

The Drax Power (Generating Stations) Order

Land at, and in the vicinity of, Drax Power Station, near Selby, North Yorkshire

Environmental Statement 13 – Waste



The Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure)
Regulations 2009 – Regulation 5(2)(a)

Drax Power Limited

Drax Repower Project

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13 WASTE

13.1 Introduction

- 13.1.1. This Chapter reports the outcome of the assessment of likely significant effects arising from the Proposed Scheme upon waste. In particular, it considers the potential effects of the Site Reconfiguration Works and construction within the Power Station Site on waste.
- 13.1.2. The Chapter describes the assessment methodology, the baseline conditions at the Site and in the surrounding area, any primary and tertiary mitigation adopted for the purposes of the assessment, a summary of the likely significant effects taking into account national legislation and guidance, the further mitigation measures required to prevent, reduce or offset any significant negative effects, and the likely residual effects after these measures have been employed.
- 13.1.3. This Chapter is intended to be read as part of the wider ES, with particular reference to Chapter 5 (Transport), Chapter 6 (Air Quality), Chapter 7 (Noise and Vibration), Chapter 15 (Climate).

13.2 Policy, Legislation and Guidance

Policy

- 13.2.1. The applicable policy framework is summarised as follows:
- Overarching National Policy Statement for Energy (EN1) (Ref.13.1).
 - National Planning Policy Framework (Ref. 13.2).
 - National Planning Policy Framework (Ref. 13.3).
 - National Planning Policy for Waste (2014) (Ref. 13.4).
 - Waste Management Plan for England (2013) (Ref. 13.5).
 - Planning Practice Guidance (PPG 2015 Onwards) (Ref. 13.6).
 - Government Review of Waste Policy in England (2011) (Ref. 13.7)
 - Selby District Local Plan (2005) (Ref. 13.8).
 - Selby District Core Strategy Local Plan (2013) (Ref. 13.9).
 - North Yorkshire County Council, the City of York Council and North York Moors National Park Authority Minerals and Waste Joint Plan (2018) (Ref. 13.10)
 - Yorkshire and Humber Waste Position Statement (2016) (Ref. 13.11)
 - North Yorkshire Waste Local Plan (Adopted 2006) Saved Policies (Ref. 13.12)

The aforementioned policy is explained in more detail below:

Overarching National Policy Statement for Energy (EN-1)

- 13.2.2. Whilst National Policy Statements EN-2, EN-4 and EN-5 are relevant to the Proposed Scheme, National Policy Statement EN-1 (NPS EN-1) is the most relevant for waste. NPS EN-1 sets out national policy for certain energy infrastructure. It is the primary policy document, in combination with the relevant technology-specific NPSs (which in this case are EN-2, EN04 and EN-5), for energy NSIPs and the SoS must determine energy DCO applications in accordance with the energy NPSs.
- 13.2.3. With regards to waste management, NPS EN-1 states the following:

“The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a Site Waste Management Plan. The arrangements described and Management Plan should include information on the proposed waste recovery and disposal system for all waste generated by the development, and 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. The applicant 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.”

National Planning Policy Framework

13.2.4. The National Planning Policy Framework (NPPF) sets out the Government’s economic, environmental and social planning policies for England and provides a framework within which local people and councils can produce local and neighbourhood plans, and councils can determine planning applications. Most of the existing Planning Policy Statements (PPS) have now been abolished and replaced by 12 'core' planning principles in the NPPF. In relation to waste, the NPPF states that:

“This Framework does not contain specific waste policies, since national waste planning policy will be published as part of the National Waste Management Plan for England. However, local authorities preparing waste plans and taking decisions on waste applications should have regard to policies in this Framework so far as relevant.”

13.2.5. Further guidance is included in the Waste Management Plan for England (2013) as set out below.

Draft National Planning Policy Framework

13.2.6. The new draft National Planning Policy Framework was released for consultation of 5 March 2018 and incorporates policy proposals previously consulted on in the Housing White Paper and Planning for the right homes in the right places consultation.

13.2.7. The new draft framework consultation seeks views on additional policy proposals relating to bringing more land forward in the right places.

13.2.8. The deadline for any comments on the consultation is May 10 2018.

National Planning Policy for Waste (2014)

13.2.9. The National Planning Policy for Waste replaces ‘Planning Policy Statement 10: Planning for Sustainable Waste Management’ (PPS 10) and is to be considered alongside other national planning policy for England - such as in the NPPF and the Waste Management Plan for England. As its primary focus is on planning for waste management facilities by waste authorities, it is not considered relevant to the Proposed Scheme.

Waste Management Plan for England (2013)

13.2.10. The Waste Management Plan for England, published in December 2013, provides an analysis of the current waste management situation in England and fulfils the mandatory requirements of Article 28 of the revised Waste Framework Directive (European Commission, 2008) (WFD). The WFD required that member states ensure that their competent authorities, (in the UK Defra), establish one or more waste management plans covering all of their territory.

13.2.11. The Plan does not introduce new policies or change the landscape of how waste is managed in England. Its core aim is to bring current waste management policies under the umbrella of one national plan. It supersedes the previous waste management plan, the Waste Strategy for England 2007.

