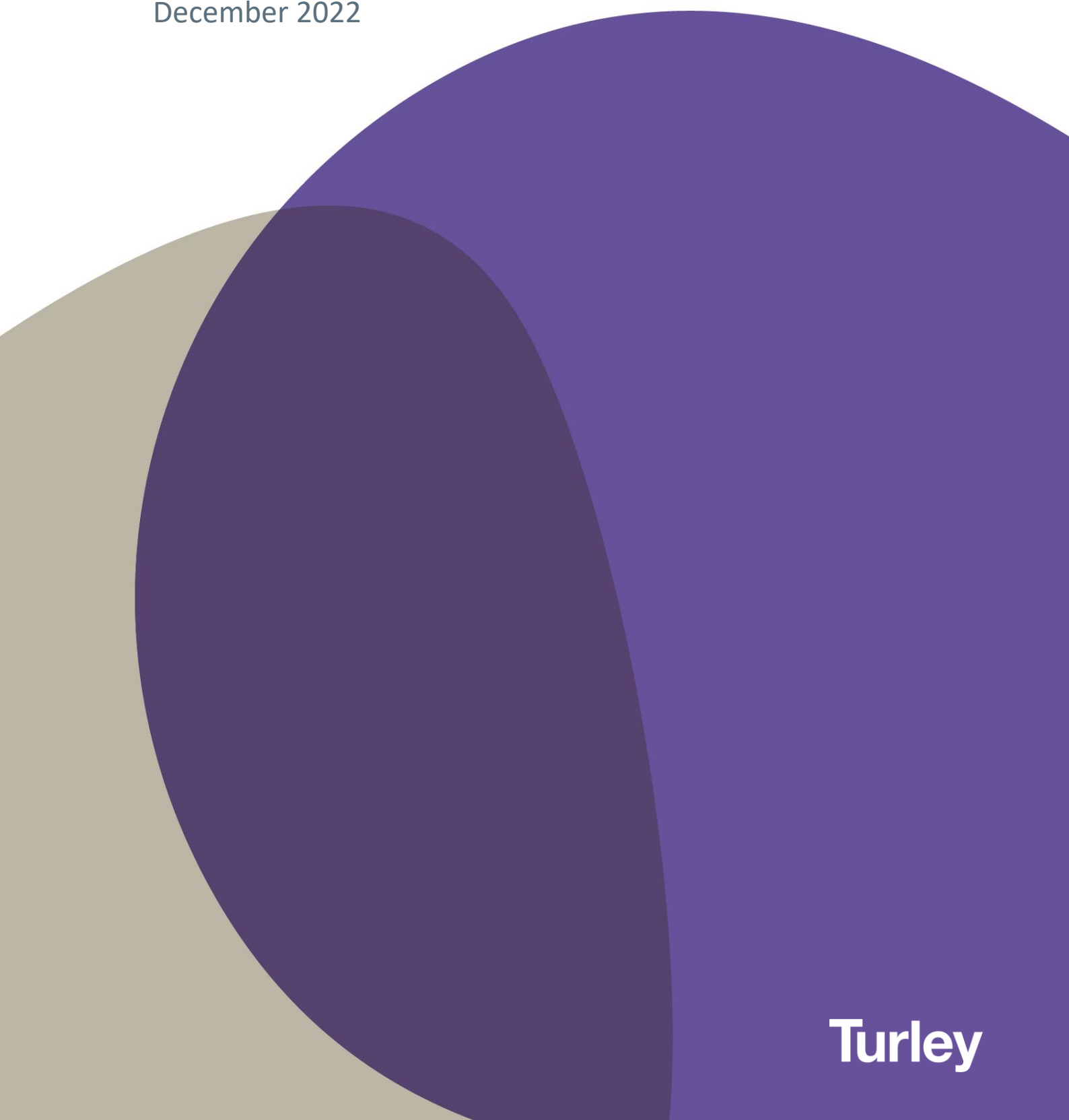


Albert Bridge House, Manchester

Environmental Statement Volume 4: Environmental Management Plan

December 2022



Turley

This document provides a summary of all the mitigation measures identified in the EIA process in order to manage the environmental effects during the construction and operational stages of the Proposed Scheme and to establish a suitable mechanism to secure and deliver mitigation. This document should be read in conjunction with **Volume 1: Primary Report and Supporting Graphics**, **Volume 2: Technical Appendices to the Primary Report** and **Volume 3: Non-Technical Summary**.

As set out in **Volume 1, Chapter 2: Approach to EIA**, the EIA has considered primary, secondary and tertiary mitigation in line with the Institute of Environmental Management & Assessment's (IEMA) Environmental Impact Assessment Guide to Delivering Quality Development^a. These are defined as follows:

- **Primary** – modifications to the location or design of the Proposed Scheme made during the pre-application stage that are an inherent part of the project;
- **Secondary** – actions that will require further activity in order to achieve the anticipated outcome; and
- **Tertiary** – actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislation requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects.

All primary, secondary and tertiary mitigation referenced throughout the Environmental Statement (ES) has been collated and is summarised in the EMP (**Table 1**).

Each of the **Volume 1, Technical Chapters 6 – 11** have considered primary and tertiary mitigation prior to undertaking the assessment of likely significant effects. Following the conclusion of effects based on the Proposed Scheme, any further mitigation measures or monitoring arrangements (i.e. secondary mitigation or enhancement) have been detailed.

It should be noted that, given the definition of primary mitigation and the fact that the measures are inherent to the Proposed Scheme, all primary mitigation is to be secured through the plans submitted for approval (**Volume 1, Figures 1.1 and 4.1 – 4.57**), **Volume 1, Chapter 4: Development Specification** and any associated strategies / principles referenced in **Volume 1, Chapter 4: Development Specification** that are submitted in support of the ES or the Application. Therefore, within the EMP (**Table 1**) a summary of primary mitigation measures used to inform **Volume 1, Technical Chapters 6 – 11**.

The mitigation relied upon to 'scope out' environmental topics as part of the EIA Scoping Report (**Volume 2, Appendix 2.1**) is also included within the EMP (**Table 1**).

With respect to secondary mitigation, it is assumed these measures will be secured either through appropriately worded condition and / or Section 106 agreement as determined by Manchester City Council (MCC), as the determining authority.

^a IEMA (2016) EIA Guide to Delivering Quality Development.

