A57 Link Roads

TR010034

9.68 Environmental Statement

Chapter 10 Material Assets and Waste (Tracked)

Rule 8(1)(k)

Planning Act 2008

Infrastructure Planning (Examination Procedure) Rules 2010

March 2022

Infrastructure Planning

Planning Act 2008

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

A57 Link Roads

Development Consent Order 202[x]

9.68 ENVIRONMENTAL STATEMENT

CHAPTER 10 MATERIAL ASSETS AND WASTE (TRACKED)

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10. Material assets and waste

10.1 Introduction

10.1.1 This chapter identifies and assesses the likely impacts of material use and waste generation associated with the Scheme, during construction, demolition and excavation (CD&E). The chapter has been written in accordance with the standard Design Manual for Roads and Bridges (DMRB) LA 110 Material Assets and Waste[1].

10.1.2 It is anticipated that, during operation (stated as the opening year in LA 110) of the Scheme, only a limited quantity of material assets would be required for maintenance and negligible quantities of waste would be produced. Material assets and waste during operation was therefore scoped out of further assessment, as stated in the Environmental Scoping Report. This decision is based on discussions with design engineers (for materials) and road maintainers (for waste) on previous projects. Scoping out material assets and waste is in line with requirements stated in Section 3.2 of DMRB LA 110, which sets out the need to do further assessment only where a scheme would generate large quantities of waste.

10.1.3 Materials are defined in DMRB LA 110 as “primary, recycled / secondary and renewable sources of materials required for constructing a project”.

10.1.4 Waste is defined as per the Waste Framework Directive (2008/98/EC) as “*any substance or object which the holder discards or intends or is required to discard".*

10.2 Legislative and policy framework

10.2.1 A summary of legislative requirements in relation to material assets and waste and how they apply to the Scheme is presented below.

10.2.2 Many of the relevant UK acts and regulations relating to waste incorporate European Union (EU) directives into UK Law. These include:

- EU Revised Waste Framework Directive (2008/98/EC)
- EU Landfill Directive (1993/31/EC), as amended by the EU Directive (2003/33/EC)
- EU Hazardous Waste Directive (1991/689/EEC)
- EU Regulation 1272/2008 on classification, labelling and packaging of substances and mixtures (including revisions)

[1] DMRB LA 110 Material assets and waste (formerly IAN 153/11)

National

National Policy Statement for National Networks (NPS NN)

10.2.3 The NPS NN outlines the importance of managing resources and wastes to prevent and minimise environmental impacts. The resource and waste management measures outlined in the 'Waste Management' chapter should be adhered to and considered throughout all stages of the Scheme. Management measures are inclusive of but not limited to, the implementation of the waste hierarchy, the correct management of waste both on-site and off-site and ensuring the appropriate waste infrastructure for waste treatment and disposal.

National Planning Policy Framework (NPPF)

10.2.4 As part of the 2019 revision, the NPPF's goal of supporting sustainable development identifies the importance of using natural resources prudently and minimising waste. It identifies that strategic policies should make provision for minerals and waste management. Section 17 focuses on "Facilitating the sustainable use of minerals", and states planning policies should include consideration of the following points:

- Provide for the extraction of mineral resources of local and national importance, except for peat
- Take account of the contribution that recycled materials and minerals waste can make to supply of materials
- Safeguard mineral resources by defining Mineral Safeguarding Areas (MSA)

A Green Future: Our 25 Year Plan to Improve the Environment

10.2.5 The Plan shows what the UK government will do to improve the environment, within a generation. It sets out government action to help the natural world regain and retain good health. It aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species and provide richer wildlife habitats. It calls for an approach to agriculture, forestry, land use and fishing that puts the environment first.

10.2.6 Chapter 4 of the Plan addresses 'Increasing resource efficiency and reducing pollution and waste'. It aims to minimise waste, reuse materials as much as possible and manage materials at the end of their life to minimise the impact on the environment. It will do this by:

- working towards an ambition of zero avoidable waste by 2050
- working to a target of eliminating avoidable plastic waste by end of 2042
- meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones

- seeking to eliminate waste crime and illegal waste sites over the lifetime of the Plan, prioritising those of highest risk. Delivering a substantial reduction in litter and littering behaviour.
- significantly reducing and where possible preventing all kinds of marine plastic pollution – in particular material that came originally from land.

10.2.7 The Plan also aims to ensure that resources from nature are used more sustainably and efficiently. The Plan will do this by:

- maximising the value and benefits from resources, doubling resource productivity by 2050
- improving the approach to soil management: by 2030 all of England's soils will be managed sustainably, with natural capital thinking will develop appropriate soil metrics and management approaches

National Planning Policy for Waste 2014

10.2.8 The National Planning Policy for Waste follows the principles set out in Planning Policy Statement 10 (PPS10), which states that waste should be managed in line with the principles of the waste hierarchy. It is important to ensure that, where possible, waste production is minimised to reduce environmental impacts and to ensure an assessment is made of the local waste infrastructure type and capacities, to include, but not be limited to, an assessment of the local policies.

Waste Planning Practice Guidance 2015

10.2.9 The Planning Practice Guidance website details how to adhere to the National Planning Policy for Waste 2014. The guidance should be followed to satisfy the local planning authority that impacts introduced by a proposed development on the existing waste management facilities are acceptable and do not prejudice the implementation of the waste hierarchy.

Road Investment Strategy (RIS) and Strategic Business Plan 2015

10.2.10 This strategy does not refer to waste directly, however the strategy highlights Highways England's commitment to improving and sustaining the environment. Waste management plays a role in environmental sustainability, and the commitments set out under the strategy should be adopted as part of the Scheme.

Road Investment Strategy (RIS2) 2020 – 2025

10.2.11 The RIS2 strategy does not refer to waste directly, however the strategy highlights Highways England's commitment to improving and sustaining the environment.

Highways England Sustainable Development Strategy 2017

10.2.12 The Strategy sets a vision for responsible sourcing of materials. This includes ensuring that the responsible resourcing of materials takes into consideration the

impact that resources production can have on human and social health, climate and the environment. The strategy also seeks to increase the well-being of those who supply materials and resources to Highways England.

Resources and Waste Strategy for England 2018

10.2.13 The strategy sets out national policy for minimising waste, promoting resource efficiency and moving towards a circular economy. The strategy focuses on the importance of driving waste management up the waste hierarchy and states the importance of considering the Government's ambition of achieving zero avoidable waste.

