

Manchester City Council

**Victoria North HIF Infrastructure
Works**

Site Waste Management Plan

Issue 1 | 21 January 2022

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number

Ove Arup & Partners Ltd
8 Fitzroy Street
London
W1T 4BJ
United Kingdom
www.arup.com

ARUP

Document verification

ARUP

Job title		Victoria North HIF Infrastructure Works		Job number	
Document title		Site Waste Management Plan		File reference	
Document ref					
Revision	Date	Filename	Victoria North HIF SWMP - Issue 1 Clean.docx		
Issue 1	21 Jan 2022	Description	First issue for client review		
			Prepared by	Checked by	Approved by
		Name	Hannah Lesbirel	Nick Elton	Tom Clifford
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
Issue Document verification with document ☒					

Contents

	Page
1 Introduction	1
1.1 Purpose	1
1.2 Proposed Development Description	2
1.3 Structure and Scope	4
1.4 Responsibilities	4
2 Waste Policy and Regulations	6
2.1 Regulatory Framework	6
2.2 Waste policy context	8
3 Objectives and Targets	11
4 Management of Waste	12
4.1 Waste Hierarchy	12
4.2 Storage of Waste	14
4.3 Duty of Care	15
4.4 Site Waste Management	15
5 Waste Forecast	16
5.1 Waste Types	16
5.2 Estimated Waste Arisings	16
6 Implementation	21
6.1 Training	21
7 Monitoring, Review and report	22
7.1 Monitoring	22
7.2 Review	22
7.3 Report	23

Appendices

Appendix A

List of waste codes

1 Introduction

1.1 Purpose

The purpose of this Site Waste Management Plan (SWMP) is to set out how materials and waste will be managed and controlled at all stages of the Victoria North HIF infrastructure works project.

This SWMP includes the following:

- Current and future responsibilities for waste management
- Legislative and regulatory framework to be followed for managing wastes responsibly and legally
- Identified and adopted measures for minimising waste generation
- Approach to managing unavoidable wastes
- Forecast of the quantity and types of waste expected to be generated
- Methodology for recording and reporting waste data

This SWMP has been produced in support of the detailed planning application for the HIF infrastructure works project; it does not cover works related to the three associated planning applications (HIF Advance Enabling Works, HIF Flood Defence Works, and the Red Bank Neighbourhood development). The SWMP is intended to discharge the requirements of Policy EN19 of the Manchester City Council (MCC) Core Strategy¹, which requires that all developers submit a waste management plan which demonstrates how construction and demolition waste will be minimised and recycled on site wherever possible.

The SWMP covers waste generated from, but not limited to:

- Construction of new internal access roads including the new Plateau Road and new junctions including from the existing Red Bank Road
- Utility and services connections
- Remediation and earthworks
- Demolition of existing structures
- Provision of green infrastructure including the creation of green links and first phase of the new City River Park

A description of the Proposed Development is provided in the following section.

This plan will inform the construction stage SWMP, in which the actual waste types and quantities arising during construction will be recorded, together with their management and disposal routes.

¹ Manchester City Council (2012), *Manchester's Local Development Framework - Core Strategy Development Plan Document*. Available online at:
https://secure.manchester.gov.uk/download/downloads/id/21363/core_strategy.pdf

The aim of using the SWMP is to direct sustainable materials and waste management to reduce waste produced, by designing out waste, and optimise the reuse and recycling of waste materials during construction. In this way the plan should minimise environmental impacts and result in cost savings.

The Client, Manchester City Council, as well as the Contractor, BAM Nuttall Ltd, shall take all reasonable steps to ensure all waste from this site is dealt with in accordance with the waste duty of care in section 34 of the Environmental Protection Act 1990, including that materials will be handled efficiently, and waste managed appropriately.

1.2 Proposed Development Description

The Development Project Context

The Victoria North initiative (formerly referred to as ‘Northern Gateway’) is an area of approximately 155 hectares to the north of Manchester City Centre and Victoria Station offering an opportunity to deliver approximately 15,000 new homes over the next 15-20 years, along with a range of employment, social, community, cultural and ancillary uses. Victoria North will establish a series of new, sustainable and integrated residential neighbourhoods, with a balanced mix of housing types and tenures, making it a desirable place for a variety of new and existing Manchester residents. Victoria North is one of the largest regeneration projects in the UK as well as being the largest single opportunity for residential redevelopment in Manchester, effectively a new town within the heart of an established, popular and growing city. Previously named the ‘Northern Gateway Strategic Regeneration Framework’ (SRF), now known as Victoria North.

Figure 1 presents the extent of area related to the Victoria North initiative, inclusive of the seven neighbourhoods identified within the SRF and an ‘Initial Development Area’ (the red line imposed on Figure 1.2). This Initial Development Area has been identified as having the potential to deliver an estimated 5,500 residential units across 21 housing development plots. The Initial Development Area shown is inclusive of the enabling works, the Proposed Development, and the subsequent neighbourhood application. It is worth noting the Initial Development Area spans two of the Northern Gateway SRF neighbourhood areas, encompassing the majority of the Red Bank area, together with the northernmost part (north of the railway line) of the New Town area.