Table 1: Environmental Management Plan

Ref.	Primary Mitigation All forms of primary mitigation are based on the description of the Proposed Scheme set out in Volume 1, Chapter 4: Development Specification and the plans as set out in Volume 1, Figures 1.1 and 4.1 – 4.57 , which the Proposed Scheme will be delivered in accordance with.
Construction programme	
P1	Building A and Building B will be built concurrently. It is anticipated that the overall duration of the works will be circa 3.5 years.
General site arrangement	
P2	The Proposed Scheme includes two principal components: Building A, located in the western part of the Site; and Building B, situated in the eastern part of the Site.
Building heights	
P3	The maximum height of Building A is: part 45 storeys (plus rooftop plant) / 177.56m AOD; part 40 storeys (plus rooftop plant) / 160.61m AOD; and, part 34 storeys / 139.36m AOD. The maximum height of Building B is 19 storeys / 113.49m AOD.
Land uses and quantum	
P4	The Proposed Scheme will deliver 41,036 sqm Gross External Area (GEA) of C3 residential use ^b , 2,569 sqm GEA of E (a, b, c) retail / restaurant / café space and 50,850 sqm GEA of E (g) office ^c .
P5	The Proposed Scheme will deliver 367 homes in Building A (Level 02 – Level 44) with a mix of sizes of apartments for a diverse range of accommodation.
P6	Residential and office uses will not be located at ground level (Level 00).

^b Including private amenity use and excluding basement.

^c Excluding basement.

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Public realm and amenity areas

- P7 Landscaping and public realm will include scrub and tree planting to compensate for the loss of existing vegetation, improve the street scene and the integration of the Site with the River Irwell and provide a greater level of suitable nesting habitat than is to be lost to facilitate the Proposed Scheme.
- P8 Between Building A and Building B, the public realm will incorporate new tree planting and spaces allowing circulation and informal gatherings. Three additional areas of public realm are proposed internally within the Site at Level 00: Albert Bridge Square within the western half of the Site; The River Walk, along the northern boundary of the Site providing greater connectivity to the adjacent areas; and Motor Square Connection within the eastern half of the Site.
- P9 The Proposed Scheme will provide upper level private amenity space for future site users within Building A and Building B. Within Building A, winter gardens are designed as an integral feature to all of the residential apartments, private external amenity areas are to be provided to the duplex apartments occupying Levels 10 – 11, 22 – 23 and 34 – 35, double height communal amenity areas (with external areas as well as internal spaces) will be provided at Levels 10, 22 and 34. Within Building B, office winter gardens are located at Levels 03, 04, 05, 06 and 09, accessible roof terraces are located at Levels 03 and 05 – 16. Non-accessible roof terraces will be provided at Levels 07, 09 and 11 - 15.
- P10 Trees subject to Tree Preservation Orders (TPOs) within the Site and their root protection areas will be retained and protected in accordance with British Standards^d within the Site.

Access, circulation and parking

- P11 A new access ramp is proposed off a new junction with Bridge Street adjacent to Building A. This leads to the basement car park. The car

^d British Standards Institution (2012) British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction to Construction – Recommendations.

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flow will be managed with a traffic light system, rising bollards at the entry point from the public highway and a waiting area, to allow cars to exit the basement while avoiding tailbacks onto Bridge Street. A second waiting area is located at the bottom of the ramp to enable priority for those coming into the basement.

P12 A new layby will be introduced on Bridge Street, for deliveries, fire tender and waste vehicle parking as well as taxi drop off / pick up. A further layby will be provided on St. Mary's Parsonage for servicing and waste collection.

P13 The hardstanding at ground level will provide maintenance / emergency service vehicle access to the centre of the Site.

P14 All highways work will be designed in accordance with relevant guidance and standards.

P15 An existing pedestrian crossing on Bridge Street will be relocated.

P16 The large areas of public realm will increase the permeability of the Site and unlock new, traffic-free routes for pedestrians and cyclists. All areas account for MCC's Design for Access 2 guidance^e. In addition, existing footways along Bridge Street and St. Mary's Parsonage will be rerouted / widened, where required.

P17 The Proposed Scheme will deliver 24 car parking spaces.

P18 Circa 745 cycle parking spaces will be provided across the Proposed Scheme. Lockers, changing rooms, and showers will be provided to encourage future site users to cycle to and from the Site, and reduce travel by private car.

Basement

P19 The Proposed Scheme includes a single basement level, subdivided between the residential area (for Building A) and commercial area (for Building B).

^e https://www.manchester.gov.uk/downloads/download/5366/design_for_access_2.

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Building materials and façade treatment

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- P20 The Proposed Scheme will be constructed using concrete to create the superstructure and provide the necessary structural stability of Building A and Building B. A range of other materials will also be used, including glass, timber and plastic.
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- P21 Building A elevations include polished and ribbed concrete, GRC banding, anodised aluminium corrugated and perforated rainscreen panels with rusty tones as well as pink, silver and green tones and glazing. Building B elevations include polished and ribbed concrete, GRC banding, anodised aluminium corrugated and perforated rainscreen panels and screening mesh with largely green / teal / grey tones with some areas of orange rusty tones and glazing (including photovoltaic glazed panels on south-facing elevations).
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Flooding strategy

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- P22 There will be no built form / level changes within the area of flood zone 3b (functional floodplain) in the northern part of the Site. Land uses are located in appropriate flood risk zones in line with the National Planning Policy Framework and Planning Practice Guidance.
-
- P23 Resilience measures, such as the setting of suitable building levels to avoid water ingress and directing overland flows away from buildings to designated areas where some ponding may occur (e.g. soft landscaping areas), will be incorporated within the Proposed Scheme.
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Surface water drainage strategy

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- P24 The surface water drainage strategy is anticipated to include a mixture of features (including the use of rainwater harvesting, green / blue roof systems, permeable system, rain gardens and swales) with the attenuation of run-off through belowground tanks (with hydrobrakes) located to the south of Building B. Appropriate climate change allowances have been considered in devising the system (e.g. the 1 in 100-year storm including a 40% allowance for future climate change).
-
- P25 The system is anticipated to discharge into the United Utilities combined network using existing and / or new connections (via a pumping system). However, an alternative system where the surface water system discharges into the River Irwell at an unrestricted rate is also under consideration and subject to liaison with the relevant stakeholders.
-
- P26 Appropriate water treatment will be inherent in the drainage design through the incorporation of SuDS features and pollution prevention
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measures (e.g. interceptors). These will be designed / installed in line with relevant guidance, such as Pollution Prevention Guidelines 3: Use and design of oil separators in surface water drainage systems^f (albeit this has been withdrawn).

