AtkinsRéalis

Volume 2, Chapter 14 – Materials and Waste

Manchester City Council

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# FORMER CENTRAL RETAIL PARK – THE PARK

AtkinsRéalis - Sensitive / Sensible

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# 14. Materials and Waste

## 14.1 Executive summary

A materials and waste assessment has been undertaken for the Proposed Development. The following tasks were carried out to assess the impact of materials and waste from the Proposed Development:

- Review of relevant legislation, national, regional and local planning policies and guidance to identify material and waste objectives and targets;
- Establish the baseline for materials and waste;
- Review estimated quantities and types of materials needed for construction and wastes to be generated during construction, demolition and excavation (CD&E);
- Review the proposed use to estimate the quantities and types of wastes to be generated and materials to be used during operation;
- Identify mitigation measures to prevent, reduce, re-use, recycle and/ or recover materials and wastes from the Proposed Development;
- Identify and assess the impacts of the Proposed Development by comparing the information in the assessment stages against the baseline data; and
- An assessment of the level of environmental effect from the use of materials and generation of waste was made in accordance with the Institute of Environmental Management and Assessment (IEMA) guidance [1].

The baseline showed there is over eight million tonnes of Primary Aggregate available in the region for use by the Proposed Development and there is over eight million cubic metres of inert and non-hazardous landfill void capacity available to dispose of waste from the Proposed Development.

During construction, the estimated amount of materials required by the Proposed Development was assessed to have no significant residual adverse environmental effects when compared against the materials baseline.

During construction, the estimated amount of waste generated by the Proposed Development was assessed to have no significant residual adverse environmental effects when compared against the waste baseline.

**Error! Reference source not found.**Material use during the operational phase of the Proposed Development post mitigation measures have been assessed to have no potential for significant residual adverse environmental effects when compared against the materials baseline.

Waste generation during the operational phase of the Proposed Development post mitigation measures have been assessed to have no potential for significant residual adverse environmental effects when compared against the waste baseline.

[1] Institute of Environmental Management and Assessment. Materials and Waste in Environmental Impact Assessment - Guidance for a proportionate approach, 2020. https://www.iema.net/resources/reading-room/2020/03/30/materials-and-waste-in-environmental-impact-assessment

## 14.2 Introduction

This chapter of the Environmental Statement (ES) assesses the likely materials and waste effects of the Proposed Development. The chapter describes:

- The assessment methodology;
- The existing baseline conditions;
- The potential impacts and assessment of effects;
- The mitigation measures required to prevent, reduce or offset any significant adverse effects;
- The likely residual effects after these measures have been employed; and
- The 'type 2' (inter-project) cumulative effects associated with the proposed development in combination with other developments within 250 m of the site.

Type 1 cumulative effects 'intra-project effects' which are the combined effects of individual topic impacts on a particular sensitive receptor are considered in Chapter 20: Cumulative Effects.

## 14.3 Competent expert evidence

This materials and waste assessment has been undertaken by:

- A Principal Waste Management Consultant (bsc (Hons) Geography) and Affiliate Member of the Chartered Institute of Waste Management with over 12 years of knowledge and experience in environmental and waste management. They have used their knowledge and professional judgement to undertake this assessment; and
- An Associate Waste Management Consultant (bsc (Hons) Environmental Science) and a Fellow of the Chartered Institute of Waste Management with over 18 years of knowledge and experience in environmental and waste management. They have used their knowledge and professional judgement in reviewing this assessment.

## 14.4 Relevant legislation and guidance

### 14.4.1 National planning policies

#### National Planning Policy Framework September 2023[2]

The Framework was first published in 2012 and last updated in December 2023. It sets out the government's planning policies for England and how these are expected to be applied. The purpose of the framework is to contribute to the achievement of sustainable development with three overarching objectives:

- To help build a strong, responsive and competitive economy;
- To support strong, vibrant and healthy communities; and
- Protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

[2] Department for Levelling Up, Housing and Communities. National Planning Policy Framework. 2023. https://www.gov.uk/guidance/national-planning-policy-framework.

### A Green Future: Our 25 Year Plan to Improve the Environment[3]

Published in 2018, this 25-year Environment Plan sets out government action to help the natural world regain and retain good health. It aims to champion sustainable development, lead in environmental science, innovate to achieve clean growth and increase resource efficiency to provide benefits to the environment and economy. The goals set out in the plan include to deliver clean air, clean water and using resources from nature more sustainably and efficiently.