10.2.14 The strategy is based around two overarching objectives which aim to maximise the value of resource use and to minimise waste and its impact on the environment.

10.2.15 The strategy puts a strong emphasis on waste prevention through making products using fewer natural resources. The strategy references the UK statistics on waste which show that over 90% of non-hazardous construction and demolition waste was recovered in 2016.

The Environmental Protection Act 1990

10.2.16 The Environmental Protection Act (EPA) implements integrated pollution control for the disposal of waste to air, land and water, including solid waste disposal.

10.2.17 As part of this, under Section 34, the Act imposes Duty of Care on anyone who produces, imports, keeps, stores, transports, treats or disposes of waste.

10.2.18 This would mean that the applicant and all contractors must take all reasonably practical steps to ensure that:

- Waste is consigned only to a registered waste carrier, licensed waste contractor, local authority waste collector or person dealing with waste in ways that are exempt from licensing
- Waste that is disposed of is accompanied by a detailed written description of the waste to ensure its safe handling, treatment and disposal (waste transfer notes are to be kept for a minimum of two years and hazardous waste consignment notes are to be kept for a minimum of three years)
- Waste is securely contained to prevent it escaping to the environment
- Appropriate measures are taken to ensure that others involved in the handling and disposal of waste do so in accordance with all applicable Regulations
- Copies of registration certificates should be obtained for all waste contractors and waste carriers used as part of the Scheme and it should be ensured that they are on the Environment Agency's (EA) 'Public Register of Waste Carriers, Brokers and Dealers'

- Checks should be made on the destination of each waste, ensuring that each waste management facility is licensed to accept the waste. Duty of Care audits of carriers and waste management facilities are advisable.

Clean Neighbourhoods and Environment Act 2005

10.2.19 Chapter 16 of the Clean Neighbourhoods and Environment Act 2005 (c.16) prescribes the correct transportation, collection, disposal and management of waste and prohibits fly tipping.

Waste (England and Wales) Regulations 2011 (SI 2011/988)

10.2.20 The Regulations transpose the Revised EU Waste Framework Directive (2008/98/EC) into English law and require organisations to manage waste in accordance with the waste hierarchy, to prevent waste going to landfill.

10.2.21 Waste management contractors working on the Scheme would be required to provide evidence that the waste hierarchy has been applied. This evidence can be in the form of waste transfer notes and hazardous waste consignment notes, which themselves must be kept for two and three years, respectively.

The Hazardous Waste (England and Wales) Regulations 2005 (SI 2005/894) (as amended in 2016)

10.2.22 The Regulations transpose the Revised EU Waste Framework Directive (2008/98/EC), providing a definition of hazardous waste and require a hazardous waste consignment note to be produced for movement of hazardous waste.

Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (SI 2013/3113)

10.2.23 The Regulations have a key objective to reduce the amount of WEEE that goes to landfill. This is to be achieved by making producers responsible for the collection, treatment and recovery of WEEE, including the associated costs.

10.2.24 For the Scheme, all WEEE produced in the construction, demolition and excavation (CD&E) and operational phases must be segregated and managed separately from other wastes, with relevant paperwork provided as described above.

The Waste Batteries and Accumulators Regulations 2015 (SI 2015/1935)

10.2.25 The Regulations main requirements are that producers of batteries and accumulators must either take back waste batteries and accumulators or fund the collection and recycling of them. The 2015 amendment removed several additional requirements, inclusive of the provision of operational plans and independent audit reports.

10.2.26 All batteries produced in the CD&E and operational phases must be segregated and managed separately from other wastes.

The CLP (Classification, Labelling and Packaging) Regulation (EC 1272/2008)

10.2.27 The CLP Regulation was introduced in a staggered manner between 1999 and 2015. It should be noted that within the UK and EU, the CLP Regulation has replaced the Dangerous Substances Directive (67/548/EEC) and the Dangerous Preparations Directive (1999/45/EC). To summarise, the Regulation provides guidance on the application of the CLP criteria for hazards (physical, health and environmental). With specific reference to the Scheme, the Regulation should be used to support the classification of both waste and materials. All waste should be classified by a six-digit code, which must be recorded on all waste transfer notes and hazardous waste consignment notes for the movement of waste from the CD&E and operational phases of the Scheme.

Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) (England and Wales) Regulations 2000 (SI 2000/1043)

10.2.28 The Regulations require the safe disposal or decontamination of all equipment that contains polychlorinated biphenyls (PCBs). Equipment containing 5 litres or more of PCB substance or mixture is also covered by the Regulations. PCBs can be present in old electrical equipment which may be removed as part of the Scheme.

The Environmental Permitting (England and Wales) Regulations 2016 (SI 2016/1154)

10.2.29 The Regulations put in place requirements to ensure that sites that produce certain materials and undertake certain activities (such as the storage, use or treatment of waste) have a permit or exemption from the regulator (specifically the EA).

10.2.30 Permit or exemption details of all sites that manage waste from the Scheme would be checked to ensure waste is being managed in accordance with all applicable legislation and policies and in accordance with good practice.

Environmental Damage (Prevention and Remediation) (England) Regulations 2017 (SI 2017/1177)

10.2.31 The Regulations introduce obligations to ensure the polluter pays for any environmental damage caused. The Regulations require caution to be taken when managing sites to prevent damage to water, land and biodiversity. Such damage could be caused by poor waste management practices and as such the generation of waste from the Scheme must be managed in accordance with all applicable legislation and policies and in accordance with good practice.

The Control of Asbestos Regulations 2012 (SI 2012/632)

10.2.32 The Regulations require notification to the appropriate authority of all notifiable

asbestos works (as specified in the Regulations), the medical surveillance (from April 2015) and health records for employers dealing with asbestos, the provision of the correct equipment and training for working with asbestos; and the documentation of the method, storage and disposal of asbestos waste. Any waste containing asbestos (such as insulation or lagging) must be stored and disposed of, in suitable packaging to prevent fibre release, in line with the Regulations. All asbestos must be removed by a licensed contractor who has undergone the appropriate training for the removal of asbestos and must wear the appropriate Personal Protective Equipment (PPE). Written records must be kept of the workers and the likely level of exposure. The asbestos must only be disposed of at an appropriately permitted disposal site.

Regional

The Greater Manchester Joint Waste Development Plan (2012)

10.2.33 The waste plan is intended to run through to 2027 and sets out a strategy that enables the provision of adequate waste management facilities, in appropriate locations, for all waste types.