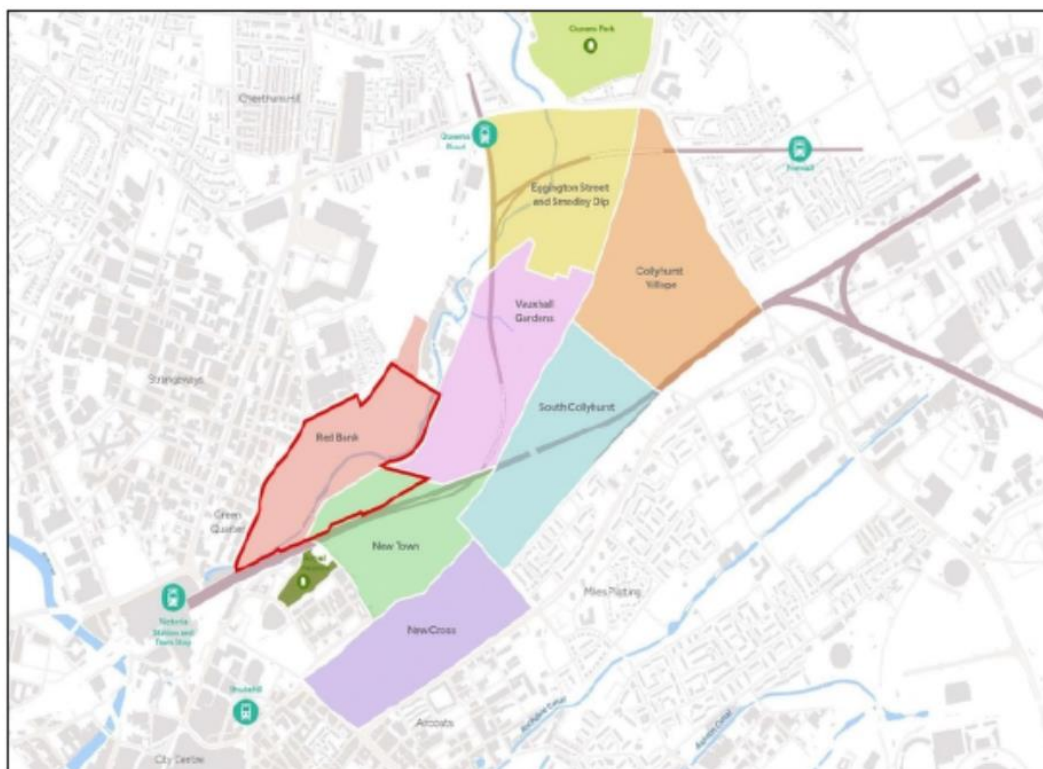


Figure 1: Boundary of the Initial Development Area in the context of the Northern Gateway SRF initiative

The Initial Development Area comprises an area of approximately 20 hectares (ha). It is located within the Lower Irk Valley. Presently, the location is affected by the legacy of more than 150 years of industrial uses and Victorian / pre-Victorian infrastructure. As a result, a comprehensive programme of infrastructure investment is required to facilitate development where works cannot be taken forward on a piecemeal, site by site basis, and are not viable for the private sector to fund in isolation.

Due to the HIF funding and programme requirements, it is necessary to approach the delivery of this Proposed Development by a number of separate planning applications. Four in total, are to be made, as follows:

- HIF Advance Enabling Works (referred to hereafter as ‘Application 1’)
- HIF Infrastructure Works (referred to hereafter as ‘Application 2’)
- HIF Flood Defence Works (referred to hereafter as ‘Application 3’)
- Red Bank Neighbourhood (referred to hereafter as ‘Application 4’)

Outline of the Proposed Development

This SWMP will cover HIF Infrastructure Works ‘Application 2’, which include:

- Demolition of selected existing structures
- Remediation and earthworks across site

- Construction of internal access roads and junctions
- Creation of SUDs
- Utility and services connections and diversions.
- Provision of green infrastructure including creation of green links and creation of new City River Park

1.3 Structure and Scope

This document identifies the key wastes that are likely to be produced from the Proposed Development and appropriate waste management and minimisation options, with an aim to encourage resource efficiency and sustainable waste management.

The SWMP has been developed in draft format, based on the information available at the time of writing it, making it easy to update and finalise as further data becomes available. The SWMP will be refined as future design details enable waste streams to be quantified more accurately. It is designed to be used to ensure waste is considered during the design stage of the Proposed Development, provide information to determine waste management and recovery options and record actual waste related actions and movements during the demolition, excavation and construction phases of the Proposed Development. This will ensure good practice sustainable resource and waste management is implemented during the construction phase.

1.4 Responsibilities

Key roles and responsibilities associated with this plan are outlined below.

