areas, segregation of different waste streams, signposting and labelling and covering of skips to prevent wind-blown waste. Regular inspections will be undertaken to ensure waste storage areas are kept tidy;
 - Accurate record-keeping of waste types, volumes and disposal routes and destinations;
 - Implementation of staff awareness training to ensure all personnel are aware of the correct procedures onsite for waste segregation, disposal and to actively promote recycling onsite through clear signage;
 - Ensure waste minimisation measures are incorporated into the design, construction method and / or materials employed; and
 - Implementation of a suitable management structure which will allow prompt decision making relating to improvements in waste management and recycling initiatives.

Indicative Roles and Responsibilities

- 16.7.2.6 Personnel at all levels have a role in managing materials and waste correctly. However typical roles and responsibilities that are likely to be defined as part of the construction SWMP include:
 - Site Manager:
 - Responsible for ensuring a system is implemented that identifies and manages the waste being produced;
 - Implements a waste plan as a 'live' document, identifying an appropriate strategy and KPIs; and
 - Co-ordinates waste management on Site.
 - Site Waste Management Representative:



> Co-ordinates the identification of materials for re-use or recycling and identify opportunities for waste reduction;

- Co-ordinates staff training;
- Ensures that all waste storage containers are accurately labelled to show all Site workers where to deposit specific materials; and
- Liaises with the management team to ensure the appropriate management of incoming materials, the establishing of waste management contracts, and the provision of receptacles.
- All Site personnel:
 - Ensure no over-ordering of materials to reduce the amount of waste produced;
 - Correct handling and storage of materials to prevent damage and wastage;
 - Co-ordinate with the Site team the reuse or recycling of materials for alternative usage where possible;
 - Correct handling of waste materials by containment, separation and storage;
 - Labelling of waste storage containers to show where to deposit specific materials;
 - Ensure containers are stored safely and securely; and
 - Disposal of waste to appropriately licensed Site with correct documentation completed.

Waste Monitoring, Audits and Review

- 16.7.2.7 Monitoring of waste and waste management plans ensures that waste minimisation obligations, as detailed within the construction SWMP, are being met and helps to identify opportunities for improvements and potential cost reductions.
- 16.7.2.8 Typical monitoring, audit and review activities will be defined within the construction SWMP and will include:
 - Waste Monitoring: Update the construction Waste Management Plan (WMP) at regular intervals throughout the construction phase to illustrate changes in the Proposed Development. For example, waste types, volumes, sub-contractors and changes in personnel and to drive continual improvement in promoting management of wastes as high up the waste hierarchy as possible, as follows:
 - Ensure all legislation and regulations are being complied with and that the waste management strategy is being implemented appropriately, monitored through regular Site inspections;
 - Completion of logs detailing the volume of material brought onto Site and the volume of waste generated including the type and the route of disposal/recovery; and



 Collation of data into a report detailing all waste movements for submission to the Site Manager to be utilised during the annual waste audit and waste review.

- Waste Audit: Collate/review baseline information. This will include, for example reviews of:
 - Operations / staffing levels, composition, waste monitoring reports and quantity of waste generated;
 - Current waste management procedures;
 - Existing activities including, for example, key roles and responsibilities;
 - An estimation of waste volumes including a comparison from previous and projected years (where appropriate); and
 - The results of the waste audit will be used to inform the waste review.
- Waste Review: A waste review will be undertaken following the completion of a waste audit and the completion of regular waste monitoring. The review will:
 - Provide an opportunity to consider the suitability of the management strategies that are in place in relation to relevant regulations and best practice procedures;
 - Provide areas for improvement, lessons to be learnt and potential improved cost savings and sustainability; and
 - Review monthly, quarterly and annual reports, compare waste related data that has been collected and include guidance and proposals to drive continual improvement.

16.7.3 OPERATION AND MAINTENANCE

- 16.7.3.1 The operational processes are being designed in accordance with Best Available Techniques (BAT), such that the generation of solid wastes during operation is minimised or avoided altogether (where possible). Occasional special solid wastes (e.g. spent hydrogen sulphide removal bed material) cannot be avoided but are anticipated to be produced on a sporadic basis only.
- 16.7.3.2 The framework for waste management during the operational phase of the Proposed Development, including handling of special wastes, will be included within the Proposed Development's Environmental Management System (EMS).
- 16.7.3.3 The disposal of operational waste will be managed so far as is reasonably practicable to reduce any adverse environmental effects of disposal in accordance with the relevant waste management regulations, as will be outlined in the EMS.
- 16.7.3.4 Waste minimisation actions relating to Site generated waste that are anticipated to be implemented during the operational and maintenance phase include the following:



 Waste minimisation, by using less new resources and materials where practicable;

- Segregation of waste to maximise recycling;
- Recycling of hazardous wastes where possible, for example spent filter bed material; and
- Diversion of waste, using a specialist waste management company.

