

Viking CCS pipeline

Preliminary Environmental Information Report Volume II

Main PEIR

Applicant: Chrysoar Production (U.K.) Limited,
a Harbour Energy Company

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Chapter 18

Materials and Waste



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18 Materials and Waste

18.1 Introduction

- 18.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents an initial baseline for material and waste relevant to the Viking CCS Pipeline (hereafter 'the Project') and sets out the Study Area. In addition, the chapter provides an overview of the assessment methodology to be followed for the environmental assessment and provisionally identifies the potential significance of effects.
- 18.1.2 This chapter follows the methodology set out in the Institute of Environmental Management and Assessment (IEMA) guide to: Materials and Waste in Environment Assessment, Guidance for a Proportionate Approach (referred from herein as the 'IEMA Guidance') (Ref 18-1).
- 18.1.3 For the purpose of this PEIR, materials and waste comprise:
- The consumption of materials (key construction materials only); and
 - The generation and management of waste.
- 18.1.4 Materials are defined in the IEMA Guidance materials as *“physical resources that are used across the lifecycle of a development. Examples include key construction materials such as concrete, aggregate, asphalt and steel.”*
- 18.1.5 Other material assets considered include built assets such as landfill void capacity and safeguarded mineral and waste sites.
- 18.1.6 A safeguarded mineral site is defined as an operational site or sites identified within strategic planning documents for the extraction of minerals e.g. quarry, wharf, rail depot, concrete plant. Mineral Safeguarding Areas (MSAs) are not included in this definition. MSAs are not assessed in accordance with the IEMA Guidance and are defined in Guidance Minerals (Ref 18-2) as *“an area designated by a Mineral Planning Authority (MPA) which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development”*.
- 18.1.7 Waste is defined as per the Waste Framework Directive (Waste FD) (Ref 18-2) as *“any substance or object which the holder discards or intends or is required to discard”*.

18.2 Legislation, Policy and Guidance

Legislation

- 18.2.1 The following legislation is taken into account:
- Waste Framework Directive (Ref 18-2);
 - The Environmental Protection Act 1990 (Ref 18-6);
 - The Hazardous Waste (England and Wales) Regulations 2005 as amended (Ref 18-7);
 - The Waste (England and Wales) Regulations 2011 as amended (Ref 18-8);
 - The Environmental Permitting (England and Wales) Regulations 2016 (Ref 18-9); and
 - The Environment Act 2021 (Ref 18-10).
- 18.2.2 The Waste (England and Wales) Regulations 2011 (as amended) (Ref 18-8) transpose the requirements of the Waste FD (Ref 18-2) in England and Wales and require the Secretary

of State to establish waste prevention programmes and waste management plans that apply the waste hierarchy. The waste hierarchy is defined in the E Waste FD and prioritises waste prevention, followed by preparing for reuse, recycling, recovery and finally disposal as means of management of waste.

- 18.2.3 The Waste (England and Wales) Regulations 2011 (as amended) (Ref 18-8) require businesses to apply the waste hierarchy when managing waste as a priority order (prevention, preparing for reuse, recycling, other recovery and disposal), and also require that measures are taken to ensure that, by the year 2020 and beyond, at least 70% by weight of non-hazardous construction and demolition waste is subjected to material recovery. The target specifically excludes naturally occurring materials with European Waste Catalogue (EWC) Code 17 05 04 (17 05 04 soil and stones other than those mentioned in 17 05 03* (soils and stone containing dangerous substances)).
- 18.2.4 A business may depart from the waste hierarchy priority order so as to achieve the best overall environmental outcome where this is justified by life-cycle thinking on the overall impacts of the generation and management of the waste. The following considerations must also be taken into account:
- Environmental protection principles of precaution and sustainability;
 - Proximity principle for treatment and disposal of waste to be as close to its source as possible;
 - Technical feasibility and economic viability;
 - Protection of resources; and
 - Overall environmental, human health, economic and social impacts.

Policy

- 18.2.5 The Project has been preliminarily assessed with consideration to national and local policy that address the use of material and waste generation and its management.
- 18.2.6 The National Policy Statements (NPSs) that are considered to be of relevance to the Project include:
- Overarching National Policy Statement for Energy (EN-1) (Ref 18-11)
 - Draft Overarching National Policy Statement for Energy (EN-1) (Ref 18-12)
 - National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 18-13)
 - Draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 18-14)
- 18.2.7 The following national policies are also relevant to the Project:
- National Planning Policy Framework (NPPF) (2021) (Ref 18-15);
 - National Planning Practice Guidance for Minerals (2014) (Ref 18-16);
 - National Planning Practice Guidance for Waste (2015) (Ref 18-17);
 - National Planning Policy for Waste (2014) Ref 18-18
 - Waste Management Plan for England (2021) (Ref 18-19);
 - A Green Future: Our 25 Year Plan to Improve the Environment (2018) (Ref 18-20); and,

- Our Waste, Our Resources, A Strategy for England (Resources and Waste Strategy for England) (2018) (Ref 18-21).

18.2.8 The following local policies are relevant to the Project:

- Lincolnshire Minerals and Waste Local Plan – Core Strategy and Development Management Policies (adopted 2016) (Ref 18-22);
- Lincolnshire Minerals and Waste Local Plan – Site Locations (2017) (Ref 18-23);
- The North Lincolnshire Local Development Framework (adopted 2011) (Ref 18-24);
- North Lincolnshire Local Plan Publication Draft (2021) (Ref 18-25);
- North East Lincolnshire Local Plan 2013 to 2032 (adopted 2018) (Ref 18-26);
- North East Lincolnshire Policies Map (Ref 18-27);
- East Lindsey Local Plan Core Strategy (adopted 2018) (Ref 18-28); and
- Central Lincolnshire Local Plan (replaced the West Lindsey Local Plan in 2017) (Ref 18-29).

18.2.9 Planning policy relevant to Material and Waste is detailed in **Table 18-1**.

Table 18-1: Materials and Waste Planning Policy

Policy Reference	Policy Context
National Policy	
Overarching National Policy Statement for Energy (EN-1) (Ref 18-11)	
Paragraph 5.14.6 of Section 5.14: Waste Management	<i>“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.”</i>
Draft Overarching National Policy Statement for Energy (EN-1) (Ref 18-12)	
Paragraph 5.15.6-5.15.8 of Section 5.15 Resource and Waste Management	<i>“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 is encouraged to refer to the Waste Prevention Programme for England, and should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental outcome. If the applicant’s</i>

Policy Reference	Policy Context
	<p><i>assessment includes dredged material, the assessment should also include other uses of such material before disposal to sea, for example through re-use in the construction process.</i></p> <p><i>Where possible, applicants are encouraged to source materials from recycled or reused sources and use low carbon materials, sustainable sources and local suppliers. Construction best practices should be used to ensure that material is reused or recycled onsite where possible.</i></p> <p><i>Applicants are also encouraged to use construction best practices in relation to storing materials in an adequate and protected place on site to prevent waste, for example, from damage or vandalism. The use of Building Information Management tools (or similar) to record the materials used in construction can help to reduce waste in future decommissioning of facilities, by identifying materials that can be recycled or reused.”</i></p>
National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 18-13)	
N/A	No relevant sections for the construction phase.
Draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 18-14)	
N/A	No relevant sections for the construction phase.
NPPF (Ref 18-15)	
	<p>The NPPF does not contain specific waste policies as these are detailed within the revised Waste Management Plan for England (2021) and the National Planning Policy for Waste, however the following overarching policies are relevant to waste and resources:</p> <p>a. The environmental objective set out at paragraph 8 of the NPPF is <i>“to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”</i></p> <p>b. The environmental objective set out in paragraph 210 of the NPPF is to <i>“so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously.”</i></p>
National Planning Practice Guidance (PPG) for Minerals and Waste (Ref 18-16, Ref 18-17)	
	Published to provide more in-depth guidance to the NPPF. The PPG aims to make planning guidance more accessible and ensures that the guidance is kept up to date.
National Planning Practice Guidance for Waste (Ref 18-18)	

Policy Reference	Policy Context
	<p>The National Planning Practice Guidance for Waste sets out detailed waste planning policies to be applied in conjunction with the NPPF. It states:</p> <ul style="list-style-type: none"> • “when determining planning applications for non-waste development, local planning authorities should, to the extent appropriate to their responsibilities, ensure that: <ul style="list-style-type: none"> – <i>The likely impact of proposed, non-waste related development on existing waste management facilities, and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities;</i> – <i>New, non-waste development makes sufficient provision for waste management and promotes good design to secure the integration of waste management facilities with the rest of the development, and;</i> – <i>The handling of waste arising from the construction and operation of development maximises reuse/recovery opportunities, and minimises off-site disposal”.</i>
<p>Waste Management Plan for England (Ref 18-19)</p>	
	<p>Provides an overview of waste management in England and reiterates the requirement for all waste producers and waste management providers to implement the waste hierarchy. It also highlights the need for waste to be managed using the proximity principle and confirms England’s commitment to recovering at least 70% by weight of non-hazardous construction and demolition waste by 2020 (excluding soils and stones). Recovery is assumed in the context of this policy to include reuse, recycling and incineration with energy recovery.</p>
<p>A Green Future: Our 25 Year Plan to Improve the Environment (Ref 18-20)</p>	
	<p>Plan to Improve the Environment’ published in 2018, “sets out goals for improving the environment within a generation and leaving it in a better state than we found it”. It details how the government will work with communities and businesses to do this. The following policies are relevant:</p> <ul style="list-style-type: none"> • Make sure that resources are used more efficiently and kept in use for longer to minimise waste and reduce its environmental impacts by promoting reuse, remanufacturing and recycling. • Work towards eliminating all avoidable waste by 2050 and all avoidable plastic waste by end of 2042. • Reducing food supply chain emissions and waste. • Reducing litter and littering. • Improving management of residual waste.
<p>Our Waste, Our Resources, A Strategy for England (Resources and Waste Strategy for England) (Ref 18-21)</p>	

Policy Reference	Policy Context
	<p>The strategy published in 2018 will help the government to meet the commitments outlined in the 25 Year Plan and <i>“sets out how we will preserve our stock of material resources by minimising waste, promoting resource efficiency and moving towards a circular economy. At the same time we will minimise the damage caused to our natural environment by reducing and managing waste safely and carefully, and by tackling waste crime.”</i> The strategy combines actions to be taken now and commitments for the coming years. Key targets and milestones and targets, which could be relevant to the Project, include:</p> <ul style="list-style-type: none"> • Roll out of a deposit return scheme (subject to consultation) – 2023; • Legislation for mandatory separate food waste collections (subject to consultation) – 2023; • 75% recycling rate for packaging (subject to consultation) – 2023; • 65% recycling rate for municipal solid waste – 2035; and • Municipal waste to landfill 10% or less – 2035.
Local Policies	
<p>Lincolnshire Minerals and Waste Local Plan – Core Strategy and Development Management Policies (adopted 2016) (Ref 18-22)</p>	<p>The first part of the Lincolnshire Minerals and Waste Local Plan is the Core Strategy and Development Management Policies document. This document sets out the key principles to guide the future winning and working of minerals and the form of waste management development in the County up to 2031. The plan also sets out the development management policies against which planning applications for minerals and waste development will be considered.</p> <p>Relevant policies include:</p> <p>Policy M10 – Underground Gas Storage Policy M11 – Safeguarding of Mineral Resources Policy M12 – Safeguarding of Existing Mineral Sites and Associated Minerals Infrastructure Policy W8 – Safeguarding Waste Management Sites Policy DM1 – Presumption in favour of sustainable development</p> <p>The Lincolnshire Minerals and Waste Local Plan figures show safeguarded mineral resources, existing mineral sites and associated minerals infrastructure and safeguarded waste management sites:</p> <ul style="list-style-type: none"> • Figure 1: Lincolnshire Minerals Safeguarding Areas (MSAs) Map shows the extent of Limestone, sand and gravel and wind blown sand MSAs). The Draft Order Limits do not pass through any Lincolnshire County Council MSAs. • Figure 3: Lincolnshire Site Specific Minerals Safeguarding Area Map shows the extent of site specific MSAs. The Draft Order Limits do not pass through any of these site specific MSAs. • Figure 4: Key Diagram shows the extent of sand and gravel areas of search. The Draft Order Limits do not pass through any of these areas of search.