Planning Practice Guidance (PPG 2015 Onwards)

13.2.12. The PPG is an online planning resource that provides guidance on the NPPF. With regard to waste issues, the PPG provides further information in support of the implementation of waste planning policy, including the role of waste planning in meeting European obligations, preparing Local Plans and implementing the Waste Hierarchy.

Government Review of Waste Policy in England (2011)

13.2.13. This review conducted by government has been guided by the “waste hierarchy” which is both a guide to sustainable waste management and a legal requirement. The hierarchy gives top priority to waste prevention, followed by preparing for re-use, recycling, other types of recovery (including energy recovery), and last of all disposal (e.g. landfill).

13.2.14. The following extracts are of relevance to waste management specific to the Proposed Scheme:

“We will continue to assess our progress against a number of EU targets which are focussing action in specific areas. These are:

- *Waste Framework Directive target to recovery at least 70% of construction and demolition waste by 2020.*

We are now working closely with businesses to explore the potential for new responsibility deals in the sectors outlined below, covering products and materials identified as having high embedded carbon.

- *Construction Waste: The existing Halving Waste to Landfill Commitment is on track to meet its 2012 target. While keeping the momentum going, there will be a greater focus on waste reduction at the earlier design stages of construction projects as this is where the largest environmental and financial savings can be made. This will be part of the wider industry including support for the Sustainable Construction Task Group Action Plan.”*

Selby District Core Strategy (2013)

13.2.15. The Core Strategy provides a spatial vision for Selby District and sets strategic objectives to achieve that vision. With regards to waste management, the Core Strategy states the following:

“Policy SP18 Protecting and Enhancing the Environment

The high quality and local distinctiveness of the natural and manmade environment will be sustained by:

8. Ensuring developments minimise energy and water consumption, the use of non-renewable resources, and the amount of waste material.”

North Yorkshire County Council, the City of York Council and North York Moors National Park Authority Minerals and Waste Joint Plan (2018)

- 13.2.16. North Yorkshire County Council, the City of York Council and the North York Moors National Park Authority are producing a minerals and waste joint plan. This plan once finalised will set out new planning policies for minerals and waste developments across all three areas, guiding planning decisions up to 2030.
- 13.2.17. Adoption of the Plan was proposed for March 2018 however the Plan has not yet been adopted.

Yorkshire and Humber Waste Position Statement (2016)

- 13.2.18. This statement has been produced by all seventeen waste planning authorities in the Yorkshire and Humber area with the aim of helping to ensure appropriate co-ordination in planning for waste.

North Yorkshire Waste Local Plan (Adopted 2006) Saved Policies

- 13.2.19. The plan was due to expire on 17 May 2009. However, the government has issued a direction allowing some policies to be extended, or 'saved', until the policies being developed in the minerals and waste development framework supersede them.
- 13.2.20. The 'saved' policies will continue to form part of the statutory development plan and provide the local policy framework for development control decisions until they are replaced by ones in the North Yorkshire minerals and waste plan.
- 13.2.21. The following saved policies have reference to waste management at the Proposed Scheme:
- Chapter 4.1: Waste Management Proposals
 - Chapter 5: Reduction, Re-use, Recovery
 - Chapter 6.1: Landfill Proposals

Legislation

- 13.2.22. The applicable legislative framework is summarised as follows:
- Waste Management, The Duty of Care Code of Practice (2016 update) (Ref.13.8).
 - The Waste (England and Wales) Regulations 2011 (as amended) (Ref. 13.9).
 - Revised Waste Framework Directive (2008) (Ref.13.10).
 - Environmental Protection Act 1990 (Ref.13.11).

The aforementioned legislation is explained in more detail below.

Waste Management, The Duty of Care Code of Practice (2016 update)

- 13.2.23. This code of practice replaces the 1996 Code and was issued pursuant to Section 34(9) of the Environmental Protection Act 1990. It sets out practical guidance on how to meet waste duty of care requirements and is admissible as evidence in legal proceedings i.e. its rules will be taken into account where relevant in any case based on breach of the duty of care.

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

13.2.24. The Waste (England and Wales) Regulations 2011 implement the Waste Hierarchy in England and Wales. These regulations require that an establishment or undertaking that imports, produces, collects, transports, recovers or disposes of waste must take reasonable steps to apply the Waste Hierarchy when waste is transferred or disposed of.

Revised Waste Framework Directive (2008)

13.2.25. The revised Waste Framework Directive (rWFD) is a unique EU Directive because it clarifies the definition of 'waste' and of other concepts such as 'recycling' and 'recovery'. It implements a revised Waste Hierarchy, expands the 'polluter pays' principle by emphasising producer responsibility and applies more stringent waste reduction and waste management targets for member states. It also requires member states to take measures to promote high quality recycling and to set up separate collections of paper, plastic, metal and glass.

Environmental Protection Act 1990

13.2.26. Section 34 of the Environmental Protection Act 1990 imposes a duty of care as a legal requirement for those dealing with certain kinds of waste to take all reasonable steps to keep it safe.