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- P27 The surface water drainage system will be subject to an ongoing maintenance regime to ensure continued functionality. All waste arising from maintenance activities will be handled, stored and disposed of correctly to avoid pollution.
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Foul drainage strategy

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- P28 A new foul water drainage system will be installed. This will re-use existing connections / include new connections, where appropriate, and discharge into the United Utilities combined sewer network (via pumping system). Works will be undertaken in accordance with the standards and specifications set out in Design and Construction Guidance, part of the Sewerage Sector Guidance^g.
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Acoustic design strategy

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- P29 The detailed design of all building services plant will be in accordance with applicable noise level guidance and will adhere to intended development specific design limits for noise of an overall noise Rating Level 5dB below the prevailing background sound level.
-
- P30 The detailed sound insulation design of the building envelope and internal separating structures will be in accordance with applicable guidance (as above), Building Regulations and will adhere to development specific design limits under development, which will include consideration of the 63Hz and 125Hz octave bands as required by MCC. The landlord intention is to use lease agreements to control tenant generated noise levels and review of fit-out arrangements for sound insulation.
-
- P31 The design of waste collection points and commercial delivery areas have included consideration of maximising the distance to residential receptors and the intention is to locate residential waste stores at Level 00 in Building A and commercial waste bins at Level 00 internally
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^f <https://www.netregs.org.uk/media/1671/ppg-3.pdf>.

^g Water UK (2021) Design and Construction Guidance for foul and surface water sewers offered for adoption under the Code for adoption agreements for water and sewerage companies operating wholly or mainly in England ("the Code") (Version 2.1).

Ref. **Primary Mitigation**

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within Building B.

-
- P32 The detailed design of all building services plant will be in accordance with applicable vibration guidance of British Standard 6472-1:2008^h and will adhere to development specific design limits for vibration derived from the aforementioned guidance. The landlord shell build design will minimise vibration transfer to adjacent parts of the Proposed Scheme.
-
- P33 Landlord and tenant buildings services plant will have appropriate noise and vibration control measures and be located in enclosures or noise screened areas or at a distance away so as to be in accordance with BS 4142ⁱ**Error! Bookmark not defined.** and PNTG^j at nearest façades or open spaces
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- P34 Façade design will include sound insulation specification to ensure that external noise breakout from internal commercial or entertainment noise will be managed in accordance with PNTG and other available guidance.
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- P35 Façade design will include sound insulation specification to achieve the internal noise criteria of BS 8233^k and PNTG as may be appropriate in habitable rooms.
-
- P36 The guidance of ADE^l**Error! Bookmark not defined.** for internal sound insulation will be enhanced to a minimum of 60dB $D_{nT,w}$ between non-domestic uses and new homes.
-
- P37 Internal vibration transfer between different building uses or from building services plant will be designed in accordance with BS 6472 and
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^h British Standard Institution (2008) British Standard 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting.

ⁱ British Standards Institution (2019) British Standard 4142:2014+A1:2019 - Method for rating and assessing industrial and commercial sound.

^j Manchester City Council Environmental Protection (2022) Planning & Noise Technical Guidance.

^k British Standards Institution (2014) British Standard 8233 Guidance on sound insulation and noise reduction for buildings.

^l Approved Document E (2015) Resistance to the passage of sound.

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PNTG.

P38 Adoption of specific Tenant acoustic design requirements where they do not conflict with other requirements for noise control, sound insulation or vibration control.

P39 The design of Building A is for mechanical ventilation to achieve ADF^m and ADOⁿ requirements and the attenuation of the ducted air intakes and exhausts by design will not degrade the façade performance.

P40 The internal sound insulation separations between new homes within the Proposed Scheme will comply with the guidance of ADE.

Ventilation strategy

P41 For Building A, a mechanical ventilation strategy will be used, with short periods of purge ventilation (opening a door or window) acceptable. For Building B a displacement ventilation system will operate alongside a mixed-mode ventilation strategy (when weather conditions permit).

Lighting design strategy

P42 Artificial lighting will largely be contained to the areas of the public realm and the facades and interiors of Building A and Building B. Existing lighting on the surrounding road network will be retained, albeit such installations may be subject to minor relocation to facilitate footway and layby works.

P43 Lighting within Albert Bridge Square and Motor Square Connection will comprise amenity / architectural lighting, designed to accentuate the architectural value of the surrounding built form of Building A and Building B and the elements of the public realm. This will be achieved through various lighting elements, including ambient lighting, accent lighting and decorative lighting elements. A more sensitive

^m Approved Document F (2021) Ventilation Volume 1:Dwellings.

ⁿ Approved Document O (2021) Overheating.

Ref. Primary Mitigation

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approach will be taken along The River Walk, with downward / directional lighting installations

- P44 Lighting installations will be provided within the interior of Building A and Building B, associated with internal usage of the spaces. Lighting is also anticipated on the façades of Building A and Building B, comprising architectural lighting to accentuate elements of the design. Illuminated advertisements / signage associated with the retail / restaurant / café / office uses will be included.

Utilities strategy

- P45 The Proposed Scheme will require new electric, potable water and telecommunications connections. These will be designed and installed in liaison with the relevant operators. Where required, off-Site reinforcements will be undertaken

Waste strategy

- P46 Waste storage facilities and access for refuse collection are included at Level 00 within Building A and Building B. Sufficient space has been allowed for a bi-weekly collection. Waste will be collected from the laybys on Bridge Street and St. Mary's Parsonage.
- P47 Arisings from grounds maintenance and drainage maintenance regime will be stored, handled and disposed of in line with relevant guidance and standards.

Energy strategy

- P48 The Proposed Scheme will utilise an all-electric energy strategy, including Air Source Heat Pumps (ASHP) and photovoltaic panels.
- P49 The only proposed energy combustion sources on-site will be for life safety purposes (such as firefighting / emergency lighting etc.), with limited testing (less than 18 hours a year). The energy plant will be located and operated in line with best practice.
- P50 Properties will be built in accordance with Building Regulations Part L, updated in 2022 to require reductions in carbon emissions compared with previous regulations.