Policy Reference	Policy Context
	<ul style="list-style-type: none"> • Figure 6: Existing Minerals and Waste Sites West Lindsey District shows existing sites. The Draft Order Limits do not pass through any of these sites. • Figure 7: Existing Minerals and Waste Sites East Lindsey District shows existing sites. The Draft Order Limits do not pass through any of these sites.
<p>Lincolnshire Minerals and Waste Local Plan – Site Locations (2017) (Ref 18-23)</p>	<p>The second part of the Lincolnshire Minerals and Waste Local Plan is the Site Locations document which includes specific proposals and policies for the provision of land for mineral and waste development. Relevant policies include:</p> <p>Policy SL1 – Mineral Site Allocations Policy SL2 – Safeguarding Mineral Allocations Policy SL4 – Waste Site and Area Allocations</p> <p>Figure 1: Site Locations Policies Map show the extent of allocated mineral sites, allocated waste sites and allocated waste areas. The Draft Order Limits do not pass through any of these sites.</p>
<p>The North Lincolnshire Local Development Framework (adopted 2011) (Ref 18-24)</p>	<p>Replaced the North Lincolnshire Local Plan and includes the Core Strategy which contains chapters regarding Sustainable waste management (Chapter 12) and Minerals (Chapter 13). Relevant policies include:</p> <p>CS20 – Sustainable Waste Management CS21 – Minerals</p>
<p>North Lincolnshire Local Plan Publication Draft (2021) (Ref 18-25)</p>	<p>North Lincolnshire is preparing a new single Local Plan for North Lincolnshire. Once agreed (formally adopted), it will replace the current North Lincolnshire Core Strategy and the Housing and Employment Land Allocations Development Plan Documents (DPDs). The Publication Draft contains chapters regarding planning for a sustainable supply of minerals (Chapter 12) and sustainable waste management (Chapter 13). Relevant policies include:</p> <p>Policy MIN4 – Recycle and Secondary Aggregates Policy WAS1 – Waste Management Principles Policy WAS4 – Safeguarding Existing Waste Sites and Infrastructure Policy WAS6 – Waste Management in Development Policy WAS7 – Restoration and Aftercare</p> <p>The associated policy map shows the extent of waste sites and infrastructure, MSAs, and mineral sites and infrastructure. The Draft Order Limits do not pass through any of these sites or areas.</p>
<p>North East Lincolnshire Local Plan 2013 to 2032</p>	<p>Sets out the Council’s approach to accommodating future requirements in relation to the demands on the Borough’s mineral resource and waste needs. Relevant policies include:</p> <p>Policy 44 – Safeguarding minerals and related infrastructure</p>

Policy Reference	Policy Context
(adopted 2018) (Ref 18-26)	<p>Policy 45 – Future mineral extraction and Secondary Aggregates Policy 47 – Future requirements for waste facilities Policy 48 – Safeguarding waste facilities and related infrastructure Policy 49 – Restoration and aftercare (waste)</p> <p>The Policy Map (Ref 18-27) shows the extent of MSAs for sand and gravel and blown sand and existing waste management facilities. The Draft Order Limits pass through the MSA for sand and gravel. The Draft Order Limits do not pass through any waste sites although one site is recorded as being adjacent (Policy 48).</p>
East Lindsey Local Plan Core Strategy (adopted 2018) (Ref 18-28)	<p>East Lindsey is one of the seven districts covered by the Lincolnshire Minerals and Waste Local Plan – Core Strategy and Development Management Policies (2016).</p> <p>The East Lindsey Local Plan Core Strategy includes a MSAs Policies Map (Annex 4). The Draft Order Limits do not pass through any MSAs.</p>
Central Lincolnshire Local Plan (replaced the West Lindsey Local Plan in 2017) (Ref 18-29)	<p>West Lindsey is one of the seven districts covered by the Lincolnshire Minerals and Waste Local Plan – Core Strategy and Development Management Policies (2016).</p> <p>Relevant policies in the Central Lincolnshire Local Plan include: Policy LP18 – Climate Change and Low Carbon Living <i>“Resource efficiency: development should (a) take opportunities to use sustainable materials in the construction process, avoiding products with a high embodied energy content and (b) minimize construction waste”</i>. Policy LP26 - Design and Amenity <i>“Adequate storage, sorting and collection of household and commercial waste, including provision for increasing recyclable waste”</i>.</p>

Guidance

18.2.10 Additional guidance to be considered includes:

- Contaminated Land: Applications in Real Environments (CL:AIRE) Definition of Waste: Development Industry Code of Practice (DoWCoP), v2 (2011) (Ref 18-30); and
- Waste and Resources Action Programme (WRAP) Designing Out Waste: A Design Team Guide for Civil Engineering (Ref 18-31).

18.3 Scoping Opinion and Consultation

18.3.1 A scoping exercise was undertaken in early 2022 to establish the content of the materials and waste assessment and the approach and methods to be followed.

18.3.2 The Scoping Report records the findings of the scoping exercise and details the technical guidance, standards, best practice and criteria to be applied in the assessment to identify and evaluate the likely significant effects of the Project on materials and waste.

18.3.3 Following receipt of the Scoping Opinion (*PEIR Volume IV: Appendix 5.2*) the following will be taken account of as part of the ongoing Materials and Waste assessment:

- Changes in demand for materials during construction;
- Changes in available landfill capacity during construction;
- Impacts on safeguarded mineral sites; and
- Impacts on safeguarded waste sites;

18.3.4 Following receipt of the Scoping Opinion (*PEIR Volume IV: Appendix 5.2*), the following items were confirmed by the Planning Inspectorate to be scoped out of the materials and waste assessment

- Waste arising from extraction, processing and manufacture of construction components and products. This is based on the assumption that these products and materials are being developed in a manufacturing environment with their own waste management plans, facilities, and supply chain, which are potentially in different regions of the UK or the world and therefore outside of the geographical scope of this study. Such matters cannot be accurately predicted and assessed as they relate to procurement decisions that cannot be assured;
- Other environmental impacts associated with the management of waste from the Project e.g., on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste are addressed separately in other relevant chapters;
- Impacts on safeguarded mineral sites. The Draft Order Limits do not pass through any such sites therefore this aspect is scoped out of the assessment;
- Direct impacts on MSAs. The Draft Order Limits do pass through a MSA for sand and gravel however impacts are not assessed in the materials and waste assessment in accordance with the IEMA Guidance. MSAs are included for context in the baseline since MSAs are a planning consideration and further consultation and assessment in accordance with MPA policies may be required at a later Project stage. MSAs will be considered in the Planning Statement which will accompany the DCO application;
- Effects on the availability of materials during operation: forecast effects are (using professional judgement) considered negligible in relation to the scale and nature of the development, since only very small quantities of materials would be required on an intermittent basis;
- Effects of the Project on regional inert and non-hazardous waste landfill capacity and national hazardous waste landfill capacity during operation. Effects associated with the operational phase are scoped out due to the nature of the Project, and knowledge of similar Projects' limited operational material usage and waste disposal requirements; and
- Effects associated with decommissioning as the Project. The Project has an initial design life of 25 years and when appropriate, the pipeline and associated infrastructure would be decommissioned. A Decommissioning Environmental Management Plan (DEMP) will be produced prior to the decommissioning phase. In order to minimise impact of the decommissioning programme the majority of the pipeline would likely remain in-situ and as such, no significant effects upon materials and waste are anticipated. However in a worst case scenario, where the pipeline will be fully removed along with the Above Ground Installations (AGIs) and therefore the potential risks during the decommissioning phase will be similar to those detail during construction phase.

18.3.5 The comments received in the Scoping Opinion relevant to materials and waste are presented in **Table 18-2**.

Table 18-2: Summary of the EIA Scoping Opinion in relation to Materials and Waste

Section Reference to Scoping Opinion	Applicant’s proposed matter	Planning Inspectorate / prescribed consultee comments	Response
<p>Planning Inspectorate: Paragraph 17.3.12 / Table 17-16</p>	<p>Changes and direct impacts to safeguarded mineral sites Changes and direct impacts to safeguarded allocated waste sites</p>	<p>Paragraph 17.2.14 states that the Scoping Boundary does not pass through any other Mineral Safeguarding Areas (MSAs), however Chapter 9, Paragraph 9.2.10 states that no information is available for Lincolnshire County Council (LCC), and Table 17-16 states that the Proposed Development passes through an MSA. In its scoping response, LCC has indicated that this information is available and that this can be supplied to the Applicant.</p> <p>Additionally, in its scoping response, the Environment Agency have identified several waste sites in the surrounding area which are not included within the Scoping Report and the Inspectorate highlights the need for the ES to identify whether these are safeguarded sites. It is also noted that the Lincolnshire Minerals and Waste Local Plan is currently being updated and will require consideration if published during the preparation of the ES. The Inspectorate therefore considers that the impacts on mineral safeguarding areas, and safeguarded allocated waste sites, should be assessed in the ES.</p>	<p>All relevant documents have been reviewed including the Lincolnshire Minerals and Waste Local Plan which includes Figure 1: Lincolnshire Mineral Safeguarding Areas (MSAs) Map. MSAs in proximity to the Draft Order Limits will be reviewed on an ongoing basis and included as appropriate in the ES.</p> <p>Allocated/safeguarded waste sites within the Draft Order Limits and Study Area have been described in section 18.5.18 to date. Waste sites in proximity to the Draft Order Limits will be reviewed on an ongoing basis and included as appropriate in the ES.</p> <p>All policy and legislation will be reviewed on an ongoing basis and will be included as appropriate in the ES. Policy and legislation considered for this PEIR chapter are presented in section 18.2.</p>

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
			Impacts on MSAs are not assessed in the materials and waste assessment in accordance with the IEMA Guidance. MSA are included to provide context. MSAs will be considered in the Planning Statement submitted with the DCO application.
Planning Inspectorate: Table 17-16	Aspects proposed to scope out: <ul style="list-style-type: none"> • Changes in demand for materials during operation and decommissioning; • Changes in available landfill capacity during operation and decommissioning; • Waste arising from construction components during extraction/processing/manufacture; 	The Inspectorate is in agreement that these matters can be scoped out of the ES as significant effects are unlikely to arise.	This PEIR chapter has been, and the subsequent ES will be prepared on the basis that these aspects are scoped out of the materials and waste assessment as agreed with the Planning Inspectorate.
Planning Inspectorate: Table 17-16	Other environmental effects from waste	The Inspectorate accepts that the effects referred to can be appropriately addressed in other aspect chapters eg Air Quality, and as such this topic is not required to be assessed within the material assets and waste chapter.	This response is noted.

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
Environment Agency	Waste and Resources Action Programme (WRAP)	<p>Paragraphs 17.2.12 and 13 (of the Scoping Report) discuss the material required and possible recycling rates for it based on WRAP. We have seen the installation of several long-distance pipelines /cables in this area over the last three years. None of these installations have had a particularly good plan regarding the recycling of the haul road material (which has been 'virgin' in all cases). Problems have included lack of forethought regarding environmental permits, contamination by geotextile material, waste sites not being able to receive the material as classified etc. We, therefore, strongly urge the applicant to ensure there is a good plan for the material recycling once the project is finished, and ideally large-scale use of recycled aggregate for haul roads and yards.</p>	<p>The contractor will be required to produce a Site Waste Management Plan before the commencement of works. An Outline Site Waste Management Plan (OSWMP) will be submitted with the DCO application.</p>
	Safeguarded waste facilities	<p>Table 17-4 (under paragraph 17.2.17) (of the Scoping Report) lists just one Safeguarded Waste Facility. There are other facilities as follows:</p> <ul style="list-style-type: none"> • JA Young Plastics, site is less than 100m from the corridor (one access road runs through the corridor); • Donald Ward, two sites (one permitted and one exempt permit application currently under consideration), one is 100m from the corridor; • SAR Metals Recycling Ltd, 2 sites, one is 500m from the corridor; • SAR Recycling Ltd, approximately 1km from the corridor; • ENVA Battery Recycling Ltd, 1km from the corridor; • Clarkson's, approximately 1.5km from the corridor. 	<p>Allocated/safeguarded waste sites within the Draft Order Limits and Study Area have been described in section 18.5.18.</p> <p>Waste sites in proximity to the Draft Order Limits will be reviewed on an ongoing basis and included as appropriate in the ES.</p>

Section Reference to Scoping Opinion	Applicant’s proposed matter	Planning Inspectorate / prescribed consultee comments	Response
	Historic landfill sites	<p>Paragraph 17.2.25 (of the Scoping Report) lists two historic landfills. We hold a record of two sites within the scoping boundary:</p> <ul style="list-style-type: none"> • Killingholme Refinery (TA1697416252 & TA1708716047) two sites - hazardous sludges from oil refining. <p>We also hold a record of three sites on the edge of the scoping boundary:</p> <ul style="list-style-type: none"> • Mill Lane, Immingham (TA1690215114) - industrial, commercial, and household waste; • South of West Haven Way (TA1746416549) - Industrial waste; • Aylesby, Cleethorpes (TA2003206752) – non-hazardous waste arising from the construction industry, factory solids and demolition waste. <p>However, we have been unable to find records relating to the site mentioned in paragraph 17.2.26 as “Os Field No 9000”. We strongly recommend that where possible the route should seek to avoid these landfill sites; where this would not be possible the applicant would need to consider remediation measures, alongside issues relating to landfill gas and contaminated ground</p>	<p>Historic landfill sites information will be reviewed on an ongoing basis and included in the ES as appropriate. "Os Field No 9000" is listed in the Environment Agency Historic Landfill Dataset - December 2021.</p> <p>The Draft Order Limits does not pass through any “Authorised Landfill Permitted Waste Sites” as outlined in the EA’s Permitted Waste Sites - Authorised Landfill Site Boundaries spatial data (Ref 18-36).</p>
	Materials Management Plan (MMP)	Paragraph 17.4.5 (of the Scoping Report) states that a Materials Management Plan (MMP) will be developed under CL:AIRE Definition of Waste. For clarity, the MMP must be written before the Definition of Waste: Code of	The contractor will be required to produce a Materials Management Plan before the commencement of works. This is a commitment in the

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
		Practice (DoWCoP) is submitted. Planning is key before this ('certainty of use'). The plan should include detailed contingencies, tracking systems and evidence of inspection.	Preliminary Draft Construction Environmental Management Plan (CEMP) in <i>PEIR Volume IV Appendix 3-1</i> .
	Lincolnshire M&W Local Plan	Appendix G: A review of the Lincolnshire Minerals and Waste Local Plan is being undertaken and the applicant should ensure appropriate consideration is given to this, during the development of the project	All policy and legislation will be reviewed on an ongoing basis and will be included as appropriate in the ES.
Lincolnshire County Council	Information from LCC	At paragraph 9.2.10 states that no mineral safeguarding information is available from the County Council. This is not the case and contact should be made with the County Council to obtain this information to ensure this issue has been addressed before the ES is produced.	All relevant documents have been reviewed including the Lincolnshire Minerals and Waste Local Plan which includes Figure 1: Lincolnshire Mineral Safeguarding Areas Map.

Consultation

18.3.6 No materials and waste specific consultation has been undertaken to date. Further consultation will be undertaken as required.