Guidance

13.2.27. The following guidance documents have been used during the preparation of this Chapter:

Department for Environment Food and Rural Affairs (2011) Guidance on applying the Waste Hierarchy (Ref. 13.12).

The key principles associated with the aforementioned guidance document are as follows:

- Waste should be prevented or reduced at source as far as possible.
- Where waste cannot be prevented, waste materials or products should be reused directly or refurbished and then reused.
- Waste materials should be recycled or reprocessed into a form that allows them to be reclaimed as a secondary raw material.
- Where useful secondary materials cannot be reclaimed, the energy content of the waste should be recovered and used as a substitute for non-renewable energy resources.
- Only if waste cannot be prevented, reclaimed or recovered, should it be disposed of into the environment and this should only be undertaken in a controlled manner.

13.3 Scoping Opinion and Consultation

Consultation

13.3.1. No additional consultation activities to the consultation on the Scoping Report carried out by the Planning Inspectorate (in the adoption of the Scoping Opinion on behalf of the Secretary of State), and the provision of details of the PEIR to relevant statutory consultees carried out during the statutory consultation undertaken by the Applicant, have been undertaken in support of the preparation of this Chapter.

13.4 Scope of the Assessment

13.4.1. This section explains how the scope of the assessment has developed, and re-iterates the evidence base for insignificant effects (which have therefore been scoped out of the assessment), following further iterative assessment.

13.4.2. An EIA Scoping Report was submitted to the SoS in September 2017, as presented in Appendix 1.1.

A Scoping Opinion was received by the Applicant from the Planning Inspectorate (on behalf of the SoS) on 23 October 2017, including formal responses from statutory consultees. The responses from the Planning Inspectorate/SoS in relation to waste, and how those requirements should be addressed by the applicant (if appropriate), are set out below in Table 13 -1.

Table 13-1 - Scoping Opinion Summary Table (Waste)

Section	Applicants Proposed Matter	Planning Inspectorate's Comments	Summary of Response
7.9.2	Waste generation during operation	Taking into account the nature and characteristics of the Proposed Scheme, the Inspectorate agrees that this is unlikely to result in significant effects and is therefore content with the proposed approach.	No further action.
7.9.2	Waste generated during construction of the pipeline	Taking into account the nature and characteristics of the Proposed Scheme, the Inspectorate agrees that this is unlikely to result in significant effects and is therefore content with the proposed approach.	No further action.
7.9.2	Generation of hazardous waste	Taking into account the nature and characteristics of the Proposed Scheme, the Inspectorate agrees that this is unlikely to result in significant effects and is therefore content with the proposed approach.	No further action.
7.9.4	Assessment methodology	There is no specific guidance to be followed for the assessment. The ES should clearly describe and define levels of magnitude, sensitivity and significance of effects.	Noted. This ES chapter clearly describes and defines levels of magnitude, sensitivity and significance of effects.

Insignificant Effects

13.4.3. The following effects have been considered insignificant and have therefore not been considered, or have been assessed elsewhere, within the ES:

- It is not envisaged that significant levels of waste will be generated during the Proposed Scheme's operational life. Therefore, there will not be significant effects relating to operational waste and this will not be considered further. This is agreed with the SoS in the Scoping Opinion.
- The construction of the Gas Pipeline, Gas Receiving Facility (GRF) and Above Ground Installation (AGI) does not require the demolition of any above ground features. In addition, excavated soil generated during construction of the Gas Pipeline is to be retained and reinstated following construction of the Gas Pipeline. As such, there will not be significant effects relating to the construction of the Gas Pipeline, GRF or AGI and these works will not be considered further. This is agreed with the SoS in the Scoping Opinion.
- It is not envisaged that significant levels of hazardous waste will be generated during the demolition, construction operational and decommissioning phases of the Proposed Scheme. Therefore, there will not be significant effects relating to hazardous waste and this will not be considered further. This is agreed with the SoS in the Scoping Opinion.
- The increases in traffic, dust, noise and visual intrusion associated with the transportation of construction materials to the Site and the transportation of demolition (where necessary) and construction waste to waste treatment and disposal facilities will be assessed appropriately within Chapter 5 (Traffic and Transport); Chapter 6 (Noise and Vibration); Chapter 7 (Air Quality) and Chapter 10 (Landscape and Visual) and therefore there is no need for a duplicate assessment.
- It is understood that there are some areas of 'made ground' which, prior to intrusive surveys being undertaken, have the potential for contamination. This will be assessed appropriately within Chapter 13 (Ground Conditions). The extent of earthworks is considered to be limited to excavation for foundations as demolition does not include below ground works. It is assumed that all hazardous waste will be handled by an appropriate licensed contractor and in line with relevant legislation and guidance (see Chapter 13 (Ground Conditions)). As such, generation of hazardous waste will not be considered further within this Chapter of the ES. This is agreed with the SoS in the Scoping Opinion.

Potentially Significant Effects

Construction Phase

13.4.4. The following effects are considered in the ES:

- Increase in waste generation from the Site Reconfiguration Works / Stage 0 (i.e. demolition activity).
- Increase in waste generation from construction materials from Stages 1 and 2 and increase in demand for local waste treatment and disposal facilities.