Arup will be responsible for:

- Identifying waste minimisation opportunities in the design
- Preparing the preliminary SWMP

Manchester City Council will be responsible for the following:

- Ensuring that the SWMP is implemented effectively
- Reviewing, revising and refining the SWMP (where necessary) in conjunction with the Contractor

The Contractor has the overall responsibility for:

- Updating and delivering this SWMP on behalf of the Client
- Ensuring all procedures in this SWMP are followed
- Ensuring all of the contractor's staff and sub contractors are suitably qualified and experienced in implementing the measures within this SWMP. These measures to be contained within the terms of contract to ensure understanding and accountability

- Making and maintaining arrangements that enable those engaged in construction and demolition to cooperate effectively in promoting measures to manage waste in accordance with the terms of the SWMP
- Ensuring that waste produced during construction is managed in line with the waste hierarchy
- Regularly reviewing (every three months as a minimum) the SWMP and updating where necessary
- Reporting on the performance of the SWMP within three months of the work being completed
- Maintaining records relevant to this SWMP.

2 Waste Policy and Regulations

2.1 Regulatory Framework

Environmental Protection Act 1990

Environmental Protection Act 1990 makes provision for the control of pollution arising from certain industrial and other processes. Anyone who produces, imports, keeps, stores, transports, treats or disposes of waste must take all reasonable steps to ensure that waste is managed properly. This duty of care is imposed under section 34 of the Environmental Protection Act 1990.

EU Waste Framework Directive 2018/851

The overarching policy in relation to the handling of material resources is the EU Waste Framework Directive 2008/98/EC. This provides the framework legislation for the collection, transport, recovery and disposal of waste. It includes a common definition of 'waste', which is 'any substance or object which the holder discards or intends or is required to discard', with the term 'discard' including the disposal, recovery or recycling of a substance.

The overall purpose of the Waste Framework Directive is to set out measures to protect the environment and human health by preventing or reducing effects of waste generation and its management, and by improving the efficiency of resource use. Where waste is unavoidable the Waste Hierarchy sets out how materials, subject to regulatory controls, should be used again for the same, or different, purpose. If not possible, resources should be recycled or value can also be gained through generating energy from waste but only if the other solutions are impracticable.

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

The design, construction and operation of the Proposed Development would lead to the generation of solid waste. In the United Kingdom, waste producers are legally required to apply the waste hierarchy to decisions concerning the management of waste. These regulations implement the revised EU Waste Framework Directive 2008/98 which sets requirements for the collection, transport, recovery and disposal of waste. The Waste (England and Wales) Regulations 2011 require businesses to confirm that they have applied the waste management hierarchy when transferring waste and include a declaration to this effect on their waste transfer note or consignment note.

The Waste (Circular Economy) (Amendment) Regulations 2020

This legislation transposes the EU's 2020 Circular Economy Package (2020 CEP) in England and Wales, and Scotland and Northern Ireland. The Statutory Instrument (SI) transposes EU Directives, including and relevant to the SWMP, Directive (EU) 2018/851 amended 2008/98/EC on waste ("the Waste Framework

Directive”). These Regulations implement six amending EU Directives in the field of waste concerning:

- The Waste Framework Directive
- packaging and packaging waste
- landfill of waste
- end of life vehicles
- batteries and accumulators and waste batteries and accumulators
- waste electrical and electronic equipment

Measures are to be taken to prevent waste generation and to monitor and assess the implementation of those measures. These measures must be included in waste prevention programmes. Requirements for separate collection of waste are amended to provide more detail on the circumstances under which separate collection of waste is not necessary to ensure that waste undergoes preparation for reuse, recycling, or other recovery.

CL:AIRE's Definition of Waste: Development Industry Code of Practice (CoP) (CL:AIRE, 2011)

The CoP is voluntary and applies to Wales and England only. The CoP sets out good practice for the development industry to use on a site specific basis when assessing if excavated materials are classified as waste or not and, when treated, excavated waste can cease to be a waste for a particular use. If materials are dealt with in accordance with the CoP, it is considered that those materials are unlikely to be waste if they are used for the purposes of "land development".

The scope of the CoP relates to "excavated materials", which include:

- soil, both topsoil and sub soil, parent material and underlying geology
- soil and mineral based dredgings (following appropriate dewatering)
- ground based infrastructure that is capable of reuse within earthworks projects
- made ground
- source segregated aggregate material arising from demolition activities

This SWMP will also comply with the following regulation and legislation:

- List of Wastes (England) Regulations 2005 (SI 2005 No. 895) (as amended)
- Environmental Permitting (England and Wales) Regulations 2010 (as amended)
- Hazardous Waste (England and Wales) Regulations 2005 (as amended)
- The Environment (Amendment) (EU Exit) Regulations 2019

2.2 Waste policy context

2.2.1 National Planning Policy

National Planning Policy Framework

National Planning Policy for Waste 2014 (Department for Communities and Local Government)² - The National Planning Policy for Waste is the formal replacement for Planning Policy Statement 10 (PPS10). It sets out how waste planning authorities should discharge their responsibilities with respect to facilitating sufficient waste management capacity within their area, and still follows the principles set out in PPS10, which states that waste should be managed in line with the principles of the waste hierarchy. The Department for Environment Food and Rural Affairs (Defra), set out in the Waste Management Plan for England (2021)³, that the National Planning Policy for Waste is scheduled to be updated to align with changes to the National Planning Policy Framework⁴ and the Resources and Waste Strategy for England⁵.