18.4 Assessment Method

18.4.1 This section outlines the methodology that will be employed for assessing the likely significant effects associated with materials and waste. The IEMA Guidance offers two methods for the assessment of waste. Method W1 – void capacity has been selected as this is a more detailed methodology and is appropriate for larger and more complex projects.

Scope of the Assessment

18.4.2 The assessment of materials and waste will consider the following:

- 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 where it is generated 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;
- As part of their planning function, Waste Planning Authorities (WPAs) are required to ensure that sufficient land is available to accommodate facilities for the treatment of all waste arising in the area, either within the WPA area, or through export to suitable facilities in other areas; and
- Minerals Planning Authorities (MPAs) are similarly required to ensure an adequate supply of minerals, sufficient to meet the needs of national and regional supply policies, and local development needs.

18.4.3 The sensitive receptors for this assessment of construction impacts are:

- Landfill void capacity in the Study Areas of East Midlands and Yorkshire and the Humber (non-hazardous landfill void capacity) and England (hazardous landfill void capacity) – as defined in the IEMA guidance *“landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities, This requires the depletion of natural and other resources which, in turn, adversely impacts the environment.”*
- Materials, national consumption of key construction materials – as outlined in the IEMA guidance *“materials are, in their own right, sensitive receptors. Consuming materials impacts upon their immediate and (in the case of primary material) long-term availability; this results in the depletion of natural resources and adversely impacts the environment.”*

18.4.4 The IEMA guidance *“does not consider waste processing and recovery facilities as sensitive receptors, rather: they are part of a system that has the potential to reduce the magnitude of adverse impacts associated with waste generation and disposal. Waste processing and recovery facilities are, hence, different to landfills, in that the latter are finite resources.”*

18.4.5 The sensitivity of receptors and magnitude of impacts on materials and waste is assessed through the following:

Materials

- Establishing the baseline for national consumption of key materials (construction materials) by weight;
- Assessing the sensitivity of materials as related to the availability and types of materials to be consumed by the Project in construction;
- Establishing the quantities of key construction materials required for the construction of the Project; and
- Comparing the total quantities of key construction materials with the most recent national demand (utilising a percentage approach).

Waste

- Establishing the baseline landfill void capacity in the Study Areas;
- Assessing the sensitivity of landfill void capacity;
- Establishing the quantities of construction, demolition and excavation waste to be generated during the construction of the Project; and
- Comparing the total waste arising from the construction of the Project against the landfill void capacity (utilising a percentage approach).

Assessment Criteria

Sensitivity

18.4.6 The sensitivity of materials relates to the availability and type of construction material to be consumed by the Project. The IEMA guidance criteria described within **Table 18-3** will used to determine the sensitivity of materials.

Table 18-3: Materials Receptor Sensitivity

Effects	Criteria for materials receptor sensitivity
Negligible	On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock. <i>And/or</i> are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials*
Low	On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock. <i>And/or</i> are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.
Medium	On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock. <i>And/or</i> are available comprising some sustainable features and benefits compared to industry-standard materials.

Effects	Criteria for materials receptor sensitivity
High	On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock. <i>And/or</i> Comprise little or no sustainable features and benefits compared to industry-standard materials.
Very High	On balance, the key materials required for the construction of the Project are forecast are known to be insufficient in terms of production, supply and/or stock. <i>And/or</i> Comprise no sustainable features and benefits compared to industry-standard materials.
<p>* <i>Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts.</i></p>	

18.4.7 The sensitivity of waste relates to availability of landfill capacity in the absence of the Project. As outlined in the IEMA Guidance “landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste”. The sensitivity of landfill capacity is assessed based on a review of historic landfill void capacity trends where available and information from relevant policy documents.

18.4.8 The criteria described within **Table 18-4** and **Table 18-5** will be used to determine the sensitivity of landfill capacity.

Table 18-4: Inert and Non-hazardous Landfill Capacity Sensitivity

Effects	Criteria for inert and non-hazardous landfill capacity sensitivity
	Across construction and/or operation phases, the baseline/future baseline (i.e., without the Project) of regional inert and non-hazardous landfill capacity is expected to:
Negligible	remain unchanged or is expected to increase through a committed change in capacity.
Low	reduce minimally by <1% as a result of wastes forecast.
Medium	reduce noticeably by 1-5% as a result of wastes forecast.
High	reduce considerably: by 6-10% as a result of wastes forecast.
Very High	reduce very considerably (by >10%); end during construction or operation; is already known to be unavailable; or, would require new capacity or infrastructure to be put in place to meet forecast demand.

Table 18-5: Hazardous Landfill Capacity Sensitivity

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

18.4.9 Material receptor sensitivity is determined as ‘low’. On balance, the key materials required for the construction and operation of the Project are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock. Key materials required for the construction and operation are likely to be available comprising a high proportion of sustainable features and benefits (e.g. recycled content).

18.4.10 Potential recycled content for the main construction materials are outlined in **Table 18-13**.

18.4.11 Waste receptor sensitivity is determined as ‘very high’. Since there is no publicly available information on any potential changes to landfill capacity by the time of the construction or operation of the Project a worst scenario is considered.

18.4.12 That (without the Project) non-hazardous landfill void capacity in the Study Area is expected to:

- Reduce very considerably (by >10%);
- End during construction and operation;
- Is already known to be unavailable; or,
- Would require new capacity or infrastructure to be put in place to meet forecast demand.

18.4.13 That (without the Project) hazardous landfill void capacity in the Study Area is expected to:

- Reduce very considerably (by >1%), in the past there has been >1% reduction in landfill capacity;
- End during construction and operation;
- Is already known to be unavailable; or,
- Would require new capacity or infrastructure to be put in place to meet forecast demand.

Magnitude

18.4.14 The magnitude of impact describes the degree of variation from the baseline conditions as result of the Project. The methodology for assessing the magnitude of impact from materials comprises a percentage-based approach that determines the influence of construction

materials use on the baseline national demand from the construction of the Project. The criteria used to assess the magnitude of impact for materials are provided within **Table 18-6**.

Table 18-6: Materials Magnitude of Impacts

Effects	Criteria for materials magnitude of impacts
No change	No consumption of materials is required.
Negligible	Consumption of no individual material type is equal to or greater than 1% by volume of the national* baseline availability.
Minor	Consumption of one or more materials is between 1-5% by volume of the national* baseline availability.
Moderate	Consumption of one or more materials is between 6-10% by volume of the national* baseline availability.
Major	Consumption of one or more materials is >10% by volume of the national* baseline availability.
<i>*a national baseline is used in the absence of regional construction material consumption data for all key materials</i>	

18.4.15 The methodology for assessing the magnitude of impact for waste comprises a percentage-based approach that determines the influence of waste generation from the construction phase of the Project on the baseline landfill capacity. The criteria used to assess the magnitude of impact for resources and waste are provided within **Table 18-7**:and **Table 18-8**.

Table 18-7: Inert and Non-hazardous Waste - Magnitude of Impact

Effects	Criteria for waste magnitude of impacts
No change	Zero waste generation and disposal from the development.
Negligible	Waste generated by the development will reduce Study Area landfill capacity baseline# by <1%
Minor	Waste generated by the development will reduce Study Area landfill capacity baseline# by 1-5%
Moderate	Waste generated by the development will reduce Study Area landfill capacity baseline# by 6-10%.
Major	Waste generated by the development will reduce Study Area landfill capacity baseline# by >10%
<i># Forecast as the worst-case scenario, during a defined construction and/or operational phase.</i>	

Table 18-8: Hazardous Waste - Magnitude of Impact

Effects	Criteria for waste magnitude of impacts
No change	Zero waste generation and disposal from the development.
Negligible	Waste generated by the development will reduce Study Area landfill capacity baseline [#] by <0.1%
Minor	Waste generated by the development will reduce Study Area landfill capacity baseline [#] by <0.1-0.5%
Moderate	Waste generated by the development will reduce Study Area landfill capacity baseline [#] by <0.5-1%
Major	Waste generated by the development will reduce Study Area landfill capacity baseline [#] by >1%
<i># Forecast as the worst-case scenario, during a defined construction and/or operational phase.</i>	

Significance

18.4.16 **Table 18-9** describes the effect thresholds used in determining the significance of potential effects and **Table 18-10** shows the significance of the effects.

Table 18-9: Effect Thresholds

		Magnitude of Impact				
		No change	Negligible	Minor	Moderate	Major
Sensitivity of Receptor	Very High	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Table 18-10: Significance of Effect

Effect	Materials	Waste
Neutral	Not significant	Not significant
Slight		
Moderate	Significant	Significant
Large		
Very large		

18.5 Baseline Environment and Study Areas

Study Areas

18.5.1 The Study Areas for the assessment of impacts related to materials and waste have been defined in line with the IEMA Guidance.

18.5.2 Within this section, Study Areas are defined for the following:

- Construction waste generation;
- Use of construction materials (key construction materials only);
- Non-hazardous, inert and hazardous construction waste management;
- Availability of key construction materials;
- Impacts on safeguarded mineral and waste sites; and
- Presence of MSAs for context (a study area for MSAs is not defined in the IEMA Guidance).
- Presence of historic landfills within 1km of the Draft Order Limit (a study area for historic landfills is not defined in the IEMA Guidance).

Study Area for construction waste generation and use of construction materials

18.5.3 The Study Area for construction waste generation and use of construction and operation materials (key construction materials only) comprises the Draft Order Limits (the “Draft Order Limits Study Area”). The Study Area is defined by the location in which construction waste would be generated and construction materials used.

18.5.4 The Draft Order Limits Study Area is also used in the assessment of impacts on safeguard mineral and waste sites.

Study Area for non-hazardous and inert waste management

18.5.5 The Study Area for non-hazardous waste management comprises the East Midlands and Yorkshire and the Humber. The Study Area includes the following sub-regions as outlined in the Environment Agency’s (EA) 2020 Waste Summary Tables for England - Version 2 last updated in May 2022 (Ref 18-4):

- Lincolnshire, Derbyshire, Leicestershire, Northamptonshire and Nottinghamshire;
- Former Humberside, North Yorkshire, South Yorkshire, West Yorkshire.

18.5.6 The Study Area for non-hazardous and inert waste management is defined based on professional judgement and informed by consideration of the proximity principle. The Study Area has been determined to comprise the wider region within which landfill capacity is located i.e. East Midlands region and the Yorkshire and the Humber region since the Project is located close to the northern border of the East Midlands and waste could be managed in either region.

Study Area for hazardous waste management

18.5.7 The Study Area for hazardous waste management is England. The Study Area is defined based on professional judgement and informed by consideration of the proximity principle. The proximity principle for hazardous waste in England is outlined in Principle 2 - Infrastructure Provision in the Strategy for Hazardous Waste Management in England “*We look to the market for the development of hazardous waste infrastructure, which implements*

the hierarchy for the management of hazardous waste and meets the needs of the UK to ensure that the country as a whole is self sufficient in hazardous waste disposal, facilities are put in place for hazardous waste recovery in England, and the proximity principle is met” (Ref 18-5). Planning for hazardous waste management is also undertaken at a national level.

Study Area for availability of key construction materials

18.5.8 The Study Area for availability of key construction materials (aggregates, asphalt, concrete and steel) is national (United Kingdom (UK) or Great Britain (GB)) dependent on baseline information availability). Regional information on availability of key construction materials is also included in the baseline for context.

Sections of the Draft Order Limits

- 18.5.9 Due to the length of the Project, the Draft Order Limits has been split in to five sections:
- Section 1 Rosper Road to A180;
 - Section 2 A180 to A46;
 - Section 3 A46 to Pear Tree Lane;
 - Section 4 Pear Tree Lane to Manby Middlegate (B1200); and
 - Section 5 Manby Middlegate (B1200) to Theddlethorpe and down to Mean Low Water Spring (MLWS).

Current Baseline

National and Regional Availability of Key Construction Materials

- 18.5.10 At the time of writing the exact quantities of key construction materials required for the Project are not confirmed as the design is in early development, therefore preliminary estimates have been used in the assessment.
- 18.5.11 United Kingdom (UK) and Great Britain (GB) data has been used to establish a quantitative national baseline of the consumption for key construction materials.
- 18.5.12 **Table 18-11** summarises national consumption in 2018 for aggregates, asphalt, concrete and steel (the most recent years for which data is available), which are the key construction materials expected to be used during the construction of the Project. Regional data is presented in **Table 18-12** to provide regional context, however this data is not used within the assessment. Construction material sales by region are provided for the regions surrounding the Project.

Table 18-11: Availability of Key Construction Materials

Material	National consumption / sales (million tonnes, year)	Baseline data year	Data description	1% of national consumption/sales (tonnes)	5% of national consumption (tonnes)
Steel	17	2018	UK total consumption (Ref 18-32)	170,000	850,000

Material	National consumption / sales (million tonnes, year)	Baseline data year	Data description	1% of national consumption/sales (tonnes)	5% of national consumption (tonnes)
Aggregates of which:	251	2018	Minerals and mineral products sales in Great Britain (Ref 18-33)	2,510,000	12,550,000
Crushed rock	117.3			1,173,000	5,865,000
Sand and gravel - land won	48.9			489,000	2,445,000
Sand and gravel - marine	13.7			137,000	685,000
Recycled and secondary	71			710,000	3,550,000
Asphalt	25.4			254,000	1,270,000
Concrete of which:	86.2			862,000	4,310,000
Ready-Mixed Concrete	54.2			542,000	2,710,000
Concrete products	32			320,000	1,600,000

Table 18-12: Construction Material Sales by Region (Ref 18-33)

Construction material	East Midlands	Yorkshire and the Humber	Total	1% of regional material sales	5% of regional material sales
Crushed rock (million tonnes)	26.5	11.5	38	380,000 tonnes	1,900,000 tonnes
Sand and gravel (million tonnes)	6.1	2.3	8.4	84,000 tonnes	420,000 tonnes
Ready-mixed concrete (million m ³)	1.4	1.2	2.6	26,000 m ³	130,000 m ³

Construction material	East Midlands	Yorkshire and the Humber	Total	1% of regional material sales	5% of regional material sales
Asphalt (million tonnes)	2.8	2.1	4.9	49,000 tonnes	245,000 tonnes

18.5.13 Potential recycled contents for the main construction materials are outlined in **Table 18-12**. These “good practice” rates are derived from WRAP’s Designing Out Waste Tool for Civil Engineering (Ref 18-34).