10.2.34 It notes that the area has largely been reliant on landfill for historic waste disposal but that this must change and that sites for different waste facilities must be found and protected.

10.2.35 It sets out eight objectives including ones to promote movement of waste up the waste hierarchy and assist in reducing greenhouse gas emissions.

10.2.36 The future requirements for the area covered by the plan include provision of energy from waste facilities and hazardous and non-hazardous landfills. It does state though that recycling and composting facilities are expected to be sufficient over the plan period.

10.2.37 In relation to the Scheme this highlights that design decisions and construction stage actions must ensure the maximum amount of waste is reduced, reused or recycled, focusing on the higher part of the waste hierarchy.

Derby and Derbyshire Waste Local Plan (2005)

10.2.38 The plan sets out the waste quantities generated in the area and how it is managed, its aims and objectives, the impacts of waste on the environment and the need to provide future landfill space as well as recovery of value from waste through recycling and energy recovery.

10.2.39 The plan highlights the importance of the waste hierarchy where waste reduction should be considered first, followed by reuse then recycling and energy recovery.

10.2.40 It also highlights the importance of the proximity principle and the concept of self-sufficiency in terms of waste management.

10.2.41 The plans eight objectives are focused on the development of waste infrastructure rather than on waste generation and management which could have had implications for the Scheme.

10.2.42 It will still be important for the Scheme to support the principles of the waste hierarchy and the proximity principle by reducing and reusing waste where possible and seeking to manage wastes that require recycling or disposal with energy recovery as close to the Scheme as possible.

10.3 Study area

10.3.1 Two study areas have been defined for the assessment, as per DMRB LA 110. These are:

- First Study Area - The DCO boundary and temporary construction areas (including construction compounds and storage) where construction materials will be consumed, and waste generated
- Second Study Area – this will cover the feasible sources and availability of construction materials required to construct the main elements of the Scheme and Suitable recovery and waste management infrastructure that could accept arisings and/or waste generated by the Scheme

10.3.2 Based on the DMRB LA 110 the second study area will be the North West region of England for materials and Greater Manchester and Derbyshire County Council for waste. The second study area takes into account the proximity principle which should ensure that the most appropriate material sources and waste management facilities are utilised while balancing other issues such as logistics, cost and environmental impacts of sourcing materials and managing waste at greater distance. This study area remains unchanged from that detailed in the Environmental Scoping Report (TR010034/APP/6.6).

10.4 Assessment Methodology

Consultation and scoping responses

10.4.1 An overview of the Planning Inspectorate's Scoping Opinion on the proposed scope of the material assets and waste assessment is provided in Appendix 4.1 (TR010034/APP/6.5). Any additional changes to assessment methodology due to the latest DMRB standards or design changes since the Preferred Route Announcement are also detailed in Appendix 4.4 (TR010034/APP/6.5).

10.4.2 Details of consultation undertaken to inform the material assets and waste assessment are presented in the Introduction chapter (Chapter 1) and the Consultation Report (TR010034/APP/5.1).

Assessment approach

10.4.3 An environmental assessment, as defined in DMRB LA 110, has been carried out to assess the impacts of material assets and waste from the Scheme during its

CD&E phases. The assessment process was comprised of the following tasks:

- Review of relevant waste legislation and guidance to identify materials and waste management objectives and targets
- Establish the local baseline capacity of waste management infrastructure
- Review of the Bill of Quantities (BoQ) to establish the quantities and types of materials to be used and wastes to be generated during construction
- Identify mitigation measures to reduce, re-use, recycle and/or recover materials and wastes from the Scheme, including commitments made by the Principal Contractor to reduce material usage and maximise waste to be diverted from landfill
- Identify and assess the impacts of the Scheme by comparing the information in the BoQ against the baseline data.

Assessment criteria

10.4.4 An assessment of the level of environmental effect from the use of material assets and generation of waste will be made using the criteria in Table 10.1 below, which are set out in DMRB LA 110.

Table 10.1: Criteria for classifying the environmental effects

Significance Category	Description
Very Large	Material Assets 1) no criteria: use criteria for large categories. Waste 1) >1% reduction or alteration in national capacity of landfill, as a result of accommodating waste from a project; or 2) construction of new (permanent) waste infrastructure is required to accommodate waste from a project.
Large	Material Assets 1) project achieves <70% overall material recovery / recycling (by weight) of non-hazardous Construction, Demolition and Excavation Waste (CDW) to substitute use of primary materials; and 2) aggregates required to be imported to site comprise <1% re-used / recycled content; and 3) project sterilises ≥1 mineral safeguarding site and/or peat resource. Waste 1) >1% reduction in the regional capacity of landfill as a result of accommodating waste from a project; and 2) >50% of project waste for disposal outside of the region.
Moderate	Material Assets 1) project achieves less than 70% overall material recovery / recycling (by weight) of non-hazardous CDW to substitute use of primary materials; and

Significance Category	Description
	2) aggregates required to be imported to site comprise re-used/recycled content below the relevant regional percentage target. Waste 1) >1% reduction or alteration in the regional capacity of landfill as a result of accommodating waste from a project; and 2) 1-50% of project waste for disposal outside of the region.
Slight	Material Assets 1) project achieves 70-99% overall material recovery / recycling (by weight) of non-hazardous CDW to substitute use of primary materials; and 2) aggregates required to be imported to site comprise re-used/recycled content in line with the relevant regional percentage target. Waste 1) ≤1% reduction or alteration in the regional capacity of landfill; and 2) 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 1) project achieves >99% overall material recovery / recycling (by weight) of non-hazardous CDW to substitute use of primary materials; and 2) aggregates required to be imported to site comprise >99% re-used / recycled content. Waste 1) no reduction or alteration in the capacity of waste infrastructure within the region.

Table Source: DMRB LA 110, Table 3.13

10.4.5 Table 10.1 defines ‘neutral’ to ‘very large’ environmental effects for both material assets and waste which are combined to determine the Scheme’s significance level as shown in Table 10.2 below. The Scheme can then be defined as significant or not significant.

Table 10.2: Significance criteria for materials and waste

Significance	Description
Significant (one or more criteria met)	Material Assets: 1) category description met for moderate or large effect. Waste: 1) category description met for moderate, large or very large effect.
Not significant	Material Assets: 1) category description met for neutral or slight effect.

Significance	Description
	Waste: 1) category description met for neutral or slight effect.