### Waste Management Plan for England 2021[4]

The Plan focuses on the importance of driving waste up the waste hierarchy with a focus on waste arisings and their management and states the importance of considering the Government's ambition of achieving a zero-waste economy. The Plan puts a strong emphasis on waste prevention through making products with fewer natural resources by setting out plans for preventing products and materials from becoming waste, including by greater reuse, repair and remanufacture supported by action to ensure better design to enable this to be done more easily.

### Resources and Waste Strategy for England 2018[5]

Released late 2018 this strategy sets out key areas the government wants to focus on with support from the waste industry but also wider industry and the public.

Strong focus was on sustainable production such as setting 30% limits for recycled content in plastic packaging, banning some plastics, increasing municipal recycling and reducing food waste across the supply chain and in homes, improving waste data and tackling waste crime.

### The Environmental Protection Act 1990 (Section 34)[6]

The Environmental Protection Act 1990 (c. 43) as amended in 1996 and 1999 implements integrated pollution control for the disposal of waste to air, land and water, including solid waste disposal.

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.

### Clean Neighbourhoods and Environment Act 2005 (Chapter 16)[7]

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.

### The Waste (England and Wales) Regulations 2011[8]

The Regulations transpose the European Union (EU) Waste Framework Directive into English law and require organisations to manage waste in alignment with the waste hierarchy to prevent waste going to landfill.

### The Hazardous Waste (England and Wales) Regulations 2005[9]

The Regulations, as amended in 2009 (SI 2009/507), 2015 (SI 2015/1360) and 2016 (SI 2016/336) applies to all wastes listed as hazardous in the European Waste Catalogue (2000/532/EC) and the CLP (Classification, Labelling and Packaging) Regulation (EC 1272/2008). Hazardous waste may be produced in the construction phase of the Proposed Development and must be disposed of in accordance with the Regulations.

### The Environmental Permitting (England and Wales) Regulations 2016[10]

The Environmental Permitting Regulations 2016 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 (i.e. the Environment Agency).

## 14.4.2 Regional planning policies

### Greater Manchester Joint Waste Development Plan, 2012[11]

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.

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.

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

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.

### Greater Manchester Minerals Development Plan 2013[12]

The Minerals Plan identifies how Greater Manchester will deliver the spatial vision for minerals development to 2028. The Minerals Plan sets out policies to guide future minerals development and identifies Areas of Search and Mineral Safeguarding Areas in order to meet aggregate requirements and to protect minerals resources across Greater Manchester to 2028.

### Places for Everyone Joint Development Plan[13]

The Places for Everyone (PfE) plan provides objectives and guidance policies to help create inclusive and sustainable economic growth across nine boroughs. It reinforces the ambition to bring forward development on brownfield land and

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[3] HM Government. A Green Future: Our 25 Year Plan to Improve the Environment, 2018. https://assets.publishing.service.gov.uk/media/65fd713d65ca2f00117da89e/CD1.H_HM_Government_A_Green_Future_Our_25_Year_Plan_to_Improve_the_Environment.pdf

[4] Department for Environment Food & Rural Affairs. Waste Management Plan for England, 2021. https://www.gov.uk/government/publications/waste-management-plan-forengland-2021

[5] Department for Environment Food and Rural Affairs. Our Waste, Our Resources: A Strategy for England, 2018. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf]

[6] HM Government. The Environmental Protection Act 1990 https://www.legislation.gov.uk/ukpga/1990/43/data.pdf

[7] HM Government. Clean Neighbourhoods and Environment Act 2005 https://www.legislation.gov.uk/ukpga/2005/16/contents

[8] Department for Environment Food & Rural Affairs. The Waste (England and Wales) Regulations 2011. https://www.legislation.gov.uk/uksi/2011/988/contents/made

[9] HM Government. Hazardous Waste (England and Wales) Regulations 2005. https://www.legislation.gov.uk/uksi/2005/894/made/data.pdf

[10] Department for Environment Food & Rural Affairs. The Environmental Permitting (England and Wales) Regulations 2016. http://www.legislation.gov.uk/uksi/2016/1154/contents

[11] Association of Greater Manchester Authorities. Greater Manchester Joint Waste Development Plan 2012. https://www.greatermanchester-ca.gov.uk/media/1994/greater_manchester_waste_plan_opt.pdf

[12] Greater Manchester Combined Authority. Greater Manchester Minerals Development Plan 2013 https://www.greatermanchester-ca.gov.uk/media/1995/the_minerals_plan_april_2013_final.pdf

[13] Places for Everyone Joint Development Plan Document (greatermanchester-ca.gov.uk)

provide greater protection of environmental assets whilst also supporting wider strategies around clean air, walking and cycling and underpins the ambition to be a carbon neutral city region by 2038. Specifically the plan includes a policy for resource efficiency (JP-S6) which outlines the Zero Waste Strategy for Greater Manchester as well as the role of sustainable design to reduce and recycle waste.