13.5 Assessment Methodology and Significance Criteria

Scenarios Assessed

13.5.1. The assessment conducted within this Chapter is based on the following assumptions:

- In terms of the assessment scenarios (set out in Chapter 3 (Site and Project Description) to the ES), this assessment assumes:
 - a) There are limited differences in effects associated with the current and future baseline scenarios.

- b) There are limited differences in effects associated with the air quality mitigation.
- c) There are limited differences in effects associated with the electrical connection scenarios.
- This Chapter will assess the effects of:
 - Stage 0 / Site Reconfiguration Works.
 - Stage 1 - in relation to the construction of all works associated with Unit X within the Power Station Site including the battery storage building and the Electrical Connection (not the Gas Pipeline, GRF and AGI).
 - Stage 2 – in relation to the construction of all works associated with Unit Y within the Power Station Site (not the operation of Unit X, the Gas Pipeline, GRF and AGI).
 - Decommissioning - The specific quantities and types of decommissioning and demolition material have not been determined at this stage, as a decommissioning and demolition strategy will only be commissioned at the point of decommissioning in 25 years' time from point of operation. Therefore, it is not possible to generate an estimate of waste arising from the decommissioning phase of the Proposed Scheme. It would not be possible to predict the likely effects based on a realistic worst case assumption. Such an assumption could be that the effects will be no worse than construction waste; this assumption however would not be possible as construction waste and decommissioning waste are completely separate waste streams i.e. construction waste will comprise packaging material, off-cuts and damaged materials etc., whereas decommissioning waste will include whole structures, buildings and plant.
 - It is assumed that all uncontaminated excavated material on-site will be used to meet any fill requirements and would therefore not be sent for disposal off-site. This is best practice in terms of the Waste Hierarchy. The Applicant has confirmed that there is sufficient capacity to do this on-site. It is understood that there are some areas of 'made ground' which, prior to intrusive surveys being undertaken, have the potential for contamination. This will be assessed appropriately within Chapter 13 (Ground Conditions) and therefore there is no need for a duplicate assessment.

Embedded Mitigation

13.5.2. A Site Waste Management Plan (SWMP) will be produced as part of the CEMP; all of the below measures will form part of the SWMP:

- Adherence to the Waste Hierarchy by reusing and/or recycling waste materials in order to reduce the significance of the effect on waste treatment and disposal facilities. It is likely that the key waste streams generated by the construction phase of the Proposed Scheme within the Power Station Site that have the potential to be reused/recycled will predominantly comprise soils, concrete, bricks, metal, glass, plastic and timber.
- The implementation of a programme of realistic waste management targets and subsequent monitoring arrangements at an early stage during the construction phase. This will assist in reducing the amount of waste disposed off-site and ensure the system of waste minimisation, reuse and recycling is effective. The programme will focus on:
 - a) Quantifying raw material wastage.
 - b) Quantifying the generation of each waste stream.
 - c) Implementing any identifiable improvements in working practices.
 - d) Methods by which the waste streams are being handled and stored.

- e) The available waste disposal routes used, e.g. landfill, waste transfer stations.
- The principal contractor will be responsible for setting and reviewing waste targets from the outset to ensure that high standards are maintained with the emphasis being on continual improvement.
- Good practice measures in terms of on-site storage will be implemented to assist in reducing unnecessary wastage of material and ensure that high standards are maintained throughout the development process.
- All construction works will be undertaken in accordance with the Considerate Constructors Scheme. This is a national initiative set up by the construction industry. Sites that register with the scheme sign up to and are monitored against a Code of Considerate Practice designed to encourage best practice beyond statutory requirements. The scheme is concerned about any area of construction activity that may have a direct or indirect effect on the image of the industry as a whole. The main areas of concern fall into three main categories: the environment, the workforce and the general public. Waste management is a key area of focus and on-site considerations may include:
 - a) How waste is avoided, reduced, reused and/or recycled.
 - b) Whether there is a Waste Management Plan/Strategy and how this is monitored.
 - c) The type of feedback received (if any) as to how much waste on-site is diverted from landfill.
- As part of the encouragement of on-site best practice, the Applicant will ensure that suppliers for the construction phase of the Proposed Scheme are committed to reducing surplus packaging associated with the supply of any raw materials. This includes the reduction of plastics (i.e. shrink wrap and bubble wrap), cardboard and wooden pallets. This may involve improved procurement and consultation with selected suppliers regarding commitments to waste minimisation, recycling and the emphasis on continual improvement in environmental performance. Where practicable, the off-site manufacture/pre-fabrication of building components will be undertaken to help minimise the generation of on-site construction waste.
- Where practicable, waste streams that have the potential to be reused on-site or transported off-site for recycling will be segregated. Although every effort will be made to retain all suitable materials on-site, it is possible that some of these materials cannot be reused or recycled during the construction of the Proposed Scheme. In these situations, the site manager will work to identify suitably licensed waste facilities in order for material to be redistributed to other suitable sites. This represents the most sustainable alternative to landfill disposal.
- During the construction phase of the Proposed Scheme, the contractors will regularly review waste generation estimates, taking into account any changes in legislation, the available waste management facilities' capacity and any advancement in waste treatment technologies.