Table Source: DMRB LA 110, Table 3.14

Data sources

10.4.6 The baseline has been established through a desk-based review of data from the following sources:

- The Mineral Products Association's Profile of the UK Mineral Products Industry[2]
- National Association of Steel Service Centres Annual Report 2018-2019 – Appendix V, Domestic Supply[3]
- Environment Agency, Remaining Landfill Capacity, 2020[4]
- Environment Agency, Waste Data Interrogator, 2019[5]
- Greater Manchester Joint Minerals Development Plan Proposals Map[6]
- Department of Food and Environment Multi-Agency Geographical Information for the Countryside (MAGIC) online mapping[7]

10.4.7 The assessment itself uses information from the Schemes BoQ provided by the appointed Principal Contractor.

10.5 Assessment assumptions and limitations

10.5.1 The assumptions applicable to the assessment methodology are outlined, as follows:

- All material and waste quantities have been converted into tonnes or cubic metres, from the design information provided, using conversion rates from WRAP
- All materials have been grouped according to main material types
- No hazardous waste has been identified at this stage~~, but this will be verified with the incoming Ground Investigation Report (see baseline section below for detail)~~

10.5.2 The following limitations have been identified for the assessment:

[2] Mineral Products Association, 2020, Profile of the UK Mineral Products Industry:
[redacted]
[3] National Association of Steel Service Centres, 2019. Annual Report 2018-2019. https://nass.org.uk/Publications/Publication4536/Annual%20Report%202018-2019.pdf
[4] https://environment.data.gov.uk/portalstg/home/item.html?id=23e73243c2da494f9370897173221885
[5] https://data.gov.uk/dataset/d409b2ba-796c-4436-82c7-eb1831a9ef25/2019-waste-data-interrogator
[6] http://tameside.addresscafe.com/App/DiscussIt/Default2013.aspx?docId=3612
[7] https://magic.defra.gov.uk/

- The material assets used, and waste generated through construction of the Scheme have been estimated from the available design information (contained in the BoQ). These quantities would be updated at the detailed design stage as the design and construction programme becomes more advanced. As such, a worst-case scenario has been used at this stage.
- The material assets and waste baselines presented in this chapter use publicly available data
- The material assets and waste baselines use the most recently published data; however, this is sometimes two to three years old so doesn't reflect the exact current quantities
- Indirect impacts, such as those from the offsite manufacture of products or extraction of minerals, are outside the scope of the assessment, as it is not possible at this stage to determine where products will be manufactured, or minerals extracted
- Impacts associated with the transport of materials and waste are considered in their respective chapters, including Air quality (Chapter 5), Noise and vibration (Chapter 11), Population and human health (Chapter 12) and Climate (Chapter 14)

10.5.3 It is not considered that these limitations and/or assumptions have affected the ability to undertake the assessment nor the conclusions reported in this chapter.

10.6 Baseline conditions

10.6.1 The baseline information presented in the following sections has been used to assess the Scheme's impact and determine the significance of the effect, with refence to the study areas described in 10.3.1 and 10.3.2. both study areas look at current and likely future states as set out in DMRB LA 110.

First Study Area – Material Assets and Waste Current State

10.6.2 The current material asset use and waste generation and disposal are both expected to be low. The majority of the first study area is agricultural fields, with some built structures in the form of agricultural and industrial buildings, residential dwellings, and associated services and roads. As such, existing material assets predominantly comprise aggregate, asphalt, concrete and steel, with the wastes being from generated from industrial, agricultural and municipal sources.

10.6.3 A Ground Investigation Report (GIR) which provides a summary of the geological baseline has been provided as a standalone report as part of this application (TR010034/APP/7.6). A supplementary GI commenced in February 2021, with an approximate 12-week programme for completion. The 2021 Supplementary Ground Investigation Report has been provided as a separate document with this DCO application in March 2022 (TR010034/EXAM/9.71).~~The full reporting for this investigation was not available for this assessment, however once available t~~ The additional data gathered ~~will~~ has been used to further define ground conditions

and identify any potential areas/sources of contamination. ~~and~~ The findings do not indicate that the supplementary GI differs greatly from those previously recorded from a contaminated land point of view. ~~If present, these would be dealt with through the design process with appropriate mitigation measures recommended.~~

10.6.4 The current availability of key construction materials would be large quantities of soil and small quantities of asphalt from road demolition and aggregate, concrete and steel from building demolition.

First Study Area – Mineral Safeguarding Areas and Peat Resource Current State

10.6.5 There are no Mineral Safeguarding Areas (MSAs) or peat resources identified within the first study area comprising the DCO boundary and temporary construction areas (including construction compounds and storage).

Second Study Area – Material Assets Current State

10.6.6 The baseline for the current availability of construction materials required to construct the main elements of the Scheme is presented below. Table 10.3 provides a breakdown of annual sales of primary material assets in North West England.

Table 10.3: Availability of material assets in North West England

Material assets	Annual sales in North West England (million tonnes)
Aggregate (crushed rock and sand & gravel)	8.76
Asphalt	2.40
Concrete (ready-mixed)	4.08
Steel (finished steel products)	1.08

Table Source: Mineral Products Association:, Profile of the UK Mineral Products Industry 2020 and National Association of Steel Service Centres, 2019. Annual Report 2018-2019 – steel sales estimated from UK-wide figure.

10.6.7 Table 10.4 presents the targets for use of recycled or secondary aggregates in construction of the Scheme. The target for North West England is 30% and therefore this will be used to assess the Scheme's aggregate use (as it is more stringent than the English target).

Table 10.4: Recycled aggregate targets

Region	Recycled content target (alternative materials)	Total aggregate provision (million tonnes)
North West	30%	392
England (total)	25%	3,908

Table Source: DMRB LA 110 material assets and waste (2019).

Second Study Area – Waste Current State

10.6.8 The baselines to assess against for the Scheme's generation of wastes during construction are presented below.

10.6.9 As the Scheme is on the border of Greater Manchester and Derbyshire, both Waste Planning Authority (WPA) areas have been included.

10.6.10 The remaining landfill capacity data comes from the Environment Agency (EA) and is presented in Table 10.5.

Table 10.5: Estimated remaining landfill capacity

Waste classification	Estimated remaining landfill capacity (m^3) Greater Manchester	Estimated remaining landfill capacity (m3) Derbyshire	Estimated remaining landfill capacity (m3) Total
Non-hazardous	7,170,785	7,729,671	14,900,456
Hazardous	0	0	0
TOTAL	7,170,785	7,729,671	14,900,456

Table Source: Environment Agency Remaining Landfill Capacity 2020

10.6.11 The capacity of waste management infrastructure has been estimated from waste received at facilities within the Greater Manchester and Derbyshire WPAs.