Any Other Relevant National Planning or Development Strategies

Our Waste, Our Resources: a Strategy for England (2018)⁵ - The Resources and Waste Strategy for England 2018 focuses on the importance of driving waste management up the waste hierarchy and states the importance of considering the Government's ambition of promoting resource efficiency and moving towards a circular economy. There is a focus on producer responsibility, minimising plastic wastes and improving recycling rates. Recycling targets for construction, demolition and excavation waste have not been set. There is an ambition for reviewing and consulting on extended producer responsibility for some construction materials. The Green Construction Board has begun developing guidance for increasing resource efficiency and reducing waste in the construction sector through the adoption of circular economy principles and establishing a definition for net zero avoidable waste.

² Department for Communities and Local Government (2014). *National Planning Policy for Waste*. Available online at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/364759/141015_National_Planning_Policy_for_Waste.pdf

³ Department for Environment Food and Rural Affairs (2021), *Waste Management Plan for England*. Available online at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/955897/waste-management-plan-for-england-2021.pdf

⁴ Ministry of Housing, Communities and Local Government (2021), *National Planning Policy Framework*. Available online at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

⁵ Department for Environment, Food and Rural Affairs (2018) *Our waste, our resource*, Available online at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-wastestrategy-dec-2018.pdf

The Waste Management Plan for England (2021)³ fulfils the requirements of the Waste (England and Wales) Regulations 2011 for waste management plans to be reviewed every six years. While the Resources and Waste Strategy sets out a vision and associated policies to move to a more circular economy, the Waste Management Plan for England focuses on waste arisings and their management. It provides a high level analysis of the current waste management situation in England and evaluates how implementation of the objectives of the Waste (England and Wales) Regulations 2011 will be supported.

Waste Planning Practice Guidance 2015 (Department for Communities and Local Government)⁶ - The Planning Practice Guidance 2015 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 existing waste management facilities are acceptable and do not prejudice the implementation of the waste hierarchy.

2.2.2 Local Planning Policy

Greater Manchester Joint Waste Development Plan⁷ - The Joint Waste Development Plan sets out the strategic spatial planning policy for the provision of waste management infrastructure across the unitary authorities of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford and Wigan (which administers its own waste disposal arrangements). This also includes the authorities' aspirations for all levels of waste management until 2027: prevention; reuse; recycling; recovery; and disposal.

The Manchester City Council Local Development Framework Core Strategy outlines the Council's vision for Manchester in 2027 along with the planning policies used to support it. Policy EN 19 of the strategy sets out the planning measure that the council will employ to enable waste management in the area to meet their ambitions for development. Of relevance to the Proposed Development is the requirement for all developers to submit a waste management plan that demonstrates how construction and demolition waste will be minimised and recycled on site wherever possible and how the sustainable waste management needs of the end user will be met. Furthermore, the policy requires that all developers, demonstrate that their proposals are consistent with the principles of the waste hierarchy.

⁶ Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2015) Waste

Planning Practice Guidance 2015. Available online at: <https://www.gov.uk/guidance/waste>

⁷ Association of Greater Manchester Authorities (AGMA) (2012) Greater Manchester Joint Waste Development Plan. Available online at:

https://secure.manchester.gov.uk/downloads/download/4804/greater_manchester_joint_waste_devlopment_plan_documents

Development Policies

Strategic Regeneration Framework (2019)⁸ A Draft Strategic Regeneration Framework (SRF). The SRF presents a vision and objectives, to guide the future regeneration in the 155 hectare Northern Gateway development area, in which the proposed HIF infrastructure works are located. The final version of the SRF was approved by Manchester City Council's (MCC) executive on 13 February 2019. The Northern Gateway will be an exemplar regeneration project providing truly sustainable neighbourhoods located at the heart of the regional centre promoting innovation with particular mention of waste management as part of its place making ambition. In accordance with Manchester Residential Quality Guidance (2016), all large developments in the Northern Gateway, will seek to develop innovative solutions to maximise recycling and reduce waste and its impact on their design and the wider sustainable character.