Security and community safety strategy

Ref. **Primary Mitigation**

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- P51 The Proposed Scheme has been informed by the ‘Secured by Design’ principles and appropriate measures to enhance community safety and minimise risk of anti-social behaviour and crime. This will include the adoption of appropriate security measures, such as security lighting.

Fire strategy

- P52 The Proposed Scheme will be subject to Building Regulations and standards in order to be classified as safe for use. Appropriate features will be included, such as fire-fighting and evacuation lifts and wet risers.

Climate change resilience

- P53 The use of climate tolerant species will be considered as part of the landscape strategy in line with the England Biodiversity Strategy^o and Natural England’s Climate Change Adaptation Manual^p

^o DEFRA (2011) Biodiversity 2020: A strategy for England’s wildlife and ecosystem services.

^p Natural England (2020) Climate Change Adaptation Manual (NE751).

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

Construction Environmental Management Plan (CEMP)

T1 The CEMP will deliver a number of tertiary measures during the construction stage. These are listed topic by topic below.

General

- Relevant UK legislation and guidance issued by the Health and Safety executive (including the Health and Safety at Work Act 1974 and the Construction (Design and Management) Regulations 2015) will be adhered to during the works.
- Prior to on-Site works, fencing / hoarding will be installed on the perimeter of each phase (which may include an associated area of works to enable this). Public access will be restricted to each phase during activities to ensure members of the public are safeguarded in the wider areas.
- The construction site will be kept tidy and presentable at street level.
- Working hours will be 07:30 to 18:00 Monday to Friday and 08:00 to 14:00 on Saturdays. On Sundays and Bank Holidays noisy working will generally not be planned. On some occasions there are certain operations that maybe required to proceed during these periods, for example tower crane erection and dismantling. These will be infrequent and will be agreed with key stakeholders (including MCC). The frequency of these will vary and respond to demand. Access to the Site will be permitted 30 minutes prior to working day commencing with noise being kept to a minimum for the first half hour of each day.
- The Site security arrangements for the Proposed Scheme will be in line with the requirements set out in the Construction Design and Management) Regulations 2015 and appropriate levels of security (personnel / CCTV) will be provided. Working areas will be secured with restricted access so only suitably qualified personnel are present.
- Good practice working measures, such as ensuring construction workers are briefed on the appropriate methods of working and the easements, will be put in place in accordance with the Construction (Design and Management) Regulations.
- Co-ordination with other developments in the vicinity will be undertaken, with regular liaison to understand the programme of works, identify issues in the local area (e.g. traffic management) and programme works to minimise issues for residents and businesses.

Air quality and dust

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

- Implementation of a Dust Management Plan in line with Institute of Air Quality Management (IAQM) Guidance⁹. This would include the following measures:

Communications

- Display the name and contact details of the person(s) accountable for air quality and dust issues on the Site boundary. This may be the environment manager / engineer or the site manager;
- Develop and implement a stakeholder communications plan that includes community engagement before work commences on-Site; and
- Display the head or regional office contact information. A contact number which will be operational 24/7 will be provided.

Dust control measures

- Measures to control emissions, approved by MCC. The DMP may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and / or visual inspections.

Site management

- Record all dust and air quality complaints, identify the cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to MCC when asked;
- Record any exceptional incidents that cause dust and / or air emissions, either on or off-Site and the action taken to resolve the situation in the log book; and
- Hold regular liaison meetings with other contactors from high risk construction sites within 500m of the Site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions in respect to transport / deliveries which might be using the same road network routes. As such, meetings will include a review of upcoming significant activities on the sites which would impact on the traffic management, with a view to

⁹ IAQM (2016) Guidance on the assessment of dust from demolition and construction (v1.1).

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

reducing the effects to a minimum.

Monitoring

- Undertake daily on / off-Site inspection, where receptors are nearby, to monitor dust, record inspection results, and make the log available to MCC when asked. This should include regular dust soiling check of surfaces such as street furniture, cars, windowsills within 100m of the Site boundary, with cleaning to be provided if necessary;
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to MCC when asked;
- Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with MCC; and
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on-Site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Preparing and maintaining the site

- Plan layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the Site boundary that are at least as high as any stockpiles on-Site;
- Fully enclose Site or specific operations where there is a high potential for dust production and the Site is active for an extensive period;
- Avoid runoff of water or mud;
- Keep fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have the potential to produce dust as soon as possible, unless being re-used on-Site. If they are being re-used cover as described below; and
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating vehicles / machinery

- Ensure all vehicles switch off engines when stationary – no idling vehicles; and
 - Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where
-

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

practicable.

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction (e.g. suitable local exhaust ventilation systems);
- Ensure an adequate water supply on the Site for effective dust / particulate matter suppression / mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimize drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Ensure equipment is readily available on-Site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste management

- Avoid bonfires and burning of waste materials.

Demolition

- Soft strip inside building before demolition;
- Ensure effective water suppression is used during demolition activities. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground;
- Avoid explosive blasting, using appropriate manual or mechanical alternatives; and
- Bag and remove any biological debris before demolition.

Construction

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Ensure sand and other aggregates are stored in bonded areas and are not allowed to dry out, unless this is required for a

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particular process, in which case ensure that appropriate additional control measures are in place;

- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent the escape of material and overfilling during delivery; and
- For smaller supplies of fine powder material, ensure bags are sealed after use and stored appropriately to prevent dust.

Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the Site. This may require the sweeper being in continuous use;
 - Avoid dry sweeping of large areas;
 - Ensure vehicles entering and leaving the Site are covered to prevent the escape of materials during transport;
 - Inspect on-Site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
 - Record all inspections of haul routes and any subsequent action in a log book;
 - Install hard surfaced routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned;
 - Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the Site where reasonably practicable);
 - Ensure there is an adequate area of hard surfaced road between the wheel wash facility and exit onto public highway, wherever site size and layout permits; and
-

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Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

- Access gates to be located at least 10m from receptors where possible.
- In order to manage emissions from Non-Road Mobile Machinery (NRMM), the appropriate emission standards from EU Regulation 2016/1628^r will be incorporated into the CEMP.
- Routing strategy to control road traffic emissions.

