M60/M62/M66 Simister Island Interchange

TR010064

ENVIRONMENTAL STATEMENT

CHAPTER 10 MATERIAL ASSETS AND WASTE

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

VOLUME 6.1

April 2024

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

M60/M62/M66 Simister Island Interchange

Development Consent Order 202[ ]

ENVIRONMENTAL STATEMENT
CHAPTER 10 MATERIAL ASSETS AND WASTE

Regulation Reference	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010064
Application Document Reference	TR010064/APP/6.1
Author	M60/M62/M66 Simister Island Interchange Costain Jacobs Partnership Project Team & National Highways

Version	Date	Status of Version
P01	April 2024	DCO APPLICATION ISSUE

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10 Material assets and waste

10.1 Introduction

10.1.1 This chapter presents the information required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 to be provided in the Environmental Statement for theM60/M62/M66 Simister Island Interchange (the 'Scheme') in respect of material assets and waste.

10.1.2 This chapter considers the following matters as defined in paragraph 1.4 of Design Manual for Roads and Bridges (DMRB) LA 110 Material assets and waste (Highways England, 2019a):

- The consumption of 'material assets': this includes materials and products from primary, secondary, recycled, sustainable and renewable sources, and the use of excavated and other arisings that fall within the scope of waste exemption criteria.
- The production and disposal of 'waste': this includes surplus materials which can become waste, as well as other substances which the holder discards, intends to discard, or is required to discard.

10.1.3 This chapter includes an assessment of the likely significant environmental effects that can reasonably be predicted during the construction of the Scheme. Operational impacts have been scoped out of this assessment (see Section 10.4 of this chapter for further details). It identifies measures for mitigating likely significant effects where practicable, and describes the significance of the residual effects that are predicted to remain after mitigation.

10.1.4 Constructing the Scheme would require the use of large quantities of material assets and hence may result in potential impacts on the environment through the depletion of non-renewable natural resources. Conversely, constructing the Scheme would also result in large quantities of surplus materials and waste, leading to potential impacts on the available landfill capacity.

10.1.5 Where practicable, those surplus materials and wastes that would arise during the construction of the Scheme would be re-used, recycled or otherwise recovered on or off-site, which would reduce the need for off-site disposal to landfill. Diverting materials from landfill and increasing the use of re-used, recycled and responsibly sourced content in the Scheme would reduce the attendant environmental impacts associated with materials production, thereby supporting a circular economy (as defined in Section 10.9 of this chapter).

10.1.6 The construction of the Scheme requires land, within the Order Limits of the Scheme, that is outwith the existing highway boundary which would result in the partial sterilisation of Mineral Safeguarding Areas (MSA) and superficial peaty soils / horizons. Notwithstanding this, both mineral safeguarding sites and peat resources have been scoped out of this assessment on the basis that they are not resources that could be worked / extracted as confirmed by the Scoping Opinion (TR010064/APP/6.7) feedback for material assets and waste provided in Section 10.4 (Table 10.6) of this chapter.

10.1.7 Where reasonably practicable, the Scheme has reduced the unnecessary sterilisation of MSAs, and there are no mineral safeguarding sites nor peat resources within the Order Limits (as per the definitions provided in Section 10.7 of this chapter which are taken from the glossary in DMRB LA 110).

10.1.8 This chapter is supported by Figure 10.1: Mineral Safeguarding Areas, Mineral Areas of Search and Peat Deposits of the Environmental Statement Figures (TR010064/APP/6.2), and is further supported by the following appendices of the First Iteration Environmental Management Plan (EMP) (TR010064/APP/6.5):

- Appendix C: Outline Site Waste Management Plan (SWMP)
- Appendix F: Outline Soil Management Plan
- Appendix G: Outline Materials Management Plan

10.1.9 The assessment of effects on material assets and waste has been informed by relevant information collated by the other environmental aspect chapters of this Environmental Statement (TR010064/APP/6.1), notably Chapter 9: Geology and Soils for sources of potentially hazardous waste; and Chapter 14: Climate for a unified schedule of material types and quantities associated with construction of the Scheme.

10.1.10 Material assets and waste can affect the full range of environmental assessment aspects and matters. Where materials are consumed, and waste is generated, it is acknowledged that, depending on how they are managed, indirect effects may arise (from greenhouse gas emissions, water consumption and pollution, visual impacts, dust, noise, vibration, vehicle emissions, disruption to traffic and other potential causes of nuisance, among others).

10.1.11 While these indirect impacts would typically be assessed as part of the Environmental Statement, this would not form part of a material assets and waste assessment presented in this chapter. Such impacts, effects and mitigation measures are considered as part of the other aspect chapters in this Environmental Statement (TR010064/APP/6.1), notably:

- Chapter 5: Air Quality
- Chapter 7: Landscape and Visual
- Chapter 8: Biodiversity
- Chapter 9: Geology and Soils
- Chapter 11: Noise and Vibration
- Chapter 12: Population and Human Health
- Chapter 13: Road Drainage and the Water Environment
- Chapter 14: Climate

10.2 Competent expert evidence

10.2.1 The assessment has been undertaken and reported by a team of competent waste and resource efficiency specialists.

10.2.2 The competent expert responsible for this aspect of this assessment is a Principal Environmental Consultant, with a degree in Environmental Science, and is a Full Member of the Institution of Environmental Sciences (MIEnvSc).

10.2.3 They have over 20 years' experience of undertaking materials and waste Environmental Impact Assessment (EIA) for major infrastructure and linear schemes, including highways, requiring the process of EIA.

10.3 Legislative and policy framework

10.3.1 The consumption and use of material assets and the production and disposal of waste are subject to a complex framework of legislative and policy instruments at the national, county and local level.

Legislation

10.3.2 Table 10.1 summarises the legislation that is relevant to this aspect and how these requirements have been addressed in the material assets and waste assessment.

10.3.3 There is considerable synergy between the material assets and waste matters of this aspect, and thus there is overlap between the mitigation measures detailed in Section 10.9 of this chapter.

10.3.4 Given that these measures complement and reinforce both the material assets and waste matters of this assessment, it has not been possible to assign specific mitigation measures to specific legislation in Table 10.1.

Table 10.1 Legislation relevant to the material assets and waste assessment

Legislation	Relevance to the scheme	How this legislation is addressed in the assessment
Environmental Protection Act 1990 (as amended)	The Environmental Protection Act 1990 defines the meaning of 'waste' and household, commercial and industrial waste and hazardous waste for the purposes of UK waste legislation. The Act also requires anyone who produces, carries, keeps, disposes of, treats, imports or has control of waste to keep it safe and to make sure it is dealt with responsibly and only given to businesses authorised to take it. This is known as 'duty of care'.	Essential mitigation measures detailed in Section 10.9 of this chapter.
The Environmental Permitting (England and Wales) Regulations 2016 (as amended)	The Environmental Permitting Regulations 2016 require that operators of regulated waste installations, mobile plant or waste operations obtain an environmental permit for certain activities involving the storage, treatment, use or disposal of waste.	
The Waste Electrical and Electronic Equipment Regulations 2013 (as amended)	The Waste Electrical and Electronic Equipment Regulations 2013 set out the producer responsibility regime for waste electrical and electronic equipment in England and Wales. These regulations implement the requirements of the Waste Electrical and Electronic Equipment (WEEE) Directive (2012/19/EU). In particular, they ensure that producers of electrical and electronic equipment finance the cost of collection, treatment, recycling and recovery of that equipment when it becomes WEEE.	
The Controlled Waste (England and Wales) Regulations 2012 (as amended)	The Controlled Waste (England and Wales) Regulations 2012 classify waste as household waste, industrial waste or commercial waste for the purposes of Part 2 of the Environmental Protection Act 1990 and in consequence determine the meaning of 'controlled waste' for the purposes of Part 2 of the Act. Certain waste is not to be classified as household, industrial or commercial waste, in particular waste which falls outside the scope of Directive 2008/98/EC on waste.	

Legislation	Relevance to the scheme	How this legislation is addressed in the assessment
The Waste (England and Wales) Regulations 2011 (as amended)	The Waste (England and Wales) Regulations 2011 enacts the revised European Union (EU) Waste Framework Directive (2008/98/EC). The Waste Regulations 2011 require that waste holders must take all such measures as are reasonable to apply the waste hierarchy of prevention, preparing for reuse, recycling, other recovery and disposal when transferring waste. However, waste holders can depart from the priority order so as to achieve the best overall environmental outcome. Sets the recycling and recovery targets to be achieved by 2020 for construction and demolition (C&D) waste (70%).	
The Hazardous Waste (England and Wales) Regulations 2005 (as amended)	The Hazardous Waste Regulations 2005 set out the regime for the control and tracking of the movement of hazardous waste; banning the mixing of hazardous wastes with non-hazardous waste and imposing a duty to separate different categories of hazardous waste where technically feasible.	
The Landfill (England and Wales) Regulations 2002 (as amended)	The Landfill (England and Wales) Regulations 2002 enacts Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste. The Landfill Regulations prohibit certain kinds of waste being disposed of to landfill, for example liquid waste, certain hazardous wastes and tyres. They classify landfills according to whether they can accept hazardous, non-hazardous or inert wastes; mandate that wastes can only be accepted at a landfill if they meet the waste acceptance criteria for that class of landfill; and require all waste to be treated before it is disposed of to landfill with the exception of inert waste, for which treatment is not technically feasible, and for other wastes, if that treatment would not reduce its quantity or hazardous properties.	
The Landfill Tax Regulations 1996 (as amended)	The Landfill Tax Regulations 1996 and associated orders encourage businesses to produce less waste, to dispose of less waste in landfill sites, and to recover value from more of the waste produced, for example through recycling. Unless it is specifically exempt, or excepted, Landfill Tax applies to disposal of material at a landfill site that is covered by a permit under specific environmental legislation or at an unauthorised waste site.	

Policy

National Policy Statement for National Networks

10.3.5 The National Policy Statement for National Networks (NPS NN) (Department for Transport (DfT), 2014) sets out the Government's policies relating to the development of Nationally Significant Infrastructure Projects (NSIPs) on the national road and rail networks in England. The Secretary of State uses the NPS NN as the primary basis for making decisions on Development Consent Order (DCO) applications.

10.3.6 Table 10.2 summarises the policy requirements from the NPS NN relating to the applicant's assessment and mitigation requirements for material assets and waste and how these requirements have been addressed in the assessment. See also the NPS NN Accordance Tables (TR010064/APP/7.2) for an assessment of the Scheme's compliance with the NPS NN.

Table 10.2 NPS NN requirements for material assets and waste

Paragraph reference	Applicant's assessment / mitigation requirement	How this requirement is addressed in the assessment
5.42	*'The applicant should set out the arrangements that are proposed for managing any waste produced. The arrangements described should include information on the proposed waste recovery and disposal system for all waste generated by the development. 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 the alternative is the best overall environmental outcome.'*	A SWMP, an outline of which is included as Appendix C to the First Iteration EMP (TR010064/APP/6.5), has been prepared to plan, implement, monitor and review waste reduction and management during design and construction of the Scheme. The SWMP would be a live document, updated at varying points during design and construction. It would be used to quantify waste arisings and facilitate the identification and implementation of waste prevention at the detailed design stage, and the reuse, recycling and other recovery opportunities during the construction phase. The waste hierarchy would be followed as a priority order to achieve the best overall environmental outcome, and reduce waste generation and disposal to landfill in line with the prevailing national policy targets.

Paragraph reference	Applicant's assessment / mitigation requirement	How this requirement is addressed in the assessment
5.169	*'Applicants should safeguard any mineral resources on the proposed site as far as possible.'*	The Scheme design has reduced the encroachment with MSAs through consideration of the location and extent of carriageway widening, and the alignment of the new offline carriageway. Impacts to MSAs have been scoped out of the material assets and waste assessment as per the Planning Inspectorate's Scoping Opinion (TR010064/APP/6.7) provided in Table 10.6.

Draft National Policy Statement for National Networks

10.3.7 The Government has published a draft of the NPS NN in March 2023 (DfT, 2023). The consultation closed in June 2023 and the draft NPS NN has not yet been designated. However, it is potentially capable of being an important and relevant consideration in the decision-making process. The Environmental Statement continues to reference the 2014 NPS NN though, as it remains the relevant Government policy. Notwithstanding that position, Table 10.3 summarises the policy requirements from the draft NPS NN relating to the applicant's assessment and mitigation requirements for material assets and waste and how these have been addressed in the assessment. See also the Draft NPS NN Accordance Tables (TR010064/APP/7.3) for an assessment of the Scheme's compliance with the draft NPS NN.

Table 10.3 Draft NPS NN requirements for material assets and waste

Paragraph reference	Applicant's assessment / mitigation requirement	How this requirement is addressed in the assessment
5.66	*'The applicant should demonstrate that they will adhere to the waste hierarchy, minimising the volume of waste produced and maximising reuse and recycling for waste that cannot be avoided. Where possible, applicants are encouraged to use low carbon materials, sustainable sources, and local suppliers. Consideration should be given to circular economy principles wherever practicable, for example by using longer lasting materials efficiently, optimising the use of secondary materials and how the development will be maintained and decommissioned. Applicants should consider and take into account emerging government policy, including the Waste Prevention Programme for England and Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, which provides practical guidance on how to improve appropriate soil reuse on construction sites and reducing the volume that is sent to landfill.*	Section 10.9 of this chapter sets out how the Scheme would adhere to the waste hierarchy; reduce the volume of waste produced and increase the reuse and recycling of waste that cannot be avoided. A Sustainable Procurement Plan (SPP) would be prepared for the Scheme (commitment M2 in the Register of Environmental Actions and Commitments (REAC), contained within the First Iteration EMP (TR010064/APP/6.5)) that sets out a clear framework to increase the procurement and use of sustainably and responsibly sourced construction materials and products. This includes secondary materials. Consideration of low carbon materials is also covered in Chapter 14: Climate of this Environmental Statement (TR010064/APP/6.1). An essential mitigation measure has been included as commitment M1 in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5)), that requires consideration of how materials can be designed to be more easily adapted over the asset's lifetime and how de-constructability of elements can be increased at end of first life. A SWMP, an outline of which is included as Appendix C to the First Iteration EMP (TR010064/APP/6.5), has been prepared to plan, implement, monitor and review waste reduction and management during design and construction of the Scheme. While this chapter has taken account of the emerging Government policy outlined in Section 10.3, consideration of the Department for Environment, Food and Rural Affairs (Defra) (2011) Soils Code of Practice has been made in Chapter 9: Geology and Soils of this Environmental Statement (TR010064/APP/6.1).

Paragraph reference	Applicant's assessment / mitigation requirement	How this requirement is addressed in the assessment
5.67	*'Sustainable waste management is implemented through the waste hierarchy:* • *prevention* • *preparing for reuse* • *recycling* • *other recovery, including energy recovery* • *disposal'*	Section 10.9 of this chapter sets out how the Scheme would deliver sustainable waste management that adheres to the waste hierarchy, and supports the transition to a circular economy. A SPP would be prepared for the Scheme (commitment M2 in the REAC contained within the First Iteration EMP (TR010064/APP/6.5)) that sets out a clear framework to increase the procurement and use of sustainably and responsibly sourced construction materials and products. A SWMP, an outline of which is included as Appendix C to the First Iteration EMP (TR010064/APP/6.5), has been prepared to plan, implement, monitor and review waste reduction and management during design and construction of the Scheme.
5.68	*'Waste management beyond the waste hierarchy is also encouraged, such as adopting a circular approach from the offset, for example, sustainable procurement exercises'.*	
5.69	*'Large infrastructure projects may generate hazardous and non-hazardous waste during construction and operation. The Environmental Permitting regime, regulated by the Environment Agency in England, incorporates operational waste management requirements for certain activities. Applicants should therefore give consideration to the Environmental Permitting regime and whether this applies to their development.'*	Consideration of the applicability of the Environmental Permitting regime for waste management has been made by means of commitment M6 in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5). Further details regarding licenses and permits can be found in the Consents and Agreements Position Statement (TR010064/APP/3.3).

Paragraph reference	Applicant's assessment / mitigation requirement	How this requirement is addressed in the assessment
5.70	*'Infrastructure projects should look to use legal and sustainable timber and other Modern Methods of Construction where possible'.*	A SPP would be prepared for the Scheme (commitment M2 in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5)) that sets out a clear framework to increase the procurement and use of sustainably and responsibly sourced construction materials and products. An essential mitigation measure has been included as commitment M1 in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5), that requires consideration of modern methods of construction. This covers designing for off-site construction through maximising the use of pre-fabricated structures and components, encouraging a process of assembly rather than construction.
5.183	*'Applicants should safeguard any mineral resources on the proposed site as far as possible. Taking into account the policies of the Minerals Planning Authority, applicants should consider whether prior extraction of the minerals would be appropriate.'*	The Scheme design has reduced the encroachment with MSAs through consideration of the location and extent of carriageway widening, and the alignment of the new offline carriageway. Impacts to MSAs have been scoped out of the material assets and waste assessment as per the Planning Inspectorate's Scoping Opinion (TR010064/APP/6.7) provided in Table 10.6.

Other relevant policy

10.3.8 In addition to the national policy provided in the NPS NN (DfT, 2014) and draft NPS NN (DfT, 2023), other relevant policy have been considered as part of the material assets and waste assessment. Table 10.4 sets out other policy relevant to this aspect and how the assessment has considered/addressed these policies.

10.3.9 There is considerable synergy between the material assets and waste matters of this aspect, and thus there is overlap between the mitigation measures detailed in Section 10.9 of this chapter. Given that these measures complement and reinforce both the material assets and waste matters of this assessment, it has not been possible to assign specific mitigation measures to specific policy in Table 10.4.