Table 18-13: Potential Recycled Content

Material type	Potential recycled content (% by weight)
Concrete	16
Asphalt	25
Aggregates	50
Steel reinforcement	100
Structural steel	60

18.5.14 There is no publicly available information on any potential long-term changes to this national demand by the time the Project will be constructed. Construction material demand such as ready mixed concrete is closely aligned to both the quantity of construction taking place and the general economy therefore it is deemed inappropriate to forecast future demand as the demand is unlikely to be linear. It is therefore not possible to set a future baseline for resources. Therefore, future consumption is assumed to be the same as the current baseline as outlined in **Table 18-11**.

Mineral Safeguarding Areas

18.5.15 In North East Lincolnshire the Draft Order Limits passes through a MSA for sand and gravel.

18.5.16 The Draft Order Limits do not pass through any other MSAs in any other local authorities (Lincolnshire County Council, East Lindsey District Council, West Lindsey District Council, or North Lincolnshire Council).

Safeguarded Mineral Sites

18.5.17 The Draft Order Limits does not pass through any safeguarded mineral sites.

Safeguarded Waste Sites

18.5.18 SAR Recycling Ltd / SAR Metals is a safeguarded waste site in the North East Lincolnshire Local Plan (Ref 18-26). The location on the associated polices map is not within the Draft Order Limits.

18.5.19 Autby House Materials Recycling Facility/JA Young Plastics/JAY PLAS is a safeguarded waste site in the Lincolnshire Minerals and Waste Local Plan (Ref 18-22) within 250m of the Draft Order Limits that has two access routes that pass through the Draft Order Limits.

18.5.20 Details are presented in **Table 18-14** below for both sites.

Table 18-14: Safeguarded Waste Facilities

Local Plan reference	Licence Number	Site Name	Site location	Licence Type	Operator	Licence Status	Distance from, and section of the Draft Order Limits (m)
North East Lincolnshire WM04, Policy 48 (Ref 18-26)	SAR005 and SAR001	SAR Recycling Ltd / SAR Metals	RJA House, Manby Rd, South Killingholme, Immingham DN40 2DW	A20: Metal Recycling Site (mixed MRS's)	SAR Recycling Ltd / SAR. Metals Limited	Modified and Pollution Prevention and Control (PPC)	1,196 and 1,216 Section 1
Lincolnshire Waste Site Number 58 (Ref 18-22)	YOU02 2	Autby House Materials Recycling Facility / JA Young Plastics / JAY PLAS	Autby House, Autby Drive, North Thoresby, Grimsby, N E Lincs, DN36 5SB	A15: Material Recycling Treatment Facility	J And A Young (Leicester) Ltd	Modified	244 – access routes pass within Draft Order Limits Section 3

18.5.21 Humber Refinery, Conoco Ltd (Licence Number CON001) is a permitted waste site within the Draft Order Limits. The site is not safeguarded.

18.5.22 A further twelve waste sites are located in close proximity (less than 1.5km) to the Draft Order Limits as outlined in Environmental Permitting Regulations - Waste Sites (Ref 18-36). These sites are not safeguarded. The details of these sites are presented in **Table 18-16** below.

Waste Management Infrastructure

18.5.23 The permitted capacity of other types of waste infrastructure is publicly available (e.g., Environmental Permitting Regulations - Waste Sites (Ref 18-35), however the permitted capacity is not necessarily representative of the actual operational capacity of the infrastructure. Therefore data are collated for the Study Areas from the EA’s Waste Data Interrogator 2021 – Waste Received (Excel) – Version 1 last updated September 2022 (Ref 18-35) and presented in **Table 18-15** Inputs are not totalled since there will be double counting of waste in the Waste Data Interrogator as waste is transferred between different facilities.

Table 18-15: Summary of Waste Inputs by Facility 2021

Facility type	East Midlands (tonnes received)	Yorkshire and the Humber (tonnes received)
Landfill	4,238,163	4,501,192
MRS	843,958	1,817,180
On/In Land	551,542	1,397,745
Transfer	4,588,886	5,394,163
Treatment	7,389,323	14,703,527
Combustion	72,986	71,810
Incineration	1,006,895	2,908,832
Mining	4,575	752
Storage	146,905	315,692
Processing	185,618	534,065

18.5.24 The IEMA guidance (page 14) “*does not consider waste processing and recovery facilities as sensitive receptors, rather: they are part of a system that has the potential to reduce the magnitude of adverse impacts associated with waste generation and disposal. Waste processing and recovery facilities are, hence, different to landfills, in that the latter are finite resources.*” Therefore, a full list of waste management infrastructure in the region is not included in the baseline.

18.5.25 Waste sites (permitted and surrendered) and waste site permit applications as outline in the Environmental Permitting Regulations - Waste Sites (Ref 18-35) located in close proximity (less than 1.5km) to the Draft Order Limits are presented in **Table 18-16**, **Table 18-17** and **Figure 18-1** below.

Table 18-16: Local Permitted and Surrendered Waste Sites

Licence Number	Site Name	Site location	Licence Type	Operator	Licence Status	Distance from Draft Order Limits (m) and Section
LIN013	Lindsey Oil Refinery	Humber Refinery, South Killingholme, Grimsby, N E Lincs, DN40 3DW	A23: Biological Treatment Facility	Lindsey Oil Refinery Ltd	Surrendered	534 Section 1
EUR092	Kiln Lane Wellsite	Land At Mauxhall Farm, Off Stallingborough Road, Immingham, postcode not provided	A30: Mining Waste Operations	Europa Oil & Gas Limited	Surrendered	1,303 Section 1
MAN001	Immingham Autobreakers	Land/ Premises At, Lancaster Approach, N Killingholme Ind Est, Immingham, DN40 3JZ	A19: Metal Recycling Site (Vehicle Dismantler)	Ian Mann	Expired	1,311 Section 1
LIN014	Total Lindsey Oil Refinery	Lindsey Oil Refinery, North Killingholme, Immingham, DN40 3LW	A07: Industrial Waste Landfill (Factory Curtilage)	Prax Lindsey Oil Refinery Ltd	Modified	1,463 Section 1
IPC024	Lindsey Oil Refinery Site A & C	Lindsey Oil Refinery, North Killingholme, Immingham, DN40 3LW	A04: Household, Commercial & Industrial Waste Landfill	Lindsey Oil Refinery Ltd	To Pollution Prevention Control (PPC)	1,463 Section 1
WAS004	South Killingholme C A Site	Eastfield Road, South Killingholme, Grimsby, N E Lincs, DN40 3NB	A13: Household Waste Amenity Site	Wastewise Waste Management Services Ltd	Surrendered	1,156 Section 1

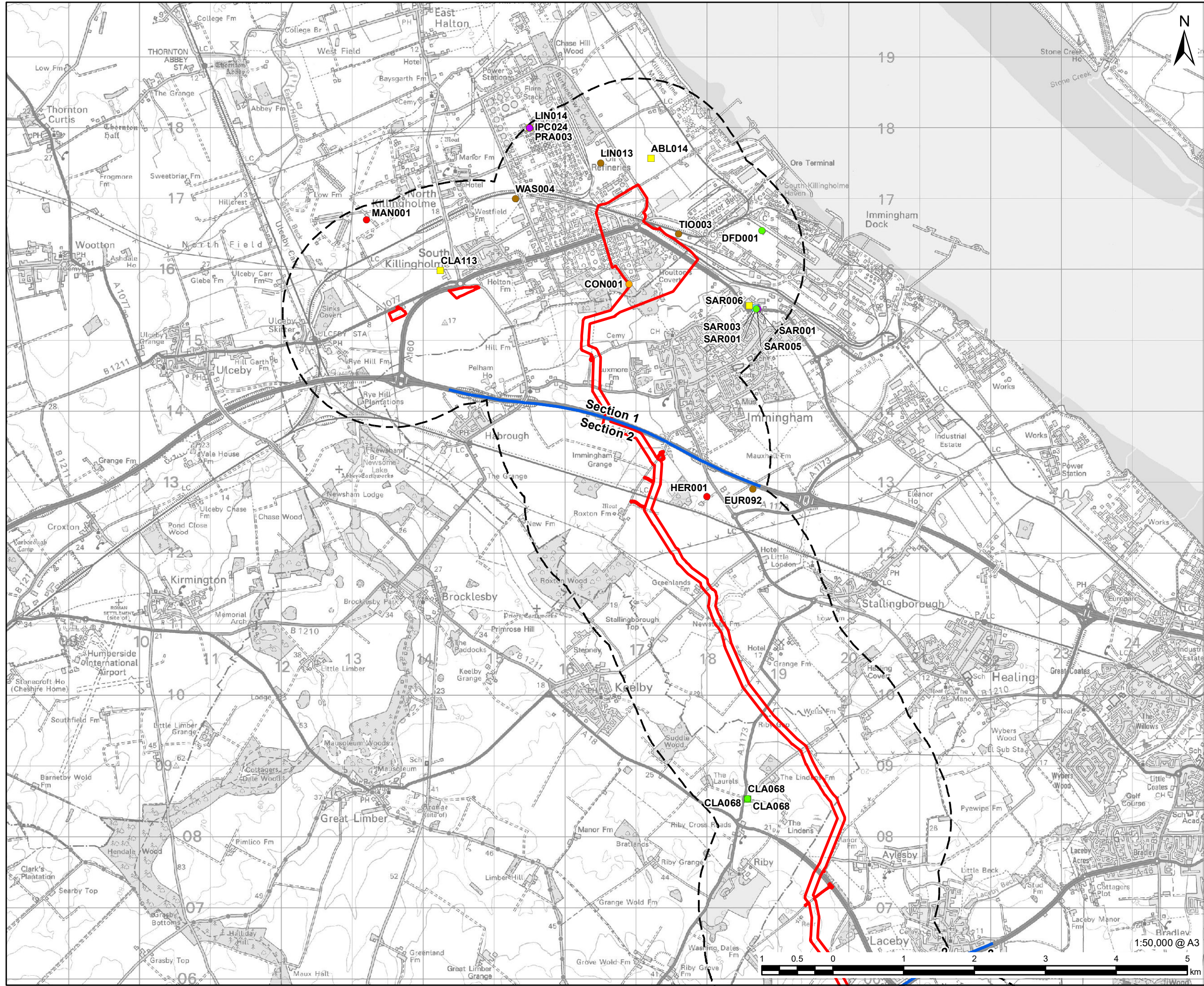
Licence Number	Site Name	Site location	Licence Type	Operator	Licence Status	Distance from Draft Order Limits (m) and Section
DFD001	DFDS Seaways Plc	Nordic House, Western Access Road, Immingham Dock, N E Lincs, DN40 2LZ	A11: Household, Commercial and Industrial Waste Transfer Station	DFDS Seaways Plc	Modified	1,035 Section 1
TIO003	Landfill Site - South Killingholme Tioxide Europe Ltd	Humber Road, Grimsby, N E Lincs	A07: Industrial Waste Landfill (Factory Curtilage)	Tioxide Europe Ltd	Surrendered	94 Section 1
CON001	Humber Refinery, Conoco Ltd	Humber Refinery, South Killingholme, Grimsby, N E Lincs, DN40 3DW	A23: Biological Treatment Facility	Phillips 66 Limited	Closure	0 Section 1
HER001	Tara's Pet Crematorium	Land/premises At Immingham Road, Stallingborough, N E Lincs, DN37 8BP	A18: Incinerator	Mr V M Herbert & Mrs G E Herbert	Expired	678 Section 2
CLA068	Clarkeson Organic Recycling	Clarkeson Recycling, Wells Road, Riby, Grimsby, N E Lincs, DN37 8NQ	A22: Composting Facility	Clarkeson Recycling	Modified	957 Section 2
VIC001	C W Vickers Scrap Metals	Westfield House, Louth Rd, Holton-le Clay, Louth, Lincolnshire, DN36 5HA	A20: Metal Recycling Site (mixed MRS's)	Vickers C W	Surrendered	775 Section 2

Licence Number	Site Name	Site location	Licence Type	Operator	Licence Status	Distance from Draft Order Limits (m) and Section
BRI264	Willow Lakes	Barton Street, Ashby cum Fenby, N E Lincs, DN31 2TG	SR/08: Inert & Excavation Waste Transfer Station and Treatment	Brianplant (Humberside) Ltd	Surrendered	1,185 Section 2
SCA001	Mr R. Scaman, Little Grimsby	Grange Farm, Little Grimsby, Louth, Lincolnshire, LN11 0TZ	A18: Incinerator	Scaman R	Surrendered	239 Section 4

Table 18-17: Local Waste Site Permit Applications

Ref.	Site Name	Site location	Licence Type	Operator	Licence Status	Dist. from Draft Order Limits (m) and route Section
ABL014	Able Humber Ports	Rosper Road, South Killingholme, Immingham, N E Lincs, DN40 3DZ	Not listed	Able UK Ltd	Pre-application (Pre-app)	425 Section 1
CLA113	The Poplars	The Poplars, Ulceby Rd, South Killingholme, Immingham DN40 3JB	Not listed	Clarkeson Recycling Limited	Pre-app	328 Section 1
SAR006	S A R Metals Limited	Unit 1, Pelham Industrial Estate, Manby Road Industrial Estate,	Not listed	S A R Metals Limited	Pre-app	1,090 Section 1