### 14.4.3 Local planning policies

#### Manchester Core Strategy 2012-2027[14]

Adopted by Manchester City Council in 2012 the Strategy describes Manchester in 2012 and outlines the Council's vision for Manchester in 2027 along with the planning policies which will be used to deliver that vision. With regards to waste, it requires all developers to submit a waste management plan to demonstrate how both construction and demolition waste will be minimised and recycled on site wherever possible and puts emphasis on adopting the waste hierarchy principles. With regards to minerals, it encourages the efficient use of minerals and promotes the use of secondary/recycled aggregates wherever possible. Through the Greater Manchester Joint Minerals Development Plan Document, it provides a co-ordinated sub-regional approach to minerals planning, ensuring that mineral resources are safeguarded.

## 14.5 Assessment methodology

### 14.5.1 Study Area

The study areas that are applicable to the Proposed Development as set out in the IEMA guidance[1] are:

- The development study area – this comprises the Proposed Development's footprint and any areas required for temporary access, site compounds, working platforms and other enabling activities; and
- The expansive study area – this extends to the availability of construction materials and remaining landfill void.

Based on professional judgement and the availability of data, the expansive study area has been chosen as:

- The Northwest of England region and – where necessary or especially where regional data are unavailable – the UK for materials;
- The Northwest of England region for hazardous waste; and
- Greater Manchester for non-hazardous and inert waste.

Receptors, with regards to minerals/materials and waste, are defined as:

- The regional (Northwest) and national materials market;
- Regional landfill void capacity; and
- Local Allocated Mineral Safeguarding Area (MSA) and peat resources.

### 14.5.2 Methodology

The following tasks have been carried out to assess the impact of materials and waste from the Proposed Development:

- Review of relevant legislation, national, regional and local planning policies and guidance to identify material and waste objectives and targets;
- Establish the baseline for materials and waste;
- Review estimated quantities and types of materials needed for construction and wastes to be generated during construction, demolition and excavation (CD&E);
- Review the proposed use to estimate the quantities and types of wastes to be generated and materials to be used during operation;
- Identify mitigation measures to prevent, reduce, re-use, recycle and/ or recover materials and wastes from the Proposed Development; and
- Identify and assess the impacts of the Proposed Development by comparing the information in the assessment stages against the baseline data.
- An assessment of the level of environmental effect from the use of materials and generation of waste will be made using the criteria in Table 14-1 and Table 14-2 below, which are set out in the IEMA Guidance.

The baseline has been established through a desk-based review of regional and national data, based on the IEMA guidance[1], from the following publicly available sources (most up to date at the time of writing):

- Environment Agency Remaining Landfill Capacity, 2019-2022[15];
- Greater Manchester, Joint Waste Development Plan, 2012[16];
- Greater Manchester, Minerals Development Plan, 2013[17];
- Greater Manchester, Policies Map, 2023[18];
- MagicMap[19]
- Mineral Products Association (MPA), Profile of the UK Mineral Products Industry, 2023[20];
- MPA Profile of the UK Mineral Products Industry Statistical Workbook, 2023[21]
- North West Aggregate Working Party, Annual Monitoring Report, 2021[22]; and
- World Steel in Figures, 2023[23].

**Table 14-1 Sensitivity criteria**

| Sensitivity of receptor | Criteria (highest category applies where one or more criteria are met) |
|---|---|
| Very High | Materials are known to be insufficient in terms of production, supply and/or stock; and/or comprise no sustainable features and benefits compared to industry-standard materials.<br>Inert and non-hazardous waste baseline landfill void capacity is expected to reduce very considerably (by >10%)/end during construction or operation; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand. |

[14] Manchester City Council. Manchester Core Strategy 2012-2027
https://www.manchester.gov.uk/info/200074/planning/6573/core_strategy_2012-2027