Table 10.4 Other national, regional and local policy relevant to material assets and waste

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
National		
Environment Improvement Plan (Defra, 2023a)	The Environmental Improvement Plan 2023 for England is the first revision of the Government's 25 Year Environment Plan. This provides a new plan setting out how it will deliver each of its goals for improving the environment, matched with interim targets to measure progress. Of relevance to this aspect is the plan goal of: minimising waste, reusing materials as much as possible and managing materials at the end of their life to minimise the impact on the environment. Those interim targets and commitments of relevance to this aspect include, by 31 January 2028: • Reducing residual waste (excluding major mineral waste) produced per person by 24%; • Reducing residual waste (excluding major mineral waste) in total tonnes by 21%.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
Environmental Sustainability Strategy (National Highways, 2023)	The Environmental Sustainability Strategy sets out National Highways' vision for environmental sustainability to 2050, including its ambitions and key commitments for each of its priority areas. Those priority areas and ambitions of relevance to this assessment include: • *Leaner construction*: it will undertake construction only if other solutions cannot meet network performance needs. If construction is necessary, this will have a minimal footprint, and will minimise resource use, waste generation and carbon emissions. • *Optimising resource and energy use*: The principles of circularity (reusing materials for their highest value purpose and treating 'waste' as a resource), will be embedded into its business. It will optimise energy use on its network. It will be a resource efficient organisation with a whole life cycle understanding of the flow of materials. It will minimise the environmental impact of its material purchasing.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities (DLUHC), 2023)	The NPPF sets out the Government's planning policies for England and how these are to be applied. It is a material consideration in planning decisions. While the NPPF does not contain specific materials or waste management policies for NSIPs, the framework does include references to both the prudent use of natural resources and waste management in Chapters 2 and 17 of the NPPF respectively. Of relevance to this aspect, the NPPF states that, '*planning policies should*: • *Provide for the extraction of mineral resources of local and national importance, but not identify new sites or extensions to existing sites for peat extraction* (paragraph 210(a)). • *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 (paragraph 210(b)).* • *Safeguard mineral resources by defining Mineral Safeguarding Areas … and adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that the resources defined will be worked)* (paragraph 210(c)). • *Set out policies to encourage the prior extraction of minerals, where practical and environmentally feasible, if it is necessary for non-mineral development to take place* (paragraph 210(d)). • *Safeguard existing, planned and potential sites for: the bulk transport, handling and processing of minerals; the manufacture of concrete and concrete products; and the handling, processing and distribution of substitute, recycled and secondary aggregate material* (paragraph 210(e))'.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
Net Zero Strategy: Build Back Greener (Department for Energy Security and Net Zero and Department for Business, Energy and Industrial Strategy, 2021)	The Net Zero Strategy sets out the UKs approach to meeting UK carbon budgets, its 2030 Nationally Determined Contribution and net zero by 2050. Those policies for natural resources and waste that are applicable to this assessment include moving towards a circular economy, improving resource efficiency, and achieving near elimination of biodegradable waste to landfill.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
Greening Government Commitments 2021 to 2025 (Defra, 2021a)	The Greening Government Commitments set out the actions UK Government departments and their partner organisations will take to reduce their impacts on the environment in the period 2021 to 2025. The following sub-targets, pertaining to minimising waste and promoting resource efficiency, are applicable to this aspect: • Reduce the amount of waste going to landfill to less than 5% of overall waste. • Increase the proportion of waste which is recycled to at least 70% of overall waste. These targets are aggregate central Government targets for the Department of Transport and not bespoke minimum performance targets for its Arm's Length Bodies (e.g. National Highways).	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
Waste Prevention Programme for England: Towards a Resource Efficient Economy (Defra, 2021b)	Defra's Waste Prevention Programme for England sets out priorities for action to manage resources and waste in accordance with the waste hierarchy, which means preventing waste by, among other things, increasing reuse, repair and remanufacture of products. The Programme outlines the potential for, and benefits of, action on waste prevention, what industry is already doing and could do, as well as setting out actions for Government.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
Waste Management Plan for England (Defra, 2021c)	The Waste Management Plan for England aims to bring current waste management policies together under one national plan. Those policies of relevance to this assessment include ensuring by 2020 that at least 70% by weight of non-hazardous C&D waste, that is not naturally occurring material falling within the description of code 17 05 04 in the List of Wastes, is subjected to material recovery.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
Routemap for Zero Avoidable Waste in Construction (Green Construction Board, 2021)	The Routemap identifies actions across the construction industry and applies to new and existing buildings and structures. The overall target is for '*zero avoidable waste (ZAW) in the construction sector by 2050'*. There are a number of other targets included with the Routemap: • By 2030 costs are reduced by 10% through designing out waste and material optimisation. • By 2040 eliminate all but hazardous C&D waste entering landfill. • By 2040 reduce soil to landfill by 75% based on a 2020 level and by 2050 this should be zero unless required for landfill operation purposes.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
Net Zero Highways (National Highways, 2021)	The Net Zero Highways Plan sets out National Highway's programme for a net zero future. Those actions of relevance to this assessment include: '*net zero for our maintenance and construction activities by 2040*'. The plan reports that National Highways will focus on the asphalt, cement and steel sectors. It will use a carbon management system to embed approaches that minimise emissions, including lean construction practices and the principles of the circular economy. It will also use digital technologies to increase the capacity of its existing network minimising new construction where practicable.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
National Infrastructure Strategy (HM Treasury, 2020)	The National Infrastructure Strategy sets out plans to transform UK infrastructure in order to level up the country, strengthen the Union and achieve net zero carbon emissions by 2050. The Strategy states that the UK needs to go further in increasing its resource-use efficiency, to reduce the burden placed on the natural world through the supply of raw materials and absorbing waste.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
A Green Future: 25 Year Environment Plan (Defra, 2018a)	The 25 Year Plan sets out the Government's goals for improving the environment, within a generation, and leaving it in a better state than it found it. Key goals and targets include maximising the value and benefits from resources, doubling resource productivity by 2050; working towards the ambition of zero avoidable waste by 2050; and meeting all existing waste targets.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
Resources and waste strategy for England (Defra, 2018b)	The resources and waste strategy sets out how resource use would be optimised by minimising waste, promoting resource efficiency and moving towards a circular economy in England. It gives a clear longer-term policy direction in line with the 25 Year Environment Plan. The strategy sets out a vision to achieve the UK's major goals: achieving zero avoidable plastic waste, doubling UK resource productivity, and reaching zero avoidable waste of all kinds by 2050.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
Clean Growth Strategy (Department for Energy Security and Net Zero and Department for Business, Energy and Industrial Strategy, 2017)	The Clean Growth Strategy sets out the Government's proposals for decarbonising all sectors of the UK economy through the 2020s. Key policies and proposals include working towards the ambition for zero avoidable waste by 2050, maximising the value from resources, and minimising the negative environmental and carbon impacts associated with their extraction, use and disposal.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
Sustainable Development Strategy (Highways England, 2017)	The Sustainable Development Strategy outlines National Highways (formerly Highways England) approach and priorities for sustainable development. Those ambitions of relevance include: • Increasing knowledge of where National Highways goods and materials are sourced from and ensuring the responsible sourcing of resources to minimise the impacts that their production and handling can have on local, national and global human and social health and also on the environment and climate change. • Reducing raw material consumption and waste generation; pushing towards a 'circular' approach to the management of resources, through minimising National Highways demand for primary resources extracted from the ground and maximising the reuse of the resources already in use on the network in as high a value function as possible. • Working with its supply chain to find new ways to deliver a more resilient and adaptable network – seeking efficiency and value for money; and working to achieve security of supply: working with others to improve the stability and predictability of demand for high-sustainability performance products and services. Enabling suppliers to invest in innovative approaches and secure long-term partnerships with wider supply networks, their staff and wider communities.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
National Planning Policy for Waste (DLUHC and Ministry of Housing, Communities and Local Government (MHCLG), 2014)	The National Planning Policy for Waste sets out waste planning policies that all local planning authorities in England must follow when discharging their waste management responsibilities. Relevant policy aims include the following: • Delivery of sustainable development and resource efficiency by driving waste management up the waste hierarchy.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
	• Ensuring that the likely impact of proposed, non-waste related development on existing waste management facilities, and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities. • Ensuring that handling of waste arising from the construction and operation of development maximises reuse and recovery opportunities and minimises off-site disposal. • Securing the reuse, recovery or disposal of waste without endangering human health or the environment.	
National and Regional Guidelines for Aggregates Provision in England 2005-2020 (MHCLG, 2009)	This document sets out guidelines for aggregates provision in England for the period 2005 to 2020, including assumptions on the proportional contribution of alternative sources of aggregate (secondary and recycled aggregates) to the overall provision.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
Regional		
Places For Everyone Plan (Greater Manchester Combined Authority, 2021)	Places for Everyone is a long-term plan of nine Greater Manchester districts for jobs, new homes, and sustainable growth. Those policies of relevance to this assessment include: • Policy JP-S 1 Sustainable Development: To help tackle climate change, development should aim to maximise its economic, social and environmental benefits simultaneously, minimise its adverse impacts, utilise sustainable construction techniques and actively seek opportunities to secure net gains across each of the different objectives. • Policy JP-S 7 Resource Efficiency: The achievement of a circular economy and a zero-waste economy will play a key role in meeting Greater Manchester's ambition of becoming a leading green city region by 2038. The following measures will help achieve this: - Promote overall reduction in the level of waste produced and supports resource efficiency within the Plan area in order to gain the maximum value from the things we produce; - Ensuring the design of all new development incorporates storage space to facilitate efficient recycling and where appropriate, processing of waste on site; - Recognition of the role of existing infrastructure in managing our waste and protecting such facilities to ensure adequate waste management capacity is maintained; and - Using sustainable design and construction techniques to reduce carbon emissions, adapt and future proof to the impact of climate change, reduce and recycle waste and minimise water use.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
5-Year Environment Plan for Greater Manchester 2019-2024 (Greater Manchester Combined Authority, 2019)	The 5-Year Environment Plan sets out the long-term environmental vision – to be carbon neutral by 2038 – and the urgent actions that need to take in the next five years to help achieve this. Those policies of relevance to this assessment include: • Our production and consumption of resources: - Priority 1: producing good and services more sustainably, moving to a circular economy. - Priority 2: Becoming more responsible consumers. - Priority 3: Managing our waste as sustainably as possible. - Priority 4: Reducing unnecessary food waste.	Embedded and essential mitigation measures detailed in Section 10.9 of this chapter.
Greater Manchester Joint Minerals Plan - Development Plan Document (Association of Greater Manchester Authorities, 2013)	The Joint Minerals Plan Development Plan Document identifies how Greater Manchester will deliver the spatial vision for minerals development to 2028. Those policies of relevance to this assessment include: • Policy 8 Prior Extraction of Mineral Resources Within MSAs: Which requires that all non-mineral development proposals within a MSA should extract any viable mineral resources present in advance of construction. Proposals for prior extraction of minerals will be permitted provided the proposal is in accordance with Policy 2 Key Planning and Environmental Criteria. Proposals for non-mineral development within the MSAs that do not allow for the prior extraction of minerals will only be permitted where they meet at least one of the four criteria below: - The need for the development outweighs the need to extract the mineral; or - It can be clearly demonstrated that it is not environmentally acceptable or economically viable to extract the mineral prior to non-mineral development taking place; or	Embedded mitigation measures detailed in Section 10.9 of this chapter.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
	- It can be clearly demonstrated that the mineral is either not present or of no economic value or too deep to extract in relation to the proposed development; or - The development is limited or temporary and would not prevent minerals extraction taking place in the future.	
Greater Manchester Joint Waste Development Plan Document (Association of Greater Manchester Authorities, 2012)	The Joint Waste Development Plan Document provides a sub-regional, planning policy framework that identifies sites/areas for a range of waste management facilities up until 2027, and contains a suite of development management policies. No policies have been identified that are of direct relevance to this assessment.	N/A – no policies have been identified that are of direct relevance to this assessment.
Local		
Emerging Bury Local Plan Policy Directions (Bury Metropolitan Borough Council, 2018)	The Local Plan policy directions sets out the proposed scope and direction for the planning policies that the Local Plan will contain. No emerging policies have been identified that are of direct relevance to this assessment.	N/A – no emerging policies have been identified that are of direct relevance to this assessment.
Adopted Bury Unitary Development Plan (Bury Metropolitan Borough Council, 1997)	The Bury Unitary Development Plan (UDP) acts as a guide for the future development or protection of land in the Borough and its policies and proposals currently form the basis for the Council's decisions on planning applications.	N/A – no saved policies have been identified that are of direct relevance to this assessment.

Plan / policy document	Key requirements and objectives	How this has been considered/addressed in the assessment
	The Bury UDP was adopted by the Council on 29 August 1997. The Council is now working to replace the adopted UDP with the Bury Local Plan. Until the new Local Plan is produced the list of saved policies, confirmed by the Secretary of State on the 18 September 2007, in the Bury UDP will continue be used to make planning decisions. The Greater Manchester Joint Minerals and Waste Development Plan Documents were adopted in 2013 and 2012 respectively, and their policies supersede the saved minerals and waste policies in the Bury UDP. No additional saved policies have been identified that are of direct relevance to this assessment.	
Bury Development Control Policy Guidance Note 16 Design and Layout of New Development in Bury (Bury Metropolitan Borough Council, 2008)	The Development Control Guidance Note 16 supports policies contained in Bury's adopted Unitary Development Plan. This Note provides a more formal basis to advice which is given to applicants on a regular basis Those policies of relevance to this assessment include: • Detailing and Materials Principle 7a: Development should utilise construction materials which make a positive contribution to the sustainable use of resources, including: - Making optimum use of on-site C&D waste; - Using construction materials which are environmentally friendly and/or manufactured from recycled or renewable resources; - Considering using pre-fabricated elements and modular construction; - Using construction materials or prefabricated elements that are produced or available locally in preference to those needing to be imported from other regions and countries.	Essential mitigation measures detailed in Section 10.9 of this chapter.

10.4 Assessment methodology

Assessment scope

10.4.1 Table 10.5 summarises the scope of the material assets and waste aspect assessment. This is consistent with the scope defined in the Environmental Scoping Report (TR010064/APP/6.6), and is in line with the Scoping Opinion (TR010064/APP/6.7) feedback provided in Table 10.6.

Table 10.5 Scope of the material assets and waste aspect assessment

Matter	Scoped in – construction	Scoped in – operation
Material assets	✓	×
Waste	✓	×

10.4.2 Impacts to both mineral safeguarding sites and peat resources have been scoped out of the material assets and waste assessment in line with the Planning Inspectorate's Scoping Opinion (TR010064/APP/6.7) (see Table 10.6 of this chapter for further details). This is on the basis of the rationale provided in Section 10.8 of this chapter.

Scoping Opinion

10.4.3 Table 10.6 summarises the key requirements from the Planning Inspectorate's Scoping Opinion (TR010064/APP/6.7) as relevant to the scope of the material assets and waste assessment, and identifies any matters scoped out of the assessment as agreed with the Planning Inspectorate and other stakeholders. This table also explains any changes to the assessment methodology as a result of this engagement.

Table 10.6 Scoping Opinion feedback for material assets and waste

Stakeholder	Comment	Response
Planning Inspectorate	ID 4.6.1 – *'The mineral safeguarding areas (MSA) identified in the study area are not resources that could be worked / extracted and therefore do not meet criteria to be defined as Mineral Safeguarding Sites required to be assessed by definition in DMRB LA 110; this is supported through consultation with Greater Manchester Minerals and Waste Planning Unit and the Coal Authority detailed in Scoping Report paragraph 11.4.10. On this basis, the Inspectorate is content that impacts to MSAs can be scoped out.'*	Impacts to MSAs have been scoped out of the assessment of likely significant effects presented for this aspect in Section 10.10 of this chapter.
	ID 4.6.2 – *'The Applicant states that peat deposits present within the study area are not existing or potential peat extraction sites in terms of peat as material asset / resource. On the basis of the information provided, the Inspectorate agrees to scope out impacts to peat deposits as a material asset / resource. Comments have been made elsewhere in this Scoping Opinion about potential impacts on peat in terms of biodiversity, soils, carbon emissions and in terms of drainage.'*	Impacts to peat resources have been scoped out of the assessment of likely significant effects presented for this aspect in Section 10.10 of this chapter. Notwithstanding this, impacts to peat has been considered in other environmental assessment aspect chapters of this Environmental Statement (TR010064/APP/6.1) as appropriate.
	ID 4.6.3 – *'These matters are proposed to be scoped out of the assessment on the basis that maintenance activities would be undertaken in accordance with the requirements of DMRB LA 110 and are not expected in the first year of operation (timescale defined by DMRB LA 110) or beyond. The Inspectorate is content to agree to scope this matter out on this basis.'*	Operational impacts have been scoped out of the assessment of likely significant effects presented for this aspect in Section 10.10 of this chapter.

Stakeholder	Comment	Response
	ID 4.11.1 – *'On the basis that the assessment proposed in the materials and waste aspect chapter will consider the impact of the Proposed Development on national material recovery targets, regional recycled aggregate targets, sub-regional minerals sterilisation and regional landfill capacity, the Inspectorate agrees that relevant consideration of cumulative effects will be inherent in that assessment. The Inspectorate therefore agrees that these can be scoped out of further specific consideration in the cumulative effects assessment.'*	Noted. Cumulative effects on material assets and waste have been scoped out of Chapter 15: Assessment of Cumulative Effects of this Environmental Statement (TR010064/APP/6.1).
Environment Agency (Appendix 2 of the Scoping Opinion)	*'The CL:AIRE Definition of Waste: Development Industry Code of Practice (version 2) provides operators with a framework for determining whether or not excavated material arising from site during remediation and/or land development works is waste or has ceased to be waste. Under the Code of Practice: excavated materials that are recovered via a treatment operation can be reused on-site providing they are treated to a standard such that they are fit for purpose and unlikely to cause pollution; treated materials can be transferred between sites as part of a hub and cluster project; and some naturally occurring clean material can be transferred directly between sites.'*	The Contaminated Land: Applications in Real Environments (CL:AIRE) Code of Practice principles would be used to determine on a site specific basis whether excavated materials are classified as waste or not; and determine when treated excavated waste can cease to be waste for a particular use. Further consideration of the CL:AIRE Code of Practice is made in: Chapter 9: Geology and Soils of this Environmental Statement (TR010064/APP/6.1); the Consents and Agreements Position Statement (TR010064/APP/3.3); and Appendix G: Outline Materials Management Plan of the First Iteration Environmental Management Plan (TR010064/APP/6.5).
	'All contaminated materials should be adequately characterised both chemically and physically in line with British Standard BS EN 14899:2005 'Characterization of Waste - Sampling of Waste Materials - Framework for the Preparation and Application of a Sampling Plan' and that the permitting status of any proposed treatment or disposal activity is clear.'	Waste would be managed in accordance with the legislative and policy framework set out in Section 10.3 of this chapter. The permitting status of any on-site operations is considered in the Consents and Agreements Position Statement (TR010064/APP/3.3).

Stakeholder	Comment	Response
	'Contaminated soil that is (or must be) disposed of is waste. Therefore, its handling, transport, treatment and disposal are subject to waste management legislation.'	
Public Health England (Appendix 2 of the Scoping Opinion)	*'The applicant should demonstrate compliance with the waste hierarchy (e.g. with respect to re-use, recycling or recovery and disposal). For wastes arising from the development the Environmental Statement should assess: the implications and wider environmental and public health impacts of different waste disposal options and disposal route(s) and transport method(s) and how potential impacts on public health will be mitigated. If the development includes wastes delivered to the installation: consider issues associated with waste delivery and acceptance procedures (including delivery of prohibited wastes) and should assess potential off-site impacts and describe their mitigation.'*	Waste would be managed in accordance with duty of care requirements (which includes applying the waste hierarchy as a priority order) as detailed in the Defra (2018) Waste Duty of Care Code of Practice. The Code of Practice is pursuant to Section 34(9) of the Environmental Protection Act 1990 and makes inherent provision for the safe management of waste to protect human health and the environment. The assessment assumptions in Section 10.5 of this chapter refer to the implications and wider environmental and health impacts of waste management. Whilst the impacts of construction traffic would be covered by other aspects (notably air quality, noise and vibration, population and human health and climate), waste vehicles would be covered where required and waste secured appropriately for transport purposes.

Statutory consultation

10.4.4 Table 10.7 identifies the key feedback received from statutory bodies during the statutory consultation. All comments raised during the statutory consultation, as well as the Applicant's responses, are included in Annex Q of the Consultation Report Annexes (TR010064/APP/5.2).

Table 10.7 Key statutory consultation feedback for material assets and waste

Stakeholder	Comment	Response
Environment Agency	Developers should ensure that all contaminated materials are adequately characterised both chemically and physically, and that the permitting status of any proposed on-site operations are clear.	Waste would be managed in accordance with the legislative and policy framework set out in Section 10.3 of this chapter. The permitting status of any on-site operations is covered in the Consents and Agreements Position Statement (TR010064/APP/3.3).
	Contaminated soil that is (or must be) disposed of is waste. Therefore, its handling, transport, treatment, and disposal are subject to waste management legislation.	
	If the total quantity of hazardous waste material produced or taken off-site is 500kg or greater in any 12-month period, the developer will need to register with us as a hazardous waste producer.	The need for waste producers to register their premises as a hazardous waste producer was withdrawn on the 1 April 2016. This requirement therefore no longer applies.
Natural England	Natural England raised several concerns over the construction and operation proposals and potential impacts to peat. Those comments of relevance to this aspect are as follows: We are of the opinion that the mitigation hierarchy for peat impacts has not been followed. Paragraph 11.9.13 of the Preliminary Environmental Information Report states prevention, re-use, recycling / recovery / treatment and storage. Natural England believes this should be: avoid development on peat, leave peat in-situ, re-use of peat for restoration projects only and ensure works on and off peat do not compromise the wider peat mass in terms of hydrology connectivity. We believe the only sustainable use of peat is to restore. No soil resource should be disposed of off-site. The waste hierarchy should be followed. Where possible, the soils, including peat, should be avoided, retained in-situ, or re-used on site. If this is not possible, their re-use off-site should be secured during the planning stages.	As reported in Chapter 9: Geology and Soils of this Environmental Statement (TR010064/APP/6.1), ground investigations have concluded that there is no thick contiguous peat located within the first study area. Impacts to peat resources have been scoped out of the assessment of likely significant effects presented for this aspect in Section 10.10 of this chapter on the basis of the rationale provided in Section 10.8 of this chapter. The need to consider the waste hierarchy has been specified, alongside other duty of care requirements, as essential mitigation in Section 10.9 of this chapter. Potential impacts to peat have also been considered in the following chapters of this Environmental Statement (TR010064/APP/6.1): • Chapter 8: Biodiversity • Chapter 9: Geology and Soils

Stakeholder	Comment	Response
		• Chapter 13: Road Drainage and the Water Environment • Chapter 14: Climate Agreements on the comments made by Natural England regarding the potential impacts on peat, with respect to all relevant environmental aspects, will be recorded in the Statement of Common Ground with Natural England, which will be submitted during the course of the Examination.