Ref.	Site Name	Site location	Licence Type	Operator	Licence Status	Dist. from Draft Order Limits (m) and route Section
		Immingham, N E Lincs, DN40 2LF				
SAR003	S A R Metals Limited	Phoenix House, Manby Road Industrial Estate, Immingham, N E Lincs, DN40 2LG	S1517: Vehicle Depollution Facility	S A R Metals Limited	Withdrawn	1,172 Section 1
SAR001	S A R Recycling Ltd	Units 1 & 2, Pelham Industrial Estate, Manby Road Industrial Estate, Immingham, N E Lincs, DN40 2LF	A15: Material Recycling Treatment Facility	S A R Recycling Limited	Withdrawn	1,188 Section 1
PRA003	Total Lindsey Oil Refinery	Not listed	A07: Industrial Waste Landfill (Factory curtilage)	Prax Lindsey Oil Refinery Limited	Pre-app	1,463 Section 1
CLA068 and CLA068	Clarkeson Organic Recycling	Wells Road, Riby, Grimsby, N E Lincs, DN37 8NQ	S0816 and A22: Composting In Open Windrows	Clarkeson Recycling Ltd	Withdrawn / Modification in Progress	965 Section 2
PET575	Barton Street Pit	Barton Street, East Ravendale	A05: Landfill taking Non-Biodegradable Wastes	Peter Strawson Limited	Pre-app	1,240 Section 3
NOB001	Vilamoura	Meadow Ln, North Cockerington, Louth LN11 7ER	Not listed	Noble Matthew	Pre-app	851 Section 4



LEGEND

- Draft Order Limits
- 1.5km Study Area
- Route Section Break

Local Permitted and Surrendered Waste Site:

- Closure
- Expired
- Modified
- Surrendered
- To PPC

Local Waste Site Permit Application:

- Mod. progress
- Pre-app
- Withdrawn

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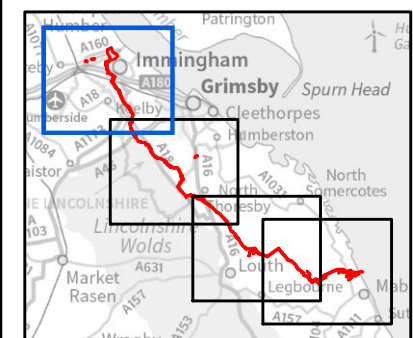
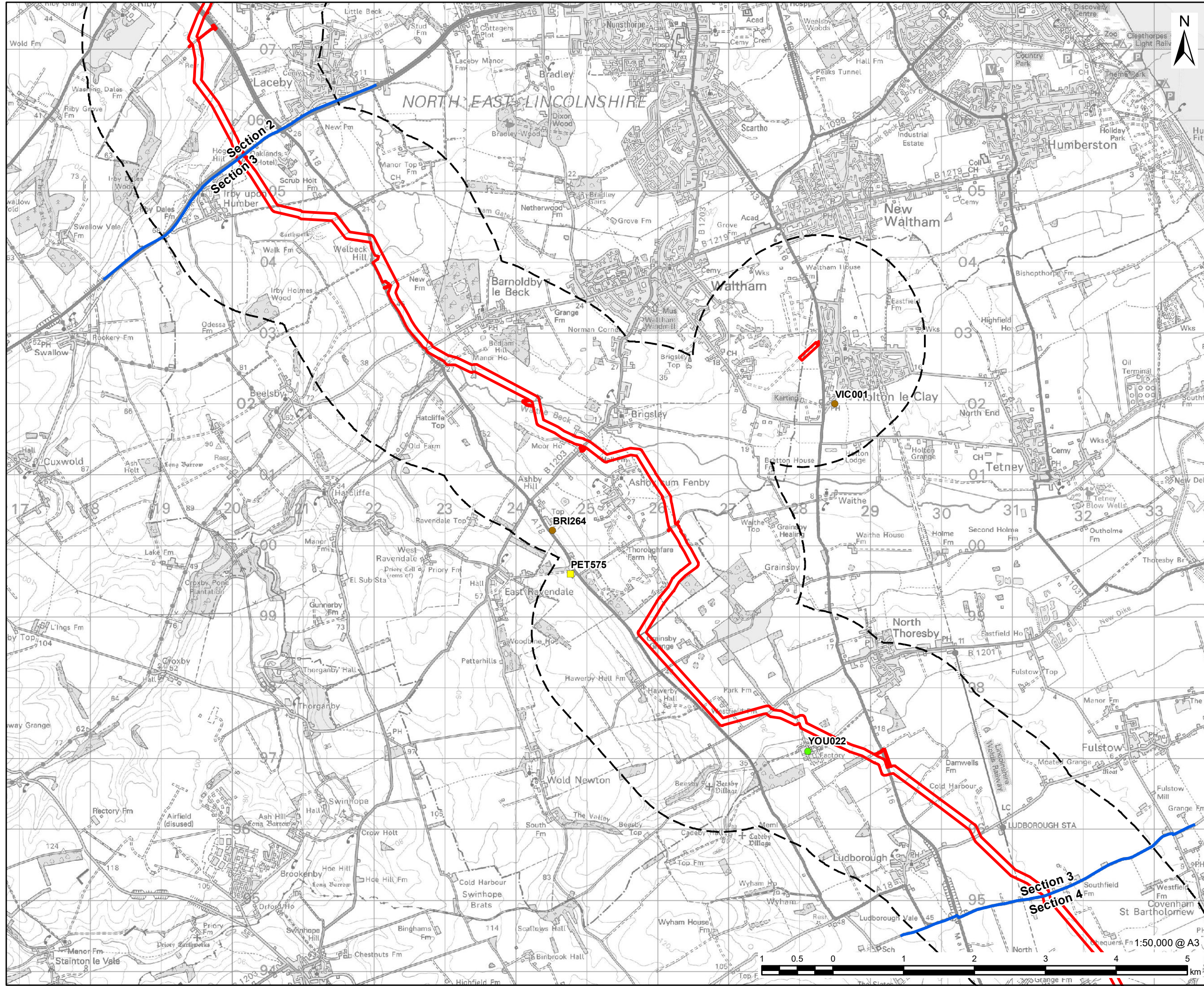


FIGURE TITLE

Figure 18-1 (1 of 4)
Waste Sites Within 1.5 km

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- LEGEND**
- Draft Order Limits
 - 1.5km Study Area
 - Route Section Break
- Local Permitted and Surrendered Waste Site:
- Modified
 - Surrendered
- Local Waste Site Permit Application:
- Pre-app

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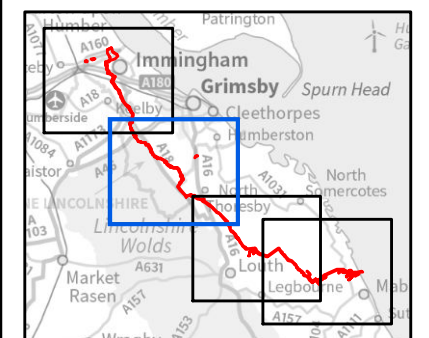
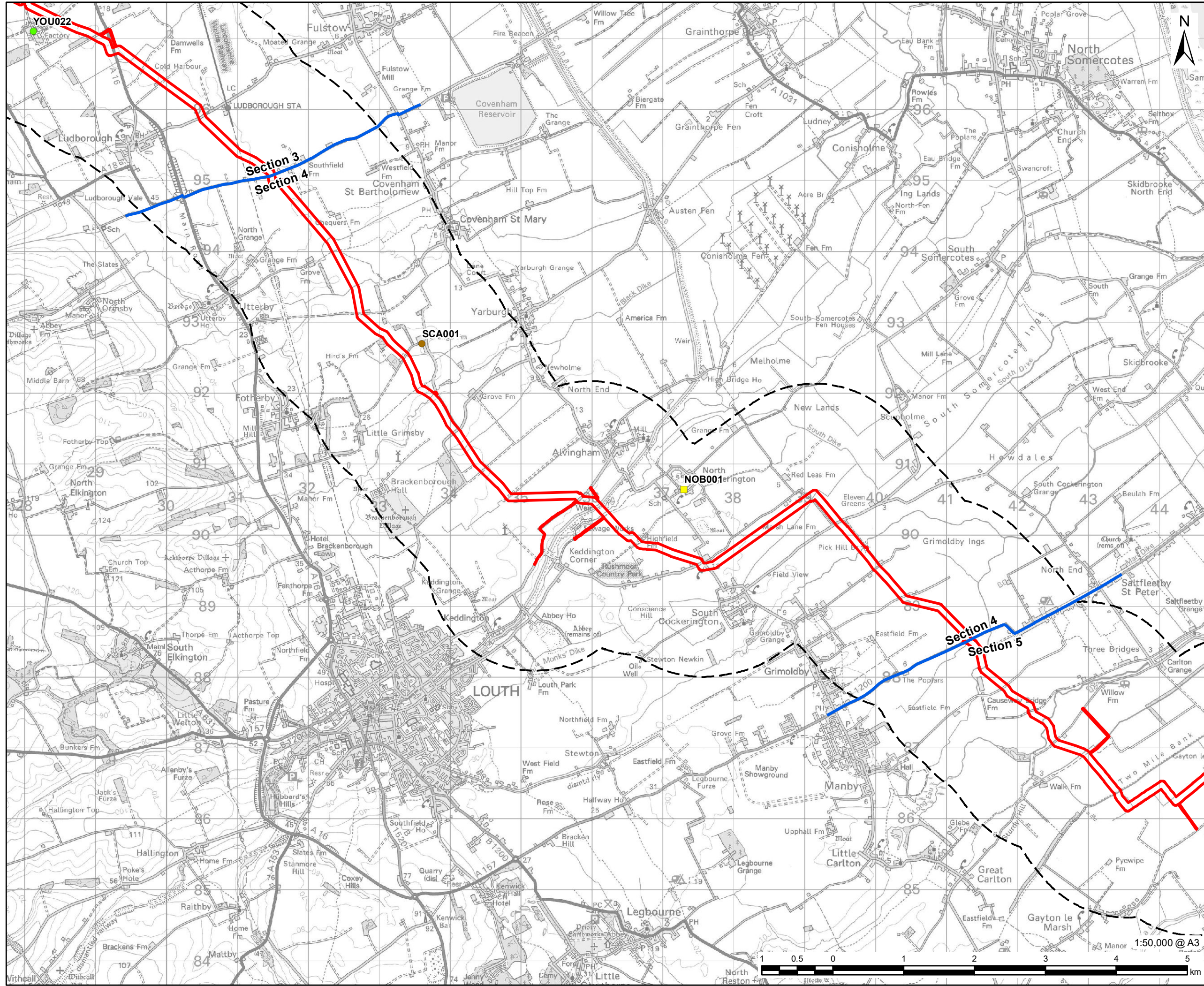


FIGURE TITLE
 Figure 18-1 (2 of 4)
 Waste Sites Within 1.5 km

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LEGEND

- Draft Order Limits
- 1.5km Study Area
- Route Section Break

Local Permitted and Surrendered Waste Site:

- Modified
- Surrendered

Local Waste Site Permit Application:

- Pre-app

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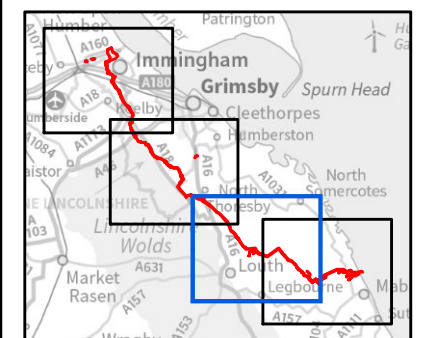
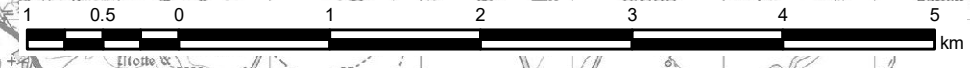
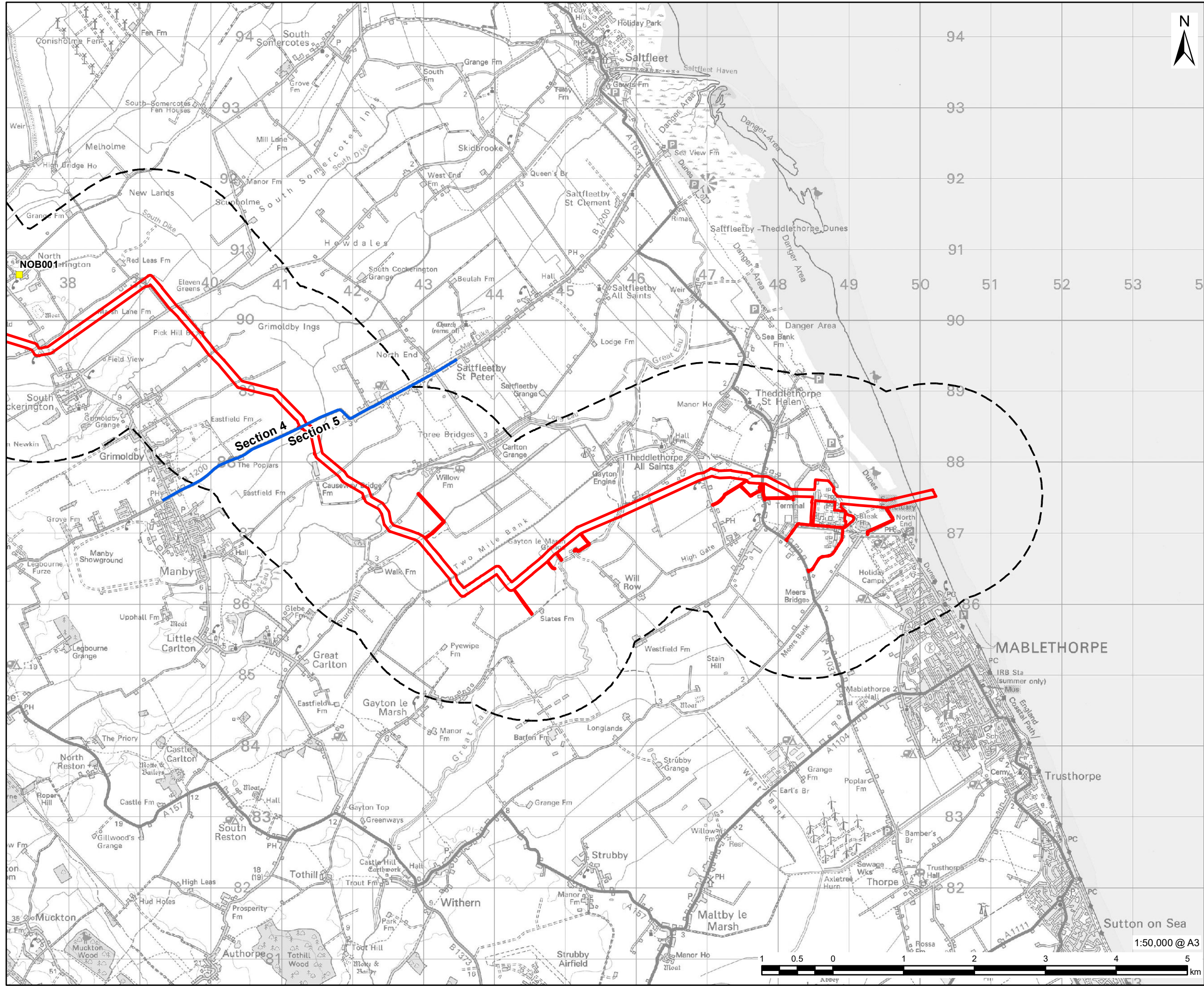