10.6.12 The waste management infrastructure capacity data comes from Environment Agency (EA) and is presented in Table 10.6.

Table 10.6: Estimated waste management infrastructure capacity

Waste type (classification)	Estimated annual capacity (tonnes) Greater Manchester	Estimated annual capacity (tonnes) Derbyshire	Estimated annual capacity (tonnes) Total
Non-Hazardous	1,788,527	627,852	2,416,379
Hazardous	4,048	1,171	5,219
Total	1,792,575	629,023	2,421,598

Table Source: Environment Agency Waste Data Interrogator (2019) – based on 17 coded waste received at facilities in the Manchester, City of Derby and Derbyshire WPA areas.

Second Study Area – Mineral Safeguarding Areas and Peat Resource Current State

10.6.13 There are MSAs for sand and gravel, brickclay and sandstone and peat resources within the second study area.

First Study Area – Mineral Safeguarding Areas and Peat Resource Likely Future State

10.6.14 There are no Mineral Safeguarding Areas (MSAs) or peat resources identified

within the first study area comprising the DCO boundary and temporary construction areas (including construction compounds and storage).

Second Study Area – Material Assets Likely Future State

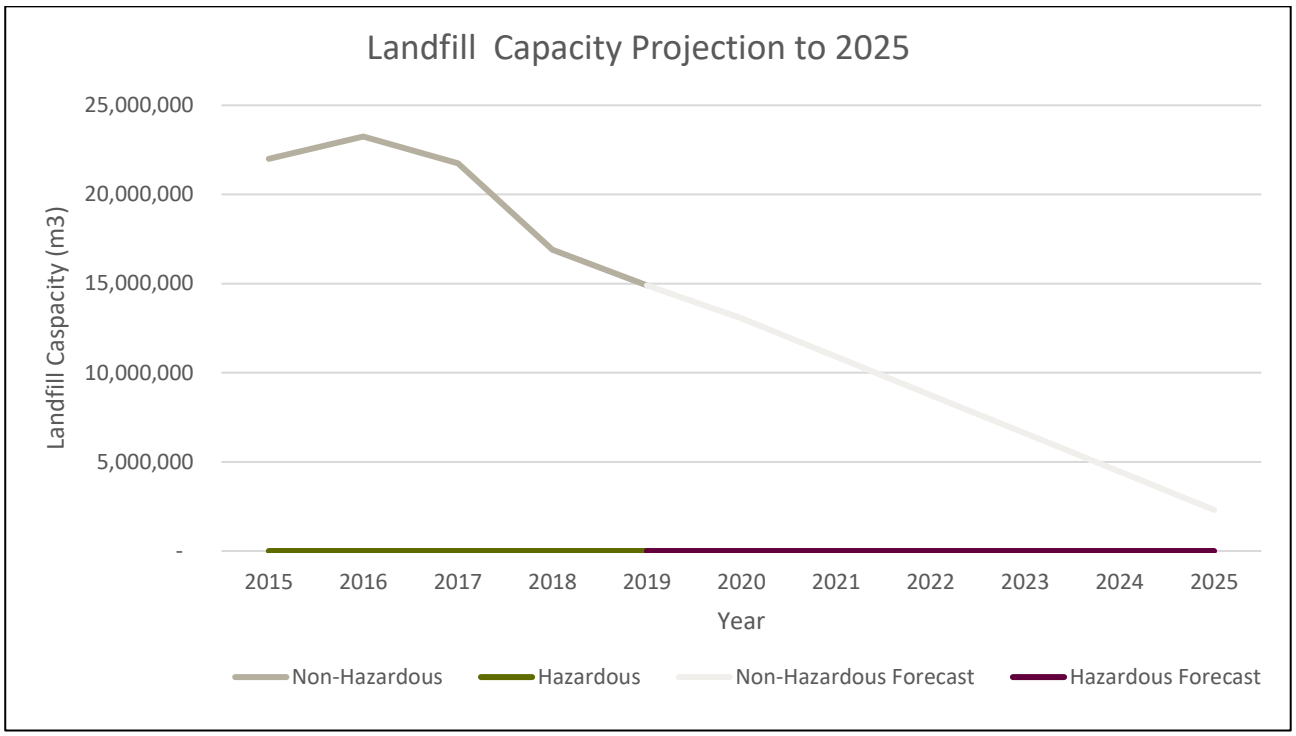
10.6.15 The likely future state of material asset use is expected to be very similar to the current state, potentially dropping slightly as fewer overall materials are used as aspects of the circular economy are embraced and more recycled materials are used.

10.6.16 There are numerous developments planned for the surrounding area that could potentially have a cumulative impact throughout the construction and operation of the Scheme. Sufficient data is not currently available on the levels of material resources required and the construction and operational waste likely to arise from these developments. However, due to the wide availability of material resources and the design and mitigation measures that would be implemented for other developments, due to policy requirements, it is considered that no further cumulative assessment would be required. Furthermore, the impact of the Scheme's material resources, and waste arisings and management have been considered within the study areas. This assessment is therefore considered to be cumulative, and as such it has been scoped out of the cumulative effects assessment (see the Cumulative effects assessment chapter (Chapter 15).