General approach

10.4.5 The methodology for the material assets and waste assessment complies with the requirements set out in the following technical standards:

- DMRB LA 110 Material assets and waste (Highways England, 2019a)
- DMRB GG 103 Introduction and general requirements for sustainable development and design (Highways England, 2019b)
- DMRB LA 104 Environmental assessment and monitoring (Highways England, 2020a)
- DMRB LA 120 Environmental management plans (Highways England, 020b)

10.4.6 The following technical guidance have informed the approach taken for the aspect assessment:

- Technical Guidance WM3: Waste Classification - Guidance on the classification and assessment of waste (Environment Agency, 2021)
- Waste Duty of Care Code of Practice (Defra, 2016)
- BES 6001 Framework Standard for Responsible Sourcing (Building Research Establishment, 2014)
- Quality Protocol – Aggregates from Inert Waste: End of Waste Criteria for the Production of Aggregates from Inert Waste (Environment Agency, 2013)
- The Definition of Waste: Development Industry Code of Practice (CL:AIRE, 2011)
- Code of practice for the sustainable use of soils on construction sites (Defra, 2011)
- GOV.UK Environmental Management Guidance: Waste (Environment Agency, n.d.)

10.4.7 The environmental assessment for this aspect focuses primarily on determining the likely significant effects of constructing the Scheme on the environment resulting from the consumption and use of material assets, and the production and disposal of waste.

10.4.8 This assessment utilises and builds on the information and data gathered as part of the Environmental Scoping Report (TR010064/APP/6.6) and endeavours to collate additional information to qualify, and where feasible quantify, the material assets required, and waste likely to be generated in constructing the Scheme.

10.4.9 The assessment is a desk-based quantitative study that aims to identify the following assessment information for the anticipated construction phase (2026 to 2029):

- For material assets:
  - Types and quantities of material assets required to construct the Scheme
  - Information on materials that contain secondary and recycled content
  - Information on any known sustainability credentials of materials to be consumed
  - The type and volume of materials that would be recovered from on-site or off-site sources for use on the Scheme
  - The cut and fill balance
  - Details of on-site storage and stockpiling arrangements, and any supporting logistical details
- For waste management:
  - Types and quantities of waste generated during the construction of the Scheme
  - Amount of waste (by type and weight) that would be recovered and diverted from landfill either on-site or off-site (i.e. for use on other projects)
  - Types and quantities of waste arising from the Scheme (demolition, excavation arisings and remediation) requiring disposal to landfill
  - Potential for generation of hazardous waste (type and quantity)
  - Details of on-site storage and segregation arrangements for waste and any supporting logistical arrangements

10.4.10 There is limited information available at this stage regarding the precise material requirements and waste quantities associated with constructing the Scheme. These limitations are typical of an EIA for this aspect, and the information presented in this chapter is considered to represent an appropriate level of detail in line with the available design information.

10.4.11 The following published statistics, benchmarks and key performance indicators have been used where required, in combination with applying a contingency uplift to all material and waste quantities (see Section 10.5 of this chapter), to populate the data gaps that exist in relation to the DMRB LA 110 requirements at this stage:

- UK Statistics on Waste (Defra, 2023b)
- Net Waste Tool – dataset (Waste and Resources Action Programme (WRAP), 2008)
- Achieving Good Practice Waste Minimisation and Management – Guidance for Construction Clients, Design Teams and Contractors (WRAP, 2007)

10.4.12 In accordance with paragraphs 3.13 of DMRB LA 110, these data sources have been used to undertake a quantitative assessment of the Scheme against the DMRB LA 110 significance criteria (see significance category descriptions and significance criteria in Table 10.8 and Table 10.9 of this chapter).

10.4.13 This simplified significance framework has been used to assess the likely environmental effects of constructing the Scheme in relation to the following DMRB LA 110 significance category descriptions that are relevant to the scope of material assets and waste aspect assessment defined in Table 10.5 of this chapter:

- For material assets:
  - Estimated percentage of non-hazardous C&D waste that would be recovered and diverted from landfill in either the first or second study areas (as defined in Section 10.6 of this chapter).
  - Estimated percentage of reused or recycled content that would be incorporated within imported aggregates and aggregate containing materials.
- For waste:
  - Estimated percentage reduction in regional landfill capacity that would occur as a result of managing C&D waste from the Scheme.
  - Estimated percentage of C&D waste that would require disposal to landfill outside of the second study area.

10.4.14 While Section 10.7 of this chapter provides a degree of sub-regional baseline assessment, the assessment of likely significant effects provided in Section 10.10 of this chapter has been based on the north-west region as the primary receptor for material assets and waste. Although a degree of ancillary sub-regional discussion has been included in Section 10.10 of this chapter, this does not form the central basis of the assessment of likely significant effects for this aspect which has been undertaken in accordance with DMRB LA 110.

Assessment criteria

10.4.15 Chapter 4: Environmental Assessment Methodology of this Environmental Statement (TR010064/APP/6.1) sets out the general approach to assessing the significance of effects and follows DMRB LA 104. Whereas DMRB LA 110 specifically sets out how the environmental effects associated with the material assets and waste aspect should be assessed through the use of a simplified significance framework (i.e. a set of standardised descriptions of effect). Consequently, this simplified significance framework precludes the application of a methodology to derive a measure of the significance of effect based on the more traditional approach of combining the value of a receptor and the magnitude of impact.

10.4.16 The assessment of significant effects on material assets and waste has adopted the significance category descriptions and significance criteria provided in Tables 10.8 and 10.9 respectively which have been reproduced from Tables 3.13 and 3.14 in DMRB LA 110. Professional judgement has been used to determine which significance categories the Scheme is likely to fall within, with regards to the material assets and waste matters of this aspect, after an assessment of the effectiveness of those design and mitigation measures identified in Section 10.9 of this chapter.

Table 10.8 DMRB LA 110 significance category descriptions

Significance category	Description[1]
Very large	Material assets: • No criteria: use criteria for large categories. Waste: • >1% reduction or alteration in national capacity of landfill, as a result of accommodating waste from a project; or • Construction of new (permanent) waste infrastructure is required to accommodate waste from a project.
Large	Material assets: • Project achieves <70% overall material recovery / recycling (by weight) of non-hazardous C&D waste to substitute use of primary materials[2]; and • Aggregates required to be imported to site comprise <1% re-used / recycled content; and/or[3] • Project sterilises ≥1 mineral safeguarding site and/or peat resource[4]. Waste: • >1% reduction in the regional capacity of landfill as a result of accommodating waste from a project; and • >50% of project waste for disposal outside of the region.
Moderate	Material assets: • Project achieves less than 70% overall material recovery / recycling (by weight) of non-hazardous C&D waste to substitute use of primary materials[2]; and • Aggregates required to be imported to site comprise re-used/recycled content below the relevant regional percentage target[3]. Waste: • >1% reduction or alteration in the regional capacity of landfill as a result of accommodating waste from a project; and • 1-50% of project waste for disposal outside of the region.
Slight	Material assets: • Project achieves 70-99% overall material recovery / recycling (by weight) of non-hazardous C&D waste to substitute use of primary materials[2]; and • Aggregates required to be imported to site comprise re-used/recycled content in line with the relevant regional percentage target[3].

Significance category	Description[1]
	Waste: • ≤1% reduction or alteration in the regional capacity of landfill; and • Waste infrastructure has sufficient capacity to accommodate waste from a project, without compromising integrity of the receiving infrastructure (design life or capacity) within the region.
Neutral	Material assets: • Project achieves >99% overall material recovery / recycling (by weight) of non-hazardous Construction Demolition Waste to substitute use of primary materials[2]; and • Aggregates required to be imported to site comprise >99% re-used / recycled content[3]. Waste: • No reduction or alteration in the capacity of waste infrastructure within the region.

[1] This table, reproduced from DMRB LA 110, uses very precise and deliberate language, specifically "OR", "AND" and "AND/OR" after each descriptor of effect to denote which significance category should be applied. The descriptors for the material assets matter are generally summative (large, moderate, slight and neutral effects), and all descriptors need to be met in full in order to assign a relevant significance category (i.e. with the notable exception of a large effect which can be assigned when a project sterilises ≥1 mineral safeguarding site and/or peat resource). The descriptors of effect for the waste matter are either standalone (very large and neutral effects) or summative (large, moderate and slight effects).

[2] In the absence of further guidance in the DMRB LA 110 standard, this descriptor has been interpreted to mean 'project achieves XX% overall material reuse / recycling / recovery (by weight) to substitute use of primary materials on or off-site'. Limiting this to solely 'C&D waste' in the context of the 'material assets' descriptors (where there are already separate descriptors of effect for 'waste') is impractical and inappropriate given that 'waste' is a legally defined term, and that the Scheme would not look to use 'waste' to substitute primary materials given the potential costs, delays and risks associated with securing Environmental Permits. Reference solely to 'C&D waste' also has the effect of inadvertently excluding from the descriptor calculations the use of 'non-waste' materials and products from recycled, secondary, renewable and sustainable sources to substitute the use of primary materials (e.g. materials and products which had never become waste, or waste derived materials and products that can be regarded as a non-waste and therefore no longer subject to waste controls). Such an exclusion would hamper the Scheme's intention to divert materials from landfill through material reuse / recycling / recovery (either on or off site) and hence constrain the transition to a circular economy (e.g., through use of site-won materials; importing material and products with reused / recycled / recovered / secondary content; and/or exporting surplus materials and waste for off-site reuse / recycling / recovery).

[3] The recycled aggregate target for the north-west region is 30%. This target is provided in DMRB LA 110 (paragraph E/1.1) and is taken from the Ministry of Housing, Communities & Local Government (2009) National and Regional Guidelines for Aggregates Provision in England 2005 to 2020. This target excludes site-won material and demolition materials. The former is considered a primary material for the purposes of assessment, and the latter is not an imported material.

[4] The published version of DMRB LA 110 includes "AND" instead of "AND/OR". This has been changed to correct an editorial error in the standard that was confirmed in an email from Wilson. S (2020) at Highways England. Sterilisation is defined by DMRB LA 110 to mean "substantially constrain / prevent existing and potential future use and extraction of materials". In the absence of further information, this has been interpreted to mean that the Scheme would need to substantially sterilise one or more allocated mineral safeguarding sites (in their entirety), placing their future use at risk or rendering them inaccessible for current or future use.

Table 10.9 DMRB LA 110 significance criteria

Significance	Description
Significant (one or more criteria met)	Material assets • Category description met for moderate or large effect. Waste • Category description met for moderate, large or very large effect.
Not significant	Material assets • Category description met for neutral or slight effect. Waste • Category description met for neutral or slight effect.

10.4.17 With reference to DMRB LA 104 (paragraph 3.7), effects at the moderate level can be considered to be material decision-making factors, effects at the large level are likely to be material in the decision-making process and effects at the very large level are material in the decision-making process. Whereas effects at the slight level are not material in the decision-making process.

10.5 Assessment assumptions and limitations

10.5.1 While this section of the chapter provides a generalised list of assumptions and limitations that are applicable to the assessment of material assets and waste, additional section-specific assumptions and limitations have been identified throughout this chapter, linked with their corresponding sections for clarity.

10.5.2 For the purposes of this assessment, it is assumed that the construction of the Scheme would begin in Q1 2026 and would take approximately 3.5 years to construct, with an assumed opening year of 2029. However, this would be reviewed as the detailed design and programme are developed.

10.5.3 The baseline data sources used in this assessment represent the most recently available stakeholder information. However, there is a general lag (in years) for aggregates, waste treatment and landfill capacity data in the UK, and conditions may have changed since publication of these data.

10.5.4 Although checks are made by stakeholders for anomalies or errors in their data prior to publication, it cannot be guaranteed that these datasets are error free, or whether any commercial or confidentiality decisions have been taken by site operators that may have affected these data or restricted their publication.

10.5.5 This assessment has been undertaken on the basis of published minerals and waste information for the 2020 and 2021 calendar years. These data will have been influenced by reduced economic activity during the COVID-19 pandemic (i.e. with a corresponding reduction in aggregates sales and waste production).

10.5.6 The ancillary discussions, presented in Section 10.10 of this chapter, therefore present a worst case as they are based on comparing the influence of the Scheme, in terms of its comparative materials consumption and waste generation, against a reporting year which is likely to have witnessed a corresponding reduction in aggregates sales and waste production.

10.5.7 The quantities of material assets and waste predicted for the Scheme and used in this assessment comprise preliminary estimates consistent with the preliminary design information. Given that the estimated material required, and waste generated, may change between this assessment and eventual construction, a 15% uplift has been applied to all quantities.

10.5.8 This uplift aims to account for additional material and waste quantities not accounted for in the preliminary design information, and for any potential changes between the preliminary design and eventual construction of the Scheme. This uplift also covers those material and waste quantities that cannot be quantified based on the current preliminary design information (e.g. composite materials).

10.5.9 While the preliminary design information utilised in this assessment provides a preliminary estimate of the key materials likely to be required during the construction of the Scheme, it does not quantify all materials use and waste generation. Therefore, the material and waste quantities presented in this assessment can only be taken as approximate and indicative. The preliminary design information, which forms the basis of the material assets and waste forecasting, would be updated as the preliminary design is progressed to detailed design and construction.

10.5.10 Nevertheless, the assessment has been undertaken, wherever practicable, on a worst-case scenario basis. This has considered the reasonable worst case afforded by the limits of deviation (see Section 2.5 of Chapter 2: The Scheme of this Environmental Statement (TR010064/APP/6.1)). While the limits of deviation (as shown on the Works Plans (TR010064/APP/2.2)) could result in changes to materials consumption and waste generation, it is considered that such changes are unlikely to affect the predicted levels of likely significant effects reported in this assessment.

10.5.11 All material and waste quantities reported in Section 10.10 of this chapter have been reported in tonnes (t), having been converted from their original units by way of the conversion factors provided in the National Highways (2022b) Carbon Emissions Calculations Tool, in order to provide a consistent unit of measurement across the assessment. These quantities are reported as unrounded estimates, and should be viewed as approximate only, and do not confer the actual accuracy / precision of the estimates.

10.5.12 At this stage, specific opportunities to increase the resource efficiency of the Scheme have not been prescribed because the design is at a preliminary stage. As the design for the Scheme advances through later stages of detailed design, procurement, construction and delivery, the opportunities to divert materials from landfill and increase the use of re-used, recycled and responsibly sourced content would become more detailed.

10.5.13 Correspondingly, specific suppliers of construction materials and products have not been identified at this preliminary design stage owing to the rationale provide in Section 10.6 of this chapter. Similarly, the waste that is likely to be generated by the Scheme has not been allocated to specific waste management facilities given the rationale in Section 10.6 of this chapter.

10.5.14 While this subsequently results in additional limitations with regards to those elements of DMRB LA 110 that require relatively precise information in terms of materials provenance and waste management methods, these limitations have been offset through the use of those surrogate datasets identified in Section 10.4 of this chapter.

10.5.15 The indirect impacts of off-site materials extraction and production and waste management are assumed to have already been assessed (and where necessary, mitigated) under the Town and Country Planning Act 1990 (as amended) and Environmental Permitting (England and Wales) Regulations 2016 (as amended) for those sites and thus have not been assessed as part of the material assets and waste assessment for the Scheme.

10.5.16 Notwithstanding the above limitations on materials provenance and waste management methods, clear and deliverable mitigation has been identified in Section 10.9 of this chapter to increase both the diversion of materials from landfill and the use of re-used, recycled and responsibly sourced content in the Scheme – thereby supporting the transition to a circular economy.

10.6 Study area

10.6.1 In accordance with DMRB LA 110 (paragraphs 3.5 to 3.8), the assessment of material assets and waste has utilised two geographically different study areas to examine the use of material assets and the production and disposal of waste (i.e. based on professional judgement, with consideration for a balance of the proximity principle and value for money principle):

- The first study area (the development study area) – based on the construction footprint or boundary of the Scheme which is defined by the Order Limits denoted on Figure 10.1: Mineral Safeguarding Areas, Mineral Areas of Search and Peat Deposits of the Environmental Statement Figures (TR010064/APP/6.2). Within these areas, material assets would be consumed, and waste would be generated.
- The second study area (the expansive study area) – based on the likely provenance of material assets required to construct the main elements of the Scheme, and waste infrastructure that is likely to be suitable to accept waste generated by the Scheme. These include:
  - The former North West Regional Planning area and the North West Crown Estate Dredging area which is likely to be the first source of material assets (primary, secondary and recycled aggregates) used to construct the Scheme.
  - The former North West Regional Planning area where the waste management infrastructure, likely to be used in managing the majority of waste generated by the Scheme, is located.

10.6.2 In contrast to other environmental aspects, impacts from the use of material assets and the production and disposal of waste, such as resource depletion and use of landfill capacity, are largely dispersed or generalised, rather than affecting specific geographically-bound receptors.

10.6.3 Setting the study area at the regional level (north-west England) therefore takes account of the need for the inter-regional movement of materials and waste within England and echoes the broader approach to minerals and waste planning and management that has traditionally been undertaken on a regional and county-level basis.

10.6.4 This reflects the fact that minerals and waste planning authorities have a statutory duty to plan for an appropriate amount of minerals and waste capacity to be available over a defined period, and take account of minerals and waste that are transferred across minerals and waste planning authority boundaries.

10.6.5 It would be the Principal Contractor's responsibility to source materials and manage waste during the construction of the Scheme. Typically they would look to use local (sub-regional) material sources and waste infrastructure wherever practicable to reduce the environmental impact and cost of transport, and support the economic well-being of the local communities.

10.6.6 Notwithstanding this, procurement rules mean that at this stage it is not possible to prescribe specific material suppliers and waste management facilities to be used during construction of the Scheme, and these prevent setting a precedent that would potentially tie the Principal Contractor to exclusive arrangements with specific material suppliers and waste management facilities.

10.6.7 The ability to use materials suppliers and waste management infrastructure from a wide range of locations would also allow existing material resources and waste management capacity to be used effectively and efficiently, without resulting in local overcapacity to the detriment of the local economy.

10.6.8 It should also be noted that the Principal Contractor may already have specific contractual arrangements in place with its preferred materials and waste management suppliers which may dictate the transboundary movement of materials and waste.

10.6.9 Given the uncertainty at this stage in terms of any transboundary impacts and effects of materials procurement and waste management, it has not been possible to consult with all mineral and waste planning authorities likely to be affected through the construction of the Scheme.

10.7 Baseline conditions

Baseline sources

10.7.1 A desk-based assessment has been undertaken to describe the current and likely future baseline conditions for material assets and waste, in the absence of the Scheme, during the anticipated construction period (2026 to 2029):

- For the first study area:
  - Types and quantity of material use, and waste associated with operation of the existing M60/M62/M66 Simister Island Interchange where available.
  - Information on availability of key construction materials required for the Scheme.

  - Location of mineral safeguarding sites and peat resources in relation to the Scheme extents.
- For the second study area:
  - Regional and sub-regional presence and capacity of waste transfer, treatment, recycling and recovery facilities.
  - Regional and sub-regional presence and capacity of inert, non-hazardous and hazardous landfill facilities.