[15] Remaining Landfill Capacity - data.gov.uk
[16] Greater Manchester waste plan | Manchester City Council
[17] Greater Manchester Joint Minerals Development Plan Documents | Manchester City Council
[18] Local Development Framework Area Map Browser (arcgis.com)
[19] MAGIC (defra.gov.uk)
[20] Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)
[21] Profile_of_the_UK_Mineral_Products_Industry_2023_Worksheet.xlsx (live.com)
[22] North West Aggregates Working Party - Annual Monitoring Report 2021 (warrington.gov.uk)
[23] World Steel in Figures 2023 - worldsteel.org

| | |
|---|---|
| | Hazardous waste baseline landfill void capacity is expected to reduce very considerably (by >1%)/end during construction or operation; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand. |
| High | Materials are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock; and/or comprise little or no sustainable features and benefits compared to industry-standard materials.<br>Inert and non-hazardous waste baseline landfill void capacity is expected to reduce considerably by 6-10% as a result of wastes forecast.<br>Hazardous waste baseline landfill void capacity is expected to reduce considerably by 0.5-1% as a result of wastes forecast. |
| Medium | Materials are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock; and/or are available comprising some sustainable features and benefits compared to industry-standard materials.<br>Inert and non-hazardous waste baseline landfill void capacity is expected to reduce by 1-5% as a result of wastes forecast.<br>Hazardous waste baseline landfill void capacity is expected to reduce by 0.1- 0.5% as a result of wastes forecast. |
| Low | Materials are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock; and/or are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.<br>Inert and non-hazardous waste baseline landfill void capacity is expected to reduce by <1% as a result of wastes forecast.<br>Hazardous waste baseline landfill void capacity is expected to reduce by <0.1% as a result of wastes forecast. |
| Negligible | Materials are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock; and/or are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials.<br>Inert and non-hazardous waste baseline landfill void capacity is expected to remain unchanged or is expected to increase through a committed change in capacity.<br>Hazardous waste baseline landfill void capacity is expected to remain unchanged or is expected to increase through a committed change in capacity. |

* Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts.

**Table 14-2 Magnitude Criteria**

| Impact severity | Criteria (highest category applies where one or more criteria are met) |
|---|---|
| Major | The consumption of one or more materials is >10% by volume of the regional baseline availability; and/or more than one allocated mineral site is substantially sterilised by the development rendering it inaccessible for future use.<br>Inert and non-hazardous waste generated by the development will reduce regional landfill void capacity baseline by >10%.<br>Hazardous waste generated by the development will reduce national landfill void capacity baseline by >1%. |
| Moderate | The consumption of one or more materials is between 6-10% by volume of the regional baseline availability; and/or one allocated mineral site is substantially sterilised by the development rendering it inaccessible for future use.<br>Inert and non-hazardous waste generated by the development will reduce regional landfill void capacity baseline by 6-10%.<br>Hazardous waste generated by the development will reduce national landfill void capacity baseline by <0.5-1%. |
| Minor | The consumption of one or more materials is between 1-5% by volume of the regional baseline availability; and/or the development has the potential to adversely and substantially impact access to one or more allocated mineral site (in their entirety), placing their future use at risk.<br>Inert and non-hazardous waste generated by the development will reduce regional landfill void capacity baseline by 1-5%.<br>Hazardous waste generated by the development will reduce national landfill void capacity baseline by <0.1-0.5%. |
| Negligible | The consumption of no individual material type is equal to or greater than 1% by volume of the regional baseline availability.<br>Inert and non-hazardous waste generated by the development will reduce regional landfill void capacity baseline by <1%.<br>Hazardous waste generated by the development will reduce national landfill void capacity baseline by <0.1% |
| No change | The consumption of no materials is required.<br>Inert and non-hazardous zero waste generation and disposal from the development.<br>Hazardous zero waste generation and disposal from development. |

Table 14-3 below provides definitions of effect thresholds which are set out in the IEMA guidance.

**Table 14-3 Effects Threshold**

| | | Magnitude of Impact | | | | |
|---|---|---|---|---|---|---|
| | | **Major** | **Moderate** | **Minor** | **Negligible** | **No Change** |
| **Sensitivity or Value of Receptor** | **Very High** | Very Large | Very Large or Large | Large or Moderate | Slight | Neutral |
| | **High** | Very Large or Large | Large or Moderate | Moderate or Slight | Slight or Neutral | Neutral |
| | **Medium** | Large or Moderate | Moderate | Slight | Slight or Neutral | Neutral |
| | **Low** | Moderate or Slight | Slight | Slight or Neutral | Slight or Neutral | Neutral |
| | **Negligible** | Slight | Slight or Neutral | Slight or Neutral | Neutral | Neutral |

Environmental effects for both material and waste are combined to determine the significance level, as shown in Table 14-4 below. The effects of the Proposed Development can then be defined as significant or not significant.