13.5.3. Best practice measures and recommendations for the minimisation and management of waste will be incorporated into the Construction Environmental Management Plan (CEMP). The draft CEMP will be secured through a requirement contained in Schedule 2 to the draft DCO (Document Ref 6.5) submitted with the DCO Application.

Extent of the Study Area

13.5.4. The study area for waste generation comprises of the Power Station Site. The study area for the waste management effects includes the wider area of the East Riding of Yorkshire and Yorkshire and the Humber region, where it is anticipated the treatment and / or disposal of the majority of waste from the Proposed Scheme would take place. The Yorkshire and Humber region comprises South Yorkshire, West Yorkshire, the East Riding of Yorkshire, Hull, North Yorkshire and the City of York, alongside North Lincolnshire and North East Lincolnshire.

Method of Baseline Data Collation

13.5.5. In order to establish the baseline waste generation rate for the study area, a desk-top study has been undertaken using the following sources of information:

- Yorkshire and Humber Waste Planning Authorities, Yorkshire and Humber Waste Position Statement 2016.
- North Yorkshire Sub Region, Waste Arisings and Capacity Requirements 2016.

13.5.6. For the purpose of this assessment, no site visit was required.

Assessment Methodology

13.5.7. Waste generation effects are assessed by:

- Estimating the quantities of waste that will be generated. Quantities of waste which will be generated from construction within the Power Station Site have been primarily calculated through the use of applicable benchmarking data from Building Research Establishment (BRE) Waste Benchmarking Data (2012).
- For each category of waste identified, the likely waste arisings from construction within the Power Station Site have been compared to the sensitivity and magnitude criteria as set out below.

Significance Criteria

13.5.8. The assessment of potential effects as a result of the Proposed Scheme has taken into account the construction phases within the Power Station Site. The significance level attributed to each effect has been assessed based on the magnitude of change due to the construction of the Proposed Scheme within the Power Station Site and the sensitivity of the affected receptor/receiving environment to change (how significant the volume of waste requiring management is estimated to be and the presence of suitable local waste treatment and disposal facilities).

13.5.9. The current capacity of waste treatment and disposal facilities is commercially sensitive information and therefore not publicly available on the Environment Agency's registers. For the purposes of the assessment, we have assumed the criteria set out in section 1.5.9. This criteria is based on previous experience and professional judgement. The magnitude of change from the Proposed Scheme is dependent on the extent of the effect, and would take into account the volumes of waste arising generated, the nature of the material, (e.g. whether it is hazardous, non-hazardous or inert), the ease of handling and the implications for treatment and disposal (e.g. whether facilities are easily available or whether treatment or disposal capacity is restricted).

13.5.10. The criteria for assessing the sensitivity of local waste treatment and disposal facilities will be as follows:

- High: The waste generated comprises large volumes of hazardous, non-hazardous or inert waste and local waste facilities are severely restricted (i.e. there are less than three facilities in the study area).
- Medium: The waste generated comprises medium volumes of hazardous, non-hazardous or inert waste and local waste facilities are restricted (i.e. there are less than 10 facilities in the study area).
- Low: The waste generated comprises small volumes of hazardous waste, or medium volumes of non-hazardous waste or inert waste and local waste facilities are less restricted (i.e. there are more than 10 facilities but less than 20 facilities in the study area).
- Negligible: The waste generated comprises no or negligible volumes of hazardous waste, or minor volumes of non-hazardous or inert waste and local waste facilities are unrestricted (i.e. there are more than 20 facilities in the study area).

13.5.11. The magnitude of change to local waste facilities will be assessed according to the following criteria:

- Large: The Proposed Scheme generates more than 50,000 tonnes of waste per annum.
- Medium: The Proposed Scheme generates more than 5,000 tonnes but less than 50,000 tonnes of waste per annum.
- Small: The Proposed Scheme generates more than 500 tonnes but less than 5,000 tonnes of waste per annum.
- Negligible: The Proposed Scheme generates less than 500 tonnes of waste per annum.

Effect Significance

13.5.12. The following terms have been used to define the significance of the effects identified:

- Major effect: where the Proposed Scheme could be expected to have a considerable effect (either positive or negative) on the capacity of local waste treatment and disposal facilities.
- Moderate effect: where the Proposed Scheme could be expected to have a noticeable effect (either positive or negative) on the capacity of local waste treatment and disposal facilities.
- Minor effect: where the Proposed Scheme could be expected to result in a small, barely noticeable effect (either positive or negative) on the capacity of local waste treatment and disposal facilities.
- Negligible: where no discernible effect is expected as a result of the Proposed Scheme on the capacity of local waste treatment and disposal facilities.

13.5.13. Effects categorised as significant will be categorised major or moderate, insignificant effects will be categorised as minor or negligible.