⁸ Manchester City Council (2019) Strategic Regeneration Framework: Manchester Northern Gateway. Available online at: <http://northerngatewaymanchester.co.uk/framework/>

3 Objectives and Targets

The following objectives have been set with regards to waste generated during construction of the Proposed Development:

- Take all reasonable steps to ensure that waste management controls are observed including Duty of Care
- Minimise the amount of waste generated and maximise the amount of waste reused and recycled.
- Reuse as much waste as possible onsite. Where reuse onsite is not possible, identify the most appropriate waste management option in line with the waste hierarchy
- Manage waste as close as possible to site location
- Provide training to improve awareness of waste management issues with all employees and contractors, to ensure correct waste management practices are followed onsite

The following targets have been set for the construction phase of the Proposed Development

- Achieve a minimum landfill diversion rate of non-hazardous construction and demolition waste generated on site, by way of reuse, recycling and recovery, of 70%⁹ by weight, and a stretch target of 95%¹⁰

⁹ In accordance with the target set in The Waste (England and Wales) Regulations 2011, and EU Directive 2008/98/EC on waste (The Waste Framework Directive)

¹⁰ Exceeding the recovery rate of 94% reported for England by Defra for 2018

4 Management of Waste

4.1 Waste Hierarchy

Waste generated by the HIF infrastructure works during construction will be managed according to the principles of the waste hierarchy. The waste hierarchy identifies “waste prevention” as the most favourable management option to reduce waste and retain materials at its highest value. “Disposal” is identified as the least favourable.

The SWMP sets out how waste will be managed throughout each stage of the Proposed Development. Prior to the commencement of site development, the Contractor will identify suitable waste management Contractors and investigate opportunities to reduce waste generation, reuse materials onsite or recycle any waste that is predicted to arise.

4.1.1 Prevention

The Contractor will ensure that waste is prevented where possible by using less material in design and manufacture and only ordering quantities of material required.

The SWMP will record identified measures to be implemented to prevent and minimise the quantity of waste produced during the Proposed Development. For example, measures shall include identifying reusable materials on site and removal for storage and reuse on subsequent projects to minimise the quantity of waste.

The proposed design of the HIF infrastructure works, has been developed in a way that seeks to reuse excavated material to satisfy the engineering earthworks requirements as far as is practicable. This has reduced surplus excavated material and has therefore assisted in minimising offsite disposal to landfill. Most of the excavated material (principally from the regrading and reduced level dig proposed for Plots RB02 and RB03) is expected to be suitable for use as general earthworks fill. Some sorting and possibly some treatment of excavated material is expected to be required to allow material to be reused in the design. The assessment of contamination associated with the existing made ground at the Site has provided no indication that excavated material will pose a risk as general fill.

The River Irk flows approximately east to west across the Site, along which are several existing retaining structures on the north bank. The current design assumes that most of the existing retaining walls will remain, where the scheme is not worsening the loading or ground conditions. This will reduce the need for demolition works, and subsequent reinstatement, both of which would generate additional quantities of waste.

The public realm and landscape materials palette has been developed with a focus on low carbon solutions; this includes opportunities to reuse site won material where possible, such as bark paths, timber edgings and log piles using timber generated by tree clearance works

Further opportunities will be explored to achieve waste prevention on the Proposed Development, these include and are not limited to:

- Implementation of a sustainable procurement policy
- Use of precast concrete elements
- Use of prefabricated elements
- Treatment and stabilisation of excavated material to improve engineering properties

4.1.2 Construction logistics

Construction logistics and management provides an additional opportunity to reduce resource consumption and waste. Effective construction logistics will reduce waste generation through:

- Minimising over ordering of materials
- Reducing damage incurred to materials onsite
- Reducing the quantity of packaging waste produced
- Facilitating the effective sorting of waste materials
- Just in time deliveries
- Reverse logistics
- Packaging take back schemes

4.1.3 Reuse and recycling

All waste arisings will be segregated on site, and the Contractor will review opportunities for the reuse of any materials generated. Materials that have the greatest potential to be reused on site include inert demolition arisings, granular excavated material, and timber. Excavated materials will be tested for contamination and engineering properties and, if suitable, will be reused within the Proposed Development where possible. A pre demolition audit will be undertaken and included in the contract documents, to identify opportunities for reuse of demolition waste.

Opportunities to reuse excess materials at alternative sites will be sought over disposal of the material. These materials will require the necessary waste permits for use at other sites.

Recyclable materials are to be removed from site for processing in licenced facilities. Aggregate and inert waste processing facilities will be identified in the vicinity of the Proposed Development location by the Contractor. Only appropriately permitted facilities will be used. It is the responsibility of the Contractor to review the availability for waste management facilities and identify suitable options.

4.1.4 Disposal

Any waste that cannot be prevented, reused, recycled or recovered, will be disposed of at a permitted landfill site.

Local waste management facilities will be identified and assessed to ensure they have adequate capacity for the waste generated by the Proposed Development.

4.2 Storage of Waste

Waste will be stored in line with best practice measures. Where practicable the segregation of waste shall take place onsite. Waste will be segregated into separate waste streams using colour coding to aid identification and storage of the separated components. As a minimum, the waste and material types identified in **Error! Reference source not found.** Table 1 shall be segregated.

