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TABLES

17.0 WASTE MANAGEMENT

17.1 Introduction

17.1.1 This chapter of the Environmental Statement (ES) addresses the potential effects of the Proposed Development near Eggborough, North Yorkshire on waste management.

17.1.2 The scope of the waste management assessment comprises hazardous and non-hazardous waste generated during the construction and operation phases only. Assessment of waste associated with the decommissioning of the Proposed Development (in 2047 or later) has been scoped out of the assessment because of the number of uncertainties including changes in waste policies and facilities between now and 2047.

17.1.3 The demolition of the existing coal-fired power station is separate to, and does not form part of the Proposed Development. However, given the potential for overlap in timescales, and because both projects are within the control of Eggborough Power Limited (EPL) (the Applicant), the waste effects arising from both projects are considered in this assessment.

17.2 Legislation and Planning Policy Context

National Legislation and Policy

Government Review of Waste Policy

17.2.2 The most recently published national waste strategy is the Government Review of Waste Policy 2011 (Department for Environment and Rural Affairs (Defra), 2011). The Government's principal commitments set out in this review include:

- prioritising efforts to manage waste in line with the waste hierarchy and reduce the carbon impact of waste;
- developing a range of measures to encourage waste prevention and reuse, supporting greater resource efficiency;
- developing voluntary approaches to cutting waste, increase recycling, and improve the overall quality of recyclate material, working closely with business sectors and the waste and material resources industry;
- consulting on the case for higher packaging recovery targets for some key materials;
- supporting energy from waste where appropriate, and for waste which cannot be recycled;
- working to overcome the barriers to increasing the energy from waste which Anaerobic Digestion (AD) provides, as set out in the new AD strategy; and
- consulting on restricting wood waste from landfill and review the case for restrictions on sending other materials to landfill.

Waste Management Plan for England

17.2.3 The Waste Management Plan for England (Defra, 2013a) (the Plan) is a high level document which is non-site specific. It draws on the Government Review of Waste Policy (Defra, 2011) and provides an analysis of the current waste management situation in England, evaluating how it will support implementation of the objectives and provisions of the revised Waste Framework Directive (European Commission, 2008) (the Directive) as transposed in to UK

legislation by way of the Waste (England and Wales) Regulations 2011 (as amended) (the 2011 Regulations).

17.2.4 This Plan sets out an overview of waste management in England to fulfil the revised Waste Framework Directive Article 28 mandatory requirements, and other required content as set out in Schedule 1 to the 2011 Regulations. The Plan, in conjunction with the Government Review of Waste Policy (Defra, 2011) , the National Planning Policy for Waste (Department for Communities and Local Government (DCLG), 2014) meets the requirements of the Directive by providing:

- an analysis of the current waste management situation and the measures being taken to deliver the hierarchy of re-use, recycling, recovery and disposal of waste including an evaluation of how the plan will support the implementation of the objectives and provisions of the Directive;
- an analysis of the type, quantity and source of waste generated and the waste likely to be shipped from or to England along with an evaluation of the development of waste streams in the future;
- an overview of existing waste collection schemes and waste disposal and recovery installations, including any special arrangements for waste oils, hazardous waste or waste streams addressed by specific European Community legislation;
- an assessment of the need for new collection schemes, the closure of existing waste installations and the need for additional waste installation infrastructure in accordance with Article 16 (on the proximity principle) of the Directive, and, if necessary, the investments related thereto;
- sufficient information on the location criteria for site identification and on the capacity of future disposal or major recovery installations, if necessary; and
- general waste management policies, including planned waste management technologies and methods, or policies for waste posing specific management problems.

National Planning Policy for Waste

17.2.5 The National Planning Policy for Waste sets out the Government's ambition to work towards a more sustainable and efficient approach to resource use and management. Positive planning plays a pivotal role in delivering this country's waste ambitions through:

- delivery of sustainable development and resource efficiency, including provision of modern infrastructure, local employment opportunities and wider climate change benefits, by driving waste management up the waste hierarchy;
- ensuring that waste management is considered alongside other spatial planning concerns, such as housing and transport, recognising the positive contribution that waste management can make to the development of sustainable communities;
- providing a framework in which communities and businesses are engaged with and take more responsibility for their own waste, including by enabling waste to be disposed of or, in the case of mixed municipal waste from households, recovered, in line with the proximity principle;
- helping to secure the re-use, recovery or disposal of waste without endangering human health and without harming the environment; and
- ensuring the design and layout of new residential and commercial development and other infrastructure (such as safe and reliable transport links) complements sustainable waste

management, including the provision of appropriate storage and segregation facilities to facilitate high quality collections of waste.