10.7.2 Baseline data has been collected at the regional (north-west), sub-regional (Greater Manchester) and local (Order Limits) level, and has been prepared with reference to the latest pertinent (noting the limitations in Section 10.5 of this chapter) materials and waste datasets provided by the:

- 2022 Waste Data Interrogator (Environment Agency, 2023a)
- British Pits (BRITPITS) database (British Geological Survey (BGS), 2020)
- Geoindex Onshore Mapping (BGS, n.d.)
- Greater Manchester Joint Minerals Plan Development Plan Document (Association of Greater Manchester Authorities, 2013)
- Greater Manchester Mineral Resources Map in Support of National, Regional and Local Planning (BGS, 2005)
- Marine Aggregates Annual Review 2023 (Crown Estates, 2023)
- Mineral Planning Factsheet Construction Aggregates (BGS, 2019).
- North West Aggregate Working Party (NWAWP) Annual Monitoring Report 2021 (Capita, 2022)
- Remaining Landfill Capacity 2022 data (Environment Agency, 2023b)
- The Aggregate Minerals Survey for England and Wales 2019 (MHCLG, 2021)
- UK Statistics on Waste (Defra, 2023b)

10.7.3 No account of future climate change has been considered in the baseline conditions, as this is unlikely to affect the material assets or waste matters baseline within the timescales of constructing the Scheme (2026 to 2029). Please refer to Chapter 14: Climate of this Environmental Statement (TR010064/APP/6.1) for potential impacts resulting from climate change during construction and operation of the Scheme.

Baseline information

Material assets

10.7.4 DMRB LA 110 defines material assets as ‘materials and products (from primary, recycled or secondary, and renewable sources), the use of materials offering sustainability benefits, and the use of excavated and other arisings that fall within the scope of waste exemption criteria’.

10.7.5 Primary, secondary and recycled aggregates have been chosen to act as a proxy indicator of regional and sub-regional material assets given that large quantities of aggregates are typically required for road projects. This was also considered appropriate due to the prominence given to aggregates in the DMRB LA 110 assessment criteria.

10.7.6 This is also supported by National Highways' Sustainable Development Strategy and Action Plan (Highways England, 2017), which confirms that its key ambition covering manufactured capital is to push towards a 'circular' approach to the management of its resources; reduce its demand for primary resources extracted from the ground; and maximise the reuse of the resources already in use on the network. This focus on circularity is continued in the more recently published Environmental Sustainability Strategy (National Highways, 2023).

Aggregates consumption associated with the existing Scheme area

10.7.7 The operational maintenance of the first study area is likely to consume both unbound aggregates (used as sub-base and drainage applications) and bound aggregates (used in ready mixed concrete, asphalt and pre-cast concrete products).

10.7.8 At the time of writing, there were no figures available regarding the baseline quantities of operational / maintenance aggregates consumption across the first study area. Based on recent experience on other National Highways schemes, this information is not routinely collected at a sufficiently local level to be reliably used in reporting the baseline conditions associated with the first study area.

10.7.9 Notwithstanding this, operational effects have been scoped out of this assessment as confirmed by the Scoping Opinion (TR010064/APP/6.7) (see Section 10.4 of this chapter for further details). Further justification is also provided in Section 10.8 of this chapter.

Regional primary, secondary and recycled aggregates

10.7.10 The principal materials used in road construction are primary aggregates, including sand, gravel and crushed rock. Primary aggregates are produced from naturally occurring mineral deposits and used for the first time, as defined by the Mineral Planning Factsheet Construction Aggregates (BGS, 2019).

10.7.11 Aggregates are normally defined as being hard, granular materials which are suitable for use on their own or with the addition of cement, lime or bituminous binders. However, a proportion of aggregates sales are for construction fill or other uses where soft and non-granular material may be acceptable or specified.

10.7.12 The Aggregate Minerals Survey for England and Wales 2019 (MHCLG, 2021) reports that concreting aggregate is the largest end use for both land-won and marine-dredged sand and gravel, accounting for 55% of land-won and 79% of marine-dredged sales for aggregate use respectively in 2019. The other main products were other screened and graded gravels, sand suitable for use in mortar, and sand and gravel for construction fill.

10.7.13 MHCLG (2021) confirms that crushed rock has a much wider range of uses than sand and gravel, including as a source of both coarse and fine concrete aggregate (14%), other screened and graded aggregates (28%) and for other construction uses, including fill (18%). However, its main use is in road construction (37%), both unbound, primarily for the foundations of roads, and bound with either bitumen or cement in the upper layers.

10.7.14 The NPPF (DLUHC, 2023) requires mineral planning authorities to maintain a minimum landbank of seven years for sand and gravel and a minimum landbank of 10 years for crushed rock. This is used to determine whether there is a shortage or surplus of supply in a given minerals planning area. The NWAWP is the body charged with data collection to facilitate planning by Mineral Planning Authorities (MPAs), national Government agencies and the aggregate industry.

10.7.15 The latest NWAWP Annual Monitoring Report 2021 (Capita, 2022) provides sales and reserves data for the calendar year 01 January to 31 December 2020. This confirms that sand and gravel and crushed rock landbanks for the north-west region were 8.05 years and 35.51 years respectively at the end of 2020, and therefore above their respective minimum landbank requirements. Sales of sand and gravel and crushed rock in 2020 in the north-west region were 2.13Mt and 6.61Mt respectively, with reserves of 21.11Mt and 247.52Mt.

10.7.16 Capita (2022) confirms that the sand and gravel landbank in Greater Manchester sub-region (at 6.22 years) at the end of 2020 is below the seven-year minimum requirement and could be fully depleted during the Minerals Local Plan period (2012 to 2027) unless additional proposals for minerals extraction come forward and planning permissions are granted for the release of additional reserves. Sales of sand and gravel in 2020 were 0.34Mt, above the ten-year average of 0.28Mt and equalling the three-year average of 0.34Mt.

10.7.17 Capita (2022) reports that, whilst reserves of crushed rock are depleting year on year and additional permissions for its extraction will be required in the medium to long term, the landbank in Greater Manchester (at 15.06 years) is currently above the 10 year minimum requirement. Sales of crushed rock in 2020 were 0.74Mt, below both the ten-year average of 0.87Mt and the three-year average of 0.96Mt. Capita (2022) suggests that the Greater Manchester sub-region is therefore heavily reliant on imported high quality crushed rock as the material extracted within the sub-region is generally of poor quality.

10.7.18 Whilst Capita (2022) reports that sand and gravel reserves in Greater Manchester sub-region have tended to fall and are currently below the required seven-year landbank and are likely to remain that way, it suggests that the general fall in sales and reserves of crushed rock may indicate an increased use of secondary and recycled aggregate in the sub-region in place of local primary aggregates.

10.7.19 Capita (2022) estimates secondary and recycled aggregate production in the north-west region and Greater Manchester sub-region to have been 7.13Mt and 3.77Mt in 2020, based on a respective handling rate of 8.06Mt and 4.01Mt of inert C&D materials. This estimate is based on a review of the Environment Agency's Waste Data Interrogator.

10.7.20 Capita (2022) also reports that information on the sales of secondary and recycled aggregates was collected through the surveys sent to operators of fixed C&D recycling sites and secondary aggregate producers in the north-west region. These surveys recorded total sales of secondary / recycled aggregate of 0.99Mt and 0.64Mt respectively in the north-west region and Greater Manchester sub-region in 2020.

10.7.21 In addition to the land-won primary aggregates and secondary and recycled aggregates, the Marine Aggregates Annual Review 2023 (Crown Estates, 2023) reports that there were an additional 8.75Mt of marine aggregate reserves in the north-west as of May 2023, which equates to an additional reserve life of 32.77 years.

Mineral safeguarding sites

10.7.22 DMRB LA 110 defines mineral sites as '*Operational sites or sites identified within strategic planning documents for the extraction of minerals*'. No definition is provided for mineral safeguarding sites in DMRB LA 110. Mineral sites are therefore assumed to be congruous with mineral safeguarding sites for the purpose of assessment.

10.7.23 MPAs are required to define MSAs and adopt appropriate policies in order that known locations of specific mineral resources of local and national importance are not needlessly sterilised by non-mineral surface development. The NPS NN requires that Applicants should safeguard any mineral resources on the proposed site as far as possible.

10.7.24 A review of the BRITPITS database (BGS, 2020) has not identified any operational mineral sites within 250m to the first study area. However, a review of the Greater Manchester Joint Minerals Plan Development Plan Document (Association of Greater Manchester Authorities, 2013) and the Bury Metropolitan Borough Council Adopted Unitary Development Plan Proposals Map (Bury Metropolitan Borough Council, n.d.) suggests that the Scheme is located within an area designated as MSAs for sand and gravel, and brick clay / surface coal (as shown on Figure 10.1: Mineral Safeguarding Areas, Mineral Areas of Search and Peat Deposits of the Environmental Statement Figures (TR010064/APP/6.2)).

10.7.25 This is supported by the Greater Manchester Mineral Resources Map in Support of National, Regional and Local Planning (BGS, 2005) which identifies that the first study area is predominately underlain by mineral resources consisting of superficial glaciofluvial sand and gravel deposits; and brick clay and fireclay deposits, coincident with shallow coal bearing strata of the Pennine Coal Measures.

10.7.26 Consultation with the Greater Manchester Minerals and Waste Planning Unit, undertaken for the Scheme at option selection stage, also confirmed the presence of four Areas of Search (AoS) for sand within 250m of the first study area (as shown on Figure 10.1: Mineral Safeguarding Areas, Mineral Areas of Search and Peat Deposits of the Environmental Statement Figures (TR010064/APP/6.2)):

- The first is located within land immediately to the south of the existing northbound to westbound M60 J18 offslip at Parrenthorn Farm and Clarke's Cross;
- The second is located immediately to the south-east of Parrenthorn High School, and is bordered by Bridle Road;
- The third is located immediately to the north-west of Brookvale Care Home, and is currently intersected by Egypt Lane; and
- The fourth is located east of the Hills Lane overbridge, within land occupied by the Hills private property and Pike Fold Golf Club.

10.7.27 AoS are areas where knowledge of mineral resources may be less certain than specific mineral extraction site allocations, but within which planning permissions for particular sites could be granted to meet any shortfall in supply if suitable applications were made. AoS are typically located within the much larger MSA designations, which are based on the extent of the mineral resource excluding the urban area.

10.7.28 It should be noted that both MSAs and AoS are not considered to meet the definition of mineral sites, as defined in DMRB LA 110, as Government guidance makes it clear that there is no presumption that resources defined in MSA or AoS would be worked / extracted.

Peat resources

10.7.29 DMRB LA 110 defines peat resources as '*existing or potential peat extraction sites*'. National planning policy means that MPAs do not identify peat as a mineral resource of local and national importance and specifies that LPAs do not identify new sites or extensions to existing sites for peat extraction.

10.7.30 A review of the Greater Manchester Joint Minerals Plan Development Plan Document (Association of Greater Manchester Authorities, 2013) confirms that there are sufficient peat workings with planning permission until 2042 to meet existing and future demand.

10.7.31 The Greater Manchester Joint Minerals Plan Development Plan Document (Association of Greater Manchester Authorities, 2013) therefore specifies that no new planning permissions need be granted for new peat workings in Greater Manchester. In line with the requirements of the NPPF (DLUHC, 2023), the Greater Manchester Joint Minerals Plan Development Plan Document (Association of Greater Manchester Authorities, 2013) does not include an MSA for peat resources.

10.7.32 Peat extraction is focused in the Salford and Wigan areas of Greater Manchester. In the recent past peat has been worked at three sites:

- Little Woolden Moss, with a planning permission running to 2042
- Chat Moss, where permission expired in 2010
- Astley Moss, which finished in 2015

10.7.33 None of these peat workings are located in proximity to the first study area, and there is limited potential for further peat extraction in Greater Manchester as the area has already been extensively worked. The current policy drive in England is towards carbon sequestration and as a consequence peat harvesting is generally not encouraged.

10.7.34 While the Geoindex Onshore Mapping (BGS, n.d.) confirms the absence of mineral peat within the Order Limits, its superficial deposits mapping does record the following three areas of superficial peat deposits within the first study area (as shown on Figure 10.1: Mineral Safeguarding Areas, Mineral Areas of Search and Peat Deposits of the Environmental Statement Figures (TR010064/APP/6.2)):

- The first is located to the north of M60 J18 from approximately 250m north of M66 southbound to M62 eastbound off-slip to the Pike Fold Golf Club ponds.
- The second is located to the west of M60 J18 underlying the M60 carriageway from approximately 550m west of M60 J18 to approximately 40m east of Sandgate Road bridge.
- The third is located to the east of M60 J18, immediately north and east of the Simister allotments and Simister Playground respectively.

10.7.35 Notwithstanding this, the results of Scheme-specific soil surveys and ground investigations (see Chapter 9: Geology and Soils of this Environmental Statement (TR010064/APP/6.1) for further details), indicate that there are limited existing peat deposits within the first study area. At most locations, only limited and non-contiguous / isolated pockets of thin peat layers and remnant buried peat has been identified, with those peaty soils / horizons encountered tending to be clustered in the north-west of the Order Limits where there would be fewer permanent works.

10.7.36 These peaty soils / horizons are not considered to meet the definition of peat resources provided in DMRB LA 110 as they are neither existing nor potential peat extraction sites given the current policy landscape. Further information on these peaty soils / horizons with respect to superficial geology and as a soil resource is provided in Chapter 9: Geology and Soils of this Environmental Statement (TR010064/APP/6.1).

Waste management

10.7.37 Constructing the Scheme would potentially produce a range of waste types including inert, non-hazardous and small amounts of miscellaneous hazardous wastes.

10.7.38 The majority of wastes assumed to be produced would be C&D waste. There would also be a small amount of municipal-type waste associated with construction workers such as food waste, packaging, sewerage etc.

10.7.39 A large proportion of this waste is likely to be suitable for reuse, recycling or other recovery, although a small proportion may also require disposal to landfill.

Waste generation associated with the existing Scheme area

10.7.40 The operational maintenance of the first study area is likely to generate a range of C&D wastes including, but not limited to: asphalt planings; soft-estate vegetative arisings; road sweepings; gully arisings; oil separator waste; animal by-products; and litter.

10.7.41 At the time of writing, there were no figures available regarding the baseline quantities of operational / maintenance waste generated across the first study area. Based on recent experience on other National Highways schemes, this information is not collected at a sufficiently local level to be reliably used in reporting the baseline conditions associated with the first study area.

10.7.42 Notwithstanding this, operational effects have been scoped out of this assessment as confirmed by the Scoping Opinion (TR010064/APP/6.7) (see Section 10.4 of this chapter for further details). Further justification is also provided in Section 10.8 of this chapter.

National and regional construction and demolition waste generation

10.7.43 The UK Statistics on Waste (Defra, 2023b) reports that the construction sector is the largest contributing sector to the total waste generation in England. This sector generated 137.80Mt of construction, demolition and excavation (CD&E) waste in 2018 (the most recent year available).

10.7.44 Defra (2023b) provides an update on the generation and management of UK waste, including the contributions made by various sectors. This confirms that the construction sector in England generated a total of 53.60Mt of non-hazardous C&D waste in 2020 (the most recent year available), 93.2% of which was recovered.

10.7.45 The annual recovery rate for C&D waste in England has remained above 92% since 2010, which is well above the Waste (England and Wales) Regulations 2011 target of 70%. This excludes hazardous waste and excavation and dredging waste which are outside the scope of the target.

10.7.46 The 2022 Waste Data Interrogator (Environment Agency, 2023a) confirms that approximately 8.19Mt of C&D waste was received at waste facilities in the north-west region in 2022, with 2.97Mt of this received at waste facilities in the Greater Manchester sub-region.

10.7.47 Environment Agency (2023a) records that 3.16Mt (18% inert waste, 78% non-hazardous waste and 4% hazardous waste) and 1.24Mt (11% inert waste and 89% non-hazardous waste) of waste from all sources was disposed of at merchant landfills in the north-west region and Greater Manchester sub-region respectively in 2022.

10.7.48 More specifically, Environment Agency (2023a) records that 1.57Mt (35% inert waste, 63% non-hazardous waste and 2% hazardous waste) and 0.62Mt (21% inert waste and 79% non-hazardous waste) of C&D waste was disposed of at merchant landfills in the north-west region and Greater Manchester sub-region respectively in 2022.

Waste transfer, treatment, recycling and recovery baseline

10.7.49 The availability of waste transfer, treatment, recycling and recovery infrastructure able to accept waste generated during construction of the Scheme has been considered through a review of the 2022 Waste Data Interrogator (Environment Agency, 2023a).

10.7.50 Whilst annual capacity data is published by the Environment Agency for both landfill and incineration facilities at the national, regional and sub-regional level, no annual capacity data is published by the Environment Agency for waste transfer, treatment or recycling sites. Only annual permitted throughput is published for these facilities.

10.7.51 The total annual permitted throughput or capacity reported by the Environment Agency (2023a) for the north-west region and Greater Manchester sub-region is detailed in Table 10.10.

Table 10.10 Total permitted throughput or capacity of transfer, treatment, metal recycling and incineration in the north-west and Greater Manchester, 2022

Site type	North-west region (000s tonnes)	Greater Manchester sub-region (000s tonnes)
Transfer (annual throughput)		
Hazardous waste transfer stations	792	351
Household, industrial, commercial waste transfer stations	4,016	1,440
Non-biodegradable waste transfer stations	124	123
Treatment and metal recycling (annual throughput)		
Material recovery	1,750	527
Physical treatment	5,833	2,037
Physico-chemical treatment	1,911	482
Chemical treatment	77	-
Composting	747	219
Biological treatment	8,270	4,598
Metal recycling	3,449	741
Incineration (annual capacity)		
Co-incineration of hazardous waste	175	-
Hazardous waste incineration	100	-
Municipal and/or industrial & commercial incineration	1,227	127
Biomass/waste wood incineration	324	-

10.7.52 The 2022 Waste Data Interrogator (Environment Agency, 2023a) reports that, as of 2022, there were 1,036 permitted transfer, treatment, metal recovery, incineration and use of waste sites in the north-west, with 759 of these having accepted waste in 2022. No equivalent data is provided for the Greater Manchester sub-region.

10.7.53 Based on these data, it can be assumed that there would be sufficient opportunities for waste arisings during the construction of the Scheme to be transferred, treated, recycled or otherwise recovered as appropriate in the second study area, if they cannot be reused, recycled or otherwise recovered on-site (i.e. within the first study area).

Inert, non-hazardous and hazardous landfill capacity baseline

10.7.54 For wastes which cannot be reused, recycled or otherwise recovered, disposal to landfill would be required. The Environment Agency (2023a) details the total remaining merchant landfill capacity in the north-west region and Greater Manchester sub-region in 2022 as presented in Table 10.11.

Table 10.11 Total landfill capacity available in the north-west and Greater Manchester, 2022

Landfill type	North-west region (000s tonnes[1])	Greater Manchester sub-region (000s tonnes[1])
Hazardous merchant landfill	4,910	-
Non-hazardous landfill with SNRHW cell[2]	7,806	5,080
Non-hazardous landfill	10,642	1,173
Inert landfill	8,561	1,659
Total	**31,920**	**7,911**

[1] Converted from cubic metres through adoption of the following conversion factors: inert landfills 1.5 tonnes/m^3, non-hazardous landfills 0.83 tonnes/m^3 and hazardous landfills 1.5 tonnes/m^3.

[2] Some non-hazardous sites can accept some Stable Non-Reactive Hazardous Wastes (SNRHW) into a dedicated cell, but this is usually a small part of the overall capacity of the site.

10.7.55 Remaining Landfill Capacity 2022 data (Environment Agency, 2023b) reports that at the end of 2022 there were:

- 30 permitted operational landfills with remaining capacity in the north-west region (comprising 9 inert landfills, 13 non-hazardous landfills, four non-hazardous landfills with SNRHW cell and four hazardous merchant landfills).
- Five operational landfills with remaining capacity located in the Greater Manchester sub-region (comprising two inert landfills, two non-hazardous landfill and one non-hazardous landfill with SNRHW cell).

10.7.56 Whilst the north-west region has sufficient inert, non-hazardous and hazardous landfill capacity, there is currently no merchant hazardous waste landfill capacity available in the Greater Manchester sub-region. The management of hazardous waste generated in the sub-region region would therefore take place at recycling, recovery or disposal facilities in the wider north-west region.

10.7.57 No information is publicly available at the sub-regional or regional level on when the permitted landfills are scheduled to cease infilling operations. This information is not provided in the Public Registers Online (Environment Agency, n.d.) nor Waste Data Interrogator (Environment Agency, 2023a) nor Remaining Landfill Capacity (Environment Agency, 2023b) datasets. No consultation has been undertaken with landfill operators to source this information.