Biodiversity

- Any vegetation clearance is recommended to take place between September – February, outside of the peak nesting period. Any vegetation clearance that takes place between March – August should have a check for the presence of nesting birds completed no more than 48 hours prior to the vegetation being removed. Pre-clearance checks will be specifically required during the removal of vegetation along the riverbank and implementation of temporary construction platforms oversailing the River Irwell.
- Reasonable avoidance measures to avoid effects to otters, such as a pre-construction walkover to confirm the status of otter on and adjacent to the Site, a toolbox talk, regular inspections and provision of escape routes within any excavations.

Contamination

- Measures to protect construction workers from exposure to any contaminated material which is unexpectedly encountered will be required of the appointed contractor under the Construction (Design and Management) Regulations and other health and safety legislation.
- Pre-demolition survey(s) for Asbestos Containing Materials (ACMs) will be undertaken. Asbestos will be identified, removed, handled and disposed of in line with appropriate guidance and regulations, including The Hazardous Waste (England and Wales) Regulations 2005^s and Control of Asbestos Regulations 2012^t. Asbestos removal will be undertaken at the outset of the enabling works under an Asbestos Management Plan.

^r Official Journal of the EU (2016) Regulation (EU) 2016/1628 of the European Parliament and of the Council. Available: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016R1628>. [Accessed: 31/03/2022].

^s The Hazardous Waste (England and Wales) Regulations 2005 No. 894.

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- Use of Personal Protective Equipment (PPE), the preparation of method statements and provision of environmental awareness training.
- The potential risks from ground gases are to be dealt with by the appointed contractor in accordance with health and safety legislation, including the Confined Space Regulations^u. monitoring equipment, safe-entry procedures and use of Respiratory Protective Equipment (RPE) where required, to mitigate the potential risk of exposure to hazardous gas and vapours and / or depleted oxygen levels.

Lighting

- Best practice measures informed by the ILP Guidance Notes for the Reduction of Obtrusive Light will be implemented. Measures include: Any security lighting required at the perimeter of the Site would be set at lighting levels that are designed to the correct standard for their purpose; the use of sufficient lighting units for the task in hand to avoid the need for tall, wide beam lighting units; the reduction of fixed lighting outside working hours, unless beneficial to provide consistent lighting for security / health and safety; the use of infrared CCTV systems for security; and any requirements for ongoing monitoring and liaison with stakeholders.
- All temporary lighting installations will be designed / installed in line with best practice and relevant standards (e.g. CIE 126: Guidelines for Minimising Sky Glow^v), which includes the requirements to minimise upward light emitted and contributions toward sky glow.

Traffic management

- The Site entrance(s) will be controlled by a gateman/ security guard who will be on-Site 24/7 while the Proposed Scheme is under construction. All persons accessing the Site will be required to sign in and sign out with the gateman who will direct all vehicle drivers along clearly defined, prescribed routes to the relevant area. Barrier fencing will be erected along the routes and relevant signage provided to reinforce the directions provided and establish a 5mph speed restriction.

^t Control of Asbestos Regulations 2012 No. 632.

^u Confined Space Regulations (1997) No. 1713.

^v CIE (1997) 126: Guidelines for Minimising Sky Glow.

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

- Traffic management measures include: restriction of construction vehicles in certain locations and routes at certain times of the day; appropriate signage of the routes to and from the Site as well as entrances / exits of the construction working areas; management of construction parking, including use of designated construction parking areas; ensuring the vehicles are well maintained; temporary traffic management for short-periods when the delivery of abnormal / oversized loads may cause obstruction to the public highway; use of wheel washing facilities; design of access to ensure that vehicles have appropriate visibility; and implementation of segregated routes to separate construction workers and traffic.
- HGV flows on the public highways would be controlled through the implementation of the CEMP. HGV drivers will be encouraged in the urban environment to be cognisant of their surroundings and vulnerable road users at all times, and of their speed. HGVs, and all other vehicles, will not be allowed to park on the roads surrounding the Site.
- Where possible hoarding will not entirely cover the pedestrian footways to maintain pedestrian amenity and prevent severance. However, if this is necessary then alternative safe walking routes would be provided. Clear advertising will also be provided for any routes that are closed and signposting will be provided for suitable alternative routes.

Waste and resources management

- A proportion of the demolition waste arisings will be able to be re-used either in their current form or through reprocessing on-Site (i.e. crushed hard-core as fill within designated areas). All demolition waste will be sorted and segregated on-Site in line with the waste hierarchy. Where contaminated material is identified this will be subject to handling and disposal in line with appropriate guidance and legislation.
- A Waste Management Plan will be prepared. This will include the waste provisions of the Environmental Protection Act 1990^w and the Environmental Protection (Duty of Care) Regulations 1991^x, which will be adhered to and the principles and legal requirements relating to waste (including hazardous waste) will be set out. A description of how materials will be managed efficiently and disposed of legally during all sub-phases of construction will be included. It will also outline the aims, objectives and ongoing

^w Environmental Protection Act 1990.

^x Environmental Protection (Duty of Care) Regulations 1991.

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

management responsibilities as well as containing targets for the reduction / diversion from landfill and reuse of waste.

- Where it is necessary to transport waste to and from the Site, this will be completed in compliance with the Waste (England and Wales) Regulations 2011 (as amended)^y including: transporting waste via registered carriers, disposal to appropriately licensed sites and maintenance of appropriate waste transfer documentation.
- The disposal of all waste or other materials removed from the Site will be undertaken in accordance with applicable legal requirements.
- An appropriate person will be responsible for on-Site waste management practises and will be agreed with MCC in advance of works commencing.
- Measures will be detailed to reduce resource use.

Water environment

- A temporary drainage strategy will be implemented, which will reduce the risk of mobilisation of contamination into the River Irwell and underlying groundwater in the proximity of the Site via overland flow / run-off during construction.
- Appropriate construction stage drainage strategies, using either existing, temporary or permanent drainage infrastructure and take account of industry best practice and guidance (e.g. British Standard 8582:2013^z) will be implemented.
- Guidance will be adhered to, such as CIRIA's Control of Water Pollution from Construction Sites^{aa} and Guidelines for Pollution Prevention (GPP) 2: above ground oil storage tanks^{bb} and GPP 5: Works and maintenance in or near water^{cc} (albeit these have been withdrawn). Measures include: Washing down or equipment cleaning associated with concrete or cementing processes and provision of facilities to remove sediment prior to disposal; Use of sediment traps on surface water drains; The safe storage of

^y Waste (England and Wales) Regulations 2011 (as amended).