13.5.14. Table 13-2 illustrates the matrix used for determining significance of effects.

Table 13-2 - Significance of Effects Matrix (Waste)

		Sensitivity of Receptor to Impact			
		High	Medium	Low	Negligible
Magnitude of Impact	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

13.6 Baseline Conditions

Current Baseline

- 13.6.1. Table 13-3 details the estimated quantities of Construction, Demolition and Excavation (CD&E) waste generated in the North Yorkshire region with various growth scenarios applied. These estimates are sourced from the North Yorkshire Sub Region Waste Arisings and Capacity Requirements report (Ref. 13.13); figures within this report are based on best available data sources which include the Waste Data Interrogator (WDI) and Hazardous Waste Data Interrogator (HWDI), the latest available data being for 2014.

Table 13-3 - CD&E Waste Arising Estimates (tonnes per annum)

Waste Type	Growth Scenario	Quantity 2016	Quantity 2020	Quantity 2025	Quantity 2030
CD&E	No Growth	820,705	820,705	820,705	820,705
	Growth	837,201	871,196	897,639	920,306
	Minimised Growth	820,705	820,705	820,705	820,705

- 13.6.2. Table 13-4 shows the number of strategic waste facilities by local authority area.

Table 13-4 - Current Strategic Waste Facilities

Local Authority District	Waste Facilities ¹
Barnsley	-
Bradford	1
Calderdale	-

¹ Waste Facilities include inert and excavation waste transfer stations with treatment facilities with the benefit of an EA permit capacity in excess of 75,000 tonnes per annum.

Local Authority District	Waste Facilities ¹
Doncaster	1
East Riding of Yorkshire	2
Kingston upon Hull	1
Kirklees	-
Leeds	1
North East Lincolnshire	1
North Lincolnshire	-
North Yorkshire	1
Rotherham	-
Sheffield	-
Wakefield	-
Total	8

13.6.3. There are also a number of landfill facilities within the study area for waste management facilities which had a remaining capacity in excess of 1 million cubic metres at the end of 2014. Restricted facilities or sites accepting only inert waste (i.e. construction waste) have not been included; it is, however, important to note the landfill facilities included are non-hazardous and co-disposal landfill sites which will likely receive demolition and construction wastes. Table 13-5 provides a summary, divided by sub-region within the study area.

Table 13-5 - Landfill facilities within study area with capacity in excess of 1 Million cu.m

Sub-region	Landfill Facilities
Humber	8
North Yorkshire	2
South Yorkshire	5
West Yorkshire	5
Total	20

Future Baseline

13.6.4. The future baseline as defined in Chapter 3 (Site and Project Description) is likely to be no different to the current baseline outlined above. The future baseline scenario does not change impact waste generation baseline, therefore this has not been considered separately in this assessment.

13.7 Assessment of Likely Significant Impacts and Effects

Stage 0 – Site Reconfiguration Works

13.7.1. A number of buildings and structures will be demolished as part of the Site Reconfiguration Works. These are illustrated in Figure 3.4 with a description of each provided in Table 13-6.

Table 13-6 - Number of buildings and structures that will be demolished as part of the Site Reconfiguration Works

ID	Description
1	Contractors' (Doosan) compound – steel-framed sheds and modular office buildings
2	Turbine Outage Store – steel-framed and clad building (18 m high)
3	Learning / Visitors Centre and hard standing car park (18 m high)
4	Contractors compound - range of contractors' portable cabins used for offices, storage and mess rooms. Brick built single storey welfare facility to the north of the compound. Hard standing over entire area (2.5-5 m high depending upon single or double stacked)
5	Car park – hard standing
6	Contractors compound – steel framed work sheds and modular office buildings (2.5-5 m high)
7	Modular buildings, 1 st storey welfare (canteen) facilities, 2 nd storey offices - brick built single storey washroom facilities (approximately 5 m high)
8	Sludge lagoons (approximately 3 m deep below ground)
9	Riggers Store and Drawing Archive - steel-framed and cladding (approximately 3 m high to apex of roof)

13.7.2. Waste will be generated from the demolition of the above buildings and structures. The specific quantities and types of demolition material have not been determined at this stage, as a pre-demolition audit will not be carried out until the buildings are unoccupied.

13.7.3. Therefore, for the purposes of this assessment it has been assumed that the intention is to reuse as much clean excavated material onsite as possible (earthworks only, excluding demolition waste). There will be sufficient capacity on the Site to reuse clean excavated material therefore the volume of material that will require removal from the Site is not expected to be significant.

13.7.4. Calculations of excavated material generation from the Proposed Scheme have not yet been undertaken; therefore, it is not possible to generate a quantitative assessment of the effects of waste from earthworks at this stage. However, based on the assumption in 13.7.3 as provided by the applicant, the volume of excavated materials (earthworks only) required to be removed from site is expected to be minimal and subsequently the effects are not likely to be significant.

Stage 1 – Construction of Unit X, battery storage building and electrical connection

13.7.5. The BRE has developed indicators to aid in the calculation of construction waste arising at the design stage of a variety of development types. These indicators do not include

demolition, excavation or groundworks waste, however, the Environmental Performance Indicators (EPIs) measure the tonnes of construction waste per 100 m² of Gross Internal Area (GIA) floor space. These are outlined in Table 13-7.