**Table 14-4 Significance Criteria for Environment Effects of Material and Waste**

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

# 14.6 Baseline conditions

## 14.6.1 Materials

As set out in the IEMA guidance[1], materials are defined as 'substances used in each lifecycle stage of a development, with a particular focus on the construction, operation and maintenance, and decommissioning or 'end of first life' (deconstruction, demounting, demolition and disposal) phases'.

The regional and national breakdown of annual sales for materials are summarised in Table 14-5. Data for aggregate (recycled & secondary), crushed rock and sand and gravel for the North West are taken from the North West Aggregates Working Party Annual Monitoring Report 2021 (the most recent year data is available for). All other data is taken from the MPA, Profile of the UK Mineral Products Industry 2023 (the most recent year data is available for). Regional data is not reported for steel therefore, annual sales in the UK are taken from World Steel in Figures 2023.

Materials identified in the table are based on the main construction materials it is estimated will be required for the Proposed Development's construction, based on experience.

Given that the number, type, and size of construction developments varies from year to year, the demand for materials also fluctuates. As such, this data should be considered representative.

**Table 14-5 Materials Baseline**

| Materials | Regional sales baseline (million tonnes per annum) | National sales baseline (million tonnes per annum) |
|---|---|---|
| Primary Aggregate - Crushed rock | 6.61 | 116.2 |
| Primary Aggregate - Sand and gravel | 2.13 | 52.1 |
| Recycled and secondary aggregate | 0.99 | 74 |
| Asphalt | 2.09 | 21.8 |
| Ready-mixed concrete* | 3.3 | 35.4 |
| Steel | Not Available | 6.0 |

*cubic meters have been converted to tonnes using density of 2.4 tonnes/$m^3$.

## 14.6.2 Waste

In line with the Waste Framework Directive and as set out in the IEMA guidance[1], waste is defined as "any substance or object which the holder discards or intends or is required to discard".

The EA Waste Data Interrogator is analysed by the EA to provide estimated remaining landfill void capacity.

Table 14-6 and Table 14-7 below summarises this information in the Northwest region and Greater Manchester (for the most recent years for which data is available).

**Table 14-6 Hazardous Landfill Void Capacity (000's of $m^3$)**

| Landfill type | 2020 | 2021 | 2022 |
|---|---|---|---|
| Hazardous landfill void capacity (North West) | 6,273 | 5,180 | 3,274 |

**Table 14-7 Inert and Non-Hazardous Landfill Void Capacity (000's of $m^3$)**

| Landfill type | 2020 | 2021 | 2022 |
|---|---|---|---|
| Inert and non-hazardous landfill void capacity (Greater Manchester) | 9,040 | 8,518 | 8,639 |