^z British Standard Institution (2013) British Standard 8582:2013 – Code of practice for surface water management for development sites.

^{aa} CIRIA (2001) Control of Water Pollution from Construction Sites. Guidance for consultants and contractors (C532).

^{bb} <https://www.netregs.org.uk/media/1475/gpp-2-pdf-jan-2018.pdf>.

^{cc} <https://www.netregs.org.uk/media/1303/gpp-5-works-and-maintenance-in-or-near-water.pdf>.

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

materials and fuels and oils; Wheel washing facilities; Screening stockpiles and materials; Use of impermeable materials to prevent ingress into the ground; Provision of treatment facilities for runoff from construction areas; Provision of treatment facilities to runoff from construction areas; and Regular sweeping to remove loose sediments.

- Abstraction and discharge licences will be sought from the Environment Agency under the terms of The Water Abstraction and Impounding (Exemptions) Regulations⁸¹.
- Adherence to CIRIA's Groundwater control – design and practice^{dd}.

Noise and vibration

- Best Practical Means (BPM) will be adopted, as defined in the Control of Pollution Act (CoPA)^{ee}, along with practical advice received from MCC.
- Static / semi-static plant and equipment will be located centrally or be screened with a noise barrier. Envisaged plant items include crushers, generators and water pumps.
- Mobile plant items will not traverse near boundaries more than necessary or idle unnecessarily.
- Control mechanisms limiting vibration from piling will be in accordance with British Standard 5228-2^{ff}.
- Plant will only be located at closest working distances to sensitive receptors when necessary. Most of the time, movements will be considerably further away.
- Engines will not be permitted to idle for unnecessary periods of time.
- A complaints procedure will be managed on the Site, which will log all complaints received, investigate the nature of the complaint and seek to avoid a repeat where practically possible.

Climate change resilience

^{dd} CIRIA (2016) Groundwater control - design and practice (C750).

^{ee} Control of Pollution Act 1974.

^{ff} British Standard 5228-2.

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

- Provision of shaded refuges and drinking water supplies will be provided for all construction workers to avoid the health and safety risks associated with increasing summer temperatures.
- Water supplies will be monitored, and water reduction targets set to manage the risk of reduced water supplied during periods of low rainfall.

Odour management strategy

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- T2 An odour management system will be implemented, based on an odour assessment completed in line with EMAQ 2018 Addendum to the 2005 Defra Guidance on the 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems'^{gg}.
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Archaeological fieldwork strategy

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- T3 The presence or absence of archaeological remains requires verification through archaeological evaluation, prior to development and, pending the extent and significance of any surviving buried remains, further archaeological excavation may be required to mitigate the loss of buried remains during the proposed construction programme. Further investigation in the form of archaeological evaluation has been agreed with the Greater Manchester Archaeology Advisory Service (GMAAS). The archaeological evaluation will be undertaken as part of a planning condition. The evaluation will inform whether further mitigation in the form of archaeological excavation will be required to preserve archaeological remains by record.
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Invasive species management

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- T4 It is anticipated that giant hogweed on-Site will be controlled through the implementation of an Invasive Species Method Statement. This method statement will be informed by DEFRA guidance^{hh} and would include eradication on-site completely before construction starts. This should be done by a licenced contractor. An exclusion zone will be established around any stands of giant hogweed, and the giant hogweed will be treated via herbicide application to individual plants. Further monitoring for 3 – 5 years will also be required to ensure no
-

^{gg} EMAQ, Ricardo-AEA, (2018). Addendum to the 2005 Defra Guidance, Control of Odour and Noise from Commercial Kitchen Exhaust Systems.

^{hh} <https://www.gov.uk/guidance/invasive-non-native-alien-plant-species-rules-in-england-and-wales>.

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

new plants establish.

Ground investigation, remediation scheme and verification report

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|----|---|
| T5 | Ground investigations will be undertaken in advance of the commencement of the main construction activities. Such ground investigations will seek to confirm all contamination risks and confirm underlying ground conditions. These investigations will be undertaken in line with relevant guidance, including British Standard 5930:2015 Code of Practice for Site Investigations ⁱⁱ and British Standard 10175:2011+A1:2013 Investigation of Potentially Contaminated Sites - Code of Practice ^{jj} . |
| T6 | In preparation for the ground investigation works, a detailed UXO risk assessment will be undertaken. Appropriate measures will be implemented during the works, such as supervision by a UXO specialist. |
| T7 | Where contamination is identified, an appropriate remediation scheme will be produced which will outline the activities / measures required to achieve the relevant standards for the proposed end uses. This will be submitted for agreement with MCC. The remedial works will depend on the contamination identified, though may include a combination of excavation, segregation and processing. Measures, such as the installation of a capping layer may also be used, where appropriate. |
| T8 | A verification report will be prepared thereafter to ensure that the proposed remedial works have been completed and this will be submitted to MCC. |
| T8 | The results of the ground investigations will be used to identify the requirement for any construction specific method statements (e.g. dewatering). |
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Ground gas strategy

ⁱⁱ British Standard 5930:2015 Code of Practice for Site Investigations.

^{jj} British Standard 10175:2011+A1:2013 Investigation of Potentially Contaminated Sites - Code of Practice.

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (Volume 2, Appendix 2.1), Chapter 4: Development Specification and Technical Chapters 6 – 11.

T9 All new buildings will be designed in line with CIRIA's Assessing risks posed by hazardous ground gases to buildings^{kk}.

Foundations and earthworks strategy

T10 For piled foundations, the method of construction will be carefully selected to ensure that the migration of contamination into sensitive resources is kept to a minimum. Such activities will be undertaken in line with guidance, such as the Environment Agency's Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention^{ll}. Where required a piling risk assessment will be completed to understand the risk of piling activities associated with impacted soils and receptors.

T11 The results of the ground investigations will be used to design appropriate remedial measures to address issues with unstable and compressible ground during the construction stage. This will include temporary works and / or ground improvement (shoring of excavations; the design of haul roads, piling mats and crane platforms etc.) to protect human health during the construction stage, as well as general earthworks and foundation design to remove potential risks during the operational stage.

T12 All earthworks will be designed in accordance with guidance in CIRIA's Treated ground – engineering properties and performance^{mm}, Building Research Establishment (BRE)'s Building on Fill - Geotechnical Aspectsⁿⁿ and British Standard 6031:2009: Code of Practice for Earthworks^{oo}.