Additional Actions for Dealing with Waste

16.7.3.5 As for the construction phase, further measures will be employed during the operational phase to contribute to the general reduction of waste generation and manage risks associated with waste handling, storage and disposal. These will be detailed in the EMS and will include equivalent measures to those detailed in Section 16.7.2 (construction phase), above.

Indicative Roles and Responsibilities

16.7.3.6 Personnel at all levels have a role in managing materials and waste correctly. Roles and responsibilities will be defined in the EMS and will include equivalent roles and responsibilities to those detailed in Section 16.7.2 (construction phase), above.

Waste Monitoring, Audits and Review

- 16.7.3.7 Monitoring and review of waste and waste management plans ensure that waste minimisation obligations, as detailed within the EMS, are being achieved. Reviews also help to identify opportunities for improvements and monitoring helps drive the continual improvement in promoting management of wastes as high up the waste hierarchy as possible.
- 16.7.3.8 Waste monitoring, audit and review activities will be defined within the EMS. This will include equivalent activities to those detailed in paragraphs 16.7.2.7 and 16.7.2.8(construction phase) above. The frequency of waste monitoring, audits and reviews will be specified in the EMS.

16.8 ASSESSMENT OF EFFECTS

- 16.8.1.1 Some elements of waste management were considered as part of the ES for the Consented Development (e.g. in **Chapter 6, Geology and Ground Conditions**). All potential effects related to waste management considered in the Consented Development were assessed as **Not Significant**.
- 16.8.1.2 The assessment of effects presented below considers the elements of the Proposed Development, which were not assessed as part of the Consented Development, i.e. potential effects on regional landfill capacity.



16.8.2 CONSTRUCTION

16.8.2.1 Environment Agency data presented in **Table 16.8**, above, show the baseline available landfill capacity in the North West planning region and Cheshire Sub-Region at the end of 2023 (most recent available data). At this stage, a quantitative assessment cannot be made and this will be undertaken in the ES as the design develops.

- 16.8.2.2 A description and quantification of waste arising during the construction phase will be provided in the ES.
- 16.8.2.3 Considering the approaches to similar type / scale of projects, embedded mitigation measures, best practice waste recovery and likely recycling opportunities; the effect on the regional landfill capacity is predicted to be **Negligible (Not Significant)**.

16.8.3 OPERATION AND MAINTENANCE

- 16.8.3.1 EA data presented in **Table 16.7** shows the annual tonnage of waste sent to landfill in the North West planning region and Cheshire subregion in 2023.
- 16.8.3.2 **Table 16.7**, below, shows the expected (average) annual volume of solid waste generated during operation of the Site requiring landfill disposal relative to the existing baseline for annual landfill input.
- 16.8.3.3 A full description of waste arising during the operational phase will be provided in the final ES.
- 16.8.3.4 Considering the approaches to similar type / scale of projects, the waste impacts will be long term. However, considering embedded mitigation measures, best practice waste recovery and likely recycle opportunities the effect on the regional landfill capacity is predicted to be **Negligible (Not Significant)**.

16.9 SUMMARY OF INDIRECT EFFECTS

- 16.9.1.1 For the purposes of this EIA, 'indirect effects' are defined as the consequences of other development that are relied on by the Proposed Development, but not part of the Proposed Development (and therefore the Application).
- 16.9.1.2 No indirect effects are currently anticipated in relation to waste management. This will be reviewed in the ES and assessed if required.

16.10 SUMMARY OF CUMULATIVE EFFECTS

- 16.10.1.1 The cumulative effects of impacts from the Proposed Development together with impacts from other planned projects or developments on the same resources and / or receptors are assessed in **Chapter 18, Cumulative Effects Assessment.**
- 16.10.1.2 The ES will summarise the conclusions of the Cumulative Effects Assessment (CEA) that are relevant to waste management.



16.11 SUMMARY AND CONCLUSIONS

16.11.1.1 This chapter has assessed the potential effects of the Proposed Development on waste management. Although some aspects of waste management were considered in the Consented Development application, no standalone waste assessment was included.

- 16.11.1.2 The changes to the Proposed Development from the Consented Development are not anticipated to materially impact the nature or volume of waste generated during construction. Therefore, this chapter focused on those aspects of waste management which were not assessed in other chapters through the Consented Development, i.e. potential effects on regional landfill capacity.
- 16.11.1.3 The largest volume of waste is anticipated to be generated during construction phase of the Proposed Development, including surplus soil and rock chippings from earthworks / excavations and borehole drilling.
- 16.11.1.4 The ES will estimate the likely waste volumes which will be generated as the design develops. However, the PEIR determines through effective employment of the principles set out in the Waste Hierarchy, including implementation of a CEMP during construction and an EMS during operation, waste volumes requiring landfill disposal are anticipated to be low.
- 16.11.1.5 A quantitative assessment against regional landfill capacity and annual tonnage sent to landfill will be undertaken in the ES once detailed design parameters are available.
- 16.11.1.6 Based on the currently available information, the significance of residual effects with respect to waste management have been assessed as **Not Significant**.



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