17.2.6 This National Planning Policy for Waste sets out detailed waste planning policies. It should be read in conjunction with the National Planning Policy Framework (DCLG, 2012), the Waste Management Plan for England (Defra, 2013a) and National Policy Statements for Waste Water (Defra, 2012) and Hazardous Waste (Defra, 2013b), or any successor documents. All local planning authorities should have regard to its policies when discharging their responsibilities to the extent that they are appropriate to waste management.

Site Waste Management Regulations 2008

17.2.7 The Site Waste Management Plan Regulations 2008 (enacting Clause 54 of the Clean Neighbourhoods and Environment Act 2005) were revoked in December 2013. However, the main requirements of these Regulations which govern the management of construction waste are still considered best practice measure and many developers still prepare a Site Waste Management Plan (SWMP) to act as a guide to project / construction personnel on how to manage all types of waste, in accordance with best practice requirements.

17.2.8 A framework SWMP has been prepared as part of the framework Construction Environmental Management Plan (CEMP) which accompanies this ES (Appendix 5A – ES Volume III). Once appointed, the Principal Contractor will update this framework SWMP and CEMP appropriately throughout the duration of the construction phase in accordance with draft DCO Requirements contained in Schedule 2 to the draft DCO (Application Document Ref. 2.1) and both Eggborough Power Limited (EPL) (the Applicant) and the Principal Contractor will ensure that:

- all waste from the site is dealt with in accordance with the waste duty of care in Section 34 of the Environmental Protection Act 1990 (the Duty) and the 2011 Regulations; and
- materials will be handled efficiently and waste managed appropriately.

17.2.9 The key benefits of having a SWMP for the Principal Contractor and their sub-contractors include:

- providing a structured and forward thinking approach to waste management on site;
- assisting with compliance of internal quality and environmental management systems and associated performance targets;
- providing greater control of regulatory risks relating to virgin materials, waste storage, handling and disposal at a site level;
- providing greater transparency with interested parties including Local Authorities and the Environment Agency;
- identifying savings through improved resource efficiency, ordering, materials storage & handling to eliminate waste at source; and
- enhancing waste storage and segregation practices to facilitate higher recycling and recovery potential on site.

The 2011 Regulations

17.2.10 The Duty of Care related to waste management as directed by the Regulations 2011 state that anyone in possession of waste must:

- prevent illegal disposal, treatment or storage of waste;
- prevent the escape of wastes;
- ensure transfer of waste to an authorised person;
- provide an accurate written description of the waste in order to facilitate the compliance of others with the Duty and avoidance of the offences under Section 34 of the Environmental Protection Act 1990 via a compulsory system of Waste Information in respect of the transfer of controlled waste; and
- all those subject to the Duty should confirm conformance by others 'in the chain' to the requirements of the Duty to an extent which is 'reasonable in the circumstances', and all breaches of the Duty should be reported to the Environment Agency.

17.2.11 The 2011 Regulations also:

- require businesses to confirm that they have applied the waste management hierarchy when transferring waste and to include a declaration on their Waste Transfer Note or consignment note;
- requires businesses undertaking waste management activities such as import, production, collection, transportation, recovery and/ or disposal to take all reasonable measures to apply the following waste hierarchy –
    - prevention,
    - preparation for reuse,
    - recycling,
    - other recovery such as energy recovery,
    - and finally, disposal;
- 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;
- exclude some categories of waste from waste controls, notably animal by-products whilst including a small number of radioactive waste materials; and
- require that local authorities who collect waste paper, metal, plastic or glass arrange to collect these waste streams separately.

Local Policy

North Yorkshire County Council, the City of York Council and North York Moors National Park Authority Minerals and Waste Joint Plan (draft plan published November 2016)

17.2.12 North Yorkshire County Council is the waste disposal authority for the Site. North Yorkshire County Council, City of York Council and the North York Moors National Park Authority are producing a minerals and waste joint plan which will cover the period up to 31 December 2030. Work on the minerals and waste joint plan started in May 2013.

17.2.13 The Publication Draft Plan represents the outcome of an extensive consultation process and was published in November 2016. Following a further statutory six week period in which

representations can be made on matters of soundness and legal compliance with relevant legislation, it will be submitted, along with any proposed changes and other submission documents, for examination in public by an independent planning inspector. The current timetable anticipates that the Plan will be adopted in November 2017.