Future baseline

Future primary, secondary and recycled aggregates baseline

10.7.58 For the purpose of this assessment, it has been assumed that the size of the primary aggregate landbanks, marine aggregate reserves and the supply market for secondary and recycled aggregate would remain largely unchanged from the baseline conditions reported in Section 10.7 of this chapter.

10.7.59 Whilst it is expected that existing landbanks and marine dredging sites would continue to be depleted, other sites and extensions to existing sites are likely to be granted to offset any potential shortfall in capacity, ensuring that sufficient availability is provided in line with future policy requirements and market demands.

Future minerals safeguarding sites and peat resources baseline

10.7.60 For the purpose of this assessment, it has again been assumed that the size and location of mineral safeguarding sites and peat resources would remain unchanged from the baseline conditions reported in Section 10.7 of this chapter.

10.7.61 The locations of MSAs are considered to be relatively constant given that they are largely defined on the basis of geological mapping. It is assumed that any future allocated mineral extraction sites would be located within MSAs..

Future waste treatment, recycling and recovery capacity baseline

10.7.62 Waste treatment, recycling and recovery infrastructure facilities are considered to be a beneficiary of incoming materials through driving the management of the waste hierarchy, and by creating conditions that facilitate a circular approach to the management of materials (see Plate 10.1).

Plate 10.1 The waste hierarchy

10.7.63 These facilities are therefore not considered to be sensitive receptors for the purposes of assessment in the same way as landfill sites, given that they are part of a recovery system that could reduce the environmental effects associated with waste generation, management and disposal. These facilities are also different to landfills, in that landfills are a finite resource.

10.7.64 Waste treatment, recycling and recovery facilities are typically characterised by large annual throughputs; consequently, large step changes in capacity (as single facilities are commissioned) have an exaggerated impact on the historical trend. Waste treatment, recycling and recovery infrastructure capacity cannot therefore be realistically projected forward to the construction phase of the Scheme.

10.7.65 While the future capacity of material recycling and recovery facilities is not quantified in this assessment, the presence and capacity of these facilities has been accounted for, as per DMRB LA 110 requirements. The impact of constructing the Scheme on these facilities has also been considered in the ancillary discussion provided in Section 10.10 of this chapter.

10.7.66 Professional experience has shown that waste markets are flexible and adapt to changing markets within a region; and that historical trends show that waste treatment, recycling and recovery is added or removed, not least to cope with changes in waste generation. It is expected that, while the actual waste facilities available may change over the course of constructing the Scheme, the overall capacity is likely to remain similar as the market responds.

10.7.67 The future waste treatment and recovery infrastructure capacity for use in the assessment has therefore been based on the most recent available Environment Agency annual capacity and input data for 2021. This suggests that there is likely to be adequate opportunity for wastes arising during the construction of the Scheme to be treated, recycled or otherwise recovered via appropriate means within the second study area.

Future inert, non-hazardous and hazardous landfill capacity baseline

10.7.68 Projected future inert, non-hazardous and hazardous landfill capacity has been forecast, using statistical trend analysis, and is shown in Table 10.12 and illustrated in Plate 10.2 and Plate 10.3 for the north-west region and Greater Manchester sub-region respectively during the anticipated construction phase (2026 to 2029).

10.7.69 This forecast is based on the following average annual percentage change in remaining landfill capacity for the years for which consistent data is available from the Environment Agency (i.e. 2005 to 2022):

- North-west region: inert landfill (-1.15%), non-hazardous landfill (-6.58%) and hazardous landfill (-2.50%)
- Greater Manchester sub-region: inert landfill (+2.01%), non-hazardous landfill (-3.77%) and hazardous landfill (n/a)

10.7.70 The predicted changes in inert, non-hazardous and hazardous landfill capacity are derived from the existing Environment Agency (2023a) time-based data (i.e. remaining landfill capacity at the end of each calendar year).

10.7.71 These data have been projected forward to 2027, using the calculated average annual capacity change in landfill capacity from 2005 to 2022, in order to provide an estimate of the remaining landfill capacity that may be available during the construction of the Scheme between 2026 to 2029.

10.7.72 The estimates, provided in Table 10.12, assume continuation of a similar trend, in the subtraction and addition of landfill capacity, as that reported by the Environment Agency between 2005 and 2022.

Table 10.12 Forecast future baseline landfill capacity in the north-west and Greater Manchester, 2023-29

Timeline	North-west forecast future landfill capacity (000s tonnes)			Greater Manchester forecast future landfill capacity (000s tonnes)		
	Inert	Non-hazardous	Hazardous	Inert	Non-hazardous	Hazardous
2005	18,449	62,423	8,884	4,019	14,774	N/A
2006	31,159	58,899	8,820	10,036	13,383	N/A
2007	20,822	52,269	8,817	4,095	12,425	N/A
2008	20,217	46,196	8,553	3,052	12,246	N/A
2009	28,238	44,994	8,219	3,588	12,092	N/A
2010	21,043	44,245	7,994	3,755	11,480	N/A
2011	20,827	43,531	7,866	4,158	9,815	N/A
2012	20,821	38,328	7,641	4,417	9,326	N/A
2013	22,019	35,929	7,506	3,917	8,357	N/A
2014	12,414	35,144	7,359	5,612	8,069	N/A
2015	9,438	32,964	7,248	2,971	7,775	N/A
2016	10,021	32,648	9,947	2,561	6,281	N/A

Timeline	North-west forecast future landfill capacity (000s tonnes)			Greater Manchester forecast future landfill capacity (000s tonnes)		
	Inert	Non-hazardous	Hazardous	Inert	Non-hazardous	Hazardous
2017	8,741	25,965	9,839	2,293	6,448	N/A
2018	7,035	25,975	9,692	2,245	7,709	N/A
2019	8,247	20,464	9,225	2,088	4,796	N/A
2020	7,806	23,229	9,408	1,787	6,515	N/A
2021	9,050	21,069	7,772	1,727	6,115	N/A
2022	8,561	18,449	4,910	1,659	6,252	N/A
2023	8,462	17,235	4,788	1,693	6,016	N/A
2024	8,365	16,101	4,668	1,726	5,789	N/A
2025	8,268	15,042	4,551	1,761	5,571	N/A
2026	**8,173**	**14,053**	**4,438**	**1,796**	**5,361**	**N/A**
2027	**8,079**	**13,128**	**4,327**	**1,832**	**5,159**	**N/A**
2028	**7,986**	**12,264**	**4,219**	**1,869**	**4,964**	**N/A**
2029	**7,894**	**11,458**	**4,113**	**1,907**	**4,777**	**N/A**
Average (000s tonnes per annum (tpa) (2026-29))	**8,033**	**12,726**	**4,274**	**1,851**	**5,065**	**N/A**

Plate 10.2 Forecast future landfill capacity in the north-west (2023-29)

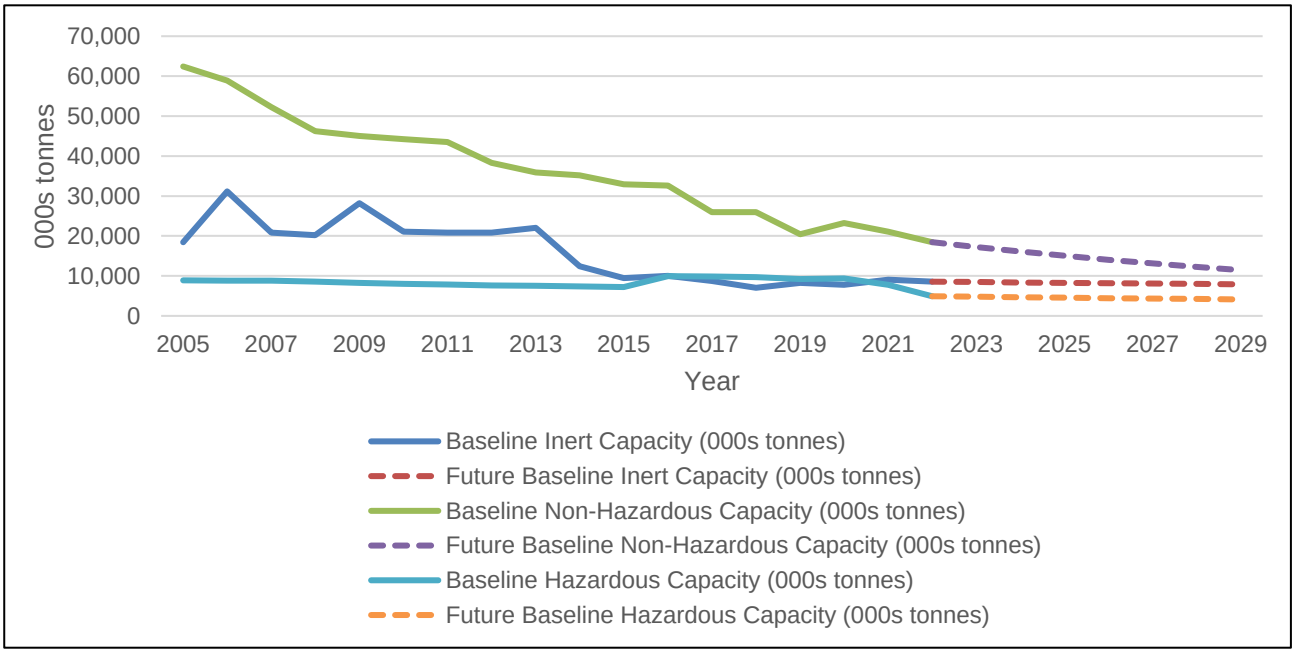
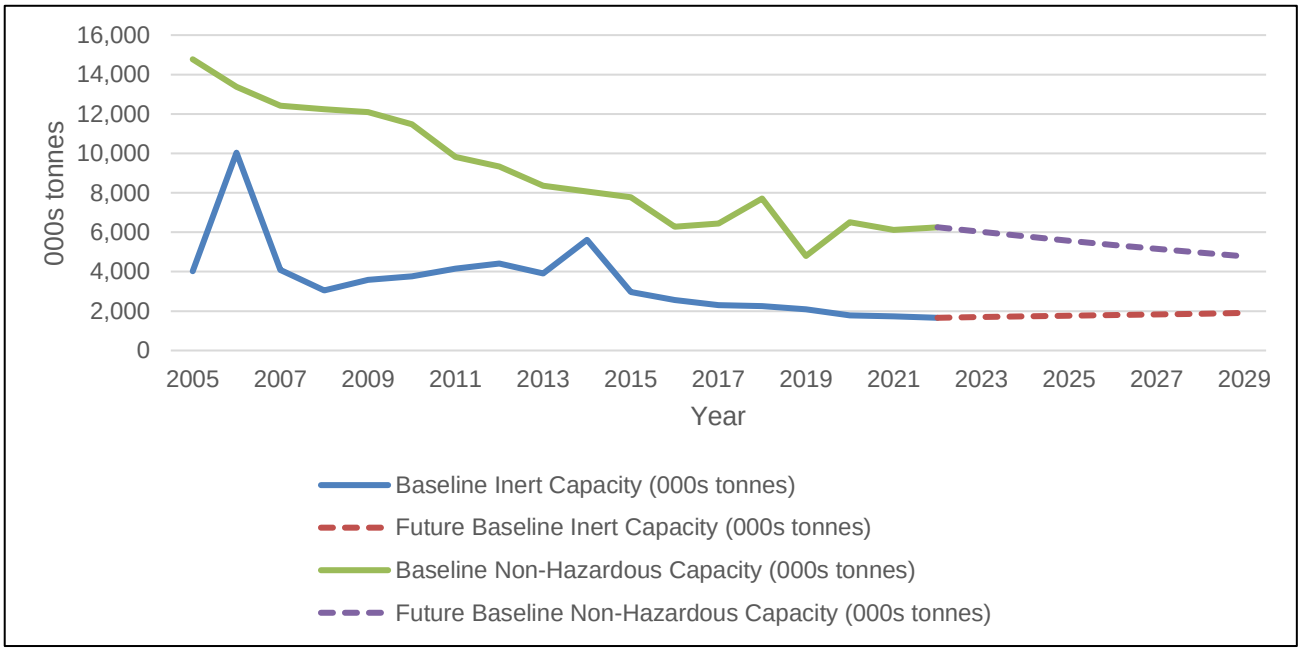


Plate 10.3 Forecast future landfill capacity in Greater Manchester (2023-29)



10.7.73 Although there is generally a reducing trend for landfill disposal in England, the forecast future baseline landfill capacity suggests that there is likely to be available inert and non-hazardous landfill capacity in the north-west region and Greater Manchester sub-region to support the construction of the Scheme between 2026 and 2029. While there is likely to be available hazardous landfill capacity in the north-west region, there is unlikely to be any hazardous landfill capacity in the Greater Manchester sub-region as is currently the case.

10.7.74 This means that any inert, non-hazardous, SNRHW and hazardous waste that is destined for landfill would most likely find available regional capacity in the second study area. Waste planning authorities have a statutory responsibility to make provision for sufficient landfill capacity; future local plans should include provision for landfill sites or to identify other suitable placement locations to enable continued capacity to be available as landfill capacity is occupied.

10.7.75 It is also of note that, even where wastes are deposited in land, some may, subject to their properties, be used within landfill cover or other engineering uses rather than subject to and accounted as disposal. Any landfills that have ceased infilling, during the construction phase, and are no longer accepting waste may also still require inert and non-hazardous materials for capping and restoration purposes, and therefore may be amenable to accepting any suitable surplus materials arising from constructing the Scheme.

10.7.76 Inert and non-hazardous material is also likely to be required for quarry infilling and other restoration purposes. For example, reference to Environment Agency (2023a) confirms that 1.04Mt and 0.20Mt were deposited in landfill for the purposes of waste recovery in the north-west region and Greater Manchester sub-region respectively in 2022. This activity covers the deposit of waste in land for benefit and recovery purposes, whereas landfilling is the deposit in land for the purposes of final disposal.

10.7.77 Notwithstanding this, it is envisaged that the vast majority of waste arising from constructing the Scheme would be reused, recycled or otherwise recovered in accordance with legislative, policy and economic drivers. This assumption is validated by the available UK Statistics on Waste (Defra, 2023b) with 93.2% of non-hazardous C&D waste currently being diverted from landfill in England. A high degree of waste recovery would also be required in order to demonstrate the Scheme's contribution to achieving the following mandatory and advisory targets in DMRB LA 110:

- At least 70% (by weight) of non-hazardous C&D waste "shall" be subjected to material recovery/diverted from landfill (which constitutes a requirement of National Highways) (paragraph 3.17 of DMRB LA 110).
- At least 90% (by weight) of non-hazardous C&D waste "should" be subjected to material recovery/diverted from landfill (which constitutes advice expressed as a recommendation by National Highways) (paragraph E/2.1.1 of DMRB LA 110).

10.7.78 Materials would either be recovered within the first study area (Order Limits) or second (wider north-west region) study areas to offset the use of primary construction materials and support the transition to a circular economy.

10.7.79 It should be noted that both of these targets exclude naturally occurring soil and stone material falling within code 17 05 04 in the Hazardous Waste (Miscellaneous Amendments) Regulations 2015 (as amended).

Value (sensitivity) of receptors

10.7.80 The baseline environment comprises receptors which have been defined geographically, based on the likely impacts and effects, associated with the consumption and use of material assets, and the production and management of waste, as set out in paragraphs 3.9 and 3.10 of DMRB LA 110.

10.7.81 While these receptors and a summary of their baseline conditions are provided in Table 10.13, it should be noted that the DMRB LA 110 significance criteria precludes the need to assign a sensitivity (or value) rating to the identified receptors for the purposes of assessment (see Section 10.4 of this chapter).

10.7.82 The sensitivity of these receptors is intrinsically considered within the DMRB LA 110 significance category descriptions, and as such, the significance of effect is not based on the method of combining the sensitivity of the receptor and the magnitude of impact as detailed in Chapter 4: Environmental Assessment Methodology of this Environmental Statement (TR010064/APP/6.1).

Table 10.13 Summary of the baseline conditions for material assets and waste

Sensitivity	Description	Summary of baseline conditions
N/A – not required for assessment	Primary, secondary and recycled aggregate resources	Primary aggregates are, in their own right, considered as sensitive receptors. Notwithstanding, there is likely to be a good supply of both primary, secondary and recycled aggregates within the second study area to support the construction of the Scheme.

Sensitivity	Description	Summary of baseline conditions
N/A – not required for assessment	Mineral safeguarding sites and peat resources	A proportion of the first study area intersects with MSAs for sand and gravel and surface coal/brick clay; AoS for sand; and some areas containing limited and non-contiguous / isolated pockets of thin peat layers and remnant buried peat. These MSAs, AoS and peaty soils / horizons are not considered to meet the definition of mineral safeguarding sites nor peat resources provided in DMRB LA 110. These receptors have therefore been scoped out of this assessment as confirmed by the Scoping Opinion (TR010064/APP/6.7) provided in Section 10.4 of this chapter.
N/A – not required for assessment	Inert, non-hazardous and hazardous landfill capacity	There is likely to be available landfill capacity within the second study area to accommodate the majority of wastes arising from the construction of the Scheme between 2026 and 2029, and there are unlikely to be any specific constraints with regards to disposing of inert, non-hazardous, SNRHW or hazardous waste streams. However, there is unlikely to be any hazardous landfill capacity in the Greater Manchester sub-region as is currently the case.

10.7.83 DMRB LA 110 (paragraph 3.12.2) recommends that sensitive receptors (designated sites identified in other environmental topics) should also be considered in order to reduce the effects from material assets and waste.

10.7.84 Therefore in addition to the generalised receptors identified in Table 10.13 for material assets and waste, additional environmental receptors and designated sites are considered in the other aspect chapters in this Environmental Statement (TR010064/APP/6.1). A list of these aspects is provided in Section 10.1 of this chapter.

10.8 Potential impacts

Construction

Consumption and use of material assets

10.8.1 Constructing the Scheme would result in the consumption and use of substantial quantities of material assets which impacts upon their immediate, and in the case of primary aggregates, long-term availability, resulting in temporary or permanent adverse impacts on the environment through the depletion of natural resources. Material assets include both primary materials, such as aggregates, and manufactured construction products such as asphalt and concrete.

10.8.2 Some of these materials would originate off-site, purchased as primary construction products, but some would arise on-site, particularly from excavated soils, crushed concrete or asphalt planings, or recycled materials brought in from off-site, possibly from other projects or industries. Section 2.6 of Chapter 2: The Scheme of this Environmental Statement (TR010064/APP/6.1) provides a summary of types of construction materials and products that are likely to be sustainably procured in constructing the Scheme.

10.8.3 The Scheme is anticipated to require a substantial quantity of both primary materials and manufactured construction products during earthworks and main construction as quantified in Section 10.10 of this chapter. These materials are likely to include, but are not limited to:

- Topsoil, general fill and landscaping fill
- Aggregates for capping, sub-base, site compound hardstanding, drainage filter media and concrete
- Asphalt base, binder and surface courses, including aggregates and bitumen
- Concrete for use in structures, retaining walls, culverts, headwalls, piles, foundations, fenceposts, kerbs, chambers, catch pits, etc
- Iron and steel for use in structures, reinforcement, safety barriers, fencing, manhole covers, cabinets, etc
- Plastics for use in drainage pipes, chambers, gully pots and interceptors, traffic signs, cables, ducting and road markings, etc
- Timber for use in fencing and for structural formwork and falsework

10.8.4 The largest quantity of materials to be used in construction of the Scheme would likely be earthworks materials, aggregates for road foundation materials, asphalt aggregates and drainage and duct aggregates. It is assumed at this stage that all these materials, except for site-won earthwork's materials, would be imported to site.

10.8.5 Initial assessment of the mass haul volumes for earthworks shows a net fill requirement of approximately 220,000m^3 to construct the new highway embankments and widenings. This volume excludes ponds which are expected to generate up to 40,000m^3 of arisings.

10.8.6 The first priority of the earthworks strategy would be to meet this fill requirement by utilising the cut material from the excavation of ponds and other areas of cut across the Scheme. This would be subject to geotechnical and environmental assessment of the material properties to ensure the material is suitable for use as an engineering earthworks fill.