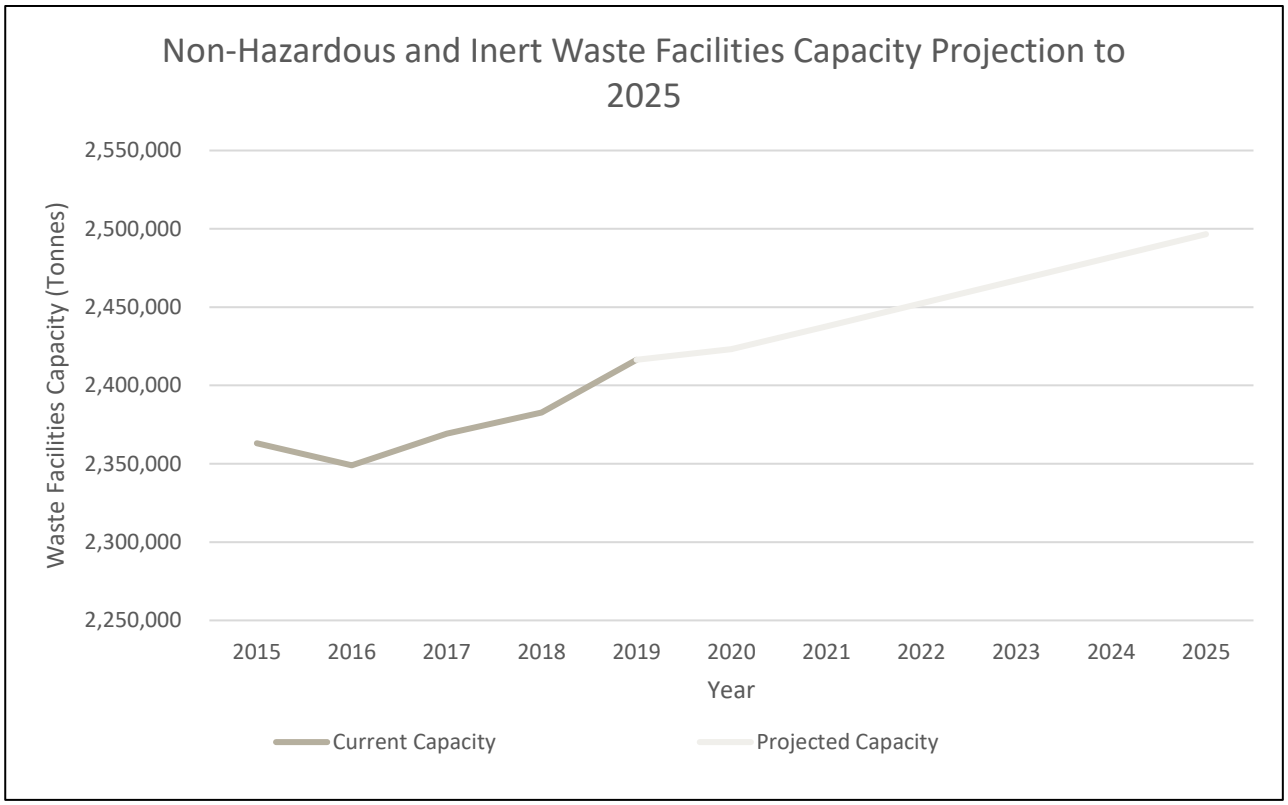
Second Study Area – Waste Likely Future State

10.6.17 The likely future remaining landfill and management infrastructure capacity is shown in Inserts 1 to 3 below, for Greater Manchester and Derbyshire combined. The estimates use historic and current Environment Agency data and extrapolates it forward to 2025, the opening year of the Scheme.

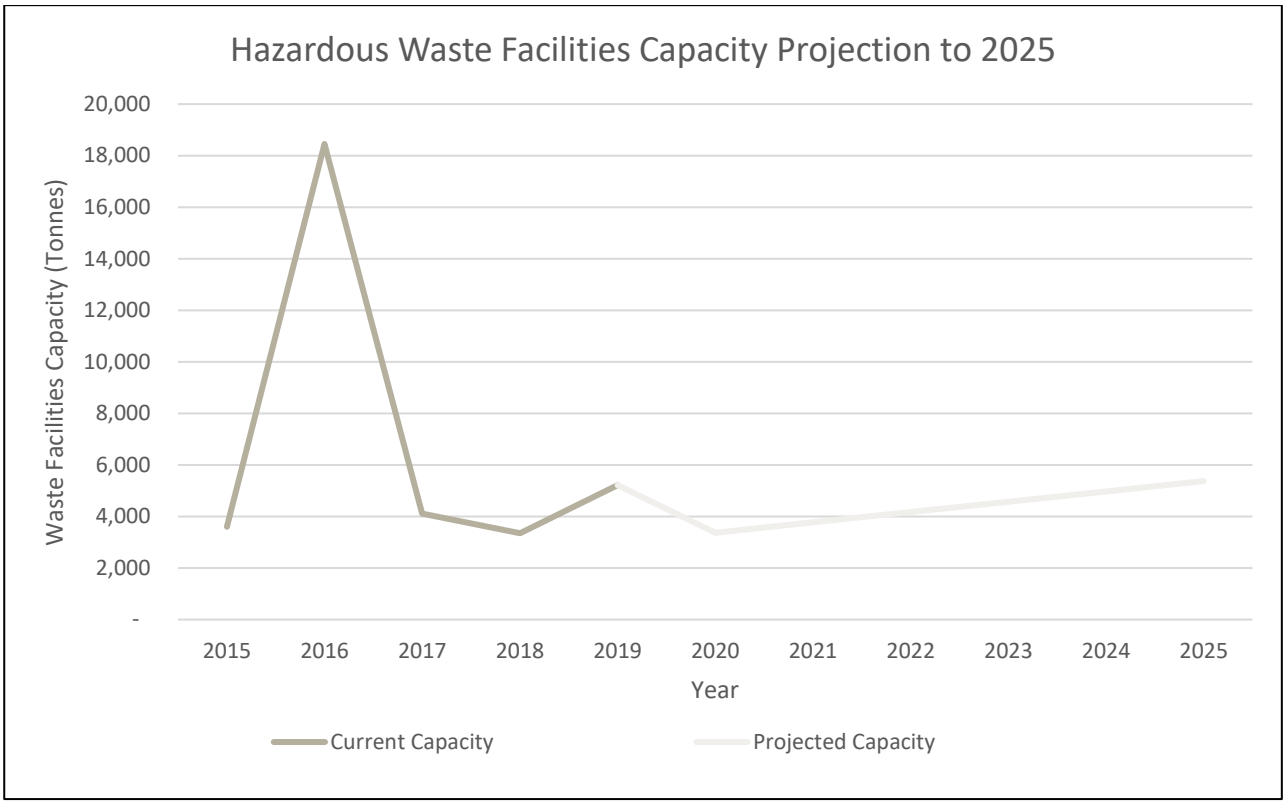
Insert 1 Estimated future remaining landfill capacity



Insert 2 Estimated future waste management infrastructure capacity (non-hazardous and inert)



Insert 3 Estimated future waste management infrastructure capacity (hazardous)



Second Study Area – Mineral Safeguarding Areas and Peat Resource Likely Future State

10.6.18 The likely future state (in the absence of the Scheme) of MSAs and peat resources within the second study area are expected to remain the same due to the protection provided to them largely preventing development on or within them.