Table 1: Waste types to be segregated

Waste type	List of Wastes Code
Bricks, concrete, tiles and ceramics	17 01 02, 17 01 01, 17 01 03, 17 09 04
Metals	17 04 07
Plastic	17 02 03
Gypsum	17 08 02
Timber	17 02 01
Electrical and electronic equipment	20 01 36
Packaging	15 01 06
Inert (soils and stones)	17 01 07
Asphalt	17 03 02
General waste	20 03 01
Hazardous waste	17 09 03*
Mixed, other	

A range of dedicated containers and equipment will be provided onsite, to segregate recyclables, mixed waste and hazardous waste including wheeled containers and bulk containers. These containers will enable workers to segregate recyclables, mixed waste and hazardous waste before being collected by the site management team and transferred to the recycling and waste storage area.

Waste storage receptacles shall be colour coded in line with the generic colour coding scheme developed by the Institution of Civil Engineers (ICE) or similar. They shall also have appropriate signage and labelling to facilitate separation of waste for reuse and recycling and separation of inert, non-hazardous and hazardous waste.

4.3 Duty of Care

The waste producer, as defined by the Environmental Protection Act 1990 (EPA 1990), shall ensure that waste is managed properly and recovered or disposed of safely under the duty of care requirements set out in Section 34 of the EPA 1990.

These requirements apply to any person who produces, imports, carries, keeps, treats or disposes of controlled waste or as a broker who has control of such waste. Breach of the duty of care is an offence, enforced in England by the Environment Agency.

Waste transfer notes are required when there is movement of non-hazardous controlled waste. These need to be kept on file and accessible for two years.

A hazardous waste consignment note is a document that details the transfer of hazardous controlled waste from one person to another. The hazardous waste consignment note forms part of the duty of care regime. A note is needed for all movements of hazardous waste and is required to be kept on file and accessible for three years.

4.4 Site Waste Management

Waste management facilities will be provided within the construction compound onsite. Details regarding construction waste storage will be confirmed prior to commencement of construction.

5 Waste Forecast

Waste is expected to be generated throughout the construction period of the HIF infrastructure works (2022 to 2024). Waste forecasts have been undertaken based on preliminary design information and typical industry benchmarks.

5.1 Waste Types

The key waste streams produced on site can be classified as:

- Site clearance phase - Tree and vegetation clearance will be undertaken during site clearance, therefore the primary waste type expected to be generated is organic biodegradable waste
- Demolition phase - A mixture of concrete, bricks, tiles, ceramics and metals will be generated during demolition of retaining walls and hard standing
- Earthworks - predominately inert and non-hazardous soil and stones will be generated during excavation works. However, due to the site geology there is likely to be contaminated soil and material generated, this waste may be classed as hazardous waste
- Construction phase - A mixture of concrete, bricks, packaging, plastics and mixed metals are expected to be generated during construction, predominantly from the wastage of construction materials

The waste generated during construction will be assigned a EWC code¹¹ when recorded in the SWMP. A list of relevant codes is provided in Appendix A. These codes will be provided on each waste transfer note that will accompany every movement of waste from the site.

5.2 Estimated Waste Arisings

The type and quantities of waste forecast to arise at each stage of the Proposed Development have been identified in Table 2. The expected management route for each waste stream has been identified, based on the currently available design information. It is not an exhaustive list of waste types and may be extended as the design develops.

¹¹ UK Government guidance on European Waste Codes. <https://www.gov.uk/how-to-classify-different-types-of-waste/construction-and-demolition-waste>.

Table 2: Estimated waste quantities and types

Activity	Estimated quantity (m ³)	Potential material reuse or waste management options	Waste Type potential arising from activity	EWC
Site clearance	TBC	Composted and mulched onsite, and be retained onsite for use in landscaping works or sent for composting, anaerobic digestion, or thermal treatment	Biodegradable waste	20 02 01
Demolition	650	Recycled or recovered	Bricks	17 01 07
			Concrete	17 01 01
			Asphalt	17 03 02
	46	Offsite disposal to landfill	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	17 01 07
Construction	2364	Recycled or recovered	Asphalt	17 03 02
			Binders	17 01 01
			Bricks	17 01 02
			Canteen/welfare	20 03 01
			Concrete	17 01 01
	1,758	Beneficial reuse or disposal to inert landfill	Gypsum	17 08 02
			Inert	17 01 07
			Metals	17 04 07
			Oils	13 01 13*

Activity	Estimated quantity (m ³)	Potential material reuse or waste management options	Waste Type potential arising from activity	EW C
	640	Reused onsite for fill applications	Packaging Plastics Soils Tiles and Ceramics Timber Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	15 01 06 17 02 03 17 05 04 17 01 03 17 02 01 17 09 04
Excavation	19,944	Reused or recycled offsite third party schemes where possible. Else, offsite disposal to inert or non-hazardous landfill	Soil and Stones	17 05 04
	2,216	Unsuitable for reuse. Disposal at hazardous landfill		
	Estimated quantity (m ³)	Potential material reuse or waste management options	Soil and stones containing hazardous substances	17 05 03*

5.2.1 Demolition

Demolition works are primarily undertaken during Enabling Works (Application 1), and very little demolition is proposed as part of the HIF infrastructure works; demolition is limited to three lengths of retaining wall on the northern bank of the River Ike. In total it is estimated that 264m of retaining wall will require demolition, leading to the generation of approximately 742 m³ of demolition waste.