FIGURE TITLE
 Figure 18-1 (3 of 4)
 Waste Sites Within 1.5 km

ISSUE PURPOSE
 PEIR
PROJECT NUMBER / REFERENCE
 60668955 / VCCS_221102_PEIR_18-1

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LEGEND

- Draft Order Limits
- 1.5km Study Area
- Route Section Break

Local Waste Site Permit Application:

- Pre-app

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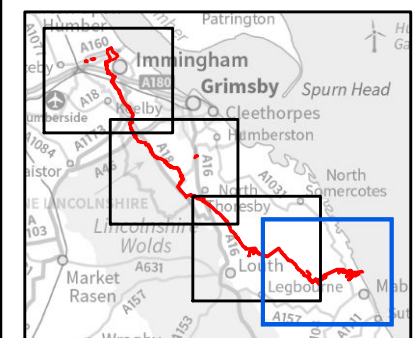


FIGURE TITLE
 Figure 18-1 (4 of 4)
 Waste Sites Within 1.5 km

ISSUE PURPOSE
 PEIR
 PROJECT NUMBER / REFERENCE
 60668955 / VCCS_221102_PEIR_18-1

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Landfill capacity

18.5.26 **Table 18-18** details the remaining landfill capacity at the end of 2021 as outlined on the EA’s 2021 Waste Summary Tables for England – Version 1 (Ref 18-4) for the non-hazardous and inert waste Study Area (East Midlands and Yorkshire and the Humber) and the hazardous waste study area (England).

18.5.27 Merchant landfills are operated for commercial purposes accepting waste from construction projects and operating businesses. Merchant landfills are therefore considered to form the baseline. In contrast, restricted landfills are sites that deal with their own produced waste (i.e. not operating for commercial purposes) and therefore additional capacity from restricted landfills is excluded from the baseline. Some non-hazardous landfill have a Stable Non-Reactive Hazardous Waste Cell (SNHRW) e.g. for asbestos.

Table 18-18: Landfill Capacity (2021) in East Midlands, Yorkshire and The Humber, and England

Landfill type	East Midlands	Yorkshire and the Humber	Total in East Midlands and Yorkshire and the Humber	1% Total landfill capacity in East Midlands and Yorkshire and the Humber	England	0.1% Total landfill capacity in England
Capacity ('000s m ³)	m ³		'000s m ³		m ³	
Hazardous merchant	800	700	1,500	Not applicable hazardous landfill considered at a national level.	12,107	12,107
Non-hazardous with SNRHW cell	15,884	1,243	17,127	171,270	52,006	Not applicable non-hazardous and inert landfill considered at a regional level.
Non-hazardous	17,571	45,196	62,767	627,670	162,369	
Inert	21,574	25,283	46,857	468,570	129,078	
Total non-hazardous	55,029	25,283	80,312	803,120		

18.5.28 The EA published landfill capacity trends for 2004 to 2021 in 2022 in the 2021 Waste Summary Tables for England (Ref 18-4). **Figure 18-2** presents the historic trend for remaining landfill capacity for the East Midlands and Yorkshire and the Humber. **Figure 18-3** presents the historic trend for remaining landfill capacity for England. Data is only available

for “Inert” (inert landfill only) and “Non-Inert” (non-hazardous landfill sites, non-hazardous landfill sites with a SNHRW cell and merchant hazardous landfill sites) therefore the categories do not align with the 2021 landfill capacity data which is split by hazardous, non-hazardous and inert.

Figure 18-2: Historic Trend for Landfill Void Capacity in East Midlands and Yorkshire and the Humber

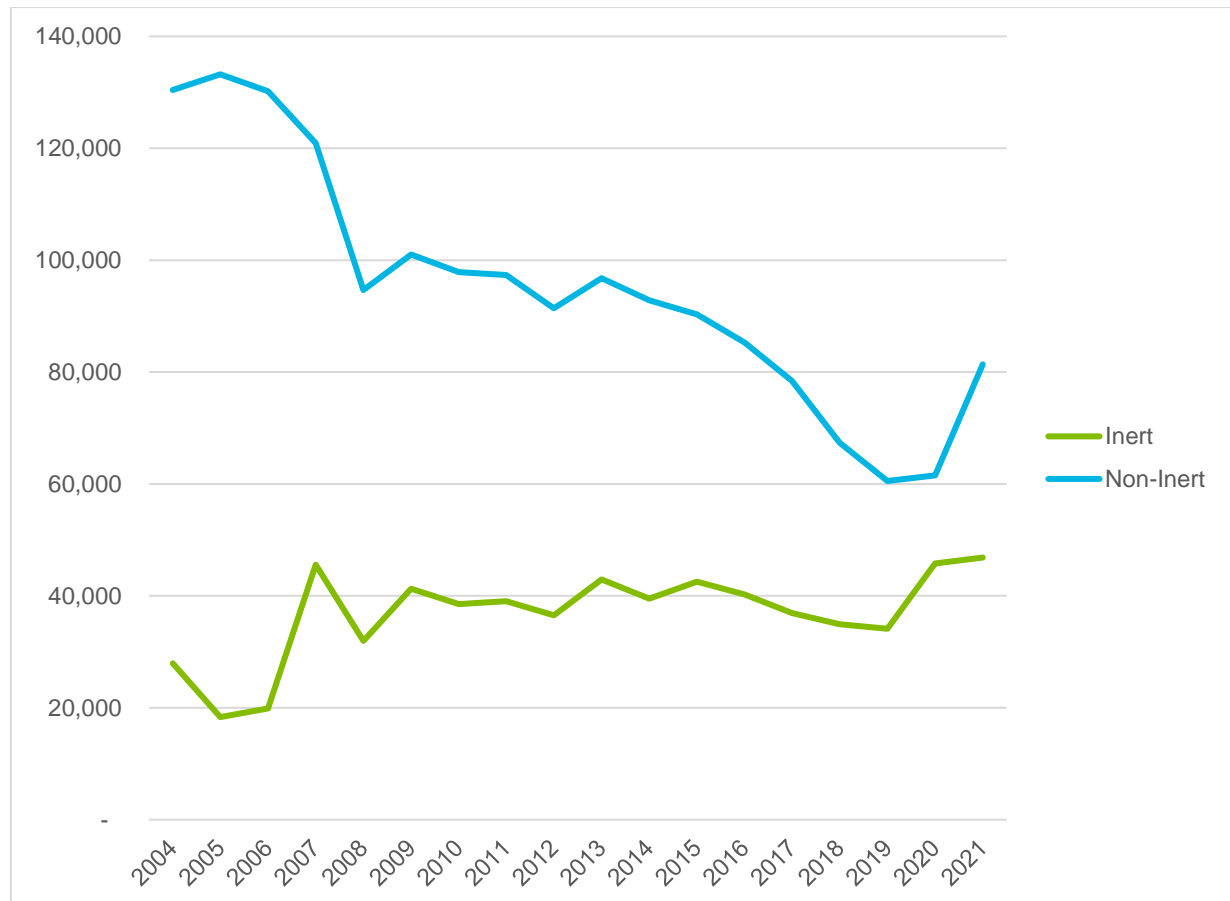
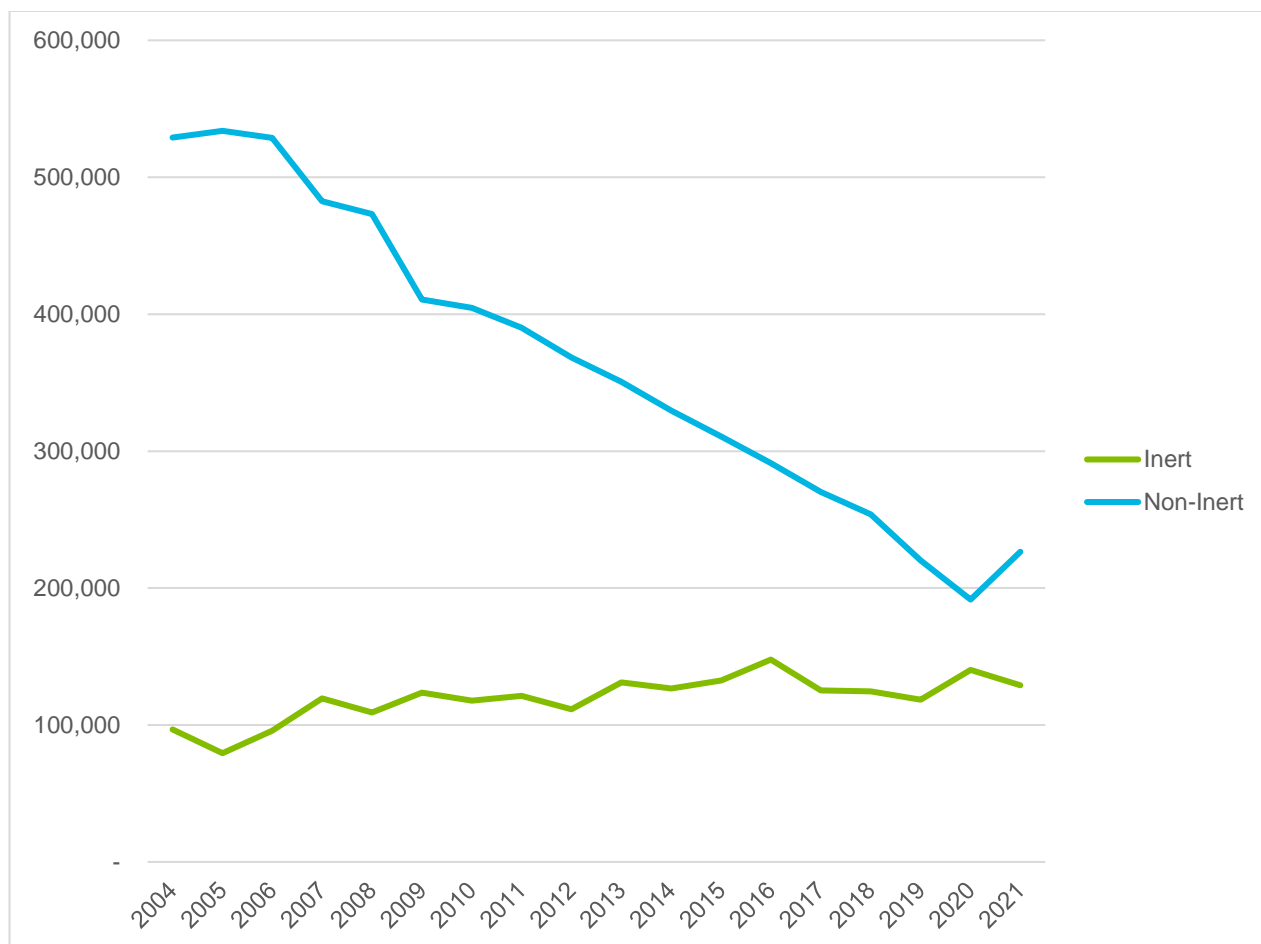


Figure 18-3: Historic Trend for Landfill Void Capacity in England



18.5.29 There is no publicly available information on any potential changes to this landfill capacity by the time of the construction of the Project. Due to the cyclic nature of inert landfill capacity it is not appropriate to forecast future landfill capacity since this may result in an increase in landfill capacity which would not be considered a worst case scenario. Therefore, inert landfill capacity is assumed to be the same as the current baseline as outlined in **Table 18-18**. For non-inert landfill (which includes hazardous waste) capacity using the current rate of decline of landfill capacity and forecasting into the future would lead to the inevitable conclusion that there would be no void space remaining. However, this is not a credible scenario: if there is still a need for landfill, then the WPA will need to consent new landfill capacity to replace that which has been used up. Therefore, non-hazardous and hazardous landfill capacity is assumed to be the same as the current baseline as outlined in **Table 18-18**.