T13 Attendance of UXO supervisors during the groundworks (if appropriate).

T14 Clean cover layers will be validated for chemical quality prior to re-use / use on-Site.

T15 All proposed buildings and their foundations will be designed in accordance with Building Regulations Approved Document A - Structure^{pp}

^{kk} CIRIA (2007) Assessing risks posed by hazardous ground gases to buildings (C665).

^{ll} Environment Agency (2001) Piling and penetrative ground improvement methods on land affected by contamination: Guidance on pollution prevention.

^{mm} CIRIA (2002) Treated ground - engineering properties and performance (C752).

ⁿⁿ BRE (2015) FB75: Building on Fill - Geotechnical Aspects.

^{oo} British Standard 6031:2009: Code of Practice for Earthworks.

Ref. Tertiary mitigation

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

which covers building structure, their loading, potential ground movement and the possibility of disproportionate collapse.

T16 It is assumed that the movement of materials will adhere to the guidance set out in the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites^{qq}.

T17 Appropriate management measures / controls will be adopted for all works in proximity to utilities during the construction stage.

Lighting strategy

T18 Lighting will be designed and installed in line with relevant standards and guidance, including ILP Guidance Notes for the Reduction of Obtrusive Light, British Standard 5489-1:2020 Design of road lighting - Lighting of roads and public amenity areas. Code of practice^{rr}, CIBSE LG6: The exterior environment^{ss} and, ILP PLG05: The Brightness of Illuminated Advertisements^{tt} and ILP PLG08: Guidance on the Application of Adaptive Lighting within the Public Realm^{uu}.

T19 All permanent lighting installations will be designed / installed in line with best practice and relevant standards (e.g. Commission Internationale l'Eclairage (CIE) 126: Guidelines for Minimising Sky Glow).

T20 The detailed lighting scheme will consider the surrounding sensitivities including existing properties and sensitive ecological areas and is based on the use of low light pollution installations. Where appropriate, guidance from the Bat Conservation Trust Bats and artificial Lighting in the UK^{vv} will be utilised and features such as integrated fittings to contain light spill, use of hard landscaping features to block light and create lower light levels / dark corridors in retained and adjacent habitats of value to bats , particularly along the northern

^{pp} HM Government (2013) Approved Document A - Structure (2004 Edition incorporating 2004, 2010 and 2013 amendments).

^{qq} DEFRA (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.

^{rr} British Standard 5489-1:2020 Design of road lighting - Lighting of roads and public amenity areas. Code of practice.

^{ss} CIBSE (2016) Lighting Guide (LG) 6: The exterior environment.

^{tt} ILP (2015) PLG05: The Brightness of Illuminated Advertisements.

^{uu} ILP (2016) PLG08: Guidance on the Application of Adaptive Lighting within the Public Realm.

^{vv} Bat Conservation Trust (2018) Bats and artificial Lighting in the UK.

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

boundary of the Site (i.e. The River Walk).

Aviation lighting

T21 Inclusion of high-intensity obstruction lights at roof level in line with relevant legislation and guidance^{ww}.

Framework travel plan

T22 A Framework Travel Plan will be implemented, with measures to encourage the use of active travel and public transport, and discourage car travel, particularly single-occupancy trips. Following occupation of the Proposed Scheme, an initial survey will be undertaken to understand travel choices and patterns to and from the Site, after which modal shift targets will be established. Subsequent follow-up surveys will assess progress towards the targets, and whether new or improved measures (e.g. increased cycle parking if there is high demand) can be implemented.

Operational waste strategy

T23 An operational waste strategy will be developed for the Proposed Scheme, which will set out the principles and strategy for the management of waste and recycling.

Foul / potable water upgrade strategy

T24 A new foul water drainage system will be installed. This will re-use existing connections / include new connections, where appropriate, and discharge into the United Utilities combined sewer network (via pumping system). Works undertaken will be undertaken in accordance with the standards and specifications set out in Design and Construction Guidance, part of the Sewerage Sector Guidance .

T25 United Utilities will be consulted prior to construction to assess the impact of this increase on the water supply surrounding the Site and ensure that the supplies can be met without creating a noticeable effect at local residents or at source. Should any upgrades to the existing public potable network be required, these will be undertaken by United Utilities.

^{ww} Air Navigation Order 2016 No. 765.

Ref. **Tertiary mitigation**

Tertiary mitigation presented below has been collated from the EIA Scoping Report (**Volume 2, Appendix 2.1**), **Chapter 4: Development Specification and Technical Chapters 6 – 11**.

Operational noise / vibration strategy

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|-----|---|
| T26 | Tenant lease agreements are intended to govern acceptable vibration transfer limits for fit-out design to achieve based on compliance with the overall guidance of British Standard 6472-1:2008. |
| T27 | Lease agreements or sale agreements will include a maximum set of internal noise levels for the operation of commercial and retail / restaurant / café (entertainment noise) premises within the Proposed Scheme and will require the incorporation of electronic noise limiting devices or other systems to control amplified music outputs. |
| T28 | Deliveries and collections to new commercial, retail, restaurant / café (entertainment premises) within the Proposed Scheme will be governed by lease agreements or sale agreements and will include an exclusion time period from 23:00 to 07:00 hours unless otherwise agreed by MCC. |
| T29 | Lease agreements or sale agreements for commercial, retail / restaurant and café (entertainment premises) floorspace within the Proposed Scheme will include control of external bottle bin charging or other external refuse disposal in accordance with MCC license conditions or if not applicable an exclusion time period from 00:00 to 07:00 hours would apply. |

Overheating

- | | |
|-----|---|
| T30 | Compliance with the UK Government's Future Building Standard consultation which commits to implementing a new national requirement for reducing overheating risk in new homes and other residential buildings such as hospital, care homes and schools. |
| T31 | The Applicant commits to carrying out an overheating assessment using recognised methodology (such as CIBSE TM52:2013 ^{xx} and TM59:2017 ^{yy}) and implementing measures to ensure suitable internal summertime conditions for occupants (e.g. using appropriate ventilation and glazing specification). |

^{xx} CIBSE (2013) TM52 The limits of thermal comfort: Avoiding overheating in European buildings.

^{yy} CIBSE (2017) TM59 Design methodology for the assessment of overheating risk in homes.