Most recent data available, in The UK Statistics on Waste¹², shows that in 2018, approximately 94% of all construction and demolition waste generated in England was diverted from landfill. Through the implementation of the measures identified in this SWMP including reuse onsite and crushing and reprocessing of aggregates a diversion from landfill of 94% is achievable. On this basis, it has been assumed that of the 742 m³ of demolition waste forecast to be generated by the Proposed Development, approximately 46 m³ would require offsite disposal to landfill.

5.2.2 Site Clearance

The proposed HIF infrastructure works, include an area of approximately 20,560m², which will be cleared of trees and vegetation. Insufficient information is currently available to enable forecasts of the quantity of waste likely to be generated by tree and vegetation clearance. However, it is anticipated that majority of this material will be composted and mulched onsite and be retained for use in landscaping works. The remainder of the waste generated by site clearance works, that is unsuitable or surplus for onsite reuse, is likely to be suitable for diversion from landfill through composting, anaerobic digestion, or thermal treatment. It is not anticipated that site clearance works will generate meaningful quantities of waste requiring offsite disposal to landfill.

5.2.3 Excavation

The majority of the waste generated by the proposed HIF infrastructure works, is expected to be generated by earthworks activities. Earthworks primarily comprise of remediation, regrading, and structural foundation works. It is currently estimated that the Proposed Development will generate approximately 22,800m³ of excavated material, of which 640m³ is required for onsite fill applications. The estimated quantity of surplus excavated material that will not be reused within the construction of the Proposed Development will be approximately 22,160 m³, based on the current level of design, all of which is anticipated to comprise of Made Ground.

The geotechnical design is evolving as the design progresses, and it is anticipated that further progress will be made in balancing the cut and fill. It is therefore

¹² DEFRA (2021) UK Statistics on Waste. Available online at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002246/UK_stats_on_waste_statistical_notice_July2021_accessible_FINAL.pdf

likely that the quantity of surplus excavated material will reduce as the design progresses. The contractor should consider the use of the CL:AIRE DoW:CoP to facilitate reuse onsite

Limited ground investigation data is currently available on which to estimate the proportion of surplus excavated material likely to fall in each waste classification. The available data indicates the material will primarily be classified as inert and non-hazardous for disposal using Waste Acceptance Criteria (WAC) assessment, with isolated areas of hazardous material identified. Given the extensive industrial use of the Site dating back to the 1840's, and the wide distribution of contamination across the Site, it is considered reasonable to assume that all surplus excavated material leaving the Site, will exceed WAC for disposal to inert landfill. On the basis of the available GI data, it is assumed as a reasonable worst case, that of the 22,160 m³ of excavated material expected to require disposal to landfill, 19,944 m³ (90%) would require disposal at non-hazardous landfill, and the remaining 2,216 m³ (10%) would require disposal at hazardous landfill.

5.2.4 Construction

The design of construction works associated with the HIF infrastructure works is relatively immature, and there is insufficient information available to undertake a detailed waste forecast based on a bill of material quantities. Waste generation benchmarking data has been applied to the current cost plan, applying a variety of civil engineering specific waste generation rates to the respective elements of the proposed works. It has been forecast that the proposed work will generate approximately 4,395 m³ of waste from the following elements of the construction works:

- Bridge upgrades and construction
- Access road construction
- Public realm improvements
- Creation of a new public park
- Drainage and electrical utilities works
- Flood defence works
- Contractor preliminaries (accommodation, welfare facilities, security, etc)

The most recent data available, in the UK shows that in 2018, approximately 94% of all construction and demolition waste generated in the England was diverted from landfill¹². Diverting 94% of construction waste from landfill is achievable for the Proposed Development due to availability of space to segregate waste onsite, the availability of local recycling facilities and adoption of waste prevention and reuse measures set out in this SWMP. On this basis, it has been assumed that of the 4,395 m³ of construction waste forecast to be generated by the Proposed Development, approximately 273 m³ would require offsite disposal to landfill.

6 Implementation

6.1 Training

A 'waste champion' will be identified who will be the primary point of contact for communication regarding waste performance and will be responsible for disseminating information within their own organisation and to sub contractors.

A training regime focused on the provisions of the SWMP will be implemented for all relevant members of the construction team to ensure their competence in carrying out their duties on the Proposed Development. The following key messages should be included in training and communications with staff:

- Store materials appropriately to avoid damage and loss
- Maximise reuse of materials such as offcuts, shuttering, and hoarding
- Segregate recyclable materials into the appropriate containers provided
- Do not contaminate recyclables by putting waste materials into the incorrect container
- Ensure that everyone working on the site understands the labelling and signage on waste containers

Any SWMP training will be additional to the mandatory training requirements for onsite Health and Safety.