10.8.7 To satisfy any remaining fill deficit, material would be imported. Initially, the opportunity to reuse the surplus arising materials from other local and nearby construction schemes would be explored. Should this not be a viable option, local quarries would be used to satisfy the remaining fill deficit. No borrow pits would be created specifically for the Scheme.

Sterilisation of mineral safeguarding sites and peat resources

10.8.8 While Table 10.6 of this chapter confirms that both mineral safeguarding sites and peat resources have been scoped out of this assessment, this sub-section has been included to provide additional justification / clarity as to why these matters have been scoped out of this assessment.

10.8.9 The Scheme would also require structural works (including earthworks and concrete and steel structures) as well as imported aggregates and asphalt for road construction. Constructing the Scheme would require land outwith the existing highway boundary for both temporary (e.g. construction compounds, laydown areas, haul roads etc.) and permanent (for new highways, access roads, structures, embankments, drainage, attenuation ponds and land for environmental mitigation etc.) construction purposes.

10.8.10 Any land to be permanently acquired and used inside MSAs and AoS may therefore result in potential partial sterilisation of mineral resources. Sterilisation may occur through constructing the Scheme directly overlying these MSAs and AoS which may restrict their future workability through immediate land take, or through construction on or close to the boundary of these areas which may indirectly sterilise the mineral resource. Indirect sterilisation can occur through closing off the access to a resource in circumstances where access to the resource is limited.

10.8.11 The potential exists for partial sterilisation to occur to the MSA for sand and gravel and brick clay / surface coal within the first study area (see Figure 10.1: Mineral Safeguarding Areas, Mineral Areas of Search and Peat Deposits of the Environmental Statement Figures (TR010064/APP/6.2)), and more specifically to the:

- AoS for sand and gravel located at Parrenthorn Farm and Clarke's Cross, where the M60 northbound to M60 westbound free flow link would be constructed.
- AoS for sand and gravel located immediately to the south-east of Parrenthorn High School, where there is land for environmental mitigation.

10.8.12 Whilst additional land take would be required for construction site compounds, working areas, storage and haul roads within the MSAs and AoS present in the study area, these works are of a temporary nature and would be completed with these areas restored to a condition that would not inhibit the future extraction of mineral resources.

10.8.13 It is also assumed that the land for environmental mitigation, that is to be permanently acquired within MSAs / AoS, would not inhibit the future extraction of mineral resources. This land would not form part of the hard engineered part of the highway (i.e. to be constructed with concrete, steel, bituminous materials, etc.), and therefore sterilisation is unlikely to occur as it is assumed that this land could be restored to its previous use (as land for environmental mitigation) should these minerals ever need to be extracted.

10.8.14 Due to its compressible nature, any localised peaty soils / horizons that are encountered within the footprint of the Scheme may need to be excavated and managed as waste if deemed unsuitable for conventional construction methods and cannot be reused on site. Any excavated peat deposits would need to be replaced with more geotechnically suitable materials that are conducive to constructing the Scheme.

10.8.15 Peat resources hold large stocks of poorly protected carbon, and any excavation of peat is likely to result in carbon losses from the excavated peat and also any areas affected by drainage. Any impacts on climate from the potential release of sequestered carbon has been considered as part of Chapter 14: Climate of this Environmental Statement (TR010064/APP/6.1).

10.8.16 Notwithstanding this, both mineral safeguarding sites and peat resources have been scoped out, of the assessment of likely significant effects presented in Section 10.10 of this chapter, on the basis that no likely significant effects would be realised for the Scheme.

10.8.17 This determination is supported by the following consultation responses, from the Greater Manchester Minerals and Waste Planning Unit and Coal Authority, that were received for the Scheme at option selection stage; and by the Scoping Opinion (TR010064/APP/6.7) (see Section 10.4 of this chapter for further details):

- The Greater Manchester Minerals and Waste Planning Unit (Williams. C, 2018/19) confirmed that the extent of the Scheme is unlikely to impact on the potential future extraction of sand and gravel within the study area, as such it is content that the resource would not be sterilised and no minerals resource assessment is therefore necessary. No sterilisation of the brick clay resource is also likely to occur given that the Williams. C (2018/19) confirmed that they would not expect the clay associated with the coal to be exploited as the Coal Authority has confirmed that the coal would not need to be extracted.
- The Greater Manchester Minerals and Waste Planning Unit (Williams. C, 2018/19) confirmed that no sterilisation (by definition) of peat resources is likely to occur given that the current policy drive is towards carbon sequestration, and subsequently planning authorities do not identify new sites or extensions to existing sites for peat extraction. Whilst the approach of the Greater Manchester Joint Minerals Plan Development Plan Document (Association of Greater Manchester Authorities, 2013) is not to extract peat, should peat extraction be necessary the local environmental impacts of the loss of this resource should be dealt with through any scheme proposals put forward but would not be a minerals planning issue.
- The Coal Authority (MacArthur, 2019) confirmed that the sterilisation of the surface coal resource is unlikely to occur given that there are no known coal seams/outcrops near the surface. Consequently, in considering the limited extent of the area where the development is proposed, the fact that the shallowest coal seam is in excess of 30m below ground level, together with both the suggested regional benefits and the impracticalities of extracting any surface coal so close to an operating highway, the Coal Authority

considers that the removal of the coal would be unreasonable and that a sustainable objection could not be justified. This is further reinforced when considering the key developments in the UK energy system and the ways in which energy is expected to be produced in the longer term.

Generation and disposal of waste to landfill

10.8.18 Constructing the Scheme would generate substantial quantities of surplus materials and waste, leading to potential impacts on the available waste management infrastructure through permanently occupying landfill capacity.

10.8.19 Landfill is a finite resource, and the successive disposal of waste results in a continued need to expand existing, and develop new, landfill facilities. This loss of resources to landfill requires the extraction or production of new material assets which, in turn, accelerates the depletion of natural resources, resulting in temporary or permanent adverse impacts on the natural environment.

10.8.20 The use of sub-regional landfill capacity could also displace (or push out) waste that would otherwise be landfilled in the Greater Manchester sub-region, thus impacting upon the waste planning authority's proximity and net self-sufficiency principles which are viewed as a key performance indicator and driver for waste planning at the sub-regional level.

10.8.21 A range of waste types, including inert, non-hazardous and small quantities of miscellaneous hazardous wastes, would be generated during the construction of the Scheme. The majority of wastes produced would be C&D waste, a large proportion of which could be suitable for reuse, recycling or recovery on or off-site, although a proportion could require disposal to landfill. Smaller quantities of municipal waste (household-like waste) would also be generated by construction workers and site welfare activities.

10.8.22 The Scheme is anticipated to result in substantial quantities of surplus materials and wastes during earthworks, demolition of existing highways assets, and main construction as quantified in Section 10.10 of this chapter. These waste streams are likely to include, but are not limited to:

- Vegetation, trees, scrub and invasive plants (non-hazardous)
- Surplus topsoil and unacceptable earthworks materials including peat (inert, non-hazardous or hazardous)
- Asphalt road planings (non-hazardous or hazardous (if containing road tar))
- Concrete and other masonry waste (inert)
- Signage, signal posts, lighting columns, steel safety barriers and other street furniture (non-hazardous)
- Ferrous and non-ferrous metal waste (non-hazardous)
- Treated and untreated wood waste (non-hazardous or hazardous)
- Plastic waste (non-hazardous)
- Mixed C&D waste (non-hazardous or hazardous)
- Mixed packaging (non-hazardous)

- Canteen, office, ad hoc waste (non-hazardous)
- Asbestos-containing materials (hazardous)
- Hydraulic oils (hazardous)
- WEEE, lamps, bulbs, etc. (hazardous or non-hazardous)
- Miscellaneous hazardous waste associated with the maintenance of plant and machinery or chemicals required as part of the construction processes

10.8.23 The largest quantities of surplus materials and waste are anticipated to be excavated materials from site preparation and earthworks activities.

10.8.24 It is assumed at this stage that the surplus earthworks materials would be reused within the construction of the Scheme, where geotechnically and geochemically suitable for use (as described in paragraph 10.8.6 of this chapter).

10.8.25 Aggregate crushing and grading would likely be used to recycle or recover inert demolition materials and pavement arisings into the main construction works where practicable.

Operation

10.8.26 Paragraph 3.21 of DMRB LA 110 specifies that the assessment shall report on the first year of operational activities (opening year). It has been assumed that no significant operational maintenance activities would occur during the first year of operational activities on a newly constructed highway asset (target opening year 2029), and so there is not likely to be significant materials consumption or waste generation.

10.8.27 Operational impacts have therefore been scoped out of the assessment on the basis that no likely significant effects would be realised. Although the opening year is a time period not necessarily confined to operational effects, any construction phase effects overlapping within this period are captured within the construction phase assessment. This was agreed by the Planning Inspectorate in the Scoping Opinion (TR010064/APP/6.7) (see Section 10.4 of this chapter for further details).

10.8.28 Notwithstanding this, the design process would inherently seek to reduce the consumption and use of material assets, and the generation of waste throughout the life cycle of the Scheme. Design choices and the choice of materials would make a significant contribution to reducing the environmental impacts associated with material assets and waste during operation, by influencing the required method and frequency of maintenance, and facilitating opportunities to recover and regenerate materials and products at the end of first life.

10.8.29 It is also assumed that the assessment of any environmental impacts and effects associated with material assets and waste during any large-scale future maintenance, renewal or improvement works beyond the opening year would be undertaken by the Applicant in accordance with the requirements of DMRB LA 110 (or any future environmental assessment standard specified by National Highways).

10.8.30 It is highly unlikely that the Scheme would be demolished as the improvements would have become an integral part of the strategic road networks. In the unlikely event of the Scheme needing to be demolished, this would conform to the statutory process in place at that time, including any requirements for EIA as appropriate.

10.8.31 Demolition of the Scheme has therefore not been considered further in this assessment. The notable exception to this is the inclusion of an essential mitigation measure that requires the implementation of Design for Resource Efficient Construction Principles to identify how materials can be designed to be more easily adapted over an asset's lifetime and how de-constructability of elements can be increased at end of first life (commitment M1 in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5)). See Section 10.9 of this chapter for further details.

10.9 Design, mitigation and enhancement measures

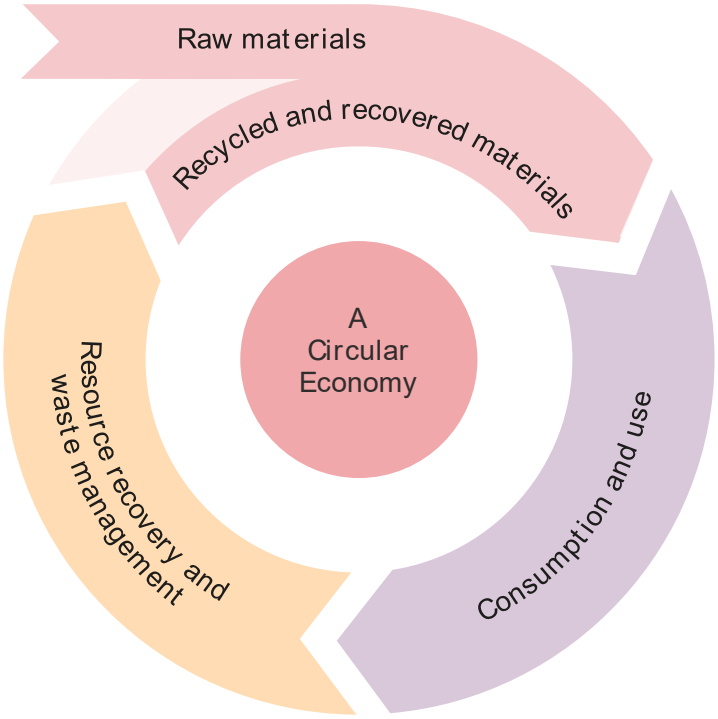
10.9.1 Design, mitigation and enhancement measures would be implemented to avoid or minimise the potential environmental effects associated with the consumption and use of material assets, sterilisation of mineral safeguarding sites and the management of waste during the construction of the Scheme.

10.9.2 This section identifies established and reliable design, mitigation and enhancement measures, as per the definitions provided in Chapter 4: Environmental Assessment Methodology of this Environmental Statement (TR010064/APP/6.1), considering relevant legislation, policy and good practice for this aspect. These measures would be implemented during the design and construction of the Scheme. Embedded mitigation and enhancement measures would be developed as the design progresses.

10.9.3 Measures would be implemented to reduce the potential impacts associated with both the consumption and use of material assets, and the production and disposal of waste during the construction of the Scheme. There is considerable synergy between material assets and waste, thus there is overlap between the mitigation measures provided for these matters.

10.9.4 Minimising the use of new/virgin materials and maximising the use of reused, recycled and responsibly sourced materials in the build, and diverting materials from landfill would reduce the attendant indirect environmental impacts and effects associated with materials production (as discussed in Section 10.5 of this chapter), thereby supporting a circular economy.

Plate 10.4 A simplified depiction of the circular economy (Defra, 2018b)



10.9.5 A circular economy is an alternative to a traditional linear economy (of make, use, dispose) in which resources are kept in use for as long as possible; where maximum value is extracted from these resources whilst in use; and where assets, components, products and materials are recovered and regenerated at end of life as products and materials that maintain rather than degrade resource value (see Plate 10.4). The underlying assumption is that using less material results in lower attendant environmental impact compared to the use of virgin materials.

10.9.6 Where practicable, the design of the Scheme should work towards the ambition of zero avoidable waste in construction. This means preventing waste being generated at every stage of the Scheme's lifecycle, from the manufacture of materials and products, the design, specification, procurement and assembly of infrastructure through to deconstruction.

10.9.7 The primary objective for zero avoidable waste should be at the top of the waste hierarchy (see Plate 10.1) on prevention, i.e. measures taken before a substance, material or product has become waste, that use less material in design or reduce:

- The quantity of waste, including through the re-use of products or the extension of the life span of products; or
- The adverse impacts of the generated waste on the environment and human health; or
- The content of harmful substances in materials and products.

10.9.8 As such the aim is not to focus on lower value recycling and other recovery, and in any case the majority of C&D waste is already being 'recovered' in some form (93.2% in England). If waste cannot be prevented then the secondary objective is for waste to be kept at its highest level within the waste hierarchy, in line with the Government's Resources and Waste Strategy for England (Defra, 2018b) which in descending order of preference, is:

- Preparing for reuse (for example repair or remanufacture)
- Closed-loop recycling (where waste is used as a feedstock in the same process)
- Open-loop recycling (where waste is used as a feedstock for a different purpose)

10.9.9 If waste can be managed in this way, then it is 'avoidable' as it has a further use and is not being disposed of to landfill or as energy recovery. However, it is recognised that some waste produced may be unavoidable and is considered unsuitable for further use (e.g. asbestos, asbestos contaminated materials, or material treated with persistent organic pollutants). All other waste is avoidable waste, in that it can either be prevented, reused or recycled.

Embedded mitigation

10.9.10 The environment team has worked in close collaboration with the infrastructure design team to avoid or prevent environmental impacts through the scheme design. This is referred to as embedded (or design) mitigation.

10.9.11 Chapter 3: Assessment of Alternatives of this Environmental Statement (TR010064/APP/6.1) details the design alternatives that have been considered to date, including the environmental aspects which have influenced the decision making.

10.9.12 Those design changes that are relevant to this aspect include consideration of the following, amongst others:

- Optimising the cut-fill balance to reduce material requirements and waste
- The location and extent of carriageway widening
- The alignment of the new offline carriageway
- Retention of existing highway structures and assets

10.9.13 The main changes, from the Preferred Route Announcement (PRA) design, that are relevant to material assets and waste are as follows:

- Northern Loop – M60 westbound to M60 southbound – changed vertical alignment so that M66 southbound diverge link goes over (rather than under) the Northern Loop link. This results in a significant reduction of earthworks volumes compared to PRA design and also removes a retaining wall adjacent to the M66 southbound merge.
- M60 northbound to M60 westbound merge and link – removed offline link that was shown in the PRA design to maintain use of existing M60 northbound to M60 westbound link with a corresponding reduction in materials use and waste generation.

10.9.14 In addition, the following change has been made since the publication of the Preliminary Environmental Information Report (Annex L of the Consultation Report Annexes (TR010064/APP/5.2)):

- Reducing the Catchment 6 impermeable area by approximately 5.8ha, and removing all works to the west of M60 J17 (including Pond 6) from the design of the Scheme, resulting in reduced materials use and waste generation.

10.9.15 Embedded mitigation would also be integrated into the design and construction of the Scheme for the purpose of avoiding environmental effects from this aspect. The Scheme design is ongoing and would continue to be influenced, as the preliminary design is progressed to detailed design, by environmental factors to avoid or prevent effects where practicable.

10.9.16 This process is described in Chapter 2: The Scheme of this Environmental Statement (TR010064/APP/6.1) and Chapter 3: Assessment of Alternatives of this Environmental Statement (TR010064/APP/6.1).

Essential mitigation

10.9.17 While no likely significant adverse environmental effects have been identified for this aspect of the Scheme, the assessment of likely significant effects reported in Section 10.10 of this chapter has assumed the implementation of the essential mitigation measures reported in this sub-section.

10.9.18 Essential mitigation is included in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5), which forms part of the DCO submission. The First Iteration EMP would be developed into the Second Iteration EMP for implementation during construction and secured by Requirement 4 of the draft DCO (TR010064/APP/3.1).

10.9.19 The following essential mitigation measures included in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5), would occur as a matter of course due to legislative and policy requirements or standard sector practices, and would be implemented across the Scheme to reduce and if possible offset any adverse environmental effects in support of the reported significance of effects detailed in Section 10.10 of this chapter:

- Commitment M1 – Implementing Design for Resource Efficient Construction principles in a systematic manner to suit the scale of the Scheme, to identify, prioritise and select appropriate opportunities to improve Scheme resource efficiency and design out waste:
  - Design for reuse and recovery: identifying, securing and using materials that already exist on site, or can be sourced from other schemes.
  - Design for resource optimisation: simplifying layout and form to reduce 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 structures and components, encouraging a process of assembly rather than construction.
- Design for resource-efficient procurement: identifying and specifying materials that can be acquired responsibly, in accordance with a recognised industry standard.
- Design for the future: identify how materials can be designed to be more easily adapted over an asset lifetime and how de-constructability and de-mountability of elements can be increased at end of first life.

Evidence of material resource efficiencies and waste reductions will be demonstrated in a number of ways, for example through the use of the SPP (commitment M2) and SWMP (commitment M5).

- Commitment M2 – Developing and implementing a SPP that sets out a clear framework to increase the procurement and use of sustainably and responsible sourced construction materials and products with proven sustainability credentials that reduce adverse impacts on people and the environment during the construction of the Scheme. The plan will specify the:
  - Use of key material elements (asphalt, concrete, aggregate, steel, aluminium and plastics) responsibly sourced from suppliers with industry recognised responsible sourcing certification for that material (e.g. Building Research Establishment (2014) BES 6001, or membership of a sector specific scheme that complies to British Standards Institution BS 8902:2009).
  - Use of timber and wood-derived products that are sustainably sourced from independently verifiable legal and sustainable sources that are compliant with UK guidance for businesses trading in timber and timber-related products (Office for Product Safety and Standards and Defra, 2022).
  - Use of locally sourced and alternatives to primary materials, where available and permitted by the Specification for Highway Works, and where practicable and cost-effective to do so. This could include materials that already exist on site, can be recovered from demolition activities, or can be sourced from other schemes and suppliers.
  - Use of imported aggregates that comprise re-used, secondary or recycled content at levels at least in line with the ‘North-west regional guideline for aggregates provision 2005-2020’ (MHCLG, 2009) target of 30% where available for those applications and where it is technically and economically feasible to substitute these alternatives to primary aggregates. Where primary aggregate materials are mandated within the Specification for Highways Works, they are excluded from the target.

- Use of minimal quantities of hazardous materials that have the potential to harm human health or the environment; and that might cause problems for future reuse, recycling and recovery at end of first life.
- The SPP will also set out the policies that will be employed by the Principal Contractor and its subcontractors to evaluate and specify the responsible sourcing of construction materials and products, and the procedures that are to be put in place to check and verify that the SPP is being implemented and adhered to during construction. This would include setting out any measurement criteria, methodology and performance indicators to assess progress and demonstrate success; and how the chain of custody of materials would be audited and evidenced during procurement.