Historic and Permitted Landfills

18.5.30 The Draft Order Limits does not pass through any “*Authorised Landfill Permitted Waste Sites*” as outlined in the EA’s Permitted Waste Sites - Authorised Landfill Site Boundaries spatial data (Ref 18-37).

18.5.31 Historic landfills are potentially relevant to this assessment since excavations in historic landfill can give rise to waste that would require management. The EA’s Historic Landfill Sites spatial data (Ref 18-38) identifies one historic landfill site which falls within the boundaries of the Draft Order Limits, over two distinct areas. This is referred to as “Conoco” (HL1) and lies towards the northern extent of the Draft Order Limits at approximate grid reference TA 17120 416024 and appears to lie within the site of the Phillips 66 Humber

Refinery. The first input date is given as 30/06/1975 and the waste type is listed as industrial and liquid sludge. This site may be connected to a permitted waste site (A23: Biological Treatment Facility) with a status of being in closure (reference PW9 in Table 18-15 above).

18.5.32 Several further historic landfill sites, are located within close proximity (less than 1km) of the Draft Order Limits, the details of which are presented in **Table 18-19** below, listed from North to South.

Table 18-19: Local Historic Landfill Sites

Ref.	Site Name	Site Location	Licence Type	Operator	Licence Status	Distance from Draft Order Limits (m)
HL2	Lindsey Oils Site C	Eastfield Road, North Killingholme, Immingham, North Lincolnshire DN40 3LW				1,000 Section 1
HL3	Lindsey Oil Refinery	Rosper Road, South Killingholme, Immingham DN40 3LW	Liquid sludge		Licensed - surrendered	380 Section 1
HL4	Killigholme Haven	South Killingholme, Immingham, South Humberside	Inert	Geostore Limited	Licensed - surrendered	1,000 Section 1
HL6	Marsh Lane	South Killingholme, Immingham, South Humberside	Inert	Geostore Limited		620 Section 1
HL7	Eastfield Road Landfill Site	Eastfield Road, South Killingholme, Grimsby, N E Lincs, DN40 3NB	Inert, industrial, commercial, household, special, liquid sludge	J W Stanley	Licensed - surrendered (gas control)	905 Section 1
HL8	Landfill Site - South Killingholme	Humber Road, Grimsby, Lincolnshire	Industrial	Landfill Site - South Killingholme	Licensed - surrendered	25 Section 1
HL9	South Killingholme Conoco	Southern Way, South Killingham, Immingham DN40 2QN				670 Section 1

Ref.	Site Name	Site Location	Licence Type	Operator	Licence Status	Distance from Draft Order Limits (m)
HL10	Immingham West	Immingham West DN40 2QX	Inert, Household			975 Section 1
HL11A	Conoco	Manby Road, South Killingholme, Immingham DN40 3DX	Industrial, liquid sludge		Licensed - surrendered	0 Within Draft Order Limits Section 1
HL11B	Conoco	Manby Road, South Killingholme, Immingham DN40 3DX	Industrial, liquid sludge		Licensed - surrendered	0 Within Draft Order Limits Section 1
HL12	Mill Lane	Mill Lane, Immingham	Industrial, commercial, household			185 Section 1
HL13	Washingdales	Land Near Barton Street, Irby On Humber	Inert, industrial, household, liquid sludge			335 Section 2
HL14	Aylesby	Land Near Barton Street, Aylesby, Cleethorpes	Inert - non-hazardous waste arising from the construction industry, factory solids and demolition waste	J Hurdiss Limited	Licensed - surrendered	380 Section 2
HL15	Cooper Lane	Cooper Ln, Laceby, Grimsby DN37 7AS	Industrial, household			1,000 Section 2

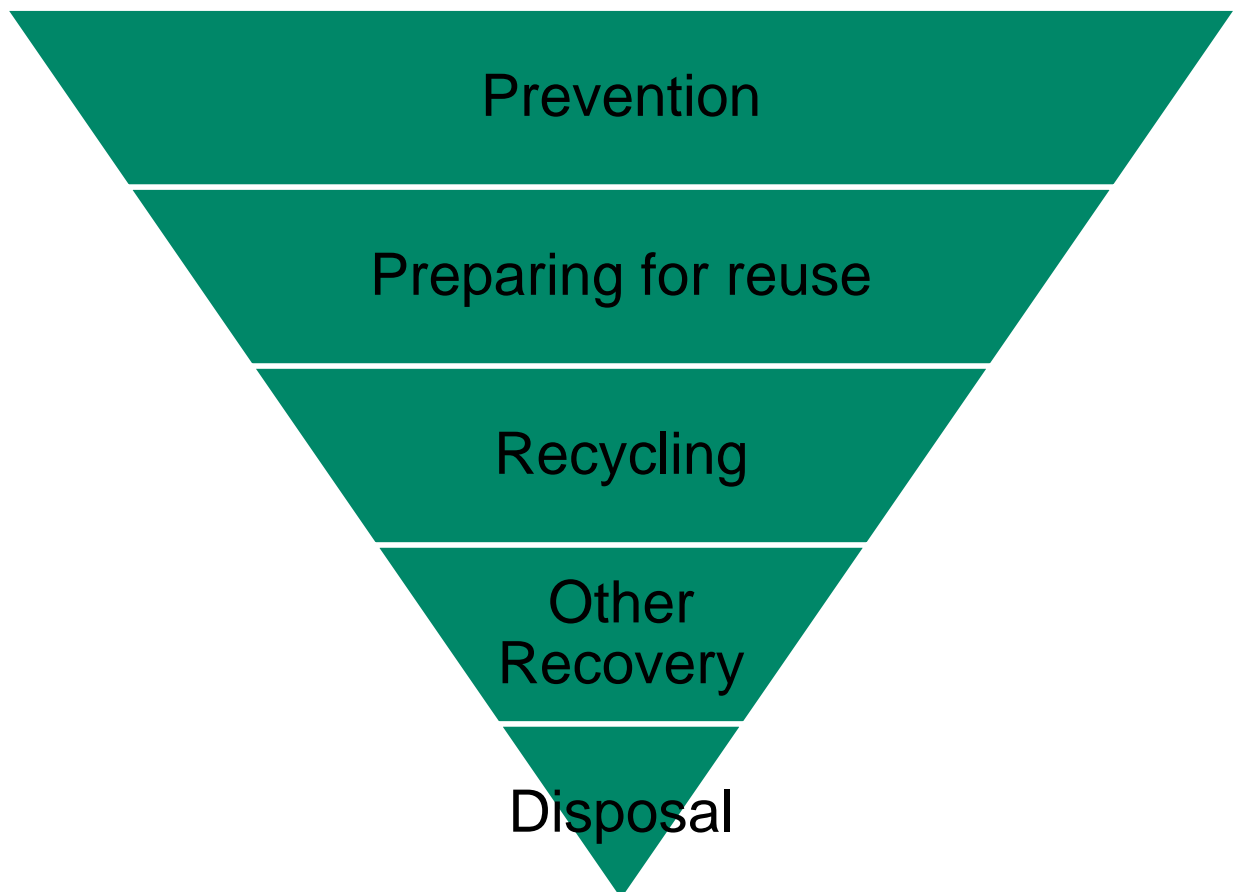
Ref.	Site Name	Site Location	Licence Type	Operator	Licence Status	Distance from Draft Order Limits (m)
HL16	Irby Upon Humber	Trunkass Lane, Irby Upon Humber, Cleethorpes	Industrial (exempt)			1,000 Section 3
HL17	Barton Street	Barton Street, Waterdell, Hatcliffe, Grimsby	Inert, household, liquid sludge	Barton Street Tipping Comp-any	Licensed - surrendered	110 Section 3
HL18	Hatcliffe Top	Hatcliffe Top, Grimsby DN37 0SG	Industrial, household (exempt)			430 Section 3
HL19	Ashby Hill Top	East Ravendale, Cleethorpes	Inert, industrial, commercial, household	Biffa Waste	Licensed - surrendered, gas control	1,000 Section 3
HL20	Cadeby Hall B	Hawerby cum Beesby, Grimsby DN36 5PX	Industrial, household	Louth Rural District Council		520 Section 3
HL21	Beesby Farm	Barton Street, Hawerby cum Beesby, North Thorseby	Inert, industrial, commercial, household	Lincolnshire County Council	Licensed - surrendered	640 Section 3
HL22	OS Field No 9000	Off Station Road, Ludborough, Lincolnshire	Inert	J E Churchill Earthworks Limited	Licensed - surrendered	270 Section 4
HL23	The Old Cut	Theddlethorpe Hall Farm, Mablethorpe	Inert			760 Section 5

18.6 Mitigation

Embedded Mitigation

- 18.6.1 As described in the IEMA Guidance embedded (primary) mitigation is the prevention or reduction of adverse effects through the resource-efficient design, construction and/or lifetime operation of a development.
- 18.6.2 Primary embedded mitigation measures are an intrinsic part of the development, and do not require additional action to be taken. Such measures are often identified as a result of the interaction between the EIA and engineering specialists within a development team, who are able to identify and agree by consensus resource-efficient design solutions.
- 18.6.3 The Project will aim to prioritise waste prevention, followed by preparing for re-use, recycling and recovery and lastly disposal to landfill as per the waste hierarchy (**Figure 18-4**).

Figure 18-4: The Waste Hierarchy (Ref 18-41)



- 18.6.4 The following mitigation principles will be considered and implemented where applicable during the design phases and subsequent construction work:
- Design for reuse and recovery: identifying, securing and using materials that already exist on site, or can be sourced from other projects;
 - Design for materials optimisation: simplifying layout and form to minimise material use, using standard design parameters, balancing cut and fill, maximising the use of renewable materials and materials with recycled content;
 - Design for off-site construction: maximising the use of pre-fabricated structure and components, encouraging a process of assembly rather than construction;

- Design for the future (deconstruction and flexibility): identify how materials can be designed to be more easily adapted over an asset lifetime and how deconstructability and demountability of elements can be maximised at end of first life; and
- Design for waste and material asset efficient procurement: identify and specify materials that can be acquired responsibly, in accordance with a recognised industry standard.

18.6.5 Embedded measures are considered prior to the assessment of effects to avoid considering assessment scenarios that are unrealistic in practice, i.e., do not take account of such measures even though they are likely to be standard practice (tertiary mitigation) and/or form part of the design of the Project (embedded mitigation). These will then be followed through the assessment to ensure that realistic likely environmental effects are identified. Where likely significant adverse effects are identified after considering these embedded measures, 'Additional Mitigation and Enhancement Measures' will be considered, developed and proposed, where possible (see section below).

18.6.6 All 'Embedded Mitigation' will be described within the ES with the rationale for their inclusion of the clearly stated.

Additional Mitigation

18.6.7 As described in the IEMA Guidance additional (secondary) mitigation measures are actions that will require further activity in order to achieve the anticipated outcome. These may be imposed as part of the planning consent, or through inclusion in an environmental assessment documentation.

18.6.8 Construction of the Project would be subject to measures and procedures defined within a Construction Environmental Management Plan (CEMP), which would be produced prior to the commencement of construction by the Principal Contractor and would be based on, and incorporate, the contents the Draft CEMP and OSWMP which will be part of the application for development consent, and other industry standard practice and control measures and targets as necessary.

18.6.9 A Preliminary Draft Construction Environmental Management Plan (CEMP) has been prepared as part of this PEIR and can be found in *PEIR Volume IV - Appendix 3.1*. This sets out the preliminary additional and enhancement mitigation measures identified in this preliminary assessment of significant effects. The mitigation presented in the Draft CEMP will be secured through a requirement within the DCO, which requires a CEMP to be submitted for approval after the grant of development consent.

18.6.10 This section summarises these measures. These measures should be adopted during the construction phase and will be refined and be developed as part of the construction assessment for the ES:

- *M1: Register with the Considerate Constructors Scheme;*
- *M2: Appoint a Waste Manager or Champion who would oversee the implementation of the waste control strategy and the handling of any waste material.*
- *M3: Ensure the procurement process orders material resources so that the timing of the delivery (e.g., 'just in time' deliveries), the quantities delivered, and the storage are optimised to reduce the potential for oversupply and damage onsite;*
- *M4: Develop sustainability targets and monitor during construction;*
- *M5: Sort and segregate waste into different waste streams (where technically and economically feasible);*
- *M6: Wherever possible and where specification allows, construction materials would include a measurable recycled content in their manufacture;*

- *M7: Wherever possible, standardisation of materials and elements would be incorporated in order to minimise required material resources and the production of waste. For example, the use of prefabricated components;*
- *M8: Consider using local sources for aggregate supplies and explore agreements with suppliers to reduce the amount of packaging used to protect materials or to participate in a packaging take back scheme;*
- *M9: Promote opportunities for the potential reusing and recycling of all material resources and waste;*
- *M10: Manage material use to maximise the environmental and Project benefits from the use of surplus materials;*
- *M11: Excavated material would be targeted for fill and landscaping where this is feasible, and the material is suitable. Excavated materials, such as soils, would be carefully stored in segregated piles for subsequent reuse on the site, where possible. If the material is contaminated then it would be kept separate from clean material and sent for either treatment, recycling or recovery, where appropriate, or disposal at appropriately permitted facilities;*
- *M12: Surplus inert excavated materials (e.g. soils, stone, bricks, clay, rubble, rock) may be suitable for use in land reclamation projects. This would require compliance with the criteria and thresholds for an exemption or a permit under the Environmental Permitting Regulations 2010 (as amended). The CL:AIRE DoWCoP (Ref 18-30) may also be applicable for the reuse of this material;*
- *M13: The waste management area would be established within the main construction compound to handle incoming waste from construction activities. This would be designed to facilitate the segregation of key waste streams to maximise the opportunity to reuse, recycle and return wastes generated onsite;*
- *M14: Construction work would be carried out closely with the waste management contractors, in order to determine the best techniques for managing waste and ensure a high level of recovery of materials for recycling. An area would be established for spoil classification at the Draft Order Limits; and*
- *M15: Shelter would be provided to prevent materials such as cardboard and paper from deteriorating while being sorted or awaiting collection. Space would be provided to accommodate skips and the storage of reusable materials.*
- *M16: A Materials Management Plan (MMP) will developed under the CL:AIRE DoWCoP (Ref 18-30) by the construction contractor to support the re-use of excavated materials, minimise off-site disposal; and to demonstrate the necessary lines of evidence to support the proper reuse/offsite disposal of materials and ensure compliance with regulatory guidance. The Principal Contractor would be responsible for preparing the MMP prior to the commencement of construction and for obtaining all necessary approvals.*
- *M5: Develop the OSWMP attached to the Draft CEMP. This will be required to include measures to ensure waste produced or held on a site is disposed of safely, efficiently and lawfully, and meets all of Harbour Energy's environmental targets.*

Targets

18.6.11 The national target for recovery of construction and demolition waste is 70% by weight, as set out in the E Waste FD (Ref 18-2) and the Waste Management Plan for England (Ref 18-19). The target specifically excludes naturally occurring materials with European Waste Catalogue (EWC) Code 17 05 04 (17 05 04 soil and stones other than those mentioned in

17 05 03* (soils and stone containing dangerous substances)). Recovery is deemed to include reuse, recycling and other recovery e.g. energy recovery.