A general site induction will be developed to include an introduction to the main provisions of the SWMP, important environmental controls associated with the construction of the Proposed Development and effective delivery of the SWMP (for example, waste storage arrangements and waste segregation at source). A full register of induction attendance will be maintained on site.

Toolbox talks and method statement briefings will be given to the construction teams as work proceeds and will cover the types of wastes produced at each key build stage, and the SWMP controls related to specific activities undertaken during the works. A full register of toolbox talks and method statement briefing attendance will be maintained on site.

All training records will be maintained and filed on site. The records will include the content of the training courses (induction and toolbox training), record of attendance and schedule of review.

7 Monitoring, Review and report

7.1 Monitoring

A robust methodology for recording appropriate waste metrics will be established and maintained throughout construction. The monitoring programme will cover all waste generating activities across the site and will include collation of relevant data on a regular basis, see example in Table 3.

Table 3: Example waste data reporting form

Waste stream	Waste Code	Quantity (tonnes)	Destination facility	Treatment type/ final destination	Waste carrier	% Diverted from Landfil
<i>e.g. soil and stones</i>	<i>e.g. 17 05 04</i>	<i>e.g. 100</i>	<i>e.g. NW Quarry</i>	<i>e.g. Recovery</i>	<i>e.g. NW Aggregates Ltd</i>	<i>e.g. 100%</i>
...						

Duty of Care paperwork documenting the movements of waste from the site (i.e. Waste Transfer Notes) and the registered carriers' details will be retained.

7.2 Review

During the construction process, the SWMP will be reviewed as often as necessary or at least once every three months to ensure that the plan accurately reflects the progress of the Proposed Development in terms of waste estimates and targets. The contractor will record and compare all waste quantities and actual treatment destinations to the quantities forecast. This will allow the contractor to identify any unexpected patterns or trends and ensure waste is being managed in line with the targets. As part of the review, the Contractor must record the following:

- the types and volumes of waste produced;
- identify on the plan the work area where the waste was removed from; and
- the types and volumes of waste that have been:
 - reused (and whether this was on or off site)
 - recycled (and whether this was on or off site)
 - recovery
 - sent to landfill

7.3 Report

Within three months of the end of construction, the Contractor will report on the performance of the SWMP. This will include confirmation that the plan has been monitored on a regular basis to ensure compliance with the provisions of the SWMP; that the plan was updated accordingly and that any deviations from the plan will be explained. The Contractor will continue to report on the performance of the SWMP on a regular basis throughout the construction period.

In addition to the above, the report will include a comparison of the estimated quantities of each waste type against the actual quantities of each waste type, performance against the scheme standards and an estimate of the cost savings achieved by and costs incurred in completing and implementing the plan.

Appendix A

List of waste codes

A1 List of waste categories for construction wastes (The List of Wastes (England) Regulations 2005)

Waste Code	Description
17 Construction and demolition wastes (including excavated soil from contaminated sites)	
17 01 03	Concrete, bricks, tiles and ceramics
17 01 01	Concrete
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 06*	Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	Wood, glass and plastic
17 02 01	Wood
17 02 02	Glass
17 02 03	Plastic
17 02 04*	Glass, plastic and wood containing or contaminated with dangerous substances
17 03	Bituminous mixtures, coal tar and tarred products
17 03 01	Bituminous mixtures containing coal tar
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01
17 03 03*	Coal tar and tarred products
17 04	Metals (including their alloys)
17 04 01	Copper, bronze, brass
17 04 02	Aluminium
17 04 03	Lead
17 04 04	Zinc
17 04 05	Iron and steel
17 04 06	Tin
17 04 07	Mixed metals
17 04 09*	Metal waste contaminated with dangerous substances
17 04 10*	Cables containing oil, coal tar and other dangerous substances
17 04 11	Cables other than those mentioned in 17 04 10
17 05	Soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 03*	Soil and stones containing dangerous substances

Waste Code	Description
17 Construction and demolition wastes (including excavated soil from contaminated sites)	
17 05 04	Soil and stones other than those mentioned in 17 05 03
17 05 05*	Dredging spoil containing dangerous substances
17 05 06	Dredging spoil other than those mentioned in 17 05 05
17 05 07*	Track ballast containing dangerous substances
17 05 08	Track ballast other than those mentioned in 17 05 07
17 06 In	sulation materials and asbestos-containing construction materials
17 06 01*	Insulation materials containing asbestos
17 06 03*	Other insulation materials consisting of or containing dangerous substances
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05*	Construction materials containing asbestos
17 08	Gypsum – based construction material
17 08 01*	Gypsum-based construction materials contaminated with dangerous substances
17 08 02	Gypsum-based construction materials other than those mentioned in 17 08 01
17 09	Other construction and demolition wastes
17 09 01*	Construction and demolition wastes containing mercury
17 09 02*	Construction and demolition wastes containing PCB (for example PCB-containing sealants, PCB-containing resin-based floorings, PCB-containing glazed units, PCB-containing capacitors)