- Commitment M3 – Reusing any sand and gravel arisings (a safeguarded mineral resource), that are incidentally extracted during the site preparation and construction of the Scheme, in permanent works where practicable. Alternatively, any incidentally extracted safeguarded mineral resources should be exported to nearby minerals operators for processing so as to supply aggregates to other development schemes.
- Commitment M4 – Undertaking a pre-demolition assessment of all existing highway structures and assets to be removed or demolished as part of the Scheme. This assessment will be used to determine the quantities of demolition assets, elements, components, products and materials; and to make recommendations for their re-use (on or off-site), recycling, other recovery or final disposal. This assessment will also support the production of the SWMP (commitment M5) and SPP (commitment M2) by identifying the types and quantities of each waste to be produced during demolition and any opportunities to use these site-won materials to offset the use of primary materials.
- Commitment M5 – Implementing a SWMP, in a manner to suit the requirements of the Scheme, to plan, implement, monitor and review waste minimisation and management throughout the construction phase of the Scheme. The SWMP is a live document, updated on a regular basis during the design and construction phase. It will be used to forecast waste arisings and enable practical decisions to be taken at the detailed design and construction stage regarding waste prevention and the segregation of materials on-site for reuse, recycling, recovery or disposal, as well as for the layout of site waste management storage and treatment facilities. The SWMP will:
  - Be prepared using either the good practice resources developed by WRAP or the Principal Contractor's own SWMP tools and resources.
  - Include targets or key performance indicators for waste recovery in line with prevailing Government and National Highways targets.
  - Document the methods to be used to measure and record the quantity of waste generated during construction.

  - Be accompanied by appropriate communication between the Applicant, Designer and Principal Contractor as well as subcontractors and other members of the supply chain.

- Commitment M6 – Complying with waste 'duty of care' requirements and taking all reasonable steps to ensure that waste is managed safely without endangering human health or harming the environment. This includes:
  - Managing all waste in accordance with the waste hierarchy, as a priority order, to achieve the best overall environmental outcome where practicable.
  - Engaging early with sub-contractors during design to identify possible mitigation and enhancement measures, and to identify opportunities to reduce waste.
  - Correctly assessing and describing all waste before sending it for recovery or disposal; and carrying out a basic characterisation (level 1 waste assessment) for any waste destined for landfill. The basic characterisation determines which class of landfill site the waste must be sent to. The waste must meet the waste acceptance criteria (WAC) and waste acceptance procedures for that class.
  - Obtaining all necessary waste carrier registrations; environmental permits, mobile plant deployments and/or waste exemptions in relation to the storage, sorting, treatment, use, disposal, transportation of waste.
  - Preparing any documentation required of statutory and industry regulated codes of practice or end of waste quality protocols (e.g. CL:AIRE Code of Practice and Environment Agency Quality Protocol for the Production of Aggregates from Inert Waste).
  - Handling, storing, managing, re-using, recycling, recovering and disposing of waste arisings as close as practicable to the point of origin, with consideration of the proximity principle and value for money principle.
  - Ensuring that all waste is: transported by registered waste carriers; is accompanied by waste transfer notes or consignment notes; and is taken to licensed, permitted or exempt facilities which are authorised to accept that waste.
- Commitment M7 – To reduce any attendant effects from storing and processing material assets and waste, ensuring that construction site compounds and on-site material storage, stockpiling and processing areas are designed to reduce degradation, damage, and loss; and reduce impacts to those designated environmental sites and sensitive environmental receptors identified in other aspect chapters of the Environmental Statement (TR010064/APP/6.1).

10.9.20 The Second Iteration EMP will subsequently be produced for the construction phase and the Third Iteration EMP developed at the end of the construction phase for handover to operations (see Section 4.2 of Chapter 4: Environmental Assessment Methodology of this Environmental Statement (TR010064/APP/6.1) for further details regarding the iterations of the EMP)). The Second and Third Iteration EMP are secured through Requirement 4 of the draft DCO (TR010064/APP/3.1).

Enhancement

10.9.21 No specific environmental enhancement measures have been identified at this stage with regards to this aspect over and above what is required to mitigate the adverse effects of the Scheme.

10.9.22 Enhancement measures will be explored throughout the design and construction of the Scheme, and as an intrinsic part of developing the SPP (commitment M2 in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5)) and SWMP (commitment M5 in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5)).

10.9.23 Example beneficial enhancements opportunities from the Scheme that of relevance to the material assets and waste aspect could include, but not be limited to, the following:

- Recycling suitable material for construction of enhancement measures, identified by other aspects, where the need for enhancement has been identified. For example: recycling suitable material to screen visual effects and using felled vegetation and dead wood to create habitat piles and hibernacula within retained habitat and designated landscaping and mitigation areas.
- Using surplus recycled or recovered materials in community projects, for example the creation of public open space through the reuse of suitable surplus excavated materials, utilising recycled mulch from tree felling on adjacent community facilities, or using asphalt planings and rubble to maintain tracks, paths or bridleways.
- Exploring opportunities to reuse temporary works materials and/or demolition materials and wastes in the permanent works where practicable, subject to appropriate treatment to and where permitted by the Specification for Highway Works.

10.10 Assessment of likely significant effects

10.10.1 This section sets out the key findings of the material assets and waste assessment after the application of those design and mitigation measures specified in Section 10.9 of this chapter.

10.10.2 The assessment focuses solely on the construction phase of the Scheme (anticipated from 2026 to 2029) which is the stage considered to have the potential for significant impacts to occur on material assets and waste.

10.10.3 Operational effects have been scoped out of this assessment as per the rationale provided in Section 10.8 of this chapter, and as confirmed by the Scoping Opinion (TR010064/APP/6.7) (see Section 10.4 of this chapter for further details).

Material assets

Consumption and use of material assets

10.10.4 Indicative estimated quantities of the major materials required to construct the Scheme, including a 15% contingency to cover any unknown items, are provided in Table 10.14.

10.10.5 Material assets consumption has been estimated through a review of the preliminary design information provided by the Principal Contractor. To evaluate the potential recycled aggregate content of construction materials against the significance category descriptions provided in Table 10.8, indicative levels of recycled content have been established in Table 10.14.

10.10.6 These benchmarks have been selected through the application of professional judgement to the material-specific 'good practice' reused and recycled content levels provided in WRAP's (2008) Net Waste Tool dataset. Given the age of this data, good practice benchmarks, as opposed to standard or best practice benchmarks, have been selected in order to provide a reasonable and realistic worst case assessment scenario in line with following benchmark definitions:

- 'Standard practice' benchmarks reflect the baseline performance of the construction industry, at the time of publication, based on achieving minimum standards and legal requirements.
- 'Good practice' benchmarks reflect going beyond standard practice to realise 'quick win' – benefits that are easy to achieve on a majority of projects without a fundamental change in working practice and were at least cost neutral at the time of publication.
- 'Best practice' benchmarks reflect the leading approach undertaken in the industry at the time of publication, but may bear a cost premium or require a significant change in working practice on some projects.

10.10.7 The use of good practice benchmarks aligns with the implementation of those mitigation measures / targets identified in Section 10.9 of this chapter. These measures would be implemented to reduce the use of new / virgin materials and increase the use of reused, recycled and responsibly sourced materials in the Scheme.

Table 10.14 Summary of estimated material assets consumption (2026-29)

Material assets	Approximate quantity (t)	Indicative reused and recycled content (%)	Estimated reused and recycled content (t)	Estimated primary content (t)
Temporary works				
Imported fill and aggregate*[2]	159,147	74	117,769	41,378
Imported asphalt*[2]	3,281	46	1,509	1,772
Imported concrete*[1]	588	22	129	458
Imported steel	15	60	9	6
Imported aluminium	4	73	3	1
Imported plastics	78	10	8	70
Imported timber / wood	1,492	20	298	1,194
Permanent works				
Site-won earthworks material	238,807	100	238,807	0
Imported fil and aggregate*[2]	441,321	74	326,578	114,744
Imported asphalt*[2]	69,119	46	31,795	37,324
Imported concrete*[1]	56,899	22	12,518	44,381
Imported steel	4,868	60	2,921	1,947
Imported aluminium	106	73	77.3	28.6
Imported plastics	577	10	58	519
Imported timber / wood	602	20	120	482
Total (t) of all construction materials	**976,904**	**N/A**	**732,599**	**244,305**
Total (t) of all construction materials containing aggregates	**730,354**	**N/A**	**490,298**	**240,057**
Total (t) of all construction materials containing sand and gravel	**57,486**	**N/A**	**12,647**	**44,839**
Total (t) of all construction materials containing crushed rock	**672,868**	**N/A**	**477,651**	**195,218**

* Denotes aggregate materials or aggregate containing materials for the purposes of assessment. The further addition of [1] or [2] has been used to denote whether sand and gravel or crushed rock is likely to be the constituent aggregate used in the material based on BGS (2019) and MHCLG (2021).

10.10.8 The quantities information provided in Tables 10.14 and 10.15 have been used to calculate what percentage overall material reuse, recycling or recovery (by weight) is likely to be achieved by the Scheme to substitute use of primary materials on or off-site (i.e. within the first or second study areas).

10.10.9 This has been determined by calculating the quantities of: site-won materials; imported materials with reused or recycled content; and off-site recovered waste a proportion of the overall mass balance for the Scheme (as defined in the glossary for this chapter).

10.10.10 By implementing good practice during construction, the Scheme could achieve an approximate overall material reuse, recycling or recovery rate of up to 81% to substitute use of primary materials within the first or second study area (equating to approximately 1,171,808t of material).

10.10.11 On this basis, it is considered likely that the Scheme would achieve an overall material reuse, recycling or recovery rate of between 70-99%. As the rate is unlikely to be less than 70%, this would constitute a slight adverse, not significant effect according to DMRB LA 110 significance category descriptions and significance criteria (see Table 10.8 and Table 10.9 of this chapter, respectively).

10.10.12 The choice of whether to use primary or secondary or recycled aggregates, or a combination of both, would ultimately be made by the Principal Contractor after considering a combination of factors, such as sources, specification, production, cost, carbon and transport of available materials.

10.10.13 By implementing good practice during construction, the Scheme could incorporate aggregates with an approximate overall reused / recycled content of up to 67% (equating to approximately 490,298t). This excludes site-won earthworks materials and recycled demolition materials which are not considered an imported aggregate for the purposes of the DMRB LA 110 assessment criteria.

10.10.14 While it is currently unknown what percentage of reused or recycled content would be included in imported aggregate materials, some degree of secondary/ recycled aggregate is anticipated given that this is standard practice in construction. WRAP's (2009) Construction Procurement Guidance reports that recycled content as a percentage of the total material cost for infrastructure projects was in the region of 25–49% when applying cost-neutral good practice.

10.10.15 In the absence of a precise figure, it is therefore likely that the Scheme would incorporate reused and recycled aggregate at levels at least in line with, and not less than, the north-west regional target of 30% in DMRB LA 110. Reference to the Mineral Products Association's (2021) Profile of the UK Mineral Products Industry 2020 Edition also confirms that the share of recycled and secondary aggregate materials as a proportion of total Great Britain aggregates sales is approximately 30%.

10.10.16 On this basis, it is considered that the Scheme would likely achieve levels of reused or recycled content in imported aggregates in line with the north-west regional percentage target of 30%. As reused and recycled content in imported aggregates is unlikely to be less than 30%, this would constitute a slight adverse, not significant effect according to DMRB LA 110 significance category descriptions and significance criteria (see Table 10.8 and Table 10.9 of this chapter, respectively).

Sterilisation of mineral safeguarding sites and peat resources

10.10.17 Whilst constructing the Scheme requires land outwith the existing highway boundary which results in the partial sterilisation of MSAs and superficial peat deposits, both mineral safeguarding sites and peat resources have been scoped out of this assessment for the reasons discussed in Section 10.8 of this chapter.

Waste

Production and disposal of waste to landfill

10.10.18 The indicative quantities of C&D waste likely to be generated during the construction of the Scheme, including a 15% contingency to cover any unknown items, are estimated in Table 10.15.

10.10.19 Construction of the Scheme would also generate waste streams from offices, welfare facilities, material packaging, construction plant maintenance and miscellaneous hazardous wastes. The quantities are anticipated to be small compared to the main C&D waste streams summarised in Table 10.15, and have not been included given the limited quantities that are anticipated.

10.10.20 It has also not been possible to quantify waste arisings from tree and vegetation clearance works. Notwithstanding this, the vast majority of vegetative waste would be diverted from landfill, given the UK's legislative targets requiring the progressive reduction in biodegradable waste being sent to landfill, and would therefore not contribute to notable quantities of waste being disposed of to landfill in the second study area.

10.10.21 Waste arisings have been estimated through a number of methods, including reference to actual preliminary design information provided by the Principal Contractor; and application of material-specific wastage rates, at good practice levels provided in WRAP's (2008) Net Waste Tool dataset, to the quantities reported in Table 10.14. For the purposes of assessment, all materials imported for temporary construction purposes are assumed to be discharged as waste after use. Wastage rates have not been applied to site-won earthworks materials given the availability of earthworks waste quantities from the Principal Contractor.

10.10.22 To evaluate potential recovery rates of the main C&D waste streams against the significance category descriptions detailed in Table 10.8, indicative waste recovery rates have been established in Table 10.15 to determine the potential for waste to be diverted from landfill. These benchmarks have been selected through the application of professional judgement to the material-specific 'good practice' performance benchmarks provided in WRAP's (2007) Achieving Good Practice Waste Minimisation and Management guidance.

10.10.23 Given the age of this data, good practice benchmarks, as opposed to standard or best practice benchmarks, have been selected in order to provide a reasonable and realistic worst case assessment scenario in line with the benchmark definitions provided in paragraph 10.10.6 of this chapter. The use of good practice benchmarks aligns with the implementation of those mitigation measures and targets identified in Section 10.9 of this chapter. These measures would be implemented to increase the quantity of waste reused, recycled or recovered on or off-site, thereby reducing off-site disposal to landfill.

10.10.24 These benchmarks reflect the total percentage of a given material that is likely to be diverted from landfill on or off-site at good practice levels. While some degree of professional judgement has been used in assigning recovery rates to each material type, a validatory review of the UK Statistics on Waste (Defra, 2023b) and landfill diversion rates on other highways and infrastructure schemes in the UK would suggest that these rates are likely to be achievable on the Scheme. If anything, these benchmarks are likely to provide a conservative estimate of Scheme performance, and it is likely that higher levels of waste recovery would be realised during construction.

10.10.25 For example, waste records from the A19/A184 Testos Junction Improvement Scheme, which is similar in nature to the Scheme (a junction upgrade, one major flyover structure, similar footprint and comparable scheme value), confirms that this scheme achieved an overall waste recovery rate of 99.9%.

Table 10.15 Estimated C&D waste generation, recovery and disposal (2026-29)

Waste stream	Indicative waste classification	Material quantity (t)	Wastage rate (%)	Waste (t)	Waste recovery rate (%)	Disposal to landfill (t)
Demolition and excavation waste from temporary works (actual wastage)						
Unsuitable excavated material	Non-hazardous	103,277	N/A – actuals	103,277	95	5,164
Hard dig excavated material	Non-hazardous	15,424	N/A – actuals	15,424	95	771
Unsuitable soil strip	Non-hazardous	26,073	N/A – actuals	26,073	95	1,304
Peaty soils / horizons	Non-hazardous	44,106	N/A – actuals	44,106	95	2,205

Waste stream	Indicative waste classification	Material quantity (t)	Wastage rate (%)	Waste (t)	Waste recovery rate (%)	Disposal to landfill (t)
Piling arisings	Non-hazardous	9,257	N/A – actuals	9,257	95	463
Surplus topsoil	Non-hazardous	12,266	N/A – actuals	12,266	95	613
Drainage arisings	Non-hazardous	47,422	N/A – actuals	47,422	95	2,371
Mixed metals	Non-hazardous	537	N/A – actuals	537	100	0
Concrete	Inert	4,088	N/A – actuals	4,088	95	204
Plastic	Non-hazardous	5	N/A – actuals	5	80	1
Timber	Non-hazardous	66	N/A – actuals	66	90	7
Construction waste from temporary works (estimated wastage)						
Imported aggregates	Inert	159,147	5	167,104	95	8,355
Imported asphalt	Non-hazardous	3,281	5	3,445	95	172
Imported concrete	Inert	588	2.5	602	95	30
Imported steel	Non-hazardous	15	2.5	15	100	0
Imported aluminium	Non-hazardous	4	0	0	100	0
Imported plastics	Non-hazardous	78	2	79	80	16
Imported timber	Non-hazardous	1,492	2.5	1,530	90	153
Construction waste from permanent works (estimated wastage)						
Imported fill/ aggregates	Inert	441,321	5	22,066	95	1,103
Imported asphalt	Non-hazardous	69,119	5	3,456	95	173
Imported concrete	Inert	56,899	2.5	1,422	95	71

Waste stream	Indicative waste classification	Material quantity (t)	Wastage rate (%)	Waste (t)	Waste recovery rate (%)	Disposal to landfill (t)
Imported steel	Non-hazardous	4,868	2.5	122	100	0
Imported aluminium	Non-hazardous	106	0	0	100	0
Imported plastics	Non-hazardous	577	2	12	80	2
Imported timber	Non-hazardous	602	2.5	15	90	2
Total (t) C&D waste		**N/A**	**N/A**	**462,389**	**N/A**	**23,181**
Total (t) inert waste		**N/A**	**N/A**	**195,283**	**N/A**	**9,764**
Total (t) non-hazardous waste		**N/A**	**N/A**	**267,106**	**N/A**	**13,416**

10.10.26 The choice of how to manage surplus materials and waste would ultimately be made by the Principal Contractor in accordance with the waste hierarchy as a priority order. The Principal Contractor may depart from the priority order so as to achieve the best overall environmental outcome (e.g. for asbestos).

10.10.27 By implementing 'good practice' during construction, the Scheme has the potential to generate in the order of 462,389t (or 115,597tpa) of C&D waste (42% and 58% of this likely to be classified as inert and non-hazardous waste respectively), with approximately 439,208t (or 109,802tpa) of total C&D waste estimated to be recoverable and therefore diverted from landfill.

10.10.28 This approach is consistent with the waste hierarchy and the objectives of minimising waste generation and maximising material reuse, recycling and recovery. It has been estimated that the Scheme therefore could likely achieve a total waste recovery rate of up to 95% for non-hazardous C&D waste (against the mandatory and advisory targets provided in DMRB LA 110).

10.10.29 DMRB LA 110 (paragraphs 3.17 and E/2.1.1) mandates and advises that 70% and 90% of non-hazardous C&D waste should / shall be diverted from landfill respectively. These targets are derived from the Waste (England and Wales) Regulations 2011 (as amended), and as such non-hazardous waste therefore includes waste that is classified as both inert and non-hazardous.

10.10.30 The draw-down of landfill capacity as a result of constructing the Scheme would occur across four calendar years (2026 to 2029). It is therefore estimated that 9,764t (2,441tpa) and 13,416t (3,354tpa) of inert and non-hazardous waste could require disposal at inert and non-hazardous landfills respectively within the second study area between 2026 and 2029.

10.10.31 This would be the equivalent to a less than 1% likely reduction in inert and non-hazardous waste landfill capacity in both the north-west region and Greater Manchester sub-region according to the amount of average annual inert and non-hazardous landfill capacity projected to be available in the region (8,032,820tpa and 12,725,693tpa) and sub-region (1,851,184tpa and 5,064,964tpa) between 2026 and 2029.

10.10.32 This has the potential to result in a 0.12% and 0.53% draw-down to future inert landfill capacity and a 0.11% and 0.26% drawdown to future non-hazardous landfill capacity in the north-west region and Greater Manchester sub-region. On this basis, it is considered that there would likely be sufficient landfill capacity available in the second study area to accept the forecast quantity of inert, non-hazardous and hazardous waste for off-site disposal to landfill.

10.10.33 As a greater than 1% reduction or alteration in regional inert, non-hazardous and hazardous landfill capacity is unlikely to occur. This would constitute a slight adverse non-significant effect according to DMRB LA 110 significance category descriptions and significance criteria provided in Tables 10.8 and 10.9 of this chapter.