10.7 Potential impacts

10.7.1 The potential impacts of the Scheme during construction are outlined below. These are based on advice from the appointed Principal Contractor, including provision of their BoQ for the Scheme.

Material assets

10.7.2 Throughout the construction phase material assets would be consumed to build the Scheme. The estimated potential material asset quantities to be consumed by the Scheme are shown in Table 10.7. These would be from primary sources e.g. no recycled content and would all be imported to site from regional supplies.

10.7.3 The material quantities below have been summarised from the following components that will be needed to construct the Scheme:

- Road Restraints
- Drains, Chambers, Gullies, Headwalls and Outfalls
- Sub-base and base
- Binder and wearing course
- Kerbs
- Footways & Cycle paths
- Lighting Columns
- Road Signs
- Traffic Signals
- Bollards
- Piles

10.7.4 The material quantities represent a worst case before mitigation measures are implemented.

Table 10.7: Material quantities

Material assets	Primary material quantity (m^3)	Primary material quantity (tonnes)
Aggregate	314,913	705,406
Asphalt	70,988	149,074
Concrete	16,720	40,129
Steel	157	1,224

* cubic metres have been converted to tonnes using densities from Atkins Carbon Knowledgebase.

10.7.1 The Scheme would not directly sterilise any MSA's or peat resources, therefore there are no direct impacts on these receptors.

Landfill sites and waste management infrastructure

10.7.2 Throughout the construction phase waste would be generated and require disposal. The estimated potential quantities of waste to be generated by the Scheme are shown in Table 10.8. Cubic metres and tonnes are used to aid comparison to the baseline data.

10.7.3 The waste quantities represent a worst case before mitigation measures are implemented.

Table 10.8: Waste quantities

Waste type	Waste quantity (m^3)	Waste quantity (tonnes)*
Mixed construction & demolition waste	575	500

Waste type	Waste quantity (m^3)	Waste quantity (tonnes)*
General office waste	381	80
Plastic	171	24
Wood / timber	529	180
Mixed metals	286	120
Paper and cardboard	25	5
Soil	533,686	667,108
Total	**535,653**	**668,017**

* cubic metres have been converted to tonnes using densities from the Waste and Resources Action Programme (WRAP).

10.8 Design, mitigation and enhancement measures

10.8.1 Mitigation measures taken have followed the waste hierarchy to reduce, reuse, recycle and recover, which is presented in Insert 4.

Insert 4 Waste Hierarchy

Embedded mitigation

10.8.2 The assessment has been undertaken with consideration of embedded mitigation and best practice which would be used during construction and operation. These are summarised below. Further details of these measures can be found in the Scheme chapter (Chapter 2).

10.8.3 The actions taken to reduce material asset use/material optimisation and waste generation at design stage are shown below:

- shortened underpasses in various areas
- reduced footprint of junctions
- reduced road connection lengths
- rationalised/reduced site compounds

- Strict adherence to the Environmental Management Plan (EMP) (TR010034/APP/7.2) and the Register of Environmental Actions and Commitments (REAC) (TR010034/APP/7.3). The EMP (Second iteration) would include a Materials Management Plan (MMP) and a Site Waste Management Plan (SWMP). The MMP and SWMP would be developed prior to construction by the appointed Principal Contractor and secured as requirements in submission of the REAC.

10.8.4 Reduction and reuse would be achieved on the Scheme through the implementation of the MMP which would be produced under the CL:AIRE Definition of Waste: Code of Practice (DoWCoP) for the reuse of soils within the DCO boundary. The MMP would be produced in conjunction with the Principal Contractor and a declaration submitted by a Qualified Person registered with CL:AIRE. A tracking system would be established and used to track the movement, storage and placement of excavated materials within the Scheme. Upon completion of the works, a verification report would be submitted to CL:AIRE. The MMP would allow over 99% of the excavated soil to be reused onsite, which would reduce the need for materials and generation of waste to be managed or disposed of offsite and would ensure the Scheme achieves a cut/fill balance.

10.8.5 During the first phase of the construction programme, the topsoil removed for the mobilisation of the compound area would be used to make a 3 m high bund around the compound area to store this material and provide screening for properties in proximity to the compound. This area would be returned to the previous land use following completion of the Scheme's construction and restored to a condition equivalent to its original, in agreement with landowners. For the rest of the construction programme, the appointed Principal Contractor would not cut the material until the fill areas is available. In the case that a temporary gap appears in the programme the appointed Principal Contractor would stop the cut and not use temporary storage. For example, the construction programme requires the embankment areas to be prepared before the cut areas. Work would stop if the fill area was not prepared in time, as the material would not be taken to the compound.

10.8.6 The appointed Principal Contractor would reduce primary material use through a commitment to achieve, at minimum, the 30% recycled content target for the region.

10.8.7 Actions also taken by the appointed Principal Contractor include off-site manufacture of components and use of modular construction and other modern methods of construction. These methods of construction aid material optimisation and waste reduction on site during construction as well as assisting de-constructability and de-mountability of elements (in the case of modular construction) at the end of first life. At present the two culverts for the Scheme

would be off site manufactured and the River Etherow bridge would have a modular deck.

10.8.8 To support the recycling and recovery aspect of the waste hierarchy, the Principal Contractor has committed to recycle or recover 95% of wastes that leave site, therefore diverting them from landfill. This would be achieved by analysing the construction programme and ordering segregated skips to match the waste streams that activities would generate, for example having skips for timber waste when breaking down shuttering from finished concrete structures. For smaller quantities of different types of waste, it would be more efficient to use a mixed waste skip and utilise a specialist waste contractor to carry out segregation at a purpose-built facility. This is based on the principle that it is more efficient to send off site full skips of mixed waste rather than half empty skips of segregated wastes. When wastes are removed, they would be managed as closed as possible to site to support the proximity principle.

10.8.9 Waste that cannot be recycled or recovered, such as hazardous wastes, including any contaminated soil would be identified, removed, and kept separate from other construction wastes, in order to avoid contaminating 'clean' materials

10.8.10 As part of the SWMP, the appointed Principal Contractor would monitor waste arisings and management practices (see Section 10.11 for further details).

10.8.11 Further to the above, mitigation measures associated with transport of materials and waste and greenhouse gas emissions are identified in their respective chapters of this ES (see Section 10.5.2 for chapter references).