18.6.12 A good practice landfill diversion target of 90% has been achieved and exceeded by major UK developments as outlined in the IEMA Guidance. In 2018, the UK generated 67.8 million tonnes of non-hazardous construction and demolition (C&D) waste, of which 62.6 million tonnes was recovered. This represents a recovery rate of 92.3% (Ref 18-39).

18.6.13 Standard, good and best practice recovery rates by material are provided by WRAP (Ref 18-40). Recovery rates for key construction materials and other construction wastes relevant to the Project are provided in **Table 18-20**.

18.6.14 Potential recycled contents for the main construction materials are outlined in **Table 18-12**.

18.6.15 Project targets for materials and waste are:

- at least 90% (by weight) recovery of non-hazardous construction and demolition waste. The target specifically excludes naturally occurring materials with EWC Code 17 05 04 (17 05 04 soil and stones other than those mentioned in 17 05 03* (soils and stone containing dangerous substances)). Recovery is deemed to include reuse, recycling and other recovery e.g. energy recovery; and
- at least 25% (by weight) of materials imported to site for use within the Project will comprise alternative (reused, recycled or secondary) content, for those applications where it is technically and economically feasible to substitute these alternatives to primary materials.

Table 18-20: Standard, Good and Best Practice Recovery Rates by Material

Material	Standard practice recovery (%)	Good practice recovery (%)	Best practice recovery (%)
Metals	95	100	100
Packaging	60	85	95
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical equipment	Limited information	70	95
Cement	Limited information	75	95
Liquids and oils	100	100	100
Hazardous	50	Limited information, cannot be 100% since some hazardous waste e.g., asbestos must be landfilled.	

18.6.16 All additional mitigation and enhancement measures, if required, will be described within the ES with the rationale for their inclusion clearly stated.

18.6.17 The preliminary assessment is undertaken with the assumption that the embedded and additional mitigation measures are in place.

18.7 Preliminary Assessment of Effects

Construction

18.7.1 **Table 18-21** summarises the likely types of materials that will be used and wastes that are likely to be generated during the construction of the Project.

Table 18-21: Construction Material Use and Waste Types Arising from the Construction of the Project

Construction Activity	Materials Used	Waste Types Generated
Site remediation / preparation / earthworks	<ul style="list-style-type: none"> • Fill material for construction purposes. • Primary / secondary / recycled aggregates for ground stabilisation. • Topsoil and subsoil for landscaping and restoration. 	<ul style="list-style-type: none"> • Surplus excavated materials. • Surplus topsoil and subsoil. • Unsuitable and contaminated soils and excavated materials. • Vegetation from site clearance.
Demolition	<ul style="list-style-type: none"> • Materials are not required for demolition works. 	<ul style="list-style-type: none"> • Demolition works are not anticipated. The former Theddlethorpe Gas Terminal (TGT) site is now fully demolished (Theddlethorpe Facility Option 1) and other land required for the Project is brownfield or greenfield.
Site construction	<ul style="list-style-type: none"> • Main construction materials including: • Aggregates • Asphalt and bituminous materials • In-situ cast concrete • Precast concrete products (structural components, kerbs, drainage pipes, chambers and channels) • Steel 	<ul style="list-style-type: none"> • Excess, offcuts and broken / damaged construction materials. • Existing infrastructure removed during works. • Packaging from materials delivered to site. • Construction worker wastes from offices and welfare areas / canteens. • Waste oils from construction plant.

Construction materials

18.7.2 An indicative list of the materials (e.g., pipe, instrument and controls, cathodic protection, electrical equipment) required for the Project are presented in **Table 3-4** of *Chapter 3: The Viking CCS Pipeline*.

18.7.3 The estimated main types and quantities of other construction materials (e.g. aggregates, asphalt, steel reinforcement and concrete) anticipated to be used during construction of the

Project are not yet available, but this information is anticipated to be available for assessment within the ES.

- 18.7.4 Temporary access tracks will not consist of aggregates and membrane therefore the import of aggregates or management of aggregates at the end of the construction will not be required.
- 18.7.5 Since estimated main types and quantities of construction materials are not yet available it is not possible to compare material quantities against the baseline consumption. However, it is not anticipated that any individual construction material will be equal or greater than 5% by weight of the baseline consumption ('minor') or 1% by weight of baseline consumption ('negligible') as presented in **Table 18-11** and **Table 18-12**. The sensitivity of the receptor is classified as 'low', therefore a 'minor' or 'negligible' magnitude of impact is assessed to result in a 'neutral or slight adverse' effect which is considered to be not significant.

Construction waste

- 18.7.6 Since estimated main types and quantities of construction materials are not yet available, the total wastage from construction material is unknown. Therefore, construction waste has been estimated at a high-level.
- 18.7.7 The estimate of construction waste (excluding demolition and excavation) has also been calculated based on the construction value (a range of three estimates provided by contractors) and a published benchmark based on standard (20.9), good (8.6) and best (5.5) m³ waste per £100,000 (Ref 18-42).
- 18.7.8 For the purpose of this preliminary assessment construction waste is estimated at between 5,498 m³ – 25,141 m³.
- 18.7.9 A worst-case scenario where all waste is disposed of to landfill has been applied. This equates to between 0.004 and 0.02% of the 127 million m³ of inert and non-hazardous landfill capacity within the waste management study area (East Midlands and Yorkshire and the Humber). In practice a large proportion of non-hazardous and inert waste from the Project is likely to be recovered rather than disposed of to landfill, further reducing the overall quantities of waste for disposal. Suggested project targets are outline in section 18.6.15..
- 18.7.10 Based on the above, the construction of the Project is likely to result in less than a 1% reduction of landfill capacity within the waste management study area, which equates to a 'negligible' magnitude of impact.
- 18.7.11 The sensitivity of the receptor is classified as 'very high', therefore a 'negligible' magnitude of impact is assessed to result in a 'slight adverse' effect which is considered to be not significant.
- 18.7.12 At this stage only a high level estimate of hazardous waste generation during construction has been undertaken. The quantities of hazardous waste e.g., oils, batteries, aerosol cans etc., are anticipated to be small compared to the overall construction waste arisings. Smartwaste's Data and Reporting distribution of waste products (Ref 18-43) outlines that hazardous waste is less than 1% of total construction waste estimate (e.g. 251 m³ of the highest construction waste estimate outlined in 18.7.9) which is less than 0.1% (12,107 m³) of the hazardous waste landfill capacity in England, equating to a 'negligible' magnitude of impact.
- 18.7.13 Many hazardous waste types have well defined waste management routes including recovery and are unlikely to be sent directly to landfill. Procedures for the storage and management of these wastes will be set out in the in the Principal Contractor's Site Waste Management Plan (SWMP).

18.7.14 For hazardous waste the sensitivity of the receptor is classified as 'very high', therefore a 'negligible' magnitude of impact is assessed to result in a 'slight adverse' effect which is considered to be not significant.

Demolition and clearance waste

18.7.15 Demolition is not anticipated, as the former TGT site is now fully demolished (Theddlethorpe Facility Option 1) and other land required for the Project is brownfield or greenfield. The quantities of waste generated during any clearance are anticipated to be small.

18.7.16 The quantity of waste estimated to arise from vegetation clearance is not yet known, however the clearance will include trimming of existing trees and shrubs and removal of vegetation during site clearance. It is assumed that this waste would have a high recovery rate and is likely to be recovered (due to the lower cost of this option) rather than sent to landfill.

18.7.17 Based on the above, the clearance associated with the Project is likely to result in less than a 1% reduction of landfill capacity within the waste management study area, a 'negligible' magnitude of impact.

18.7.18 The sensitivity of the receptor is classified as 'very high', therefore a 'negligible' magnitude of impact is assessed to result in a 'slight adverse' effect which is considered to be not significant.

18.7.19 The PEIR assessment for the construction phase is summarised in **Table 18-22**.

Safeguarded waste sites

18.7.20 Autby House Materials Recycling Facility/JA Young Plastics/JAY PLAS is an safeguarded waste site in the Lincolnshire Minerals and Waste Local Plan (Ref 18-22) within 250m of the Draft Order Limits that has two access routes that pass through the Draft Order Limits.

18.7.21 Lincolnshire will seek to safeguard existing and allocated waste management facilities from redevelopment to a non-waste use and/ or the encroachment of incompatible development unless:

- Alternative provision in the vicinity can be made in accordance with the Development Plan; or
- It can be demonstrated that there is no longer a need for a waste facility at that location.

18.7.22 Safeguarded waste sites will be considered further in the ES however permanent and significant impacts on the Autby House Materials Recycling Facility/JA Young Plastics/JAY PLAS are not anticipated: any impacts on site access would be of limited duration (during construction only), and alternative access arrangements would be put in place during this time.

Operational

18.7.23 Effects associated with the operational phase are scoped out of the assessment due to the nature of the Project, and knowledge of similar projects' limited operational material use and waste management requirements.

Table 18-22: Preliminary Assessment of Materials and Waste during the Construction Phase

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
Waste - Non-hazardous landfill void capacity in the Study Area of East Midlands and Yorkshire and the Humber.	Changes in available landfill capacity.	<u>Long term impacts:</u> Impacts from Project activities whose effects will occur longer than 2 year.	Mitigation is outlined in Section 18-43.	The sensitivity of the receptor is classified as ‘very high’, with a ‘negligible’ magnitude of impact which is assessed to result in a ‘slight adverse’ effect which is considered to be not significant .	Moderate-high. A worst-case scenario where all waste is disposed of to landfill has been applied. This equates to much less than 1% of inert and non-hazardous landfill capacity within the waste management study area (East Midlands and Yorkshire and the Humber). Confidence level is selected on the basis that detailed waste estimates are not yet available.
Waste - Hazardous landfill void capacity in the Study Area of England.	Changes in available landfill capacity.	<u>Long term impacts:</u> Impacts from Project activities whose effects will occur longer than 2 year.	Mitigation is outlined in Section 18-43.	The sensitivity of the receptor is classified as ‘very high’, with a ‘negligible’ magnitude of impact which is assessed to result in a ‘slight adverse’ effect which is considered to be not significant .	Moderate-high. A worst-case scenario where all waste is disposed of to landfill has been applied. This equates to much less than 0.1% of hazardous landfill capacity within the waste management study area (England).

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
					<p>Confidence level is selected on the basis that detailed waste estimates are not yet available.</p>
<p>Materials - national and regional consumption of key construction materials.</p>	<p>Changes in demand for materials.</p>	<p><u>Long term impacts:</u> Impacts from Project activities whose effects will occur longer than 2 year.</p>	<p>Mitigation is outlined in Section 18-43.</p>	<p>The sensitivity of the receptor is classified as 'low', with a 'minor' or 'negligible' magnitude of impact which is assessed to result in a 'neutral or slight adverse' effect which is considered to be not significant.</p>	<p>Moderate - since detailed material quantities are not yet known. Confidence level is selected on the basis that detailed material estimates are not yet available. Since estimated main types and quantities of construction materials are not yet available it is not possible to compare material quantities against the baseline consumption. However, it is not anticipated that any individual construction material will be equal or greater than 5% by weight of the baseline consumption ('minor') or 1% by weight of</p>

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
					baseline consumption ('negligible').
Waste – Safeguarded waste sites.	Impacts on safeguarded waste sites and associated access.	<p><u>Medium term impacts:</u> Impacts from Project activities that will last more than 3 month, and whose effects may continue after the completion of the Project activity but will in total be less than 2 years.</p> <p><u>Long term impacts:</u> Impacts from Project activities whose effects will occur longer than 2 year</p>	Mitigation to be confirmed.	Safeguarded waste sites will be considered further in the ES however permanent and significant impacts on the Autby House Materials Recycling Facility/JA Young Plastics/JAY PLAS are not anticipated to be significant: any impacts on site access would be of limited duration (during construction only), and alternative access arrangements would be put in place during this time.	Moderate - since impacts on safeguarded waste sites and associated access would be of limited duration (during construction only), and alternative access arrangements would be put in place during this time. Confidence level is selected on the basis that details of the arrangement that would be put in place are not yet available.

18.8 Summary and Next Steps

18.8.1 This chapter presents an initial baseline for materials and waste, an overview of the assessment methodology to be followed during the environmental assessment and identifies the potential effects of the Project. Baseline data and data used in the assessment e.g., material quantities and construction value will be updated as appropriate in the ES and as more design information becomes available.

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