17.2.14 It is a statutory requirement for plans to be founded on robust and credible evidence. There is also a need to ensure that evidence gathering is proportionate and targeted at the issues to be addressed. An extensive evidence base of documents has been prepared and published by the Authorities, including estimates of waste arisings and capacity requirements.

17.2.15 The evidence base includes an assessment of likely future arisings to 31st December 2030 in relation to local authority collected waste, commercial and industrial waste, construction, demolition and excavation waste, hazardous waste, agricultural waste, local level non-nuclear industry radioactive waste and waste water / sewage sludge. These projections are set within the context of varying growth scenarios. The work was updated in 2016.

17.2.16 With respect to waste generation from non-waste developments, the following policy applies:

"Policy D11: Sustainable design, construction and operation of development

…

Part 2)

Proposals for new built development should demonstrate how the development would be designed, constructed and operated in order to:

i) Minimise waste generated during construction of the development, and incorporate measures to encourage or facilitate the re-use and recovery of any waste generated during construction of the development;

ii) Incorporate appropriate space to enable waste arising during use of the development to be separated and stored prior to being collected for recycling or re-use;

iii) Use sustainable construction materials where practicable, including use of alternatives to primary land-won aggregate."

Selby District Core Strategy (adopted October 2013)

17.2.17 The following policy in the Selby District Core Strategy (Selby District Council, 2013) relates to waste arising from developments:

"*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."

Yorkshire and Humber Waste Position Statement (February 2016)

17.2.18 This Waste Position Statement for Yorkshire and Humber (Yorkshire and Humber Waste Authorities, 2016) has been produced jointly by all seventeen Waste Planning Authorities in the Yorkshire and Humber area to help ensure appropriate coordination in planning for waste. In particular, it helps demonstrate the scale and range of waste infrastructure, as well as the extent to which movements of waste within and across the Yorkshire and Humberside boundary play a role in the management of waste. The position statement also provides data on waste arisings and methods of management within the region.

North Yorkshire Waste Local Plan (Adopted 2006)

17.2.19 The North Yorkshire Waste Local Plan (North Yorkshire County Council, 2006) provides detailed policies and proposals that will guide waste related development in the County of North Yorkshire, outside the Yorkshire Dales and North York Moors National Parks, and the City of York.

17.2.20 The plan was due to expire on 17 May 2009, however some policies have been 'saved' until the policies being developed in the minerals and waste development framework supersede them.

17.2.21 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.

17.2.22 The majority of saved policies relate to development of waste management facilities and hence are not relevant to the Proposed Development. Relevant saved policies include:

"Policy 5/1 Waste Minimisation

Proposals for major development should include a statement identifying the waste implications of the development and measures taken to minimise and manage the waste generated. Permission will not be granted where this has not been adequately addressed.

Policy 5/8 Temporary Recycling Facilities for the Recycling of Construction and Demolition Wastes

Proposals for the location of temporary facilities on or close to construction and demolition sites for the recovery, separation and where appropriate processing of waste materials generated by the on-site construction or demolition works will be permitted provided that:-

a) *the facilities are removed on completion of the construction and demolition project; and*

b) *the highway network and site access can satisfactorily accommodate the traffic generated; and*

c) *the proposal will not have an unacceptable impact on local amenity or the environment."*

17.3 Assessment Methodology and Significance Criteria

17.3.1 This waste assessment identifies the likely types and quantities of waste that will be generated during the construction and operation of the Proposed Development. This Chapter describes the suitable management routes that are available for dealing with the waste that is generated and assess whether there are likely to be any significant impacts arising as a result of the Proposed Development.

17.3.2 The assessment also outlines mitigation measures that will be adopted to minimise waste generation; facilitate reuse or recycling of wastes; and prevent exposure to potentially harmful material and nuisance during the collection, temporary storage and transportation of wastes.

17.3.3 The waste assessment follows the structure set out below:

- baseline conditions are determined from published data sources to provide an estimate of the quantity and type of waste anticipated to be produced and the waste treatment capacity of the immediate area and surrounding region;
- the type and volume of waste likely to be generated and the type and volumes of materials required by the Proposed Development during construction is estimated; and
- the capacity of local and regional facilities in relation to the predicted quantity of waste produced is assessed and any necessary mitigation identified.