Essential mitigation

10.8.12 No essential mitigation measures relating to material assets and waste have been identified at this stage.

Enhancement measures

10.8.13 The appointed Principal Contractor is exploring opportunities for the use of modular abutments for the River Etherow bridge and for the use of modular units on the underpass, both opportunities would be developed further at the detailed design stage. Assessment has not been based on these opportunities as they are not committed to at this stage.

10.8.14 A stretch target of 40-50% recycled content for the region has also been set by the appointed Principal Contractor, through working with the supply chain and designing the road surface to best suit recycled content. These actions would support responsible material procurement.

10.8.15 Discussions would also take place with the supply chain to use reusable packaging and take back unused materials, instead of them being disposed of.

10.9 Assessment of effects

Construction

Material Assets

10.9.1 In relation to the criteria set out in Table 10.1, based on professional judgement and advice from the Principal Contractor, it is estimated the Scheme would have a slight adverse effect. This takes account of the MMP which would achieve a 99% soil reuse rate (cut/fill balance) that substitutes use of primary materials and the Principal Contractors commitment to use aggregate with at least 30% recycled content, in line with the regional percentage target. Further to this the Scheme would not directly sterilise any Mineral Safeguarding Areas and/or peat resources.

10.9.2 As shown in Table 10.2, a slight adverse effect is considered not significant.

10.9.3 Following application of the mitigation measures above, the table below summarises the quantities of materials that would be imported to the Scheme from primary sources.

Table 10.9: Material quantities required after mitigation

Material assets	Primary material quantity (m^3)	Primary material quantity (tonnes)	% reduction of primary materials required post mitigation
Aggregate	54,332	121,704	83%
Asphalt	49,691	104,352	30%
Concrete	11,704	28,090	30%
Steel	110	857	30%

Waste

10.9.4 The waste quantities to be generated by the Scheme and the assessment based on those quantities is shown in Table 10.7.

10.9.5 The estimated waste takes into consideration the MMP with 99% of waste reused on site and the Principal Contractors commitment to achieve, at minimum, a 95% recovery rate for wastes managed offsite.

Table 10.10: Waste assessment

Receptor	Waste baseline	Estimated waste	% change in capacity of waste infrastructure
Waste infrastructure (tonnes)	2,416,379	3,588	0.15
Landfill (m^3)	14,900,456	206	0.0014

10.9.6 Using data in the tables above and criteria in Table 10.1 the Scheme would have

≤1% reduction in the regional capacity of landfill and the waste infrastructure has sufficient capacity to accommodate waste from the Scheme, without compromising integrity of the receiving infrastructure within the region. These effects fall within the slight adverse significance category which is considered to be not significant.

Operation

10.9.7 DMRB LA 110 states that operational activities are those which occur in the opening year. It is considered that very little or no material asset use would take place in this time, as the Scheme would just have opened. Consequently, operational material assets assessment has been scoped out. Similarly, it is considered that the opening year would not generate large quantities of waste relative to regional landfill capacity or have an effect on the ability of waste infrastructure within the region to continue to accommodate waste from other sources. As such operational waste assessment has also been scoped out.

10.10 National Policy Statement for National Networks (NPS NN) compliance

10.10.1 The NPS NN outlines the importance of managing resources and wastes to prevent and minimise environmental impacts (paragraphs 5.39 to 5.66). Mitigation measures have been adopted throughout the design stage of the Scheme and would be adopted further during construction. Mitigation measures are inclusive of, but not limited to, the implementation of the waste hierarchy, the correct management of waste both on-site and off-site and identifying the appropriate waste infrastructure for waste treatment and disposal.

10.10.2 Compliance with NPS NN has been demonstrated through the description of mitigation measures in Section 10.8.

10.11 Monitoring

10.11.1 The monitoring of responsibly sourced material, as defined under BES6001, would take place for aggregates, concrete, asphalt and steel.

10.11.2 The monitoring of wastes generated during construction would be carried out through the implementation of a SWMP. This would be produced by the appointed contractor prior to construction and be updated with waste types and quantities removed from site along with the method of waste management.

10.11.3 The appointed contractor, as waste producer, must produce a Waste Transfer Note (WTN) for non-hazardous waste removed from site and a Hazardous Waste Consignment Note (HWCN) for hazardous waste removed from site. Records of these must be kept for two and three years, respectively. The WTNs and HWCNs would contain details that can be recorded in the SWMP. It is also the responsibility of the waste producer to check that waste is collected by a licensed

waste carrier and received at a facility with an appropriate waste permit or exemption.

10.11.4 The waste producer must characterise wastes prior to their removal from site. This may require testing and assessment to determine the waste classification—inert, non-hazardous or hazardous. Further testing, in the form of Waste Acceptance Criteria (WAC) testing, may need to be undertaken for wastes requiring disposal at landfill.

10.11.5 The origin, quantity and suitability of excavated materials must be monitored during construction. The re-use of significant quantities of site-won materials means a tracking system should be in place (as part of the MMP) to ensure that materials and wastes are effectively segregated and that only chemically and geotechnically suitable materials are used in construction.

10.12 Summary

10.12.1 A material and waste assessment has been undertaken for the Scheme in accordance with DMRB LA 110.

10.12.2 The chapter has summarised the quantities of material assets that would be required without mitigation and waste that could require management and disposal without mitigation.

10.12.3 Mitigation that follows the waste hierarchy has been applied during design and would be applied during construction (as committed to by the Principal Contractor) which has/will lead to material asset use and waste generation reduction, reuse, recycling, and recovery. In particular, during construction this includes the application of a MMP which would allow onsite reuse of 99% of waste, use of materials with minimum 30% recycled content and recovery of 95% of wastes that are managed offsite.

10.12.4 Assessment following application of the mitigation measures demonstrates that during construction, the effect of material asset use and waste generation is estimated to be slight adverse, this is based on the Scheme meeting the following criteria (from Table 10.1):

- Material Assets
  - 1) project achieves 70-99% overall material recovery / recycling (by weight) of non-hazardous CDW to substitute use of primary materials
  - 2) aggregates required to be imported to site comprise re-used/recycled content in line with the relevant regional percentage target
- Waste
  - 1) ≤1% reduction or alteration in the regional capacity of landfill

- 2) 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

10.12.5 As shown in Table 10.2 a slight significance category is classified as not significant.

10.12.6 Assessment for the operational stage has been scoped out as it is considered that during operational (defined in DMRB LA 110 as the opening year) there would be little/no material asset use or waste generation.

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