Ancillary discussion

10.10.34 As discussed in Section 10.7 of this chapter, this sub-section provides a degree of regional and sub-regional ancillary discussion.

10.10.35 This discussion has been provided to support the Minerals and Waste Planning Authority in fulfilling its statutory duty to plan for an appropriate amount of minerals and waste capacity to be available over a defined period, and take account of minerals and waste that are transferred across minerals and waste planning authority boundaries.

10.10.36 However, it should be noted that this ancillary discussion does not form the central basis of the assessment of likely significant effects for this aspect, which has been undertaken solely in accordance with the DMRB LA 110 significance category descriptions and significance criteria provided in Tables 10.8 and 10.9 of this chapter.

Material assets

10.10.37 The Scheme is likely to require 240,057t (or 60,014tpa) of primary aggregate materials, of which 19% and 81% is estimated to be sand and gravel, and crushed rock, respectively.

10.10.38 Average sales data provided by Capita (2022) confirms that the north-west region and Greater Manchester sub-region sold 2.52Mtpa and 0.34Mtpa of sand and gravel and 7.1Mtpa and 0.96Mtpa of crushed rock respectively between 2018-2020.

10.10.39 For comparative purposes, the 11,210tpa of sand and gravel and 48,804tpa of crushed rock, that is estimated to consumed by the Scheme, would represent an uplift of approximately:

- 0.4% and 3.3% per annum to the annual sales of sand and gravel in the north-west region and Greater Manchester sub-region respectively between 2018-2020

- 0.7% and 5.1% per annum to the annual sales of crushed rock in the north-west region and Greater Manchester sub-region respectively between 2018-2020

10.10.40 This ancillary discussion suggests that the Scheme is likely to result in a negligible uplift to regional and sub-regional sales of primary aggregates. It is therefore considered unlikely that the construction of the Scheme would, in insolation, create a scenario where there is a consequential increase in annual baseline sales of primary aggregate materials beyond 'business as usual'.

Waste

10.10.41 For comparative purposes, the Scheme's estimated annual C&D waste arisings (115,597tpa) would be equivalent to approximately 1.4% and 3.9% respectively of the total C&D waste recorded by the Environment Agency (2023a) as having been received at all waste management facilities in the north-west region (8.19Mt) and Greater Manchester sub-region (2.97Mt) in 2022.

10.10.42 The 109,802tpa of total C&D waste estimated to be diverted from landfill would be equivalent to 1.6% and 4.0% respectively of the total C&D waste whose fate was recorded by the Environment Agency (2023a) as treatment, recovery, incineration, long term storage or other fates in the north-west region (6.78t) and Greater Manchester sub-region (2.75Mt) in 2022.

10.10.43 The 2,441tpa and 3,354tpa of residual inert and non-hazardous C&D waste, that is estimated to be generated by the Scheme, would represent an uplift of approximately:

- 0.4% and 1.9% respectively to the inert waste recorded by Environment Agency (2023a) as having been disposed of at landfill in the north-west region (0.58t) and Greater Manchester sub-region (0.13t) in 2022
- 0.1% and 0.3% respectively of the non-hazardous waste recorded as having been disposed of at landfill in the north-west region (2.45Mt) and Greater Manchester sub-region (1.11t) in 2022

10.10.44 Specifically, this would represent an uplift of approximately:

- 0.4% and 1.9% respectively to the inert C&D waste recorded by Environment Agency (2023a) as having been disposed of at landfill in the north-west region (0.55Mt) and Greater Manchester sub-region (0.13Mt) in 2022
- 0.3% and 0.7% respectively of the non-hazardous C&D waste recorded as having been disposed of at landfill in the north-west region (0.99Mt) and Greater Manchester sub-region (0.49Mt) in 2022.

10.10.45 This ancillary discussion indicates that the Scheme is likely to have a negligible bearing on regional and sub-regional waste recovery and disposal facilities. It is therefore considered unlikely that the construction of the Scheme would, in insolation would create a scenario where there is a consequential increase in annual quantities of C&D waste managed at regional and sub-regional recovery and disposal sites that goes beyond 'business as usual'.

Residual effects

10.10.46 The likely significance of each residual effect is assessed in Table 10.16 after consideration of the design, mitigation and enhancement measures, in line with the methodology described in Section 10.4 of this chapter. All effects have been assessed as being **not significant** based on the application of the DMRB LA 110 significance category descriptions and significance criteria provided in Tables 10.8 and 10.9 of this chapter, respectively.

10.10.47 Where effects have been identified, these would be reduced where practicable by implementing the design, mitigation and enhancement measures outlined in Section 10.9 of this chapter and by ensuring that the construction of the Scheme responds to the national regulatory or policy standards and local policy requirements relevant to this aspect as reported in Section 10.3 of this chapter.

10.10.48 Given the nature of the DMRB LA 110 significance category descriptions all residual effects are likely to be the same both pre- and post-mitigation. The baseline conditions reported in Section 10.7 of this chapter would suggest that a high degree of waste recovery, recycled aggregate content and landfill diversion is endemic throughout the UK construction sector, and that this is likely to occur irrespective of the statutory EIA process. Notwithstanding this, the assignment of appropriate mitigation measures ensures that the reported significance of effects would be achieved.

10.10.49 While the application of the design, mitigation and enhancement measures provided in Section 10.9 of this chapter could reduce the impacts from the consumption and use of material assets and the production and disposal of waste to a certain but unspecified degree, it is unlikely that the Scheme would be able to deliver increased resource efficiency at levels necessary to meet the significance category descriptions for a neutral effect for the material assets and waste matters of this aspect (as defined in Table 10.8 of this chapter).

Table 10.16 Summary of likely significant residual effects for material assets and waste

Matter	DMRB LA 110 significant effect threshold	Description of potential effects from the Scheme	Mitigation measures in the REAC, contained within the First Iteration EMP (TR010064/APP/6.5)	Mitigation mechanism	Resulting residual significance of effect category
Material assets	(1) Scheme achieves less than 70% overall material recovery / recycling (by weight) of non-hazardous C&D waste to substitute use of primary materials; and (2) Aggregates imported to site comprise reused or recycled content below percentage target of 30%; and/or (3) Scheme sterilises ≥1 mineral safeguarding site or peat resources.	The Scheme has the potential to achieve an overall material reuse, recycling or recovery rate of up to 81% to substitute the use of primary materials on or off-site (equating to approximately 1,171,808t). Materials would be recovered within the first or second study area to offset the use of primary construction materials and support a circular economy. This would be achieved through a combination of using site-won materials; importing materials with reused or recycled content and recovering surplus materials and waste off-site. These data support the assumption that the Scheme is unlikely to achieve an overall recovery / recycling rate (by weight) of less than 70%. The Scheme has the potential to incorporate up to an estimated 490,298t of reused / recycled aggregate within the build which equates to approximately 67% reused / recycled aggregate content by weight. These data support the assumption that reused or recycled aggregate content use on the Scheme is unlikely to be less than the north-west regional percentage target of 30%. The Scheme is unlikely to substantially constrain / prevent existing and potential future use and extraction of materials at one or more mineral safeguarding sites (operational sites or sites identified within strategic planning documents for the extraction of minerals); and there are no peat resources (existing or potential peat extraction sites) within the Scheme extents. Mineral safeguarding sites and peat resources have therefore been scoped out of this assessment	• M1: Implementing Design for Resource Efficient Construction principles • M2: Producing an SPP • M3: Reusing any incidentally extracted sand and gravel in high value applications • M4: Undertaking pre-demolition assessments • M5: Implementing an SWMP • M6: Complying with waste duty of care requirements • M7: Design of construction site compounds and on-site material storage, stockpiling and processing areas	• Draft DCO (TR00064/APP/3.1) Requirement 4 (Environmental Management Plan) • First Iteration EMP (TR010064/APP/6.5) (design stage) • Second Iteration EMP (construction stage) • Third Iteration EMP (end of construction stage)	(1) The Scheme is likely to achieve 70-99% overall material recovery or recycling (by weight) of non-hazardous C&D waste to substitute use of primary materials in the first or second study areas. (2) The aggregates imported to site would likely comprise reused or recycled content in line with the relevant regional percentage target of 30% where available. (3) The Scheme is unlikely to substantially sterilise one or more mineral safeguarding sites, placing their future use at risk or rendering them inaccessible for current or future use. Likely significance of effect: **Slight adverse – not significant**
Waste	(1) Scheme leads to a greater than 1% reduction or alteration in regional landfill capacity; and (2) 1-50% of Scheme waste requiring disposal outside of the region.	The Scheme has the potential to dispose of 9,764t and 13,416t respectively of inert and non-hazardous C&D waste at inert and non-hazardous landfills within the second study area between 2026 and 2029 based on the application of good practice waste recovery benchmarks. This would be equivalent to a less than 1% reduction in inert and non-hazardous waste landfill capacity in the north-west region according to the amount of average annual inert (8,032,820tpa) and non-hazardous (12,725,693tpa) landfill capacity projected to be available in the second study area. The Scheme is not anticipated to result in the disposal of substantial quantities of waste outside the north-west region. Notwithstanding, this criterion would only be relevant in the assigning of likely significant effects if the Scheme were also to result in a greater than 1% reduction or alteration in inert, non-hazardous or hazardous landfill capacity within the study area. Based on the linked waste criterion above this is unlikely to be realised.	• M1: Implementing Design for Resource Efficient Construction principles • M2: Producing an SPP • M3: Reusing any incidentally extracted sand and gravel in high value applications • M4: Undertaking pre-demolition assessments • M5: Implementing an SWMP • M6: Complying with waste duty of care requirements • M7: Design of construction site compounds and on-site material storage, stockpiling and processing areas	• Draft DCO (TR00064/APP/3.1) Requirement 4 (Environmental Management Plan) • First Iteration EMP (TR010064/APP/6.5) (design stage) • Second Iteration EMP (construction stage) • Third Iteration EMP (end of construction stage)	(1) The Scheme leads to a less than 1% reduction or alteration in regional landfill capacity. (2) The Scheme disposes of <1% of scheme waste outside of the region. Likely significance of effect: **Slight adverse – not significant**

10.11 Monitoring

10.11.1 Essential mitigation measures have been captured in the First Iteration EMP (TR010064/APP/6.5) that has been prepared for the Scheme in accordance with the requirements of DMRB LA 120.

10.11.2 DMRB LA 120 provides a framework to manage the environmental effects of projects to demonstrate compliance with environmental legislation, by providing a plan for the delivery of projects' design, mitigation, enhancement and monitoring commitments.

10.11.3 In accordance with DMRB LA 104 and DMRB LA 110, the results of this monitoring is subsequently used to update the Second and Third Iterations of the EMP during the construction and handover stage. The Second and Third Iteration EMP are secured by Requirement 4 of the draft DCO (TR010064/APP/3.1).

10.11.4 While all residual environmental effects have been assessed as being not significant, these commitments would be nonetheless implemented, measured monitored, during construction of the Scheme, using both the SPP and SWMP, and evidenced through a variety of standard sector practices.

10.11.5 The Principal Contractor would undertake regular audits and inspections of material procurement and waste management activities to ensure compliance with the requirements of this aspect, statutory controls and other Scheme policies and procedures relevant to material assets and wastes.

10.11.6 Specifically, the Principal Contractor would identify, measure and record the types, quantities and provenance of all materials used in constructing the Scheme in a materials procurement register (or equivalent). Conversely, the Principal Contractor would also identify, measure and record the types, quantities and fate of all waste generated during construction in the SWMP, including all relevant statutory waste duty of care information.

10.12 Summary

10.12.1 The assessment has concluded that that the residual environmental effects on material assets and waste of constructing the Scheme are likely to be **slight adverse** after the application of the design and mitigation measures outlined in Section 10.9 of this chapter. Based on the DMRB LA 110 significance criteria provided in Table 10.9 of this chapter, this would result in **no significant adverse effects**, that is effects that are not material in the decision-making process.

10.12.2 Overall, the assessment of the Scheme has had regard to, and is considered compliant with, both the NPS NN (DfT, 2014) and draft NPS NN (DfT, 2023) requirements for this aspect.

Acronyms and initialisms

Acronym or initialism	Term
AoS	Area of Search
BGS	British Geological Survey
BRITPITS	British Pits (database)
C&D	Construction and Demolition
CD&E	Construction, Demolition and Excavation
CL:AIRE	Contaminated Land: Applications in Real Environments
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
DLUHC	Department for Levelling Up, Housing and Communities
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
EU	European Union
LoW	List of Waste
MHCLG	Ministry of Housing, Communities and Local Government
MPA	Mineral Planning Authority
MSA	Mineral Safeguarding Area
Mt	Megatonne (or million tonne)
Mtpa	Megatonne (or million tonne) per annum
NPS NN	National Policy Statement for National Networks
NPPF	National Planning Policy Framework
NSIP	Nationally Significant Infrastructure Project
NWAWP	North West Aggregate Working Party
PCF	Project Control Framework
SNRHW	Stable Non-Reactive Hazardous Wastes
SPP	Sustainable Procurement Plan
SWMP	Site Waste Management Plan
t	Tonnes

Acronym or initialism	Term
tpa	Tonnes per annum
UDP	Unitary Development Plan
WAC	Waste Acceptance Criteria
WEEE	Waste Electrical and Electronic Equipment
WRAP	Waste and Resources Action Programme

Glossary

Term	Definition
Aggregates	Minerals which are used primarily to support the construction industry including soft sand, sand and gravel, and crushed rock.
Backfilling (material assets and waste)	Backfilling means a recovery operation where waste is used in excavated areas for the purpose of slope reclamation or safety or for engineering purposes in landscaping and where the waste is substituting other non-waste materials which would have had to be used for the purpose.
Best overall environmental outcome	A departure from the waste hierarchy which delivers better overall environmental outcomes.
Borrow pit	A temporary mineral working to supply material for a specific construction project.
Circular economy	A circular economy is an alternative to a traditional linear economy (of make, use, dispose) in which we keep resources in use for as long as possible; extract the maximum value from resources while in use; recover and regenerate products and materials at the end of life; and keep products, components and materials at their highest utility and value at all times.
Construction materials	Primary, recycled / secondary and renewable sources of materials required for constructing a project.
Construction, demolition and excavation waste	Arisings and waste from the demolition of buildings and structures, site preparation and clearance, remediation, excavation and construction activities.
Disposal	Any operation which is not recovery, even where the operation has as a secondary consequence the reclamation of substances or energy.
First study area (material assets and waste)	Project footprint (including temporary land take) for which consent is being sought. The area within which construction materials would be consumed (used / deployed), and waste generated (including temporary compounds and storage areas etc.).

Term	Definition
Hazardous waste	Defined in line with Article 3(2) of the Waste Framework Directive (Council Directive 2008/98/EC) as: 'waste which displays one or more of the hazardous properties listed in Annex III' of the Directive.
Incidental extraction	Incidental extraction: Where any minerals that are incidentally extracted during site preparation would be processed and used on site (e.g. from excavating the road box, foundations, drainage works etc). This is typically the minimum level of prior extraction that the MPA would seek as part of any non-minerals development in an MSA.
Inert waste	Waste which meets one or more of the following criteria: 1) that does not undergo any significant physical, chemical or biological transformations; 2) that does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and 3) where its total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water or groundwater. See Directive 1999/31/EC and Council Decision 2003/33/EC.
Key construction material	Construction materials which, by weight, constitute the majority of material required to deliver the scheme.
Land bank	The stock land with planning permissions but where minerals development has yet to take place.
Landfill capacity	The known, forecast or estimated remaining landfill void space, either regionally or nationally. Landfill capacity is generally measured in cubic metres, but has been converted to tonnes for the purposes of assessment.
Mass balance	A method to match materials input (i.e. quantity of site-won materials and imported reused and recycled materials as a proportion of total materials consumption and use) with materials output (i.e. quantity of surplus materials and waste that are reused, recycled or recovered off-site as a proportion of total waste generation) with within a predefined system boundary where materials flow into or out of the system. In this case the system boundary is the first study area.
Mineral area of search	A broad area within which mineral sites are sought for development.
Mineral Planning Authority	The mineral planning authority is the county council (in 2-tier parts of the country), the unitary authority, or the national park authority responsible for planning control of minerals development.
Mineral resource	Natural concentrations of minerals in or on the Earth's crust that are or may become of economic interest because they are present in such form, quality and quantity that there is the potential for eventual economic extraction. Generally, a mineral resource is known to exist within the boundaries outlined by BGS geological mapping.

Term	Definition
Mineral safeguarding area	An area designated by a Mineral Planning Authority which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development.
Mineral sites / mineral safeguarding sites	Operational extraction sites or mineral sites specifically identified / allocated in strategic planning documents as those that will be mined or extracted.
Non-hazardous waste	Waste that is not classified as hazardous, and which encompasses both inert and non-hazardous waste classes.
Peat resource (material assets and waste)	Existing or potential peat extraction sites.
Preparing for reuse	Checking, cleaning or repairing operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.
Prevention (material assets and waste)	Measures taken before a substance, material or product has become waste, that reduce: 1) the quantity of waste, including through the re-use of products or the extension of the life span of products; 2) the adverse impacts of the generated waste on the environment and human health; or 3) the content of harmful substances in materials and products.
Primary materials	Physical substances from non-renewables sources, i.e. those that cannot or will not be replaced in short (non-geological) periods of time. Also referred to as ‘virgin’ materials.
Proximity principle	The requirement to treat and/or dispose of wastes in reasonable proximity to their point of generation.
Recovery (material assets and waste)	Any operation, the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.
Recycled aggregates	Aggregates that are typically derived from reprocessing materials previously used in construction, such as road planings, railway ballast, crushed concrete or masonry from C&D activities.
Recycling	Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. Recycling includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for back filling operations.
Region (material assets and waste)	The defined geographical areas or physical extents of the second study area. For the purposes of this aspect, the recommended physical extent is the former North West Planning Region.

Term	Definition
Re-use	Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.
Second study area (material assets and waste)	The geographic area that encompasses: 1) Feasible sources and availability of construction materials required to construct the main elements of a project. 2) Suitable recovery and waste management infrastructure that could accept arisings and/or waste generated by a project.
Secondary materials / aggregates	Useful by-products from manufacturing or industrial processes. Secondary aggregates are typically by-products of industrial and other processes. These can be subdivided into manufactured and natural aggregates, depending on their source and can include materials such as pulverised fuel ash, ground granulated blast furnace slag, furnace bottom ash, incinerator bottom ash, recycled glass etc. Both secondary and recycled aggregates offer appropriate engineering specifications to allow them to replace primary aggregates.
Stable non-reactive hazardous waste	Hazardous waste, the leaching behaviour of which will not change adversely in the long-term, under landfill design conditions or foreseeable accidents: in the waste alone (for example, by biodegradation); under the impact of long-term ambient conditions (for example, water, air, temperature or mechanical constraints); by the impact of other wastes (including waste products such as leachate and gas).
Sterilise	Substantially constrain / prevent existing and potential future use and extraction of mineral resources, typically by constructing infrastructure over or adjacent to a deposit.
Sub-region (in relation to material assets and waste)	The defined geographical areas or physical extents of the Greater Manchester sub-region.
Waste	Defined in line with Article 3(1) of the Waste Framework Directive (Council Directive 2008/98/EC) as: ‘any substance or object which the holder discards or intends or is required to discard’. Waste is commonly split into the following classifications: Inert, Hazardous and Non-hazardous: waste that is classified neither as inert nor hazardous.
Waste classification	As part of waste duty of care, waste holders must classify their waste: before it is collected, disposed of or recovered; to identify the controls that apply to the movement of the waste; to complete waste documents and records; to identify suitably authorised waste management options; and to prevent harm to people and the environment. Technical Guidance WM3 ‘Waste Classification – Guidance on the classification and assessment of waste’ provides guidance on waste classification in the UK. It is a comprehensive reference manual for anyone involved in producing, managing and regulating waste. Appendix A of WM3 includes the waste classification codes, also referred to as LoW (List of Waste) or EWC (European Waste Catalogue) codes.

Term	Definition
Waste infrastructure	Facilities that handle, treat/prepare for reuse, recycle and dispose (landfill) of waste.

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