Impact Assessment and Significance Criteria

17.3.4 Assessment of waste management impacts does not follow the approach used for other topics of identifying receptors and determining their sensitivity. Instead, the magnitudes and significance of waste management effects are assessed by:

- establishing the baseline waste generation rate for the relevant planning area;
- estimating the likely types and quantities of waste that will be generated by the Proposed Development; and
- for each category of waste, comparing the likely waste arisings from the Proposed Development to the baseline waste arisings for the relevant area and calculating the likely percentage increase in waste arisings.

17.3.5 Identification of specific receptors and estimation of their significance is not appropriate for waste management effects because:

- waste producers have a legal duty of care to manage their waste in accordance with regulations and to ensure that any waste leaving the site of generation is transferred to a suitably licensed facility for further treatment or disposal;
- facilities transferring, treating or disposing of waste must be either licensed or apply for an exemption from a license, and impacts arising from the operation of waste management facilities are considered as part of the planning and permitting process for these facilities themselves; and
- good practice measures to mitigate any local impacts on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of waste will be adopted and are described in this Chapter. Any residual local impacts (e.g. noise and traffic) are addressed separately in the relevant chapters of this ES.

17.3.6 In the absence of other guidance on assessing the effects of developments on waste management arisings, the significance criteria used within this assessment have been derived from previous AECOM experience and on the basis of professional judgement. These criteria are set out in Table 17.1. All effects are considered to be adverse, because the Proposed Development will be producing waste.

Table 17.1: Classification of effects

Effects	Criteria for effects of waste generated	Significance
Major adverse	Large increase in waste arisings greater than 5% of current baseline; potentially causing significant burden to the local and regional waste management infrastructure.	Significant
Moderate adverse	Moderate increase in waste arisings between 2% and 5% of current baseline; potentially causing moderate burden to the local and regional waste management infrastructure.	
Minor adverse	Minor increase in waste arisings between 0.1% and 1.9% of current baseline; causing a minor burden to the local and regional waste management infrastructure.	Not significant
Negligible adverse	Negligible increase in waste arisings less than 0.1% of current baseline; causing insignificant burden to the local and regional waste management infrastructure.	
No effect	No waste generation	

17.3.7 For the purposes of this assessment, only moderate and major effects are considered to be significant.

Key Parameters for Assessment

17.3.8 The assessment of construction waste impacts considers the maximum building parameters defined in Chapter 4: The Proposed Development and defined in the draft DCO Schedule 14 (Application Document Ref. No. 2.1), using benchmark data for industrial buildings based building floor area (see Section 17.5). The constraints on design defined by the draft DCO mean that the predicted effect would not be increased by changes within these limits at the detailed design stage.

Extent of Study Area

17.3.9 The Study Area for waste generation comprises the Site of the Proposed Development. The Study Area for waste management effects comprises the planning area for waste management, consisting of the North Yorkshire County Council, City of York Council and North York Moors National Park planning authority areas.

Sources of Information/Data

17.3.10 Sources of information are referenced in the text of the Chapter and include national, regional and local regulations and planning policies (including supporting documents); published benchmark information on waste arisings rates; and design information for the Proposed Development.

Consultation

17.3.11 Comments received from stakeholders relating to waste management are summarised in Table 17.2 below.

Table 17.2: Consultation summary table

Consultee	Date (method of consultation)	Summary of consultee comments	Summary of response/ how comments have been addressed
Secretary of State	September 2016 (Scoping Opinion)	Estimated construction waste should be based on worst case assumptions in terms of the need to import material and the extent to which the material derived on site is suitable for re-use. Effects linked to waste such as impacts on air or water quality should be cross-referenced where appropriate. Account should be taken of materials to be removed from the Site and associated traffic movements. There is no reference to the need for SWMPs or materials management plans – such details should be reflected in the ES and supporting documents such as the CEMP. The Applicant should consider the extent to which the waste generation associated with the decommissioning and demolition of the existing power station could be factored into the waste management strategies for the Proposed Development (although it is acknowledged they are distinctly separate applications). It is acknowledged that there will be relatively little waste produced during the operation of the Proposed Development but the ES should provide a description of such wastes and how they are proposed to be managed.	Estimated construction waste arisings are presented in Section 17.6 of this Chapter, based on available benchmark data. Cross-references are included in this Chapter. The transport assessment (see Chapter 14: Traffic and Transport) presents estimated construction traffic volumes. The ES includes a framework SWMP as part of the framework CEMP (Appendix 5A – ES Volume III). Chapter 12: Geology, Hydrogeology and Land Contamination also sets out the need for a Materials Management Plan to avoid impacts on the environment from the handling of potentially contaminated materials arising during construction. This chapter considers the potential for using common strategies for