Table 13-7 - BRE EPI's

Project Type	Average Tonnes / 100 m ²
Residential	16.8
Public Buildings	22.4
Leisure	21.6
Industrial Buildings	12.6
Healthcare	12.0
Education	23.3
Commercial Offices	23.8
Commercial Retail	27.5
Commercial Other	7.0

- 13.7.6. The benchmark for 'Industrial Buildings', which is applicable to the Proposed Scheme, has been used to measure construction waste generation and relates to rates where no minimisation, reuse or recycling of materials has taken place. This will provide the baseline figure against which a reduction in waste arising would then be planned.
- 13.7.7. Table 13-8 shows the estimated construction waste arising for Unit X and the battery storage building, based on the indicative floor areas of the buildings and the relevant EPI from the BRE. The Electrical Connection is excluded from these figures.

Table 13-8 - Estimated construction waste arising – Unit X

Description	Total Proposed Construction Area (m ²)	Tonnes per 100m ²	Construction Waste Arising (tonnes)
Unit X	21,567	12.6	2,717
Battery storage facility building	10,800		1,361
Total	32,367	-	4,078

- 13.7.8. Works (expected to be 34 months), this equates to an average of approximately 1,439 tonnes per year, although this is likely to vary significantly according to the construction programme and phasing.
- 13.7.9. The sensitivity of the local waste treatment and disposal facilities is negligible as the waste generated comprises none or negligible volumes of hazardous waste, or minor volumes of

non-hazardous or inert waste and local waste facilities are unrestricted (i.e. there are more than 20 facilities in the study area). The magnitude of change prior to mitigation is small, as the Proposed Scheme would generate more than 500 tonnes but less than 5,000 tonnes of waste per annum. Therefore, there is likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of negligible significance.

Stage 2 – Operation of Unit X and Construction of Unit Y (including installing the battery facility for Unit Y into the already constructed battery storage building)

13.7.10. Operational waste has been scoped out the assessment therefore waste from the operation of Unit X has not been assessed within this section.

13.7.11. Table 13-9 shows the estimated construction waste arising for Unit Y, based on the indicative floor areas of the buildings and the relevant EPI from the BRE. These figures do not include the Electrical Connection.

Table 13-9 - Estimated construction waste arising – Unit Y

Description	Total Proposed Construction Area (m ²)	Tonnes per 100m ²	Construction Waste Arising (tonnes)
Unit Y	26,135	12.6	3,293
Total	26,135	-	3,293

13.7.12. It is estimated that approximately 3,293 tonnes of construction waste will be generated from Unit Y. Over the duration of the construction works (expected to be 34 months), this equates to an average of approximately 1,162 tonnes per year, although this is likely to vary significantly according to the construction programme and phasing.

13.7.13. The sensitivity of the local waste treatment and disposal facilities is negligible as the waste generated comprises none or negligible volumes of hazardous waste, or minor volumes of non-hazardous or inert waste and local waste facilities are unrestricted (i.e. there are more than 20 facilities in the study area). The magnitude of change prior to mitigation is small, as the Proposed Scheme would generate more than 500 tonnes but less than 5,000 tonnes of waste per annum. Therefore, there is likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of negligible significance.

13.7.14. Table 13-10 shows the combined estimated construction waste arising for the battery storage facilities, Unit X and Unit Y, based on the indicative floor areas of the buildings and the relevant EPI from the BRE. This covers the eventuality of Unit Y being constructed in addition to the battery storage facility and Unit X and provides a worst case scenario.

Table 13-10 - Estimated construction waste arising – Units X and Y and the battery storage facility combined

Description	Total Proposed Construction Area (m ²)	Tonnes per 100m ²	Construction Waste Arising (tonnes)
Unit X and Y	47,702		6,010
Battery storage building to house both batteries for Unit X and Unit Y	10,800	12.6	1,361
Total	58,502	-	7,371

13.7.15. It is estimated that approximately 7,371 tonnes of construction waste will be generated from Units X and Y and the battery storage facility. Over the duration of the construction works (expected to be two periods of 34 months with a 12 month period in between), this equates to an average of approximately 1,897 tonnes per year, although this is likely to vary significantly according to the construction programme and phasing.

13.7.16. The sensitivity of the local waste treatment and disposal facilities is negligible as the waste generated comprises none or negligible volumes of hazardous waste, or minor volumes of non-hazardous or inert waste and local waste facilities are unrestricted (i.e. there are more than 20 facilities in the study area). The magnitude of change prior to mitigation is small, as the Proposed Scheme would generate more than 500 tonnes but less than 5,000 tonnes of waste per annum. Therefore, there is likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of negligible significance.

Stage 3 – Operation of Units X and Y

13.7.17. Operational waste has been scoped out of the assessment, therefore waste from the operation of Unit X and Unit Y has not been assessed within this section.