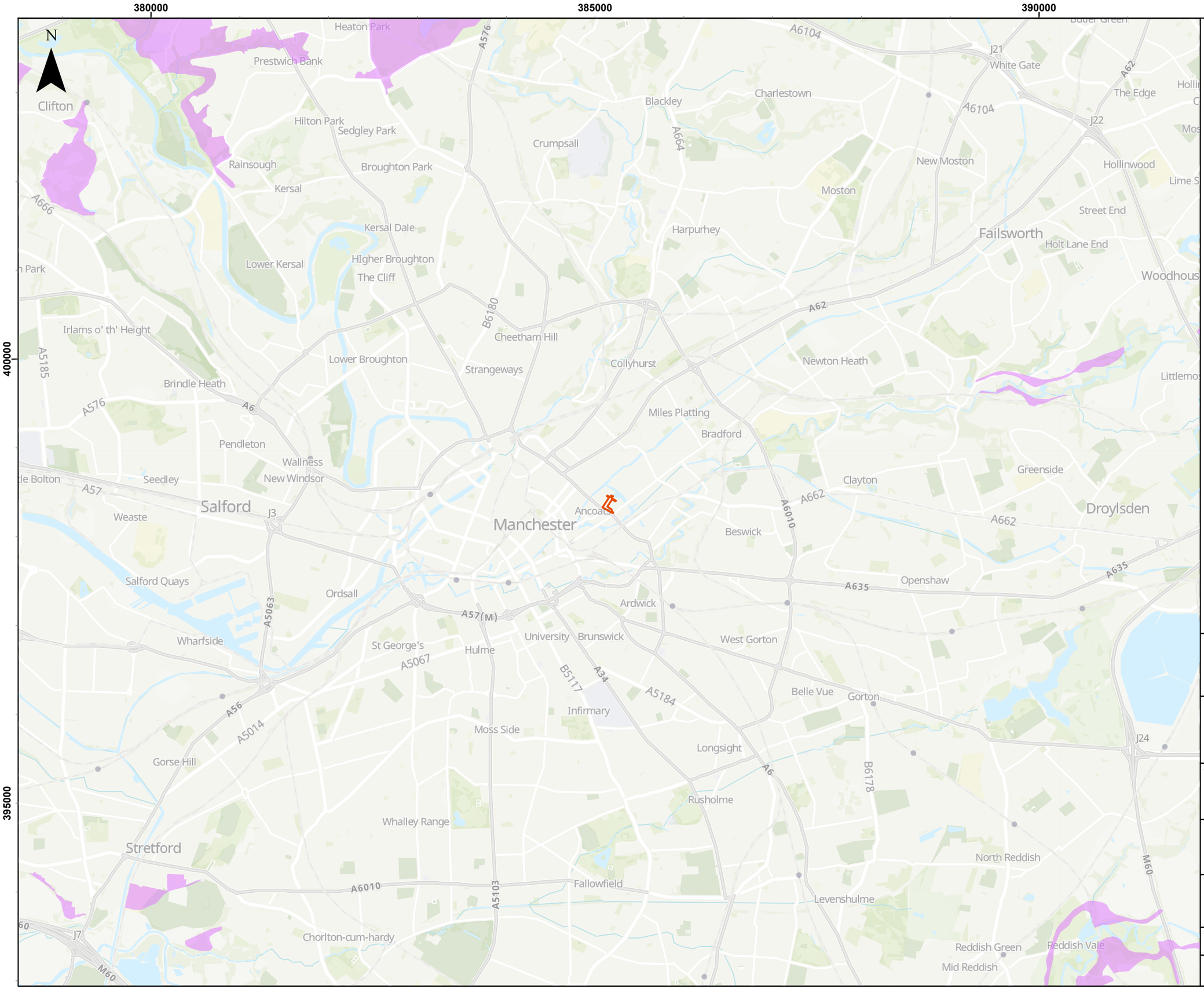
## 14.6.3 Mineral Safeguarding Areas (MSA) and Peat Resources

The key safeguarded mineral resources in Greater Manchester are glaciofluvial sand and gravel, carboniferous millstone grit, brick clay with surface mined coal (shallow coal), and peat.

Greater Manchester Policies Map and British Geological Survey (BGS) GeoIndex[24] show that the footprint of the Proposed Development does not overlap with an MSA.

There are no Blanket Bogs, Lowland Fens, or Lowland Raised Bog areas within the footprint of the Proposed Development as shown in Figure 14-1. Therefore, there are no areas that are / could give rise to peat reserves.

[24] British Geological Survey, GeoIndex Onshore https://mapapps2.bgs.ac.uk/geoindex/home.html




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Site Boundary

Mineral Safeguarding Area for Sand and Gravel

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Kilometres
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Client
Manchester City Council

Project
Former Central Retail Park: The Park

Title
Mineral Safeguarding Areas and Peat Resources

| Sheet Size | Original Scale | Designed / Drawn | Checked | Authorised |
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## 14.7 Potential impacts

### 14.7.1 Construction phase

The Proposed Development may have the following impacts from construction:

- The high volume, permanent (over the 60 year design life) use of materials. This is likely to consist of aggregate, concrete and steel. Smaller quantities of materials may include plastic, wood, and glass, amongst others; and
- The high volume, short-term (during the construction phase), permanent use of landfill void capacity. Key waste streams are likely to include small quantities of waste that would be generated from initial site clearance and during construction phase including metal, wood, and vegetation, as well as municipal waste and septic tank waste from the workforce.

### 14.7.2 Operational phase

The Proposed Development may have the following impacts during operation:

- The low volume, long-term, permanent use of materials that could be used in operation are the same as those in construction, although there would be planned and un-planned maintenance activities; and
- The low volume, long-term, permanent use of landfill void capacity. Due to the nature of the Proposed Development, the operational wastes that could be generated is anticipated to be negligible and would likely only consist of waste generated by day-to-day users of the park and any vegetation maintenance waste. The management of this waste would prioritise non-landfill methods such as reuse, recycling or processed via Energy from Waste facilities with energy recovery and therefore negligible waste would go to landfill.