Consultee	Date (method of consultation)	Summary of consultee comments	Summary of response/ how comments have been addressed
			managing wastes from the Proposed Development and the existing coal-fired power station demolition. This chapter includes a description and assessment of anticipated operational wastes and proposed management.
Public Health England	6th September 2016 (letter to Planning Inspectorate)	The EIA should demonstrate compliance with the waste hierarchy (e.g. with respect to re-use, recycling or recovery and disposal). The EIA should consider: •the implications and wider environmental and public health impacts of different waste disposal options; and •disposal route(s) and transport method(s) and how potential impacts on public health will be mitigated.	This chapter sets out the principles of the waste hierarchy, which will be implemented through the SWMP. Potential public health impacts associated with waste are assessed as part of the air quality and noise traffic assessments (see Chapters 8: Air Quality and 9: Noise and Vibration), dust assessment (Chapter 8: Air Quality) and land contamination assessment (Chapter 12: Geology, Hydrogeology and Land Contamination). Health effects are also summarised in Chapter 19: Human Health.

Summary of Key Changes to Chapter 17 since Publication of the Preliminary Environmental Information (PEI) Report

17.3.12 The PEI Report was published for statutory consultation in January 2017, allowing consultees the opportunity to provide informed comment on the Proposed Development, the assessment process and preliminary findings through a consultation process prior to the finalisation of this ES.

17.3.13 No significant changes have been made to this chapter since the publication of the PEI Report.

17.4 Baseline Conditions

Existing Baseline

17.4.1 The Waste Arisings and Capacity Requirements Update Report (Urban Vision, 2016), produced as part of the evidence base for the Minerals and Waste Joint Plan (North Yorkshire County Council, the City of York Council and North York Moors National Park Authority, 2016), describes the quantities of construction, demolition and excavation (CD&E) waste and hazardous waste currently generated within the North Yorkshire sub-region (comprising the North Yorkshire, City of York and North York Moors National Park planning authorities).

17.4.2 The estimated quantities of CD&E waste, under various growth scenarios, are shown in Table 17.3 below, with estimates based on actual 2014 data and a range of growth factors. This waste is managed by CD&E recycling facilities, and by inert and non-inert landfills. The Yorkshire and Humber Waste Planning Authorities' Waste Position Statement (2016) looks at the total waste managed within the region, including the level of landfill required and existing void space, and identifies that the Yorkshire and Humber Region has in overall terms sufficient landfill capacity to meet its own needs.

Table 17.3: Current and predicted CD&E waste arisings for North Yorkshire

Growth scenario	Quantity 2016, tonnes (predicted)	Quantity 2020, tonnes (predicted)	Quantity 2025, tonnes (predicted)	Quantity 2030, tonnes (predicted)
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

17.4.3 The estimated quantities of hazardous waste, under various growth scenarios, are shown in Table 17.4 below. Hazardous waste management within the North Yorkshire Sub-region is confined to waste taken to Waste Electrical and Electronic Equipment (WEEE) treatment facilities. Remaining arisings are deposited at transfer stations for onward movement (for treatment and disposal) or are exported directly from the area. Hazardous waste facilities for most forms of treatment, incineration and for landfill are located outside the plan area and the Local Authorities anticipate that provision will continue and remain available throughout the plan period.

Table 17.4: Current and predicted hazardous waste arisings for North Yorkshire

Growth scenario	Quantity 2016, tonnes (predicted)	Quantity 2020, tonnes (predicted)	Quantity 2025, tonnes (predicted)	Quantity 2030, tonnes (predicted)
No growth	33,143	33,143	33,143	33,143
Growth	33,542	34,353	35,395	36,467
Minimised growth	33,143	33,143	33,143	33,143

17.4.4 Since the construction period for the Proposed Development is anticipated to run from early 2019 to 2022, the baseline is taken to be the lowest (no growth) arisings predicted for 2020. This represents a worst case assessment, since under this scenario the potential waste from the Proposed Development would represent a higher percentage of the region's waste arisings.

Future Baseline

17.4.5 The future baseline for the operational assessment is taken to be the estimated waste arisings for 2020, as described above.

17.5 Development Design and Impact Avoidance

17.5.1 Contractors will be encouraged to adopt good practice in construction waste management which will reduce the quantity of waste generated. The following approaches will be considered within the SWMP, where practicable, in order to minimise the quantities of waste requiring disposal:

- 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 over-ordering and generation of waste materials;
- re-use of materials wherever feasible, e.g. re-use of excavated soil for landscaping and concrete crushing and re-use;
- segregation of waste at source where practical; and
- re-use and recycling of materials off-site where re-use on-site is not practical (e.g. through use of an off-site waste segregation facility and re-sale for direct re-use or re-processing).