Decommissioning

13.7.18. The specific quantities and types of decommissioning and demolition material have not been determined at this stage, as a decommissioning and demolition strategy will only be commissioned at the point of decommissioning in 25 years' time from point of operation. Therefore, it is not possible to generate an estimate of waste arising from the decommissioning phase of the Proposed Scheme. It would not be possible to predict the likely effects based on a realistic worst case assumption. Such an assumption could be that the effects will be no worse than construction waste; this assumption however would not be possible as construction waste and decommissioning waste are completely separate waste streams i.e. construction waste will comprise packaging material, off-cuts and damaged materials etc., whereas decommissioning waste will include whole structures, buildings and plant.

13.7.19. A decommissioning and demolition strategy will optimise the recovery of machinery and plant. This strategy will be part of the decommissioning environmental management plan, the approval and implementation of which is proposed to be secured by a requirement in Schedule 2 to the draft DCO (Document Reference 3.1).

13.7.20. Any demolition required as part of the decommissioning phase will likely take place by reducing the buildings' and structures' heights from the top down. It is most likely that the demolition works will be carried out in the following sequence, comprising:

- Removal of any Asbestos Containing Material (ACM) and other hazardous materials from the area, if applicable.
- Soft strip.
- Demolition of structures.
- Removal of ground slabs.

13.7.21. It is assumed that materials will be segregated into waste streams such as metals, timber and hardcore. The separated materials will be loaded as required for off-site recycling or disposal.

13.7.22. It is assumed that demolition arisings will be crushed on-site where possible and stored in central stock piles for use in the construction process at nearby developments where practicable.

13.8 Mitigation and Enhancement Measures

13.8.1. As there is only likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of **minor negative significance**, no secondary mitigation would be required.

13.9 Residual Effects

Stage 0 – Reconfiguration Works

13.9.1. As no secondary mitigation will be required, the residual effect will be as assessed in section 13.7 above, and is therefore likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of negligible significance.

Stage 1 – Construction of Unit X and battery storage

13.9.2. As no secondary mitigation will be required, the residual effect will be as assessed in section 13.7 above, and is therefore likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of negligible significance.

Stage 2 – Operation of Unit X and Construction of Unit Y

13.9.3. Operational waste has not been assessed within the Chapter.

13.9.4. As no secondary mitigation will be required, the residual effect of the construction of Unit Y will be as assessed in section 1.6 above, and is therefore likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of negligible significance.

Stage 3 – Operation of Units X and Y

13.9.5. Operational waste has not been assessed within the Chapter.

Decommissioning

13.9.6. Decommissioning and demolition material/waste has not been assessed within this Chapter.

13.10 Limitations and Assumptions

13.10.1. Information regarding current waste facilities within the study area has been obtained from third party sources.

13.10.2. In the absence of detailed design information/demolitions audits the calculations conducted within this Chapter are based on relevant publicly available benchmarks.

13.10.3. It is not possible to generate a quantitative assessment of the effects of waste from earthworks at this stage as calculations of excavated material generation from the Proposed Scheme have not yet been undertaken. However, based on the assumption in 13.7.3 as provided by the applicant, the volume of excavated materials (earthworks only) required to be removed from site is expected to be minimal and subsequently the effects are not likely to be significant. .

13.11 Summary

Table 13-11 - Summary of Effects Table for Waste

Description of Effects	Receptor	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual)
Stage 0 – Reconfiguration Works				
Effect of the generation of waste materials from during reconfiguration works.	Local waste treatment and disposal facilities	D, P, LT, -	As there is only likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of minor negative significance, no secondary mitigation would be required.	N/A
Stage 1 – Construction of Unit X				
Effect of the generation of waste materials from during construction of Unit X works.	Local waste treatment and disposal facilities	D, P, LT, -	As there is only likely to be a direct, permanent, long-term effect on local waste treatment and disposal facilities of minor negative significance, no secondary mitigation would be required.	N/A
Stage 2 – Operation of Unit X and Construction of Unit Y				
Effect of the generation of	Local waste treatment and disposal facilities	D, P, LT, -	As there is only likely to be a direct, permanent,	N/A

Description of Effects	Receptor	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual)
waste materials from during construction of Unit Y.			long-term effect on local waste treatment and disposal facilities of minor negative significance, no secondary mitigation would be required.	
Stage 3 – Operation of Units X and Y				
N/A as operational waste has been scoped out of this assessment.	N/A as operational waste has been scoped out of this assessment.	N/A as operational waste has been scoped out of this assessment.	N/A as operational waste has been scoped out of this assessment.	N/A as operational waste has been scoped out of this assessment.
Decommissioning				
N/A as decommissioning waste has not been assessed within this Chapter.	N/A as decommissioning waste has not been assessed within this Chapter.	N/A as decommissioning waste has not been assessed within this Chapter.	N/A as decommissioning waste has not been assessed within this Chapter.	N/A as decommissioning waste has not been assessed within this Chapter.

NB: Aspects of the proposed scheme considered as part of the pre-mitigation scenario are summarised above in Section 1.6, and within Chapter X: Summary of Environmental Statement.

Key to table: + / - = Positive or Negative P / T = Permanent or Temporary, D / I = Direct or Indirect, ST / MT / LT = Short Term, Medium Term or Long Term N/A = Not Applicable

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