## 14.8 Assessment of effects

**Table 14-8 Construction phase impact assessment**

| Receptor | Sensitivity | Impact | Mitigation | Residual impact magnitude | Residual effect | Effect significance |
|---|---|---|---|---|---|---|
| Regional material markets | Low | Material usage and waste generation | Adherence to waste hierarchy | Negligible | The Proposed Development is estimated to use 25,504 tonnes of materials during the construction phase. The greatest single type of materials to be used is crushed rock (for imported fill) at 25,088 tonnes (following mitigation measures to source at least 30% of aggregates from recycled content). The use of materials in the construction phase of the Proposed Development will account for 0.379% of the baseline for crushed rock. Using criteria in Tables 14-2 and 14-3 , the construction phase of the Proposed Development can be considered to have a low/negligible adverse impact on the regional material markets which would be a slight adverse and not significant effect. | Neutral or slight adverse effect Not significant |
| Regional waste infrastructure and landfill void capacity | Low | Material usage and waste generation | Adherence to waste hierarchy | Negligible | The Proposed Development is estimated to generate 550 cubic metres of waste during the construction phase. The generation of waste in the construction phase of the Proposed Development will account for 0.002% of the baseline for regional landfill void capacity (following mitigation to divert 70% of waste from landfill). Using criteria in Tables 14-2 and 14-3, the construction phase of the Proposed Development can be considered to have a low/negligible adverse impact on the regional landfill void capacity which would be a slight and not significant effect. | Neutral or slight adverse effect Not significant |

**Table 14-9 Operational phase impact assessment**

| Receptor | Sensitivity | Impact | Mitigation | Residual impact magnitude | Residual effect | Effect significance |
|---|---|---|---|---|---|---|
| Regional material markets | Low | Material usage and waste generation | Site Waste Management Plan | Negligible | The Proposed Development is estimated to use negligible amounts of materials during the operation phase. Using criteria in Tables 14-2 and 14-3, the operation phase of the Proposed Development can be considered to have a negligible adverse impact on the regional material markets resulting in a neutral and not significant effect. | Neutral or slight adverse effect Not significant |
| Regional waste infrastructure and landfill void capacity | Low | Material usage and waste generation | Site Waste Management Plan | Negligible | The Proposed Development is estimated to generate negligible amounts of waste during the operation phase. Using criteria in Tables 14-2 and 14-3, the operation phase of the Proposed Development can be considered to have a negligible adverse impact on the regional landfill void capacity which would be a neutral and not significant effect. | Neutral or slight adverse effect Not significant |

## 14.9 Additional mitigation and enhancement measures

The following sections detail the mitigation measures that will be considered and referenced in Section 14.8 above. Many of the measures are mitigation measures for both waste and materials, and as such a separate sections have not been provided.

### 14.9.1 Adherence to the waste hierarchy

Mitigation measures should follow the waste hierarchy to prevent, reduce, reuse, recycle and recover, which is presented in Figure 14-2 below.




**Figure 14-2 Waste Hierarchy**

The waste hierarchy is a framework that ranks waste management options according to their environmental impacts. There are several different measures that will be implemented, as follows:

- Designing out material use and waste generation.
- On-site management of materials and waste.
- Treatment and disposal.

Decisions taken during the RIBA 2 design stage to reduce material use and waste generation are an example of primary (embedded) mitigation. Excessive material use and waste generation can be designed out early in the development process to ensure materials are:

- Reused/reclaimed, where practicable, to reduce waste generation and/or
- Recycled, where practicable; and

Project specific measures to reduce material use and waste generation will be developed and recorded as the design develops.

The Proposed Development will be committed to achieving high recycling and recovery rates (following actions to design out and reduce waste), as part of further embedded mitigation measures, such as a minimum of 70% of all non-hazardous CD&E waste leaving the site to be recycled or recovered through disposal via Energy from Waste facilities.

In accordance with the national and regional guidelines for aggregate provision in England 2005-2020 it is recommended that where possible the Proposed Development commits to sourcing aggregate with a minimum of 30% recycled content consisting of mainly recycled or secondary aggregates to reduce the impacts on primary aggregate stocks.

### 14.9.2 Site Waste Management Plan

A Site Waste Management Plan (SWMP) will be produced to identify how waste will be managed and minimised on site during construction. As part of the SWMP, the Principal Contractor will monitor waste arisings and management practices so that waste generation and management can be logged and audited. As part of the SWMP, training will be provided to staff to understand how they should sort wastes and regular reminders and updates will be provided.