17.5.2 The following waste management measures will be considered for incorporation within the SWMP and implemented where practicable in order to minimise the likelihood of any localised impacts of waste on the surrounding environment:

- damping down of surfaces during spells of dry weather and brushing/ water spraying of heavily used hard surfaces/ access points across the Site as required;
- off-site prefabrication, where practical, including the use of prefabricated structural elements, cladding units, mechanical and electrical risers and packaged plant rooms;
- burning of waste or unwanted materials will not be permitted on Site;

- all hazardous materials including chemicals, cleaning agents and solvent containing products to be properly sealed in sealed containers at the end of each day prior to storage in appropriately protected and bunded storage areas;
- all demolition and construction workers will be required to use appropriate Personal Protective Equipment (PPE) whilst performing activities on-site;
- any waste effluent will be tested and where necessary, disposed of at the correctly licensed facility by a licensed specialist contractor/s; and
- materials requiring removal from the Site will transported using licensed carriers and records will be kept detailing the types and quantities of waste moved, and the destinations of this waste, in accordance with the relevant regulations.

17.5.3 A framework Construction Environmental Management Plan (CEMP) has been prepared as part of this ES to support the DCO application (Appendix 5A – ES Volume III) and will be finalised by the contractor prior to the start of construction in accordance with a requirement in the draft DCO (Application Document Ref. 2.1). The framework CEMP includes a framework SWMP, which sets out how waste will be managed during construction, and opportunities to re-use and recycle waste will be explored in accordance with the waste hierarchy. The requirement for a SWMP is also secured by a separate requirement in the draft.

17.5.4 Further information on measures to mitigate any effects on local air quality, noise and traffic (including those arising from waste) are included in Chapters 8: Air Quality, 9: Noise and Vibration, and 14: Traffic and Transport.

17.6 Likely Impacts and Effects

17.6.1 The quantities and types of waste that will be generated by the Proposed Development have been estimated, and compared to the baseline waste generation in the region.

17.6.2 Local impacts and effects associated with air quality, noise and traffic are included in Chapters 8: Air Quality, 9: Noise and Vibration, and 14: Traffic and Transport. This includes consideration of the routing of potential traffic movements for wastes leaving Site.

Construction

17.6.3 The first stage of construction of the Proposed Development will require demolition of the majority of the existing structures within the Site (it is noted that some buildings may be retained for use during the construction period, for example for storage, subject to confirmation by the contractor, and the existing gatehouses may be re-used for the construction and operation phases of the Proposed Development). It is anticipated that a large majority of this waste will comprise either metals or hard inert material (such as concrete) that will be suitable for recycling. Consideration will be given to crushing hard inert material on Site, in order to allow it to be reused within the Proposed Development.

17.6.4 Pre-demolition audits will be carried out to identify materials that are suitable for re-use and recycling, as well as any hazardous materials that will require controlled removal.

17.6.5 The current design indicates that the earthworks on the Site will be approximately balanced (such that the quantities of 'cut' material match the quantities of 'fill'). As a result, there is not expected to be a requirement to dispose of significant quantities of surplus excavation waste from the site. No significant quantities of contaminated materials are expected to be

generated based on the available information (see Chapter 12: Geology, Hydrogeology and Land Contamination). All materials will be managed in accordance with a Materials Management Plan as set out in Chapter 12: Geology, Hydrogeology and Land Contamination.

17.6.6 The quantities and types of waste that will be generated from the demolition of existing structures within the Site and construction of the Proposed Development have been estimated, based on available benchmark data.

17.6.7 The quantities of waste generated during construction have been estimated using the Smartwaste waste benchmark data (Building Research Establishment, 2012) for industrial buildings, which are available based on either construction spend, or building floor area (see Table 17.5).

Table 17.5: Waste benchmarks

	Average m^3/ 100 m^2	Average m^3/ £100K
Industrial buildings	13.0	10.8

17.6.8 The benchmark value for m^3 of waste per 100 m^2 of floor area has been used for this assessment, and is considered to represent a realistic worst-case estimate. Using the benchmark value based on project cost would give a misleadingly high estimate, since a large proportion of the capital cost of the project relates to the power generation and associated plant, which is manufactured off-site and is unlikely to generate significant quantities of on-site construction waste.