Ref **Secondary Mitigation**

Full detail is outlined in **Technical Chapters 6 – 11**. These are broadly in topic order.

Noise / vibration construction management

- S1 The CEMP will incorporate management and monitoring mechanisms designed to identify high noise situations in a swift manner and action would be taken to either reduce the magnitude of impact so it is not prolonged or resolve the matter directly with the sensitive receptor.

Other mechanisms for noise control that will require consideration include:

- Addition to or modification of methodology / protocols / procedure within a CEMP;
- A separate standalone method statement of working; and
- A formal Section 61 Notice under the CoPA.

Whichever of the above methods is preferred, it is envisaged to be developed by the contractor in conjunction with MCC prior to commencement of the specific construction stage activities. This can be secure by MCC through a planning condition.

- S2 The CEMP will incorporate management and monitoring mechanisms designed to identify high vibration situations in a swift manner and action would be taken to either reduce the magnitude of impact so it is not prolonged or resolve the matter directly with the sensitive receptor.

A review of the construction programme for construction works activity close to the sensitive receptor R9 (Alberton House) will be included in the CEMP to identify periods when a close level of observation may be required, by operatives or construction management personnel.

The following actions will be considered during the construction stage works proposals development, which would assist to minimise the vibration levels assessed:

- Whether the time of activity working can be adjusted for times when adjacent sensitive receptors are not occupied;
 - Investigate the ground conditions prior to finalising the piling technique selections (i.e. the use of Continuous Flight Auger (CFA) would reduce impacts on sensitive receptors);
 - If driven piling techniques are unavoidable for the formation of suitable foundations, localised activity specific vibration monitoring would be adopted at the closest working locations to the identified sensitive receptors R9 (Alberton House) and R11 (28 St. Mary's Parsonage) (and any other receptor deemed appropriate) to advise on actual conditions, to provide a feedback
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Ref Secondary Mitigation

Full detail is outlined in **Technical Chapters 6 – 11**. These are broadly in topic order.

mechanism, to allow real-time adjustment should a necessity arise; and

- Method statements / procedures would be developed prior to the start of the piling works, for construction operatives to follow.

Other mechanisms for control that can be adopted include:

- Development of methodology / protocols / procedure within a CEMP;
- A separate standalone method statement of working; and
- A formal Section 61 Notice under the CoPA.

Whichever of the above methods is preferred, it is envisaged to be developed by the contractor in conjunction with MCC prior to commencement of the specific construction activity. This can be secured by a planning condition.

Sound insulation design

- S3 The Proposed Scheme detailed design will continue to develop in line with the undertakings, and a scheme of sound insulation design report will be submitted prior to occupation of Building A when all the necessary detailed design and construction forms will be known. This will be secured by way of a planning condition.

Landscape management plan

- S4 Preparation of a landscape management plan to ensure that the landscape proposals and public realm are installed and maintained throughout the lifetime of the Proposed Scheme. This would include:
- Retained trees: maintain existing trees to be healthy, free of disease, damaged or broken stems / branches and dead wood;
 - Proposed tree planting: To establish a stable and healthily growing tree with a well-shaped framework for future growth. Where necessary to pollard or coppice species to prevent collapse of the trees. Regular safety inspections and report on condition of trees by arboriculture advisor. Implementation programmes of recommended tree work to comply with British Standard BS3998: 2010 'Tree Work – Recommendations';
 - Proposed shrub planting: ensure that good horticultural practice is employed to encourage long term health and vitality of all shrubs. Planting to be thinned / re-spaced in order that they have sufficient room to develop. Review opportunities for introducing native shrubs and those with particular wildlife value into planted areas. Maintain a clean and safe environment.
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Ref Secondary Mitigation

Full detail is outlined in **Technical Chapters 6 – 11**. These are broadly in topic order.

Ensure cultural techniques are employed which use a variety of mulches and organic fertilisers and which minimise the use of chemicals and peat wherever possible;

- Hard landscape: To keep all areas of paving and footpaths and drainage systems across the site free of litter, weeds, silt and other debris that will detract from the appearance of the Site and will help to retain functionality of the Site; and
- Fencing and furniture: To ensure all fences and furniture are tidy and safe to use. The site features will be subject to regular inspections.

The landscape management plan will be a starting point for an evolving document and will be reviewed on a regular basis.

Wind microclimate strategy

- S5 For the Atrium terrace (Receptor T2) on Building B, soft mitigation measures are proposed, including a mixture of 1.6m high solid planters and 75% open railings. Planters and a pergola are also introduced to the Atrium terrace to improve the wind conditions. For the private terraces on Building A (Receptors T4 – T6), the impact can be more controllable than one for public use. 1.8m solid balustrades with solid screens are to be implemented. Planters and solid screens both with 1.5m height are to be placed at various locations to mitigate the wind impact.

In addition, a building management strategy to limit the pedestrian access to these locations during windy days will be implemented. The landscaping strategy will also be used to block specific uncomfortable regions from pedestrian access.

These measures will be secured by way of a planning condition.

Local labour agreement

- S6 The implementation of a local labour agreement offers the potential to enhance the recruitment of construction labour from within the local area. Any agreement could require the appointed contractor(s) to work with local education and training centres, and industry bodies, to provide apprenticeships and training opportunities. This will be secured by a planning condition.

Lifecycle assessment

- S8 A Mat 01 Lifecycle Assessment (LCA) is being undertaken before the end of RIBA Stage 2 in support of the building's BREEAM Outstanding certification, appraising options and highlighting low carbon solutions. This will allow design choices to be made that help

Ref **Secondary Mitigation**

Full detail is outlined in **Technical Chapters 6 – 11**. These are broadly in topic order.

to reduce the embodied carbon of the Proposed Scheme.

Operational energy strategy

S9 Measures to meet the Proposed Scheme's operational energy targets:

- Careful consideration of glazing ratios and glazing performance to reduce excess solar gain;
 - High fabric performance to reduce heating and cooling loads aligned to the latest Part L 2021 values;
 - Internal gains reduced and pipework insulated to mitigate the risk of overheating from the efficient building fabric;
 - Investigation of mixed mode ventilation options, which would reduce cooling demands;
 - Renewable energy generation (i.e. photovoltaic panels) which will allow zero carbon generation of electricity;
 - Installation of high efficiency plant and lighting; and
 - Installation of smart meters and / or sub-meters to monitor operational consumption more accurately.
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