Waste that cannot be recycled or recovered, such as hazardous wastes, will be identified and kept separate from other construction wastes, to avoid contaminating 'clean' materials. It would then be removed from site by a licensed contractor and taken to a licensed facility for appropriate management.

## 14.10 Cumulative effects

This planning application has sight of the prospective Phase 2 development adjacent to the east of the Proposed Development as disclosed within the SRF 2023. It is understood that this will comprise a commercial development with opportunities for ancillary ground floors to provide active frontages. The buildings will be of heights between 6-16 storeys and vehicular access will be available via Old Mill Street. It is assumed the Proposed Development will have been constructed prior to the construction of the Phase 2 development and therefore no cumulative effects are anticipated during the construction phases as these will not overlap. In relation to the operational phase of the Proposed Development, no significant effects are anticipated for Materials and Waste as all impacts were anticipated to be negligible. Therefore, the Proposed Development is not expected to result in adverse cumulative effects in combination with those of the Phase 2 development during its construction nor its operation.

There are no other anticipated future developments to consider within this assessment of inter-cumulative effects as all applications within the planning portal as the time of assessment are expected to already be constructed prior to the Proposed Development. However, it is advised that should concurrent construction projects occur that regular liaison is carried out between the environment manager/engineer or the site manager ensure mitigation measures remain appropriate.

Intra-cumulative effects of the Proposed Development are considered in Volume 2, Chapter 20 of this ES.

## 14.11 Summary and conclusions

### 14.11.1 Construction phase

#### Materials

During construction, the estimated amount of materials required by the Proposed Development was assessed to have no significant residual adverse environmental effects.

#### Waste

During construction, the estimated amount of waste generated by the Proposed Development was assessed to have no significant residual adverse environmental effects.

### 14.11.2 Operational phase

#### Materials

As discussed in section 14.8**Error! Reference source not found.** material use during the operational phase of the Proposed Development post mitigation measures have been assessed to have no potential for significant residual adverse environmental effects.

#### Waste

As discussed in section 14.8 waste generation during the operational phase of the Proposed Development post mitigation measures have been assessed to have no potential for significant residual adverse environmental effects.

## 14.12 Glossary and acronyms

**Table 14-10 Glossary of terms**

| Term | Definition |
|---|---|
| Construction, Demolition & Excavation (CD&E) | Arisings and waste from the demolition of buildings and structures, site preparation and clearance, remediation, excavation and construction activities. |
| Construction materials | Physical substances from primary (virgin) and non-primary (i.e. reused, secondary, and recycled) sources that are used to deliver construction. |
| Environmental effect | The consequence of an environmental impact. Effects may be classified as beneficial or adverse, and temporary or permanent. |
| Environmental impact | Any change caused in the natural environment by an action. Impacts may be classified as direct, indirect, secondary, cumulative, and short, medium or long term. |
| Environmental Impact Assessment (EIA) | The statutory process for assessing the impacts, and evaluating and reporting the likely significant environmental effects, of a proposed development. |
| Hazardous waste | Defined in line with Article 3(2) of the Waste Framework Directive (Council Directive 2008/98/EC) as: 'waste which displays one or more of the hazardous properties listed in Annex III of the Directive. |
| IEMA | Institute of Environmental Management and Assessment |
| Inert waste | Waste which meets one or more of the following criteria:<br>a) Does not undergo any significant physical, chemical or biological transformations;<br>b) Does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and<br>c) Where the total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water or groundwater. |
| Landfill capacity | The known, forecast or estimated remaining landfill void space, either individually, regionally or nationally; generally measured in cubic metres or tonnes. |
| Materials | Substances and objects which will be used during any lifecycle stage of a development. |
| Mineral Safeguarding Area (MSA) | As defined on page 69 of the National Planning Policy Framework: an area designated by Minerals Planning Authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development. |
| Primary materials | Physical substances from non-renewable sources, i.e. those that cannot or will not be replaced in short (non-geological) periods of time. Also referred to as 'virgin' materials. |
| Primary (embedded) mitigation | Modifications to the location or design of the development made during the pre-application phase that are an inherent part of development, and do not require additional action to be taken. |
| Reuse | Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived. |
| SWMP | Site Waste Management Plan |
| Hazardous waste | Defined in line with Article 3(2) of the Waste Framework Directive (Council Directive 2008/98/EC) as: 'waste which displays one or more of the hazardous properties listed in Annex III of the Directive. |
| Non-hazardous waste | Waste that is classified neither as inert or hazardous. |
| WEEE | Waste, Electrical and Electronic Equipment |

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