17.6.9 Based on the indicative concept layout, the total footprint for all structures is anticipated to be around 41,000 m^2.

17.6.10 Using this footprint area and the benchmark data for waste generation, the total estimated waste arisings are around 5,300 m^3. Using a generic conversion factor of 1.5 tonnes/m^3, this is equivalent to approximately 8,000 tonnes of construction waste.

17.6.11 It is not possible at this stage to accurately estimate the quantities of different wastes that will be generated. Provisional estimates have been made based on average composition data for construction waste from new-build industrial buildings published by WRAP (WRAP, 2009), and are shown in Table 17.6 below (numbers rounded to the nearest 10). These estimates relate to the quantities of waste generated, and not the quantities of waste requiring landfill disposal. It is expected that some of the waste may be suitable for re-use or recycling, and this will be considered in the SWMP.

Table 17.6: Estimated waste types

Waste type	Average percentage composition	Estimated tonnes
Bricks	10%	770
Tiles and ceramics	0%	10
Concrete	44%	3,520
Inert	26%	2,090
Insulation	0%	30
Metals	3%	210

Waste type	Average percentage composition	Estimated tonnes
Packaging	2%	140
Gypsum	1%	80
Binders	0%	Less than 10
Plastics	0%	20
Timber	2%	170
Floor coverings (soft)	0%	Less than 10
Electrical and electronic equipment	0%	0
Furniture	0%	Less than 10
Canteen/office/adhoc	1%	50
Liquids	0%	-
Oils	0%	-
Asphalt and tar	2%	180
Hazardous	1%	60
Other	0%	-
Mixed	8%	670
TOTAL	100%	8,000

17.6.12 The relative contribution of construction waste from the Proposed Development compared to the estimated future baseline arisings for the region in 2020 are shown in Table 17.7 below.

Table 17.7: Waste arisings from the Proposed Development as a percentage of regional arisings

Waste type	Waste from Proposed Development, tonnes	Predicated 2020 waste quantities for 2020 (no growth scenario), tonnes	Waste from the Proposed Development as a percentage of North Yorkshire total
Construction waste	7,940	820,705	1%
Hazardous construction waste	60	33,143	0.18%

17.6.13 For both waste streams, there will be a minor increase in waste arisings between 0.1% and 1.0% of current baseline, causing only a minor burden to the local and regional waste management infrastructure. The effects are therefore assessed to be **not significant** based on the significance criteria previously outlined.

17.6.14 It is possible that the decommissioning and demolition of the existing coal-fired power station – which is separate to and does not form part of the Proposed Development – will occur at the same time as the construction of the Proposed Development. An additional assessment has therefore been carried out which considers both the Proposed Development and the existing coal-fired power station demolition together, in order to estimate the cumulative effects.

17.6.15 In relation to the demolition of the existing coal-fired power station it is assumed that all inert demolition waste (concrete and brick) will be crushed and re-used within the existing coal-fired power station site. Scrap and non-inert materials will be removed from the existing coal-fired power station site for recycling and/or disposal. Traffic impacts associated with demolition of the existing coal-fired power station are included in the transport assessment (see Chapter 14: Traffic and Transportation).

17.6.16 The estimated quantities of waste (including ground remediation work) from the demolition of the existing coal-fired power station are shown in Table 17.8 below.

Table 17.8: Waste arisings from the demolition of the existing coal-fired power station as a percentage of regional arisings

Waste type	Estimated arisings (m^3)	Assumed density[1] (tonnes/m3)	Estimated arisings (tonnes)
Demolition			
Metal	n/a	n/a	86,000
Inert waste (e.g. concrete, brick)	87,500	0.66	57,750
Non-hazardous waste	54,600	0.32	17,472
Hazardous waste (e.g. treated timber, asbestos)	18,650	0.28	5,222
Remediation			-
Inert waste (e.g. concrete, sub-base)	184,300	0.66	121,638
Hazardous waste (bituminous waste containing coal-tar)	11,600	0.9	10,440

17.6.17 The relative cumulative contribution of construction waste from the Proposed Development and demolition waste from the existing coal-fired power station demolition compared to the estimated future baseline arisings for the region in 2020 are shown in Table 17.9 below.

[1] Environment Agency density conversion factors, https://www.sepa.org.uk/media/163323/uk-conversion-factors-for-waste.xlsx

Table 17.9: Cumulative waste arisings from the Proposed Development construction and existing coal-fired power station demolition as a percentage of regional arisings

Waste type	Waste from Proposed Development construction, tonnes	Waste from coal-fired power station demolition, tonnes	Cumulative waste total, tonnes	Predicated 2020 waste quantities for 2020 (no growth scenario), tonnes	Cumulative waste as a percentage of North Yorkshire total
Construction waste, *of which:*	7,940	282,860	290,800	820,705	35%
Metal	*210*	*86,000*	*86,210*		
Inert waste	*6,390*	*179,388*	*185,778*		
Other non-hazardous waste	*1,340*	*17,472*	*18,812*		
Hazardous construction waste	60	15,662	15,722	33,143	47%

The cumulative waste generated from the two projects together may potentially have a **major adverse (significant)** effect on regional waste infrastructure, largely due to the volumes of demolition waste rather than construction waste from the Proposed Development. It should however be noted that both metal and inert waste are expected to have a high recycling rate (approaching 100% for metals, and potentially higher than 90% for inert waste), such that the quantities of non-hazardous construction waste requiring disposal are likely to be much smaller. Further assessment of the routes and capacity for management of hazardous construction waste associated with the demolition of the existing coal-fired power station will be undertaken as part of that project, as it could form a significant proportion of the regional hazardous waste arisings.

Opening/ Operation

17.6.18 During operation, the quantities of waste that will be generated are expected to be very small. In contrast to coal, the combustion of gas does not generate any solid residues which require disposal.

17.6.19 The estimated quantities of waste generated during operation comprise:

- 3 tonnes per year of general domestic waste, consisting predominantly of paper, cardboard and plastic; and
- 12 tonnes per year of general industrial waste, consisting predominantly of paper, cardboard, plastic and wooden packaging material; worn and damaged metal items; various other materials such as stuffing box materials, gaskets etc; and a small amount of waste oil. Waste oil will be classified as hazardous waste, whereas the other waste is likely to be classified as non-hazardous.

17.6.20 These quantities of waste are negligible when compared to the predicted hazardous and non-hazardous waste arisings within the Minerals and Waste Joint Plan (North Yorkshire County

Council, the City of York Council and North York Moors National Park Authority, 2016) area. All operational waste will be dealt with in accordance with the 2011 Regulations and consigned via a registered waste carrier for treatment or disposal at a suitably licenced waste facility.

17.6.21 The operational phase effects are therefore assessed to be **not significant**.

Decommissioning

17.6.22 Waste generated during decommissioning of the Proposed Development has been scoped out of this assessment because:

- there is no information on waste policies, regional waste arisings or facilities that may be in place when the Proposed Development is decommissioned (2047 or later), and hence it is not possible to define a baseline;
- any future decommissioning contractor will be required to comply with relevant legislation and policy at that time;
- the majority of materials generated during future decommissioning will comprise concrete and steel, both of which are likely to be recycled rather than disposed; and
- there is no certainty on the timing or method of decommissioning, and hence it is not possible to determine the quantities or types of waste that may be generated.

17.7 Mitigation and Enhancement Measures

17.7.1 No further mitigation measures for waste management are required for the Proposed Development other than those identified in Section 17. 5 Development Design and Impact Avoidance above.

17.7.2 Should the coal-fired power station demolition be carried out at the same time as the construction phase of the Proposed Development, there is the potential for significant adverse impacts on the regional capacity for managing construction waste, largely as a result of the coal-fired power station demolition project which is estimated to generate much larger quantities of waste than the Proposed Development. Potential mitigation measures for the coal-fired power station demolition may include on-site recycling of inert waste (for example by using on-site crushers to provide aggregate), and confirmation of management routes and capacity both regionally and nationally for hazardous construction wastes.

17.7.3 It may be possible and beneficial for a coordinated SWMP to be prepared for the construction of the Proposed Development and the demolition of the existing coal-fired power station, but as the timescales for the decommissioning and demolition of the existing coal-fired power station are still unknown, the two projects are separate and will be carried out by separate contractors, it would not be appropriate for EPL to commit to this at present.

17.8 Limitations or Difficulties

17.8.1 In the absence of detailed design information, estimates of construction waste arisings have been based on benchmark data for similar types of development. These benchmarks are considered to be sufficiently accurate to enable a robust assessment to be carried out.

17.9 Residual Effects and Conclusions

17.9.1 No significant residual effects with respect to waste management are anticipated for the Proposed Development when considered as a stand-alone project.

17.10 References

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WRAP (2009) *Benchmarks and Baselines 2009, Construction Resources and Waste Programme* http://www.wrap.org.uk/sites/files/wrap/Benchmarks%20and%20baselines%202009.pdf

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